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P.O. Box 2001
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Chatham, Ontario, N7M 5M1
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March 27, 2020

VIA EMAIL, RESS AND COURIER

Ms. Christine Long
Board Secretary
Ontario Energy Board
2300 Yonge Street, 27th Floor
Toronto, ON M4P 1E4

Dear Ms. Long:

Re: Enbridge Gas Inc. (Enbridge Gas)
Ontario Energy Board (OEB) File No.: EB-2019-0188
North Bay (Northshore and Peninsula Roads) Community Expansion Project – Interrogatory Responses

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In accordance with the OEB's Procedural Order No.1, enclosed please find Enbridge Gas's interrogatory responses in the above-noted proceeding.

Please note Exhibit I.ED.7_Attachment 1 has also been provided in Excel format.

In accordance with the Board's revised Practice Direction on Confidential Filings effective October 28, 2016, all personal information has been redacted from the following:

Exhibit I.STAFF.8_Attachment 1

The confidential Exhibit is being provided under separate cover to the OEB.

The submission has been filed through the OEB's RESS and will be available on Enbridge Gas's website at:

https://www.enbridgegas.com/NorthBay

Please contact the undersigned if you have any questions.

Sincerely,

(Original Signed)

Vanessa Innis
Manager Regulatory Applications & Strategy

cc: T. Persad (Enbridge Gas)
Intervenors (EB-2019-0188)

ENBRIDGE GAS INC.

Answer to Interrogatory from
Board Staff (STAFF)

INTERROGATORY

Reference:

Exhibit A, Tab 2, Schedule 1, page 2
Exhibit B, Tab 1, Schedule 3
Exhibit B, Tab 2, Schedule 2

Preamble:

Enbridge Gas Inc. (Enbridge Gas) requests leave to construct approximately 27 kilometers of small diameter (NPS 1.25 to NPS 4) polyethylene distribution pipelines and to rebuild a regulating station in the City of North Bay to serve the Northshore and Peninsula Roads area (Project). The proposed pipeline will connect to Enbridge Gas' existing distribution system on Trout Lake Road. Two other alternative routes were considered.

Enbridge Gas states that the facilities have been sized to meet the 10-year forecast in the Project area. There are currently 394 potential attachments (391 residential and three commercial) in the area. Enbridge Gas forecasts a total of 134 attachments (126 residential, five seasonal, three small commercial attachments) by year 10. Enbridge Gas states that it has spread the attachments over 10 years using the same approach as that applied to recent community expansion projects such as Milverton, Rostock and Wartburg.

On February 17, 2020, there were two letters of comment received by the OEB. Both letters expressed a request for natural gas service on Shorewood Road.

Questions:

a) Please provide a map showing the location and lengths of the various pipeline size segments along the route of the proposed Project.

b) Please provide the total peak hourly capacity at the inlet to the NPS 4 pipeline. Please provide the total peak hourly demand underpinning the 10-year forecast at

the inlet to the NPS 4 pipeline. If the total peak hourly capacity at the inlet is higher than the total peak hourly demand, please explain why.

c) Please provide a map indicating the minimum pipe size(s) along the route of the Project, with all other variables being equal (i.e. load forecast, pressures etc.), required to meet the hourly demand underpinning the 10-year forecast in the Project area. If the minimum pipe size(s) is different from what is being proposed in the application, please justify the difference. Please provide the cost of the Project if the minimum pipe sizes were used.

d) If the proposed plastic system was operated at a higher pressure (e.g. 520 kPa/75 psi), could it be downsized, and if so, please estimate the cost savings of doing so.

e) Homeowners on Shorewood Road have filed letters of comment requesting natural gas service.
   i. Please explain why Shorewood Road was not included in the Project.
   ii. Please provide the potential attachments and forecast attachments for Shorewood Road.
   iii. If Enbridge Gas were to serve customers on Shorewood Road, what would be the incremental capital cost to serve these customers?
   iv. Please provide the PI calculation for the Project if Shorewood Road was included in the Project route. Please identify any capital contribution that may be required.

f) Enbridge has proposed to construct a new station.
   i. Please provide the capacity of the existing station and the proposed capacity of the new station (i.e. m3/hr).
   ii. How much additional capacity, in m3/hr, is required to meet the 10-year forecast in the Project area?
   iii. What pressures are the existing system operating at and what are the proposed pressures of the Project?

g) Please provide cost estimates and any changes to forecast attachments for all of the alternatives routes identified in the application.

h) Please provide comparisons between the forecast and actual customer attachments in recent community expansions projects.

Response:

a) Please see Attachment 1

b) The peak hourly capacity available at the inlet of the NPS 4 system is approximately 825 m3/hr prior to the attachment of the Project. Based on the attachment rate identified in Exhibit B, Tab 2, Schedule 2, for the ultimate potential this project requires approximately 680 m3/hr from the existing gas network over the span of 10 years. The higher inlet capacity is inherent to the system and is being utilized to serve this community without any incremental pipeline investments upstream. Considering the system's low point, the proposed design has the capacity to accommodate approximately 700 m3/hr, including the Project.

c) Please see Attachment 2.

The minimum design would replace approximately 3.5km of NPS 4 with NPS 2. This scenario assumes sufficient capacity for a 34% attachment rate only. The exact location of the loading is unknown until actual service applications are received and therefore the design must accommodate enough capacity to feed loads at the very end of the system. The Shorewood Road area was not included in the attachment counts and design and therefore could not be supported with the minimum design, in addition to the 34% attachment rate, should the latter demand materialize as expected.

As indicated at Exhibit I.ED.13 part a), the forecasted attachment rates have been exceeded in other community expansion projects. Should the attachment rate for this Project exceed the forecast the proposed Project will not be able to accommodate those demands.

The interest indicated by customers on Shorewood Road via letters of comment, as well as some inquiries for Shorewood Road and private sections not included in the Project area during the Public Information Session, also support the potential of future growth. The proposed design would allow some additional growth without requiring reinforcement or station modifications.

The approximate cost of the Project if the minimum pipe sizes were used is $9.5 million, assuming the contractor rates per metre would remain the same.

d) The proposed design is an extension of the existing system along Anita Ave and Trout Lake Road which is designed for and operated at 420 kPa Maximum

Operating Pressure ("MOP"). The existing MOP limits the MOP for the new pipe being installed through the proposed community expansion area. A plastic system can be designed for 550 kPa MOP which would result in replacement of approximately 2.5 km of proposed NPS 4 PE with NPS 2 PE, however the rest of the system would also have to be upgraded to 550 kPa MOP. This would involve customer services and station upgrades in addition to the distribution pipe. The cost saving of reducing 2.5 km of NPS 4 PE to NPS 2 PE would be outweighed by the investment required to upgrade approximately 6.3 km of existing 420 kPa MOP system to 550 kPa MOP as well as the additional upgrades noted above and as such Enbridge Gas has not performed an analysis of the costs.

e) The Shorewood Road area was not included in the Project due to a concern with the large number of private properties, and the risk associated with not obtaining required easements to install the pipe across all of these properties and service all interested customers.

As this area was not included in the Project, the required Environmental studies as well as other pre-work done for the rest of the Project area would need to be completed. Market research would also be required to determine the expected attachment rate as well as types of dwellings (i.e. seasonal, etc.). Depending on the location of the pipeline, discussions with the corridor owners would also be required to ensure all clearances required through the CSA Z662 are maintained.

Servicing Shorewood Road could be accomplished in a few different ways and each scenario would require discussions with multiple landowners and any utility corridor owners impacted. The potential attachments could range between 30-60 residences depending on the scenario.

Due to the many unknowns stated above, Enbridge Gas does not have an estimate of the incremental cost or PI.

f)

i. The existing station has a capacity of 400 m3/hr. The upgrade would result in a new capacity of 1200 m3/hr.

ii. The proposed pipeline is designed to supply the ultimate potential identified in Exhibit B, Tab 2, Schedule 2 for the community expansion area filed. This system does not require further upgrades in this area

iii. The existing system is operating at 420 kPa MOP. Since the proposed design is the extension of the existing system, the proposed pressure is 420 kPa MOP.

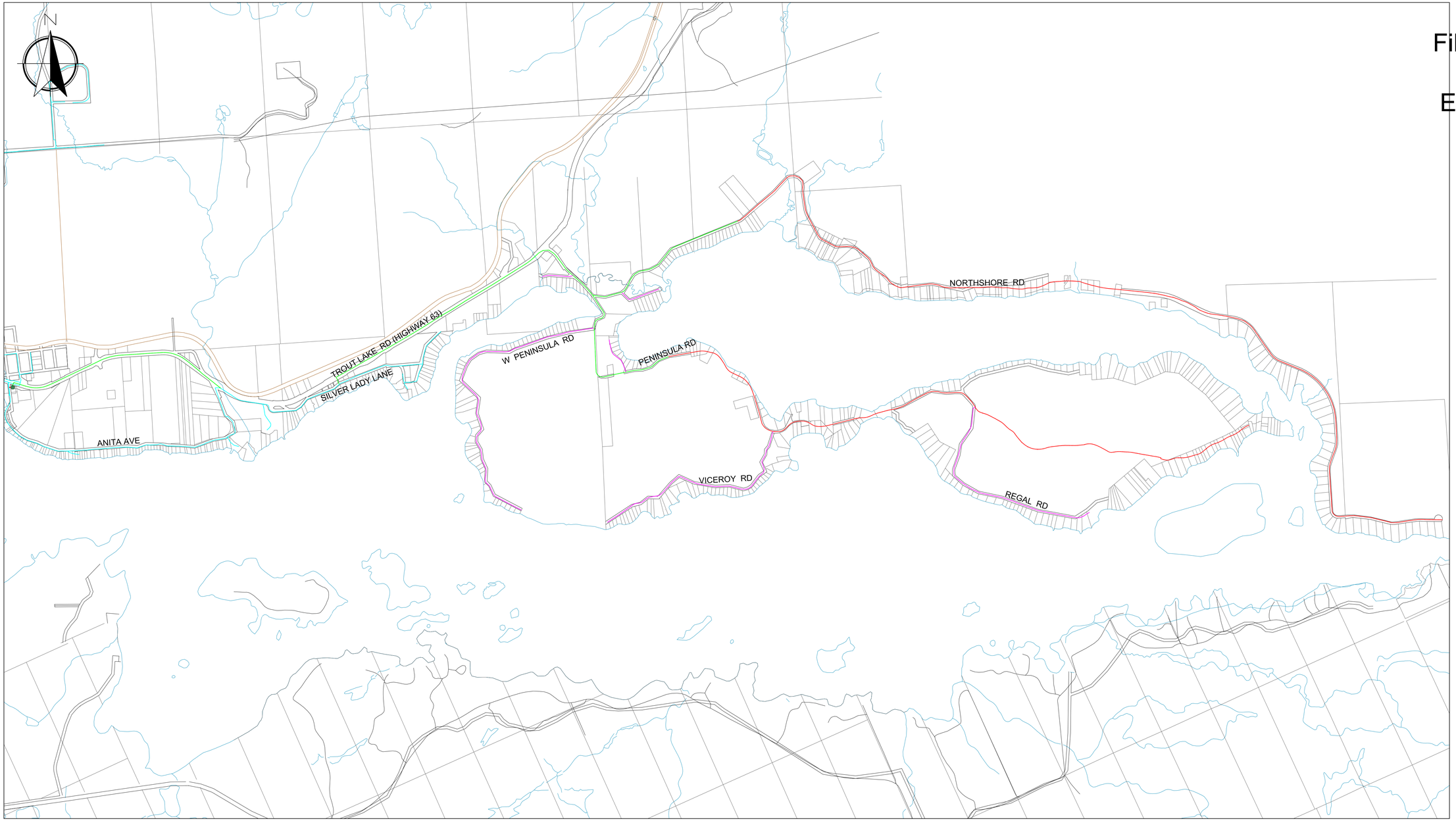
g) Option 1 – TC Energy supply
Total Project Cost Estimate: $10,281,578

This alternative considered the same attachment forecast with an alternate supply source. In addition to higher station costs, there is also an estimated 24 month wait period for TC Energy to provide the supply tap, to which the new gate station would connect.

Option 2 – Silver Lady Lane to Wild Cherry Lane
Total Project Cost Estimate: $10,230,128

This alternative reduces the forecast attachments by four residential customers. At the time of consideration, one of the eight landowners from which an easement would be required indicated they were not interested in providing an easement to Enbridge.

h) Please see Exhibit I.ED.13.



Filed: 2020-03-27
EB-2019-0188
Exhibit I.STAFF.1
Attachment 1
Page 1 of 1

LEGEND

- EXISTING GAS MAIN
- PROPOSED 4" MAIN
- PROPOSED 2" MAIN
- PROPOSED 1 1/4" MAIN
- PROPOSED STATION

SOURCE DOCUMENT INFORMATION

Qualified Individual:	Pipeline Certificate No:
Welder / Fuser:	Ticket Number:
In-Service Date:	G-Tech Update By: Date:
Testing: Design Pressure:	Test Medium:
Testing: Time On:	Pressure:
Testing: Time Off:	Pressure:

REVISIONS

Date	By	App'd	Remarks

ENBRIDGE

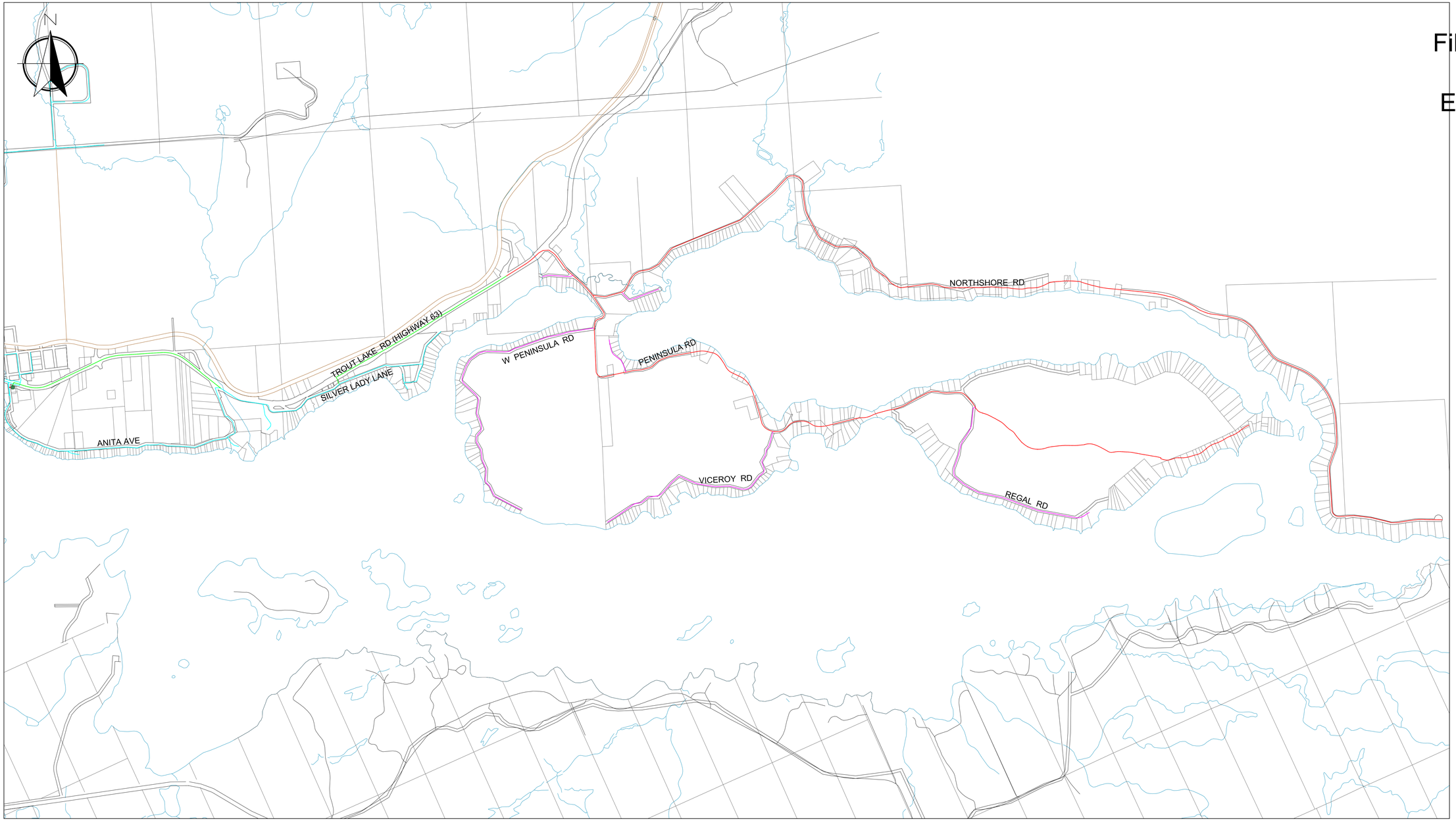
AS - PROPOSED

Title :
North Shore Community Expansion

Description :

INSTALL 6800m OF 4" PLASTIC GAS MAIN
INSTALL 12426m OF 2" PLASTIC GAS MAIN
INSTALL 6639m OF 1 1/4" PLASTIC GAS MAIN
INSTALL 18m OF 2" HP STEEL GAS MAIN

Project # : 76-19-300	CARS Ref # :	% SMYS :
District : NORTHEAST	Municipality : NORTH BAY	Authorized:
Drawn By : JAVANRYN	Date Drawn : 2020/03/19	Corrosion:
Scale : 1:15000	GTech # : JOBNO30705	Drawing Number 1 OF 1



Filed: 2020-03-27
EB-2019-0188
Exhibit I.STAFF.1
Attachment 2
Page 1 of 1

LEGEND

- EXISTING GAS MAIN
- PROPOSED 4" MAIN
- PROPOSED 2" MAIN
- PROPOSED 1 1/4" MAIN
- PROPOSED STATION

SOURCE DOCUMENT INFORMATION

Qualified Individual:	Pipeline Certificate No:
Welder / Fuser:	Ticket Number:
In-Service Date:	G-Tech Update By: Date:
Testing: Design Pressure:	Test Medium:
Testing: Time On:	Pressure:
Testing: Time Off:	Pressure:

REVISIONS

Date	By	App'd	Remarks

ENBRIDGE

AS - PROPOSED

Title :
North Shore Community Expansion

Description :

MINIMUM DESIGN
INSTALL 3414m OF 4" PLASTIC GAS MAIN
INSTALL 15812m OF 2" PLASTIC GAS MAIN
INSTALL 6639m OF 1 1/4" PLASTIC GAS MAIN
INSTALL 18m OF 2" HP STEEL GAS MAIN

Project # : 76-19-300	CARS Ref # :	% SMYS :
District : NORTHEAST	Municipality : NORTH BAY	Authorized:
Drawn By : JAVANRYN	Date Drawn : 2020/03/19	Corrosion:
Scale : 1:15000	GTech # : JOBNO30705	Drawing Number 1 OF 1

ENBRIDGE GAS INC.

Answer to Interrogatory from
Board Staff (STAFF)

INTERROGATORY

Reference:

Exhibit B, Tab 1, Schedule 1, pages 2 to 6
EB-2019-0187, Enbridge Gas Interrogatory Response to OEB Staff IR #1(b)

Preamble:

Under Section 36 of the OEB Act, Enbridge Gas is asking for approval of a System Expansion Surcharge (SES) rate of $0.23/m3 for the Proposed Project Area. Enbridge Gas states that, consistent with the 2015 Community Expansion application[1], the SES term will begin when the Project goes into service and expire at the end of the calendar year required for the Project to meet a P.I. of 1.0. Enbridge Gas states that for the Project, the SES term will extend for the full economic life of the Project, since a full 40 year term is required to reach the minimum P.I. of 1.0. As such, the requested SES term is 40 years, which will expire on November 1, 2060.

In its interrogatory response to OEB staff's IR#1(b) in Enbridge Gas' Saugeen First Nation LTC proceeding[2], Enbridge Gas noted that it applied different SES treatments for community expansions in the EGD rate zone and the Union rate zones. OEB staff understands the difference to be that in the EGD rate zone, when the PI is recalculated, Enbridge Gas would reduce the term of the SES if the PI exceeds 1.0. In contrast, in the Union rate zones, when the PI is recalculated, and the PI exceeds 1.0, Enbridge Gas would not reduce the term of the SES. OEB staff also understands that Enbridge Gas expects to treat the SES in the Union Gas rate zones differently than the SES in the EGD rate zone until rate harmonization is realized.

Enbridge Gas' application for this Project also states that to the extent any further extensions to the pipeline systems proposed in this Project are made, Enbridge Gas proposes that the approved SES term for the project be applied to customers attaching to those future extensions. Enbridge Gas states that the term for future extension customers may be extended beyond the initial term, and/or a contribution in aid to

[1] EB-2015-0179
[2] EB-2019-0187

construct (CIAC) may be assessed for the future extension to meet a minimum P.I. of 1.0.

Questions:

a) Please confirm whether OEB's staff understanding of the different treatments of SES for system expansion projects in the EGD and Union Gas rate zones is correct.

b) Further to question a) above, for system expansion projects that are completed in the Union rate zones, if the profitability index (PI) of the Project is to be tracked, and customer additions are greater than forecast and the PI reaches 1.0 before the end of the 40-year term, why would the SES period not be shortened?

c) For this specific Project, please confirm which SES treatment is being applied.

d) Please specify how often the PI for this Project would be updated with actuals and reported to the OEB.

e) Is Enbridge Gas proposing to bear the risk of any capital cost overruns incurred by this Project over the ten-year rate stability period?

f) Please confirm if Enbridge Gas is planning any further expansions in the Northshore and Peninsula Roads area. If there are expansions to the proposed project, please provide an example of how Enbridge Gas proposes to calculate the PI for further expansion. Will the cost of further expansions be added to the total cost of the Project, and the PI re-calculated accordingly, or will the expansion have its own PI calculation based on the revenues attributable only to the expansion?

Response:

a) Based on the preamble to this question it appears that the OEB's staff understanding of the different treatments of SES for system expansion projects in the EGD and Union Gas rate zones is correct. However, to be clear, with respect to the last sentence of the OEB's Staff preamble a customer who attaches to facilities installed as part of the Project after the Project is in service will be required to pay the SES for the remaining portion of the SES term. At the end of the defined term, the SES will be terminated for every customer attached to the Project, regardless of when the customer connected.

The term of the SES would only be extended in the event that further extensions to the pipeline systems proposed in this application are constructed, in which case the term of the SES for customers attached to such incremental plant may extend beyond the initial Project's SES term, or a Contribution in Aid to Construct ("CIAC") may be assessed, such that the project PI for the incremental plant required will meet a minimum P.I. of 1.0.

b) In this application the Company has requested the OEB approve the application of the SES for this project on the same basis as it has for previously approved SES projects located in the Union Gas Rate Zones (EB-2015-0179), as such the Company is not proposing to periodically update the project's PI and if applicable reduce the duration of the SES.

c) In this application Enbridge Gas has requested that the SES treatment previously applied and approved by the OEB for other community expansion projects located in the Union Gas Rate Zones be applied to this specific Project.

d) Enbridge Gas is not proposing to periodically update the PI for this Project and report such to the Board.

e) It is Enbridge Gas's expectation that any variance in the capital cost of this Project from budget will be treated in the same manner as the Board determined in its EB-2015-0179 Decision. In this decision the Board determined that any such variance would be addressed in the Company's next rate rebasing application (Ref. EB-2015-0179, Decision & Order, August 10, 2017, page 15).

f) Enbridge Gas understands there is interest in natural gas service in areas adjacent to the Project, however cannot confirm whether there will be any further expansions at this time. However, as noted in the response to part a) above, should there be further expansions in the Northshore and Peninsula Roads area, those customers who attach to the proposed facilities would be required to pay the SES for the remainder of the original Project's SES term. In the case of main extensions extending from the proposed facilities which are outside the scope of the Project, the normal economic feasibility test would apply inclusive of SES revenues and/or CIACs sufficient to bring the project PIs for such incremental expansions to 1.0. In which case, the term of the SES for these incremental expansions may differ from the SES term of the original Project.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Board Staff (STAFF)

INTERROGATORY

Reference:

Exhibit B, Tab 1, Schedule 4, page 1
Exhibit B, Tab 2, Schedule 6

Preamble:

Enbridge Gas states the total estimated 10-year cost for the Project is approximately $10.1 million. This cost is offset by $8.7 million of funding provided through Bill 32, for a net capital investment by Enbridge Gas of approximately $1.4 million over the 10 years. The estimated cost covers all costs related to materials, construction and labour required to construct distribution mains, and a regulating station. This figure also includes estimated land costs and environmental costs.

Question:

Please provide a table, similar to the table below, comparing the costs of the Project to three or more comparable projects completed by Enbridge Gas in the last five years broken down by pipe size, length, material, pressure class, material cost, construction/labour cost, other cost (i.e. land, legal, regulatory etc.), contingency, total project cost and year of construction.

Project	Pipe size	Length	Material	Pressure class	Material cost	Construction / labour	Other Cost	Project Contingency	Total Project Cost	Construction year
XYZ	NPS 4	2 km	Plastic	LP	$ XX	$ XX	$ XX	$ XX	$ XX	20XX
	NPS 8	4.3 km	Steel	XHP	$ XX	$ XX				
YYZ	NPS 6	2 km	Steel	HP	$ XX	$ XX	$ XX	$ XX	$ XX	20XX

Response:

Please see Attachment 1. Enbridge Gas has provided the requested detail for each of the expansion projects included in the legacy Union Gas OEB-approved 2017 Community Expansion Application (EB-2015-0179). These projects include Kettle Point and Lambton Shores; Milverton, Rostock, Wartburg; Moraviantown; and Prince Township. With respect to costing, Enbridge Gas submits that no two projects approved by the OEB and completed by Enbridge Gas are identical. Costing for pipeline projects varies throughout Enbridge Gas's service area. Factors such as the location of construction (e.g. soil conditions, road allowance, private easement, etc.) and the overall scope and complexity of a project impacts costing.

The Project has particular construction challenges related to geography which are reflected in elevated construction costs. The presence of rock as well as variations in elevation along the highway and municipal portions affect the cost per metre for the installation of both distribution and service piping. The Project also requires tree removal, the fee simple purchase of a parcel of land as well as the acquisition of private easements, thus increasing the overall cost to construct in comparison to the other projects.

Project	Pipe Size (NPS)	Length (km)	Material	Pressure (kPa)	Material cost	Construction/Contract Labour*	Other Costs**	Project Contingency	Total Project Cost (Year 1)	Construction Year
Kettle Point & Lambton Shores	2	9.9	Plastic	550	$ 175,880	$ 1,199,958	$ 343,969	$ 58,367	$ 1,778,174	2017
	4	10.4	Plastic	550						
Milverton, Rostock, Wartburg	2	22.765	Plastic	550						
	4	4.125	Plastic	550	$ 702,533	$ 3,246,475	$ 888,248	$ 196,000	$ 5,033,256	2017
	4	20.5	Steel	3450						
Moraviantown	1.25	0.25	Plastic	550						
	2	4	Plastic	550	$ 55,393	$ 328,970	$ 121,365	$ 34,385	$ 540,113	2018
	4	3.18	Plastic	550						
Prince Twp	1.25	2.25	Plastic	420						
	2	12.315	Plastic	420	$ 151,280	$ 1,760,373	$ 168,025	$ 88,395	$ 2,168,073	2018
	4	7.885	Plastic	420						
Northshore & Peninsula Road	1.25	6.8	Plastic	420						
	2	12.6	Plastic	420	$ 192,456	$ 6,410,359	$ 1,315,729	$ 729,602	$ 8,648,146	2020
	4	7	Plastic	420						

*Includes Year 1 service costs

**Includes internal labour, and other misc. items such as environmental, lands, etc.

Source: EB-2015-0179 updated filing March 31, 2017 and EB-2019-0188

ENBRIDGE GAS INC.

Answer to Interrogatory from
Board Staff (STAFF)

INTERROGATORY

Reference:

Exhibit B, Tab 2, Schedule 5b
Exhibit B, Tab 2, Schedule 6
Enbridge Gas Inc. Conditions of Service for Union Rate Zones, Section 2.3

Preamble:

The total estimated 10-year cost of $10.1 million includes approximately $8.1 million for Pipeline & Station Capital costs, and approximately $2 million for Service, M&R Installation. The DCF calculation in the application shows 40 years of SES Revenue as part of the total Cash Inflow, set against the total capital Cash Outflow of approximately $1.4 million.
Enbridge Gas' Conditions of Service for Union Rate Zones states that customers are charged for the installation of gas service laterals beyond 30 metres. Beyond 30 metres, customers are billed as calculated using Enbridge Gas' test of economic feasibility for service lateral extensions in the Union Rate Zones.

Question:

a) Please confirm that only the customer connection costs associated with 30 metres of service laterals are included in the capital costs for this Project.

b) Please confirm that Enbridge Gas is using the customer connection policy with the standard 30 metres to determine when the application of specific service charges (e.g. contribution in aid of construction) should begin to apply. If not, please explain why.

c) What is the customer connection policy for other expansion projects? Please explain if there are any differences, and how this aligns with the customer connection policy in Enbridge Gas' Conditions of Service for the Union Rate Zones and the Enbridge Gas Distribution Rate Zone.

d) Please provide if known, or otherwise estimate, the number of customers who would require a service lateral in excess of 30 metres. Please confirm that these customers

will be required to pay the capital contribution associated with a service lateral incremental to the first 30 metres. If so, please provide if known, or otherwise estimate, the average amount that these customers would be required to pay as a capital contribution.

Response:

a) Enbridge Gas confirms that only the customer connection costs associated with 30 metres of service laterals are included in the capital costs for the Project.

b) Given that the Project is located in the Union North Rate Zone, up to 30 metres of gas service length will be provided at no additional charge to the customer.

c) Currently, the standard customer connection policy for Union Rate Zones provides for up to 30 metres of gas service live with no additional charge to the customer. The standard connection policy in the EGD Rate Zone provides for up to 20 metres of gas service line with no addition charge. Enbridge Gas expects these policies will apply to community expansion projects located in each respective rate zone until these policies are harmonized.

   It is difficult for Enbridge Gas to estimate the number of customers that would be required to pay for excess footage charges without first understanding which potential customers will decide to convert to natural gas and which will not. It will be equally challenging to determine the average amount that these customers would pay as a Contribution in Aid of Construction ("CIAC"), particularly given the many unknown factors that could turn a straight line service into one that avoids hidden obstacles like rock and septic beds.

   Enbridge Gas confirms that for the Project, any customers with a service lateral in excess of 30 metres will be required to pay the CIAC associated with this additional length. This is consistent practice for all customers located in the Union Rate Zones. Currently, the standard rate is $45/metre, after the first 30 metres.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Board Staff (STAFF)

INTERROGATORY

Reference:

Exhibit B, Tab 1, Schedule 2, pages 1 to 2

Preamble:

Enbridge Gas held a public information session in June of 2019 to provide general Project information and solicit any public questions or concerns. A door-to-door survey was also completed for the Project in January 2018. The survey also requested information pertaining to dwelling characteristics, use of dwelling, current fuel type and interest in converting to natural gas-fuelled appliances. Of the 394 potential residential and commercial properties in the Project area, 193 completed the survey.

Question:

a) Please provide any questions or concerns raised during the public information sessions and survey and Enbridge Gas' response.

b) Please provide a copy and results of the survey that was conducted for the Project.

c) Please provide a copy of the materials used by Enbridge Gas to inform potential customers in the area about the System Expansion Surcharge.

Response:

a) Survey respondents were assured confidentiality, and therefore the survey was not positioned as a forum for questions or comments that would require a reply from Enbridge. Within the survey instrument, respondents who indicated they were not likely to connect to natural gas were given the opportunity to provide a reason why. The reasons provided were consistent with those observed in other community expansion surveys. The most frequently cited reasons were:
    - "Not worth it" (presumably in reference to the initial cost and/or effort required)
    - "Current heating system is new"

- "I prefer my present heating system"

No concerns about the Project itself were shared through the survey.

During the public information session, comment cards were made available to those who wished to be contacted for further discussions. The questions received both during the event, as well as on the cards involved:

- Requests for additional information on service installation procedures and costs
- General questions about:
    - Project status
        - There was some confusion due to the cancellation of the NGGP program and the introduction of the new structure under Bill 32 for funding
    - service application process
    - the project scope
    - project construction methods and clean-up
    - SES and contribution requirements
- One question in regards to forced roads
- Areas not included in the proposed Project
    - Shorewood Road, private driveways shared by multiple homes, and further extension on Peninsula Road.

Questions regarding service application processes and service installation were addressed by explaining Enbridge Gas's standard processes and construction methods.

A large print-out of Exhibit B, Tab 2, Schedule 1 was made available and used to explain the proposed pipeline and station location. Based on the information available at the time, Enbridge Gas described the expected types of equipment to be used and remediation methods that could be expected (e.g. asphalt repairs, planting grass seed, etc.).

For questions related to customers outside the proposed Project, Enbridge Gas indicated that following completion of pipeline construction, there may be an opportunity for the regional team to reassess extending service to nearby homes following the usual main-extension process, which includes a customer contribution to close the economic gap.

Any questions regarding the SES or project economics were addressed by explaining the funding format, the SES term of 40 years and charge ($0.23\$/m^3$). Enbridge Gas explained the PI evaluation process and the purpose of the SES as well as the provincial funding.

Only one question regarding forced roads was brought forward during the public information session. Enbridge Gas explained its understanding of the Municipal Act.

b) See Attachment 1.

c) Potential customers were informed of the System Expansion Surcharge through the survey that was completed in January 2018. A copy of the survey instrument is included in Attachment 1 to this response as an Appendix to the research report.

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FORUM
RESEARCH INC.

Natural Gas Pipeline Expansion Study
– North Bay –
(Northshore, Peninsula and Trout Lake Roads)

Research Report Prepared for: Union Gas Limited

February, 2018

Marketing Research and Intelligence Association
Accredited
Gold Seal
Corporate Member
MRIA
ARIM
L'Association de la Recherche et de l'Intelligence Marketing

NATURAL GAS PIPELINE EXPANSION STUDY

Community: North Bay (Northshore, Peninsula, and Trout Lake Roads)

About the Survey:

Union Gas retained the services of Forum Research, a third party research supplier, to conduct quantitative research to ascertain interest in obtaining natural gas service amongst the residential household and commercial business populations of Northshore, Peninsula and Trout Lake Roads. A total of 193 door-to-door interviews were completed from a list of 405 home and business owners between January 16 and January 28, 2018, yielding a +/- 5.1% margin of error at the 95% confidence level. The level of completes represents a 48% response rate.[1]

Key Findings:

- The research results indicate that the primary energy sources of heat in the Northshore, Peninsula and Trout Lake Road area are Propane (43%) and Electricity (42%). Oil and Wood are also used by some households (9% and 6% respectively). An array of residential space heating systems is used in the community. The most prevalent one is propane forced air (36%), followed by geothermal (19%) and electric baseboard heating (15%). The remaining households (30%) use a variety of other heating systems including oil forced air (8%), electric forced air (8%), propane boilers (5%), wood stoves/fireplaces (3%), wood forced air (3%), propane fireplaces (2%), and oil boilers (1%).

- With both the equipment conversion cost and an additional surcharge of $500 per year for space heating equipment ($600 per year for converting space and water heating equipment), 37% of respondents overall are likely (extremely likely, very likely or likely) to convert their space heating systems and/or water heaters to natural gas (both space heater and water heater or space heating only).

- Of those likely to convert their space heating systems and/or water heaters to natural gas with the surcharge, 75% would do so within the first 12 months, 18% would convert within 1-2 years, and the remaining 7% would convert in 2 years or more.

- Among respondents who are likely to convert their space heating systems and/or water heaters to natural gas, the majority is interested (extremely interested, very interested or interested) in converting at least one of their other applications to natural gas as well, mainly their Fireplaces (90%) and BBQs (80%), and also their Ovens/Ranges/Stoves (66%), and Clothes Dryers (39%).

- The study indicates that the interest in converting to natural gas in the Northshore, Peninsula and Trout Lake Road area is below average (considering both the equipment conversion cost and the additional surcharge) compared to other potential conversion rates seen in our recent research across 21 Ontario communities (overall average interest in converting across the 21 communities is 65%).[2]

[1] Response Rate = (Completes + Disqualified) ÷ Total Contacts. It should be noted that 24% of the households were seasonal, unoccupied or inaccessible and were therefore not approached. This is factored into the response rate.

[2] The 21 Ontario communities included: Allenford, Astorville, Auburn, Ayton, Belwood, Benmiller, Cedar Springs, Kincardine (Lucknow/Ripley), Kincardine (other communities), Kincardine Commercial (Lucknow/Ripley), Kincardine Commercial (other communities), Lambton Shores, Milverton, Neustadt, Prince Township, Ramara, Sheffield, Swiss Meadows, Turkey Point, Warwick, and Wroxeter Gorrie Fordwich. The conversion rates for Salford and North Bay are not included in the average, since the rates are considered outliers.

Table 1. Current primary energy sources, type of system, and their likelihood to replace.

	Oil *(n=17)*	Propane *(n=83)*	Electric *(n=82)*	Wood *(n=11)*
Current primary energy source for heat	9%	43%	42%	6%
Distribution by type of system:				
Oil Forced Air	8%			
Oil Boiler	1%			
Oil Fireplace	0%			
Propane Forced Air		36%		
Propane Boiler		5%		
Propane Fireplace		2%		
Geothermal			19%	
Electric Baseboard			15%	
Electric Forced Air			8%	
Heat Pump			0%	
Wood Stoves/Fireplaces				3%
Wood Forced Air				3%
Likelihood to replace the heating system in next 2 years *	41%	31%	30%	18%

* At an aggregate level, 31% are likely to replace their heating system (extremely likely, very likely or likely).

Table 2. Likelihood to convert to natural gas.

Likelihood to convert:	**Total** *(n=193)*	**Oil** *(n=17)*	**Propane** *(n=83)*	**Electric** *(n=82)*	**Wood** *(n=11)*
1. Likelihood to convert to natural gas [(1)]: Top-3 Box score (Extremely likely/Very likely/Likely)	37%	59%	37%	34%	18%
Extremely likely	7%	6%	8%	5%	18%
Very likely	14%	35%	14%	11%	0%
Likely	16%	18%	14%	18%	0%
2. Likelihood to convert assuming gas service availability after Dec 2019 [(2)]	**Total** *(n=71)*	**Oil** *(n=10)*	**Propane** *(n=31)*	**Electric** *(n=28)*	**Wood** *(n=2)***
Within the first 12 months	75%	80%	74%	71%	100%
Within 1 to 2 years	18%	20%	19%	18%	0%
Within 2 to 3 years	4%	0%	3%	7%	0%
After 3 years	3%	0%	3%	4%	0%
3. Interest in converting other applications to natural gas [(3)]	**BBQ** *(n=71)*	**Fireplace** *(n=71)*	**Oven/Range/Stove** *(n=71)*	**Clothes Dryer** *(n=71)*	
Extremely / Very interested or Interested	80%	90%	66%	39%	

* Totals may not add precisely, due to rounding. ** Extremely small base.

[(1)] Considering both equipment conversion cost and a surcharge of $500 per year for space heating equipment ($600 per year for converting space and water heating equipment).

[(2)] Those who indicated they are likely (extremely likely, very likely or likely) to convert their space heating systems and/or water heaters to natural gas if a surcharge was required ($500 per year for space heating or $600 per year for space and water heating).

[(3)] Total of those who are likely to convert their space heating systems and/or water heaters to natural gas with equipment conversion cost and a surcharge ($500 per year for space heating or $600 per year for space and water heating).

Table 3: Water heating (base: all respondents).

	Total *(n=193)*	Electric *(n=143)*	Propane *(n=45)*	Geothermal *(n=2)***
1. Penetration		74%	23%	1%
2. Own water heater	77%	77%	78%	100%
3. Likelihood to convert to natural gas: **Top-3 Box score (Extremely likely/Very likely/Likely)**	49%	44%	64%	0%
Extremely likely	8%	8%	9%	0%
Very likely	15%	13%	22%	0%
Likely	26%	24%	33%	0%

* Totals may not add precisely, due to rounding. ** Extremely small base.
*** Primary fuel source figures do not include "Other sources" mentioned and therefore do not add to 100%.

Community demographics:

One and two storey houses and split levels make up the majority of homes in the Northshore, Peninsula and Trout Lake Road area, accounting for 89% of all respondent households. The average house size is 2,639 square feet and over half of the houses were built in 1980 or later (56%). Almost all of the homes in the survey sample are used year-round. Community demographics are shown below in Table 4.

Table 4: Demographics (*base = all "residence" respondents = 189*).

Building Type:			**Age of respondent:**	
Two storey	33%		*18 to 34 years*	5%
Bungalow/One storey ranch	30%		*35 to 44 years*	13%
Split level	26%		*45 to 54 years*	33%
Raised ranch	5%		*55 to 64 years*	21%
Three storey house	4%		*65+ years*	23%
Other	2%		*Refused*	6%
Approximate size of home (in sq. feet):			**Number of adults 18 years or older living in house:**	
Less than 1,000	3%		*1-2*	84%
1,000 to 1,499	11%		*3+*	14%
1,500 to 1,999	12%		**No. of children 17 years or younger living in house:**	
2,000 to 2,499	15%		*0*	53%
2,500 to 2,999	16%		*1-2*	38%
3,000 or more	37%		*3+*	7%
Don't know	5%		**Total Household Income:**	
Average size	**2,639 sq. ft.**		*Less than $40,000*	4%
Occupancy of Dwelling :			*40,000 to $79,999*	12%
All-year round	96%		*$80,000 or more*	53%
Mostly in the summer	3%		*Refused*	31%
Occasionally year round	1%			
Age of home:				
0 to 37 years (built 1980 or later)	56%			
38 to 67 years (built between 1950-1979)	40%			
68+ years (built before 1950)	1%			
Don't know/not stated	4%			

* Totals may not add to 100% due to rounding and/or the exclusion of "don't know" or "refused" responses.

FORUM
RESEARCH INC.

Appendix: Questionnaire

2018 Community System Expansion Questionnaire

(Version: Northshore & Peninsula Road)

SCR1.
Good morning/evening. My name is _____ and I am visiting from Forum Research on behalf of Union Gas. We are conducting a survey to assist in determining whether natural gas will be extended to Northshore Road, Peninsula Road, and Trout Lake Road in North Bay. Are you 18 years or older and the person responsible for making energy decisions for the property on Northshore Road, Peninsula Road, or Trout Lake Road in North Bay?
(INTERVIEWER NOTE: ONLY CONTINUE IF YES)

The results of this survey are very important, as they will also help us to evaluate whether extending the gas system can be proposed to the Ontario Energy Board later this year. I want to assure you that we are not selling anything and the information you provide to us will be aggregated with others for reporting purposes.

Yes, speaking
No, I'll get them
No, not available
[IF YES, SPEAKING, CONTINUE]
[IF NO, I'LL GET THEM, REINTRODUCE]
[IF NO, NOT AVAILABLE, SCHEDULE CALLBACK THEN THANK AND TERMINATE]
[IF NOT AT THIS LOCATION, RECORD DECISION MAKER'S CONTACT INFORMATION (FIRST, LAST, PHONE, ADDRESS – IF POSSIBLE) THANK AND TERMINATE. ADD REFERRAL TO CONTACT LIST]

SCR3. Do you own or rent this property on Northshore Road, Peninsula Road, or Trout Lake Road?

Own
Rent
RESPONDENT DOES NOT LIVE IN AREA -> TERMINATE

[IF OWN, CONTINUE]
[IF RENT, GET CONTACT INFO – FIRST, LAST, PHONE, ADDRESS – IF POSSIBLE - OF OWNER AND TERMINATE. IF REF, THANK AND TERMINATE]

SCR4. **(DO NOT ASK) RECORD GENDER**
Male
Female

SCR5 (2015). Which of the following best describes the building (or buildings) at this location?

