

ONTARIO MINISTRY OF TRANSPORTATION

Highway 11/17 Four-Laning from 2.83 km West of Ouimet Overhead, Easterly 8.63 km

**PRELIMINARY DESIGN, DETAIL DESIGN AND CLASS
ENVIRONMENTAL ASSESSMENT STUDY**

DESIGN AND CONSTRUCTION REPORT

G.W.P. 135-90-00



December 2019



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REPORT

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ONTARIO MINISTRY OF TRANSPORTATION
NORTHWESTERN REGION

DECEMBER 2019

Signatures

HIGHWAY 11/17 FOUR-LANING FROM 2.83 WEST OF OUIMET OVERHEAD, EASTERLY 8.63 KM

MUNICIPALITY OF SHUNIAH
TOWNSHIP OF DORION

PRELIMINARY DESIGN, DETAIL DESIGN AND CLASS ENVIRONMENTAL
ASSESSMENT STUDY

Design and Construction Report

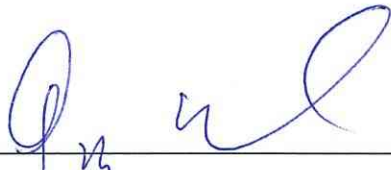
G.W.P. 135-90-00

December 2019


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The conclusions presented in this report are based on work performed by trained, professional and technical staff, in accordance with their reasonable interpretation of current and accepted engineering and scientific practices at the time the work was performed.

The content and opinions contained in the present report are based on the observations and/or information available to WSP at the time of preparation, using investigation techniques and engineering analysis methods consistent with those ordinarily exercised by WSP and other engineering/scientific practitioners working under similar conditions, and subject to the same time, financial and physical constraints applicable to this project.

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Design recommendations given in this report are applicable only to the project and areas as described in the text and then only if constructed in accordance with the details stated in this report. The comments made in this report on potential construction issues and possible methods are intended only for the guidance of the designer. The number of testing and/or sampling locations may not be sufficient to determine all the factors that may affect construction methods and costs. We accept no responsibility for any decisions made or actions taken as a result of this report unless we are specifically advised of and participate in such action, in which case our responsibility will be as agreed to at that time.

This limitations statement is considered an integral part of this report.

The Public Record

A copy of this document has been submitted to the following office of the Ministry of the Environment, Conservation and Parks to fulfill the requirements of the Ministry of Transportation's *Class Environmental Assessment for Provincial Transportation Facilities* (2000).

Ministry of the Environment, Conservation and Parks

Thunder Bay Regional Office
435 James Street South, Suite 331
Thunder Bay, Ontario P7E 6S7

This Design and Construction Report is also available for public review on the project website (<https://hwy11-17four-laningfromouimettodorion.ca>), and during normal business hours at:

Township of Dorion

Clerk's office
170 Dorion Loop Road
Dorion, Ontario

Dorion Public Library

170 Dorion Loop Road
Dorion, Ontario

Municipality of Shuniah

Clerk's Office
420 Leslie Avenue
Thunder Bay, Ontario

Red Rock Public Library

42 Salls Street
Red Rock, Ontario

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Notice of Filing Design and Construction Report

Highway 11/17 Four-Laning from 2.83 km West of Ouimet Overhead, Easterly 8.63 km

THE STUDY

WSP, on behalf of the Ontario **Ministry of Transportation (MTO)**, has completed the Preliminary Design, Detail Design and Class Environmental Assessment (Class EA) Study for the four-laning of Highway 11/17, from 2.83 km west of Ouimet Overhead, easterly for 8.63 km, within the Municipality of Shuniah and the Township of Dorion. The project includes:

- Some areas of twinning the existing highway;
- Some areas of new four-lane alignment, including constructing new eastbound and westbound bridges over the Canadian Pacific Railway;
- Providing connections to the new four-lane highway at Meyers Road, Ouimet Canyon Road, the proposed Service Road and Dorion Loop Road West;
- Connection of Poplar Lane to the proposed Service Road;
- Connection from Birch Lane to Meyers Road East; and
- Securing all the necessary environmental approvals for construction.

BACKGROUND

During the Preliminary Design Phase, a Public Information Centre (PIC) was held on April 13, 2016 to present the proposed design changes to the 1997 EA Approved Plan. The proposed design changes were documented in an Addendum to the 1997 ESR, which was filed for public review in October 2016. The 1997 EA Approved Plan did not provide access from Birch Lane to the new four-lane divided highway. In consideration of concerns raised at the PIC and further discussions with the Township of Dorion, MTO recommended a new public road connection between Meyers Road East and Birch Lane, which was documented in a second Addendum to the 1997 ESR and filed for public review in January 2018. A second PIC was held on February 21, 2018 to present the connection between Meyers Road East and Birch Lane, and the Detail Design Plan.

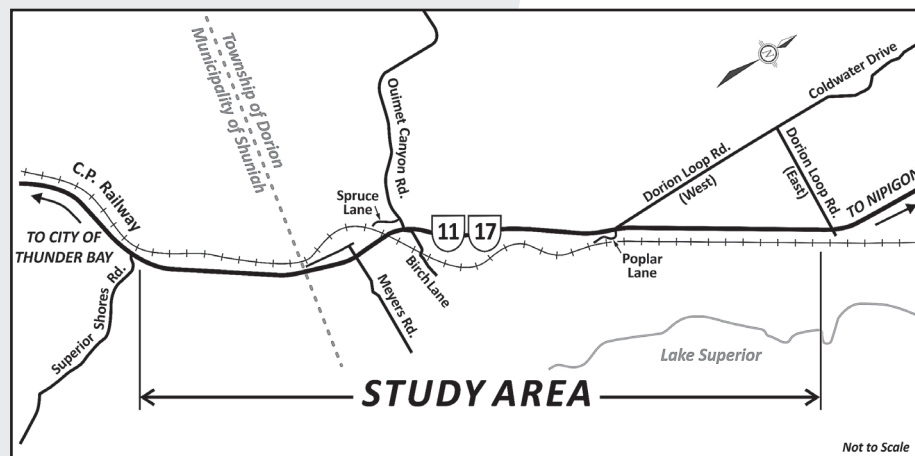
THE PROCESS

This study followed the approved environmental planning process for Group "B" projects under the *Class Environmental Assessment (Class EA) for Provincial Transportation Facilities (2000)*, with the opportunity for public input throughout.

A Design and Construction Report (DCR) has been prepared to document the Detail Design for the improvements to Highway 11/17 within the study limits. The DCR also outlines the associated environmental impacts and mitigation measures. The DCR is available for public review from

December 12, 2019 to January 27, 2020 on the project website (<https://hwy11-17four-laningfromouimettodorian.ca/>), and at the following locations during regular business hours:

Ministry of the Environment, Conservation and Parks
Thunder Bay Regional Office
435 James Street South, Suite 331
Thunder Bay, ON



Township of Dorion

Clerk's Office
170 Dorion Loop Road
Dorion, ON

Municipality of Shuniah

Clerk's Office
420 Leslie Avenue
Thunder Bay, ON

Red Rock Library

42 Salls Street
Red Rock, ON

Dorion Public Library

170 Dorion Loop Road
Dorion, ON

COMMENTS

Interested persons are encouraged to review this document and provide comments by **January 27, 2020**. The DCR is not eligible for a Part II Order (i.e. "bump-up") under the provisions of the Ontario *Environmental Assessment Act*.

If you wish to obtain additional information please contact:

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If you have any accessibility requirements to participate in this project, please contact one of the Project Team members listed above. Comments and information are being collected to assist the MTO in meeting the requirements of the Ontario *Environmental Assessment Act*. Information will be collected in accordance with the *Freedom of Information and Protection of Privacy Act*. All comments will be maintained on file for use during the study and, with the exception of personal information, may be included in study documentation and become part of the public record.

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GLOSSARY

CEAA -	<i>Canadian Environmental Assessment Act</i>
CP -	Canada Pacific
CSP -	Corrugated Steel Pipe
DCR -	Design and Construction Report
DFLCCC -	Dorion Four-Lane Community Consultation Committee
DFO -	Department of Fisheries and Oceans, Canada
EA Act -	<i>Ontario Environmental Assessment Act</i>
EASR -	Environmental Activity Sector Registry
EMS -	Emergency Medical Services
ESR -	Environmental Study Report
ESA -	Environmentally Sensitive Area
G.W.P. -	Group Work Project
HADD -	Harmful, Alteration, Disruption or Destruction of Fish Habitat
IAO -	Ministry of Indigenous Affairs
LOI -	Land Information Ontario
LRCA -	Lakehead Region Conservation Authority
MBCA -	Migratory Birds Convention Act
MECP -	Ministry of Environment, Conservation and Parks
MTCS -	Ministry of Tourism, Culture and Sport
MNRF -	Ministry of Natural Resources and Forestry
NHIC -	Natural Heritage Information Centre
MTO -	Ontario Ministry of Transportation
NWPA -	<i>Navigable Waters Protection Act</i>
OWRA -	<i>Ontario Water Resources Act</i>
PIC -	Public Information Centre
PTTW -	Permit-to-Take-Water
ROW -	Right-of-Way
SAR -	Species at Risk
SCC -	Species of Conservation Concern

1 PROJECT OVERVIEW

1.1 Summary Description of the Undertaking

In 1997, the Ministry of Transportation (MTO) completed a Planning and Preliminary Design Study for the four-laning of Highway 11/17 from 8 km west of Ouimet, easterly for 36 km to the west boundary of Red Rock Township. An Environmental Study Report (ESR) was filed in September 1997 and subsequently received environmental clearance. The study was identified as a Group “B” project and complied with the requirements of the *Provincial Highway Class Environmental Assessment* (1992).

The 1997 ESR documented the following:

- Description of the project, project justification, and its purpose;
- Environmentally significant aspects of the planning, design, and construction of the four-laning within the study limits;
- Description of the alternatives evaluated at the time;
- External agency and public consultation; and
- Anticipated environmental effects, proposed mitigation measures, and monitoring

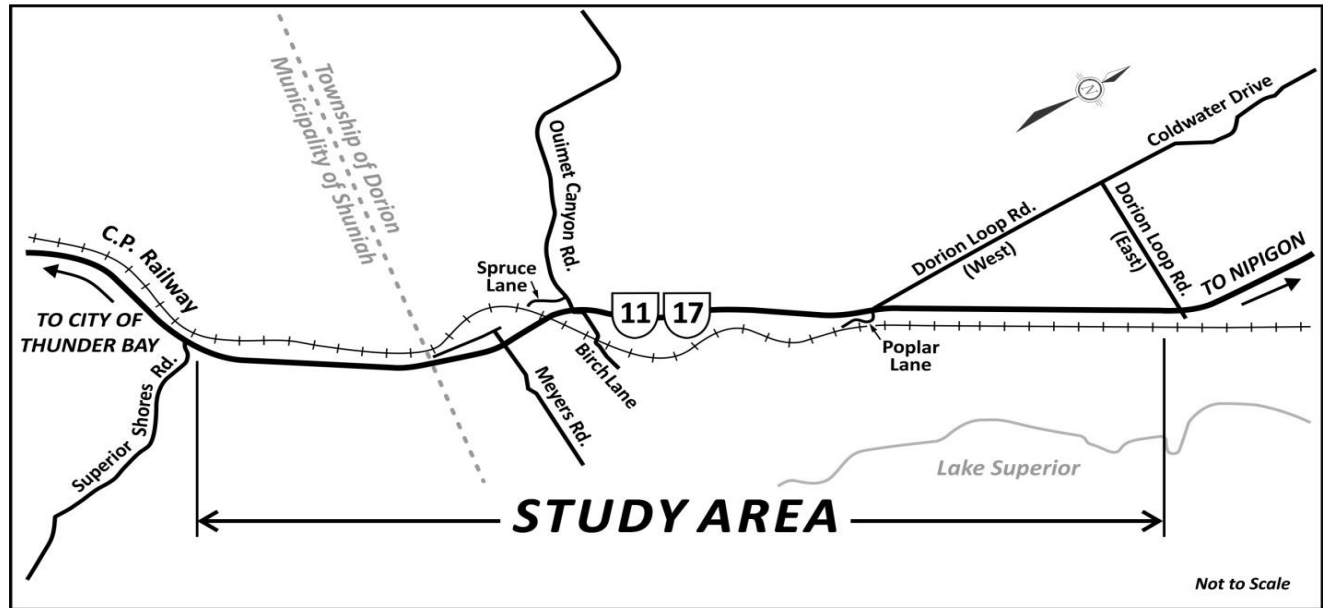
The key design features recommended in the 1997 ESR for the section of Highway 11/17 from 2.83 km west of Ouimet Overhead, easterly 8.63 km, included:

- Some areas of twinning the existing highway;
- Some areas of new four-lane alignment, including constructing new eastbound and westbound bridges over the Canadian Pacific Railway;
- Providing connections to the new four-lane highway at Meyers Road, Ouimet Canyon Road, the proposed Service Road, and Dorion Loop Road West;
- Connection of Poplar Lane to the proposed Service Road;
- Connection between Birch Lane and Meyers Road East; and
- Securing all the necessary environmental approvals for construction.

The proposed new four-lane divided highway was designated as a four-lane facility and registered as a controlled access highway in 2003.

In October 2015, MTO retained WSP (*formerly MMM Group Limited*) to undertake the Preliminary Design, Detail Design, and Class Environmental Assessment (EA) study for the four-laning of Highway 11/17 from 2.83 km west of Ouimet Overhead, easterly for 8.63 km. The project location is shown in **Exhibit 1-1**.

Exhibit 1-1: Project Location

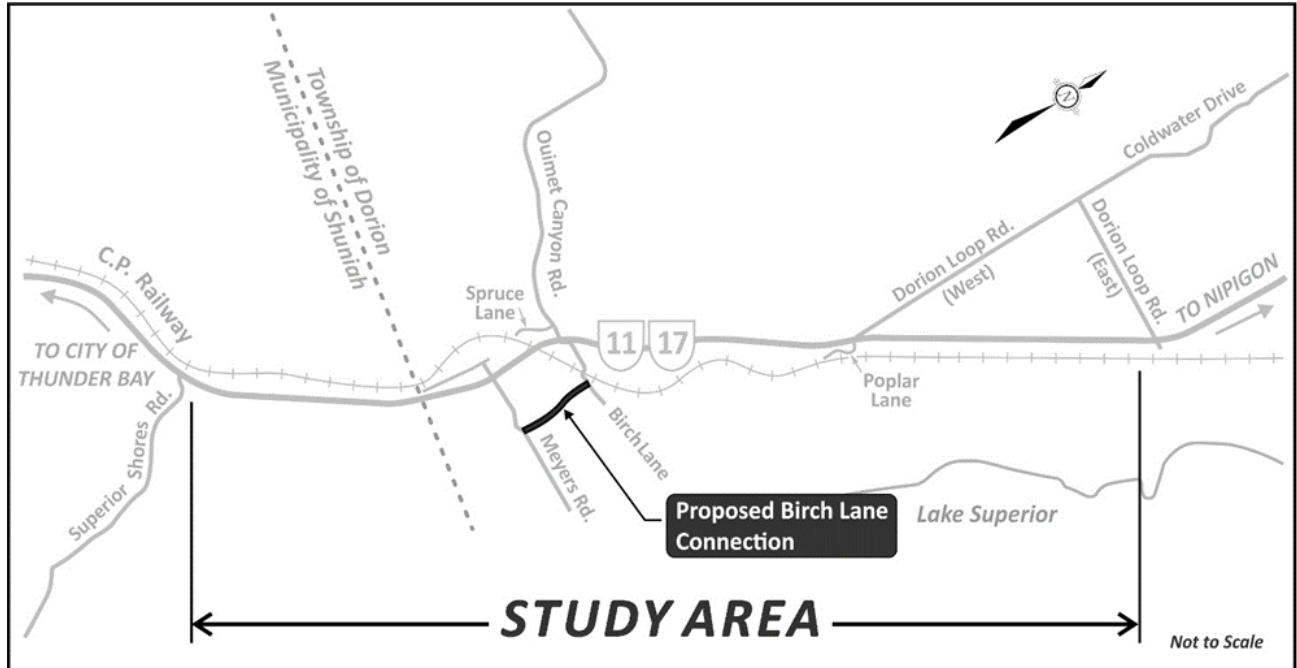


The Preliminary Design phase included an update to the current environmental conditions, and a review of the proposed changes to the original design decisions that have occurred since the submission of the original 1997 ESR. The proposed changes to the original EA Approved Plan for the study area that were documented in the 1997 ESR included: highway alignment revisions in some sections, modifications to public access at Meyers Road, Ouimet Canyon Road, and Poplar Lane, and an increase in right-of-way from 90 m to 110 m (minimum). An Addendum to the original ESR for these proposed changes was filed in October 2016 to document the changes in existing environmental conditions, and the proposed changes to the 1997 approved design, and received environmental clearance in October 2017.

The 1997 EA Approved Plan did not provide access from Birch Lane to the new four-lane divided highway, and would affect access to the development on two existing properties in the Township of Dorion. Four public access alternatives for Birch Lane were developed for review and evaluation against the 1997 EA Approved concept and presented at the first Public Information Centre (PIC) held on April 13, 2016 at the Dorion Public School. The preferred alternative identified at PIC #1 supported full closure of Birch Lane. In light of the comments received from the local residents and the Township of Dorion following the PIC, MTO committed to further review the feasibility of providing a public road connection between Birch Lane and Meyers Road East during the Detail Design phase.

