Highway 62
Moira/Ridge Road Intersection Improvements and Rawdon Creek Structure Replacement

Municipality of Centre Hastings, Hastings County

Preliminary Design and Class Environmental Assessment Study Group 'B'

G.W.P. 4044-10-00

Transportation Environmental Study Report

December 2014

Ontario

URS

HIGHWAY 62
MOIRA/RIDGE ROAD INTERSECTION IMPROVEMENTS AND RAWDON CREEK STRUCTURE REPLACEMENT

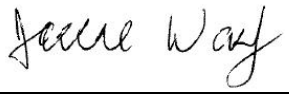
MUNICIPALITY OF CENTRE HASTINGS, HASTINGS COUNTY

PRELIMINARY DESIGN AND CLASS ENVIRONMENTAL ASSESSMENT STUDY GROUP "B"

G.W.P. 4044-10-00

TRANSPORTATION ENVIRONMENTAL STUDY REPORT

Prepared by:



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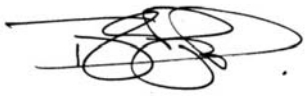

Tyler Drygas
Senior Environmental Planner
URS Canada Inc.

Kevin Phillips, P.Eng., AVS
Project Manager
URS Canada Inc.

December 2014

The Public Record

Copies of this document are available at the following locations for review during normal business hours:

Municipality of Centre Hastings
7 Furnace Street
Madoc, ON K0K 2K0

Hastings County
235 Pinnacle Street
Belleville, ON K8N 3A9

Madoc Public Library
20 Davidson Street
Madoc, ON K0K 2K0

Interested persons are encouraged to review this document by the end of the public review period. If after consulting with the Project Team, you have unresolved concerns, you have the right to request of the Minister of the Environment and Climate Change (Ferguson Block, 11th Floor, 77 Wellesley Street West, Toronto, ON, M7A 2T5) a Part II Order (i.e. "bump-up"). This may lead to the preparation of an individual environmental assessment. The decision on your request rests with the Minister.

A copy of your Part II Order request is to be forwarded to the following parties:

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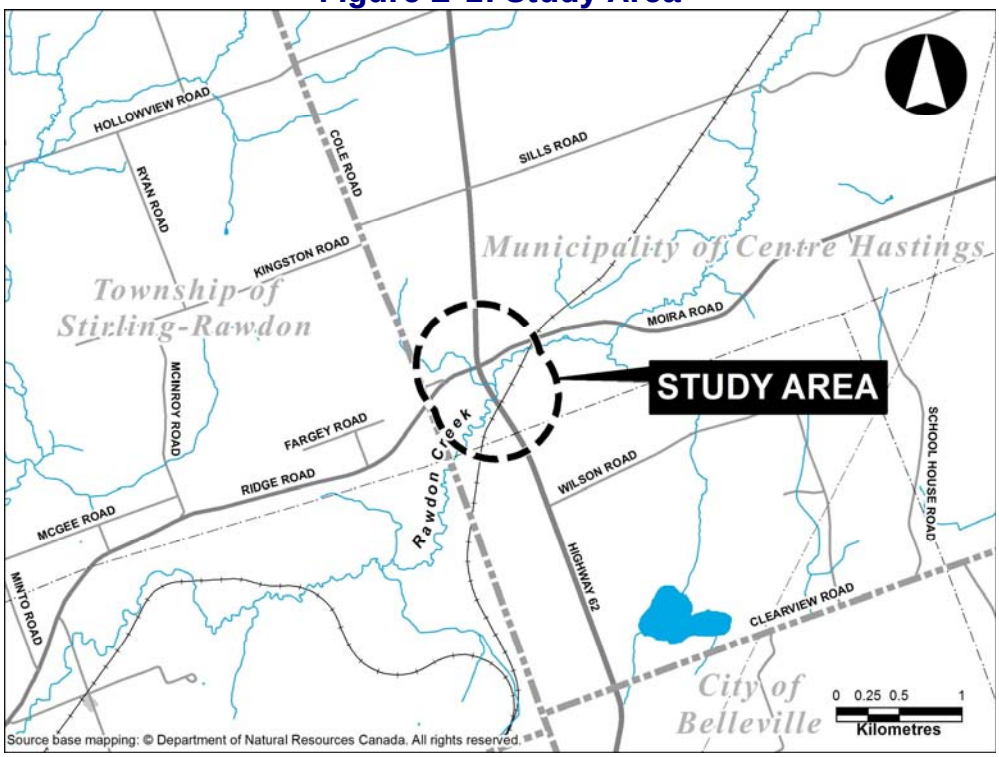
If no outstanding concerns are brought forward by the end of the public review period, this project will be considered to have met the requirements of the Class EA, and may proceed to the next phase of the project.

Ce document hautement spécialisé n'est disponible qu'en Anglais en vertu du règlement 671/92 qui en exempte l'application de la Loi sur les services en français. Pour de l'aide en français, veuillez communiquer avec Heather Edwardson, ministère des Transports, au (905) 704-2210.

Executive Summary

The Ontario Ministry of Transportation (MTO) retained URS Canada Inc. (URS) to undertake two separate Preliminary Design and Class Environmental Assessment Studies for: 1) improvements to the intersection of Highway 62 and Moira/Ridge Road (Hastings Road 8) (G.W.P. 4028-05-00) and; 2) the replacement of the Rawdon Creek structure on Highway 62 (G.W.P. 4044-10-00). Given the overlap in potential impacts associated with the alternatives being considered in both studies, these studies were combined (G.W.P. 4044-10-00) to better understand the overall impacts and facilitate the selection of the Technically Preferred Alternative (TPA). The combined project limits are located in the Municipality of Centre Hastings within Hastings County (**Figure E-1**).

Figure E-1: Study Area



This study followed the approved planning process for a Group 'B' project under the MTO *Class Environmental Assessment for Provincial Transportation Facilities (amended 2000)* (Class EA). Aboriginal Communities, key government ministries, municipalities, emergency services, external agencies, utilities, and members of the public were notified at the beginning of the study by letters and newspaper advertisements. A Public Information Centre (PIC) was held for the intersection improvement study (prior to combining of the two studies) in July 2013 and a PIC was held for the combined study in July 2014. An overview of the consultation activities and input received is outlined in **Chapter 3**. During the next phase of this project, the identified external agencies and Aboriginal Communities will continue to be consulted regarding the refinement of the design.

A number of "Alternatives to the Undertaking" were assessed and evaluated based on their ability to address the primary study objectives. Improvements to the Highway 62 and Moira/Ridge Road intersection were considered to have the greatest potential to resolve operational and geometric deficiencies at the intersection and were carried forward for further study. The Rawdon Creek structure is over 79 years old and is in fair to poor condition. Given the age and condition of the Rawdon Creek structure, it was determined that it is more cost effective to replace the structure than to rehabilitate it. Alternative methods of improving the Highway 62 and Moira/Ridge Road intersection (stop-controlled / signalized intersection and roundabouts) and replacing the Highway 62 Rawdon Creek structure (construction staging alternatives) were then developed. Refer to **Chapter 6** for details regarding the assessment of the Alternatives to the Undertaking.

Several design alternatives were generated and evaluated to determine the TPA for the improvements to the Highway 62 and Moira/Ridge Road intersection and replacement of the Highway 62 Rawdon Creek structure. A screening process was employed to determine a short-list of alternatives that would be carried forward for more detailed assessment. The Project Team evaluated the preliminary design alternatives based on impacts and opportunities to the natural, socio-economic and cultural environments as well as transportation considerations and cost. The preferred alternative was selected which provided the best balance between impacts and opportunities. Constructing a modern roundabout at the Highway 62 and Moira/Ridge Road intersection and replacing the existing Highway 62 Rawdon Creek structure to the west of the existing alignment was selected as the TPA for the following reasons:

- At the intersection a modern roundabout reduces the number of conflict points where collisions can occur, reduces the severity of collisions as roundabouts control the speed of vehicles entering the intersection, provides speed consistency through the intersection and can increase capacity and efficiency, improves the line of sight, is less expensive to construct and results in less property impacts relative to other alternatives considered; and
- The TPA improves the visibility of the Moira/Ridge Road intersection due to re-profiling and realignment at the Rawdon Creek bridge (in the event that the Highway 62 Rawdon Creek structure replacement takes place prior to the improvements to the Highway 62 and Moira/Ridge Road intersection). In addition, the TPA has no throw-away costs.

Refer to **Chapter 7** for details regarding the generation and evaluation of alternatives.

The Recommended Plan includes interim improvements that can be implemented in the short- to mid-term as well as an ultimate plan for improvements to the Highway 62 and Moira/Ridge Road intersection.

Interim Improvements (**Figures E-2 and E-3**)

- Replacing the existing Highway 62 Rawdon Creek structure to the west of the existing alignment.
- The cross-section of the new Rawdon Creek structure is composed of two barrier walls, two 2.5 m shoulders, and two 4.15 m traffic lanes. The shoulders and lanes will tie into the existing lanes and shoulders along Highway 62.
- Profile improvements on Highway 62.
- Re-grading of the Trail of Two Lakes crossing at Highway 62.

- Minor intersection improvements may be considered prior to implementing the ultimate improvements, including:
  - Vegetation removals within the Highway 62 right-of-way (ROW) to enhance intersection visibility.
  - Review placement of signs to ensure they meet current standards.

Ultimate Intersection Improvements (**Figures E-4a and E-4b**)

- Constructing a modern roundabout at the Highway 62 and Moira/Ridge Road intersection. The roundabout has been designed to accommodate both tractor trailers 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 connection and property access modifications.
- Provide partial illumination along Highway 62 and at the roundabout intersection.

Potential environmental impacts and mitigation strategies were considered in the generation and evaluation of alternatives and have been identified for the Recommended Plan. Approximately 1 ha from five private properties is required to accommodate the Recommended Plan. The drainage channels identified at the Highway 62 and Moira/Ridge Road intersection do not support fish and fish habitat. While Rawdon Creek supports coldwater and warmwater fish species, the proposed structure is a single span bridge that spans the wetted widths of the channel and avoids direct impacts to fish and fish habitat. Mitigation to address these impacts have been identified and compensation to support any future approvals under the *Fisheries Act* will be addressed at a future detail design stage. Vegetation impacts are restricted to very small patches adjacent to Highway 62 (including agricultural lands) and roads within the ROW. Mitigation measures have been identified and will be employed during implementation of the recommended intersection improvements and structure replacement to reduce or avoid environmental impacts. Refer to **Chapter 9** for a description of the potential environmental impacts and corresponding mitigation measures.

Figure E-2: Interim Improvements at Highway 62 Rawdon Creek Structure

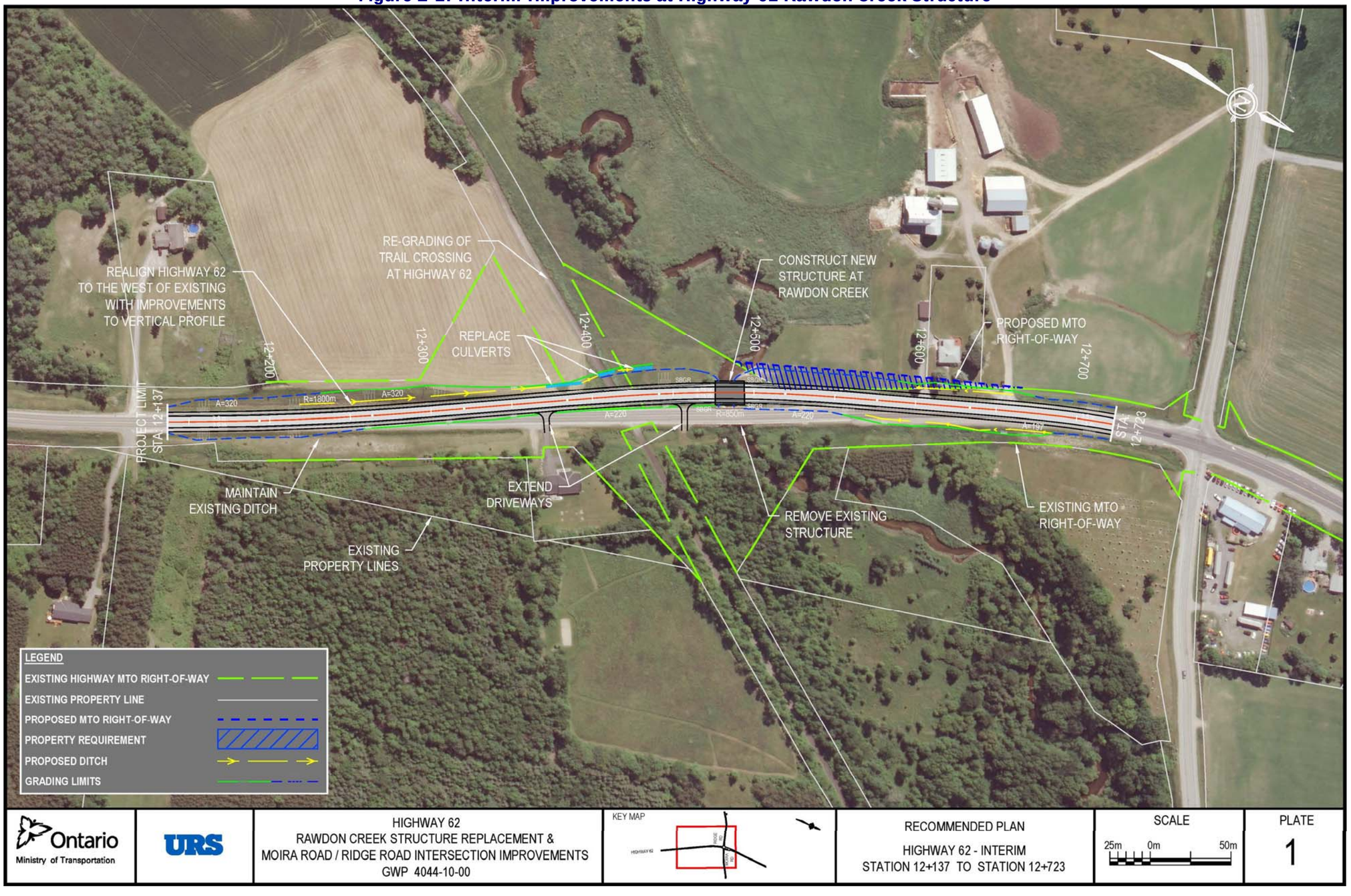


Figure E-3: Proposed Highway 62 Rawdon Creek Structure

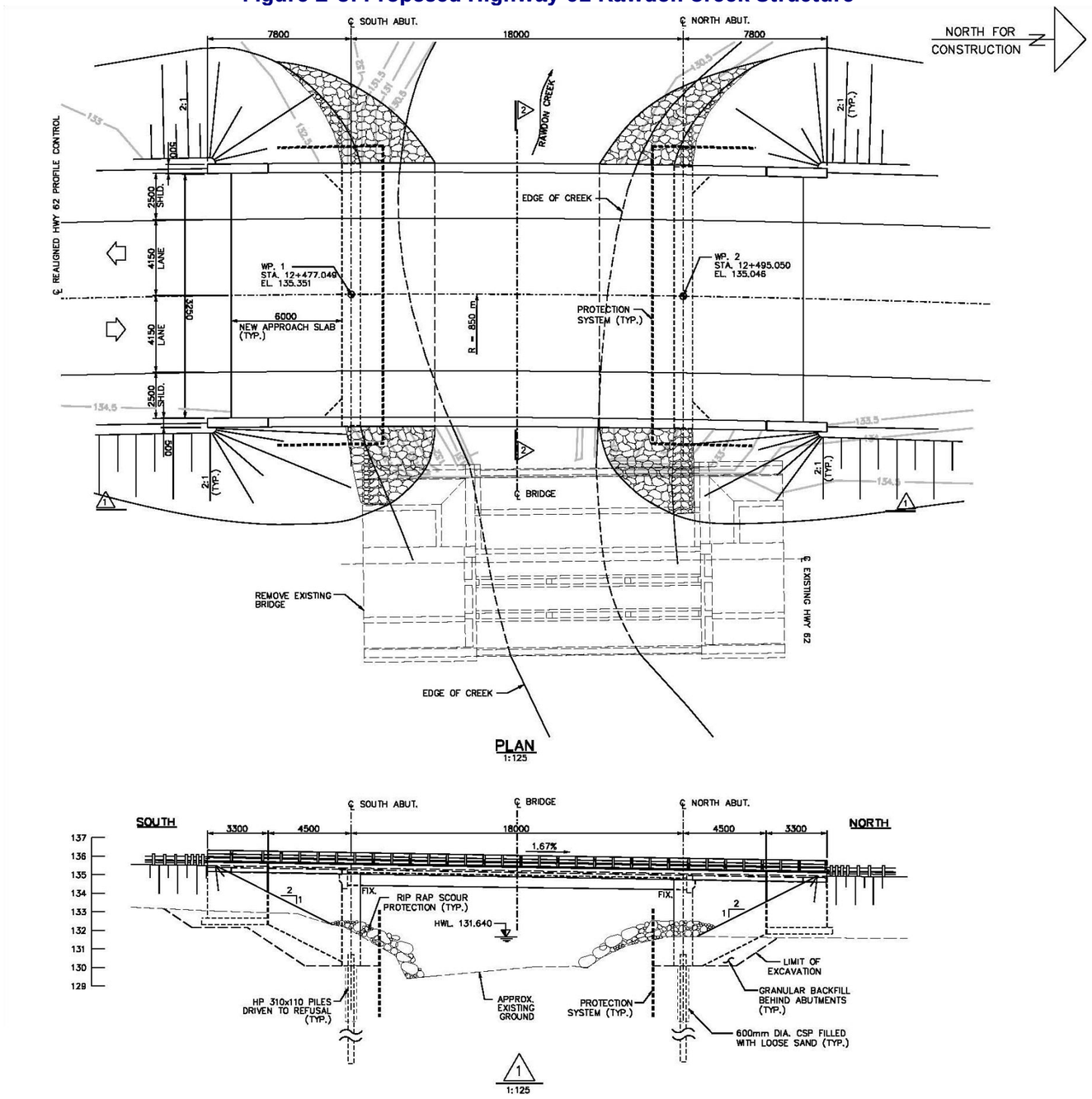


Figure E-4a: Recommended Plan (Ultimate Improvements)

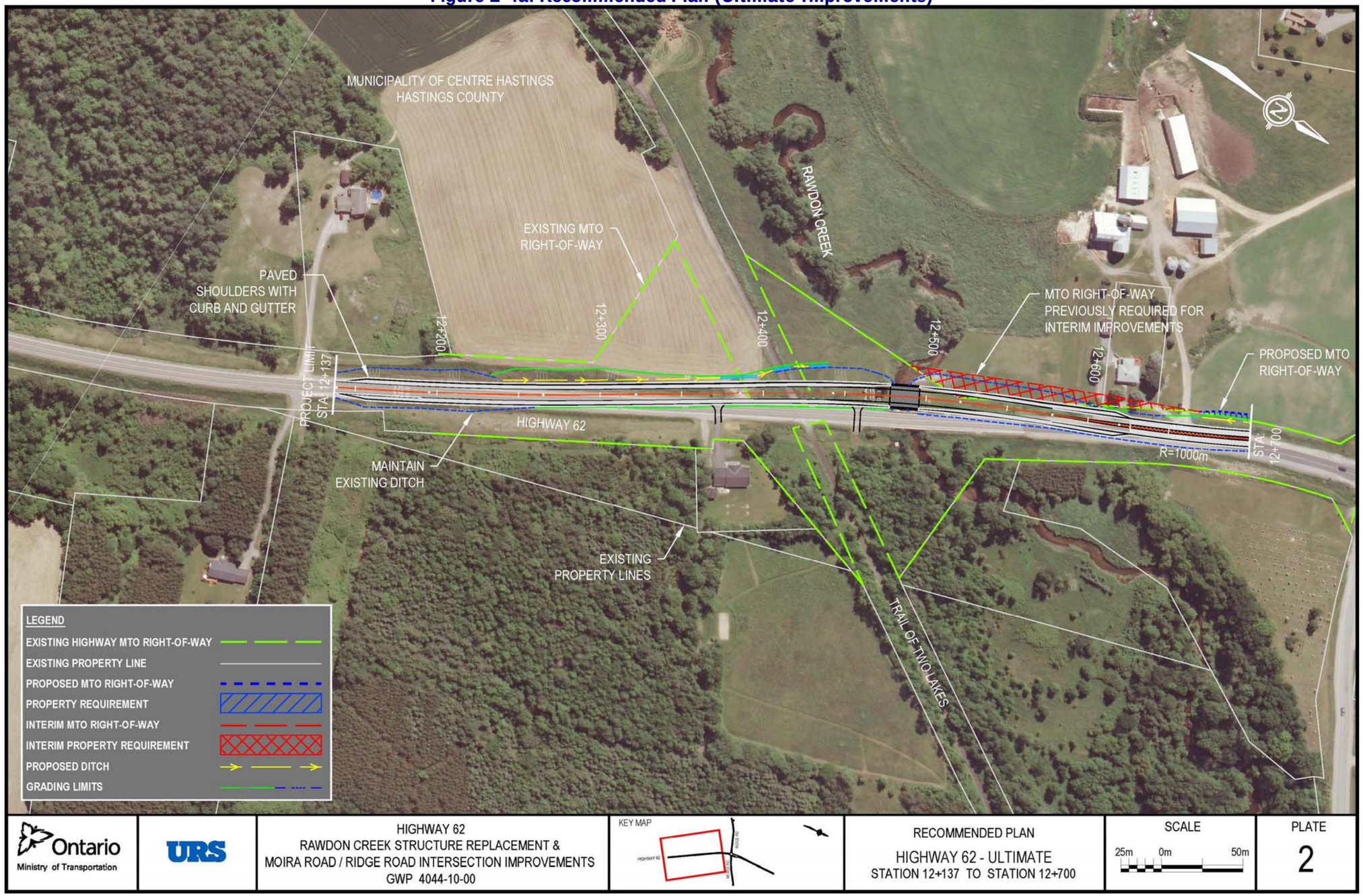
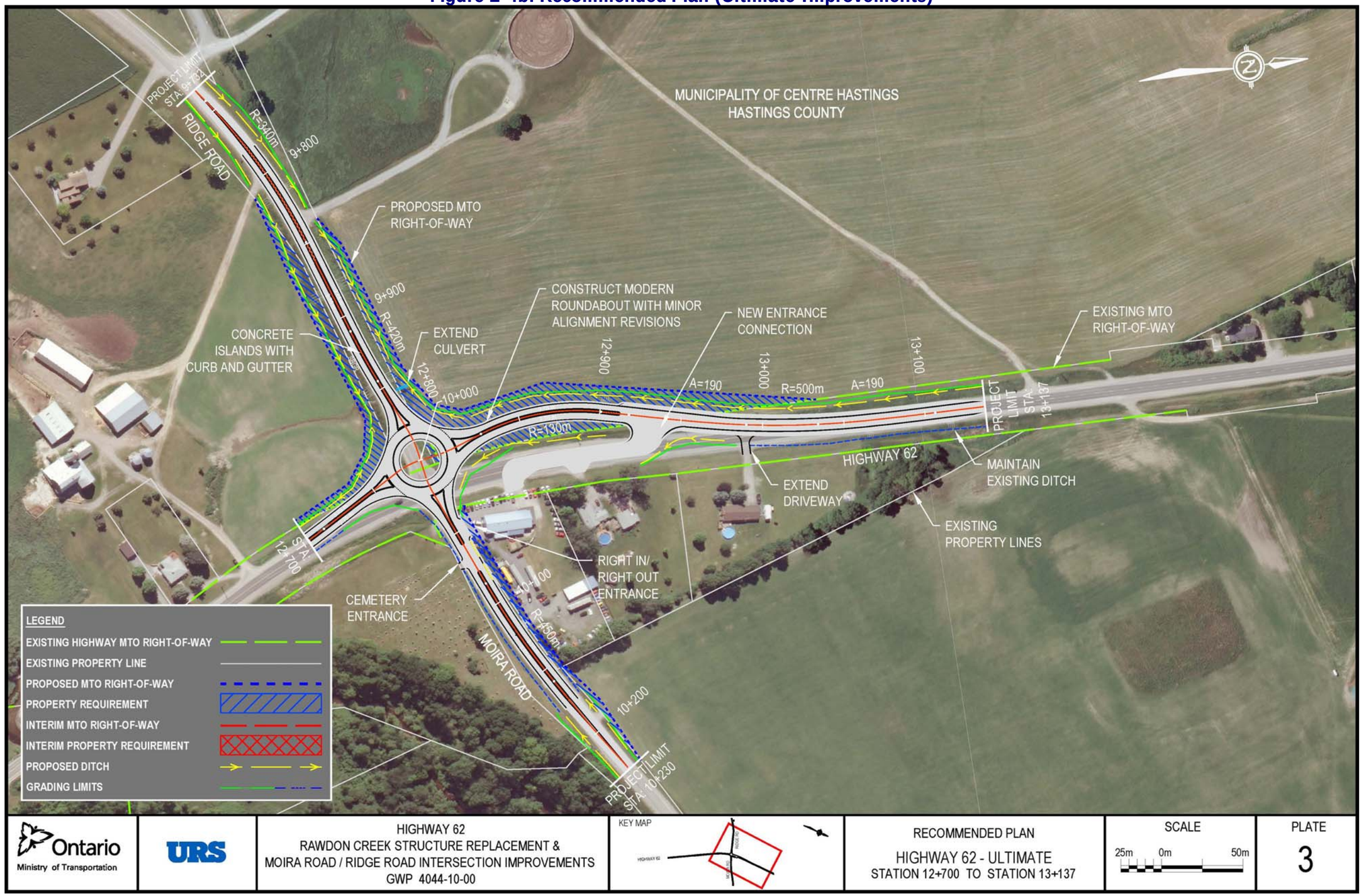


Figure E-4b: Recommended Plan (Ultimate Improvements)



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STAGE 1 ARCHAEOLOGICAL ASSESSMENT REPORT
FISH AND FISH HABITAT REPORTS
TERRESTRIAL ECOSYSTEMS REPORTS
CONTAMINATION OVERVIEW STUDY REPORT
DESIGNATED SUBSTANCES SURVEY REPORT
HYDROGEOLOGICAL ASSESSMENT REPORT
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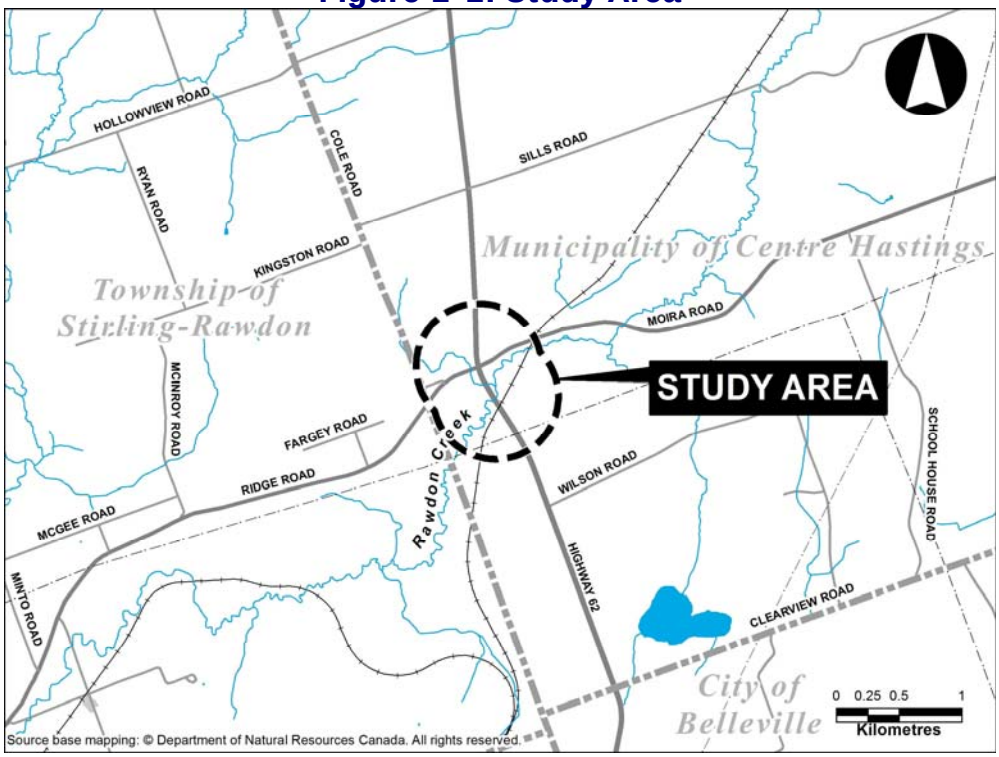
1. OVERVIEW OF THE PROJECT

1.1 Study Background and Location

The Ontario Ministry of Transportation (MTO) retained URS Canada Inc. (URS) to undertake two separate Preliminary Design and Class Environmental Assessment Studies for: 1) improvements to the intersection of Highway 62 and Moira/Ridge Road (Hastings Road 8) (G.W.P. 4028-05-00) and; 2) the replacement of the Rawdon Creek structure on Highway 62 (G.W.P. 4044-10-00). Given the overlap in potential impacts associated with the alternatives being considered in both studies, these studies were combined (G.W.P. 4044-10-00) to better understand the overall impacts and facilitate the selection of the Technically Preferred Alternative (TPA). The combined project limits are located in the Municipality of Centre Hastings within Hastings County (**Figure 1-1**).

Figure 1-1: Study Area



This study followed the approved planning process for a Group 'B' project under the MTO *Class Environmental Assessment for Provincial Transportation Facilities (amended 2000)* (Class EA).

1.2 Objectives and Scope of Study

The purpose of this study is to improve the operational and safety conditions of the intersection at Highway 62 and Moira/Ridge Road and to examine the opportunity to rehabilitate the

Highway 62 Rawdon Creek structure, and identify a Technically Preferred Alternative for the replacement of the Rawdon Creek structure. This study involved:

- Identifying existing conditions within the study area;
- Developing intersection improvement and structure replacement alternatives;
- Analyzing and evaluating alternatives based on impacts to the natural, socio-economic and cultural environments, as well as transportation considerations and cost;
- Selecting a Technically Preferred Alternative after considering input from stakeholders;
- Preparing the preliminary design of the Recommended Plan;
- Developing mitigation measures to minimize or avoid potential environmental impacts; and
- Defining commitments to future work to be initiated during subsequent phases of this project.

After completion of this preliminary design study and after environmental clearance is obtained, a separate detail design study will be undertaken to finalize the design details of the interim improvements at the Highway 62 Rawdon Creek structure, to prepare a contract package for construction, and to complete additional public consultation. Timing for initiating the detail design or implementation of the ultimate plan has not been determined.

2. ENVIRONMENTAL ASSESSMENT PROCESS

2.1 Ontario Environmental Assessment Act

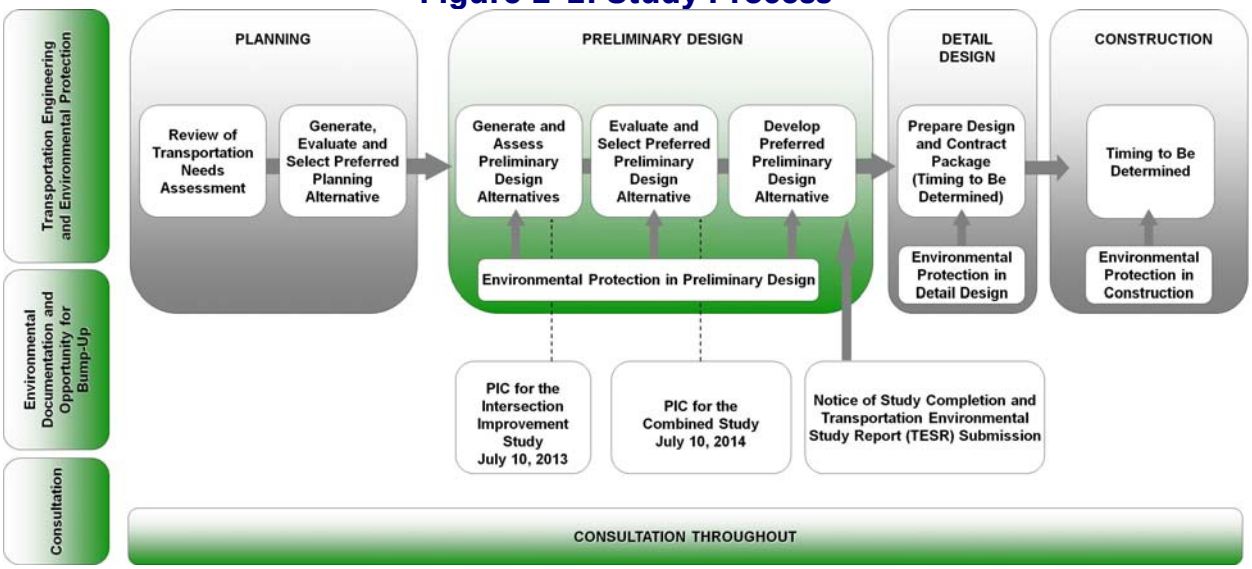
The purpose of the *Ontario Environmental Assessment (EA) Act* is the betterment of the people of the whole or any part of Ontario by providing for the protection, conservation and wise management in Ontario of the environment. For projects subject to the EA Act, an environmental assessment which involves identifying and planning for environmental issues and effects is to be undertaken prior to implementing a project. The process allows reasonable opportunities for public involvement in the decision-making process of the project. An EA document is prepared by the proponent of the project and is subject to review by the public and government agencies before project approval is given.

The MTO *Class Environmental Assessment for Provincial Transportation Facilities* (*amended 2000*) (Class EA) is approved under the EA Act. The Class EA is a principle based environmental planning process for various projects that MTO undertakes. The principles that MTO adheres to are:

- Transportation engineering;
- Environmental protection;
- Consultation;
- Evaluation;
- Documentation; and
- Environmental clearance.

Provincial transportation projects with common characteristics and common potential effects can be assessed under the Class EA, and are therefore approved subject to compliance with the Class EA. Provided MTO follows the principles and the planning process of the Class EA, no formal approval is required under the EA Act. This study followed the approved planning process for a Group 'B' project under the MTO Class EA. The study process, illustrated in **Figure 2-1**, provides opportunities for public and external input at key stages.

Figure 2-1: Study Process



2.2 Canadian Environmental Assessment Act

In July 2012, the Government of Canada released new regulations required to implement the *Canadian Environmental Assessment Act*, 2012 (CEAA 2012). CEAA 2012 establishes a federal EA process focused on major projects that have a greater potential to have significant adverse effects on areas within federal jurisdiction. The types of activities to which CEAA 2012 applies, "designated projects", are identified in the regulations. CEAA 2012 requires the proponent of a designated project to submit a description of the project to the Canadian Environmental Assessment Agency (Agency). Upon receipt of a project description, the Agency has 45 days, including a 20-day public comment period, to determine whether a federal EA is required. The Recommended Plan for improvements to the Highway 62 and Moira/Ridge Road intersection and the replacement of the Highway 62 Rawdon Creek structure is not listed as a "designated project" under CEAA 2012; and therefore, approvals under CEAA 2012 are not required for this undertaking.

2.2.1 Federal Approvals and Permits

The following outlines how federal permits and approvals have been considered during this study as well as those that will need to be obtained during the detail design stage / prior to construction in consultation with the respective Federal Regulatory Agencies.

Fisheries Act Approval

This project was undertaken in accordance with the *OMNR Protocol for Protecting Fish and Fish Habitat on Provincial Transportation Undertakings* (Version 2, 2013) and the MTO *Environmental Reference for Highway Design Fish and Fish Habitat* (Fish Guide) (2013). Fish and fish habitat potential within the study area (Rawdon Creek) is characterised as permanent coldwater habitat used by a wide variety of fish species. The Ministry of Natural Resources and Forestry has categorized the fish habitat in the study area (Rawdon Creek) as Moderate to Highly

sensitive. There are no confirmed Species at Risk protected under either federal or provincial legislation in the study area.

The proposed Highway 62 Rawdon Creek structure is a single span bridge that spans the wetted widths of the channel and avoids direct impacts to fish and fish habitat. No channel realignment is required, and work will be completed in isolation of flowing water while maintaining fish passage. Rip rap scour protection will be placed to protect the embankment, however narrowing of the channel is not anticipated. The potential residual effects to fish and fish habitat were determined and appropriate mitigation has been identified (see **Chapter 9** for details). The scale of negative effects anticipated to result from the proposed structure replacement was determined to be "Low". Using Fisheries and Oceans Canada's (DFO) risk matrix it was determined that the project posed a "Low Risk" of resulting in a serious harm to fish and fish habitat. As a result, an authorization under the *Fisheries Act* will not be required prior to construction and an MTO "Project Notification Form" will be submitted to DFO during the next phase of this project. During detail design, the Low Risk determination will be confirmed. The opportunity to refine the design of the Recommended Plan to further reduce the impacts to fish and fish habitat will also be examined during detail design.

2.3 Purpose of the Transportation Environmental Study Report (TESR)

This TESR documents the transportation problems and opportunities, the generation, assessment and evaluation of alternatives, the Recommended Plan, a summary of potential environmental effects and proposed mitigation measures, and a summary of consultation undertaken throughout the study.

A Notice of Transportation Environmental Study Report Submission was placed in the Community Press and Belleville Intelligencer to notify interested parties of the opportunity to review this TESR. Letters were also sent to individuals on the project mailing list.

During the 30-day review period (refer to page ii for TESR review locations), interested parties are encouraged to bring their concerns regarding the project to the attention of MTO and URS. If, after consulting with MTO and URS, serious unresolved concerns are identified, individuals have the right to request the Minister of the Environment and Climate Change (Ferguson Block, 11th Floor, 77 Wellesley Street West, Toronto, ON, M7A 2T5) to "bump-up" (i.e. make a Part II Order) this project. A Part II Order may lead to the preparation of an individual EA. Copies of the "bump-up" request are to be forwarded to MTO and URS at the addresses indicated below. If there are no outstanding concerns after the completion of the 30-day review period, the project will be considered to have met the requirements of the Class EA.

For more information, please contact the following Project Team members:

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Fax: 613-540-5106
tina.white@ontario.ca

3. CONSULTATION

3.1 Public Consultation

3.1.1 Overview

Consultation was an integral part of this study and the Project Team recognized the important role that all stakeholders play in the successful completion of any study. Opportunities for public input were provided at key milestones throughout the study. Consultation with affected parties played an important role in terms of identifying potential social and environmental impacts and the relative advantages and disadvantages associated with the alternatives considered.

There are five key elements, which translate into a successful planning study. They are:

- Early consultation with affected parties;
- Consideration of all reasonable alternatives;
- Consideration of all aspects of the environment (i.e. natural, socio-economic, cultural and transportation considerations / cost);
- Systematic evaluation of net environmental effects; and
- Clear and complete documentation of the planning process.

During this study, Aboriginal Communities, key government ministries, municipalities, emergency services, external agencies, utilities, members of the public and other stakeholders were provided the opportunity to review and comment on the intersection improvement and structure replacement alternatives, the evaluation methodology and the Technically Preferred Alternative. A mailing list of interested individuals was established and continuously updated throughout the study. The purpose of this list was to ensure that individuals who had an interest in the study were kept informed of upcoming events and the progress of the project.

The following sections outline the details of the consultation process implemented for this study.

3.1.2 Notice of Study Commencement

Prior to combining of the two studies, two separate Notices of Study Commencement were published in local newspapers to inform area residents of the projects and invite them to contact the Project Team if they required information and/or to be placed on the project mailing lists. The Notice of Study Commencement for the Highway 62 and Moira/Ridge Road intersection improvement study was published in the Belleville Intelligencer on September 25, 2012 and in the Stirling / Northeast EMC on October 11, 2012. Notification letters were distributed on October 4 and 11, 2012 to individuals on the project mailing list. The Notice of Study Commencement for the Rawdon Creek structure replacement study was published in the Stirling / Northwest EMC on October 11, 2012 and in the Belleville Intelligencer on October 12, 2012. Notification letters were distributed on October 4 and 11, 2012 to individuals on the project mailing list. Notification letters sent to external agencies included a contact information form

that provided an opportunity to express their concerns and comments on the studies. Copies of the study commencement notification materials are provided in **Appendix A**.

3.1.3 Notice of Public Information Centres (PICs)

One PIC was held for the intersection improvement study prior to the combining of the two studies on July 10, 2013 at the Huntingdon Veterans Community Hall in Ivanhoe. The Notice of PIC was published in the Stirling / Northeast EMC and the Belleville Intelligencer on June 27, 2013. Notification letters were distributed to individuals on the project mailing list on June 10, 2013. Approximately 2,800 brochures were delivered via Canada Post's admail service to area residents and businesses during the week of June 10, 2013.

One PIC was held for the combined study on July 10, 2014 at the Huntingdon Veterans Community Hall in Ivanhoe. The Notice of Combined Studies and PIC was published in the Belleville Intelligencer and the Community Press on June 26, 2014. Notification letters were distributed to individuals on the project mailing list on June 16, 2014. Approximately 2,850 brochures were delivered via Canada Post's admail service to area residents and businesses during the week of June 9, 2014.

Copies of the PIC notification materials are provided in **Appendix A**.

3.1.4 Notice of Transportation Environmental Study Report (TESR) Submission

Letters were mailed to individuals on the project mailing list to notify stakeholders of the 30-day public and agency review period for this TESR. In addition, a Notice of Transportation Environmental Study Report Submission was placed in the Belleville Intelligencer and the Community Press.

Copies of the TESR submission notification materials are provided in **Appendix A**.

3.2 External Agency and Aboriginal Consultation

3.2.1 External Agency Consultation

The Project Team consulted with the following key government ministries, municipalities, emergency services, external agencies, utilities and other stakeholders:

Government Agencies

- Aboriginal Affairs and Northern Development Canada;
- Ministry of Aboriginal Affairs;
- Environment Canada;
- Transport Canada;
- Ministry of the Environment and Climate Change;

- Ministry of Natural Resources and Forestry;
- Fisheries and Oceans Canada;
- Ministry of Agriculture, Food and Rural Affairs;
- Ministry of Tourism, Culture and Sport;
- Ontario Heritage Trust;
- Ministry of Municipal Affairs and Housing; and
- Ministry of Infrastructure.

Elected Officials

- Daryl Kramp, MP-Prince Edward-Hastings; and
- Todd Smith, MPP-Prince Edward-Hastings.

Municipality

- Municipality of Centre Hastings;
- Hastings County; and
- Madoc and District Chamber of Commerce.

Emergency Services

- Municipality of Centre Hastings Fire;
- Hastings County EMS;
- Hastings / Quinte 9-1-1 Coordinator; and
- Ontario Provincial Police.

Interest Groups

- Local Amish Community;
- Ontario Federation of All Terrain Vehicle Clubs;
- Canoe Ontario;
- Ontario Federation of Snowmobile Clubs;
- Trail of Two Lakes;
- Lower Trent Conservation;
- Hastings and Prince Edward District School Board;
- Tri-Board Student Transportation Services; and
- Algonquin and Lakeshore Catholic District School Board.

Utilities

- Union Gas Limited;
- Enbridge Gas Distribution Inc.;
- Hydro One Networks; and
- Bell Canada.

At the outset of the study, external agencies were contacted by mail and asked to provide input relative to their mandate and to support the inventory of environmental conditions within the study area. Representatives from the external agencies listed above were invited to attend an external agency meeting held on July 10, 2013 and July 10, 2014, prior to the official commencement of the PICs, to review the PIC displays and discuss the project directly with the

Project Team. Representatives from the Municipality of Centre Hastings attended the external agency meeting held on July 10, 2013 and representatives from the Municipality of Centre Hastings, Ontario Provincial Police, Trail of Two Lakes and the St. Luke's Cemetery Board attended the external agency meeting held on July 10, 2014.

Relevant correspondence with external agencies is summarized in **Table 3-1** and documented in **Appendix A**.

3.2.2 Aboriginal Consultation

Notification letters were mailed to the following Aboriginal Communities and organizations:

- Peterborough and District Wapiti Métis Council;
- Métis Nation of Ontario;
- Mississaugas of Scugog Island First Nation;
- Chippewas of Georgina Island First Nation;
- Hiawatha First Nation;
- Beausoleil First Nation;
- Alderville First Nation;
- Curve Lake First Nation;
- Williams Treaties First Nations;
- Kawartha Nishnawbe First Nation; and
- Huron Wendat Nation.

During the next phase of this project, the above noted external agencies and Aboriginal Communities will continue to be consulted regarding the refinement of the design. Correspondence with Aboriginal Communities is summarized in **Table 3-1** and documented in **Appendix A**.

Table 3-1: Summary of Issues Raised by External Agencies and Aboriginal Communities

External Agency	Issues / Concerns	Response
Hastings County	Hastings County no longer owns or maintains Moira/Ridge Road and that the Project Team should circulate information to Roger Taylor of the Municipality of Centre Hastings regarding this matter. The Municipally of Centre Hastings owns the multi-purpose recreational trail commonly known as the Trail of Two Lakes located immediately south of the Rawdon Creek structure. Hastings County has no existing underground and over overhead plants within the study area.	Thank you for clarifying that Hastings County does not own or maintain Moira/Ridge Road at Highway 62, and clarifying who owns the multi-purpose recreational Trail of Two Lakes crossing Highway 62 just south of the Rawdon Creek structure. A utility identification package was sent to the Municipality of Centre Hastings. The Project Team added Roger Taylor to the mailing list for this study.

External Agency	Issues / Concerns	Response
	We do not anticipate the above noted project will affect the delivery of the Hastings County's programs or services. There may be some implications for the users of the multi-purpose recreational trail owned by the Municipality of Centre Hastings and operated by the Eastern Ontario Trail's Alliance commonly known as the Trail of Two Lakes. The County just wants to be kept informed of the EA process and study.	Added to project mailing list. Potential impacts to the Trail of Two Lakes were assessed and presented at the PICs, and are documented in this report.
Algonquin and Lakeshore Catholic District School Board	Concerns regarding school bus route.	The school board was added to the project mailing list and notified at each project milestone.
Municipality of Centre Hastings	This project is within our municipality. We have a fairly large (~25 families) Amish community roughly centred on Ivanhoe who drive horse drawn vehicles on Highway 62. Since none of the community has a telephone or access to email, any communication may have to take the form of a face to face public meeting.	Noted. The Project Team has met with the Amish community at project milestones.
Chippewas of Rama First Nation	Please direct all future correspondence and inquires, with a copy to Rama First Nation, to Ms. Sandy-McKenzie.	Project mailing list updated.
Ministry of Tourism, Culture and Sport (MTCS)	MTCS has a mandate under the *Ontario Heritage Act* to conserve, protect and preserve Ontario's cultural heritage resources, including archaeological resources, built heritage and cultural heritage landscapes. Please advise how cultural heritage resources will be identified and evaluated as part of the Class EA process.	A Stage 1 Archaeological Assessment as well as a Built Heritage Assessment were undertaken as part of this study.
Hiawatha First Nation	As per the Hiawatha First Nation Consultation Protocol, your proposed project is deemed having minimal potential to impact Hiawatha First Nations' rights at this time. Please keep us apprised of any updates, archaeological findings, and/or of any environmental impacts, should any occur. We reserve the right to comment later, if something further along in the process is deemed to be a potential impact. We would like to be contacted if artifacts are found and to be sent any archaeological reports as they are completed. We also have	Added to project mailing list.

External Agency	Issues / Concerns	Response
	trained archaeological liaisons that we require being present at the archaeological sites during the assessments if First Nation artifacts are found. We would also request that any maps pertaining to projects be sent in a shape file.	
Mississaugas of Scugog Island First Nation	Regarding project the Mississaugas of Scugog Island First Nation has reviewed it and has no issues related to such.	Noted.
Alderville First Nation	As per the Alderville First Nation Consultation Protocol, your proposed project is deemed a level 3, having minimal potential to impact our First Nations' rights, therefore, please keep Alderville apprised of any archaeological findings, burial sites or any environmental impacts, should any occur.	Added to the project mailing list.
Transport Canada	Transport Canada officials have determined that the provisions of the *Navigable Waters Protection Act* do not apply to your project and, therefore, an Approval is not required.	Noted.
Lower Trent Conservation (LTC)	This project has the potential to impact LTC's programs and services as we are concerned with changes to hydrology depending on scope and scale of project.	LTC was apprised of project activities and progress at key milestones.
Madoc and District Chamber of Commerce	Returned Stakeholder Contact Information Form	Added to project mailing list.
Ministry of Aboriginal Affairs	Provided an additional Metis community that may be interested in the project given the proximity of their community or reserve lands to the area of the project, or because of the project's potential environmental impacts.	Added to project mailing list.

3.3 Public Consultation

3.3.1 Public Information Centre (PIC) for the Intersection Improvement Study

One PIC was held for the intersection improvement study (prior to the combining of the two studies) on July 10, 2013 at the Huntingdon Veterans Community Hall in Ivanhoe from 4:00 p.m. to 8:00 p.m. A pre-PIC session was held from 3:00 p.m. to 4:00 p.m. for representatives from external agencies, municipal staff, elected officials and Aboriginal Communities to view the displays. The PIC was an informal, "open house" style event. A brief presentation was held at 5:00 p.m. and 7:00 p.m. to provide an overview of the study. The purpose of this PIC was to introduce the study and present and receive feedback on the following: existing conditions, need

for improvements, alternatives being considered, criteria proposed to evaluate the alternatives, and next steps in the study. Refer to **Appendix B** for material presented at this PIC.

A total of 29 individuals signed the visitor's register at the PIC. Seven comments were received at the PIC and six written comments were submitted subsequent to the PIC. **Table 3-2** summarizes the key comments, issues and concerns raised from the PIC and the corresponding responses provided by the Project Team.

Table 3-2: Summary of Issues and Concerns from the Intersection PIC

Comments	Project Team Response
Concerns regarding poor sight lines at the intersection.	The purpose of this project is to improve the operational and safety conditions (i.e. improving sight lines for drivers) at the intersection.
Suggestion to cut back embankment adjacent to cemetery and removal of roadside vegetation to improve visibility.	Cutting back the embankment along Highway 62 at St. Luke's Cemetery is being considered as a potential short-term initiative to improve sight lines. Refer to **Section 9.4.2** for more details.
Inquiry about which alternative is safer from an operations perspective.	All alternatives enhance the safety and operations of the intersection to different degrees. The relative advantages and disadvantages of each alternative are outlined in the evaluation of alternatives. Refer to **Chapter 7** for more details.
Suggestion to include / present construction cost in the evaluation.	Cost is one of the factors that the Project Team has taken into consideration in the assessment and evaluation of alternatives. Preliminary construction cost estimates will be identified at the preliminary design stage of this study. The estimated construction cost will be kept confidential to ensure that the Province receives the best competitive bids from contractors.
Concerns regarding impacts to residential and agricultural property.	Potential impacts to private properties (including residential, commercial and agricultural lands) have been identified. Affected property owners will be compensated based on fair market value, which is determined at the time of sale. A representative from MTO Property will contact affected property owners subsequent to the completion of this study / prior to construction.
Suggestions to add left turn and right turn lanes without traffic signals.	Prior to the implementation of the ultimate plan for improving the intersection, interim operational improvements at the Highway 62 and Moira/Ridge Road intersection will be explored.
Need to improve the east leg of the intersection to allow for safe movement of large vehicles travelling from the east headed northbound on Highway 62.	Provision of adequate radii for large vehicles turning at the intersection will be accounted for in the design of the preferred alternative.
Concerns regarding the ability of trucks to navigate through the	The roundabout alternative has been designed to accommodate agricultural and large vehicles.

Comments	Project Team Response
roundabout.	
Implementation of traffic signals will make it difficult for trucks to climb the hill south of the intersection due to stopping for a red light.	It is recognized that with the signalized intersection alternatives, trucks will need to negotiate the hill to the south when stopped at a red signal display. The grades of Highway 62 will accommodate trucks.
Suggestion for advanced warning signs / measures upstream of the signalized intersection.	Suggestion noted. Advanced warning signs are being considered as part of the Technically Preferred Alternative.
Suggestion for combining this study with the Rawdon Creek structure replacement study.	Given the overlap in potential impacts associated with the alternatives being considered in both studies, these studies were combined to better understand the overall impacts and facilitate the selection of the Technically Preferred Alternative.
Concerns regarding intersection operations and safety if the roundabout alternative is preferred.	There are many transportation benefits associated with roundabouts, including reducing the number of conflict points where collisions can occur and the severity of collisions as they control the speed of vehicles entering the intersection, providing speed consistency through the intersection and increasing capacity and efficiency.
Inquiries regarding the traffic data used for the collision analysis.	The data used for the collision analysis is the most recently available. While collision history is an element of the need for improvements to the intersection, the need to look at signalizing the intersection or constructing a roundabout is also driven by the projected traffic volumes. The signal warrant analysis results revealed a need to install traffic signals in the near term (by 2014).
Inquiries regarding timing of construction.	Construction is subject to the availability of funding and provincial priorities. A construction schedule for this project has not been determined and will be examined subsequent to the completion of detail design.

3.3.2 PIC for the Combined Study

One PIC was held for the combined study on July 10, 2014 at the Huntingdon Veterans Community Hall in Ivanhoe from 4:00 p.m. to 8:00 p.m. A pre-PIC session was held from 3:00 p.m. to 4:00 p.m. for representatives from external agencies, municipal staff, elected officials and Aboriginal Communities to view the displays. The PIC was an informal, "open house" style event. The purpose of this PIC was to present the evaluation of alternatives, details of the Technically Preferred Alternative, and proposed measures to minimize or avoid impacts for comment. Refer to **Appendix B** for material presented at this PIC.

A total of 36 individuals signed the visitor's register at the PIC. Two comments were received at the PIC. **Table 3-3** summarizes the key comments, issues and concerns raised from the PIC and the corresponding responses provided by the Project Team.

Table 3-3: Summary of Issues and Concerns

Comments	Project Team Response
Several attendees noted safety concerns associated with poor sight lines at the intersection and acknowledged the need for improvements.	The purpose of this study is to improve the operational and safety conditions of the intersection at Highway 62 and Moira/Ridge Road. Alternatives were developed to address the identified problems and opportunities. The Technically Preferred Alternative (for the ultimate improvements) includes a modern roundabout at the Highway 62 and Moira/Ridge Road intersection. The line of sight is not an issue with a roundabout and is therefore an improvement relative to the existing conditions.
Suggestion to cut back the embankment or install a retaining wall adjacent to the cemetery to improve visibility along Highway 62 or northbound vehicles approaching the intersection.	The feasibility of cutting back vegetation or the embankment along Highway 62 at St. Luke's Cemetery is being examined by the Project Team as a potential short-term initiative to improve sight lines.
Concerns regarding impacts to residential and agricultural property. It was requested the Project Team explore design refinements to minimize impacts to avoid displacement of the residence on the west side of Highway 62, south of the intersection.	Opportunities to minimize property impacts will be examined during the preliminary design phase of the study. Affected property owners will be compensated based on the fair market value of property required, which is determined at the time of sale. Affected property owners will be notified of the completion of this study. A representative from MTO Property will contact affected property owners at the time of acquisition.
Implementation of a roundabout will make it difficult for trucks to climb the hill (not able to gear up fast enough) south of Rawdon Creek due to the slower speed required through the roundabout.	The grades of Highway 62 will accommodate trucks. It is recognized that with the roundabout, trucks will need to negotiate the hill to the south. A roundabout will actually help trucks keep some speed since a signalized intersection may require trucks to come to a complete stop at a red signal indication. In addition, the grade of the new Rawdon Creek structure will be raised by approximately 0.7 m, which will assist large vehicles approaching the grade.
Suggestions to examine opportunities to improve the aesthetics / landscape of the Highway 62 lands that front the cemetery.	At the time of the detail design phase for the ultimate plan, landscaping will be a consideration.
Inquired about the length of driveway extension for the properties in the northeast quadrant of the Highway 62 and Moira/Ridge Road intersection.	The Project Team distributed the design plan annotations to impacted property owners.

Comments	Project Team Response
Inquired about who would be responsible for maintaining the roundabout and the local access road (snow removal, etc.).	Highway 62 falls within MTO's jurisdiction thus MTO will be responsible for maintaining the roundabout. However maintaining local roads and private entrances would be the responsibility of the municipality or the private land owners.
Although many attendees were supportive of roundabouts, some attendees were concerned that this was not the ideal solution for this intersection due to large vehicle maneuverability (trucks and agricultural equipment) and driver unfamiliarity with roundabouts.	The geometry of the roundabouts has been designed to accommodate large vehicles (including agricultural equipment). The apron of the roundabout (outer portion of the centre island) will be designed with a mountable curb, which can accommodate vehicles that have a very large turning radius. As well, prior to the opening of the roundabout, there will be a Roundabout Public Education Centre to educate drivers, pedestrians and cyclists on how to use the roundabout. More information on roundabouts can be found on the MTO's website: www.ontario.ca/roundabout
Inquiries regarding next steps in the study and timing of construction for the structure replacement and for the roundabout. Many attendees noted that the intersection improvements need to be implemented in the near term rather than considered as a long term plan.	The following activities were undertaken following this PIC: • Respond to comments received and incorporate them into the study where appropriate. • Finalize the preliminary design of the Technically Preferred Alternative, assessment of impacts and mitigation measures. • Prepare a TESR and place the TESR on the public record for a 30-day review period in late 2014. • Advertise the Notice of TESR Submission in local newspapers and by mailing to individuals on the project mailing list. Should the Technically Preferred Alternative receive environmental clearance, detail design would be initiated at some point after the completion of this study to develop engineering and construction details. Construction cannot occur until the engineering details have been finalized and environmental approvals have been obtained through the detail design study. The timing for the detail design phase has yet to be determined. Additionally, timelines and the process are subject to environmental approvals and availability of funding. Improvements to the Highway 62 and Moira/Ridge Road intersection are not programmed on the MTO 5-year Capital Construction Program.
Inquired about how this intersection is prioritized against improvements at other intersections.	All intersection improvements are examined based on evaluation of need and funding availability.
Vehicles parked at the commercial property in the northeast quadrant of the intersection disrupt sightlines.	The Technically Preferred Alternative includes a modern roundabout at the Highway 62 and Moira/Ridge Road intersection. The line of sight is not an issue with a

Comments	Project Team Response
	roundabout and is therefore an improvement relative to the existing conditions.

3.3.3 Consultation with the Amish Community

In the last 10-12 years, Amish families have purchased land in the Centre Hastings and Stirling-Rawdon areas. The Amish community operates horse drawn vehicles in the area and as such it is important to consider slow moving vehicles when generating, assessing and evaluating intersection improvement and structure replacement alternatives. The Project Team worked closely with a liaison representative from the Municipality of Centre Hastings to consult the Amish community in the area. A survey was developed and distributed to obtain feedback from the Amish community and a meeting was held on April 18, 2013 to follow up on the results of the survey. Feedback received from the Amish community was then taken into consideration during the generation, assessment and evaluation of alternatives as well as the design of the Technically Preferred Alternative. Refer to **Appendix A** for the meeting minutes.

4. OVERVIEW OF EXISTING CONDITIONS

In order to support the examination of a reasonable range of alternatives, all significant features within the study area were identified to determine their sensitivity and potential for impacts associated with the Highway 62 and Moira/Ridge Road intersection improvements and Highway 62 Rawdon Creek structure replacement. Identifying significant environmental features involved the collection of primary and secondary source data derived from surveys, field investigation, published and unpublished literature, government sources and consultation with agencies and the public. The data collected was grouped in the following categories:

- Natural environment;
- Socio-economic environment;
- Cultural environment; and
- Transportation conditions.

Information about the existing environmental features within the study area was collected from the following sources:

- Municipality of Centre Hastings;
- Hastings County;
- Lower Trent Conservation;
- Ministry of Agriculture, Food and Rural Affairs;
- Statistics Canada;
- Ministry of Natural Resources and Forestry, Natural Heritage Information Centre (NHIC);
- Field investigations; and
- Aerial photography.

The following sections provide an overview of the existing environmental conditions within the study area.

4.1 Natural Environment

4.1.1 Physiography and Soils

According to the *Physiography of Southern Ontario* (Chapman and Putnam, 1984), the study area is located within the Peterborough Drumlin Field physiographic region, which is characterized by highly calcareous till with local differences. 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 Huntington along Moira/Ridge Road. In general, the quaternary deposit within the study area consists of clay (with pockets of sand and gravel) and sand deposits of the glaciolacustrine origin to a depth of greater than 30.6 mbg (metres below grade). A layer of fill soil was observed above the sand deposit and/or limestone bedrock in the vicinity of the northern 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 collected from two boreholes drilled in the vicinity of the Rawdon Creek structure (Golder, March 2013), a sandy silt / silty sand layer exists within the sand deposit at the bridge location. The overburden soil is underlain by limestone bedrock.

4.1.2 Drainage and Hydrology

Within the study area Highway 62 is located within the Rawdon Creek subwatershed, which is under the jurisdiction of the Lower Trent Conservation. Rawdon Creek discharges ultimately into the Trent River, with a total watershed area of 199 km^2 (Lower Trent Conservation, 2013 Watershed Report Card). The subject crossing is related to the eastern branch of Rawdon Creek. At the crossing, the watershed area is 86.70 km^2, based on both the information available from Water Survey of Canada (Environment Canada) and independent delineation using the mapping provided by Atlas Canada. The relief of the Rawdon Creek subwatershed was estimated to be approximately 60 m ranging from the upper limits south of Moira Lake (at elevation 190 m) to the lower limits near the Highway 62 and Rawdon creek crossing (at elevation 130 m). Therefore, the overall average slope of the subwatershed is very flat with an average slope of 0.3%. The existing land uses are primarily agricultural, with a more significant forest cover in the upper portion of the watershed, and with a limited development. It is noted in the Watershed Report Card that nearly half of the Rawdon Creek subwatershed area is forested.

Rawdon Creek remains in a relatively natural condition upstream from the Highway 62 Rawdon Creek bridge, meandering through a series of woodlots and low-laying areas. Downstream from the bridge, the channel forms part of the agricultural landscape, with cultivated lands extending to the banks of the watercourse. Both the upstream and downstream reaches appear to be in a stable condition, with no evidence of bank erosion. Sediment is being deposited along the northern abutment of the bridge, with the south abutment essentially clear of sediment. Adjacent to the bridge, the channel bed is characterized by a rocky substrate of various sizes, with the presence of plant material. The low point on the road is located approximately 35 m to the north of the bridge. No evidence of overtopping either of the bridge or the low point of the highway was found during the site visit undertaken as part of this study.

In partnership with the Ministry of Natural Resources and Forestry and Water Survey of Canada, the Lower Trent Conservation maintains a stream gauge at the Highway 62 Rawdon Creek bridge. While the location of the stilling well could not be confirmed, it has been assumed that the gauge is in close proximity of the enclosure used to accommodate the equipment. The gauge was in operation in the period from 1982 to 2009, albeit not continuously.

4.1.3 Hydrogeology

According to the Ministry of the Environment and Climate Change's well records, there are 11 existing groundwater water supply wells located within the study area. The primary water use for ten wells is listed as "domestic" (used by private residences) and for one well is "commercial". In addition, one abandoned well was also identified within the study area. According to the *Approved Assessment Report for the Lower Trent Source Protection Area* (http://www.trentsourceprotection.on.ca/theplanningprocess/assessmentreport/trentreport/), there

are no municipal groundwater supply wells located within or in the vicinity of the study area (1 km radius). This information is consistent with the well record search results. There are also no high yield wells (yield a rate of more than 60 L/s), as defined in the *Ontario Well Regulation* (*Regulation 903* as amended under the *Ontario Water Resources Act R.R.O. 1990*), located within the study area.

Among the 11 active water wells, 9 terminated in limestone bedrock, while 2 wells terminated in overburden soil. Based on the well records, there appears to be two aquifer systems in the area: the overburden aquifer and the bedrock aquifer. The overburden aquifer is present in the sand layer and/or the weathered bedrock immediately below the overburden deposit. The static water level of the two wells that are dependent on the sand and/or weathered bedrock aquifer are reported to be 9.4 mbg and 11.6 mbg, while the static water level of the bedrock aquifer ranged from 1.8 mbg to 15.8 mbg. It should be noted that sand and gravel pockets exist in the clay till deposits and the coarse-textured pockets may contain overburden shallow groundwater aquifer system (perched groundwater).

Refer to the Hydrogeological Assessment Report prepared for this study for more details, available under separate cover.

4.1.4 Fish and Fish Habitat

Prior to conducting field surveys, background information of the existing aquatic ecosystems was compiled and reviewed from a variety of sources including the Ministry of Natural Resources and Forestry and Lower Trent Conservation. Field surveys were conducted on September 28, 2012 and July 27, 2013.

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 roadway ditches in the vicinity of the intersection was a southward draining agricultural surface feature from an actively cultivated field located northwest of the intersection. The Ministry of Natural Resources and Forestry does not have any designated sensitivity ranking for this ephemeral agricultural drainage. The Ministry of Natural Resources and Forestry classifies Rawdon Creek, and specifically the subject reach through the study area, as coldwater habitat. A total of 23 different species have been recorded in Rawdon Creek. Included in this community are relatively sensitive coldwater fish species such as Brook Trout (*Salvelinus fontinalis*), Mottled Sculpin (*Cottus bairdii*) and Darters. Additionally Brown Trout (*Salmo trutta*) are noted to be in Rawdon Creek by the Atlas of Brown Trout Waters in Ontario. **Table 4-1** outlines fish species recorded in Rawdon Creek by the Ministry of Natural Resources and Forestry.

Table 4-1: Fish Species in Rawdon Creek

Common Name	Scientific Name	Common Name	Scientific Name
Banded Killfish	*Fundulus diaphanus*	Golden Shiner	*Notemigonus crysoleucas`*
Black Bullhead	*Ameiurus melas*	Largemouth Bass	*Micropterus salmoides*
Blacknose Shiner	*Notropis heterolepis*	Johnny Darter / Tesselated Darter	*Etheostoma nigrun / olmstedi*

Common Name	Scientific Name	Common Name	Scientific Name
Bluntnose Minnow	*Pimephales notatus*	Longnose Dace	*Rhinichthys cataractae*
Brook Stickleback	*Culaea inconstans*	Mottled Sculpin	*Cottus bairdii*
Brook Trout	*Salvelinus fontinalis*	Central Mudminnow	*Umbra limi*
Burbot	*Lota lota*	Northern Pike	*Esox lucius*
Creek Chub	*Semotilus atromaculatus*	Pearl Dace	*Semotilus margarita*
Common Shiner	*Luxilus cornutus*	Rock Bass	*Ambloplites rupestris*
Eastern Blacknose Dace	*Rhinichthys atratulus*	Spotfin Shiner	*Cyprinella spiloptera*
Fallfish	*Semotilus corporalis*	White Sucker	*Catostomus commersonii*
Finescale Dace	*Phoxinus neogaeus*		

The following sections describe the aquatic habitat conditions within the sections upstream and downstream of the Highway 62 Rawdon Creek crossing as well as conditions under the Highway 62 Rawdon Creek structure.

Upstream of the Bridge

The morphology of this upstream reach of Rawdon Creek is typified by a sequence of flats / runs and riffles. Dispersed throughout this sequence are various pools ranging in depths of 0.5 m to greater than 1 m. The average stream width in this area is approximately 6 m. The riparian edges are fully treed throughout this reach, with the exception of an open meadow, which flanks the creek approximately 95 m upstream of the bridge. In this upstream area the bank heights significantly increase above the average bank height of 0.4 m observed through most of this reach. Well upstream of the study area, Rawdon Creek flows through a forested wetland area and runs parallel to Moira/Ridge Road for over 1 km.

Near the bridge the channel substrate is predominately cobble and rock. Further upstream there are areas of silt accumulation in areas exhibiting slower flow velocities. Several sand bars are noted (beginning at approximately 100 m upstream) and the predominate substrate change to sand and gravel within the area of an open field.

In-stream cover consists of woody debris, aquatic macrophyte vegetation and undercut banks. There are several large woody debris jams located throughout this reach. The submergent aquatic vegetation is extensive throughout. Species include Water Forget Me Not (*Myosotis scorpioides*), Coontail (*Ceratophyllum demersum*), aquatic mosses and algae, and watercress. Beginning at approximately 100 m upstream of the bridge several small vegetated islands (usually centrally located) are noted, and are often associated with shallow riffles. Evidence of erosion (undercut banks) is observed approximately 60 m upstream of the bridge. As expected, the deepest undercutting occur on the outside of the meanders in this area.

Cyprinids and at least one salmonid species were noted throughout this reach during field investigations.

Within the Highway 62 Right-of-Way (ROW) / Under the Bridge

The northern abutment of the bridge is located outside of Rawdon Creek, with a predominately clay land shelf (with heights of over 2 m) that quickly slopes towards the creek. There are signs of erosion along this shelf. There is a large pool, with depths greater than 1 m that is centrally located and adjacent to another shallower pool (50 cm) that is immediately adjacent to the south abutment. The majority of the south abutment is in contact with Rawdon Creek. The predominate substrate under the bridge are rock and cobbles. There is a small riffle section and the upstream end of area under the bridge. Compared to the upstream section of Rawdon Creek, the area under the bridge is devoid of aquatic vegetation (mostly algae covered rocks).

Downstream of Bridge

The fish habitat in the first 50 m downstream of the bridge differs appreciably than the remainder of the 150 m downstream sections. Beyond the Highway 62 bridge, the creek quickly transitions from pools and run to a more shallow riffle section. The riffles in this area range from 5 to 20 cm deep and are interspersed with islands of emergent vegetation. The predominate substrate in this section is algae coated cobbles. The riparian vegetation in this area is sparse, as this area is likely cultivated by the local farmer. Located in this reach is also evidence of disturbance to the creek by the local farmer (ATV crossing, gas water pump and a log pedestrian bridge). Downstream beyond the first 50 m downstream, the creek morphology returns to predominately pool and run sequencing. The pools range from 0.5 – over 1 m in depth. The riparian vegetation is mainly grasses and shrubs with a few trees. The predominate substrate is sandy silt, with some cobble and leaf litter. The majority of the cobble is located along the left bank, approximately 110 m downstream of the bridge, and adjacent to some extensive undercutting of the bank. The aquatic vegetation is not as dense as observed upstream, but there are occasional patches of submergent species (including Eel Grass and algae). There are several large woody debris jams that large schools of fish were utilizing for cover. At least two different live mussel species were observed downstream of the bridge (in the deeper, sandier areas downstream of the riffle section) during field investigations. Neither is known to be Species at Risk. Several frogs were also noted. The overall average water depth is greater downstream than that observed upstream (0.6 and 0.4 m, respectively). The average stream width is 6.5 m through the downstream section. The average bank height is appreciably higher than that observed upstream.

Table 4-2 presents a summary of the existing fish and fish habitat conditions.

Table 4-2: Existing Fish and Fish Habitat Conditions Summary

Waterbody	Flow	Thermal Regime	Substrate Type	Vegetation	Supports a Fishery	Fish Species Present
Rawdon Creek Upstream	Permanent	Coldwater	Varied – dominated by cobble and gravel, with some sand and silt	Abundant submergent macrophyte community	Directly	Numerous – Salmonids and some warmwater community

Waterbody	Flow	Thermal Regime	Substrate Type	Vegetation	Supports a Fishery	Fish Species Present
Rawdon Creek Downstream	Permanent	Coldwater	Varied – dominated by sand and gravel with some cobble and silt	Some submergent macrophytes	Directly	Numerous – Salmonids and some warmwater community
Overland flow west of Highway 62 and Moira/Ridge Road Intersection	Ephemeral	None	None	None	No	None

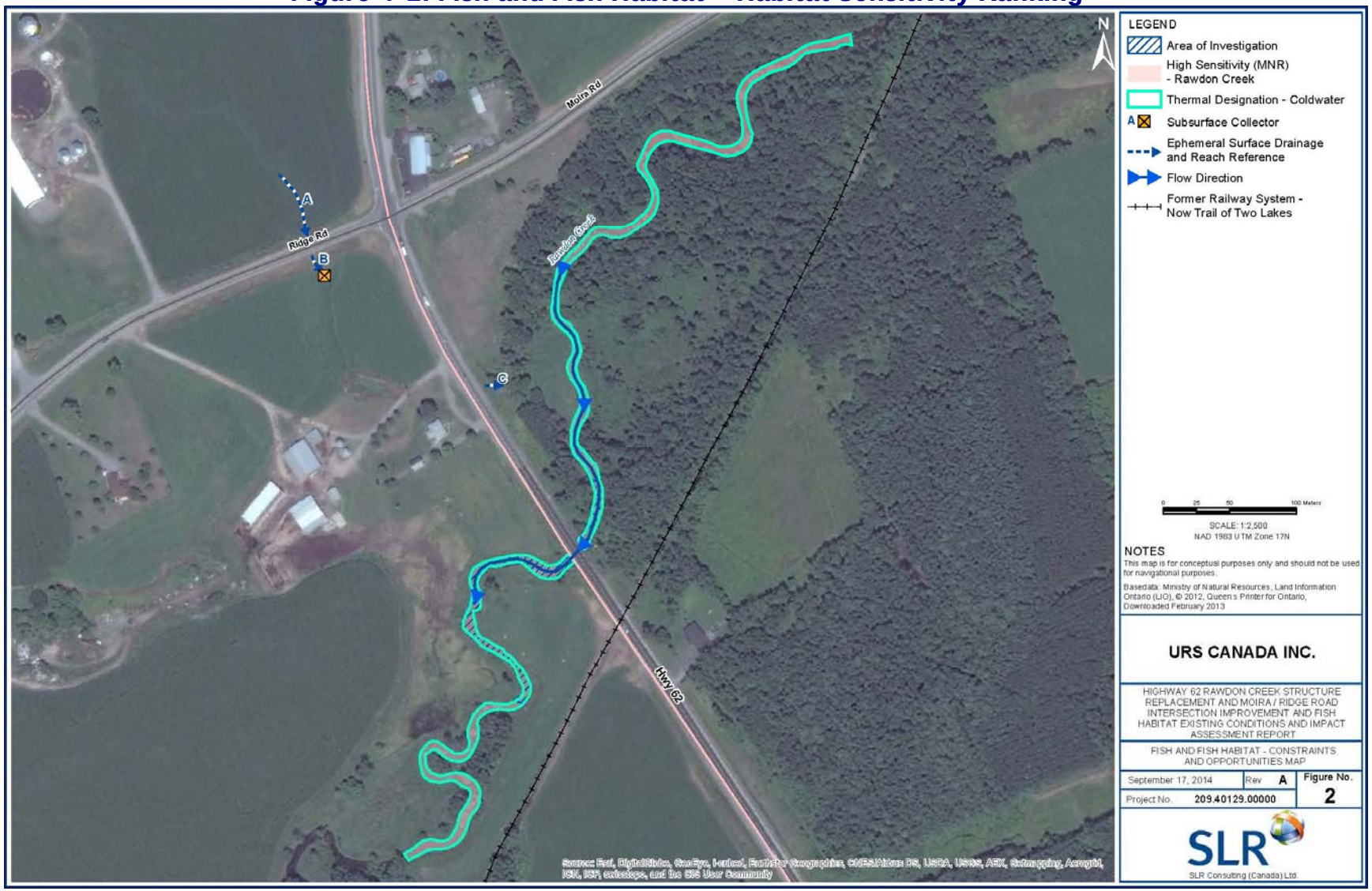
Due to the coldwater classification and the presence of salmonids, the Ministry of Natural Resources and Forestry classified Rawdon Creek as Highly Sensitive. The Project Team further determined that the first 50 m of Rawdon Creek, downstream of the Highway 62 structure is not as sensitive as the upstream portion or the 50 – 200 m downstream reach. The Project Team has applied this relative decrease in sensitivity ranking to the first 50 m downstream area due to the following factors: existing anthropogenic disturbance; poor riparian vegetation; no evidence of live mussels; potential for disconnection between upstream and downstream at riffle section during low flow channel conditions; and reduced instream cover. **Table 4-3** and **Figure 4-1** present a summary of the sensitivity ranking:

Table 4-3: Sensitivity Ranking within Study Area (Rawdon Creek)

Location	Ministry of Natural Resources and Forestry Sensitivity Ranking
Upstream	Moderate – High
Downstream	Moderate – High

Refer to the Fish and Fish Habitat Reports prepared for this study for more details, available under separate cover.

Figure 4-1: Fish and Fish Habitat – Habitat Sensitivity Ranking



4.1.5 Terrestrial Ecosystems

Key terrestrial features within the study area were gathered through desktop analysis (review of existing background documentation), consultation with resource agencies and the public, and field work (on-site investigations). All terrestrial site visits and surveys (i.e. breeding bird surveys, amphibian and reptile surveys, incidental wildlife surveys, etc.) were conducted in September 2012, and in May, June and July 2013. The primary focus of the terrestrial investigation was within a 120-m wide area surrounding the Highway 62 and Moira/Ridge Road intersection and the Highway 62 Rawdon Creek structure within the study area in addition to the ROW along this section of Highway 62.

Vegetation in the study area includes the following communities: Fresh Deciduous Forest Ecosite, Mineral Cultural Woodland, Red Pine Coniferous Plantation Type, Mineral Meadow Marsh Ecosite, Reed-canary Grass Mineral Marsh Type, and Cultural Meadow. The remaining polygons that do not fit into the ELC classification criteria include AG – Active Agriculture. The agricultural communities include fields used by grazing milk cattle, soybean fields, and hay fields. See **Figure 4-2** for each group's distribution within the study area and a brief description of each vegetation community is summarized below.

FOD4 Dry Fresh Deciduous Forest Ecosite

These polygons represent the forested components in the study area. Species composition and dominance varied quite a bit throughout the study site. Dominant species included White Ash, White Elm (*Ulmus americana*), Trembling Aspen, Red and Bur Oak, White Pine (*Pinus strobus*), and Large Toothed Aspen. Other species present included Basswood, Sugar Maple, Manitoba Maple, White Cedar (*Thuja occidentalis*) and White Spruce (*Picea glauca*). Understory species included regenerating overstory species. The diversity of the forest habitat was high and there were few non-native invasive species found within the forest.

CUW1 Mineral Cultural Woodland

Two small polygons of this community type were found within the study area. They do not have fully closed canopies and are typically a result of disturbance or other anthropogenic influences. Dominant species in these polygons include White Ash, Trembling Aspen and Manitoba Maple.

CUP3-1 Red Pine Coniferous Plantation Type

A remnant Red Pine plantation is found adjacent to the road. This polygon has very low species diversity and was young in age. This polygon lacks complexity typical of high value vegetation communities. It is dominated by Red Pine and has no understory layer or ground cover.

Figure 4-2: Vegetation Community Distribution with Study Area

MAM2 Mineral Meadow Marsh Ecosite

This wetland community is dominated by Lakebank Sedge (*Carex lacustris*), Tussock Sedge (*Carex stricta*) and Spotted Joe-Pye Weed (*Eupatorium maculatum*). Other species found include Marsh Bedstraw (*Galium palustre*), Reed Canary Grass and Stinging Nettle (*Urtica dioica*). Other noted species include Cinnamon Fern (*Osmunda cinnamomea*), Red-osier Dogwood (*Cornus stolonifera*) and Sensitive Fern (*Onoclea sensibilis*). This marsh habitat is of high quality due to biodiversity of native species and low numbers of non-native invasive species, but limited due to its relatively small size.

MAM2-2 Reed-canary Grass Mineral Marsh Type

This wetland community is dominated entirely by Reed-canary Grass. Other species found within the polygon include Jewelweed and Smooth Brome.

CUM1 Cultural Meadow

These sites are located adjacent to the roadway, dominated by non-native species and typically manicured (mown) in some instances for apparent weed control measures. Species present include Smooth Brome, Common Ragweed (*Ambrosia artemisiifolia*), Wild Parsnip, and Queen Anne's Lace.

4.1.5.1 Designated Significant Natural Areas

No designated areas such as Areas of Natural and Scientific Interest (ANSIs), Environmentally Significant Areas (ESAs) or wetlands of Provincial Significance (PSW) are located within the study area.

Located east of the Highway 62 and Moira/Ridge Road intersection, there is a proposed Earth Science ANSI identified as Pancake Hill ANSI. Earth science ANSIs are geological features that may contain significant bedrock, fossils, or landforms.

4.1.5.2 Wildlife

Very limited wildlife habitat is found in the vicinity of the Highway 62 and Moira/Ridge Road intersection and no wildlife habitat is found within the ROW. The dominant habitat type in the vicinity of the intersection is active agricultural fields. The agricultural fields could provide foraging opportunities and limited shelter. While the dominant habitat type in the vicinity of the Highway 62 Rawdon Creek structure was active agricultural fields, cultural meadows and riparian habitat, the dominant wildlife habitat type is forest, which occurs northeast of the ROW. The area north of the ROW provides some good quality habitat for wildlife usage. The forest habitat could provide shelter and forage opportunities for White-tailed Deer populations.

Birds

Bird species recorded during two breeding bird surveys for the area are typical of fragmented habitat patches as a result of agricultural uses with some higher quality habitat located in the area. A total of 16 species was recorded. They reflect the habitat available for nesting: open country / grasslands, forest, riparian and farm. Potential Bobolink (*Dolichonyx oryzivorus*) habitat was identified northwest of the intersection in an active hay field. While this is

considered potential Bobolink habitat, at the time of the first breeding bird survey, the field had recently been cut and therefore no active nesting was present and no Bobolink were heard or observed during the breeding bird surveys.

Two active nests, one old damaged nest and a nest attempt were observed. The active nests were American Robin (*Turdus migratorius*) and Barn Swallow (*Hirundo rustica*). A Song Sparrow (*Melospiza melodia*) giving alarm calls during the bridge inspection likely has a nest just to the north of the bridge in shrubs on the floodplain of Rawdon Creek.

A large barn occurs to the west of the study area and a colony of Barn Swallow was using that structure. One Barn Swallow was nesting under the bridge over Rawdon Creek and there may have been one other nest attempt on the bridge.

Amphibians and Reptiles

Amphibians were recorded during calling surveys that occurred on May 10, 2013 and July 27, 2013. Spring Peepers (*Pseudacris crucifer*) were heard calling in the marsh located approximately 100 m northeast of the bridge location. No amphibians were heard calling directly adjacent to the bridge structure. During the July 27, 2013 survey, American Toads (*Anaxyrus americanus*) were heard calling just southwest of the bridge structure along the creek. No other calls were heard. Traffic noise was noted to be a problem during surveys. Several frogs were also noted. No turtles were observed and no nesting sites were found within the study area. Suitable nesting habitat does not occur directly around the bridge structure. Portions of the agricultural fields and within shoulders along the Highway 62 and Moira/Ridge Road intersection may provide suitable nesting habitat.

Mammals

Mammal species recorded during the terrestrial field site visits include Red Squirrel, Grey Squirrel, Eastern Cottontail (*Sylvilagus floridanus*), and Common Raccoon (*Procyon lotor*). A White-tailed Deer was noted crossing Highway 62 north of the Highway 62 Rawdon Creek bridge.

Wildlife Passage

Passage between the agricultural habitats is limited due to bisecting roads between the patches. No significant wildlife habitat exists within the ROW surrounding the intersection.

The Rawson Creek structure is fairly low lying on the landscape and the largest sized species that could be expected to use the small dry area (during low flow) along the sides of the passage would be small mammals (raccoons, porcupines etc.). Larger mammals such as White-tailed Deer would have to cross Highway 62 to access the agricultural fields or forest habitat located much further southwest of the bridge.

Refer to the Terrestrial Ecosystems Reports prepared for this study for more details, available under separate cover.

4.1.6 Species at Risk (SAR)

According to the Ministry of Natural Resources and Forestry's records there have been known occurrences of Bobolink and Snapping Turtle (*Chelydra serpentina*) within the study area. Based on site investigations and ELC mapping, the only habitat potentially suitable for Bobolink is the hay field located to the northwest of the intersection. Breeding bird surveys did not record or observe Bobolink within the area. As the field had recently been cut, there was no opportunity for Bobolink to nest.

For turtle species, suitable nesting habitat surveys were carried out within the designated area. Ogden's Pondweed (*Potamogeton ogdenii*) was noted on the NHIC database as being in the area. Species was only noted in the NHIC database, field investigations did not note the occurrence of Ogden's Pondweed. Ogden's Pondweed was not observed in the creek within the study area. No turtles were observed and no nesting sites were found within the study area. While no suitable nesting habitat is found directly adjacent to the bridge, in the larger study area there is potential nesting habitat suitable for Snapping Turtle. Potential turtle nesting habitat includes the edges of agricultural fields and along portion of the roadway where loose gravel is present.

A large barn exists to the west of the study area and a colony of Barn Swallow was using that structure. The Rawdon Creek bridge provides habitat suitable for Barn Swallow nesting – one Barn Swallow was nesting under the Rawdon Creek bridge and there may have been one other nest attempt on the bridge. Barn Swallows are listed as Threatened under the *Endangered Species Act*, and as such the bridge structure is protected under the Act.

NHIC mapping that contains the Highway 62 Rawdon Creek structure (1-km square) does not note any fish SAR occurrences. DFO's Distribution of Fish SAR mapping shows no fish or mussel SAR species located in Rawdon Creek in the area of the bridge crossing. Through direct discussions with the Ministry of Natural Resources and Forestry, they note that their records do not show any SAR fish species in the immediate area of the Highway 62 Rawdon Creek structure.

No other SAR occurrences were found according to the Ministry of Natural Resources and Forestry's database. No Butternut (*Juglans cinerea*) trees were found during site investigations.