- Residence
- Commercial business
- Industrial business
- Farm or Agribusiness (interviewer note: an agribusiness could include grain elevators, feed manufacturing facilities, crop input supply business, etc.)
- Both Residence and a Business

PROGRAMMER NOTE:
THE SURVEY WILL BE THE SAME REGARDLESS OF THE ANSWER TO SCR5 (2015), UP UNTIL THE DEMOGRAPHIC SECTION. SEE NOTES WITH DEMOGRAPHIC SECTION.

SCR6. On average, how much is your annual heating cost for this premise including taxes?

[ACCEPT 5 DIGIT NUMBER]
[RECORD ANSWER]

SECTION H: Heating
H1A. What is the primary energy source of heat for this premise? Is it…?

[READ, RANDOMIZE]
Oil
Propane
Electricity
Wood

No heating
Other [SPECIFY]

INTERVIEWER NOTE:
GEOTHERMAL OR HEAT PUMP SHOULD BE CATEGORIZED WITH ELECTRICITY, NOT "OTHER" FOR THE PURPOSES OF THIS QUESTION

H1B. What type of system provides the primary source of heat for this premise? Is it…?
IF H1A = OIL THEN ASK
Oil Forced Air, or
Oil Boiler (Hot Water Radiators)
Oil fireplace

IF H1A = PROPANE THEN ASK
Propane Forced Air, or
Propane Boiler (Hot Water Radiators)
Propane fireplace

IF H1A = ELECTRICITY THEN ASK
Electric Forced Air,
Electric Baseboard,
Geothermal, or
Heat Pump

IF H1A = WOOD THEN ASK
Wood Forced Air, or
Wood Stoves/Fireplace

No heating system
OR SOMETHING ELSE (SPECIFY)

IF H1B = NO HEATING SYSTEM, SKIP TO H8, ELSE CONTINUE
Other **[SPECIFY]**

H2. How old is your heating system? **(READ)**
[PLEASE ENTER A NUMBER]

NOTE: FOR CROSS-TABS USE THE FOLLOWING RANGES:
5 YEARS OR LESS
6 TO 10 YEARS OLD
11 TO 15 YEARS OLD
16 TO 25 YEARS OLD
OVER 25 YEARS OLD

H3. How likely are you to replace your heating system in the next 2 years? Are you…? (READ)

Extremely likely
Very likely
Likely
Not very likely
Not at all likely

SECTION H: CONVERSION LIKELIHOOD WITH EQUIPMENT COSTS BUT EXCLUDING SURCHARGE

[ASK H5 IF H1B = OIL FORCED AIR OR OIL BOILER, ELSE SKIP TO INSTRUCTIONS BEFORE H5a]

H5. Converting your heating system to natural gas requires some initial investment by the property owner. The cost of converting a residential heating system to a natural gas high efficiency furnace or boiler is in the range of $4,500 to $5,500 including taxes depending on the type of equipment you currently have. However, with natural gas, an average home can save up to $1,000 on heating costs every year. Savings are likely greater for businesses. Considering this, how likely are you to convert your heating system to natural gas? Would you say you are…? **(READ)**

Extremely likely
Very likely
Likely
Not very likely
Not at all likely

[ASK H5a IF H1B = ELECTRIC FORCE AIR, ELSE SKIP TO INSTRUCTIONS BEFORE H6]

H5a. Converting your heating system to natural gas requires some initial investment by the property owner. The cost of converting a residential heating system to a natural gas high efficiency furnace is in the range of $4,500 to $5,500 including taxes depending on the type of equipment you currently have. However, with natural gas, an average home can save up to $1,000 on heating costs every year. Savings are likely greater for businesses. Considering this, how likely are you to convert your heating system to natural gas? Would you say you are…? **(READ)**

Extremely likely
Very likely
Likely
Not very likely
Not at all likely

[ASK H6 IF H1B = PROPANE FORCED AIR OR PROPANE BOILER, ELSE SKIP TO INSTRUCTIONS BEFORE H7]

H6. Converting your heating system to natural gas requires some initial investment by the property owner. The cost of converting your existing heating system to natural gas is likely in the range of $400 to $1,000 including taxes depending on the type of equipment you currently have. However, with natural gas, an average home can save up to $1,000 on heating costs every year. Savings are likely greater for businesses. Considering this, how likely are you to convert your heating system to natural gas? Would you say you are…? **(READ)**

Extremely likely
Very likely
Likely
Not very likely
Not at all likely

[ASK H7 IF H1B = ELECTRIC BASEBOARD, ELSE SKIP TO INSTRUCTIONS BEFORE H7a]
H7. Converting your heating system to natural gas requires some initial investment by the property owner. The cost of converting a residential heating system to a high efficiency natural gas furnace is likely to be about $12,500 including taxes depending on the specific style and/or size of your premise. However, with natural gas, an average home can save up to $1,000 on heating costs every year. Another option would be to install a natural gas fireplace or space heater to heat the main living area, at an estimated cost of $4,500 - $5,000, but in this case the savings would be somewhat less than $1,000 every year. Savings are likely greater for businesses. Considering this, how likely are you to convert your heating system to natural gas? Would you say you are…? **(READ)**

Extremely likely
Very likely
Likely
Not very likely
Not at all likely

[ONLY ASK H7a IF H1A = WOOD, ELSE SKIP TO INSTRUCTION BEFORE H8]

H7a. Installing a high efficiency natural gas furnace is likely to cost about $4,500-$5,500 if you already have forced air ductwork and $12,500 if it doesn't, including taxes. A natural gas fireplace or wall heater would also cost about $4,500-$5,500. However, with natural gas, an average home can save up to $200 on heating costs every year, and you can avoid the need for splitting and/or storing the wood. Considering this, how likely are you to convert your heating system to natural gas? Would you say you are...? **(READ)**

Extremely likely
Very likely
Likely
Not very likely
Not at all likely

[ONLY ASK H8 IF H1B = NO HEATING SYSTEM, GEOTHERMAL, HEAT PUMP, OIL FIREPLACE, PROPANE FIREPLACE, OR "SOMETHING ELSE".

H8. Installing a high efficiency natural gas furnace or boiler is likely to cost about $4,500-$5,500 if you already have forced air ductwork or a boiler, and $12,500 if you were to install a new forced air system requiring ductwork, including taxes. Alternatively, a natural gas fireplace or wall heater would cost about $4,500-$5,500. However, with natural gas, you may save $1,000 off the annual cost compared to heating with oil, propane, or electricity. With geothermal or heat pump conversions, annual savings are estimated to be approximately $350. Savings are likely greater for businesses. If natural gas service was extended to your area, how likely are you to install a natural gas heating system? Would you say you are...? **(READ)**

Extremely likely
Very likely
Likely
Not very likely
Not at all likely

[ASK H9A IF H5/H5a/H6/H7/H7A = NOT VERY LIKELY *OR* NOT AT ALL LIKELY]
H9a. You indicated that you are unlikely to convert your heating system to natural gas. Can you tell me why? (PROBE) Are there any other reasons?

(DO NOT READ)
Don't like natural gas
Not interested/ have no plans to change
Not interested at this time/ maybe in the future
Not worth it
Plan on building a new home (or facility) / moving
Too expensive
Other: **[SPECIFY]**

[ASK H9B AND H9C IF H8 = NOT VERY LIKELY OR NOT AT ALL LIKELY]
H9b. You indicated that you are unlikely to install a natural gas space heating system. Can you tell me why? (PROBE) Are there any other reasons?

(DO NOT READ)
This is a cottage occupied only in the summer
Don't like natural gas
Not interested/ have no plans to change
Not interested at this time/ maybe in the future
Not worth it
Plan on building a new home/ moving
Too expensive
Other: **[SPECIFY]**

H9C. If low interest financing is available for the purchase of new natural gas equipment, how likely are you to reconsider converting? Would you say...?

Extremely likely
Very likely
Likely
Not very likely
Not at all likely

SECTION W: Water Heating

ASK ALL
Now, I would like to ask you a few questions about your water heater.

W1. What is the MAIN fuel source for heating your water?

Propane
Oil
Electricity
Other: **[SPECIFY]**

W2. How old is your water heater?

(READ)
5 years or less
6 to 10 years old
11 to 15 years old
16 to 25 years old
Over 25 years old

W3. Is your water heater owned or rented?

Owned
Rented
Don't Know

[ASK W5 IF W3=OWNED]
W5. The purchase and installation of a typical natural gas water heater costs about $1,700 including taxes depending on the complexity of the installation. However, with natural gas, you may save up to $400 compared to propane water heating costs every year, or $200 compared to electric water heating costs. Considering this, how likely are you to convert your water heater to natural gas? Would you say you are…? **(READ)**

Extremely likely
Very likely
Likely
Not very likely
Not at all likely

[ASK W5a IF W3=RENTED]
W5a. Natural Gas water heaters can also be rented. Typical monthly rental rates range from $23 per month to $30 per month including taxes. Depending on the specific style of your premises, the property owner may incur additional expenses for the conversion. However, with natural gas, you may save up to $400 compared to propane water heating costs every year, or $200 compared to electric water heating costs. Considering this, how likely are you to convert your water heater to natural gas? Would you say you are...? **(READ)**

Extremely likely
Very likely
Likely
Not very likely
Not at all likely

SECTION S: CONVERSION LIKELIHOOD WITH SURCHARGE

Natural gas expansion projects are costly and the Ontario Energy Board has indicated that the costs of connecting a new community must be fully covered through the rates new customers pay. In your community, Union Gas' regular rates will not be high enough to cover costs, so connecting customers will be asked to pay a surcharge to make up the difference.

INTERVIEWER NOTE: IF ASKED, THE SURCHARGE WILL LIKELY BE ABOUT 40 YEARS

[IF H6 =EXTREMELY LIKELY, VERY LIKELY OR LIKELY AND W5 OR W5a = NOT VERY LIKELY OR NOT AT ALL LIKELY OR W3="DON'T KNOW"]

SUR #A1A. In addition to the cost of converting your heating equipment, **an average** home would be required to make a financial contribution of **$500 per year** toward the cost of constructing the pipeline, which will be split into monthly payments based on how much gas you use. With the surcharge added, you will save **$550 per year** by switching your heating equipment to natural gas. Savings are likely greater for businesses. Considering this, how likely are you to convert your heating system to natural gas? Would you say...?

Extremely likely
Very likely
Likely
Not very likely
Not at all likely

[IF H5 OR H8 =EXTREMELY LIKELY, VERY LIKELY OR LIKELY AND W5 OR W5a = NOT VERY LIKELY OR NOT AT ALL LIKELY OR W3="DON'T KNOW"]

SUR #A1B. In addition to the cost of converting your heating equipment, **an average** home would be required to make a financial contribution of **$500 per year** toward the cost of constructing the pipeline, which will be split into monthly payments based on how much gas you use. With the surcharge added, you will save **$600 per year** by switching your heating equipment to natural gas. Savings are likely greater for businesses. Considering this, how likely are you to convert your heating system to natural gas? Would you say...?

Extremely likely
Very likely
Likely
Not very likely
Not at all likely

[IF H7A=EXTREMELY LIKELY, VERY LIKELY OR LIKELY AND W5 OR W5a = NOT VERY LIKELY OR NOT AT ALL LIKELY OR W3="DON'T KNOW"]

SUR #A2. In addition to the cost of converting your heating equipment, **an average** home would be required to make a financial contribution of **$500 per year** toward the cost of constructing the pipeline, which will be split into monthly payments based on how much gas you use. With the surcharge added, savings will likely be minimal from switching your wood-fired heating equipment to natural gas. However, you wouldn't need to split or store wood. Considering this, how likely are you to convert your heating system to natural gas? Would you say...?

Extremely likely
Very likely
Likely
Not very likely
Not at all likely

[IF H5A OR H7 = EXTREMELY LIKELY, VERY LIKELY OR LIKELY AND W5 OR W5a = NOT VERY LIKELY OR NOT AT ALL LIKELY OR W3="DON'T KNOW"]

SUR #A3. In addition to the cost of converting your heating equipment, **an average** home would be required to make a financial contribution of **$500 per year** toward the cost of constructing the pipeline, which will be split into monthly payments based on how much gas you use. With the surcharge added, you will save **$600 per year** by switching your electric heating equipment to natural gas. Savings are likely greater for businesses. Considering this, how likely are you to convert your heating system to natural gas? Would you say...?

Extremely likely
Very likely
Likely
Not very likely
Not at all likely

[IF H6 =EXTREMELY LIKELY, VERY LIKELY OR LIKELY AND W5 OR W5a= LIKELY, VERY LIKELY OR LIKELY]

SUR #A4A. In addition to the cost of converting your SPACE AND WATER heating, **an average** home would be required to make a financial contribution of **$600 per year** toward the cost of constructing the pipeline, which will be split into monthly payments based on how much gas you use. With the surcharge added, you will save **$750 per year** by switching your space and water heating to natural gas. Savings are likely greater for businesses. Considering this, how likely are you to convert your space and water heating systems to natural gas? Would you say...?
Extremely likely
Very likely
Likely
Not very likely
Not at all likely

[IF H5 OR H8=EXTREMELY LIKELY, VERY LIKELY OR LIKELY AND W5 OR W5a= LIKELY, VERY LIKELY OR LIKELY]

SUR #A4B. In addition to the cost of converting your SPACE AND WATER heating, **an average** home would be required to make a financial contribution of **$600 per year** toward the cost of constructing the pipeline, which will be split into monthly payments based on how much gas you use. With the surcharge added, you will save **$800 per year** by switching your space and water heating to natural gas. Savings are likely greater for businesses. Considering this, how likely are you to convert your space and water heating systems to natural gas? Would you say...?
Extremely likely
Very likely
Likely
Not very likely
Not at all likely

[IF H7A=EXTREMELY LIKELY, VERY LIKELY OR LIKELY AND W5 OR W5a= LIKELY, VERY LIKELY OR LIKELY]

SUR #A5. In addition to the cost of converting your SPACE AND WATER heating, **an average** home would be required to make a financial contribution of **$600 per year** toward the cost of constructing the pipeline, which will be split into monthly payments based on how much gas you use. With the surcharge added, savings will likely be minimal from switching your wood-fired equipment to natural gas. However, you wouldn't need to split or store wood. Considering this, how likely are you to convert your space and water heating systems to natural gas? Would you say...?
Extremely likely
Very likely
Likely
Not very likely
Not at all likely

[IF H5A OR H7 = EXTREMELY LIKELY, VERY LIKELY OR LIKELY AND W5 OR W5a= LIKELY, VERY LIKELY OR LIKELY]

SUR #A6. In addition to the cost of converting your SPACE AND WATER heating, **an average** home would be required to make a financial contribution of **$600 per year** toward the cost of constructing the pipeline, which will be split into monthly payments based on how much gas you use. With the surcharge added, you will save **$800 per year** by switching your space and water heating to natural gas. Savings are likely greater for businesses. Considering this, how likely are you to convert your space and water heating systems to natural gas? Would you say...?
Extremely likely
Very likely
Likely
Not very likely
Not at all likely

SECTION E: EXPANSION TIMELINE

[ASK E1 AND E2 IF EXTREMELY LIKELY, VERY LIKELY, OR LIKELY FOR ANY OF SUR #A1 – SUR #A6]
E1. You indicated that you are likely to convert to natural gas. Assuming gas service is available after December 2019, when would you likely convert?
(READ LIST)

Within the first 12 months
Within 1 to 2 years
Within 2 to 3 years
After 3 years

E2. I am going to read you a list of appliances that could be powered by natural gas. For each appliance, please tell me if you would be extremely interested, very interested, interested, not very interested or not at all interested in natural gas for the appliance.

[READ; RANDOMIZE]
Fireplace
Oven, range or stove
Clothes dryer
BBQ
Other [**SPECIFY**]

[SCALE]
Extremely interested
Very interested
Interested
Not very interested
Not at all interested

ASK QUESTIONS IN SECTION D IF SCR5 (2015) = RESIDENCE OR "RESIDENCE AND BUSINESS"

SECTION D: DEMOGRAPHICS

I just have a few additional questions for you that will help us group your answers with others who have also participated in the research. As a reminder, your answers will be kept completely confidential and they will not be tied back to you.

D1. Which of the following best describes the style of your house? Is it a …?
(READ LIST)
A bungalow or one story ranch
A raised ranch
A split level
A two story
Or a three story house
Some other style

D2. In order to have some idea as to the approximate size of your home in square feet (not including any unfinished basement) can you tell me how many square feet your home is? [RECORD NUMBER. RANGE: 100 – 10000]

D3. In what year was your house built? Your best estimate is fine.
[RECORD YEAR]

D3a. Which statement best describes the occupancy of this dwelling?

(READ LIST)
Occupied all-year round
Occupied mostly in the summer months
Occupied mostly in the winter months
Occupied occasionally year round

[SKIP TO D4 IF D3A = OCCUPIED ALL YEAR ROUND, ELSE CONTINUE]
D3b. For approximately how many months did you use this residence during 2017?

(RECORD NUMBER OF MONTHS)
[SCALE: 1-12]

D4. How many adults 18 years or over do you have living in your household, including yourself?

[RECORD NUMERIC RESPONSE. RANGE: 1 TO 20]

D5. And how many children 17 years or younger, if any, do you have living in your household?

[RECORD NUMERIC RESPONSE. RANGE: 0 TO 20]

D6. In what year were you born?

[RECORD YEAR]

[ASK D6a IF REFUSE/DON'T KNOW AT D6, ELSE SKIP TO D7]

D6a. Can you please tell me into which of the following age groups you fall? Are you…?

(READ LIST UNTIL RESPONSE GIVEN)
18 to 24
25 to 34
35 to 44
45 to 54
55 to 64
65 or over

D7. And lastly, which of the following best describes your total household income before taxes? Please stop me when I reach your category. Is it…?

(READ LIST)
Under $20,000
$20,000 to less than $40,000
$40,000 to less than $60,000
$60,000 to less than $80,000
$80,000 to less than $100,000
$100,000 to less than $120,000
$120,000 to less than $140,000
$140,000 or more

ASK QUESTIONS IN SECTION E IF SCR5 (2015) = COMMERCIAL BUSINESS, INDUSTRIAL BUSINESS, OR FARM/AGRIBUSINESS

SECTION E: FIRMOGRAPHICS

I just have a few additional questions for you that will help us group your answers with others who have also participated in the research. As a reminder, your answers will be kept completely confidential and they will not be tied back to you.

E1. How many buildings (are at this location?)
NOTE: IF LESS THAN ONE BUILDING, E.G. IF LOCATED IN A BUILDING OR SHOPPING PLAZA, ENTER “PART OF A BUILDING”
1,
2,
3,
OTHER (SPECIFY),
PART OF A BUILDING,
REFUSED
DON’T KNOW

E2. What is the approximate square footage of the indoor floor space (at this location of the first/second/third building), including basement and storage, but not including parking or loading areas?
Please consider only the area that is affected by a heating system.
[RECORD NUMBER]

E3. What is the age of the building at this location (of the first/second/third building)?
1 YEAR OR LESS,
2 TO 5 YEARS,
6 TO 10 YEARS,
11 TO 20 YEARS,
21 TO 30 YEARS,
31 TO 40 YEARS,
MORE THAN 40 YEARS OLD,
DON'T KNOW

DB3. How many floors does the building have?
(SPECIFY)

Thank you for your feedback. We appreciate your willingness to participate in this survey.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Board Staff (STAFF)

INTERROGATORY

Reference:

Exhibit B, Tab 1, Schedule 6, page 2

Preamble:

Enbridge Gas states that approvals are pending from the Municipality of North Bay, Ministry of Transportation Ontario, Ministry of Tourism - Culture and Sport, Ministry of Natural Resources & Forestry, and the North Bay-Mattawa Conservation Authority.

Question:

Please provide an update on the status of these approvals.

Response:

Enbridge Gas received archaeological approval from the Ministry of Tourism, Culture and Sport ("MTCS") on July 18, 2019. The MTCS also reviewed the Cultural Heritage Overview Report and confirmed that due diligence had been undertaken on May 7, 2019.

Enbridge Gas has been working with the North Bay-Mattawa Conservation Authority ("NBMCA") to ensure that all areas (i.e., watercourses) regulated by the NBMCA were identified and appropriate mitigation measures have been proposed. A formal permit application is anticipated to be submitted to the NBMCA in late-March 2020.

There are no permits required from the Ministry of Natural Resources and Forestry.

Please see Exhibit I.PP.2 c) for a list of the required permits and approvals for the Project as well as the date of their application and approval.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Board Staff (STAFF)

INTERROGATORY

Reference:

Exhibit B, Tab 1, Schedule 7, page 1-3
Exhibit B, Tab 2, Schedule 12

Preamble:

A copy of the EPP has been submitted to the Ontario Pipeline Coordinating Committee (OPCC), local municipalities, government agencies, and Indigenous communities. The summary will continue to be updated as additional comments are received. Enbridge Gas retained a Cultural Heritage Specialist to complete a Cultural Heritage Study for the Project. The report was sent to the Ministry of Tourism, Culture and Sport (MTCS) on April 2, 2019, and was accepted by the Ministry on May 7, 2019. Enbridge Gas also retained a licensed Archaeologist to complete an Archaeological Assessment for the Project. The Archaeological Assessment Report was submitted to the Ministry of Tourism, Culture and Sport on February 8, 2019 and approval was received on July 18, 2019.

Question:

a) Please discuss the process used by Enbridge Gas to determine that an Environmental Report is not required. If there are any checklists or screening tools, please file the ones used.

b) Please file an update of the comments (in tabular format) that Enbridge Gas received as part of the OPCC review and in any public consultation (e.g. updates on the hydrogeological report submitted to the Ministry of the Environment, Conservation and Parks). Include the dates of communication, the issues and concerns identified by the parties, as well as Enbridge Gas' responses and actions to address these issues and concerns.

c) Please provide a copy of the letter from the Ministry of Tourism, Culture and Sports approving the Archaeological Assessment Report submitted to the ministry.

d) Please provide a copy of the letter from the Ministry of Tourism, Culture and Sports accepting the Cultural Heritage Report submitted to the ministry.

Response:

a) The Environmental Protection Plan filed in the Leave to Construct application with the Ontario Energy Board (OEB) is synonymous with an "Environmental Report" and was prepared to take into consideration and to meet the intent of the OEB Environmental Guidelines. The label Environmental Protection Plan was used consistent with past practice related to smaller construction projects. However, the report content is consistent with what is required for an Environmental Report under the Guidelines. To avoid confusion, Enbridge Gas will use the label Environmental Report in future for all projects requiring OEB approval.

   As noted in Section 1.3.1 of the Guidelines, "the level of detail in the ER should reflect environmental issues or concerns encountered on the project". The principal objective of the EPP is to outline various environmental mitigation and protection measures for the construction and operation of the project while meeting the intent of the Guidelines. To meet this objective, the EPP was prepared to:

   - Identify a preferred route that minimizes potential environmental impacts, i.e. the pipeline will be located entirely in road allowance designed to accommodate utilities;
   - Review the environmental features along the preferred route and assess the potential environmental impacts;
   - Establish mitigation and protective measures to avoid or minimize environmental impacts;
   - Obtain input from interested and potentially affected parties; and
   - Identify any necessary supplemental studies.

   Stantec Consulting Ltd. (Stantec) was also retained to complete a Natural Heritage Study for the proposed project to review the proposed running line for environmental constraints and sensitive features. Additional mitigation measures were provided in the Natural Heritage Study as well as the "Mitigation Mapping" completed by Stantec, which can be found in Attachment 1 and 2 respectively. Enbridge Gas will adhere to the recommended mitigation measures during construction.

b) No comments have been received by Enbridge Gas since the OPCC Review Summary was filed with the Leave to Construct Application.

c) Please see Attachment 3.

d) Please see Attachment 4.

Natural Gas Pipeline Community Expansion Project
Natural Heritage Study: North Bay

FINAL REPORT

May 10, 2018

File: 160961225

Prepared for:

Union Gas Ltd.
745 Richmond Street
Chatham, Ontario N7M 5J5

Prepared by:

Stantec Consulting Ltd.
1 – 70 Southgate Drive
Guelph, Ontario N1G 4P5

This document entitled Natural Gas Pipeline Community Expansion Project Natural Heritage Study: North Bay was prepared by Stantec Consulting Ltd. (“Stantec”) for the account of Union Gas Ltd. (the “Client”). Any reliance on this document by any third party is strictly prohibited. The material in it reflects Stantec’s professional judgment in light of the scope, schedule and other limitations stated in the document and in the contract between Stantec and the Client. The opinions in the document are based on conditions and information existing at the time the document was published and do not take into account any subsequent changes. In preparing the document, Stantec did not verify information supplied to it by others. Any use which a third party makes of this document is the responsibility of such third party. Such third party agrees that Stantec shall not be responsible for costs or damages of any kind, if any, suffered by it or any other third party as a result of decisions made or actions taken based on this document.

Prepared by _____
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Approved by _____
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Table of Contents

LIST OF TABLES

LIST OF APPENDICES

Abbreviations

AMO	Atlas of the Mammals of Ontario
COSEWIC	Federal Committee on the Status of Endangered Wildlife in Canada
COSSARO	Provincial Committee on the Status of Species at Risk in Ontario
CRA	Commercial, Recreational, or Aboriginal fishery
DFO	Fisheries and Oceans Canada
FRI	Forest Resource Inventory
END	Endangered
HDD	Horizontal Directional Drill
LIO	Land Information Ontario
km	kilometre
m	metre
MBCA	Migratory Bird Convention Act
MNRF	Ministry of Natural Resources and Forestry
MOECC	Ministry of Environment and Climate Change
NHIC	Natural Heritage Information Centre
OBBA	Ontario Breeding Bird Atlas
ORAA	Ontario Reptile and Amphibian Atlas
OWES	Ontario Wetland Evaluation System
PSW	Provincially Significant Wetland
SAR	Species at Risk
SARA	Species at Risk Act

SC	Special Concern
SOCC	Species of Conservation Concern
Stantec	Stantec Consulting Ltd.
THR	Threatened
UG	Union Gas Ltd.

1.0 INTRODUCTION

Union Gas Ltd. (UG) has retained Stantec Consulting Ltd. (Stantec) to conduct natural heritage reviews along the routes for their community expansion projects across Ontario. This report discusses approximately 27 km of natural gas pipeline located east of North Bay along the north shore of Trout Lake and along the peninsula of Trout Lake.

The purpose of this report is to identify natural features along the proposed route, potential impacts to those features and to recommend mitigation measures to reduce potential impacts. This report included a combination of desktop screening consisting of the following:

- Ministry of Natural Resources and Forestry (MNRF) Natural Heritage Information Centre (NHIC) Database (NHIC 2018)
- LIO mapping database (LIO 2018a)
- Forest Resource Inventory (FRI) data provided by the MNRF (LIO 2018b)
- Fisheries and Oceans Canada (DFO) Species At Risk Mapping (DFO 2017)
- Breeding Bird Atlas of Ontario (Cadman et al. 2007)
- Ontario Reptile and Amphibian Atlas (Ontario Nature 2010-2018)
- City of North Bay – Schedule 3A – Environmental Constraints Overlay (City of North Bay 2012)
- Available air photos (First Base Solutions 2018)

1.1 PROJECT LOCATION

The proposed pipeline is located in the District of Nipissing, east of North Bay along the north shore of Trout Lake and follows along the existing road allowances of Trout Lake Road, Gartland Drive, West Peninsula Road, Viceroy Road, Northshore Road, Hughes Road, Regal Road and Peninsula Road.

1.1.1 Study Area

The Project Study Area is shown in **Figure 1** (**Appendix A**[1]) and consist of the road allowances on both side of the roadways in which the route follows. The Project Study Area includes a 120 m boundary around the proposed pipeline. The surrounding landscape includes primarily forested lands in the Nippissing District. This shield area lacks any significant agricultural lands and is primarily occupied by residences and cottages.

[1] All figures referenced herein are located in Appendix A

2.0 EXISTING CONDITIONS

2.1 DESIGNATED NATURAL AREAS

According to the LIO database (LIO 2018a), the following provincially designated natural areas are present in the Project Study Area (**Figure set 2**):

- Provincial Park – Mattawa River

Schedule 3A of the City of North Bay Official Plan (2012) also maps the following designated natural areas in the Study Area:

- Development Constraint Area
- Floodplain One Zone Policy Area
- Floodplain Two Zone Policy Area
- Escarpment

2.2 TERRESTRIAL SPECIES AND HABITAT

2.2.1 Forest and Vegetation Cover

Background Review

The Project Study Area is located in Rowe's (1972) Great Lakes-St. Lawrence Forest Region. Vegetation cover at this location is known to be mixed in nature. The Project Study Area occurs near the northern limit of this forest region, where coniferous, hardwood and mixed forests dominate the landscape. Tree cover includes a variety of species and can be determined based on vegetation community type. Upland forest communities commonly include: sugar maple (*Acer saccharum*), American beech (*Fagus grandifolia*), various oaks (*Quercus* sp.), eastern hemlock (*Tsuga canadensis*), eastern white pine (*Pinus strobus*), and poplar species (*Populus* sp.). Lowlands, including rich floodplain forests and swamps, typically contain silver maple (*Acer saccharinum*), red maple (*Acer rubrum*), eastern white cedar (*Thuja occidentalis*), yellow birch (*Betula alleghaniensis*), balsam fir (*Abies balsamea*), and black ash (*Fraxinus nigra*).

Site Investigations

A desktop review of the vegetation communities occurring in the Study Area was completed using the Forest Resource Inventory (FRI) data provided by the Ministry of Natural Resources and Forestry (LIO 2018b). Community characterizations were based on the provincial ecosite classification system for northern Ontario (Banton et al., 2009). In the case where an area was not provided with an ecosite classification from the FRI data layer, air photo interpretation was completed to assign an ecosite type to the undetermined area. Ecosites identified in the Study Area are herein referred to as vegetation communities.

Sixteen (16) land cover and vegetation community types were delineated within the Study Area and are shown on **Figure set 3**. Land cover and vegetation community types consisted of upland areas (forest), lowland areas (wetland communities, including swamp, fen and marsh) and urban areas. Vegetation communities present in the Study Area are described in **Table 2-1.**

Table 2-1: Land Cover and Vegetation Community Types Identified in the Study Area

Category	Vegetation Community	Community Description
Forest	**G048** Dry to Fresh, Coarse: Red Pine – White Pine Conifer	Tall treed community. Tree cover is generally >10 m in height, where the canopy cover is typically closed. Species cover includes eastern white and red pine amongst other conifer species. Sweet blueberry, beaked hazel, bush honeysuckle, wild lily-of-the-valley, bracken fern, wild sarsaparilla and Schreber's moss are commonly found in the understory. This community varies from moderate to deep non-calcareous soil.
Forest	**G054** Dry to Fresh, Coarse: Red Pine – White Pine Mixedwood	Tall treed community. Tree cover is generally >10 m in height, where the canopy closure can be variable. Red pine and white pine comprise the canopy cover amongst hardwood species such as red maple and birch. Beaked hazel, wintergreen, low sweet blueberry, wild sarsaparilla, wild lily-of-the-valley, bracken fern and powder horn lichen are commonly found in the understory. Soil depth is moderate and non-calcareous.
Forest	**G055** Dry to Fresh, Coarse Loamy: Aspen - Birch Hardwood	Tall treed community. Aspen and birch species dominate the canopy along with white birch, trembling aspen, large-tooth aspen and yellow birch with sugar maple, balsam fir and red maple associates. Beaked hazel, fly honeysuckle, mountain maple, bluebead-lily and Schreber's moss are commonly found in the understory. This community varies from moderate to deep non-calcareous soil
Forest	**G057** Dry to Fresh, Coarse: Oak Hardwood	Tall treed community. Canopy closure can be variable, with tall tree (> 10 m) and low tree (≤ 10 m) cover. Oak species comprise a minimum of 50% of the canopy cover, and can include red oak, white oak and bur oak, amongst other hardwood species such as sugar maple, red maple, white birch and balsam popular and ironwood. Understory vegetation can include striped maple, fly honey suckle, maple-leaved virburnum, large-leaved aster and powder horn lichen. This community varies from moderate to deep non-calcareous soil.
Forest	**G058** Dry to Fresh, Coarse: Maple Hardwood	Tall treed community. Canopy closure can be variable, with tall tree (> 10 m) and low tree (≤ 10 m) cover. Canopy cover mostly consists of maple species, including sugar maple and red maple. Eastern hemlock, yellow birch, white birch, American basswood, American beech, ironwood and eastern white pine can be common amongst the maple cover. Understory vegetation can include beaked hazel, fly honeysuckle, striped maple, leatherwood, wild lily-of-the-valley, spinulose wood fern, starflower, purple trilling and beautiful branch moss. This community varies from moderate to deep non-calcareous soil.
Forest	**G059** Dry to Fresh, Coarse: Mixedwood	Tall treed community. Hardwood canopy generally consisting of sugar maple, American beech, American basswood, red oak, white birch, red maple, ironwood and yellow birch. Common understory can include striped maple, beaked hazel, serviceberry, hobblebush, spinulose wood fern. Deep non-calcareous soil.

Table 2-1: Land Cover and Vegetation Community Types Identified in the Study Area

Forest	**G064** Moist, Coarse: Red Pine – White Pine Conifer	Tall treed community. Canopy cover generally consisting of eastern white and red pine, amongst associates of large-tooth aspen, white birch, red maple, whites spruce, trembling aspen and balsam fir. Understory species may include beaked hazel, low sweet blueberry and fly honeysuckle. Deep non-calcareous soil.
Forest	**G066** Moist, Coarse Loamy: Hemlock - Cedar Conifer	Tall treed community. Eastern white cedar and eastern hemlock dominate the canopy with yellow birch, balsam fir, red maple, white birch, sugar maple and white spruce associates. Understory comprised of shrub and herbaceous cover, and may include mountain maple, fly honeysuckle, striped maple, starflower, goldthread and glossy moss. Deep non-calcareous soil.
Forest	**G067** Moist, Coarse: Spruce - Fir Conifer	Tall treed community. Conifer cover dominating the canopy cover, consisting of balsam fir and/or spruce species. Other tree species may include white birch, trembling aspen, red maple, black cherry and yellow birch. Common understory cover includes fly honeysuckle, mountain maple, beaked hazel, star flower, spinulose wood fern and glossy moss. Deep non-calcareous soil.
Forest	**G070** Moist, Coarse Loamy: Aspen - Birch Hardwood	Tall treed community. Aspen and birch species dominate the canopy with white birch, trembling aspen, large-tooth aspen and yellow birch. Associates include sugar maple, balsam fir, red maple, and white spruce. Understory may include beaked hazel, mountain maple, northern wild raisin, starflower and beautiful branch moss. This community varies from moderate to deep non-calcareous soil.
Forest	**G075** Moist, Coarse: Maple Hardwood	Tall treed community. Maple species comprise the canopy, including sugar maple, red maple and silver maple. White birch, eastern white pine, trembling aspen, white spruce, balsam fir and yellow birch associates. Understory vegetation can include fly honeysuckle, beaked hazel, mountain maple, wild sarsaparilla and powder horn lichen. Deep non-calcareous soil.
Forest	**G076** Moist, Coarse: Mixedwood	Tall treed community. Canopy consists of a mixture of sugar maple, American beech, yellow birch, eastern hemlock, red maple and American basswood. Understory species may include striped maple, fly honeysuckle, hobblebush and beautiful branch moss. Deep non-calcareous soil.
Swamp	**G130** Intolerant Hardwood Swamp	Tall treed community. Hardwood canopy consisting of black ash, green ash, trembling aspen and balsam poplar. Understory cover includes mountain maple, swamp black current, northern wild raisin, large-leaved aster, naked miterwort, sensitive fern and common green peat moss. Deep non-calcareous soil.
Fen	**G140** Open Moderately Rich Fen	Graminoids (sedges and grasses) or shrub cover with no tree or shrub species. Areas of open peatlands often present. Ground-cover mostly sedge litter. Deep non-calcareous soil.
Marsh	**G142** Mineral Meadow Marsh	Graminoids (sedges and grasses) dominate the vegetation cover with very little to none tree or shrub cover. Ground-cover sedge litter. Non-calcareous soils - mostly deep and wet.
Not Vegetated	**G197** Early Successional Forest - Disturbed - Pavement/Concrete	Community classification assigned a result of industry and/or anthropogenic disturbances. Areas in the Study Area classified as G197X mostly include residential areas.

Reference: Banton et al., 2009

2.2.2 Wetlands

Background Review

Provincially Significant Wetlands (PSW) are identified by the MNRF in accordance with the *Ontario Wetland Evaluation Manual, 3rd Edition* (MNR, 1993). Through the application of the Ontario Wetland Evaluation System (OWES), wetland areas are evaluated and scored to identify PSWs. An evaluated wetland may be one contiguous unit or may be a series of smaller wetlands functioning as a whole. Evaluated wetlands that do not qualify as provincially significant may be designated as locally significant. Locally significant wetlands may qualify for protection through regulation under the Conservation Authorities Act, and local planning and policy measures. Unevaluated wetlands are wetlands that have not undergone an evaluation through the OWES process. A review of LIO (2018a) natural heritage mapping (as discussed in Section 2.1) indicated no PSWs are present in the Study Area (**Figure set 2**). No evaluated wetlands were identified in the Study Area as per LIO (2018a) mapping. Several unevaluated wetland areas were identified in the Study Area. These areas are considered as "wetlands not evaluated per OWES" (LIO 2018a) and are shown on **Figure set 2**. Some of these wetland areas are located in areas that are classified as G197 communities (residential), indicating they partially undergo regular mowing or property maintenance, and may not support an abundance of native wetland vegetation and diversity.

Site Investigations

Through the review of the FRI data (LIO 2018b) discussed in Section 2.2.1, three wetland vegetation community types occur within the Study Area. These community types include a treed swamp (G130), fen (G140) and marsh (G142). Descriptions of these communities are provided in **Table 2-1**. These wetland communities are considered not evaluated as per the OWES.

2.2.3 Wildlife Habitat and Species at Risk

Records of wildlife within the vicinity of the Study Area were compiled from available literature and resources including the Atlas of the Mammals of Ontario (Dobbyn 1994), Reptiles and Amphibians of Ontario (Ontario Nature 2010-2018) and the Ontario Breeding Bird Atlas (Cadman et al. 2007), in addition to NHIC data (LIO 2018a) and MNRF correspondence (personal communication Julie Robinson MNRF, March 13, 2018). Species of Conservation Concern (SOCC) and Species at Risk (SAR) are the primary species of interest for development activities.

The potential for SAR and SOCC to be present along the proposed pipeline location is limited by the habitat suitability and availability supported by the Study Area. Therefore, the identified SAR and SOCC recorded from the databases may not occur along the preferred pipeline route or the Study Area. The preferred route alignment does not traverse through natural habitat as it is located entirely within an existing road allowance that is periodically disturbed for maintenance work.

Significant Wildlife Habitat

Wildlife habitat is defined as an area where plants, animals and other organisms live, including areas where species concentrate at a vulnerable point in their life cycle and that are important to migratory and non-migratory species (MNRF 2010). Wildlife habitat is considered significant if it is ecologically important

in terms of features, functions, representation or amount, and contributing to the quality and diversity of an identifiable geographic area or Natural Heritage System (MNRF 2010). Significant wildlife habitat features are not mapped in the City of North Bay Official Plan (2012). There is limited potential for significant wildlife habitat to occur in the Study Area. The proposed pipeline follows along an existing road allowance where the temporary disturbance to habitat would be an area where periodic maintenance such as lawn or roadside grass cutting would be frequent. The treed and graminoid communities located within the Study Area occur within the 120 m boundary of the proposed pipeline (including the Mattawa River Provincial Park). These natural vegetated communities experience high amount of disturbance as they are located adjacent to residential areas and roadsides. Protection for these natural features are discussed in Section 3.3.

Significant wildlife habitat is determined based on guidance provided in the Natural Heritage Reference Manual (MNRF 2010), Significant Wildlife Habitat Technical Guide (MNR 2000) and the significant wildlife habitat Ecoregion 5E Criterion Schedule (MNRF 2015). The guidance documents divide wildlife habitat into four broad categories:

- Habitats of seasonal concentrations of animals
- Rare vegetation communities or specialized habitats for wildlife
- Habitats of species of conservation concern (excluding endangered and threatened species)
- Animal movement corridors

Significant wildlife habitat for seasonal concentrations of animals, rare vegetation communities or specialized habitats for wildlife, and animal movement corridors may occur within the Study Area but are not anticipated to occur along the construction footprint of the proposed preferred route. The existing road allowance is not anticipated to support significant wildlife habitat due regular periodic maintenance and limited natural features available to wildlife. Potential turtle nesting habitat may occur along the gravel road shoulders; however, mitigation for turtle nesting habitat is considered for turtle SOCC and SAR that may potentially occur in the Study Area. Mitigation specific to turtle nesting is discussed in Section 3.3.

Species of Conservation Concern

There are four types of SOCC: those which are rare, those whose populations are significantly declining, those which have been identified as being at risk from certain common activities and those with relatively large populations in Ontario compared to the remainder of the globe. The Significant Wildlife Habitat Criteria Schedule for Ecoregion 5E (MNRF, 2015) identifies marsh, open country and shrub/early successional bird breeding habitat and special concern and rare wildlife species in this category.

Species of conservation concern includes species that have a high proportion of their global population in Ontario. Although they may be common in Ontario, they are found in low numbers in other jurisdictions. Species designated as Special Concern provincially or federally are included as species of conservation concern.

S-Ranks are status rankings (see list below) assigned for the province by the MNRF and available in the NHIC database. Provincially rare species are those with S-Ranks of S1, S2 or S3 (NHIC 2017):

- S1 – Critically Imperiled
- S2 – Imperiled
- S3 – Vulnerable
- S4 – Apparently Secure
- S5 - Secure

The NHIC database was accessed on April 5, 2018 to obtain recent records of species of conservation concern (less than 30 years old) near the proposed preferred route. A review of the NHIC database has indicated no species of conservation concern have been historically documented in the vicinity the Study Area. However, a review of wildlife atlases indicated 6 potential SOCC are known to occur in the vicinity of the Study Area. Exact locations of species occurrences are not available from these databases or atlases, and the potential for species to be present is limited by habitat suitability and availability. Therefore, the identified species recorded from these databases may not occur in the Study Area.

Table 2-2 below provides a summary of the SOCC that have been identified during the NHIC and wildlife atlas background review, and whether potential habitat for these species may be present in the Study Area.

Table 2-2: Terrestrial Species of Conservation Concern

Common Name	Scientific Name	S-RANK	Provincial Status (COSSARO)	National Status (COSEWIC)	Source	Potential Habitat in the Study Area? (Y/N)
REPTILES						
Snapping Turtle	*Chelydra serpentina*	S3	SC	SC	ORAA	Y
BIRDS						
Common Nighthawk	*Chordeiles minor*	S4B	SC	THR	OBBA	Y
Canada Warbler	*Cardellina canadensis*	S4B	SC	THR	OBBA	Y
Eastern Wood-Pewee	*Contopus virens*	S4B	SC	SC	OBBA	Y
Short-eared Owl	*Asio flammeus*	S2N, S4B	SC	SC	MNRF	N
Wood Thrush	*Hylocichla mustelina*	S4B	SC	THR	OBBA	Y

Legend:

SC: Special Concern

THR: Threatened

S3: Vulnerable – vulnerable in the province, relatively few populations

S4: Apparently Secure – Uncommon but not rare

S#B: Breeding status rank

AMO: Atlas of the Mammals of Ontario

OBBA: Ontario Breeding Bird Atlas

ORAA: Ontario Reptile Atlas

Species at Risk

Species at risk are those species given status rankings, by the Federal Committee on the Status of Endangered Wildlife in Canada (COSEWIC) and/or the provincial Committee on the Status of Species at Risk in Ontario (COSSARO), as threatened or endangered according to federal or provincial legislation. Endangered and threatened species receive general habitat protection under the ESA 2007. Special concern species are not afforded habitat protection and have been summarized as species of conservation concern above.

Recent records (less than 30 years old) of endangered and threatened species were obtained through the NHIC database on the LIO Natural Heritage Mapping website, accessed April 5, 2018 (LIO 2018a). The NHIC database uses Element Occurrences to show locations of species. An Element Occurrence is defined as an area of land and/or water on/in which an element (e.g., species or ecological community) is or was present. For protection purposes, exact locations of species are not provided (only within a 1 km grid), and presence of the species in the Study Area are not definite.