Based on this review, MTO proposed a connection between Birch Lane and Meyers Road, as shown in **Exhibit 1-2**.

Exhibit 1-2: Location of the Birch Lane Connection



The addition of this new connection was proposed based on feedback received from local residents, the Township of Dorion, and the Dorion Four-Laning Community Consultation Committee (DFLCCC). The inclusion of the Birch Lane connection avoids severing prime agricultural land from the highway and the displacement of an active residential and commercial property on Birch Lane. In addition, this new connection is compatible with long term planning requirements by providing a connection from Meyers Road to the future interchange at Ouimet Canyon Road. The new Birch Lane connection to Meyers Road was presented at the second PIC held for this study on February 21, 2018 at the Dorion Public School. A second Addendum to the 1997 ESR was prepared to document this design change and was filed for a 30-day public review period, which ended on March 2, 2018. There were no concerns raised during the 30-day review period regarding this design change and the second ESR Addendum was cleared to proceed.

Following the completion of the Preliminary Design phase, the Project Team initiated the Detail Design of the preferred plan, which included the following features:

- Some areas of twinning the existing highway;
- Some areas of new four-lane alignment, including constructing new eastbound and westbound bridges over the Canadian Pacific Railway;

- Providing connections to the new four-lane highway at Meyers Road, Ouimet Canyon Road, the proposed Service Road and Dorion Loop Road West;
- Connection of Poplar Lane to the proposed Service Road;
- Connection between Birch Lane and Meyers Road East; and
- Drainage improvements (e.g. culvert rehabilitation / replacement).

1.2 Environmental Assessment Act Process

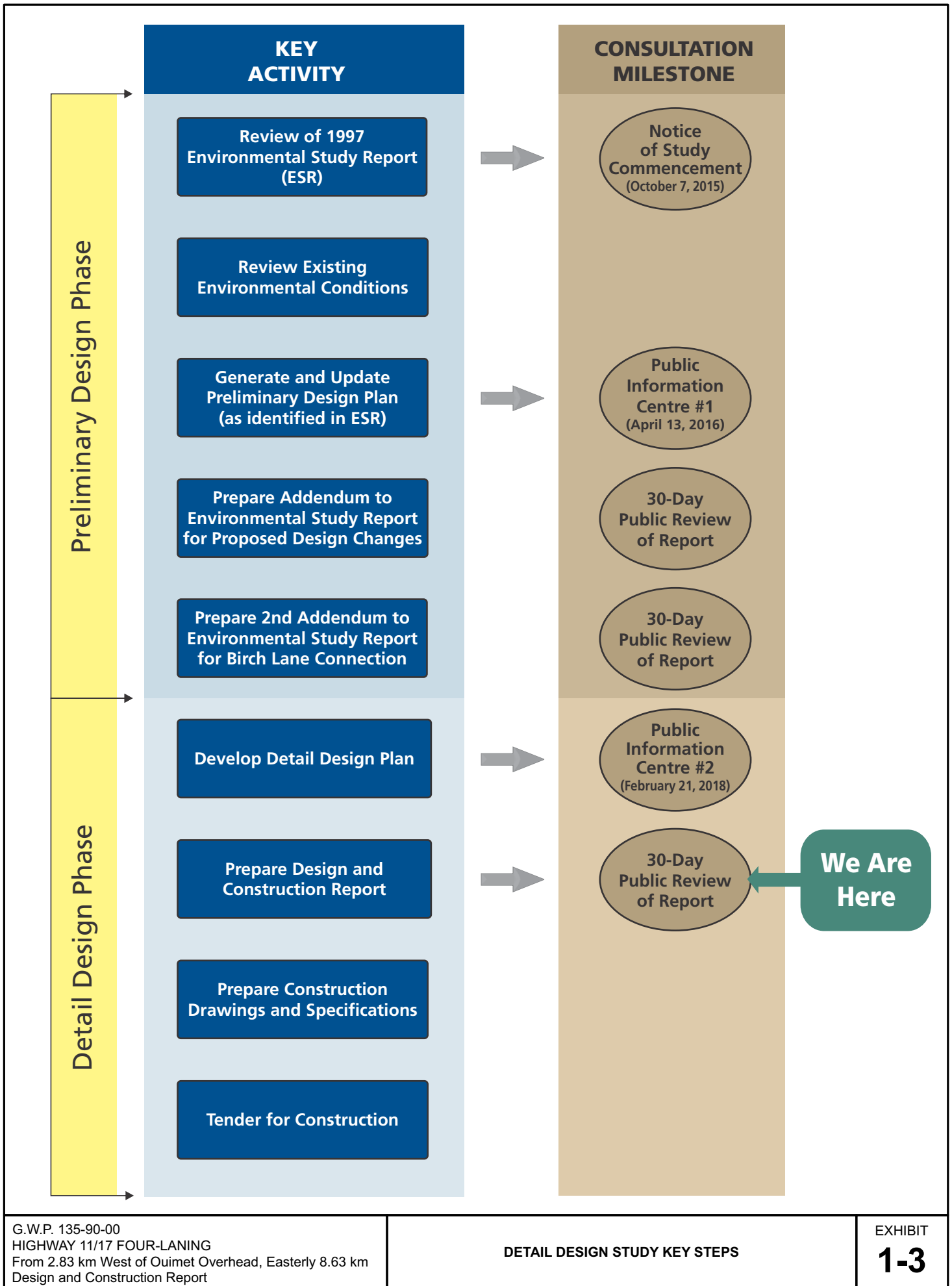
1.2.1 Ontario Environmental Assessment Act

The MTO *Class Environmental Assessment for Provincial Transportation Facilities* (Class EA) was approved under the *Ontario Environmental Assessment Act* in the Fall of 1999 and amended in 2000. The Class EA defines the group of projects and activities, and the environmental assessment processes that MTO has committed to follow to plan, design, and implement these types of projects. Provided that this process is followed, projects and activities included under the Class EA do not require formal review and approval under the *Ontario Environmental Assessment Act*. Further details on the Class EA process for Group 'B' projects are contained in the *Class Environmental Assessment for Provincial Transportation Facilities* (2000). Readers interested in these matters are encouraged to refer to that document.

This study followed the MTO Class EA process for Group 'B' projects, which generally includes realignments and widenings of existing highways and freeways over land and water, new interchanges or modifications to existing interchanges, and/or new highway service facilities. Group 'B' projects are generally similar in nature, recur frequently, and have a generally predictable range of environmental effects for which standard mitigation can be used. The study's overall EA planning process approach and key study tasks are illustrated in **Exhibit 1-3**.

Following the Preliminary Design phase, two Addenda to the 1997 ESR were prepared as part of this study, and filed for a 30-day review period and subsequently received environmental clearances to proceed.

This Design and Construction Report (DCR) documents how the commitments outlined in the 1997 ESR, as well as the 2016 and 2018 ESR Addenda are being addressed. Design features and refined environmental impact mitigation measures are also described in this report.



1.3 Purpose of the Design and Construction Report

This Design and Construction Report (DCR) has been prepared to:

- Describe the improvements to be constructed;
- Identify any refinements to the project described in the 1997 ESR, and 2016 and 2018 ESR Addenda that have been incorporated during the development of the design details;
- Describe specific environmental effects associated with the project and proposed mitigation;
- Identify measures that have been incorporated into the design and contract drawings;
- Address any commitments to future work identified in the 1997 ESR, 2016 ESR Addendum, and 2018 ESR Addendum; and
- Summarize the consultation undertaken with external agencies, affected/adjacent property owners and interested members of the public during detail design.

This DCR is being made available to the public, other interested parties and external agencies for a 30-day review period as required under the MTO Class EA. A notice of DCR submission was posted on the project website (<https://hwy11-17four-laningfromouimettodorion.ca>), published in local newspapers (i.e. *Nipigon Red Rock Gazette*, *Thunder Bay Source*, and *Thunder Bay Chronicle Journal*) and newsletters (i.e. *Dorion Flaming Facts*), and sent to external government agencies, Indigenous Communities, local municipalities, utilities, affected property owners, local stakeholder groups, and members of the public on the project mailing list.

This DCR is not eligible for a Part II Order (i.e. “bump-up”) under the provisions of the Ontario Environmental Assessment Act, however, there is an opportunity at any time during the MTO Class EA process for interested persons to provide comments and review outstanding issues. The DCR is available for a 30-day public and external agency review period from **December 12, 2019** to **January 27, 2020**. Any concerns raised by members of the public, interested groups or technical and external agencies during this review period should be discussed with MTO or their consultants identified below.

Additional information is also available by contacting the key Project Team members involved in this project, as follows:

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Kevin Saunders
Senior Project Manager
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615 James Street South
Thunder Bay, ON P7E 6P6
Tel: (807) 473-2109
Toll-Free: 1-800-465-5034
Fax: 807-473-2168
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2 STAKEHOLDER ENGAGEMENT

An extensive stakeholder engagement program was completed throughout the study process. A study mailing list was developed at the onset of the Preliminary Design phase and updated throughout the study. Local members of parliament and members of provincial parliament, external government agencies, local municipalities, local emergency service providers, local school boards, utilities, Indigenous Communities, local interest groups, adjacent property owners, potentially impact property owners, and members of the public were included on the study mailing list.

The contacts on the study mailing list were engaged through direct contact with the Project Team via mail, email, phone, or fax; a project website (<https://hwy11-17four-laningfromouimettodorion.ca>); local newspaper advertisements (i.e. *Nipigon Red Rock Gazette*, *Thunder Bay Source*, and *Thunder Bay Chronical Journal*) at key consultation milestones; local newsletter publication (i.e. *Dorion Flaming Facts*); and meetings with local municipalities and the Dorion Four-Lane Community Consultation Committee.

Two Public Information Centres (PIC) were held for the study and a summary of the two consultation events are available in **Section 2.2.1**.

2.1 External Agency Consultation

The following external agencies, including Federal and Provincial government agencies and Indigenous Communities were consulted as part of this study:

Federal & Provincial Government Agencies

- Environment Canada
- Ministry of Indigenous Affairs
- Ministry of Agriculture, Food & Rural Affairs
- Infrastructure Ontario
- Ministry of Heritage, Sport, Tourism and Culture Industries (*formerly Ministry of Tourism, Culture and Sport*)
- Ministries of Citizenship and Immigration, Culture, Tourism and Health Promotion
- Ministry of the Attorney General
- Ministry of Environment, Conservation and Parks
- Ministry of Natural Resources and Forestry
- Ministry of Municipal Affairs and Housing
- Ministry of Energy, Northern Development and Mines
- Ministry of Community Safety and Correctional Services

Municipal/District School Boards

- Township of Dorion
- Dorion Four-Lane Community Consultation Committee
- Superior North Emergency Medical Service
- Superior Greenstone District School Board
- Municipality of Shuniah
- Shuniah Fire Department
- East of Thunder Bay Transportation Consortium
- Superior North Catholic District School Board
- Conseil Scolaire de District Du Grand Nord

Utilities

- Bell Canada
- TransCanada Pipe Lines
- Hydro One
- Hydro One Networks Inc.

Stakeholders/Interest Groups

- CN Rail
- CP Rail
- North of Superior Tourism Association
- Dorion Bible Camp and Conference Centre
- Eagle Canyon Adventures
- Wolf River Park
- Ontario Federation of Snowmobile Clubs
- The Voyageur Trail Association
- Tour du Canada
- Thunder Bay District Fish & Game Association
- North Shore Steelhead Association
- Thunder Bay Adventure Trails
- Ontario Cycling Association
- Thunder Bay Cycling Club
- Thunder Bay Nordic Trails Association
- Thunder Bay Field Naturalists
- Thunder Bay KOA
- Trans Canada Trails Ontario
- Thunder Bay Hiking Association
- The Alpine Club of Canada
- Superior Shores RV Park

A summary of external agency participation that occurred during the Preliminary Design phase is included in ESR Addenda #1 and 2. A summary of external participation during the Detail Design phase is included in **Exhibit 2.1**. Agency correspondence and meeting minutes are provided in **Appendix B**.

Exhibit 2-1: Summary of External Agency Participation

Agency	Comments Received	WSP Response / Action
Township of Dorion	<p>Comment received on March 12, 2018 following PIC #2 indicated the following:</p> <ul style="list-style-type: none"> The Dorion Council generally supports the proposed design changes at the Meyer's Road intersection and the new Service Road access/crossover- and a new route for Birch Lane to eliminate current access to the Highway and a railway crossing but indicated that this would result in considerable loss in municipal revenue due to the required property buy-outs. 	<p>The Project Team had on-going contact and involvement with the Township of Dorion throughout the study. Further information is provided in Section 2.2.1.</p>
Sean Fraser, Director of Heritage Programs and Operations Ontario Heritage Trust	<p>Comment received by email on March 24, 2019 noted the following:</p> <ul style="list-style-type: none"> Indicated TBFN is beginning 2019 spring monitoring work. Requested construction schedule. 	<p>Response sent by MTO on March 25, 2019 indicate the following:</p> <ul style="list-style-type: none"> Design work for the expansion of Highway 11/17 at Ouimet project is progressing, however, the Ministry is not planning any construction activities related to the expansion work this year. The Ontario government is currently reviewing all current projects and spending.
Fire Chief Dean Schaaf Township of Dorion Volunteer Fire Department	<p>Comment form received at PIC #2 noted the following:</p> <ul style="list-style-type: none"> Positive comment regarding display panels and maps. Indicated it feels like comments are not being considered. Expressed concern with the proposed Poplar Lane access from Highway 11/17 from an emergency services perspective. 	<p>Response sent on May 11, 2018 indicated the following:</p> <ul style="list-style-type: none"> Acknowledged the preference to move Poplar lane to the east, opposite the new Dorion Loop Road connection. Based on the review of the existing crossing Poplar Lane, the Ministry continues not to support a significant realignment of Poplar Lane to the West Dorion Loop Road. (See Section 3.2 for review details).

Agency	Comments Received	WSP Response / Action
		<ul style="list-style-type: none"> While Poplar Lane is not under the Ministry's jurisdiction, the Ministry is open to possible enhancements to the existing crossing as part of this Detail Design Study in consultation with the Township, and CPR.
<p>Susan Bryan, Nature Reserves Chair and Connie Hartviksen Thunder Bay Field Naturalist Club (TBFN)</p>	<p>Comment form submitted at PIC #2 indicated the following:</p> <ul style="list-style-type: none"> Thanked the Project Team for the opportunity to review the latest plans and provided overall support for the proposed works. <hr/> <p>Comment received on April 12, 2018 requested a copy of the map showing the Birch Lane area.</p> <hr/> <p>Comment received on April 16, 2018 requested clarification on the Birch Lane map.</p> <hr/> <p>Comment received on March 24, 2019 indicated:</p> <ul style="list-style-type: none"> Spring field monitoring is commencing shortly and would like information on the timing of construction activities within the study area during Spring and Summer 2019. 	<p>Response sent on April 13, 2018 provided the requested map to the TBFN.</p> <hr/> <p>Response sent on May 5, 2018 provided responses to the questions about the Birch lane map.</p> <hr/> <p>Response sent by MTO on March 25, 2019 indicated the following:</p> <ul style="list-style-type: none"> The detail design is still in progress and that there are no planned construction activities related to the expansion work scheduled in 2019. The Ontario government is reviewing all current projects and spending to ensure the government is positioned to provide quality and efficient transportation options to all Ontarians, including this Highway 11/17 expansion project.

Agency	Comments Received	WSP Response / Action
Robert (Bob) Beatty, Councillor Township of Dorion	<p>Comment Form submitted at PIC #2 indicated:</p> <ul style="list-style-type: none"> • Dorion Loop Rd and Poplar Lane should be a complete intersection. • Using Service Road to Poplar Lane does not address the sight line issue to the west of the current crossing and requested the crossing be moved to the east by approximately 400 m, opposite the new Dorion Loop Road. 	<p>Response sent indicated the following:</p> <ul style="list-style-type: none"> • Acknowledged the preference to move Poplar lane to the east, opposite the new Dorion Loop Road connection. • Based on the review of the existing crossing Poplar Lane, the Ministry continues not to support a significant realignment of Poplar Lane to the West Dorion Loop Road. (See Section 3.2 for review details). • While Poplar Lane is not under the Ministry’s jurisdiction, the Ministry is open to possible enhancements to the existing crossing as part of this Detail Design Study in consultation with the Township, and CPR.
Dean Schaaf Township of Dorion – Fire Services	<p>Comment Form submitted at PIC #2:</p> <ul style="list-style-type: none"> • Provided positive feedback on display panels and maps. • Indicated he felt municipality concerns were not heard, and the recommended plan was pre-determined. • Noted recommended Poplar Lane entrance is not preferred from an emergency service perspective. 	<p>Response sent indicated the following:</p> <ul style="list-style-type: none"> • Noted the Ministry undertook extensive consultation with the Township of Dorion and Dorion Community Consultation Committee throughout the study, which resulted in a number of changes to the proposed plan at the request of the Township. • Based on the review of the existing crossing Poplar Lane, the Ministry continues not to support a significant realignment of Poplar Lane to the West Dorion Loop Road. (See Section 3.2 for review details). • While Poplar Lane is not under the Ministry’s jurisdiction, the Ministry is open to possible enhancements to the existing crossing as part of this Detail Design Study in consultation with the Township, and CPR.