4.2 Socio-economic Environment

The study area is situated around the intersection of Highway 62 and Moira/Ridge Road and the Rawdon Creek structure on Highway 62 in the Municipality of Centre Hastings within Hastings County (refer to **Figure 1-1**). **Table 4-4** summarizes the population and total private dwellings (based on 2011 Statistics Canada census data) in the Municipality of Centre Hastings.

Table 4-4: Population Numbers and Dwellings in the Municipality of Centre Hastings

Municipality	Population	Total Private Dwellings
Municipality of Centre Hastings	4,543	2,057

Municipality	Population	Total Private Dwellings
	(3.6% increase since 2006) (median age of 46.0)	

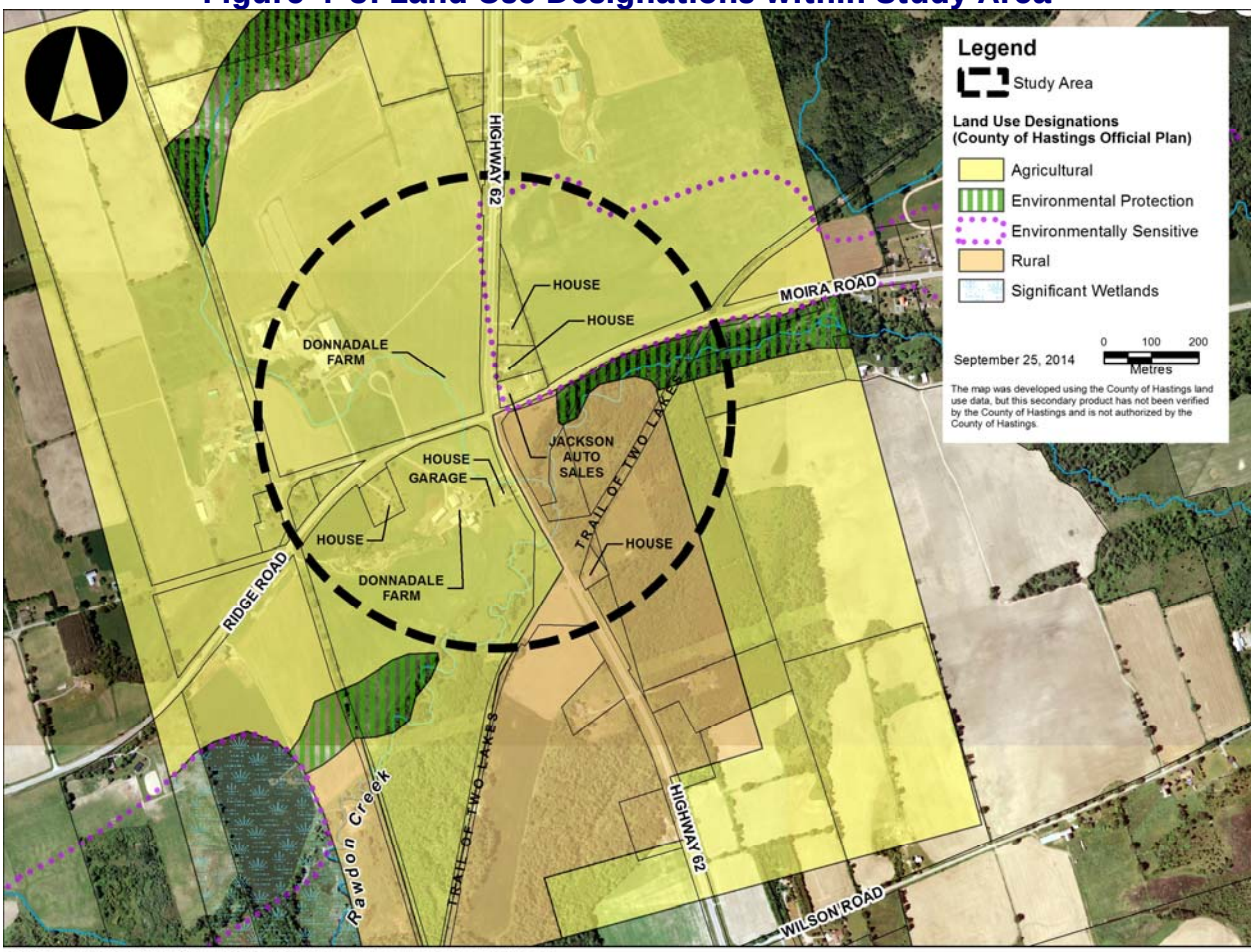
4.2.1 Existing Land Use

The study area consists of a mix of designated land uses (refer to **Figure 4-3**) including:

- Rural – generally south of Moira/Ridge Road east of Highway 62 and also west of Highway 62 on the south side of Rawdon Creek;
- Environmental protection area – generally south of Moira/Ridge Road east of Highway 62 and also abutting Rawdon Creek in the southwest portion of the study area; and
- Agricultural – the remainder of the study area is designated as agricultural. The agricultural area in the northeast quadrant of the Highway 62 and Moira/Ridge Road intersection is also designated as an environmentally sensitive area.

Details of the land use features in the study area are described in the following sections.

Figure 4-3: Land Use Designations within Study Area



G:\GIS\Projects\1-33016828-Hwy62&Hwy35Bridges\19_GIS\mxds\Landuse_Hwy62-Ridge_MoiraRd.mxd

4.2.1.1 Agriculture

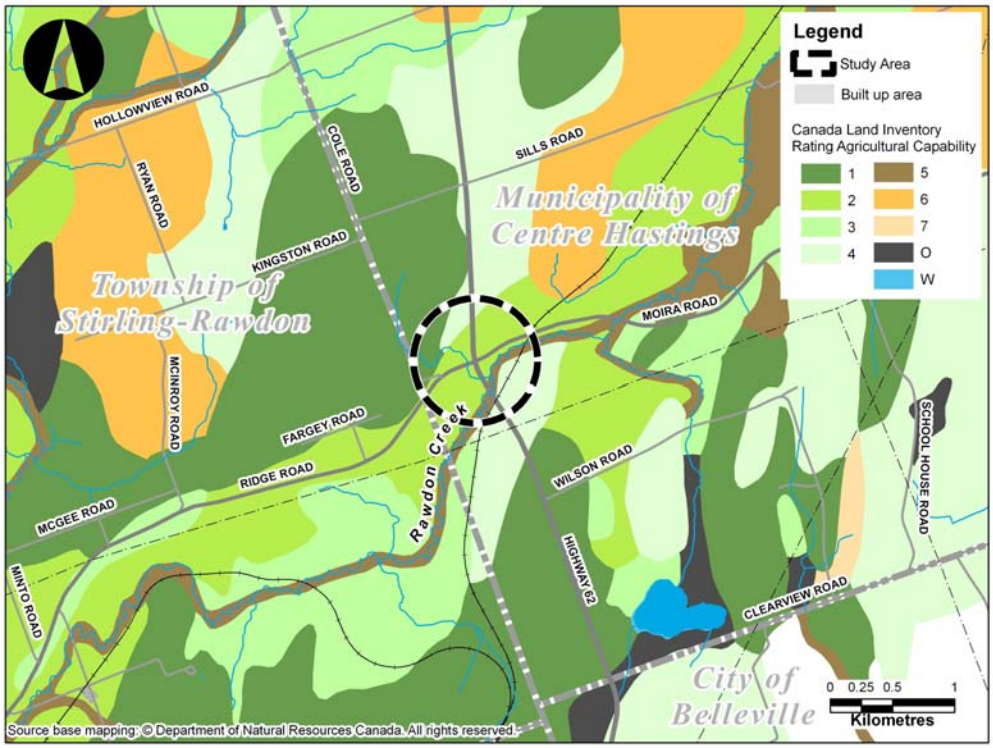
Based on the Agricultural Community Profiles from the 2011 Statistics Canada Census, the Municipality of Centre Hastings has 88 farms with a total number of 120 operators, and the total gross farm receipts (excluding forest products sold) was $8,465,430. The industry groups for these farms consist of:

- Cattle ranching and farming (25);
- Hog and pig farming (1);
- Poultry and egg production (1);
- Sheep and goat farming (3);
- Other animal production (12);
- Oilseed and grain farming (9);
- Vegetable and melon farming (2);
- Fruit and tree nut farming (0);
- Greenhouse, nursery and floriculture production (4); and
- Other crop farming (31).

Agricultural lands are dominant within the study area. There is one farm (Donnadale Farm) that operates within the study area on agricultural lands in the northwest and southwest quadrants of the intersection as well as lands northeast of the intersection.

In general, the soils between Rawdon Creek and Moira/Ridge Road as well as the soils immediately north of Moira/Ridge Road within the study area are Class 2 soils (refer to **Figure 4-4**). In general, the majority of the soils located north of Rawdon Creek within the study area are Class 2 soils (refer to **Figure 4-4**). Class 2 soils have moderate limitations that restrict the range of crops or require moderate conservation practices. The soils are deep and hold moisture well. The limitations are moderate and the soils can be managed and cropped with little difficulty. Under good management, they are moderately high to high in productivity for a fairly wide range of crops. To the north, there is a mix of Class 1 and Class 4 soils. Class 1 soils have no significant limitations in use for crops. The soils are deep, are well to imperfectly drained, hold moisture well, and in the virgin state were well supplied with plant nutrients. They can be managed and cropped without difficulty. Under good management, they are moderately high to high in productivity for a wide range of crops. Class 4 soils have severe limitations that restrict the range of crops or require special conservation practices, or both. The limitations seriously affect one or more of the following practices: timing and ease of tillage, planting and harvesting, choice of crops, and methods of conservation. The soils are low to fair in productivity for a fair range of crops but may have high productivity for a specially adapted crop. Along Rawdon Creek, the soils are Class 5 soils. Class 5 soils have very severe limitations that restrict their capability of producing perennial forage crops and improvement practices are feasible. The limitations are so severe that the soils are not capable of use for sustained production of annual field crops. The soils are capable of producing native or tame species of perennial forage plants, and may be improved by the use of farm machinery. Improvement practices may include cleaning of brush, cultivation, seeding, fertilizer, or water control. To the south of Rawdon Creek, the soils are generally Class 4 soils.

Figure 4-4: Soil Class within the Study Area



4.2.1.2 Residential

There are four residential homes within the study area. The scattered rural residences are located off of Highway 62 and Moira/Ridge Road, some of which are associated with the adjacent farm properties (refer to **Figure 4-3**).

4.2.1.3 Commercial and Industrial

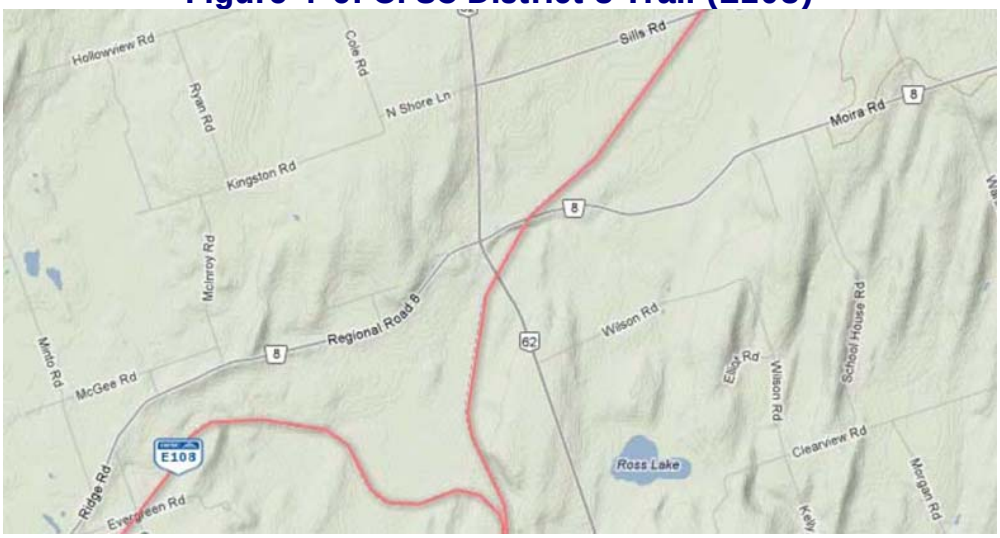
No industrial properties have been identified within the study area. Notable existing commercial land uses within the study area (refer to **Figure 4-3**) include an auto sales store (Jackson Auto Sales) on the northeast quadrant of Highway 62 and Moira/Ridge Road.

4.2.1.4 Community / Recreational / Institutional

The most notable recreational feature in the study area is the Trail of Two Lakes (refer to **Figure 4-5**), which crosses Highway 62 south of Rawdon Creek. The Trail of Two Lakes is a 20 km trail starting from just north of Tufstville Road east of Highway 62 (Madoc Junction) to Old Marmora Road at the southwest end of Madoc. The trail is owned by the Municipality of Centre Hastings. The Trail of Two Lakes is also an Ontario Federation of Snowmobile Clubs (OFSC) District 3 trail. The Trail (E108) is a feeder trail used by the Tweed Snoskooters Club. The trail is 13.6 km long (refer to **Figure 4-6**).

Figure 4-5: Trail of Two Lakes

Figure 4-6: OFSC District 3 Trail (E108)



Source: OFSC, Accessed October 17, 2012, Interactive Trail Guide

Another notable community feature is a cemetery (St. Luke's Cemetery) located on the southeast quadrant of Highway 62 and Moira/Ridge Road (refer to **Figure 4-7**). The St. Luke's Cemetery is approximately an acre in size and is used as a non-denominational cemetery. The eastern part of the cemetery is the older section of the lot, and the original owners of the land, the Luke Family, have a fenced off plot within the cemetery.

Figure 4-7: St. Luke's Cemetery

4.2.1.5 Amish Community

In the last 10-12 years, Amish families have purchased land in the Centre Hastings and Stirling-Rawdon areas. The community has set up sawmills for making furniture, and continued to farm using horses. The Amish sell their eggs, vegetables, candies and home baking from their farm gates. Since the Amish do not use electricity and do not drive cars, they drive black buggies pulled by single horses. Evident by the tire marks on the soft shoulders of the local area roads, the Amish drive their buggies on the shoulders where possible. Signs indicating the presence of the Amish horse and buggies are located along Highway 62 and Moira/Ridge Road within the study area (refer to **Figure 4-8**). Many of the Amish speak English but Pennsylvania Deutsch (a form of German) remains an important part of the culture.

Figure 4-8: Amish Horse and Buggy at the Intersection of Highway 62 and Moira/Ridge Road

4.2.1.6 Aesthetics / Landscape Composition

The study area presents a rural community setting, with low density residential and agricultural land use. The landscape consists of level to gently rolling agricultural fields, which provide the key views and vistas. Other features in the study area which provide notable views include Rawdon Creek (refer to **Figure 4-9**) and a handful of woodlots (particularly east of Highway 62 surrounding Rawdon Creek and on the west side of Highway 62 set back from the agricultural operations).

Figure 4-9: Rawdon Creek Downstream

4.2.1.7 Utilities

There are both aerial and underground utilities / services along Highway 62 within the study area. Hydro One aerial lines run on poles along the west side of Highway 62. A Bell Canada underground duct is buried along the east side of Highway 62. This underground duct is offset approximately 1 m from the MTO ROW.

4.2.1.8 Air Quality

A limited number of sensitive receivers are located in the study area, including the scattered rural residences, located adjacent to Highway 62 and Moira/Ridge Road. No other sensitive receivers such as schools, hospitals or retirement residences are located in close proximity to the study area.

4.2.1.9 Noise Sensitive Areas

Individual noise sensitive receptors (such as individual homes, schools, etc.) have been identified and collected into larger Noise Sensitive Areas (NSAs) that share a similar geographic area. Six NSAs containing a total of 16 individual receptors have been identified within a distance of approximately 600 m from the construction zone described in **Table 4-5**.

Table 4-5: Noise Sensitive Areas within Study Area

ID	Description
NSA 1	Area northeast of the Highway 62 and Moira/Ridge Road intersection. Contains a total of two homes approximately following the highway alignment. This NSA contains two representative SFRs within the 300 m potential impact buffer.
NSA 2	Area southwest of the Highway 62 and Moira/Ridge Road intersection. Contains a total of two representative SFRs within the 300 m potential impact buffer, and agricultural land uses.
NSA 3	Area north of Ridge Road following Donnan Road. Contains five representative SFRs, all outside of the 300 m potential impact buffer, agricultural land uses, and two dairy farms.
NSA 4	Area north and east of the Highway 62 and Moira/Ridge Road intersection. Contains three representative SFRs sparsely spread across primarily agricultural land uses. All three receivers are well beyond the 300 m potential impact buffer.
NSA 5	Area south of the Highway 62 Rawdon Creek structure. Contains a single representative SFR, within the 300 m potential impact buffer and is surrounded by undeveloped and agricultural land uses.
NSA 6	Area south of the Highway 62 Rawdon Creek structure. Contains three representative SFRs sparsely located along the alignment of Highway 62. All three SFRs are beyond the 300 m potential impact buffer and are surrounded by undeveloped and agricultural land uses.

SFR = Single Family Residence

Refer to the Construction Noise Assessment Report prepared for this study for more details, available under separate cover.

4.2.1.10 Waste and Contamination

A Contamination Overview Study (COS) was undertaken as part of this study, available under separate cover. The objective of this COS was to identify properties / areas within the study area with the potential for site contamination (i.e. soil and groundwater contamination). The COS involved a record review, a site reconnaissance, interpretation and assessment of collected data and compilation of the information into a comprehensive written report. The COS did not reveal evidence of actual environmental site contamination within the study area. No properties have been rated as having high potential for contamination. Medium potential has been identified for six properties along Highway 62. The remaining properties have been rated as having low potential for contamination.

As part of this study, a Designated Substance Survey (DSS, available under separate cover) was undertaken to identify and document the designated substances that may be present in the construction materials of the existing Highway 62 Rawdon Creek bridge and provide recommendations for the safe removal of the designated substances prior to the scheduled replacement of the bridge. During the survey, potential sources of silica observed at the bridge included the poured concrete deck, foundation, concrete abutments and guardrails. The Project Team did not observe visible evidence of other designated substance material in other areas of the bridge. Refer to **Chapter 9** for recommendations for the safe removal of silica.

4.3 Cultural Environment

4.3.1 Archaeological Resources

As part of this study a Stage 1 Archaeological Assessment was undertaken (available under separate cover), which involved background research to describe the geography, land use history, previous archaeological fieldwork and current conditions of the study area in order to evaluate their archaeological potential and to support recommendations for a Stage 2 survey for all, or parts, of the study area.

The results of the research suggest that, while some of the lands immediately adjacent to the Highway 62 and Moira/Ridge Road shoulders have been disturbed due to ditching and landscape modification, the majority of the study area is undisturbed and therefore contains archaeological potential. Rawdon Creek is located in the southern section of the study area. The presence of this water feature combined with the fact that both of these roads were historic transportation routes associated with the 19th century crossroads hamlet of West Huntingdon Station, indicates there is moderate to high potential for archaeological resources within the study area.

4.3.2 Built Heritage Resources and Cultural Heritage Landscapes

In order to establish whether any Built Heritage Resources or Cultural Heritage Landscapes (CHLs) are located within or adjacent to the study area, the Project Team conducted a Built Heritage and Cultural Heritage Landscape Assessment, available under separate cover. This study was conducted in April 2013 and is available under separate cover. Research was carried out using historic mapping, local histories, census and directories. The Heritage Victoria Committee was consulted and confirmed that there are no listed buildings or sites in the study area.

Background research and field review identified two CHLs in the area around the intersection. These are CHL 1, St. Luke's Cemetery on the southeast quadrant of the intersection (**Figure 4-7**), and CHL 2, west of Highway 62 on both sides of Moira/Ridge Road. CHL 2 is a mid-20th century rural Ontario mixed farming cultural landscape, with associated farmhouses ca. 1900-60, outbuildings, pasture and cultivated fields in rolling ground (**Figure 4-10**).

A Cultural Heritage Evaluation Report (CHER) was completed for the Highway 62 Rawdon Creek structure (**Figure 4-11**), available under separate cover. The bridge has no direct association with any historical theme or event in the development of the area and has no residual significance as an engineering achievement. Within the setting, the bridge is unremarkable and is a non-contributing feature in the agricultural cultural landscape. The evaluation returned a score of 3/100. As such, the Rawdon Creek structure does not meet the criteria for nomination to the Ontario Heritage Bridge List.

Figure 4-10: Cultural Heritage Landscape within Study Area (CHL 2)

Figure 4-11: Highway 62 Rawdon Creek Structure

4.4 Transportation Infrastructure

Highway 62 is a 2-lane undivided highway with a posted speed of 80 km/h and a design speed of 100 km/h through the study area. The current lane configuration at the intersection includes a single lane approach on all approaches, except on the southbound approach of Highway 62, which also provides an exclusive right-turn lane (**Figure 4-12**). The westbound and eastbound approaches on Moira/Ridge Road are under stop sign control.

Figure 4-12: Highway 62 and Moira/Ridge Road Intersection Facing West

The existing Rawdon Creek structure contains an original structure constructed prior to 1934 (**Figure 4-11**). The original structure was widened in 1934. It consists of a single span concrete T-beam (slab and girder) bridge with a span of 12.2 m and width of 9.2 m. The bridge was rehabilitated in 1982 by replacing the open railing system with a concrete barrier wall. The existing structure accommodates one lane of traffic in each direction. The existing Rawdon Creek structure is over 79 years old and is in fair to poor condition.

5. TRANSPORTATION NEEDS ASSESSMENT

As part of this study a traffic operation analysis was undertaken to determine the existing and future traffic operations at the Highway 62 and Moira/Ridge Road intersection. Collision and signal warrant analyses were also undertaken as part of this study.

A limited site inspection was undertaken in September 2012 for the Highway 62 Rawdon Creek structure. The site inspection confirmed the conditions of the elements as indicated in a Condition Survey carried out in October 2007 and a biennial Ontario Bridge Management System (OBMS) inspection carried out by MTO, Eastern Region, in August 2011 OBMS (2011).

5.1 Intersection Operations

The operational analysis of the existing intersection was based on a turning movement survey dated August 4, 2011, as provided by MTO. In addition, forecasted turning movement volumes were developed for the future 2031 planning horizon for both AM and PM peak hours. The future 2031 volumes were projected using a trend-line analysis, based on available traffic information including weekly 24-hr inventory counts for various years and historic annual average daily traffic information along this section of Highway 62.

The current lane configuration at the intersection includes a single lane approach on all approaches, except on the southbound approach of Highway 62, which also provides an exclusive right-turn lane. The westbound and eastbound approaches on Moira/Ridge Road are under stop sign control. The minor approaches (Moira/Ridge Road) of the intersection are currently operating at levels-of-service (LOS) A during both AM and PM peak hours, except for the eastbound approach on Ridge Road, which is operating at LOS B with an average vehicle delay of 11.1 seconds for the left-turn during the PM peak hour.

The results from the future operational analysis indicate that the vehicular delay experienced during the future peak hours will increase from the existing condition. The eastbound approach from Ridge Road was determined to operate at LOS C (compared to LOS B under existing conditions) during the PM peak hour, with the eastbound left-turn delay of 19.1 seconds. An increase in average delay was also identified for the westbound approach, which operates at LOS B during the 2031 PM peak hour. Overall, the intersection was found to operate acceptably during both AM and PM peak hours under existing and future traffic conditions.

5.2 Signal Warrant

Currently, the intersection is operating under a two-way stop-control. The need for a traffic signal at the intersection was analyzed using a traffic signal warrant summary. The summary includes warrant conditions on *Warrant 1 - Minimum Vehicular Volume*, which is based on the 8-hr traffic volume on all major and minor approaches, and *Warrant 2 - Delay to Cross Traffic*, which is based on the delay or conflict in entering or crossing the major street. Installation of traffic signals should be considered if one or both warrants are 100% satisfied, or both warrants

are at least 80% satisfied. The signal warrant analysis results revealed a need to install traffic signals in the near term (2014).

5.3 Collision History

Collision summary tables were obtained from MTO for a 5-year period from 2005 to 2009, and part of 2010. A collision history review included a comprehensive assessment of all reported collisions. Over the 5-year period between 2005 and 2009, there were 24 collisions recorded at or in the vicinity of the Highway 62 and Moira/Ridge Road intersection. Out of the 24 collisions, six of them were intersection related.

From the six intersection-related collisions, three of them resulted from drivers failing to yield the right-of-way. One of the collisions involved a northbound left-turning vehicle colliding with a through vehicle on the southbound approach. The other two collisions occurred on the eastbound approach on Ridge Road, and involved a left-turning vehicle from the minor approach colliding with a vehicle on the Highway 62 southbound approach. It is noted that all three "Fail to Yield" collisions involved a vehicle on the southbound approach on Highway 62.

Currently, the existing intersection is on a horizontal curve and a vertical crest with a down grade to the south. Northbound vehicles are traveling from a lower elevation at Rawdon Creek approaching the intersection, resulting in slightly reduced sight distances for the westbound and northbound traffic. This creates a less than desirable condition as left turning vehicles appear to misjudge available gaps and speed when completing their turns.

5.4 Highway 62 Rawdon Creek Structure

As mentioned in **Section 4.4**, the existing Rawdon Creek structure contains an original structure constructed prior to 1934 (**Figure 4-11**). The original structure was widened in 1934. It consists of a single span concrete T-beam (slab and girder) bridge with a span of 12.2 m and width of 9.2 m. The bridge was rehabilitated in 1982 by replacing the open railing system with a concrete barrier wall. The existing structure accommodates one lane of traffic in each direction. The existing Rawdon Creek structure is over 79 years old and is in fair to poor condition. Given the age and condition of the Rawdon Creek structure, it is more cost effective to replace the structure than to rehabilitate it.

5.5 Summary of Transportation Problems and Opportunities

Table 5-1 summarizes the intersection problems and opportunities which provide the reference point for the generation and assessment of alternatives, as discussed in **Chapters 6 and 7**:

Table 5-1: Intersection Problems and Opportunities

Problems	Opportunities
Intersection Operations and Safety Over the 5-year period between 2005 and 2009, there were 24 collisions recorded at or in the vicinity of the intersection. Out of the 24 collisions, six of them were intersection related. **Intersection Geometrics** The existing intersection is on a horizontal curve, resulting in less desirable sight distances for westbound and northbound traffic approaching the intersection.	• Signals will be warranted at the intersection in the near term. With the traffic signals in place, collisions involving left turning vehicles would be expected to be reduced. • The introduction of exclusive left turn lanes on both northbound and southbound approaches on Highway 62 could minimize rear-end and turning collisions at the intersection. • Opportunity to slow down traffic approaching the intersection (which enhances safety) with a modern roundabout as an alternative to a signalized intersection. • Opportunity to improve the vertical and horizontal alignment of Highway 62 through the intersection. • The existing Rawdon Creek structure is over 79 years old and is in fair to poor condition. Given the age and condition of the Rawdon Creek structure, it is more cost effective to replace the structure than to rehabilitate it.

6. ASSESSMENT OF ALTERNATIVES TO THE UNDERTAKING

Consistent with the Class EA, Alternatives to the Undertaking were examined to determine which alternatives were considered reasonable in addressing the identified problems and opportunities. Alternatives to the Undertaking are broad-based alternatives that represent functionally different ways of addressing the identified problems and opportunities.

6.1 Alternatives to the Undertaking

6.1.1 Highway 62 and Moira/Ridge Road Intersection

The Alternatives to the Undertaking considered in this study include:

- Do Nothing:
  - The "Do Nothing" alternative represents a continuation of current trends, with no significant infrastructure improvements.
  - The status quo does not address the key operational deficiencies (e.g. warrant for traffic signals by 2014) and geometric deficiencies (e.g. substandard sight distances, substandard horizontal curve through the intersection, lack of turning lanes, etc.).
  - This alternative was only carried forward for comparison purposes.
- Transportation Demand Management (TDM) and Transportation Systems Management (TSM).
  - TDM: measures aimed at shifting transportation demand (e.g. carpooling, telecommuting, etc.). TSM: measures to improve the efficiency of the existing transportation system (e.g. automated message systems).
  - Influencing travel choices (e.g. carpooling, telecommuting, etc.) and implementing low-cost measures to improve the efficiency of the existing transportation system (e.g. automated message systems, etc.) cannot solely address the study objectives, but may be considered along with other alternatives.
- Encourage the use of other modes of transportation (e.g. rail, transit, etc.):
  - While encouraging the use of other modes of transportation (via provision of additional transit options, carpool lots, etc.) could result in an additional shift from passenger vehicles to transit, the shift would not be enough to significantly ease the future traffic volumes or improve safety conditions at the intersection.
  - As such, this alternative may be considered along with other alternatives.
- Improvements to the Highway 62 and Moira/Ridge Road intersection:
  - Improvements to the Highway 62 and Moira/Ridge Road intersection, such as improving geometrics, providing left-turn lanes, building a roundabout intersection, providing traffic signals, etc., have the potential to resolve the majority of the main operational and geometric deficiencies at the intersection.
  - This alternative was carried forward for further study.
- Encourage the greater use of the surrounding local roads:

- While encouraging the greater use of the surrounding local roads may result in a minor reduction of traffic at the Highway 62 and Moira/Ridge Road intersection, the shift may not be enough to not require traffic signals in the future, and the shift in traffic would not improve the geometric or safety conditions at the intersection.
- As such, this alternative was not carried forward for further study.

6.1.2 Highway 62 Rawdon Creek Structure

Alternatives to the Undertaking considered for the Highway 62 Rawdon Creek bridge included the following:

- Do Nothing:
  - The "Do Nothing" alternative represents a continuation of current trends, with no significant infrastructure improvements.
  - This alternative was screened out due to the fact that the bridge is in need of substantial rehabilitation.
- Rehabilitation:
  - Given the age and condition of the Rawdon Creek structure, it is more cost effective to replace the structure than to rehabilitate it.
  - As such, this alternative was screened out.
- Replacement:
  - Replacement of the Highway 62 Rawdon Creek structure was identified as the only feasible alternative to address the need for structural improvements.

7. GENERATION, ASSESSMENT AND EVALUATION OF HIGHWAY 62 MOIRA/RIDGE ROAD INTERSECTION IMPROVEMENTS AND RAWDON CREEK STRUCTURE REPLACEMENT ALTERNATIVES

This chapter provides an overview of the generation, assessment and evaluation of the various intersection improvement alternatives and structure replacement alternatives that were considered for the Highway 62 and Moira/Ridge Road intersection and Rawdon Creek structure.

7.1 Assessment and Evaluation of Alternatives

Alternatives were generated for the intersection improvements and Rawdon Creek bridge replacement. The alternatives were then combined to identify each group alternative (which represents all potential combinations of intersection improvement and bridge replacement alternatives). Refer to **Section 7.1.3** regarding the approach for evaluating the combined alternatives.

7.1.1 Screening of the Long List of Alternatives

Table 7-1 presents a summary of all the long list of alternatives developed for both the Highway 62 and Moira/Ridge Road intersection improvements and the Highway 62 Rawdon Creek structure replacement. Additional details are provided in the subsequent sections and exhibits.

Table 7-1: Summary of the Long List of Alternatives Developed

Intersection Improvements Alternative	Comments
Alternative 1: Signalized Intersection and Minor East Realignment of Highway 62	Alternative 1 addresses the project needs with minor environmental impacts. As such, it is **carried forward** for further study.
Alternative 2: Modern Roundabout and West Realignment of Highway 62	Alternative 2 addresses the project needs with manageable environmental impacts. As such, it is **carried forward** for further study.
Alternative 3: Signalized Intersection and West Realignment of Highway 62 with a Flatter Curve (R=600m)	Alternative 3 addresses the project needs with manageable environmental impacts. As such, it is **carried forward** for further study.

Intersection Improvements Alternative	Comments
Alternative 4: Signalized Intersection and West Realignment of Highway 62 with the Intersection on a Tangent	Alternative 4 results in significant property impacts (including two potential displacements and displacement of agricultural lands). Given that Alternatives 1 to 3 provide similar transportation benefits with reduced property impacts, Alternative 4 is **not carried forward** for further study.
Alternative 5: Signalized Intersection and West Realignment of Highway 62 with a Flatter Curve (R=1,200m)	Alternative 5 results in significant property impacts (including two potential displacements and displacement of agricultural lands). Given that Alternatives 1 to 3 provide similar transportation benefits with reduced property impacts, Alternative 5 is **not carried forward** for further study.
Alternative 6: Signalized Intersection and West Realignment of Highway 62 with a Flatter Curve (R=550m)	Alternative 6 results in significant displacement of agricultural lands and bisecting Donnadale Farm Inc. Given that Alternatives 1 to 3 provide similar transportation benefits with reduced property impacts, Alternative 6 is **not carried forward** for further study.

Structure Replacement Alternative	Comments
Alternative 1: 2-lane Detour with a Temporary Modular Bridge on the West Side of Highway 62	Alternative 1 addresses the project needs with manageable environmental impacts. As such, it is **carried forward** for further study.
Alternative 2: 2-lane Permanent Realignment to the West of Highway 62	Alternative 2 addresses the project needs with manageable environmental impacts. As such, it is **carried forward** for further study.
Alternative 3: 1-lane Permanent Realignment of Highway 62 to the West	Alternative 3 results in unacceptable traffic operations during construction. As such it is **not carried forward** for further consideration.
Alternative 4A: 1-lane Detour with a Temporary Modular Bridge to the West Side of Highway 62	Alternative 4A results in unacceptable traffic operations during construction. As such it is **not carried forward** for further consideration.
Alternative 4B: 1-lane Detour with a Temporary Modular Bridge (with a 2.5m Shoulder) to the West Side of Highway 62	Alternative 4B results in unacceptable traffic operations during construction. As such it is **not carried forward** for further consideration.
Alternative 4C: 1-lane Detour with a Temporary Modular Bridge to the West Side of Highway 62 and a Reduced Work Zone	Alternative 4C addresses the project needs with manageable environmental impacts. As such, it is **carried forward** for further study.

Structure Replacement Alternative	Comments
Alternative 5: Short-Term Full Closure of Highway 62 while the Existing Bridge is Replaced	Alternative 5 results in the short-term full closure of Highway 62 and prevents local residents and the Amish Community from using this section of Highway 62 during construction, creating unacceptable out-of-way travel (approximately 11 km). As such, As such it is **not carried forward** for further consideration.
Alternative 6: Detour / Permanent Realignment on the East Side of Highway 62	Alternative 6 is **not carried forward** for further consideration since it is not possible to meet the minimum horizontal curve highway standard without significant impacts / displacements to the St. Luke's Cemetery, Jackson Auto Sales, AJ's Car Wash and Detailing, and a residential property on the east side of Highway 62.

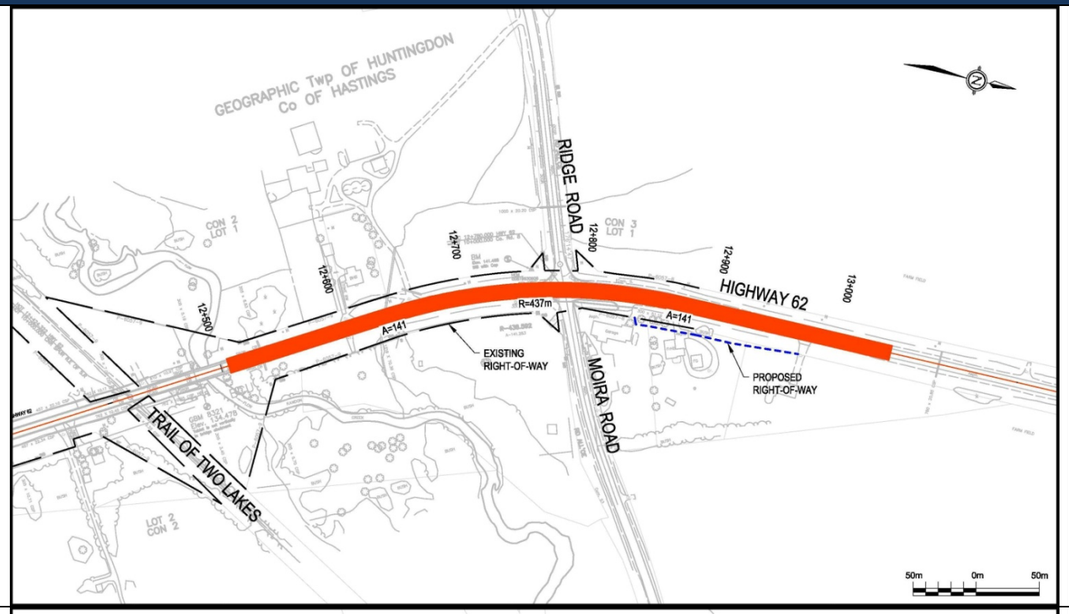
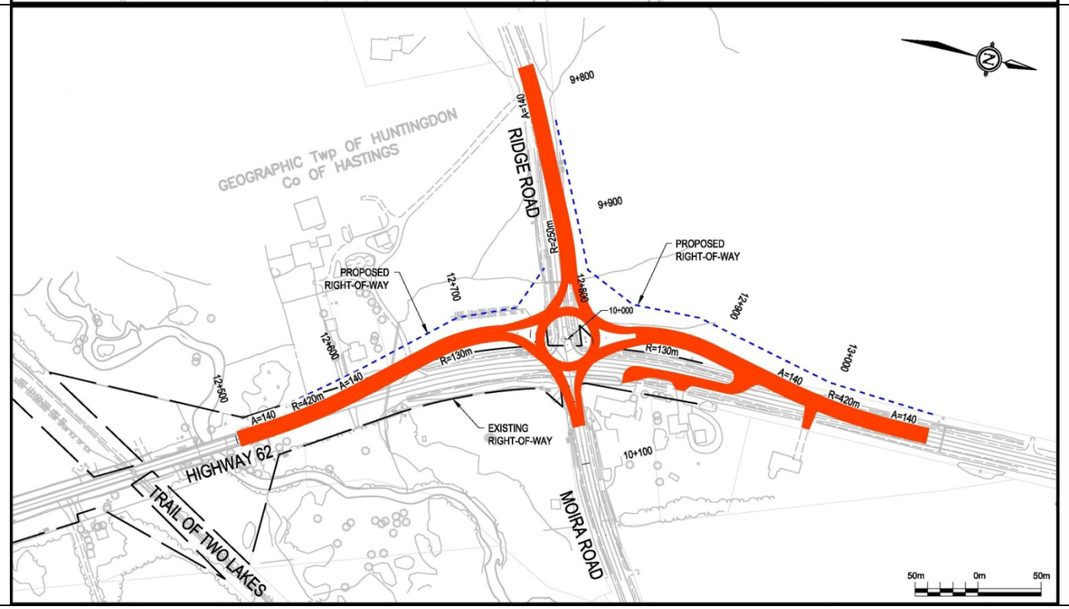
Highway 62 and Moira/Ridge Road Intersection Improvements

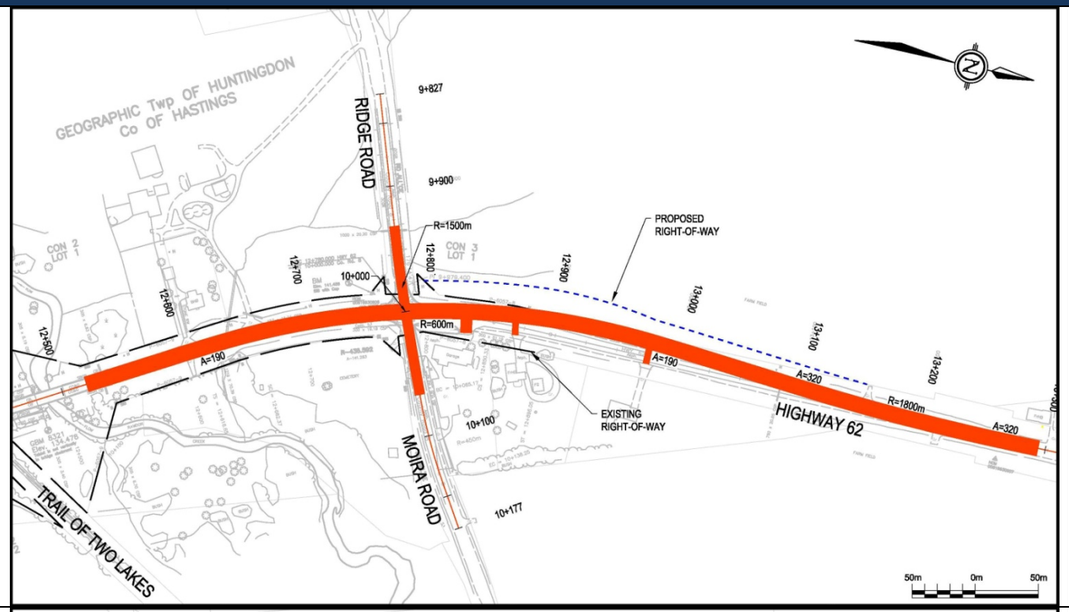
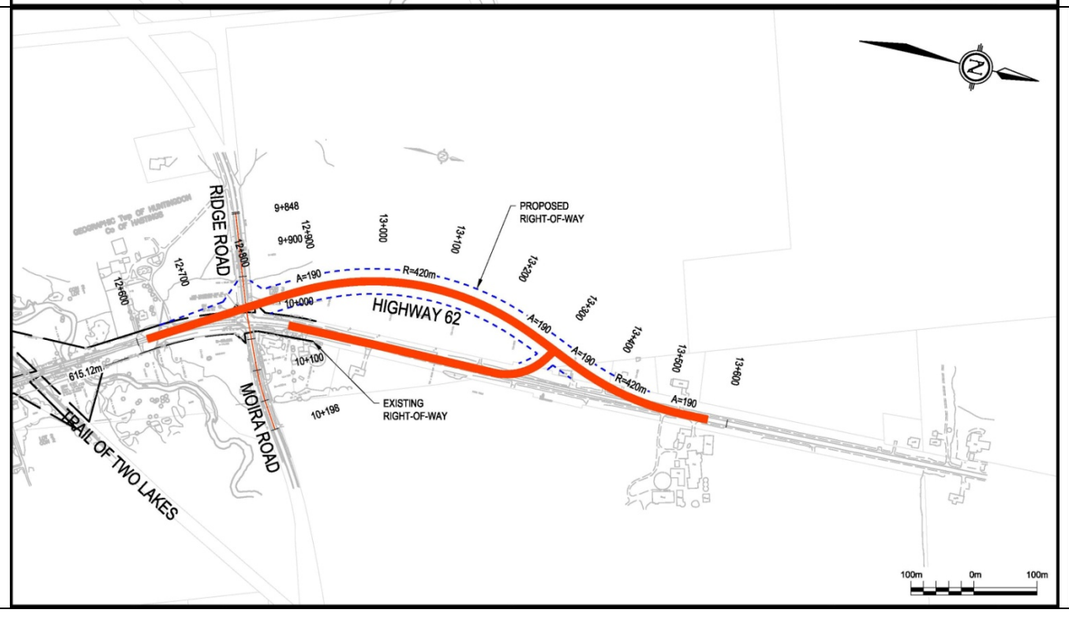
Six alternatives were developed to determine a short-list of alternatives that address the identified problems and opportunities at the intersection with manageable environmental impacts. A coarse level screening of the six alternatives was conducted to identify the relative advantages and disadvantages of each alternative. Alternatives 1, 2 and 3 were forward for further assessment to determine a Technically Preferred Alternative. See **Table 7-2** for the screening of the long list of alternatives for the intersection improvements.

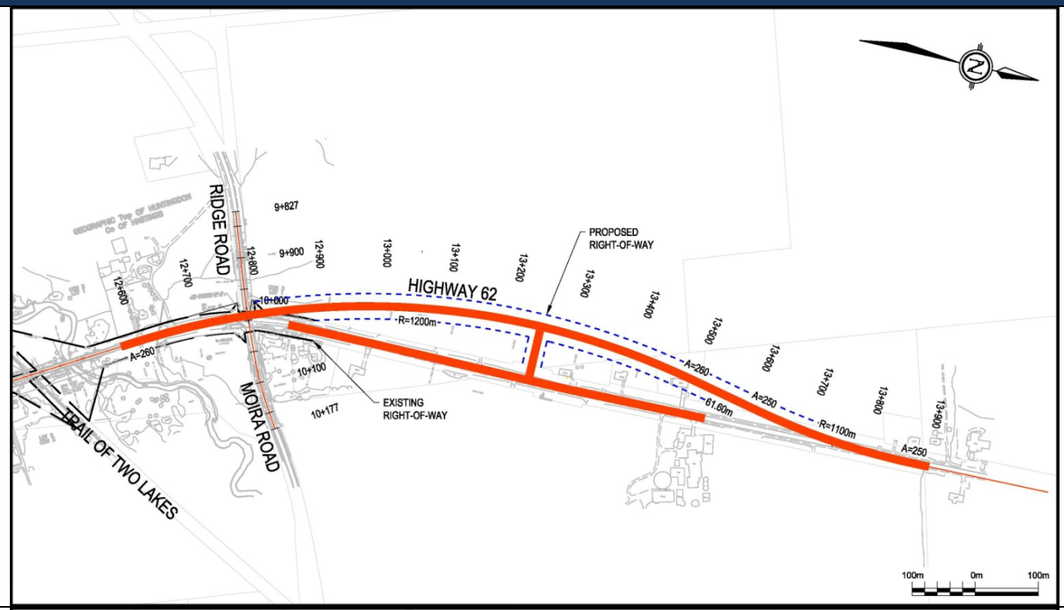
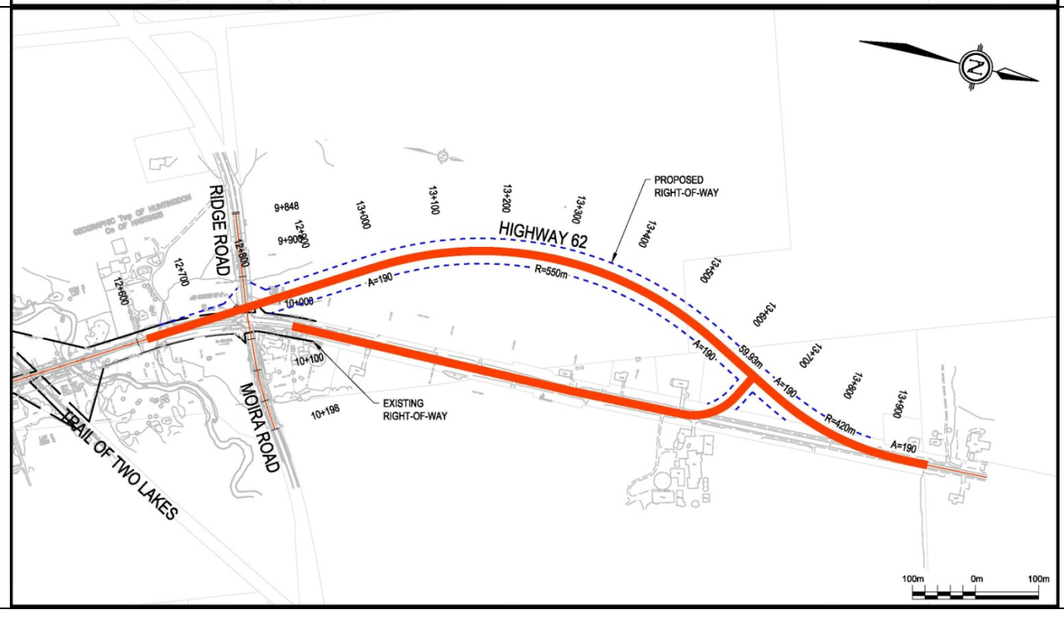
Highway 62 Rawdon Creek Structure

Six alternatives were developed to determine a short-list of alternatives that address the need to replace the Rawdon Creek structure. A coarse level screening of the six alternatives was conducted to identify the relative advantages and disadvantages of each alternative. Alternatives 1, 2 and 4C were forward for further assessment to determine a Technically Preferred Alternative. See **Table 7-3** for the screening of the long list of alternatives for the Rawdon Creek structure replacement.

Table 7-2: Screening of the Long List of Alternatives for the Intersection Improvements

Alternative		Advantages	Disadvantages	Comments
Alternative 1: **Signalized Intersection and Minor East Realignment of Highway 62**		- Signalizing the intersection will enhance safety and operations: collisions involving left turning vehicles are expected to be reduced. - Minor property impacts.	- Provides no significant geometric improvements to Highway 62.	Alternative 1 addresses the project needs with minor environmental impacts. As such, it is **carried forward** for further study.
Alternative 2: **Modern Roundabout and West Realignment of Highway 62**		- Roundabouts reduce the number of conflict points where collisions can occur (and severity) as it controls the speed of vehicles entering the intersection. - Roundabouts provide speed consistency through the intersection and can increase capacity and efficiency.	- Provides no significant geometric improvements to Highway 62. - Displacement of agricultural lands (Class 1-3 soils). - Potential displacement of one residence in the southwest quadrant of the intersection.	Alternative 2 addresses the project needs with manageable environmental impacts. As such, it is **carried forward** for further study.

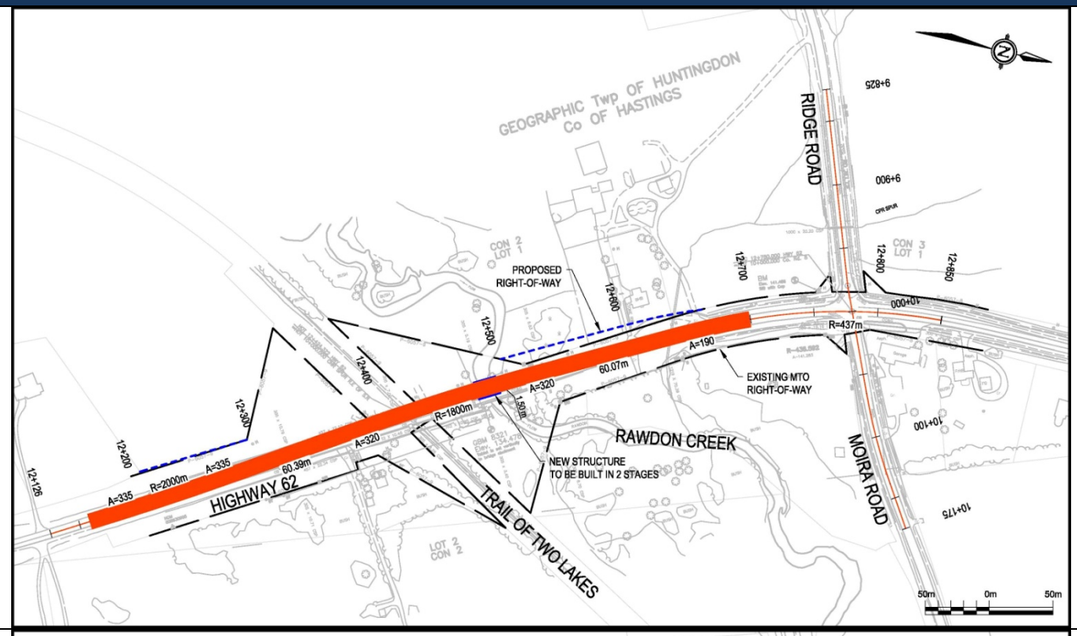
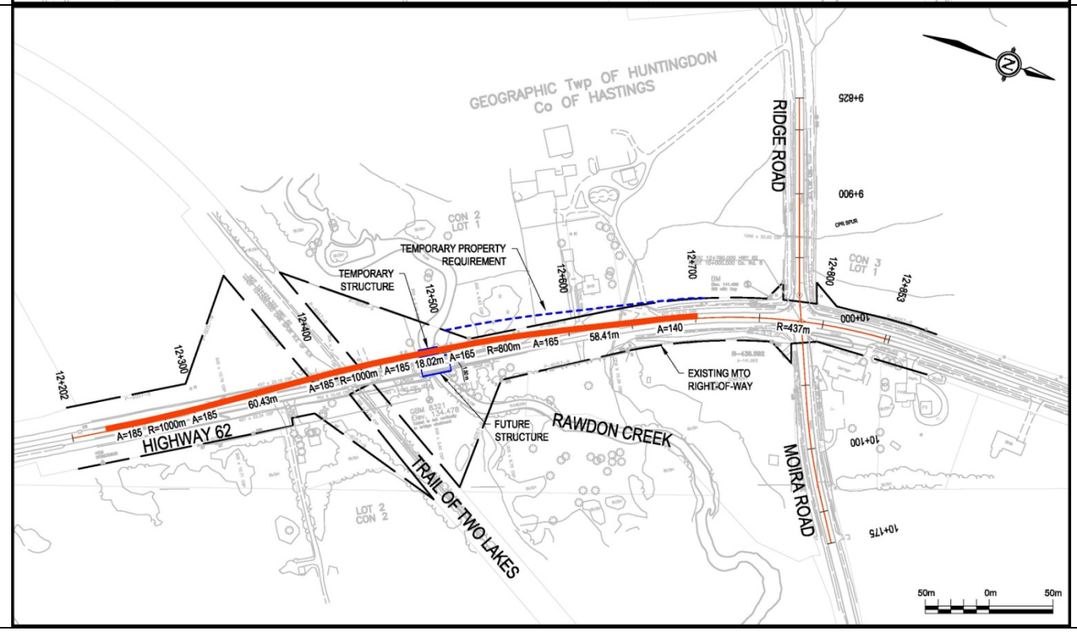
Alternative		Advantages	Disadvantages	Comments
Alternative 3: **Signalized Intersection and West Realignment of Highway 62 with a Flatter Curve (R=600m)**		- Signalizing the intersection will enhance safety and operations: collisions involving left turning vehicles are expected to be reduced. - Improved geometry: a flatter curve will improve sight distance for drivers approaching the intersection and enhance safety.	- Displacement of agricultural lands (Class 1-3 soils).	Alternative 3 addresses the project needs with manageable environmental impacts. As such, it is **carried forward** for further study.
Alternative 4: **Signalized Intersection and West Realignment of Highway 62 with the Intersection on a Tangent**		- Signalizing the intersection will enhance safety and operations: collisions involving left turning vehicles are expected to be reduced. - Improved geometry: the intersection will be on a tangent. This will improve sight distance and enhance safety and traffic operations.	- Significant property impacts. - Significant displacement of agricultural lands (Class 1-3 soils) in the northwest quadrant. - Potential displacement of two residences in the northwest quadrant of the intersection.	Alternative 4 results in significant property impacts (including two potential displacements and displacement of agricultural lands). Given that Alternatives 1 to 3 provide similar transportation benefits with reduced property impacts, Alternative 4 is **not carried forward** for further study.

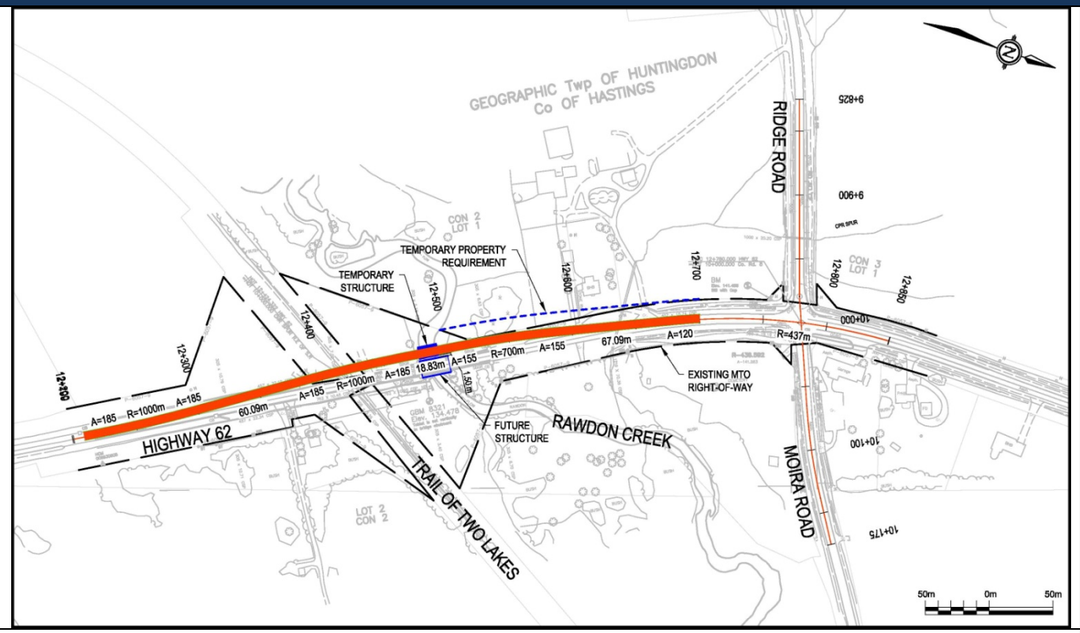
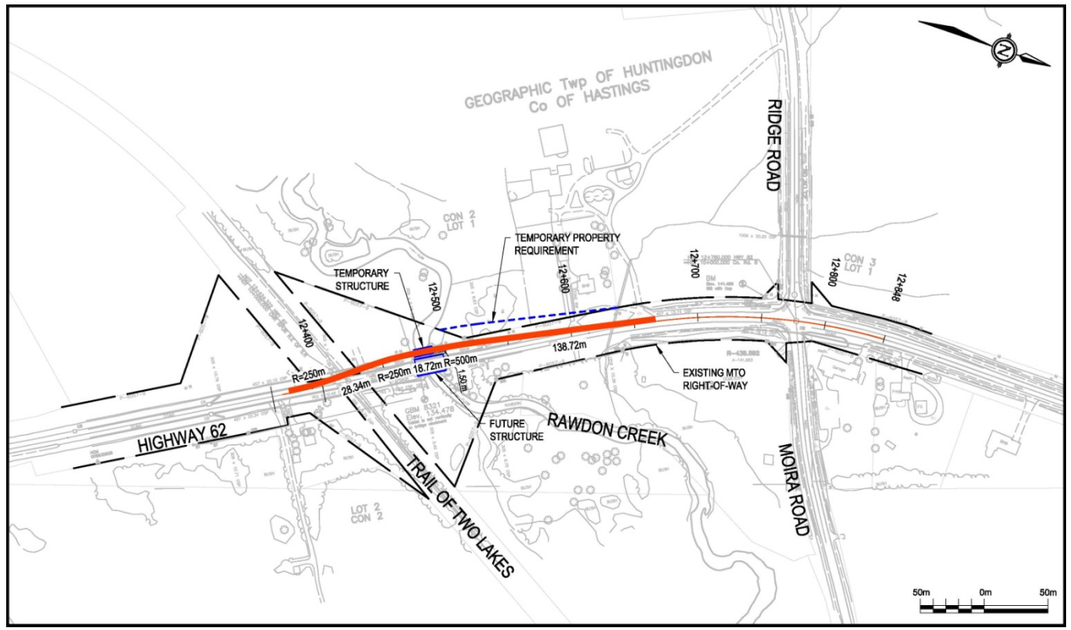
Alternative		Advantages	Disadvantages	Comments
Alternative 5: **Signalized Intersection and West Realignment of Highway 62 with a Flatter Curve (R=1,200m)**		- Signalizing the intersection will enhance safety and operations: collisions involving left turning vehicles are expected to be reduced. - Improved geometry: meets the MTO intersection standard.	- Significant property impacts. - Significant displacement of agricultural lands (Class 1-3 soils) in the northwest quadrant. - Potential displacement of two residences in the northwest quadrant of the intersection.	Alternative 5 results in significant property impacts (including two potential displacements and displacement of agricultural lands). Given that Alternatives 1 to 3 provide similar transportation benefits with reduced property impacts, Alternative 5 is **not carried forward** for further study.
Alternative 6: **Signalized Intersection and West Realignment of Highway 62 with a Flatter Curve (R=550m)**		- Signalizing the intersection will enhance safety and operations: collisions involving left turning vehicles are expected to be reduced. - Improved geometry: the intersection will be on a tangent. This will improve sight distance and enhance driver safety and traffic operations. - Avoids potential displacement of two residences relative to Alternative 4.	- Significant property impact. - Bisects one farm property (Donnadale Farm Inc. west of Highway 62, north of the intersection) and impacts a significant area of Class 1-3 soils.	Alternative 6 results in significant displacement of agricultural lands and bisecting Donnadale Farm Inc. Given that Alternatives 1 to 3 provide similar transportation benefits with reduced property impacts, Alternative 6 is **not carried forward** for further study.

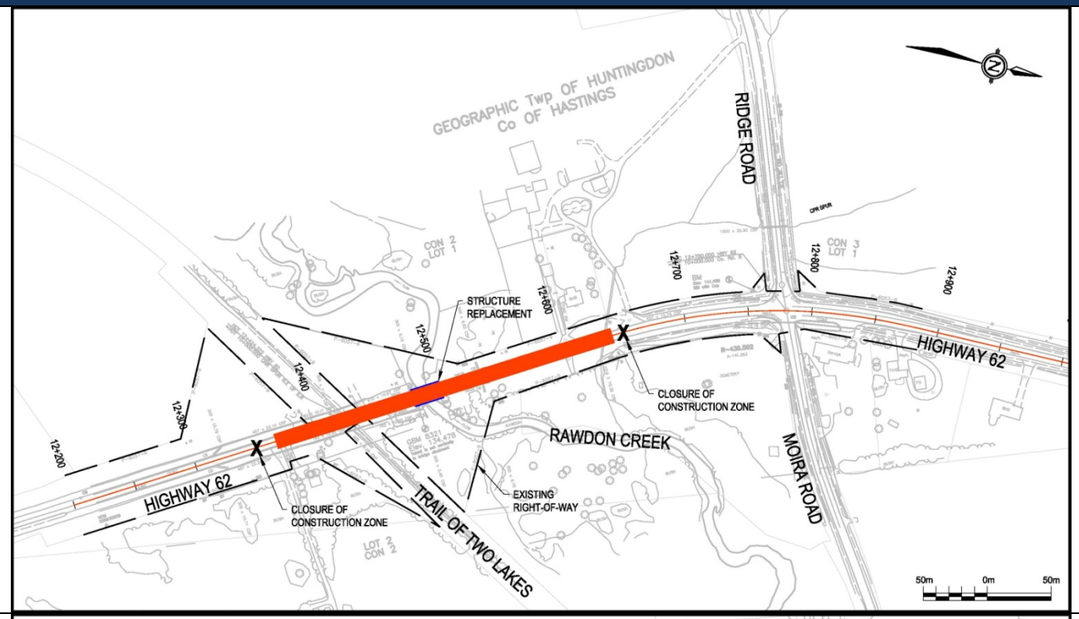
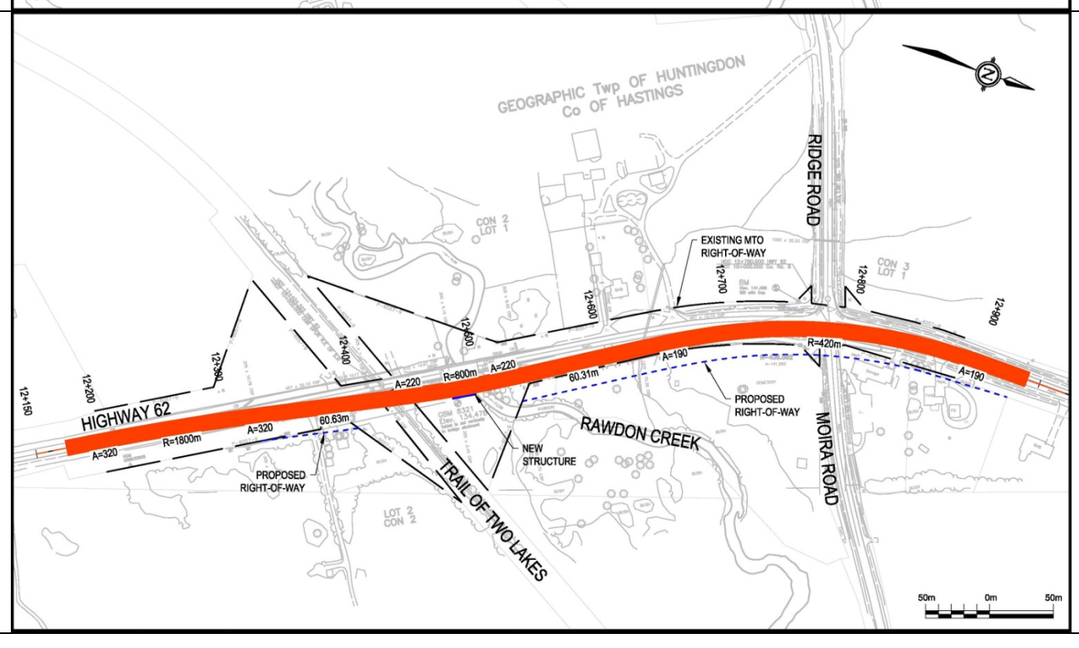
Carried forward
Not carried forward

Table 7-3: Screening of the Long List of Alternatives for the Rawdon Creek Structure Replacement

Alternative	Advantages	Disadvantages	Comments
Alternative 1: **2-lane Detour with a Temporary Modular Bridge on the West Side of Highway 62**	- Improved vertical profile of the structure on existing alignment. - Traffic during construction is not disrupted due to the 2-lane detour. - Temporary property requirements only.	- Entrances / accesses to adjacent private properties are located within the construction zone.	Alternative 1 addresses the project needs with manageable environmental impacts. As such, it is **carried forward** for further study.
Alternative 2: **2-lane Permanent Realignment to the West of Highway 62**	- Traffic during construction is not disrupted due to the 2-lane realignment. - Improved vertical profile.	- Entrances / accesses to adjacent private properties are located within the construction zone. - Requires permanent property taking.	Alternative 2 addresses the project needs with manageable environmental impacts. As such, it is **carried forward** for further study.

Alternative		Advantages	Disadvantages	Comments
Alternative 3: **1-lane Permanent Realignment of Highway 62 to the West**		- Improved vertical profile. - Minor property impacts.	- Portable temporary traffic signals to be installed on both sides of detour impacts free-flow operations. - Traffic during construction is disrupted: the southbound queue on Highway 62 is expected to extend into and beyond the intersection. - It is not desirable to have traffic queues extend into the intersection as it could potentially increase the risk of collisions. - Entrances / accesses to adjacent private properties are located within the construction zone. - Requires permanent property taking. - Longer duration of construction due to structure being built in two stages with reduction of travel to one lane.	Alternative 3 results in unacceptable traffic operations during construction. As such it is **not carried forward** for further consideration.
Alternative 4A: **1-lane Detour with a Temporary Modular Bridge to the West Side of Highway 62**		- Improved vertical profile of structure on existing alignment. - Temporary property requirements only.	- Portable temporary traffic signals to be installed on both sides of detour impacts free-flow operations. - Traffic during construction is disrupted: the southbound queue on Highway 62 is expected to extend into and beyond the intersection. - It is not desirable to have traffic queues extend into the intersection as it could potentially increase the risk of collisions. - Entrances / accesses to adjacent private properties are located within the construction zone.	Alternative 4A results in unacceptable traffic operations during construction. As such it is **not carried forward** for further consideration.

Alternative		Advantages	Disadvantages	Comments
Alternative 4B: **1-lane Detour with a Temporary Modular Bridge (with a 2.5m Shoulder) to the West Side of Highway 62**		- Improved vertical profile of structure on existing alignment. - Temporary property requirements only. - Provides 2.5 m shoulder for other road users.	- Portable temporary traffic signals to be installed on both sides of detour impacts free-flow operations. - Traffic during construction is disrupted: the southbound queue on Highway 62 is expected to extend into and beyond the intersection. - It is not desirable to have traffic queues extend into the intersection as it could potentially increase the risk of collisions. - Entrances / accesses to adjacent private properties are located within the construction zone. - Temporary property requirement slightly greater than Alternative 4A since wider bridge required.	Alternative 4B results in unacceptable traffic operations during construction. As such it is **not carried forward** for further consideration.
Alternative 4C: **1-lane Detour with a Temporary Modular Bridge to the West Side of Highway 62 and a Reduced Work Zone**		- Reduced work zone: there is one entrance located within the construction zone. Impacts to this entrance can potentially be mitigated depending on the location of the portable temporary traffic signals. - Reduced work zone: there is reduced potential for southbound queue on Highway 62 to extend into and beyond the intersection due to shorted work zone (in comparison to other one-lane alternatives). - Temporary property requirements only. - Minor property impacts.	- Limited improvement to the existing geometry. - Minor disruption to traffic during construction: portable temporary traffic signals to be installed on both sides of detour.	Alternative 4C addresses the project needs with manageable environmental impacts. As such, it is **carried forward** for further study.

Alternative		Advantages	Disadvantages	Comments
Alternative 5: **Short-Term Full Closure of Highway 62 while the Existing Bridge is Replaced**		- Simple construction staging. - Improved vertical profile of structure on existing alignment	- Prevents local residents and the Amish Community from using this section of Highway 62 during construction, creating unacceptable out of-way travel (approximately 11 km).	Alternative 5 results in the short-term full closure of Highway 62 and prevents local residents and the Amish Community from using this section of Highway 62 during construction, creating unacceptable out-of-way travel (approximately 11 km). As such, As such it is **not carried forward** for further consideration. 
Alternative 6: **Detour / Permanent Realignment on the East Side of Highway 62**			- Not a feasible alternative from a highway geometrics standpoint: not able to meet the minimum horizontal curve highway standard without potentially significant impacts / displacements to the St. Luke's Cemetery, Jackson Auto Sales, AJ'S Car Wash and Detailing, and a residential property on the east side of Highway 62.	Alternative 6 is **not carried forward** for further consideration since it is not possible to meet the minimum horizontal curve highway standard without significant impacts / displacements to the St. Luke's Cemetery, Jackson Auto Sales, AJ's Car Wash and Detailing, and a residential property on the east side of Highway 62. 


Carried forward
Not carried forward

7.1.2 Evaluation Methodology / Criteria

A weighted-score arithmetic evaluation system was used to compare the short-list alternatives that were carried forward. This evaluation methodology involved assigning relative weightings to each of the evaluation categories and criteria based on their level of importance.

Impacts were measured either quantitatively or qualitatively, and then these scores were multiplied by the relative weight for that indicator. The weighted scores for each indicator were then summed to arrive at a total score for each alternative. The preferred alternative identified through the weighted-score evaluation was confirmed through a reasoned argument approach to articulate the relative advantages and disadvantages in selecting the Technically Preferred Alternative.

The alternative that produced the highest total weighted score (and confirmed through the reasoned argument evaluation) was selected as preferred as it results in the best balance of benefits and impacts to the natural, socio-economic and cultural environments, as well as transportation considerations and cost.

The following (**Table 7-4**) is a list of the criteria that was used to evaluate the alternatives along with their relative weightings:

Table 7-4: Evaluation Criteria

CATEGORY / Factor	Category Weight	Factor Weight
TRANSPORTATION		
Safety and Operations	40%	35%
Construction Staging		5%
Cost		
Cost	10%	10%
NATURAL ENVIRONMENT		
Fish and Fish Habitat	10%	3%
Terrestrial Habitat and Vegetation		2.5%
Species at Risk		2.5%
Groundwater		2%
SOCIO-ECONOMIC ENVIRONMENT		
Aesthetics	35%	1%
Noise		1%
Air Quality		1%
Community Effects		16%
Agricultural Operations		15%
Waste and Contamination		1%
CULTURAL ENVIRONMENT		

CATEGORY / Factor	Category Weight	Factor Weight
Archaeological Resources	5%	2.5%
Built Heritage Features and Cultural Heritage Landscapes		2.5%

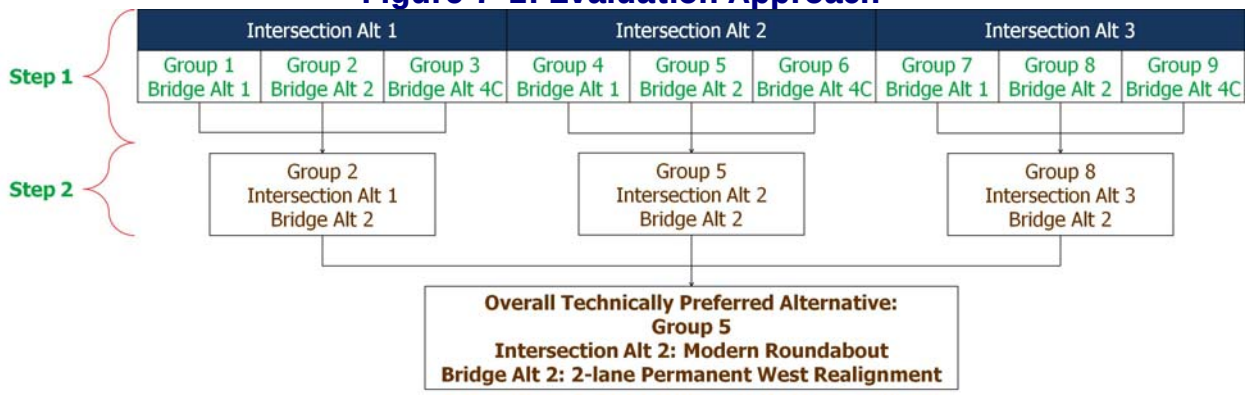
7.1.3 Evaluation Approach

A 2-step approach was employed to jointly evaluate the alternatives considered for the Highway 62 Moira/Ridge Road intersection and Highway 62 Rawdon Creek structure replacement. This sequential evaluation approach breaks down the evaluation into manageable groupings of alternatives (refer to **Appendix C** for the nine exclusive pairings of the alternatives), whereby Technically Preferred Alternatives are selected for each group and then comparatively assessed to identify an overall Technically Preferred Alternative. The two stages of the evaluation process are as follows:

- Step 1: Determine the best Rawdon Creek structure replacement alternative for each intersection improvement alternative. Alternative 2 (2-lane Permanent West Realignment) was identified as the best structure replacement alternative for all three intersection improvement alternatives.
- Step 2: Evaluate the preferred alternative from each group of combined intersection improvement / structure replacement alternatives to determine an overall Technically Preferred Alternative.

Refer to **Figure 7-1** for the 2-step approach.

Figure 7-1: Evaluation Approach



Refer to **Section 7.2** for details of the evaluation results.

7.2 Evaluation of Alternatives – Step 1

Evaluation for Groups 1, 2 and 3 (Intersection Alternative 1 Group Alternatives)

	Alternative Group 1 Intersection Alt 1: Signalized Intersection + Rawdon Creek Alt 1: 2-lane Detour		Alternative Group 2 Intersection Alt 1: Signalized Intersection + Rawdon Creek Alt 2: 2-lane Permanent Realignment		Alternative Group 3 Intersection Alt 1: Signalized Intersection + Rawdon Creek Alt 3: 1-lane Detour/Reduced Work Zone	
Transportation (40% Weight)	10.48		13.08		2.50	
Cost (10% Weight)	0		0.17		0.34	
Natural Environment (10% Weight)	0		0		0	
Socio-Economic Environment (35% Weight)	5.30		2.85		7.25	
Cultural Environment (5% Weight)	0.45		0.38		0.52	
Total Score	**16.23**		**16.48**		**10.61**	
Legend	 *Most Preferred*	  *Least Preferred*			 *Factor Not Decision Relevant*	

Evaluation Summary (Groups 1, 2 and 3)

At the Highway 62 and Moira/Ridge Road intersection, all three group alternatives provide similar transportation benefits (Signalized Intersection) and result in similar impacts to adjacent properties, displacing Jackson Auto Sales in the northeast quadrant, farmlands in the northeast, northwest and southwest quadrants, and vegetation in the southeast quadrant of the intersection. All three group alternatives also result in similar impacts to the St. Luke's Cemetery in the southeast quadrant (the entrance to the cemetery will have to be reconstructed at the west end of the property near the intersection and the entrance to the east will need to be closed).

All three group alternatives result in similar impacts to the natural environment.

Although Group 3 results in slightly less property impacts relative to Groups 1 and 2, and is slightly less expensive to construct, it is less preferred from a Transportation perspective:

- Less desirable operations than Groups 1 and 2 (1-lane detour vs. free-flow 2-way traffic during construction of the Highway 62 Rawdon Creek structure);

- One residential entrance is in the construction zone (west of Highway 62 and north of Rawdon Creek); and
- Less desirable geometry during bridge construction relative to Groups 1 and 2.

Groups 1 and 2 result in similar construction cost. Group 1 results in less property impacts (that are temporary and can generally be mitigated post construction), relative to Group 2 (which results in permanent property taking). However, these disadvantages are outweighed by the improvements to the visibility of the Moira/Ridge Road intersection due to re-profiling and realignment at the Rawdon Creek bridge associated with Group 2 (in the event that the Highway 62 Rawdon Creek structure replacement takes place prior to the improvements to the Highway 62 and Moira/Ridge Road intersection). Group 1 only results in very minor improvement to the visibility of the intersection. In addition, Group 1 has the greatest throw-away costs associated with the temporary realignment and bridge (during construction) relative to Group 2, which has no throw-away costs. **As such, Group 2 is the preferred alternative (for the Signalized Intersection group of alternatives).**

Refer to **Appendix D** for the full arithmetic evaluation.

Evaluation for Groups 4, 5 and 6 (Intersection Alternative 2 Group Alternatives)

	Alternative Group 4 Intersection Alt 2: Modern Roundabout + Rawdon Creek Alt 1: 2-lane Detour		Alternative Group 5 Intersection Alt 2: Modern Roundabout + Rawdon Creek Alt 2: 2-lane Permanent Realignment		Alternative Group 6 Intersection Alt 2: Modern Roundabout + Rawdon Creek Alt 3: 1-lane Detour/Reduced Work Zone	
Transportation (40% Weight)	17.38		20.92		8.46	
Cost (10% Weight)	4.41		4.41		4.75	
Natural Environment (10% Weight)	4.00		4.00		4.00	
Socio-Economic Environment (35% Weight)	18.20		15.91		20.15	
Cultural Environment (5% Weight)	3.02		2.95		3.09	
Total Score	**47.01**		**48.19**		**40.45**	
Legend	 *Most Preferred*		 *Least Preferred*		 *Factor Not Decision Relevant*	

Evaluation Summary (Groups 4, 5 and 6)

At the Highway 62 and Moira/Ridge Road intersection, all three group alternatives provide similar transportation benefits (Modern Roundabout) and result in similar impacts to adjacent properties, displacing farmlands in the northwest and southwest quadrants of the intersection. All three group alternatives also result in similar impacts to the St. Luke's Cemetery in the southeast quadrant and Jackson Auto Sales in the northeast quadrant (impacts to this property have been reduced or minimized).

All three group alternatives result in similar impacts to the natural environment.

Although Group 6 results in slightly less property impacts relative to Groups 4 and 5, and is slightly less expensive to construct, it is less preferred from a Transportation perspective:

- Less desirable operations than Groups 4 and 5 (1-lane detour vs. free-flow 2-way traffic during construction of the Highway 62 Rawdon Creek structure);
- One residential entrance is in the construction zone (west of Highway 62 and north of Rawdon Creek); and
- Less desirable geometry during bridge construction relative to Groups 4 and 5.

Groups 4 and 5 result in similar construction cost. Group 4 results in less property impacts (that are temporary and can generally be mitigated post construction), relative to Group 5 (which results in permanent property taking). However, these disadvantages are outweighed by the improvements to the visibility of the Moira/Ridge Road intersection due to re-profiling and realignment at the Rawdon Creek bridge associated with Group 5 (in the event that the Highway 62 Rawdon Creek structure replacement takes place prior to the improvements to the Highway 62 and Moira/Ridge Road intersection). Group 4 only results in very minor improvement to the visibility of the intersection. In addition, Group 4 has the greatest throw-away costs associated with the temporary realignment and bridge (during construction) relative to Group 5, which has no throw-away costs. **As such, Group 5 is the preferred alternative (for the Modern Roundabout group of alternatives).**

Refer to **Appendix D** for the full arithmetic evaluation.

Evaluation for Groups 7, 8 and 9 (Intersection Alternative 3 Group Alternatives)

	Alternative Group 7 Intersection Alt 3: Signalized Intersection w/ Flatter Curve + Rawdon Creek Alt 1: 2-lane Detour		Alternative Group 8 Intersection Alt 3: Signalized Intersection w/ Flatter Curve + Rawdon Creek Alt 2: 2-lane Permanent Realignment		Alternative Group 9 Intersection Alt 3: Signalized Intersection w/ Flatter Curve + Rawdon Creek Alt 3: 1-lane Detour/Reduced Work Zone	
Transportation (40% Weight)	10.58		14.13		3.54	
Cost (10% Weight)	0.17		0.17		0.51	
Natural Environment (10% Weight)	2.25		2.25		2.25	
Socio-Economic Environment (35% Weight)	5.25		2.62		6.95	
Cultural Environment (5% Weight)	0.33		0.21		0.40	
Total Score	**18.58**		**19.38**		**13.65**	
Legend	 *Most Preferred*	 *Least Preferred*			 *Factor Not Decision Relevant*	

Evaluation Summary (Groups 7, 8 and 9)

At the Highway 62 and Moira/Ridge Road intersection, all three group alternatives provide similar transportation benefits (Signalized Intersection with a Flatter Curve) and result in similar impacts to adjacent properties, displacing Jackson Auto Sales in the northeast quadrant, farmlands in the northeast, northwest and southwest quadrants, and vegetation in the southeast quadrant of the intersection. All three group alternatives also result in similar impacts to the St. Luke's Cemetery in the southeast quadrant (the entrance to the cemetery will have to be reconstructed at the west end of the property near the intersection and the entrance to the east will need to be closed).

All three group alternatives result in similar impacts to the natural environment.

Although Group 9 results in slightly less property impacts relative to Groups 7 and 8, and is slightly less expensive to construct, it is less preferred from a transportation perspective:

- Less desirable operations than Groups 7 and 8 (1-lane detour vs. free-flow 2-way traffic during construction of the Highway 62 Rawdon Creek structure);
- One residential entrance is in the construction zone (west of Highway 62 and north of Rawdon Creek); and

- Less desirable geometry during bridge construction relative to Groups 7 and 8.

Groups 7 and 8 result in similar construction cost. Group 7 results in less property impacts (that are temporary and can generally be mitigated post construction), relative to Group 8 (which results in permanent property taking). However, these disadvantages are outweighed by the improvements to the visibility of the Moira/Ridge Road intersection due to re-profiling and realignment at the Rawdon Creek bridge associated with Group 8 (in the event that the Highway 62 Rawdon Creek structure replacement takes place prior to the improvements to the Highway 62 and Moira/Ridge Road intersection). Group 7 only results in very minor improvement to the visibility of the intersection. In addition, Group 7 has the greatest throw-away costs associated with the temporary realignment and bridge (during construction) relative to Group 8, which has no throw-away costs. **As such, Group 8 is the preferred alternative (for the Signalized Intersection with a Flatter Curve group of alternatives).**

Refer to **Appendix D** for the full arithmetic evaluation.

Based on the results of Step 1 of the evaluation process, Groups 2, 5 and 8 were carried forward to Step 2 and comparatively assessed.

7.3 Evaluation of Alternatives – Step 2

The preferred alternatives from each group evaluation were evaluated to select an overall preferred alternative.

	Alternative Group 2 Intersection Alt 1: Signalized Intersection + Rawdon Creek Alt 2: 2-lane Permanent Realignment		Alternative Group 5 Intersection Alt 2: Modern Roundabout + Rawdon Creek Alt 2: 2-lane Permanent Realignment		Alternative Group 8 Intersection Alt 3: Signalized Intersection w/ Flatter Curve + Rawdon Creek Alt 2: 2-lane Permanent Realignment	
Transportation (40% Weight)	13.08		20.92		14.13	
Cost (10% Weight)	0.17		4.41		0.17	
Natural Environment (10% Weight)	0		4.00		2.25	
Socio-Economic Environment (35% Weight)	2.85		15.91		2.62	
Cultural Environment (5% Weight)	0.38		2.95		0.21	
Total Score	**16.48**		**48.19**		**19.38**	
Legend	 *Most Preferred*	  *Least Preferred*			 *Factor Not Decision Relevant*	

Overall Evaluation Summary

At the Highway 62 Rawdon Creek structure, all three group alternatives provide similar transportation benefits (2-lane Permanent Realignment) and result in similar permanent impacts to residential and agricultural lands west of Highway 62, north of Rawdon Creek.

Although Group 2 (Signalized Intersection) results in similar property impacts and construction cost relative to Group 8 (Signalized Intersection with a Flatter Curve), Group 2 is less preferred for the following reasons:

- Intersection modifications provide no significant geometric improvements to address existing sight distance issue on Highway 62; and
- Results in the greatest displacement of the Fresh Deciduous Forest in the southeast quadrant of the intersection.

As such, Group 2 is the least preferred.

Although Group 8 results in improvements to sight distances for drivers approaching the intersection and enhances safety due to a flatter curve, these improvements are outweighed by the following transportation benefits associated with Group 5 (Modern Roundabout):

- Roundabouts reduce the number of conflict points where collisions can occur and the severity of collisions as they control the speed of vehicles entering the intersection.
- Roundabouts provide speed consistency through the intersection and can increase capacity and efficiency.
- Although a roundabout provides no significant geometric improvements to Highway 62, the line of sight is not an issue with a roundabout and is therefore an improvement relative to the existing conditions and signalized intersection alternatives.

In addition, Group 5 is significantly less expensive to construct relative to Group 8. Group 5 also reduces / minimizes impacts to Jackson Auto Sales in the northeast quadrant (which is displaced by Group 8) and farmland in the northwest quadrant relative to Group 8. Group 5 also results in negligible impacts to the St. Luke's Cemetery in the southeast quadrant, whereas with Group 8, the entrance to the cemetery will have to be reconstructed at the west end of the property near the intersection and the entrance to the east will need to be closed. **As such, Group 5 (modern roundabout at the intersection and 2-lane permanent realignment at the Rawdon Creek crossing) is the overall Technically Preferred Alternative.**

Refer to **Appendix D** for the full arithmetic evaluation.