A review of the NHIC database has indicated that 1 endangered (END) species has been documented in the vicinity the Study Area.

Based on a review of background information and consultation with the MNRF (personal communication Julie Robinson [MNRF], March 13, 2018), 7 threatened and endangered species have ranges that overlap with the Study Area, including 1 reptile, 2 species of breeding birds and 4 species of mammal, as shown in **Table 2-3**.

Exact locations of species occurrences are not available from the database, and the potential for species to be present is limited by habitat suitability and availability in the active zone of the Study Area.

Table 2-3: Terrestrial Species at Risk

Common Name	Scientific Name	S-RANK	Provincial Status (COSSARO)	National Status (COSEWIC)	Source	Potential Habitat in the Study Area? (Y/N)
REPTILES						
Blanding's Turtle	*Emydoidea blandingi*	S3	THR	THR	ORAA, NHIC	Y
BIRDS						
Barn Swallow	*Hirundo rustica*	S4B	THR	THR	OBBA	Y
Chimney Swift	*Chaetura pelagica*	S4B, S4N	THR	THR	OBBA	N
MAMMALS						
Little Brown Myotis	*Myotis lucifugus*	S4	END	END	AMO	Y
Northern Myotis	*Myotis septentrionalis*	S3?	END	END	AMO	Y
Small-footed Myotis	*Myotis leibii*	S2S3	END	-	AMO	Y

Table 2-3: Terrestrial Species at Risk

Common Name	Scientific Name	S-RANK	Provincial Status (COSSARO)	National Status (COSEWIC)	Source	Potential Habitat in the Study Area? (Y/N)
Tri-coloured Bat	*Perimyotis subflavus*	S3?	END	END	AMO	Y

Legend:
END: Endangered

Records of Blanding's Turtle are present in Trout Lake. Blanding's Turtle typically nest in open habitat, which can include beach and shorelines, in addition to human-altered areas such as gravel roads and shoulders. The peak nesting season for Blanding's Turtle typically occurs between the last week of May and the first week of July, as indicated in Environment Canada's proposed *Recovery Strategy for the Blanding's Turtle (Emydoidea blandingii)* guidance document (EC 2016). Potential nesting habitat may occur for Blanding's Turtle along the gravel roadsides in the Study Area. Mitigation specific to turtle nesting habitat is discussed in Section 3.3.

In regards to the other 6 SAR listed above, potential habitat for SAR is considered present in the Study Area, it is not anticipated that the preferred route alignment traverses any sensitive habitat for SAR, as it is located within an existing road allowance that is periodically disturbed for maintenance work. In addition, construction techniques will avoid sensitive habitats (i.e. using trenchless technologies such as horizontal directional drilling (HDD) where appropriate). Section 3.3 discusses potential impacts and recommended mitigation measures for wildlife and terrestrial species at risk.

2.3 AQUATIC SPECIES AND HABITAT

As part of the assessment of potential environmental impacts, an aquatic habitat assessment was undertaken to document and characterize aquatic features in the Study Area. The aquatic habitat assessment was undertaken in support of identification of potential impacts and associated mitigation measures.

Background Review

The MNRF's LIO digital mapping (LIO 2018a) indicates that there are seven watercourse crossings in the Study Area, including the following:

- Two crossings of Hogan Creek
- One crossing of Four Mile Creek
- Four crossings of unnamed tributaries to Trout Lake

The LIO database contains records for fish species within the that inhabit Trout Lake. **Table 2-4** provides a list of fish species known to inhabit Trout Lake (LIO 2018a).

Table 2-4: Fish Species in Trout Lake

Common Name	Scientific Name
Atlantic Salmon	*Salmo salar*
Brook Trout	*Salvelinus fontinalis*
Cisco	*Coregonus artedi*
Common Shiner	*Luxilus cornutus*
Lake Trout	*Salvelinus namaycush*
Largemouth Bass	*Micropterus salmoides*
Muskellunge	*Esox masquinongy*
Rainbow Trout	*Oncorhynchus mykiss*
Rock Bass	*Ambloplites rupestris*
Smallmouth Bass	*Micropterus dolomieu*
Smelts	*Osmerus spp.*
Walleye	*Sander vitreus*
White Sucker	*Catostomus commersonii*

Consultation with MNRF has indicated that Brook Trout are known to inhabit Hogan Creek and Four Mile Creek, and that Four Mile Creek provides Atlantic Salmon spawning habitat (Robinson 2018).

Trout Lake supports a Commercial, Recreational, or Aboriginal (CRA) fishery and since watercourses crossed by the preferred route are connected to Trout Lake, it is assumed that they also support a CRA fishery.

Figure 4 illustrates the crossing locations and thermal regime provided by the MNRF data for watercourses crossed by the proposed pipeline.

Desktop Analysis

The purpose of the desktop analysis was to identify the location of potential fish habitat at watercourse crossings along the preferred route.

The pipeline will be installed within the road allowance along the preferred route. Background review and desktop analysis were conducted where roads along the preferred route cross watercourses. The survey included crossings identified on MNRF databases and any additional watercourse crossings visible on air photos along roads within the preferred route.

Data collected during background review and desktop analysis was used to determine the potential that a watercourse supports fish that are part of or support a CRA fishery, as defined by the federal *Fisheries Act*. It was determined that a watercourse supported a CRA fishery if it met one or more of the following criteria:

- Mapping from LIO database (2018a) suggests that the watercourse is directly connected to fish habitat downstream.

- Conditions of channel visible on air photos suggest that flow is permanent.
- There is a surface water feature visible in air photos at the crossing.

Table 2-5 provides a summary of habitat characteristics identified at each watercourse crossing. Desktop analysis identified the presence of suitable habitat to support a CRA fishery at each of the seven crossings along the pipeline route.

2.3.1 Aquatic Species At Risk

Information provided by LIO (2018a) and DFO Aquatic Species at Risk Mapping (Ontario North East Map 2 of 27) indicated there are no records for aquatic species at risk within the Study Area.

Table 2-5: Watercourse and Fish Habitat Summary

Crossing ID	Watercourse Name	Supports a CRA fishery	Desktop Analysis	Aquatic Species At Risk Present
SC1	Hogan Creek	Yes	• Open channel visible on air photos and fish species present indicate watercourse is permanently flowing. • Hogan Creek appears to be permanent watercourse downstream of Study Area.	No
SC2	Hogan Creek	Yes	• Open channel visible on air photos and fish species present indicate watercourse is permanently flowing. • Hogan Creek appears to be permanent watercourse downstream of Study Area.	No
SC3	Four Mile Creek	Yes	• Open channel visible on air photos and fish species present indicate watercourse is permanently flowing. • Four Mile Creek appears to be permanent watercourse downstream of Study Area.	No
SC4	Unnamed Tributary to Trout Lake	Yes	• Open channel visible on air photos indicate watercourse is permanently flowing. • Tributary appears to be permanent watercourse downstream of Study Area.	No
SC5	Unnamed Tributary to Trout Lake	Yes	• Open channel visible on air photos indicate watercourse is permanently flowing. • Tributary appears to be permanent watercourse downstream of Study Area.	No
SC6	Unnamed Tributary to Trout Lake	Yes	• Open channel visible on air photos indicate watercourse is permanently flowing. • Tributary appears to be permanent watercourse downstream of Study Area.	No
SC7	Unnamed Tributary to Trout Lake	Yes	• Open channel visible on air photos indicate watercourse is permanently flowing. • Tributary appears to be permanent watercourse downstream of Study Area.	No

3.0 IMPACT ASSESSMENT AND RECOMMENDED MITIGATION

The following sections discuss potential impacts and recommended mitigation measures for the proposed pipeline.

3.1 VEGETATION COVER

Potential Impacts
Tree clearing is not anticipated; however, in the case cutting may be required, the following impacts and mitigation will apply.

Vegetative cover within the road allowance generally consists of common, hardy plant species as well as herbaceous and graminoid vegetation, all of which are adaptable to disturbed environments. The Study Area is dominated by a mixture of forests and wetlands with scattered residential properties and cottages. The proposed pipeline route will follow along the existing road allowance, outside of the natural vegetation communities (forests and wetlands).

Without appropriate mitigation measures, construction activities can adversely impact trees and other vegetation through soil compaction, removal of topsoil and equipment encroachment, causing irreversible damage to roots or trunks and destroying the structural integrity of vegetation or soils. Filling, excavation, grading or trenching in the root area of a tree has the potential to cause irreversible damage. Vegetation removal may also have the potential to clear active nests if vegetation removal occurs during the active breeding bird season. Nest clearing surveys will be required for vegetation clearing activities between April 15 and August 13 to comply with the Migratory Bird Convention Act (MBCA). Refer to Section 3.3 for associated wildlife mitigation measures.

Mitigation and Protective Measures
Stantec recommends the following mitigation measures, or equivalent, to be implemented to reduce impacts on forests and vegetation cover:

- Municipal requirements or permits for tree cutting will be determined prior to construction.
- Encroachment into adjacent wooded areas to be avoided and individual tree removal minimized.
- Construction traffic to be restricted to the existing road allowance where possible to avoid potential compression damage to the root zones of trees located adjacent to the road allowance.
- High-traffic or erosion-prone areas of the road allowance to be revegetated with suitable protective cover.
- Reclamation in residential/commercial land areas traversed by the road allowance to involve seeding (or sodding) the disturbed areas and replacement of ornamental trees and shrubs.

Stantec recommends the following mitigation measures, or equivalent, to be implemented to protect trees or other vegetation to be retained along the preliminary preferred route:

- Where the pipeline route encroaches on the drip line of specimen trees (i.e. large diameter Oak trees), Horizontal Directional Drill (HDD) to be considered to protect the root system where feasible
- Understory vegetation beneath the drip line of specimen trees to be retained in an undisturbed state, where possible
- Any specimen trees or other vegetation to be retained is recommended to be surrounded by temporary protective fencing or other measures before any clearing or grading occurs

The following criteria are recommended by Stantec to be taken into consideration when selecting a seed mix for use in natural vegetation areas:

- Site specific conditions such as climate, soil types and terrain to be considered
- Only local native species to be included
- A fast-growing seed mixture requiring little or no maintenance to be selected
- Seed mixture to be consistent with the land use of the area
- If there is no suitable local native seed mix available, but seeding is deemed desirable to promote rapid revegetation of an area, a non-invasive annual nurse crop such as annual ryegrass to be used instead
- Purchased seed to be certified free of weeds

Net Impacts
With effective implementation of the mitigation measures recommended above, no significant adverse residual impacts to vegetation cover are anticipated.

Vegetation removal may be required along the edges of rural roads. Removal will be restricted to cultural hedgerow allowance communities and the edge of natural heritage features that are currently exposed to road traffic and maintenance activities. As vegetation removals are restricted to the edge of natural heritage features, impacts on the ecological function of these features will be minimized.

3.2 WETLANDS

Potential Impacts
The potential impacts on wetlands during construction include accidental contaminant release, sedimentation and turbidity from surface runoff, introduction of invasive species and temporary lowering of the water table during trench dewatering. Clean-up and restoration activities to contain or remove contaminant and sediment releases can cause more damage to sensitive wetland ecology than the initial impact of the release. Therefore, it is important to institute appropriate mitigation measures to minimize interactions with adjacent wetlands.

As construction is planned within the previously disturbed road allowance, no significant adverse interactions are expected to occur with wetlands along the preferred route. However, to protect these features, Stantec recommends construction activities undertaken to include the following mitigation measures when working in proximity to wetlands.

Mitigation and Protective Measures

Cross wetlands encroaching the road ROW using HDD construction methods. Where wetlands are adjacent to the construction areas, and HDD is not to be implemented, Stantec recommends silt fencing to be installed to protect the adjacent feature. The following mitigation measures are recommended to reduce impacts to wetlands during construction:

- All activities, including equipment maintenance and refueling to be controlled to prevent entry of petroleum products or other deleterious substances, including any debris, waste, rubble, or concrete material, into a wetland.
- In the unlikely event of a spill, spills containment and clean-up procedures to be implemented immediately. Union Gas to contact the Ministry of Environment and Climate Change (MOECC) Spills Action Centre. The MOECC Spills Action Centre is the first point of contact for spills at the provincial and federal level.
- Construction material, excess material, construction debris and empty containers to be stored away from adjacent wetlands.
- Temporary work space width to be minimized when working within 30 m of wetlands, where practical.
- Staging areas to be located at least 30 m away from the edge of wetlands.
- Construction dewatering to be discharged to sediment removal basins if discharge to a well-vegetated dry area is not feasible. Locate the sediment removal basin in an area that maximizes the distance to the nearest surface water feature and minimize the slope of the surrounding buffer area. The basin to consist of a temporary enclosure constructed with hay bales, silt fence or both.

Stantec recommends the following erosion control measures specific to wetlands to include the following:

- Surface runoff to be directed as overland flow with sufficient drainage structures to dissipate hydraulic energy
- Soil transport to be prevented by diversion of site runoff through shallow vegetated channels, placement of straw bales or sediment control fencing
- Sediment barriers to be installed along the edge of the road allowance to contain spoil within the road allowance, where required
- Natural drainage spacing to be provided around spoil piles
- Temporary erosion/silt control structures (i.e. straw bales, sediment fencing) to be used down gradient of spoil stockpiles, as necessary
- Temporary sediment barriers to be maintained until soils are stabilized

- Vegetation clearing not to be conducted within 30 m of a wetland unless required for site construction activity (i.e. within the road allowance)
- If vegetation regeneration is unlikely to occur immediately following construction (i.e. outside the growing season), all impacted slopes adjacent to wetlands to be stabilized using geogrids or weed-free mulch for a minimum of 30 m from the wetland
- Erosion control measures in both active and non-active construction areas to be regularly inspected until the site has been adequately stabilized to prevent erosion

Net Impacts
With the implementation of HDD construction and the above mitigation and protective measures, no significant adverse residual impacts on wetlands are anticipated.

3.3 WILDLIFE HABITAT AND SPECIES AT RISK

Potential Impacts
New pipeline construction impacts on wildlife populations are associated with vibration and compaction of the shoulder as well as direct mortality from animal-vehicle collisions because of increased construction traffic, temporary avoidance behavior due to the presence of humans and equipment and direct loss of habitat (e.g., destruction of nests or alteration of nesting habitat). No new lands or natural areas are anticipated to be assumed for this Project. Because the Project will be working within a road allowance, mitigation will be primarily targeted at SOCC and SAR (ESA 2007 protected species) that are either permanent residents of the area, such as turtles and bats, or known to migrate through the area such as birds. The preferred habitat for the potential SOCC and SAR that may occur in the vicinity of the Study Area is generally not present in the road allowance, and therefore, little or no interaction with Project activities is anticipated.

Mitigation and Protective Measures
The mitigation measures below, or equivalent, are recommended by Stantec to minimize potential impacts of the Project on wildlife and wildlife habitat:

SOCC and SAR
Information to be provided to workers on SAR identification and habitat or nesting characteristics. If a SAR is observed, work is to be stopped immediately in the vicinity to prevent harm or harassment of the individual. The species can be removed by a qualified ecologist using approved MNRF handling protocols and relocated away from the construction area to prevent incidental harm. Preconstruction surveys will be conducted for identification of turtle habitat along roadsides and wetlands, as well as bat maternity roosts where tree removal is required.

Reptiles
The following mitigation are recommended to protect reptiles and their habitat:

- Gravel road shoulders may provide nesting habitat for turtle SOCC and SAR.

- Exclusion fencing (e.g. silt fence) to be erected along the road prior to activities occurring in areas identified as having potential turtle habitat such as along or adjacent to stream/river crossings, lake shores, ponds, wetlands, where HDD is not being implemented.
- Habitat for Blanding's Turtle is considered present along the preferred route. Pre-construction surveys along the roadside to be conducted to identify evidence of obvious nest sites. During construction, workers are to be instructed to watch for active turtles that may be entering the work site.
- No heavy machinery to be permitted on the shoulder of the road past the exclusion fencing to prevent compaction and prevent destruction of nests and habitat.

Birds

- Restrict any activities to a species-specific radius of an active nest that are immediately in the construction zone.
- Tree and vegetation removal (including roadsides and any tree removal) to be completed outside of the migratory bird nesting season from April 1 to August 31 to avoid disturbance to nesting birds protected under the MBCA and SAR protected by the ESA 2007.
- Removals could take place during this restricted timing window only if nest clearing surveys are completed by qualified individuals no more than seven days prior to any clearing activities.

Bats

- Further to the timing window for birds, no tree clearing to occur when bat species at risk may be roosting in the trees (between May 1 to August 31).
- To limit the potential impacts to bats, the amount of tree clearing to be kept to a minimum.

Other Wildlife

- Incidents involving wildlife are to be documented and reported to the MNRF.
- Food waste and other debris to be properly contained, collected and removed from the site daily to an approved disposal facility.
- No dogs are permitted on the work site.

Net Impacts

It is not anticipated that SAR will be encountered or habitat will be altered during this Project. However, a permit under ESA 2007 may be required if SAR are encountered and/or if a residence or habitat of a SAR is altered.

With the effective implementation of the above mitigation and protective measures, no significant adverse residual impacts on wildlife or wildlife habitats are anticipated. Therefore, the pipeline route is anticipated to have no significant adverse environmental effects with respect to wildlife or wildlife habitat.

3.4 AQUATIC SPECIES AND HABITAT

Potential Impacts

Construction has the potential to affect fish through impacts on water quality (erosion, sedimentation, and accidental spills) and disruption/harassment (vibration and noise). These potential effects may occur due to construction of the pipeline.

Watercourses identified as supporting fish that are part of or support a CRA fishery will be crossed using HDD methods. Therefore, no in-water work will be required. Watercourses identified as not supporting fish that are part of or support a CRA fishery may be crossed using trenched construction methods.

Stantec recommends the setback distances for the drill entry and exits pits to be established at least 30 m from the bankfull width of aquatic habitat. With the successful implementation of mitigation measures, HDD crossings reduce the risk of impacts on sensitive habitats and sedimentation in a watercourse and reduce disturbance to the streambed and banks within the riparian zone. Fish passage and stream flow are also maintained.

If HDD is not feasible, Stantec recommends consideration to be given to installations within the road allowance above culvert where grades and integrity allow.

If trenched crossings are required at locations that support fish that are part of or support a CRA fishery, other potential impacts could include restrictions to habitat use and fish passage, changes to habitat such as altered substrate composition, increased erosion potential, loss of in-stream cover and loss of riparian shading. Excessive sediment introduced into a watercourse can adversely impact fisheries through clogging of fish gills, sedimentation of spawning beds and alteration of habitat.

Construction activities at or in close proximity to a watercourse should follow DFO's Measures to Avoid Causing Harm to Fish and Fish Habitat (DFO 2016) and the Agreement Letter Between Union Gas and DFO for Pipeline Construction and Maintenance (DFO 2008). These documents include measures for erosion and sediment control, fish relocations, and in-water construction timing windows.

Impacts to aquatic species at risk are not anticipated as records are limited to Chippewa Creek. The proposed pipeline does not cross this river.

Mitigation and Protective Measures

The following general mitigation measures, or equivalent, are recommended at watercourse crossings along the preferred pipeline route. Some of the following general measures may not be applicable to HDD crossing methods but are included in the event a trenched crossing is required. Additionally, activity-specific measures related to the crossing methods are provided following the general mitigation measures. All measures presented are intended to be consistent with DFO's measures to avoid serious harm (DFO 2016), which are recommended to be consulted immediately prior to construction to confirm that the construction plan is consistent with the most up-to-date list of DFO avoidance measures.

General Mitigation Measures

Stantec recommends the following mitigation measures while working in or adjacent to watercourses:

- In-water work for coldwater habitats along the proposed route is to occur from June 16 to August 31 (no work from September 1 to June 15) and for warmwater habitats along the proposed route is to occur from June 21 to March 30 (no work from April 1 to June 20) (MNRF 2017).
- Watercourses not to be obstructed in a way that impedes the free movement of water and fish.
- Prior to removal of vegetation cover, effective mitigation techniques for erosion and sedimentation to be in place to protect water quality. Disturbance to an area during construction to be limited. Grubbing activities to be delayed until immediately prior to grading operations.
- Soil exposure to be reduced prior to commencing construction, and the period that soil remains exposed for grading to be limited. Exposed soils surrounding watercourses to be seeded immediately following construction.
- Temporary erosion and sediment control measures to be maintained and kept in place until work within or near a watercourse has been completed and stabilized. Temporary sediment control measures to be removed at the completion of the work but not until permanent erosion control measures have been established.
- Construction material, excess material, construction debris and empty containers to be stored a minimum of 30 m from watercourses and watercourse banks.
- Equipment maintenance and refueling to be controlled to prevent entry of petroleum products or other deleterious substances, including any debris, waste, rubble, or concrete material, into a watercourse, unless otherwise specified in the contract.
- Deleterious substances (fuel, oil, spoil) to be stored >30 m from the watercourse. Any such material that inadvertently enters a watercourse is to be removed in a manner satisfactory to the environmental inspector.
- In the unlikely event of a spill, spills containment and clean-up procedures are to be implemented immediately. Union Gas is to contact the MOECC Spills Action Centre. The MOECC Spills Action Centre is the first point of contact for spills at the provincial and federal level.
- Conditions of water crossing permit(s), if applicable, are to be adhered to.
- Additional supplies to be maintained on-site, in a readily accessible location, for maintenance and contingency purposes. Prior to construction, adequate quantities of the materials listed below, or comparable substitutions, are to be on site to control erosion and sediment deposition:
  - Sediment control fencing
  - Sediment control logs (i.e., SiltSoxx™)
  - Straw bales
  - Wooden stakes
  - Sand bags

- Water energy dissipater
- Filter cloth
- Water pumps (including stand-by pumps and sufficient lengths of hose)
- Culvert

Horizontal Directional Drill Mitigation Measures

HDD construction methods for pipeline water crossings will not require DFO review or Authorization under the *Fisheries Act* provided measures to avoid causing serious harm to fish are followed during construction. These measures include locating entry and exit points at sufficient distance to avoid disturbance to the bed and banks, locating the drill path at an appropriate depth below the channel and installation of appropriate sediment and erosion control measures (i.e. silt fencing around disturbed areas, development of a contingency plan, etc.). If these measures are followed, a Project of this nature is low risk to fish and can proceed without DFO review.

Stantec recommends the following mitigation measures as they relate to employing the HDD method:

- Standard erosion and sediment control measures to be implemented around drill and pipe staging areas.
- Drilling equipment (e.g. drill rig, support equipment, sump) to be set up a minimum of 30 m from the edge of watercourses.
- Clearing of vegetation or grading of watercourse banks not to occur within 30 m from the edge of watercourses, if possible.
- A drilling mud release contingency plan to be prepared and kept on-site.
- Suitable drilling mud tanks or sumps to be installed to prevent contamination of watercourses.
- The excavation of relief pits may be required to prevent a drilling mud release into sensitive features. Relief pits to be set back 10 m from sensitive features where possible and be contained using appropriate ESC measures.
- Where needed, berms or check dams to be installed downslope from drill entry and anticipated exit points to contain the release of any drilling mud.
- Drilling mud to be disposed in accordance with the appropriate regulatory authority requirements.

Drilling Mud Release (Inadvertent Returns) Mitigation Measures

Stantec recommends the following mitigation measures to be employed to reduce the risk of lost drilling mud circulation:

- Install appropriate berms, silt fencing and secondary containment measures (i.e. plastic tarp) around drilling and drilling mud management equipment at both bore entry and bore exit locations to contain operational spills.
- Clean up operational spills daily to prevent mobilization of drilling mud off site during rain events.

- Design the directional drill so that drilling slurry pressure is minimized and the drilling rate is reduced in porous materials to minimize the chance of loss of circulation of the drilling slurry.
- Maintain smooth operation of the drilling string and slurry pumping systems to avoid pressure surges.
- Reduce slurry viscosity through appropriate filtering of drilled material to reduce the pressure gradient along the drill path due to frictional effects.
- Continually monitor slurry volumes to enable a quick response to any indications of lost circulation.
- Immediately contain any drilling mud that escapes onto land and transfer it into an on-site containment system.

The following materials are recommended to be on hand during drilling operations and prepared to be employed in the event of a drilling mud spill or inadvertent return: sand bags, straw bales, silt fencing and a hydrovac truck.

Additional Measures

The contingency method for HDD crossings is a trenched crossing. Additionally, crossings identified as not supporting fish that are part of or support a CRA fishery may be crossed using a trenched construction method. Stantec recommends the following measures in regards to trenched crossings.

Flow Diversion/Dewatering

If in-water works are required, the work area is to be isolated from the remainder of the surface water feature. Downstream flows are to be maintained using dam and pump or dam and flume techniques. When dewatering the work area, dewatering operations are to be managed to prevent erosion and/or release of sediment laden or contaminated water to the waterbody (e.g. settling basin, filter bag, energy dispersion measures). An isolation/containment plan is to be designed and implemented to isolate temporary in-water work zones and maintain flow around the work zone. Maintenance of downstream flow will avoid potential upstream flooding and desiccation of downstream aquatic habitat and organisms. To further reduce the potential for flooding during construction, the weather forecast is to be monitored prior to the start of construction to ensure that in-water works occur during a dry period.

Fish Rescue Plan

Prior to dewatering the work zone, fish trapped in the construction area are to be collected and moved using capture, handling, and release techniques to reduce harm and stress. The intakes of pumping hoses will be equipped with an appropriate device to avoid entraining and impinging fish (see *Measures to Avoid Causing Harm to Fish and Fish Habitat* (DFO 2016) at the following DFO website http://www.dfo-mpo.gc.ca/pnw-ppe/measures-mesures/measures-mesures-eng.html). Fish rescue plans will be developed on a site-specific basis and implemented by qualified professionals with the appropriate permitting in place (i.e. MNRF Licence to Collect Fish for Scientific Purposes).

Site Restoration and Riparian Planting

Following construction, the bed and banks of the crossing locations will be restored to pre-construction conditions to the extent possible in accordance with environmental permits. Bank slopes will be restored to match existing grades; however, alterations may be made to maintain slope stability and limit future

erosion. Exposed banks will be re-vegetated with native plants to provide riparian cover and aid in erosion and sediment control. Stream beds will be restored to maintain slopes and tie in with existing grades. Bed material will be replaced to match pre-construction conditions.

Permitting

The *Fisheries Act* prohibits causing serious harm to fish unless authorized by DFO. This applies to work being conducted in or near water bodies that support fish that are part of or that support a CRA fishery. Since November 25, 2013, proponents must take the responsibility to determine whether their projects meet the DFO requirements under the Self-Assessment process. If serious harm cannot be avoided, proponents are to contact DFO for a formal review and/or approval under the *Fisheries Act*. Following finalization of plans, Stantec recommends a Self-Assessment to be completed for all project activities that have the potential to cause serious harm to fish. If it is determined that serious harm is likely to occur because of project-related activities, a Request for Review is to be completed and submitted to DFO to determine approvals requirements under the *Fisheries Act*.

Net Impacts

With the implementation of the HDD construction method and the above mitigation and protective measures, no significant adverse residual impacts on aquatic species or habitat are anticipated.

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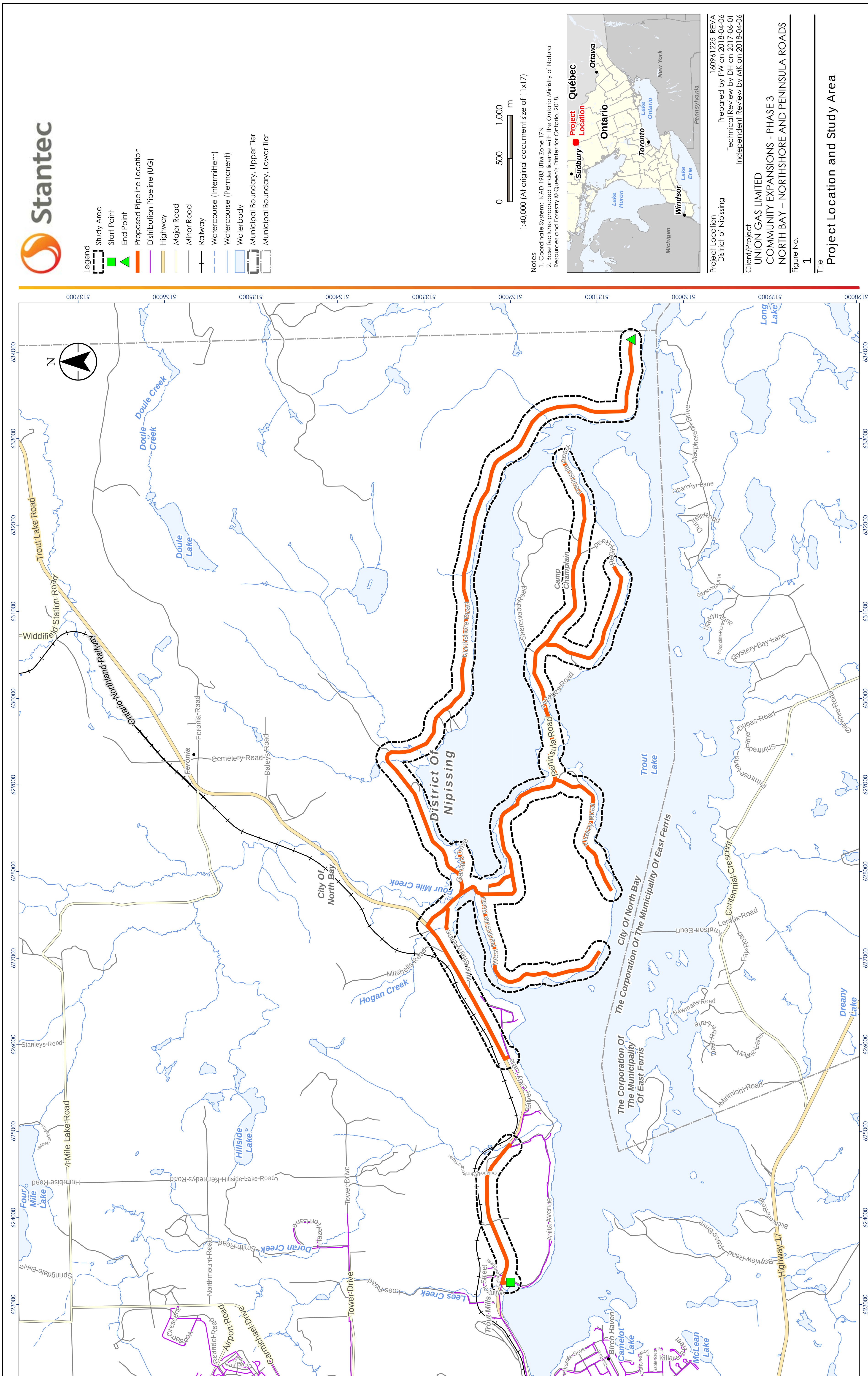
APPENDIX A: FIGURES


Stantec
Legend
Study Area
Start Point
End Point
Proposed Pipeline Location
Distribution Pipeline (UG)
Highway
Major Road
Minor Road
Railway
Watercourse (Intermittent)
Watercourse (Permanent)
Waterbody
Municipal Boundary, Upper Tier
Municipal Boundary, Lower Tier
0 500 1,000 m
1:40,000 (At original document size of 11x17)
Notes
1. Coordinate System: NAD 1983 UTM Zone 17N
2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © Queen's Printer for Ontario, 2018.
Project Location
Sudbury
Ottawa
Québec
Ontario
Toronto
Windsor
Lake Huron
Lake Ontario
Lake Erie
Michigan
New York
Pennsylvania
160961225 REVA
Prepared by PW on 2018-04-06
Technical Review by DH on 2017-06-01
Independent Review by MK on 2018-04-06
Project Location
District of Nipissing
Client/Project
UNION GAS LIMITED
COMMUNITY EXPANSIONS - PHASE 3
NORTH BAY – NORTHSHORE AND PENINSULA ROADS
Figure No.
1
Title
Project Location and Study Area
District Of Nipissing
Trout Lake
City Of North Bay
The Corporation Of The Municipality Of East Ferris
Northshore Road
Peninsula Road
Camp Champlain
Trout Lake Road
Ontario Northland Railway
Feronia
Doule Creek
Doule Lake
Four Mile Creek
Hogan Creek
Hillside Lake
Four Mile Lake
Lees Creek
Doran Creek
Long Lake
Dreany Lake
McLean Lake
Camelot Lake
Birch Haven
Trout Mills
Highway 17
4 Mile Lake Road
Tower Drive
Airport Road
Centennial Crescent
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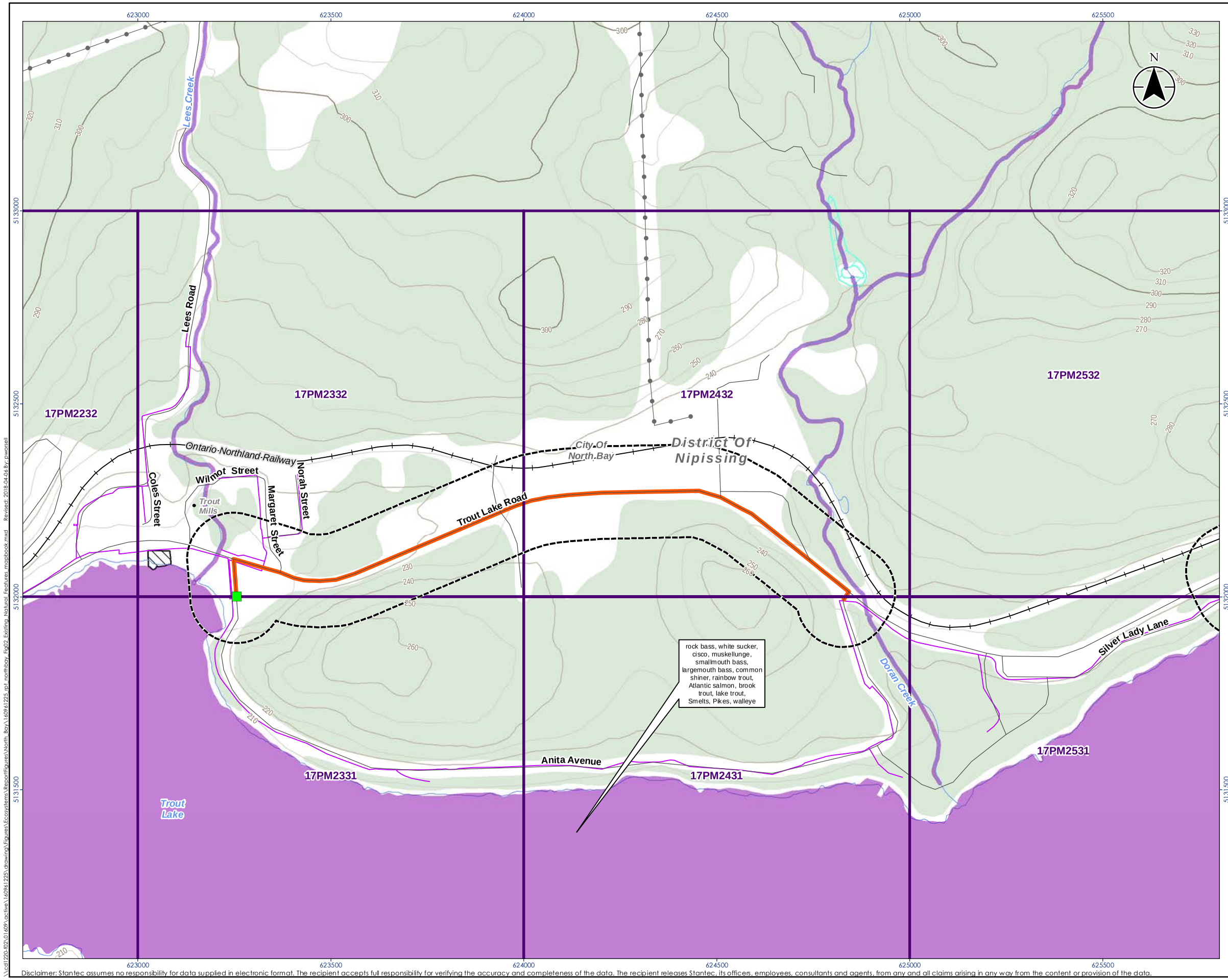

Stantec

Legend

- Study Area
- Start Point
- Proposed Pipeline Location
- Distribution Pipeline (UG)
- Thermal Regime, Cold
- Road
- Railway
- Hydro Line
- Watercourse (Permanent)
- Thermal Regime, Cold
- Waterbody
- Wetland, Not evaluated per OWES
- Municipal Boundary, Upper Tier
- Municipal Boundary, Lower Tier
- Airport
- NHIC 1 km Grid
- Wooded Area

0 250 500 m

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Notes
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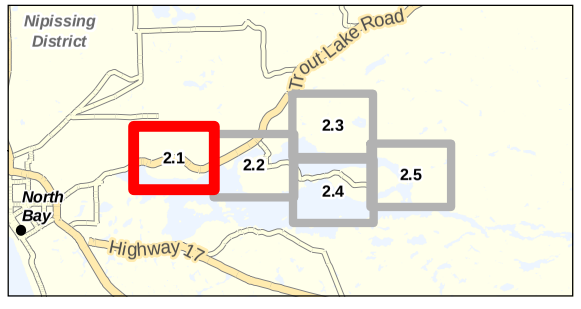


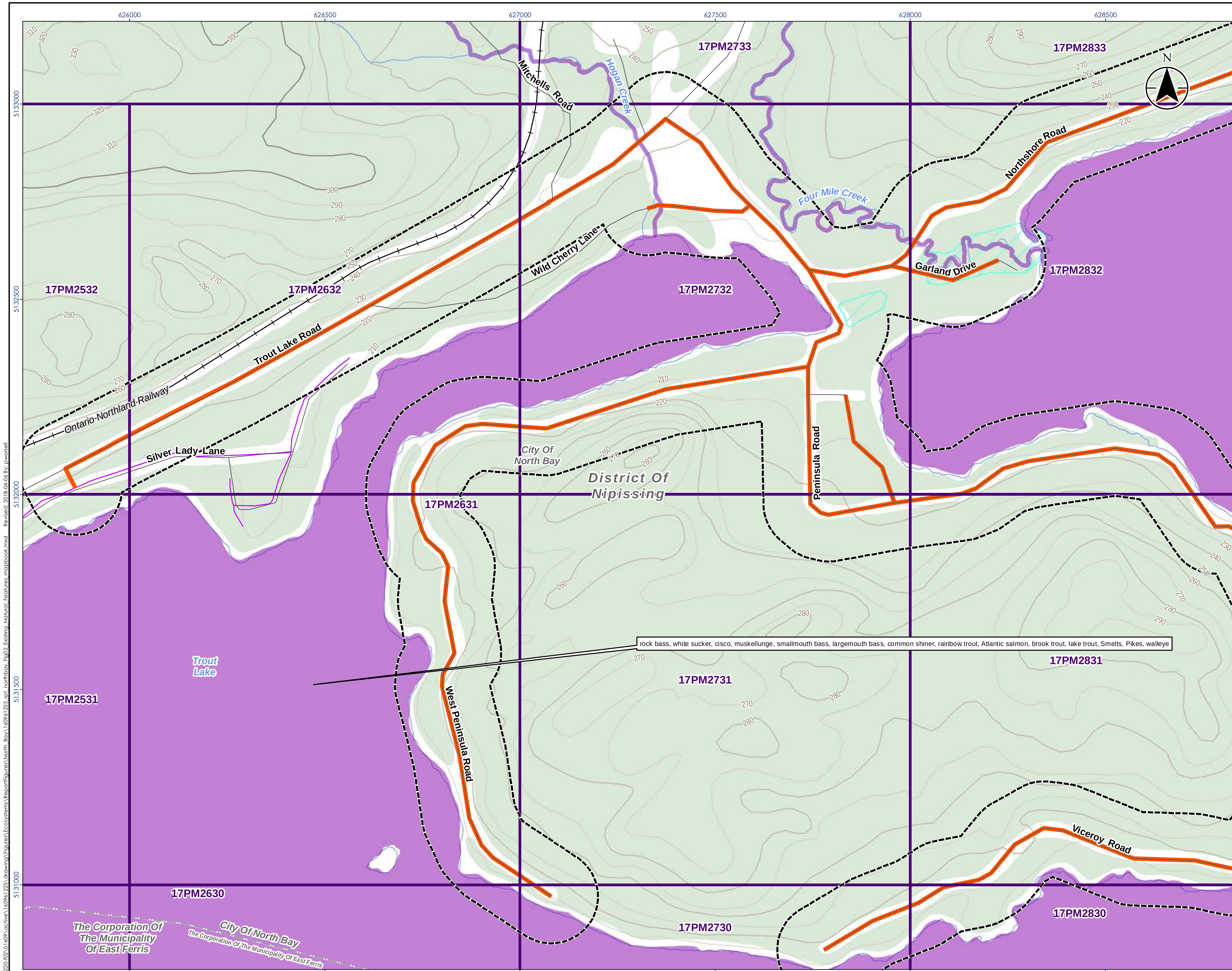
Project Location
District of Nipissing

160961225 REVA
Prepared by PW on 2018-04-06
Technical Review by DH on 2017-06-01
Independent Review by MK on 2018-04-06

Client/Project
UNION GAS LIMITED
COMMUNITY EXPANSIONS - PHASE 3
NORTH BAY – NORTHSHORE AND PENINSULA ROADS

Figure No.
2.1

Title
Existing Natural Features



Stantec

Legend
- Study Area
- Proposed Pipeline Location
- Distribution Pipeline (UG)
- Thermal Regime, Cold
- Road
- Railway
- Watercourse (Permanent)
- Thermal Regime, Cold
- Waterbody
- Wetland, Not evaluated per OWES
- Municipal Boundary, Upper Tier
- Municipal Boundary, Lower Tier
- NHIC 1 km Grid
- Wooded Area

0 250 500 m

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Notes
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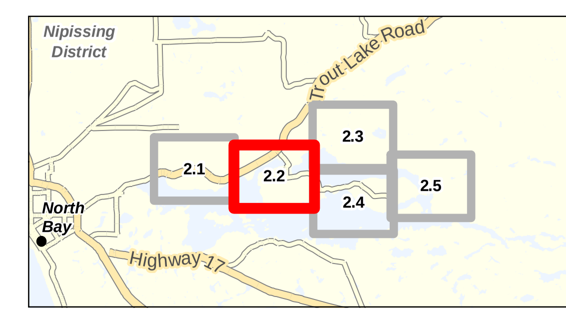