Agency	Comments Received	WSP Response / Action
Ed Chambers, Reeve Township of Dorion	<p>Comment received via email on March 12, 2018 noted the following:</p> <ul style="list-style-type: none"> • The Township of Dorion and the Ministry have been discussing design changes for almost three years which have resulted in a number of improvements, including the Meyers Road intersection, and Birch Lane. • While these improvements are supported by the township, they also result in loss of assessment due to property buy-outs required for the recommended plan. • Request for new railway crossing would effectively correct a longstanding safety concern of inadequate sight-line to the west of Poplar Lane. 	<p>Response sent on May 11, 2018 indicated the following:</p> <ul style="list-style-type: none"> • Acknowledged the preference to move Poplar lane to the east, opposite the new Dorion Loop Road connection. • Based on the review of the existing crossing Poplar Lane, the Ministry continues not to support a significant realignment of Poplar Lane to the West Dorion Loop Road. (See Section 3.2 for review details). • While Poplar Lane is not under the Ministry's jurisdiction, the Ministry is open to possible enhancements to the existing crossing as part of this Detail Design Study in consultation with the Township, and CPR.

2.2 Municipal Consultation

2.2.1 Township of Dorion

The Project Team consulted with the local municipalities throughout the Preliminary Design and Detail Design phases. The Project Team met with Township of Dorion staff on January 28, 2016, March 8, 2016, and March 31, 2016 to discuss the highway realignment alternatives, collect information about the public roads, and obtain input on the evaluation of the public access relocation options, including Meyers Road East and West, Ouimet Canyon Road, Birch Lane, Poplar Lane, and Dorion Loop Road West. The Township also advised the Project Team of changes to potentially impacted property owner information.

Following PIC #1, the Project Team met with the Dorion Four-Lane Community Consultation Committee (DFLCCC) on June 16, 2016 to discuss their comments and concerns with the technically preferred plan and information presented at the PIC. The DFLCCC is comprised of the Reeve, one Township Councillor, 3 residents and 1 property owner within the Township. The Project Team held another meeting with the DFLCCC on July 11, 2016 to review the additional assessment undertaken by the Ministry project team for the proposed four-laning of Highway 11/17 and associated side road connections based on their comments. A third meeting between the Project Team and the DFLCCC was held on August 22, 2016 to present and discuss the new connection from Poplar Lane to the proposed Service Road and the new proposed eastbound and westbound access to Highway 11/17 from the Service Road connection.

Additional meetings were held between the Township of Dorion and the Project Team on October 12, 2016, and November 8, 2019 to discuss the recommended plan proposed for Poplar Lane, and the Townships concerns with the proposed Poplar Lane connection, including a site visit to discuss the need to clear vegetation within the CPR right-of-way.

Following the filing of the first Addendum to the 1997 ESR in October 2016, the Ministry of Environment, Conservation and Parks (*formerly Ministry of Environment and Climate Change*) (MECP) received fourteen Part II Orders for the project. MECP ruled in favour of MTO in September 2017 on the condition that the Ministry have at least one meeting with the Township of Dorion Council and/or Dorion Four-Lane Community Consultation Committee to discuss matters relating to the intersection of Poplar Lane and Dorion Loop Road, including farm equipment and railway crossing safety, and reporting to MECP's Director of Environmental Approvals Branch on how the aforementioned conditions were met, prior to construction.

To meet the conditions outlined in the Part II Order ruling dated September 15, 2017 by the MECP, the Project Team met with the Township of Dorion on November 2, 2017 to ensure the Township of Dorion and the DFLCCC were fully informed of the proposed changes to Poplar Lane and to discuss matters related to safety and farm equipment.

The Project Team met with the Township of Dorion and the DFLCCC on December 15, 2017 to present the proposed Birch Lane connection, review the public access locations within the Township of Dorion, and discuss surface treatments, municipal transfers and general road maintenance following construction.

In addition, the Project Team presented the proposed connection between Birch Lane and Meyers Road East to the Township of Dorion Council in advance of the second Public Information Centre on February 20, 2018.

On June 8, 2018, the Project Team met with the Township of Dorion and DFLCCC to further review and discuss the Poplar Lane at-grade railway crossing, and the proposed public road closures. The Ministry indicated that the public road closing process has been initiated and is subject to the approval of the Local Planning Appeal Tribunal. The Township of Dorion acknowledged receipt of the public road closing request and has passed a council resolution in support of the proposed road closings of the existing Meyers Road, Birch Lane and Dorion Loop Road West alignments. It was noted that the closure of Birch Lane beyond MTO's proposed right-of-way line on the south side will need to be pursued by the Township of Dorion and will not be covered off by MTO's process.

2.2.2 Municipality of Shuniah

The Project Team presented the display materials for PIC #2 to the Municipality of Shuniah prior to PIC #2, and to attend the agency session at PIC #2. The Municipality of Shuniah had no concerns with the project.

2.2.3 Emergency Service Providers

The Project Team engaged with local, regional, and provincial emergency service representatives throughout the study. A meeting was held on March 15, 2016 between the Project Team and local emergency service providers to review the 1997 EA Approved plan, highway realignment alternatives, side-road options and proposed median cross-overs, and the potential need for emergency cross-overs. Generally, the emergency service providers provided overall support for the proposed Highway 11/17 four-laning.

All comments received from emergency service providers throughout the study have been addressed.

2.3 Utilities

2.3.1 Hydro One

The Project Team met with representatives from Hydro One Networks Inc. (HONI) on December 2, 2015 to introduce the study, discuss the Highway 11/17 realignment alternatives, the HONI environmental assessment processes, and potential impacts to HONI facilities within the study area. HONI indicated their facilities occur within the study area and impacts may occur with the realignment of Highway 11/17. HONI noted a Study Agreement and Purchase Order / Memorandum of Understanding will be required to proceed with this work. The Project Team continued consultation with HONI throughout the Detail Design phase and all required approvals and agreements for HONI's designs will be obtained.

A separate Class EA study was completed by HONI for the relocation of the impacted HONI facilities, including six 115 kilovolt (kV) steel lattice structures, and installation of five new wood pole structures along Highway 11/17. HONI's Class EA for the Ouimet Canyon project has been completed with no concerns, and the Detail Design for the tower relocations is being completed by HONI.

2.3.2 TransCanada Pipeline

While the recommended plan does not impact the TransCanada Pipeline, the Project Team met with representatives from the TransCanada Pipeline (TCPL) to discuss the highway improvements.

2.3.3 Canadian Pacific Railway

The Project Team was in correspondence with the Canadian Pacific Railway (CPR) throughout the study to discuss the rail-crossing at Poplar Lane and permitting requirements associated with the preferred plan. Following receiving numerous comments at and following PIC #1 from the Township of Dorion and members of the public about concerns with the sightlines at the rail crossing at Poplar Lane, the Ministry also committed to exploring opportunities to enhance the sight lines at the CP crossing in correspondence with CPR and the Township. The approach grades to the crossing will be revised to be within the (maximum) standard of 2.0%. The Ministry will obtain all required agreements and permits from CPR prior to start of construction.

2.4 Public Consultation

On October 7, 2015, notification letters announcing Study Commencement were distributed by mail to the study mailing list, and an Ontario Government Notice (OGN) was published in the *Thunder Bay Chronicle-Journal* on October 10, 2015, *Nipigon-Red Rock Gazette* on October 13, 2015, and *Thunder Bay's Source* on October 15, 2015. The project website (www.Hwy11-17Four-LaningfromOuimettoDorion.ca) was also launched in October 2015 to coincide with Study Commencement, and has remained active with regular updates occurring throughout the course of the study. Additionally, the Study Commencement OGN was distributed to all residents and property owners within the vicinity of the study area in the Township of Dorion and the Municipality of Shuniah through Canada Post's unaddressed mail service (i.e. bulk mail).

The principles of consultation requiring notification at the beginning of the study and notification to those stakeholders most directly affected were achieved through this notification method.

Public Information Centres (PICs) are informal meetings where area residents and other interested parties are provided the opportunity to review planning and design plans, and ensure timely, user-friendly opportunities for public input. Two PICs were held during this Preliminary Design, Detail Design and Class Environmental Assessment Study and are further detailed in **Sections 2.4** and **2.5**. The PICs were an important part of the overall consultation program for this project and were designed to identify concerns and provide opportunities for input regarding the project.

As part of the Preliminary Design phase, a PIC was held on April 13, 2016, at the Dorion Public School and Community Centre within the Township of Dorion. The purpose of the PIC was to provide an opportunity for interested parties to review existing environmental conditions and to comment on the proposed changes to the preliminary design that was identified in the 1997 ESR. Further details of PIC #1 and how the comments received throughout the Preliminary Design phase were incorporated into the proposed design changes to the EA approved plan are provided in Addenda to the Environmental Study Report (ESR) #1 and 2.

As part of the Detail Design phase, a second PIC for the Highway 11/17 from 2.83 km west of Ouimet Overhead, easterly 8.63 km was held on February 21, 2018 at the Dorion Public School and Community Centre to present the detail design plan, anticipated environmental impacts and recommended mitigation measures, and next steps in the study. Further details of PIC #2 are provided in **Section 2.4.1**.

2.4.1 Public Information Centre #2

Public Information Centre (PIC) #2 was held on February 21, 2018 as a drop-in style, open house format. A pre-PIC session for external agencies, municipalities, and Indigenous Communities was held from 4:00 p.m. to 5:00 p.m. in advance of the public session that took place from 5:00 p.m. to 8:00 p.m.

The Notice of PIC #2 was advertised in local newspapers, including the *Red Rock-Nipigon Gazette* on February 13, 2018, *Thunder Bay Source* on Thursday, February 15, 2018, and *Thunder Bay Chronicle-Journal* on Saturday, February 17, 2018, and distributed to residents in the Township of Dorion through the February 2018 edition of the *Dorion Flaming Facts*.

Members of Provincial Parliament within ridings in the study area were notified of the PIC by MTO. Notification letters were distributed by mail or email to contacts on the study mailing list on February 9, 2018, including federal and provincial government agencies, Indigenous communities that may have an interest in the study, local municipalities, impacted and adjacent property owners, emergency service providers, utility service providers, schoolboards, and interested stakeholder groups/organizations. A copy of the PIC #2 notice was posted on the project website on February 15, 2018.

PIC #2 was attended by approximately 38 people and a total of 34 participants signed the registration sheet. There were three (3) comments received prior to the PIC, twelve (12) comment sheets submitted at the PIC, and an additional six (6) comments were received after the PIC by email and mail. The most frequent comments that were gathered before, during, and following PIC #2 are summarized in **Exhibit 2-1**.

Copies of the PIC #2 notification materials and newspaper notices are included in **Appendix A** of this report while the display panels presented at PIC #2 are available in **Appendix C**.

2.5 Impacted Property Owners

The Project Team contacted and met with the affected and adjacent property owners on an individual basis as required to discuss the property impacted. The Ministry will continue to negotiate with individual owners for property purchases in accordance with standard MTO procedures.

Exhibit 2-2: Summary of Key Comments Received from PIC #2

Summary of Key Comments Received from PIC #2	MTO'S Response / Action Taken	MTO Commitment for Future Work to Address Comment
<p>Inquiries about why 1997 EA approved plan at Poplar Lane was not carried forward.</p>	<p>The Ministry undertook a review of the existing crossing at Poplar Lane and continues not to support a significant realignment of Poplar Lane to the West Dorion Loop Road. The Ministry determined the connection for Poplar Lane to the Service Road extension is preferred for the following reasons:</p> <ul style="list-style-type: none"> • Provides full access to the four-laned Highway 11/17 for all residents along the Service Road and Poplar Lane; • Minimizes impacts to natural environment; • Reduces private property impacts; • Avoids a new rail crossing for Poplar Lane; and • Reduces costs by using the existing highway as a service road and avoids costs for a new road connection from Poplar Lane. <p>While Poplar Lane is not under MTO's jurisdiction, MTO is open to possible enhancements to the existing crossing as part of this Detail Design Study (e.g. approach grades, tree clearing, signage), in consultation with the Township of Dorion and the Canadian Pacific Railway (CPR). The Approved Plan provides full access to the four-laned highway via the Service Road for residents along Poplar Lane. The majority of the residences accepted the Project Team's rationale.</p>	<p>Based on the review of the Poplar Lane sight lines, and in consultation with the Canadian Pacific (CP) Rail, the Ministry modified the design of the Service Road profile at the rail crossing to a 2% grade in accordance with the Transport Canada Railway Grade Crossing Regulations and Standards which will be implemented during construction.</p>

Summary of Key Comments Received from PIC #2	MTO'S Response / Action Taken	MTO Commitment for Future Work to Address Comment
Inquiry about the water well survey process being completed prior to construction.	Prior to start of construction, the Contractor Administrator will complete a pre-construction water well sampling to document existing conditions. Another water well sampling will occur following construction.	The requirements for the pre-construction water well sampling prior and following construction will be completed. Further details on the water well monitoring is available in Section 4.1.4.
General inquiries about the EA process (i.e. is the 2017 EA approval decision final).	The 2017 EA approval decision is final, and there is no process to request another review under the <i>Class EA Act</i> .	No action required.
Inquiry about cost differential between 1997 EA approved plan and 2017 approved plan for Poplar Lane.	The estimated cost for construction of the realignment of Poplar Lane as shown in the 1997 plan is approximately \$700,000 and the extension of the service road to Poplar Lane is estimated to be \$132,000, including the costs associated with upgrading the rail crossing to meet standards.	No action required.
Interest in providing a berm at the north termination of existing Dorion Loop Road at Highway 11/17 to provide a visual screen and some noise attenuation.	MTO will review the feasibility of providing a berm.	Based on the distance between the westbound lanes and the house (approximately 105 m) and relative elevations (the westbound lanes will be approximately 4 m lower than the base of the house), the Ministry has determined that a berm would be ineffective.
Property specific questions / concerns.	MTO will continue working with affected property owners and compensate those owners whose private property is physically impacted by the proposed improvements on a one-on-one basis.	The Ministry has acquired all required properties.

Summary of Key Comments Received from PIC #2	MTO'S Response / Action Taken	MTO Commitment for Future Work to Address Comment
Questions about when construction is anticipated to start.	Design completion is scheduled for May 2019 and construction is anticipated to occur between 2019 - 2021.	No action required.
Inquiry about start of Detail Design for the next highway section to the east.	MTO has not yet initiated the Detail Design for the highway expansion section to the east.	<p>The Ministry has initiated the Preliminary Design for the four-laning of Highway 11/17 from Highway 582 to Dorion, and from Pearl Lake Easterly For more information, please visit the project websites:</p> <ul style="list-style-type: none"> • Hwy 11/17 Four-Laning Hwy 582 to Dorion: https://hwy11-17four-laningfromhwy582todorion.ca/ • Hwy 11/17 Four-Laning Pearl Lake Easterly: https://hwy11-17four-laning-pearllake.ca/

2.6 Indigenous Communities

Indigenous Communities and Organizations and government agencies were contacted by the Project Team at key engagement milestones throughout the study process. Aboriginal Affairs and Northern Development Canada and the Ministry of Indigenous Relations and Reconciliation (formerly Ministry of Aboriginal Affairs) were sent letters at study commencement to review the Indigenous Communities on the project mailing list, and to identify any additional Indigenous communities or organizations that may have an interest in the study. No responses were received.

The following Indigenous Communities and Organizations were notified at project engagement milestones, including the Study Commencement in October 2015, the Notice of PIC #1 in March 2016, ESR Addendum #1 Filing in October 2016, ESR Addendum #2 Filing in January 2018, and the notice of PIC #2 in February 2018:

- Fort William First Nation
- Nishnawbe Aski Nation (NAN)
- Anishinabek Nation / Union of Ontario Indians
- Red Rock Indian Band
- Pays Plat First Nation
- Animbiigoo Zaagi'igan Anishinaabek
- Métis Nation of Ontario Head Office
- Thunder Bay Métis Council
- Biinjitiwaabik Zaaging Anishinaabek First Nation (Rocky Bay)
- Bingwi Neyaashi Anishinaabek (Sand Point)
- Pic Moberg First Nation
- Ojibways of the Pic River First Nation
- Michipicoten First Nation
- Long Lake #58 First Nation (Long Lac)
- Kiashke Zaaging Anishinaabek (Gull Bay)

Indigenous Communities did not express any concerns with the Recommended Plan throughout the study. A summary of correspondence received from Indigenous Communities during the Preliminary Design phase is available in ESR Addenda #1 and 2. No comments were received during the Detail Design phase.

3 Detailed Description of the Recommended Plan

3.1 Major Features of the Proposed Work

This section addresses the main features of the proposed works of the recommended plan.

As detailed in **Section 1.0**, the key design features of the detail design for the four-laning of Highway 11/17 from 2.83 km west of Ouimet Overhead, easterly 8.63 km are as follows:

- Some areas of twinning the existing highway;
- Some areas of new four-lane alignment, including constructing new eastbound and westbound bridges over the Canadian Pacific Railway;
- Providing connections to the new four-lane highway at Meyers Road, Ouimet Canyon Road, the proposed Service Road and Dorion Loop Road West;
- Connection of Poplar Lane to the proposed Service Road;
- Connection between Birch Lane and Meyers Road East; and
- Drainage improvements (e.g. culvert rehabilitation / replacement).