8. THE RECOMMENDED PLAN

8.1 General Description of the Recommended Plan

This section of the report describes the recommended preliminary design of the preferred alternative for highway design, structural design and the various other engineering disciplines. The Preliminary Design Plates within **Appendix E** illustrate the plan, profile and cross-sectional details of the preliminary design.

The Recommended Plan includes interim improvements that can be implemented in the short- to mid-term as well as an ultimate plan for improvements to the Highway 62 and Moira/Ridge Road intersection.

Interim Improvements (**Figures 8-1 and 8-2**)

- Replacing the existing Highway 62 Rawdon Creek structure to the west of the existing alignment.
- The cross-section of the new Rawdon Creek structure is composed of two barrier walls, two 2.5 m shoulders, and two 4.15 m traffic lanes. The shoulders and lanes will tie into the existing lanes and shoulders along Highway 62.
- Profile improvements on Highway 62.
- Re-grading of the Trail of Two Lakes crossing at Highway 62.
- Minor intersection improvements may be considered prior to implementing the ultimate improvements, including:
  - Vegetation removals within the Highway 62 ROW to enhance intersection visibility.
  - Review placement of signs to ensure they meet current standards.

Ultimate Intersection Improvements (**Figures 8-3a and 8-3b**)

- Constructing a modern roundabout at the Highway 62 and Moira/Ridge Road intersection. The roundabout has been designed to accommodate both tractor trailers 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 connection and property access modifications.
- Provide partial illumination along Highway 62 and at the roundabout intersection.

The Municipality of Centre Hastings provided a Council Resolution on the Recommended Plan in November 2014. Details of the Recommended Plan will be refined during further stages of preliminary design and detail design.

Figure 8-1: Interim Improvements at Rawdon Creek Structure

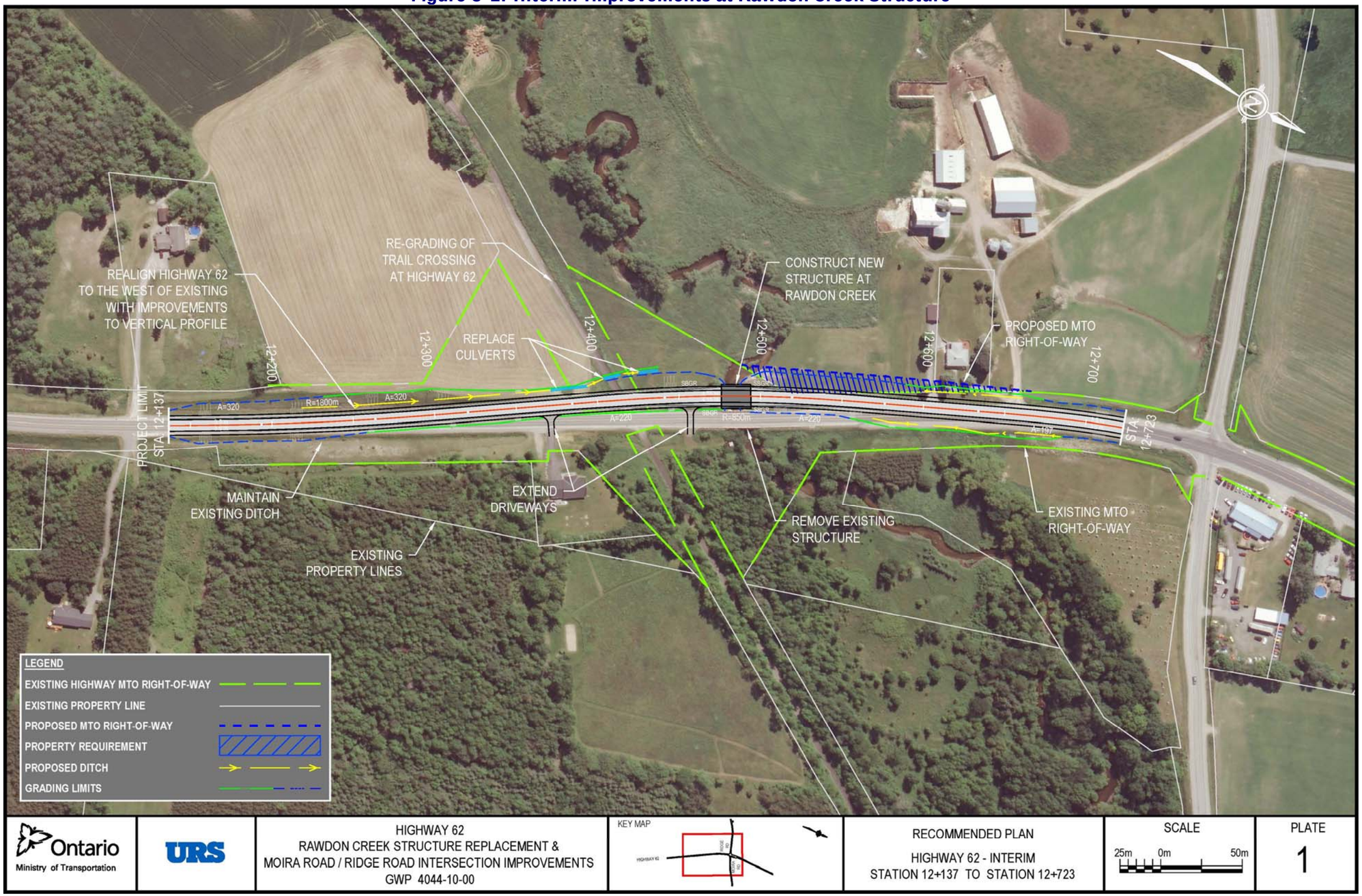


Figure 8-2: Proposed Rawdon Creek Structure

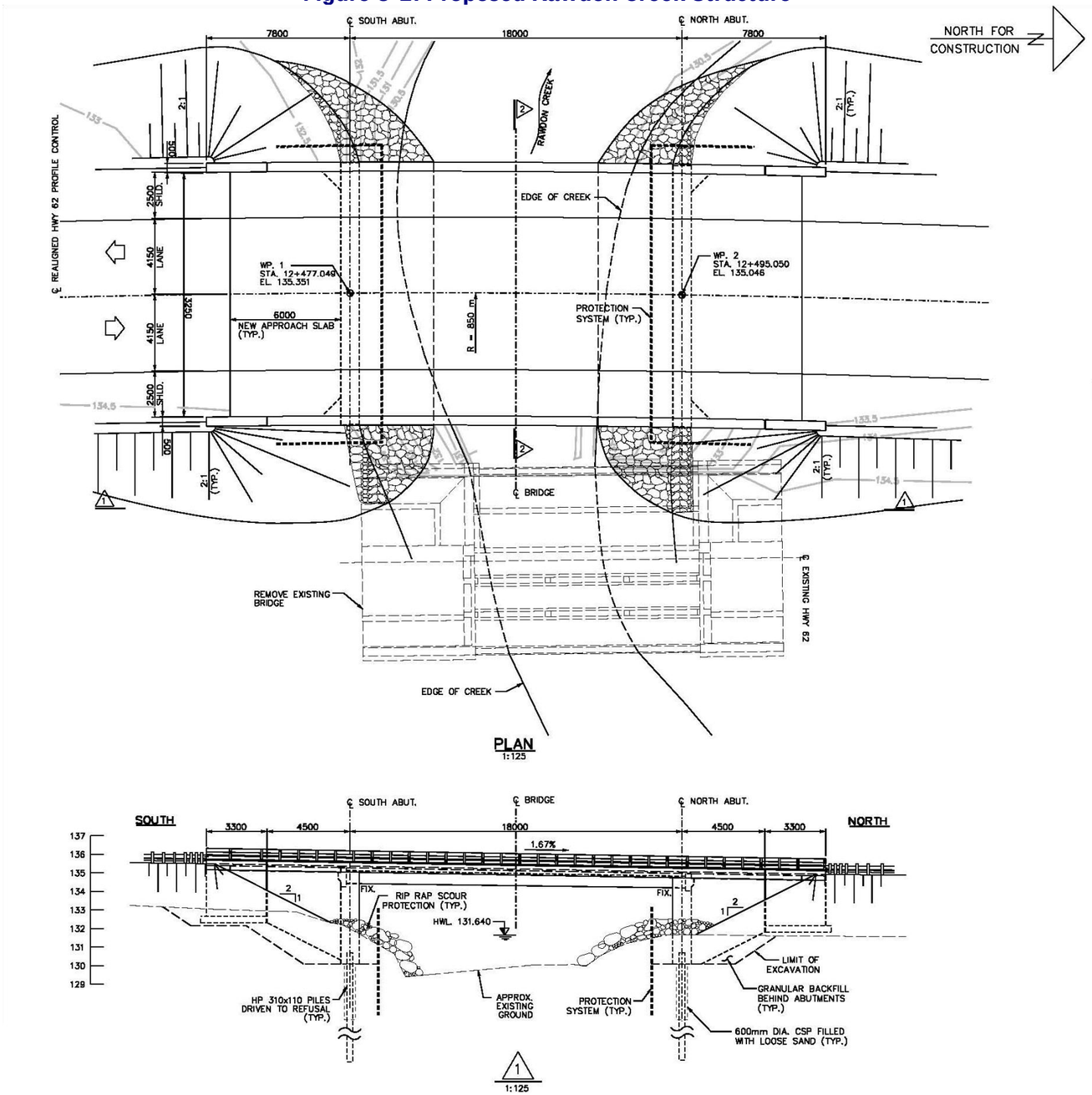


Figure 8-3a: Recommended Plan (Ultimate Improvements)

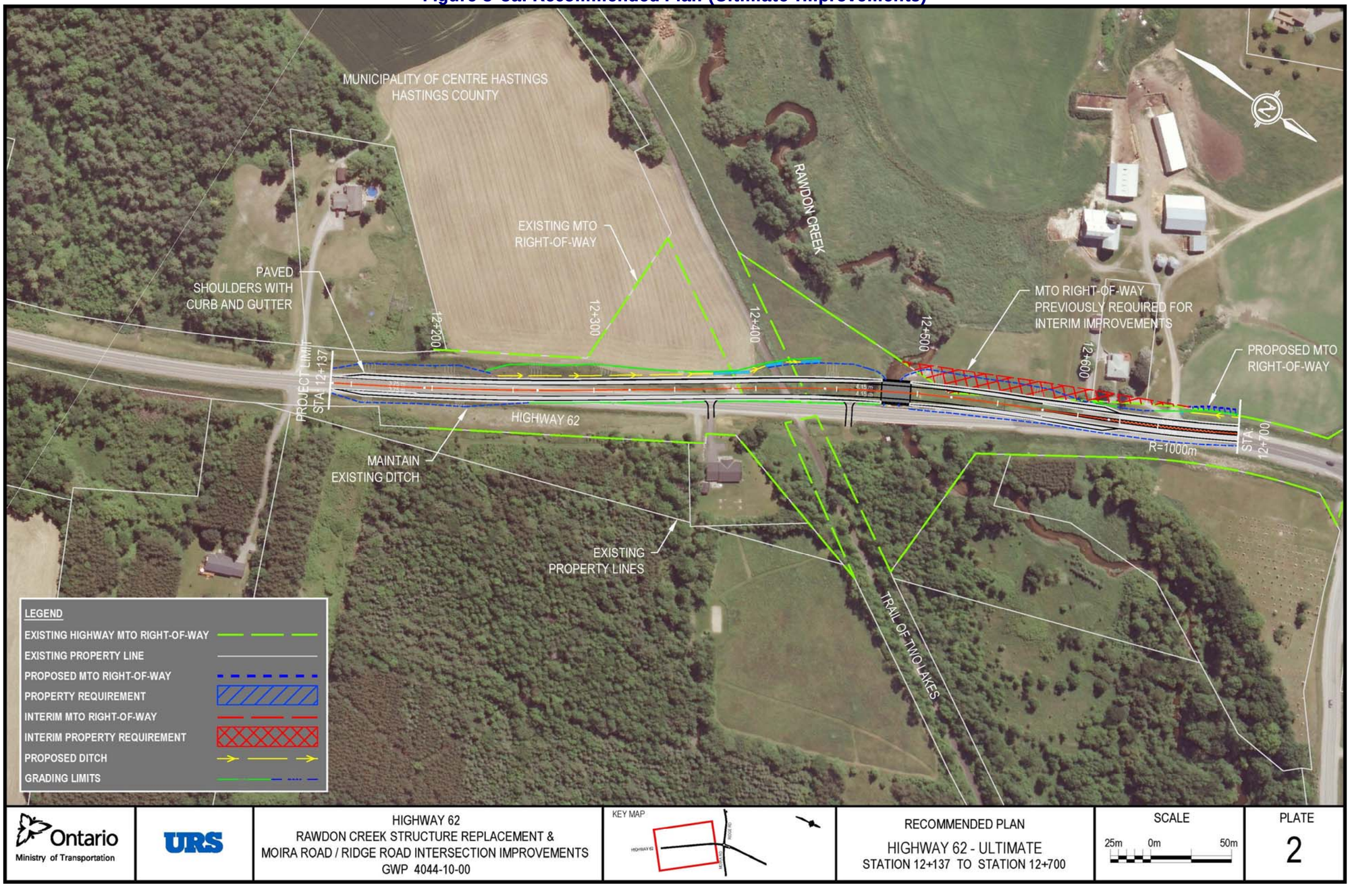
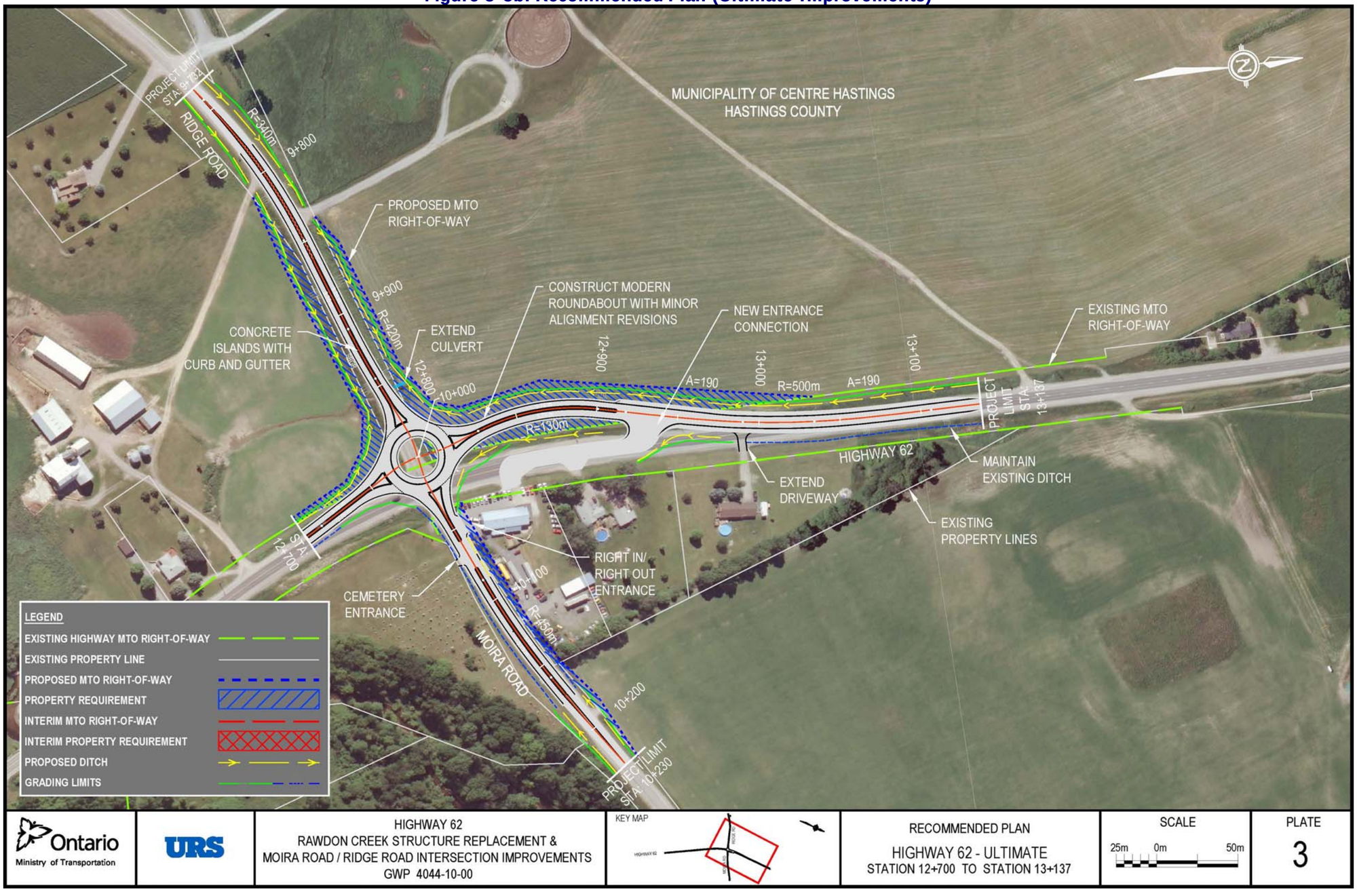


Figure 8-3b: Recommended Plan (Ultimate Improvements)



8.2 Transportation Network

Highway 62 is a two-lane undivided highway with a posted speed of 80 km/h and a design speed of 100 km/h through the study area. The westbound and eastbound approaches on Moira/Ridge Road are under stop control.

8.2.1 Horizontal Alignment

In the interim, Highway 62 will be realigned to the west at the Rawdon Creek structure in order to accommodate the bridge replacement. The interim realignment includes a 850 m curve which satisfies a 100km/h design speed. The proposed realignment at the new bridge location is ≈14m to the west of the existing Highway 62 alignment.

In the ultimate condition, an additional realignment of the Highway 62 and Moira/Ridge Road intersection to the west and construction of a modern single lane roundabout is recommended. The roundabout helps improve traffic operations and increases safety at the intersection.

8.2.2 Vertical Alignment

The proposed vertical profile control will be improved to a design speed of 70 km/h (from 60 km/h). All vertical curves meet a minimum design speed of 70 km/h. The proposed Highway 62 realignment begins on an existing crest of K=35 (design speed of 80 km/h) at the south limit of the project. However, two sag curves with K=25 (70 km/h) are provided along Highway 62, in the vicinity of Rawdon Creek, as an improvement to the existing sag curves of K=12 (50 km/h) and K=18 (60 km/h).

In the interim condition, the proposed Highway 62 realignment will end on an existing crest of K=40 (design speed slightly exceeding 80 km/h) just south of the Moira/Ridge Road intersection. However, in the ultimate condition, this curve along Highway 62 will be reconstructed to provide a 100 km/h design speed on the approaches to the roundabout.

The overall vertical profile was not increased to a 100 km/h design speed (K=45) due to the greater amount of impacts that would be experienced. A 100 km/h design speed would require the highway realignment to be pushed further west in order to provide sufficient space for the elevation difference and the tie-in locations between the existing and contemplated new highway locations, while maintaining existing highway operations during construction.

8.2.3 Cross-sectional Elements

Figures 8-4, 8-5, 8-6, 8-7 and **8-8** show the typical cross-sections for the Rawdon Creek structure, Highway 62 rural / urban sections, Moira/Ridge Road intersection and roundabout approaches, respectively.

According to Table D2-4 in the *Geometric Design Standards for Ontario Highways*, for two-lane undivided urban roads the minimum lane width is 3.5 m and the desirable lane width is 3.75 m.

In the interim, the proposed Highway 62 cross-section includes two 3.50 m lanes with 2.5 m shoulders (2.5 m side clearances on the bridge). Pavement widening has been considered at the Rawdon Creek bridge, therefore the lanes are wider at 4.15 m in order to accommodate trucks driving along the 850 m curve. The ultimate urban cross-section for Highway 62 also includes two 3.75 m lanes with 2.5 m paved shoulders, and a 0.8 m mountable curb and gutter.

In the ultimate condition, the Moira/Ridge Road cross-section consists of two 3.5 m lanes with 1.0 m shoulders on both sides. At the approach to the roundabout, lanes increase to 3.75 m with a 2.0 m island median and 0.7 m semi-mountable curb and gutter.

Figure 8-4: Proposed Cross-section for Rawdon Creek Bridge

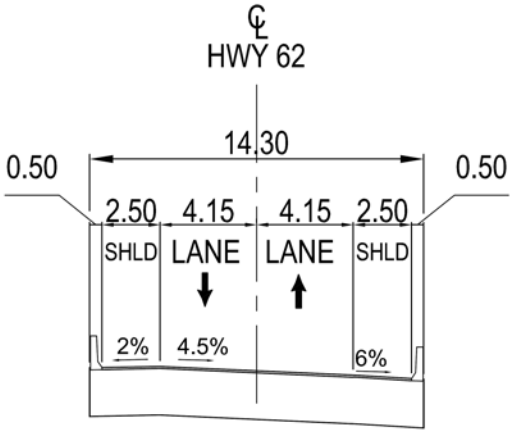


Figure 8-5: Proposed Two-lane Rural Cross-section for Highway 62 (Interim)

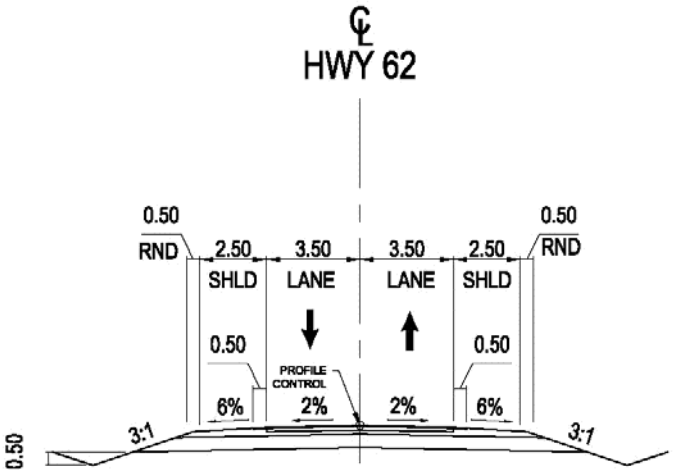


Figure 8-6: Proposed Two-lane Urban Cross-section for Highway 62 (Ultimate)

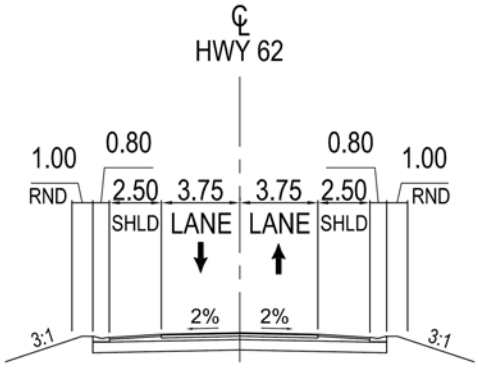


Figure 8-7: Proposed Two-lane Rural Cross-section for Moira/Ridge Road (Ultimate)

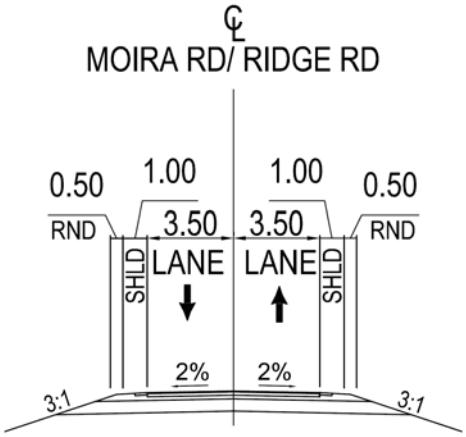
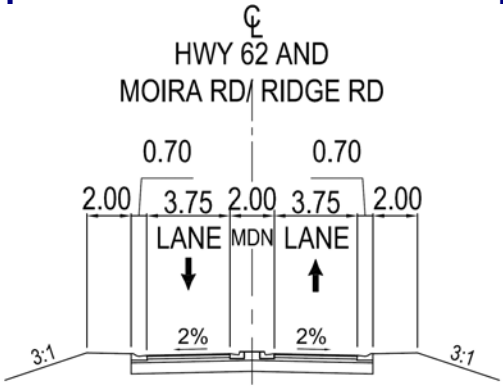


Figure 8-8 – Proposed Two-lane Roundabout Approach (Ultimate)



8.2.4 Roundabout Design

The proposed roundabout configuration at the Highway 62 and Moira/Ridge Road intersection includes a single-lane roundabout. The roundabout has an inscribed circle diameter of 45 m. The fastest path ranges from a maximum speed of 37-41.2 km/h. **Table 8-1** summarizes the geometric details of the roundabout.

Table 8-1: Geometric Details – Roundabout

Geometric Elements	NCHRP Guidelines	NB Approach - Highway 62	EB Approach - Ridge Road	SB Approach - Highway 62	WB Approach - Moira Road
Entry width (m)	4.2 to 5.5	5.7	5.5	5.6	5.5
Entry radius (m)	15 to 30, 45+ for higher speeds	45	35	45	45
Entry angle - Φ (deg)	10 to 20 (2Ø = 20 to 40)	22.5	16.5	18.5	19
Average effective flare length (m)		12.7	10.5	11.3	12.4
Circulatory roadway width(s) (m)	4.9 to 6.1	5.85	5.85	5.85	5.85
Exit radius (m)	30 to 60	60	50	55	60
Number of exit lane(s) and width (#/m)		1 / 6.2	1 / 5.9	1 / 6.1	1/6.6
Splitter island length (m)	Desirable Min. = 30	115 (40 of which is painted)	115	105	115
Inscribed circle diameter (m)	40 to 55	45			
Central island diameter (m)		33			
Approach alignment offset (m)	< 6	2.8	2.9	2.8	3.3
Truck apron width if required (m)	1 to 4.6	4			
Other geometric elements - Specify		N/A	N/A	N/A	N/A

Note: Design values correspond with a WB-20/large farm design vehicle using Highway 62 with a posted speed of 80 km/h and a design speed of 100 km/h. The posted speed and design speed for Moira/Ridge Road are 80 km/h.

URS presented a roundabout design at the MTO's Roundabout Implementation Team (RIT) meeting on September 12, 2013 and May 28, 2014. Recommendations from the RIT meeting have been included in the final Recommended Plan and are reflected in the table above.

8.2.5 Property Entrances

For the interim improvements, there are two driveways on the east side of Highway 62, south of the Rawdon Creek structure, which will need to be extended. All existing entrances at the Moira/Ridge Road intersection with Highway 62 will be maintained.

For the ultimate improvements, property entrances in the vicinity of the roundabout will need to be modified in order to accommodate the proposed design. The entrance to Jackson Auto Sales from Moira Road will remain in the same location but will be converted to a right-in / right-out entrance. A new entrance connection along Highway 62 north of the roundabout will provide access to properties in the northeast corner of the intersection. The driveway for the property north of the new entrance connection will be extended in order to tie into the proposed Highway 62 realignment.

8.3 Pavement Geotechnical Design

The subject area has a projected Average Annual Daily Traffic of approximately 5,000, 4.5% commercial vehicles considering a 3% growth rate. The Pavement Design Manual indicates that 130 mm of Hot Mix is recommended. Based on this information preliminary pavement recommendations are as follows:

Rawdon Creek Bridge Structure Replacement

Resurfacing	Mill 60 mm Repave 60 mm
Bridge Replacement	60 mm SP 12.5 70 mm SP 19.0 150 mm Granular A 400 mm Granular B
Tie-ins at Limits	Pulverize 50 mm Pave 70 mm

Moira/Ridge Road Intersection

Resurfacing	Mill 60 mm Repave 60 mm SP 12.5 FCI
Pavement Structure	50 mm SP 12.5 80 mm SP 19.0 150 mm Granular A 400 mm Granular B Type III

As this study progresses to detail design, it is recommended to conduct additional pavement investigation and analysis in order to confirm existing conditions and recommendations prior to construction.

8.4 Foundations

The foundation investigation at Rawdon Creek (Site No. 11-134) was carried out by Golder Associates Ltd. The fieldwork for this subsurface investigation was carried out in November 2012 at which time two boreholes were advanced in the northwest and southwest quadrants of the structure site adjacent to the Highway 62 embankment toe, near the floodplain grade. The final foundation report was submitted to MTO Eastern Region in May 2014.

The natural ground surface within the floodplain in the creek valley is relatively flat at about Elevation 132.5 m. Highway 62 has been constructed on fill, up to about 2.7 m high at the existing bridge structure, with the pavement grade at approximate Elevations 134.7 m and 135.2 m at the north and south abutments, respectively.

The subsurface conditions encountered in the boreholes consist of surficial deposits of firm to stiff silty clay (on the south side of creek) or loose to compact sand and gravel (on the north side of the creek), overlaying a deposit of loose to compact silty sand to sandy silt, in turn underlain by a deposit of compact to very dense sand and gravel, which contains cobbles and boulders. The soils are underlain by medium strong limestone bedrock, the surface of which was encountered at approximately Elevation 123.2 m and 122.3 m in the boreholes.

Based on the subsurface conditions, both shallow and deep foundation options have been considered for the replacement of the existing Rawdon Creek bridge.

8.4.1 Shallow Foundation

Spread footing could be considered to support the bridge replacement; however, the founding soil would consist of loose to compact silty sand to sandy silt, and relatively lower geotechnical resistance will apply for this deposit with potential for approximately 25 mm of settlement of the abutment footing. The soils are water bearing, and active dewatering would be required to control the groundwater during excavation and construction. It is expected that temporary protection systems and/or cofferdams would be required during excavation and construction.

Although founding elevations for spread footing may be feasible at higher elevations than the existing creek channel, it will likely be necessary to construct new footings deeper to provide adequate protection against erosion and scour. This foundation option would therefore be most suitable for a structure replacement fully west of the existing Highway 62 alignment. Such an alignment may permit the existing footings to remain in place following removal of the existing bridge superstructure, thus minimizing excavation and groundwater control requirements associated with the removal.

The new spread footings should be found below any existing fill and firm to stiff silty clay, on the compact silty sand to sandy silt deposit. The founding elevation for the new abutment footing should be a minimum of 1.6 m below the lowest surrounding grade to provide adequate protection against frost penetration.

Additional boreholes will be required during detail design stage of investigation to further assess and/or confirm the subsurface conditions and preliminary recommendations for the founding elevation for spread footings.

The following table, **Table 8-2,** show the footing founding elevations and factored geotechnical resistance values for the design of new spread footings placed on the properly prepared loose to compact upper sand and gravel or silty sand to sandy silt deposit (or on compacted granular fill following removal of the existing footings), at or below the design elevations.

Table 8-2: Shallow Foundations – Details

Foundation	Founding Elevation	
North Abutment	Below 130.5	
South Abutment	Below 130.5	
Footing Width	**Factored Geotechnical Resistance at Ultimate Limit State**	**Geotechnical Resistance at Serviceability Limit State**
3 m	275 kPa	200 kPa
4 m	325 kPa	150 kPa

** For 25 mm of settlement*

8.4.2 Deep Foundation

Steel H-piles driven to refusal on the limestone bedrock are feasible and suitable to support the bridge replacement. With this option, the pile caps are placed at a higher elevation than that of the strip footing option, thus minimizing the depth of excavation, requirements for temporary protection system, and groundwater control while achieving relatively higher geotechnical resistance and minimizing settlement. Steel H-pile foundations would also allow for the construction of integral abutments; however, depending on the elevation of the underside of the

pile cap, rock socketing may be necessary to achieve a 5 m minimum pile length. If socketing into rock is required to achieve a 5 m pile length, then coring or churn drilling would be necessary in the medium strong to very strong limestone bedrock. The pile caps should be constructed to a minimum depth of 1.6 m below the embankment surface for frost protection purposes. The use of driving shoes is recommended while driving through the lower sand and gravel deposit which contains cobbles and boulders. The founding elevations and the geotechnical resistance values for deep foundations are given in **Table 8-3**.

Table 8-3: Deep Foundations – Details

Foundation Element	Bedrock Surface Elevation	Design Pile Founding Elevation	Factored Axial Geotechnical Resistance at Ultimate Limit State
North Abutment	123.2 m	123.1 m	2,000 kN
South Abutment	122.3 m	122.2 m	2,000 kN

The Serviceability Limit State resistance does not apply to piles founded on the limestone bedrock since the Serviceability Limit State resistance for 25 mm settlement is greater than the factored axial resistance at Ultimate Limit State.

Additional borehole investigation will be required at the detail design stage to confirm the bedrock surface variation within the footprint of the proposed abutments. At that time, ground vibrations and potential impact of pile driving on the adjacent existing bridge footings should be investigated and any necessary remedial measures should be taken.

8.5 Structures

The original Rawdon Creek structure was constructed at some unknown date prior to 1934 as a single span concrete deck with a span of 12.2 m and total width of approximately 5.8 m. The concrete deck was supported on four concrete girders spaced at approximately 1.8 m c/c.

In 1934 the structure was widened and the profile was raised. Part of the new structure was built above the original structure, which was retained. There was a concrete post and open railing system along each side of the structure. The superstructure is supported on conventional concrete abutments supported on 0.9 m deep spread footings that are founded on native sand and gravel or silty sand to sandy silt deposits.

The bridge underwent minor rehabilitation in 1982/1983 (Contract 83-304) when the concrete open railing system was replaced with concrete barrier walls. The existing superstructure is covered with asphalt and waterproofing system with an average thickness of 200 mm (based on a Detailed Bridge Deck Condition Survey carried out in October 2007).

A detailed evaluation of the structural capacity of the Rawdon Creek bridge was carried out by AECOM Canada Ltd. (report dated November 2009). The results concluded that:

- The existing bridge does not meet the requirement of Canadian Highways Bridge Design Code, Cl. 8.18.4.2 (Cast-in-place deck slabs) due to inadequacy of deck reinforcement;
- The moment resistance capacities of the girders are sufficient;
- The girders have insufficient shear capacities and triple posting requirements as per Canadian Highways Bridge Design Code Cl. 14.17.2(b) are required;
- The capacity of the existing substructure to support the new superstructure loading cannot be confirmed for the original bridge (built prior to 1934) due to lack of information and unknown foundation condition;
- Staged construction is excluded due to the structural deficiency of beams in shear in each stage; and
- Replacement requires road detour and possible construction of temporary bridge to cross over Rawdon Creek.

The close-up visual inspection conducted by AECOM Canada Ltd., on October 6, 2009 concluded that the existing bridge superstructure is beyond feasible repair and the rehabilitation strategy should involve replacement of the entire superstructure and rehabilitation of the substructure.

URS performed a limited assessment of the structural capacity. The results confirmed the structural deficiencies as noted in the AECOM's evaluation and concluded that staged construction should be excluded for replacement of the bridge.

The recommended new Rawdon Creek bridge is a single span structure with span of 18.0 m measured between centrelines of abutments. The superstructure will consist of 11 B700 prestressed concrete box girders placed side by side with a 150 mm thick concrete topping slab and paved with 90 mm of asphalt and waterproofing system. The superstructure is supported on integral abutments.

The Preliminary General Arrangement drawing of the preferred alternative is included in **Figure 8-2**. For further details on these structures, please see the Structural Design Report, available under separate cover.

For this study, it was assumed that the demolition of the existing bridge includes removal of the superstructure and foundation elements while mitigating impacts to Rawdon Creek (falling debris). In detail design, it would be beneficial to investigate the possibility of removing the superstructure only and leaving the abutments in place.

During detail design, additional analysis will need to be undertaken to confirm the recommendations in conjunction with foundations analysis.

8.6 Drainage and Hydrology

Design recommendations were developed based on hydrologic and hydraulic analysis and associated drainage and stormwater management requirements as summarized in the following

sections. Additional details of the drainage and stormwater management preliminary design are provided in the Drainage and Hydrology Report, available under separate cover.

Conclusions regarding drainage at this site include the following:

- A visual inspection at the inlet and outlet points suggest that existing culverts are generally in poor to good condition;
- The hydraulic assessment indicates that the existing Rawdon Creek bridge and Culverts C2, C5 and C6 are hydraulically deficient, which is inconsistent with the lack of reported flood incidences in the area;
- The existing culverts / pipes may have greater capacity if the actual inverts result in steeper pipe slope than assumed;
- It is recommended that a detailed survey of existing culverts / pipes and other drainage elements be completed as part of the detailed design to confirm existing conveyance capacity;
- It is recommended that a gravity pipe analysis be performed during detailed design to determine remaining service life of existing culverts. This information would be useful in determining replacement options for culverts;
- Notwithstanding the uncertainty associated with existing invert elevations, a proposed conditions hydraulic assessment has been completed to determine recommended culvert improvements to meet MTO design standards;
- A hydrologic and hydraulic assessment was completed for the new bridge design, which confirmed that the proposed structure would satisfy MTO design standards and not affect upstream flood;
- It is recommended that additional survey information be obtained for the upstream and downstream sections of Rawdon Creek to confirm geometry assumptions in the HEC RAS model;
- A new road drainage concept in the form of new sewers has been developed to service the urban section of roadway;
- Water quantity control is not required in view of the limited changes in net drainage area and impervious area; and
- Water quality control could be provided via an oil / grit separators (OGS) unit at MH 113 and conversion of existing roadside ditches to enhanced grass swale.

8.6.1 Road Drainage Assessment

The following sections describe the hydraulic evaluation of centerline culverts and storm sewers located within the study limits under existing and proposed conditions. This preliminary drainage assessment will be specifically for surface drainage systems and watercourse crossings less than 6 m. The proposed roundabout ties into the existing drainage system and generally maintains the same drainage patterns. The preferred road configuration would not require additional culverts for drainage purposes; however, a new storm sewer system would be required to service the new road. Existing culverts location and condition are shown in **Figure 8-9** and **Table 8-4**, respectively.

Figure 8-9: Drainage Conditions – Existing Road Drainage

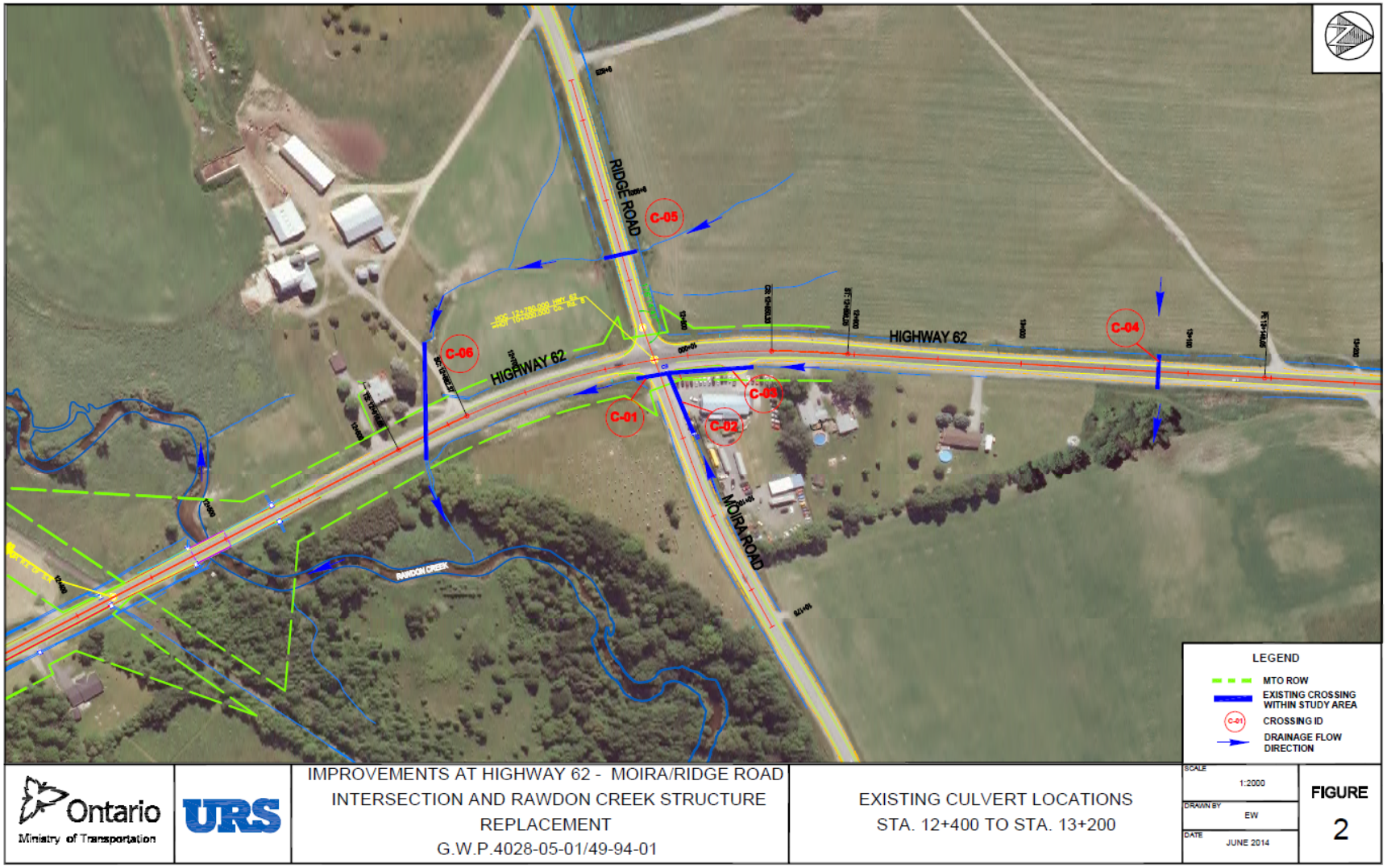


Table 8-4: Drainage Conditions – Existing Road Drainage

Culvert ID	Station	Road	Culvert Dimension[1] (mm)	Culvert Type	Flow Direction	Inlet (Upstream)			Outlet (Downstream)		
						Depth of Sediment (mm)	Presence of Low Flow	Culvert Condition	Depth of Sediment (mm)	Presence of Low Flow	Culvert Condition
C-01	10+010	Moira Road	900	Circular CSP	North to South	N/A	Standing	N/A	310	Standing	Good
C-02	10+010	Moira Road	300	Circular CSP	East to West	0	Standing	Good	N/A	Standing	N/A
C-03	10+025	Moira Road	750	Circular CSP	North to South	0	No Water	Good	N/A	Standing	N/A
C-04	13+083	Hwy 62	825	Circular CSP	West to East	150	No Water	Poor	200	No Water	Poor
C-05	9+933	Ridge Road	1050	Circular CSP	North to South	50	Standing	Good	50	Standing	Poor
C-06	12+500	Hwy 62	1200	Circular CSP	West to East	50	No Water	Good	50	No Water	Good

Note: 1 – Field measurement

8.6.2 Field Investigation

All culvert / pipes were measured in field to confirm existing diameters. Due to the lack of a detailed survey (which is typically completed in support of detailed design), existing invert elevations were inferred based on field measurements and supplemented with information obtained from MTO Contract Drawings (where available) and interpolation of contour information.

8.6.3 Design Flow Analysis and Results

Table 8-5 summarizes the assumed design flow and check flow to each culvert / storm pipe under existing and proposed conditions.

Table 8-5: Summary of Design / Check Flow under Existing and Proposed Conditions

			Design Flow (m^3/s)				Check Flow (m^3/s)			
Culvert ID	Contributing Catchment	Total Drainage Area, EX/PR (ha)	Return Storm Event	Existing	Proposed	%-Diff	Return Storm Event	Existing	Proposed	%-Diff
C1	102/103/104	9.02/9.45	10-Year	0.49	0.60	21%	100-Year	0.89	1.06	20%
C2	102	0.8/.92	10-Year	0.15	0.18	21%	100-Year	0.20	0.24	22%
C3	103/104	8.22/8.53	10-Year	0.46	0.54	18%	100-Year	0.83	0.97	17%
C4	104	6.10/6.07	10-Year	0.38	0.38	0%	100-Year	0.68	0.67	0%
C5	105	83.39/82.95	25-Year	3.03	3.01	-1%	115% of 100-Year	4.84	4.81	-1%
C6	105/106	86.1/85.57	25-Year	3.07	3.06	-1%	115% of 100-Year	4.91	4.88	-1%

As evident from the information provided in **Table 8-5**, a relatively significant increase in flows occurred for the catchment that drains to the small storm sewer network comprised of pipes C1, C2, and C3. The proposed road alignment did not result in any significant change in flows for the centreline culverts.

8.6.4 Storm Sewer Assessment

8.6.4.1 Existing Conditions

Pipes C1, C2, and C3 were analyzed as a storm sewer network. From the sewer analysis, the existing sewer system has sufficient capacity to convey the 10-year design flow except for pipe C2, which is 300% over capacity. This theoretical result would likely cause localized flooding at the inlet to pipe C2, which would be inconsistent with the absence of documented cases of flooding in the area. The existing C2 pipe likely has greater conveyance capacity than estimated however this needs to be confirmed at the detailed design stage when a detailed survey would be completed. In the event that the future survey data confirms pipe C2 is indeed over capacity then replacement should be considered.

8.6.4.2 Proposed Conditions

Under proposed conditions, Pipes C1, C2, and C3 would remain to service external flows. In the event that a detailed survey does not result in greater conveyance capacity, Pipe C2 should be improved to a 450mm diameter pipe (at 0.5%) and Pipe C3 should be steepened to 0.5% to meet MTO design standards for conveyance.

Servicing of the west side of Highway 62 and Ridge Road would continue to outlet to the unnamed tributary of Rawdon Creek. The remaining runoff from Highway 62 and Moira Road would be collected via the new storm sewer system then conveyed south and outlet near the downstream end of Culvert C6. Smaller sections of storm sewers and catchbasin leads would be required to drain the section of Highway 62 south of Culvert C6, and generally outlet into the existing east ditch adjacent to the highway. Inverts at the various storm sewer outfalls have been reviewed to ensure that the highway could drain and to achieve a minimum 1.2m cover above the proposed sewers.

8.6.5 Culvert Assessment

A preliminary hydraulic analysis was completed for the centerline culverts within the study area (i.e. Culverts C4, C5, and C6).

8.6.5.1 Existing Conditions

Table 8-6 (design flow) and **Table 8-7** (check flow) summarizes the results of the culvert assessment for existing conditions. Culvert C4 appears to satisfy MTO design criteria whereas Culverts C5 and C6 appear to be hydraulically deficient. These theoretical results would likely cause flooding along Highway 62 and Ridge Road. Similarly to the existing storm sewers, the conveyance capacity for Culverts C5 and C6 could be greater than estimated and could only be confirmed with a detailed survey.

Table 8-6: Hydraulic Analysis for Design Flow (Existing Conditions)

Culvert ID	Culvert Type	Span (m)	Rise/Dia. (m)	Length (m)	U/S Invert	D/S Invert	Design Storm	Design Flow (m^3/s)	* Governing TW EL (m)	HW El (m)	Edge of SHLD EL (m)	Freeboard (m)	Required Freeboard	H/D	Max. H/D
C4	CSP	-	0.825	21	144.24	144.09	10	0.38	144.585	144.840	145.758	0.918	0.3	0.727	1.5
C5	CSP	-	1.050	20	140.09	139.92	25	3.03	140.550	142.620	142.600	-0.020	1.0	2.410	1.5
C6	CSP	-	1.200	70	135.30	134.33	25	3.07	135.050	137.210	137.200	-0.010	1.0	1.592	1.5

Notes: 1 – Maximum allowable headwater elevations (HW EL) are the edge of pavement elevations.
2 – Tailwater conditions (TW EL) assumed at 60% culvert depth.

Table 8-7: Hydraulic Analysis for Check Flow (Existing Conditions)

Culvert ID	Check Storm	Check Flow (m^3/s)	** Governing TW EL (m)	HW El (m)	Edge of SHLD EL (m)	Highway Overtopped (y/n)
C4	100 yr	0.68	144.915	145.200	145.758	no
C5	115%*100yr	4.84	140.970	142.700	142.600	yes
C6	115%*100yr	4.91	135.530	137.300	137.200	yes

Notes: 1 – Edge of pavement elevations calculated at the low point of the highway.
2 – Tailwater conditions (TW EL) assumed at culvert obvert.

8.6.5.2 Proposed Conditions

Notwithstanding the absence of detailed survey information, the centreline culverts were reassessed assuming proposed condition peak flows and resized to satisfy MTO design criteria. In the case of Culvert C5, the culvert would need to be extended by 8 m to suite the road grades. **Table 8-8** (design flow) and **Table 8-9** (check flow) summarize the results of the proposed conditions hydraulic assessment for centerline culverts. Both Culverts C5 and C6 would have to be upsized to a 1.2m (rise) x 1.8 m (span) concrete box culvert. There are no new culvert locations anticipated for the proposed road improvements.

Table 8-8: Hydraulic Analysis for Design Flow (Proposed Conditions)

Culvert ID	Culvert Type	Span (m)	Rise/Dia. (m)	Length (m)	U/S Invert	D/S Invert	Design Storm	Design Flow (m^3/s)	* Governing TW EL (m)	HW El (m)	Edge of SHLD EL (m)	Freeboard (m)	Required Freeboard	H/D	Max. H/D
C4	CSP	-	0.825	21	144.24	144.09	10	0.38	144.585	144.840	145.758	0.918	0.3	0.727	1.5
C5	CONC	1.8	1.200	28	140.28	139.38	25	3.01	140.100	141.430	142.550	1.120	1.0	0.958	1.5
C6	CSP	1.8	1.200	70	135.30	134.33	25	3.06	135.050	136.180	137.200	1.020	1.0	0.733	1.5

Notes: 1 – Maximum allowable headwater elevations (HW EL) are the edge of pavement elevations.
2 – Tailwater conditions (TW EL) assumed at 60% culvert depth.

Table 8-9: Hydraulic Analysis for Check Flow (Proposed Conditions)

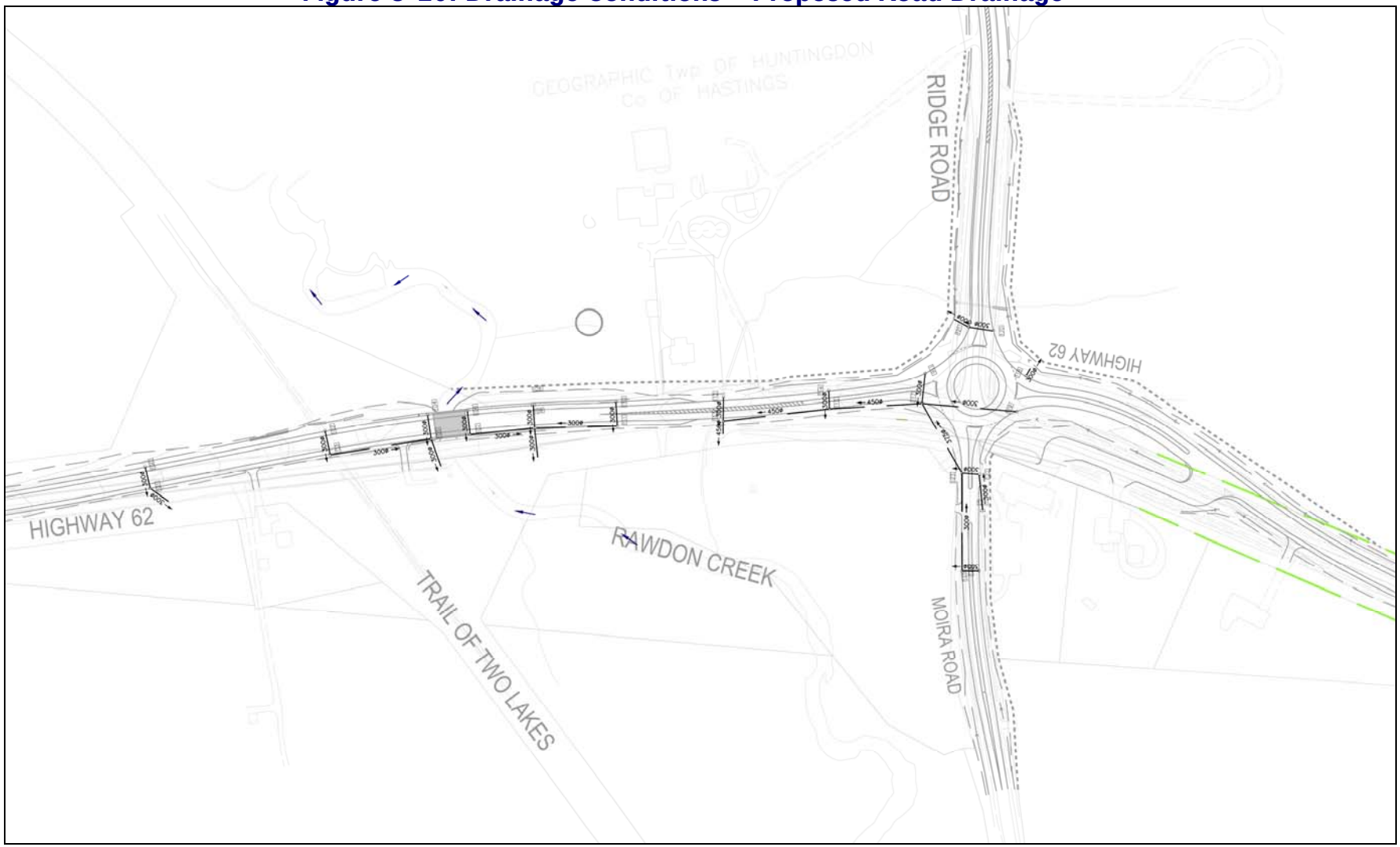
Culvert ID	Check Storm	Check Flow (m^3/s)	** Governing TW EL (m)	HW El (m)	Edge of SHLD EL (m)	Highway Overtopped (y/n)
C4	100 yr	0.67	144.915	145.190	145.758	no
C5	115%*100yr	4.82	140.580	141.860	142.550	no
C6	115%*100yr	4.88	135.530	136.500	137.200	no

Notes: 1 – Edge of pavement elevations calculated at the low point of the highway.
2 – Tailwater conditions (TW EL) assumed at culvert obvert.

The preliminary road drainage drawing of the preferred alternative is included in **Figure 8-10**. In summary, there are six culverts within the study area which are in poor / good condition. All culverts with the exception of Culvert 6 are impacted by the long term improvements. Recommendations for culvert modifications (extensions and replacements) are discussed in the sections above. A new storm sewer system is required with the long term but the interim can maintain the existing open ditch system.

For further details on these recommendations, please see the Drainage and Hydrology Report, available under separate cover.

Figure 8-10: Drainage Conditions – Proposed Road Drainage



8.7 Signage

Due to the proposed intersection improvements at Moira/Ridge Road, existing signage will be replaced to accommodate the new roundabout intersection design.

8.8 Electrical

In the interim, no illumination improvements are proposed. In the ultimate scenario, the Highway 62 and Moira/Ridge Road intersection will be converted into a single lane roundabout. Illumination of the roundabout and along the Highway 62 approaches to the intersection is to be investigated and confirmed during detail design.

8.9 Utilities

Utility information was obtained from base mapping, mark-ups received from utility companies and municipalities with utilities located in the area. Stakeholders were contacted via email, telephone and/or letter and the following information was obtained:

- Union Gas Limited – Received drawings indicating a 6" HP gas line located in the northwest quadrant of Highway 62 and Moira/Ridge Road intersection. No utilities are at the Rawdon Creek bridge. This utility is impacted by the ultimate design of the roundabout. The pipe will require relocation and a strategy is to be determined in detail design.
- Hydro One Networks Inc. – Received markups which show existing utilities located along the west side of Highway 62. In the interim and ultimate scenarios, the hydro poles will need to be relocated to the west in order to accommodate the west realignment of Highway 62 and the intersection shift. A relocation strategy should be developed and implemented during construction of the interim improvements in order to minimize the amount of relocations completed during the ultimate design construction. The relocation strategy is to be determined in detail design.
- Bell Canada – Bell utility poles shown via base mapping along the east side of Highway 62 and at the Moira/Ridge Road intersection. A relocation strategy should be developed and implemented during construction of the interim improvements in order to minimize the amount of relocations completed during the ultimate design construction. Relocation strategy to be determined in detail design.
- Enbridge Gas Distribution – No utilities in the study area.
- City of Kawartha Lakes / Hastings County – No utilities in the study area.

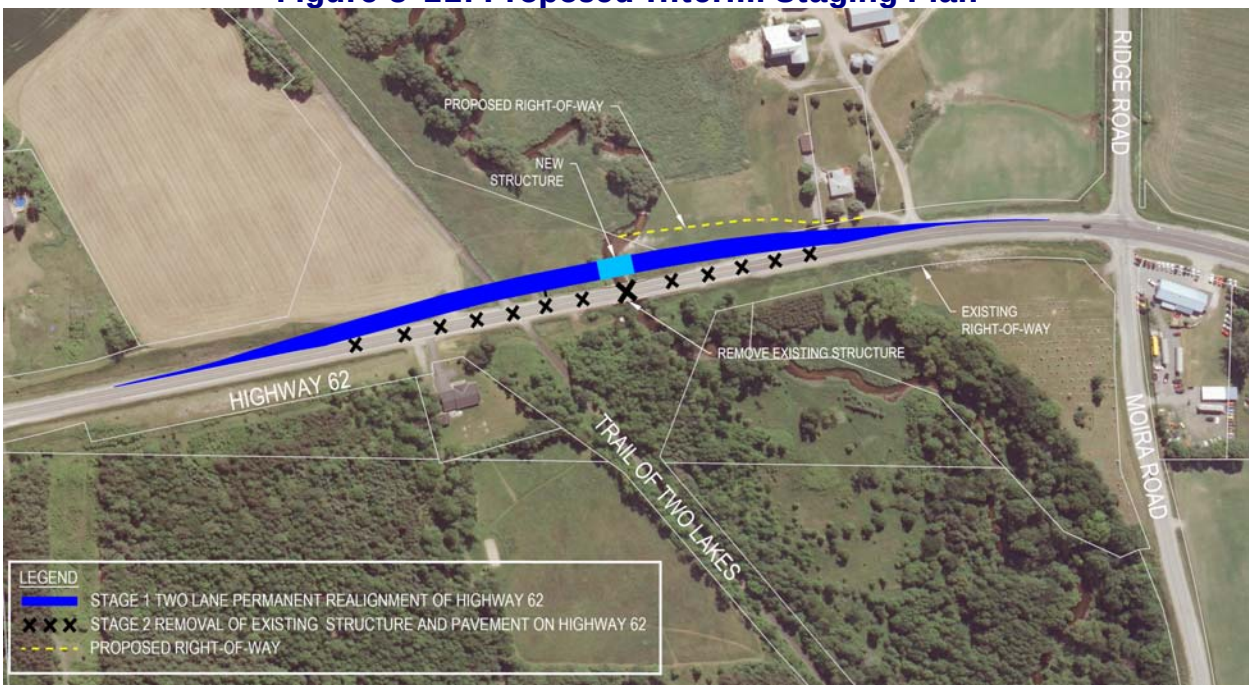
The replacement of the Rawdon Creek bridge, improvements to Highway 62 and the Moira/Ridge Road intersection results in utility impacts to Union Gas, Hydro One and Bell Canada. These utilities will need to be relocated in order to accommodate the Recommended Plan. A detailed utility investigation and relocation strategy should be completed during detail design in order to confirm utility locations, potential impacts to existing and future utility

stakeholders in the study area and confirm a relocation strategy that works with the proposed design.

8.10 Construction Staging

Community access will be maintained during construction of the Rawdon Creek bridge replacement. A preliminary construction staging plan has been developed as part of this study and will be refined during the next phase of this project. For the interim Recommended Plan, the Rawdon Creek structure is replaced and Highway 62 is realigned to the west in a two-stage scenario (refer to **Figure 8-11**). The first stage comprises constructing the new bridge and Highway 62 alignment to the west of the existing alignment. The second stage comprises diverting traffic to the new alignment so that the existing bridge and old pavement can be removed. Construction staging and details for the bridge construction will be confirmed during the next phase of the project.

Figure 8-11: Proposed Interim Staging Plan



A construction staging plan for construction of the roundabout will be developed during detailed design for the intersection improvements. Preliminary considerations for the roundabout construction staging plan include:

- With traffic on the existing alignments, construct the portion of Highway 62 (and entrance connection) off of the existing alignment to create a temporary intersection to the west of existing;
- Reduce Ridge Road to one lane (or temporarily detour traffic) and re-profile Ridge Road to the new temporary intersection;
- Open all lanes and relocate traffic to new alignments and the temporary intersection; and
- Complete roundabout design and approach details.

8.11 Right-of-way

In order to implement the Recommended Plan, property will be required for bridge and road construction. The existing and proposed right-of-way limits are illustrated in **Figures 8-1 and 8-3**. Approximately 1 ha from five private properties is required to accommodate the Recommended Plan for interim and ultimate improvements:

- Agricultural properties in the northwest, northeast and southwest quadrants of the Highway 62 and Moira/Ridge Road intersection;
- Permanent impact to the frontage of the residence in the northwest quadrant of Rawdon Creek and Highway 62, displacing the stone retaining wall (partially), mature trees and the dual entrance driveway (partially); and
- Commercial property (Jackson Auto Sales) in the northeast quadrant of the Highway 62 and Moira/Ridge Road intersection.

9. ENVIRONMENTAL ISSUES, EFFECTS, MITIGATION MEASURES AND COMMITMENTS

This section focuses on the direct and indirect environmental impacts (natural, socio-economic and cultural), as well as transportation impacts, associated with the Recommended Plan. It also describes the mitigation measures that will be implemented to avoid or minimize these impacts. Mitigation measures include planning decisions, design features, and construction requirements and constraints. The mitigation measures and commitments outlined in this report will be refined in greater detail during the next phase of this project. Specific environmental controls based on these detailed mitigation measures will then be included in the design and/or construction stages of this project to address specific environmental and operational concerns.

9.1 Natural Environment

9.1.1 Fish and Fish Habitat

The drainage channels identified at the Highway 62 and Moira/Ridge Road intersection do not support fish and fish habitat. Based on the absence of fish habitat, and with reference to the DFO Self-Assessment criteria and the application of the DFO framework, it was determined that the proposed intersection improvements will not result in a serious harm to fish and fish habitat. However, although not observed, site investigations revealed the possibility of surface drainage from this area contributing downstream (approximately 180 m) discharge to Rawdon Creek during significant rainfall events. For this reason, proper erosion and sediment control techniques should be employed to prevent the entry of sediment laden water into the agricultural surface feature in the southwest quadrant of the intersection. Opportunities to update the fish and fish habitat investigations will be examined at detail design.

The DFO Self-Assessment criteria were also applied to the recommended replacement of the Highway 62 Rawdon Creek structure. The proposed structure is a single span bridge that spans the wetted widths of the channel and avoids direct impacts to fish and fish habitat. No channel realignment is required, and work will be completed in isolation of flowing water while maintaining fish passage. Rip rap scour protection will be placed to protect the embankment, however narrowing of the channel is not anticipated as the proposed structure spans the wetted width of the channel. As a result of the DFO Self-Assessment, the proposed works meet the criteria for works that do not typically require project review by DFO or an authorization under the *Fisheries Act*. This result combined with the application of standard mitigation techniques indicate that there is low risk that serious harm to fish and fish habitat would result from these works.

Potential short-term impacts associated with the structure replacement construction are predictable, and can be addressed through mitigation and operational procedures. Potential

impacts from the reconstruction of the Highway 62 structure over Rawdon Creek could include: site erosion and release of sediment laden water into the creek as a result of accessing the site and temporary staging; temporary avoidance of the area due to noise and vibration; deposition of fines and other debris into the creek; minor fuel spills from storage and refuelling of equipment; removal of riparian vegetation; temporary isolation / encroachment of creek habitat due to work zone isolation techniques (coffer dams, silt curtains, etc.). Each of these activities has elements that place fish and fish habitat at risk. Fortunately, the majority of these impacts are well understood and through the use of mitigation can be avoided or significantly reduced. The application of the proposed mitigation measures will reduce the risk to fish and fish habitat such that the undertaking is anticipated to present a low risk of serious harm to fish and fish habitat.

During construction, mitigation encompasses implementation of all relevant standard and non-standard / site-specific protection measures and management practices embodied in MTO's Operational Constraints and Construction Specifications. These measures and all the site-specific measures will continue to be refined and detailed as the design evolves through subsequent design phases. The mitigation measures will be finalized based on the final design, and its effects on fish and fish habitat. In addition, comprehensive construction mitigation involves recognition and implementation of additional control measures that may be identified through good construction practices and environmental inspection. The following outlines proposed mitigation measures to protect fish and fish habitat:

Fish Protection

All in-water and near-water activities at the Rawdon Creek crossing will be conducted within the applicable in-water construction timing windows, as identified by the Ministry of Natural Resources and Forestry, to protect the resident fishery life functions. Fish protection measures include:

- The coldwater timing window of July 16 – September 30 will be applied for all in-water and near water construction works.

Protection during Removal of the Existing Highway 62 Rawdon Creek Structure

- Removal of the existing Highway 62 Rawdon Creek structure will require adherence to appropriate debris containment and extraction techniques. Removal of the concrete deck and abutments will be undertaken by isolating the active work area from the flowing portion of the creek with the use of temporary isolation techniques such as coffer dams, Aqua-Dam, sheet piling, etc. This system(s) will manage both large material and fine particulate entry into the watercourse and will be monitored regularly. Any accidental deposition of debris onto the existing isolated creek bed shall be carefully removed prior to flow being returned to the bed.
- All excavated material shall be removed and deposited in an area above the high water mark of the shoreline and be contained behind properly installed and maintained sediment barriers or devices.
- Following the removal of the existing abutments, the footprint is to be graded to match upstream and downstream terrain and elevations using a combination of compacted soil and rounded stone to afford erosion protection. This area is to be stabilized using erosion

control blankets, re-vegetated with an appropriate native herbaceous seed mix and planted with native woody shrubs such as Red-osier Dogwood and Grey Buckthorn.

Construction Access, Site Controls and Operational Constraints

- The construction access and work areas will be confined to the extent required for the construction activities, and these areas are then defined in the field using appropriately installed protective fencing or other suitable barriers.
- Removal of riparian vegetation, particularly woody vegetation, will be kept to the minimum necessary for the project works. The woody vegetation that will likely require removal will be replaced with appropriate native species.
- Any temporarily stockpiled material, construction or related materials will be properly contained (e.g. within silt fencing) in areas separated a minimum of 30 m from any watercourse.
- All construction materials and debris will be removed and appropriately disposed of following construction.
- Every effort will be made to retain as much of the natural vegetation as reasonably possible to help ensure bank stability, control erosion and expedite the re-colonization of vegetative cover.
- All vegetation clearing required for access will be conducted using proper clearing techniques and appropriate construction timing windows as may be defined by other legislation (e.g. *Migratory Birds Convention Act*). Refer to **Section 9.1.6.4** for details.
- All activity will be controlled so as to prevent entry of any petroleum products, debris or other potential contaminants / deleterious substances, in addition to sediment as outlined above, to any watercourse. No storage, maintenance or refuelling of equipment will be conducted near any watercourse.
- A Spills Prevention and Response Plan will be developed and kept on site at all times.

Rehabilitation Following Construction

- All of the areas disturbed during construction will be restored, stabilized and re-vegetated as soon as the works are completed to prevent migration of fine material to the watercourse during runoff events, as well as minimizing the opportunity for colonization of the area by invasive species.
- Only native plants, compatible with site conditions will be used.

Site Inspection and Monitoring

An environmental inspector will be responsible for conducting regular inspections of the environmental protection measures (erosion and sediment controls, containment measures, etc.) and identifying deficiencies. The inspector will ensure all environmental mitigation and design measures are properly installed / constructed and maintained, and appropriate contingency and response plans are in place and implemented if required.

9.1.2 Erosion and Sediment Control

A comprehensive Erosion and Sediment Control (ESC) plan will be implemented to prevent migration of sediment laden runoff (or other contaminants) from the construction zone to the creek. This plan will include inspection and maintenance of the measures until final cover is established. Specific aspects include:

- Perimeter silt fence will be installed between the work areas and the watercourses.
- The fencing will be properly installed and regularly inspected and maintained. It will be left in place and maintained until all surfaces contributing drainage to these watercourses are fully stabilized.
- All exposed and newly constructed surfaces will be stabilized using appropriate means in accordance with the characteristics of the soil material.
- These surfaces will be fully stabilized and re-vegetated as quickly as possible following completion of the proposed works.
- Contingency procedures, materials and notification procedures will be readily available for use in the event of a silt release and for general application in regular maintenance and repair.

9.1.3 Groundwater

Based on the hydraulic conductivity of the main soil stratum of the quaternary (overburden) aquifer, groundwater table level, and the detailed cutting specifications (i.e. area and depth) for the structure replacement design, the amount of groundwater to be taken during the future construction will be calculated, and the need for a permit to take water (PTTW) will be determined during future stages of design.

Depending on the intersection improvement design details, there is a potential for dewatering during the future construction work if cuttings are required and the cutting depths reach the shallow groundwater table at the cutting locations. Impacts from the potential dewatering to the quality and quantity of the overburden wells within the study area, especially those that are located within the area where sand deposits are exposed at the ground surface, are likely. Impacts from the potential dewatering activities to the bedrock wells will be minimal, unless blasting of bedrock is required for the construction work. It should also be noted that there might be un-registered dug wells located within the study area. There is the potential to impact shallow dug wells from the potential future dewatering activities.

Investigation of water well impacts and evaluation of groundwater conditions at the bridge location to determine impacts relating to construction will be undertaken at the detail design stage. Detailed recommendations will be made at that stage. In addition, a monitoring program for existing water supply wells will be undertaken in the vicinity of the construction activities prior to construction (specifically dewatering), and during construction if deemed necessary.

9.1.4 Drainage and Hydrology

A visual inspection at the inlet and outlet points suggest that existing culverts are generally in poor to good condition. The hydraulic assessment indicates that the existing Rawdon Creek bridge and the culverts within the study area are hydraulically deficient, which is inconsistent with the lack of reported flood incidences in the area. A detailed survey of existing culverts / pipes and other drainage elements will be completed as part of the detail design to confirm existing conveyance capacity.

A hydrologic and hydraulic assessment was completed for the new bridge design, which confirmed that the proposed structure would satisfy MTO design standards and not affect upstream flood.

As mentioned in **Section 4.1.2**, the Lower Trent Conservation maintains a stream gauge at the Highway 62 Rawdon Creek bridge in partnership with the Ministry of Natural Resources and Forestry and Water Survey of Canada. Consultation with the Ministry of Natural Resources and Forestry, Water Survey of Canada and the Lower Trent Conservation will be undertaken to determine the status of the stream gauge and whether construction will need to accommodate relocation of the gauge.

9.1.5 Stormwater Management

9.1.5.1 Water Quantity

The proposed highway improvements would result in an insignificant change in total drainage area to Rawdon Creek. The total drainage area under investigation (approximately 95 ha) accounts for less than 1% of the total upstream drainage area at the bridge crossing (86.7 km^2). The total catchment area under proposed conditions has decreased by 0.1 ha (less than 0.1%). The net change in impervious area has increased from 1.23 ha to 1.60 ha. This increase would result in higher flows to the storm sewer network but would not affect the centreline culverts along Highway 62 and Moira/Ridge Road. The combination of existing and proposed drainage improvements would make certain that there is adequate conveyance of the design flow to existing outlet locations. In view of these considerations, water quantity control is not required for the proposed improvements.

9.1.5.2 Water Quality

The proposed works would result in a 0.33 ha increase in impervious area. This increase, albeit relatively minor, has the potential impact to increase pollutant loading to the receiving watercourses, reduce stream water quality, and degrade aquatic habitat. In view of these potential impacts, a list of stormwater management practices (SWMP's) was screened to identify suitable measures for further consideration. From the available SWMP's options, surface quality SWMP's were eliminated, as there is insufficient drainage area from the highway to sustain a SWM pond and there is no available space within the highway ROW to fit a pond block. Other treatment options include oil / grit separators (OGS) and/or enhanced grassed swales. OGS units

may not be preferred due to added maintenance costs. The filtering effect of grass within ditching, namely, the existing east and west ditches along Highway 62 would be a practical treatment option in view of the property constraints. These potential mitigation measures will be confirmed during detail design.

9.1.6 Terrestrial Ecosystems

9.1.6.1 Vegetation

As a result of the Highway 62 Moira/Ridge Road intersection improvements and Rawdon Creek structure replacement, vegetation impacts are restricted to very small patches of vegetation directly adjacent to Highway 62 (including agricultural lands) and Moira/Ridge Road (within and adjacent to the ROW). Habitat patches affected are composed entirely of Cultural Community classes. No terrestrial impacts are expected outside of the study area.

Highway 62 Moira/Ridge Road Intersection

The proposed improvements to the Highway 62 and Moira/Ridge Road intersection will require the removal of 5900 m^2 (0.59 ha) of agricultural land in the northwest, northeast and southwest quadrants of the intersection, the removal of 130 m^2 (0.013 ha) of the vegetation from the residence north of Rawdon Creek, west of Highway 62, and modifications to the entrance of the St. Luke's Cemetery. This limited vegetation removal will not result in any significant impacts. The vegetation units being affected is primarily active agricultural lands and no natural vegetative communities will be removed to accommodate the proposed ultimate plan for the intersection improvements.

Highway 62 Rawdon Creek Structure

The proposed replacement of the Highway 62 Rawdon Creek structure will require the removal of 67 m^2 (0.0067 ha) of agricultural land on the west side of the Highway 62 ROW. This limited vegetation removal will not result in any significant impacts. The vegetation units affected are primarily agricultural lands and no natural vegetative communities will be removed as a result of the project. Impacts to agricultural land will not affect the integrity of other vegetation types within and outside of the study area.

9.1.6.2 Designated Significant Natural Areas

No designated areas such as Areas of Natural and Scientific Interest, Environmentally Significant Areas or wetlands of Provincial Significance are located within the study area.

9.1.6.3 Wildlife

Highway 62 Moira/Ridge Road Intersection

The works associated with the Highway 62 and Moira/Ridge Road intersection improvements are not anticipated to have a significant impact on individual species or habitat. Vegetation cover in the study area provides habitat for common and tolerant vegetation species. The

ultimate plan for intersection improvements will impact a portion of the hay field located northwest of the intersection which could be potential Bobolink habitat. However, no Bobolink were recorded during the breeding bird surveys or are known to be in the study area.

Wildlife passage within the study area will not be affected by the proposed construction as the vegetation units are already bisected and isolated by existing developments and road infrastructure. No change to existing wildlife passage opportunities through the study area are anticipated as a result of the proposed intersection improvements.

Highway 62 Rawdon Creek Structure

One Barn Swallow was nesting under the bridge over Rawdon Creek and there may have been one other nest attempt on the bridge. The proposed replacement of the Highway 62 Rawdon Creek structure and associated works has the potential to affect Barn Swallow habitat (refer to **Section 9.1.7** for details). No other wildlife species are known to use this structure. The associated vegetation removals within the ROW are not anticipated to have a significant impact on any other individual species or habitat. This is due to the relatively small area required to be removed to accommodate construction. Existing wildlife passage within the Study Area will be maintained as the proposed replacement structure will be larger than the existing structure.

9.1.6.4 Terrestrial Mitigation

Opportunities to update the terrestrial assessment will be examined at detail design. The following mitigation measures are proposed to minimize potential terrestrial impacts and protect the natural environment:

- All replacement plantings shall be species that are native to this geographical region.
- Vegetation clearing shall occur outside of the breeding bird window (April 15 – July 31) in order to protect migratory breeding birds in accordance with the *Migratory Birds Convention Act*. Should vegetation clearing be required during this period, the area of disturbance will be surveyed by a qualified avian specialist to ensure that no active nest will be destroyed by the construction activity. If construction must occur during the breeding bird window, netting shall be applied to the underside of the Highway 62 Rawdon Creek structure prior to early April to ensure Barn Swallows cannot establish nests.
- If works cannot be completed within the window of least risk, exclusion measures to prevent Barn Swallow nesting in advance of construction will follow Best Management Practices - Building and Structure Exclusionary Measures for Barn Swallow to be released by MNRF in 2015;
- Should the proposed ANSI become formal, a review of the feature and associated designation will occur;
- It is anticipated that the new bridge design will not specifically accommodate Barn Swallow nests. However, unless measures are built to exclude nesting, Barn Swallow are likely to be able to nest on the new bridge. As such, replacement of permanent nesting habitat will need to be provided and constructed within 1 km of the bridge and within 200 m of suitable foraging habitat. Appropriate monitoring and documentation in accordance with the Ministry of Natural Resources and Forestry habitat regulation and the Modernization of Approvals

process and registration of the project per the *Endangered Species Act* regulations will be required.

- Sediment containment fencing will be established along the edge of adjacent natural features at the limit of construction and along Rawdon Creek to prevent unnecessary incursion into these areas. The fence will be maintained and monitored on a scheduled basis during construction.
- A construction work plan shall designate specific locations for stockpiling of soils / other materials, equipment maintenance and/or fueling outside of adjacent natural areas and a minimum distance of 30 m away from Rawdon Creek.
- Stormwater discharge during construction will be directed away from adjacent natural areas and Rawdon Creek.
- Post construction, exposed soils will be re-vegetated as soon as possible with native seed mixes to promote native biodiversity and reduce the potential for soil erosion. If stabilization is not possible by plantings, then erosion protection, such as coir blankets will be applied in the interim.
- An additional Bobolink survey of the hay field located northwest of the intersection will be undertaken during future design phases of the project to confirm that Bobolink are not using the adjacent agricultural fields.

9.1.7 Species at Risk (SAR)

Highway 62 Moira/Ridge Road Intersection

Although suitable habitat for Bobolink is located in the agricultural fields adjacent to the intersection, no SAR were encountered during field work. All species located within the ROW are common throughout southern Ontario. As such, no potential harm to SAR or their habitats is anticipated as a result of the ultimate plan for intersection improvements. As mentioned in **Section 9.1.6.4**, an additional Bobolink survey of the hay field located northwest of the intersection will be undertaken during future design phases of the project to confirm that Bobolink are not using the adjacent agricultural fields.

Highway 62 Rawdon Creek Structure

The proposed construction will require the removal of one Barn Swallow nest on the Highway 62 Rawdon Creek structure. Barn Swallow is protected as a Threatened species under Ontario's provincial *Endangered Species Act*, 2007 (ESA); section 10 of the ESA prohibits damaging or destroying the habitat of SAR. On July 1, 2013, the streamline approach under the Ministry of Natural Resources and Forestry's Modernization of Approvals process was implemented (MNRF 2013). Individuals and business may now register with the Ministry of Natural Resources and Forestry to undertake certain activities related to the ESA. This process includes; a) submission of a Notice of Activity to the Ministry of Natural Resources and Forestry; b) minimization and mitigation of adverse effects on Barn Swallow and its habitat; c) habitat compensation where new nesting habitat must be created and maintained; and d) monitoring and reporting on mitigation and habitat compensation measures that were implemented to reduce and compensate for impacts to individuals or their habitats. A suitable location for a Barn Swallow kiosk in the vicinity of the existing Highway 62 Rawdon Creek structure to compensate for the loss of

nesting habitat and addressing the requirements under the ESA Modernization of Approvals process will be provided during future study stages (in advance of removal of the existing bridge).

As mentioned in **Section 9.1.6.4**, vegetation clearing will occur outside of the breeding bird window (April 15 – July 31) in order to protect migratory breeding birds in accordance with the *Migratory Birds Convention Act*. Should vegetation clearing be required during this period, the area of disturbance should be surveyed by a qualified avian specialist to ensure that no active nest will be destroyed by the construction activity. If construction must occur during the breeding bird window, netting should be applied to the underside of the Highway 62 Rawdon Creek structure prior to early April to ensure Barn Swallows cannot establish nests. It is anticipated that the new bridge design will not specifically accommodate Barn Swallow nests. However, unless measures are built to exclude nesting, Barn Swallow are likely to be able to nest on the new bridge. As such, replacement of permanent nesting habitat will need to be provided and constructed within 1 km of the bridge and within 200 m of suitable foraging habitat. Appropriate monitoring and documentation in accordance with the Ministry of Natural Resources and Forestry habitat regulation and the Modernization of Approvals process and registration of the project per the *Endangered Species Act* regulations will be required.

No turtles were observed and no nesting sites were found within the study area. While no suitable nesting habitat is found directly adjacent to the bridge, there is potential nesting habitat suitable for Snapping Turtle within the study area. Portions of the agricultural fields and within shoulders along Highway 62 and Moira/Ridge Road intersection may provide suitable nesting habitat. An inspection of the work area will be performed prior to operations each day to ensure turtles are not present in the work area. If a species is found, the individual will be safely relocated outside of the work zone. In addition, a worker awareness program is to be implemented for key MTO, Contract Administrator and Contractor personnel to establish a response protocol in the event a turtle is found within the work area.

No other terrestrial SAR were encountered during field work. All vegetation located within the ROW is common throughout southern Ontario.

NHIC mapping that contains the Highway 62 Rawdon Creek structure (1-km square) does not note any fish SAR occurrences. DFO's Distribution of Fish SAR mapping shows no fish or mussel SAR species located in Rawdon Creek in the area of the bridge crossing. Through direct discussions with the Ministry of Natural Resources and Forestry, they note that their records do not show any SAR fish species in the immediate area of the Highway 62 Rawdon Creek structure.

Opportunities to update the field investigation results will be examined at detail design to confirm species and consider newly listed species as applicable.

9.2 Socio-Economic Environment

9.2.1 Property Impacts

Approximately 1 ha from five private properties is required to accommodate the Recommended Plan for interim and ultimate improvements:

- Agricultural properties in the northwest, northeast and southwest quarants of the Highway 62 and Moira/Ridge Road intersection;
- Permanent minor impact to the frontage of the residence in the northwest quadrant of Rawdon Creek and Highway 62, displacing the stone retaining wall (partially), mature trees and the dual entrance driveway (partially); and
- Commercial property (Jackson Auto Sales) in the northeast quadrant of the Highway 62 and Moira/Ridge Road intersection.

Efforts have been made to minimize the extent of additional property that is required to accommodate the proposed intersection improvements and structure replacement. MTO will acquire the necessary properties prior to construction. Affected owners will be consulted when the property plans are being finalized. Compensation will be based on fair market value of the property required.

9.2.2 Waste Management and Contamination

The Contamination Overview Study undertaken as part of this study did not reveal evidence of actual environmental site contamination within the study area. No properties have been rated as having high potential for contamination. Medium potential has been identified for six properties along Highway 62. The remaining properties have been rated as having low potential for contamination.

A detailed review including a site visit, interview and completion of a Preliminary Site Screening (PSS) will be undertaken for the properties required to accommodate the proposed improvements that are rated having medium potential for contamination. It should be noted that a PSS was completed for the commercial property in the northeast quadrant of the intersection. Since the responsibility for any contamination that is discovered after a property transaction generally rests with the new owner of the property, PSS, Phase I and Phase II Environmental Site Assessment are often conducted prior to any property transactions.

During the designated substance survey, potential sources of silica observed at the bridge included the poured concrete deck, foundation, concrete abutments and guardrails. A qualified contractor must control demolition or renovation activities on-site to minimize worker exposure to silica in accordance with O. Reg. 490/09. As required by O. Reg. 490/09, airborne silica concentrations must not exceed a TWA of 0.10 milligrams of silica per cubic metre for quartz / tripoli. Recycling of silica-based materials removed from work areas should be conducted in accordance with O. Reg. 102/94 and O. Reg. 103/94 under the *Ontario Environmental Protection Act*.

9.2.3 Aesthetics / Landscape Composition

A roundabout has the potential to change existing views and vistas, however they are generally considered to be more aesthetically appealing relative to signalized intersections as there is an opportunity for landscaping within the central island of the roundabout. A landscaping plan will be developed during detail design.

9.2.4 Air Quality During Construction

Construction activities will involve heavy equipment that generates air pollutants and dust, however, these impacts are temporary in nature. The emissions are highly variable and difficult to predict, depending on the specific activities that are taking place and the effectiveness of the mitigation measures. The best manner to deal with these emissions is through the implementation of operating procedures, such as application of dust suppressants, reduced travel speeds for heavy vehicles, efficient staging of activities and minimization of haul distances, covering stockpiles, etc. In order to minimize potential air quality impacts during construction, the contract package will include requirements for implementing best management practices for control of dust and other emissions.

9.2.5 Noise During Construction

Construction noise is temporary in nature and is dependent upon the type of construction equipment and processes used, and the time of day that the construction will take place. Construction activities that are expected to occur to implement the recommended plan that generate noise include but are not limited to removing pavement, construction of the road base, paving and construction of the new Highway 62 Rawdon Creek bridge.

During construction, the Contractor will be required to abide by any municipal noise control by-laws, keep idling of construction equipment to a minimum, maintain equipment in good working order to reduce noise from construction activities and be available to address any concerns that may arise with respect to noise during construction. Furthermore, complaints will be investigated according to the provisions of the MTO Environmental Guide for Noise (October 2006). Any initial complaint from the public requires verification by Contract Administrator that the general noise control measures agreed to are in effect. If not, the Contract Administrator will advise the Contractor of any problems, and enforce the contract.

During the next phase of this project, construction noise impacts, mitigation measures and the need for noise by-law exemptions from the City of Kawartha Lakes will be determined.

9.2.6 Utilities

All potentially affected utility companies will be contacted to develop a utility relocation plan prior to construction (during the next phase of this project). Furthermore, it is anticipated that all utility relocations will be completed before construction of this project is initiated. If it is

necessary to complete utility relocations during construction, the Contractor will be required to coordinate the timing of each utility operation to ensure that they are carried out independently and do not conflict with construction operations. Special provisions will be included in the next phase of this project to address this, and to make certain that care and precautions are taken to safeguard existing utilities from damage.