Project Location
District of Nipissing

160961225 REVA
Prepared by PW on 2018-04-06
Technical Review by DH on 2017-06-01
Independent Review by MK on 2018-04-06

Client/Project
UNION GAS LIMITED
COMMUNITY EXPANSIONS - PHASE 3
NORTH BAY – NORTHSHORE AND PENINSULA ROADS

Figure No.
2.2

Title
Existing Natural Features

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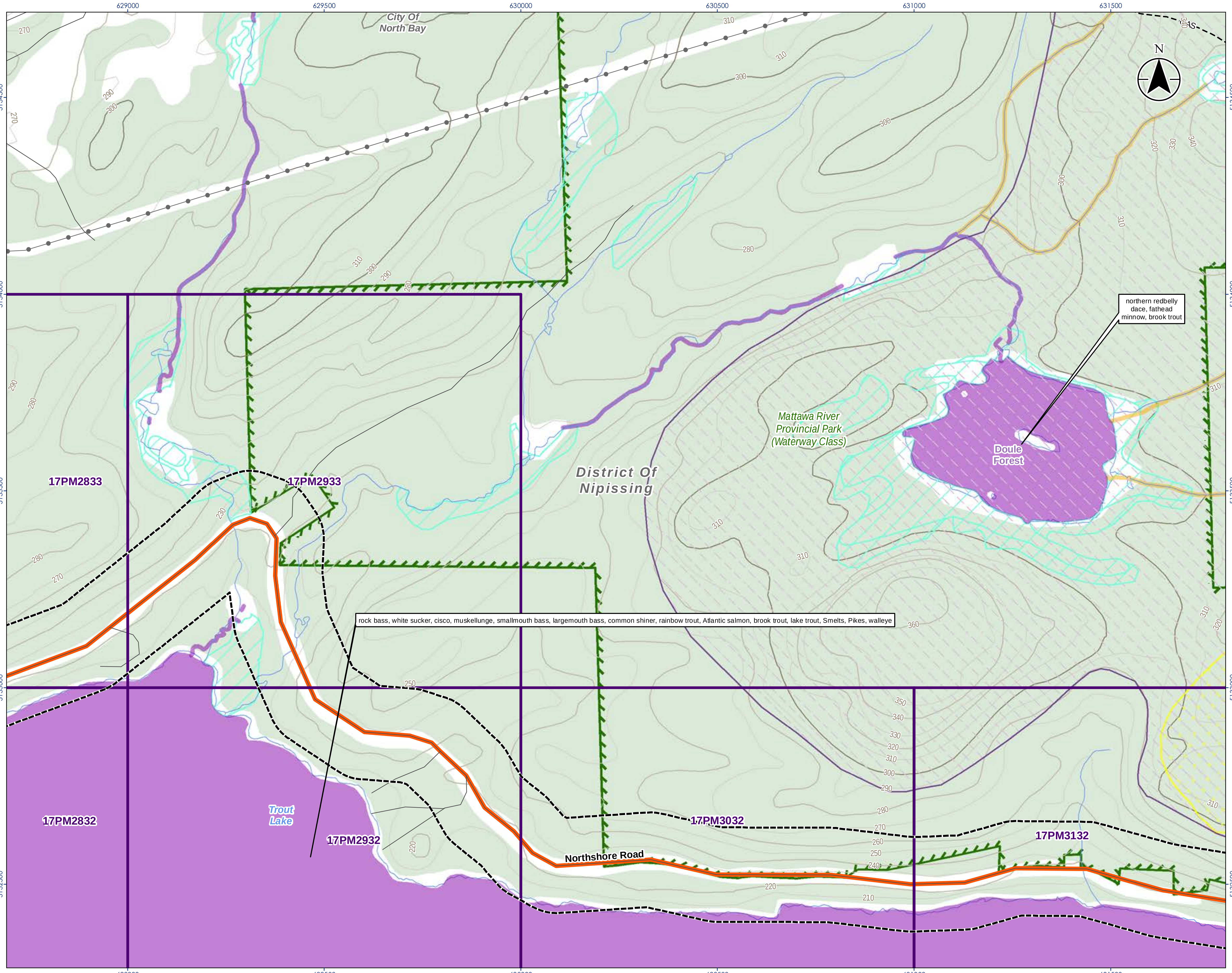

Legend
- Study Area
- Proposed Pipeline Location
- Thermal Regime, Cold
- Thermal Regime, Warm
- Road
- Hydro Line
- Natural Gas Pipeline
- Watercourse (Permanent)
- Candidate ANSI, Life Science
- Provincial Park
- Significant Ecological Area (No-Cut Area)
- Thermal Regime, Cold
- Waterbody
- Wetland, Not evaluated per OWES
- Municipal Boundary, Upper Tier
- Municipal Boundary, Lower Tier
- NHIC 1 km Grid
- Wooded Area

0 250 500 m

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Notes
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Project Location
District of Nipissing

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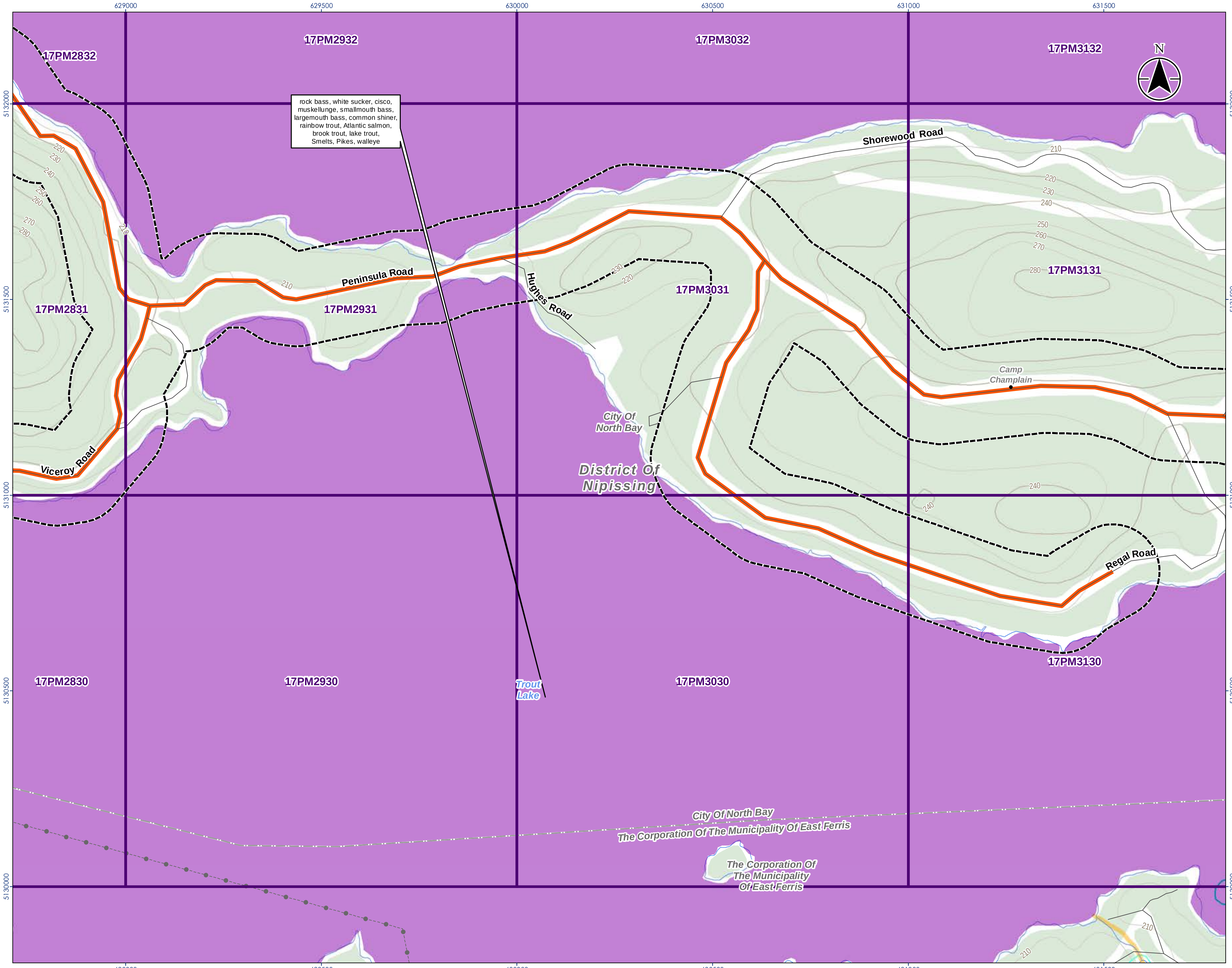
Prepared by PW on 2018-04-06
Technical Review by DH on 2017-06-01
Independent Review by MK on 2018-04-06

Client/Project
UNION GAS LIMITED
COMMUNITY EXPANSIONS - PHASE 3
NORTH BAY – NORTHSHORE AND PENINSULA ROADS

Figure No.
2.3

Title
Existing Natural Features



Stantec

Legend

- Study Area
- Proposed Pipeline Location
- Thermal Regime, Warm
- Road
- Submerged Hydro Line
- Watercourse (Permanent)
- Spawning Area
- Thermal Regime, Cold
- Waterbody
- Wetland, Not evaluated per OWES
- Municipal Boundary, Upper Tier
- Municipal Boundary, Lower Tier
- NHIC 1 km Grid
- Wooded Area

0 250 500 m

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Notes
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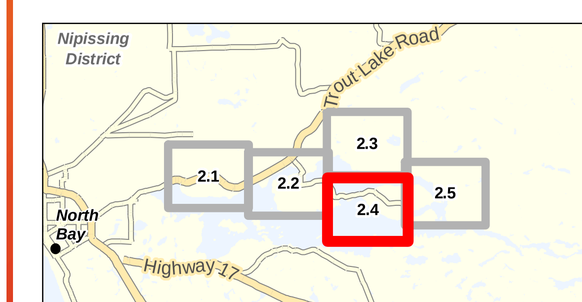

Project Location
District of Nipissing

160961225 REVA
Prepared by PW on 2018-04-06
Technical Review by DH on 2017-06-01
Independent Review by MK on 2018-04-06

Client/Project
UNION GAS LIMITED
COMMUNITY EXPANSIONS - PHASE 3
NORTH BAY – NORTHSHORE AND PENINSULA ROADS

Figure No.
2.4

Title
Existing Natural Features

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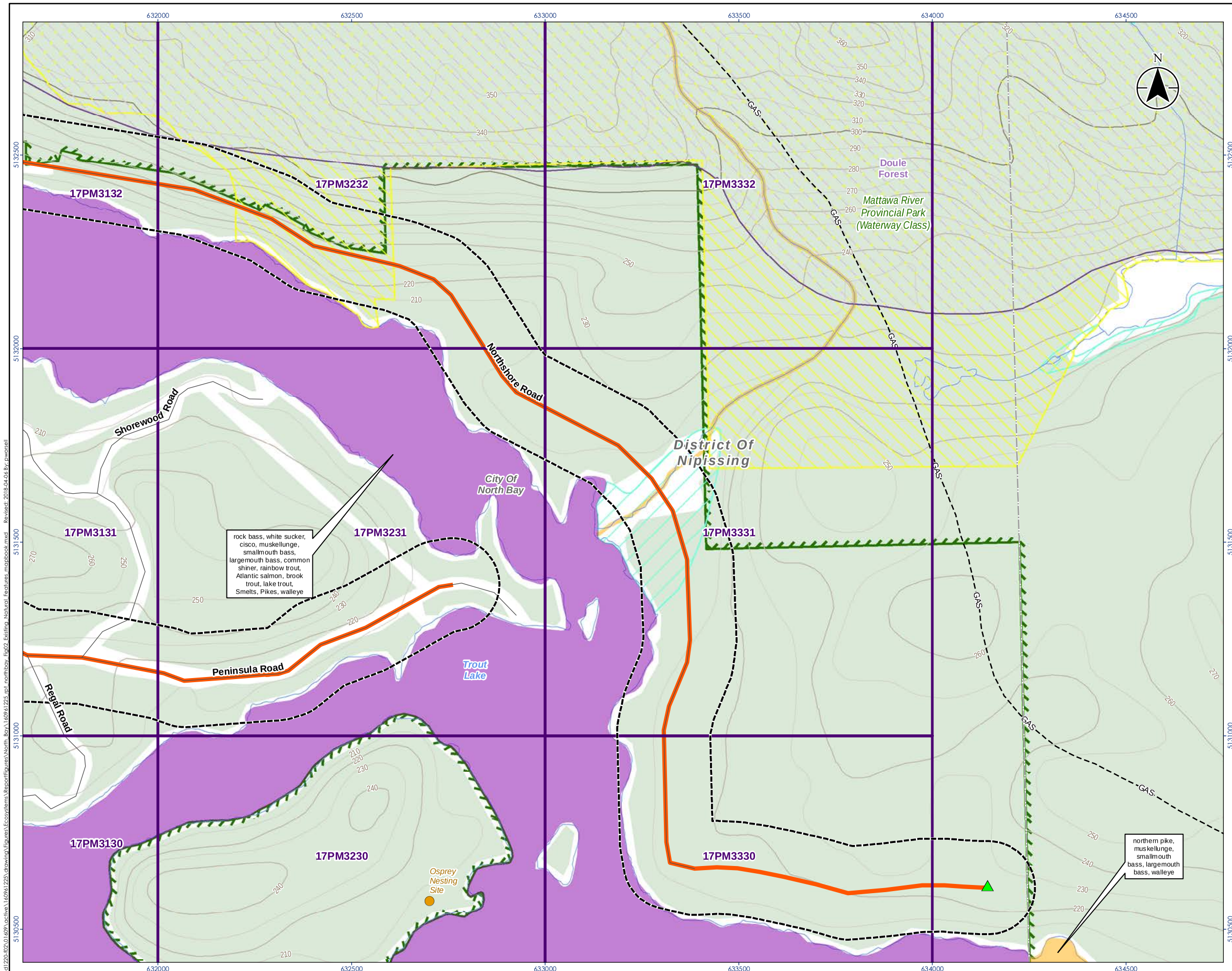

Stantec

Legend
- Study Area
- End Point
- Proposed Pipeline Location
- Nesting Site
- Thermal Regime, Warm
- Road
- Natural Gas Pipeline
- Watercourse (Permanent)
- Candidate ANSI, Life Science
- Provincial Park
- Significant Ecological Area (No-Cut Area)
- Thermal Regime, Cold
- Thermal Regime, Warm
- Waterbody
- Wetland, Not evaluated per OWES
- Municipal Boundary, Upper Tier
- Municipal Boundary, Lower Tier
- NHIC 1 km Grid
- Wooded Area

0 250 500 m

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Notes
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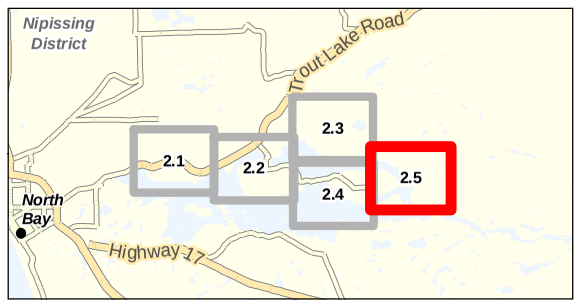


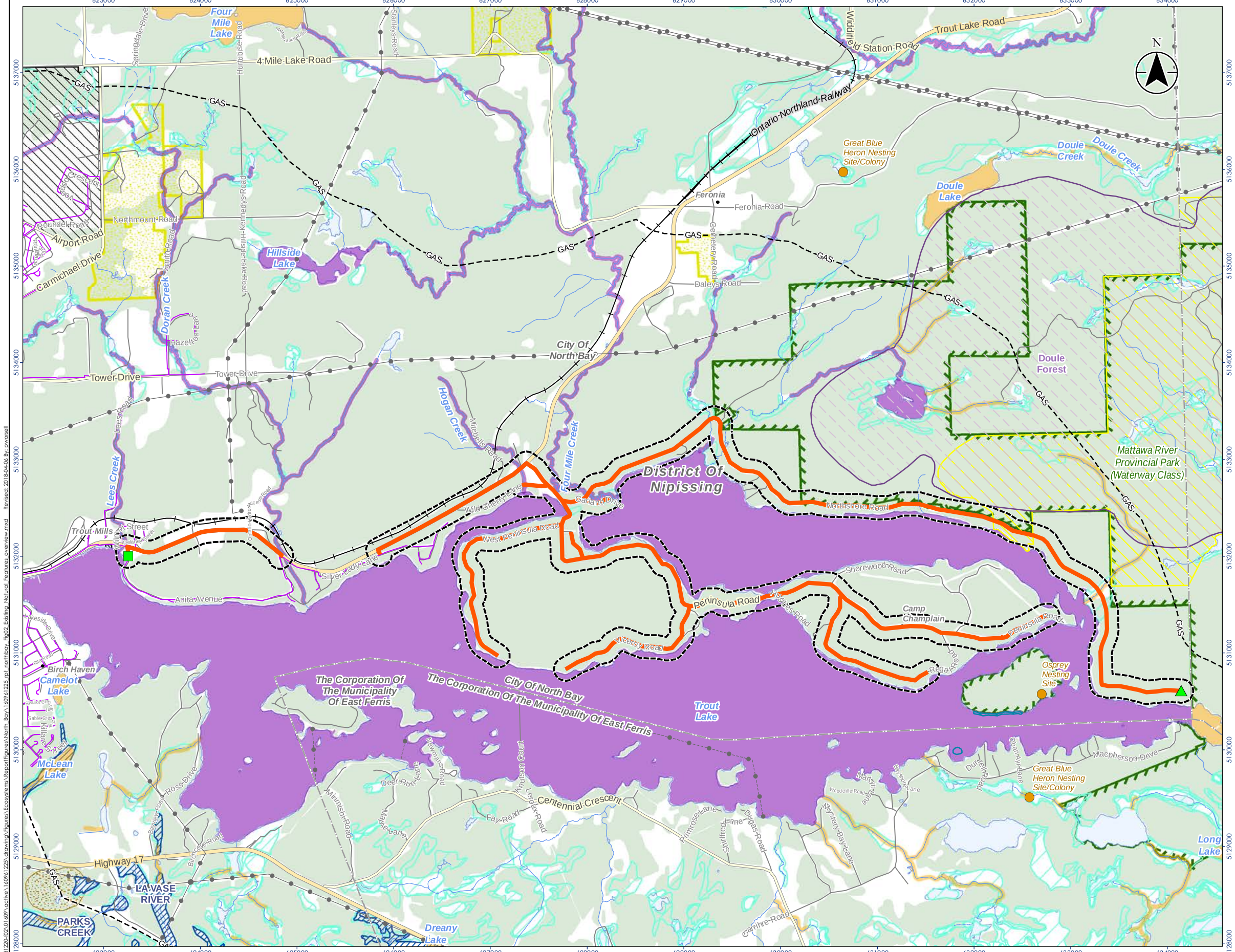
Project Location
District of Nipissing

160961225 REVA
Prepared by PW on 2018-04-06
Technical Review by DH on 2017-06-01
Independent Review by MK on 2018-04-06

Client/Project
UNION GAS LIMITED
COMMUNITY EXPANSIONS - PHASE 3
NORTH BAY – NORTHSHORE AND PENINSULA ROADS

Figure No.
2.5

Title
Existing Natural Features



Legend

- Study Area
- Start Point
- End Point
- Proposed Pipeline Location
- Distribution Pipeline (UG)
- Nesting Site
- Highway
- Major Road
- Minor Road
- Hydro Line
- Submerged Hydro Line
- Natural Gas Pipeline
- Railway
- Watercourse (Intermittent)
- Watercourse (Permanent)
- Watercourse Thermal Regime, Cold
- Watercourse Thermal Regime, Warm
- Aggregate Site - Active
- Airport
- Deer Wintering Area
- Municipal Boundary, Upper Tier
- Municipal Boundary, Lower Tier
- Provincial Park
- Significant Ecological Area (No-Cut Area)
- Waterbody
- Waterbody Thermal Regime, Cold
- Waterbody Thermal Regime, Warm
- Wetland, Provincially Significant
- Wetland, Not evaluated per OWES
- Wooded Area

Notes
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Project Location
District of Nipissing

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Prepared by PW on 2018-04-06
Technical Review by DH on 2017-06-01
Independent Review by MK on 2018-04-06

Client/Project
UNION GAS LIMITED
COMMUNITY EXPANSIONS - PHASE 3
NORTH BAY – NORTHSHORE AND PENINSULA ROADS

Figure No.
2.0

Title
Existing Natural Features

Stantec

Legend

- Study Area
- Start Point
- Proposed Pipeline Location
- Distribution Pipeline (UG)
- Railway
- Watercourse (Permanent)
- Waterbody
- Vegetation Community Ecosite (FRI)

Ecosite Code	Vegetation Community Description
G048	Dry to Fresh, Coarse: Red Pine – White Pine Conifer
G054	Dry to Fresh, Coarse: Red Pine – White Pine Mixedwood
G055	Dry to Fresh, Coarse Loamy: Aspen - Birch Hardwood
G057	Dry to Fresh, Coarse: Oak Hardwood
G058	Dry to Fresh, Coarse: Maple Hardwood
G059	Dry to Fresh, Coarse: Mixedwood
G064	Moist, Coarse: Red Pine – White Pine Conifer
G066	Moist, Coarse Loamy: Hemlock - Cedar Conifer
G067	Moist, Coarse: Spruce - Fir Conifer
G070	Moist, Coarse Loamy: Aspen - Birch Hardwood
G075	Moist, Coarse: Maple Hardwood
G076	Moist, Coarse: Mixedwood
G130	Intolerant Hardwood Swamp
G140	Open Moderately Rich Fen
G142	Mineral Meadow Marsh
G197	Early Successional Forest - Disturbed - Pavement/Concrete

0 250 500 m

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Notes

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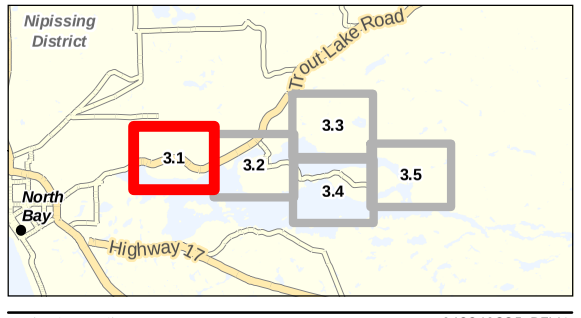


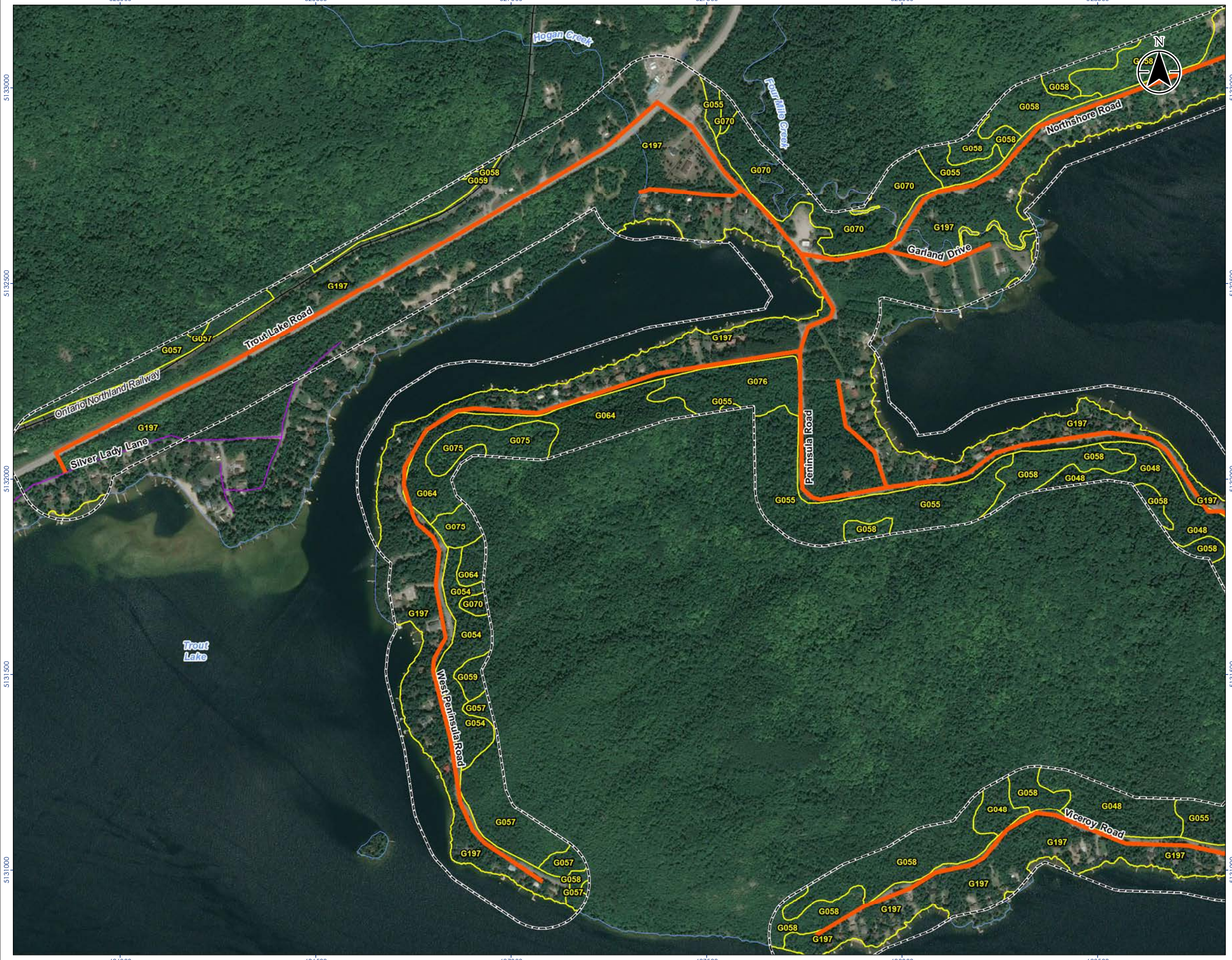
Project Location
District of Nipissing

160961225 REVA
Prepared by PW on 2018-04-06
Technical Review by DH on 2017-06-01
Independent Review by MK on 2018-04-06

Client/Project
UNION GAS LIMITED
COMMUNITY EXPANSIONS - PHASE 3
NORTH BAY – NORTHSHORE AND PENINSULA ROADS

Figure No.
3.1

Title
FRI Vegetation Communities



Stantec

Legend

- Study Area
- Proposed Pipeline Location
- Distribution Pipeline (UG)
- Railway
- Watercourse (Permanent)
- Waterbody
- Vegetation Community Ecosite (FRI)

Ecosite Code	Vegetation Community Description
G048	Dry to Fresh, Coarse: Red Pine – White Pine Conifer
G054	Dry to Fresh, Coarse: Red Pine – White Pine Mixedwood
G055	Dry to Fresh, Coarse Loamy: Aspen - Birch Hardwood
G057	Dry to Fresh, Coarse: Oak Hardwood
G058	Dry to Fresh, Coarse: Maple Hardwood
G059	Dry to Fresh, Coarse: Mixedwood
G064	Moist, Coarse: Red Pine – White Pine Conifer
G066	Moist, Coarse Loamy: Hemlock - Cedar Conifer
G067	Moist, Coarse: Spruce - Fir Conifer
G070	Moist, Coarse Loamy: Aspen - Birch Hardwood
G075	Moist, Coarse: Maple Hardwood
G076	Moist, Coarse: Mixedwood
G130	Intolerant Hardwood Swamp
G140	Open Moderately Rich Fen
G142	Mineral Meadow Marsh
G197	Early Successional Forest - Disturbed - Pavement/Concrete

0 250 500 m

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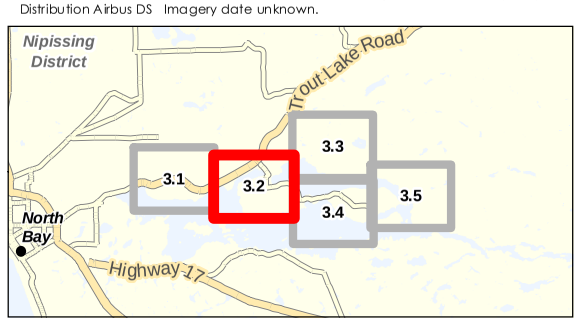

Project Location
District of Nipissing

160961225 REVA
Prepared by PW on 2018-04-06
Technical Review by DH on 2017-06-01
Independent Review by MK on 2018-04-06

Client/Project
UNION GAS LIMITED
COMMUNITY EXPANSIONS - PHASE 3
NORTH BAY – NORTHSHORE AND PENINSULA ROADS

Figure No.
3.2

Title
FRI Vegetation Communities

Stantec

Legend
- Study Area
- Proposed Pipeline Location
- Watercourse (Permanent)
- Waterbody
- Vegetation Community Ecosite (FRI)

Ecosite Code	Vegetation Community Description
G048	Dry to Fresh, Coarse: Red Pine – White Pine Conifer
G054	Dry to Fresh, Coarse: Red Pine – White Pine Mixedwood
G055	Dry to Fresh, Coarse Loamy: Aspen - Birch Hardwood
G057	Dry to Fresh, Coarse: Oak Hardwood
G058	Dry to Fresh, Coarse: Maple Hardwood
G059	Dry to Fresh, Coarse: Mixedwood
G064	Moist, Coarse: Red Pine – White Pine Conifer
G066	Moist, Coarse Loamy: Hemlock - Cedar Conifer
G067	Moist, Coarse: Spruce - Fir Conifer
G070	Moist, Coarse Loamy: Aspen - Birch Hardwood
G075	Moist, Coarse: Maple Hardwood
G076	Moist, Coarse: Mixedwood
G130	Intolerant Hardwood Swamp
G140	Open Moderately Rich Fen
G142	Mineral Meadow Marsh
G197	Early Successional Forest - Disturbed - Pavement/Concrete

0 250 500 m

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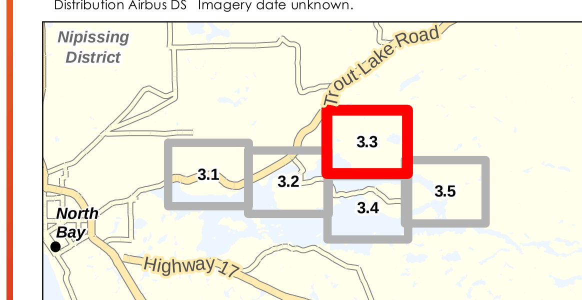

Project Location
District of Nipissing

160961225 REVA
Prepared by PW on 2018-04-06
Technical Review by DH on 2017-06-01
Independent Review by MK on 2018-04-06

Client/Project
UNION GAS LIMITED
COMMUNITY EXPANSIONS - PHASE 3
NORTH BAY – NORTHSHORE AND PENINSULA ROADS

Figure No.
3.3

Title
FRI Vegetation Communities

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Stantec

Legend

- Study Area
- Proposed Pipeline Location
- Watercourse (Permanent)
- Waterbody
- Vegetation Community Ecosite (FRI)

Ecosite Code	Vegetation Community Description
G048	Dry to Fresh, Coarse: Red Pine – White Pine Conifer
G054	Dry to Fresh, Coarse: Red Pine – White Pine Mixedwood
G055	Dry to Fresh, Coarse Loamy: Aspen - Birch Hardwood
G057	Dry to Fresh, Coarse: Oak Hardwood
G058	Dry to Fresh, Coarse: Maple Hardwood
G059	Dry to Fresh, Coarse: Mixedwood
G064	Moist, Coarse: Red Pine – White Pine Conifer
G066	Moist, Coarse Loamy: Hemlock - Cedar Conifer
G067	Moist, Coarse: Spruce - Fir Conifer
G070	Moist, Coarse Loamy: Aspen - Birch Hardwood
G075	Moist, Coarse: Maple Hardwood
G076	Moist, Coarse: Mixedwood
G130	Intolerant Hardwood Swamp
G140	Open Moderately Rich Fen
G142	Mineral Meadow Marsh
G197	Early Successional Forest - Disturbed - Pavement/Concrete

0 250 500 m

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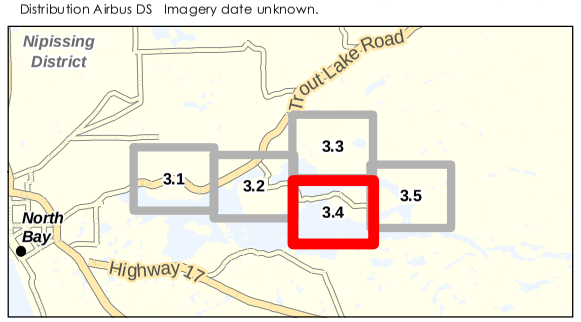


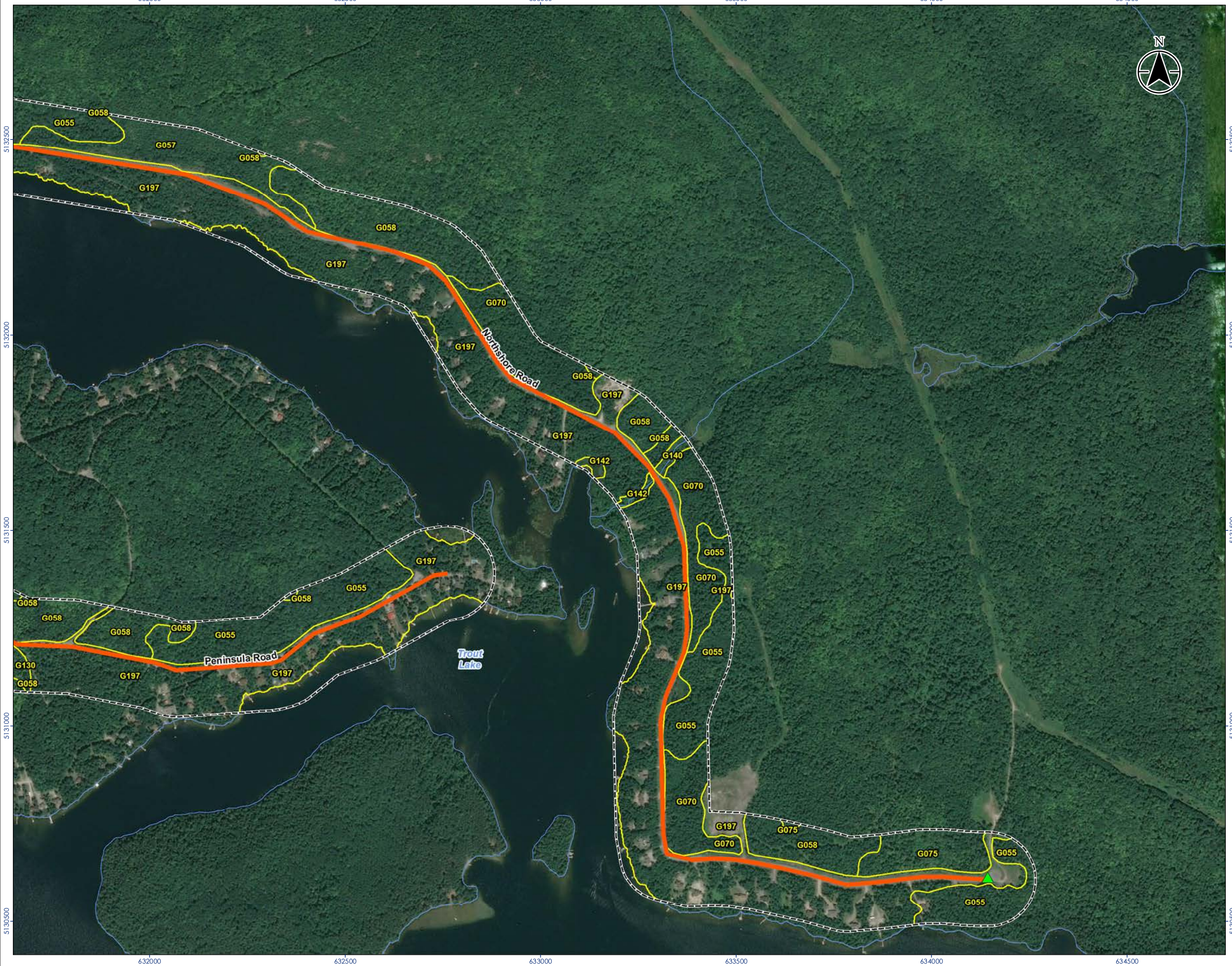
Project Location
District of Nipissing

160961225 REVA
Prepared by PW on 2018-04-06
Technical Review by DH on 2017-06-01
Independent Review by MK on 2018-04-06

Client/Project
UNION GAS LIMITED
COMMUNITY EXPANSIONS - PHASE 3
NORTH BAY – NORTHSHORE AND PENINSULA ROADS

Figure No.
3.4

Title
FRI Vegetation Communities



Stantec

Legend

- Study Area
- End Point
- Proposed Pipeline Location
- Watercourse (Permanent)
- Waterbody
- Vegetation Community Ecosite (FRI)

Ecosite Code	Vegetation Community Description
G048	Dry to Fresh, Coarse: Red Pine – White Pine Conifer
G054	Dry to Fresh, Coarse: Red Pine – White Pine Mixedwood
G055	Dry to Fresh, Coarse Loamy: Aspen - Birch Hardwood
G057	Dry to Fresh, Coarse: Oak Hardwood
G058	Dry to Fresh, Coarse: Maple Hardwood
G059	Dry to Fresh, Coarse: Mixedwood
G064	Moist, Coarse: Red Pine – White Pine Conifer
G066	Moist, Coarse Loamy: Hemlock - Cedar Conifer
G067	Moist, Coarse: Spruce - Fir Conifer
G070	Moist, Coarse Loamy: Aspen - Birch Hardwood
G075	Moist, Coarse: Maple Hardwood
G076	Moist, Coarse: Mixedwood
G130	Intolerant Hardwood Swamp
G140	Open Moderately Rich Fen
G142	Mineral Meadow Marsh
G197	Early Successional Forest - Disturbed - Pavement/Concrete

0 250 500 m

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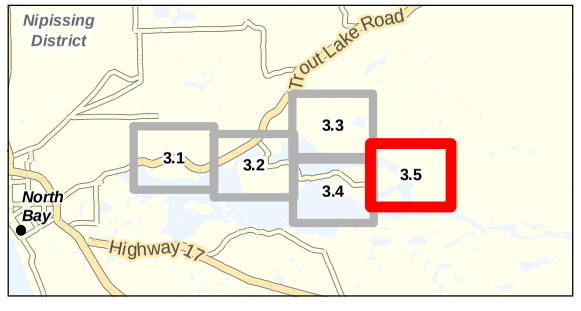


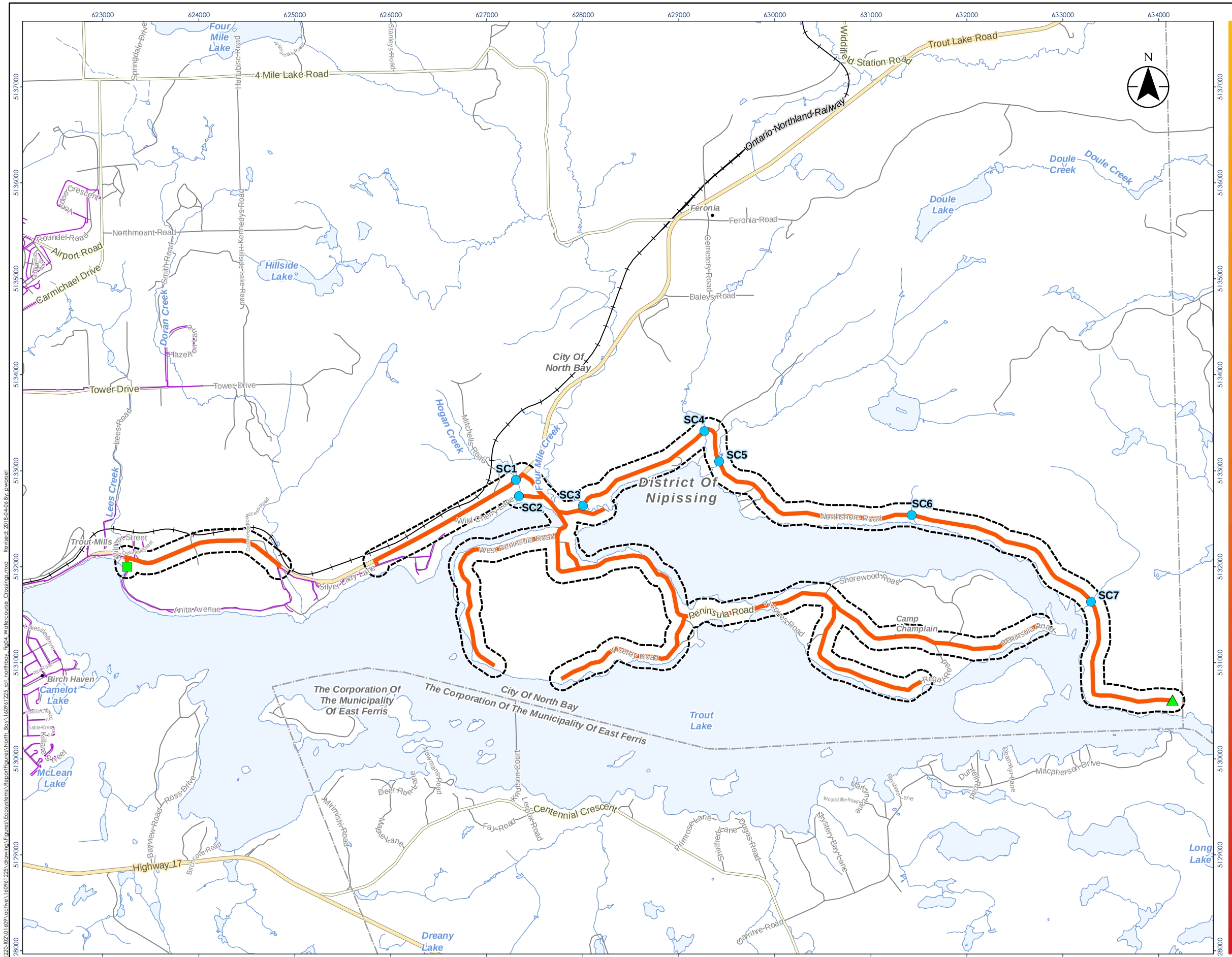
Project Location
District of Nipissing

160961225 REVA
Prepared by PW on 2018-04-06
Technical Review by DH on 2017-06-01
Independent Review by MK on 2018-04-06

Client/Project
UNION GAS LIMITED
COMMUNITY EXPANSIONS - PHASE 3
NORTH BAY – NORTHSHORE AND PENINSULA ROADS

Figure No.
3.5

Title
FRI Vegetation Communities



Legend

- Study Area
- Start Point
- End Point
- Watercourse Crossing
- Proposed Pipeline Location
- Distribution Pipeline (UG)
- Highway
- Major Road
- Minor Road
- Railway
- Watercourse (Intermittent)
- Watercourse (Permanent)
- Waterbody
- Municipal Boundary, Upper Tier
- Municipal Boundary, Lower Tier

Notes

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Project Location
District of Nipissing

160961225 REVA
Prepared by PW on 2018-04-06
Technical Review by DH on 2017-06-01
Independent Review by MK on 2018-04-06

Client/Project
UNION GAS LIMITED
COMMUNITY EXPANSIONS - PHASE 3
NORTH BAY – NORTHSHORE AND PENINSULA ROADS

Figure No.
4

Title
Watercourse Crossings

Legend

- Study Area
- Start Point
- Potential Turtle Nesting
- Wetland
- Proposed Pipeline Location
- Distribution Pipeline (UG)
- Railway
- Watercourse (Permanent)
- Waterbody

0 250 500 m

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Notes

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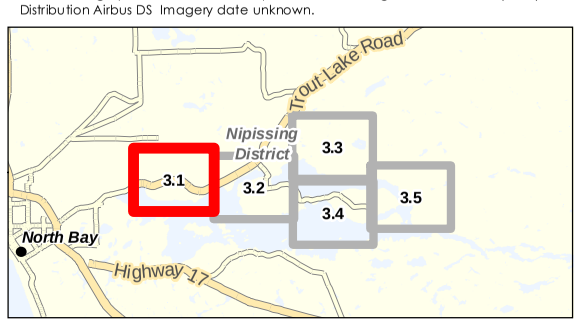

Project Location
District of Nipissing

160961225 REVA
Prepared by PW on 2019-01-30
Technical Review by DH on 2017-06-01
Independent Review by MK on 2019-01-30

Client/Project
UNION GAS LIMITED
COMMUNITY EXPANSIONS - PHASE 3
NORTH BAY – NORTHSHORE AND PENINSULA ROADS

Figure No.
1.1

Title
Natural Heritage Mitigations

Reptile Habitat (turtles and snakes)

Specific

- Exclusion fencing (e.g. silt fence to be erected at the locations shown on the map- 30 metres from feature).
- Where possible, restrict all activities within 30 m of the areas identified on the map as Potential Turtle Nesting.
- If work needs to occur within the areas identified on the map as Potential Turtle Nesting between May 1-June 30, a pre-screening exercise must be completed by a trained, designated representative to prevent turtles from entering and/or nesting in the construction area.
- No heavy machinery to be permitted on the shoulder of the road past the exclusion fencing to prevent compaction and destruction of turtle nests and habitat.
- Where snakes or turtles may inadvertently enter the active construction area, construction activities will cease until the snake or turtle have left the active construction area on their own accord.