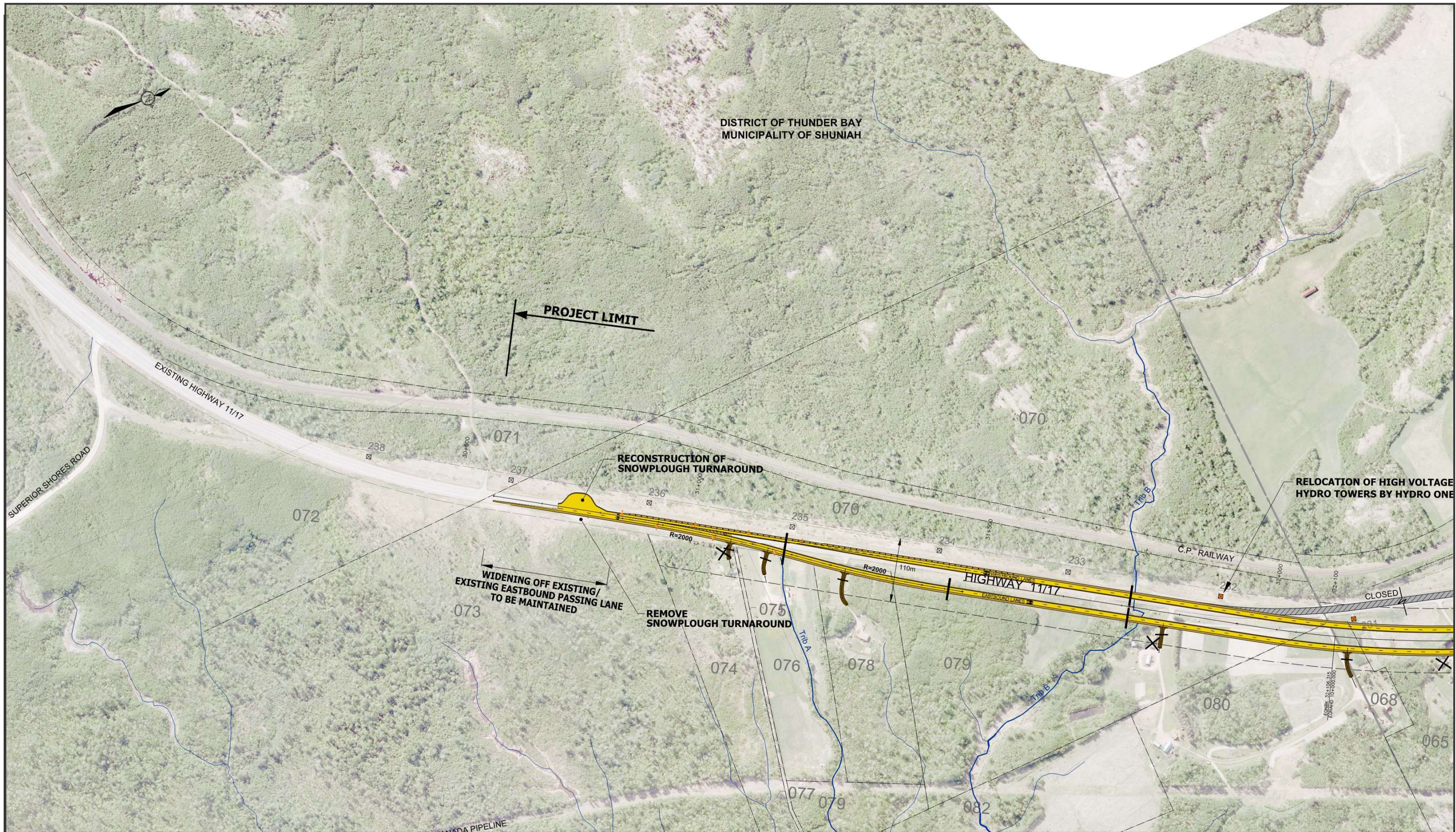
The detail design plan for the Highway 11/17 four-laning alignment is provided in **Exhibit 3-1a to 3-1f**. **Exhibit 3-2** illustrates the typical highway cross-section within the study area.

3.2 Review of Poplar Lane Sight-Line

Based on feedback received from the Township of Dorion, and members of the public during the study, the Ministry committed to reviewing sight-lines at Poplar Lane.

Poplar Lane is an existing granular road connection to Highway 11/17 that is 2.5 m to 4 m wide. The roadway is municipally designated for 0.5 km from the highway, and provides access to one occupied property, and 2 vacant lots. There is a stop controlled intersection with the railway. The railway crossing is public and under the jurisdiction of the Township of Dorion. Based on the review of existing conditions, the existing grades at Poplar Lane are as follows:

- Railway tracks: 3.05%
- Approach on north side: 1.6%
- Approach on south side: 7.85%

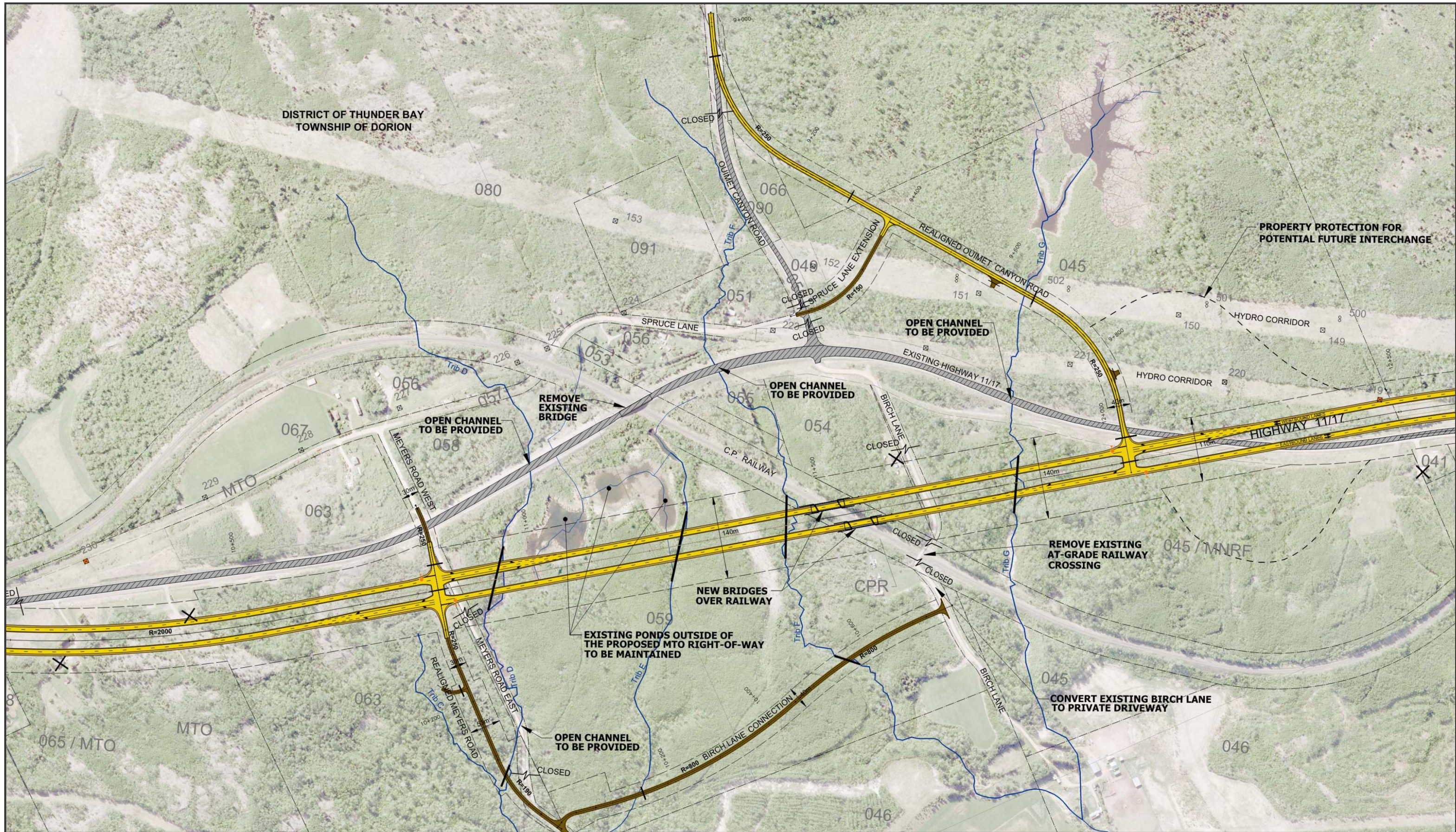


W.P. 135-90-00
HIGHWAY 11/17 FOUR-LANING
 From 2.83 km West of Ouimet Overhead, easterly 8.63 km
 Design and Construction Report

DETAIL DESIGN PLAN (Part 1 of 4)

EXHIBIT
3-1a

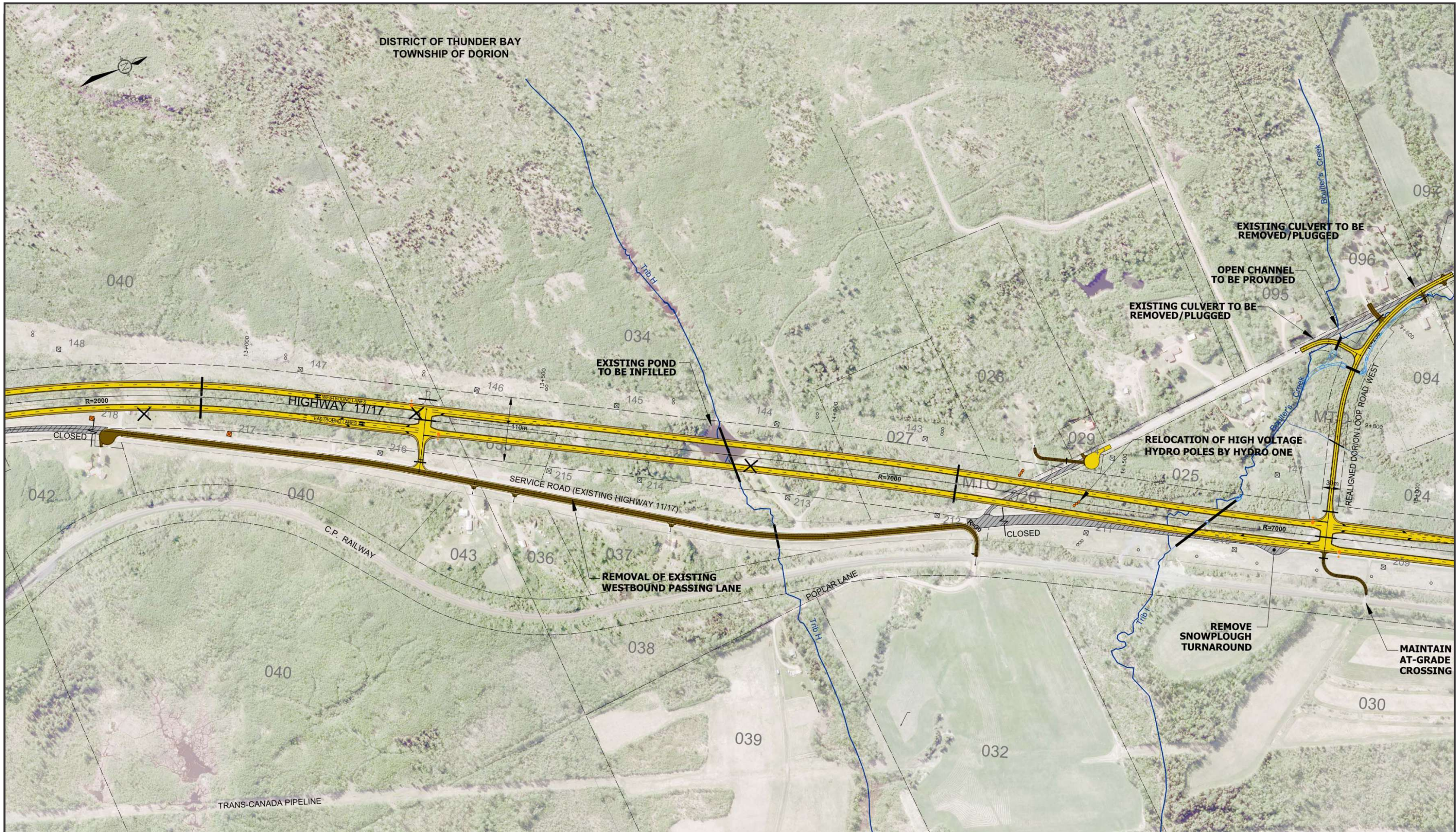
DISTRICT OF THUNDER BAY
TOWNSHIP OF DORION



W.P. 135-90-00
HIGHWAY 11/17 FOUR-LANING
From 2.83 km West of Ouimet Overhead, easterly 8.63 km
Design and Construction Report

DETAIL DESIGN PLAN (Part 2 of 4)

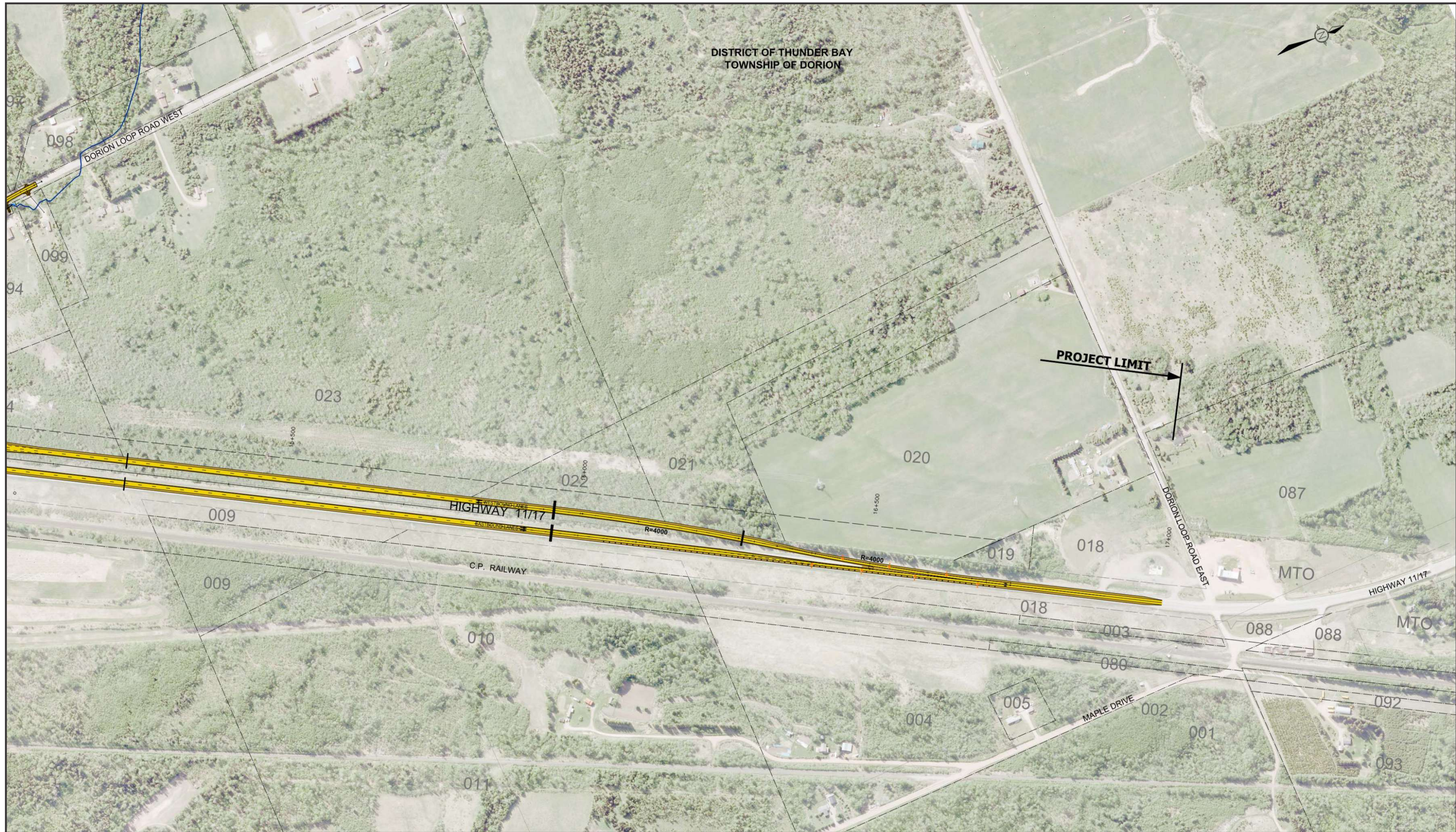
EXHIBIT
3-1b



W.P. 135-90-00
 HIGHWAY 11/17 FOUR-LANING
 From 2.83 km West of Ouimet Overhead, easterly 8.63 km
 Design and Construction Report