9.3 Cultural Environment

9.3.1 Archaeological Resources

Background research determined that no archaeological sites have been registered within a 1-km radius of the study area. In addition, only one archaeological assessment has been conducted within 50 m of the study area (URS 2013). The study area is intersected by historic transportation routes (Highway 62 and Moira/Ridge Road) and historically mapped structures associated with the crossroads hamlet of West Huntingdon Station. This, combined with the proximity of Rawdon Creek, a possible glacial shoreline and a potential Aboriginal trail indicates that the study area exhibits moderate to high archaeological site potential. The results of the field review indicate that most of the lands within the study area have not been disturbed and thus would retain any inherent archaeological potential.

Of special consideration is the cemetery at the southeast quadrant of the intersection of Highway 62 and Moira/Ridge Road. The cemetery's historic boundaries have not been definitively established. Therefore there is potential for unmarked graves to exist beyond the assumed boundaries of the cemetery, both along the edges of the roadways, and into the wooded ravine to the east of the cemetery.

In light of these results, the following recommendations will be taken into consideration during the future design phases of this project:

- Improvements to the Highway 62 and Moira/Ridge Road intersection that result in the encroachment upon areas determined to have archaeological potential will be subject to a Stage 2 archaeological assessment conducted by a licensed consultant archaeologist. This work will be done in accordance with MTCS' *Standards and Guidelines for Consultant Archaeologists (2011)* prior to any land disturbing activities. The purpose of this work would be to identify and assess any archaeological remains that may be present.
- In regards to St. Luke's Cemetery at the southeast corner of Highway 62 and Moira/Ridge Road intersection, a test pit survey at 5 m intervals shall be done as part of the Stage 2 archaeological assessment.
- No additional archaeological assessment is required within the disturbed areas of the study area. It is recommended that these areas be considered clear of further archaeological concern.

9.3.2 Built Heritage Resources and Cultural Heritage Landscapes

As mentioned in **Section 4.3.2**, a Heritage Bridge Evaluation Report has been prepared to address the criteria laid out in the *Ontario Heritage Bridge Guidelines for Provincially Owned Bridges (Interim)* MTO, January 11, 2008 (*OHBG*) [1] reflecting the *Standards and Guidelines for Conservation of Provincial Heritage Properties* (MTCS 2010). The evaluation returned a score of 3/100. As such the Highway 62 Rawdon Creek bridge does not meet the criteria for nomination to the Heritage Bridge List.

St. Luke's Cemetery in the southeast quadrant of the intersection is a significant local Cultural Heritage Landscape, serving as a marker and memorial to the families who established the farming economy in the area in the early 19th century. The Recommended Plan for ultimate intersection improvements results in the removal of an existing entrance to the cemetery and a new cemetery access will be provided.

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 crossroads communities to dwindle, as people were able to go to town to meet a wider range of needs. This cultural heritage landscape (CHL 2) may have significance for the Municipality of Centre Hastings, however the proposed improvements to the intersection do not pose a negative impact on its character at this time.

9.4 Transportation

9.4.1 Traffic Disruption and Construction Staging

Community access will be maintained during construction. A preliminary construction staging plan has been developed as part of this study and will be refined during the next phase of this project. Details of the Recommended Plan will be refined during further stages of preliminary design and detail design.

9.4.2 Sight Lines Improvements at the Intersection

Through input received during consultation it was suggested that the Project Team examine opportunities to improve sight lines from Moira/Ridge Road to Highway 62 northbound. During the detail design stage, the Ministry will examine the feasibility of and impacts associated with further cutting back or adjusting the slope of the embankment that fronts the St. Luke's Cemetery on the east side of Highway 62.

[1] The *OHBG* is currently being updated to reflect the *Standards and Guidelines* (2010).

9.5 Navigation

Transport Canada officials have determined that the provisions of the *Navigable Waters Protection Act* (NWPA) do not apply to this project, prior to the changes to the NWPA came into force in 2013. Therefore, an approval is not required.

9.6 Summary of Environmental Effects, Mitigation and Commitments to Future Work

The proposed mitigation measures and commitments to future work to address specific concerns associated with the Recommended Plan are listed in **Table 9-1**.

Table 9-1: Summary of Environmental Concerns, Mitigating Measures and Commitments to Future Work

Legend	
DFO: Fisheries and Oceans Canada	MUN: Municipalities
MNRF: Ministry of Natural Resources and Forestry	RES / BUS: Area residents and/or businesses
MTO: Ministry of Transportation	UTIL: Utilities
CA: Conservation Authority	MTCS: Ministry of Tourism, Culture and Sport
MOECC: Ministry of the Environment and Climate Change	

ID#	ENVIRONMENTAL CONCERN AND POTENTIAL IMPACT	CONCERNED AGENCIES	MITIGATION / COMMITMENT TO FUTURE WORK
1	Fish and Fish Habitat	DFO MNRF MTO CA	▪ Opportunities to update the fish and fish habitat investigations will be examined at detail design. ***Fish Protection*** All in-water and near-water activities at the Rawdon Creek crossing will be conducted within the applicable in-water construction timing windows, as identified by the Ministry of Natural Resources and Forestry, to protect the resident fishery life functions as outlined below. Fish protection measures include: ▪ The coldwater timing window of July 16 – September 30 will be applied for all in-water and near water construction works. ***Protection during Removal of the Existing Highway 62 Rawdon Creek Structure*** ▪ Removal of the existing Highway 62 Rawdon Creek structure will require adherence to appropriate debris containment and extraction techniques. Removal of the concrete deck and abutments will be undertaken by isolating the active work area from the flowing portion of the creek with the use of temporary isolation techniques such as coffer dams, Aqua-Dam, sheet piling, etc. This system(s) will manage both large material and fine particulate entry into the watercourse and will be monitored regularly. Any accidental deposition of debris onto the existing isolated creek bed shall be carefully removed prior to flow being returned to the bed. ▪ All excavated material shall be removed and deposited in an area above the high water mark of the shoreline and be contained behind properly installed and maintained sediment barriers or devices. ▪ Following the removal of the existing abutments, the footprint is to be graded to match upstream and downstream terrain and elevations using a combination of compacted soil and rounded stone to afford erosion protection. This area is to be stabilized using erosion control blankets, re-vegetated with an appropriate native herbaceous seed mix and planted with native woody shrubs such as Red-osier Dogwood and Grey Buckthorn. ***Construction Access, Site Controls and Operational Constraints*** ▪ The construction access and work areas will be confined to the extent required for the construction activities, and these areas are then defined in the field using appropriately installed protective fencing or other suitable barriers. ▪ Removal of riparian vegetation, particularly woody vegetation, will be kept to the minimum necessary for the project works. The woody vegetation that will likely require removal will be replaced with appropriate native species. ▪ Any temporarily stockpiled material, construction or related materials will be properly contained (e.g. within silt fencing) in areas separated a minimum of 30 m from any watercourse. ▪ All construction materials and debris will be removed and appropriately disposed of following construction. ▪ Every effort will be made to retain as much of the natural vegetation as reasonably possible to help ensure bank stability, control erosion and expedite the re-colonization of vegetative cover. ▪ All vegetation clearing required for access will be conducted using proper clearing techniques and appropriate construction timing windows as may be defined by other legislation (e.g. *Migratory Birds Convention Act*). ▪ All activity will be controlled so as to prevent entry of any petroleum products, debris or other potential contaminants / deleterious substances, in addition to sediment as outlined above, to any watercourse. No storage, maintenance or refuelling of equipment will be conducted near any watercourse. ▪ A Spills Prevention and Response Plan will be developed and kept on site at all times. ***Rehabilitation Following Construction*** ▪ All of the areas disturbed during construction will be restored, stabilized and re-vegetated as soon as the works are completed to prevent migration of fine material to the watercourse during runoff events, as well as minimizing the opportunity for colonization of the area by invasive species. ▪ Only native plants, compatible with site conditions will be used.

ID#	ENVIRONMENTAL CONCERN AND POTENTIAL IMPACT	CONCERNED AGENCIES	MITIGATION / COMMITMENT TO FUTURE WORK
			Site Inspection and Monitoring An environmental inspector will be responsible for conducting regular inspections of the environmental protection measures (erosion and sediment controls, containment measures, etc.) and identifying deficiencies. The inspector will make certain that all environmental mitigation and design measures are properly installed / constructed and maintained, and appropriate contingency and response plans are in place and implemented if required.
2	Erosion and Sediment	MOECC MNRF MTO MUN	▪ Perimeter silt fence will be installed between the work areas and the watercourses. ▪ The fencing will be properly installed and regularly inspected and maintained. It will be left in place and maintained until all surfaces contributing drainage to these watercourses are fully stabilized. ▪ All exposed and newly constructed surfaces will be stabilized using appropriate means in accordance with the characteristics of the soil material. ▪ These surfaces will be fully stabilized and re-vegetated as quickly as possible following completion of the proposed works. ▪ Contingency procedures, materials and notification procedures will be readily available for use in the event of a silt release and for general application in regular maintenance and repair.
3	Groundwater	MOECC MNRF MTO MUN	The following mitigation measures are proposed to manage the potential impacts: ▪ Investigation of water well impacts and evaluation of groundwater conditions at the bridge location to determine impacts relating to construction will be undertaken at the detail design stage. Detailed recommendations will be made at that stage. ▪ A monitoring program for potable water wells will be undertaken in the vicinity of the construction activities prior to construction (specifically dewatering), and during construction if deemed necessary. ▪ Limit the depth of excavation and minimize the need for dewatering during construction, particularly in areas designated as having a high potential for groundwater impact; ▪ If dewatering is required, dewatering activities will be conducted in accordance with approved control procedures; a Permit to Take Water must be obtained from MOECC if the amount of water taken exceeds 50 m^3/day; ▪ Minimize disturbance to existing vegetation and grassed slopes where re-grading is required (disturbed areas shall be re-vegetated as quickly as possible after completion of construction activities); and ▪ Implement stormwater management measures to protect water quality that may infiltrate groundwater resources.
4	Drainage and Hydrology	MTO MOECC CA	▪ A detailed survey of existing culverts / pipes and other drainage elements will be completed as part of the detail design to confirm existing conveyance capacity. ▪ Consultation with the Ministry of Natural Resources and Forestry, Water Survey of Canada and the Lower Trent Conservation will be undertaken to determine the status of the stream gauge and whether construction will need to accommodate relocation of the gauge.
5	Stormwater Management	MNRF MTO CA MUN	Utilizing oil / grit separators (OGS) will be considered during detail design; an OGS placement at a manhole at Rawdon Creek, south of Highway 62, prior to discharge into the unnamed tributary of Rawdon Creek will be considered. The grass ditching that exists to the east and west along Highway 62 are proposed to be converted to enhanced grassed swales to provide improved water quality benefits. This will be confirmed during detail design.
6	Terrestrial Ecosystems	MNRF MTO MUN CA	▪ Opportunities to update the terrestrial assessment will be examined at detail design. ▪ All replacement plantings shall be species that are native to this geographical region. ▪ Vegetation clearing shall occur outside of the breeding bird window (April 15 – July 31) in order to protect migratory breeding birds in accordance with the *Migratory Birds Convention Act*. Should vegetation clearing be required during this period, the area of disturbance will be surveyed by a qualified avian specialist to ensure that no active nest will be destroyed by the construction activity. If construction must occur during the breeding bird window, netting shall be applied to the underside of the Highway 62 Rawdon Creek structure prior to early April to ensure Barn Swallows cannot establish nests. ▪ If works cannot be completed within the window of least risk, exclusion measures to prevent Barn Swallow nesting in advance of construction will follow Best Management Practices - Building and Structure Exclusionary Measures for Barn Swallow to be released by MNRF in 2015; ▪ Should the proposed ANSI become formal, a review of the feature and associated designation will occur; ▪ It is anticipated that the new bridge design will not specifically accommodate Barn Swallow nests. However, unless measures are built to exclude nesting, Barn Swallow are likely to be able to nest on the new bridge. As such, replacement of permanent nesting habitat will need to be provided and constructed within 1 km of the bridge and within 200 m of suitable foraging habitat. Appropriate monitoring and documentation in accordance with the Ministry of Natural Resources and Forestry habitat regulation and the Modernization of Approvals process and registration of the project per the *Endangered Species Act* regulations will be required. ▪ Sediment containment fencing will be established along the edge of adjacent natural features at the limit of construction and along Rawdon Creek to prevent unnecessary incursion into these areas. The fence will be maintained and monitored on a scheduled basis during construction. ▪ A construction work plan will designate specific locations for stockpiling of soils / other materials, equipment maintenance and/or fueling outside of adjacent natural areas and a minimum distance of 30 m away from Rawdon Creek.

ID#	ENVIRONMENTAL CONCERN AND POTENTIAL IMPACT	CONCERNED AGENCIES	MITIGATION / COMMITMENT TO FUTURE WORK
			▪ Stormwater discharge during construction will be directed away from adjacent natural areas and Rawdon Creek. ▪ Post construction, exposed soils should be re-vegetated as soon as possible with native seed mixes to promote native biodiversity and reduce the potential for soil erosion. If stabilization is not possible by plantings, then erosion protection, such as coir blankets will be applied in the interim. ▪ A Bobolink survey of the hay field located northwest of the intersection will be undertaken during future design phases of the project to confirm that Bobolink are not using the adjacent agricultural fields and confirm if the *Endangered Species Act* applies.
7	Species at Risk	MTO MNRF CA	▪ Opportunities to update the field investigation results will be examined at detail design to confirm species and consider newly listed species as applicable. ▪ Vegetation clearing shall occur outside of the breeding bird window (April 15 – July 31) in order to protect migratory breeding birds in accordance with the *Migratory Birds Convention Act*. Should vegetation clearing be required during this period, the area of disturbance will be surveyed by a qualified avian specialist to ensure that no active nest will be destroyed by the construction activity. If construction must occur during the breeding bird window, netting shall be applied to the underside of the Highway 62 Rawdon Creek structure prior to early April to ensure Barn Swallows cannot establish nests. ▪ If works cannot be completed within the window of least risk, exclusion measures to prevent Barn Swallow nesting in advance of construction will follow Best Management Practices - Building and Structure Exclusionary Measures for Barn Swallow to be released by MNRF in 2015; ▪ It is anticipated that the new bridge design will not specifically accommodate Barn Swallow nests. However, unless measures are built to exclude nesting, Barn Swallow are likely to be able to nest on the new bridge. As such, replacement of permanent nesting habitat will need to be provided and constructed within 1 km of the bridge and within 200 m of suitable foraging habitat. Appropriate monitoring and documentation in accordance with the Ministry of Natural Resources and Forestry habitat regulation and the Modernization of Approvals process and registration of the project per the *Endangered Species Act* regulations will be required. ▪ An additional Bobolink survey of the hay field located northwest of the intersection will be undertaken during future design phases of the project to confirm that Bobolink are not using the adjacent agricultural fields. ▪ An inspection of the work area will be performed prior to operations each day to ensure turtles are not present in the work area. If a species is found, the individual will be safely relocated outside of the work zone. ▪ A worker awareness program is to be implemented for key MTO, Contract Administrator and Contractor personnel to establish a response protocol in the event Snapping Turtles are found within the work area.
8	Property Impacts	MTO Impacted Property Owners MUN	Approximately 0.9 ha from five private properties is required to accommodate the Recommended Plan for interim and ultimate improvements. Efforts have been made to minimize the extent of additional property that is required to accommodate the proposed intersection improvements and structure replacement. MTO will acquire the necessary properties prior to construction. Affected owners will be consulted when the property plans are being finalized. Compensation will be based on fair market value of the property required.
9	Waste Management and Contamination	MTO	▪ A more detailed review including a site visit, interview and completion of a Preliminary Site Screening (PSS) is to be undertaken for the properties required to accommodate the proposed improvements that are rated having medium potential for contamination. ▪ During the designated substance survey, potential sources of silica observed at the bridge included the poured concrete deck, foundation, concrete abutments and guardrails. A qualified contractor must control demolition or renovation activities on-site to minimize worker exposure to silica in accordance with O. Reg. 490/09. As required by O. Reg. 490/09, airborne silica concentrations must not exceed a TWA of 0.10 milligrams of silica per cubic metre for quartz / tripoli. Recycling of silica-based materials removed from work areas should be conducted in accordance with O. Reg. 102/94 and O. Reg. 103/94 under the *Ontario Environmental Protection Act*.
10	Aesthetics / Landscape Composition	MTO MUN RES / BUS	A landscaping plan will be developed in detail design to support the design of the roundabout.
11	Air Quality	MTO MOECC RES / BUS	Construction related dust and other emissions will be addressed through diligent implementation Best Management Practices (standard operating procedures) such as application of dust suppressants, reduced travel speeds for heavy vehicles, efficient staging of activities and minimization of haul distances, covering stockpiles, etc.
12	Noise During Construction	MTO MOECC RES / BUS	During construction, the Contractor will be required to: ▪ Abide by any municipal noise by-laws; ▪ Keep idling of construction equipment to a minimum; ▪ Maintain equipment in good working order to reduce noise from construction activities; ▪ Be available to address any concerns that may arise with respect to noise during construction; and ▪ Complaints will be investigated according to the provisions of the MTO Environmental Guide for Noise (October 2006). Any initial complaint from the public requires verification by the Contract Administrator that the general noise control measures agreed to are in effect. If not, The Contract Administrator will advise the Contractor of any problems, and enforce the contract.

ID#	ENVIRONMENTAL CONCERN AND POTENTIAL IMPACT	CONCERNED AGENCIES	MITIGATION / COMMITMENT TO FUTURE WORK
13	Utilities	MTO UTIL	All potentially affected utility companies will be contacted to develop a utility relocation plan prior to construction (during the next phase of this project). Furthermore, it is anticipated that all utility relocations will be completed before construction of this project is initiated. If it is necessary to complete utility relocations during construction, the Contractor will be required to coordinate the timing of each utility operation to ensure that they are carried out independently and do not conflict with construction operations. Special provisions will be included in the contract during the next phase of this project to address this, and to make certain that care and precautions are taken to safeguard existing utilities from damage.
14	Archaeological	MTO MTCS	▪ Improvements to the Highway 62 and Moira/Ridge Road intersection that result in the encroachment upon areas determined to have archaeological potential will be subject to a Stage 2 archaeological assessment conducted by a licensed consultant archaeologist. This work will be done in accordance with MTCS' *Standards and Guidelines for Consultant Archaeologists (2011)* prior to any land disturbing activities. The purpose of this work would be to identify and assess any archaeological remains that may be present. ▪ In regards to St. Luke's Cemetery at the southeast corner of Highway 62 and Moira/Ridge Road intersection, a test pit survey at 5 m intervals shall be done as part of the Stage 2 archaeological assessment (in areas of archaeological potential). ▪ No additional archaeological assessment is required within the disturbed areas of the study area. It is recommended that these areas be considered clear of further archaeological concern.
15	Heritage Resources	MTO MTCS MUN	▪ The Rawdon Creek structure does not meet the criteria for nomination to the Heritage Bridge List. ▪ The Recommended Plan for ultimate intersection improvements results in the removal of an existing entrance to the cemetery and a new cemetery access will be required. ▪ CHL 2 (west of Highway 62 on both sides of Moira/Ridge Road) is a mid-20th century rural Ontario mixed farming cultural landscape, with associated farmhouses ca. 1900-60, outbuildings, pasture and cultivated fields in rolling ground. CHL 2 may have significance for the Municipality of Centre Hastings, however the proposed improvements to the intersection do not pose a negative impact on its character at this time.
16	Traffic Disruption and Construction Staging	MUN MTO	A preliminary construction staging plan has been developed as part of this study and will be refined during the next phase of this project.
17	Sight Lines Improvements at the Intersection	MTO MUN RES / BUS	During the detail design stage, the Ministry will examine the feasibility of and impacts associated with further cutting back or adjusting the slope of the embankment that fronts the St. Luke's Cemetery on the east side of Highway 62.
18	Navigation	MTO Transport Canada RES / BUS	Transport Canada officials have determined that the provisions of the *Navigable Waters Protection Act* (NWPA) do not apply to this project, prior to the changes to the NWPA came into force in 2013. Therefore, an approval under the *Navigation Protection Act* is not required.
19	Aboriginal Community Consultation	MTO Aboriginal Communities	Continued consultation and interaction with identified Aboriginal Communities / organizations during the next phase of this project.

9.7 Monitoring

9.7.1 Project Specific Monitoring

During construction, the Contract Administrator and/or Environmental Monitor will make certain that the implementation of the mitigation measures and key design features are consistent with the contract. In addition, the Contract Administrator and/or Environmental Monitor will assess the effectiveness of its environmental mitigation measures to make certain that the following:

- Individual mitigation measures are providing the expected control and/or protection;
- Composite control and/or protection provided by mitigation measure is adequate;
- Monitoring required as per legislative approvals will be undertaken (e.g. SAR registration, PTTW, etc.);
- Additional mitigation measures are provided as required for any unanticipated environmental conditions which may develop during construction; and
- Information is available for the overview assessment of mitigation measures.

Environmental monitoring, after a project is completed, may involve follow-up monitoring of significant measures and/or significant concerns.

9.7.2 Implementation of Environmental Monitoring Framework

Construction is subject daily to general on-site inspection to make certain that the execution of the environmental component of the work and to deal with environmental problems that develop during construction. This is the primary method for compliance monitoring. Inspection by the Environmental Monitor will occur during construction and will be part of commitments during the next phase of this project.

Construction projects with mitigation measures / concerns are subject to periodic site visits by the Environmental Monitor. The timing and frequency of such site visits are determined by the schedule of construction operations, the sensitivity of environmental concerns and the development of any unforeseen environmental problems during construction. The Contract Administrator and MTO Environmental Planner will be available should difficulties arise.

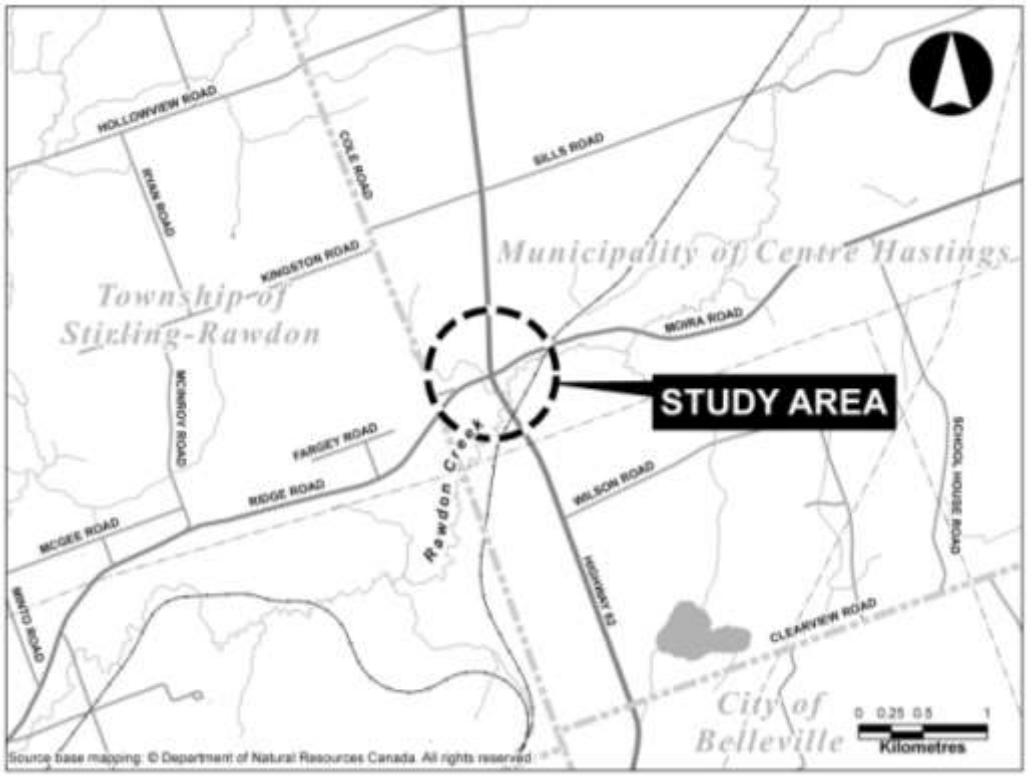
APPENDIX A
Relevant Correspondence

ONTARIO GOVERNMENT NOTICE
NOTICE OF STUDY COMMENCEMENT

G.W.P. 4028-05-00, HIGHWAY 62 AND MOIRA/RIDGE ROAD (HASTINGS ROAD 8) INTERSECTION IMPROVEMENTS CLASS ENVIRONMENTAL ASSESSMENT AND PRELIMINARY DESIGN STUDY

THE PROJECT

The Ontario Ministry of Transportation (MTO) has retained URS Canada Inc. to undertake a Class Environmental Assessment and Preliminary Design Study (G.W.P. 4028-05-00) for improvements to the intersection of Highway 62 and Moira/Ridge Road (Hastings Road 8). The project limits are located in the Municipality of Centre Hastings within Hastings County.



THE PROCESS

This study will follow the approved planning process for a Group 'B' project under the MTO *Class Environmental Assessment for Provincial Transportation Facilities (2000).*

Alternatives will be generated and evaluated based on technical and environmental factors and in consultation with the public, municipalities, government agencies, and other stakeholders, and First Nations/Métis. Two Public Information Centres (PICs) will be held during this study to provide the public with the opportunity to discuss the project and provide input to the Project Team.

A Transportation Environmental Study Report (TESR) will be prepared and made available for public and agency review at the completion of the study which will document: the transportation problems and opportunities, the generation, assessment and evaluation of alternatives, the recommended plan, a summary of potential environmental issues and mitigation measures, and a summary of consultation undertaken throughout the study. Notification, advising of the times and locations of the PICs and the availability of the TESR for review, will be published in local newspapers and mailed to those on the project mailing list.

COMMENTS

To obtain additional information, provide initial comments, or to be placed on the study mailing list please contact the Project Team as follows:

Tina White
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Planning and Design
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There is an opportunity at any time during the study for interested persons to provide input to the Project Team including comments and information regarding the study. Comments are being collected to assist MTO in meeting the requirements of the *Environmental Assessment Act*. This material will be maintained on file for use during the study and may be included in project documentation. Information collected will be used 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.

Ontario

AANDC and MAA LETTER

October 11, 2012

«Name»
«Organization»
«Address»

Dear «Greeting»:

RE: Notice of Study Commencement – G.W.P. 4.28-05-00 Highway 62 and Moira/Ridge Road (Hastings Road 8) Intersection Improvements
Class Environmental Assessment and Preliminary Design Study, Ministry of Transportation

The Ontario Ministry of Transportation (MTO) has retained URS Canada Inc. to undertake a Class Environmental Assessment and Preliminary Design Study (G.W.P. 4028-05-00) for improvements to the intersection at Highway 62 and Moira/Ridge Road (Hastings Road 8). The project limits are located in the Municipality of Centre Hastings within Hastings County (please refer to the enclosed "Notice of Study Commencement").

This study will follow the approved planning process for a Group 'B' project under the MTO *Class Environmental Assessment for Provincial Transportation Facilities (2000).*

Alternatives will be generated and evaluated based on technical and environmental factors and in consultation with the public, municipalities, government agencies, and other stakeholders, and First Nations/Métis. Two Public Information Centres (PICs) will be held during this study to provide the public with the opportunity to discuss the project and provide input to the Project Team.

A Transportation Environmental Study Report (TESR) will be prepared and made available for public and agency review at the completion of the study which will document:

- The transportation problems and opportunities;
- The generation, assessment and evaluation of alternatives;
- The recommended plan;
- A summary of potential environmental issues and mitigation measures; and
- A summary of consultation undertaken throughout the study.

Notification, advising of the times and locations of the PICs and the availability of the TESR for review, will be published in local newspapers and mailed to those on the study mailing list.

The purpose of this letter is to request your assistance in identifying any specific First Nations/Métis who may have an interest in the project so that we may engage them in consultation. A reply by October 31, 2012 would be appreciated. We have already mailed a letter notifying of study commencement to the following First Nations/Métis: Métis Nation of Ontario, Mississaugas of Scugog Island First Nation, Chippewas of Georgina Island First Nation, Chippewas of Mnjikaning First Nation, Hiawatha First Nation, Beausoleil First Nation, Alderville First Nation, Curve Lake First Nation, Williams Treaties First Nations, Kawartha Nishnawbe First Nation, and Huron Wendat Nation.

If you would like to provide comments, or if you require further information regarding this study, please feel free to contact the undersigned at 905-882-4401 ext. 147.

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Thank you for your cooperation and assistance.

Yours truly,
URS Canada Inc.

Tyler Drygas
Consultant Senior Environmental Planner
tyler.drygas@urs.com

cc. T. White - Ministry of Transportation, Senior Project Manager
J. Hanna - Ministry of Transportation, Environmental Planner
G. Katic - URS, Consultant Project Manager

Encl.

ABORIGINAL COMMUNITY LETTER

October 11, 2012

«Name»
«Organization»
«Address»

Dear «Greeting»:

RE: Notice of Study Commencement - G.W.P. 4.28-05-00 Highway 62 and Moira/Ridge Road (Hastings Road 8) Intersection Improvements
Class Environmental Assessment and Preliminary Design Study, Ministry of Transportation

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If you would like to provide comments, or if you require further information regarding this study, please feel free to contact myself at 613-545-4871 (toll free: 1-800-267-0295). In addition, if you are interested in meeting as a result of receiving this letter, please contact myself to arrange for a meeting at your earliest convenience.

Thank you for your cooperation and assistance.

Yours truly,
Ministry of Transportation

Tina White
Senior Project Manager
tina.white@ontario.ca

cc.	J. Hanna	- Ministry of Transportation, Environmental Planner
	G. Katic	- URS, Consultant Project Manager
	T. Drygas	- URS, Environmental Senior Planner

Encl.

EXTERNAL LETTER

October 11, 2012

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Encl.

STAKEHOLDER CONTACT INFORMATION FORM

Please fax or e-mail back by November 9, 2012 to 905-882-4399 or tyler.drygas@urs.com

1.) Does your organization wish to participate in this study and continue to receive notices of project activities and information as this study progresses? Yes ☐ No ☐

2.) If your organization wishes to participate in this study, please provide contact information below for the individual who will act as the Project Team's main point of contact.

NAME: _____

TITLE: _____

DEPARTMENT: _____

ORGANIZATION: _____

MAILING ADDRESS: _____

_____

PHONE NUMBER: _____

FAX: _____

E-MAIL ADDRESS: _____

3.) Please indicate if the above noted project will affect the delivery of your organization's programs or services, and/or any other relevant information in this regard.

_____

_____

_____

_____

_____

_____

_____

Your information and comments will be kept on file for use during the study. Please submit this form to:

Submitted By: _____

_____

_____

Tyler Drygas
Consultant Senior Environmental Planner
URS Canada Inc.
75 Commerce Valley Drive East
Markham, Ontario, L3T 7N9
Fax: (905) 882-4399
E-mail: tyler.drygas@urs.com

MP and MPP LETTER

October 4, 2012

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«Organization»
«Address»

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tyler.drygas@urs.com

cc. T. White - Ministry of Transportation, Senior Project Manager
J. Hanna - Ministry of Transportation, Environmental Planner
G. Katic - URS, Consultant Project Manager

Encl.

PUBLIC LETTER

October 11, 2012

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«Organization»
«Address»

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Highway 62 and Moira/Ridge Road (Hastings Road 8) Intersection Improvements Project Team
URS Canada Inc.
75 Commerce Valley Drive East
Markham, ON L3T 7N9
tyler.drygas@urs.com

Or

Tina White
Senior Project Manager
Planning and Design
Ministry of Transportation, Eastern Region
1355 John Counter Boulevard, Postal Bag 4000
Kingston, ON K7L 5A3
Tel: 613-545-4871, Toll Free: 1-800-267-0295
tina.white@ontario.ca

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	G. Katic	- URS, Consultant Project Manager

Encl.

ONTARIO GOVERNMENT NOTICE
NOTICE OF STUDY COMMENCEMENT

G.W.P. 4044-10-00, HIGHWAY 62 RAWDON CREEK STRUCTURE REPLACEMENT
CLASS ENVIRONMENTAL ASSESSMENT AND PRELIMINARY DESIGN STUDY

THE PROJECT

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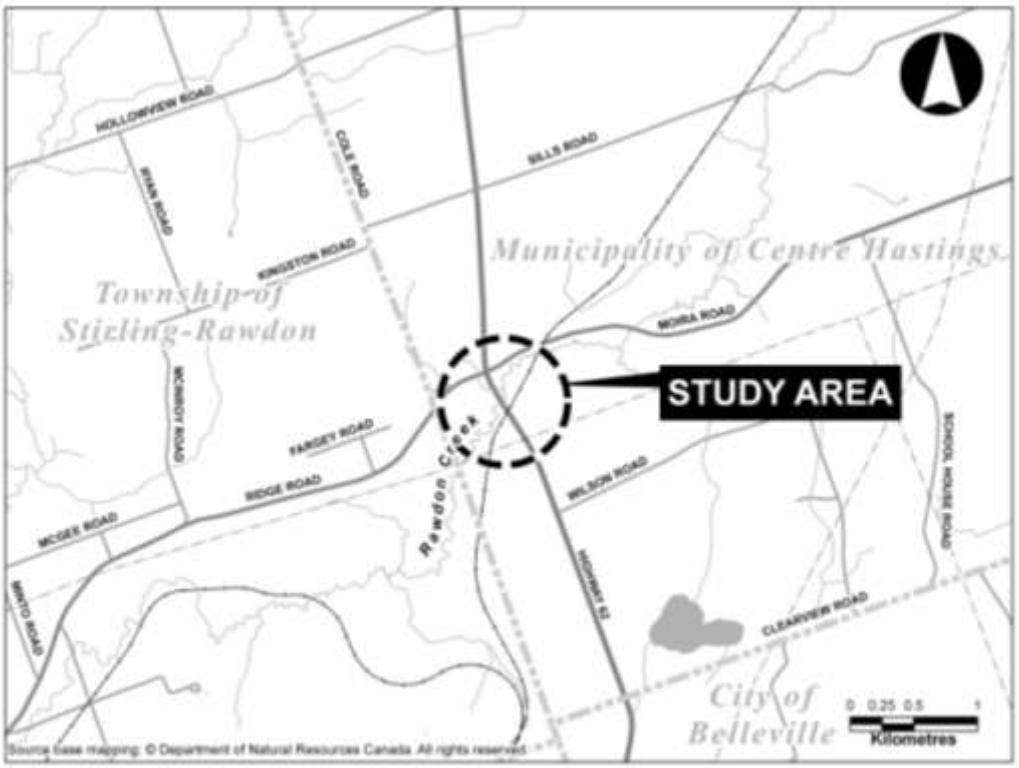

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COMMENTS

To obtain additional information, provide initial comments, or to be placed on the study mailing list please contact the Project Team as follows:

Tina White
Senior Project Manager
Planning and Design
Ministry of Transportation, Eastern Region
1355 John Counter Boulevard, Postal Bag 4000
Kingston, ON K7L 5A3
Tel: 613-545-4871
Toll Free: 1-800-267-0295
Fax: 613-540-5106
tina.white@ontario.ca

George Katic, P.Eng.
Consultant Project Manager
URS Canada Inc.
75 Commerce Valley Drive East
Markham, ON L3T 7N9
Tel: 905-882-4401
Fax: 905-882-4399
george.katic@urs.com

Tyler Drygas
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Ontario

AANDC and MAA LETTER

October 11, 2012

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«Organization»
«Address»

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Submitted By: _____

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URS Canada Inc.

Tyler Drygas
Consultant Senior Environmental Planner
tyler.drygas@urs.com

cc. T. White - Ministry of Transportation, Senior Project Manager
J. Hanna - Ministry of Transportation, Environmental Planner
G. Katic - URS, Consultant Project Manager

Encl.

PUBLIC LETTER

October 11, 2012

«Name»
«Organization»
«Address»

Dear «Greeting»:

RE: Notice of Study Commencement - G.W.P. 4044-10-00 Highway 62 Rawdon Creek Structure Replacement
Class Environmental Assessment and Preliminary Design Study, Ministry of Transportation

The Ontario Ministry of Transportation (MTO) has retained URS Canada Inc. to undertake a Class Environmental Assessment and Preliminary Design Study (G.W.P. 4044-10-00) for the replacement of the Rawdon Creek structure on Highway 62. The project limits are located in the Municipality of Centre Hastings within Hastings County (please refer to the enclosed "Notice of Study Commencement").

Alternatives will be generated and evaluated based on technical and environmental factors and in consultation with the public, municipalities, government agencies, and other stakeholders, and First Nations/Métis. One Public Information Centre (PIC) will be held during this study to provide the public with the opportunity to discuss the project and provide input to the Project Team.

A Transportation Environmental Study Report (TESR) will be prepared and made available for public and agency review at the completion of the study which will document:

- The transportation problems and opportunities;
- The generation, assessment and evaluation of alternatives;
- The recommended plan;
- A summary of potential environmental issues and mitigation measures; and
- A summary of consultation undertaken throughout the study.

Notification, advising of the time and location of the PIC and the availability of the TESR for review, will be published in local newspapers and mailed to those on the study mailing list.

The purpose of this letter is to notify you of project start-up. This study will follow the approved planning process for a Group 'B' project under the MTO *Class Environmental Assessment for Provincial Transportation Facilities (2000).*

There is an opportunity at any time during the study for interested persons to provide input to the Project Team including comments and information regarding the study. Comments are being collected to assist MTO in meeting the requirements of the *Environmental Assessment Act.* This material will be maintained on file for use during the study and may be included in project documentation. Information collected will be used 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.

If you would like to provide comments, or if you require further information regarding this study, please feel free to contact the undersigned at 905-882-4401 ext. 147 or by mail at:

Highway 35 Rawdon Creek Structure Replacement Project Team
URS Canada Inc.
75 Commerce Valley Drive East
Markham, ON L3T 7N9
tyler.drygas@urs.com

Or

Tina White
Senior Project Manager
Planning and Design
Ministry of Transportation, Eastern Region
1355 John Counter Boulevard, Postal Bag 4000
Kingston, ON K7L 5A3
Tel: 613-545-4871, Toll Free: 1-800-267-0295
tina.white@ontario.ca

Thank you for your cooperation and assistance.

Yours truly,
URS Canada Inc.

Tyler Drygas
Consultant Senior Environmental Planner
tyler.drygas@urs.com

cc. T. White - Ministry of Transportation, Senior Project Manager
J. Hanna - Ministry of Transportation, Environmental Planner
G. Katic - URS, Consultant Project Manager

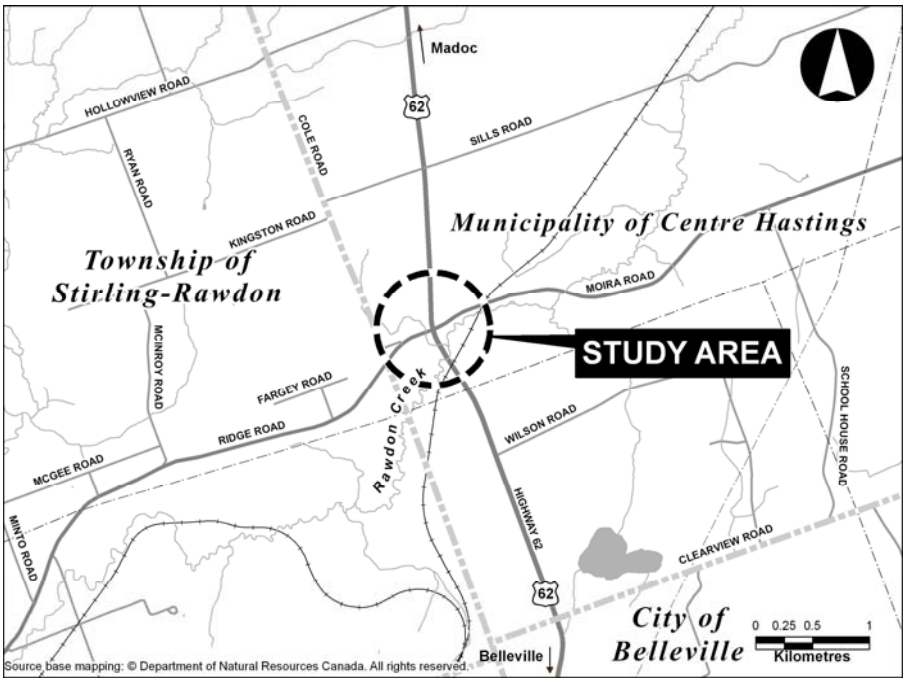
Encl.

ONTARIO GOVERNMENT NOTICE
NOTICE OF PUBLIC INFORMATION CENTRE #1

HIGHWAY 62 AND MOIRA / RIDGE ROAD (HASTINGS ROAD 8) INTERSECTION IMPROVEMENTS
CLASS ENVIRONMENTAL ASSESSMENT AND PRELIMINARY DESIGN STUDY

THE STUDY

URS Canada Inc. has been retained by the Ontario Ministry of Transportation (MTO) to undertake a Class Environmental Assessment and Preliminary Design Study (G.W.P. 4028-05-00) for improvements to the intersection at Highway 62 and Moira / Ridge Road (Hastings Road 8). The project limits are located in the Municipality of Centre Hastings within Hastings County.



THE PROCESS

This study is following the approved planning process for a Group 'B' project under the MTO *Class Environmental Assessment for Provincial Transportation Facilities (2000)*. Two Public Information Centres (PICs) will be held during this study to provide the public with the opportunity to discuss the project and provide input to the Project Team. A Transportation Environmental Study Report (TESR) will be prepared at the completion of the study and made available for public and agency review. Notice of the review period will be published in local newspapers and mailed to those on the study mailing list.

PUBLIC INFORMATION CENTRE #1

The first of two PICs has been arranged to introduce the study and present the following for comment: existing conditions, need for improvements, alternatives being considered, criteria proposed to evaluate the alternatives, and next steps in the study. The second PIC will occur later in the study and will present the evaluation of the alternatives and the Technically Preferred Plan. Members of the public, residents and stakeholders are invited to attend the first PIC. The first PIC will be held as follows:

Wednesday July 10, 2013
4:00 p.m. to 8:00 p.m.
(A brief presentation will be given at 5:00 p.m. and 7:00 p.m.)
Huntingdon Veterans Community Hall
11379 Highway 62, Ivanhoe

The PIC will be an informal drop-in centre and representatives from the MTO and the Consultant Team will be available to answer questions and discuss the study.

COMMENTS

To obtain additional information, provide initial comments, or to be placed on the study mailing list please contact the Project Team as follows:

Tina White
Senior Project Manager
Planning and Design
Ministry of Transportation, Eastern Region
1355 John Counter Boulevard, Postal Bag 4000
Kingston, ON K7L 5A3
Tel: 613-545-4871
Toll Free: 1-800-267-0295
Fax: 613-540-5106
tina.white@ontario.ca

Kevin Phillips, P.Eng.
Consultant Project Manager
URS Canada Inc.
4th Floor, 30 Leek Crescent
Richmond Hill, ON L4B 4N4
Tel: 905-882-3526
Fax: 905-882-4399
kevin.phillips@urs.com

Tyler Drygas
Consultant Senior Environmental Planner
URS Canada Inc.
4th Floor, 30 Leek Crescent
Richmond Hill, ON L4B 4N4
Tel: 905-747-1758
Fax: 905-882-4399
tyler.drygas@urs.com

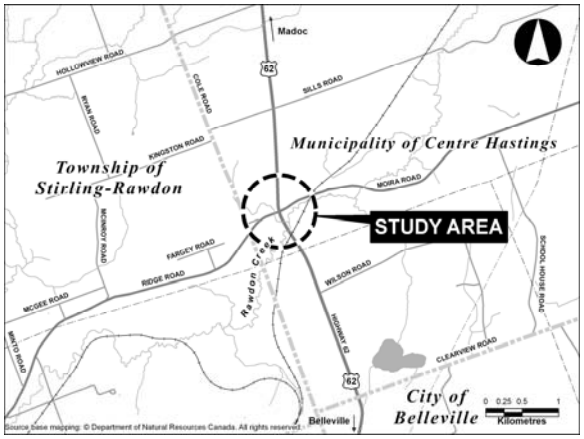
There is an opportunity at any time during the study for interested persons to provide input to the Project Team including comments and information regarding the study. Comments are being collected to assist MTO in meeting the requirements of the *Environmental Assessment Act*. This material will be maintained on file for use during the study and may be included in project documentation. Information collected will be used 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.

Ontario

INTRODUCTION

URS Canada Inc. has been retained by the Ontario Ministry of Transportation (MTO) to undertake a Class Environmental Assessment and Preliminary Design Study (G.W.P. 4028-05-00) for improvements to the intersection at Highway 62 and Moira / Ridge Road (Hastings Road 8).

STUDY AREA



STUDY PURPOSE

The purpose of this study is to improve the operational and safety conditions of the intersection at Highway 62 and Moira/Ridge Road (Hastings Road 8). The Project Team will investigate short-term and long-term intersection improvements, including, but not limited to: improvements to the geometry of the intersection and Highway 62 within the study area; the addition of turning lanes; the addition of traffic signals; the addition of illumination; and the construction of a roundabout intersection.

STUDY PROCESS

This study is following the approved planning process for a Group 'B' project under the *MTO Class Environmental Assessment for Provincial Transportation Facilities (2000)*. Two Public Information Centres (PICs) will be held during this study to provide the public with the opportunity to discuss the project and provide input to the Project Team. A Transportation Environmental Study Report (TESR) will be prepared at the completion of the study and made available for public and agency review. Notice of the review period will be published in local newspapers and mailed to those on the study mailing list.

PUBLIC INFORMATION CENTRE #1

The first of two PICs has been arranged to introduce the study and present the following for comment: existing conditions, need for improvements, alternatives being considered, criteria proposed to evaluate the alternatives, and next steps in the study. Members of the public, residents and stakeholders are invited to attend the first PIC, which will be held on:

Wednesday July 10, 2013
4:00 p.m. to 8:00 p.m.
(A brief presentation will be given at 5:00 p.m. and 7:00 p.m.)
Huntingdon Veterans Community Hall
11379 Highway 62, Ivanhoe

The PIC will be an informal drop-in centre and representatives from the MTO and the Consultant Team will be available to answer questions and discuss the study. We encourage you to attend the PIC and share your views with the Project Team.

CONSULTATION PLAN

The Project Team is committed to engage all interested groups and individuals throughout the study. Effective two-way communication ensures that important issues and concerns are given appropriate consideration. Please provide the Project Team with your thoughts and suggestions so that they can be considered as the study progresses in an open and honest dialogue.

Comments and information are being collected to assist in meeting the requirements of the *Environmental Assessment Act*, and will be maintained on file and may be included in project documentation. With the exception of personal information, all comments will become part of the public record.

NEXT STEPS

Following this PIC, the Project Team will:

- Respond to comments received at this PIC and incorporate them into the study where appropriate.
- Finalize the development of intersection alternatives.
- Assess and evaluate the intersection alternatives to select a Technically Preferred Alternative.
- Present the preliminary design of the Technically Preferred Alternative at PIC #2, which is anticipated to be held in the fall of 2013.
- Prepare a Transportation Environmental Study Report for public and agency review in late 2013.

HOW TO CONTACT THE PROJECT TEAM

To obtain additional information, provide initial comments, or to be placed on the study mailing list please contact the Project Team as follows:

Tina White
Senior Project Manager
Planning and Design
Ministry of Transportation, Eastern Region
1355 John Counter Boulevard, PO Box 4000
Kingston, ON K7L 5A3
Tel: 613-545-4871
Toll Free: 1-800-267-0295
Fax: 613-540-5106
tina.white@ontario.ca

Kevin Phillips, P.Eng.
Consultant Project Manager
URS Canada Inc.
4th Floor, 30 Leek Crescent
Richmond Hill, ON L4B 4N4
Tel: 905-882-3526
Fax: 905-882-4399
kevin.phillips@urs.com

Tyler Drygas
Consultant Senior Environmental Planner
URS Canada Inc.
4th Floor, 30 Leek Crescent
Richmond Hill, ON L4B 4N4
Tel: 905-747-1758
Fax: 905-882-4399
tyler.drygas@urs.com

HIGHWAY 62 AND MOIRA/RIDGE ROAD

(HASTINGS ROAD 8) INTERSECTION IMPROVEMENTS

G.W.P. 4028-05-00

Preliminary Design and

Class Environmental Assessment Study

Ontario Ministry of Transportation

Public Information Centre #1

Wednesday July 10, 2013

Huntingdon Veterans Community Hall

11379 Highway 62, Ivanhoe

Ontario

ABORIGINAL COMMUNITY LETTER

June 17, 2013

«Name»
«Organization»
«Address»

Dear «Greeting»:

RE: Notice of Public Information Centre #1
Highway 62 and Moira / Ridge Road (Hastings Road 8) Intersection Improvements
Class Environmental Assessment and Preliminary Design Study
Ontario Ministry of Transportation, G.W.P. 4028-05-00

URS Canada Inc. has been retained by the Ontario Ministry of Transportation (MTO) to undertake a Class Environmental Assessment and Preliminary Design Study (G.W.P. 4028-05-00) for improvements to the intersection at Highway 62 and Moira / Ridge Road (Hastings Road 8). The project limits are located in the Municipality of Centre Hastings within Hastings County (refer to the enclosed *Notice of Public Information Centre #1*).

This study is following the approved planning process for a Group 'B' project under the MTO *Class Environmental Assessment for Provincial Transportation Facilities (2000).*

The purpose of this letter is to notify you that the first of two Public Information Centres (PICs) has been scheduled for this study. The first PIC has been arranged to introduce the study and present and receive feedback on the following: existing conditions, need for improvements, alternatives being considered, criteria proposed to evaluate the alternatives, and next steps in the study. The second PIC will occur later in the study and will present the evaluation of the alternatives and the Technically Preferred Plan. The PIC will be an informal drop-in centre and representatives from the MTO and the Consultant Team will be available to answer questions and discuss the study.

Your council and community members are invited to attend the following session:

Wednesday July 10, 2013
3:00 p.m. to 4:00 p.m.
Huntingdon Veterans Community Hall
11379 Highway 62, Ivanhoe

The public has been invited to attend the PIC between 4:00 p.m. and 8:00 p.m. A brief presentation will be given by the Project Team at 5:00 p.m. and 7:00 p.m. to provide a study overview. Enclosed is a copy of the PIC notice should you wish to post it for members of your community to view.

A Transportation Environmental Study Report (TESR) will be prepared at the completion of the study and made available for public and agency review. Notice of the review period will be published in local newspapers and mailed to those on the study mailing list.

If you would like to provide comments, or if you require further information regarding this study, please feel free to contact myself at 613-545-4871 (toll free: 1-800-267-0295). In addition, if you are interested in meeting as a result of receiving this letter, please contact myself to arrange for a meeting at your earliest convenience.

Yours truly,
Ministry of Transportation

Tina White
Senior Project Manager

Cc.	J. Hanna	- Ministry of Transportation, Environmental Planner
	K. Phillips	- URS, Consultant Project Manager
	T. Drygas	- URS, Senior Environmental Planner

Encl. Notice of Public Information Centre #1

MP AND MPP LETTER

June 17, 2013

«Name»
«Organization»
«Address»

Dear «Greeting»:

RE: Notice of Public Information Centre #1
Highway 62 and Moira / Ridge Road (Hastings Road 8) Intersection Improvements
Class Environmental Assessment and Preliminary Design Study
Ontario Ministry of Transportation, G.W.P. 4028-05-00

URS Canada Inc. has been retained by the Ontario Ministry of Transportation (MTO) to undertake a Class Environmental Assessment and Preliminary Design Study (G.W.P. 4028-05-00) for improvements to the intersection at Highway 62 and Moira / Ridge Road (Hastings Road 8). The project limits are located in the Municipality of Centre Hastings within Hastings County (refer to the enclosed *Notice of Public Information Centre #1*).

This study is following the approved planning process for a Group 'B' project under the MTO *Class Environmental Assessment for Provincial Transportation Facilities (2000).*

The purpose of this letter is to notify you that the first of two Public Information Centres (PICs) has been scheduled for this study. The first PIC has been arranged to introduce the study and present and receive feedback on the following: existing conditions, need for improvements, alternatives being considered, criteria proposed to evaluate the alternatives, and next steps in the study. The second PIC will occur later in the study and will present the evaluation of the alternatives and the Technically Preferred Plan. The PIC will be an informal drop-in centre and representatives from the MTO and the Consultant Team will be available to answer questions and discuss the study.

You are invited to attend the PIC as follows:

Wednesday July 10, 2013
4:00 p.m. to 8:00 p.m.
(A brief presentation will be given at 5:00 p.m. and 7:00 p.m.)
Huntingdon Veterans Community Hall
11379 Highway 62, Ivanhoe

The enclosed "Notice of Public Information Centre #1" will appear in the Belleville and Area Community Press and the Belleville Intelligencer on Thursday June 27, 2013.

A Transportation Environmental Study Report (TESR) will be prepared at the completion of the study and made available for public and agency review. Notice of the review period will be published in local newspapers and mailed to those on the study mailing list.

If you wish to obtain additional information about the study or provide input, please contact the undersigned at 905-747-1758.

Thank you for your cooperation and assistance.

Yours truly,
URS Canada Inc.

Tyler Drygas
Consultant Senior Environmental Planner

Cc.	T. White	- Ministry of Transportation, Senior Project Manager
	J. Hanna	- Ministry of Transportation, Environmental Planner
	K. Phillips	- URS, Consultant Project Manager

Encl. Notice of Public Information Centre #1

EXTERNAL LETTER

June 17, 2013

«Name»
«Organization»
«Address»

Dear «Greeting»:

RE: Notice of Public Information Centre #1
Highway 62 and Moira / Ridge Road (Hastings Road 8) Intersection Improvements
Class Environmental Assessment and Preliminary Design Study
Ontario Ministry of Transportation, G.W.P. 4028-05-00

URS Canada Inc. has been retained by the Ontario Ministry of Transportation (MTO) to undertake a Class Environmental Assessment and Preliminary Design Study (G.W.P. 4028-05-00) for improvements to the intersection at Highway 62 and Moira / Ridge Road (Hastings Road 8). The project limits are located in the Municipality of Centre Hastings within Hastings County (refer to the enclosed *Notice of Public Information Centre #1*).

This study is following the approved planning process for a Group 'B' project under the MTO *Class Environmental Assessment for Provincial Transportation Facilities (2000).*

The purpose of this letter is to notify you that the first of two Public Information Centres (PICs) has been scheduled for this study. The first PIC has been arranged to introduce the study and present and receive feedback on the following: existing conditions, need for improvements, alternatives being considered, criteria proposed to evaluate the alternatives, and next steps in the study. The second PIC will occur later in the study and will present the evaluation of the alternatives and the Technically Preferred Plan. The PIC will be an informal drop-in centre and representatives from the MTO and the Consultant Team will be available to answer questions and discuss the study.

Your organization is invited to attend the following session:

Wednesday July 10, 21013
3:00 p.m. to 4:00 p.m.
(A brief presentation will be given at 5:00 p.m. and 7:00 p.m.)
Huntingdon Veterans Community Hall
11379 Highway 62, Ivanhoe

Prior to the official commencement of this PIC, the Project Team has made arrangements for members of the External Team to view the displays and discuss this study with the Project Team. You are encouraged to attend this session and to provide us with your comments so that they can be addressed as the study progresses. The public has been invited to attend the PIC between 4:00 p.m. and 8:00 p.m. A brief presentation will be given by the Project Team at 5:00 p.m. and 7:00 p.m. to provide a study overview.

A Transportation Environmental Study Report (TESR) will be prepared at the completion of the study and made available for public and agency review. Notice of the review period will be published in local newspapers and mailed to those on the study mailing list.

If you wish to obtain additional information about the study or provide input, please contact the undersigned at 905-747-1758.

Thank you for your cooperation and assistance.

Yours truly,
URS Canada Inc.

Tyler Drygas
Consultant Senior Environmental Planner

Cc.	T. White	- Ministry of Transportation, Senior Project Manager
	J. Hanna	- Ministry of Transportation, Environmental Planner
	K. Phillips	- URS, Consultant Project Manager

Encl. Notice of Public Information Centre #1

IMPACTED PROPERTIES LETTER

June 17, 2013

«Name»
«Organization»
«Address»

Dear «Greeting»:

RE: Notice of Public Information Centre #1
Highway 62 and Moira / Ridge Road (Hastings Road 8) Intersection Improvements
Class Environmental Assessment and Preliminary Design Study
Ontario Ministry of Transportation, G.W.P. 4028-05-00

URS Canada Inc. has been retained by the Ontario Ministry of Transportation (MTO) to undertake a Class Environmental Assessment and Preliminary Design Study (G.W.P. 4028-05-00) for improvements to the intersection at Highway 62 and Moira / Ridge Road (Hastings Road 8). The project limits are located in the Municipality of Centre Hastings within Hastings County (refer to the enclosed *Notice of Public Information Centre #1*).

This study is following the approved planning process for a Group 'B' project under the MTO *Class Environmental Assessment for Provincial Transportation Facilities (2000).*

The purpose of this letter is to notify you that the first of two Public Information Centres (PICs) has been scheduled for this study and that the alternatives being considered for improving the Highway 62 and Moira / Ridge Road (Hastings Road 8) intersection have the potential to impact your property. We encourage you to attend the PIC to provide your input to the Project Team so that they can be addressed as the study progresses. If you are not able to attend the PIC but are interested in meeting with the Project Team to discuss this study, please contact the undersigned at your earliest convenience.

The first PIC has been arranged to introduce the study and present and receive feedback on the following: existing conditions, need for improvements, alternatives being considered, criteria proposed to evaluate the alternatives, and next steps in the study. The second PIC will occur later in the study and will present the evaluation of the alternatives and the Technically Preferred Plan. The PIC will be an informal drop-in centre and representatives from the MTO and the Consultant Team will be available to answer questions and discuss the study.

You are invited to attend the PIC on:

Wednesday July 10, 2013
4:00 p.m. to 8:00 p.m.
(A brief presentation will be given at 5:00 p.m. and 7:00 p.m.)
Huntingdon Veterans Community Hall
11379 Highway 62, Ivanhoe

A Transportation Environmental Study Report (TESR) will be prepared at the completion of the study and made available for public and agency review. Notice of the review period will be published in local newspapers and mailed to those on the study mailing list.

Comments are being collected to assist MTO in meeting the requirements of the *Environmental Assessment Act*. This material will be maintained on file for use during the study and may be included in project documentation. Information collected will be used 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.

If you would like to provide comments, or if you require further information regarding this study, please feel free to contact the undersigned at 905-747-1758 or at:

Highway 62 and Moira / Ridge Road (Hastings Road 8) Intersection Improvements Project Team
URS Canada Inc.
4th Floor, 30 Leek Crescent
Richmond Hill, ON L4B 4N4

Thank you for your interest and participation in this study.

Yours truly,
URS Canada Inc.

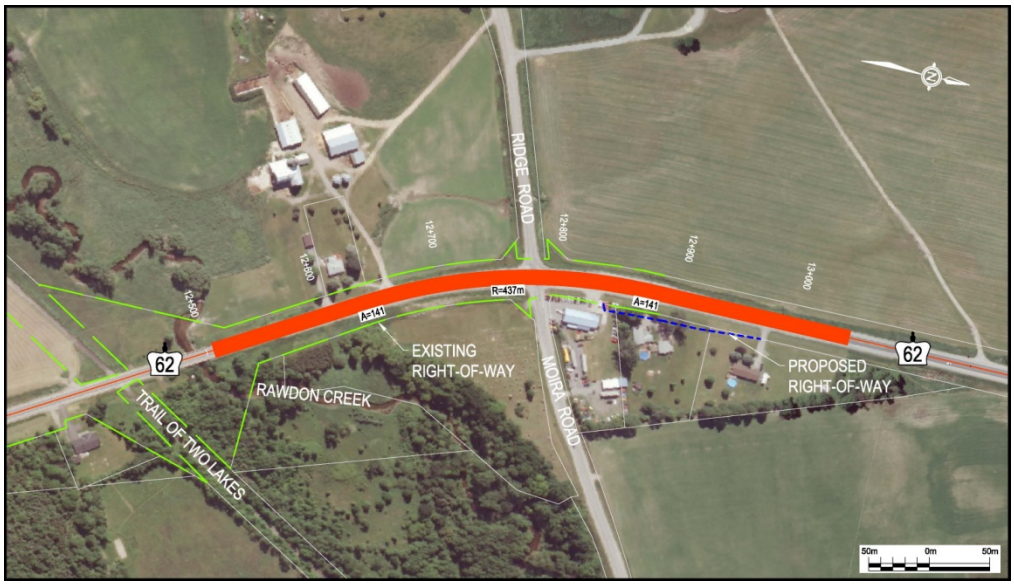
Tyler Drygas
Consultant Senior Environmental Planner

Cc.	T. White	- Ministry of Transportation, Senior Project Manager
	J. Hanna	- Ministry of Transportation, Environmental Planner
	K. Phillips	- URS, Consultant Project Manager

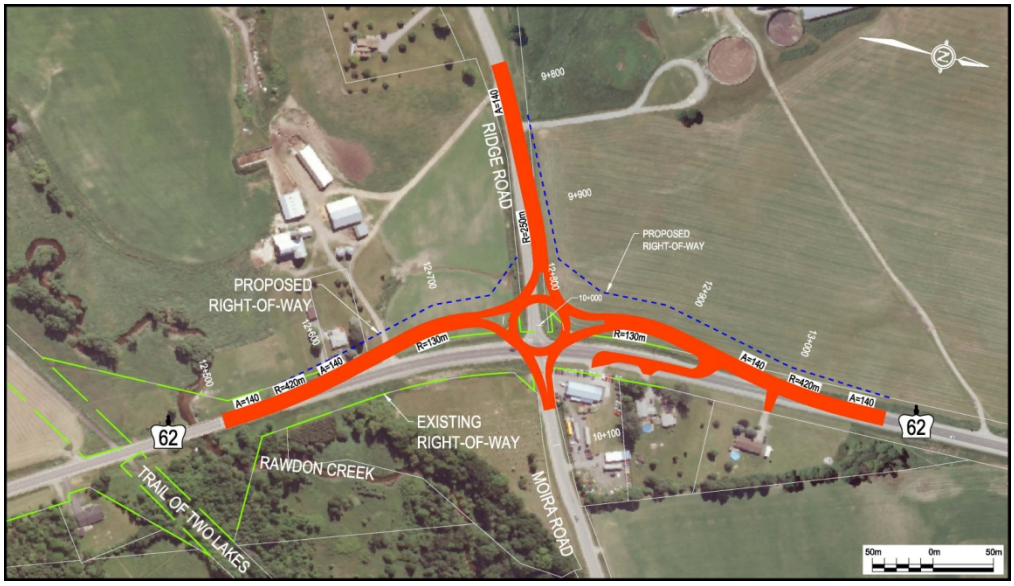
Encl. Notice of Public Information Centre #1

G.W.P. 4028-05-00 Highway 62 and Moira/Ridge Road (Hastings Road 8) Intersection Improvements
Alternatives Under Consideration

Alternative 1: Signalized Intersection and Minor East Realignment of Highway 62



Alternative 2: Modern Roundabout and West Realignment of Highway 62



Alternative 3: Signalized Intersection and West Realignment of Highway 62 with a Flatter Curve (R=600m)

PUBLIC LETTER

June 17, 2013

«Name»
«Organization»
«Address»

Dear «Greeting»:

RE: Notice of Public Information Centre #1
Highway 62 and Moira / Ridge Road (Hastings Road 8) Intersection Improvements
Class Environmental Assessment and Preliminary Design Study
Ontario Ministry of Transportation, G.W.P. 4028-05-00

URS Canada Inc. has been retained by the Ontario Ministry of Transportation (MTO) to undertake a Class Environmental Assessment and Preliminary Design Study (G.W.P. 4028-05-00) for improvements to the intersection at Highway 62 and Moira / Ridge Road (Hastings Road 8). The project limits are located in the Municipality of Centre Hastings within Hastings County (refer to the enclosed *Notice of Public Information Centre #1*).

This study is following the approved planning process for a Group 'B' project under the MTO *Class Environmental Assessment for Provincial Transportation Facilities (2000).*

The purpose of this letter is to notify you that the first of two Public Information Centres (PICs) has been scheduled for this study. The first PIC has been arranged to introduce the study and present and receive feedback on the following: existing conditions, need for improvements, alternatives being considered, criteria proposed to evaluate the alternatives, and next steps in the study. The second PIC will occur later in the study and will present the evaluation of the alternatives and the Technically Preferred Plan. The PIC will be an informal drop-in centre and representatives from the MTO and the Consultant Team will be available to answer questions and discuss the study.

You are invited to attend the PIC on:

Wednesday July 10, 2013
4:00 p.m. to 8:00 p.m.
(A brief presentation will be given at 5:00 p.m. and 7:00 p.m.)
Huntingdon Veterans Community Hall
11379 Highway 62, Ivanhoe

You are encouraged to attend the PIC and to provide us with your comments so that they can be addressed as the study progresses.

A Transportation Environmental Study Report (TESR) will be prepared at the completion of the study and made available for public and agency review. Notice of the review period will be published in local newspapers and mailed to those on the study mailing list.

Comments are being collected to assist MTO in meeting the requirements of the *Environmental Assessment Act*. This material will be maintained on file for use during the study and may be included in project documentation. Information collected will be used 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.

If you would like to provide comments, or if you require further information regarding this study, please feel free to contact the undersigned at 905-747-1758 or at:

Highway 62 and Moira / Ridge Road (Hastings Road 8) Intersection Improvements Project Team
URS Canada Inc.
4th Floor, 30 Leek Crescent
Richmond Hill, ON L4B 4N4

Thank you for your interest and participation in this study.

Yours truly,
URS Canada Inc.

Tyler Drygas
Consultant Senior Environmental Planner

Cc.	T. White	- Ministry of Transportation, Senior Project Manager
	J. Hanna	- Ministry of Transportation, Environmental Planner
	K. Phillips	- URS, Consultant Project Manager

Encl. Notice of Public Information Centre #1

ONTARIO GOVERNMENT NOTICE
NOTICE OF COMBINED STUDIES AND PUBLIC INFORMATION CENTRE

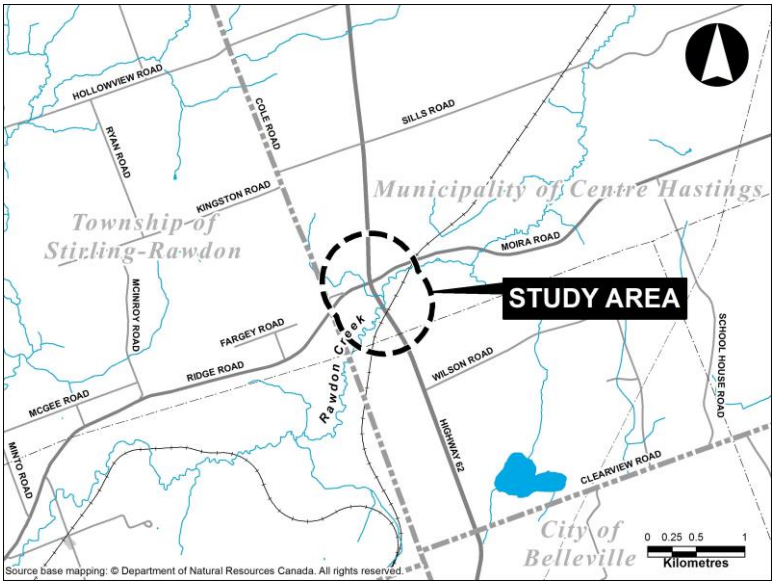
HIGHWAY 62 AND MOIRA/RIDGE ROAD (HASTINGS ROAD 8) INTERSECTION IMPROVEMENTS
AND
HIGHWAY 62 RAWDON CREEK STRUCTURE REPLACEMENT
CLASS ENVIRONMENTAL ASSESSMENT AND PRELIMINARY DESIGN STUDY, G.W.P. 4044-10-00

THE PROJECT

The Ontario Ministry of Transportation (MTO) has retained URS Canada Inc. to undertake two separate Class Environmental Assessment and Preliminary Design Studies for: 1) improvements to the intersection of Highway 62 and Moira/Ridge Road (Hastings Road 8) and; 2) the replacement of the Rawdon Creek structure on Highway 62. Given the overlap in potential impacts associated with the alternatives being considered in both studies, the Project Team has determined that these studies should be combined to better understand the overall impacts and facilitate the selection of the Technically Preferred Alternative. The combined project limits are located in the Municipality of Centre Hastings within Hastings County.

THE PROCESS

The combined study will continue to follow the approved planning process for a Group 'B' project under the MTO *Class Environmental Assessment for Provincial Transportation Facilities (2000)*. A Public Information Centre (PIC) for the Highway 62 and Moira/Ridge (Hastings Road 8) Intersection Improvements study was held in July 2013 to present and receive feedback regarding the need and alternatives for improving the intersection. The input received from the PIC was taken into consideration in the generation and evaluation of alternatives in the combined study. Moving forward, a second and final PIC (see details below) is being held to provide the public with the opportunity to discuss the project and provide input to the Project Team. A Transportation Environmental Study Report (TESR) will be prepared and made available for public and agency review at the completion of the combined study. Notification advising of location and availability of the TESR for review, will be published in local newspapers and mailed to those on the project mailing list at a later date.



PUBLIC INFORMATION CENTRE (PIC)

A PIC has been arranged to present the following for comment: evaluation of alternatives, details of the Technically Preferred Alternative, and proposed measures to minimize or avoid impacts. The Technically Preferred Alternative includes:

Interim Improvements:

- Replacing the existing Highway 62 Rawdon Creek structure to the west of the existing alignment.
- Minor intersection improvements may be considered prior to implementing the ultimate improvements, including:
  - Vegetation removals within the Highway 62 right-of-way to enhance intersection visibility.
  - Review placement of signs to ensure they meet current standards.

Ultimate Improvements:

- Introducing a modern roundabout at the Highway 62 and Moira/Ridge Road (Hastings Road 8) intersection.

Members of the public, residents and stakeholders are invited to attend the PIC. The PIC will be held as follows:

Thursday July 10, 2014
4:00 p.m. to 8:00 p.m.
Huntingdon Veterans Community Hall
11379 Highway 62, Ivanhoe

The PIC will be an informal drop-in centre and representatives from the MTO and the Consultant Team will be available to answer questions and discuss the study.

COMMENTS

To obtain additional information, provide comments, or to be placed on the study mailing list please contact the Project Team as follows:

Tina White
Senior Project Manager
Planning and Design
Ministry of Transportation, Eastern Region
1355 John Counter Boulevard, Postal Bag 4000
Kingston, ON K7L 5A3
Tel: 613-545-4871
Toll Free: 1-800-267-0295
Fax: 613-540-5106
tina.white@ontario.ca

Kevin Phillips, P.Eng.
Consultant Project Manager
URS Canada Inc.
4th Floor, 30 Leek Crescent
Richmond Hill, ON L4B 4N4
Tel: 905-882-3526
Fax: 905-882-4399
kevin.phillips@urs.com

Tyler Drygas
Consultant Senior Environmental Planner
URS Canada Inc.
4th Floor, 30 Leek Crescent
Richmond Hill, ON L4B 4N4
Tel: 905-747-1758
Fax: 905-882-4399
tyler.drygas@urs.com

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

There is an opportunity at any time during the study for interested persons to provide input to the Project Team including comments and information regarding the study. Comments are being collected to assist MTO in meeting the requirements of the *Environmental Assessment Act*. This material will be maintained on file for use during the study and may be included in project documentation. Information collected will be used 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.

Ontario

Aboriginal Community

Ministry of Transportation

Planning and Design Section
1355 John Counter Boulevard
Postal Bag 4000
Kingston, Ontario K7L 5A3
Tel.: 613 545-4871
Fax: 613-540-5106

Ministère des Transports

Section de la planification et de la conception
1355, boulevard John Counter
CP/Service de sacs 4000
Kingston (Ontario) K7L 5A3
Tél.: 613 545-4871
Téléc.: 613 540-5106

Ontario

June 16, 2014

«Name»
«Organization»
«Address»

Dear «Greeting»:

RE: Notice of Combined Studies and Public Information Centre
Highway 62 – Moira/Ridge Road (Hastings Road 8) Intersection Improvements and Rawdon Creek Structure Replacement
Class Environmental Assessment and Preliminary Design Study, G.W.P. 4044-10-00
Ontario Ministry of Transportation

The Ontario Ministry of Transportation (MTO) has retained URS Canada Inc. to undertake two separate Class Environmental Assessment and Preliminary Design Studies for: 1) improvements to the intersection of Highway 62 and Moira/Ridge Road (Hastings Road 8) and; 2) the replacement of the Rawdon Creek structure on Highway 62. Given the overlap in potential impacts associated with the alternatives being considered in both studies, the Project Team has determined that these studies should be combined to better understand the overall impacts and facilitate the selection of the Technically Preferred Alternative. The combined project limits are located in the Municipality of Centre Hastings within Hastings County.

The combined study will continue to follow the approved planning process for a Group 'B' project under the MTO *Class Environmental Assessment for Provincial Transportation Facilities (2000)*. A Public Information Centre (PIC) for the Highway 62 and Moira/Ridge (Hastings Road 8) Intersection Improvements study was held in July 2013 to present and receive feedback regarding the need and alternatives for improving the intersection. The input received from the PIC was taken into consideration in the generation and evaluation of alternatives in the combined study. Moving forward, a second and final PIC (see details below) is being held to provide the public with the opportunity to discuss the project and provide input to the Project Team.

The purpose of this letter is to notify you that a PIC has been scheduled for this study. The purpose of the PIC is to present the following for comment: evaluation of alternatives, preliminary details of the Technically Preferred Alternative, and proposed measures to minimize or avoid impacts. **Your council and community members are invited to attend the following session:**

Thursday July 10, 2014
3:00 p.m. to 4:00 p.m.
Huntingdon Veterans Community Hall
11379 Highway 62, Ivanhoe

Aboriginal Community

The public has been invited to attend the second and final PIC between 4:00 p.m. and 8:00 p.m. The PIC will be an informal drop-in centre and representatives from the MTO and the Consultant Team will be available to answer questions and discuss the study. Enclosed is a copy of the PIC notice should you wish to post it for members of your community to view.

The Technically Preferred Alternative includes:
Interim Improvements:

- Replacing the existing Highway 62 Rawdon Creek structure to the west of the existing alignment.
- Minor intersection improvements may be considered prior to implementing the ultimate improvements, including:
    - Vegetation removals within the Highway 62 right-of-way to enhance intersection visibility.
    - Review placement of signs to ensure they meet current standards.

Ultimate Improvements:

- Introducing a modern roundabout at the Highway 62 and Moira/Ridge Road (Hastings Road 8) intersection.

The Technically Preferred Alternative results in minor impacts to lands identified as having archaeological potential in the northwest quadrant of the intersection. A Stage 2 Archaeological Assessment will be undertaken to determine if cultural resources occur within the project footprint. In addition, the appropriate agencies / authorities will be notified in the event that deeply buried archaeological resources are encountered during construction activities.

A Transportation Environmental Study Report (TESR) will be prepared and made available for public and agency review at the completion of the combined study. Notification advising of location and availability of the TESR for review, will be published in local newspapers and mailed to those on the project mailing list at a later date.

If you would like to provide comments, or if you require further information regarding this study, please feel free to contact myself at 613-545-4871 (toll free: 1-800-267-0295). In addition, if you are interested in meeting as a result of receiving this letter, please contact myself to arrange for a meeting at your earliest convenience.

Yours truly,
Ministry of Transportation

Tina White
Senior Project Manager

Cc.	B. Grant	- Ministry of Transportation, Environmental Planner
	K. Phillips	- URS, Consultant Project Manager
	T. Drygas	- URS, Consultant Senior Environmental Planner

Encl. Notice of Combined Studies and Public Information Centre

MP and MPP

June 16, 2014

«Name»
«Organization»
«Address»

Dear «Greeting»:

RE: Notice of Combined Studies and Public Information Centre
Highway 62 – Moira/Ridge Road (Hastings Road 8) Intersection Improvements and Rawdon Creek Structure Replacement
Class Environmental Assessment and Preliminary Design Study, G.W.P. 4044-10-00
Ontario Ministry of Transportation

The Ontario Ministry of Transportation (MTO) has retained URS Canada Inc. to undertake two separate Class Environmental Assessment and Preliminary Design Studies for: 1) improvements to the intersection of Highway 62 and Moira/Ridge Road (Hastings Road 8) and; 2) the replacement of the Rawdon Creek structure on Highway 62. Given the overlap in potential impacts associated with the alternatives being considered in both studies, the Project Team has determined that these studies should be combined to better understand the overall impacts and facilitate the selection of the Technically Preferred Alternative. The combined project limits are located in the Municipality of Centre Hastings within Hastings County.

The combined study will continue to follow the approved planning process for a Group 'B' project under the MTO *Class Environmental Assessment for Provincial Transportation Facilities (2000)*. A Public Information Centre (PIC) for the Highway 62 and Moira/Ridge (Hastings Road 8) Intersection Improvements study was held in July 2013 to present and receive feedback regarding the need and alternatives for improving the intersection. The input received from the PIC was taken into consideration in the generation and evaluation of alternatives in the combined study. Moving forward, a second and final PIC (see details below) is being held to provide the public with the opportunity to discuss the project and provide input to the Project Team.

The purpose of this letter is to notify you that a PIC has been scheduled for this study. A PIC has been arranged to present the following for comment: evaluation of alternatives, preliminary details of the Technically Preferred Alternative, and proposed measures to minimize or avoid impacts. **You are invited to attend the following session:**

Thursday July 10, 2014
3:00 p.m. to 4:00 p.m.
Huntingdon Veterans Community Hall
11379 Highway 62, Ivanhoe

Prior to the official commencement of this PIC, the Project Team has made arrangements for members of the External Team to view the displays and discuss this study with the Project Team. You are encouraged to attend this session and to provide us with your comments so that they can be addressed as the study

URS Canada Inc.
4th Floor, 30 Leek Crescent
Richmond Hill, ON Canada L4B 4N4
Tel: 905.882.4401
Fax: 905.882.4399
www.urs.ca

progresses. The public has been invited to attend the PIC between 4:00 p.m. and 8:00 p.m. The PIC will be an informal drop-in centre and representatives from the MTO and the Consultant Team will be available to answer questions and discuss the study.

The enclosed "Notice of Public Information Centre" will appear in the Stirling / Northeast EMC and the Belleville Intelligencer on Thursday June 26, 2014.

The Technically Preferred Alternative includes:
Interim Improvements:

- Replacing the existing Highway 62 Rawdon Creek structure to the west of the existing alignment.
- Minor intersection improvements may be considered prior to implementing the ultimate improvements, including:
    - Vegetation removals within the Highway 62 right-of-way to enhance intersection visibility.
    - Review placement of signs to ensure they meet current standards.

Ultimate Improvements:

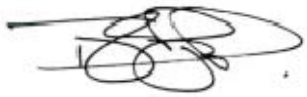
- Introducing a modern roundabout at the Highway 62 and Moira/Ridge Road (Hastings Road 8) intersection.

A Transportation Environmental Study Report (TESR) will be prepared and made available for public and agency review at the completion of the combined study. Notification advising of location and availability of the TESR for review, will be published in local newspapers and mailed to those on the project mailing list at a later date.

If you wish to obtain additional information about the study or provide input, please contact the undersigned at 905-747-1758.

Thank you for your cooperation and assistance.

Yours truly,
URS Canada Inc.



Tyler Drygas
Consultant Senior Environmental Planner

Cc.	T. White	- Ministry of Transportation, Senior Project Manager
	B. Grant	- Ministry of Transportation, Environmental Planner
	K. Phillips	- URS, Consultant Project Manager

Encl. Notice of Combined Studies and Public Information Centre

External

June 16, 2014

«Name»
«Organization»
«Address»

Dear «Greeting»:

RE: Notice of Combined Studies and Public Information Centre
Highway 62 – Moira/Ridge Road (Hastings Road 8) Intersection Improvements and Rawdon Creek Structure Replacement
Class Environmental Assessment and Preliminary Design Study, G.W.P. 4044-10-00
Ontario Ministry of Transportation

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The combined study will continue to follow the approved planning process for a Group 'B' project under the MTO *Class Environmental Assessment for Provincial Transportation Facilities (2000)*. A Public Information Centre (PIC) for the Highway 62 and Moira/Ridge (Hastings Road 8) Intersection Improvements study was held in July 2013 to present and receive feedback regarding the need and alternatives for improving the intersection. The input received from the PIC was taken into consideration in the generation and evaluation of alternatives in the combined study. Moving forward, a second and final PIC (see details below) is being held to provide the public with the opportunity to discuss the project and provide input to the Project Team.

The purpose of this letter is to notify you that a PIC has been scheduled for this study. A PIC has been arranged to present the following for comment: evaluation of alternatives, preliminary details of the Technically Preferred Alternative, and proposed measures to minimize or avoid impacts. **Your organization is invited to attend the following session:**

Thursday July 10, 2014
3:00 p.m. to 4:00 p.m.
Huntingdon Veterans Community Hall
11379 Highway 62, Ivanhoe

Prior to the official commencement of this PIC, the Project Team has made arrangements for members of the External Team to view the displays and discuss this study with the Project Team. You are encouraged to attend this session and to provide us with your comments so that they can be addressed as the study

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progresses. The public has been invited to attend the PIC between 4:00 p.m. and 8:00 p.m. The PIC will be an informal drop-in centre and representatives from the MTO and the Consultant Team will be available to answer questions and discuss the study.

The Technically Preferred Alternative includes:
Interim Improvements:

- Replacing the existing Highway 62 Rawdon Creek structure to the west of the existing alignment.
- Minor intersection improvements may be considered prior to implementing the ultimate improvements, including:
    - Vegetation removals within the Highway 62 right-of-way to enhance intersection visibility.
    - Review placement of signs to ensure they meet current standards.

Ultimate Improvements:

- Introducing a modern roundabout at the Highway 62 and Moira/Ridge Road (Hastings Road 8) intersection.

A Transportation Environmental Study Report (TESR) will be prepared and made available for public and agency review at the completion of the combined study. Notification advising of location and availability of the TESR for review, will be published in local newspapers and mailed to those on the project mailing list at a later date.

If you wish to obtain additional information about the study or provide input, please contact the undersigned at 905-747-1758.

Thank you for your cooperation and assistance.

Yours truly,
URS Canada Inc.

Tyler Drygas
Consultant Senior Environmental Planner

Cc.	T. White	- Ministry of Transportation, Senior Project Manager
	B. Grant	- Ministry of Transportation, Environmental Planner
	K. Phillips	- URS, Consultant Project Manager

Encl. Notice of Combined Studies and Public Information Centre

Impacted Property Owner

June 26, 2014

«Name»
«Organization»
«Address»

Dear «Greeting»:

RE: Notice of Combined Studies and Public Information Centre
Highway 62 – Moira/Ridge Road (Hastings Road 8) Intersection Improvements and Rawdon Creek Structure Replacement
Class Environmental Assessment and Preliminary Design Study, G.W.P. 4044-10-00
Ontario Ministry of Transportation

The Ontario Ministry of Transportation (MTO) has retained URS Canada Inc. to undertake two separate Class Environmental Assessment and Preliminary Design Studies for: 1) improvements to the intersection of Highway 62 and Moira/Ridge Road (Hastings Road 8) and; 2) the replacement of the Rawdon Creek structure on Highway 62. Given the overlap in potential impacts associated with the alternatives being considered in both studies, the Project Team has determined that these studies should be combined to better understand the overall impacts and facilitate the selection of the Technically Preferred Alternative. The combined project limits are located in the Municipality of Centre Hastings within Hastings County.

The combined study will continue to follow the approved planning process for a Group 'B' project under the MTO *Class Environmental Assessment for Provincial Transportation Facilities (2000)*. A Public Information Centre (PIC) for the Highway 62 and Moira/Ridge (Hastings Road 8) Intersection Improvements study was held in July 2013 to present and receive feedback regarding the need and alternatives for improving the intersection. The input received from the PIC was taken into consideration in the generation and evaluation of alternatives in the combined study. Moving forward, a second and final PIC (see details below) is being held to provide the public with the opportunity to discuss the project and provide input to the Project Team.

The purpose of this letter is to notify you that a PIC has been scheduled for this study and that the Technically Preferred Alternative impacts your property. The Project Team would like to arrange a time to meet with you to discuss the impacts to your property in advance of the PIC. The purpose of the PIC is to present the following for comment: evaluation of alternatives, preliminary details of the Technically Preferred Alternative, and proposed measures to minimize or avoid impacts. We encourage you to attend the PIC to provide your input to the Project Team so that they can be addressed as the study progresses. **The PIC will be held as follows:**

Thursday July 10, 2014
4:00 p.m. to 8:00 p.m.
Huntingdon Veterans Community Hall
11379 Highway 62, Ivanhoe

The PIC will be an informal drop-in centre and representatives from the MTO and the Consultant Team will be available to answer questions and discuss the study. If you are interested in meeting as a result of receiving this letter, please contact the undersigned at your earliest convenience.