Wetlands

Specific

- Cross wetlands encroaching the road RoW using HDD, if possible.
- Wetlands adjacent to the RoW, where HDD is not being implemented, should have silt fencing installed.
- Construction material, excess material, construction debris and empty containers to be stored away from adjacent wetlands.
- Temporary work space width to be minimized when working within 30 m of wetlands, where practical.
- Staging areas to be located at least 10 m away from the edge of wetlands.

General

- All activities, including equipment maintenance and refueling to be controlled to prevent entry of petroleum products or other deleterious substances, including any debris, waste, rubble, or concrete material, into a wetland.
- In the unlikely event of a spill, spills containment and clean-up procedures to be implemented immediately. Union Gas to contact the Ministry of Environment, Conservation and Parks (MECP) Spills Action Centre. The MECP Spills Action Centre is the first point of contact for spills at the provincial and federal level.
- Construction dewatering to be discharged to sediment removal basins if discharge to a well-vegetated dry area is not feasible. Locate the sediment removal basin in an area that maximizes the distance to the nearest surface water feature and minimize the slope of the surrounding buffer area. The basin to consist of a temporary enclosure constructed with hay bales, silt fence or both.
- Erosion control:
  - Surface runoff to be directed as overland flow with sufficient drainage structures to dissipate hydraulic energy
  - Soil transport to be prevented by diversion of site runoff through shallow vegetated channels, placement of straw bales or sediment control fencing
  - Sediment barriers to be installed along the edge of the road allowance to contain spoil within the road allowance, where required
  - Natural drainage spacing to be provided around spoil piles
  - Temporary erosion/silt control structures (i.e. straw bales, sediment fencing) to be used down gradient of spoil stockpiles, as necessary
  - Temporary sediment barriers to be maintained until soils are stabilized
  - Vegetation clearing not to be conducted within 30 m of a wetland unless required for site construction activity (i.e. within the road allowance)
  - If vegetation regeneration is unlikely to occur immediately following construction (i.e. outside the growing season), all impacted slopes adjacent to wetlands to be stabilized using geogrids or weed-free mulch for a minimum of 30 m from the wetland
  - Erosion control measures in both active and non-active construction areas to be regularly inspected until the site has been adequately stabilized to prevent erosion

Vegetation

Specific

- The amount of tree clearing to be kept to a minimum.
- Tree and vegetation removal (including meadows, thickets, woodlands, and forests) to be completed outside of the combined bat roosting and migratory bird nesting season (April 15 to August 31) to avoid disturbance to nesting birds protected under the MBCA and birds and bats protected by the ESA 2007. Removals during this restricted time should be kept to a minimum, and only if the requirements of the MBCA are met by completing nest clearing surveys by qualified individuals no more than seven days prior to any clearing activities.

General

- Comply with municipal requirements or permits for tree cutting.
- Encroachment into adjacent wooded areas to be avoided and individual tree removal minimized.
- Construction traffic to be restricted to the existing road allowance where possible to avoid potential compression damage to the root zones of trees located adjacent to the road allowance.
- High-traffic or erosion-prone areas of the road allowance to be revegetated with suitable protective cover.
- Reclamation in residential/commercial land areas traversed by the road allowance to involve seeding (or sodding) the disturbed areas and replacement of ornamental trees and shrubs.
- Where the pipeline route encroaches on the drip line of specimen trees (i.e. large diameter Oak trees), HDD may be considered to protect the root system where feasible
- Understory vegetation beneath the drip line of specimen trees to be retained in an undisturbed state, where possible
- Any specimen trees or other vegetation to be retained to be surrounded by temporary protective fencing or other measures before any clearing or grading occurs

Seed mix in natural areas

- Site specific conditions such as climate, soil types and terrain are to be considered
- Only local native species to be included
- A fast-growing seed mixture requiring little or no maintenance to be selected
- Seed mixture to be consistent with the land use of the area
- If there is no suitable local native seed mix available but seeding is deemed desirable to promote rapid revegetation of an area, a non-invasive annual nurse crop such as annual ryegrass to be used instead
- Purchased seed to be certified free of weeds

Wildlife

General

- Incidents involving wildlife to be documented and reported to the MNRF.
- Food waste and other debris to be properly contained, collected and removed from the site daily to an approved disposal facility.
- No dogs are permitted on the work site.
- Information is to be provided to workers on SAR identification and associated habitat (including nesting characteristics, where applicable).
- If a SAR is observed, work is to be stopped immediately in the vicinity to prevent harm or harassment of the individual. Efforts should be undertaken to allow species to move from the work space under their own accord. Contact Alymer MNRF prior to any movement of the species. The species can be removed by a qualified biologist using approved MNRF handling protocols and relocated away from the construction area to prevent incidental harm once the MNRF has been notified and actions have been approved.

Watercourse Crossings

- Watercourse crossings to follow the Union Gas's DFO-endorsed Watercourse Crossing Agreement.

Stantec

Legend
- Study Area
- Exclusion Fencing
- Potential Turtle Nesting
- Wetland
- Proposed Pipeline Location
- Distribution Pipeline (UG)
- Railway
- Watercourse (Permanent)
- Waterbody

0 250 500 m

1:10,000 (At original document size of 11x17)

Notes
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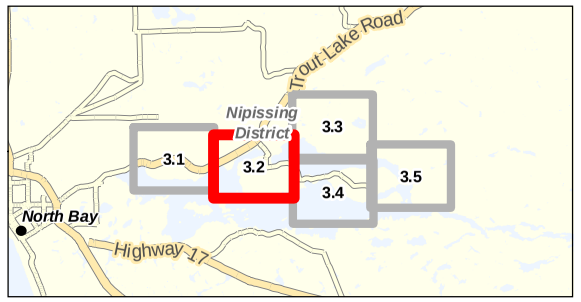

Project Location
District of Nipissing

160961225 REVA
Prepared by PW on 2019-01-30
Technical Review by DH on 2017-06-01
Independent Review by MK on 2019-01-30

Client/Project
UNION GAS LIMITED
COMMUNITY EXPANSIONS - PHASE 3
NORTH BAY – NORTHSHORE AND PENINSULA ROADS

Figure No.
1.2

Title
Natural Heritage Mitigations

Reptile Habitat (turtles and snakes)

Specific

- Exclusion fencing (e.g. silt fence to be erected at the locations shown on the map- 30 metres from feature).
- Where possible, restrict all activities within 30 m of the areas identified on the map as Potential Turtle Nesting.
- If work needs to occur within the areas identified on the map as Potential Turtle Nesting between May 1-June 30, a pre-screening exercise must be completed by a trained, designated representative to prevent turtles from entering and/or nesting in the construction area.
- No heavy machinery to be permitted on the shoulder of the road past the exclusion fencing to prevent compaction and destruction of turtle nests and habitat.
- Where snakes or turtles may inadvertently enter the active construction area, construction activities will cease until the snake or turtle have left the active construction area on their own accord.

Wetlands

Specific

- Cross wetlands encroaching the road RoW using HDD, if possible.
- Wetlands adjacent to the RoW, where HDD is not being implemented, should have silt fencing installed.
- Construction material, excess material, construction debris and empty containers to be stored away from adjacent wetlands.
- Temporary work space width to be minimized when working within 30 m of wetlands, where practical.
- Staging areas to be located at least 10 m away from the edge of wetlands.

General

- All activities, including equipment maintenance and refueling to be controlled to prevent entry of petroleum products or other deleterious substances, including any debris, waste, rubble, or concrete material, into a wetland.
- In the unlikely event of a spill, spills containment and clean-up procedures to be implemented immediately. Union Gas to contact the Ministry of Environment, Conservation and Parks (MECP) Spills Action Centre. The MECP Spills Action Centre is the first point of contact for spills at the provincial and federal level.
- Construction dewatering to be discharged to sediment removal basins if discharge to a well-vegetated dry area is not feasible. Locate the sediment removal basin in an area that maximizes the distance to the nearest surface water feature and minimize the slope of the surrounding buffer area. The basin to consist of a temporary enclosure constructed with hay bales, silt fence or both.
- Erosion control:
  - Surface runoff to be directed as overland flow with sufficient drainage structures to dissipate hydraulic energy
  - Soil transport to be prevented by diversion of site runoff through shallow vegetated channels, placement of straw bales or sediment control fencing
  - Sediment barriers to be installed along the edge of the road allowance to contain spoil within the road allowance, where required
  - Natural drainage spacing to be provided around spoil piles
  - Temporary erosion/silt control structures (i.e. straw bales, sediment fencing) to be used down gradient of spoil stockpiles, as necessary
  - Temporary sediment barriers to be maintained until soils are stabilized
  - Vegetation clearing not to be conducted within 30 m of a wetland unless required for site construction activity (i.e. within the road allowance)
  - If vegetation regeneration is unlikely to occur immediately following construction (i.e. outside the growing season), all impacted slopes adjacent to wetlands to be stabilized using geogrids or weed-free mulch for a minimum of 30 m from the wetland
  - Erosion control measures in both active and non-active construction areas to be regularly inspected until the site has been adequately stabilized to prevent erosion

Vegetation

Specific

- The amount of tree clearing to be kept to a minimum.
- Tree and vegetation removal (including meadows, thickets, woodlands, and forests) to be completed outside of the combined bat roosting and migratory bird nesting season (April 15 to August 31) to avoid disturbance to nesting birds protected under the MBCA and birds and bats protected by the ESA 2007. Removals during this restricted time should be kept to a minimum, and only if the requirements of the MBCA are met by completing nest clearing surveys by qualified individuals no more than seven days prior to any clearing activities.

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- Reclamation in residential/commercial land areas traversed by the road allowance to involve seeding (or sodding) the disturbed areas and replacement of ornamental trees and shrubs.
- Where the pipeline route encroaches on the drip line of specimen trees (i.e. large diameter Oak trees), HDD may be considered to protect the root system where feasible
- Understory vegetation beneath the drip line of specimen trees to be retained in an undisturbed state, where possible
- Any specimen trees or other vegetation to be retained to be surrounded by temporary protective fencing or other measures before any clearing or grading occurs

Seed mix in natural areas

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- Seed mixture to be consistent with the land use of the area
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- Purchased seed to be certified free of weeds

Wildlife

General

- Incidents involving wildlife to be documented and reported to the MNRF.
- Food waste and other debris to be properly contained, collected and removed from the site daily to an approved disposal facility.
- No dogs are permitted on the work site.
- Information is to be provided to workers on SAR identification and associated habitat (including nesting characteristics, where applicable).
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Watercourse Crossings

- Watercourse crossings to follow the Union Gas's DFO-endorsed Watercourse Crossing Agreement.

Stantec

Legend
- Study Area
- Exclusion Fencing
- Potential Turtle Nesting
- Wetland
- Proposed Pipeline Location
- Watercourse (Permanent)
- Waterbody

0 250 500 m

1:10,000 (At original document size of 11x17)

Notes
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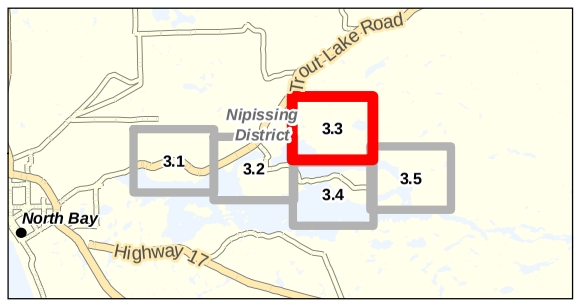

Project Location
District of Nipissing

160961225 REVA
Prepared by PW on 2019-01-30
Technical Review by DH on 2017-06-01
Independent Review by MK on 2019-01-30

Client/Project
UNION GAS LIMITED
COMMUNITY EXPANSIONS - PHASE 3
NORTH BAY – NORTHSHORE AND PENINSULA ROADS

Figure No.
1.3

Title
Natural Heritage Mitigations

Reptile Habitat (turtles and snakes)

Specific

- Exclusion fencing (e.g. silt fence to be erected at the locations shown on the map- 30 metres from feature).
- Where possible, restrict all activities within 30 m of the areas identified on the map as Potential Turtle Nesting.
- If work needs to occur within the areas identified on the map as Potential Turtle Nesting between May 1-June 30, a pre-screening exercise must be completed by a trained, designated representative to prevent turtles from entering and/or nesting in the construction area.
- No heavy machinery to be permitted on the shoulder of the road past the exclusion fencing to prevent compaction and destruction of turtle nests and habitat.
- Where snakes or turtles may inadvertently enter the active construction area, construction activities will cease until the snake or turtle have left the active construction area on their own accord.

Wetlands

Specific

- Cross wetlands encroaching the road RoW using HDD, if possible.
- Wetlands adjacent to the RoW, where HDD is not being implemented, should have silt fencing installed.
- Construction material, excess material, construction debris and empty containers to be stored away from adjacent wetlands.
- Temporary work space width to be minimized when working within 30 m of wetlands, where practical.
- Staging areas to be located at least 10 m away from the edge of wetlands.

General

- All activities, including equipment maintenance and refueling to be controlled to prevent entry of petroleum products or other deleterious substances, including any debris, waste, rubble, or concrete material, into a wetland.
- In the unlikely event of a spill, spills containment and clean-up procedures to be implemented immediately. Union Gas to contact the Ministry of Environment, Conservation and Parks (MECP) Spills Action Centre. The MECP Spills Action Centre is the first point of contact for spills at the provincial and federal level.
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- Erosion control:
  - Surface runoff to be directed as overland flow with sufficient drainage structures to dissipate hydraulic energy
  - Soil transport to be prevented by diversion of site runoff through shallow vegetated channels, placement of straw bales or sediment control fencing
  - Sediment barriers to be installed along the edge of the road allowance to contain spoil within the road allowance, where required
  - Natural drainage spacing to be provided around spoil piles
  - Temporary erosion/silt control structures (i.e. straw bales, sediment fencing) to be used down gradient of spoil stockpiles, as necessary
  - Temporary sediment barriers to be maintained until soils are stabilized
  - Vegetation clearing not to be conducted within 30 m of a wetland unless required for site construction activity (i.e. within the road allowance)
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  - Erosion control measures in both active and non-active construction areas to be regularly inspected until the site has been adequately stabilized to prevent erosion

Vegetation

Specific

- The amount of tree clearing to be kept to a minimum.
- Tree and vegetation removal (including meadows, thickets, woodlands, and forests) to be completed outside of the combined bat roosting and migratory bird nesting season (April 15 to August 31) to avoid disturbance to nesting birds protected under the MBCA and birds and bats protected by the ESA 2007. Removals during this restricted time should be kept to a minimum, and only if the requirements of the MBCA are met by completing nest clearing surveys by qualified individuals no more than seven days prior to any clearing activities.

General

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Seed mix in natural areas

- Site specific conditions such as climate, soil types and terrain are to be considered
- Only local native species to be included
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- Purchased seed to be certified free of weeds

Wildlife

General

- Incidents involving wildlife to be documented and reported to the MNRF.
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- No dogs are permitted on the work site.
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Watercourse Crossings

- Watercourse crossings to follow the Union Gas's DFO-endorsed Watercourse Crossing Agreement.

Legend
- Study Area
- Exclusion Fencing
- Potential Turtle Nesting
- Wetland
- Proposed Pipeline Location
- Watercourse (Permanent)
- Waterbody

0 250 500 m

1:10,000 (At original document size of 11x17)

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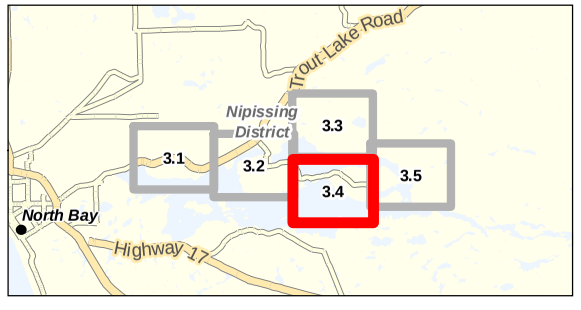

Project Location
District of Nipissing

160961225 REVA
Prepared by PW on 2019-01-30
Technical Review by DH on 2017-06-01
Independent Review by MK on 2019-01-30

Client/Project
UNION GAS LIMITED
COMMUNITY EXPANSIONS - PHASE 3
NORTH BAY – NORTHSHORE AND PENINSULA ROADS

Figure No.
1.4

Title
Natural Heritage Mitigations

Reptile Habitat (turtles and snakes)

Specific

- Exclusion fencing (e.g. silt fence to be erected at the locations shown on the map- 30 metres from feature).
- Where possible, restrict all activities within 30 m of the areas identified on the map as Potential Turtle Nesting.
- If work needs to occur within the areas identified on the map as Potential Turtle Nesting between May 1-June 30, a pre-screening exercise must be completed by a trained, designated representative to prevent turtles from entering and/or nesting in the construction area.
- No heavy machinery to be permitted on the shoulder of the road past the exclusion fencing to prevent compaction and destruction of turtle nests and habitat.
- Where snakes or turtles may inadvertently enter the active construction area, construction activities will cease until the snake or turtle have left the active construction area on their own accord.

Wetlands

Specific

- Cross wetlands encroaching the road RoW using HDD, if possible.
- Wetlands adjacent to the RoW, where HDD is not being implemented, should have silt fencing installed.
- Construction material, excess material, construction debris and empty containers to be stored away from adjacent wetlands.
- Temporary work space width to be minimized when working within 30 m of wetlands, where practical.
- Staging areas to be located at least 10 m away from the edge of wetlands.

General

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Vegetation

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Seed mix in natural areas

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Watercourse Crossings

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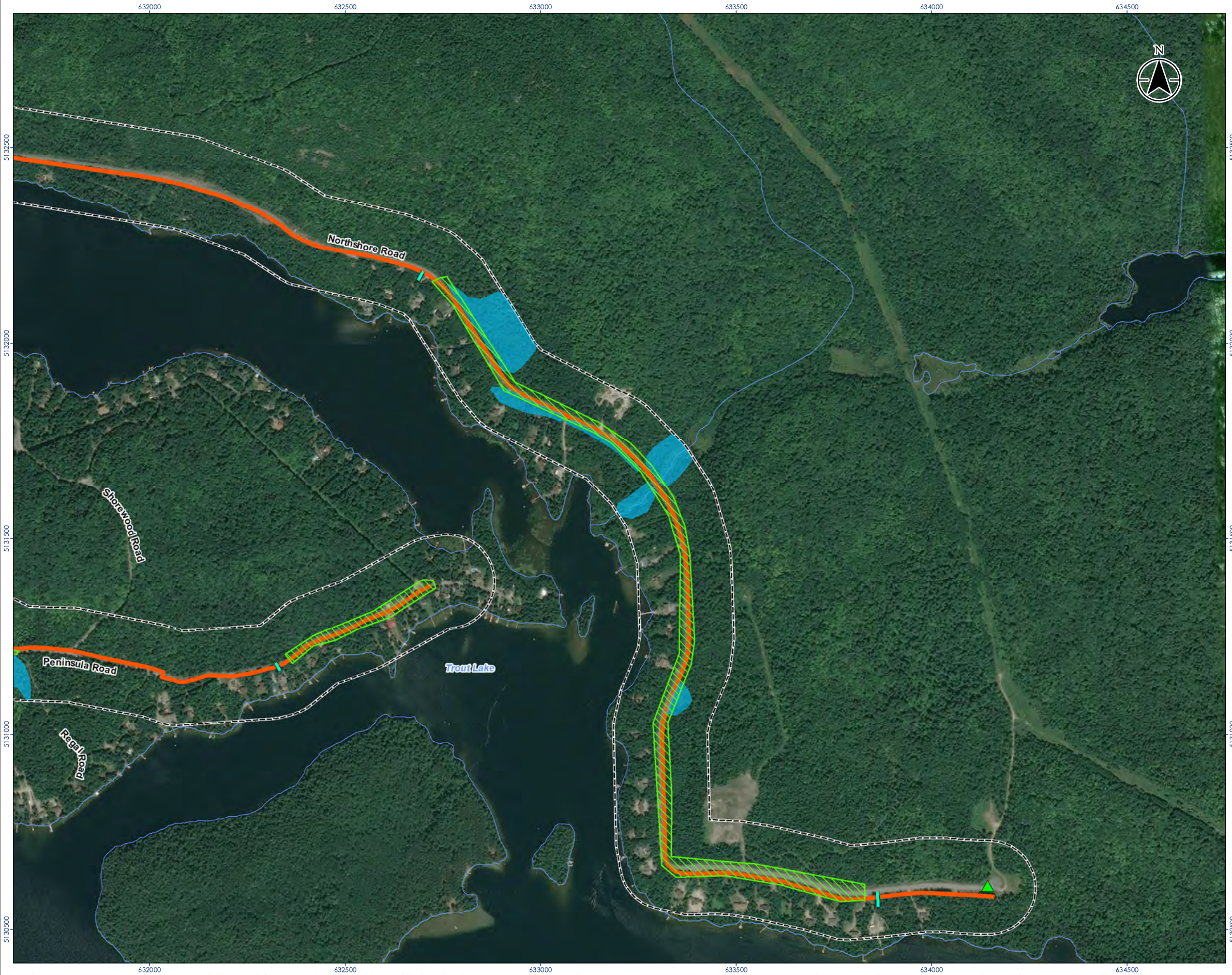

Stantec

Legend
- Study Area
- End Point
- Exclusion Fencing
- Potential Turtle Nesting
- Wetland
- Proposed Pipeline Location
- Watercourse (Permanent)
- Waterbody

0 250 500 m

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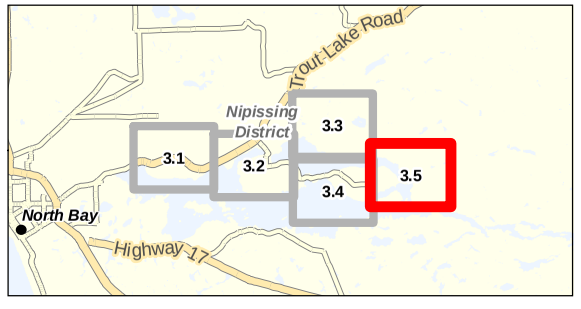

Project Location
District of Nipissing

160961225 REVA
Prepared by PW on 2019-01-30
Technical Review by DH on 2017-06-01
Independent Review by MK on 2019-01-30

Client/Project
UNION GAS LIMITED
COMMUNITY EXPANSIONS - PHASE 3
NORTH BAY – NORTHSHORE AND PENINSULA ROADS

Figure No.
1.5

Title
Natural Heritage Mitigations

\\Cd1220-f02\work_group\01609\active\160961225\drawing\figures\Ecosystem\ReportFigures\North Bay\Mitigation\160961225_mit_NorthBay_Fig01_Natural Heritage_Mitigation.mxd Revised: 2019-01-30 By: dhorvey

Reptile Habitat (turtles and snakes)

Specific

- Exclusion fencing (e.g. silt fence to be erected at the locations shown on the map- 30 metres from feature).
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  - Surface runoff to be directed as overland flow with sufficient drainage structures to dissipate hydraulic energy
  - Soil transport to be prevented by diversion of site runoff through shallow vegetated channels, placement of straw bales or sediment control fencing
  - Sediment barriers to be installed along the edge of the road allowance to contain spoil within the road allowance, where required
  - Natural drainage spacing to be provided around spoil piles
  - Temporary erosion/silt control structures (i.e. straw bales, sediment fencing) to be used down gradient of spoil stockpiles, as necessary
  - Temporary sediment barriers to be maintained until soils are stabilized
  - Vegetation clearing not to be conducted within 30 m of a wetland unless required for site construction activity (i.e. within the road allowance)
  - If vegetation regeneration is unlikely to occur immediately following construction (i.e. outside the growing season), all impacted slopes adjacent to wetlands to be stabilized using geogrids or weed-free mulch for a minimum of 30 m from the wetland
  - Erosion control measures in both active and non-active construction areas to be regularly inspected until the site has been adequately stabilized to prevent erosion

Vegetation

Specific

- The amount of tree clearing to be kept to a minimum.
- Tree and vegetation removal (including meadows, thickets, woodlands, and forests) to be completed outside of the combined bat roosting and migratory bird nesting season (April 15 to August 31) to avoid disturbance to nesting birds protected under the MBCA and birds and bats protected by the ESA 2007. Removals during this restricted time should be kept to a minimum, and only if the requirements of the MBCA are met by completing nest clearing surveys by qualified individuals no more than seven days prior to any clearing activities.

General

- Comply with municipal requirements or permits for tree cutting.
- Encroachment into adjacent wooded areas to be avoided and individual tree removal minimized.
- Construction traffic to be restricted to the existing road allowance where possible to avoid potential compression damage to the root zones of trees located adjacent to the road allowance.
- High-traffic or erosion-prone areas of the road allowance to be revegetated with suitable protective cover.
- Reclamation in residential/commercial land areas traversed by the road allowance to involve seeding (or sodding) the disturbed areas and replacement of ornamental trees and shrubs.
- Where the pipeline route encroaches on the drip line of specimen trees (i.e. large diameter Oak trees), HDD may be considered to protect the root system where feasible
- Understory vegetation beneath the drip line of specimen trees to be retained in an undisturbed state, where possible
- Any specimen trees or other vegetation to be retained to be surrounded by temporary protective fencing or other measures before any clearing or grading occurs

Seed mix in natural areas

- Site specific conditions such as climate, soil types and terrain are to be considered
- Only local native species to be included
- A fast-growing seed mixture requiring little or no maintenance to be selected
- Seed mixture to be consistent with the land use of the area
- If there is no suitable local native seed mix available but seeding is deemed desirable to promote rapid revegetation of an area, a non-invasive annual nurse crop such as annual ryegrass to be used instead
- Purchased seed to be certified free of weeds

Wildlife

General

- Incidents involving wildlife to be documented and reported to the MNRF.
- Food waste and other debris to be properly contained, collected and removed from the site daily to an approved disposal facility.
- No dogs are permitted on the work site.
- Information is to be provided to workers on SAR identification and associated habitat (including nesting characteristics, where applicable).
- If a SAR is observed, work is to be stopped immediately in the vicinity to prevent harm or harassment of the individual. Efforts should be undertaken to allow species to move from the work space under their own accord. Contact Alymer MNRF prior to any movement of the species. The species can be removed by a qualified biologist using approved MNRF handling protocols and relocated away from the construction area to prevent incidental harm once the MNRF has been notified and actions have been approved.

Watercourse Crossings

- Watercourse crossings to follow the Union Gas's DFO-endorsed Watercourse Crossing Agreement.

Ministry of Tourism, Culture and Sport

Archaeology Programs Unit
Programs and Services Branch
Culture Division
401 Bay Street, Suite 1700
Toronto ON M7A 0A7
Tel.: (519) 675-6898
Email: Shari.Prowse@ontario.ca

Ministère du Tourisme, de la Culture et du Sport

Unité des programmes d'archéologie
Direction des programmes et des services
Division de culture
401, rue Bay, bureau 1700
Toronto ON M7A 0A7
Tél. : (519) 675-6898
Email: Shari.Prowse@ontario.ca

Ontario

Jul 18, 2019

Dave Norris (P307)
Woodland Heritage Services Northwest
134 College Thunder Bay ON P7A 5J5

RE: Review and Entry into the Ontario Public Register of Archaeological Reports: Archaeological Assessment Report Entitled, "Stage 1 Archaeological Assessment of a proposed Union Gas Pipeline in the City of North Bay, in Lot 14 CON C, Lot 11 CON C, Lot 10 CON C, Lot 10 CON B, Lot 9 CON C, Lot 9 CON B, Lot 8 CON B, Lot 8 CON C, Lot 7 CON B, Lot 6 CON B, Lot 5 CON B, Lot 5 CON C, Lot 4 CON B, Lot 4 CON C, Lot 3 CON B, Lot 3 CON C, Lot 2 CON C, Lot 1 CON C, in the District of Nipissing Ontario ", Dated Feb 8, 2019, Filed with MTCS Toronto Office on Jun 18, 2019, MTCS Project Information Form Number P307-0088-2018, MTCS File Number 0008727

Dear Mr. Norris:

This office has reviewed the above-mentioned report, which has been submitted to this ministry as a condition of licensing in accordance with Part VI of the *Ontario Heritage Act*, R.S.O. 1990, c 0.18.[1] This review has been carried out in order to determine whether the licensed professional consultant archaeologist has met the terms and conditions of their licence, that the licensee assessed the property and documented archaeological resources using a process that accords with the 2011 *Standards and Guidelines for Consultant Archaeologists* set by the ministry, and that the archaeological fieldwork and report recommendations are consistent with the conservation, protection and preservation of the cultural heritage of Ontario.

The report documents the Stage 1 assessment of the study area as depicted in Maps 2 and 4 of the above titled report and recommends the following:

No further archaeological assessment is required for the Union Gas pipeline route in Lot 14 CON C, Lot 11 CON C, Lot 10 CON C, Lot 10 CON B, Lot 9 CON C, Lot 9 CON B, Lot 8 CON B, Lot 8 CON C, Lot 7 CON B, Lot 6 CON B, Lot 5 CON B, Lot 5 CON C, Lot 4 CON B, Lot 4 CON C, Lot 3 CON B, Lot 3 CON C, Lot 2 CON C, Lot 1 CON C, in the City of North Bay, District of Nipissing Ontario.

Based on the information contained in the report, the ministry is satisfied that the fieldwork and reporting for the archaeological assessment are consistent with the ministry's 2011 *Standards and Guidelines for Consultant Archaeologists* and the terms and conditions for archaeological licences. This report has been entered into the Ontario Public Register of Archaeological Reports. Please note that the ministry makes no representation or warranty as to the completeness, accuracy or quality of reports in the register.

Should you require any further information regarding this matter, please feel free to contact me.

Sincerely,

Shari Prowse
Archaeology Review Officer

cc. Archaeology Licensing Officer
Evan Tomak,Union Gas
Theodore Antonopolis,Ontario Energy Board

[1] *In no way will the ministry be liable for any harm, damages, costs, expenses, losses, claims or actions that may result: (a) if the Report(s) or its recommendations are discovered to be inaccurate, incomplete, misleading or fraudulent; or (b) from the issuance of this letter. Further measures may need to be taken in the event that additional artifacts or archaeological sites are identified or the Report(s) is otherwise found to be inaccurate, incomplete, misleading or fraudulent.*

Ministry of Tourism, Culture and Sport

Programs and Services Branch
401 Bay Street, Suite 1700
Toronto ON M7A 0A7
Tel: 416.314.7133

Ministère du Tourisme, de la Culture et du Sport

Direction des programmes et des services
401, rue Bay, Bureau 1700
Toronto ON M7A 0A7
Tél: 416.314.7133

Ontario

May 7, 2019 EMAIL ONLY

Evan Tomek, Environmental Planner
Union Gas Limited
P.O. Box 2001
50 Keil Drive North
Chatham, ON N7M 5M1
etomek@uniongas.com

MTCS File #	**:**	**0008727**
Proponent	**:**	**Union Gas**
Subject	**:**	**Cultural Heritage Overview Report**
Project	**:**	**North Shore Community Expansion Project**
Location	**:**	**City of North Bay, Ontario**

Dear Mr. Tomek:

Thank you for providing the Ministry of Tourism, Culture and Sport (MTCS) with the Cultural Heritage Overview Report (CHOR) prepared by AECON in February 2019 for the above-referenced project. MTCS's interest in this project relates to its mandate of conserving Ontario's cultural heritage, which includes:

- Archaeological resources, including land and marine;
- Built heritage resources, including bridges and monuments; and,
- Cultural heritage landscapes.

Project Summary
As part of its Community Expansion Program, the proponent is proposing to extend the natural gas service to the Northshore and Peninsula Roads area in the City of North Bay. The project will consist of approximately 27 km of small diameter (i.e. 1 ¼" – 4") polyethylene distribution pipelines to service the area. The proposed pipeline will commence at Union's existing pipeline on Trout Lake Road and will run east to Northshore Road and Peninsula Road.
The Environmental Protection Plan (EPP) notes that a heritage specialist would be retained to review the project's potential to impact cultural heritage landscapes and built heritage resources. The CHOR was undertaken to fulfil that commitment from the EPP.

Review of CHOR
MTCS has reviewed the CHOR and finds that due diligence has been undertaken.

The CHOR:

- Identified Trout Lake as a possible Cultural Heritage Landscape.
- Identified that the Ontario Northland Railway could be interpreted as having cultural heritage value.
- Confirmed there are no listed or designated properties within the study area.
- Listed the Direct Impacts and Indirect Impacts of the project and concluded there are no anticipated impacts and thus no mitigation measures were recommended.
- Stated that if the routing and project planning change that a Cultural Heritage Environmental Report (CHER) or a Heritage Impact Assessment (HIA) may need to be undertaken.

MTCS has no further comments on the CHOR.

Archaeological Resources
MTCS also acknowledges that a Stage 1 archaeological assessment (PIF # P307-0088-2018) was completed by Woodland Heritage Northwest and submitted to MTCS on February 8, 2019. The report is still under review by MTCS and MTCS may have further comments regarding the assessment.

Thank you for consulting MTCS on this project and please continue to do so throughout the planning process. If you have any questions or require clarification, do not hesitate to contact me.

Sincerely,

Kimberly Livingstone
Heritage Planner (A)
Heritage Planning Unit
kimberly.livingstone@ontario.ca

Copied to: Zora Crnojacki, Coordinator, Ontario Pipeline Coordination Committee, OEB
Zora.Crnojacki@ontarioenergyboard.ca

ENBRIDGE GAS INC.

Answer to Interrogatory from
Board Staff (STAFF)

INTERROGATORY

Reference:

Exhibit B, Tab 2, Schedule 18

Preamble:

The Indigenous Consultation Report in the application lists consultation activities until April 27, 2018.

Question:

Please file any comments received from any Indigenous groups regarding the Project since April 27, 2018.

Response:

Please see Attachment 1 for an update to the Indigenous Consultation Report ("ICR") for the Project (Exhibit B, Tab 2, Schedule 18). Also attached are the specific comments received from the Indigenous groups regarding the Project as requested.

Indigenous Consultation Report: UPDATED

North Shore Project ("Project")

As at February 18, 2020

Algonquins of Ontario (AOO)					
Line Item	**Date of Engagement**	**Method of Engagement**	**Summary of Engagement Activity**	**Response from Community/Outstanding Issues**	**Attachment**
1.1	April 1, 2019	Email	An Enbridge representative notified the AOO representative with an update on the Project. The email advised that the project had been put on hold however, it would now be going ahead in its original scope. The email also advised that if there were any questions or concerns, or a request to have further consultation, to reach out to the Enbridge representative.	No response from the AOO representative.	Attachment 1.1
1.2	February 18, 2020	Email	An Enbridge representative notified the AOO representative with an update on the Project. The email advised that the project had been sent to the Ontario Energy Board (OEB) for their review. The project was still in the original scope.	No response from the AOO representative.	Attachment 1.2
Dokis First Nation ("DFN")					
Line Item	**Date of Engagement**	**Method of Engagement**	**Summary of Engagement Activity**	**Response from Community/Outstanding Issues**	**Attachment**
2.1	April 1, 2019	Email	An Enbridge representative notified the DFN representative with an update on the Project. The email advised that the project had been put on hold however, it would now be going ahead in its original scope. The email also advised that if there were any questions or concerns, or a request to have further consultation, to reach out to the Enbridge representative.	No response received from DFN representative.	Attachment 2.1
2.2	February 18, 2020	Email	An Enbridge representative notified the DFN representative with an update on the Project. The email advised that the project had been sent to the Ontario Energy Board (OEB) for their review. The project was still in the original scope.	No response received from DFN representative.	Attachment 2.2
Kebaowek First Nation (KFN)					
Line Item	**Date of Engagement**	**Method of Engagement**	**Summary of Engagement Activity**	**Response from Community/Outstanding Issues**	**Attachment**
3.1	April 1, 2019	Email	An Enbridge representative notified the KFN representative with an update on the Project. The email advised that the project had been put on hold however, it would now be going ahead in its original scope. The email also advised that if there were any questions or concerns, or a	No response received from KFN representative.	Attachment 3.1

			request to have further consultation, to reach out to the Enbridge representative.		
3.2	February 18, 2020	Email	An Enbridge representative notified the KFN representative with an update on the Project. The email advised that the project had been sent to the Ontario Energy Board (OEB) for their review. The project was still in the original scope.	.	Attachment 3.2
Metis Nation of Ontario (MNO)					
Line Item	**Date of Engagement**	**Method of Engagement**	**Summary of Engagement Activity**	**Response from Community/Outstanding Issues**	**Attachment**
4.1	April 1, 2019	Email	An Enbridge representative notified the MNO representative with an update on the Project. The email advised that the project had been put on hold however, it would now be going ahead in its original scope. The email also advised that if there were any questions or concerns, or a request to have further consultation, to reach out to the Enbridge representative.	No response received from MNO representative.	Attachment 4.1
4.2	May 28, 2019	Email	The MNO representative sent a letter to the Enbridge representative. The letter confirmed that consultation had taken place between the two parties. The MNO feel that there are no concerns with the project and wish to be kept informed of changes.		Attachment 4.2
4.3	February 18, 2020	Email	An Enbridge representative notified the MNO representative with an update on the Project. The email advised that the project had been sent to the Ontario Energy Board (OEB) for their review. The project was still in the original scope.	No response received from MNO representative.	Attachment 4.3
Nipissing First Nation					
Line Item	**Date of Engagement**	**Method of Engagement**	**Summary of Engagement Activity**	**Response from Community/Outstanding Issues**	**Attachment**
5.1	April 1, 2019	Email	An Enbridge representative notified the NFN representative with an update on the Project. The email advised that the project had been put on hold however, it would now be going ahead in its original scope. The email also advised that if there were any questions or concerns, or a request to have further consultation, to reach out to the Enbridge representative.	No response received from NFN representative.	Attachment 5.1
5.2	February 18, 2020	Email	An Enbridge representative notified the NFN representative with an update on the Project. The email advised that the project had been sent to the Ontario Energy Board (OEB) for their review. The project was still in the original scope.	No response received from NFN representative.	Attachment 5.2
Wolf Lake First Nation ("WLFN")					
Concern Line Item	**Date of Engagement**	**Method of Engagement**	**Summary of Engagement Activity**	**Response from Community/Outstanding Issues**	**Attachment**

6.1	April 1, 2019	Email	An Enbridge representative notified the WLFN representative with an update on the Project. The email advised that the project had been put on hold however, it would now be going ahead in its original scope. The email also advised that if there were any questions or concerns, or a request to have further consultation, to reach out to the Enbridge representative.	No response received from WLFN representative.	Attachment 6.1
6.2	February 18, 2020	Email	An Enbridge representative notified the WLFN representative with an update on the Project. The email advised that the project had been sent to the Ontario Energy Board (OEB) for their review. The project was still in the original scope.	No response received from WLFN representative.	Attachment 6.2

Attachment 1.1

From: [redacted]
To:
Subject: Union Gas project - Northshore and Peninsula Road, North Bay
Date: Monday, April 1, 2019 11:40:00 AM
Attachments: 160961225 OEB Pipeline Route NorthBay.pdf

Good morning,

We wanted to provide you with an update on the North Bay – Northshore and Peninsula Road project that we began consultation on with you last year. This project had been on hold due to changes to the government. We wanted to provide you with this update.

Based on new regulations, Union Gas (now Enbridge Gas Inc.) will continue with the Northshore and Peninsula Road project using the same information that was provided last year, as the original scope of the project has not changed. The map with preferred route is attached.

We wanted to reach out to let you know that we will be going ahead with the project and follow up to see if you have any questions or concerns on the project. We would be happy to have a call to provide a refresher on the project and discuss further.

If you'd like to set up a call, please feel free to respond to this email or call [redacted] Senior Advisor Indigenous, Municipal Affairs and Stakeholder Relations at (807) 631-6882.

We look forward to hearing from you.

Miigwech, Thank you

[redacted]

Attachment 1.2

From: [redacted]
To:
Cc:
Subject: Enbridge Gas Update: Northshore and Peninsula Road project
Date: Tuesday, February 18, 2020 12:22:00 PM

Good afternoon,

We wanted to provide you with an update on the North Bay – Northshore and Peninsula Road project that we began consultation on with you in 2018.

This project was recently sent to the Ontario Energy Board for their review and consideration. Enbridge Gas Inc. submitted the project using the same information that was provided to you in the past, as the original scope of the project has not changed.

If you have any questions or concerns, please feel free to respond to this email or call [redacted] Senior Advisor Indigenous, Municipal Affairs and Stakeholder Relations at (807) 631-6882.

Miigwech, Thank you

[redacted]

Attachment 2.1

From: [redacted]
To:
Subject: Union Gas project - Northshore and Peninsula Road, North Bay
Date: Monday, April 1, 2019 10:56:00 AM
Attachments: 160961225_OEB_Pipeline_Route_NorthBay.pdf

Good morning,

We wanted to provide you with an update on the North Bay – Northshore and Peninsula Road project that we began consultation on with you last year. This project had been on hold due to changes to the government. You had provided us with a letter for the project that stated you had no concern but wanted to continue to be provided information as we continued. We wanted to provide you with this update.

Based on this these new regulations, Union Gas (now Enbridge Gas Inc.) will continue with the Northshore and Peninsula Road project using the same information that was provided last year, as the original scope of the project has not changed. The map with preferred route is attached.

We wanted to reach out to let you know that we will be going ahead with the project and follow up to see if you have any questions or concerns on the project. We would be happy to have a call to provide a refresher on the project and discuss further.

If you'd like to set up a call, please feel free to respond to this email or call [redacted] Senior Advisor Indigenous, Municipal Affairs and Stakeholder Relations at (807) 631-6882.

We look forward to hearing from you.

Miigwech, Thank you

[redacted]

Attachment 2.2

From: [redacted]
To:
Cc:
Subject: Enbridge Gas Update: Northshore and Peninsula Road project
Date: Tuesday, February 18, 2020 12:24:00 PM

Good afternoon,

We wanted to provide you with an update on the North Bay – Northshore and Peninsula Road project that we began consultation on with you in 2018.

This project was recently sent to the Ontario Energy Board for their review and consideration. Enbridge Gas Inc. submitted the project using the same information that was provided to you in the past, as the original scope of the project has not changed.

If you have any questions or concerns, please feel free to respond to this email or call [redacted], Senior Advisor Indigenous, Municipal Affairs and Stakeholder Relations at (807) 631-6882.

Miigwech, Thank you

[redacted]

Attachment 3.1

From: [redacted]
To:
Cc:
Subject: Union Gas project - Northshore and Peninsula Road, North Bay
Date: Monday, April 1, 2019 10:58:00 AM
Attachments: 160961225_OEB_Pipeline_Route_NorthBay.pdf

Good morning,

We wanted to provide you with an update on the North Bay – Northshore and Peninsula Road project that we began consultation on with you last year. This project had been on hold due to changes to the government. You had provided us with a letter for the project that stated you had no concern but wanted to continue to be provided information as we continued. We wanted to provide you with this update.

Based on this these new regulations, Union Gas (now Enbridge Gas Inc.) will continue with the Northshore and Peninsula Road project using the same information that was provided last year, as the original scope of the project has not changed. The map with preferred route is attached.

We wanted to reach out to let you know that we will be going ahead with the project and follow up to see if you have any questions or concerns on the project. We would be happy to have a call to provide a refresher on the project and discuss further.

If you'd like to set up a call, please feel free to respond to this email or call [redacted] Senior Advisor Indigenous, Municipal Affairs and Stakeholder Relations at (807) 631-6882.

We look forward to hearing from you.

Miigwech, Thank you

[redacted]

Attachment 3.2

From: [redacted]
To:
Cc:
Subject: Enbridge Gas Update: Northshore and Peninsula Road project
Date: Tuesday, February 18, 2020 12:25:00 PM

Good afternoon,

We wanted to provide you with an update on the North Bay – Northshore and Peninsula Road project that we began consultation on with you in 2018.

This project was recently sent to the Ontario Energy Board for their review and consideration. Enbridge Gas Inc. submitted the project using the same information that was provided to you in the past, as the original scope of the project has not changed.

If you have any questions or concerns, please feel free to respond to this email or call [redacted] Senior Advisor Indigenous, Municipal Affairs and Stakeholder Relations at (807) 631-6882.