DETAIL DESIGN PLAN (Part 3 of 4)

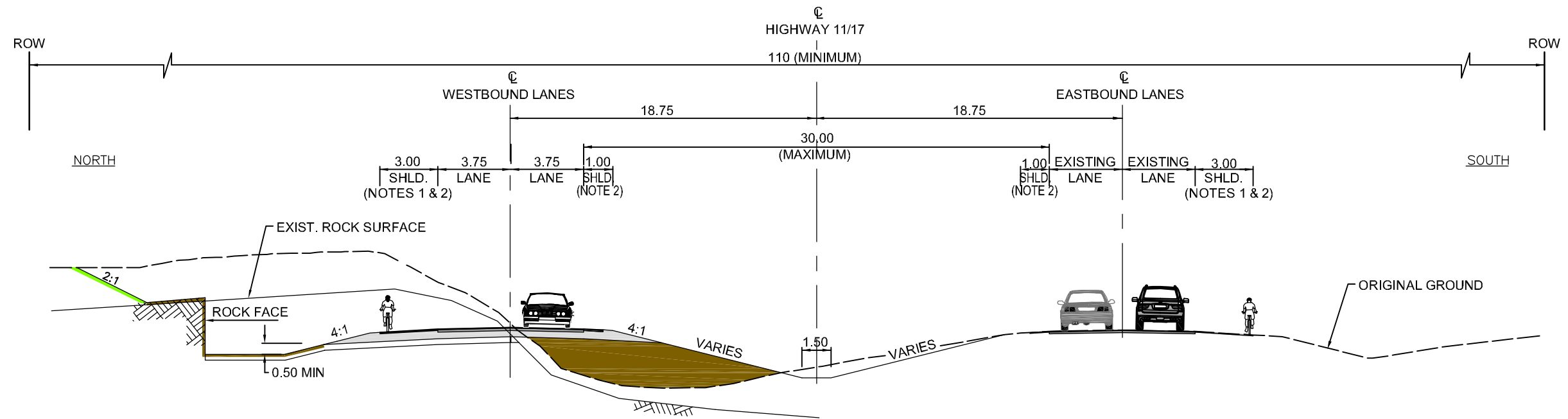
EXHIBIT
3-1c



W.P. 135-90-00
 HIGHWAY 11/17 FOUR-LANING
 From 2.83 km West of Ouimet Overhead, easterly 8.63 km
 Design and Construction Report

DETAIL DESIGN PLAN (Part 4 of 4)

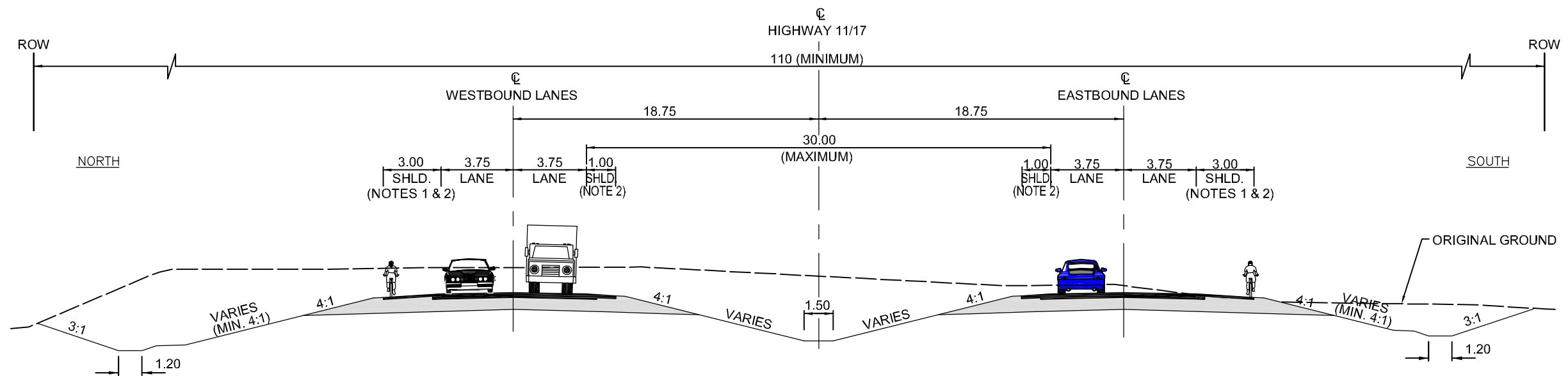
EXHIBIT
3-1d



TYPICAL SECTION - HIGHWAY 11/17
NEW LANES PARALLEL TO EXISTING HIGHWAY
N.T.S.

NOTES:

1. A 3.0m FULLY PAVED RIGHT SHOULDER WILL BE PROVIDED ALONG EASTBOUND AND WESTBOUND HIGHWAY 11/17 WITHIN THE STUDY AREA TO ACCOMMODATE CYCLISTS.
2. RUMBLE STRIPS WILL BE INSTALLED ON THE OUTER AND MEDIAN SHOULDERS.



TYPICAL SECTION - HIGHWAY 11/17
ALL LANES ON NEW ALIGNMENT
N.T.S.

The existing grade conditions were assessed against Transport Canada’s *Rail Grade Crossing Standards* (2014) which stipulates the following:

- Difference between the road approach grade and railway must not exceed 2%.
- Maximum gradient for road approaches must not exceed 2% within 8 m of the rail and 5% beyond.
- Requirements for sightlines at grade crossing with stop sign are from the stopped position only.

Exhibit 3-3 identifies the deficiencies in the existing approach grades as well as the required sightline to the west.

Exhibit 3-3: Poplar Lane Sightline Review

Poplar Lane	Existing Grade	SSD* Available	SSD* Required	Standard Grade ***	SSD Available	SSD Required
North Side (10 m Medium Size Truck)	1.6%	325	269	-1.05%	325	195**
North Side (Passenger Vehicle)	1.6%	325	195	-1.05%	325	195**
South Side (10 m Medium Size Truck)	7.85%	269	367	2%	269	269
South Side (Passenger Vehicle)	7.85%	269	241	2%	269	195**

*SSD=Stopping Sight Distance (based on a train speed of 60mph)

**195m is the governing minimum sight distance which is required to accommodate peds/cyclists

*** In accordance with 2014 TC Grade Crossing Standards

Based on the Ministry review, there are no concerns with sightlines to the east. The sightline requirements were developed in consideration of the typical passenger vehicle and the 10 m vehicle class in order to capture some of the farming or maintenance equipment that will use this road. The improvements to the approach grades suggested above reduce the required sightlines on the south side looking west to 269 m which meets the existing available sightlines. To address the deficiencies to the west, the Ministry modified the design of the Service Road profile at the rail crossing to a 2% grade in accordance with Transport Canada’s *Railway Grade Crossing Regulations and Standards* (2014).

4 Potential Environmental Effects, Mitigation Measures and Commitments to Future Work

This section outlines the direct and indirect potential effects associated with the project, and the mitigation measures and the commitments to future work that will be implemented to minimize effects and ensure compliance with legislated requirements. A summary of mitigation measures and commitments to future work is presented later in **Exhibit 4-4**.

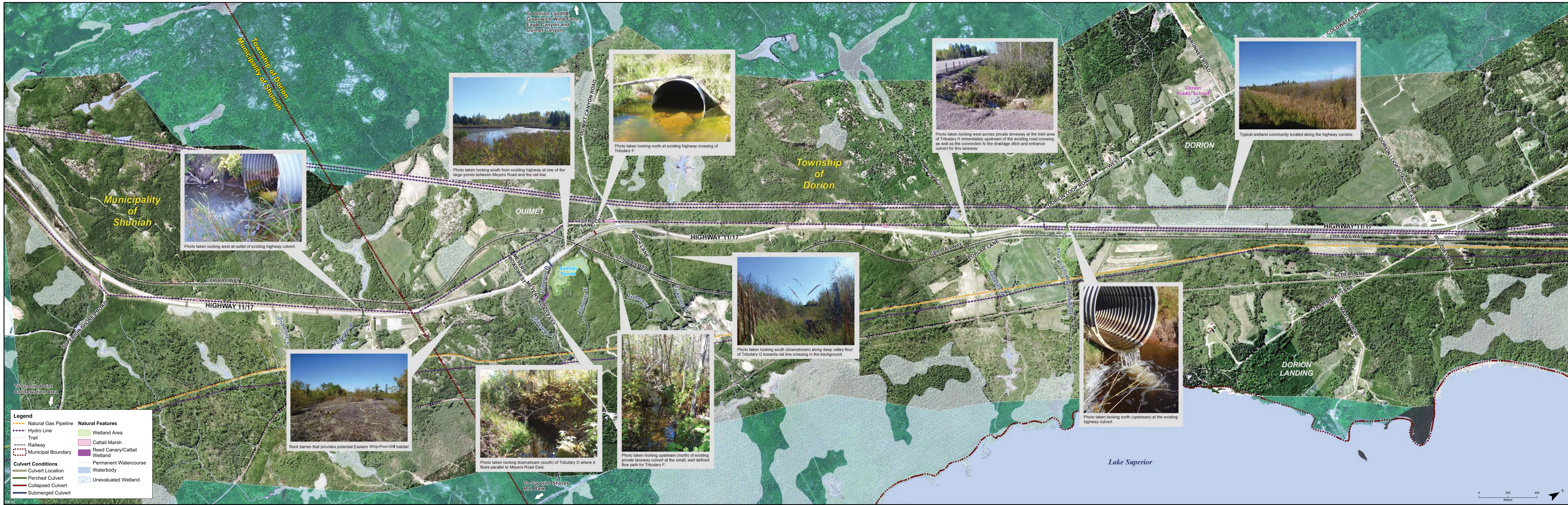
4.1 Natural Environment

This section focuses on the direct and indirect potential environmental effects to the existing natural environmental features and sensitivities in the study area. **Exhibit 4-1** illustrates the existing natural environmental conditions within the study area.

4.1.1 Terrestrial Ecosystem

Background information was collected to characterize the natural features and their general connectivity within the surrounding landscape and to refine the constraints and sensitivities analyses. In addition to checking for updated aerial photography and base mapping, the District Planner and Management Biologist at MNR (Thunder Bay District) were both directly consulted to identify and discuss any information regarding potentially sensitive features (e.g., wildlife, species-at-risk (SAR), specialized habitats, and other functions) in the vicinity of the project area. The MNR Natural Heritage Information Centre (NHIC) and Land Information Ontario (LIO) databases were also queried to uncover any documented information on designated and significant natural features, habitats and species of conservation concern in the general vicinity of the project.

WSP completed field investigations for the study area between September 29 and October 2, 2015, July 2 and July 5, 2016, and June 12 and 13, 2018 to document and further the Project Team's understanding of the existing environmental conditions (i.e. vegetation, wildlife, species of conservation concern, and fish and fish habitat). A summary of the findings is provided in the sections below.



To Dorion Landfill, Greenwich Wind Farm, Eagle Canyon and Ouimet Canyon



Photo taken looking west at outlet of existing highway culvert.



Photo taken looking south from existing highway at one of the large ponds between Meyers Road and the rail line.



Photo taken looking north at existing highway crossing of Tributary F.



Photo taken looking west across private driveway at the inlet area of Tributary H immediately upstream of the existing road crossing, as well as the connection to the drainage ditch and entrance culvert for this laneway.



Typical wetland community located along the highway corridor.



Photo taken looking south (downstream) along deep valley floor of Tributary G towards rail line crossing in the background.



Photo taken looking north (upstream) at the existing highway culvert.



Rock barrier that provides potential Eastern Whip-Poor-Will habitat.



Photo taken looking downstream (south) of Tributary D where it flows parallel to Meyers Road East.



Photo taken looking upstream (north) of existing private laneway culvert at the small, well defined flow path for Tributary F.

Legend	
	Natural Gas Pipeline
	Hydro Line
	Trail
	Railway
	Municipal Boundary
	Culvert Location
	Perched Culvert
	Collapsed Culvert
	Submerged Culvert
	Wetland Area
	Cattail Marsh
	Reed Canary/Cattail Wetland
	Permanent Watercourse
	Waterbody
	Unevaluated Wetland

G.W.P. 135-90-00
 HIGHWAY 11/17 FOUR-LANING
 From 2.83 km West of Ouimet Overhead, Easterly 8.63 km
 Design and Construction Report

EXISTING ENVIRONMENTAL CONDITIONS

EXHIBIT
4-1

4.1.1.3 Designated Natural Environmental Areas

MNRF identified a significant woodland feature within the study area, which is considered a “significant forest”. Further information regarding the significant woodland was obtained from the Thunder Bay Field Naturalists (TBFN) and Ontario Heritage Trust. While a portion of the significant woodland will be impacted by the four-laning of Highway 11/17, the Detail Design has been refined to minimize impacts and to maintain the hydrology of the sensitive feature within the woodland. The Ministry will work with the TBFN to explore the possibility of allowing access for members from the TBFN to the significant woodlands during construction to complete monitoring, subject to safety. With the implementation of the mitigation measures to protect vegetation and wildlife and wildlife habitat outlined later in **Exhibit 4-4**, impacts to the significant woodland area will be minimized to the extent possible.

4.1.1.4 Vegetation

Overall the existing highway corridor and the preferred highway alignment are located in highly culturally impacted areas. Extensive timber harvesting has resulted in mostly second growth forest communities and residential and commercial development is prevalent along the existing highway corridor. In addition, clearing for agricultural purposes has resulted in many active fields along with abandoned fields that have converted to shrub thicket communities. The silty characteristics of the soils throughout the study area result in a significant amount of standing water and moist vegetation community conditions along both highway four-laning alignments and the existing highway corridor. Hardwood swamp and alder thicket are abundant throughout the project area and cattail marsh and graminoid marsh occupy a large amount of the existing cleared highway ROW and hydro corridor.

There are nine vegetation communities identified within and adjacent to the right-of-way (ROW), as shown in the **Exhibit 4-1**. A description of each vegetation community, along with a list of plant species within each vegetation community are provided in **Appendix D**.

The construction of the new highway lanes will require the removal of vegetation and associated habitat. Overall, the preferred highway four-laning plan for the twinning focused on paralleling the existing highway to minimize incremental effects, and avoid potential impacts to, including fragmentation of, higher quality undisturbed features and associated habitats further away from the highway. Of the 8.6 km of the proposed highway ROW, approximately 4.0 km will involve construction of a fully re-aligned four-laned section along a new ROW and require forest clearing. The remainder will twin the existing highway and only require expansion of the existing ROW to accommodate the two new lanes and median. Realignment of Meyers Road (400 m), Ouimet Canyon Road (1000 m) along with connection roads for Spruce Lane (250 m) and Birch Lane (750 m) will also require removal of vegetation and associated habitat.

All of the affected forest communities consist of common community types and habitat characteristics that are well represented across the landscape generally. The majority of the vegetation removed by the highway works is culturally influenced as a result of its location along the highway or other anthropogenic activities with the exception of several pockets of forest/swamp communities. Since vegetation removals are only required at the existing vegetation edges, fragmentation of the intact, continuous forests communities will not occur. In addition, given that vegetation along the existing ROW is primarily common to the area and wetland communities that show signs of impact from past highway, utility line construction and other anthropogenic activities, indirect impacts to these features are generally limited to nominal incremental effects in comparison to larger, less impacted communities on lands beyond the highway corridor to the north.

Significant natural environmental features were considered during detail design and direct impacts to the natural environment were minimized to the extent possible. With the implementation of the mitigation measures outlined below and later in **Exhibit 4-4**, impacts to vegetation communities and their associated habitat functions will be minimized:

- The Contractor shall retain an Environmental Inspector to review and ensure proper implementation and maintenance of the mitigation measures.
- All disturbed areas shall be re-vegetated using seed and mulch where feasible.
- All vegetation removals shall be limited to areas specified in the contract and completed in accordance with the Ministry's standard construction practices.
- The vegetation clearing and retentions zones shall be delineated on both the construction drawings and in the field and confirmed with the contract administrator prior to start of vegetation clearing.
- Existing soils may be re-used as topsoil where feasible and only when approved by the CA for suitability.

4.1.1.5 Wildlife and Wildlife Habitat

Based on background information, agency correspondence, and field investigations, the only wildlife species (i.e. mammals, reptiles, birds) that were observed and likely to be present within the study limits are common to the area and are not species at risk. Habitats along and in the vicinity of the project limits provide suitable conditions for species that are typical of northern forests, forest edges and wetlands. The dug ponds, ditches, watercourses and wetlands in the project area also likely provide habitat for a number of amphibian species, however, although the proposed plan encroaches into the edges of these habitats, much broader intact habitats extend beyond the ROW.

Species of Conservation Concern

While there were no species of conservation concern (SCC) confirmed within the study area, and presence is generally considered unlikely in the vicinity of the preferred highway four-laning alignment, there is some potential for SAR to be using or moving through some areas impacted by the highway works. Based on the SAR Screening completed, the only SCC that have potential to be present within the study are as follows: Eastern Whip-poor-will, Bobolink, Common Nighthawk, Barn Swallow, Red-headed Woodpecker, Olive-sided Flycatcher, Eastern Wood Peewee, Snapping Turtle, Monarch, Yellow-banded Bumblebee, and SAR bat species, however, no SCC were observed during WSP's site visits. The wide variety of vegetation communities and generally intact habitat extending beyond the ROW indicates there is potential for migratory bird nesting activity to occur in areas along and adjacent to the ROW, however, no other migratory or SAR bird nesting confirmed within the study area. The more mature forested habitats between Birch Lane and the existing highway and the rail line provide potential habitat for woodland SAR bats, however, the potential habitat for woodland SAR bat is very limited because the forest communities are young and only a small area of larger trees are located within the study area. Based on a review the recommended plan, significant impacts to wildlife, wildlife habitat, or species of conservation concern are not anticipated with the implementation of the mitigation measures summarized below and later in **Exhibit 4-4**.