URS Canada Inc.
4th Floor, 30 Leek Crescent
Richmond Hill, ON Canada L4B 4N4
Tel: 905.882.4401
Fax: 905.882.4399
www.urs.ca

The Technically Preferred Alternative includes:

Interim Improvements:

- Replacing the existing Highway 62 Rawdon Creek structure to the west of the existing alignment.
- Minor intersection improvements may be considered prior to implementing the ultimate improvements, including:
    - Vegetation removals within the Highway 62 right-of-way to enhance intersection visibility.
    - Review placement of signs to ensure they meet current standards.

Ultimate Improvements:

- Introducing a modern roundabout at the Highway 62 and Moira/Ridge Road (Hastings Road 8) intersection.

A Transportation Environmental Study Report (TESR) will be prepared and made available for public and agency review at the completion of the combined study. Notification advising of location and availability of the TESR for review, will be published in local newspapers and mailed to those on the project mailing list at a later date.

Comments are being collected to assist MTO in meeting the requirements of the *Environmental Assessment Act*. This material will be maintained on file for use during the study and may be included in project documentation. Information collected will be used 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.

To schedule a meeting with representatives of the Project Team regarding impacts to your property or if you would like to provide comments, require further information regarding this study, please contact the undersigned at 905-747-1758 or at:

Highway 62 – Moira / Ridge Road (Hastings Road 8) Intersection Improvements
and Rawdon Creek Structure Replacement Project Team
URS Canada Inc.
4th Floor, 30 Leek Crescent
Richmond Hill, ON L4B 4N4

Thank you for your interest and participation in this study.

Yours truly,
URS Canada Inc.

Tyler Drygas
Consultant Senior Environmental Planner

Cc.	T. White	- Ministry of Transportation, Senior Project Manager
	B. Grant	- Ministry of Transportation, Environmental Planner
	K. Phillips	- URS, Consultant Project Manager

Encl. Notice of Combined Studies and Public Information Centre
Technically Preferred Alternative – Interim Plan
Technically Preferred Alternative – Ultimate Plan

Public

June 16, 2014

«Name»
«Organization»
«Address»

Dear «Greeting»:

RE: Notice of Combined Studies and Public Information Centre
Highway 62 – Moira/Ridge Road (Hastings Road 8) Intersection Improvements and Rawdon Creek Structure Replacement
Class Environmental Assessment and Preliminary Design Study, G.W.P. 4044-10-00
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11379 Highway 62, Ivanhoe

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4th Floor, 30 Leek Crescent
Richmond Hill, ON Canada L4B 4N4
Tel: 905.882.4401
Fax: 905.882.4399
www.urs.ca

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Interim Improvements:

- Replacing the existing Highway 62 Rawdon Creek structure to the west of the existing alignment.
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    - Review placement of signs to ensure they meet current standards.

Ultimate Improvements:

- Introducing a modern roundabout at the Highway 62 and Moira/Ridge Road (Hastings Road 8) intersection.

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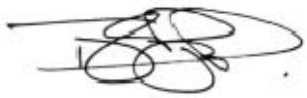
Comments are being collected to assist MTO in meeting the requirements of the *Environmental Assessment Act*. This material will be maintained on file for use during the study and may be included in project documentation. Information collected will be used in accordance with the *Freedom of Information and Protection of Privacy Act*. With the exception of personal information, all comments will become part of the public record.

If you would like to provide comments, or if you require further information regarding this study, please feel free to contact the undersigned at 905-747-1758 or at:

Highway 62 – Moira / Ridge Road (Hastings Road 8) Intersection Improvements
and Rawdon Creek Structure Replacement Project Team
URS Canada Inc.
4th Floor, 30 Leek Crescent
Richmond Hill, ON L4B 4N4

Thank you for your interest and participation in this study.

Yours truly,
URS Canada Inc.



Tyler Drygas
Consultant Senior Environmental Planner

Cc.	T. White	- Ministry of Transportation, Senior Project Manager
	B. Grant	- Ministry of Transportation, Environmental Planner
	K. Phillips	- URS, Consultant Project Manager

Encl. Notice of Combined Studies and Public Information Centre

Group	Organization
Aboriginal Group	Peterborough and District Wapiti Métis Council
Aboriginal Group	Métis Nation of Ontario
Aboriginal Group	Mississaugas of Scugog Island First Nation
Aboriginal Group	Chippewas of Georgina Island First Nation
Aboriginal Group	Hiawatha First Nation
Aboriginal Group	Beausoleil First Nation
Aboriginal Group	Alderville First Nation
Aboriginal Group	Curve Lake First Nation
Aboriginal Group	Williams Treaties First Nations
Aboriginal Group	Kawartha Nishnawbe First Nation
Aboriginal Group	Huron Wendat Nation
Government - First Nation	Aboriginal Affairs and Northern Development Canada
Government - First Nation	Ministry of Aboriginal Affairs
MP and MPP	MP, Prince Edward-Hastings
MP and MPP	MPP, Prince Edward-Hastings
Municipal	Municipality of Centre Hastings
Municipal	Hastings County
Emergency Services	Municipality of Centre Hastings Fire
Emergency Services	Hastings County EMS
Emergency Services	Hastings/Quinte 9-1-1 Coordinator
Emergency Services	Ontario Provincial Police
External	Environment Canada
External	Transport Canada
External	Ministry of the Environment
External	Ministry of Natural Resources
External	Fisheries and Oceans Canada
External	Ontario Ministry of Agriculture, Food and Rural Affairs
External	Ministry of Tourism, Culture and Sport
External	Ontario Heritage Trust
External	Ministry of Municipal Affairs and Housing
External	Ministry of Infrastructure
External	Madoc and District Chamber of Commerce
External	Lower Trent Conservation Authority
External	Hastings and Prince Edward District School Board
External	Tri-Board Student Transportation Services
External	Algonquin and Lakeshore Catholic District School Board
External	Trail of Two Lakes
External	Ontario Federation of Snowmobile Clubs District 3
External	Canoe Ontario
External	Ontario Federation of All Terrain Vehicle Clubs
Utilities	Union Gas Limited
Utilities	Enbridge Gas Distribution Inc.
Utilities	Hydro One Networks
Utilities	Bell Canada
Public	

Patkowski, Britta

From: Katic, George
Sent: Monday, October 01, 2012 9:52 AM
To: McComb, Brian
Cc: Walsh, Paul; 'rtaylor@centrehastings.com'; Duffin, Jim; 'Eastern Ontario Trails Alliance'; Tina.White@ontario.ca; Vandenberg, Ryan (MTO) (Ryan.Vandenberg@ontario.ca); Drygas, Tyler; Patkowski, Britta
Subject: RE: Your letter to the County of Hastings dated September 26, 2012

Brian:

Thank you for your quick response clarifying that County of Hastings does not own or maintain Moira Road / Ridge Road at Highway 62, and clarifying who owns multi-purpose recreational Trail of Two Lakes crossing Highway 62 just south of the bridge.

We sent the same utility identification package to the Municipality of Centre Hastings, attention of Ms. Pat Pilgrim, CAO/Clerk.

The MTO/URS study team will, definitely, add Roger Taylor our contact list for this study.

Best Regards,

George

George Katic, P.Eng.
Project Manager
URS Canada Inc. – Consulting Engineers & Geoscientists
75 Commerce Valley Drive East, Markham, ON, Canada L3T 7N9
Tel: 905.882.4401, ext. 187 Fax: 905.882.4399
E-mail: George.Katic@urs.com www.urs.ca

From: McComb, Brian [mailto:mccombb@hastingscounty.com]
Sent: Friday, September 28, 2012 3:06 PM
To: Katic, George
Cc: Walsh, Paul; 'rtaylor@centrehastings.com'; Duffin, Jim; 'Eastern Ontario Trails Alliance'
Subject: Your letter to the County of Hastings dated September 26, 2012

George:

I tried calling you regarding your attached letter dated September 26, 2012 regarding the replacement of Rawdon Creek Bridge on Highway 62 and Intersection Improvements at Highway 62 and Moira/Ridge Road (Former Hastings County Road No. 8).

I want to make sure that you are aware that the County of Hastings no longer owns or maintains Moira/Ridge Road and that you have circulated Roger Taylor, Roads Manager with the Municipality of Centre Hastings regarding this matter. As your survey indicates, the municipally owned (Centre Hastings) multi-purpose recreational trail commonly known as the Trail of Two Lakes is located immediately south of the Rawdon Creek Bridge.

With respect to confirming “the locations of all existing utilities within your study area”, the County of Hastings has no “existing underground and over overhead plants” within the subject study areas.

We will place a copy of this email and your correspondence on the next County Planning Committee Agenda for the Committee’s information. If County staff become aware of anything else regarding the study area that may be of some relevance to you, I will be sure to email you again.

If you have any questions regarding the above comments, please contact me.

Brian

Brian McComb
Hastings County
Director of Planning & Development
613-966-6712 ext 4007
1-866-321-9563 ext 4007
cell: 613-848-7709
mccombb@hastingscounty.com

From:
Sent: October 12, 2012 6:52 PM
To: White, Tina (MTO)
Subject: Re: Amish involvement on Hwy 62 Environmental Assessment and Preliminary Design Study Projects

Amish community is definitely interested and wish to be involved in the study. Thanks again for the notification

From: White, Tina (MTO)
Sent: Wednesday, October 10, 2012 3:47 PM
To: mailto:
Subject: Amish involvement on Hwy 62 Environmental Assessment and Preliminary Design Study Projects

Your contact information was given to me from my colleague, Ron Witjes, as a contact with the Amish Community along Highway 62 area. Please let me know if this is still the case.

There are two separate projects along highway 62 that are starting. The ministry would encourage the Amish community to be involved with the study(s) to obtain their concerns / issues. A description

of each project is below and attached is a copy of each notice that will appear in the local newspapers.

On behalf of MTO, please let me know if they are willing to participate or require any other information.

Thank you for your time and your involvement. If you require any more information, or if a meeting is requested, please do not hesitate to contact me.

RE: Notice of Study Commencement - G.W.P. 4028-05-00 Highway 62 and Moira/Ridge Road (Hastings Road 8) Intersection Improvements
Class Environmental Assessment and Preliminary Design Study, Ministry of Transportation

The Ontario Ministry of Transportation (MTO) has retained URS Canada Inc. to undertake a Class Environmental Assessment and Preliminary Design Study (G.W.P. 4028-05-00) for improvements to the intersection at Highway 62 and Moira/Ridge Road (Hastings Road 8). The project limits are located in the Municipality of Centre Hastings within Hastings County (please refer to the enclosed "Notice of Study Commencement").

Alternatives will be generated and evaluated based on technical and environmental factors and in consultation with the public, municipalities, government agencies, and other stakeholders, and First Nations/Métis. Two Public Information Centres (PICs) will be held during this study to provide the public with the opportunity to discuss the project and provide input to the Project Team.

A Transportation Environmental Study Report (TESR) will be prepared and made available for public and agency review at the completion of the study which will document:

- The transportation problems and opportunities;
- The generation, assessment and evaluation of alternatives;
- The recommended plan;
- A summary of potential environmental issues and mitigation measures; and
- A summary of consultation undertaken throughout the study.

Notification, advising of the times and locations of the PICs and the availability of the TESR for review, will be published in local newspapers and mailed to those on the study mailing list.

This study will follow the approved planning process for a Group 'B' project under the MTO *Class Environmental Assessment for Provincial Transportation Facilities (2000).*

There is an opportunity at any time during the study for interested persons to provide input to the Project Team including comments and information regarding the study. Comments are being collected to assist MTO in meeting the requirements of the *Environmental Assessment Act.* This material will be maintained on file for use during the study and may be included in project documentation. Information collected will be used 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.

RE: Notice of Study Commencement - G.W.P. 4044-10-00 Highway 62 Rawdon Creek Structure Replacement
Class Environmental Assessment and Preliminary Design Study, Ministry of Transportation

The Ontario Ministry of Transportation (MTO) has retained URS Canada Inc. to undertake a Class Environmental Assessment and Preliminary Design Study (G.W.P. 4044-10-00) for the replacement of the Rawdon Creek structure on Highway 62. The project limits are located in the Municipality of Centre Hastings within Hastings County (please refer to the enclosed "Notice of Study Commencement").

Alternatives will be generated and evaluated based on technical and environmental factors and in consultation with the public, municipalities, government agencies, and other stakeholders, and First Nations/Métis. One Public Information Centre (PIC)

will be held during this study to provide the public with the opportunity to discuss the project and provide input to the Project Team.

A Transportation Environmental Study Report (TESR) will be prepared and made available for public and agency review at the completion of the study which will document:

- The transportation problems and opportunities;
- The generation, assessment and evaluation of alternatives;
- The recommended plan;
- A summary of potential environmental issues and mitigation measures; and
- A summary of consultation undertaken throughout the study.

Notification, advising of the time and location of the PIC and the availability of the TESR for review, will be published in local newspapers and mailed to those on the study mailing list.

This study will follow the approved planning process for a Group 'B' project under the MTO *Class Environmental Assessment for Provincial Transportation Facilities (2000).*

There is an opportunity at any time during the study for interested persons to provide input to the Project Team including comments and information regarding the study. Comments are being collected to assist MTO in meeting the requirements of the *Environmental Assessment Act.* This material will be maintained on file for use during the study and may be included in project documentation. Information collected will be used 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.

I can be reached at 613-545-4871, (toll free: 1-800-267-0295), or by mail at

Tina White
Senior Project Manager
Planning and Design
Ministry of Transportation, Eastern Region
1355 John Counter Boulevard, Postal Bag 4000
Kingston, ON K7L 5A3

Tina White
Senior Project Manager
Planning and Design
Ministry of Transportation
613-545-4871
tina.white@ontario.ca

Ontario

HIGHWAY 62 AND MOIRA/RIDGE ROAD (HASTINGS ROAD 8)
INTERSECTION IMPROVEMENTS

URS

CLASS ENVIRONMENTAL ASSESSMENT AND PRELIMINARY DESIGN STUDY
MINISTRY OF TRANSPORTATION, G.W.P. 4028-05-00

STAKEHOLDER CONTACT INFORMATION FORM

Please fax or e-mail back by November 9, 2012 to 905-882-4399 or tyler.drygas@urs.com

1.) Does your organization wish to participate in this study and continue to receive notices of project activities and information as this study progresses? Yes ☑ No ☐

2.) If your organization wishes to participate in this study, please provide contact information below for the individual who will act as the Project Team's main point of contact.

NAME: Doug Campbell.

TITLE: Controller of Plant & Planning Services

DEPARTMENT:

ORGANIZATION: Algonquin & Lakeshore CDSB

MAILING ADDRESS: 151 Dairy Ave
Napanee ON K7R 4B2.

PHONE NUMBER: 613 354 6257 x 403

FAX:

E-MAIL ADDRESS: campbell@alcdsb.on.ca

3.) Please indicate if the above noted project will affect the delivery of your organization's programs or services, and/or any other relevant information in this regard.

School Busing.

Your information and comments will be kept on file for use during the study. Please submit this form to:

Submitted By: Doug Campbell
Controller of Plant & Planning Services
Algonquin & Lakeshore CDSB

Tyler Drygas
Consultant Senior Environmental Planner
URS Canada Inc.
75 Commerce Valley Drive East
Markham, Ontario, L3T 7N9
Fax: (905) 882-4399
E-mail: tyler.drygas@urs.com

-----Original Message-----
From: McComb, Brian [mailto:mccombb@hastingscounty.com]
Sent: Wednesday, October 17, 2012 11:22 AM
To: Drygas, Tyler
Cc: Duffin, Jim; Katic, George; January, Nick; 'Eastern Ontario Trails Alliance'; 'rtaylor@centrehastings.com'
Subject: Highway 62 and Moira/Ridge Road Intersection Improvements & Rawdon Creek Structure Replacement

Tyler:

Further to your letters to Jim Duffin, Deputy Clerk and myself dated October 11, 2012, please find attached hereto a completed Stakeholder Contact Information Form for the Highway 62 and Moira/Ridge Road Intersection Improvements on behalf of the County of Hastings. The intent is that the completed form will also be applicable to the Highway 62 Rawdon Creek Structure Replacement project/study.

I have also attached a previous e-mail string between myself and George Katic from your office pertaining to these projects for your information.

If you have any questions or if our Department can be of any assistance to you (ie. GIS mapping for the County - Nick January is the County's GIS Co-ordinator, whom I have carbon copied), please let me know.

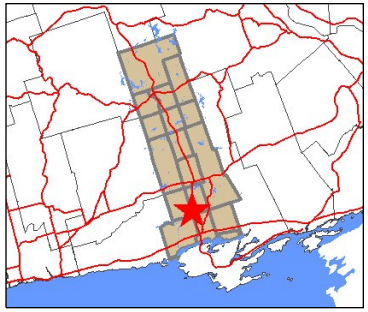
Brian

Brian McComb
Hastings County
Director of Planning & Development
613-966-6712 ext 4007
1-866-321-9563 ext 4007
cell: 613-848-7709
mccombb@hastingscounty.com
-----Original Message-----
From: PlanningMFP@hastingscounty.com [mailto:PlanningMFP@hastingscounty.com]
Sent: Wednesday, October 17, 2012 1:49 PM
To: McComb, Brian
Subject: Send data from MFP-07137513 10/17/2012 10:48

Scanned from MFP-07137513.

Staff GIS

Highway 62 and Moira/Ridge Road Study Area



Legend

- Municipal Office
- Emergency Services
- Highway 401
- Provincial Highway
- Road
- Ontario Road Network
- Unaddressed Trail
- HastingsRail
- Hastings_AbandonRail
- Utility Line
- Amalgamated Boundary
- Mohawks of the Bay of Quinte
- Municipal Boundary
- Land Parcel
- Provincial Parks
- 20km32000049400002008GROUP-EALTA.sid
- 20km24000050000002008GROU-PEA1.img
- 20km32000049600002008GROUP-EALTA.sid
- 20km32000049200002008GROUP-EALTA.sid
- 20km32000049000002008GROUP-EALTA.sid
- 20km30000050200002008GROUP-EALTA.sid
- 20km30000050000002008GROUP-EALTA.sid
- 20km30000049800002008GROUP-EALTA.sid
- 20km30000049600002008GROUP-EALTA.sid

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Scale: 1:5,023

0 150 300 450 m.

Map center: 302427, 4912554

Ontario

HIGHWAY 62 AND MOIRA/RIDGE ROAD (HASTINGS ROAD 8)
INTERSECTION IMPROVEMENTS

URS

CLASS ENVIRONMENTAL ASSESSMENT AND PRELIMINARY DESIGN STUDY
MINISTRY OF TRANSPORTATION, G.W.P. 4028-05-00

STAKEHOLDER CONTACT INFORMATION FORM

Please fax or e-mail back by November 9, 2012 to 905-882-4399 or tyler.drygas@urs.com

1.) Does your organization wish to participate in this study and continue to receive notices of project activities and information as this study progresses? Yes [✓] No [ ]

2.) If your organization wishes to participate in this study, please provide contact information below for the individual who will act as the Project Team's main point of contact.

NAME: BRIAN McCOMB

TITLE: DIRECTOR

DEPARTMENT: PLANNING & DEVELOPMENT

ORGANIZATION: COUNTY OF HASTINGS

MAILING ADDRESS: 15 Victoria Avenue - Box 2, 2nd Floor
Belleville, ON K8N 1Z5

PHONE NUMBER: 613-966-6712 ext. 4007

FAX: 613-966-7654

E-MAIL ADDRESS: mccombb@hastingscounty.com

3.) Please indicate if the above noted project will affect the delivery of your organization's programs or services, and/or any other relevant information in this regard.

- No - we do not anticipate the above noted project will affect the delivery of the County of Hastings's programs or services.
- There may be some implications for the users of multi-purpose recreational trail owned by the Municipality of Centre Hastings and operated by the Eastern Ontario Trails Alliance (EOTA) commonly known as the Trail of Two Lakes.
- The County just wants to be kept informed of the EA process & study.

Your information and comments will be kept on file for use during the study. Please submit this form to:

Brian McComb

Submitted By: Brian McComb

Tyler Drygas
Consultant Senior Environmental Planner
URS Canada Inc.
75 Commerce Valley Drive East
Markham, Ontario, L3T 7N9
Fax: (905) 882-4399
E-mail: tyler.drygas@urs.com

From: Katic, George [mailto:george.katic@urs.com]
Sent: Monday, October 01, 2012 9:52 AM
To: McComb, Brian
Cc: Walsh, Paul; 'rtaylor@centrehastings.com'; Duffin, Jim; 'Eastern Ontario Trails Alliance'; Tina.White@ontario.ca; Vandenberg, Ryan (MTO) (Ryan.Vandenberg@ontario.ca); Drygas, Tyler; Patkowski, Britta
Subject: RE: Your letter to the County of Hastings dated September 26, 2012

Brian:

Thank you for your quick response clarifying that County of Hastings does not own or maintain Moira Road / Ridge Road at Highway 62, and clarifying who owns multi-purpose recreational Trail of Two Lakes crossing Highway 62 just south of the bridge.

We sent the same utility identification package to the Municipality of Centre Hastings, attention of Ms. Pat Pilgrim, CAO/Clerk.

The MTO/URS study team will, definitely, add Roger Taylor our contact list for this study.

Best Regards,

George

George Katic, P.Eng.
Project Manager
URS Canada Inc. – Consulting Engineers & Geoscientists
75 Commerce Valley Drive East, Markham, ON, Canada L3T 7N9
Tel: 905.882.4401, ext. 187 Fax: 905.882.4399
E-mail: George.Katic@urs.com www.urs.ca

From: McComb, Brian [mailto:mccombb@hastingscounty.com]
Sent: Friday, September 28, 2012 3:06 PM
To: Katic, George
Cc: Walsh, Paul; 'rtaylor@centrehastings.com'; Duffin, Jim; 'Eastern Ontario Trails Alliance'
Subject: Your letter to the County of Hastings dated September 26, 2012

George:

I tried calling you regarding your attached letter dated September 26, 2012 regarding the replacement of Rawdon Creek Bridge on Highway 62 and Intersection Improvements at Highway 62 and Moira/Ridge Road (Former Hastings County Road No. 8).

I want to make sure that you are aware that the County of Hastings no longer owns or maintains Moira/Ridge Road and that you have circulated Roger Taylor, Roads Manager with the Municipality of Centre Hastings regarding this matter. As your survey indicates, the municipally

owned (Centre Hastings) multi-purpose recreational trail commonly known as the Trail of Two Lakes is located immediately south of the Rawdon Creek Bridge.

With respect to confirming “the locations of all existing utilities within your study area”, the County of Hastings has no “existing underground and over overhead plants” within the subject study areas.

We will place a copy of this email and your correspondence on the next County Planning Committee Agenda for the Committee’s information. If County staff become aware of anything else regarding the study area that may be of some relevance to you, I will be sure to email you again.

If you have any questions regarding the above comments, please contact me.

Brian

Brian McComb
Hastings County
Director of Planning & Development
613-966-6712 ext 4007
1-866-321-9563 ext 4007
cell: 613-848-7709
mccombb@hastingscounty.com

Ontario

HIGHWAY 62 AND MOIRA/RIDGE ROAD (HASTINGS ROAD 8)
INTERSECTION IMPROVEMENTS

URS

CLASS ENVIRONMENTAL ASSESSMENT AND PRELIMINARY DESIGN STUDY
MINISTRY OF TRANSPORTATION, G.W.P. 4028-05-00

STAKEHOLDER CONTACT INFORMATION FORM

Please fax or e-mail back by November 9, 2012 to 905-882-4399 or tyler.drygas@urs.com

1.) Does your organization wish to participate in this study and continue to receive notices of project activities and information as this study progresses? Yes [X] No [ ]

2.) If your organization wishes to participate in this study, please provide contact information below for the individual who will act as the Project Team's main point of contact.

NAME: (Ms) Pat Pilgrim

TITLE: CAO / Clerk

DEPARTMENT: Administration

ORGANIZATION: Municipality of Centre Hastings

MAILING ADDRESS: 7 Furnace Street, P.O. Box 900
Madoc, ON K0K 2K0

PHONE NUMBER: 613-473-4030

FAX: 613-473-5444

E-MAIL ADDRESS: ppilgrim@centrehastings.com

3.) Please indicate if the above noted project will affect the delivery of your organization's programs or services, and/or any other relevant information in this regard.

- this construction project is within our municipality

Your information and comments will be kept on file for use during the study. Please submit this form to:

Submitted By: Pat Pilgrim

Tyler Drygas
Consultant Senior Environmental Planner
URS Canada Inc.
75 Commerce Valley Drive East
Markham, Ontario, L3T 7N9
Fax: (905) 882-4399
E-mail: tyler.drygas@urs.com

From:
Sent: Tuesday, October 30, 2012 3:37 PM
To: Drygas, Tyler
Subject: Amish involvement in Hwy 62 reconstuction

I received an email from MTO advising me of the above reconstruction on Hwy 62. We have a fairly large (~ 25 families) Amish community roughly centred on Ivanhoe who drive horse drawn vehicles on Hwy 62. I have acted as a liaison between that community and MTO in the past and have agreed to do so in future.

Since none of the community has a telephone or access to email any communication may have to take the form of a face-to-face public meeting. Please advise as to your wishes in this regard.

Sincerely,

Councillor, Municipality of Centre Hastings

Chippewas of RAMA First Nation

5884 Rama Road, Suite 200
Rama, Ontario L3V 6H6
T 705.325.3611 F 705.325.0879

A Proud Progressive First Nation Community

OFFICE OF THE CHIEF

November 5, 2012

Ministry of Transportation
Plannig & Design Section
1355 John Counter Boulevard
Postal Bag 400
Kingston, ON K7L 5A3

Attention: Tina White, Senior Project Manager

Re: Notice of Study Commencement – G.W.P. 4.28-05-00 Highway 62 and Moira/Ridge Road (Hastings Road 8) Intersection Improvements
Class Environmental Assessment and Preliminary Design Study, Ministry of Transportation

Notice of Study Commencement – G.W.P. 4044-10-00 Highway 62 Rawdon Creek Structure Replacement
Class Environmental Assessment and Preliminary Design Study, Ministry of Transportation

Dear Ms. White:

As a member of the Williams Treaties First Nations, Rama First Nation acknowledges receipt of your letters of October 11, 2012, which were received on October 16 , 2012.

A copy of your letter has been forwarded to Karry Sandy-McKenzie, Barrister & Solicitor, Coordinator for Williams Treaties First Nations for further review and response directly to you. Please direct all future correspondence and inquires, with a copy to Rama First Nation, to Ms. Sandy-McKenzie at 8 Creswick Court, Barrie, ON L4M 2J7 or her email address at k.a.sandy-mckenzie@rogers.com. Her telephone number is (705) 792-5087.

We appreciate your taking the time to share this important information with us.

Sincerely,

Chief Sharon Stinson Henry

c: Council, Rama First Nation
Jeff Hewitt, General Counsel
Karry Sandy-McKenzie, Coordinator for Williams Treaties First Nations
Chief Roland Monague, Portfolio Chief for Williams Treaties First Nations

Wang, Joanne

From: Drygas, Tyler
Sent: Thursday, February 21, 2013 10:14 PM
To: Didrikson, Amy (MTCS)
Cc: Wang, Joanne
Subject: RE: Hwy 62 and Moira/Ridge Road (Hastings Road 8) Intersection Improvements Class EA

Hi Amy,

Thanks for contacting me. A Stage 1 and 2 assessment as well as a Built Heritage Assessment is being undertaken for these two projects. We currently have draft reports prepared and once the have been finalized with MTO we will send them to your attention.

Regards,
Tyler

Tyler Drygas

Manager of Environmental Planning
Sustainable Transportation Group
URS Canada Inc. – Consulting Engineers & Geoscientists
4th Floor, 30 Leek Crescent, Richmond Hill ON, Canada L4B 4N4
Tel: 905.882.4401 ext. 1758 Fax: 905.882.4399
E-mail: tyler.drygas@urs.com www.urs.ca
Please note my new email address and update your contacts!


Please consider the environment before printing this e-mail.

From: Didrikson, Amy (MTCS) [Amy.Didrikson@ontario.ca]
Sent: February 21, 2013 4:30 PM
To: Drygas, Tyler
Subject: Hwy 62 and Moira/Ridge Road (Hastings Road 8) Intersection Improvements Class EA

Tyler,

Apologies for the delay in responding with the attached Stakeholder Contact Information Form, further to the Notice of Study Commencement received by the Ministry of Tourism, Culture and Sport on October 16, 2012.

Regards,
Amy

Amy Didrikson, MCIP, RPP
Heritage Planner
Ministry of Tourism, Culture and Sport
Culture Division| Programs and Services Branch| Culture Services Unit
T. 416.212.7420| Email: amy.didrikson@ontario.ca

Ontario

HIGHWAY 62 AND MOIRA/RIDGE ROAD (HASTINGS ROAD 8)
INTERSECTION IMPROVEMENTS

URS

CLASS ENVIRONMENTAL ASSESSMENT AND PRELIMINARY DESIGN STUDY
MINISTRY OF TRANSPORTATION, G.W.P. 4028-05-00

STAKEHOLDER CONTACT INFORMATION FORM

Please fax or e-mail back by November 9, 2012 to 905-882-4399 or tyler.drygas@urs.com

1.) Does your organization wish to participate in this study and continue to receive notices of project activities and information as this study progresses? Yes [X] No [ ]

2.) If your organization wishes to participate in this study, please provide contact information below for the individual who will act as the Project Team's main point of contact.

NAME: Amy Didrikson

TITLE: Heritage Planner

DEPARTMENT: Culture Services Unit

ORGANIZATION: Ministry of Tourism, Culture & Sport (MTCS)

MAILING ADDRESS: 401 Bay street, Suite 1700
Toronto, Ontario M7A 0A7

PHONE NUMBER: (416) 212-7420

FAX:

E-MAIL ADDRESS: amy.didriksonontario.ca

3.) Please indicate if the above noted project will affect the delivery of your organization's programs or services, and/or any other relevant information in this regard.

MTCS has a mandate under the Ontario Heritage Act to conserve, protect and preserve Ontario's cultural heritage resources, including archaeological resources, built Heritage and cultural heritage landscapes. Please advise how cultural heritage resources will be identified and evaluated as part of the Class EA process.

Your information and comments will be kept on file for use during the study. Please submit this form to:

Submitted By: Amy Didrikson
Heritage Planner
MTCS

Tyler Drygas
Consultant Senior Environmental Planner
URS Canada Inc.
75 Commerce Valley Drive East
Markham, Ontario, L3T 7N9
Fax: (905) 882-4399
E-mail: tyler.drygas@urs.com

HIAWATHA FIRST NATION
123 Paudash Street
Hiawatha On. K9J 0E6

June 17, 2013

Ministry of Transportation
1355 John Counter Blvd
Postal Bag 4000
Kingston, On K7L 5A3

To whom it may concern:

Thank you for the information you sent to Hiawatha First Nation regarding "Highway 62 and Moira/Ridge Road Intersection Improvements " which is being proposed within Hiawatha First Nations' Traditional and Treaty Territories. Hiawatha First Nation appreciates the fact that the MTO recognizes the importance of First Nations Consultation and that your office is conforming to the requirements within the Duty to Consult Process. The correspondence we have received is not considered meaningful consultation but rather information sharing.

However, as per the Hiawatha First Nation Consultation Protocol, your proposed project is deemed, having minimal potential to impact Hiawatha First Nations' rights at this time , however, please keep us apprised of any updates, archaeological findings, and/ or of any environmental impacts, should any occur. We reserve the right to comment later, if something further along in the process is deemed to be a potential impact.

We would like to be contacted if artifacts are found and to be sent any archaeological reports as they are completed. We also have trained archaeological liaisons that we require being present at the archaeological sites during the assessments if First Nation artifacts are found.

We would also request that any maps pertaining to projects be sent in a shape file.

We can be contacted at the mailing address above or electronically via email, at the email address below.

In good faith and respect,

Diane Sheridan

Lori Loucks and Diane Sheridan
Land Resource Consultation Workers
Hiawatha First Nation

dsheridan@hiawathafn.ca or lloucks@hiawathafn.ca
Tele: (705) 295 4421
Fax: (705) 295-4424

Wang, Joanne

From: Drygas, Tyler
Sent: Thursday, July 11, 2013 12:42 PM
To: Wang, Joanne
Subject: FW: highway 62 and Moira / Ridge Road (Hastings Road 8) Intersection Improvements

Follow Up Flag: Follow up
Flag Status: Flagged

For the consultation record

From: White, Tina (MTO) [mailto:Tina.White@ontario.ca]
Sent: Thursday, July 11, 2013 12:06 PM
To: Hanna, John (MTO); Drygas, Tyler; Phillips, Kevin
Subject: FW: highway 62 and Moira / Ridge Road (Hastings Road 8) Intersection Improvements

Tina White
Senior Project Manager
Planning and Design
Ministry of Transportation
613-545-4871
tina.white@ontario.ca

From: Dave Mowat [mailto:dmowat@scugogfirstnation.com]
Sent: July 10, 2013 12:17 PM
To: White, Tina (MTO)
Subject: FW: highway 62 and Moira / Ridge Road (Hastings Road 8) Intersection Improvements

Good Afternoon:

Regarding the above project the Mississaugas of Scugog Island First Nation have reviewed it and have no issues related to such.

Thank you

Dave Mowat
Community Consultation Specialist
Mississaugas of Scugog Island First Nation
22521 Island Rd.
Port Perry, ON, L9L 1B6
Phone: (905) 985-3337 ext. 263
Fax: (905) 985-8828
Email: dmowat@scugogfirstnation.com

ALDERVILLE FIRST NATION
11696 Second Line
P.O. Box 46
Roseneath, Ontario K0K 2X0
Phone: (905) 352-2011
Fax: (905) 352-3242

Chief :	James R. Marsden
Councillor:	Pam Crowe
Councillor:	Wesley Marsden Jr.
Councillor:	Dave Mowat

July 12, 2013

Ministry of Transportation
Planning and Design Section
1355 Counter Boulevard
Kingston, Ontario

Att: Tina White
Senior Project Manager

Re: Highway 62 and Moira/Ridge Road (Hastings Road 8) Intersection Improvements, Class Environmental Assessment and Preliminary Design Study, Ontario Ministry of Transportation, G.W.P. 4028-05-00

Dear Ms. White,

Thank you for your consultation request to Alderville First Nation regarding the **Highway 62 and Moira/Ridge Road (Hastings Road 8) Intersection Improvements, Class Environmental Assessment and Preliminary Design Study, G.W.P. 4028-05-00** which is being proposed within our Traditional and Treaty Territory. We appreciate the fact that **the Ministry of Transportation** recognizes the importance of First Nations Consultation and that your office is conforming to the requirements within the Duty to Consult Process.

As per the Alderville First Nation Consultation Protocol, your proposed project is deemed a level 3, having minimal potential to impact our First Nations' rights, therefore, please

keep Alderville apprised of any archaeological findings, burial sites or any environmental impacts, should any occur. I can be contacted at the mailing address above or electronically via email, at the email address below.

In good faith and respect,

Dave Simpson dsimpson@aldervillefirstnation.ca
Lands and Resources

Communications Officer Tele: (905) 352-2662
Alderville First Nation Fax: (905) 352-3242

Chippewas of RAMA First Nation

5884 Rama Road, Suite 200
Rama, Ontario L3V 6H6
T 705.325.3611 F 705.325.0879

A Proud Progressive First Nation Community *OFFICE OF THE CHIEF*

July 10, 2013

Ministry of Transportation
Planning & Design Section
1355 John Counter Boulevard
Postal Bag 4000
Kingston, ON K7L 5A3

Attention: Tina White, Senior Project Manager

Re: Notice of Public Information Centre #1
Highway 62 and Moira/Ridge Road (Hastings Road 8) Intersection Improvements
Class Environmental Assessment and Preliminary Design Study
Ontario Ministry of Transportation, G.W.P. 4028-05-00

Dear Ms. White:

As a member of the Williams Treaties First Nations, Rama First Nation acknowledges receipt of your letter of June 10, 2013, which was received on June 24, 2013.

A copy of your letter has been forwarded to Karry Sandy-McKenzie, Barrister & Solicitor, Coordinator for Williams Treaties First Nations for further review and response directly to you. Please direct all future correspondence and inquires, with a copy to Rama First Nation, to Ms. Sandy-McKenzie at 8 Creswick Court, Barrie, ON L4M 2J7 or her email address at k.a.sandy-mckenzie@rogers.com. Her telephone number is (705) 792-5087.

We appreciate your taking the time to share this important information with us.

Sincerely,

Chief Sharon Stinson Henry

c: Council, Rama First Nation
Jeff Hewitt, General Counsel
Karry Sandy-McKenzie, Coordinator for Williams Treaties First Nations
Chief Roland Monague, Portfolio Chief for Williams Treaties First Nations

Wang, Joanne

From: Wang, Joanne
Sent: Wednesday, August 14, 2013 1:24 PM
To: 'Amy.Didrikson@ontario.ca'
Cc: tina.white@ontario.ca; john.hanna@ontario.ca; Phillips, Kevin; Drygas, Tyler
Subject: RE: Hwy 62 and Moira/Ridge Road (Hastings Road 8) Intersection Improvements Class EA
Attachments: Final Public Information Centre #1 Boards.pdf

Follow Up Flag: Follow up
Flag Status: Flagged

Dear Ms. Didrikson,

Please see the attachment for the PIC displays as per your request.

The TESR is anticipated to be filed in the public record for public and agency review in late 2013.

Regards,
Joanne

Please note my new contact information.

Joanne Wang, MES
Environmental Planner
URS Canada Inc. – Consulting Engineers & Geoscientists
4th Floor, 30 Leek Crescent, Richmond Hill, ON L4B 4N4 Canada
Direct Line: 905.747.1788 URS Main: 905.882.4401 Fax: 905.882.4399
E-mail: joanne.wang@urs.com www.urs.ca

From: Didrikson, Amy (MTCS) [Amy.Didrikson@ontario.ca]
Sent: August 13, 2013 4:37 PM
To: Drygas, Tyler
Subject: RE: Hwy 62 and Moira/Ridge Road (Hastings Road 8) Intersection Improvements Class EA

Hello Tyler,

When you have a moment could you kindly forward the PIC display material from the July 10th, 2013 PIC, and provide a sense of timing regarding the TESR?

Thanks,
Amy

From: Drygas, Tyler [mailto:tyler.drygas@urs.com]
Sent: February 21, 2013 10:14 PM
To: Didrikson, Amy (MTCS)
Cc: Wang, Joanne
Subject: RE: Hwy 62 and Moira/Ridge Road (Hastings Road 8) Intersection Improvements Class EA

Hi Amy,

Thanks for contacting me. A Stage 1 and 2 assessment as well as a Built Heritage Assessment is being undertaken for these two projects. We currently have draft reports prepared and once the have been finalized with MTO we will send them to your attention.

Regards,
Tyler

Tyler Drygas

Manager of Environmental Planning
Sustainable Transportation Group
URS Canada Inc. – Consulting Engineers & Geoscientists
4th Floor, 30 Leek Crescent, Richmond Hill ON, Canada L4B 4N4
Tel: 905.882.4401 ext. 1758 Fax: 905.882.4399
E-mail: tyler.drygas@urs.com www.urs.ca
Please note my new email address and update your contacts!

From: Didrikson, Amy (MTCS) [Amy.Didrikson@ontario.ca]
Sent: February 21, 2013 4:30 PM
To: Drygas, Tyler
Subject: Hwy 62 and Moira/Ridge Road (Hastings Road 8) Intersection Improvements Class EA

Tyler,

Apologies for the delay in responding with the attached Stakeholder Contact Information Form, further to the Notice of Study Commencement received by the Ministry of Tourism, Culture and Sport on October 16, 2012.

Regards,
Amy

Amy Didrikson, MCIP, RPP
Heritage Planner
Ministry of Tourism, Culture and Sport
Culture Division| Programs and Services Branch| Culture Services Unit
T. 416.212.7420| Email: amy.didrikson@ontario.ca

From: White, Tina (MTO) [Tina.White@ontario.ca]
Sent: July 17, 2014 9:17 AM
To: Kirzati, Katherine (MTCS); Drygas, Tyler
Cc: Grant, Bill (MTO)
Subject: RE: Hwy 62 Improvements

Katherine
Thank you for the email.
The studies have been combined into one so that the replacement of the Rawdon Creek structure and proposed improvements at the intersection were looked at together. The long term technically preferred alternative includes a roundabout at the intersection of Hasting rd 8 (Moira /Ridge rd/ Hwy 62). In the short term, the Rawdon creek structure will be replaced to the west of the existing bridge and tie back into the existing Hwy 62 south of the existing intersection. We will be doing further refinement of the bridge replacement (ie. Detail design) and tender a contract in the near future, after we receive EA clearance. The roundabout is a long-term future improvement at the intersection and won't be constructed until this intersection becomes a provincial priority and receives funding.
There are two separate individual work projects numbers (one for the bridge and one for the intersection) but grouped under one GWP 4044-10-00 for EA purposes.
Hope this helps. Let me know if you have any further questions.

Tina White
Senior Project Manager
Planning and Design
Ministry of Transportation
613-545-4871
tina.white@ontario.ca

From: Kirzati, Katherine (MTCS)
Sent: July 16, 2014 10:58 AM
To: tyler.drygas@urs.com; White, Tina (MTO)
Subject: Hwy 62 Improvements

Tina, Tyler – good morning:

This is to advise you that Amy Didrikson is no longer with our ministry and the above matter has been transferred to me.

I received the PIC notice, which also announces the combining of the two studies. Can you clarify for me whether it's only the studies that will be combined or will the projects, as a whole, be merged into one? At this time, we have two separate files open and I wouldn't want to close one, only to find later that it should not have been done.

If they are merged, which GWP # will you be using?

Thanks for your assistance, Katherine

Katherine Kirzati
Heritage Planner
Culture Services Unit
Ministry of Tourism, Culture and Sport
401 Bay Street, Suite 1700
Toronto, ON M7A 0A7
t: 416.314.7643 **f:** 416.314.7175
katherine.kirzati@ontario.ca

Transport Canada **Transports Canada**
Marine **Maritime**

Navigable Waters Protection Program
Programme de protection des eaux navigables
100 Front Street South
Sarnia, Ontario N7T 2M4

Your File Votre référence

Our File Notre référence
8200-2010-400691

August 17, 2011

Site 11-134
Hwy 62

Ministry of Transportation
Postal Bag 4000
1355 John Counter Blvd
Kingston, ON K7L 5A3

Attention: Boris Mihov, P.Eng.

Dear Sir:

Re.: Review under the *Navigable Waters Protection Act* for the Bridge located at approximately 44° 20' 19.12" N – 077° 28' 39.40" W, Highway 62, Town of Marmora, Geographic Township of Huntingdon, Rawdon Creek, County of Hastings, in the Province of Ontario

Reference is made to your correspondence received on December 17, 2010.

Transport Canada officials have determined that the provisions of the *Navigable Waters Protection Act* (*NWPA*) **do not apply** to your project and, therefore, an Approval is not required.

This determination relates to navigation only and does not relieve you of your responsibility to obtain any other forms of approval under any applicable laws.

Should you have any questions, please do not hesitate to contact our office at (866) 821-6631 or by facsimile transmission at (519) 383-1989 or by e-mail at NWPontario-PENontario@tc.gc.ca.

Sincerely,

Barry Putt
Manager
Navigable Waters Protection Program
Marine Safety
Transport Canada
Ontario

BP/km

Enclosure

Canada

Ontario

HIGHWAY 35 RAWDON CREEK STRUCTURE REPLACEMENT

URS

CLASS ENVIRONMENTAL ASSESSMENT AND PRELIMINARY DESIGN STUDY
MINISTRY OF TRANSPORTATION, G.W.P. 4044-10-00

STAKEHOLDER CONTACT INFORMATION FORM

Please fax or e-mail back by November 9, 2012 to 905-882-4399 or tyler.drygas@urs.com

1.) Does your organization wish to participate in this study and continue to receive notices of project activities and information as this study progresses? Yes [X] No [ ]

2.) If your organization wishes to participate in this study, please provide contact information below for the individual who will act as the Project Team's main point of contact.

NAME: (Ms) Pat Pilgrim

TITLE: CAO / Clerk

DEPARTMENT: Administration

ORGANIZATION: Municipality of Centre Hastings

MAILING ADDRESS: 7 Furnace Street, P.O. Box 900
Madoc, ON K0K 2K0

PHONE NUMBER: 613-473-4030

FAX: 613-473-5444

E-MAIL ADDRESS: ppilgrim@centrehastings.com

3.) Please indicate if the above noted project will affect the delivery of your organization's programs or services, and/or any other relevant information in this regard.

- Construction Project is within our municipality

Your information and comments will be kept on file for use during the study. Please submit this form to:

Submitted By: [signature]

Tyler Drygas
Consultant Senior Environmental Planner
URS Canada Inc.
75 Commerce Valley Drive East
Markham, Ontario, L3T 7N9
Fax: (905) 882-4399
E-mail: tyler.drygas@urs.com

Ontario

HIGHWAY 35 RAWDON CREEK STRUCTURE REPLACEMENT

URS

CLASS ENVIRONMENTAL ASSESSMENT AND PRELIMINARY DESIGN STUDY
MINISTRY OF TRANSPORTATION, G.W.P. 4044-10-00

STAKEHOLDER CONTACT INFORMATION FORM

Please fax or e-mail back by November 9, 2012 to 905-882-4399 or tyler.drygas@urs.com

1.) Does your organization wish to participate in this study and continue to receive notices of project activities and information as this study progresses? Yes [X] No [ ]

2.) If your organization wishes to participate in this study, please provide contact information below for the individual who will act as the Project Team's main point of contact.

NAME: MIKE LOVEJOY

TITLE: HAZARD LANDS PROGRAM CO-ORD

DEPARTMENT:

ORGANIZATION: LOWER TRENT REGION CA

MAILING ADDRESS: 714 MURRAY ST RR#1 TRENTON, ON.

PHONE NUMBER: 613 394 3915 x 211

FAX: 613 394 5226.

E-MAIL ADDRESS:

3.) Please indicate if the above noted project will affect the delivery of your organization's programs or services, and/or any other relevant information in this regard.

Has the potential to as we are concerned with changes to hydrology depending on scope & scale of project

Your information and comments will be kept on file for use during the study. Please submit this form to:

Submitted By:

Tyler Drygas
Consultant Senior Environmental Planner
URS Canada Inc.
75 Commerce Valley Drive East
Markham, Ontario, L3T 7N9
Fax: (905) 882-4399
E-mail: tyler.drygas@urs.com

Patkowski, Britta

From: Drygas, Tyler
Sent: Monday, November 05, 2012 11:56 AM
To: Mike Lovejoy
Cc: Patkowski, Britta
Subject: RE: Hwy 62 bridge EA

Follow Up Flag: Flag for follow up
Flag Status: Flagged

Hi Mike,

Thanks for providing the feedback form. We'll keep LTRCA involved in the project as we progress.

Regards,
Tyler

Tyler Drygas

Manager of Environmental Planning
Sustainable Transportation Group
URS Canada Inc. – Consulting Engineers & Geoscientists
75 Commerce Valley Drive East, Markham, ON, Canada L3T 7N9
Tel: 905.882.4401 ext. 147 Fax: 905.882.4399
E-mail: tyler.drygas@urs.com www.urs.ca
Please note my new email address and update your contacts!

Please consider the environment before printing this e-mail.

From: Mike Lovejoy [mailto:mike.lovejoy@ltc.on.ca]
Sent: Monday, November 05, 2012 10:54 AM
To: Drygas, Tyler
Subject: Hwy 62 bridge EA

Please see attached

Mike Lovejoy
Hazard Lands Program Coordinator
613 394 3915 Ext 211

Ontario

HIGHWAY 35 RAWDON CREEK STRUCTURE REPLACEMENT

URS

CLASS ENVIRONMENTAL ASSESSMENT AND PRELIMINARY DESIGN STUDY
MINISTRY OF TRANSPORTATION, G.W.P. 4044-10-00

STAKEHOLDER CONTACT INFORMATION FORM

Please fax or e-mail back by November 9, 2012 to 905-882-4399 or tyler.drygas@urs.com

1.) Does your organization wish to participate in this study and continue to receive notices of project activities and information as this study progresses? Yes [✓] No [ ]

2.) If your organization wishes to participate in this study, please provide contact information below for the individual who will act as the Project Team's main point of contact.

NAME: Rob Price / Maegan Mitchell

TITLE: President / Coordinator

DEPARTMENT:

ORGANIZATION: Madoc & District Chamber of Commerce

MAILING ADDRESS: 208 Davidson St. P.O Box 1269
Madoc, ON K0K2K0

PHONE NUMBER: 613-473-0140

FAX: 613-473-0760

E-MAIL ADDRESS: cocmadoc@bellnet.ca

3.) Please indicate if the above noted project will affect the delivery of your organization's programs or services, and/or any other relevant information in this regard.

N/A.

Your information and comments will be kept on file for use during the study. Please submit this form to:

Submitted By: Maegan Mitchell

Tyler Drygas
Consultant Senior Environmental Planner
URS Canada Inc.
75 Commerce Valley Drive East
Markham, Ontario, L3T 7N9
Fax: (905) 882-4399
E-mail: tyler.drygas@urs.com

Ministry of Aboriginal Affairs

160 Bloor St. East, 9th Floor
Toronto, ON M7A 2E6
Tel: (416) 326-4740
Fax: (416) 325-1066
www.aboriginalaffairs.gov.on.ca

Ministère des Affaires Autochtones

160, rue Bloor Est, 9e étage
Toronto ON M7A 2E6
Tél. : (416) 326-4740
Téléc. : (416) 325-1066
www.aboriginalaffairs.gov.on.ca

Ontario

Reference: 418

November 14, 2012

Tyler Drygas
URS Canada Inc.
75 Commerce Valley Drive East
Markham, Ontario
L3T 7N9

Re: Notice of Study Commencement – G.W.P. 4044-10-00 Highway 62 Rawdon Creek Structure Replacement
Class Environmental Assessment and Preliminary Design Study, Ministry of Transportation

Dear Tyler Drygas:

Thank you for informing the Ministry of Aboriginal Affairs (MAA) of your project. Please note that MAA treats all letters, emails, general notices, etc. about a project as a request for information about which Aboriginal communities may have rights or interests in the project area.

We acknowledge that you have been in contact with the following Aboriginal communities/organizations: Métis Nations of Ontario, Mississaugas of Scugog Island First Nation, Chippewas of Georgina Island First Nation, Chippewas of Mnjikaning First Nation, Hiawatha First Nation, Beausoleil First Nation, Alderville First Nation, Curve Lake First Nation, Williams Treaties First Nations, Kawartha First Nation and Huron Wendat Nation.

As a member of the government review team, the Ministry of Aboriginal Affairs (MAA) identifies First Nation and Métis communities who may have the following interests in the area of your project:

- reserves;
- land claims or claims in litigation against Ontario;
- existing or asserted Aboriginal or treaty rights, such as harvesting rights; or
- an interest in the area of the project.

MAA is not the approval or regulatory authority for your project, and receives very limited information about projects in the early stages of their development. In circumstances where a Crown-approved project may negatively impact a claimed Aboriginal or treaty right, the Crown may have a duty to consult the Aboriginal community advancing the claim. The Crown often delegates procedural aspects of its duty to consult to proponents. Please note

that the information in this letter should not be relied on as advice about whether the Crown owes a duty to consult in respect of your project, or what consultation may be appropriate. Should you have any questions about your consultation obligations, please contact the appropriate ministry.

You should be aware that many First Nations and/or Métis communities either have or assert rights to hunt and fish in their traditional territories. For First Nations, these territories typically include lands and waters outside of their reserves.

In some instances, project work may impact aboriginal archaeological resources. If any Aboriginal archaeological resources could be impacted by your project, you should contact your regulating or approving Ministry to inquire about whether any additional Aboriginal communities should be contacted. Aboriginal communities with an interest in archaeological resources may include communities who are not presently located in the vicinity of the proposed project.

For your information, MAA notes that the following Métis community may be interested in your project given the proximity of their community or reserve lands to the area of the proposed project or because of your project's potential environmental impacts:

Peterborough and District Wapiti Métis Council RR 1 Fraserville, ON K0L 1V0	Terry Bloom, Interim President (705) 944-8913 e-mail: wapitimetiscouncil@hotmail.ca

Please copy any correspondence to Peterborough and District Wapiti Métis Council to the Métis Nation of Ontario. Contact information is below:

Métis Nation of Ontario Head Office 500 Old St. Patrick Street, Unit D Ottawa, Ontario, K1N 9G4	Métis Consultation Unit Fax: (613) 725-4225

The information upon which the above comments are based is subject to change. First Nation or Métis communities can make claims at any time, and other developments can occur that could result in additional communities being affected by or interested in your undertaking.

Through Aboriginal Affairs and Northern Development (AANDC), the Government of Canada sometimes receives claims that Ontario does not receive, or with which Ontario does not become involved. AANDC's Consultation and Accommodation Unit (CAU) established a "single window" to respond to requests for baseline information held by AANDC on established or potential Aboriginal Treaty and rights. To request information from the Ontario Subject Matter Expert send an email to: UCA-CAU@aadnc-aandc.gc.ca

Additional details about your project or changes to it that suggest impacts beyond what you have provided to date may necessitate further consideration of which Aboriginal communities may be affected by or interested in your undertaking. If you think that further consideration may be required, please bring your inquiry to whatever government body oversees the regulatory process for your project. MAA does not wish to be kept informed of the progress of the project; please be sure to remove MAA from the mailing list.

Yours truly,

Wendy Cornet
Manager, Consultation Unit
Aboriginal Relations and Ministry Partnerships Division

Martins, Trish

Subject: FW: GWP 4044-10-00 - FN response

From: White, Tina (MTO) [Tina.White@ontario.ca]
Sent: July 11, 2014 9:27 AM
To: Drygas, Tyler; Grant, Bill (MTO)
Cc: Grypma, Amanda (MTO)
Subject: FW: GWP 4044-10-00 - FN response

From: Mary Macleod [mailto:mmacleod@alderville.ca]
Sent: July 10, 2014 10:50 AM
To: White, Tina (MTO)
Subject: RE: GWP 4044-10-00

Hi there,

Sent on behalf of Dave Simpson. Please find attached our response letter to the above noted project.

Thanks,

Mary MacLeod-Beaver
Land and Resources
Alderville First Nation
mmacleod@alderville.ca
Phone: (905)352-2662
Fax: (905)352-3242

11696 Second Line Road
Roseneath, ON K0K 2X0

ALDERVILLE FIRST NATION
11696 Second Line
P.O. Box 46
Roseneath, Ontario K0K 2X0
Phone: (905) 352-2011
Fax: (905) 352-3242

Chief: **James R. Marsden**
Councillor: **Julie Bothwell**
Councillor: **Jody Holmes**
Councillor: **Dave Mowat**
Councillor: **Angela Smoke**

July 10, 2014

Ministry of Transportation
Planning and Design Section
1355 John Counter Boulevard
Postal Bag 4000
Kingston, ON K7L 5A3

Att: Tina White, Senior Project Manager

Re: Notice of Combined Studies and Public Information Centre
Highway 62 – Moira/Ridge Road (Hastings Road 8) Intersection Improvements and Rawdon Creek Structure Replacement
Class Environmental Assessment and Preliminary Design Study, G.W.P. 4044-10-00

Dear Tina White,

Thank you for your consultation request to Alderville First Nation regarding the above noted project which is being proposed within our Traditional and Treaty Territory. We appreciate the fact that the Ministry of Transportation recognizes the importance of First Nations Consultation and that your office is conforming to the requirements within the Duty to Consult Process.

As per the Alderville First Nation Consultation Protocol, your proposed project is deemed a level 3, having minimal potential to impact our First Nations' rights, therefore, please keep Alderville apprised of any archaeological findings, burial sites or any environmental impacts, should any occur. I can be contacted at the mailing address above or electronically via email, at the email address below.

In good faith and respect,

Dave Simpson
Lands and Resources
Communications Officer
Alderville First Nation

dsimpson@aldervillefirstnation.ca
Tele: (905) 352-2662
Fax: (905) 352-3242

Martins, Trish

Subject: FW: Correspondence - FN contact;

-----Original Message-----
From: Tina Durand [mailto:tina.durand@cnhw.qc.ca]
Sent: July 10, 2014 11:36 AM
To: White, Tina (MTO)
Cc: 'Melanie Vincent'; 'Mélanie Vincent'
Subject: Correspondance

Good morning,

Please note that Ms. Heather Bastien no longer represents the Huron-Wendat Nation. Please address future correspondence to Chief Line Gros-Louis who is responsible for our Ontario file. For any inquiries, please contact us via this email address.

Regards,

Tina Durand
Secrétaire exécutive jr., secteur politique Conseil de la Nation huronne-wendat 255, Place Chef Michel Laveau Wendake (Québec) G0A 4V0
418-843-3767

-----Message d'origine-----
De : reception administration [mailto:administration@cnhw.qc.ca]
Envoyé : 9 juillet 2014 15:05
À : Tina Durand
Objet : TR: Fichier Joint

-----Message d'origine-----
De : CNHW Administration [mailto:photocopieur@cnhw.qc.ca] Envoyé : 9 juillet 2014 14:49 À : Reception Objet : Fichier Joint

FROM=6135405106
TO=418 842 1108
DATE=07/09/2014
TIME=14:47:31
TIMEZONE=-05:00
FCODE=

Ontario

minutes

DATE: April 18, 2013

TO: FILE

RE: Minutes of Meeting with Amish Community and Liaison

The following were in attendance:

Tina White	P&D
Mike See	P&D
Lori Brake	Traffic
Larry Mitz	Centre Hastings Twp.
Melvin	Amish Community Member

MTO handed over the questionnaire and mapping to Larry and Melvin for review.
The following is an overview of the discussion:

How often are these routes travelled?
For the most part, there are no set routes for buggy traffic. Some exceptions are for a select few who go to work in the morning to a set destination.

- For example one buggy will travel twice daily from Hallowview Rd. to Ridge Rd. for work

Great variation in traffic day to day (15 one day, none the next)

- Carpenter crews travel the corridor very early in the morning (~4:30am) to job sites in various locations
  - Sometimes with a trailer towed behind the buggy, though this is typical left at the job site until completion of the work. These trailers are typically wider and longer than the buggies

Most buggy traffic is from Ridge Road to Crookston Rd. (10.2km)
Less volume between Crookston and Madoc (8.8km)
Very rarely do buggies travel south of the trail at Rawdon Creek.

Walking Traffic / Schools
Children walk to school daily.
The school day starts at 9 and ends early enough that the children are not walking in the dark.
There are two schools, one on Ray Road, the other on Hollowview Rd.
Pedestrians will always travel on the shoulder facing traffic, except in the winter months when it can be more difficult, depending on plowing.
A few children take buggies to school, but most walk.

Do members of your community tend to travel on one side of the road rather than the other?
Buggy traffic always follows the rules of the road. They will always travel with traffic on the right hand side of the road. Walking traffic will always walk facing traffic (left hand side of the road).

Do members of your community use different modes of transportation (ie bicycle or scooter)?
No scooters or bicycles. Buggies, walking, and horseback are typical.

How often would two horse and carriages pass each other in opposite directions?
Roughly 3 or 4 times a week. Sometimes more, sometimes less.

Do you foresee a significant increase in buggy traffic along Hwy 62 in the next 5 years? 10 years?
Hard to answer with certainty, but Melvin foresees growth as new families will continue to move to the area and younger generations move out on their own.

How often do members of the Amish community travel along Hwy 62 across the Rawdon Creek Bridge?
Mostly it's a weekly trip on Sundays to travel to church. As church is at various houses throughout the community, every other Sunday sees greater buggy traffic across the Rawdon Creek structure (as there are more families north of the structure travelling south). This traffic gets off the Hwy 50m +/- south of the structure heading west on the "rail bed" (aka Trail of the Two Lakes) to the Tuftsville area.

What is your preferred treatment for shoulders (i.e. gravel, asphalt, no preference)?
Preferred treatment would be asphalt. We discussed the possibility of rutting and damage by the "cleats" of the horses. Larry pointed out that the horses have been travelling on Ridge Rd. for some time and they have experienced little in the way of damage from the effect of the horse and buggy.
Tina asked what kind of pavement structure was on the shoulders on Ridge Rd.
Larry tried to contact the road superintendant but couldn't get him in the phone. Larry said he would follow up with Tina. Melvin doesn't anticipate any issues with shoulder pavement raveling, etc from his experience elsewhere.

Are you concerned with the slope/steepness of the shoulders?
Tina stated that current design crossfall was at 6% +/- for gravel shoulders.
Melvin stated that he and others were very appreciative of the efforts by MTO (and the AMC) to bring the shoulders up to 6% over the past few years. He said that travelling along the shoulders can be very hard on the horses (one horse kept having a shoulder pop out of joint). It is unclear if this was due to the steepness or width of the shoulders. If we continue with gravel shoulders through this area, MTO will need to verify this with the community.
Fully paved shoulders were discussed and Melvin stated that the less sloped (4%) would be better for the horse and buggies.

Is there an issue with transitioning from asphalt to gravel while riding along the shoulder?
Melvin said there was no major issue, but would like to see all of one or the other (his preference was paved). He said that with paved shoulders there was no real slip hazard for the horses.

Do members of your community have any positive/negative experiences with roundabouts?
Roundabout would not be an issue for the community. Melvin stated that he has had experience with roundabouts, and those that do not will adapt.

Another option being explored is the use of traffic signals at the intersection. Do members of your community have issues with use of this technology on Hwy 62?
No issue with traffic signals. The community members travel to Stirling often and there are signals there. Melvin and Larry discussed that signals at Ridge Rd might be beneficial for the families coming from Ridge road and travelling north on to Hwy 62. Sometimes the wait to turn left at the intersection can be very long (up to 15 min).

Construction Noise
Tina discussed the noise associated with construction activities such as driving piles for the Rawdon Creek Structure replacement. Melvin agreed that the noise could be disruptive for the horses. If MTO

could notify the community members prior to these types of operations being undertaken, they would avoid the area.
Tina discussed the use of the temporary bridge. Melvin felt that the horses would very quickly adapt to the new bridge. He saw no foreseeable problems with the use of the structure, unless it had a grated bottom, which could frighten the horses.

Other Notes:

- Larry referenced an email from Tina White regarding other communities in the area. He confirmed there was some Mennonites living in there, but they did not travel by horse & buggy. They used automobiles for travel.
- The Amish do not alter their plans to avoid travelling on Hwy 62 during peak hours.
- The Amish do not always avoid the highway as a travel corridor (if taking the back roads are an option, they may still choose Hwy 62) due to out of the way travel.
- There are currently 20-25 families in the community
    - Each family will have at least 1 buggy – most have 2 or 3
- Buggy traffic slows in winter to about ¾ of normal volumes
- Concerned about travelling in the dark and riding along unplowed shoulders. It was felt that some younger members of the community would like to see an enhancement on the buggies for visibility, but the elders would be more resistant.
- It was suggested that if there was a law regarding the use of something like a flashing light on slow moving vehicles, then the Amish community would obey the law.
- It was suggested that if a higher authority (i.e. MTO vs. County) suggested something as a safety enhancement for the buggies, then it may hold more weight than a smaller authority.
- Attending a PIC with others is not an issue – only notification about the event ahead of time (2 weeks through Larry Mitz), as they may not have access to the typical methods MTO uses for advertising.
- The curve north of Ray Rd. is an issue due to the proximity of the guiderail to the pavement. Melvin stated he had a very close call there with cars.
- The Amish run a market in Ivanhoe from May to October on Saturday mornings. The Amish will have several buggies come to market early on Saturday to set up, but are not mixing with vehicles during market times.
- Timing of going through a set of signals with a buggy was not seen as an issue. They can travel fairly quickly if required – such as if temporary signals are installed for the structure replacement at Rawdon Creek.

APPENDIX B

Public Information Centre Display

Public Information Centre #1

HIGHWAY 62 AND MOIRA/RIDGE ROAD (HASTINGS ROAD 8) INTERSECTION IMPROVEMENTS

Class Environmental Assessment and Preliminary Design Study
G.W.P. 4028-05-00

July 10, 2013

Please Sign In Here

URS Ontario

Purpose of PIC #1

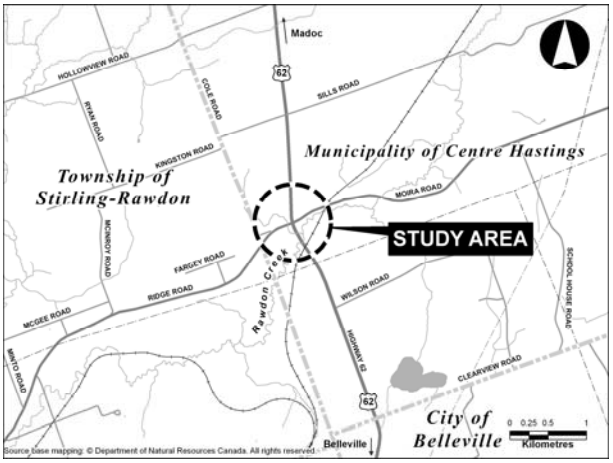
The purpose of this Public Information Centre (PIC) is to present and receive feedback on:

- **Study area and scope**
- **Study process and timing of study activities**
- **Existing conditions**
- **Need for improvements to the intersection**
- **Evaluation of the "Alternatives to the Undertaking"**
- **Intersection alternatives**
- **Approach for evaluating alternatives and evaluation criteria**
- **Next steps**

Your input on each of these and other study issues is important to us!

URS Ontario

Study Area, Purpose and Scope



The purpose of this study is to improve the operational and safety conditions of the intersection at Highway 62 and Moira/Ridge Road (Hastings Road 8).

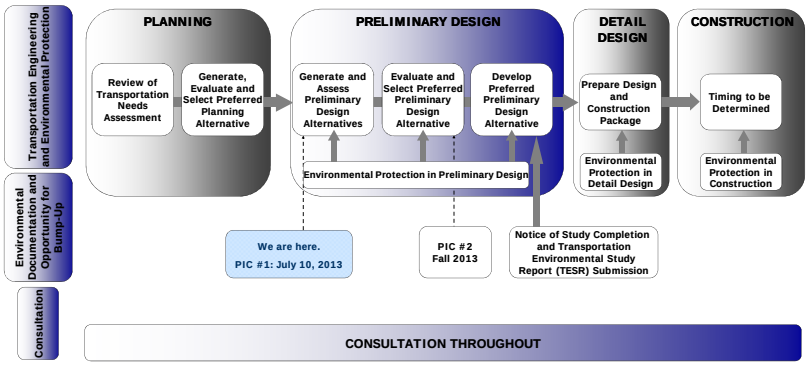
The Project Team will investigate short-term and long-term intersection improvements, including, but not limited to:

- **Improvements to the geometry of the intersection and Highway 62 within the study area.**
- **The addition of turning lanes.**
- **The addition of traffic signals.**
- **The addition of illumination.**
- **The construction of a roundabout intersection.**

URS Ontario

Highway 62 and Moira/Ridge Road (Hastings Road 8) Intersection Improvements
Class Environmental Assessment & Preliminary Design Study

Class EA Process For Group 'B' Projects



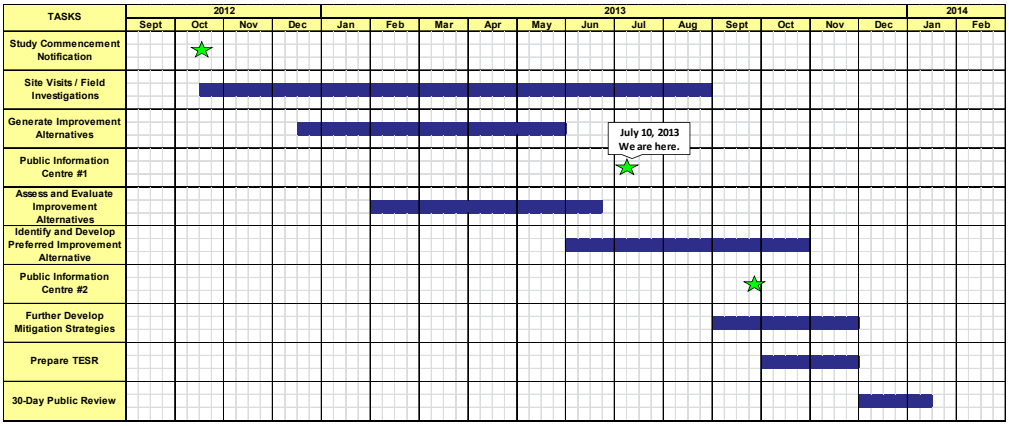
The study is a Group 'B' project under the MTO *Class EA for Provincial Transportation Facilities (2000)*.

Stakeholder consultation is ongoing, including two rounds of PICs.

A Transportation Environmental Study Report (TESR) will be prepared and made available for public and agency review for a period of 30 days at the completion of the study.

URS Ontario

Timing of Study Activities



* Schedule subject to change based on study findings and/or input received through consultation.

Highway 62 and Moira/Ridge Road (Hastings Road 8) Intersection Improvements
Class Environmental Assessment & Preliminary Design Study

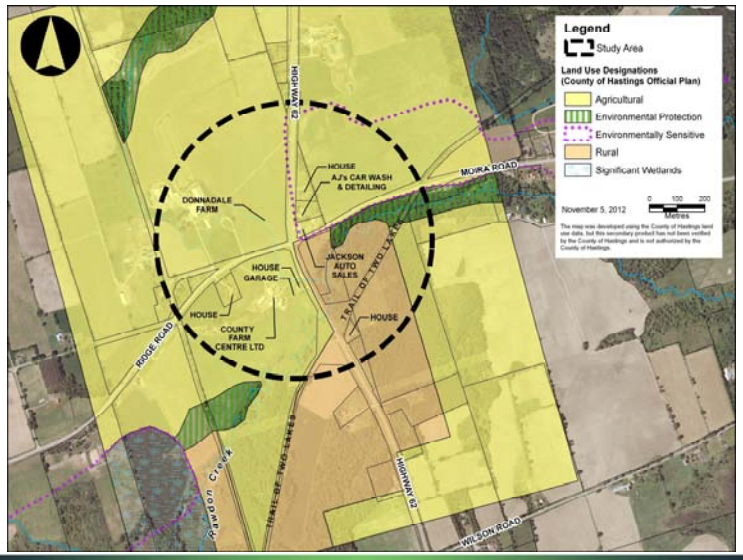
Overview of Existing Environmental Conditions

- Rawdon Creek (located approximately 280 m south of the intersection) is a high sensitivity coldwater watercourse with warmwater species also present.
- A mixed forest community is located to the southeast of the intersection, surrounding Rawdon Creek.
- Soils within the study area are predominantly prime agricultural soils (Class 1-3). Two farming operations are located in the study area: Donnadale Farm (northwest quadrant) and County Farm Centre Ltd (southwest quadrant).
- Several rural residences are located along Highway 62 to the north and south of the intersection.
- Commercial land uses within the study area include Jackson Auto Sales and AJ's Car Wash and Detailing (northeast quadrant of the intersection).
- The Trail of Two Lakes recreational and snowmobile trail is located to the south of Rawdon Creek.
- Luke's Cemetery (an important heritage feature) is located in the southeast quadrant of the intersection.

Refer to the designated land use map on the following display for the location of these key land use features within the study area.

URS Ontario

Designated Land Use Map



Highway 62 and Moira/Ridge Road (Hastings Road 8) Intersection Improvements
Class Environmental Assessment & Preliminary Design Study

Existing Transportation Conditions

- Highway 62 is a 2-lane undivided highway with a posted speed of 80 km/h and a design speed of 100 km/h through the study area.
- The current lane configuration at the intersection includes a single lane approach on all approaches, except on the southbound approach of Highway 62, which also provides an exclusive right-turn lane.
- The westbound and eastbound approaches on Moira/Ridge Road are under stop sign control.

At the intersection looking west

Intersection Problems and Opportunities

Problems

- Over the 5-year period between 2005 and 2009, there were 24 collisions recorded at or in the vicinity of the intersection. Out of the 24 collisions, six of them were intersection related.
- The existing intersection is on a horizontal curve, resulting in less desirable sight distances for westbound and northbound traffic approaching the intersection.

Opportunities

- Signals are warranted at the intersection in the near term. With the traffic signals in place, collisions involving left turning vehicles are expected to be reduced.
- The introduction of exclusive left turn lanes on both northbound and southbound approaches on Highway 62 could minimize rear-end and turning collisions at the intersection.
- Opportunity to slow down traffic approaching the intersection (which enhances safety) with a modern roundabout as an alternative to a signalized intersection.
- Opportunity to improve the vertical and horizontal alignment of Highway 62 through the intersection.

Highway 62 and Moira/Ridge Road (Hastings Road 8) Intersection Improvements
Class Environmental Assessment & Preliminary Design Study

Alternatives to the Undertaking

Alternatives to the Undertaking are broad-based alternatives that represent fundamentally different ways of addressing future transportation needs.

The Alternatives to the Undertaking considered in this study include:

- **"Do Nothing".**
- **Transportation Demand Management (TDM) and Transportation Systems Management (TSM).**
  - *TDM: measures aimed at shifting transportation demand (e.g. carpooling, telecommuting).*
  - *TSM: measures to improve the efficiency of the existing transportation system (e.g. automated message systems).*
- **Encourage the use of other modes of transportation (rail, transit, etc.).**
- **Improvements to the Highway 62 and Moira/Ridge Road (Hastings Road 8) intersection.**
- **Encourage the greater use of the surrounding local roads.**

The Alternatives to the Undertaking were evaluated based on their ability to meet the study objectives:

- **Address the existing and future operational issues at the intersection.**
- **Improve safety conditions at the intersection.**
- **Reduce or minimize impacts to the natural, social, economic and cultural environments.**

Assessment of Alternatives to the Undertaking

ALTERNATIVES TO THE UNDERTAKING	STUDY OBJECTIVES 1: Address the Existing and Future Operational Issues at the Intersection	STUDY OBJECTIVES 2: Improve Safety Conditions at the Intersection	STUDY OBJECTIVES 3: Reduce or Minimize Impacts to the Natural, Socio-Economic and Cultural Environments	PRELIMINARY ASSESSMENT	SUMMARY
Do Nothing	○	○	●	The status quo does not address the key operational deficiencies (e.g. warrant for traffic signals by 2014) and geometric deficiencies (e.g. substandard sight distances, substandard horizontal curve through the intersection, lack of turning lanes). This alternative is only being brought forward in this study for comparison purposes.	**Does not address the study objectives. Carried forward for comparison purposes only.**
Transportation Demand Management (TDM) and Transportation System Management (TSM)	◔	○	●	Influencing travel choices (e.g. carpooling, telecommuting, etc.) and implementing low-cost measures to improve the efficiency of the existing transportation system (e.g. automated message systems, etc.) cannot solely address the study objectives, but may be considered along with other alternatives.	√
Encourage the Use of Other Modes of Transportation (e.g. rail, bus, etc.)	◔	○	◕	While encouraging the use of other modes of transportation (via provision of additional transit options, carpool lots, etc.) could result in an additional shift from passenger vehicles to transit, the shift would not be enough to significantly ease the future traffic volumes or improve safety conditions at the intersection. As such, this alternative may be considered along with other alternatives.	√
Improvements to the Highway 62 and Moira/Ridge Road (Hastings Road 8) Intersection	◕	◕	◐	Improvements to the Highway 62 and Moira/Ridge Road (Hastings Road 8) intersection, such as improving geometrics, providing left-turn lanes, building a roundabout intersection, providing traffic signals, etc., have the potential to resolve the majority of the main operational and geometric deficiencies at the intersection. This alternative is being carried forward for further study.	√
Encourage Greater Use of the Surrounding Local Roads	◔	○	●	While encouraging the greater use of the surrounding local roads may result in a minor reduction of traffic at the Highway 62 and Moira/Ridge Road (Hastings Road 8) intersection, the shift may not be enough to not require traffic signals in the future, and the shift in traffic would not improve the geometric or safety conditions at the intersection. As such, this alternative is not being carried forward for further study.	✗

LEGEND	
√	Incorporate With Other Alternatives
√	Carry Forward
✗	Do Not Carry Forward
○	Least preferred to most preferred
↓	
●	

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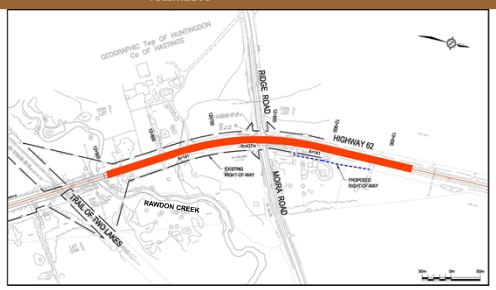
Highway 62 and Moira/Ridge Road (Hastings Road 8) Intersection Improvements
Class Environmental Assessment & Preliminary Design Study

Screening of the Long List of Intersection Alternatives

- Six alternatives were developed to determine a short-list of alternatives that address the identified problems and opportunities with manageable environmental impacts.
- A coarse level screening of the six alternatives was conducted to identify the relative advantages and disadvantages of each alternative.

Alternative	Advantages	Disadvantages	Comments
Alternative 1: Signalized Intersection and Minor East Realignment of Highway 62 	- Signalizing the intersection will enhance safety and operations: collisions involving left turning vehicles are expected to be reduced. - Minor property impacts.	- Provides no significant geometric improvements to Highway 62.	Alternative 1 addresses the project needs with minor environmental impacts. As such, it is carried forward for further study.

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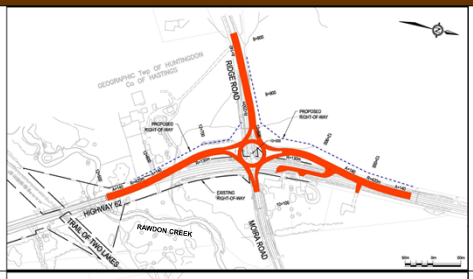
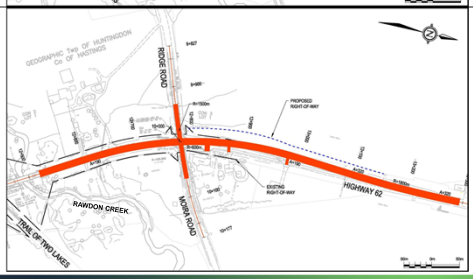
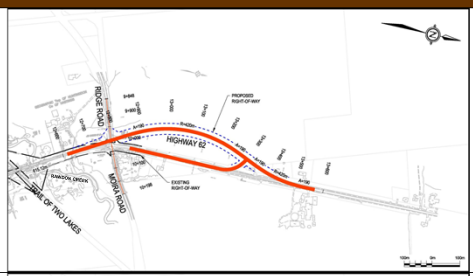
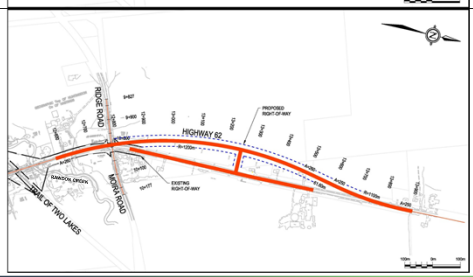
Screening of the Long List of Intersection Alternatives

Alternative	Advantages	Disadvantages	Comments
Alternative 2: Modern Roundabout and West Realignment of Highway 62 	- Roundabouts reduce the number of conflict points where collisions can occur (and severity) as it controls the speed of vehicles entering the intersection. - Roundabouts provide speed consistency through the intersection and can increase capacity and efficiency.	- Provides no significant geometric improvements to Highway 62. - Displacement of agricultural lands (Class 1-3 soils). - Potential displacement of one residence in the southwest quadrant of the intersection.	Alternative 2 addresses the project needs with manageable environmental impacts. As such, it is carried forward for further study. ✓
Alternative 3: Signalized Intersection and West Realignment of Highway 62 with a Flatter Curve (R=600m) 	- Signalizing the intersection will enhance safety and operations: collisions involving left turning vehicles are expected to be reduced. - Improved geometry: a flatter curve will improve sight distance for drivers approaching the intersection and enhance safety.	- Displacement of agricultural lands (Class 1-3 soils).	Alternative 3 addresses the project needs with manageable environmental impacts. As such, it is carried forward for further study. ✓

Highway 62 and Moira/Ridge Road (Hastings Road 8) Intersection Improvements
Class Environmental Assessment & Preliminary Design Study

Screening of the Long List of Intersection Alternatives

Alternative	Advantages	Disadvantages	Comments
Alternative 4: Signalized Intersection and West Realignment of Highway 62 with the Intersection on a Tangent 	- Signalizing the intersection will enhance safety and operations: collisions involving left turning vehicles are expected to be reduced. - Improved geometry: the intersection will be on a tangent. This will improve sight distance and enhance safety and traffic operations.	- Significant property impacts. - Significant displacement of agricultural lands (Class 1-3 soils) in the northwest quadrant. - Potential displacement of two residences in the northwest quadrant of the intersection.	Alternative 4 results in significant property impacts (including two potential displacements and displacement of agricultural lands). Given that Alternatives 1 to 3 provide similar transportation benefits with reduced property impacts, Alternative 4 is not carried forward for further study. ✗
Alternative 5: Signalized Intersection and West Realignment of Highway 62 with a Flatter Curve (R=1,200m) 	- Signalizing the intersection will enhance safety and operations: collisions involving left turning vehicles are expected to be reduced. - Improved geometry: meets the MTO intersection standard.	- Significant property impacts. - Significant displacement of agricultural lands (Class 1-3 soils) in the northwest quadrant. - Potential displacement of two residences in the northwest quadrant of the intersection.	Alternative 5 results in significant property impacts (including two potential displacements and displacement of agricultural lands). Given that Alternatives 1 to 3 provide similar transportation benefits with reduced property impacts, Alternative 5 is not carried forward for further study. ✗

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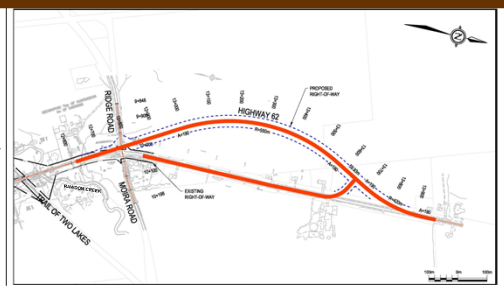
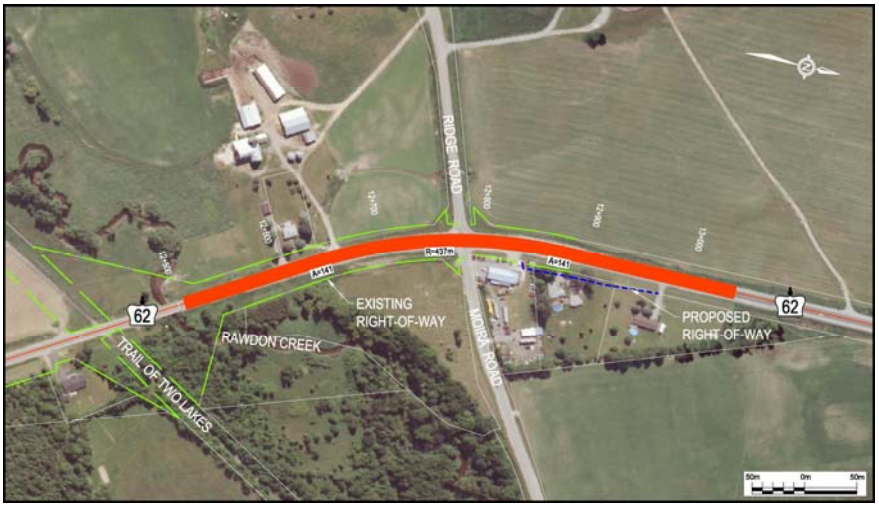
Screening of the Long List of Intersection Alternatives

Alternative		Advantages	Disadvantages	Comments
Alternative 6: Signalized Intersection and West Realignment of Highway 62 with a Flatter Curve (R=550m)		- Signalizing the intersection will enhance safety and operations: collisions involving left turning vehicles are expected to be reduced. - Improved geometry: the intersection will be on a tangent. This will improve sight distance and enhance driver safety and traffic operations. - Avoids potential displacement of two residences relative to Alternative 4.	- Significant property impact. - Bisects one farm property (Donnadale Farm Inc. west of Highway 62, north of the intersection) and impacts a significant area of Class 1-3 soils.	Alternative 6 results in significant displacement of agricultural lands and bisecting Donnadale Farm Inc. Given that Alternatives 1 to 3 provide similar transportation benefits with reduced property impacts, Alternative 6 is **not carried forward** for further study.

- Alternatives 1, 2 and 3 will be comparatively evaluated to determine a Technically Preferred Alternative.

Highway 62 and Moira/Ridge Road (Hastings Road 8) Intersection Improvements
Class Environmental Assessment & Preliminary Design Study

Alternative 1: Signalized Intersection and Minor East Realignment of Highway 62



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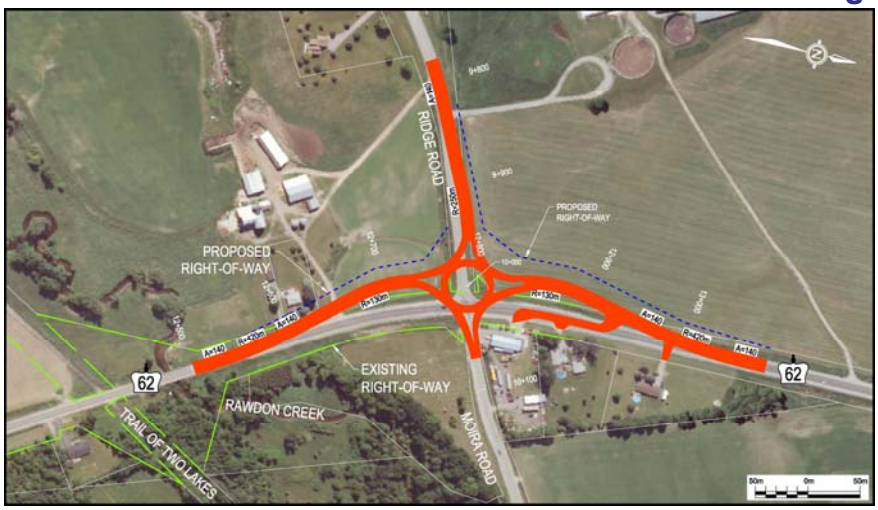
Alternative 2: Modern Roundabout and West Realignment of Highway 62



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Highway 62 and Moira/Ridge Road (Hastings Road 8) Intersection Improvements
Class Environmental Assessment & Preliminary Design Study

Alternative 3: Signalized Intersection and West Realignment of Highway 62 with a Flatter Curve (R=600m)

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Evaluation Approach and Criteria

A weighted-score arithmetic evaluation system will be used to compare the alternatives. This evaluation methodology involves assigning relative weightings to each of the evaluation categories and criteria based on their level of importance.