Miigwech, Thank you

[redacted]

Attachment 4.1

From: [redacted]
To:
Cc:
Subject: Union Gas project - Northshore and Peninsula Road, North Bay
Date: Monday, April 1, 2019 11:38:00 AM
Attachments: 160961225 OEB Pipeline Route NorthBay.pdf

Good morning,

We wanted to provide you with an update on the North Bay – Northshore and Peninsula Road project that we began consultation on with you last year. This project had been on hold due to changes to the government. We had met on April 18 in Sudbury to discuss the project and agreed we would continue to be in contact. We wanted to provide you with this update.

Based on new regulations, Union Gas (now Enbridge Gas Inc.) will continue with the Northshore and Peninsula Road project using the same information that was provided last year, as the original scope of the project has not changed. The map with preferred route is attached.

We wanted to reach out to let you know that we will be going ahead with the project and follow up to see if you have any questions or concerns on the project. We would be happy to have a call to provide a refresher on the project and discuss further.

If you'd like to set up a call, please feel free to respond to this email or call [redacted], Senior Advisor Indigenous, Municipal Affairs and Stakeholder Relations at (807) 631-6882.

We look forward to hearing from you.

Miigwech, Thank you

[redacted]

Attachment 4.2

Métis Nation of Ontario
Lands, Resources and Consultations

BY ELECTRONIC MAIL

28 May 2019

[redacted]
Manager First Nations, Metis and Municipal Affairs
Union Gas
1211 Amber Dr.
Thunder Bay, Ontario, P7B 6M4

Dear [redacted]

RE: Consulting the Métis Nation of Ontario on the North Bay Northshore and Peninsula Roads Pipeline Project

I am writing to confirm the consultation to date between Union Gas and the Métis Nation of Ontario (MNO) in respect of the Northshore and Peninsula Roads Pipeline Project ("Project") proposed in North Bay, Ontario, within the MNO Mattawa/Lake Nipissing Traditional Territory.

As you know, the MNO represents the rights-bearing Métis communities and citizens throughout the Province of Ontario, including those living in the Project area. According to MNO's Consultation Protocols, consultation with the MNO takes place through the Regional Consultation Committee, which includes the MNO Regional Councillor, as well as the Presidents of the Chartered Community Councils located within the region, and Captain of the Hunt.

This letter confirms that Union Gas has participated in meetings with the appropriate Regional Consultation Committee to discuss the Project. The Mattawa/ Lake Nipissing Traditional Territory Consultation Committee members have determined that they have no concerns with the Project at this time; however they request that Union Gas keep them informed of the Project on an ongoing basis. Should Union Gas propose any new projects in the Mattawa/ Lake Nipissing Traditional Territory, Union Gas is reminded to please reach out to the MNO early in the process to ensure sufficient time for the review of any proposals and the assessment of consultation requirements.

Should you have any questions or concerns regarding this letter, please do not hesitate to contact MNO Lands, Resources and Consultations Branch staff member at our

Sudbury office, [redacted] or (705) 671-9855 Ext. 226.

Yours very truly,

[redacted]
A/Director, Lands, Resources and Consultations Branch
and Chief Operating Officer
Métis Nation of Ontario

c. [redacted] President, Métis Nation of Ontario
Mattawa/Lake Nipissing Traditional Territory Consultation Committee
[redacted] President, North Bay Métis Council
[redacted] President, Sudbury Métis Council
[redacted] President, Mattawa Métis Council
[redacted] Captain of the Hunt, Mattawa/Lake Nipissing Traditional Territory
[redacted] Manager, Lands, Resources and Consultations Branch, Métis Nation of Ontario

From: [redacted]
To:
Cc:
Subject: Enbridge Gas Update: Northshore and Peninsula Road project
Date: Tuesday, February 18, 2020 12:27:00 PM

Good afternoon,

We wanted to provide you with an update on the North Bay – Northshore and Peninsula Road project that we began consultation on with you in 2018.

This project was recently sent to the Ontario Energy Board for their review and consideration. Enbridge Gas Inc. submitted the project using the same information that was provided to you in the past, as the original scope of the project has not changed.

If you have any questions or concerns, please feel free to respond to this email or call [redacted] Senior Advisor Indigenous, Municipal Affairs and Stakeholder Relations at (807) 631-6882.

Miigwech, Thank you

[redacted]

Attachment 4.3

From: [redacted]
To:
Cc:
Subject: Union Gas project - Northshore and Peninsula Road, North Bay
Date: Monday, April 1, 2019 11:01:00 AM
Attachments: 160961225_OEB_Pipeline_Route_NorthBay.pdf

Good morning,

We wanted to provide you with an update on the North Bay – Northshore and Peninsula Road project that we began consultation on with you last year. This project had been on hold due to changes to the government. You had provided us with an email on the project that stated you had no concern but wanted to continue to be provided information as we continued. We wanted to provide you with this update.

Based on this these new regulations, Union Gas (now Enbridge Gas Inc.) will continue with the Northshore and Peninsula Road project using the same information that was provided last year, as the original scope of the project has not changed. The map with preferred route is attached.

We wanted to reach out to let you know that we will be going ahead with the project and follow up to see if you have any questions or concerns on the project. We would be happy to have a call to provide a refresher on the project and discuss further.

If you'd like to set up a call, please feel free to respond to this email or call [redacted] Senior Advisor Indigenous, Municipal Affairs and Stakeholder Relations at (807) 631-6882.

We look forward to hearing from you.

Miigwech, Thank you

[redacted]

Attachment 5.1

From: [redacted]
To:
Cc:
Subject: Enbridge Gas Update: Northshore and Peninsula Road project
Date: Tuesday, February 18, 2020 12:20:00 PM

Good afternoon,

We wanted to provide you with an update on the North Bay – Northshore and Peninsula Road project that we began consultation on with you in 2018.

This project was recently sent to the Ontario Energy Board for their review and consideration. Enbridge Gas Inc. submitted the project using the same information that was provided to you in the past, as the original scope of the project has not changed.

If you have any questions or concerns, please feel free to respond to this email or call [redacted] Senior Advisor Indigenous, Municipal Affairs and Stakeholder Relations at (807) 631-6882.

Miigwech, Thank you

[redacted]

Attachment 5.2

From: [redacted]
To:
Cc:
Subject: Enbridge Gas Update: Northshore and Peninsula Road project
Date: Tuesday, February 18, 2020 12:20:00 PM

Good afternoon,

We wanted to provide you with an update on the North Bay – Northshore and Peninsula Road project that we began consultation on with you in 2018.

This project was recently sent to the Ontario Energy Board for their review and consideration. Enbridge Gas Inc. submitted the project using the same information that was provided to you in the past, as the original scope of the project has not changed.

If you have any questions or concerns, please feel free to respond to this email or call [redacted] Senior Advisor Indigenous, Municipal Affairs and Stakeholder Relations at (807) 631-6882.

Miigwech, Thank you

[redacted]

Attachment 6.1

From: [redacted]
To:
Cc:
Subject: Union Gas project - Northshore and Peninsula Road, North Bay
Date: Monday, April 1, 2019 11:07:00 AM
Attachments: 160961225_OEB_Pipeline_Route_NorthBay.pdf

Good morning,

We wanted to provide you with an update on the North Bay – Northshore and Peninsula Road project that we began consultation on with you last year. This project had been on hold due to changes to the government. You had provided us with an email on the project that stated you had no concern but wanted to continue to be provided information as we continued. We wanted to provide you with this update.

Based on this these new regulations, Union Gas (now Enbridge Gas Inc.) will continue with the Northshore and Peninsula Road project using the same information that was provided last year, as the original scope of the project has not changed. The map with preferred route is attached.

We wanted to reach out to let you know that we will be going ahead with the project and follow up to see if you have any questions or concerns on the project. We would be happy to have a call to provide a refresher on the project and discuss further.

If you'd like to set up a call, please feel free to respond to this email or call [redacted] Senior Advisor Indigenous, Municipal Affairs and Stakeholder Relations at (807) 631-6882.

We look forward to hearing from you.

Miigwech, Thank you

[redacted]

Attachment 6.2

From: [redacted]
To:
Cc:
Subject: Enbridge Gas Update: Northshore and Peninsula Road project
Date: Tuesday, February 18, 2020 12:26:00 PM

Good afternoon,

We wanted to provide you with an update on the North Bay – Northshore and Peninsula Road project that we began consultation on with you in 2018.

This project was recently sent to the Ontario Energy Board for their review and consideration. Enbridge Gas Inc. submitted the project using the same information that was provided to you in the past, as the original scope of the project has not changed.

If you have any questions or concerns, please feel free to respond to this email or call [redacted] Senior Advisor Indigenous, Municipal Affairs and Stakeholder Relations at (807) 631-6882.

Miigwech, Thank you

[redacted]

ENBRIDGE GAS INC.

Answer to Interrogatory from
Board Staff (STAFF)

INTERROGATORY

Reference:

Exhibit B, Tab 1, Schedule 8, page 1-3
Exhibit B, Tab 2, Schedule 16a and 16b
Exhibit B, Tab 2, Schedule 17

Preamble:

Enbridge Gas stated that approximately 9 km of the proposed facilities are within forced roads. These road allowances are considered to be forced roads because they cross private property and have been maintained by the municipality as a public highway for many years. Enbridge Gas is aware of only one landowner dispute (not a legal claim) related to the forced road on that property.
Enbridge Gas requires permanent easement and temporary land use rights to complete the North Bay Community Expansion project. Enbridge Gas will therefore require the OEB's approval of the form of easement agreement that it has offered or will offer to the affected landowners.

Question:

a) Please explain the process involved in resolving situations involving forced road allowances such that a proponent may construct facilities that occupy the land in question. Please provide a letter from the municipality indicating Municipal Consent, with its authority to do so under the *Municipal Act*.

b) Does the landowner dispute relating to the forced road affect the Project? If it does affect the Project, how does it affect the Project and what mitigation measures are in place or are being negotiated?

c) What is the current status and negotiations with landowners of properties where permanent easement and temporary land use rights are needed?

d) Please confirm whether the form of permanent easement and temporary land use agreement filed as part of the application has been previously approved by the OEB. If so, please provide the OEB case number and project name in which these forms of easement agreement were last used.

Response:

a) As noted in Exhibit B, Tab 1, Schedule 8, paragraph 1, forced roads are grandfathered as public highways under section 26(1) of the *Municipal Act*. The evidence further explains how these roads have a long history of dedication and acceptance as public highways, as confirmed by a local Ontario Land Surveyor at Exhibit B, Tab 2, Schedule 14. The City of North Bay further confirmed its jurisdiction over these highways pursuant to By-Law No. 2002-133 passed on December 16, 2002 (see Attachment 1 to this response). In section 3 of the 2000 Model Franchise Agreement between the City and Enbridge Gas, dated August 1, 2001 (see RP-2000-0080/EB-2000-0215) ("MFA"), the City grants consent to Enbridge Gas to enter upon all highways under the jurisdiction of the City, amongst other things, to construct and operate a gas distribution system. In addition, Enbridge Gas will seek road occupancy permits from the City in the normal course for the Project, and the Company is in the process of filing applications for these permits. Other than these road occupancy permits, Enbridge Gas has the municipal consents it requires pursuant to the MFA as reinforced by the City's resolution supporting the Project (at Exhibit B, Tab 2, Schedule 3).

b) As further described in Exhibit B, Tab 1, Schedule 8, paragraph 1, the landowner dispute with the City is related to a drainage issue and the landowner does not oppose the Project. Enbridge Gas has discussed the Project with the landowner on a few occasions and as a result believes the landowner's drainage dispute with the City will not affect the Project. Further, Enbridge Gas explained to the landowner that it would coordinate with the City in respect of any drainage work to ensure it does not interfere with that work.

c) Negotiations with private landowners for permanent easements and temporary land use are ongoing and Enbridge Gas expects to have all land rights in place prior to commencement of Project construction. As noted at Exhibit B, Tab 1, Schedule 8, based on preliminary discussions with these landowners, Enbridge Gas does not anticipate any issues obtaining the necessary land rights.

d) Confirmed. The forms of agreement included as part of Enbridge Gas's Application and pre-filed evidence for OEB approval were last approved by the OEB as part of Enbridge Gas's Sarnia Reinforcement Project (EB-2019-0218). These same agreements were also approved by the OEB in the Kingsville Transmission Reinforcement Project (EB-2018-0013), Stratford Reinforcement Project (EB-2018-0306) and Chatham Kent Rural Project (EB-2018-0188).

THE CORPORATION OF THE CITY OF NORTH BAY

BY-LAW NO. 2002-133

BEING A BY-LAW TO CONFIRM THE ROADS AND STREETS MAINTAINED BY THE CITY OF NORTH BAY

WHEREAS the Council of The Corporation of the City of North Bay has jurisdiction over all highways and bridges within the municipality except where jurisdiction over them is expressly conferred to another council in accordance with s. 263 of the *Municipal Act,* R.S.O. 1990, c.M.45 as amended;

AND WHEREAS the Council of The Corporation of the City of North Bay may pass a by-law for establishing and laying out highways pursuant to s. 297 of the *Municipal* ***Act,*** R.S.O. 1990, c.M.45 as amended;

AND WHEREAS it is deemed desirable to confirm the streets and roads within the jurisdiction of the The Corporation of the City of North Bay which are maintained by The Corporation of the City of North Bay prior to the *Municipal Act, 2001*, S.O. 2001, c.25 as amended, coming into force on January 1, 2003;

AND WHEREAS Resolution No. 2002-667 was passed by Council at its meeting held December 2,2002 to establish an inventory of roads;

NOW THEREFORE THE COUNCIL OF THE CORPORATION OF THE CITY OF NORTH BAY HEREBY ENACTS AS FOLLOWS:

1. Those streets and roads described in Schedule "A" attached hereto and forming part hereof are hereby acknowledged as highways which have been laid out and assumed by The Corporation of the City of North Bay for use as public roadways to bc maintained by The Corporation of the City of North Bay.

READ A FIRST TIME IN OPEN COUNCIL ON THE 16TH DAY OF DECEMBER, 2002

READ A SECOND TIME IN OPEN COUNCIL ON THE 16TH DAY OF DECEMBER, 2002.

READ **A** THIRD TIME IN OPEN COUNCIL AND PASSED THIS 16TH DAY OF DECEMBER, 2002.

MAYOR

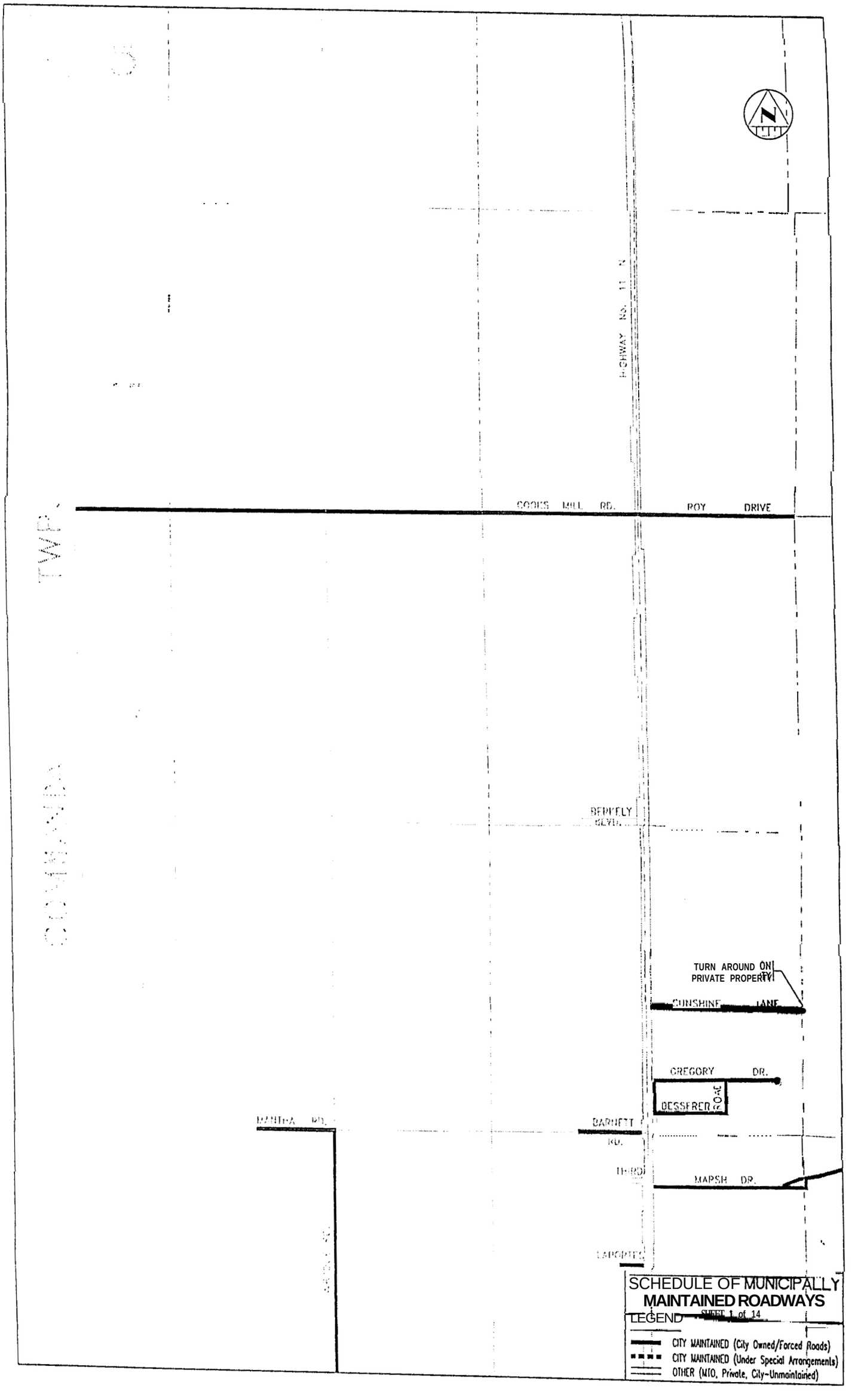
CITY CLERK

W:\SOLICIT\RMS\C00\2002\CNB\ROADWAYS\0001.doc

1	2	3	4	5
6	7	8	9	10
11	12	13	LANDFILL SITE SKETCH 14	

SCHEDULE OF MUNICIPALLY MAINTAINED ROADWAYS

INDEX


HIGHWAY NO. 11
COOKS MILL RD.
ROY DRIVE
BERKELY BLVD.
TURN AROUND ON PRIVATE PROPERTY
SUNSHINE LANE
GREGORY DR.
BESSERER ROAD
BARNETT RD.
MAPSH DR.
SCHEDULE OF MUNICIPALLY MAINTAINED ROADWAYS
SHEET 1 of 14
LEGEND
CITY MAINTAINED (City Owned/Forced Roads)
CITY MAINTAINED (Under Special Arrangements)
OTHER (MTO, Private, City-Unmaintained)

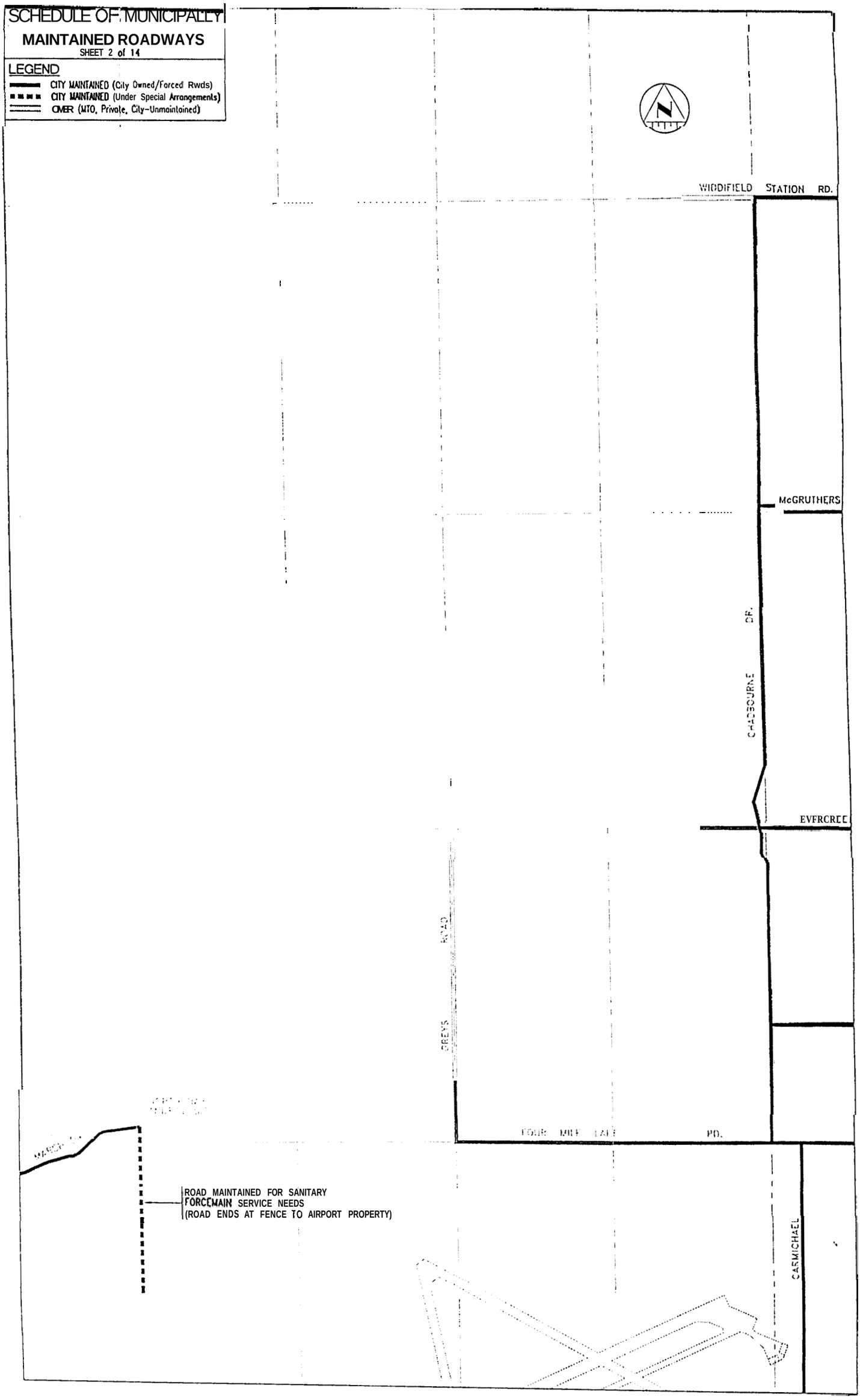
SCHEDULE OF MUNICIPALLY

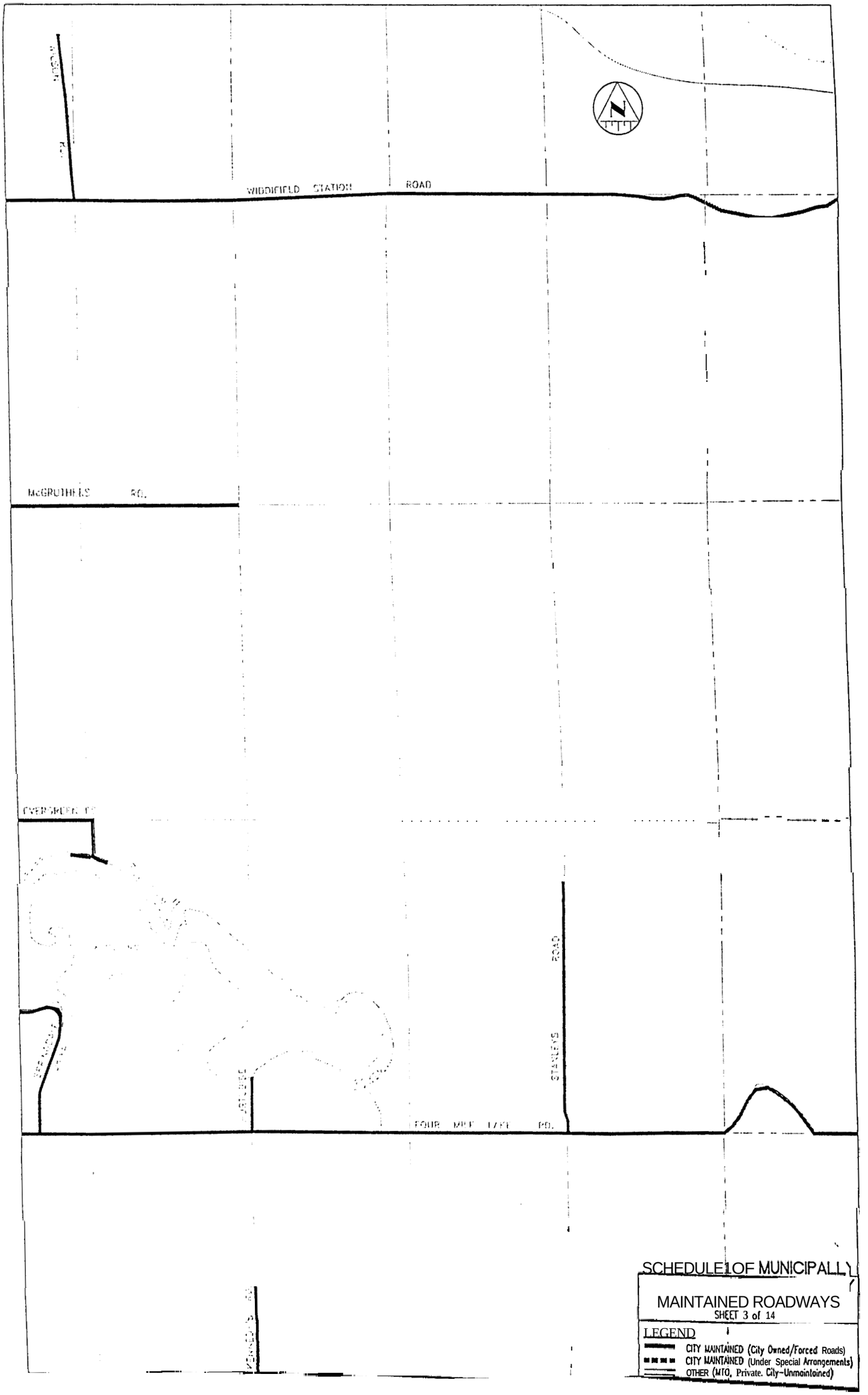
MAINTAINED ROADWAYS

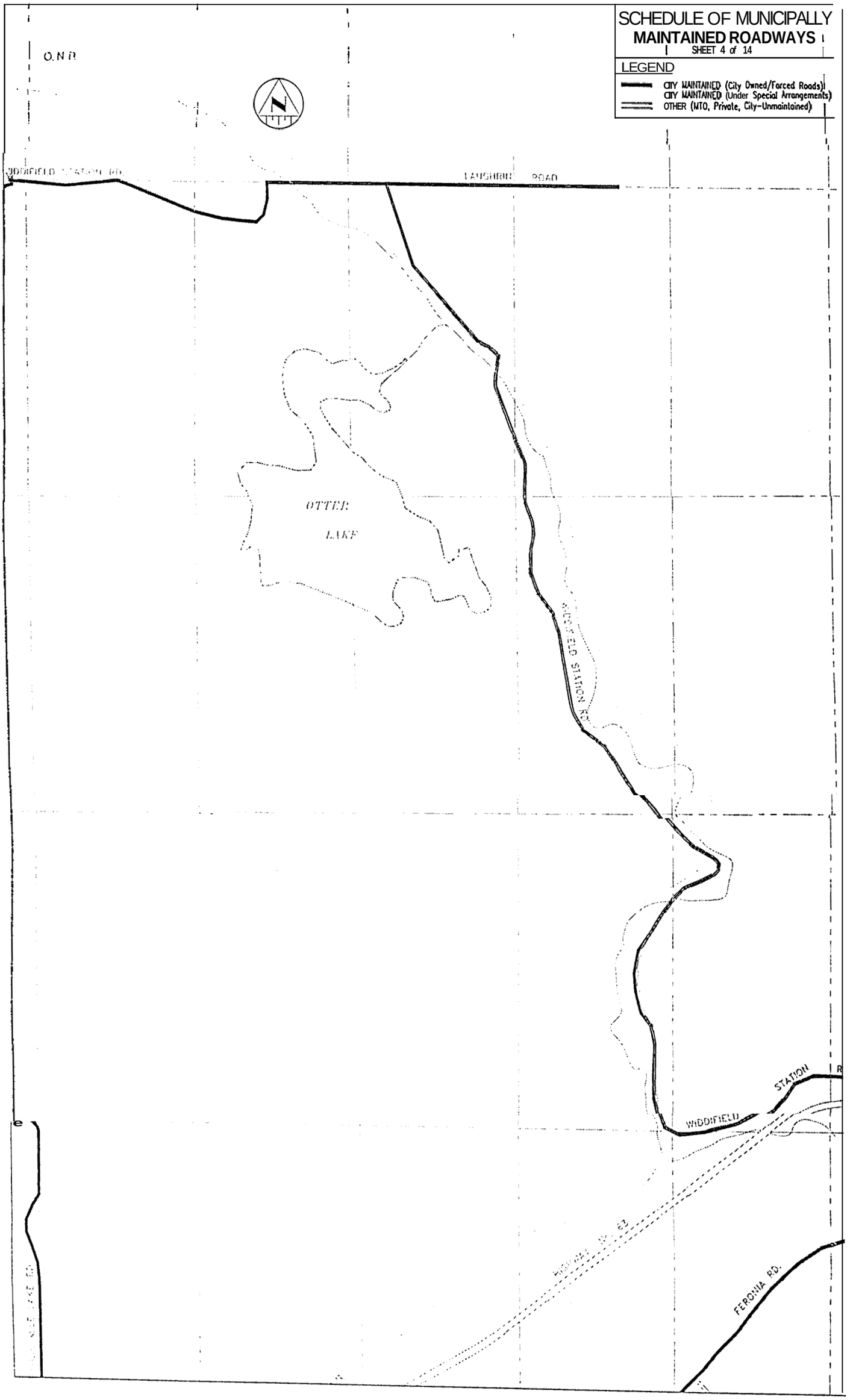
SHEET 2 of 14

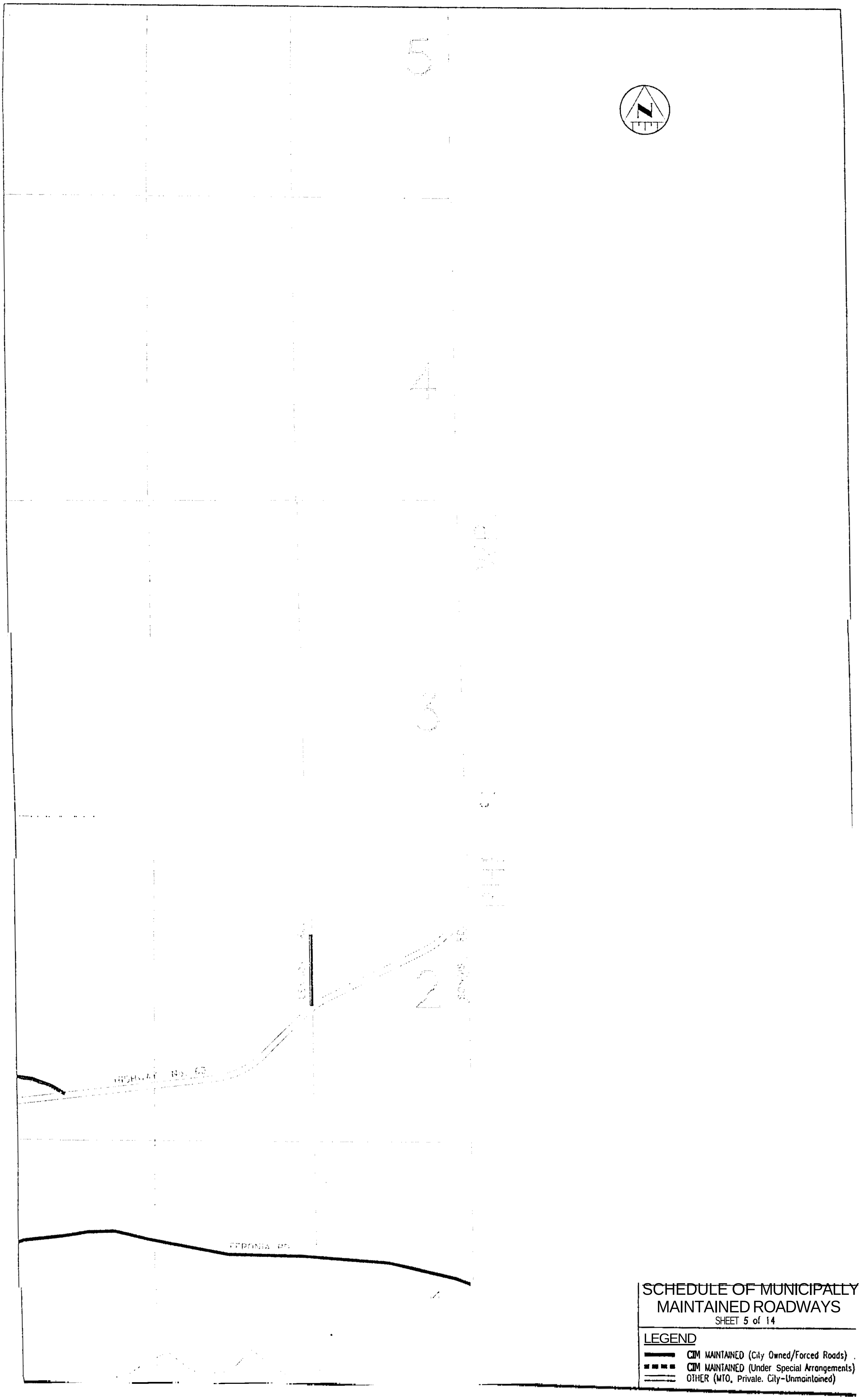
LEGEND

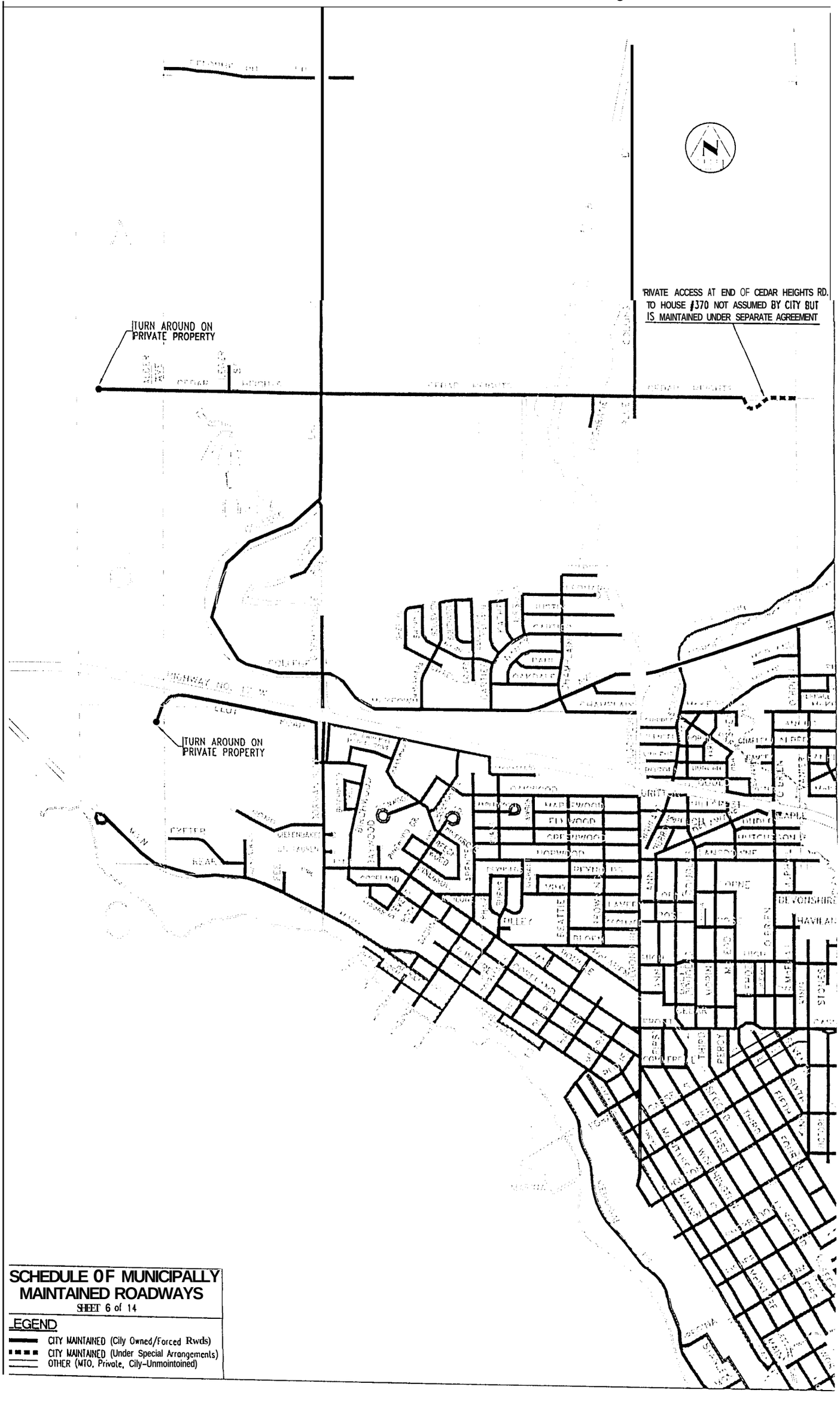
- CITY MAINTAINED (City Owned/Forced Rwds)
- CITY MAINTAINED (Under Special Arrangements)
- OWER (MTO, Private, City-Unmaintained)

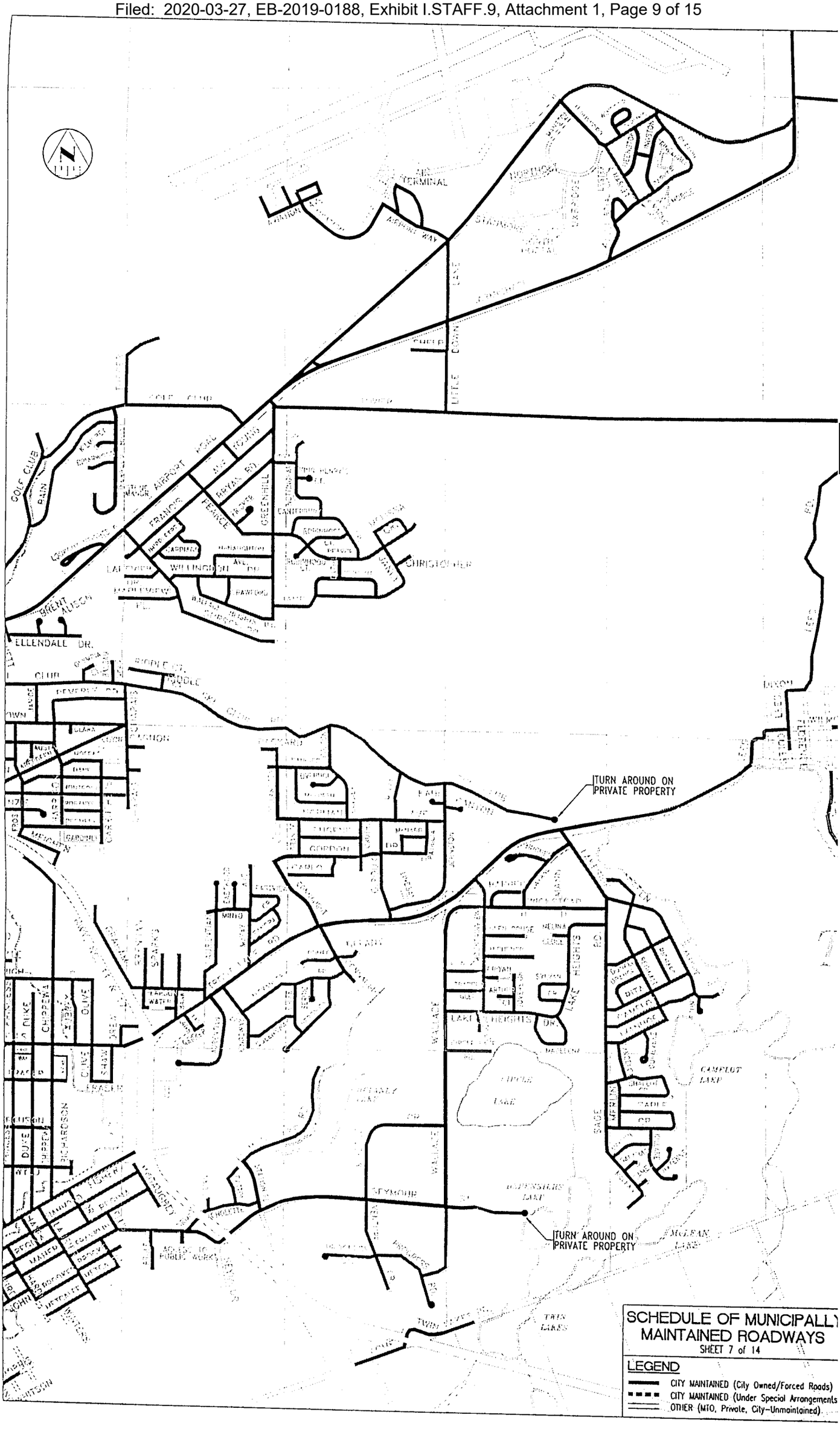


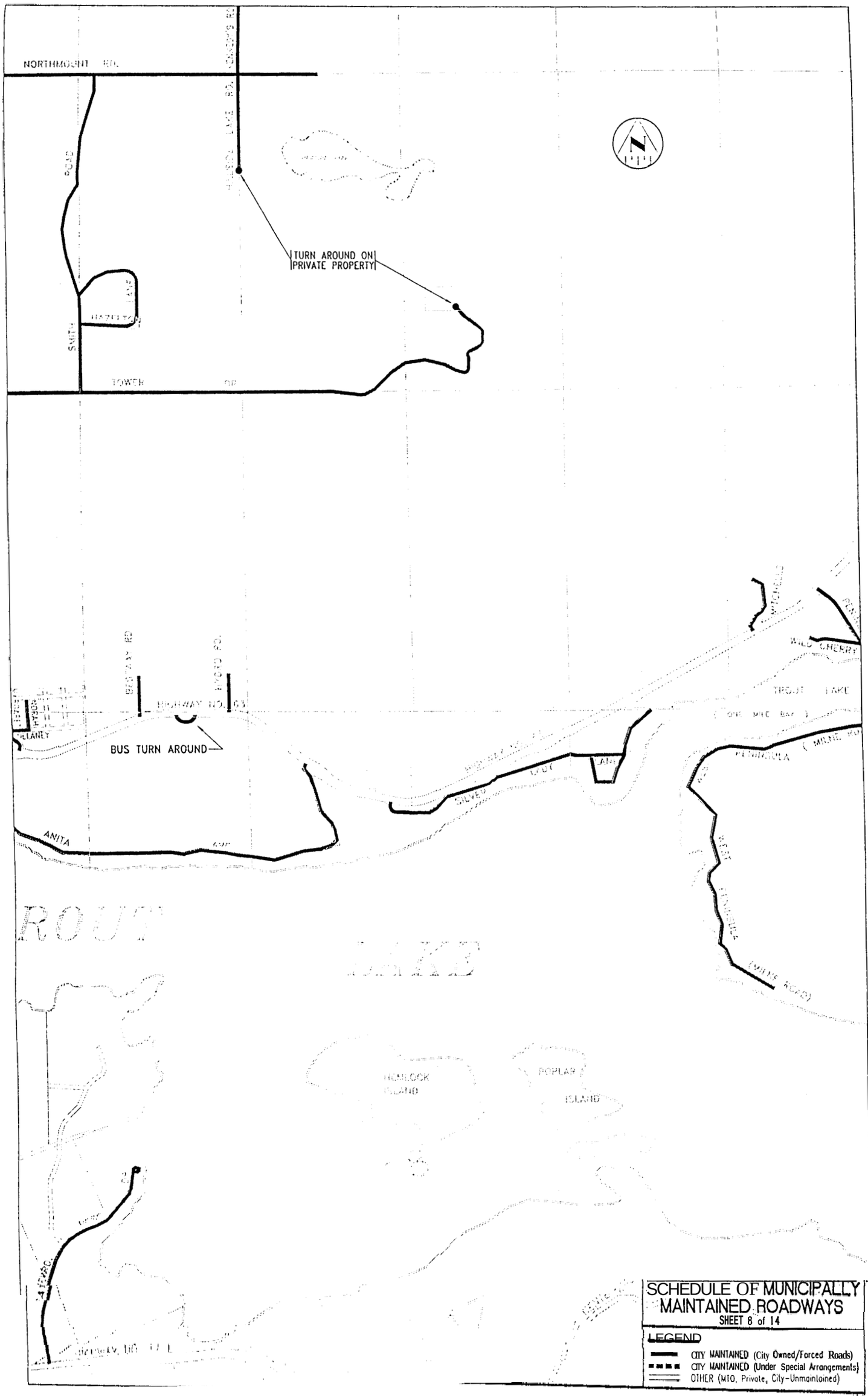

WIDDIFIELD STATION ROAD
McGRUTHERS RD.
EVERGREEN CT
STANLEYS ROAD
FOUR MILE LAKE RD.
SCHEDULE 1 OF MUNICIPALLY
MAINTAINED ROADWAYS
SHEET 3 of 14
LEGEND
CITY MAINTAINED (City Owned/Forced Roads)
CITY MAINTAINED (Under Special Arrangements)
OTHER (MTO, Private, City-Unmaintained)

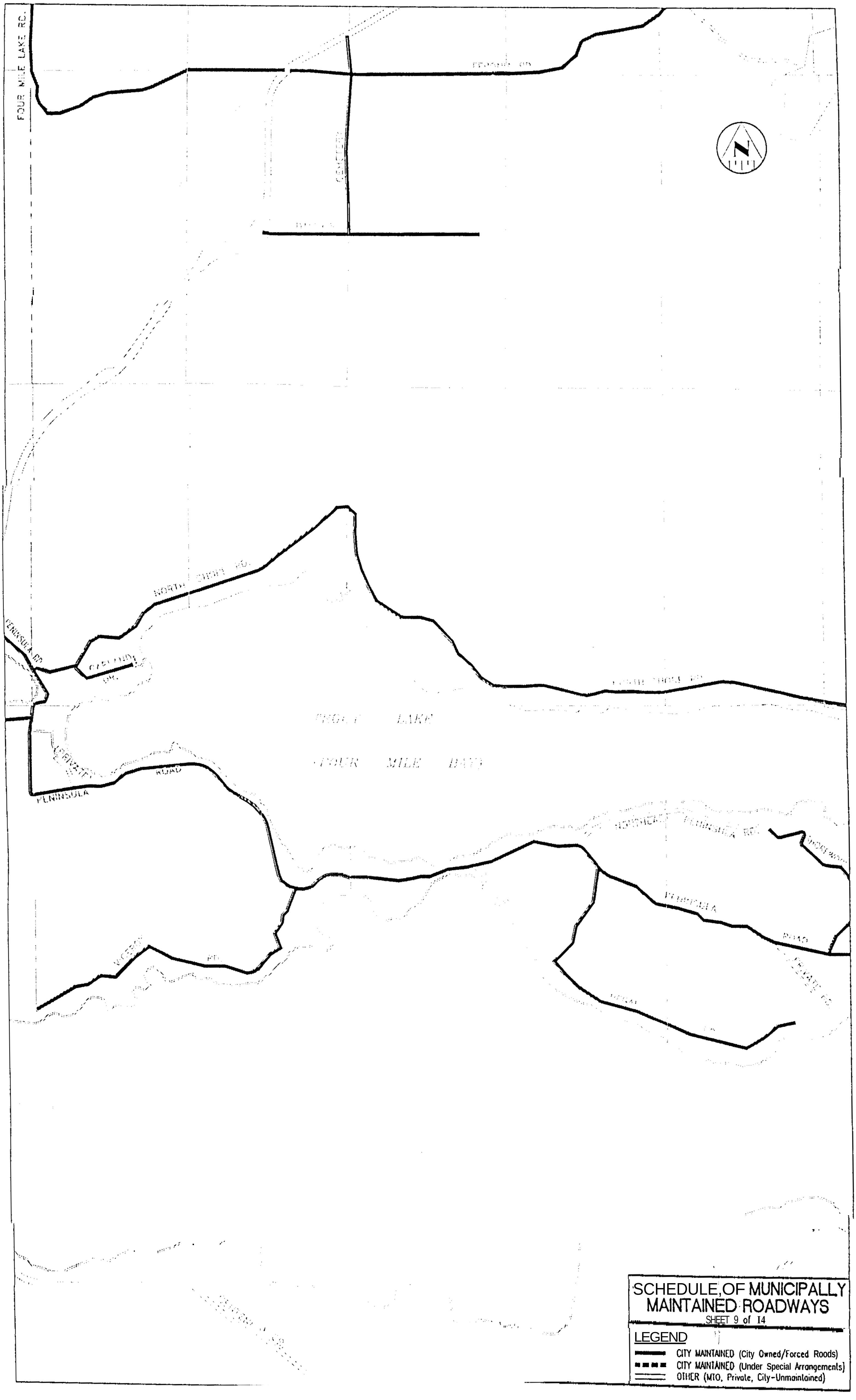

SCHEDULE OF MUNICIPALLY
MAINTAINED ROADWAYS
SHEET 4 of 14
LEGEND
CITY MAINTAINED (City Owned/Forced Roads)
CITY MAINTAINED (Under Special Arrangements)
OTHER (MTO, Private, City-Unmaintained)
O.N.R.
LAUGHRIN ROAD
OTTER LAKE
WIDDIFIELD STATION RD.
WIDDIFIELD STATION
HIGHWAY No. 63
FERONIA RD.