Standard mitigation measures to protect wildlife, wildlife habitat and species of conservation concern will be implemented during construction including:

- Timing constraints shall be applied to avoid vegetation clearing during the breeding bird season (approximately April 21st to August 31st). Should vegetation clearing be required during the breeding bird season, areas will be visually inspected prior to clearing to confirm there is no nesting activity.
- Clearing of trees located in the area west of the rail line, north of Birch Lane and east of the existing Highway 11/17 should be completed after October 1 and before May 1 of any year to protect any woodland SAR bats that might be using this habitat.
- In the event a SAR or potential SAR is encountered during construction, the Contractor will notify the Contractor Administrator immediately and all activities that could potentially harm the animal will cease until it has moved away. If it does not move away on its own or is injured, the Contractor Administrator will contact the Ministry who will contact MNRF for direction.
- Vegetation within the ROW will be cleared to enhance sight lines and visibility for drivers, which should reduce wildlife collisions.
- Disturbance to the significant woodland was minimized during detail design.

- The significant woodland is an environmentally sensitive area, as per the Contract Document and entry and use of the area is strictly prohibited.
- The hydrology of the Aspen-Birch Hardwood (B104) forest community within the remaining portion of the Significant Forest community shall be maintained such that the form and function of the orchid community can be maintained.
- The highway drainage design will maintain positive drainage and avoid creation of depressions and pooling areas that will retain salt and attract animals to the highway edges.
- The Contractor shall not destroy active nests (nests with eggs or young birds) of protected migratory birds, including SAR protected under the provincial *Endangered Species Act* (ESA 2007).

4.1.2 Fish and Fish Habitat

Field surveys were conducted by WSP ecologists between July 1 and July 7, 2016 to document the existing conditions of the fish and fish habitat within study limits, including a freshwater mussel visual assessment for watercourses along the approved alignment. Where possible, WSP collected general water quality parameters to support the fish community sampling results (i.e. dissolved Oxygen, water pH, conductivity and water temperature).

In total, nine (9) watercourses that support fish habitat are located within the project limits of the approved alignment. All watercourses have been identified by MNRF Thunder Bay District as having a cold-water thermal regime, with a permissible in-water work window of June 16^e to August 31^e (i.e. no in-water work between September 1st to June 15th) to protect the sensitive life stages of both spring and fall spawning species. MNRF has indicated that all streams/rivers were verified by MNRF as having a high probability of being, or are “known migratory routes and/or nursery grounds for Lake Superior Salmonid populations”. Of the potential aquatic species at risk (SAR) identified within the general Thunder Bay District, only one species is listed under the federal *Species at Risk Act* (SARA) and/or Ontario’s *Endangered Species Act* (ESA) as Threatened or Endangered and therefore receives protection. This species is the American Eel, listed as Threatened under the ESA; and although there are no records of occurrence specifically in any of the study area watercourses, they are known to occur in the Lake Superior basin. American Eel was not observed, or captured within any of the study area watercourses during fish community sampling efforts. Based on conditions observed during the field investigations, it is unlikely that American Eel is present within the approved new Highway 11/17 right of way.

Based on field observations, all watercourses displayed generally low to moderate flow with numerous seasonal barriers to upstream fish movement within the assessed reaches (i.e. debris jams, pinch points, low flow and steep gradient). A number of permanent barriers (i.e. perched culverts, waterfalls and/or other obstructions) were noted throughout. The watercourses displayed diverse channel morphology (riffle/pool sequences); however, the low flow conditions result in a lack of refuge or overwintering habitat in most watercourses. During WSP field investigations and fish community sampling conducted in July 2016, common baitfish species were captured at Tributaries B, D, E, G, H and I. No Salmonid species (i.e. Brook Trout or Rainbow Trout) or aquatic SAR were observed or captured in any of the watercourses. While Tributaries B, D, E, G and H support direct habitat for baitfish within the approved ROW, these watercourses have barriers present within the assessed reaches that would prevent the upstream migration and habitat suitability for Salmonid species, and as such, the target species for fish passage at these water crossings is baitfish. At Tributary I (Boulter's Creek), MNRF has record of Brook Trout within the watercourse, and MTO has confirmed the presence of Rainbow Trout at the existing highway crossing. Habitat present within the approved new ROW appeared suitable to support Brook Trout, and there were no barriers within the assessed reaches that preclude Brook Trout use; therefore, WSP has considered conservatively, that Tributary I could support Brook Trout. Tributaries A, F and I-1 have been determined to support indirect fish habitat within the approved new ROW, based on conditions observed during field investigations and the lack of observation or capture of fish. Located between Tributary D and Tributary E within the new ROW are two isolated, man-made ponds (Pond #1 and Pond #2) that provide direct habitat for baitfish. The locations of the watercourses are shown in **Exhibit 4-1** and further described **Appendix E**.

The Detail Design plan will require construction works adjacent to, or within watercourses identified as supporting fish habitat, either directly or indirectly, as shown in **Exhibit 4-1**. The proposed works include: removal of culverts along the existing highway alignment sections to be decommissioned, installation of culverts along the new ROW, channel realignment within the MTO ROW to tie in the existing channel with the new alignment crossings, partial infilling of two existing man-made ponds within the new MTO ROW, ditching activities within 30 m of a watercourse, and utility corridor work, as detailed in the **Exhibit 4-2**.

Exhibit 4-2: Proposed Activities Within and Adjacent to the Study Area Watercourses

Watercourse	Construction Activity						
	Culvert Removal	Culvert Installation	Channel Realignment	Pond Infilling	Ditching	Utility Corridor	Fish Habitat*
Tributary A Highway 11/17 EBL/WBL	X	X			X		I
Tributary B Highway 11/17 EBL/WBL	X	X	X		X	X	D
Tributary D Highway 11/17 EBL/WBL and Meyer's Road East	X	X	X				D/I
Ponds # 1 & 2 Highway 11/17 EBL/WBL				X			D
Tributary E Highway 11/17 EBL/WBL and Birch Lane Connection		X					D/I
Tributary F Highway 11/17 EBL/WBL and Birch Lane Connection	X	X	X				I
Tributary G Highway 11/17 EBL/WBL and Ouimet Canyon Road	X	X	X				D
Tributary H & Pond # 3 Highway 11/17 EBL/WBL		X		X			D

Watercourse	Construction Activity						
	Culvert Removal	Culvert Installation	Channel Realignment	Pond Infilling	Ditching	Utility Corridor	Fish Habitat*
Tributary I Highway 11/17 EBL/WBL and Dorion Loop Road	X	X	X		X		D
Tributary I-1 Dorion Loop Road Connection		X			X		I

* D = direct fish habitat within the MTO ROW

I = indirect fish habitat within the MTO ROW

D/I = direct fish habitat within the Highway 11/17 ROW; indirect fish habitat within side road ROW

WSP completed an assessment of impacts to fish and fish habitat to determine the potential affects of the proposed works to fish and fish habitat, and to recommend mitigation measures to avoid serious harm to fish. Based on WSP’s assessment, potential impacts to the fishery associated with construction works at watercourses identified as fish habitat will be avoided with the implementation of standard mitigation measures. A summary of potential impacts to direct fish habitat is provided in **Exhibit 4-3**.

Exhibit 4-3: Summary of Impacts to Direct Fish Habitat

Watercourse	Summary of Impact
Tributary B	<ul style="list-style-type: none"> • Realignment/infilling of approximately 60 m of existing channel length. • Enclosure of 60 m of realigned channel through the new highway culvert. Therefore, quantity of habitat remains the same, however quality is modified from naturalized open channel to enclosed flow within a culvert. • A new culvert will reinstate upstream fish movement through the ROW by replacing the existing perched highway culvert.
Tributary D	<ul style="list-style-type: none"> • Reinstatement and naturalization of approximately 111 m of existing channel length by removing two existing highway culverts. • Enclosure of approximately 121 m of existing marsh/beaver pond/braided channel through a 111 m long CSP culvert. Approximately 10 m of existing channel length will be lost, however, enclosure of the existing channel will result in improvements to fish passage through removal of beaver damming and braided/low flow channel sections.

Watercourse	Summary of Impact
<p>Ponds # 1 & 2</p>	<ul style="list-style-type: none"> • These ponds are manmade on private property used to contain bait fish for a former commercial operation. Because they were used to contain bait for sale, these ponds are isolated and do not connect to a natural system. Partial infilling of the ponds will occur. No impacts to a fishery are anticipated since the ponds are isolated, and stocked baitfish should not be impacted as most of the artificial pond habitat will be retained.
<p>Tributary E</p>	<ul style="list-style-type: none"> • Enclosure of approximately 122 m of existing natural channel through a 122 m long CSP culvert under the new highway alignment. Channel realignment is not required. • Enclosure of the existing open channel will result in improvements to fish passage through the removal of low flow channel sections and seasonal barriers to fish movement.
<p>Tributary G</p>	<ul style="list-style-type: none"> • Reinstatement and naturalization of approximately 34 m of existing channel length as a result of removing the existing highway culvert. • Enclosure of approximately 100 m of existing channel length through a 98 m long CSP culvert. Two meander bends will be lost, although the overall quantity of habitat remains essentially the same (i.e. 2 m of channel length lost). The quality of habitat is modified from naturalized open channel to enclosed flow within a culvert. • The natural stream channel within the impacted section of stream is on a steep slope and presents a natural barrier to fish migration, therefore fish passage through the culvert is not a concern. • Enclosure of approximately 30 m of existing natural channel through a 30 m long CSP culvert. Channel realignment is not required.
<p>Tributary H</p>	<ul style="list-style-type: none"> • Work at this tributary involves draining of a manmade pond and installation of a new culvert in place of the pond to maintain flow under the new highway. • The pond is located on private land and is not directly used as a fishery since it is not accessible; however, the pond is connected to fish habitat downstream. • The pond provides habitat for baitfish species; however, there is potential for resident brook trout and habitat downstream of the pond as its connected to Lake Superior • A waterfall immediately upstream of the pond is a barrier to fish migration and fish passage is not a concern.

Watercourse	Summary of Impact
	<ul style="list-style-type: none"> • The artificial pond presents a potential sink to brook trout that would otherwise find their way to potential suitable habitat and populations downstream of the highway. Therefore, the project will reduce the size of the artificial pond, allow for downstream migration and flow of nutrients that would be seasonally held back by the artificial dam. Meanwhile, the pond size will be reduced; however, a residual pond will remain after construction which will provide suitable overwintering and feeding habitat for species washed downstream (primarily baitfish). • No impacts to a fishery are anticipated.
<p>Tributary I (Boulter's Creek)</p>	<ul style="list-style-type: none"> • Work affecting Boulter's Creek involves replacement of the existing highway water crossing and the water crossing on Dorion Loop Road. The new culverts require the existing stream to be realigned, which will result in infilling of the existing channel. • The existing highway culvert and Dorion Loop Culvert are currently perched causing a barrier to fish passage including migration of rainbow and brook trout. • The new culverts will be installed so that fish passage will be restored, as well, the new water crossings will address an unstable bank condition at the existing culvert outlet by applying rock protection. • The impact will be a loss of channel habitat by infilling to connect the new culverts with the stream; however, the habitat lost is not critical or limiting to the fish using the stream. The primary function of the stream in the impacted area will be retained as a migration corridor for fish. Nutrient inputs will be lost, but, when compared to the available riparian and stream habitat remaining, this loss will be minimal and not significantly affect the productivity of the stream. • Although improvements to the stream are not included in impact assessment, it should be noted that the migration barrier caused by the existing water crossing will be restored and fish will be able to access the upper headwater reach habitat and available productivity, whereas they are unable to currently. Likewise, the new water crossing will address the current chronic erosion of the stream banks below the existing undersized perched. • Impacts to a fishery are not anticipated.

The proposed works at Tributaries B, E and G will result in the enclosure of existing natural channel within the new highway alignment, such that fish use is maintained, or improved through the highway corridor, with little to no loss of existing habitat. Impacts to the watercourse resulting from construction activities can be addressed with mitigation measures, such that serious harm to fish can be avoided.

The proposed works at Tributary D, H and I and Pond # 1 and # 2 will result in some infilling of the existing habitat; however, the habitat infilled is not critical or limiting to fish. The ponds that will be infilled are artificial and do not support a natural fish population as explained above. Likewise, the stream function at the Boulter's Creek water crossings will restore/maintain the fish migration, which is the primary function of these sections of stream. Furthermore, the sections of channel to be infilled are not limiting or critical fish habitat in comparison to the remaining available habitat. The proposed works at these water crossings will restore fish passage, decommission artificial features to restore natural thermal regime (Tributary H), and stabilize erosion prone areas (Tributary I/ Boulter's Creek), which will provide benefit to the fisheries affected. Therefore, harm to a fishery is not anticipated at Tributary D, H, I and pond # 1 and # 2, and the proposed works may proceed without further review under the *Fisheries Act*.

With the implementation of site-specific and MTO's standard mitigation measures for construction, serious harm to fish and fish habitat will be avoided, as outlined below and in **Exhibit 4-4**:

Standard Construction Mitigation Measures

- A coldwater thermal classification has been identified by MNRF for all watercourses located within the study area, with a permissible construction timing window from June 16 - August 31 (i.e. no in-water works between September 1 - June 15) of any given year to protect both spring and fall spawning species.
- Proper flows at all watercourses will be maintained at all times to ensure fish passage during construction.
- Appropriate 'flow and fish passage' measures should be developed and implemented to maintain proper flow and fish passage during construction (e.g., Permits to Take Water, MNRF Fish Collection License).
- Appropriate erosion and sediment control measures will be implemented to isolate in-water work areas based on predicted water levels (i.e. 2-year flows) to avoid sediment from entering the stream during in-water work (i.e. removal and/or installation of culverts, construction of channel tie-ins and restoration of stream banks).

- Dewatering is required at a number of the watercourses to facilitate culvert removal and installation, and any water with sedimentation will be treated before re-entering the watercourse.
- In-stream sediment controls and containment measures (i.e. cofferdams) will be constructed, installed and removed.
- Any temporarily stockpiled soil, debris or other excess materials, and any construction-related materials, will be properly contained (e.g. within silt fencing) in areas separated >30 m from all study area watercourses and their associated drainage features (ditches). All construction materials, excess materials and debris should be removed and appropriately disposed of following construction, except for those areas identified as "Excess Material Management Areas (EMMA)" within the Contract.
- Three (3) EMMA's have been approved for the management of peat/organics and surplus earth. The edges of the EMMA's shall not encroach within 30 m of the top of an embankment adjacent to any body of water (buffer area). The Contractor will be responsible for any erosion or sedimentation or the entry of any deleterious substance that enters any adjacent body of water as a result of the construction of an EMMA or temporary access road. The Contractor will also be responsible for controlling erosion and sedimentation including but not limited to the implementation, inspection, maintenance and removal of erosion and sedimentation control measures.
- All construction-related activities will be controlled to prevent entry of any petroleum products, debris or other potential contaminants/deleterious substances, in addition to sediment as outlined above, to any of the study area watercourses and their drainage features.
- The Contract Administrator's team will include an Environmental Inspector experienced in working around watercourses, who will be responsible for ensuring the erosion and sediment control measures are functioning effectively, being maintained and that all of the other general mitigation measures are being implemented as intended. Appropriate contingency and response plans will be in place and implemented if required.
- A Fisheries Contracts Specialist (FCS) will ensure that all environmental mitigation and design measures are properly installed/constructed and maintained. The FCS will be required to ensure that channel realignments, channel tie-ins, culvert installation/embedment and substrate placement are installed and constructed properly at the sensitive fisheries watercourses.
- If any environmental protection measure is found to be ineffective, corrective actions will be taken by the Contractor immediately, including repair or replacement of the measure to ensure waterbody and fish habitat protection.

- The construction access, work areas and associated requirements for removal of riparian vegetation will be minimized to the extent required for the construction activities, and these areas then delineated in the field using properly installed protective silt fencing. All temporarily disturbed areas will be re-stabilized following construction using appropriate means.
- Close cut clearing will be avoided within 5 m of the top of banks of any watercourse. All vegetative root masses found within 30 m adjacent to watercourse banks shall remain undisturbed, and only hand tools shall be utilized for close cut clearing adjacent to Tributaries B, D, G and H. Close cut clearing and grubbing shall not occur more than two weeks in advance of construction activities within this 30 m limit at Tributaries B, D, G and H.
- Temporary erosion control measures shall be applied after the removal of the existing vegetation and grubbing, as applicable, or other existing earth cover, and shall be maintained and repaired as required, to function effectively until the placement of the permanent cover.
- No equipment should be allowed to ford or otherwise enter any of the watercourses or their drainage features except as specified in the contract.
- The Contractor will develop a plan for temporary stream crossing, as required, based on MTO's Best Management Practice (BMP) for Temporary Watercourse Crossing and/or Clear-Span. Only a temporary bridge (i.e. Bailey bridge or log stringer bridge) shall be used as a temporary stream crossing to cross waterbodies identified as fish and/or fish habitat.