Impacts are measured either quantitatively or qualitatively, and then these scores are multiplied by the relative weight for that indicator. The weighted scores for each indicator are then summed to arrive at a total score for each alternative. The alternative that produces the highest total weighted score is preferred as it results in the best balance of benefits and impacts to the natural, socio-economic and cultural environments, as well as transportation and cost considerations.

The following is a list of the criteria to be used to evaluate the alternatives along with their relative weightings:

CATEGORY / Factor	Category Weight	Factor Weight
TRANSPORTATION AND COST		
Safety and Operations	45%	20%
Construction Staging		10%
Cost		15%
NATURAL ENVIRONMENT		
Fish and Fish Habitat	20%	5%
Terrestrial Habitat and Vegetation		5%
Species at Risk		5%
Groundwater		5%
SOCIO-ECONOMIC ENVIRONMENT		
Aesthetics	30%	1%
Noise		1%
Air Quality		1%
Community Effects (impacts to properties, i.e. disruption, displacement, access, etc.)		15%
Agricultural Operations		10%
Waste and Contamination		2%
CULTURAL ENVIRONMENT		
Archaeological Resources	5%	3%
Built Heritage Features and Cultural Heritage Landscapes		2%
TOTAL	100%	100%

Please provide your suggested weighting for each evaluation category.

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Highway 62 and Moira/Ridge Road (Hastings Road 8) Intersection Improvements
Class Environmental Assessment & Preliminary Design Study

Next Steps

The following activities will be undertaken following this PIC:

- **Respond to comments received at this PIC and incorporate them into the study where appropriate.**
- **Finalize the development of intersection alternatives.**
- **Assess and evaluate the intersection alternatives to select a Technically Preferred Alternative.**
- **Present the preliminary design of the Technically Preferred Alternative at PIC #2, which is anticipated to be held in the fall of 2013.**
- **Prepare a Transportation Environmental Study Report for public and agency review in late 2013.**

Consultation Throughout
(with Aboriginal Communities and all stakeholders – property owners, members of the public, municipalities, interest groups, agencies, etc.)

Thank you for attending.
Please feel free to ask questions and fill out a comment sheet before you leave.

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Freedom of Information and Protection of Privacy Act

Comments and information regarding this study are being collected to assist the Ministry of Transportation in meeting the requirements of the *Environmental Assessment Act*. This material will be maintained on file for use during the study and may be included in project documentation.

Information collected will be used 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.

You are encouraged to contact members of the Project Team if you have any questions or concerns regarding the above information.

Public Information Centre

HIGHWAY 62
MOIRA/RIDGE ROAD INTERSECTION IMPROVEMENTS
&
RAWDON CREEK STRUCTURE REPLACEMENT

Class Environmental Assessment and Preliminary Design Study
G.W.P. 4044-10-00

July 10, 2014

Please Sign In Here

Highway 62 and Moira/Ridge Road Intersection Improvements
Highway 62 Rawdon Creek Structure Replacement
Class Environmental Assessment & Preliminary Design Study

Purpose of This Public Information Centre

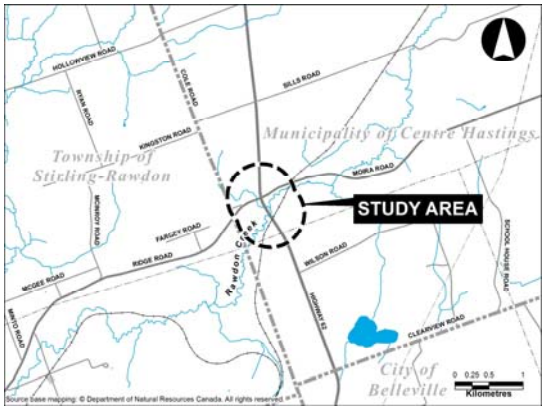
The purpose of this Public Information Centre (PIC) is to present and receive feedback on:

- **Study Area and Scope**
- **Overall Study Process**
- **Timing of Study Activities**
- **Overview of 2013 PIC held for the Intersection Improvement Study**
- **Evaluation of Intersection Improvement / Structure Replacement Alternatives**
- **Technically Preferred Alternative**
- **Proposed Mitigation Strategies**
- **Next Steps**

Your input on each of these and other study issues is important to us!

Study Area and Scope

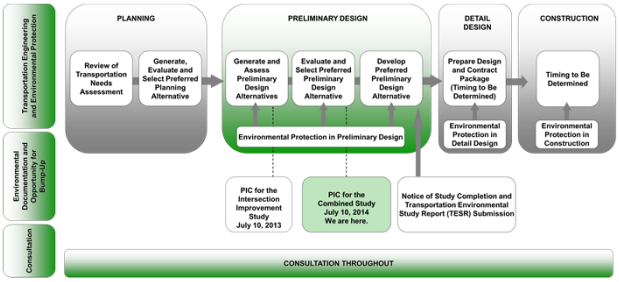
- The Ontario Ministry of Transportation (MTO) has retained URS Canada Inc. to undertake two separate Class Environmental Assessment and Preliminary Design Studies for improvements to the intersection of Highway 62 and Moira/Ridge Road, and for the replacement of the Rawdon Creek structure on Highway 62.
- Given the overlap in potential impacts associated with the alternatives being considered in both studies, the Project Team has determined that these studies should be combined to understand the overall impacts and facilitate the selection of the Technically Preferred Alternative.
- The purpose of this study is to improve the operational and safety conditions of the intersection at Highway 62 and Moira/Ridge Road and to examine structure replacement alternatives.



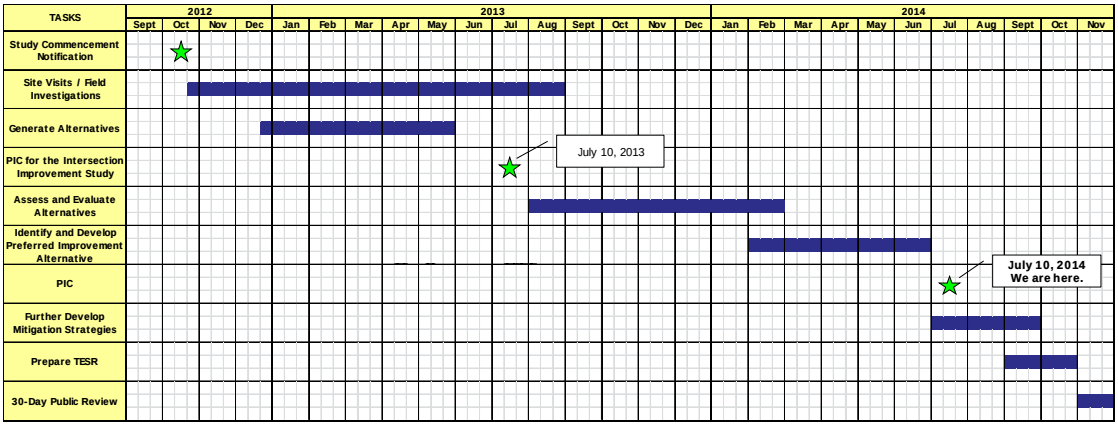
Highway 62 and Moira/Ridge Road Intersection Improvements
Highway 62 Rawdon Creek Structure Replacement
Class Environmental Assessment & Preliminary Design Study

Class EA Process for Group 'B' Projects

- The combined study will continue to follow the approved planning process for a Group 'B' project under the MTO *Class Environmental Assessment for Provincial Transportation Facilities* (2000).
- Stakeholder consultation is ongoing, including this PIC.
- A Transportation Environmental Study Report (TESR) will be prepared and made available for public review for a period of 30 days at the completion of the study.



Timing of Study Activities



** Schedule subject to change based on study findings and/or input received through consultation.*

Highway 62 and Moira/Ridge Road Intersection Improvements
Highway 62 Rawdon Creek Structure Replacement
Class Environmental Assessment & Preliminary Design Study

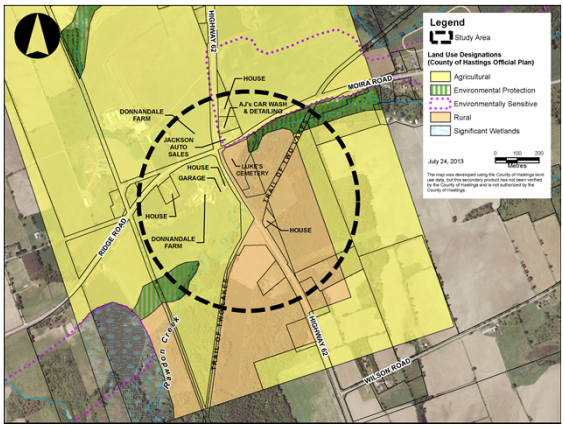
Overview of the PIC Held for the Intersection Improvement Study

- A PIC was held on July 10, 2013 for the Intersection Improvement Study at the Huntingdon Veterans Community Hall in Ivanhoe and was attended by 30 individuals.
- The PIC presented and sought input on the study area, scope and process, timing of study activities, existing conditions, need for improvements to the intersection, approach to and the evaluation of Alternatives to the Undertaking (including the evaluation criteria), and intersection improvement alternatives.
- Key issues and comments raised:

Comments	Project Team Response
Concerns regarding poor sight lines at the intersection.	The purpose of this project is to improve the operational and safety conditions (i.e. improving sight lines for drivers) at the intersection.
Suggestion to cut back embankment adjacent to cemetery and removal of roadside vegetation to improve visibility.	They are being considered as a potential short-term initiative to improve sight lines.
Inquiry about which alternative is safer from an operations perspective.	All alternatives enhance the safety and operations of the intersection to different degrees.
Suggestion to include / present construction cost in the evaluation.	Cost was taken into consideration in the assessment and evaluation of alternatives.
Concerns regarding impacts to residential and agricultural property.	Impacts to private properties will be minimized to the extent possible. Affected property owners will be compensated based on the fair market value, which is determined at the time of sale. Potentially affected property owners have been contacted to discuss the potential impacts of the Technically Preferred Alternative.
Suggestions to add left turn and right turn lanes without traffic signals.	Prior to the implementation of the ultimate plan for improving the intersection, interim improvements will be explored which may include widening to provide left turn lanes on Highway 62.
Need to improve the east leg of the intersection to allow for safe movement of large vehicles travelling from the east headed northbound on Highway 62.	Provision of adequate radii for large vehicles has been accounted for in the design of the Technically Preferred Alternative.
Concerns regarding truck traffic moving through the roundabout.	The roundabout alternative has been designed to accommodate agricultural and large vehicles.
Implementation of traffic signals will make it difficult for trucks to climb the hill south of the intersection due to stopping for red.	Timing of traffic signals will be further examined as part of this study and during the subsequent detail design phase of this project.
Suggestion for advanced warning signs / measures upstream of the signalized intersection.	Advanced warning signs are being considered as part of the Technically Preferred Alternative.
Inquiries regarding timing of construction.	Construction is subject to the availability of funding and provincial priorities. A construction schedule for this project has not been determined and will be examined subsequent to the completion of detail design.

Overview of Existing Environmental Conditions

- Rawdon Creek is a high sensitivity coldwater watercourse with warmwater species also present.
- A mixed forest community is located on the east side of Highway 62, surrounding Rawdon Creek.
- Soils are predominantly prime agricultural soils (Class 1-3). Donnandale Farm operates on both the north and south sides of Moira/Ridge Road on the west side of Highway 62.
- Several rural residences are located along Highway 62 to the north and south of Rawdon Creek.
- Commercial land uses within the study area include Jackson Auto Sales and former AJ's Car Wash and Detailing (northeast quadrant of the Highway 62 and Moira/Ridge Road intersection).
- The Trail of Two Lakes recreational and snowmobile trail is located to the south of Rawdon Creek.
- Luke's Cemetery (an important heritage feature) is located in the southeast quadrant of the intersection.



Highway 62 and Moira/Ridge Road Intersection Improvements
Highway 62 Rawdon Creek Structure Replacement
Class Environmental Assessment & Preliminary Design Study

Overview of Existing Transportation Conditions

- Highway 62 is a 2-lane undivided highway with a posted speed of 80 km/h through the study area.
- The current lane configuration at the intersection is a single lane on all approaches, except on the southbound approach of Highway 62, which has an exclusive right turn lane.
- The westbound and eastbound approaches on Moira/Ridge Road are under stop sign control.
- The Rawdon Creek Structure was constructed prior to 1934 and widened in 1934. It consists of a single span concrete T-beam (slab and girder) bridge with a span of 12.2 m and width of 9.2 m. The structure was rehabilitated in 1982 by replacing the open railing system with a concrete barrier wall.
- The existing structure accommodates one lane of traffic in each direction.


At the intersection looking west


Rawdon Creek Structure (Looking South)


Existing Structure over Rawdon Creek

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Alternatives to the Undertaking

Alternatives to the Undertaking are broad-based alternatives that represent fundamentally different ways of addressing future transportation needs.

Intersection Improvement

- Alternatives to the Undertaking for improvements to the intersection was presented at the July 2013 PIC, including:
  - **Do Nothing**
  - **Transportation Demand Management and Transportation Systems Management**
  - **Encourage the use of other modes of transportation (rail, transit, etc.)**
  - **Improvements to the Highway 62 and Moira/Ridge Road intersection**
  - **Encourage the greater use of the surrounding local roads**
- Improvements to the intersection have the potential to resolve the majority of the main operation and geometric deficiencies at the intersection. This alternative was carried forward for further study.

Structure Replacement

- Alternatives to the Undertaking for Rawdon Creek structure replacement considered include:
  - **Do Nothing**
  - **Rehabilitation**
  - **Replacement**
- The Rawdon Creek structure is over 79 years old and is in fair to poor condition. Given the age and condition of the Rawdon Creek structure, it is more cost effective to replace the structure than to rehabilitate it.

Highway 62 and Moira/Ridge Road Intersection Improvements
Highway 62 Rawdon Creek Structure Replacement
Class Environmental Assessment & Preliminary Design Study

Development of Alternatives

Intersection Improvement

- Six alternatives were developed to determine a short-list of alternatives that address the following problems and opportunities with manageable environmental impacts:

Problems	Opportunities
Intersection Operations and Safety ➢ Over the 5-year period between 2005 and 2009, there were 24 collisions recorded at or in the vicinity of the intersection. Out of the 24 collisions, six of them were intersection related.	➢ Signals will be warranted at the intersection in the near term. With the traffic signals in place, collisions involving left turning vehicles would be expected to be reduced. ➢ The introduction of exclusive left turn lanes on both northbound and southbound approaches on Highway 62 could minimize rear-end and turning collisions at the intersection.
Intersection Geometrics ➢ The existing intersection is on a horizontal curve, resulting in less desirable sight distances for westbound and northbound traffic approaching the intersection.	➢ Opportunity to slow down traffic approaching the intersection (which enhances safety) with a modern roundabout as an alternative to a signalized intersection. ➢ Opportunity to improve the vertical and horizontal alignment of Highway 62 through the intersection.

- A coarse level screening of the six alternatives was conducted to identify the relative advantages and disadvantages of each alternative.
- Three alternatives were carried forward for further assessment and evaluation.
- The screening of the long list of intersection improvement alternatives was presented at the PIC on July 10, 2013 and is also available at this PIC for reference.

Intersection Improvement Alternatives

Alternative 1:
Signalized Intersection

Alternative 2:
Modern Roundabout

Alternative 3:
Signalized Intersection with a Flatter Curve

LEGEND
PERMANENT PROPERTY REQUIREMENT

Highway 62 and Moira/Ridge Road Intersection Improvements
Highway 62 Rawdon Creek Structure Replacement
Class Environmental Assessment & Preliminary Design Study

Development of Alternatives

Structure Replacement

- Six alternatives were developed to determine a short-list of alternatives that address the need to replace the Rawdon Creek structure.
- A coarse level screening of the six alternatives was conducted to identify the relative advantages and disadvantages of each alternative.

Alternative	Carried Forward?
Alternative 1: 2-lane Detour	Yes
Alternative 2: 2-lane Permanent West Realignment	Yes
Alternative 3: 1-lane Permanent West Realignment	No – results in unacceptable traffic operations during construction
Alternative 4A: 1-lane Detour	No – results in unacceptable traffic operations during construction
Alternative 4B: 1-lane Detour with a 2.5 m Shoulder	No – results in unacceptable traffic operations during construction
Alternative 4C: 1-lane Detour with a Reduced Work Zone	Yes
Alternative 5: Short-Term Full Closure	No – results in unacceptable out-of-way travel during construction
Alternative 6: Detour / Permanent East Realignment	No – not possible to meet the minimum horizontal curve highway standard without significant property impact

- The screening of the long list of alternatives is available at this PIC for reference.

Structure Replacement Alternatives

Alternative 1:
2-lane Detour

Alternative 2:
2-lane Permanent
West Realignment

Alternative 4C:
1-lane Detour with a Reduced Work Zone

Highway 62 and Moira/Ridge Road Intersection Improvements
Highway 62 Rawdon Creek Structure Replacement
Class Environmental Assessment & Preliminary Design Study

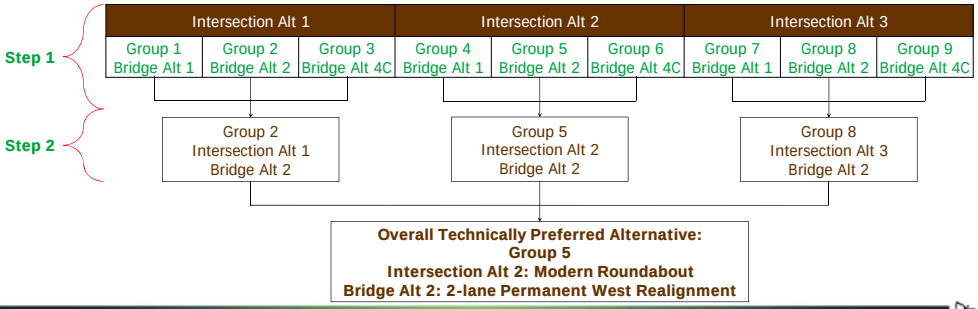
Evaluation Approach

- The assessment and evaluation of alternatives was based on both an Arithmetic (multi-attribute trade-off system) evaluation and a Reasoned Argument evaluation to explore the relative advantages and disadvantages of the alternatives.
- The table to the right is a list of the criteria that were used to evaluate the alternatives along with their relative weightings:

CATEGORY / Factor	Category Weight	Factor Weight
TRANSPORTATION	40%	
Safety and Operations		35%
Construction Staging		5%
COST	10%	
Cost		10%
NATURAL ENVIRONMENT	10%	
Fish and Fish Habitat		3%
Terrestrial Habitat and Vegetation		2.5%
Species at Risk		2.5%
Groundwater		2%
SOCIO-ECONOMIC ENVIRONMENT	35%	
Aesthetics		1%
Noise		1%
Air Quality		1%
Community Effects		16%
Agricultural Operations		15%
Waste and Contamination		1%
CULTURAL ENVIRONMENT	5%	
Archaeological Resources		2.5%
Built Heritage Features and Cultural Heritage Landscapes		2.5%

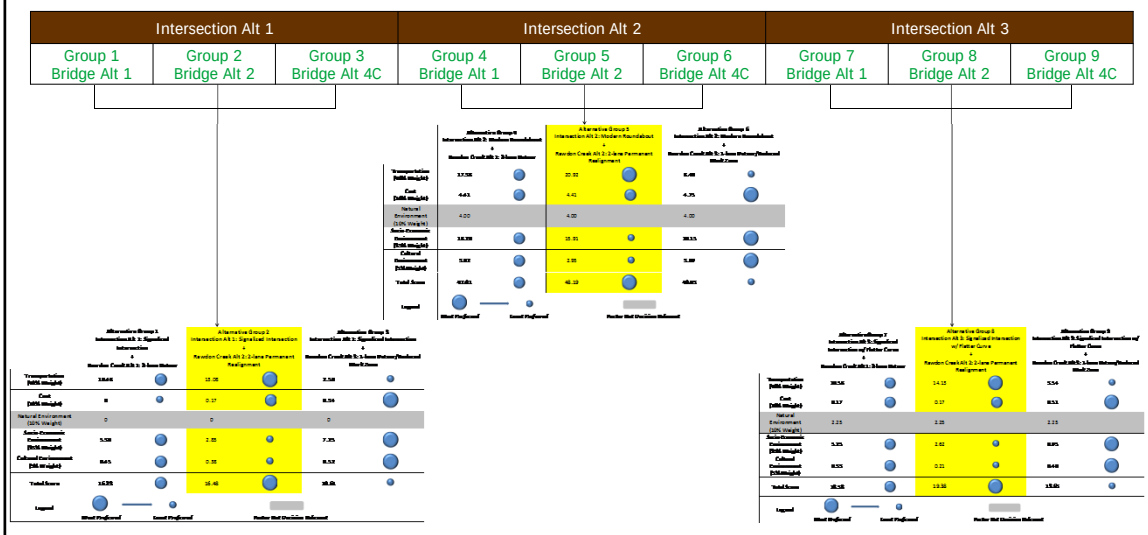
Evaluation Approach

- The three Highway 62 and Ridge/Moira Road intersection improvement alternatives and the three Highway 62 Rawdon Creek structure replacement alternatives were combined to develop nine paired groupings.
- A 2-step approach was undertaken to jointly evaluate the nine grouped alternatives:
  - **Step 1: Determine the best Rawdon Creek structure replacement alternative for each intersection improvement alternative. Alternative 2 (2-lane Permanent West Realignment) was identified as the best structure replacement alternative for all three intersection improvement alternatives.**
    - *A summary of the Step 1 evaluation is available at this PIC for reference.*
  - **Step 2: Evaluate the preferred alternative from each group of combined intersection improvement / structure replacement alternatives to determine an Overall Technically Preferred Alternative.**
    - *A summary of the Steps 1 and 2 evaluation is presented on the following displays.*



Highway 62 and Moira/Ridge Road Intersection Improvements
Highway 62 Rawdon Creek Structure Replacement
Class Environmental Assessment & Preliminary Design Study

Evaluation of Alternatives – Step 1



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Evaluation of Alternatives – Step 2

Group 2
Intersection Alt 1
Bridge Alt 2

Group 5
Intersection Alt 2
Bridge Alt 2

Group 8
Intersection Alt 3
Bridge Alt 2

	Alternative Group 2 Intersection Alt 1: Signalized Intersection + Rawdon Creek Alt 2: 2-lane Permanent Realignment		Alternative Group 5 Intersection Alt 2: Modern Roundabout + Rawdon Creek Alt 2: 2-lane Permanent Realignment		Alternative Group 8 Intersection Alt 3: Signalized Intersection w/ Flatter Curve + Rawdon Creek Alt 2: 2-lane Permanent Realignment	
Transportation (40% Weight)	13.08		20.92		14.13	
Cost (10% Weight)	0.17		4.41		0.17	
Natural Environment (10% Weight)	0		4.00		2.25	
Socio-Economic Environment (35% Weight)	2.85		15.91		2.62	
Cultural Environment (5% Weight)	0.38		2.95		0.21	
Total Score	16.48		48.19		19.38	
Legend	*Most Preferred* → *Least Preferred*		*Factor Not Decision Relevant*			

Highway 62 and Moira/Ridge Road Intersection Improvements
Highway 62 Rawdon Creek Structure Replacement
Class Environmental Assessment & Preliminary Design Study

Evaluation of Alternatives – Step 2

- At the Highway 62 Rawdon Creek bridge, all three group alternatives provide similar transportation benefits (2-lane Permanent West Realignment) and result in similar permanent impacts to residential and agricultural lands west of Highway 62, north of Rawdon Creek.
- Although Group 2 (Signalized Intersection) results in similar property impacts and construction cost relative to Group 8 (Signalized Intersection with a Flatter Curve), Group 2 is less preferred for the following reasons:
  - **Intersection modifications provide no significant geometric improvements to address the existing sight distance issue on Highway 62; and**
  - **Results in the greatest displacement of the Fresh Deciduous Forest in the southeast quadrant of the intersection.**
- As such, Group 2 is the least preferred.

Evaluation of Alternatives – Step 2

- Although Group 8 results in improvements to sight distances for drivers approaching the intersection and enhances safety due to a flatter curve, these improvements are outweighed by the following transportation benefits associated with Group 5 (Modern Roundabout):
  - **Roundabouts reduce the number of conflict points where collisions can occur and the severity of collisions as they control the speed of vehicles entering the intersection.**
  - **Roundabouts provide speed consistency through the intersection and can increase capacity and efficiency.**
  - **Although a roundabout provides no significant geometric improvements to Highway 62, the line of sight is not an issue with a roundabout and is therefore an improvement relative to the existing conditions, as well as to the sight distance benefits provided by Group 8.**
- In addition, Group 5 is significantly less expensive to construct relative to Group 8. Group 5 also avoids the displacement of Jackson Auto Sales (which is displaced by Group 8) and avoids impact to farmland in the northeast quadrant relative to Group 8.
- Group 5 also results in negligible impacts to the St. Luke's Cemetery in the southeast quadrant, whereas with Group 8, the entrance to the cemetery will have to be reconstructed at the west end of the property near the intersection and the entrance to the east will need to be closed.
- **As such, Group 5 is the overall Technically Preferred Alternative.**

Highway 62 and Moira/Ridge Road Intersection Improvements
Highway 62 Rawdon Creek Structure Replacement
Class Environmental Assessment & Preliminary Design Study

Summary of Technically Preferred Alternative

The Technically Preferred Alternative includes:

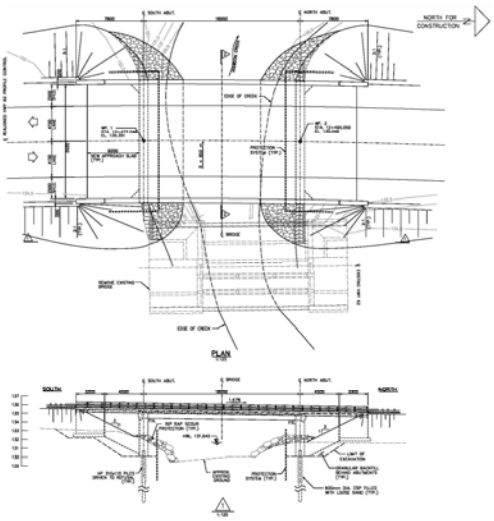
Interim Improvements

- Replacing the existing Highway 62 Rawdon Creek structure to the west of the existing alignment.
- The cross-section of the new Rawdon Creek structure is composed of two barrier walls, two 2.5 m shoulders, and two 4.15 m traffic lanes. The shoulders and lanes will tie into the existing lanes and shoulders along Highway 62.
- Profile improvements on Highway 62.
- Re-grading of the Trail of Two Lakes crossing at Highway 62.
- Minor intersection improvements may be considered prior to implementing the ultimate improvements, including:
  - **Vegetation removals within the Highway 62 right-of-way to enhance intersection visibility.**
  - **Review placement of signs to ensure they meet current standards.**

Ultimate Intersection Improvements

- Introducing a modern roundabout at the Highway 62 and Moira/Ridge Road intersection.
- Minor alignment revisions to Highway 62 and Moira Road/Ridge Road.
- Improvements to intersection sight distances.
- Installation of new concrete islands with curb and gutter on roundabout approaches.
- New service road and property access modifications.

Interim Improvements at Rawdon Creek Structure



Highway 62 and Moira/Ridge Road Intersection Improvements
Highway 62 Rawdon Creek Structure Replacement
Class Environmental Assessment & Preliminary Design Study

Technically Preferred Alternative

** The Rawdon Creek structure is to be built as an interim improvement.*

Proposed Mitigation Strategies

The following measures are proposed to minimize and/or address potential environmental impacts associated with the interim improvements at Rawdon Creek and/or the ultimate intersection improvements:

ENVIRONMENTAL EFFECTS	PROPOSED MITIGATION STRATEGIES
Construction Noise	Standard measures to address construction related noise will be employed.
Sediment and Erosion Control	Standard erosion and sediment control measures will be developed further in detail design.
Protection and Restoration of Vegetation	Significant trees and shrubs will be retained where possible. Landscaping will be considered to protect / enhance roadside vegetated areas. Tree protection fencing will be installed to contain vegetation removals required within the future Right-of-Way.
Air Quality	Various standard mitigation measures for dust control during construction will be examined during detail design and employed during construction to minimize adverse air quality effects.
Fisheries and Fish Habitat (at Rawdon Creek)	Standard measures for watercourse protection will be applied. Details of mitigation measures will be confirmed / developed during detail design. No in-water works are anticipated, however if required to facilitate bridge removal these works will not be undertaken during the restricted timing for coldwater fisheries (Oct 1 – Jun 30).
Wildlife / Species at Risk	Field investigations will be undertaken during detail design / prior to construction to confirm if Snapping Turtles are present in this section of Rawdon Creek. In the event that Snapping Turtles are identified, no in-water works will be undertaken during the turtle nesting period (May 15 – June 30 of any year) or when turtles may be hibernating (Oct 15 – April 15 of any year). The need for approvals under the *Endangered Species Act* including the need for habitat management and compensation measures will be determined through consultation with the Ministry of Natural Resources during the detail design process.
Relocation of Utilities	Discussion with utility companies regarding utility relocations is ongoing.

Highway 62 and Moira/Ridge Road Intersection Improvements
Highway 62 Rawdon Creek Structure Replacement
Class Environmental Assessment & Preliminary Design Study

Proposed Mitigation Strategies

ENVIRONMENTAL EFFECTS	PROPOSED MITIGATION STRATEGIES
Impact on Archaeological Resources	The appropriate agencies / authorities will be notified in the event that deeply buried archaeological resources are encountered during construction activities.
Built Heritage Feature (Luke's Cemetery at the intersection)	An archaeological assessment will be undertaken to assess potential impacts to the cemetery lands and burial plots. The Centre Hastings Cemetery Board will be consulted regarding any works on cemetery property.
Impacts to Traffic	Traffic will be maintained during construction. A preliminary construction staging plan will be developed as part of this study and further defined during detail design.
Property Impacts	Compensation will be provided for temporary and permanent property requirements, which is based on the market value of the property.
Accommodating Agricultural Equipment and Large Commercial Vehicles	The design of the Technically Preferred Alternative incorporates adequate geometry to accommodate agricultural equipment and commercial traffic that travels through the intersection.
Accommodating Slow Moving Vehicles (i.e. Amish Traffic)	All road users are accommodated on the structure and in the roundabout (slow moving vehicles would be in mixed traffic in the roundabout).
Contamination	Phase 1 and 2 Site Assessment will be undertaken during detail design on any lands required for the construction of the Technically Preferred Alternative in areas that may exhibit contamination potential.

Next Steps

The following activities will be undertaken following this PIC:

- **Respond to comments received and incorporate them into the study where appropriate.**
- **Finalize the preliminary design of the Technically Preferred Alternative, assessment of impacts and mitigation measures.**
- **Prepare a Transportation Environmental Study Report (TESR) and place the TESR on the public record for a 30-day review period in late 2014.**
- **Advertise the Notice of TESR Submission in local newspapers and by mailing to individuals on the project mailing list.**
- After completion of this preliminary design study, a separate detail design study will be undertaken to finalize the design details and prepare a contract package for construction, and will include additional public consultation. The timing for a future detail design study has not been determined.

Consultation Throughout

(with all stakeholders – Aboriginal Communities, property owners, members of the public, municipalities, interest groups, agencies, etc.)

Thank you for attending.
Please feel free to ask questions and fill out a comment sheet before you leave.

Highway 62 and Moira/Ridge Road Intersection Improvements
Highway 62 Rawdon Creek Structure Replacement
Class Environmental Assessment & Preliminary Design Study

Freedom of Information and Protection of Privacy Act

Comments and information regarding this study are being collected to assist the Ministry of Transportation in meeting the requirements of the *Environmental Assessment Act*. This material will be maintained on file for use during the study and may be included in project documentation.

Information collected will be used 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.

You are encouraged to contact members of the Project Team if you have any questions or concerns regarding the above information.

APPENDIX C

Nine Exclusive Pairing of Alternatives

PRELIMINARY/ DRAFT

LEGEND

- TEMPORARY TWO-LANE DETOUR
- EXISTING MTO RIGHT-OF-WAY
- PROPOSED RIGHT-OF-WAY
- TEMPORARY PROPERTY REQUIREMENT
- RETAINING WALL

RIDGE ROAD
R=340m
9+800
9+900
PROPOSED RIGHT-OF-WAY
GEOGRAPHIC Twp OF HUNTINGDON
Co OF HASTINGS
CON 3 LOT 1
HIGHWAY 62
10+000
12+700
13+000
13+100
12+900
10+100
12+800
R=450m
TEMPORARY PROPERTY REQUIREMENT
R=437m
12+600
12+700
RECONSTRUCT CEMETERY ENTRANCE
TEMPORARY STRUCTURE
12+500
1.5m
12+600
RAWDON CREEK
RETAINING WALL
MOIRA ROAD
10+200
PROPOSED RIGHT-OF-WAY
12+400
TEMPORARY TWO-LANE DETOUR
FUTURE STRUCTURE
12+500
10+300
12+300
TRAIL OF TWO LAKES
R=420m
12+400
EXISTING RIGHT-OF-WAY
12+200
HIGHWAY 62
12+300
10+398

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HIGHWAY 62
RAWDON CREEK STRUCTURE REPLACEMENT &
MOIRA ROAD / RIDGE ROAD INTERSECTION IMPROVEMENTS
GWP 4044-10-00

HIGHWAY 62 - PLAN
INTERSECTION IMPROVEMENT ALTERNATIVE 1
SIGNALIZED INTERSECTION WIDENED EAST
RAWDON CREEK STRUCTURE REPLACEMENT ALTERNATIVE 1
TWO-LANE DETOUR WEST OF HIGHWAY 62

50m 0m 50m

DATE: January 13, 2014

DWG 1-1A

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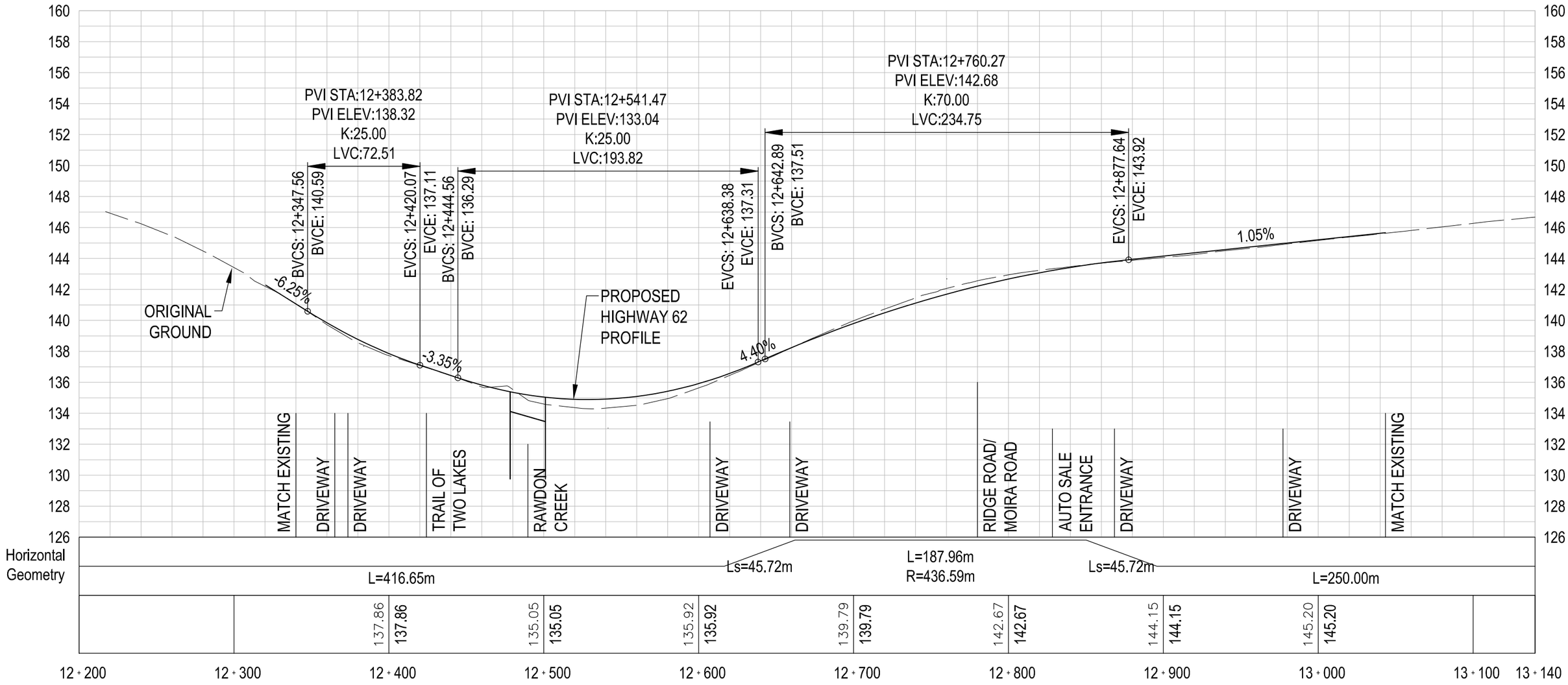
PRELIMINARY/
DRAFT



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HIGHWAY 62
RAWDON CREEK STRUCTURE REPLACEMENT &
MOIRA ROAD / RIDGE ROAD INTERSECTION IMPROVEMENTS
GWP 4044-10-00

HIGHWAY 62 - PROFILE
INTERSECTION IMPROVEMENT ALTERNATIVE 1
SIGNALIZED INTERSECTION WIDENED EAST
RAWDON CREEK STRUCTURE REPLACEMENT ALTERNATIVE 1
TWO-LANE DETOUR WEST OF HIGHWAY 62

50m 0m 50m

DATE:
January 13, 2014

DWG
1-1B

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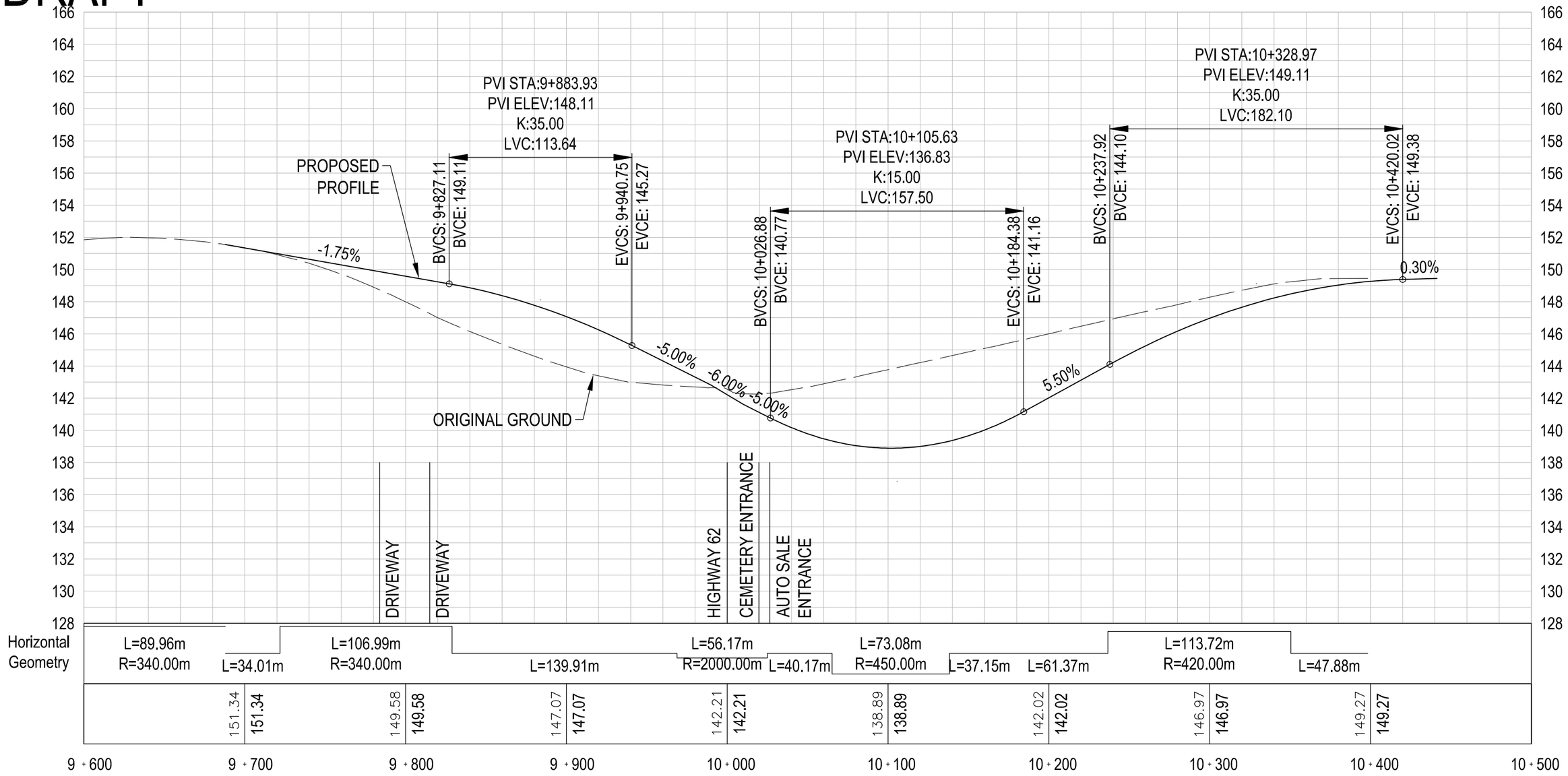

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HIGHWAY 62
RAWDON CREEK STRUCTURE REPLACEMENT &
MOIRA ROAD / RIDGE ROAD INTERSECTION IMPROVEMENTS
GWP 4044-10-00

RIDGE ROAD/ MOIRA ROAD - PROFILE
INTERSECTION IMPROVEMENT ALTERNATIVE 1
SIGNALIZED INTERSECTION WIDENED EAST
RAWDON CREEK STRUCTURE REPLACEMENT ALTERNATIVE 1
TWO-LANE DETOUR WEST OF HIGHWAY 62

50m 0m 50m

DATE:
January 13, 2014

DWG
1-1C

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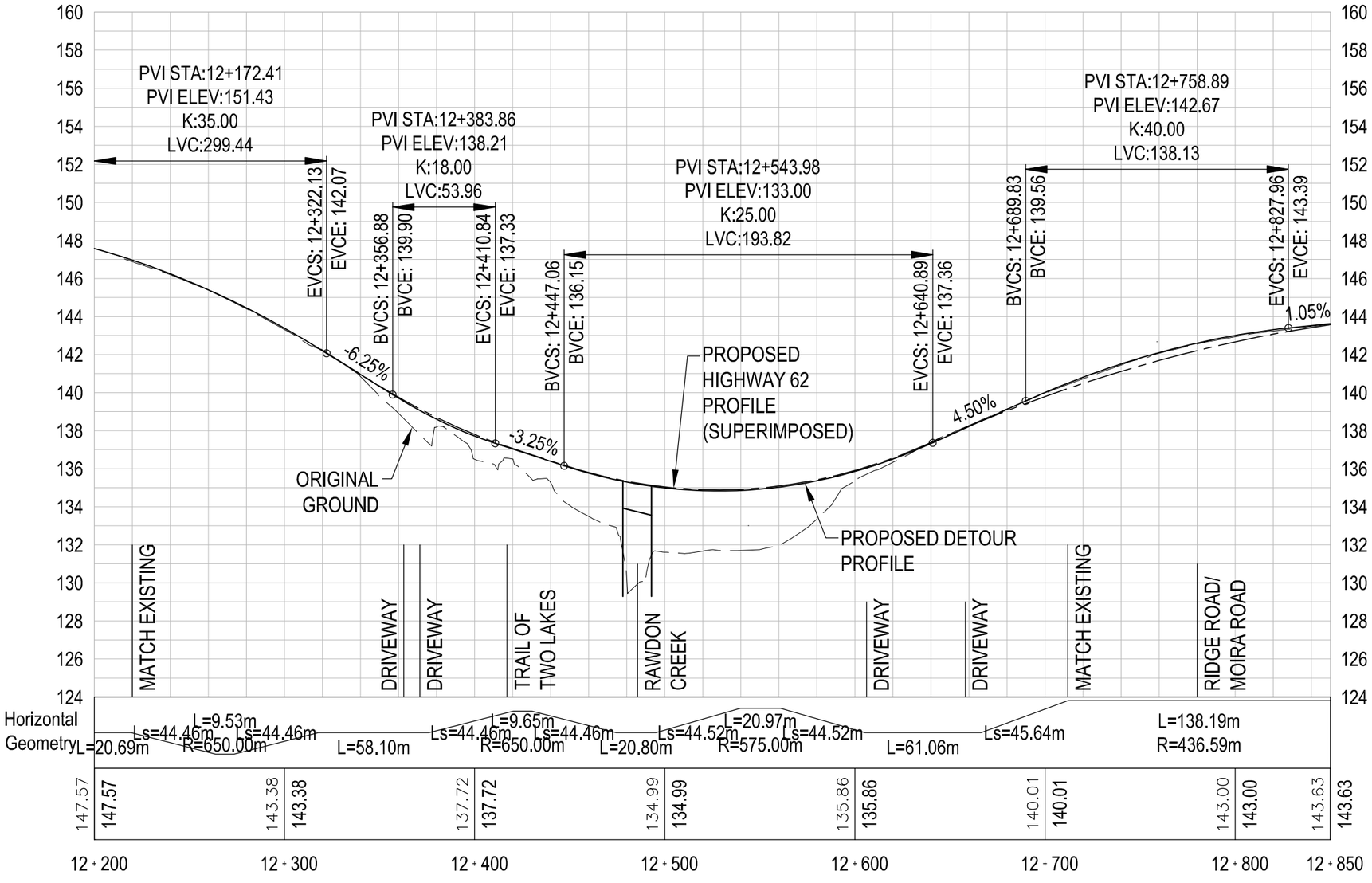
DRAFT



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HIGHWAY 62
RAWDON CREEK STRUCTURE REPLACEMENT &
MOIRA ROAD / RIDGE ROAD INTERSECTION IMPROVEMENTS
GWP 4044-10-00

HIGHWAY 62 DETOUR - PROFILE
INTERSECTION IMPROVEMENT ALTERNATIVE 1
SIGNALIZED INTERSECTION WIDENED EAST
RAWDON CREEK STRUCTURE REPLACEMENT ALTERNATIVE 1
TWO-LANE DETOUR WEST OF HIGHWAY 62

50m 0m 50m

DATE:
January 13, 2014

DWG
1-1D

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PRELIMINARY/ DRAFT

LEGEND

- EXISTING MTO RIGHT-OF-WAY
- PROPOSED RIGHT-OF-WAY
- RETAINING WALL

RIDGE ROAD
R=340m
9+800
PROPOSED RIGHT-OF-WAY
9+900
GEOGRAPHIC Twp OF HUNTINGDON Co OF HASTINGS
CON 3 LOT 1
12+800
12+900
13+000
13+100
12+700
10+000
HIGHWAY 62
PROPOSED RIGHT-OF-WAY
12+600
R=437m
10+100
12+500
FUTURE STRUCTURE
RECONSTRUCT CEMETERY ENTRANCE
R=450m
12+400
R=850m
RAWDON CREEK
RETAINING WALL
MOIRA ROAD
10+200
PROPOSED RIGHT-OF-WAY
12+300
TRAIL OF TWO LAKES
10+300
12+200
R=1800m
HIGHWAY 62
LOT 2 CON 2
EXISTING RIGHT-OF-WAY
R=420m
12+103
10+398

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HIGHWAY 62
RAWDON CREEK STRUCTURE REPLACEMENT &
MOIRA ROAD / RIDGE ROAD INTERSECTION IMPROVEMENTS
GWP 4044-10-00

HIGHWAY 62 - PLAN
INTERSECTION IMPROVEMENT ALTERNATIVE 1
SIGNALIZED INTERSECTION WIDENED EAST
RAWDON CREEK STRUCTURE REPLACEMENT ALTERNATIVE 2
TWO-LANE PERMANENT REALIGNMENT WEST OF HIGHWAY 62

50m 0m 50m

DATE:
January 13, 2014

DWG
1-2A

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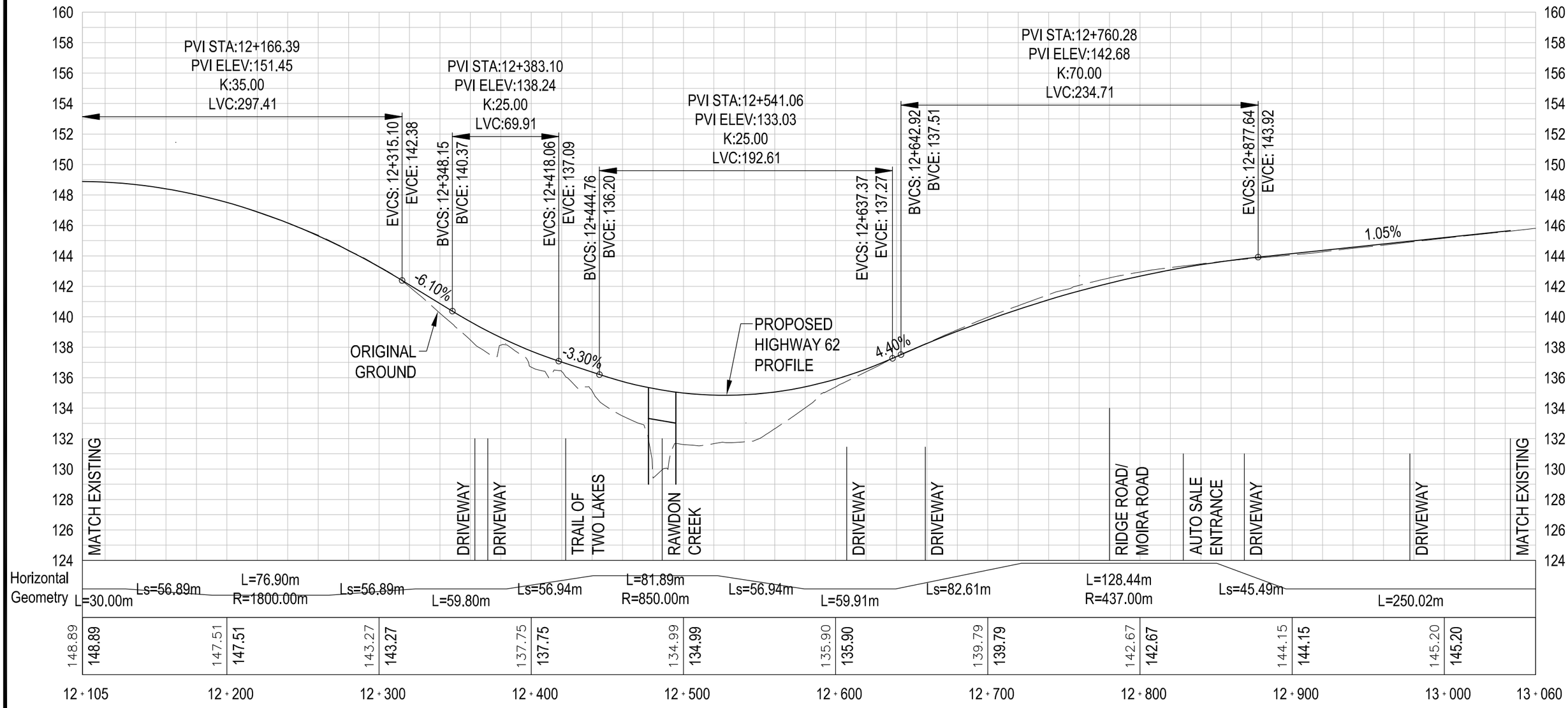

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HIGHWAY 62
RAWDON CREEK STRUCTURE REPLACEMENT &
MOIRA ROAD / RIDGE ROAD INTERSECTION IMPROVEMENTS
GWP 4044-10-00

HIGHWAY 62 - PROFILE
INTERSECTION IMPROVEMENT ALTERNATIVE 1
SIGNALIZED INTERSECTION WIDENED EAST
RAWDON CREEK STRUCTURE REPLACEMENT ALTERNATIVE 2
TWO-LANE PERMANENT REALIGNMENT WEST OF HIGHWAY 62

50m 0m 50m

DATE:
January 13, 2014

DWG
1-2B

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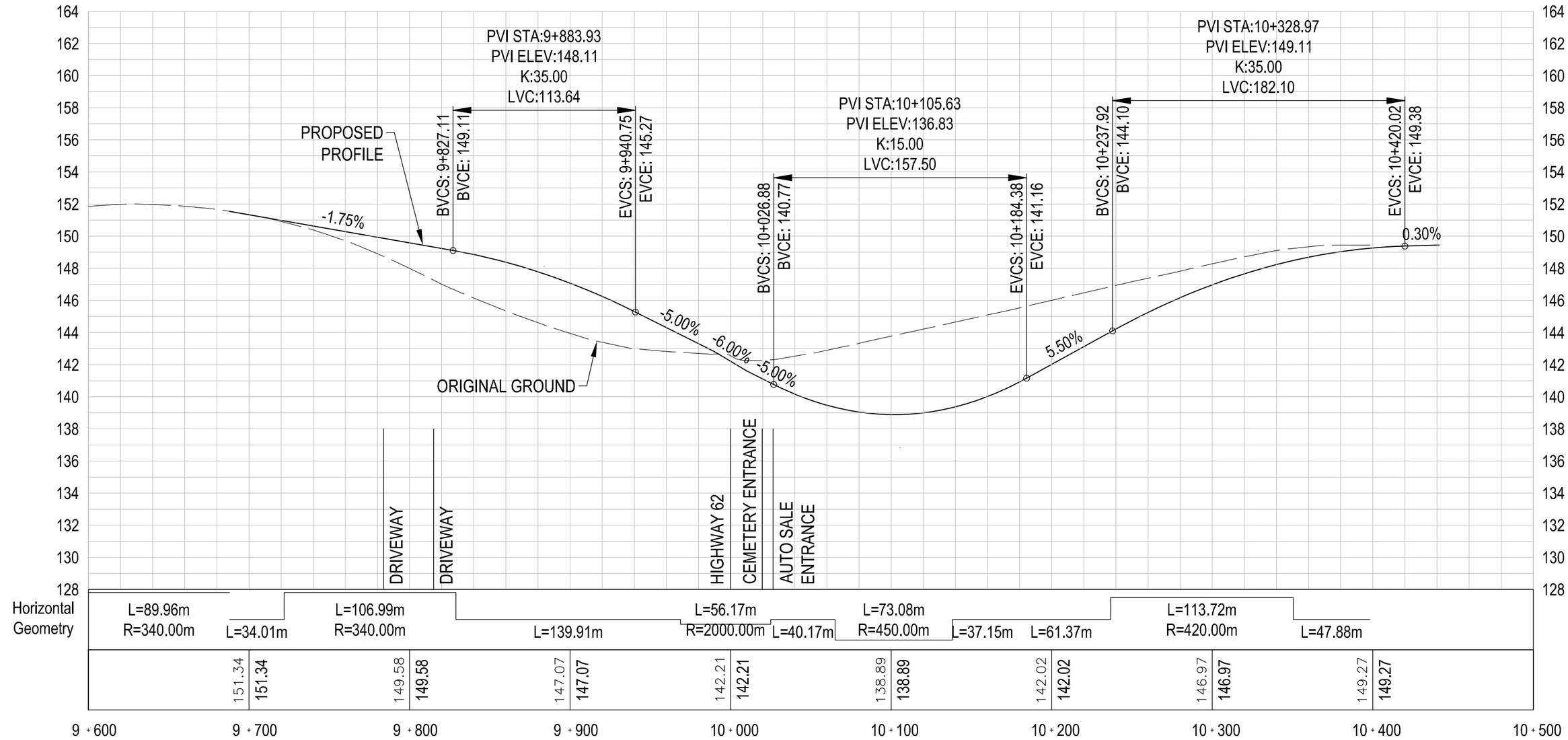
PRELIMINARY/
DRAFT



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HIGHWAY 62
RAWDON CREEK STRUCTURE REPLACEMENT &
MOIRA ROAD / RIDGE ROAD INTERSECTION IMPROVEMENTS
GWP 4044-10-00

RIDGE ROAD/ MOIRA ROAD - PROFILE
INTERSECTION IMPROVEMENT ALTERNATIVE 1
SIGNALIZED INTERSECTION WIDENED EAST
RAWDON CREEK STRUCTURE REPLACEMENT ALTERNATIVE 2
TWO-LANE PERMANENT REALIGNMENT WEST OF HIGHWAY 62

50m 0m 50m

DATE:
January 13, 2014

DWG
1-2C

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PRELIMINARY/ DRAFT

LEGEND

- TEMPORARY TWO-LANE DETOUR
- EXISTING MTO RIGHT-OF-WAY
- PROPOSED RIGHT-OF-WAY
- TEMPORARY PROPERTY REQUIREMENT
- RETAINING WALL

RIDGE ROAD
R=340m
9+800
9+900
PROPOSED RIGHT-OF-WAY
CON 3 LOT 1
10+000
HIGHWAY 62
12+700
R=437m
12+600
TEMPORARY PROPERTY REQUIREMENT
12+800
R=450m
13+000
13+100
12+900
10+100
RECONSTRUCT CEMETERY ENTRANCE
TEMPORARY STRUCTURE
12+500
RAWDON CREEK
10+200
RETAINING WALL
PROPOSED RIGHT-OF-WAY
MOIRA ROAD
TEMPORARY ONE-LANE DETOUR
12+400
FUTURE STRUCTURE
12+500
10+300
R=420m
12+300
TRAIL OF TWO LAKES
LOT 2 CON 2
EXISTING RIGHT-OF-WAY
HIGHWAY 62
12+300
10+398

Ontario
Ministry of Transportation

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HIGHWAY 62
RAWDON CREEK STRUCTURE REPLACEMENT &
MOIRA ROAD / RIDGE ROAD INTERSECTION IMPROVEMENTS
GWP 4044-10-00

HIGHWAY 62 - PLAN
INTERSECTION IMPROVEMENT ALTERNATIVE 1
SIGNALIZED INTERSECTION WIDENED EAST
RAWDON CREEK STRUCTURE REPLACEMENT ALTERNATIVE 4
ONE-LANE DETOUR WEST OF HIGHWAY 62

50m 0m 50m

DATE:
January 13, 2014

DWG
1-3A

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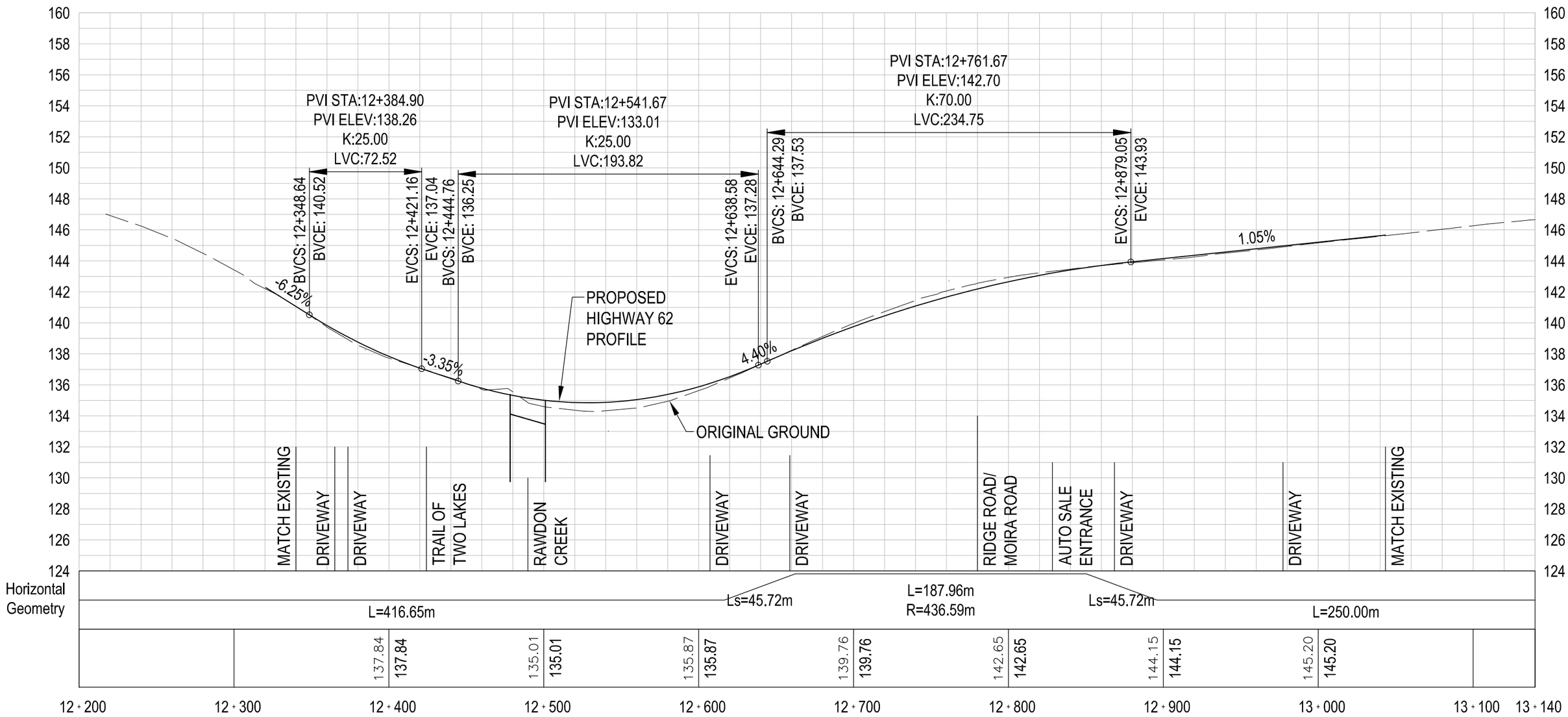

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HIGHWAY 62
RAWDON CREEK STRUCTURE REPLACEMENT &
MOIRA ROAD / RIDGE ROAD INTERSECTION IMPROVEMENTS
GWP 4044-10-00

HIGHWAY 62 - PROFILE
INTERSECTION IMPROVEMENT ALTERNATIVE 1
SIGNALIZED INTERSECTION WIDENED EAST
RAWDON CREEK STRUCTURE REPLACEMENT ALTERNATIVE 4
ONE-LANE DETOUR WEST OF HIGHWAY 62

50m 0m 50m

DATE:
January 13, 2014

DWG
1-3B

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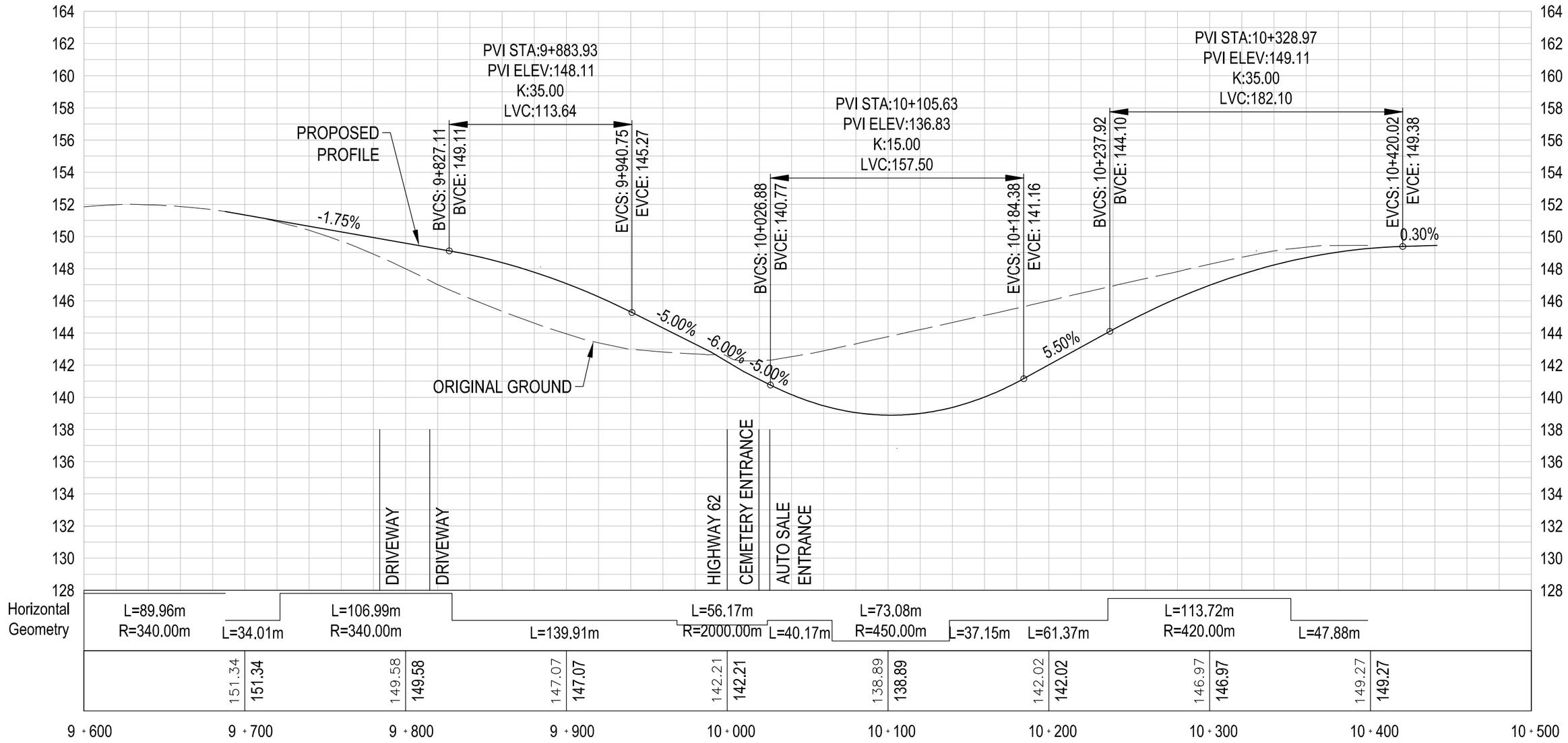

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HIGHWAY 62
RAWDON CREEK STRUCTURE REPLACEMENT &
MOIRA ROAD / RIDGE ROAD INTERSECTION IMPROVEMENTS
GWP 4044-10-00

RIDGE ROAD/ MOIRA ROAD - PROFILE
INTERSECTION IMPROVEMENT ALTERNATIVE 1
SIGNALIZED INTERSECTION WIDENED EAST
RAWDON CREEK STRUCTURE REPLACEMENT ALTERNATIVE 4
ONE-LANE DETOUR WEST OF HIGHWAY 62

50m 0m 50m

DATE:
January 13, 2014

DWG
1-3C

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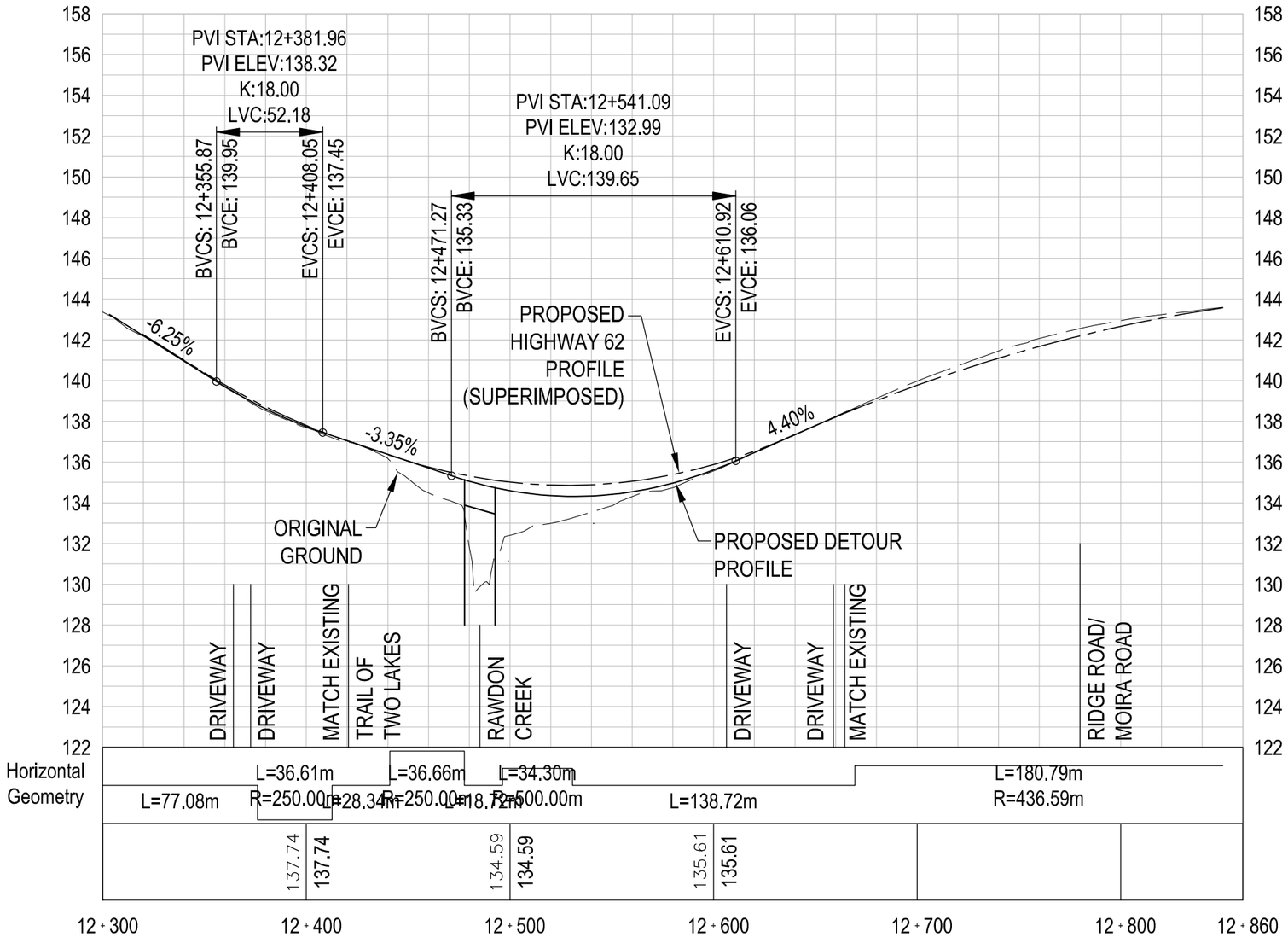
PRELIMINARY/
DRAFT



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HIGHWAY 62
RAWDON CREEK STRUCTURE REPLACEMENT &
MOIRA ROAD / RIDGE ROAD INTERSECTION IMPROVEMENTS
GWP 4044-10-00

HIGHWAY 62 DETOUR - PROFILE
INTERSECTION IMPROVEMENT ALTERNATIVE 1
SIGNALIZED INTERSECTION WIDENED EAST
RAWDON CREEK STRUCTURE REPLACEMENT ALTERNATIVE 4
ONE-LANE DETOUR WEST OF HIGHWAY 62

50m 0m 50m

DATE:
January 13, 2014

DWG
1-3D

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PLOTDATE: Jan 15, 2014 - 2:11pm

PRELIMINARY/ DRAFT

LEGEND

- TEMPORARY TWO-LANE DETOUR
- EXISTING MTO RIGHT-OF-WAY
- PROPOSED RIGHT-OF-WAY
- TEMPORARY PROPERTY REQUIREMENT

GEOGRAPHIC Twp OF HUNTINGDON
Co OF HASTINGS

RIDGE ROAD
R=340m
9+800
9+900
PROPOSED RIGHT-OF-WAY
R=420m
10+000
R=130m
R=420m
HIGHWAY 62
12+700
12+800
12+900
13+000
13+100
10+100
PROPOSED RIGHT-OF-WAY
TEMPORARY PROPERTY REQUIREMENT
12+600
12+700
CEMETERY ENTRANCE
R=450m
10+196
TEMPORARY STRUCTURE
12+500
12+600
RAWDON CREEK
MOIRA ROAD
12+400
FUTURE STRUCTURE
12+500
TEMPORARY TWO-LANE DETOUR
12+300
TRAIL OF TWO LAKES
12+400
EXISTING RIGHT-OF-WAY
12+200
HIGHWAY 62
12+300

Ontario
Ministry of Transportation

URS

HIGHWAY 62
RAWDON CREEK STRUCTURE REPLACEMENT &
MOIRA ROAD / RIDGE ROAD INTERSECTION IMPROVEMENTS
GWP 4044-10-00

HIGHWAY 62 - PLAN
INTERSECTION IMPROVEMENT ALTERNATIVE 2
MODERN ROUNDABOUT
RAWDON CREEK STRUCTURE REPLACEMENT ALTERNATIVE 1
TWO-LANE DETOUR WEST OF HIGHWAY 62

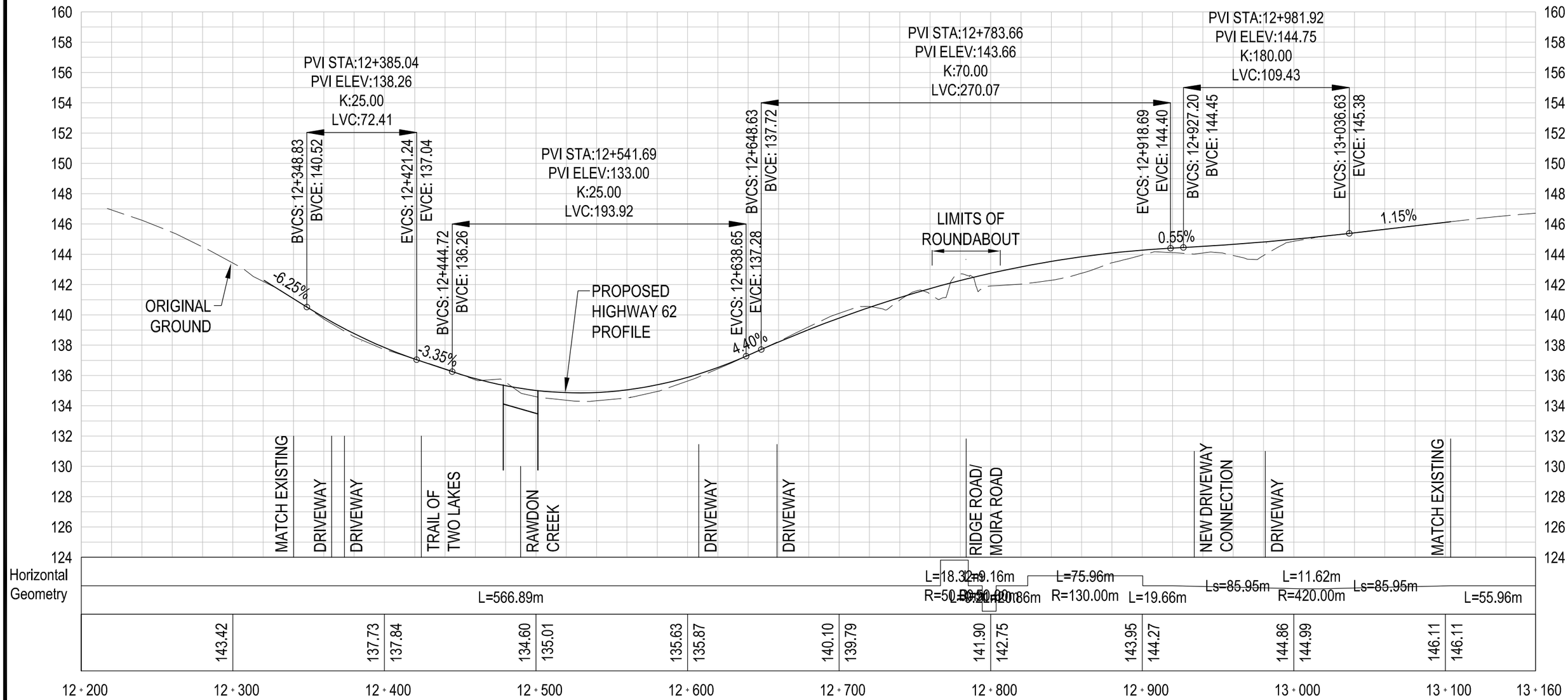
50m 0m 50m

DATE:
January 13, 2014

DWG
2-1A

FILENAME: C:\Projects\1-33016828-Hwy62&Hwy35Bridges\10_Hwy_Eng\02_CADD\Hwy62_Rawdon Creek_Intersection\Working Dwgs\Intersection Alt2_Creek Alt1.dwg
PLOTDATE: Jan 16, 2014 - 11:43am

PRELIMINARY/
DRAFT



Ontario
Ministry of Transportation

URS

HIGHWAY 62
RAWDON CREEK STRUCTURE REPLACEMENT &
MOIRA ROAD / RIDGE ROAD INTERSECTION IMPROVEMENTS
GWP 4044-10-00

HIGHWAY 62 - PROFILE
INTERSECTION IMPROVEMENT ALTERNATIVE 2
MODERN ROUNDABOUT
RAWDON CREEK STRUCTURE REPLACEMENT ALTERNATIVE 1
TWO-LANE DETOUR WEST OF HIGHWAY 62

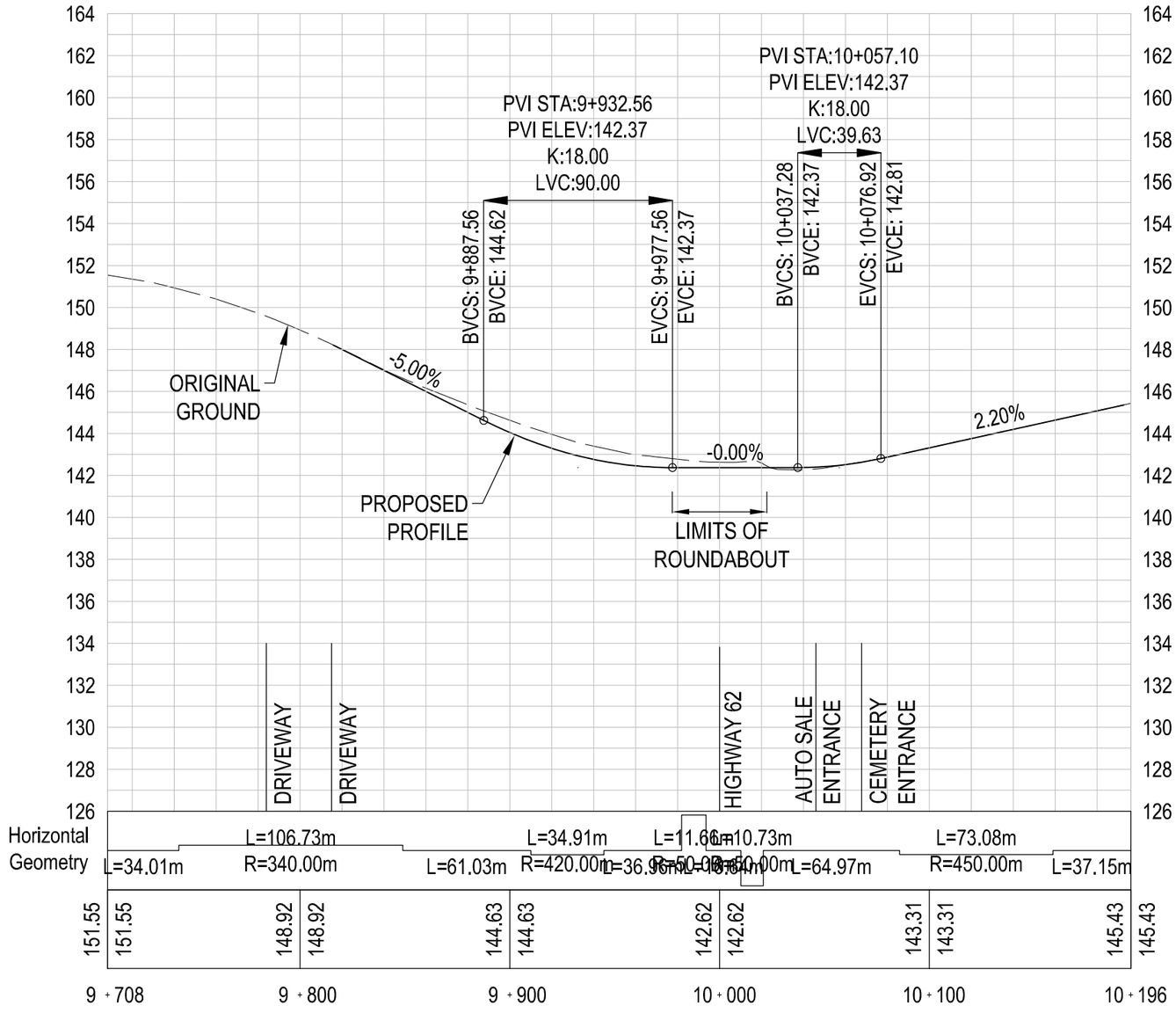
50m 0m 50m

DATE:
January 13, 2014

DWG
2-1B

FILENAME: C:\Projects\1-33016828-Hwy62&Hwy35Bridges\10_Hwy_Eng\02_CADD\Hwy62_Rawdon Creek_Intersection\Working Dwgs\Intersection Alt2_Creek Alt1.dwg
PLOTDATE: Jan 16, 2014 - 11:46am

PRELIMINARY/ DRAFT



Ontario
Ministry of Transportation

URS

HIGHWAY 62
RAWDON CREEK STRUCTURE REPLACEMENT &
MOIRA ROAD / RIDGE ROAD INTERSECTION IMPROVEMENTS
GWP 4044-10-00

RIDGE ROAD/ MOIRA ROAD - PROFILE
INTERSECTION IMPROVEMENT ALTERNATIVE 2
MODERN ROUNDABOUT
RAWDON CREEK STRUCTURE REPLACEMENT ALTERNATIVE 1
TWO-LANE DETOUR WEST OF HIGHWAY 62

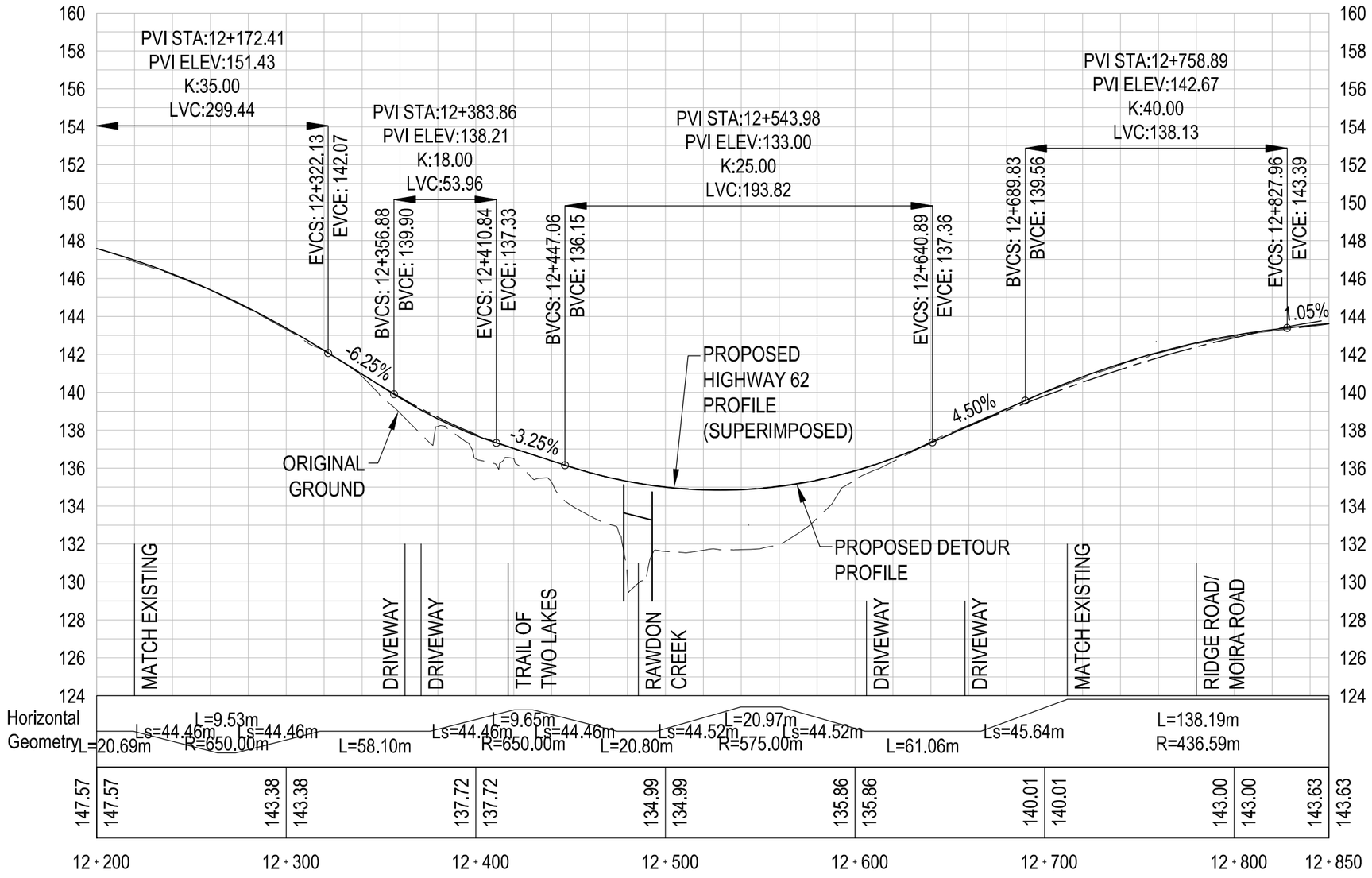
50m 0m 50m

DATE:
January 13, 2014

DWG
2-1C

FILENAME: C:\Projects\1-330116828-Hwy62&Hwy35Bridges\10_Hwy_Eng\02_CADD\Hwy62_Rawdon Creek_Intersection\Working Dwgs\Intersection Alt2_Creek Alt1.dwg
PLOTDATE: Jan 16, 2014 - 10:44am