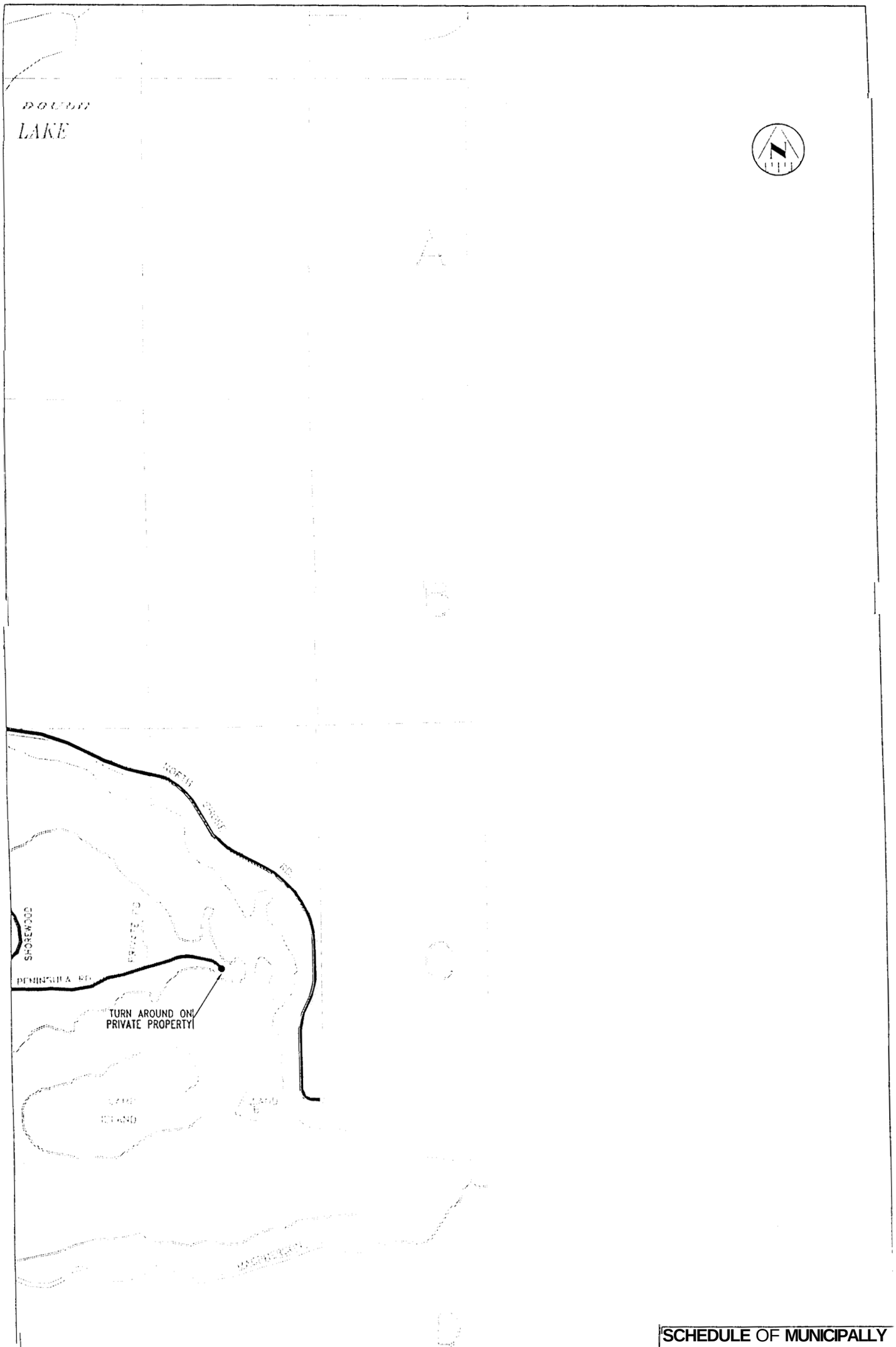

5
4
3
2
SCHEDULE OF MUNICIPALLY
MAINTAINED ROADWAYS
SHEET 5 of 14
LEGEND
CIM MAINTAINED (City Owned/Forced Roads)
CIM MAINTAINED (Under Special Arrangements)
OTHER (MTO, Private, City-Unmaintained)


PRIVATE ACCESS AT END OF CEDAR HEIGHTS RD.
TO HOUSE #370 NOT ASSUMED BY CITY BUT
IS MAINTAINED UNDER SEPARATE AGREEMENT
TURN AROUND ON
PRIVATE PROPERTY
TURN AROUND ON
PRIVATE PROPERTY
SCHEDULE OF MUNICIPALLY
MAINTAINED ROADWAYS
SHEET 6 of 14
LEGEND
CITY MAINTAINED (City Owned/Forced Rwds)
CITY MAINTAINED (Under Special Arrangements)
OTHER (MTO, Private, City-Unmointoined)


TURN AROUND ON PRIVATE PROPERTY
TURN AROUND ON PRIVATE PROPERTY
SCHEDULE OF MUNICIPALLY MAINTAINED ROADWAYS
SHEET 7 of 14
LEGEND
CITY MAINTAINED (City Owned/Forced Roads)
CITY MAINTAINED (Under Special Arrangements
OTHER (MTO, Private, City-Unmaintained)


NORTHMOUNT RD.
TURN AROUND ON PRIVATE PROPERTY
TOWER
HIGHWAY NO. 63
BUS TURN AROUND
ANITA
TROUT LAKE
HEMLOCK ISLAND
POPLAR ISLAND
SCHEDULE OF MUNICIPALLY MAINTAINED ROADWAYS
SHEET 8 of 14
LEGEND
CITY MAINTAINED (City Owned/Forced Roads)
CITY MAINTAINED (Under Special Arrangements)
OTHER (MTO, Private, City-Unmaintained)


FOUR MILE LAKE RD.
NORTH SHORE RD.
PENINSULA RD.
PRIVATE ROAD
PENINSULA
TROUT LAKE
(FOUR MILE BAY)
SCHEDULE OF MUNICIPALLY MAINTAINED ROADWAYS
SHEET 9 of 14
LEGEND
CITY MAINTAINED (City Owned/Forced Roads)
CITY MAINTAINED (Under Special Arrangements)
OTHER (MTO, Private, City-Unmaintained)

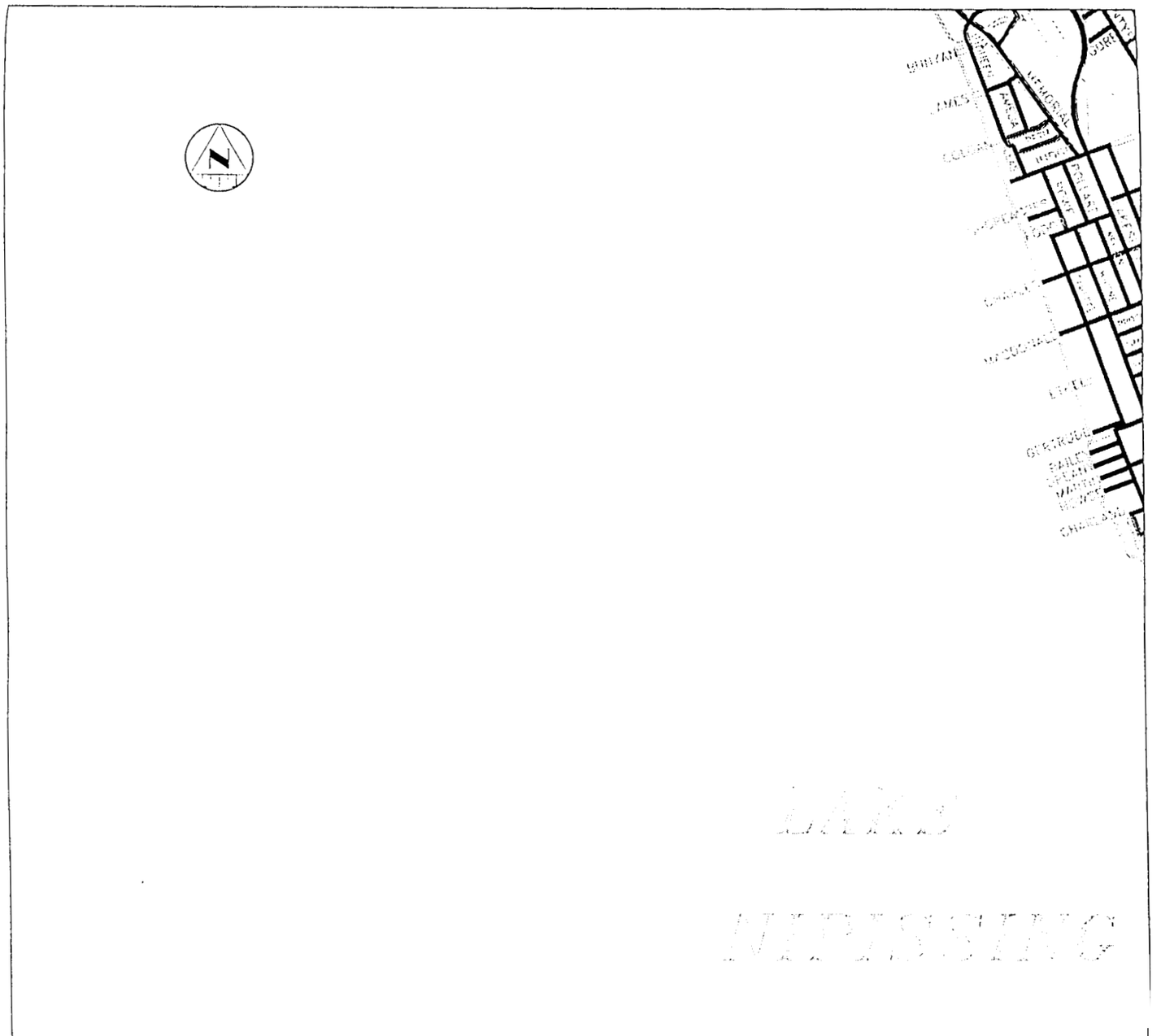


SCHEDULE OF **MUNICIPALLY MAINTAINED ROADWAYS**

SHEET 10 of 14

LEGEND

- CITY MAINTAINED (City Owned/Forced Roads)
- CITY MAINTAINED (Under Special Arrangements)
- OTHER (MTO, Private, City-Unmaintained)

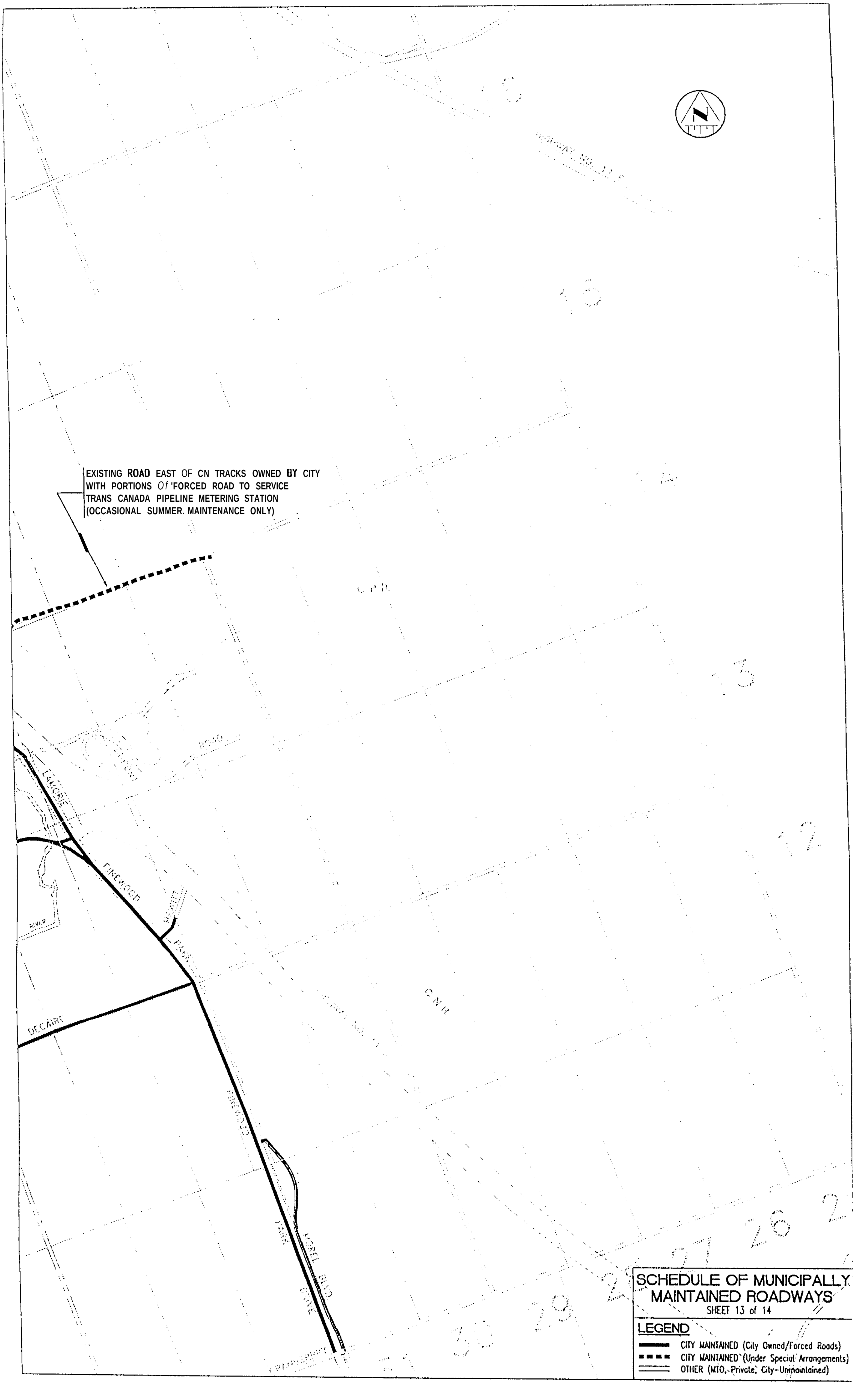


SCHEDULE OF MUNICIPALLY
MAINTAINED ROADWAYS
SHEET 11 of 14

LEGEND

- CITY MAINTAINED (City Owned/Forced Roads)
- CITY MAINTAINED (Under Special Arrangements)
- OTHER (MTO, Private, City-Unmaintained)


ACCESS TO SCHOOL
ETI WATER INTAKE
SCHEDULE'OF MUNICIPALLY MAINTAINED ROADWAYS
SHEET. 12 of 14
LEGEND
CITY MAINTAINED (Cily Owned/Forced Roads)
CITY MAINTAINED (Under Special Arrangements)
OTHER (MTO, Private; City-Unmaintained)



EXISTING ROAD EAST OF CN TRACKS OWNED BY CITY
WITH PORTIONS Of 'FORCED ROAD TO SERVICE
TRANS CANADA PIPELINE METERING STATION
(OCCASIONAL SUMMER. MAINTENANCE ONLY)
C P R
C N R
LAMORIE
FIREWOOD
DECAIRE
15
14
13
12
SCHEDULE OF MUNICIPALLY
MAINTAINED ROADWAYS
SHEET 13 of 14
LEGEND
CITY MAINTAINED (City Owned/Forced Roads)
CITY MAINTAINED (Under Special Arrangements)
OTHER (MTO, Private, City-Unmaintained)

ENBRIDGE GAS INC.

Answer to Interrogatory from
Board Staff (STAFF)

INTERROGATORY

Reference:

Exhibit A, Tab 2, Schedule 1

Preamble:

The OEB Act permits the OEB, when making an order, to "impose such conditions as it considers proper."[3]

Question:

OEB staff has prepared the following draft Conditions of Approval. If Enbridge Gas does not agree to any of the draft conditions of approval noted below, please identify the specific conditions that Enbridge Gas disagrees with and explain why. For conditions in respect of which Enbridge Gas would like to recommend changes, please provide the proposed changes and an explanation of the changes.

[3] OEB Act, s. 23

Enbridge Gas Inc.
North Bay (Northshore and Peninsula Roads) Community Expansion Project
(EB-2019-0188)
OEB Act Section 90 Leave to Construct
DRAFT CONDITIONS OF APPROVAL

1. Enbridge Gas Inc. (Enbridge Gas) shall construct the facilities and restore the land in accordance with the OEB's Decision and Order in EB-2019-0188 and these Conditions of Approval.

2. (a) Authorization for leave to construct shall terminate 12 months after the decision is issued, unless construction has commenced prior to that date.

   (b) Enbridge Gas shall give the OEB notice in writing:
   i. of the commencement of construction, at least ten days prior to the date construction commences;
   ii. of the planned in-service date, at least ten days prior to the date the facilities go into service;
   iii. of the date on which construction was completed, no later than 10 days following the completion of construction; and
   iv. of the in-service date, no later than 10 days after the facilities go into service.

3. Enbridge Gas shall implement all the recommendations of the Environmental Report filed in the proceeding, and all the recommendations and directives identified by the Ontario Pipeline Coordinating Committee review.

4. Enbridge Gas shall advise the OEB of any proposed change to OEB-approved construction or restoration procedures. Except in an emergency, Enbridge shall not make any such change without prior notice to and written approval of the OEB. In the event of an emergency, the OEB shall be informed immediately after the fact.

5. Enbridge Gas shall file, in the proceeding where the actual capital costs of the project are proposed to be included in rate base, a Post Construction Financial Report, which shall indicate the actual capital costs of the project and shall provide an explanation for any significant variances from the cost estimates filed in this proceeding.

6. Both during and after construction, Enbridge Gas shall monitor the impacts of construction, and shall file with the OEB one paper copy and one electronic (searchable PDF) version of each of the following reports:

(a) A post construction report, within three months of the in-service date, which shall:
   i. provide a certification, by a senior executive of the company, of Enbridge Gas' adherence to Condition 1;
   ii. describe any impacts and outstanding concerns identified during construction;
   iii. describe the actions taken or planned to be taken to prevent or mitigate any identified impacts of construction;
   iv. include a log of all complaints received by Enbridge Gas, including the date/time the complaint was received, a description of the complaint, any actions taken to address the complaint, the rationale for taking such actions; and
   v. provide a certification, by a senior executive of the company, that the company has obtained all other approvals, permits, licenses, and certificates required to construct, operate and maintain the proposed project.

(b) A final monitoring report, no later than fifteen months after the in-service date, or, where the deadline falls between December 1 and May 31, the following June 1, which shall:
   i. provide a certification, by a senior executive of the company, of Enbridge Gas' adherence to Condition 3;
   ii. describe the condition of any rehabilitated land;
   iii. describe the effectiveness of any actions taken to prevent or mitigate any identified impacts of construction;
   iv. include the results of analyses and monitoring programs and any recommendations arising therefrom; and
   v. include a log of all complaints received by Enbridge Gas, including the date/time the complaint was received; a description of the complaint; any actions taken to address the complaint; and the rationale for taking such actions.

7. Enbridge Gas shall designate one of its employees as project manager who will be responsible for the fulfillment of these conditions, and shall provide the employee's name and contact information to the OEB and to all the appropriate landowners, and shall clearly post the project manager's contact information in a prominent place at the construction site.

The OEB's designated representative for the purpose of these Conditions of Approval shall be the OEB's Manager of Natural Gas (or the Manager of any OEB successor department that oversees leave to construct applications).

Response:

Enbridge Gas has reviewed the draft conditions of approval proposed by OEB Staff and has no changes to recommend at this time based on the current OEB-issued procedural schedule. Enbridge Gas will comply with all conditions set out by the OEB.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Board Staff (STAFF)

INTERROGATORY

Reference:

Exhibit A, Tab 2, Schedule 1

Preamble:

Enbridge Gas applied for approval of a System Expansion Surcharge under section 36 of the OEB Act.

Question:

OEB staff has prepared the following draft System Expansion Surcharge. If Enbridge Gas does not agree to any of the draft noted below, please identify the specific conditions that Enbridge Gas disagrees with and explain why. For conditions in respect of which Enbridge Gas would like to recommend minor changes, please provide the proposed changes.

Enbridge Gas Inc.
North Bay (Northshore and Peninsula Roads) Community Expansion Project
(EB-2019-0188)
OEB Act Section 36
DRAFT System Expansion Surcharge

In keeping with the OEB's Generic Decision and its decision in Union Gas' 2015 Project, the following is a summary of terms and conditions that apply to OEB's Decision and Order in EB-2019-0188:

- Enbridge Gas can apply a $0.23/m3 surcharge for up to 40 years to its existing approved rates and charge it to all customers in the Project area
- Enbridge Gas will show the SES as a separate line on the customer's monthly bill
- Enbridge Gas will treat the SES as revenue

- If a customer's property is sold, Enbridge Gas will charge the SES to the new owner for the balance of the original SES term

- Enbridge Gas may apply the SES to any future short main extensions off the Project; however, if the balance of the original term is insufficient to achieve a PI of 1.0 for the short main extension, then Enbridge Gas may extend the term or else require a capital contribution

- Enbridge gas shall provide a 10-year rate stability period during which Enbridge Gas will bear the risk of variances in its customer attachment forecast and any associated variances in revenue

- Enbridge Gas may seek recovery for any revenue requirement shortfall after the end of the initial 10-year period; any such application shall be supported by a revised PI calculation that uses actual capital costs and actual customer attachments

- Enbridge Gas may bring forward any variance between actual and forecast capital costs in a future rate application; the prudency of any excess capital costs incurred would be subject to an OEB review at the time of rebasing

Response:

Enbridge Gas does not believe the added conditions are required for the Project in the context of the leave to construct. Given the Project is located in the Union North Rate Zone and as stated in the response at Exhibit I.ED.2, Enbridge Gas has proposed and expects that the basis of the OEB's approval for this proceeding will be the same as that approved by the OEB in its EB-2015-0179 (Union Gas Limited Community Expansion Application) Decision dated August 10, 2017. If, however, the OEB determines the conditions are required, Enbridge Gas will comply with all conditions set out by the OEB.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Environmental Defence (ED)

INTERROGATORY

Reference:

Exhibit B, Tab 2, Schedule 6

Preamble:

Please answer the below questions regarding these three scenarios:

(1) Volumes plateau at the year 5 forecast level and do not increase thereon in.

(2) After year 10, volumes decline 10% per year for ten years to nil.

(3) Volumes are 20% less than forecast throughout the economic life of the project.

Questions:

(a) For each scenario, what system explanation surcharge ($/m3) in year 11 onward would be needed to ensure the project breaks even (i.e. an NPV of 0 and PI of 1)? Please make assumptions as necessary and state all assumptions. Please provide a response assuming the SES would remain constant from year 11 onward. If Enbridge believes an escalating SES would be more likely, please also provide that additional information. For the purpose of this answer, please set aside whether the market could bear the increased surcharge.

(b) For each scenario, please calculate the revenue shortfall compared to the revenue forecast (i) over years 1 to 10, and (ii) over years 11 to 40. Please express the answer in both nominal terms and NPV.

Response:

(a) Enbridge Gas notes the leave to construct ("LTC") application for the Project was filed with the OEB as a qualifying investment under O. Reg. 24/19. Although Enbridge Gas has responded to the scenarios highlighted in this question, it further

notes these hypothetical scenarios have no impact on the proposed facilities subject to this LTC and thus should not be taken into account with this Application. It is assumed under each of the three scenarios, that the SES for years 1 to 10 would remain at $0.23/m^3. For scenario 2, it is assumed that there would be no volumes, and therefore revenue, after year 19. It is however assumed that after year 19, there will continue to be property tax charged on project assets, with an associated income tax benefit associated with the property tax.

The SES ($/m^3) in years 11 onward for the three scenarios outlined above is calculated as follows:

- Scenario 1 - $0.44/m^3
- Scenario 2 - $1.33/m^3
- Scenario 3 - $0.35/m^3

In this application Enbridge Gas has requested that the Board approve a $0.23/m^3 SES to be applicable to customers served by this project for forty years. The cost of natural gas as a fuel for home heating and water heating including the SES as proposed is competitive compared to alternate energy sources. This is supported by market research and provides the typical customer converting to natural gas with a reasonable payback period given the cost of converting their heating and water heating systems to natural gas. Setting the SES at a higher rate would result in delays in the conversion of customers to natural gas, negatively impacting the economics of the project .

(b) Please refer to Attachments 1 to 3 for the requested information in nominal (undiscounted) terms and net present value (NPV).

Revenue Shortfall

Nominal Values

Year	Years 1-10	Years 11-40	1	2	3	4	5	6	7	8	9	10	11	12	13
($000's)	Total	Total	Total												
Distribution Revenue	623	53	570	-	-	-	-	-	4	7	11	14	17	19	19	19
SES Revenue	656	56	600	-	-	-	-	-	4	7	11	15	19	20	20	20
Total	1,279	109	1,170	0	0	0	0	0	8	14	22	29	36	39	39	39

Revenue Shortfall

Net Present Value

Year	Years 1-10	Years 11-40	1	2	3	4	5	6	7	8	9	10	11	12	13
($000's)	Total	Total	Total												
Distribution Revenue	219	36	183	-	-	-	-	-	3	5	8	9	11	11	11	10
SES Revenue	230	38	193	-	-	-	-	-	3	5	8	10	12	12	11	11
Total	449	73	375	0	0	0	0	0	6	10	15	19	23	23	22	21

Scenario 1

Year	Years 1-10	Years 11-40	1	2	3	4	5	6	7	8	9	10	11	12	13
($000's)	Total	Total	Total												
Distribution Revenue	1,693	373	1,320	9	25	35	40	44	44	44	44	44	44	44	44	44
SES Revenue	1,885	415	1,470	10	27	39	45	49	49	49	49	49	49	49	49	49
Total	3,578	788	2,790	19	52	74	85	93	93	93	93	93	93	93	93	93

Original - as Filed

Year	Years 1-10	Years 11-40	1	2	3	4	5	6	7	8	9	10	11	12	13
($000's)	Total	Total	Total												
Distribution Revenue	2,316	426	1,890	9	25	35	40	44	48	51	55	58	61	63	63	63
SES Revenue	2,541	471	2,070	10	27	39	45	49	53	56	60	64	68	69	69	69
Total	4,857	897	3,960	19	52	74	85	93	101	107	115	122	129	132	132	132

Revenue Shortfall

Nominal Values

($000's)	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
Distribution Revenue	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
SES Revenue	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
Total	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39

Revenue Shortfall

Net Present Value

($000's)	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
Distribution Revenue	10	9	9	8	8	8	7	7	7	6	6	6	5	5	5	5
SES Revenue	10	10	9	9	8	8	8	7	7	7	6	6	6	5	5	5
Total	20	19	18	17	17	16	15	14	14	13	12	12	11	11	10	10

Scenario 1

($000's)	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
Distribution Revenue	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44
SES Revenue	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49
Total	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93

Original - as Filed

($000's)	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
Distribution Revenue	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63
SES Revenue	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69
Total	132	132	132	132	132	132	132	132	132	132	132	132	132	132	132	132

Revenue Shortfall

Nominal Values

($000's)	30	31	32	33	34	35	36	37	38	39	40
Distribution Revenue	19	19	19	19	19	19	19	19	19	19	19
SES Revenue	20	20	20	20	20	20	20	20	20	20	20
Total	39	39	39	39	39	39	39	39	39	39	39

Revenue Shortfall

Net Present Value

($000's)	30	31	32	33	34	35	36	37	38	39	40
Distribution Revenue	4	4	4	4	4	4	3	3	3	3	3
SES Revenue	5	4	4	4	4	4	4	3	3	3	3
Total	9	9	8	8	8	7	7	7	6	6	6

Scenario 1

($000's)	30	31	32	33	34	35	36	37	38	39	40
Distribution Revenue	44	44	44	44	44	44	44	44	44	44	44
SES Revenue	49	49	49	49	49	49	49	49	49	49	49
Total	93	93	93	93	93	93	93	93	93	93	93

Original - as Filed

($000's)	30	31	32	33	34	35	36	37	38	39	40
Distribution Revenue	63	63	63	63	63	63	63	63	63	63	63
SES Revenue	69	69	69	69	69	69	69	69	69	69	69
Total	132	132	132	132	132	132	132	132	132	132	132

Revenue Shortfall

Nominal Values

Year	Years 1-10	Years 11-40	1	2	3	4	5	6	7	8	9	10	11	12	13
($000's)	Total	Total	Total													
Distribution Revenue	1,452	-	1,452	-	-	-	-	-	-	-	-	-	-	3	6	9
SES Revenue	1,759	-	1,759	-	-	-	-	-	-	-	-	-	-	7	14	21
Total	3,211	0	3,211	0	0	0	0	0	0	0	0	0	0	10	20	30

Revenue Shortfall

Net Present Value

Year	Years 1-10	Years 11-40	1	2	3	4	5	6	7	8	9	10	11	12	13
($000's)	Total	Total	Total													
Distribution Revenue	385	-	385	-	-	-	-	-	-	-	-	-	-	2	3	5
SES Revenue	500	-	500	-	-	-	-	-	-	-	-	-	-	4	8	11
Total	886	0	886	0	0	0	0	0	0	0	0	0	0	6	11	16

Scenario 2

Year	Years 1-10	Years 11-40	1	2	3	4	5	6	7	8	9	10	11	12	13
($000's)	Total	Total	Total													
Distribution Revenue	864	426	438	9	25	35	40	44	48	51	55	58	61	60	57	54
SES Revenue	782	471	311	10	27	39	45	49	53	56	60	64	68	62	55	48
Total	1,646	897	749	19	52	74	85	93	101	107	115	122	129	122	112	102

Original - as Filed

Year	Years 1-10	Years 11-40	1	2	3	4	5	6	7	8	9	10	11	12	13
($000's)	Total	Total	Total													
Distribution Revenue	2,316	426	1,890	9	25	35	40	44	48	51	55	58	61	63	63	63
SES Revenue	2,541	471	2,070	10	27	39	45	49	53	56	60	64	68	69	69	69
Total	4,857	897	3,960	19	52	74	85	93	101	107	115	122	129	132	132	132

Revenue Shortfall

Nominal Values

($000's)	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
Distribution Revenue	11	14	17	20	23	26	63	63	63	63	63	63	63	63	63	63
SES Revenue	28	34	41	48	55	62	69	69	69	69	69	69	69	69	69	69
Total	39	48	58	68	78	88	132	132	132	132	132	132	132	132	132	132

Revenue Shortfall

Net Present Value

($000's)	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
Distribution Revenue	6	7	8	9	10	11	24	23	22	21	20	19	18	17	16	16
SES Revenue	14	17	19	21	23	25	27	25	24	23	22	21	20	19	18	17
Total	20	24	27	30	33	36	51	48	46	44	42	40	38	36	34	33

Scenario 2

($000's)	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
Distribution Revenue	52	49	46	43	40	37	-	-	-	-	-	-	-	-	-	-
SES Revenue	41	35	28	21	14	7	-	-	-	-	-	-	-	-	-	-
Total	93	84	74	64	54	44	0	0	0	0	0	0	0	0	0	0

Original - as Filed

($000's)	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
Distribution Revenue	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63
SES Revenue	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69
Total	132	132	132	132	132	132	132	132	132	132	132	132	132	132	132	132

Revenue Shortfall

Nominal Values

($000's)	30	31	32	33	34	35	36	37	38	39	40
Distribution Revenue	63	63	63	63	63	63	63	63	63	63	63
SES Revenue	69	69	69	69	69	69	69	69	69	69	69
Total	132	132	132	132	132	132	132	132	132	132	132

Revenue Shortfall

Net Present Value

($000's)	30	31	32	33	34	35	36	37	38	39	40
Distribution Revenue	15	14	13	13	12	12	11	11	10	10	9
SES Revenue	16	15	15	14	13	13	12	12	11	10	10
Total	31	30	28	27	26	24	23	22	21	20	19

Scenario 2

($000's)	30	31	32	33	34	35	36	37	38	39	40
Distribution Revenue	-	-	-	-	-	-	-	-	-	-	-
SES Revenue	-	-	-	-	-	-	-	-	-	-	-
Total	0	0	0	0	0	0	0	0	0	0	0

Original - as Filed

($000's)	30	31	32	33	34	35	36	37	38	39	40
Distribution Revenue	63	63	63	63	63	63	63	63	63	63	63
SES Revenue	69	69	69	69	69	69	69	69	69	69	69
Total	132	132	132	132	132	132	132	132	132	132	132

Revenue Shortfall

Nominal Values

Year	Years 1-10	Years 11-40	1	2	3	4	5	6	7	8	9	10	11	12	13
($000's)	Total	Total	Total													
Distribution Revenue	218	38	180	1	3	3	3	4	5	4	5	5	5	6	6	6
SES Revenue	515	95	420	2	5	8	9	10	11	11	12	13	14	14	14	14
Total	733	133	600	3	8	11	12	14	16	15	17	18	19	20	20	20

Revenue Shortfall

Net Present Value

Year	Years 1-10	Years 11-40	1	2	3	4	5	6	7	8	9	10	11	12	13
($000's)	Total	Total	Total													
Distribution Revenue	87	29	58	1	3	3	3	3	4	3	3	3	3	4	3	3
SES Revenue	206	71	135	2	5	7	8	8	8	8	8	9	9	8	8	8
Total	293	100	193	3	7	10	10	11	12	11	12	12	12	12	11	11

Scenario 3

Year	Years 1-10	Years 11-40	1	2	3	4	5	6	7	8	9	10	11	12	13
($000's)	Total	Total	Total													
Distribution Revenue	2,098	388	1,710	8	22	32	37	40	43	47	50	53	56	57	57	57
SES Revenue	2,026	376	1,650	8	22	31	36	39	42	45	48	51	54	55	55	55
Total	4,124	764	3,360	16	44	63	73	79	85	92	98	104	110	112	112	112

Original - as Filed

Year	Years 1-10	Years 11-40	1	2	3	4	5	6	7	8	9	10	11	12	13
($000's)	Total	Total	Total													
Distribution Revenue	2,316	426	1,890	9	25	35	40	44	48	51	55	58	61	63	63	63
SES Revenue	2,541	471	2,070	10	27	39	45	49	53	56	60	64	68	69	69	69
Total	4,857	897	3,960	19	52	74	85	93	101	107	115	122	129	132	132	132

Revenue Shortfall

Nominal Values

($000's)	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
Distribution Revenue	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
SES Revenue	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14
Total	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20

Revenue Shortfall

Net Present Value

($000's)	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
Distribution Revenue	3	3	3	3	3	2	2	2	2	2	2	2	2	2	2	1
SES Revenue	7	7	7	6	6	6	5	5	5	5	4	4	4	4	4	3
Total	10	10	9	9	8	8	8	7	7	7	6	6	6	5	5	5

Scenario 3

($000's)	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
Distribution Revenue	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57
SES Revenue	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55
Total	112	112	112	112	112	112	112	112	112	112	112	112	112	112	112	112

Original - as Filed

($000's)	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
Distribution Revenue	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63
SES Revenue	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69
Total	132	132	132	132	132	132	132	132	132	132	132	132	132	132	132	132

Revenue Shortfall

Nominal Values

($000's)	30	31	32	33	34	35	36	37	38	39	40
Distribution Revenue	6	6	6	6	6	6	6	6	6	6	6
SES Revenue	14	14	14	14	14	14	14	14	14	14	14
Total	20	20	20	20	20	20	20	20	20	20	20

Revenue Shortfall

Net Present Value

($000's)	30	31	32	33	34	35	36	37	38	39	40
Distribution Revenue	1	1	1	1	1	1	1	1	1	1	1
SES Revenue	3	3	3	3	3	3	2	2	2	2	2
Total	5	4	4	4	4	4	4	3	3	3	3

Scenario 3

($000's)	30	31	32	33	34	35	36	37	38	39	40
Distribution Revenue	57	57	57	57	57	57	57	57	57	57	57
SES Revenue	55	55	55	55	55	55	55	55	55	55	55
Total	112	112	112	112	112	112	112	112	112	112	112

Original - as Filed

($000's)	30	31	32	33	34	35	36	37	38	39	40
Distribution Revenue	63	63	63	63	63	63	63	63	63	63	63
SES Revenue	69	69	69	69	69	69	69	69	69	69	69
Total	132	132	132	132	132	132	132	132	132	132	132

ENBRIDGE GAS INC.

Answer to Interrogatory from
Environmental Defence (ED)

INTERROGATORY

Reference:

Exhibit B, Tab 2, Schedule 6

Questions:

(a) Does Enbridge undertake **not** to seek to increase the surcharge levied on customers in the project area (the SES) in years 11 through 40 to recover revenue shortfalls or cost overruns arising in years 1 through 10?

(b) If there are revenue shortfalls or cost overruns over years 1 to 10, would Enbridge seek to recover all or some those amounts by increasing the system expansion surcharge levied on customers in the project area in future years (e.g. year 11 or onward)? If yes, what proportion and in what circumstances? Assume for the sake of the answer that the market would bear the increase.

(c) If there are significant revenue shortfalls in year 11 onward, would Enbridge seek to recover all or some those amounts by increasing the system expansion surcharge levied on customers in the project? If yes, by how much? Assume for the sake of the answer that the market would bear the increase.

Response:

(a) Enbridge Gas does not intend to seek an increase to the System Expansion Surcharge ("SES") to be levied on customers in the Project area in years 11 through 40 to recover revenue shortfalls or cost overruns arising in years 1 through 10.

(b) Enbridge Gas has proposed and expects that the basis of the OEB's approval will be the same as that approved by the OEB in its EB-2015-0179 Decision. In that Decision the Board determined that cost overruns may be brought forward to be included in rate base at the next rebasing/incentive rate making proceeding, which would be the case for any cost variance from budget for any capital project undertaken by the Company. With respect to the potential for revenue shortfalls, the Company will be at risk for such shortfalls during the 10-year Rate Stabilization Period as described at Exhibit B, Tab 1, Schedule 1, page 4.

(c) No.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Environmental Defence (ED)

INTERROGATORY

Reference:

Exhibit B, Tab 2, Schedule 6

Questions:

(a) Are existing customers 100% insulated from the responsibility for revenue shortfalls and cost overruns? Please explain your answer. For the purpose of this answer, set aside the $8.7 million subsidy.