Site Specific Mitigation Measures

- Fish salvage will be required within the isolated work areas prior to conducting work in the water (i.e. dewatering, placement of structures, removal of structures, infilling). Any fish captured within an isolated area associated with Tributary B, D, E, F, G, H (including Pond # 3) and Tributary I (Boulter's Creek) can be released to a suitable area downstream of the work site. At Ponds # 1 and # 2, fish captured within the isolated area should be re-located to the remaining pond sections outside of the area of infill.
- Turtles and amphibians shall be relocated out of harm's way by a qualified individual.
- The following design details will be implemented during culvert installation and associated activities (i.e. realignment, tie-ins) at the nine study area watercourses:
 - New CSP culverts will be embedded at 10% of the culvert diameter to prevent undermining and perching.
 - New channel tie-ins will be constructed to transition smoothly with the existing channel features and include natural channel design (i.e. pools, riffles, suitable substrate).

- All watercourses will be stabilized upon completion to provide erosion and sediment control. The installation of the culverts at Tributary I – Highway 11/17 will be installed in two stages, with a temporary channel constructed in the median between the installation of the eastbound lane and westbound lane culverts to maintain fish passage during construction. Fish passage will be improved at Tributary I through replacement of the existing perched culvert that was acting as a barrier to upstream migration.
- Riparian shrubs will be planted along the newly constructed channel sections, which will include the salvage and replanting of native shrubs, or planting of new shrubs including Red Osier Dogwood, Alder and Willow species.

4.1.3 Erosion and Sediment Control

There is potential for erosion and sediment during grading and excavation activities, especially within the vicinity of water and waterbodies, however, with the implementation of appropriate mitigation measures for erosion and sediment control, impacts to watercourses within the project area will be avoided. The recommended mitigation measures to protect fish and fish habitat summarized in **Section 4.1.2**, along with the measures outlined below and in **Exhibit 4-4** will minimize the affects of erosion and sediments to the waterbodies within the study area by implementing the following measures:

- Temporary erosion control will be applied at sensitive watercourses after the removal of the existing vegetation and grubbing, as applicable, or other existing earth cover, and shall remain in place until the placement of the permanent cover. The Fisheries Specialist will inspect the installed temporary erosion and sediment control measures and advise on additional measures, as necessary.
- Erosion and sediment control measures will be installed prior to construction, and maintain throughout construction in accordance with MTO's standard construction practices and applicable legislation.
- Routinely inspect sediment and erosion control structures, including after storms, and repair as required.
- Exposed surfaces will be fully stabilized and re-vegetated as quickly as possible following completion of the works.
- The Contractor is advised that no close-cut clearing shall occur within 5 m of the top of banks of any watercourse.
- All vegetative root masses found within 30 m adjacent to watercourse banks shall remain undisturbed unless specified.
- Only hand tools shall be utilized for close cut clearing adjacent to Tributaries B, D, G, and H.

- Close cut clearing and grubbing within 30 m of any watercourses shall not occur more than two weeks in advance of construction activities within this 30 m limit.

4.1.4 Groundwater and Surface Water

A hydrogeological assessment was undertaken as part of the project. To facilitate the construction for this project, dewatering is required to remove groundwater and accumulated runoff water in excavations needed for bridge abutments and culvert construction or replacements. EASR registrations are required for any water taking in the Province in excess of 50,000 litres per day to a maximum of 400,000 litres per day. Based on the calculated construction dewatering rates from the hydrogeological assessment, it is recommended that the project be registered under the Ministry of Environment, Conservation and Parks' (MECP) Environmental Activity Sector Registry (EASR) to accommodate construction dewatering that is anticipated to be required (i.e. site-wide rate of 400,000 L/day). The construction contractor will register the project under MECP's EASR for both groundwater and consumptive use (i.e. two registrations) prior to construction to ensure compliance with *Ontario Regulation 387/04* and the *Ontario Water Resources Act* (OWRA), and adhere to all mitigation measures and conditions of the EASR registration. The EASR registration will also allow the Contractor to draw water from either Wolf River or Lake Superior for consumptive uses during construction. The contractor will arrange permission from landowners for access to a water taking site, if required.

Private well surveys will also be completed at the seven properties located within the study area with water wells that are over 3 metres deep within 200 metres of rock cuts. Homeowners will receive a letter prior to the start of construction to schedule the well sampling, which will include additional details on the well-sampling, as well as contact information for comments or concerns during construction.

Prior to start of construction, the Contract Administrator shall complete pre-construction water well sampling to establish existing (baseline) conditions. Once baseline conditions are established the wells will be monitored during and following construction to confirm water quality and quantity are not affected. If impacts are observed, the Ministry will inform the well owner, and discussions on appropriate actions to be taken will be discussed on a one-on-one basis.

4.1.5 Contamination

Property contamination investigations were completed at 26 properties, which determined further detailed soil and groundwater sampling was warranted at five properties based on a review of historical land-uses, and existing conditions (e.g. existing oil/fuel tanks on property). Additional contamination investigations were completed by the Ministry at the five properties with potential for contamination which determined there are no concerns for contaminated groundwater at any properties, and confirmed contaminated soils at three of the five properties including: vanadium, cyanide, and polycyclic aromatic hydrocarbons (PAH).

Based on the Project Team's assessment, the presence of elevated levels of vanadium in soil does not represent a significant environmental concern as elevated levels of vanadium in soil in the Thunder Bay area are known to be naturally occurring (not anthropogenic) and is due to weathered bedrock (parent material). Any vanadium impacted soils that are excavated will be managed and disposed of appropriately with due regard to environmental and health and safety regulations. The remaining contamination on the properties are potentially resulting from the extraneous debris including metal and wood debris, household appliances, paint cans, and a full tank located on the property. All contaminated soils in areas that were identified during the detailed contamination investigations that are affected by construction will be managed, and disposed off-site at a MECP licenced landfill or treatment facility, as required.

4.1.6 Mineral Aggregates

Mineral aggregates, such as good quality sand and gravel, are a vital construction material required for Ministry of Transportation undertakings. The *Aggregate Resources Act* ensures that environmental concerns associated with aggregate extraction operations are addressed. In accordance with this legislation, MTO will review possible environmental concerns associated with aggregate operations (excluding commercial licensed operations) expressed by Government Agencies, local municipalities and the public, when applicable to site specific projects.

4.1.7 Emergency Spill Response

Direct responsibility for containment and clean-up of spills and abandoned materials on MTO highway facilities rests with the owner of the material and person in control of the material at the time of the spill or abandonment.

Where spills or abandoned materials occur on MTO highway facilities, MTO may assist where persons legally responsible cannot be located or not able to respond. MTO assistance may include notification of authorities, provision of equipment and materials, and traffic management. In the event of a spill or MTO material by MTO staff, MTO will undertake all notification, containment and cleanup responsibilities required by provincial and federal legislation. Spill prevention and spill management requirements are included in the contract to minimize the likelihood of any adverse effects to groundwater during construction.

4.2 Social Environmental

4.2.1 Management of Excess Materials

Excess Material Management will be completed in accordance with applicable legislation and MTO's standard construction practices. The Contractor will be restricted from placing excess materials in environmentally sensitive areas.

A MTO and Ministry of Environment, Conservation and Parks (MECP) protocol identifies material-by-material management options both inside and outside the construction area, which includes the right-of-way and property with a boundary contiguous to the right-of-way. All excess materials may be reused or recycled. This project designates two Excess Material Management Areas (EMMA) within which the Contractor is to dispose of excess earth, generated from excavation operations. Maximum footprints, side slopes and heights are specified in the Contract and minimum distances from property lines and watercourses are specified. As well, inside the right-of-way, materials such as asphalt, concrete, swamp material, wood, earth and rock may be reused as a construction material or managed as fill. Materials also may be temporarily stockpiled in preparation for these uses. Management of excess materials outside the right-of-way, stockpiling and wood management depends on local circumstances. Where specified, all harvestable wood shall be cut and stockpiled on private properties in accordance with property agreements between MTO and the property owner.

Site protection is provided by the imposition of constraints and for the protection of water and air quality adapted from existing legislation. The constraint on the management of these materials also involves discussions and written agreements with property owners, and may involve consultation with MECP and other authorities. Where an excess material management option cannot meet constraints, another option must be pursued, or the material must be disposed of as waste.

4.2.2 Land Use

To support the Township of Dorion's future development, the Ministry is maintaining municipal road connections at Meyer's Road, Ouimet Canyon Road and Dorion Loop Road from Highway 11/17. A new connection will be constructed between Meyer's Road and Birch Lane to provide access to residents and users of Birch Lane. The recommended four-lane plan does not preclude the Township of Dorion from improving their internal road network in support of potential future waterfront development.

4.2.3 Noise

A noise assessment of the proposed improvements was undertaken to determine the potential noise impacts and any requirements for noise mitigation based on criteria outlined in the MTO Environmental Guide for Noise (MTO Noise Guide) and in accordance with MECP standards. Based on the results of the noise assessment, noise mitigation is not warranted. It is noted that the approximately half of the receiver locations are predicted to experience a reduction in future noise levels since the highway will be shifted further away from most residences.

Construction activities and use of construction equipment will generate noise. During construction, the Contractor will be required to abide by MTO's standard construction mitigation for noise, such as keeping idling of construction equipment to a minimum, and to maintain equipment in good working order to reduce noise from construction activities. Construction may occur outside of normal working hours and on weekends for certain activities along Highway 11/17. If complaints regarding construction noise arise during construction, they will be investigated according to the provisions of the MTO *Noise Guide* (October 2006). Any complaints on noise should be sent to the Ministry. Once a complaint is received from the public, MTO will investigate the matter to ensure the general noise control measures that have been agreed upon are in effect. If not, MTO will warn the contractor of any problems and will take steps to enforce the contract provisions.

4.2.4 Air Quality and Dust

Short-term effects to air quality include dust created by construction activities. Dust control shall be completed during construction to ensure construction work does not affect traffic, enter surface waters, or cause a nuisance to residents, or utilities.

4.3 Cultural Heritage

4.3.1 Archaeological Resource

A preliminary archaeological assessment was carried out in October 2015 to determine the archaeological potential of all previously unevaluated undisturbed areas along the Highway 11/17 realignment alternatives. Based on the initial assessment, areas with archaeological potential were identified which require a more detailed archaeological assessment to be completed. The detailed archaeological assessment was carried out in Spring 2016 in all areas recommended by the initial assessment and in July 2018 along the 800 m stretch of land that is impacted by the Birch Lane Connection, between Meyers Road East and Birch Lane. The additional detailed archaeological assessment cleared the study area of archaeological potential.

All Archaeological Assessment Reports documenting the archaeological assessments completed as part of this study were submitted to the Ministry of Tourism, Culture and Sport (MTCS) and were both entered into the registry. All archaeological assessments were completed in conformity with the MTCS' 2011 Standards and Guidelines.

Should previously unknown or unassessed deeply buried archaeological resources be uncovered during construction, they may be a new archaeological site and therefore subject to Section 48 (1) of the *Ontario Heritage Act*. The proponent or person discovering the archaeological resources must cease alteration of the site immediately and engage a licensed archaeologist to carry out archaeological fieldwork, in compliance with sec. 48 (1) of the *Ontario Heritage Act*. If unmarked human remains are encountered, the provisions of the *Ontario Cemeteries Act* apply. Construction activities in the area should cease and contact should be made with the Regional Archaeology Review Officer of the Ministry of Tourism, Culture and Sport and the Cemeteries Regulation Unit of the Ministry of Consumer Services.

4.3.2 Cultural Heritage Resources

Based on the age of the Canadian Pacific Railway Overhead Bridge at Ouimet was screened with the Heritage Bridges - Identification and Assessment Guide (Ontario 1945-1965), which determined the structure does not have heritage value. No heritage features were documented in the 1997 Environmental Study Report, and the Municipality of Shuniah and Township of Dorion confirmed no built heritage resources are present within the vicinity of the study area.

4.4 Engineering / Technical Considerations

4.4.1 Construction Staging

The proposed improvements will be constructed in stages to maintain traffic flow on Highway 11/17. Short-term single lane operations and/or detours may be required in stages on both the mainline and the side roads. Short term closures of Meyer's Road East (10 calendar days) and Meyer's Road West (i.e. 3 calendar days) will be required to facilitate construction of the new at grade intersection with Highway 11/17. The closures will not occur simultaneously and local traffic will be re-routed via detour signing during the closures.

The Contractor shall notify affected property owners/residents of any temporary road closures (e.g. Meyers Road) a minimum of one week in advance of the closure.

4.4.2 Property Requirements

The Ministry will continue to negotiate with individual owners for property purchases in accordance with standard MTO procedures.

4.4.3 Emergency Access

Local municipalities, medical services and the Ontario Provincial Police will be notified of construction staging, start of construction, etc. to minimize delay in emergency response times during and after construction.

4.4.4 Utilities

Utility conflicts to Hydro One and Bell Canada facilities were identified. The majority of required utility relocations have been completed within the study limits. Remaining Hydro One tower relocation will be co-ordinated in advance of and/or during the MTO highway improvements.

4.5 Summary of Environmental Effects and Recommended Mitigation Measures

Exhibit 4-4 summarizes the potential environmental impacts and proposed mitigation measures to follow during construction.

Exhibit 4-4: Summary of Environmental Effects, Recommended Mitigation Measures, and Commitment to Future Works

ID	Potential Environmental Issue	Concerned Agencies	ID	Recommended Mitigation Measures and Commitment to Future Works
1.0	Terrestrial Ecosystem	MNRF	1.1	<ul style="list-style-type: none"> The Contractor shall retain an Environmental Inspector to review and ensure proper implementation and maintenance of the mitigation measures.
			1.2	<ul style="list-style-type: none"> There are environmentally sensitive areas (ESA) within the study area, including a Significant Woodland Area. Entry into, and use or storage of materials within an ESA is strictly prohibited.
			1.3	<ul style="list-style-type: none"> Re-stabilize exposed surfaces as soon as possible using gravel sheeting due in areas of high erosion potential; areas not requiring gravel sheeting shall be re-vegetated.
			1.4	<ul style="list-style-type: none"> Clearly delineate ROW vegetation clearing zones and vegetation retention zones on both the construction drawings and in the field to confirm with the contractor prior to clearing and grading of areas adjacent.
			1.5	<ul style="list-style-type: none"> Conduct vegetation removal and protection measures in accordance with the Ministry's standard construction practice for tree clearing and protection.
			1.6	<ul style="list-style-type: none"> Felled trees shall not be removed from within highway ROW (and shall be moved away from watercourse) to avoid disturbance to vegetation outside the ROW (or to aquatic habitats).
			1.7	<ul style="list-style-type: none"> Tree grubbing will be restricted to the required activity zone.
			1.8	<ul style="list-style-type: none"> Avoid unnecessary traffic; dumping and storage of materials over tree roots.
			1.9	<ul style="list-style-type: none"> The use of stripped organic material (i.e. top soil) excavated from construction is permitted in place of the granular sheeting with the approval from the Contract Administrator.
			1.10	<ul style="list-style-type: none"> The Contractor shall avoid destroying the nests of migratory birds. To prevent impacts to migratory birds, clearing should be avoided between April 21 and August 31. If clearing must occur between April 21 and August 31, the Service Provider will visually inspect the area prior to clearing to confirm there is no nesting activity. If nests are observed then clearing shall be avoided within 3 m of known nests containing eggs or young. This area will be flagged and avoided until the birds have completed nesting and have left the area.