PRELIMINARY/
DRAFT



Ontario
Ministry of Transportation

URS

HIGHWAY 62
RAWDON CREEK STRUCTURE REPLACEMENT &
MOIRA ROAD / RIDGE ROAD INTERSECTION IMPROVEMENTS
GWP 4044-10-00

HIGHWAY 62 DETOUR - PROFILE
INTERSECTION IMPROVEMENT ALTERNATIVE 2
MODERN ROUNDABOUT
RAWDON CREEK STRUCTURE REPLACEMENT ALTERNATIVE 1
TWO-LANE DETOUR WEST OF HIGHWAY 62

50m 0m 50m

DATE:
January 13, 2014

DWG
2-1D

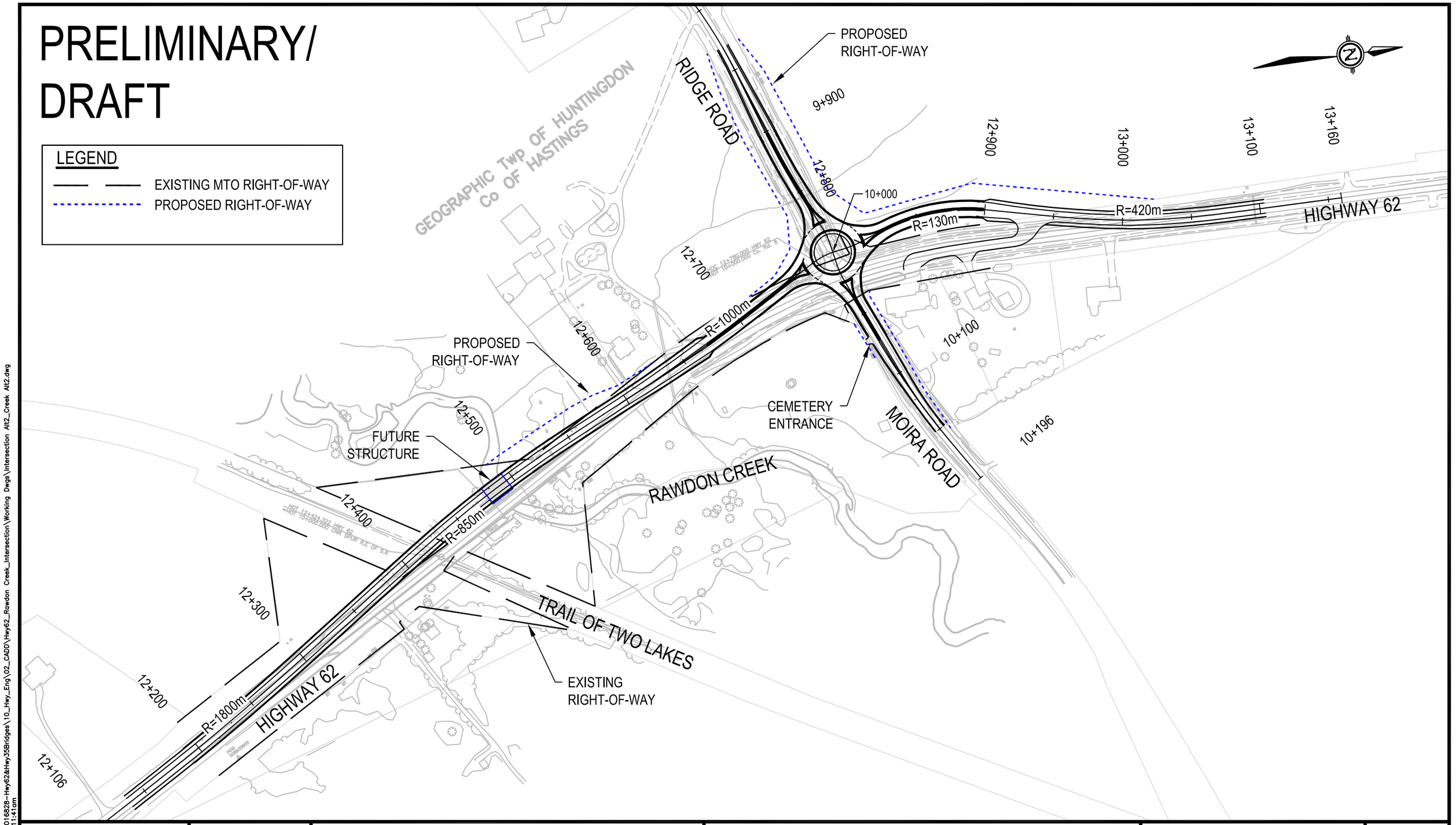
FILENAME: C:\Projects\1-33016828-Hwy62&Hwy35Bridges\10_Hwy_Eng\02_CADD\Hwy62_Rawdon Creek_Intersection\Working Dwgs\Intersection Alt2_Creek Alt1.dwg
PLOTDATE: Jan 16, 2014 - 10:44am

PRELIMINARY/ DRAFT

LEGEND

EXISTING MTO RIGHT-OF-WAY

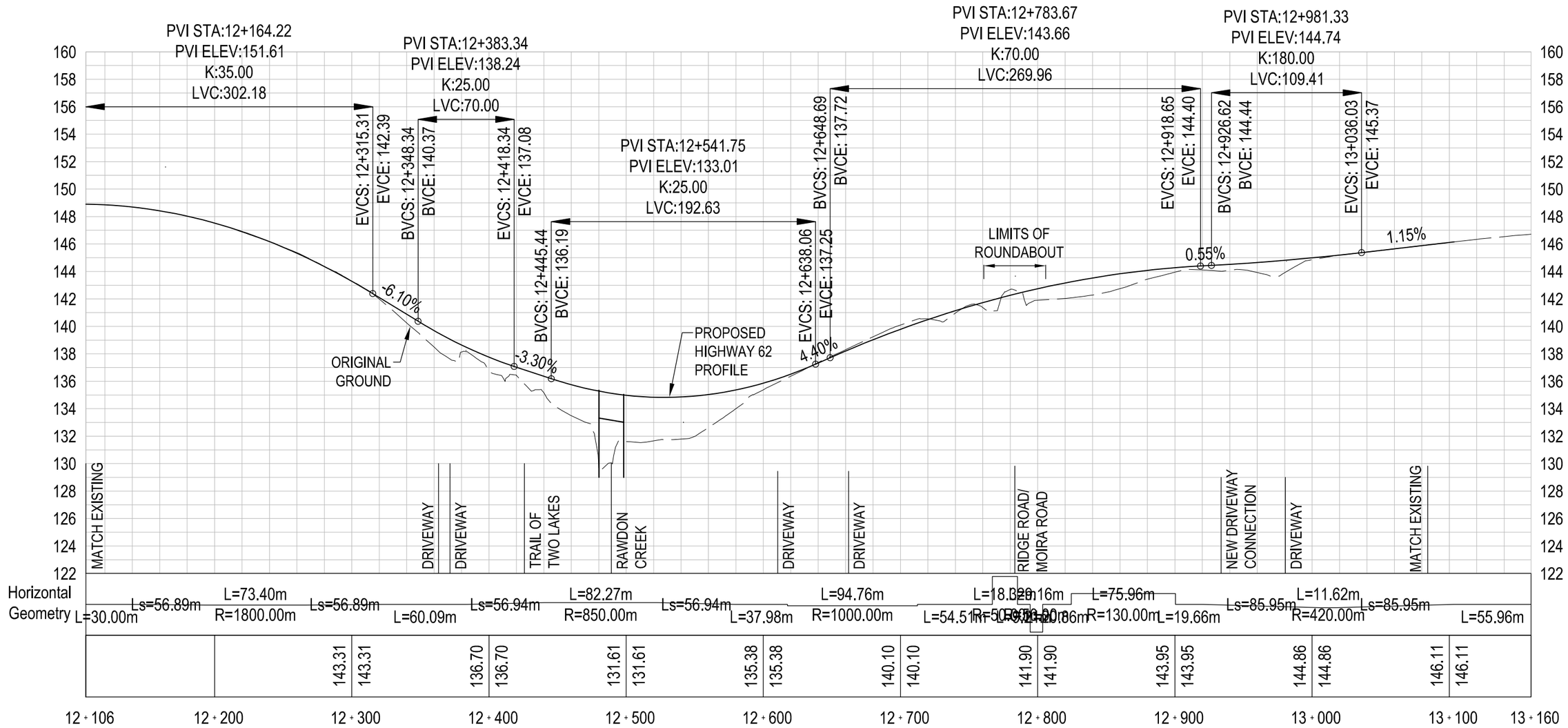
PROPOSED RIGHT-OF-WAY



Ontario Ministry of Transportation	URS	HIGHWAY 62 RAWDON CREEK STRUCTURE REPLACEMENT & MOIRA ROAD / RIDGE ROAD INTERSECTION IMPROVEMENTS GWP 4044-10-00	HIGHWAY 62 - PLAN INTERSECTION IMPROVEMENT ALTERNATIVE 2 MODERN ROUNDABOUT RAWDON CREEK STRUCTURE REPLACEMENT ALTERNATIVE 2 TWO-LANE PERMANENT REALIGNMENT WEST OF HIGHWAY 62	50m 0m 50m DATE: January 13, 2014	DWG 2-2A

FILENAME: C:\Projects\1-33016828-Hwy62&Hwy35Bridges\10_Hwy_Eng\02_CADD\Hwy62_Rawdon Creek_Intersection\Working Dwgs\Intersection Alt2_Creek Alt2.dwg
PLOTDATE: Jan 16, 2014 - 11:41 am

PRELIMINARY/
DRAFT



Ontario
Ministry of Transportation

URS

HIGHWAY 62
RAWDON CREEK STRUCTURE REPLACEMENT &
MOIRA ROAD / RIDGE ROAD INTERSECTION IMPROVEMENTS
GWP 4044-10-00

HIGHWAY 62 - PROFILE
INTERSECTION IMPROVEMENT ALTERNATIVE 2
MODERN ROUNDABOUT
RAWDON CREEK STRUCTURE REPLACEMENT ALTERNATIVE 2
TWO-LANE PERMANENT REALIGNMENT WEST OF HIGHWAY 62

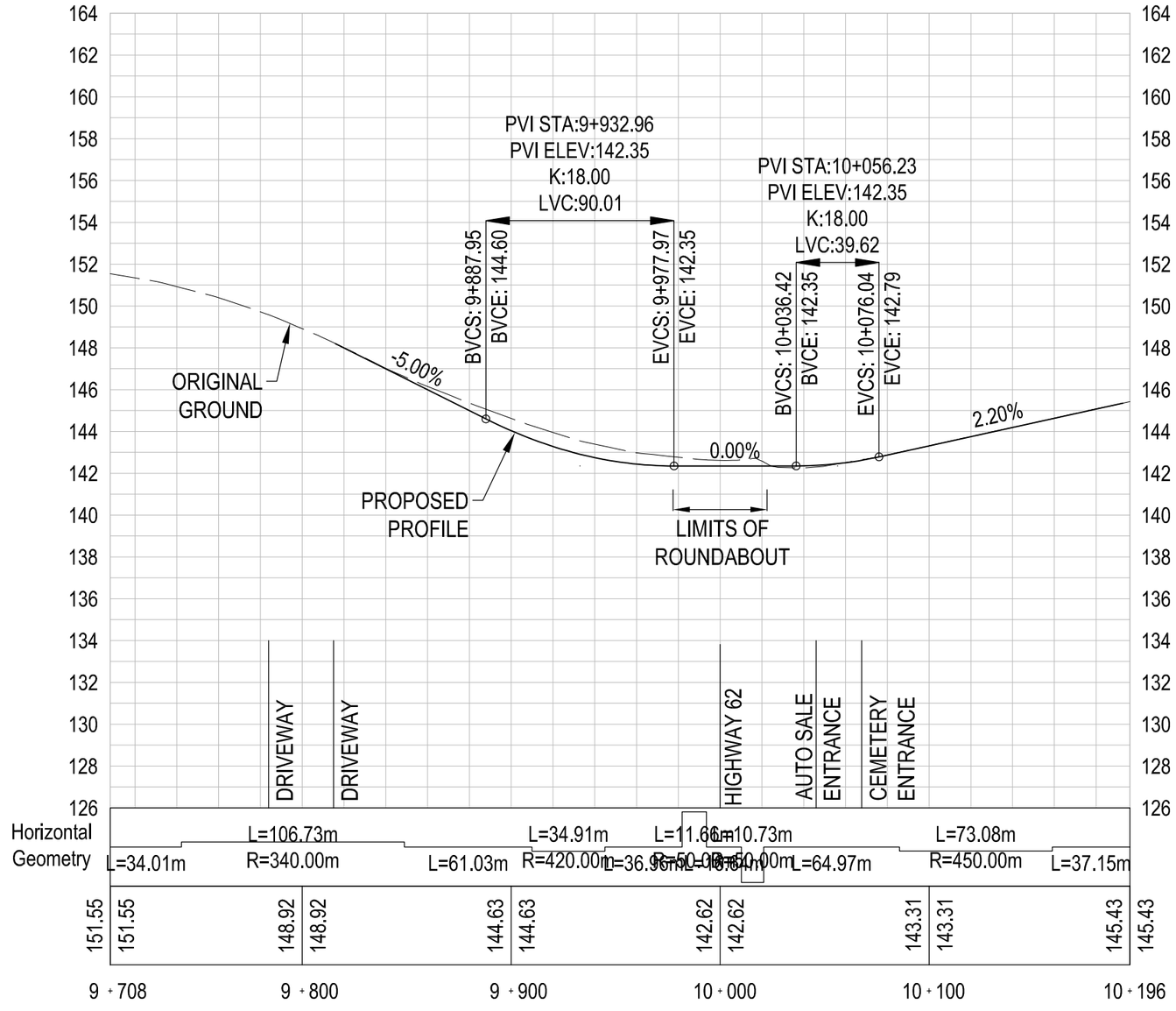
50m 0m 50m

DATE:
January 13, 2014

DWG
2-2B

FILENAME: C:\Projects\1-33016828-Hwy62&Hwy35Bridges\10_Hwy_Eng\02_CADD\Hwy62_Rowdon Creek_Intersection\Working Dwgs\Intersection Alt2_Creek Alt2.dwg
PLOTDATE: Jan 16, 2014 - 11:39am

PRELIMINARY/ DRAFT



Ontario
Ministry of Transportation

URS

HIGHWAY 62
RAWDON CREEK STRUCTURE REPLACEMENT &
MOIRA ROAD / RIDGE ROAD INTERSECTION IMPROVEMENTS
GWP 4044-10-00

RIDGE ROAD/ MOIRA ROAD - PROFILE
INTERSECTION IMPROVEMENT ALTERNATIVE 2
MODERN ROUNDABOUT
RAWDON CREEK STRUCTURE REPLACEMENT ALTERNATIVE 2
TWO-LANE PERMANENT REALIGNMENT WEST OF HIGHWAY 62

50m 0m 50m

DATE:
January 13, 2014

DWG
2-2C

FILENAME: C:\Projects\1--33016828--Hwy62&Hwy35Bridges\10_Hwy_Eng\02_CADD\Hwy62_Rowdon Creek_Intersection\Working Dwgs\Intersection Alt2_Creek Alt2.dwg
PLOTDATE: Jan 16, 2014 - 11:39am

PRELIMINARY/ DRAFT

LEGEND

- TEMPORARY TWO-LANE DETOUR
- EXISTING MTO RIGHT-OF-WAY
- PROPOSED RIGHT-OF-WAY
- TEMPORARY PROPERTY REQUIREMENT

GEOGRAPHIC Twp OF HUNTINGDON
Co OF HASTINGS

RIDGE ROAD
R=340m
9+800
9+900
PROPOSED RIGHT-OF-WAY
R=420m
10+000
R=130m
R=420m
HIGHWAY 62
12+700
12+900
13+000
13+100
12+800
10+100
PROPOSED RIGHT-OF-WAY
TEMPORARY PROPERTY REQUIREMENT
12+600
12+700
CEMETERY ENTRANCE
R=450m
10+196
TEMPORARY STRUCTURE
12+500
TEMPORARY ONE-LANE DETOUR
12+400
12+350
12+500
FUTURE STRUCTURE
RAWDON CREEK
MOIRA ROAD
TRAIL OF TWO LAKES
12+400
HIGHWAY 62
12+300
EXISTING RIGHT-OF-WAY

Ontario
Ministry of Transportation

URS

HIGHWAY 62
RAWDON CREEK STRUCTURE REPLACEMENT &
MOIRA ROAD / RIDGE ROAD INTERSECTION IMPROVEMENTS
GWP 4044-10-00

HIGHWAY 62 - PLAN
INTERSECTION IMPROVEMENT ALTERNATIVE 2
MODERN ROUNDABOUT
RAWDON CREEK STRUCTURE REPLACEMENT ALTERNATIVE 4
ONE-LANE DETOUR WEST OF HIGHWAY 62

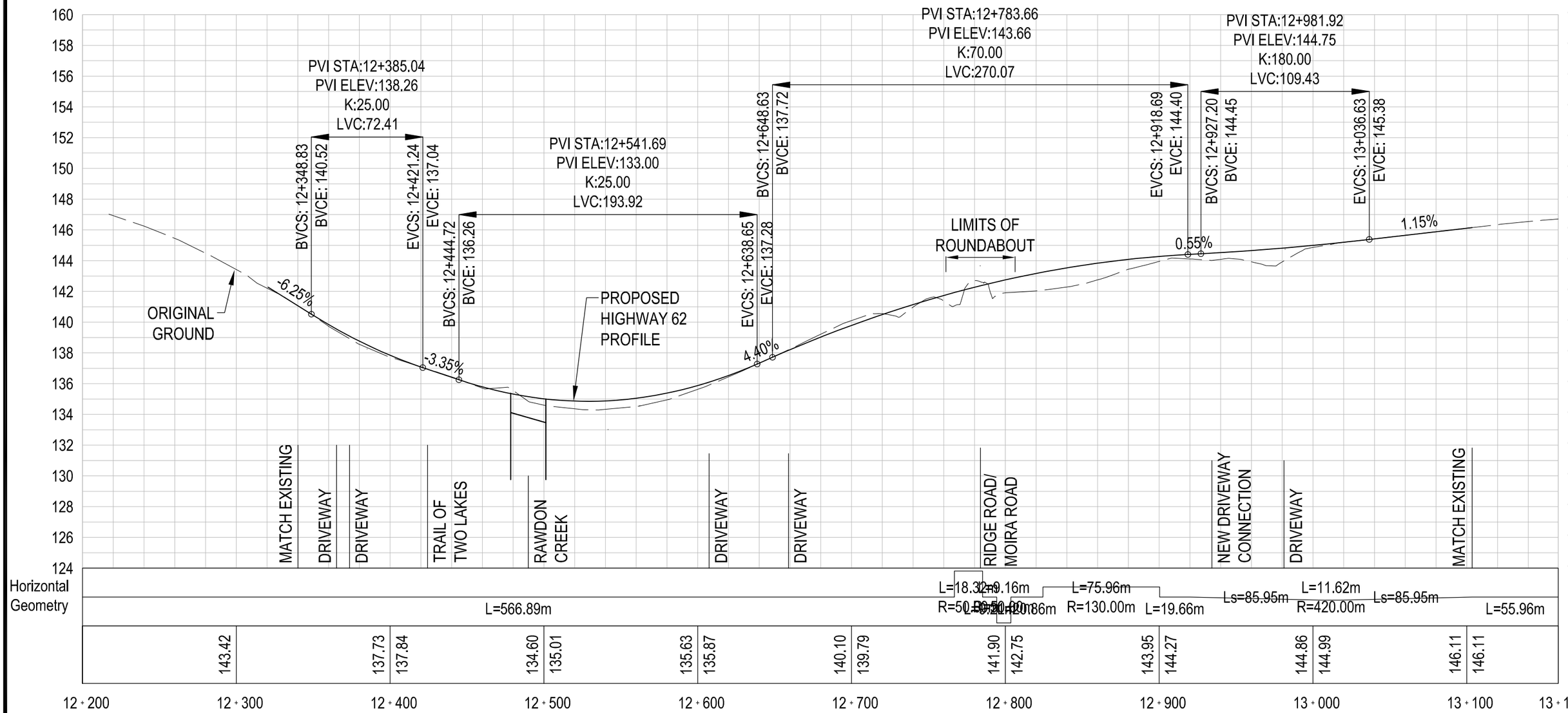
50m 0m 50m

DATE:
January 13, 2014

DWG
2-3A

FILENAME: C:\Projects\1-33016828-Hwy62&Hwy35Bridges\10_Hwy_Eng\02_CADD\Hwy62_Rawdon Creek_Intersection\Working Dwgs\Intersection Alt2_Creek Alt4.dwg
PLOTDATE: Jan 16, 2014 - 11:43am

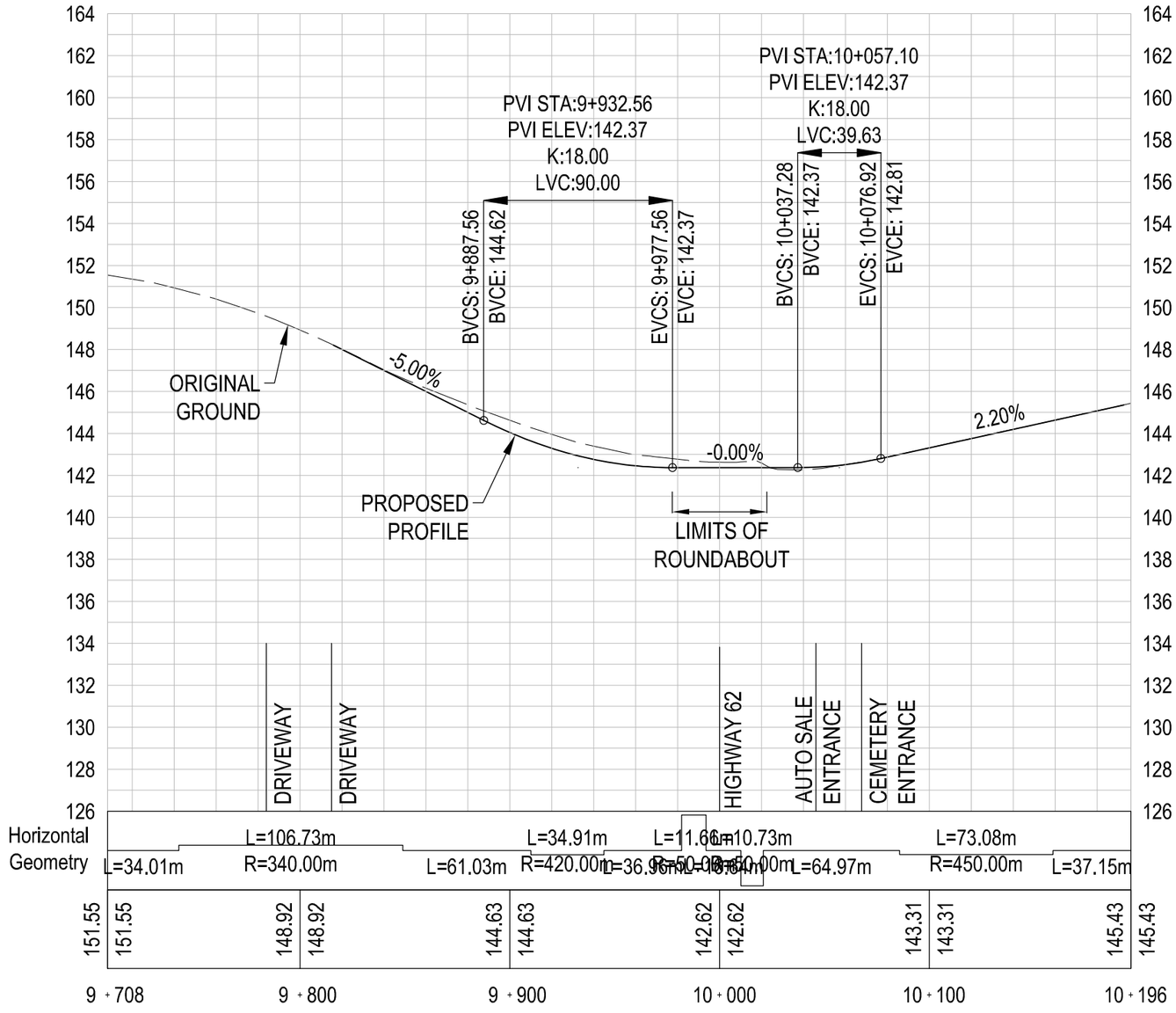
PRELIMINARY/
DRAFT



Ontario Ministry of Transportation	URS	HIGHWAY 62 RAWDON CREEK STRUCTURE REPLACEMENT & MOIRA ROAD / RIDGE ROAD INTERSECTION IMPROVEMENTS GWP 4044-10-00	HIGHWAY 62 - PROFILE INTERSECTION IMPROVEMENT ALTERNATIVE 2 MODERN ROUNDABOUT RAWDON CREEK STRUCTURE REPLACEMENT ALTERNATIVE 4 ONE-LANE DETOUR WEST OF HIGHWAY 62	50m 0m 50m DATE: January 13, 2014	DWG 2-3B

FILENAME: C:\Projects\1-33016828-Hwy62&Hwy35Bridges\10_Hwy_Eng\02_CADD\Hwy62_Rawdon Creek_Intersection\Working Dwgs\Intersection Alt2_Creek Alt4.dwg
PLOTDATE: Jan 16, 2014 - 10:56am

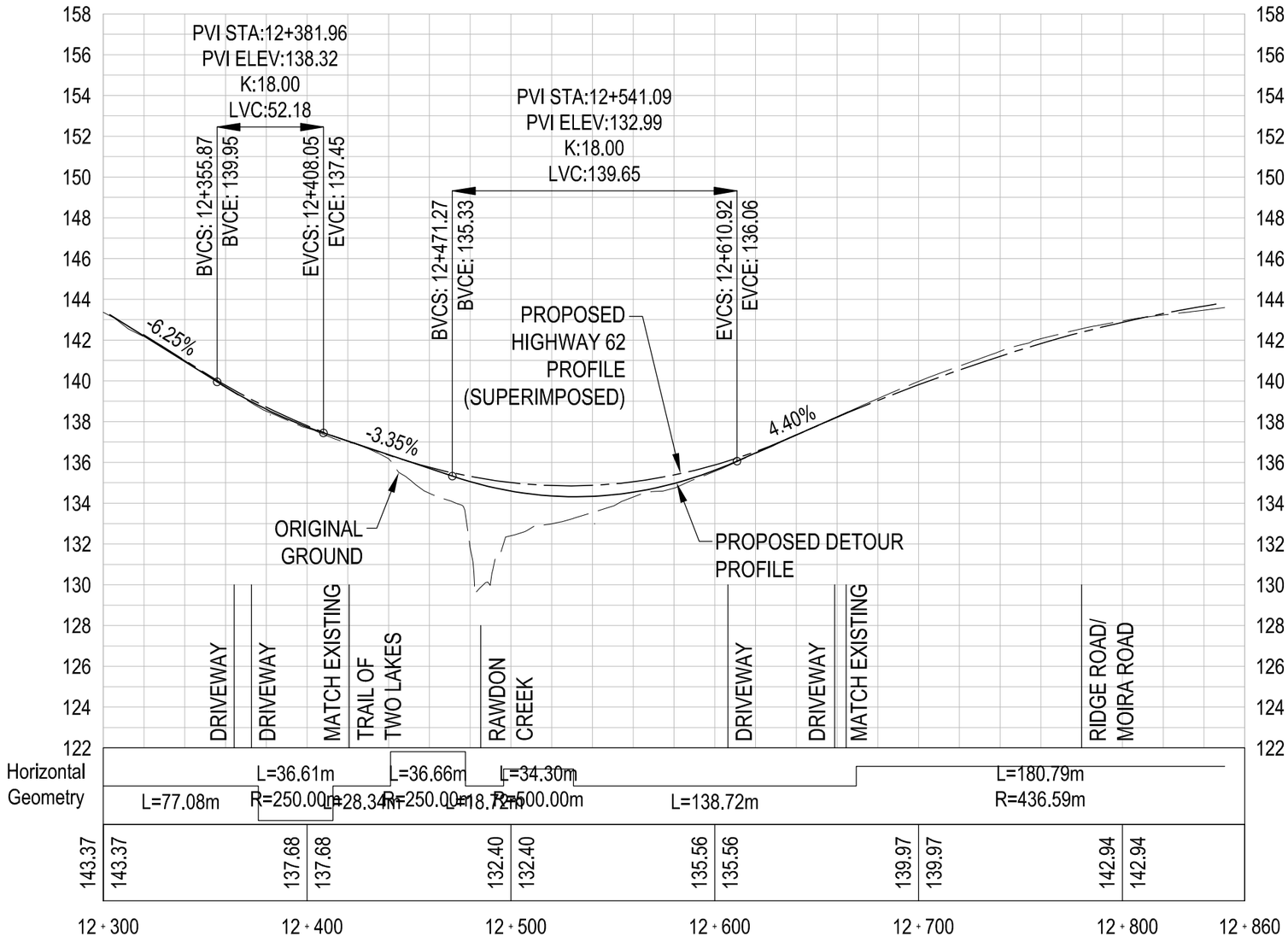
PRELIMINARY/ DRAFT



Ontario Ministry of Transportation	URS	HIGHWAY 62 RAWDON CREEK STRUCTURE REPLACEMENT & MOIRA ROAD / RIDGE ROAD INTERSECTION IMPROVEMENTS GWP 4044-10-00	RIDGE ROAD/ MOIRA ROAD - PROFILE INTERSECTION IMPROVEMENT ALTERNATIVE 2 MODERN ROUNDABOUT RAWDON CREEK STRUCTURE REPLACEMENT ALTERNATIVE 4 ONE-LANE DETOUR WEST OF HIGHWAY 62	50m 0m 50m DATE: January 13, 2014	DWG 2-3C

FILENAME: C:\Projects\1-33016828-Hwy62&Hwy35Bridges\10_Hwy_Eng\02_CADD\Hwy62_Rawdon Creek_Intersection\Working Dwgs\Intersection Alt2_Creek Alt4.dwg
PLOTDATE: Jan 16, 2014 - 10:56am

PRELIMINARY/
DRAFT



Ontario
Ministry of Transportation

URS

HIGHWAY 62
RAWDON CREEK STRUCTURE REPLACEMENT &
MOIRA ROAD / RIDGE ROAD INTERSECTION IMPROVEMENTS
GWP 4044-10-00

HIGHWAY 62 DETOUR - PROFILE
INTERSECTION IMPROVEMENT ALTERNATIVE 2
MODERN ROUNDABOUT
RAWDON CREEK STRUCTURE REPLACEMENT ALTERNATIVE 4
ONE-LANE DETOUR WEST OF HIGHWAY 62

50m 0m 50m

DATE:
January 13, 2014

DWG
2-3D

FILENAME: C:\Projects\1--33016828--Hwy62&Hwy35Bridges\10_Hwy_Eng\02_CADD\Hwy62_Rowdon Creek_Intersection\Working Dwgs\Intersection Alt2_Creek Alt4.dwg
PLOTDATE: Jan 16, 2014 - 10:56am

PRELIMINARY/ DRAFT

LEGEND

- TEMPORARY TWO-LANE DETOUR
- EXISTING MTO RIGHT-OF-WAY
- PROPOSED RIGHT-OF-WAY
- TEMPORARY PROPERTY REQUIREMENT
- RETAINING WALL

RIDGE ROAD
R=340m
9+800
9+900
PROPOSED RIGHT-OF-WAY
10+000
HIGHWAY 62
R=1800m
13+300
13+200
13+100
13+000
12+900
12+800
12+700
12+600
12+500
12+400
12+300
12+200
10+100
10+200
10+300
10+400
R=600m
R=450m
R=420m
TEMPORARY PROPERTY REQUIREMENT
TEMPORARY STRUCTURE
TEMPORARY TWO-LANE DETOUR
RECONSTRUCT CEMETERY ENTRANCE
RAWDON CREEK
FUTURE STRUCTURE
RETAINING WALL
MOIRA ROAD
TRAIL OF TWO LAKES
EXISTING RIGHT-OF-WAY
PROPOSED RIGHT-OF-WAY
LOT 2 CON 2
LOT 3 CON 2
FARM FIELD
BUSH
CEMETERY

Ontario
Ministry of Transportation

URS

HIGHWAY 62
RAWDON CREEK STRUCTURE REPLACEMENT &
MOIRA ROAD / RIDGE ROAD INTERSECTION IMPROVEMENTS
GWP 4044-10-00

HIGHWAY 62 - PLAN
INTERSECTION IMPROVEMENT ALTERNATIVE 3
SIGNALIZED INTERSECTION REALIGNED WEST
RAWDON CREEK STRUCTURE REPLACEMENT ALTERNATIVE 1
TWO-LANE DETOUR WEST OF HIGHWAY 62

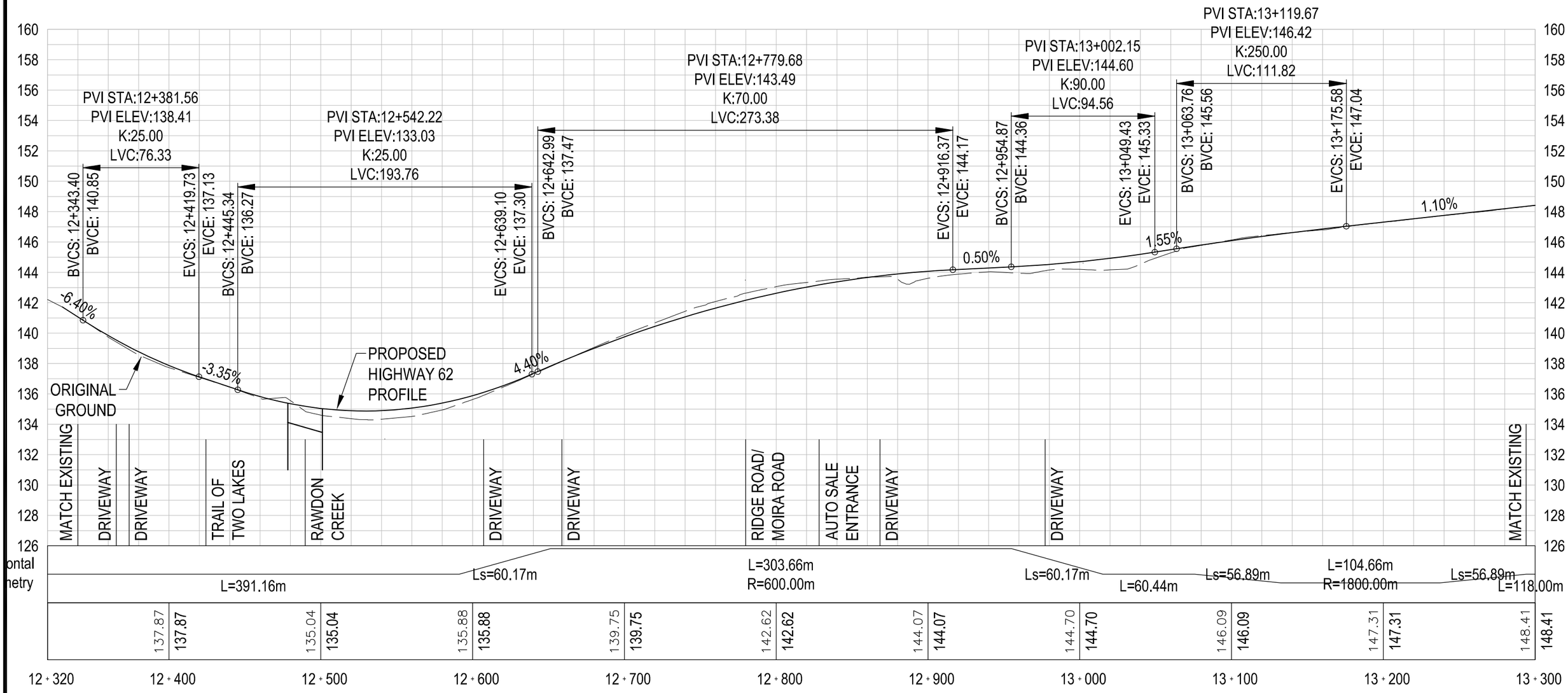
50m 0m 50m

DATE:
January 15, 2014

DWG
3-1A

FILENAME: C:\Projects\1-33016828--Hwy62&Hwy35Bridges\10_Hwy_Eng\02_CADD\Hwy62_Rowdon Creek_Intersection\Working Dwgs\Intersection Alt3_Creek Alt1.dwg
PLOTDATE: Jan 16, 2014 - 1:09pm

PRELIMINARY/
DRAFT



Ontario
Ministry of Transportation

URS

HIGHWAY 62
RAWDON CREEK STRUCTURE REPLACEMENT &
MOIRA ROAD / RIDGE ROAD INTERSECTION IMPROVEMENTS
GWP 4044-10-00

HIGHWAY 62 - PROFILE
INTERSECTION IMPROVEMENT ALTERNATIVE 3
SIGNALIZED INTERSECTION REALIGNED WEST
RAWDON CREEK STRUCTURE REPLACEMENT ALTERNATIVE 1
TWO-LANE DETOUR WEST OF HIGHWAY 62

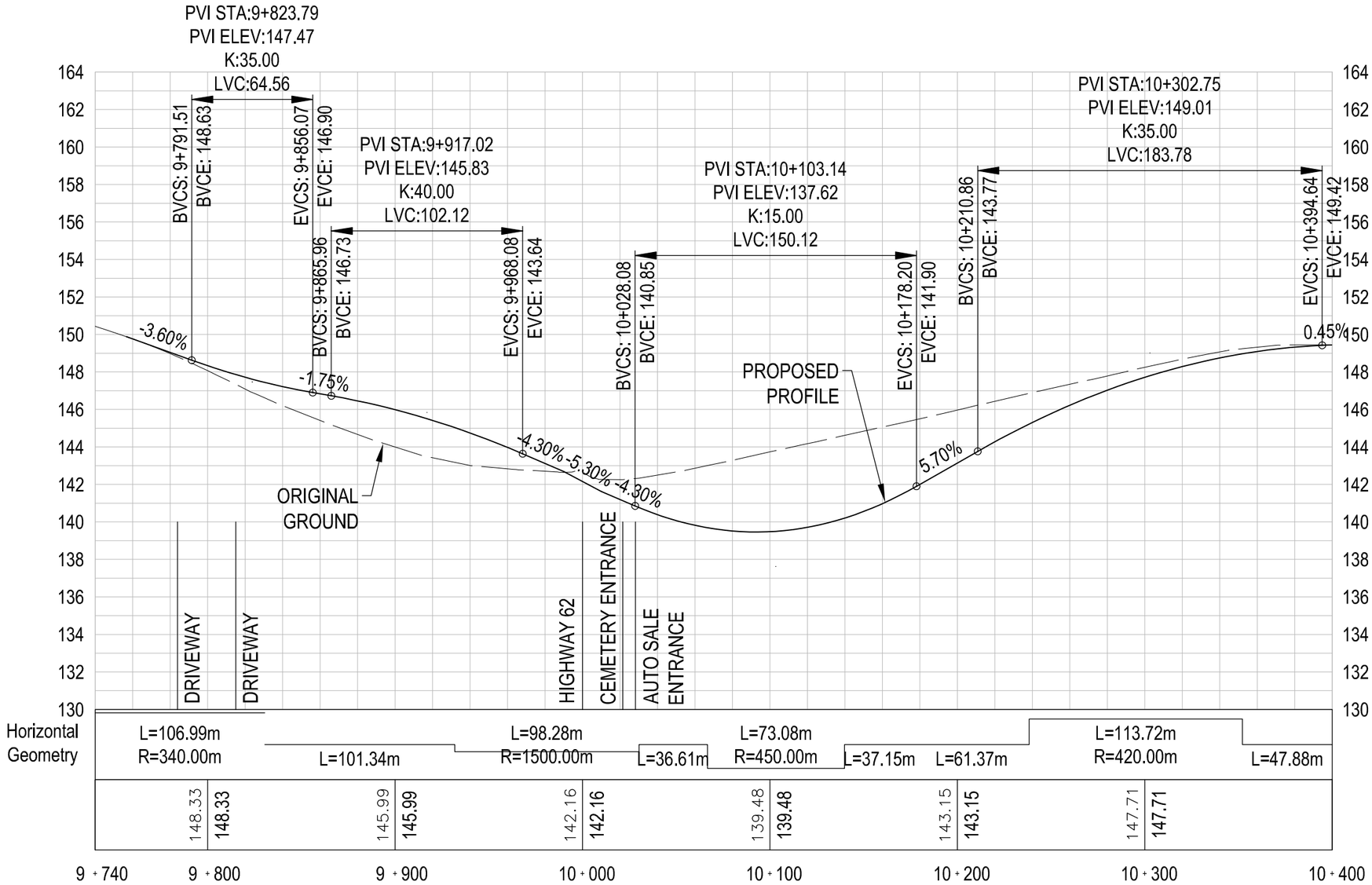
50m 0m 50m

DATE:
January 15, 2014

DWG
3-1B

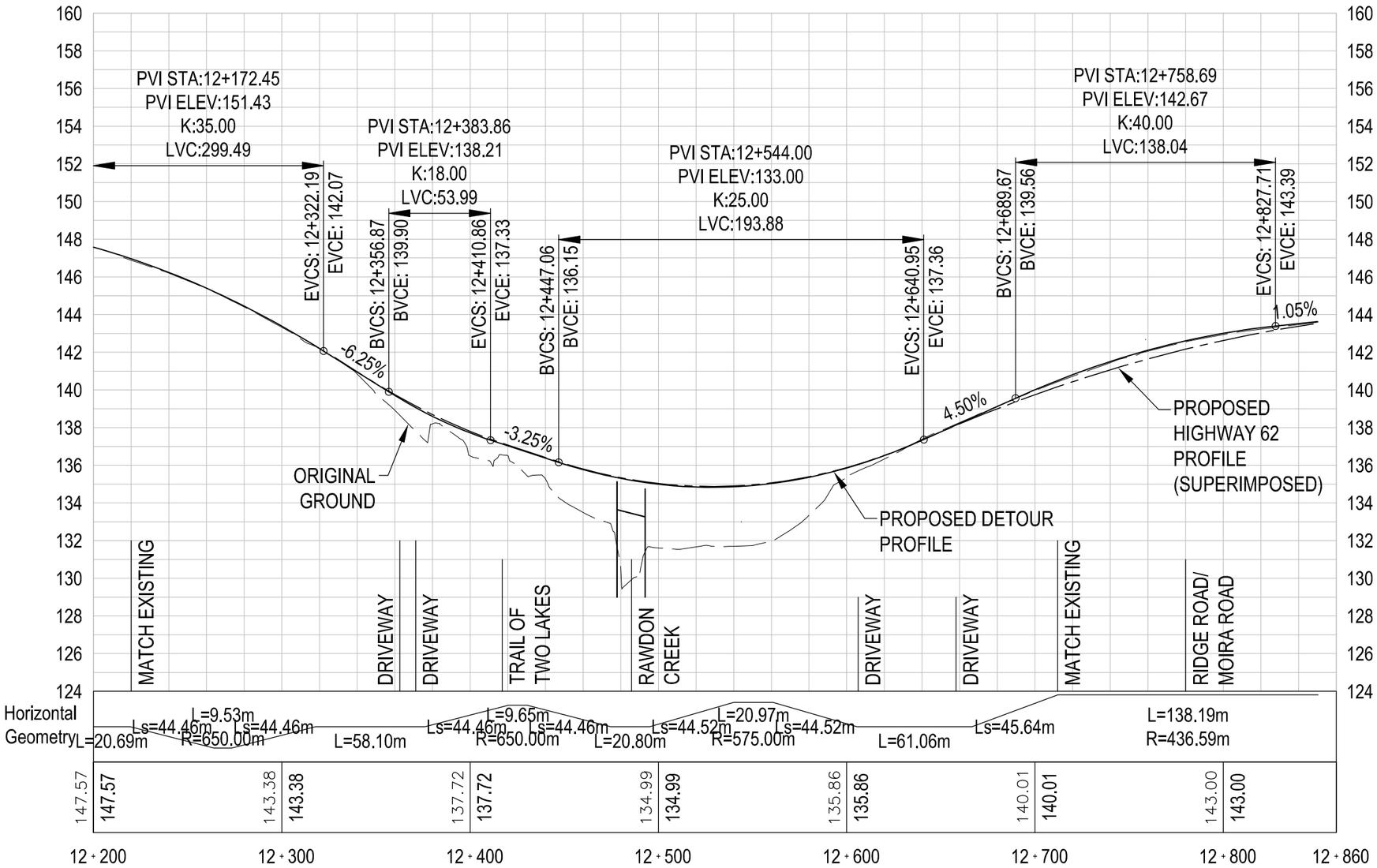
FILENAME: C:\Projects\1--330116828--Hwy62&Hwy35Bridges\10_Hwy_Eng\02_CADD\Hwy62_Rawdon Creek_Intersection\Working Dwgs\Intersection Alt3_Creek Alt1.dwg
PLOTDATE: Jan 15, 2014 - 4:30pm

PRELIMINARY/ DRAFT



Ontario Ministry of Transportation	URS	HIGHWAY 62 RAWDON CREEK STRUCTURE REPLACEMENT & MOIRA ROAD / RIDGE ROAD INTERSECTION IMPROVEMENTS GWP 4044-10-00	RIDGE ROAD/ MOIRA ROAD - PROFILE INTERSECTION IMPROVEMENT ALTERNATIVE 3 SIGNALIZED INTERSECTION REALIGNED WEST RAWDON CREEK STRUCTURE REPLACEMENT ALTERNATIVE 1 TWO-LANE DETOUR WEST OF HIGHWAY 62	50m 0m 50m DATE: January 15, 2014	DWG 3-1C

PRELIMINARY/
DRAFT



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PLOTDATE: Jan 16, 2014 - 1:12pm

Ontario
Ministry of Transportation

URS

HIGHWAY 62
RAWDON CREEK STRUCTURE REPLACEMENT &
MOIRA ROAD / RIDGE ROAD INTERSECTION IMPROVEMENTS
GWP 4044-10-00

HIGHWAY 62 DETOUR - PROFILE
INTERSECTION IMPROVEMENT ALTERNATIVE 3
SIGNALIZED INTERSECTION REALIGNED WEST
RAWDON CREEK STRUCTURE REPLACEMENT ALTERNATIVE 1
TWO-LANE DETOUR WEST OF HIGHWAY 62

50m 0m 50m

DATE:
January 15, 2014

DWG
3-1D

PRELIMINARY/ DRAFT

LEGEND

- EXISTING MTO RIGHT-OF-WAY
- PROPOSED RIGHT-OF-WAY
- RETAINING WALL

GEOGRAPHIC Twp OF HUNTINGDON Co OF HASTINGS

RIDGE ROAD

R=340m

9+800

PROPOSED RIGHT-OF-WAY

9+900

12+900

13+000

13+100

13+200

HIGHWAY 62

CON 3 LOT 1

12+800

10+000

R=1800m

12+700

PROPOSED RIGHT-OF-WAY

12+600

R=600m

10+100

FUTURE STRUCTURE

12+500

RECONSTRUCT CEMETERY ENTRANCE

R=450m

12+400

R=850m

RAWDON CREEK

10+200

PROPOSED RIGHT-OF-WAY

RETAINING WALL

MOIRA ROAD

12+300

TRAIL OF TWO LAKES

10+300

12+200

R=1800m

LOT 2 CON 2

EXISTING RIGHT-OF-WAY

R=420m

10+400

Ontario Ministry of Transportation

URS

HIGHWAY 62
RAWDON CREEK STRUCTURE REPLACEMENT &
MOIRA ROAD / RIDGE ROAD INTERSECTION IMPROVEMENTS
GWP 4044-10-00

HIGHWAY 62 - PLAN
INTERSECTION IMPROVEMENT ALTERNATIVE 3
SIGNALIZED INTERSECTION REALIGNED WEST
RAWDON CREEK STRUCTURE REPLACEMENT ALTERNATIVE 2
TWO-LANE PERMANENT REALIGNMENT WEST OF HIGHWAY 62

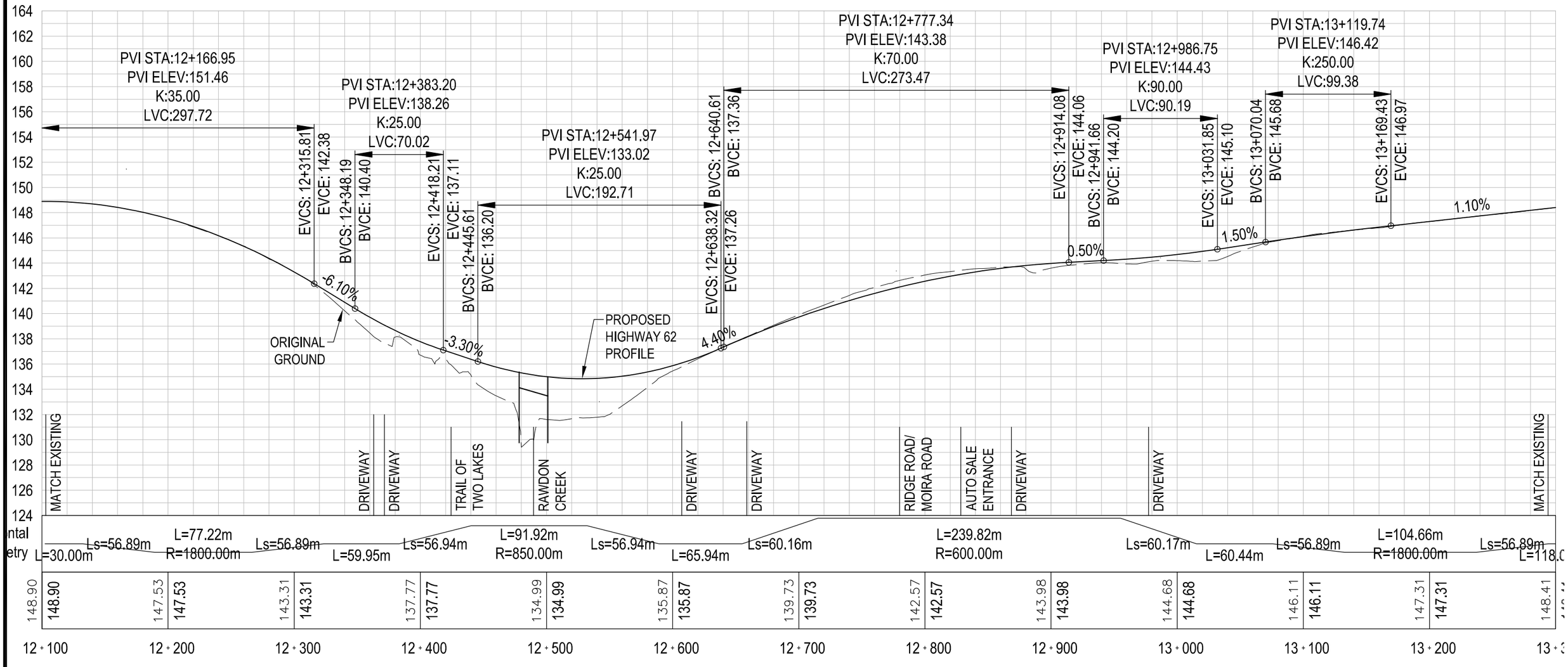
50m 0m 50m

DATE:
January 15, 2014

DWG
3-2A

FILENAME: C:\VProjects\1-33016828--Hwy62&Hwy35Bridges\10_Hwy_Eng\02_CADD\Hwy62_Rawdon Creek_Intersection\Working Dwgs\Intersection Alt3_Creek Alt2.dwg
PLOTDATE: Jan 16, 2014 - 1:29pm

PRELIMINARY/
DRAFT



Ontario
Ministry of Transportation

URS

HIGHWAY 62
RAWDON CREEK STRUCTURE REPLACEMENT &
MOIRA ROAD / RIDGE ROAD INTERSECTION IMPROVEMENTS
GWP 4044-10-00

HIGHWAY 62 - PROFILE
INTERSECTION IMPROVEMENT ALTERNATIVE 3
SIGNALIZED INTERSECTION REALIGNED WEST
RAWDON CREEK STRUCTURE REPLACEMENT ALTERNATIVE 2
TWO-LANE PERMANENT REALIGNMENT WEST OF HIGHWAY 62

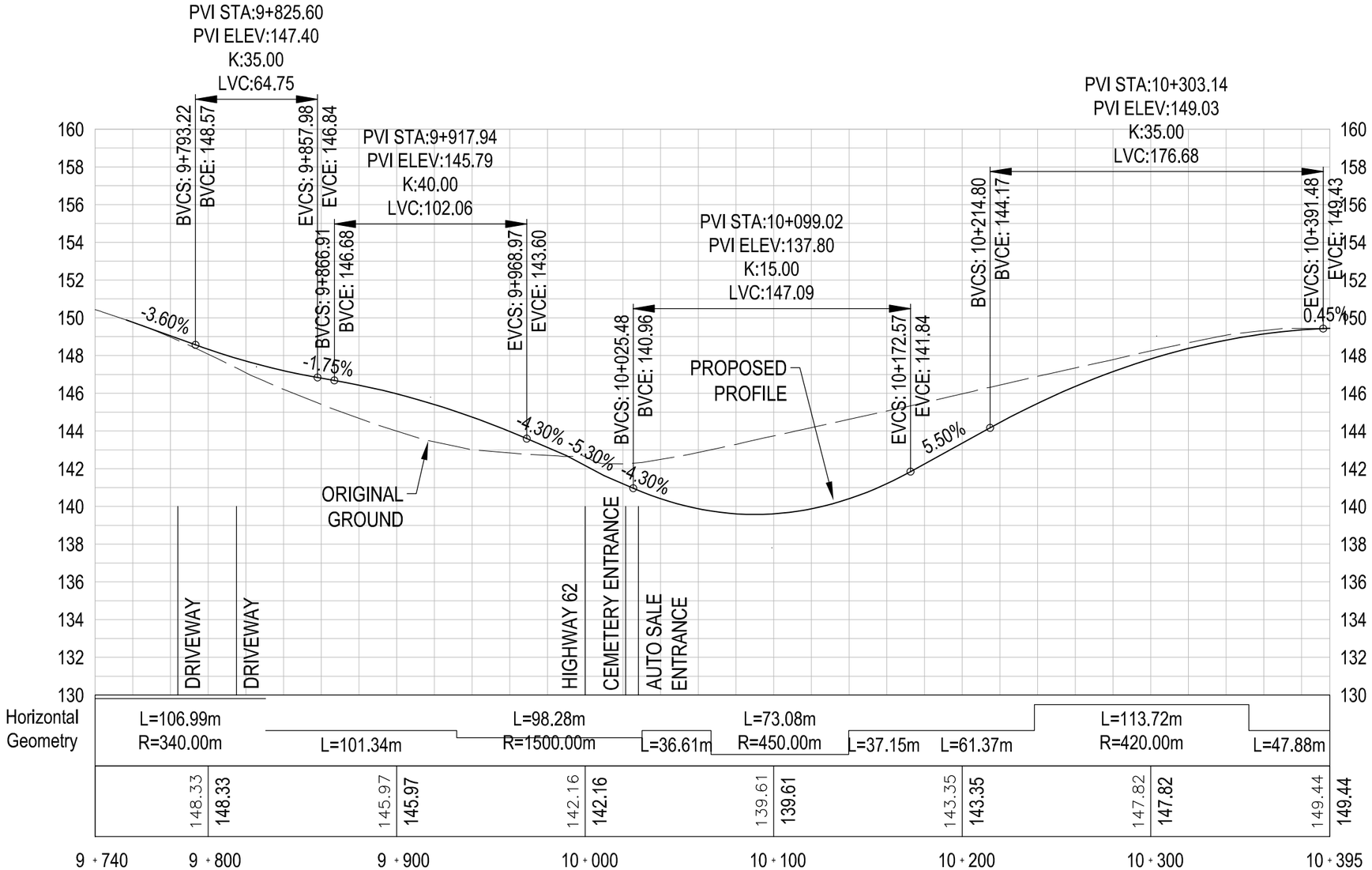
50m 0m 50m

DATE:
January 15, 2014

DWG
3-2B

FILENAME: C:\Projects\1-33016828--Hwy62&Hwy35Bridges\10_Hwy_Eng\02_CADD\Hwy62_Rawdon Creek_Intersection\Working Dwgs\Intersection Alt3_Creek Alt2.dwg
PLOTDATE: Jan 16, 2014 - 1:30pm

PRELIMINARY/
DRAFT



Ontario
Ministry of Transportation

URS

HIGHWAY 62
RAWDON CREEK STRUCTURE REPLACEMENT &
MOIRA ROAD / RIDGE ROAD INTERSECTION IMPROVEMENTS
GWP 4044-10-00

RIDGE ROAD/ MOIRA ROAD - PROFILE
INTERSECTION IMPROVEMENT ALTERNATIVE 3
SIGNALIZED INTERSECTION REALIGNED WEST
RAWDON CREEK STRUCTURE REPLACEMENT ALTERNATIVE 2
TWO-LANE PERMANENT REALIGNMENT WEST OF HIGHWAY 62

50m 0m 50m

DATE:
January 15, 2014

DWG
3-2C

FILENAME: C:\Projects\1--33016828--Hwy62&Hwy35Bridges\10_Hwy_Eng\02_CADD\Hwy62_Rowdon Creek_Intersection\Working Dwgs\Intersection Alt3_Creek Alt2.dwg
PLOTDATE: Jan 16, 2014 - 1:30pm

PRELIMINARY/ DRAFT

LEGEND

- TEMPORARY TWO-LANE DETOUR
- EXISTING MTO RIGHT-OF-WAY
- PROPOSED RIGHT-OF-WAY
- TEMPORARY PROPERTY REQUIREMENT
- RETAINING WALL

RIDGE ROAD
R=340m
9+800
9+900
PROPOSED RIGHT-OF-WAY
CON 3
10+000
HIGHWAY 62
R=1800m
13+300
13+200
13+100
13+000
12+900
12+800
12+700
12+600
12+500
12+400
12+300
R=600m
TEMPORARY PROPERTY REQUIREMENT
TEMPORARY STRUCTURE
TEMPORARY ONE-LANE DETOUR
FUTURE STRUCTURE
RECONSTRUCT CEMETERY ENTRANCE
RETAINING WALL
RAWDON CREEK
TRAIL OF TWO LAKES
EXISTING RIGHT-OF-WAY
LOT 2 CON 2
R=450m
10+100
10+200
10+300
10+400
MOIRA ROAD
R=420m
PROPOSED RIGHT-OF-WAY
FARM FIELD

Ontario Ministry of Transportation

URS

HIGHWAY 62
RAWDON CREEK STRUCTURE REPLACEMENT &
MOIRA ROAD / RIDGE ROAD INTERSECTION IMPROVEMENTS
GWP 4044-10-00

HIGHWAY 62 - PLAN
INTERSECTION IMPROVEMENT ALTERNATIVE 3
SIGNALIZED INTERSECTION REALIGNED WEST
RAWDON CREEK STRUCTURE REPLACEMENT ALTERNATIVE 4
ONE-LANE DETOUR WEST OF HIGHWAY 62

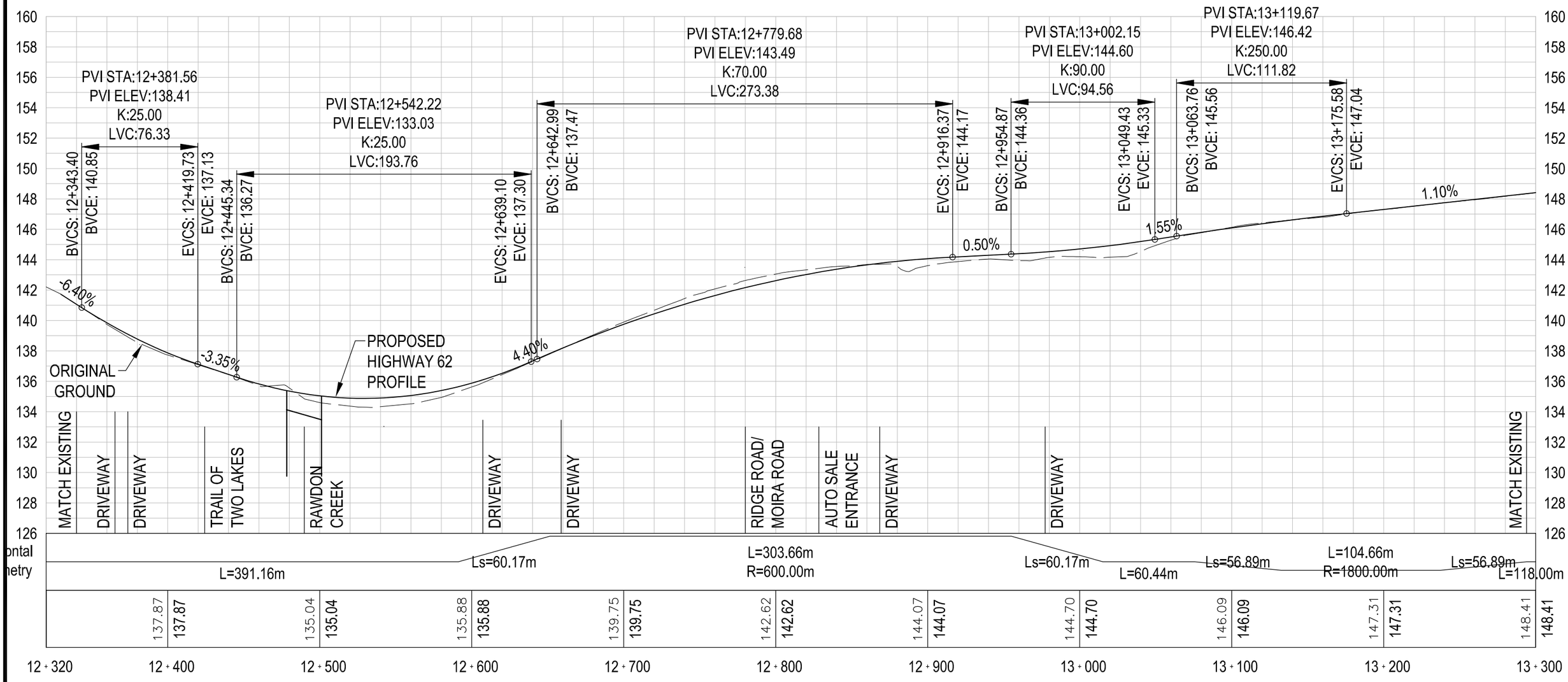
50m 0m 50m

DATE:
January 16, 2014

DWG
3-3A

FILENAME: C:\Projects\1--330116828--Hwy62&Hwy35Bridges\10_Hwy_Eng\02_CADD\Hwy62_Rawdon Creek_Intersection\Working Dwgs\Intersection Alt3_Creek Alt4.dwg
PLOTDATE: Jan 16, 2014 - 1:20pm

PRELIMINARY/
DRAFT



Ontario
Ministry of Transportation

URS

HIGHWAY 62
RAWDON CREEK STRUCTURE REPLACEMENT &
MOIRA ROAD / RIDGE ROAD INTERSECTION IMPROVEMENTS
GWP 4044-10-00

HIGHWAY 62 - PROFILE
INTERSECTION IMPROVEMENT ALTERNATIVE 3
SIGNALIZED INTERSECTION REALIGNED WEST
RAWDON CREEK STRUCTURE REPLACEMENT ALTERNATIVE 4
ONE-LANE DETOUR WEST OF HIGHWAY 62

50m 0m 50m

DATE:
January 16, 2014

DWG
3-3B

FILENAME: C:\Projects\1-33016828-Hwy62&Hwy35Bridges\10_Hwy_Eng\02_CADD\Hwy62_Rawdon Creek_Intersection\Working Dwgs\Intersection Alt3_Creek Alt4.dwg
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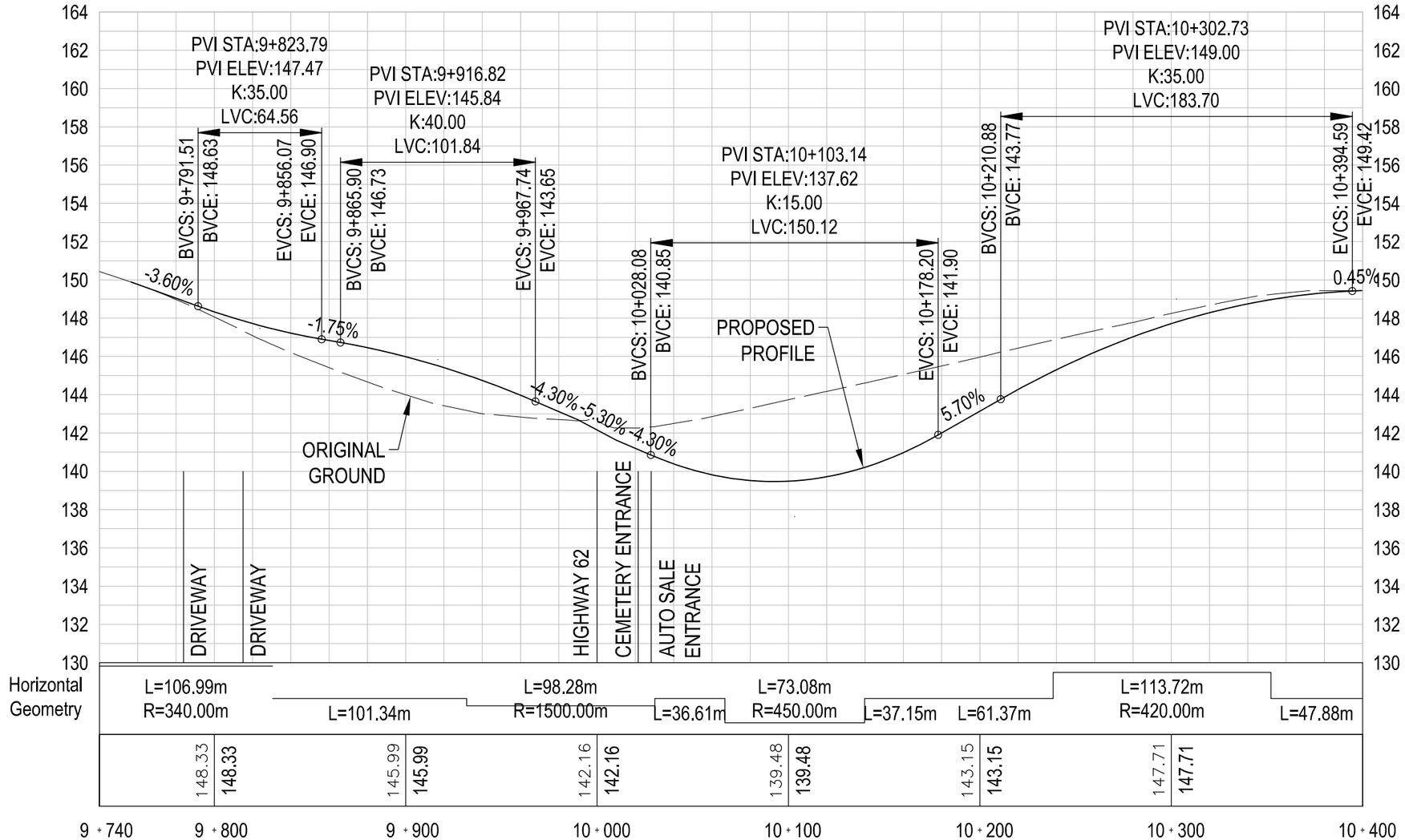
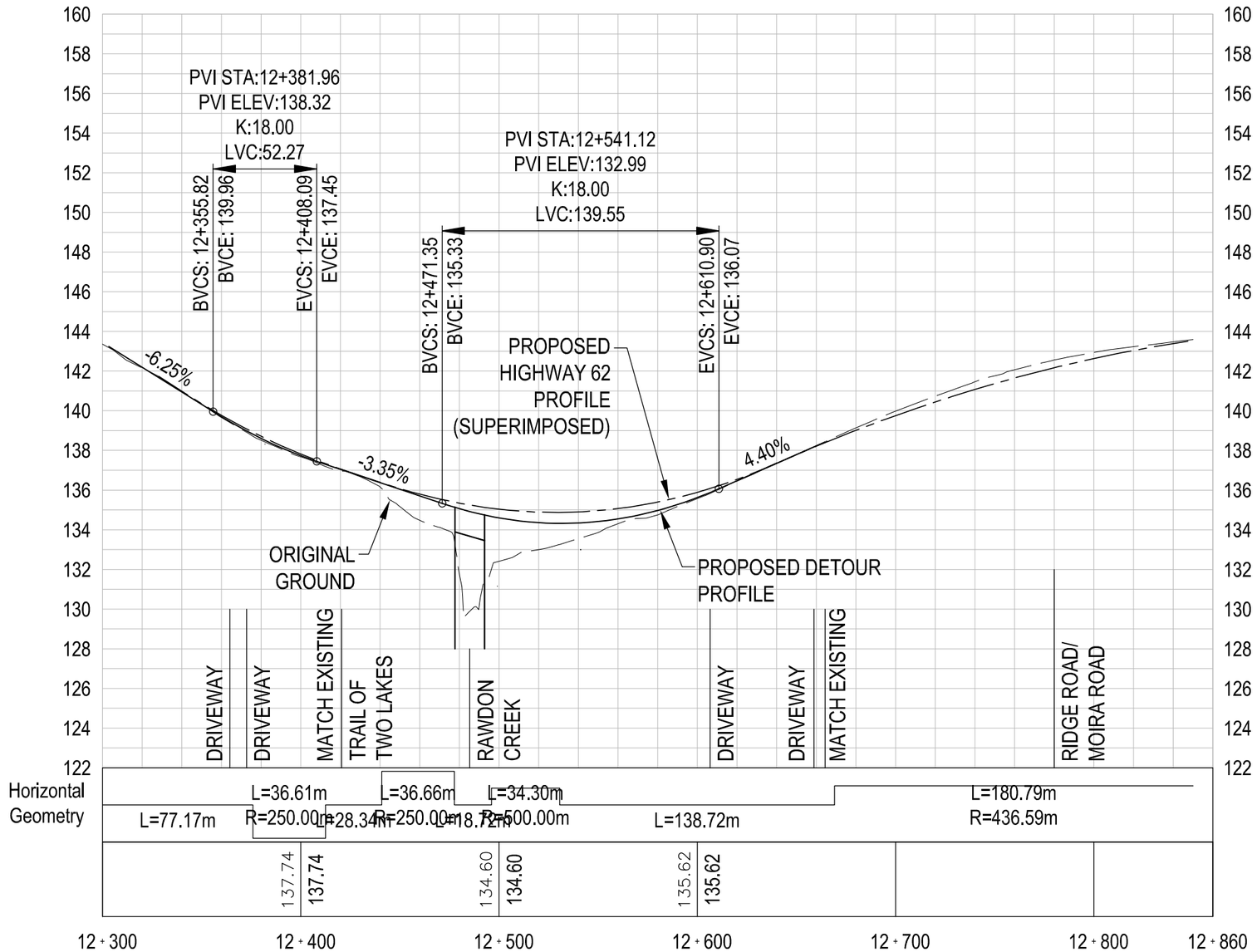
PRELIMINARY/
DRAFT



Ontario Ministry of Transportation	URS	HIGHWAY 62 RAWDON CREEK STRUCTURE REPLACEMENT & MOIRA ROAD / RIDGE ROAD INTERSECTION IMPROVEMENTS GWP 4044-10-00	RIDGE ROAD/ MOIRA ROAD - PROFILE INTERSECTION IMPROVEMENT ALTERNATIVE 3 SIGNALIZED INTERSECTION REALIGNED WEST RAWDON CREEK STRUCTURE REPLACEMENT ALTERNATIVE 4 ONE-LANE DETOUR WEST OF HIGHWAY 62	50m 0m 50m DATE: January 16, 2014	DWG 3-3C

PRELIMINARY/ DRAFT



Ontario Ministry of Transportation

URS

HIGHWAY 62
RAWDON CREEK STRUCTURE REPLACEMENT &
MOIRA ROAD / RIDGE ROAD INTERSECTION IMPROVEMENTS
GWP 4044-10-00

HIGHWAY 62 DETOUR - PROFILE
INTERSECTION IMPROVEMENT ALTERNATIVE 3
SIGNALIZED INTERSECTION REALIGNED WEST
RAWDON CREEK STRUCTURE REPLACEMENT ALTERNATIVE 4
ONE-LANE DETOUR WEST OF HIGHWAY 62

50m 0m 50m

DATE:
January 16, 2014

DWG
3-3D

APPENDIX D
Arithmetic Evaluation

CATEGORY / Factor / *Indicator*	Measure	Group 1 Intersection Alt 1: Signalized Intersection + Creek Alt 1: 2-lane Detour	Group 2 Intersection Alt 1 Signalized Intersection + Creek Alt 2: 2-lane Permanent Realignment	Group 3 Intersection Alt 1 Signalized Intersection + Creek Alt 3: 1-lane Detour/Reduced Work Zone	Group 4 Intersection Alt 2: Modern Roundabout + Creek Alt 1: 2-lane Detour	Group 5 Intersection Alt 2: Modern Roundabout + Creek Alt 2: 2-lane Permanent Realignment	Group 6 Intersection Alt 2: Modern Roundabout + Creek Alt 3: 1-lane Detour/Reduced Work Zone	Group 7 Intersection Alt 3: Signalized Intersection w/ a Flatter Curve + Creek Alt 1: 2-lane Detour	Group 8 Intersection Alt 3: Signalized Intersection w/ a Flatter Curve + Creek Alt 2: 2-lane Permanent Realignment	Group 9 Intersection Alt 3: Signalized Intersection w/ a Flatter Curve + Creek Alt 3: 1-lane Detour/Reduced Work Zone	Score Group 1	Score Group 2	Score Group 3	Score Group 4	Score Group 5	Score Group 6	Score Group 7	Score Group 8	Score Group 9	Weighted Score Group 1	Weighted Score Group 2	Weighted Score Group 3	Weighted Score Group 4	Weighted Score Group 5	Weighted Score Group 6	Weighted Score Group 7	Weighted Score Group 8	Weighted Score Group 9
TRANSPORTATION																																	
Safety and Operations																																	
Traffic Operations	*Poor to Very Good (1.0 - 0)*	0.35	0.35	0.50	0.30	0.30	0.45	0.35	0.35	0.50	0.30	0.30	0.00	0.40	0.40	0.10	0.30	0.30	0.00	6.00	6.00	0.00	8.00	8.00	2.00	6.00	6.00	0.00
Geometric Improvements to Highway 62 (improvements to line of sight)	*Poor to Very Good (1.0 - 0)*	0.65	0.60	0.80	0.30	0.20	0.50	0.60	0.50	0.70	0.19	0.25	0.00	0.63	0.75	0.38	0.25	0.38	0.13	2.81	3.75	0.00	9.38	11.25	5.63	3.75	5.63	1.88
Construction Staging																												
Complexity / Magnitude / Duration of Construction Staging / Throw-away Infrastructure	*Low to Very High (0 - 1.0)*	0.40	0.20	0.30	0.60	0.40	0.50	0.50	0.30	0.40	0.33	0.67	0.50	0.00	0.33	0.17	0.17	0.50	0.33	1.67	3.33	2.50	0.00	1.67	0.83	0.83	2.50	1.67
CATEGORY SUMMARY																				**10.48**	**13.08**	**2.50**	**17.38**	**20.92**	**8.46**	**10.58**	**14.13**	**3.54**
COST																												
Cost																												
Capital Cost	*$*	$5,900,000	$5,800,000	$5,700,000	$3,300,000	$3,300,000	$3,100,000	$5,800,000	$5,800,000	$5,600,000	0.00	0.02	0.03	0.44	0.44	0.47	0.02	0.02	0.05	0.00	0.17	0.34	4.41	4.41	4.75	0.17	0.17	0.51
CATEGORY SUMMARY																				**0.00**	**0.17**	**0.34**	**4.41**	**4.41**	**4.75**	**0.17**	**0.17**	**0.51**
NATURAL ENVIRONMENT																												
Fish and Fish Habitat																												
Length of Fish Habitat Displaced	*m*	20	20	20	10	10	10	15	15	15	0.00	0.00	0.00	0.50	0.50	0.50	0.25	0.25	0.25	0.00	0.00	0.00	1.50	1.50	1.50	0.75	0.75	0.75
Terrestrial Habitat and Vegetation																												
Area of Wetlands, Areas of Natural and Scientific Interest (ANSIs), Environmentally Significant/Sensitive Areas (ESAs), and Terrestrial Habitat Displaced	*ha*	0.05	0.05	0.05	0.00	0.00	0.00	0.02	0.02	0.02	0.00	0.00	0.00	1.00	1.00	1.00	0.60	0.60	0.60	0.00	0.00	0.00	2.50	2.50	2.50	1.50	1.50	1.50
Species at Risk																												
Impact to Species at Risk (SAR)	*Low to Very High (0 - 1.0)*	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Groundwater																												
Impacts to Groundwater Resources	*Low to Very High (0 - 1.0)*	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CATEGORY SUMMARY																				**0.00**	**0.00**	**0.00**	**4.00**	**4.00**	**4.00**	**2.25**	**2.25**	**2.25**

CATEGORY / Factor / *Indicator*	Measure	Group 1 Intersection Alt 1: Signalized Intersection + Creek Alt 1: 2-lane Detour	Group 2 Intersection Alt 1 Signalized Intersection + Creek Alt 2: 2-lane Permanent Realignment	Group 3 Intersection Alt 1 Signalized Intersection + Creek Alt 3: 1-lane Detour/Reduced Work Zone	Group 4 Intersection Alt 2: Modern Roundabout + Creek Alt 1: 2-lane Detour	Group 5 Intersection Alt 2: Modern Roundabout + Creek Alt 2: 2-lane Permanent Realignment	Group 6 Intersection Alt 2: Modern Roundabout + Creek Alt 3: 1-lane Detour/Reduced Work Zone	Group 7 Intersection Alt 3: Signalized Intersection w/ a Flatter Curve + Creek Alt 1: 2-lane Detour	Group 8 Intersection Alt 3: Signalized Intersection w/ a Flatter Curve + Creek Alt 2: 2-lane Permanent Realignment	Group 9 Intersection Alt 3: Signalized Intersection w/ a Flatter Curve + Creek Alt 3: 1-lane Detour/Reduced Work Zone	Score Group 1	Score Group 2	Score Group 3	Score Group 4	Score Group 5	Score Group 6	Score Group 7	Score Group 8	Score Group 9	Weighted Score Group 1	Weighted Score Group 2	Weighted Score Group 3	Weighted Score Group 4	Weighted Score Group 5	Weighted Score Group 6	Weighted Score Group 7	Weighted Score Group 8	Weighted Score Group 9
SOCIO-ECONOMIC ENVIRONMENT																															
Aesthetics																															
Impact to Sensitive Viewers	*Low to Very High (0 - 1.0)*	0.50	0.80	0.20	0.40	0.70	0.10	0.60	0.90	0.30	0.44	0.11	0.78	0.56	0.22	0.89	0.33	0.00	0.67	0.44	0.11	0.78	0.56	0.22	0.89	0.33	0.00	0.67
Noise																															
Impact to Sensitive Receivers	*Low to Very High (0 - 1.0)*	0.20	0.40	0.20	0.10	0.25	0.10	0.20	0.35	0.30	0.50	0.00	0.50	0.75	0.38	0.75	0.50	0.13	0.25	0.50	0.00	0.50	0.75	0.38	0.75	0.50	0.13	0.25
Air Quality																															
Impact to Sensitive Receivers	*Low to Very High (0 - 1.0)*	0.20	0.20	0.20	0.10	0.10	0.10	0.20	0.20	0.20	0.00	0.00	0.00	0.50	0.50	0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.50	0.50	0.50	0.00	0.00	0.00
Community Effects																															
Significance of Impact to Residential / Commercial Property (area, vegetation / landscape, entranceways)	*Low to Very High (0 - 1.0)*	0.90	0.95	0.85	0.15	0.20	0.10	0.75	0.80	0.70	0.05	0.00	0.11	0.84	0.79	0.89	0.21	0.16	0.26	0.79	0.00	1.58	12.63	11.84	13.42	3.16	2.37	3.95
Impact to the Trail of Two Lakes	*Low to Very High (0 - 1.0)*	0.20	0.30	0.10	0.20	0.30	0.10	0.20	0.30	0.10	0.33	0.00	0.67	0.33	0.00	0.67	0.33	0.00	0.67	0.33	0.00	0.67	0.33	0.00	0.67	0.33	0.00	0.67
Agricultural Operations																															
Area of Land Currently in Agricultural Production Disrupted / Displaced	*ha*	0.82	0.85	0.79	0.84	0.87	0.81	0.99	1.04	0.96	0.21	0.18	0.24	0.19	0.16	0.22	0.05	0.00	0.08	3.17	2.74	3.61	2.88	2.45	3.32	0.72	0.00	1.15
Waste and Contamination																															
Area of Properties that Have Potential For Waste / Contamination	*ha*	0.60	0.64	0.56	0.29	0.31	0.25	0.51	0.56	0.47	0.06	0.00	0.13	0.55	0.52	0.61	0.20	0.13	0.27	0.06	0.00	0.13	0.55	0.52	0.61	0.20	0.13	0.27
CATEGORY SUMMARY																				**5.30**	**2.85**	**7.25**	**18.20**	**15.91**	**20.15**	**5.25**	**2.62**	**6.95**
CULTURAL ENVIRONMENT																															
Archaeological Resources																															
Area of Archaeological Potential Disrupted	*ha*	0.87	0.90	0.84	0.84	0.87	0.81	1.01	1.06	0.98	0.18	0.15	0.21	0.21	0.18	0.24	0.05	0.00	0.08	0.45	0.38	0.52	0.52	0.45	0.59	0.12	0.00	0.19
Built Heritage Features and Cultural Heritage Landscapes																															
Impact to Built Heritage Features and/or Cultural Heritage Landscapes	*Low to Very High (0 - 1.0)*	0.60	0.60	0.60	0.00	0.00	0.00	0.55	0.55	0.55	0.00	0.00	0.00	1.00	1.00	1.00	0.08	0.08	0.08	0.00	0.00	0.00	2.50	2.50	2.50	0.21	0.21	0.21
CATEGORY SUMMARY																				**0.45**	**0.38**	**0.52**	**3.02**	**2.95**	**3.09**	**0.33**	**0.21**	**0.40**
											TOTAL WEIGHTED SCORE:									16.23	16.48	10.61	47.00	48.18	40.45	18.58	19.37	13.65
																					XX		XXX			XX		

Notes Group 1	Notes Group 2	Notes Group 3	Notes Group 4	Notes Group 5	Notes Group 6	Notes Group 7	Notes Group 8	Notes Group 9
Good Signalizing the intersection will enhance safety and operations. Collisions involving left turning vehicles are expected to be reduced. **Good** Traffic during construction of the bridge is not disrupted due to the 2-lane detour. Temporary detour alignment accommodates all road users (buggies would be in mixed traffic).	**Good** Signalizing the intersection will enhance safety and operations. Collisions involving left turning vehicles are expected to be reduced. **Good** Traffic during construction of the bridge is not disrupted because the permanent realignment is constructed off of existing roadway. All road users are accommodated during construction (buggies would be in mixed traffic).	**Good** Signalizing the intersection will enhance safety and operations. Collisions involving left turning vehicles are expected to be reduced. **Fair** Temporary traffic signals are required on both sides of 1-lane detour for the bridge. One residential entrance is in the construction zone. The queue on Hwy 62 is not expected to extend into the intersection, and will not impact its operations. Less desirable operations than bridge Alts 1 &2 (free-flow 2-way traffic). Temporary detour alignment accommodates all road users (buggies would be in mixed traffic).	**Very Good** Roundabouts reduce the number of conflict points where collisions can occur (and severity) as it controls the speed of vehicles entering the intersection and eliminates left turn collisions. Roundabouts provide speed consistency through the intersection and can increase capacity and efficiency. **Good** Traffic during construction of the bridge is not disrupted due to the 2-lane detour. Temporary detour alignment accommodates all road users (buggies would be in mixed traffic).	**Very Good** Roundabouts reduce the number of conflict points where collisions can occur (and severity) as it controls the speed of vehicles entering the intersection and eliminates left turn collisions. Roundabouts provide speed consistency through the intersection and can increase capacity and efficiency. **Good** Traffic during construction of the bridge is not disrupted because the permanent realignment is constructed off of existing roadway. All road users are accommodated during construction (buggies would be in mixed traffic).	**Very Good** Roundabouts reduce the number of conflict points where collisions can occur (and severity) as it controls the speed of vehicles entering the intersection and eliminates left turn collisions. Roundabouts provide speed consistency through the intersection and can increase capacity and efficiency. **Fair** Temporary traffic signals are required on both sides of 1-lane detour for the bridge. One residential entrance is in the construction zone. The queue on Hwy 62 is not expected to extend into the intersection, and will not impact its operations. Less desirable operations than bridge Alts 1 &2 (free-flow 2-way traffic). Temporary detour alignment accommodates all road users (buggies would be in mixed traffic).	**Good** Signalizing the intersection will enhance safety and operations. Collisions involving left turning vehicles are expected to be reduced. **Good** Traffic during construction of the bridge is not disrupted due to the 2-lane detour. Temporary detour alignment accommodates all road users (buggies would be in mixed traffic).	**Good** Signalizing the intersection will enhance safety and operations. Collisions involving left turning vehicles are expected to be reduced. **Good** Traffic during construction of the bridge is not disrupted because the permanent realignment is constructed off of existing roadway. All road users are accommodated during construction (buggies would be in mixed traffic).	**Good** Signalizing the intersection will enhance safety and operations. Collisions involving left turning vehicles are expected to be reduced. **Fair** Temporary traffic signals are required on both sides of 1-lane detour for the bridge. One residential entrance is in the construction zone. The queue on Hwy 62 is not expected to extend into the intersection, and will not impact its operations. Less desirable operations than bridge Alts 1 &2 (free-flow 2-way traffic). Temporary detour alignment accommodates all road users (buggies would be in mixed traffic).
Moderate Intersection modifications provide no significant geometric improvements to Highway 62 to address existing sight distance issues. Intersection designed to accommodate agricultural and large vehicles. **Fair** Bridge construction temporary detour geometry: - Horiz. alignment meets 80 km/h design speed. - Vertical profile meets a 70 km/h design speed. The permanent structure replacement on the existing alignment: - Horiz. alignment retains existing 100 km/h design speed. - Vertical profile improves to 70 km/h design speed (from 60 km/h). Limited improvement to the visibility of the Moira/Ridge Road intersection due to reprofiling at bridge and intersection. If new structure constructed before intersection improvements: - Very minor improvement to the visibility of the Moira/Ridge Road intersection due to reprofiling at bridge. Westbound approach right turn sight distance at intersection is 60km/h design speed.	**Moderate** Intersection modifications provide no significant geometric improvements to Highway 62 to address existing sight distance issues. Intersection designed to accommodate agricultural and large vehicles. **Fair** Bridge construction reflects existing geometry: - Horiz. alignment meets 100 km/h design speed. - Vertical profile meets a 60 km/h design speed. The permanent structure highway geometry on new alignment: - Horiz. alignment meets 100 km/h design speed and improves visibility from Moira/Ridge Road intersection (for turning traffic on east leg). - Vertical profile improves to 70 km/h design speed (from 60 km/h). If new structure constructed before intersection improvements: - Improvement to the visibility of the Moira/Ridge Road intersection due to reprofiling and realignment at the bridge. Westbound approach right turn sight distance at intersection is 100km/h design speed.	**Moderate** Intersection modifications provide no significant geometric improvements to Highway 62 to address existing sight distance issues. Intersection designed to accommodate agricultural and large vehicles. **Poor** Bridge construction temporary detour geometry: - Horiz. alignment meets 60 km/h design speed. - Vertical profile meets a 60 km/h design speed. The permanent structure replacement on the existing alignment: - Horiz. alignment retains existing 100 km/h design speed. - Vertical profile improves to 70 km/h design speed (from 60 km/h). Limited improvement to the visibility of the Moira/Ridge Road intersection due to reprofiling at bridge and intersection. If new structure constructed before intersection improvements: - Very minor improvement to the visibility of the Moira/Ridge Road intersection due to reprofiling at bridge. Westbound approach right turn sight distance at intersection is 60km/h design speed.	**Good** Although a roundabout provides no significant geometric improvements to Highway 62, the line of sight is not an issue with a roundabout and is therefore an improvement relative to existing conditions. Roundabout designed to accommodate agricultural and large vehicles. **Good** Bridge construction temporary detour geometry: - Horiz. alignment meets 80 km/h design speed. - Vertical profile meets a 70 km/h design speed. The permanent structure replacement on the existing alignment: - Horiz. alignment retains existing 100 km/h design speed. - Vertical profile improves to 70 km/h design speed (from 60 km/h). Visibility from bridge to the Moira/Ridge Road intersection is not an issue with a roundabout. If new structure constructed before intersection improvements: - Very minor improvement to the visibility of the Moira/Ridge Road intersection due to reprofiling at bridge. 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Westbound approach right turn sight distance at intersection is 60km/h design speed.	**Good** A flatter curve alignment will improve sight distances for drivers approaching the intersection (for northbound and southbound drivers, as well as turning from the east leg) and enhance safety. Intersection designed to accommodate agricultural and large vehicles. **Fair** Bridge construction temporary detour geometry: - Horiz. alignment meets 80 km/h design speed. - Vertical profile meets a 70 km/h design speed. The permanent structure replacement on the existing alignment: - Horiz. alignment retains existing 100 km/h design speed. - Vertical profile improves to 70 km/h design speed (from 60 km/h). Limited improvements to the visibility of the Moira/Ridge Road intersection due to reprofiling at bridge and intersection. If new structure constructed before intersection improvements: - Very minor improvement to the visibility of the Moira/Ridge Road intersection due to reprofiling at bridge. 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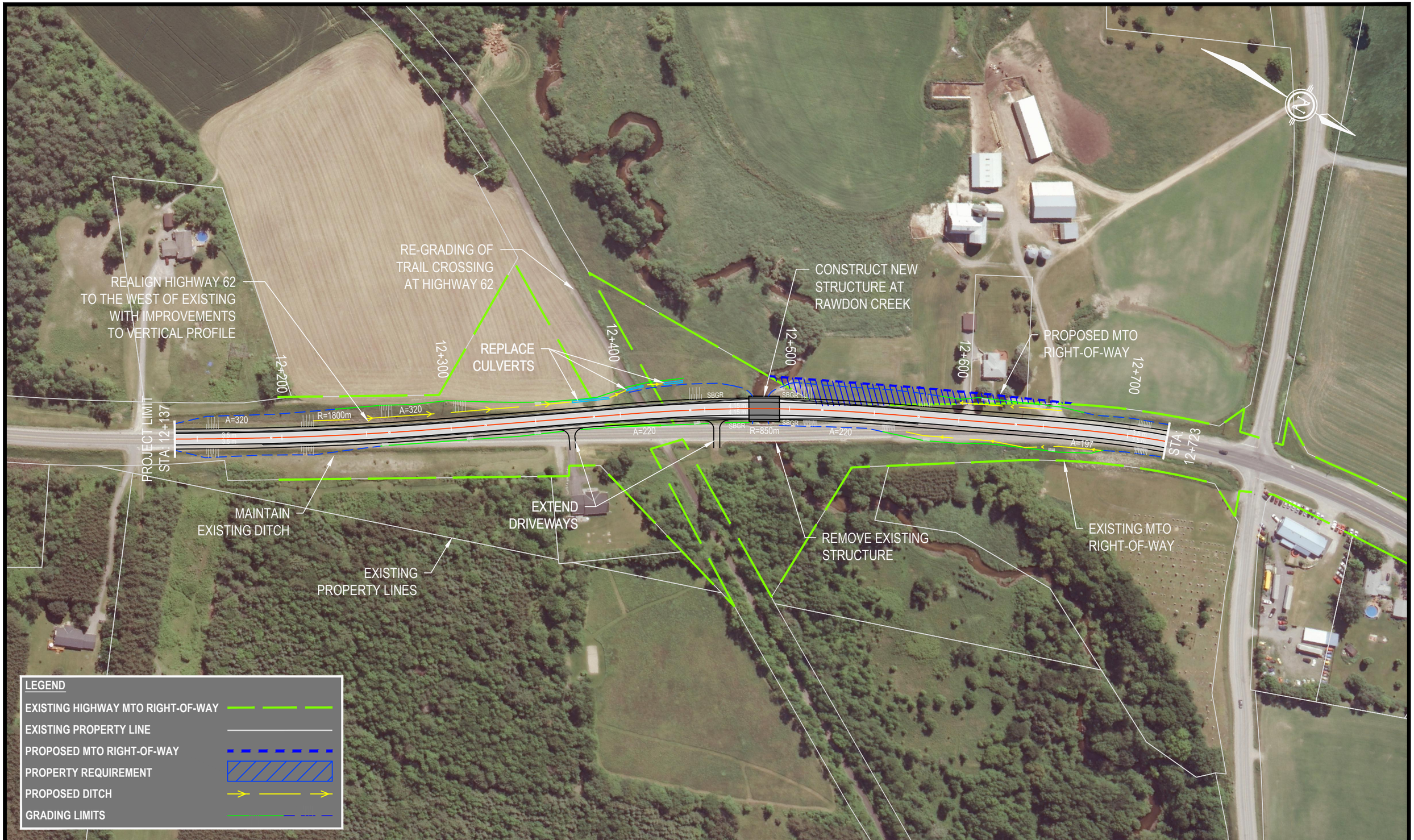
Westbound approach right turn sight distance at intersection is 60km/h design speed.
Low Low staging complexity and short duration of construction at the intersection. **High** 2-lane detour with temporary modular bridge constructed off of existing roadway to maintain traffic, while upgrades to the existing alignment and replacement of the structure occurs. Requires a full construction season. Greatest throw-away costs associated with temporary realignment.	**Low** Low staging complexity and short duration of construction at the intersection. **Low** Permanent realignment constructed off of existing roadway. Slightly shorter construction duration as it does not require construction and removal of a temporary bridge. Has no throw-away costs.	**Low** Low staging complexity and short duration of construction at the intersection. **Moderate** 1-lane detour with temporary modular bridge constructed off of existing roadway to maintain traffic, while upgrades to the existing alignment and replacement of the structure occurs. Requires a full construction season. Has moderate throw-away costs associated with temporary realignment.	**High** High staging complexity and long duration of construction at the intersection. **High** 2-lane detour with temporary modular bridge constructed off of existing roadway to maintain traffic, while upgrades to the existing alignment and replacement of the structure occurs. Requires a full construction season. Greatest throw-away costs associated with temporary realignment.	**High** High staging complexity and long duration of construction at the intersection. **Low** Permanent realignment constructed off of existing roadway. Slightly shorter construction duration as it does not require construction and removal of a temporary bridge. Has no throw-away costs.	**High** High staging complexity and long duration of construction at the intersection. **Moderate** 1-lane detour with temporary modular bridge constructed off of existing roadway to maintain traffic, while upgrades to the existing alignment and replacement of the structure occurs. Requires a full construction season. Has moderate throw-away costs associated with temporary realignment.	**Moderate** Moderate staging complexity and moderate duration of construction at the intersection. **High** 2-lane detour with temporary modular bridge constructed off of existing roadway to maintain traffic, while upgrades to the existing alignment and replacement of the structure occurs. Requires a full construction season. Greatest throw-away costs associated with temporary realignment.	**Moderate** Moderate staging complexity and moderate duration of construction at the intersection. **Low** permanent realignment constructed off of existing roadway. Slightly shorter construction duration as it does not require construction and removal of a temporary bridge. Has no throw-away costs.	**Moderate** Moderate staging complexity and moderate duration of construction at the intersection. **Moderate** 1-lane detour with temporary modular bridge constructed off of existing roadway to maintain traffic, while upgrades to the existing alignment and replacement of the structure occurs. Requires a full construction season. Has moderate throw-away costs associated with temporary realignment.
$250,000 for traffic signals, $825,000 for reconstruction of Highway 62, $1.2 M for reconstruction of Ridge Rd/Moira Rd, and $1.6 M for retaining wall on Ridge Rd/Moira Rd due to reprofiling. $360,000 for construction of 2-lane detour, $140,000 for 2-lane temporary modular bridge, $1.25 M for replacement of the existing bridge, and $200,000 for existing bridge removal. **Total $5.9 M**	$250,000 for traffic signals, $1.1 M for realignment/reconstruction of Highway 62, $1.2 M for reconstruction of Ridge Rd/Moira Rd, and $1.6 M for retaining wall on Ridge Rd/Moira Rd due to reprofiling. $1.4 M for new 2-lane bridge, $200,000 for existing bridge removal, and $24, 000 removal of the existing section of Hwy 62 not in use. **Total $5.8 M**	$250,000 for traffic signals, $825,000 for reconstruction of Highway 62, $1.2 M for reconstruction of Ridge Rd/Moira Rd, and $1.6 M for retaining wall on Ridge Rd/Moira Rd due to reprofiling. $170,000 for construction of 1-lane detour, $140,000 for 2-lane temporary modular bridge, $22,000 for portable temporary traffic signals, $1.25 M for replacement of the existing bridge, and $200,000 for existing bridge removal. **Total $5.7 M**	$870,000 for reconstruction of Highway 62, $480,000 in reconstructing Moira/Ridge Road, and $20,000 to connect entrances to properties in the northeast quadrant of the intersection. $360,000 for construction of 2-lane detour, $140,000 for 2-lane temporary modular bridge, $1.25 M for replacement of the existing bridge, and $200,000 for existing bridge removal. **Total $3.3 M**	$1.2 M for reconstruction of Highway 62, and $480,000 in reconstructing Moira/Ridge Road, and $20,000 to connect entrances to properties in the northeast quadrant of the intersection. $1.4 M for new 2-lane bridge, $200,000 for existing bridge removal, and $24, 000 removal of the existing section of Hwy 62 not in use. **Total $3.3 M**	$870,000 for reconstruction of Highway 62, and $480,000 in reconstructing Moira/Ridge Road, and $20,000 to connect entrances to properties in the northeast quadrant of the intersection. $170,000 for construction of 1-lane detour, $140,000 for 2-lane temporary modular bridge, $22,000 for portable temporary traffic signals, $1.25 M for replacement of the existing bridge, and $200,000 for existing bridge removal. **Total $3.1 M**	$250,000 for traffic signals, $1.2 M for reconstruction of Highway 62, $890,000 for reconstruction of Ridge Rd/Moira Rd, and $1.5 M for retaining wall on Ridge Rd/Moira Rd due to reprofiling. $360,000 for construction of 2-lane detour, $140,000 for 2-lane temporary modular bridge, $1.25 M for replacement of the existing bridge, and $200,000 for existing bridge removal. **Total $5.8 M**	$250,000 for traffic signals, $1.5 M for reconstruction of Highway 62, $890,000 for reconstruction of Ridge Rd/Moira Rd, and $1.5 M for retaining wall on Ridge Rd/Moira Rd due to reprofiling. $1.4 M for new 2-lane bridge, $200,000 for existing bridge removal, and $24,000 removal of the existing section of Hwy 62 not in use. **Total $5.8 M**	$250,000 for traffic signals, $1.2 M for reconstruction of Highway 62, $890,000 for reconstruction of Ridge Rd/Moira Rd, and $1.5 M for retaining wall on Ridge Rd/Moira Rd due to reprofiling. $170,000 for construction of 1-lane detour, $140,000 for 2-lane temporary modular bridge, $22,000 for portable temporary traffic signals, $1.25 M for replacement of the existing bridge, and $200,000 for existing bridge removal. **Total $5.6 M**
Requires extension of the CSP (C-04, indirectly supports fish habitat) that crosses Ridge Road on the west side of Highway 62. No in-water work anticipated. All alts result in negligible impacts to fish and fish habitat.	Requires extension of the CSP (C-04, indirectly supports fish habitat) that crosses Ridge Road on the west side of Highway 62. No in-water work anticipated. All alts result in negligible impacts to fish and fish habitat.	Requires extension of the CSP (C-04, indirectly supports fish habitat) that crosses Ridge Road on the west side of Highway 62. No in-water work anticipated. All alts result in negligible impacts to fish and fish habitat.	Requires extension of the CSP (C-04, indirectly supports fish habitat) that crosses Ridge Road on the west side of Highway 62. No in-water work anticipated. All alts result in negligible impacts to fish and fish habitat.	Requires extension of the CSP (C-04, indirectly supports fish habitat) that crosses Ridge Road on the west side of Highway 62. No in-water work anticipated. All alts result in negligible impacts to fish and fish habitat.	Requires extension of the CSP (C-04, indirectly supports fish habitat) that crosses Ridge Road on the west side of Highway 62. No in-water work anticipated. All alts result in negligible impacts to fish and fish habitat.	Requires extension of the CSP (C-04, indirectly supports fish habitat) that crosses Ridge Road on the west side of Highway 62. No in-water work anticipated. All alts result in negligible impacts to fish and fish habitat.	Requires extension of the CSP (C-04, indirectly supports fish habitat) that crosses Ridge Road on the west side of Highway 62. No in-water work anticipated. All alts result in negligible impacts to fish and fish habitat.	Requires extension of the CSP (C-04, indirectly supports fish habitat) that crosses Ridge Road on the west side of Highway 62. No in-water work anticipated. All alts result in negligible impacts to fish and fish habitat.
Displacement of Fresh Deciduous Forest Ecosite in the SE quadrant of the intersection (not a designated area)	Displacement of Fresh Deciduous Forest Ecosite in the SE quadrant of the intersection (not a designated area)	Displacement of Fresh Deciduous Forest Ecosite in the SE quadrant of the intersection (not a designated area)	Minor impacts to riparian vegetation.	Minor impacts to riparian vegetation.	Minor impacts to riparian vegetation.	Displacement of Fresh Deciduous Forest Ecosite in the SE quadrant of the intersection (not a designated area)	Displacement of Fresh Deciduous Forest Ecosite in the SE quadrant of the intersection (not a designated area)	Displacement of Fresh Deciduous Forest Ecosite in the SE quadrant of the intersection (not a designated area)
Barn Swallow, Bobolink and Snapping Turtle. All alternatives result in similar minor potential to impact SAR or their habitat. All alts require removal of the existing bridge and may impact nesting opportunities for Barn Swallow.	Barn Swallow, Bobolink and Snapping Turtle. All alternatives result in similar minor potential to impact SAR or their habitat. All alts require removal of the existing bridge and may impact nesting opportunities for Barn Swallow.	Barn Swallow, Bobolink and Snapping Turtle. All alternatives result in similar minor potential to impact SAR or their habitat. All alts require removal of the existing bridge and may impact nesting opportunities for Barn Swallow.	Barn Swallow, Bobolink and Snapping Turtle. All alternatives result in similar minor potential to impact SAR or their habitat. All alts require removal of the existing bridge and may impact nesting opportunities for Barn Swallow.	Barn Swallow, Bobolink and Snapping Turtle. All alternatives result in similar minor potential to impact SAR or their habitat. All alts require removal of the existing bridge and may impact nesting opportunities for Barn Swallow.	Barn Swallow, Bobolink and Snapping Turtle. All alternatives result in similar minor potential to impact SAR or their habitat. All alts require removal of the existing bridge and may impact nesting opportunities for Barn Swallow.	Barn Swallow, Bobolink and Snapping Turtle. All alternatives result in similar minor potential to impact SAR or their habitat. All alts require removal of the existing bridge and may impact nesting opportunities for Barn Swallow.	Barn Swallow, Bobolink and Snapping Turtle. All alternatives result in similar minor potential to impact SAR or their habitat. All alts require removal of the existing bridge and may impact nesting opportunities for Barn Swallow.	Barn Swallow, Bobolink and Snapping Turtle. All alternatives result in similar minor potential to impact SAR or their habitat. All alts require removal of the existing bridge and may impact nesting opportunities for Barn Swallow.
There are no significant groundwater recharge areas located within the study area. All alternatives have the potential to impact three wells (all three wells are located along Highway 62, one is on the south side of the intersection and two on the north side).	There are no significant groundwater recharge areas located within the study area. All alternatives have the potential to impact three wells (all three wells are located along Highway 62, one is on the south side of the intersection and two on the north side).	There are no significant groundwater recharge areas located within the study area. All alternatives have the potential to impact three wells (all three wells are located along Highway 62, one is on the south side of the intersection and two on the north side).	There are no significant groundwater recharge areas located within the study area. All alternatives have the potential to impact three wells (all three wells are located along Highway 62, one is on the south side of the intersection and two on the north side).	There are no significant groundwater recharge areas located within the study area. All alternatives have the potential to impact three wells (all three wells are located along Highway 62, one is on the south side of the intersection and two on the north side).	There are no significant groundwater recharge areas located within the study area. All alternatives have the potential to impact three wells (all three wells are located along Highway 62, one is on the south side of the intersection and two on the north side).	There are no significant groundwater recharge areas located within the study area. All alternatives have the potential to impact three wells (all three wells are located along Highway 62, one is on the south side of the intersection and two on the north side).	There are no significant groundwater recharge areas located within the study area. All alternatives have the potential to impact three wells (all three wells are located along Highway 62, one is on the south side of the intersection and two on the north side).

Notes Group 1	Notes Group 2	Notes Group 3	Notes Group 4	Notes Group 5	Notes Group 6	Notes Group 7	Notes Group 8	Notes Group 9
Displacement of farmlands in the NE, NW and SW quadrants of the intersection, removal of mature trees on the former AJ's Car Wash and Detailing property, and installation of retaining wall in the SE quadrant, along Hwy 62, changing existing views and vistas. Temporary aesthetic impact to one residence (removal of mature trees and stone retaining wall) in the NW quadrant of Rawdon Creek and Hwy 62. Potential to mitigate post construction of the new bridge.	Displacement of farmlands in the NE, NW and SW quadrants of the intersection, removal of mature trees on the former AJ's Car Wash and Detailing property, and installation of retaining wall in the SE quadrant, along Hwy 62, changing existing views and vistas. Permanent aesthetic impact to one residence (removal of mature trees and stone retaining wall) in the NW quadrant of Rawdon Creek and Hwy 62.	Displacement of farmlands in the NE, NW and SW quadrants of the intersection, removal of mature trees on the former AJ's Car Wash and Detailing property, and installation of retaining wall in the SE quadrant, along Hwy 62, changing existing views and vistas. Temporary, minor aesthetic impacts to the frontage of one residence in the northwest quadrant of Rawdon Creek and Hwy 62. Potential to mitigate post construction of the new bridge.	A roundabout has the potential to change existing views and vistas , however they are generally considered to be more aesthetically appealing relative to signalized intersections. Temporary aesthetic impact to one residence (removal of mature trees and stone retaining wall) in the NW quadrant of Rawdon Creek and Hwy 62. Potential to mitigate post construction of the new bridge.	A roundabout has the potential to change existing views and vistas , however they are generally considered to be more aesthetically appealing relative to signalized intersections. Permanent aesthetic impact to one residence (removal of mature trees and stone retaining wall) in the NW quadrant of Rawdon Creek and Hwy 62.	A roundabout has the potential to change existing views and vistas , however they are generally considered to be more aesthetically appealing relative to signalized intersections. Temporary, minor aesthetic impacts to the frontage of one residence in the northwest quadrant of Rawdon Creek and Hwy 62. Potential to mitigate post construction of the new bridge.	Displacement of farmlands in the NE, NW and SW quadrants of the intersection, and installation of retaining wall in the SE quadrant, along Hwy 62, changing existing views and vistas. Temporary aesthetic impact to one residence (removal of mature trees and stone retaining wall) in the NW quadrant of Rawdon Creek and Hwy 62. Potential to mitigate post construction of the new bridge.	Displacement of farmlands in the NE, NW and SW quadrants of the intersection, and installation of retaining wall in the SE quadrant, along Hwy 62, changing existing views and vistas. Permanent aesthetic impact to one residence (removal of mature trees and stone retaining wall) in the NW quadrant of Rawdon Creek and Hwy 62.	Displacement of farmlands in the NE, NW and SW quadrants of the intersection, and installation of retaining wall in the SE quadrant, along Hwy 62, changing existing views and vistas. Temporary, minor aesthetic impacts to the frontage of one residence in the northwest quadrant of Rawdon Creek and Hwy 62. Potential to mitigate post construction of the new bridge.
Minor change to the distance between Highway 62 and adjacent residences. No increase in traffic volumes. All alternatives have minor temporary impacts to noise level during construction.	The realigned Hwy 62 permanently shortens the distance between a residence (north of Rawdon Creek, west of Hwy 62) and the highway. No increase in traffic volumes. All alternatives have minor temporary impacts to noise level during construction.	Minor change to the distance between Highway 62 and adjacent residences. No increase in traffic volumes. All alternatives have minor temporary impacts to noise level during construction.	The realigned Highway 62 lengthens the distance between the highway and the residences in the NE quadrant of the intersection (due to the reconstructed entrances to these properties). There could be less noise due to reduced number of vehicle stops at the roundabout. No increase in traffic volumes. All alternatives have minor temporary impacts to noise level during construction.	The realigned Hwy 62 permanently shortens the distance between a residence (north of Rawdon Creek, west of Hwy 62) and the highway. The realigned Highway 62 lengthens the distance between the highway and the residences in the NE quadrant of the intersection (due to the reconstructed entrances to these properties). There could be less noise due to reduced number of vehicle stops at the roundabout. No increase in traffic volumes. All alternatives have minor temporary impacts to noise level during construction.	The realigned Highway 62 lengthens the distance between the highway and the residences in the NE quadrant of the intersection (due to the reconstructed entrances to these properties). There could be less noise due to reduced number of vehicle stops at the roundabout. No increase in traffic volumes. All alternatives have minor temporary impacts to noise level during construction.	Minor change to the distance between Highway 62 and adjacent residences. No increase in traffic volumes. All alternatives have minor temporary impacts to noise level during construction.	The realigned Hwy 62 permanently shortens the distance between a residence (north of Rawdon Creek, west of Hwy 62) and the highway. No increase in traffic volumes. All alternatives have minor temporary impacts to noise level during construction.	Minor change to the distance between Highway 62 and adjacent residences. No increase in traffic volumes. All alternatives have minor temporary impacts to noise level during construction.
Minor change to the distance between Highway 62 and adjacent residences. No increase in traffic volumes. All alternatives have minor temporary impacts to local air quality during construction.	Minor change to the distance between Highway 62 and adjacent residences. No increase in traffic volumes. All alternatives have minor temporary impacts to local air quality during construction.	Minor change to the distance between Highway 62 and adjacent residences. No increase in traffic volumes. All alternatives have minor temporary impacts to local air quality during construction.	Idling is significantly reduced by yielding at the entry of a roundabout, rather than stopping and waiting for a green light at a signalized intersection; or waiting for a gap in the traffic at a stop sign. This will lead to less idling and improved air emissions. No increase in traffic volumes. All alternatives have minor temporary impacts to local air quality during construction.	Idling is significantly reduced by yielding at the entry of a roundabout, rather than stopping and waiting for a green light at a signalized intersection; or waiting for a gap in the traffic at a stop sign. This will lead to less idling and improved air emissions. No increase in traffic volumes. All alternatives have minor temporary impacts to local air quality during construction.	Idling is significantly reduced by yielding at the entry of a roundabout, rather than stopping and waiting for a green light at a signalized intersection; or waiting for a gap in the traffic at a stop sign. This will lead to less idling and improved air emissions. No increase in traffic volumes. All alternatives have minor temporary impacts to local air quality during construction.	Minor change to the distance between Highway 62 and adjacent residences. No increase in traffic volumes. All alternatives have minor temporary impacts to local air quality during construction.	Minor change to the distance between Highway 62 and adjacent residences. No increase in traffic volumes. All alternatives have minor temporary impacts to local air quality during construction.	Minor change to the distance between Highway 62 and adjacent residences. No increase in traffic volumes. All alternatives have minor temporary impacts to local air quality during construction.
Displacement of Jackson Auto Sales. 0.02 ha required from the residences in the intersection NE quadrant. Impact to one residence (removal of mature trees and stone retaining wall) in the NW quadrant of Rawdon Creek and Hwy 62 (0.01 ha of property temporarily impacted). Ability to mitigate post construction through landscape treatments.	Displacement of Jackson Auto Sales. 0.02 ha required from the residences in the intersection NE quadrant. Permanent impact to the frontage of the residence in the NW quadrant of Rawdon Creek and Hwy 62, displacing permanently the stone retaining wall (partially), mature trees and the dual entrance driveway (0.02 ha of property permanently impacted).	Displacement of Jackson Auto Sales. 0.02 ha required from the residences in the intersection NE quadrant. Results in temporary, minor impacts to the frontage of the residence in the NW quadrant of Rawdon Creek and Hwy 62 (minimal property impacted). Ability to mitigate post construction through landscape treatments. One residential entrance is in the construction zone.	No impact to Jackson Auto Sales. Impact to one residence (removal of mature trees and stone retaining wall) in the NW quadrant of Rawdon Creek and Hwy 62 (0.01 ha of property temporarily impacted). Ability to mitigate post construction through landscape treatments.	No impact to Jackson Auto Sales. Permanent minor impact to the frontage of the residence in the NW quadrant of Rawdon Creek and Hwy 62, displacing the stone retaining wall (partially), mature trees and the dual entrance driveway (partially).	No impact to Jackson Auto Sales. Results in temporary minor impacts to the frontage of the residence in the NW quadrant of Rawdon Creek and Hwy 62 (minimal property impacted). Ability to mitigate post construction through landscape treatments. One residential entrance is in the construction zone.	Displacement of Jackson Auto Sales. Impact to one residence (removal of mature trees and stone retaining wall) in the NW quadrant of Rawdon Creek and Hwy 62 (0.01 ha of property impacted). Ability to mitigate post construction through landscape treatments.	Displacement of Jackson Auto Sales. Permanent / significant impact to the frontage of the residence in the NW quadrant of Rawdon Creek and Hwy 62, displacing permanently the stone retaining wall (partially), mature trees and the dual entrance driveway (0.02 ha of property permanently impacted).	Displacement of Jackson Auto Sales. Impact to one residence (removal of mature trees and stone retaining wall) in the NW quadrant of Rawdon Creek and Hwy 62 (0.01 ha of property impacted). Ability to mitigate post construction through landscape treatments. One residential entrance is in the construction zone.
Results in minor impact to the trail crossing at Hwy 62 (re-grading).	Results in permanent change (re-grading) to the trail crossing at Hwy 62.	Results in minor impacts to the trail crossing at Hwy 62.	Results in minor impact to the trail crossing at Hwy 62 (re-grading).	Results in permanent change (re-grading) to the trail crossing at Hwy 62.	Results in minor impacts to the trail crossing at Hwy 62.	Results in minor impact to the trail crossing at Hwy 62 (re-grading).	Results in permanent change (re-grading) to the trail crossing at Hwy 62.	Results in minor impacts to the trail crossing at Hwy 62.
0.59 ha (0.09 ha temporary) from Donnandale Farm on both north and south sides of Moira/Ridge Rd, west of Highway 62. 0.23 ha from the farm in the NE quadrant of the intersection.	0.62 ha from Donnandale Farm on both north and south sides of Moira/Ridge Rd, west of Highway 62. 0.23 ha from the farm in the NE quadrant of the intersection.	0.56 ha (0.06 ha temporary) from Donnandale Farm on both north and south sides of Moira/Ridge Rd, west of Highway 62. 0.23 ha from the farm in the NE quadrant of the intersection.	0.84 ha (0.08 ha temporary) from Donnandale Farm on both north and south sides of Moira/Ridge Rd, west of Highway 62.	0.87 ha from Donnandale Farm on both north and south sides of Moira/Ridge Rd, west of Highway 62.	0.81 ha (0.05 ha temporary) from Donnandale Farm on both north and south sides of Moira/Ridge Rd, west of Highway 62.	0.80 ha (0.07 ha temporary) from Donnandale Farm on both north and south sides of Moira/Ridge Rd, west of Highway 62. 0.19 ha from the farm in the NE quadrant of the intersection.	0.85 ha from Donnandale Farm on both north and south sides of Moira/Ridge Rd, west of Highway 62. 0.19 ha from the farm in the NE quadrant of the intersection.	0.77 ha (0.04 ha temporary) from Donnandale Farm on both north and south sides of Moira/Ridge Rd, west of Highway 62. 0.19 ha from the farm in the NE quadrant of the intersection.
Jackson Auto Sales, former AJ's Car Wash and Detailing, and Donnandale Farm on the south side of Moira/Ridge Road have medium contamination potential. Impacting 0.60 ha (0.10 ha temporary) of lands that have medium contamination potential.	Jackson Auto Sales, former AJ's Car Wash and Detailing, and Donnandale Farm on the south side of Moira/Ridge Road have medium contamination potential. Impacting 0.64 ha of lands that have medium contamination potential.	Jackson Auto Sales, former AJ's Car Wash and Detailing, and Donnandale Farm on the south side of Moira/Ridge Road have medium contamination potential. Impacting 0.56 ha (0.06 ha temporary) of lands that have medium contamination potential.	Jackson Auto Sales and Donnandale Farm on the south side of Moira/Ridge Road have medium contamination potential. Impacting 0.29 ha (0.09 ha temporary) of lands that have medium contamination potential.	Jackson Auto Sales and Donnandale Farm on the south side of Moira/Ridge Road have medium contamination potential. Impacting 0.31 ha of lands that have medium contamination potential.	Jackson Auto Sales and Donnandale Farm on the south side of Moira/Ridge Road have medium contamination potential. Impacting 0.25 ha (0.05 ha temporary) of lands that have medium contamination potential.	Jackson Auto Sales and Donnandale Farm on the south side of Moira/Ridge Road have medium contamination potential. Impacting 0.51 ha (0.08 ha temporary) of lands that have medium contamination potential.	Jackson Auto Sales and Donnandale Farm on the south side of Moira/Ridge Road have medium contamination potential. Impacting 0.56 ha of lands that have medium contamination potential.	Jackson Auto Sales and Donnandale Farm on the south side of Moira/Ridge Road have medium contamination potential. Impacting 0.47 ha (0.04 ha temporary) of lands that have medium contamination potential.
Impacts to lands identified as having archaeological potential and requires Stage 2 Archaeological Assessment.	Impacts to lands identified as having archaeological potential and requires Stage 2 Archaeological Assessment.	Impacts to lands identified as having archaeological potential and requires Stage 2 Archaeological Assessment.	Impacts to lands identified as having archaeological potential and requires Stage 2 Archaeological Assessment.	Impacts to lands identified as having archaeological potential and requires Stage 2 Archaeological Assessment.	Impacts to lands identified as having archaeological potential and requires Stage 2 Archaeological Assessment.	Impacts to lands identified as having archaeological potential and requires Stage 2 Archaeological Assessment.	Impacts to lands identified as having archaeological potential and requires Stage 2 Archaeological Assessment.	Impacts to lands identified as having archaeological potential and requires Stage 2 Archaeological Assessment.
Minor impact to the St. Luke's Cemetery (0.02 ha). Entrance to cemetery will have to be reconstructed at the west end of the property near the intersection and the entrance to the east will have to be closed. The Rawdon Creek Bridge does not meet the criteria for nomination to the Heritage Bridge list. Minor impact to a Cultural Heritage Landscape (west of Highway 62 on both sides of Moira/Ridge Road).	Minor impact to the St. Luke's Cemetery (0.02 ha). Entrance to cemetery will have to be reconstructed at the west end of the property near the intersection and the entrance to the east will have to be closed. The Rawdon Creek Bridge does not meet the criteria for nomination to the Heritage Bridge list. Minor impact to a Cultural Heritage Landscape (west of Highway 62 on both sides of Moira/Ridge Road).	Minor impact to the St. Luke's Cemetery (0.02 ha). Entrance to cemetery will have to be reconstructed at the west end of the property near the intersection and the entrance to the east will have to be closed. The Rawdon Creek Bridge does not meet the criteria for nomination to the Heritage Bridge list. Minor impact to a Cultural Heritage Landscape (west of Highway 62 on both sides of Moira/Ridge Road).	No impact to built heritage resources. Impacts to the St. Luke's Cemetery are not anticipated (only regarding of cemetery entrance). The Rawdon Creek Bridge does not meet the criteria for nomination to the Heritage Bridge list. Minor impact to a Cultural Heritage Landscape (west of Highway 62 on both sides of Moira/Ridge Road).	No impact to built heritage resources. Impacts to the St. Luke's Cemetery are not anticipated. (only regarding of cemetery entrance). The Rawdon Creek Bridge does not meet the criteria for nomination to the Heritage Bridge list. Minor impact to a Cultural Heritage Landscape (west of Highway 62 on both sides of Moira/Ridge Road).	No impact to built heritage resources. Impacts to the St. Luke's Cemetery are not anticipated. (only regarding of cemetery entrance). The Rawdon Creek Bridge does not meet the criteria for nomination to the Heritage Bridge list. Minor impact to a Cultural Heritage Landscape (west of Highway 62 on both sides of Moira/Ridge Road).	Minor impact to the St. Luke's Cemetery (0.01 ha). Entrance to cemetery will have to be reconstructed at the west end of the property near the intersection and the entrance to the east will have to be closed. The Rawdon Creek Bridge does not meet the criteria for nomination to the Heritage Bridge list. Minor impact to a Cultural Heritage Landscape (west of Highway 62 on both sides of Moira/Ridge Road).	Minor impact to the St. Luke's Cemetery (0.01 ha). Entrance to cemetery will have to be reconstructed at the west end of the property near the intersection and the entrance to the east will have to be closed. The Rawdon Creek Bridge does not meet the criteria for nomination to the Heritage Bridge list. Minor impact to a Cultural Heritage Landscape (west of Highway 62 on both sides of Moira/Ridge Road).	Minor impact to the St. Luke's Cemetery (0.01 ha). Entrance to cemetery will have to be reconstructed at the west end of the property near the intersection and the entrance to the east will have to be closed. The Rawdon Creek Bridge does not meet the criteria for nomination to the Heritage Bridge list. Minor impact to a Cultural Heritage Landscape (west of Highway 62 on both sides of Moira/Ridge Road).

APPENDIX E
The Recommended Plan



Ontario
Ministry of Transportation

URS

HIGHWAY 62
RAWDON CREEK STRUCTURE REPLACEMENT &
MOIRA ROAD / RIDGE ROAD INTERSECTION IMPROVEMENTS
GWP 4044-10-00

KEY MAP

RECOMMENDED PLAN

HIGHWAY 62 - INTERIM
STATION 12+137 TO STATION 12+723

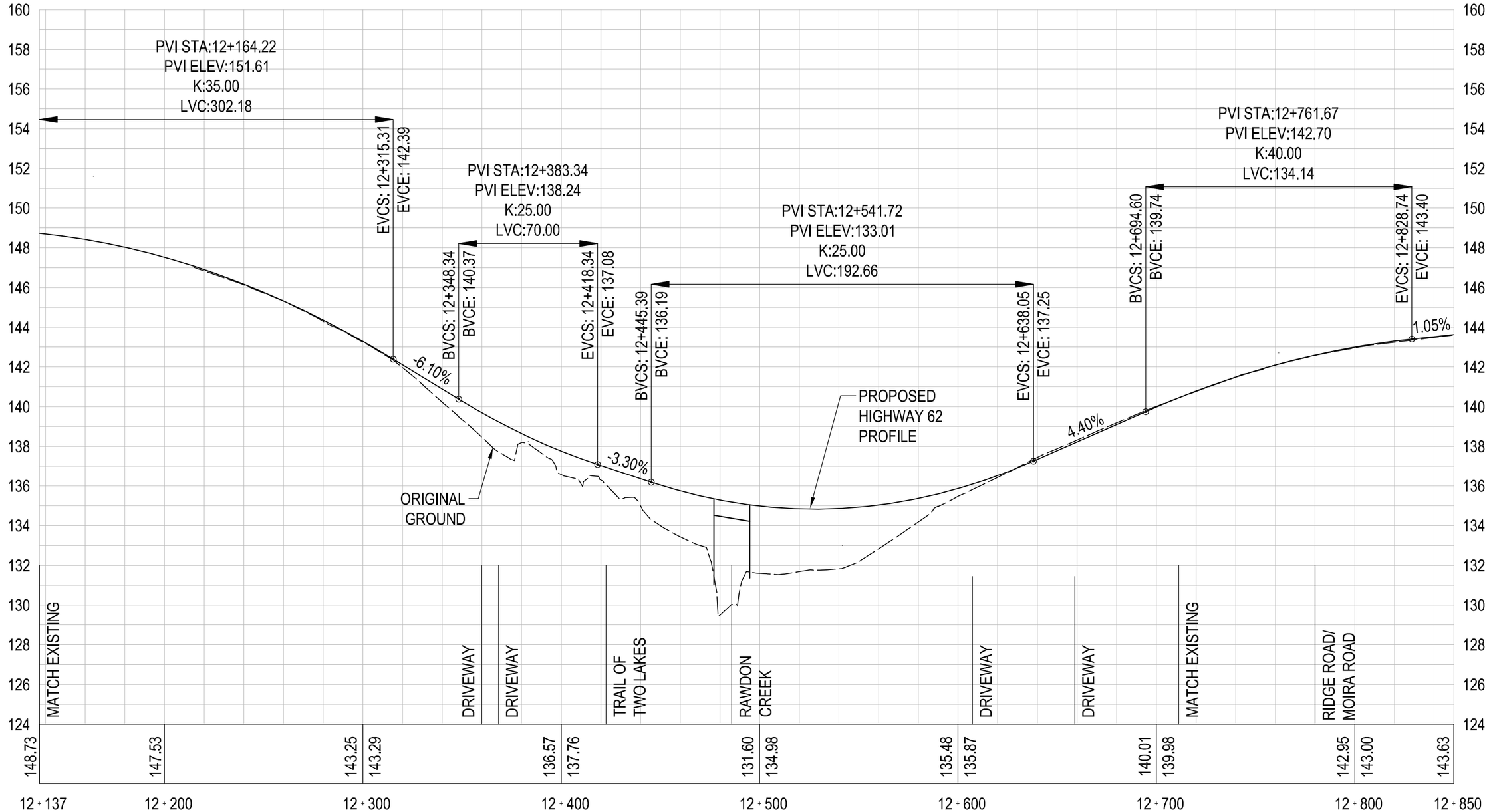
SCALE

25m 0m 50m

PLATE

1

PRELIMINARY

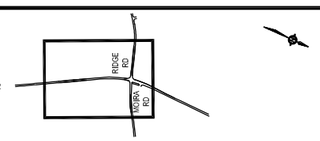


Ontario
Ministry of Transportation

URS

HIGHWAY 62
RAWDON CREEK STRUCTURE REPLACEMENT &
MOIRA ROAD / RIDGE ROAD INTERSECTION IMPROVEMENTS
GWP 4044-10-00

KEY MAP



RECOMMENDED PROFILE

HIGHWAY 62 - INTERIM
STATION 12+137 TO STATION 12+850

SCALE
25m 0m 50m

PLATE
1B

MUNICIPALITY OF CENTRE HASTINGS
HASTINGS COUNTY

EXISTING MTO
RIGHT-OF-WAY

RAWDON CREEK

PAVED
SHOULDERS WITH
CURB AND GUTTER

12+200

12+300

12+400

12+500

12+600

MTO RIGHT-OF-WAY
PREVIOUSLY REQUIRED FOR
INTERIM IMPROVEMENTS

PROPOSED MTO
RIGHT-OF-WAY

PROJECT LIMIT
STA: 12+137

3.75 m
3.75 m
4.15 m
4.15 m

HIGHWAY 62

R=1000m

STA:
12+700

MAINTAIN
EXISTING DITCH

EXISTING
PROPERTY LINES

TRAIL OF TWO LAKES

LEGEND

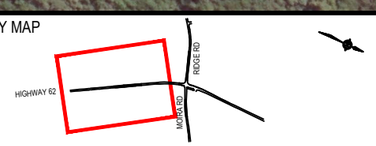
- EXISTING HIGHWAY MTO RIGHT-OF-WAY
- EXISTING PROPERTY LINE
- PROPOSED MTO RIGHT-OF-WAY
- PROPERTY REQUIREMENT
- INTERIM MTO RIGHT-OF-WAY
- INTERIM PROPERTY REQUIREMENT
- PROPOSED DITCH
- GRADING LIMITS

Ontario
Ministry of Transportation

URS

HIGHWAY 62
RAWDON CREEK STRUCTURE REPLACEMENT &
MOIRA ROAD / RIDGE ROAD INTERSECTION IMPROVEMENTS
GWP 4044-10-00

KEY MAP



RECOMMENDED PLAN

HIGHWAY 62 - ULTIMATE
STATION 12+137 TO STATION 12+700

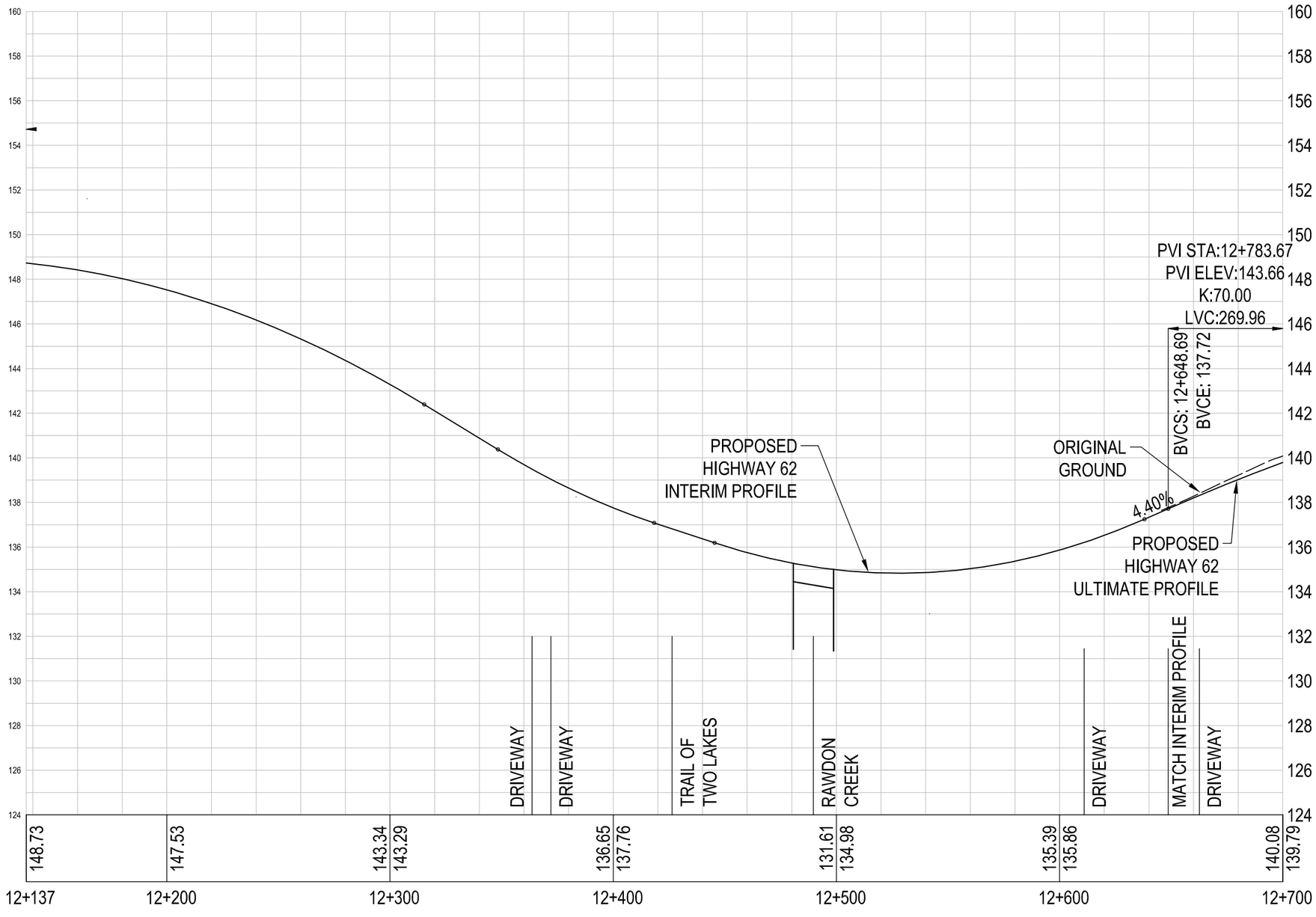
SCALE

25m 0m 50m

PLATE

2

PRELIMINARY

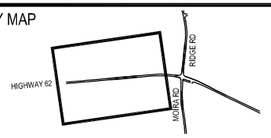


Ontario
Ministry of Transportation

URS

HIGHWAY 62
RAWDON CREEK STRUCTURE REPLACEMENT &
MOIRA ROAD / RIDGE ROAD INTERSECTION IMPROVEMENTS
GWP 4044-10-00

KEY MAP

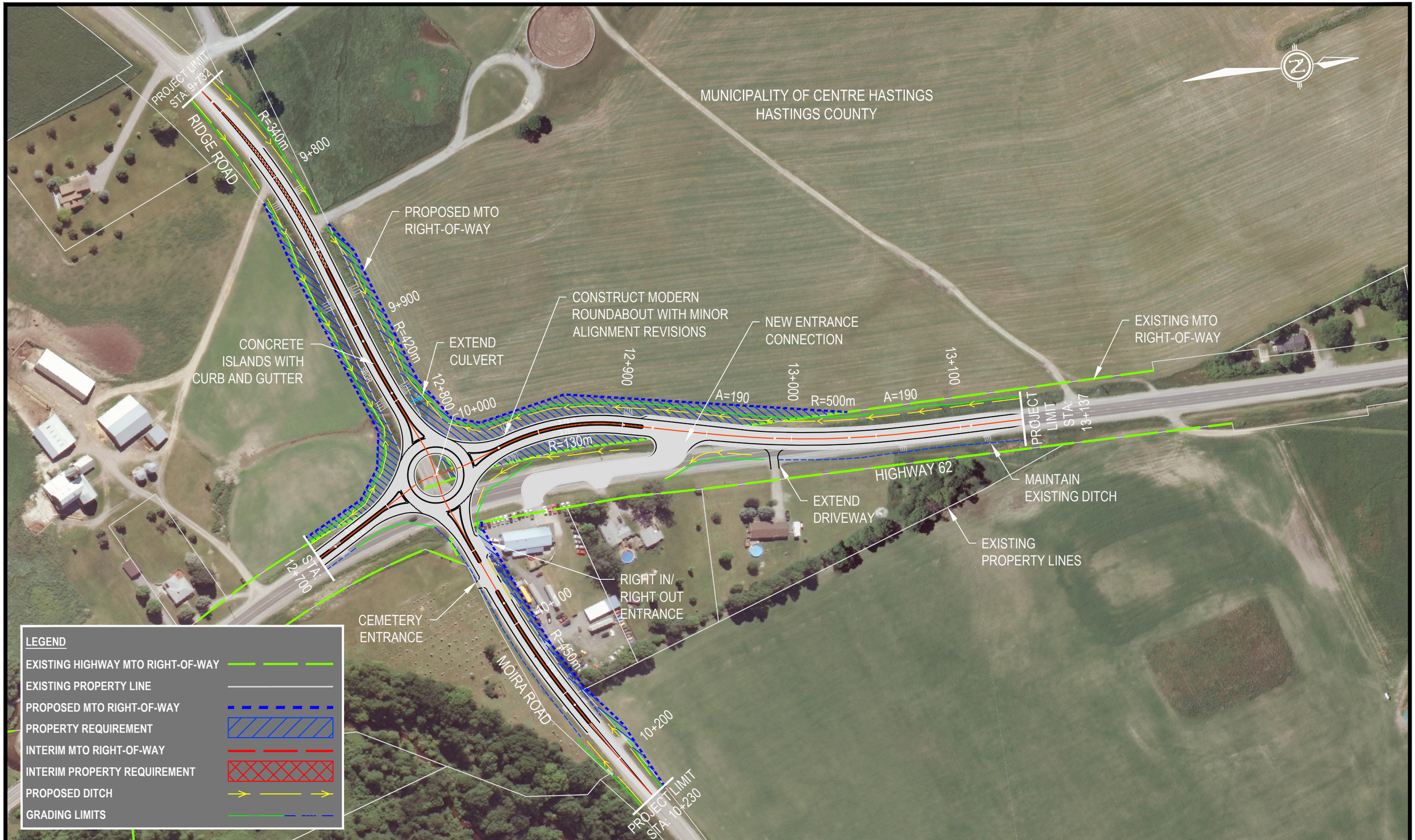


RECOMMENDED PROFILE

HIGHWAY 62 - ULTIMATE
STATION 12+137 TO STATION 12+700

SCALE
25m 0m 50m

PLATE
2B

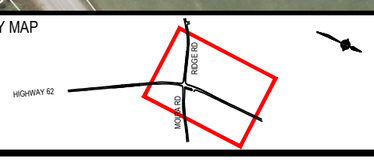


Ontario
Ministry of Transportation

URS

HIGHWAY 62
RAWDON CREEK STRUCTURE REPLACEMENT &
MOIRA ROAD / RIDGE ROAD INTERSECTION IMPROVEMENTS
GWP 4044-10-00

KEY MAP



RECOMMENDED PLAN

HIGHWAY 62 - ULTIMATE
STATION 12+700 TO STATION 13+137

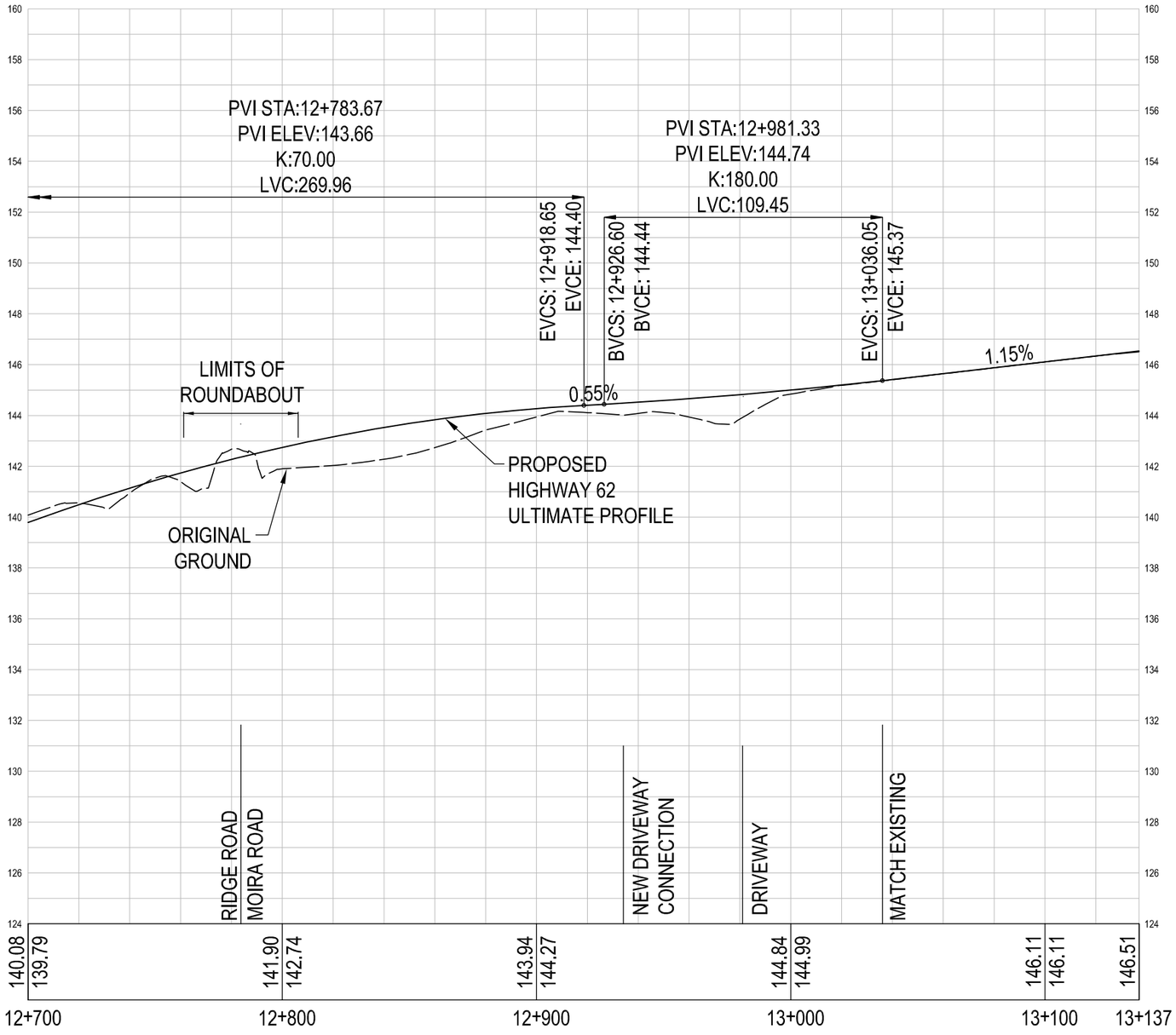
SCALE

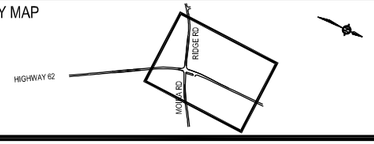
25m 0m 50m

PLATE

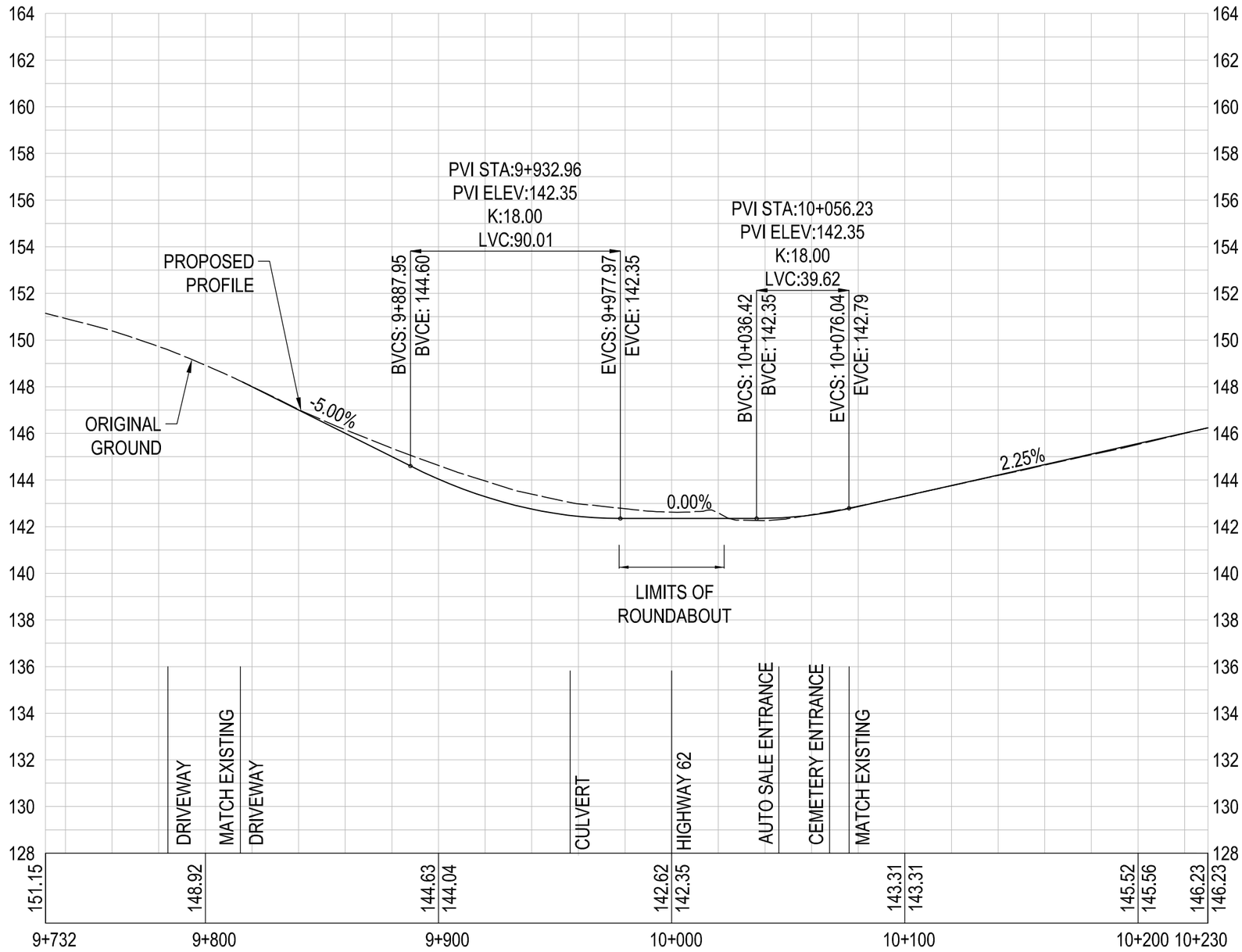
3

PRELIMINARY



Ontario Ministry of Transportation	URS	HIGHWAY 62 RAWDON CREEK STRUCTURE REPLACEMENT & MOIRA ROAD / RIDGE ROAD INTERSECTION IMPROVEMENTS GWP 4044-10-00	KEY MAP 	RECOMMENDED PROFILE HIGHWAY 62 - ULTIMATE STATION 12+700 TO STATION 13+137	SCALE 25m 0m 50m	PLATE 3B

PRELIMINARY



Ontario
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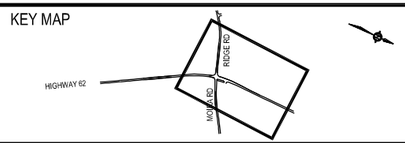
URS

HIGHWAY 62
RAWDON CREEK STRUCTURE REPLACEMENT &
MOIRA ROAD / RIDGE ROAD INTERSECTION IMPROVEMENTS
GWP 4044-10-00

KEY MAP



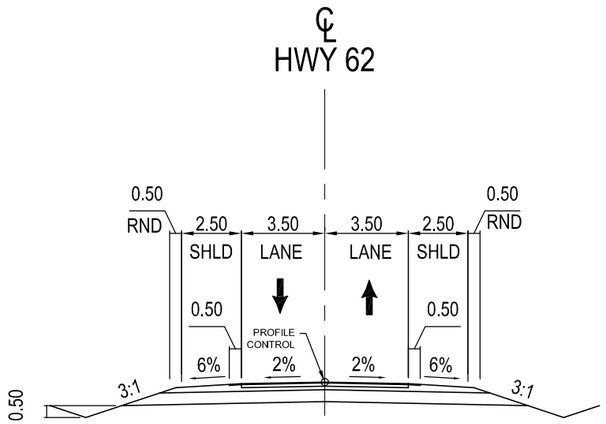
RECOMMENDED PROFILE
MOIRA ROAD/ RIDGE ROAD
STATION 9+732 TO STATION 10+230

SCALE
25m 0m 50m

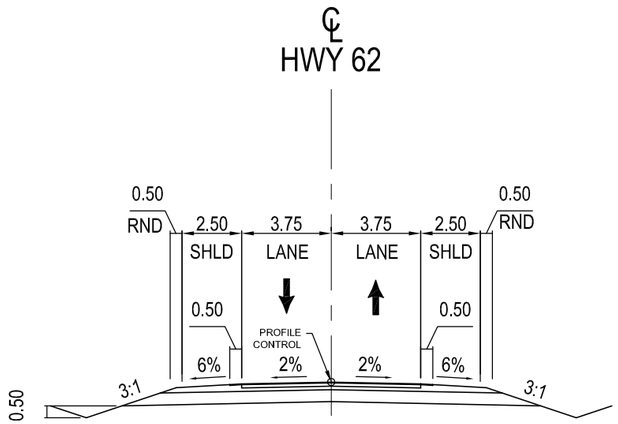
PLATE
3C

PRELIMINARY

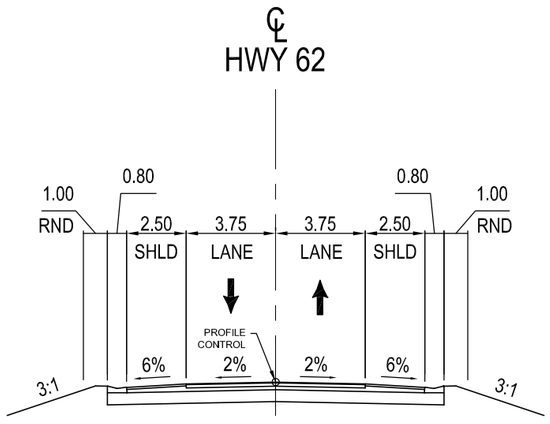
HIGHWAY 62 - INTERIM RURAL SECTION



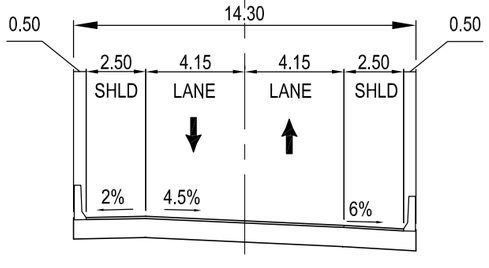
HIGHWAY 62 - ULTIMATE RURAL SECTION



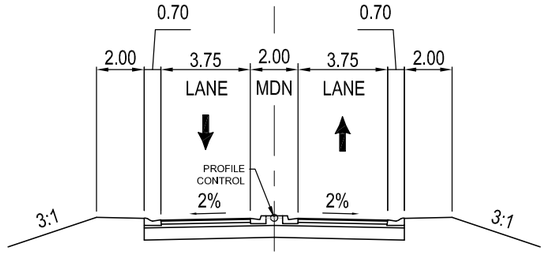
HIGHWAY 62 - ULTIMATE URBAN SECTION



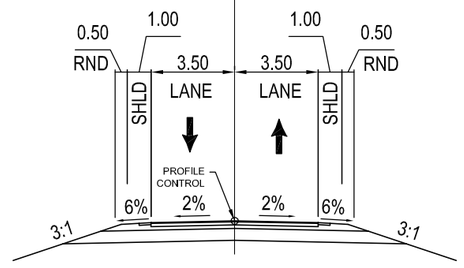
HIGHWAY 62 BRIDGE SECTION



ROUNDABOUT APPROACH SECTION



MOIRA RD / RIDGE RD RURAL SECTION



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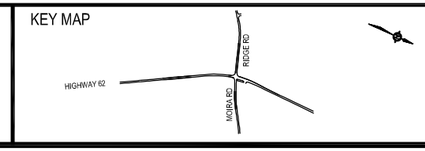
URS

HIGHWAY 62
RAWDON CREEK STRUCTURE REPLACEMENT &
MOIRA ROAD / RIDGE ROAD INTERSECTION IMPROVEMENTS
GWP 4044-10-00

KEY MAP

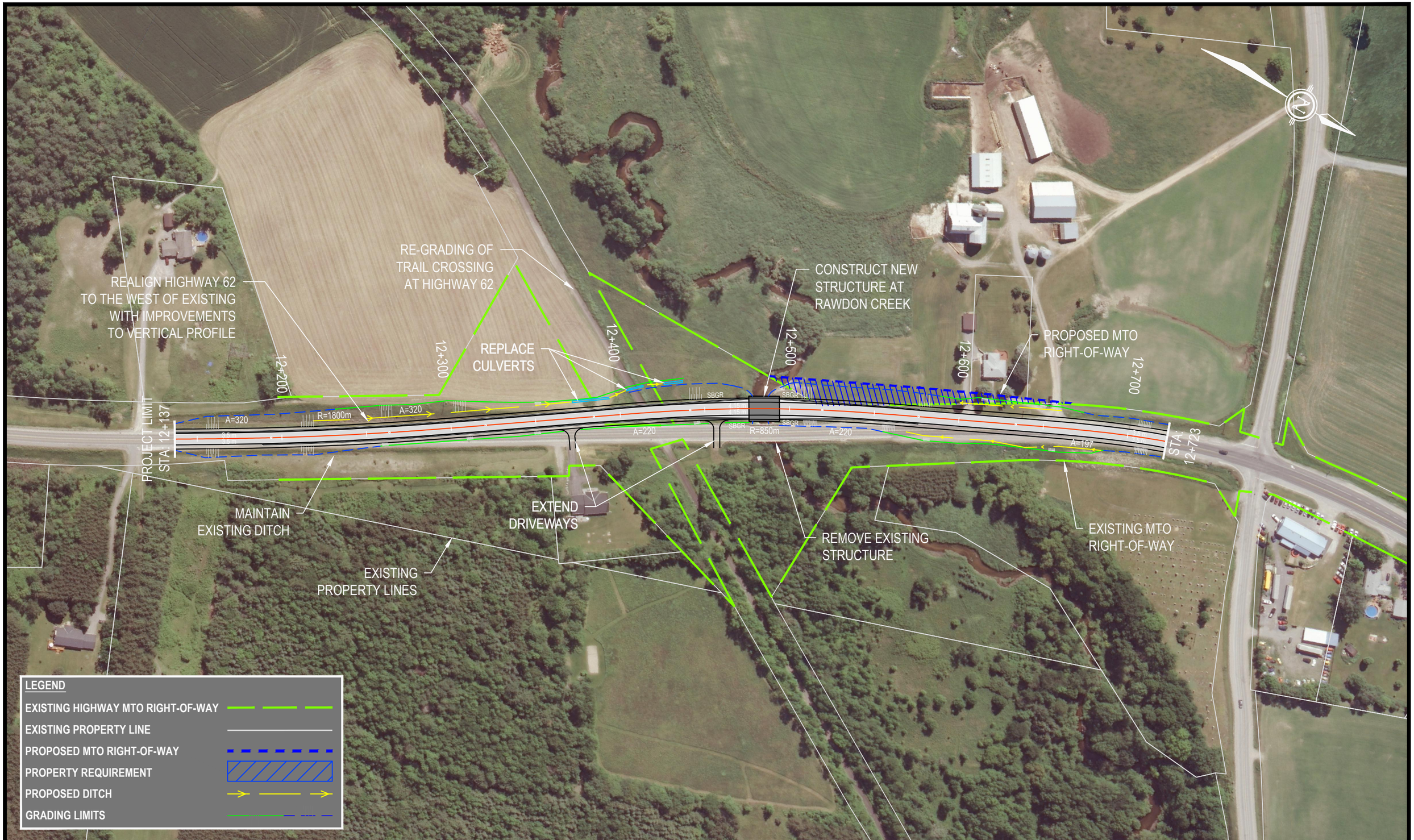


RECOMMENDED PLAN

TYPICAL SECTIONS

SCALE
5m 0m 5m

PLATE
4



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URS

HIGHWAY 62
RAWDON CREEK STRUCTURE REPLACEMENT &
MOIRA ROAD / RIDGE ROAD INTERSECTION IMPROVEMENTS
GWP 4044-10-00

KEY MAP

RECOMMENDED PLAN

HIGHWAY 62 - INTERIM
STATION 12+137 TO STATION 12+723

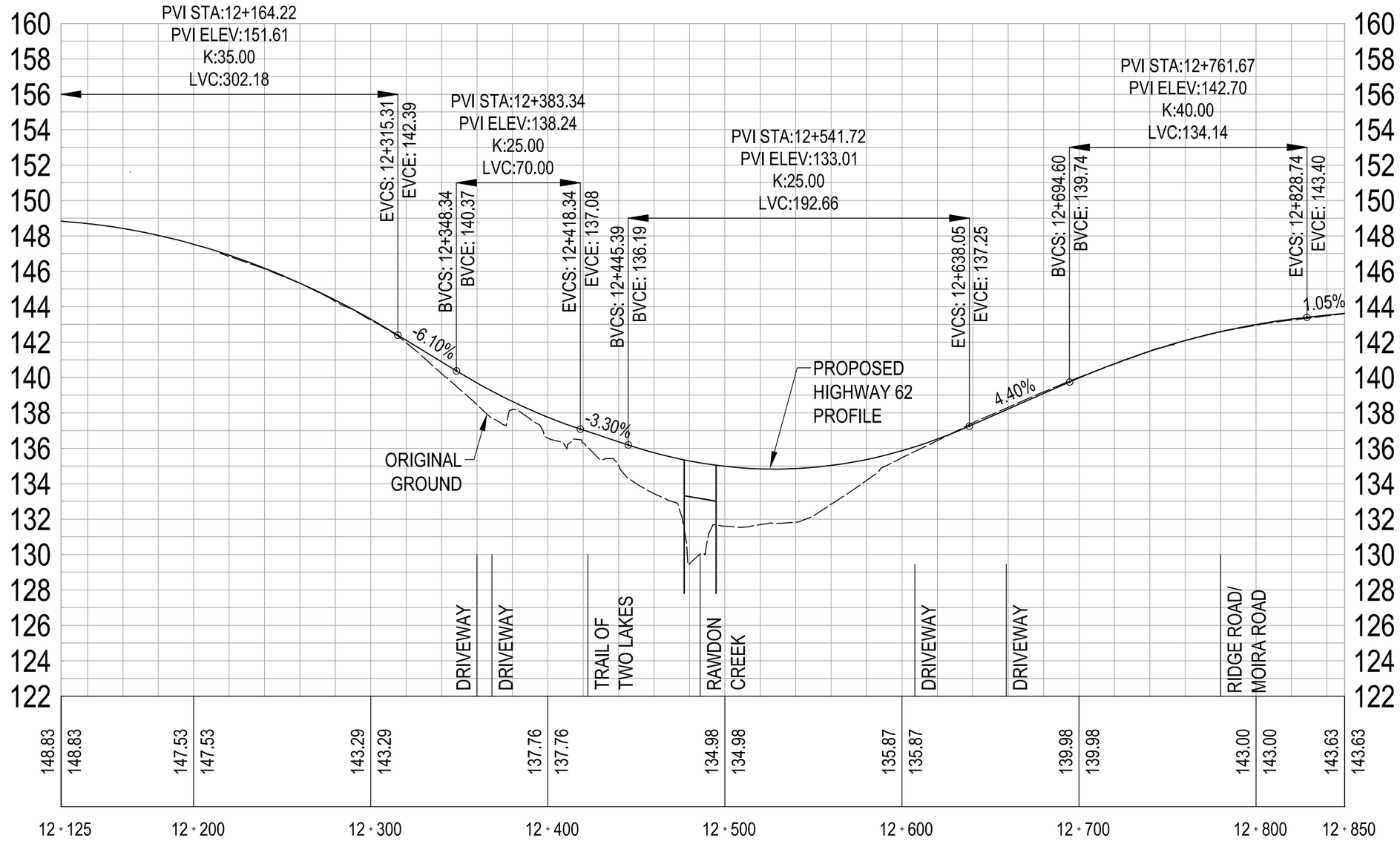
SCALE

25m 0m 50m

PLATE

1

PRELIMINARY



Ontario
Ministry of Transportation

URS

HIGHWAY 62
RAWDON CREEK STRUCTURE REPLACEMENT &
MOIRA ROAD / RIDGE ROAD INTERSECTION IMPROVEMENTS
GWP 4044-10-00

HIGHWAY 62
AT MOIRA ROAD / RIDGE ROAD

HIGHWAY 62 INTERIM PROFILE

50m 0m 50m

DATE:
September 2014

DWG
2

FILENAME: C:\Projects\1--33016828--Hwy62&Hwy35Bridges\10_Hwy_Eng\02_CADD\Hwy62_Rowdon Creek_Intersection\Working Dwgs\X--Design_Interim.dwg
PLOTDATE: Sep 25, 2014 - 1:44pm

MUNICIPALITY OF CENTRE HASTINGS
HASTINGS COUNTY

EXISTING MTO
RIGHT-OF-WAY

RAWDON CREEK

PAVED
SHOULDERS WITH
CURB AND GUTTER

12+200

12+300

12+400

12+500

12+600

MTO RIGHT-OF-WAY
PREVIOUSLY REQUIRED FOR
INTERIM IMPROVEMENTS

PROPOSED MTO
RIGHT-OF-WAY

PROJECT LIMIT
STA: 12+137

3.75 m
3.75 m
4.15 m
4.15 m

HIGHWAY 62

R=1000m

STA:
12+700

MAINTAIN
EXISTING DITCH

EXISTING
PROPERTY LINES

TRAIL OF TWO LAKES

LEGEND

- EXISTING HIGHWAY MTO RIGHT-OF-WAY
- EXISTING PROPERTY LINE
- PROPOSED MTO RIGHT-OF-WAY
- PROPERTY REQUIREMENT
- INTERIM MTO RIGHT-OF-WAY
- INTERIM PROPERTY REQUIREMENT
- PROPOSED DITCH
- GRADING LIMITS

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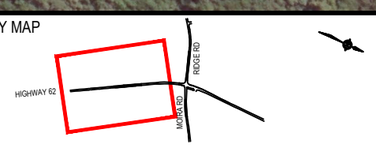
Ministry of Transportation

URS

HIGHWAY 62
RAWDON CREEK STRUCTURE REPLACEMENT &
MOIRA ROAD / RIDGE ROAD INTERSECTION IMPROVEMENTS
GWP 4044-10-00

KEY MAP



RECOMMENDED PLAN

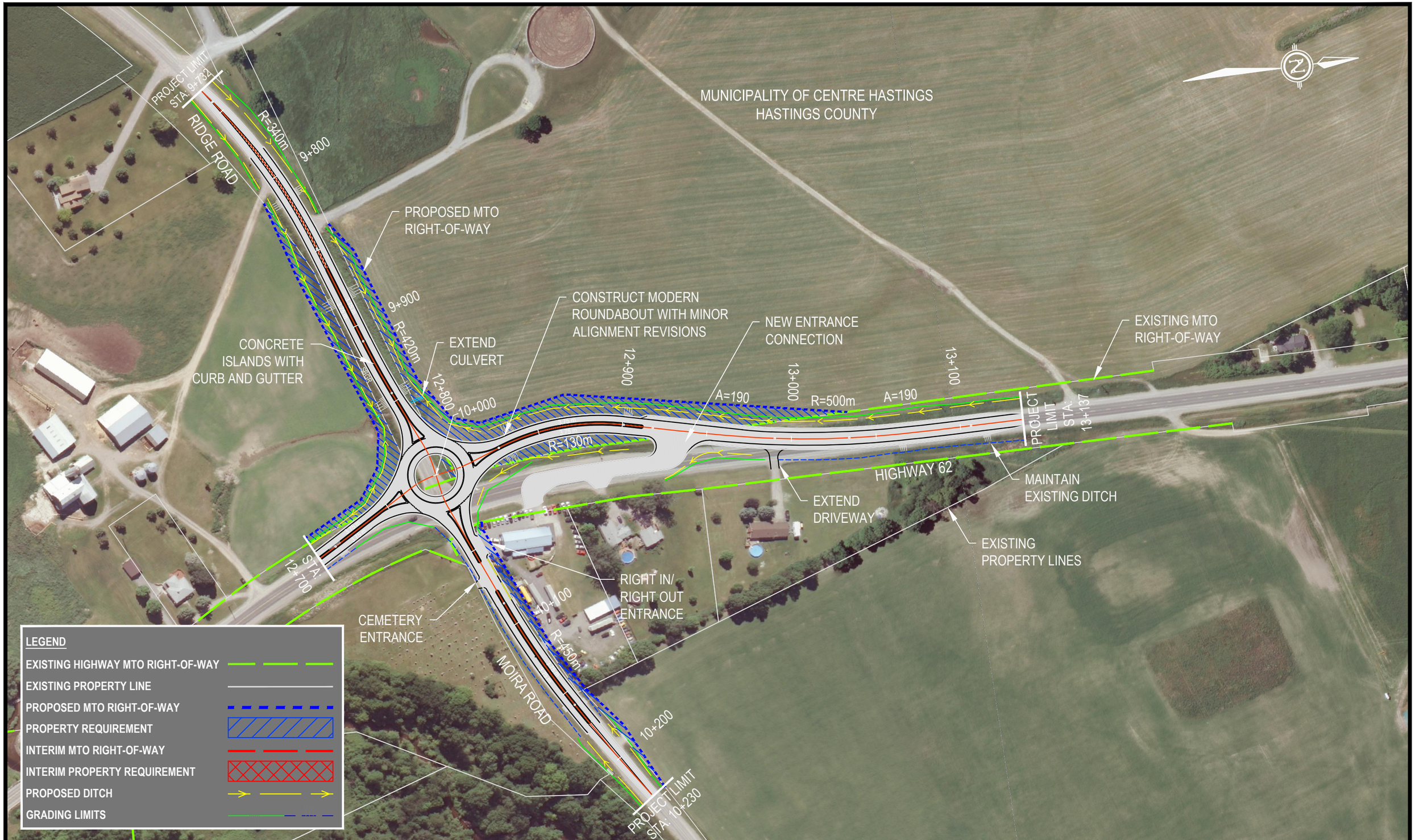
HIGHWAY 62 - ULTIMATE
STATION 12+137 TO STATION 12+700

SCALE

25m 0m 50m

PLATE

2



Ontario
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URS

HIGHWAY 62
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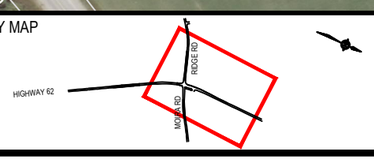
GWP 4044-10-00

KEY MAP



RECOMMENDED PLAN

HIGHWAY 62 - ULTIMATE
STATION 12+700 TO STATION 13+137

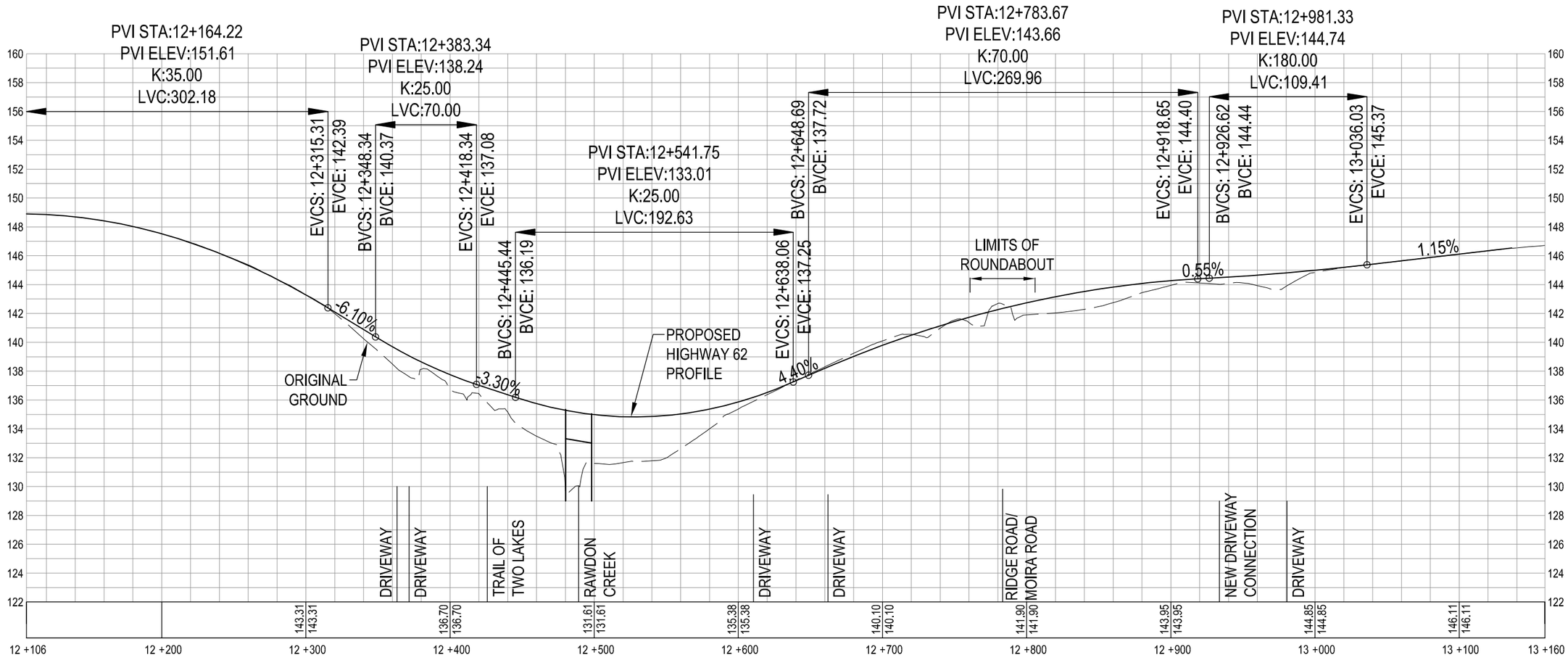
SCALE

25m 0m 50m

PLATE

3

PRELIMINARY



Ontario
Ministry of Transportation

URS

HIGHWAY 62
RAWDON CREEK STRUCTURE REPLACEMENT &
MOIRA ROAD / RIDGE ROAD INTERSECTION IMPROVEMENTS
GWP 4044-10-00

HIGHWAY 62
AT MOIRA ROAD / RIDGE ROAD

HIGHWAY 62 ULTIMATE PROFILE

50m 0m 50m

DATE:
September 2014

DWG
2

FILENAME: C:\Projects\1-33016828-Hwy62&Hwy35Bridges\10_Hwy_Eng\02_CADD\Hwy62_Rawdon Creek_Intersection\Working Dwgs\Design Package.dwg
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