ID	Potential Environmental Issue	Concerned Agencies	ID	Recommended Mitigation Measures and Commitment to Future Works
			1.11	<ul style="list-style-type: none"> Temporary erosion control measures shall be applied after the removal of the existing vegetation and grubbing, as applicable, or other existing earth cover, and shall be maintained and repaired as required, to function effectively until the placement of the permanent cover.
			1.12	<ul style="list-style-type: none"> Harvestable trees shall be salvaged in accordance with the property agreements between the Ministry and property owners.
			1.13	<ul style="list-style-type: none"> Vegetation within the ROW will be cleared for construction purposes. This will provide required sight lines and visibility for drivers to avoid wildlife collisions.
			1.14	<ul style="list-style-type: none"> The highway drainage design will maintain positive drainage and avoid creation of depressions and pooling areas that will retain salt and attract animals to the highway edges.
			1.15	<ul style="list-style-type: none"> Clearing of trees located in the area west of the rail line, north of Birch Lane and east of the existing Highway 11/17 should be completed after October 1 and before May 1 of any year to protect any woodland SAR bats that might be using this habitat.
			1.16	<ul style="list-style-type: none"> The Contractor shall not destroy active nests (nests with eggs or young birds) of protected migratory birds, including SAR protected under the provincial <i>Endangered Species Act</i> (ESA 2007).
			1.17	<ul style="list-style-type: none"> Existing soils may be re-used as topsoil where feasible and only when approved by the CA for suitability.
			1.18	<ul style="list-style-type: none"> A qualified individual shall be present during infilling of ponds to relocate any stranded turtles or amphibians to suitable habitat outside of the work area.
2.0	Fish and Fish Habitat	MNR/DFO	2.1	<ul style="list-style-type: none"> A cold water thermal classification has been identified by MNR/DFO for all watercourses located within the study area, with a permissible construction timing window from June 16th - August 31st (i.e. no in-water works from September 1st – June 15th) of any given year to protect both spring and fall spawning species.
			2.2	<ul style="list-style-type: none"> Proper flows at all watercourses will be maintained at all times to ensure fish passage during construction.
			2.3	<ul style="list-style-type: none"> Appropriate 'flow and fish passage' measures should be developed and implemented to maintain proper flow and fish passage during construction (e.g., Permits to Take Water, MNR/DFO Fish Collection License).
			2.4	<ul style="list-style-type: none"> Appropriate erosion and sediment control measures will be implemented to isolate in-water work areas based on predicted water levels (i.e. 2-year flows) to avoid sediment

ID	Potential Environmental Issue	Concerned Agencies	ID	Recommended Mitigation Measures and Commitment to Future Works
				from entering the stream during in-water work (i.e. removal and/or installation of culverts, construction of channel tie-ins and restoration of stream banks).
			2.5	<ul style="list-style-type: none"> De-watering is required at a number of the watercourses to facilitate culvert removal and installation, and any water with sedimentation will be treated before re-entering the watercourse.
			2.6	<ul style="list-style-type: none"> In-stream sediment controls and containment measures (i.e. cofferdams) will be constructed, installed and removed.
			2.7	<ul style="list-style-type: none"> Any temporarily stockpiled soil, debris or other excess materials, and any construction-related materials, will be properly contained (e.g. within silt fencing) in areas separated > 30 m from all study area watercourses and their associated drainage features (ditches). All construction materials, excess materials and debris should be removed and appropriately disposed of following construction, except for those areas identified as "Excess Material Management Areas (EMMA)" within the Contract.
			2.8	<ul style="list-style-type: none"> Three (3) EMMA's have been approved for the management of peat/organics and surplus earth. The edges of the EMMA's shall not encroach within 30 m of the top of an embankment adjacent to any body of water (buffer area). The Contractor will be responsible for any erosion or sedimentation or the entry of any deleterious substance that enters any adjacent body of water as a result of the construction of an EMMA or temporary access road. The Contractor will also be responsible for controlling erosion and sedimentation including but not limited to the implementation, inspection, maintenance and removal of erosion and sedimentation control measures.
			2.9	<ul style="list-style-type: none"> All construction-related activities will be controlled to prevent entry of any petroleum products, debris or other potential contaminants/deleterious substances, in addition to sediment as outlined above, to any of the study area watercourses and their drainage features.
			2.10	<ul style="list-style-type: none"> The Contract Administrator's team will include an Environmental Inspector experienced in working around watercourses, who will be responsible for ensuring the erosion and sediment control measures are functioning effectively, being maintained and that all of the other general mitigation measures are being implemented as intended. Appropriate contingency and response plans will be in place and implemented if required.

ID	Potential Environmental Issue	Concerned Agencies	ID	Recommended Mitigation Measures and Commitment to Future Works
			2.11	<ul style="list-style-type: none"> A Fisheries Contracts Specialist (FCS) will ensure that all environmental mitigation and design measures are properly installed/constructed and maintained. The FCS will be required to ensure that channel realignments, channel tie-ins, culvert installation/embedment and substrate placement are installed and constructed properly at the sensitive fisheries watercourses
			2.12	<ul style="list-style-type: none"> If any environmental protection measure is found to be ineffective, corrective actions will be taken by the Contractor immediately, including repair or replacement of the measure to ensure waterbody and fish habitat protection
			2.13	<ul style="list-style-type: none"> The construction access, work areas and associated requirements for removal of riparian vegetation will be minimized to the extent required for the construction activities, and these areas then delineated in the field using properly installed protective silt fencing. All temporarily disturbed areas will be re-stabilized following construction using appropriate means
			2.14	<ul style="list-style-type: none"> Close cut clearing will be avoided within 5 m of the top of banks of any watercourse.
			2.15	<ul style="list-style-type: none"> All vegetative root masses found within 30 m adjacent to watercourse banks shall remain undisturbed, and only hand tools shall be utilized for close cut clearing adjacent to Tributaries B, D, G and H.
			2.16	<ul style="list-style-type: none"> Close cut clearing and grubbing shall not occur more than two weeks in advance of construction activities within this 30 m limit at Tributaries B, D, G and H.
			2.17	<ul style="list-style-type: none"> Temporary erosion control measures shall be applied after the removal of the existing vegetation and grubbing, as applicable, or other existing earth cover, and shall be maintained and repaired as required, to function effectively until the placement of the permanent cover
			2.18	<ul style="list-style-type: none"> No equipment should be allowed to ford or otherwise enter any of the watercourses or their drainage features except as specified in the contract.
			2.19	<ul style="list-style-type: none"> The Contractor will develop a plan for temporary stream crossing, as required, based on MTO's Best Management Practice (BMP) for Temporary Watercourse Crossing and/or Clear-Span. Only a temporary bridge (i.e. Bailey bridge or log stringer bridge) shall be used as a temporary stream crossing to cross waterbodies identified as fish and/or fish habitat.

ID	Potential Environmental Issue	Concerned Agencies	ID	Recommended Mitigation Measures and Commitment to Future Works
			2.20	<ul style="list-style-type: none"> Fish salvage will be required within the isolated work areas prior to conducting work in the water (i.e. dewatering, placement of structures, removal of structures, infilling). Any fish captured within an isolated area associated with Tributary B, D, E, F, G, H (including Pond # 3) and Tributary I (Boulter's Creek) can be released to a suitable area downstream of the work site. At Pond # 1 and # 2, fish captured within the isolated area should be re-located to the remaining pond sections outside of the area of infill
			2.21	<ul style="list-style-type: none"> Turtles and amphibians shall be relocated out of harm's way by a qualified individual.
			2.22	<ul style="list-style-type: none"> Culverts will be removed at abandoned water crossings on the existing highway and the stream channel will be restored.
			2.23	<ul style="list-style-type: none"> The following design details will be implemented during culvert installation and associated activities (i.e. realignment, tie-ins) at the nine study area watercourses: <ul style="list-style-type: none"> New CSP culverts will be embedded at 10% of the culvert diameter to prevent undermining and perching. New channel tie-ins will be constructed to transition smoothly with the existing channel features and include natural channel design (i.e. pools, riffles, suitable substrate).
			2.24	<ul style="list-style-type: none"> All watercourses will be stabilized upon completion to provide erosion and sediment control.
			2.25	<ul style="list-style-type: none"> The installation of the culverts at Tributary I (Highway 11/17) will be installed in two stages, with a temporary channel constructed in the median between the installation of the eastbound lane and westbound lane culverts to maintain fish passage during construction. Fish passage will be improved at Tributary I through replacement of the existing perched culvert that was acting as a barrier to upstream migration.
			2.26	<ul style="list-style-type: none"> Riparian shrubs will be planted along the newly constructed channel sections, which will include the salvage and replanting of native shrubs, or planting of new shrubs including Red Osier Dogwood, Alder and Willow species.
3.0	Species of Conservation Concern	MNRF	3.1	<ul style="list-style-type: none"> In the case of a protected SAR or potential SAR encounters, all construction activities that might harm the animal will cease until it has moved away and the Contractor will contact the Contractor Administrator immediately. If the animal is injured or does not move away, the Contractor Administrator will contact MNRF for direction.

ID	Potential Environmental Issue	Concerned Agencies	ID	Recommended Mitigation Measures and Commitment to Future Works
4.0	Erosion and Sediment Control	MNRF	4.1	<ul style="list-style-type: none"> Temporary erosion and sediment control measures will be installed prior to construction, and maintain throughout construction.
			4.2	<ul style="list-style-type: none"> Routinely inspect sediment and erosion control structures, including after storms, and repair / maintain as required.
			4.3	<ul style="list-style-type: none"> Surfaces will be fully stabilized and re-vegetated as quickly as possible following completion of the works.
			4.4	<ul style="list-style-type: none"> No close-cut clearing shall occur within 5 m of the top of banks of any watercourse
			4.5	<ul style="list-style-type: none"> All vegetative root masses found within 30 m adjacent to watercourse banks shall remain undisturbed unless specified.
			4.6	<ul style="list-style-type: none"> Only hand tools shall be utilized for close cut clearing adjacent to Tributaries B, D, G, and H.
			4.7	<ul style="list-style-type: none"> Close cut clearing and grubbing within 30 m of any watercourses shall not occur more than two weeks in advance of construction activities within this 30 m limit.
			4.8	<ul style="list-style-type: none"> Temporary erosion control shall be applied at sensitive watercourses after the removal of the existing vegetation and grubbing, as applicable, or other existing earth cover, and shall remain in place until the placement of the permanent cover. The Fisheries Specialist will inspect the installed temporary erosion and sediment control measures and advise on additional measures, as necessary.
5.0	Groundwater and Surface Water	MECP	5.1	<ul style="list-style-type: none"> The Contractor shall register the project under the Ministry of Environment, Conservation and Parks' Environmental Activity Sector Registry (EASR) for both groundwater and surface water (i.e. two registrations) prior to start of construction and shall adhere to all conditions and requirements of the EASR registration, and implement the requirements and mitigation measures outlined in the Hydrogeological Assessment Report.
			5.2	<ul style="list-style-type: none"> The Contract Administrator shall complete pre-construction water well sampling and post-construction water well sampling.
6.0	Contamination and Management	MECP	6.1	<ul style="list-style-type: none"> Carry out vehicle maintenance and fueling at the defined maintenance areas in the works yards (contained and well removed from any natural areas) or at commercial garages whenever possible.
			6.2	<ul style="list-style-type: none"> Cyanide and PAH contaminated soils were identified within the study area and are delineated in the Contract Document. Excavated contaminated soils shall be managed,

ID	Potential Environmental Issue	Concerned Agencies	ID	Recommended Mitigation Measures and Commitment to Future Works
	of Excess Materials			and disposed off-site at a MECP licenced landfill or treatment facility, as per the Contract Documents.
			6.3	<ul style="list-style-type: none"> Potentially contaminated soils (i.e. vanadium) are present within the study area and will be impacted by the construction works. All contaminated soils shall be managed per the Contract Document.
			6.4	<ul style="list-style-type: none"> Asbestos are present in culverts and shall be managed in accordance with the <i>Occupational Health and Safety Act</i>.
			6.5	<ul style="list-style-type: none"> Standard dust control measures shall be implemented where practical to ensure airborne dusts are controlled during construction activities.
			6.6	<ul style="list-style-type: none"> The Contractor shall ensure the proper containment and clean-up of any spills.
			6.7	<ul style="list-style-type: none"> Spill prevention and spill management requirements are included in the contract to minimize the likelihood of any adverse effects to groundwater and surface water during construction.
			6.8	<ul style="list-style-type: none"> The Contractor will be restricted from placing excess materials in environmentally sensitive areas.
			6.9	<ul style="list-style-type: none"> All excess materials may be reused or recycled. Inside the right-of-way, materials such as asphalt, concrete, swamp material, wood, earth and rock may be reused as a construction material or managed as fill. Materials also may be temporarily stockpiled in preparation for these uses.
			6.10	<ul style="list-style-type: none"> Management of excess materials outside the right-of-way, stockpiling and wood management depends on local circumstances, in agreement with property owners and responsible authorities.
7.0	Mineral Aggregates	MTO	7.1	<ul style="list-style-type: none"> In accordance with the <i>Aggregate Resources Act</i>, MTO will review possible environmental concerns associated with aggregate operations (excluding commercial licensed operations) expressed by Government Agencies, local municipalities and the public, when applicable to site-specific projects.
8.0	Noise and Air Quality	MECP MUN Residents	8.1	<ul style="list-style-type: none"> The Contractor will be required to keep idling of construction equipment to a minimum and to maintain equipment in good working order to reduce noise from construction activities.
			8.2	<ul style="list-style-type: none"> If complaints regarding construction noise arise during construction, they will be investigated according to the provisions of the MTO <i>Noise Guide</i> (October 2006).

ID	Potential Environmental Issue	Concerned Agencies	ID	Recommended Mitigation Measures and Commitment to Future Works
			8.3	<ul style="list-style-type: none"> Dust control shall be completed during construction to ensure construction work does not affect traffic, enter surface waters, or cause a nuisance to residents, or utilities.
9.0	Archaeological Resources	MTCS	9.1	<ul style="list-style-type: none"> Should previously undocumented archeological resources be discovered, they may be a new archeological site and therefore subject to Section 48(1) of the <i>Ontario Heritage Act</i>. In the event that human remains are encountered during construction, the Ministry of Tourism, Culture and Sport and the Registrar of the Cemeteries Branch of the Ministry of Government Services must be contacted immediately.
			9.2	<ul style="list-style-type: none"> If unmarked human remains are encountered, the provisions of the Ontario Cemeteries Act apply. Construction activities in the area shall cease and contact will be made with the Regional Archaeology Review Officer of the Ministry of Tourism, Culture and Sport and the Cemeteries Regulation Unit of the Ministry of Consumer Services.
10.0	Agency Notification	MTO MUN ES Residents	10.1	<ul style="list-style-type: none"> Local municipalities, emergency services, and OPP will be notified of the final construction staging plan, start of construction, temporary road closures, etc. to minimize delay in emergency response times during and after construction.
			10.2	<ul style="list-style-type: none"> The Contractor shall notify affected property owners of any temporary road closures (e.g. Meyers Road) one (1) week in advance of the closure.

5 Monitoring

MTO has an internal process to identify and address updates to the Ontario Provincial Standard Specifications, MTO Special Provisions and Non-Standard Special Provisions. This includes ongoing review of unanticipated events that occur during other construction contracts and incorporation of required updates into future contract provisions. This helps to assess the effectiveness of the contract provisions to ensure that they are providing the expected control and/or protection.

On-site construction administration / inspection staff (retained by MTO) will ensure that the environmental protection measures outlined in this report are carried out.

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

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

A qualified Environmental Inspector, as part of the Contractor Administrator assignment, will be retained to provide oversight on specific works, including channel realignments, to ensure that works are in accordance with the contract specifications and commitments to the Ministry of Natural Resources and Forestry and the Department of Fisheries and Ocean.

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

HIGHWAY 11/17 FOUR-LANING FROM OUIMET TO DORION

Preliminary and Detail Design and Class Environmental Assessment Study

Notice of Public Information Centre #2

Directly mailed to adjacent property owners on the mailing list.

THE STUDY

WSP (formerly MMM Group Limited), has been retained by the Ontario Ministry of Transportation (MTO) to conduct a Preliminary and Detail Design and Class Environmental Assessment (EA) Study for the four-laning of Highway 11/17 from 2.83 km west of Ouimet Overhead, easterly 8.63 km.

The study includes:

- Some areas of twinning the existing highway;
- Some areas of new four-lane alignment, including constructing new eastbound and westbound bridges over the Canadian Pacific Railway;
- Providing connections to the new four-lane highway at Meyers Road, Ouimet Canyon Road, Poplar Lane, and Dorion Loop Road West; and
- A proposed new municipal road connection between Meyers Road East and Birch Lane (pending EA approval).

THE PROCESS

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

Following Public Information Centre (PIC) #1 held on April 13, 2016, the Project Team prepared and filed an Addendum to the original 1997 Environmental Study Report (ESR) to document the proposed changes to the original design decisions (i.e. highway alignment revisions in some sections, modifications to public access, and an increase in right-of-way width from 90 m to 110 m (minimum)). MTO received EA approval to proceed with the proposed plan in September 2017. The original design has since been revised to add a new municipal road connection between Meyers Road and Birch Lane. Information on this new connection will be provided at PIC #2 and is documented in a separate ESR Addendum, which is currently filed for public review.

PUBLIC INFORMATION CENTRE #2

PIC #2 has been scheduled to provide an opportunity for interested parties to review and provide input on the detail design plan, and the anticipated environmental impacts and mitigation measures. PIC #2 will be held as a drop-in style, open house format and members of the Project Team will be available to answer questions and receive comments. PIC #2 is scheduled as follows:

Date: Wednesday, February 21, 2018
Location: Dorion Public School and Community Centre
Gymnasium
175 Dorion Loop Road
Dorion, ON P0T 1K0
Time: 5:00 p.m. to 8:00 p.m.

The PIC venue is fully accessible and all PIC material presented will be compliant with the requirements under the *Accessibility for Ontarians with Disabilities Act*. If you have any accessibility requirements to participate in this project, please contact one of the Project Team members listed below in advance of the PIC.

Following PIC #2, a Design and Construction Report (DCR) will be completed to document the Detail Design, and environmental impacts and mitigation measures. The DCR will be made available for a 30-day public and agency review period. The DCR is not eligible for a Part II Order (i.e. "bump-up") under the provisions of the Ontario *Environmental Assessment Act*.

Construction is anticipated to start as early as 2019.

COMMENTS

If you wish to obtain additional information or provide comments or if you would like to be added to the study's mailing list, please contact the individuals listed below, or visit our website at www.Hwy11-17Four-LaningfromOuimettoDorion.ca.

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