(b) If there are significant revenue shortfalls or cost overruns in years 1 though 10 that Enbridge is unable to recoup from increasing the system expansion surcharge, does Enbridge undertake not to seek to recoup the amounts from existing Enbridge customers?

(c) If there are significant revenue shortfalls or cost overruns in years 11 though 40 that Enbridge is unable to recoup from increasing the system expansion surcharge, does Enbridge undertake not to seek to recoup the amounts from existing Enbridge customers?

(d) If the proposed expansion becomes a stranded asset in 2040 and the project NPV remains far below 1, are existing customers protected from the liability? Please explain.

(e) If existing customers are protected from liability for revenue shortfalls, please explain the accounting and regulatory mechanisms in place to ensure that is the case. For example, are the capital costs added to rate base or accounted for separately? Would future board orders or accounting steps be needed to ensure that existing customers are protected?

Response:

(a) Existing customers are protected from revenue deficiencies that could possibly be associated with this Project to the same extent that they would be in the event any other capital project undertaken by the Company which is subject to the OEB's E.B.O. 188 Guidelines. In fact, the degree that existing customers are protected

from such potential revenue shortfalls is enhanced in this case given the Rate Stability Period noted at Exhibit B, Tab 1, Schedule 1, page 4.

(b) Any revenue shortfalls or surpluses associated with this Project will be eligible for recovery or reduction in base rates at the end of the Rate Stability Period. The only difference in this case from any other utility capital project undertaken by the Company is that such recovery or reduction is delayed until the end of the Rate Stability Period for this Project.

(c) Please see the response to part (b) above.

(d) Please see Exhibit I.ED.4 part b).

(e) Please see Exhibit I.ED.4 part b).

ENBRIDGE GAS INC.

Answer to Interrogatory from
Environmental Defence (ED)

INTERROGATORY

Reference:

Exhibit B, Tab 2, Schedule 6

Preamble:

According the Canadian Energy Regulator:

"The Board requires all pipelines to set aside funds to safely cease operation of a pipeline at the end of its useful life. In 2016, TCPL estimated it would cost $2.9 billion to do this for the Mainline. These funds will be collected over 25 years and are being set aside in a trust."[1]

Questions:

(a) How much would it cost to safely cease operations of the proposed pipeline if in the future the pipeline was no longer used and a decision was made to cease operations and abandon the pipe?

(b) If the proposed pipeline becomes a stranded asset in 2040, who would be responsible to pay the abandonment costs? All Ontario gas ratepayers?

Response:

(a) If the line is ever proposed for abandonment, a detailed plan that complies with all applicable legislation, regulation and code requirements will be developed prior to abandonment. Enbridge Gas is not able to provide an estimate regarding the cost to abandon as the applicable regulations and potential construction and labour costs are not known at this time.

(b) In the Company's experience, new customers such as those in the Project Area remain as customers for at least 40 years or longer. It is speculative and without basis to assume that the Project assets would become stranded in 2040. In any

[1] https://www.cer-rec.gc.ca/nrg/ntgrtd/pplnprtl/pplnprfls/ntrlgs/trnscndmnln-eng.html

event, the Company is not able to answer this question with certainty because it would depend upon the circumstances leading up to abandonment. A provision for future abandonment costs is included in OEB approved gas distribution rates and is collected in the asset depreciation rate. Future abandonment costs charged to earnings through the depreciation expense are recorded as a liability on the Enbridge Gas financial statements and are collected from all ratepayers. Depending on the circumstances, the costs could be charged to ratepayers in different manners, such as through higher net salvage rates included within depreciation rates and provisions included within rates, for a period of time leading up to and or after the abandonment. While less likely, it is also possible that the pipe retirement and abandonment could be treated as an extraordinary retirement, and a loss could be included within rates. It is also possible, that should such a situation arise, the Board could order some other mechanism for recovery.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Environmental Defence (ED)

INTERROGATORY

Reference:

Exhibit B, Tab 2, Schedule 6

Preamble:

Please answer the below questions regarding these three scenarios:

(1) Volumes plateau at the year 5 forecast level and do not increase thereon in.

(2) After year 10, volumes decline 10% per year for ten years to nil.

(3) Volumes are 20% less than forecast throughout the economic life of the project.

For each scenario, assume the surcharge is held constant at $0.23 over the full 40 years (e.g. to prevent customers converting away from gas).

Questions:

(a) For each scenario, please reproduce the Project Discounted Cash Flow in Exhibit B, Tab 2, Schedule 6. Please indicate the PI and NPV.

(b) For each scenario, please explain who would ultimately bear the revenue shortfalls (e.g. Enbridge, existing ratepayers, or new project ratepayers).

(c) For each scenario, please complete the following chart indicating who would bear the revenue shortfalls:

Responsibility for Revenue Shortfalls – Scenario Analysis				
	Year 1	…	Year 30	Total
Scenario 1: Forecast volumes plateau in year 5 and do not increase thereon in				
Enbridge				
Existing Ratepayers				
New Project Ratepayers[2]				
Scenario 2: Forecast volumes after year 10 decline 20% per year for five years to nil				
Enbridge				
Existing Ratepayers				
New Project Ratepayers				
Scenario 3: Forecast volumes are 20% less than forecast throughout the economic life of the project.				
Enbridge				
Existing Ratepayers				
New Project Ratepayers				

For each of the above, please make assumptions as necessary and state all assumptions. If the calculations are a challenge, please answer the question on a best-efforts basis and with any caveats as necessary. If certain parts of the answer cannot be estimated, please explain why and complete as much of the answer as possible.

Response:

(a) Please see Attachments 1, 2 and 3.

(b) Enbridge Gas notes the leave to construct ("LTC") application for the Project was filed with the OEB as a qualifying investment O. Reg. 24/19. Further to its response below, Enbridge Gas notes these hypothetical scenarios have no impact on the proposed facilities subject to this LTC and thus should not be taken into account with this Application. Consistent with the Board's Decision in the Generic Proceeding on Community Expansion (EB-2016-0004), Enbridge Gas has proposed a Rate Stability Period of 10 years. During the Rate Stability Period, Enbridge Gas will bear the risk of variances from forecast project revenue. Following the Rate Stability Period, Enbridge Gas may propose to treat the project in the same manner as other costs

[2] i.e. Ratepayers served by the new community expansion.

for rate making purposes. At that time Enbridge Gas expects to provide a revised project DCF calculation based on actuals with its proposal for the OEB's review. If accepted by the OEB, the revenue requirement of the project would be included in the determination of rates for existing ratepayers, including additional ratepayers as a result of the project, at that time.

(c) As described in part b), Enbridge Gas will bear the risk of revenue shortfall during the Rate Stability Period. Beyond the Rate Stability Period please see the Company's response to part b) of this question.

Northshore and Peninsula Road
InService Date: Nov-01-2020

Project Year ($000's)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Cash Inflow															
SES Revenue	10	27	39	45	49	49	49	49	49	49	49	49	49	49	49
ITE Revenue	16	16	16	16	16	16	16	16	16	16	-	-	-	-	-
Distribution Revenue	9	25	35	40	44	44	44	44	44	44	44	44	44	44	44
Expenses:															
O & M Expense	(1)	(4)	(6)	(7)	(8)	(8)	(9)	(10)	(11)	(12)	(12)	(12)	(13)	(13)	(13)
Municipal Tax	(28)	(28)	(28)	(28)	(28)	(28)	(28)	(28)	(28)	(28)	(28)	(28)	(28)	(28)	(28)
Income Tax	22	-	(5)	(7)	(9)	(7)	(6)	(5)	(5)	(4)	1	-	(1)	(2)	(2)
Net Cash Inflow	28	36	51	59	64	66	66	66	65	65	54	53	51	50	50
Cash Outflow															
Incremental Capital	(22)	473	207	133	103	118	103	118	103	89	-	-	-	-	-
Change in Working Capital	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cash Outflow	(22)	473	207	133	103	118	103	118	103	89	-	-	-	-	-
Cumulative Net Present Value															
Cash Inflow	27	61	107	158	210	261	309	356	400	441	473	503	531	558	582
Cash Outflow	(22)	429	617	731	816	909	986	1,069	1,139	1,196	1,196	1,196	1,196	1,196	1,196
NPV By Year	49	(368)	(510)	(573)	(606)	(648)	(677)	(713)	(739)	(755)	(723)	(693)	(665)	(638)	(614)
Project NPV	(317)														
Profitability Index															
By Year PI	-1.23	0.14	0.17	0.22	0.26	0.29	0.31	0.33	0.35	0.37	0.40	0.42	0.44	0.47	0.49
Project PI	0.73														

Northshore and Peninsula Road
InService Date: Nov-01-2020

Project Year ($000's)	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Cash Inflow															
SES Revenue	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49
ITE Revenue	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Distribution Revenue	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44
Expenses:															
O & M Expense	(13)	(14)	(14)	(14)	(14)	(15)	(15)	(15)	(15)	(16)	(16)	(16)	(16)	(17)	(17)
Municipal Tax	(28)	(28)	(28)	(28)	(28)	(28)	(28)	(28)	(28)	(28)	(28)	(28)	(28)	(28)	(28)
Income Tax	(3)	(4)	(4)	(5)	(5)	(6)	(6)	(6)	(7)	(7)	(7)	(8)	(8)	(8)	(8)
Net Cash Inflow	49	47	47	46	46	44	44	44	43	42	42	41	41	40	40
Cash Outflow															
Incremental Capital	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Change in Working Capital	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cash Outflow	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cumulative Net Present Value															
Cash Inflow	605	626	646	665	683	699	715	730	743	756	768	779	790	800	810
Cash Outflow	1,196	1,196	1,196	1,196	1,196	1,196	1,196	1,196	1,196	1,196	1,196	1,196	1,196	1,196	1,196
NPV By Year	(591)	(570)	(550)	(531)	(513)	(497)	(481)	(466)	(453)	(440)	(428)	(417)	(406)	(396)	(386)
Project NPV															
Profitability Index															
By Year PI	0.51	0.52	0.54	0.56	0.57	0.58	0.60	0.61	0.62	0.63	0.64	0.65	0.66	0.67	0.68
Project PI															

Northshore and Peninsula Road
InService Date: Nov-01-2020

Project Year ($000's)	31	32	33	34	35	36	37	38	39	40
Cash Inflow										
SES Revenue	49	49	49	49	49	49	49	49	49	49
ITE Revenue	-	-	-	-	-	-	-	-	-	-
Distribution Revenue	44	44	44	44	44	44	44	44	44	44
Expenses:										
O & M Expense	(17)	(17)	(18)	(18)	(18)	(18)	(18)	(18)	(18)	(18)
Municipal Tax	(28)	(28)	(28)	(28)	(28)	(28)	(28)	(28)	(28)	(28)
Income Tax	(9)	(9)	(9)	(9)	(9)	(9)	(10)	(10)	(10)	(10)
Net Cash Inflow	39	39	38	38	38	38	37	37	37	37
Cash Outflow										
Incremental Capital	-	-	-	-	-	-	-	-	-	-
Change in Working Capital	-	-	-	-	-	-	-	-	-	-
Cash Outflow	-	-	-	-	-	-	-	-	-	-
Cumulative Net Present Value										
Cash Inflow	819	827	835	842	849	856	862	868	874	879
Cash Outflow	1,196	1,196	1,196	1,196	1,196	1,196	1,196	1,196	1,196	1,196
NPV By Year	(377)	(369)	(361)	(354)	(347)	(340)	(334)	(328)	(322)	(317)
Project NPV										
Profitability Index										
By Year PI	0.68	0.69	0.70	0.70	0.71	0.72	0.72	0.73	0.73	0.73
Project PI										

Northshore and Peninsula Road
InService Date: Nov-01-2020

Project Year ($000's)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Cash Inflow															
SES Revenue	10	27	39	45	49	53	56	60	64	68	62	55	48	41	35
ITE Revenue	16	16	16	16	16	16	16	16	16	16	-	-	-	-	-
Distribution Revenue	9	25	35	40	44	48	51	55	58	61	60	57	54	52	49
Expenses:															
O & M Expense	(1)	(4)	(6)	(7)	(8)	(8)	(9)	(10)	(11)	(12)	(12)	(12)	(13)	(13)	(13)
Municipal Tax	(28)	(28)	(28)	(28)	(28)	(28)	(28)	(28)	(28)	(28)	(28)	(28)	(28)	(28)	(28)
Income Tax	22	-	(5)	(7)	(9)	(9)	(10)	(11)	(12)	(13)	(7)	(5)	(4)	(2)	-
Net Cash Inflow	28	36	51	59	64	72	76	82	87	92	75	67	57	50	43
Cash Outflow															
Incremental Capital	(22)	473	207	133	103	118	103	118	103	89	-	-	-	-	-
Change in Working Capital	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cash Outflow	(22)	473	207	133	103	118	103	118	103	89	-	-	-	-	-
Cumulative Net Present Value															
Cash Inflow	27	61	107	158	210	265	321	379	437	495	540	578	610	637	658
Cash Outflow	(22)	429	617	731	816	909	986	1,069	1,139	1,196	1,196	1,196	1,196	1,196	1,196
NPV By Year	49	(368)	(510)	(573)	(606)	(644)	(665)	(690)	(702)	(701)	(656)	(618)	(586)	(559)	(538)
Project NPV	(575)														
Profitability Index															
By Year PI	-1.23	0.14	0.17	0.22	0.26	0.29	0.33	0.35	0.38	0.41	0.45	0.48	0.51	0.53	0.55
Project PI	0.52														

Northshore and Peninsula Road
InService Date: Nov-01-2020

Project Year ($000's)	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Cash Inflow															
SES Revenue	28	21	14	7	-	-	-	-	-	-	-	-	-	-	-
ITE Revenue	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Distribution Revenue	46	43	40	37	-	-	-	-	-	-	-	-	-	-	-
Expenses:															
O & M Expense	(13)	(14)	(14)	(14)	-	-	-	-	-	-	-	-	-	-	-
Municipal Tax	(28)	(28)	(28)	(28)	(28)	(28)	(28)	(28)	(28)	(28)	(28)	(28)	(28)	(28)	(28)
Income Tax	2	4	6	8	16	15	15	14	14	13	13	13	12	12	12
Net Cash Inflow	35	26	18	10	(12)	(13)	(13)	(14)	(14)	(15)	(15)	(15)	(16)	(16)	(16)
Cash Outflow															
Incremental Capital	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Change in Working Capital	-	-	-	-	(1)	-	-	-	-	-	-	-	-	-	-
Cash Outflow	-	-	-	-	(1)	-	-	-	-	-	-	-	-	-	-
Cumulative Net Present Value															
Cash Inflow	674	686	694	698	694	689	685	680	676	672	668	664	660	656	652
Cash Outflow	1,196	1,196	1,196	1,196	1,196	1,196	1,196	1,196	1,196	1,196	1,196	1,196	1,196	1,196	1,196
NPV By Year	(522)	(510)	(502)	(498)	(502)	(507)	(511)	(516)	(520)	(524)	(528)	(532)	(536)	(540)	(544)
Project NPV															
Profitability Index															
By Year PI	0.56	0.57	0.58	0.58	0.58	0.58	0.57	0.57	0.57	0.56	0.56	0.55	0.55	0.55	0.55
Project PI															

Northshore and Peninsula Road
InService Date: Nov-01-2020

Project Year ($000's)	31	32	33	34	35	36	37	38	39	40
Cash Inflow										
SES Revenue	-	-	-	-	-	-	-	-	-	-
ITE Revenue	-	-	-	-	-	-	-	-	-	-
Distribution Revenue	-	-	-	-	-	-	-	-	-	-
Expenses:										
O & M Expense	-	-	-	-	-	-	-	-	-	-
Municipal Tax	(28)	(28)	(28)	(28)	(28)	(28)	(28)	(28)	(28)	(28)
Income Tax	12	11	11	11	11	10	10	10	10	10
Net Cash Inflow	(16)	(17)	(17)	(17)	(17)	(18)	(18)	(18)	(18)	(18)
Cash Outflow										
Incremental Capital	-	-	-	-	-	-	-	-	-	-
Change in Working Capital	-	-	-	-	-	-	-	-	-	-
Cash Outflow	-	-	-	-	-	-	-	-	-	-
Cumulative Net Present Value										
Cash Inflow	649	645	642	638	635	632	629	627	624	621
Cash Outflow	1,196	1,196	1,196	1,196	1,196	1,196	1,196	1,196	1,196	1,196
NPV By Year	(547)	(551)	(554)	(558)	(561)	(564)	(567)	(569)	(572)	(575)
Project NPV										
Profitability Index										
By Year PI	0.54	0.54	0.54	0.53	0.53	0.53	0.53	0.52	0.52	0.52
Project PI										

Northshore and Peninsula Road
InService Date: Nov-01-2020

Project Year ($000's)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Cash Inflow															
SES Revenue	8	22	31	36	39	42	45	48	51	54	55	55	55	55	55
ITE Revenue	16	16	16	16	16	16	16	16	16	16	-	-	-	-	-
Distribution Revenue	8	22	32	37	40	43	47	50	53	56	57	57	57	57	57
Expenses:															
O & M Expense	(1)	(4)	(6)	(7)	(8)	(8)	(9)	(10)	(11)	(12)	(12)	(12)	(13)	(13)	(13)
Municipal Tax	(28)	(28)	(28)	(28)	(28)	(28)	(28)	(28)	(28)	(28)	(28)	(28)	(28)	(28)	(28)
Income Tax	22	2	(2)	(3)	(5)	(5)	(6)	(6)	(8)	(8)	(5)	(5)	(6)	(7)	(8)
Net Cash Inflow	25	30	43	51	54	60	65	70	73	78	67	67	65	64	63
Cash Outflow															
Incremental Capital	(22)	473	207	133	103	118	103	118	103	89	-	-	-	-	-
Change in Working Capital	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cash Outflow	(22)	473	207	133	103	118	103	118	103	89	-	-	-	-	-
Cumulative Net Present Value															
Cash Inflow	25	54	93	136	181	227	275	324	373	423	464	502	537	571	603
Cash Outflow	(22)	429	617	731	816	909	986	1,069	1,139	1,196	1,196	1,196	1,196	1,196	1,196
NPV By Year	47	(375)	(524)	(595)	(635)	(682)	(711)	(745)	(766)	(773)	(732)	(694)	(659)	(625)	(593)
Project NPV	(197)														
Profitability Index															
By Year PI	-1.14	0.13	0.15	0.19	0.22	0.25	0.28	0.30	0.33	0.35	0.39	0.42	0.45	0.48	0.50
Project PI	0.83														

Northshore and Peninsula Road
InService Date: Nov-01-2020

Project Year ($000's)	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Cash Inflow															
SES Revenue	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55
ITE Revenue	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Distribution Revenue	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57
Expenses:															
O & M Expense	(13)	(14)	(14)	(14)	(14)	(15)	(15)	(15)	(15)	(16)	(16)	(16)	(16)	(17)	(17)
Municipal Tax	(28)	(28)	(28)	(28)	(28)	(28)	(28)	(28)	(28)	(28)	(28)	(28)	(28)	(28)	(28)
Income Tax	(8)	(9)	(9)	(10)	(10)	(11)	(11)	(12)	(12)	(12)	(12)	(13)	(13)	(13)	(13)
Net Cash Inflow	63	61	61	60	60	58	58	57	57	56	56	55	55	54	54
Cash Outflow															
Incremental Capital	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Change in Working Capital	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cash Outflow	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cumulative Net Present Value															
Cash Inflow	632	660	686	711	734	756	776	796	814	831	847	862	877	890	903
Cash Outflow	1,196	1,196	1,196	1,196	1,196	1,196	1,196	1,196	1,196	1,196	1,196	1,196	1,196	1,196	1,196
NPV By Year	(564)	(536)	(510)	(485)	(462)	(440)	(420)	(400)	(382)	(365)	(349)	(334)	(319)	(306)	(293)
Project NPV															
Profitability Index															
By Year PI	0.53	0.55	0.57	0.59	0.61	0.63	0.65	0.67	0.68	0.69	0.71	0.72	0.73	0.74	0.76
Project PI															

Northshore and Peninsula Road
InService Date: Nov-01-2020

Project Year ($000's)	31	32	33	34	35	36	37	38	39	40
Cash Inflow										
SES Revenue	55	55	55	55	55	55	55	55	55	55
ITE Revenue	-	-	-	-	-	-	-	-	-	-
Distribution Revenue	57	57	57	57	57	57	57	57	57	57
Expenses:										
O & M Expense	(17)	(17)	(18)	(18)	(18)	(18)	(18)	(18)	(18)	(18)
Municipal Tax	(28)	(28)	(28)	(28)	(28)	(28)	(28)	(28)	(28)	(28)
Income Tax	(14)	(14)	(14)	(14)	(14)	(15)	(15)	(15)	(15)	(15)
Net Cash Inflow	53	53	52	52	52	51	51	51	51	51
Cash Outflow										
Incremental Capital	-	-	-	-	-	-	-	-	-	-
Change in Working Capital	-	-	-	-	-	-	-	-	-	-
Cash Outflow	-	-	-	-	-	-	-	-	-	-
Cumulative Net Present Value										
Cash Inflow	915	927	938	948	958	967	975	984	991	999
Cash Outflow	1,196	1,196	1,196	1,196	1,196	1,196	1,196	1,196	1,196	1,196
NPV By Year	(281)	(269)	(258)	(248)	(238)	(229)	(221)	(212)	(205)	(197)
Project NPV										
Profitability Index										
By Year PI	0.77	0.77	0.78	0.79	0.80	0.81	0.82	0.82	0.83	0.83
Project PI										

ENBRIDGE GAS INC.

Answer to Interrogatory from
Environmental Defence (ED)

INTERROGATORY

Reference:

Exhibit B, Tab 1, Schedule 2, Page 1; Exhibit B, Tab 1, Schedule 1

Preamble:

Enbridge states: “A door-to-door survey was also completed for the Project in January 2018. The survey informed residents about the Project, estimates of the cost to convert to natural gas, and information regarding a surcharge to contribute towards the cost of the Project. The survey also requested information pertaining to dwelling characteristics, use of dwelling, current fuel type and interest in converting to natural gas-fuelled appliances.

Enbridge also states: “Enbridge Gas included the surcharge in savings estimates referenced in telephone or door-to-door surveys for the Proposed Project Area, and determined forecasted attachments based on the results of these surveys.”

Questions:

(a) Please list all surveys conducted of the residents in the project area, the date each was conducted, and the type.

(b) Please provide a copy of all survey forms delivered to residents in the project area (i.e. the blank form, not the completed survey).

(c) Please provide a copy of the scripts, speaking points, or similar such materials for the telephone and door-to-door surveys conducted for the Proposed Project Area.

(d) Please provide a copy of any information sheets or pamphlets given to potential customers in the project area during door-to-door surveys.

(e) Please provide the all data collected in the surveys including, but not limited to, the tallied responses to each survey question, and including, but not limited to, the breakdown of the various likelihoods of converting to gas (very likely, likely, not likely, etc.).

Response:

(a) A survey was conducted with residents in the Project area between January 16, 2018, and January 28, 2018. The survey was conducted door-to-door.

(b) The survey script was delivered verbally by research interviewers on a door-to-door basis with responses recorded on a tablet device. A copy of the survey instrument is included as an appendix to the research report prepared by the survey vendor. Please see Attachment 1 provided at Exhibit I.STAFF.5.

(c) Please see Attachment 1 at Exhibit I.STAFF.5. A copy of the survey instrument is included an appendix to the research report. The instrument includes the survey script, interviewer notes, and programming logic.

(d) No information sheets or pamphlets were given to potential customers in the Project area during the door-to-door surveys. The survey was delivered verbally.

(e) Please see Attachment 1 at Exhibit I.STAFF.5.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Environmental Defence (ED)

INTERROGATORY

Reference:

Exhibit B, Tab 1, Schedule 2, Page 2; Exhibit B, Tab 2, Schedule 2

Preamble:

Enbridge states that: “the results of the door-to-door survey described above indicate that 37% of the people surveyed are interested in obtaining natural gas service.”

Questions:

(a) Please provide all savings estimates communicated to potential customers in the January 2018 door-to-door survey on which the attachment forecast is based.

(b) Please provide the data, assumptions, and spreadsheets used to calculate those savings estimates. Please include, among other things, all underlying data and assumptions regarding commodity prices, carbon prices, carbon intensity, transmission and distribution costs, and so on. If any costs relating to a fuel type are excluded from the analysis, please state so.

(c) With respect to the savings estimates communicated to potential customers in the door-to-door survey on which the attachment forecast is based, please provide the carbon intensity / emissions factor assumed for each fuel type (e.g. CO2e/m3 and CO2e/kWh).

(d) The IESO presentation at the following link forecasts a carbon intensity of electricity of under 35 g CO2e/kWh on average over the next 10 years. Does Enbridge believe this is a reasonable forecast? - http://www.ieso.ca/-/media/Files/IESO/Document-Library/engage/cf/AppendixB6---Climate-Change-final.pdf?la=en (see p. 17).

(e) If the carbon intensity of electricity was assumed to be more than 40 g CO2e/kWh in Enbridge's savings calculations, please recalculate the savings estimates based on 35 g CO2e/kWh.

(f) Please confirm the assumptions with respect to carbon pricing underlying the savings estimates.

(g) With respect to the savings estimates communicated to potential customers in the door-to-door survey on which the attachment forecast is based, please recalculate the savings estimates based on the current federal carbon pricing (i.e. rising to $50/tonne in 2022).

(h) With respect to the savings estimates communicated to potential customers in the door-to-door survey on which the attachment forecast is based, please recalculate the savings estimates based on the cost of carbon emissions in "Canada's Ecofiscal Commission, *Bridging the Gap: Real Options for Meeting Canada's 2030 GHG Target*, November 2019"[3] (i.e. carbon price increases on a straight line basis to $210 tonne CO2e in 2030).

(i) If the carbon intensity of electricity was assumed to be more than 40 g CO2e/kWh in Enbridge's savings calculations, please recalculate the savings estimates produced in (f) and (g) based on 35 g CO2e/kWh.

For each of the above, please make assumptions as necessary and state all assumptions. If the calculations are a challenge, please answer the question on a best-efforts basis and with any caveats as necessary. If certain parts of the answer cannot be estimated, please explain why and complete as much of the answer as possible.

For each of the above, please provide the live excel spreadsheets to allow Environmental Defence to test different assumptions.

Response:

a) A copy of the survey instrument, which contains the cost saving estimates, is included as an appendix within the research report. Please see Attachment 1 provided in response to Exhibit I.STAFF.5.

[3] https://ecofiscal.ca/wp-content/uploads/2019/11/Ecofiscal-Commission-Bridging-the-Gap-November-27-2019-FINAL.pdf

b) Please see Attachment 1 to this response for the spreadsheet that was used to calculate the savings estimates. The cost assumptions embedded in the spreadsheet are provided below:

Fuel	Commodity Price	Carbon Price
Natural Gas	$0.13626/m^3	$0.03421/m^3
Heating Oil	$0.0649/L	$0.045/L
Propane	$0.914/L	$0.035/L
Electricity	$0.0650/kwh (off peak) $0.0950/kwh (mid peak) $0.1320/kwh (on peak)	N/A

Please see the "Common Inputs" in Attachment 1 for a complete list of assumptions.

c) The emission factors shown in Attachment 1 have been converted to the requested units and are provided in the table below.

Fuel	Emission Factor
Natural Gas	0.001921 tonnes CO_2e/m^3
Heating Oil	0.002714 tonnes CO_2e/L
Propane	0.001564 tonnes CO_2e/L
Electricity	0.00005 tonnes CO_2e/kWh

d) Enbridge Gas notes the link provided in this question references the Ontario Planning Outlook published by the Independent Electricity System Operator ("IESO") in 2018 or earlier, and therefore appears to be outdated. IESO published an updated Annual Planning Outlook in January 2020, which includes updated GHG and demand forecasts.[4] Based on the January 2020 forecasts provided by the IESO for GHG emissions and energy production, Enbridge Gas calculates an average carbon intensity over the next 10 years of 58 g CO2e/kWh in the reference case and 53 g CO2e/kWh in the energy efficiency case.[5]

e) Enbridge Gas used a carbon intensity of electricity of 50 g CO_2e/kWh, as shown in Attachment 1 and in the table provided in part c) above. Based on the current forecast provided in part d) above, it does not appear to be relevant to recalculate the savings using a carbon intensity of 35 g CO_2e/kWh.

[4] Available at http://www.ieso.ca/en/Sector-Participants/Planning-and-Forecasting/Annual-Planning-Outlook
[5] Carbon intensity is calculated using the following equation: Carbon intensity (gCO2e/kWh) = GHG emissions (MT CO2e)/Production (TWh) * 1000.

f) Enbridge Gas made the following assumptions regarding carbon pricing in the cost estimates:
- For natural gas the cost of carbon was the Cap-and-Trade rate in place at the time the calculations were made (January 2018) for Union North Rate 01
- For propane, the cost of carbon came directly from a propane customer's bill in the North Bay area
- For heating oil, an oil customer's bill in the North Bay area was obtained; however, the cost of carbon was not separated out, therefore the cost of carbon was based on an average of carbon prices charged at the time of $0.04/L to $0.05/L. Of the total volumetric rate of $0.959/L on the customer bill, Enbridge Gas has assumed $0.045/L was for Cap-and-Trade.

g) Enbridge Gas has used the savings calculator provided in Attachment 1 to calculate the savings estimates using the charge rates in Schedule 2 of the Greenhouse Gas Pollution Pricing Act. These savings estimates are based on home heating only and Enbridge Gas notes that actual savings would depend on the actual volume the customer uses.

	2020	**2021**	**2022**
Annual Customer Savings - Switching from Heating Oil	$1,081	$1,100	$1,205
Annual Customer Savings - Switching from Propane	$1,002	$997	$1,004
Annual Customer Savings - Switching from Electricity	$1,006	$966	$926

h) Enbridge Gas is of the view it is not appropriate to perform calculations based on carbon prices which are speculative.

i) Please see response to part e) above.

Residential Natural Gas Conversion Savings Estimate

Fuel Rates Union Gas Rate Zone: Union NE / Including SES — Electric Rates: N Bay Hydro

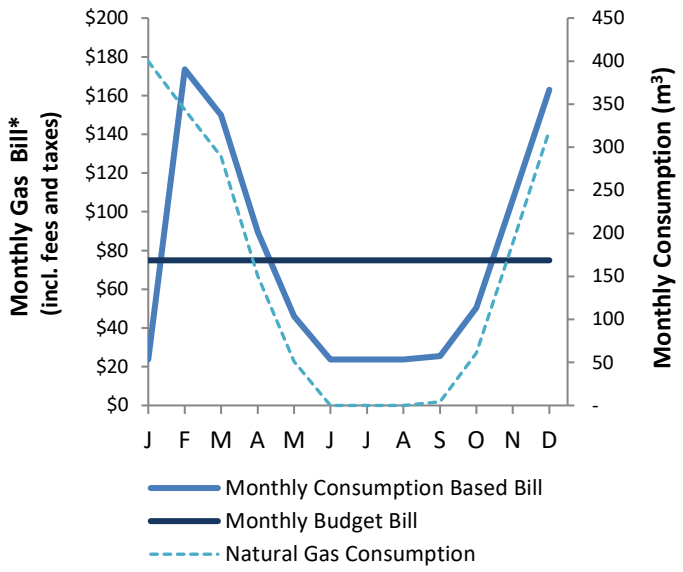
	Nominal Price Per Litre	Per Litre Cap &Trade Fee	Other Annual Costs
Propane:	$0.649	$0.035	
Fuel Oil:	$0.959		

Total Annual Cost for Wood: $1,141

Home Details Type of Home: Single detached — Home construction year: 1971-1980
Size of home (excl. basement) in sq. ft.: 1,500-1,999 — Occupants: 3

Equipment/Appliances to be Converted to Natural Gas:	Current Fuel	Annual Consumption: Current Fuel	Annual Consumption: Nat Gas (m^3)	Annual Cost: Current Fuel	Annual Cost: Nat Gas*	Annual Savings
☑ Furnace	Oil	1,963 litres	1,807	$1,882	$544	$1,338
☐ Water Heater	Electric	-	-	$0	$0	$0
☐ Range/Oven	Electric	-	-	$0	$0	$0
☐ Dryer	Electric	-	-	$0	$0	$0
☐ BBQ	Propane	-	-	$0	$0	$0
☐ Fireplace	Wood	-	-	$0	$0	$0
☐ Pool Heater	Propane	-	-	$0	$0	$0
☐ Other	Oil	-	-	$0	$0	$0
"Other" consumption (m^3):	433	Monthly Charges or Other Fixed Costs:		$0	$252	-$252
		Taxes:		$245	$103	$141
TOTAL:		**1,807**		**$2,127**	**$899**	**$1,228**

Projected Natural Gas Costs by Month



*At Union Gas rates as of January 1, 2018 including SES Surcharge

This savings estimate tool is applicable for residential customers who consume less than 50,000 m^3/year.

The savings estimate provided are illustrative only. Actual annual costs may vary due to weather, buiding shell particulars, lifestyle, equipment efficiency, implemented household energy savings measures, and energy prices.

Projected annual greenhouse gas emission reductions: 35%

Indicates data input fields Except for other electric utility rates, changes to common inputs should only be made by authorized UG personnel.

NATURAL GAS RATES

Rates as of: **1-Jan-18**

SOUTH RATE M1

CHARGES	RATES
Monthly Charge	$21.00
Gas Used (¢/m3)	13.6260
Gas Price Adjustment (¢/m3)	2.2893
Transportation to Union Gas (¢/m3)	0.0000
Storage (¢/m3)	0.7153
Storage Price Adjustment (¢/m3)	0.0000
Delivery	
First 100 m^3 + C&T (¢/m3)	8.0011
Next 150 m^3 + C&T(¢/m3)	7.7602
All over 250 m^3 + C&T (¢/m3)	7.1378
Delivery Price Adjustment (¢/m3)	0.5143
SES (¢/m3) (if applicable)	23.0000

CHARGES	RATES at Jan. 1, 2018
Gas Used	13.6260 ¢/m³
Gas Price Adjustment	2.2893 ¢/m³
Transportation to Union Gas	0.0000 ¢/m³
Storage	0.7153 ¢/m³
Storage Price Adjustment	0.0000 ¢/m³
Delivery	
First 100 m^3	4.6590 ¢/m³
Next 150 m^3	4.4181 ¢/m³
All over 250 m^3	3.7957 ¢/m³
Cap-and-Trade (included in Delivery on the bill)	3.3421 ¢/m³
Delivery Price Adjustment	0.5143 ¢/m³
Monthly Charge	$21.00
Total Annual Impact	

NW RATE 01

CHARGES	RATES
Monthly Charge	$21.00
Gas Used (¢/m3)	10.1887
Gas Price Adjustment (¢/m3)	0.2388
Transportation to Union Gas (¢/m3)	6.8558
Transportation Price Adjustment (¢/m3)	0.7080
Storage (¢/m3)	2.0541
Storage Price Adjustment (¢/m3)	0.0000
Delivery	
First 100 m^3 + C&T (¢/m3)	12.4418
Next 200 m^3 + C&T (¢/m3)	12.2088
Next 200 m^3 + C&T (¢/m3)	11.8411
Next 500 m^3 + C&T (¢/m3)	11.5036
All Over 1,000 m^3 + C&T (¢/m3)	11.2248
Delivery Price Adjustment (¢/m3)	1.2219
SES (¢/m3) if applicable	23.0000

CHARGES	RATES at Jan. 1, 2018
Gas Used	10.1887 ¢/m³
Gas Price Adjustment	0.2388 ¢/m³
Transportation to Union Gas	6.8558 ¢/m³
Transportation Price Adjustment	0.7080 ¢/m³
Storage	2.0541 ¢/m³
Storage Price Adjustment	0.0000 ¢/m³
Delivery	
First 100 m^3	9.0997 ¢/m³
Next 200 m^3	8.8667 ¢/m³
Next 200 m^3	8.4990 ¢/m³
Next 500 m^3	8.1615 ¢/m³
All Over 1,000 m^3	7.8827 ¢/m³
Cap-and-Trade (included in Delivery on the bill)	3.3421 ¢/m³
Delivery Price Adjustment	1.2219 ¢/m³
Monthly Charge	$21.00
Total Annual Impact	

NE RATE 01

CHARGES	RATES
Monthly Charge	$21.00
Gas Used (¢/m3)	13.9084
Gas Price Adjustment (¢/m3)	0.6535
Transportation to Union Gas (¢/m3)	2.9991
Transportation Price Adjustment (¢/m3)	0.8819
Storage (¢/m3)	6.6687
Storage Price Adjustment (¢/m3)	0.0000
Delivery	
First 100 m^3 + C&T (¢/m3)	12.4418
Next 200 m^3 + C&T (¢/m3)	12.2088
Next 200 m^3 + C&T (¢/m3)	11.8411
Next 500 m^3 (¢/m3)	11.5036
All Over 1,000 m^3 + C&T (¢/m3)	11.2248
Delivery Price Adjustment (¢/m3)	1.2219
SES (¢/m3) if applicable	23.0000

CHARGES	RATES at Jan. 1, 2018
Gas Used	13.9084 ¢/m³
Gas Price Adjustment	0.6535 ¢/m³
Transportation to Union Gas	2.9991 ¢/m³
Transportation Price Adjustment	0.8819 ¢/m³
Storage	6.6687 ¢/m³
Storage Price Adjustment	0.0000 ¢/m³
Delivery	
First 100 m^3	9.0997 ¢/m³
Next 200 m^3	8.8667 ¢/m³
Next 200 m^3	8.4990 ¢/m³
Next 500 m^3	8.1615 ¢/m³
All Over 1,000 m^3	7.8827 ¢/m³
Cap-and-Trade (included in Delivery on the bill)	3.3421 ¢/m³
Delivery Price Adjustment	1.2219 ¢/m³
Monthly Charge	$21.00
Total Annual Impact	

ELECTRIC RATES

	Utility Name:	Hydro One -U1 High Density	Hydro One -R1 Med Density	Hydro One -R2 Low Density	Hydro One -Seasonal	Hydro One -R1 First Nation	Other (Specify) N Bay Hydro
	Date rate data updated	26-Nov-17	26-Nov-17	26-Nov-17	26-Nov-17	26-Nov-17	1-Jul-17
$ / month	Monthly Service Charge	$24.78	$33.77	$19.83	$36.28	$0.00	$22.17
	IESO Smart Metering Charge	$0.79	$0.79	$0.79	$0.79	$0.00	$0.79
	Monthly Rate Riders	$0.72	$0.82	$1.36	$0.84	$0.00	
	Reg. Standard Supply Serv Admin Charge $/m	$0.25	$0.25	$0.25	$0.25	$0.25	$0.25
Cents / kWh	Off Peak Commodity (Winter Nov-Apr) cents/	6.50	6.50	6.50	$6.50	6.50	6.50
	Mid Peak Commodity (Winter Nov-Apr) cents/	9.50	9.50	9.50	$9.50	9.50	9.50
	On Peak Commodity (Winter Nov-Apr) cents/	13.20	13.20	13.20	$13.20	13.20	13.20
	Off Peak Commodity (Summer May-Oct) cent	6.50	6.50	6.50	$6.50	6.50	6.50
	Mid Peak Commodity (Summer May-Oct) cen	9.50	9.50	9.50	$9.50	9.50	9.50
	On Peak Commodity (Summer May-Oct) cents	13.20	13.20	13.20	$13.20	13.20	13.20
	Distribution Volume Charge cents/kwh	0.91	2.28	3.74	6.38	0.00	0.73
	Debt Retirement Charge cents/kwh	0.00	0.00	0.00	$0.00	0.00	
	Transmission Connection Charge cents/kwh	0.47	0.47	0.44	0.42	0.00	0.58

ENERGY CONTENT

	South	NW, NE	Source
Natural Gas GJ/ thousand m3	**38.21**	**38.95**	https://www.uniongas.com/storage-and-transportation/resources/additional-info/conversion-
1 m3 =	1000	litres =	1 kilolitre
NG GJ/m3	0.03821	0.03895	
Propane (LPG) GJ/kiloliter	**25.66**		Table 20-1a: http://files.ontario.ca/guideline_for_quantification_reporting_and_verification_o
Heating Oil (#2) GJ/kiloliter	**38.50**		Table 20-1a: http://files.ontario.ca/guideline_for_quantification_reporting_and_verification_o
Electricity GJ/kWh	**0.0036**		
Propane 1 litre =	0.0257	GJ	
Oil 1 litre =	0.0385	GJ	
Electricity 1 kWh	0.0036	GJ	

	South	NW, NE			South	NW, NE	
1 litre propane =	0.6716	0.6588	m3 natural gas	**1 m3 NG=**	1.4891	1.5179	litres Propane
1 litre oil =	1.0076	0.9884	m3 natural gas	**1 m3 NG=**	0.9925	1.0117	litres oil
1 kWh electricity =	0.0942	0.0924	m3 natural gas	**1 m3 NG=**	10.6139	10.8194	kWh electricity

CONSUMPTION PROFILE

Month	Typical H	%
Jan	398	18%
Feb	350	16%
Mar	303	14%
Apr	185	8%
May	99	4%
Jun	69	3%
Jul	49	2%
Aug	49	2%
Sept	60	3%
Oct	108	5%
Nov	217	10%
Dec	329	15%
Total	**2216**	**100%**

EQUIVALENT CO2 EMISSIONS

	Propane	Fuel Oil	Elect	Wood	Gas
CO2 Equivalent (tonnes/GJ) **t CO_2e/GJ**	0.06095	0.07048	0.01389	0.07947	0.04933
GHG emission reductions from converting to NG	19%	30%	-255%	38%	0%
Fuel Consumption (litres, kWh, or m3)	-	1,963	-	0	1,807
Equiv GJ's	-	76	-	-	70
Equiv Carbon Emissions (tonnes CO2e)	-	5.33	-	-	3.47

Source: P. Mussio for EB-2015-0179 IRR SEC/10

Tot Curr Fuels	Total NG	**CO_2e Emission Reductions:** tonnes/year	%
5.33	3.47	1.85	34.8%

NAC

	South	NW	NE	ALL AREAS
Actual NAC	2,216	2,363	2,238	2,230
	2016 actuals from Demand Forecasting			

	General Assumed NAC	Appl Penetration	ALL NAC Verification	Unadjusted Appliance NAC South	NW	NE	Bldg/Occ Adj Factors	Adjusted NAC South	NW	NE
Furnace	1,635	95%	1,553	1,621	1,768	1,643	110%	1,783	1,945	1,807
Water Heater	550	86%	473	550	550	550	111%	611	611	611
Range/Oven	120	31%	37	120	120	120	100%	120	120	120
Dryer	130	19%	25	130	130	130	100%	130	130	130
BBQ	80	26%	21	80	80	80	100%	80	80	80
Fireplace	280	44%	123	280	280	280	100%	280	280	280
Pool Heater	1,300	0%	-	1,300	1,300	1,300	100%	1,300	1,300	1,300
Other	433	0%	-	433	433	433	100%	433	433	433
Total for 100% penetration:	2,795	Total:	**2,232**	2,219	2,359	2,240				
Persons per Household:	2.7	Error:	0.1%	0.1%	-0.2%	0.1%	Error should be < +/- 1%			

Typcial Equipment Efficiency

	Gas	Propane	Oil	Electric
Heating system	93%	93%	85%	95%
Water Heater	62%	62%	55%	95%
Range/Oven	52%	52%		75%
Dryer	85%	85%		100%
BBQ				
Fireplace				
Pool Heater	62%	62%	62%	95%

	Rate	Appl Converted	Current Fuel	NG Consump	Current Fuel Consumpt (adjusted for equup efficeniency) South	NW	NE	Applied Current Fuel Cons	Applied Elect kWh	Applied Taxes	Prop Count	Oil Count	Wood Count
Furnace	Union NE	TRUE	Oil	1,807	1,936	2,112	1,963	1,963	-	$244.67	Oil		
Water Heater	Union NE	FALSE	Electric	-	4,233	4,233	4,233	-	-	$0.00			
Range/Oven	Union NE	FALSE	Electric	-	883	883	883	-	-	$0.00			
Dryer	Union NE	FALSE	Electric	-	1,173	1,173	1,173	-	-	$0.00			
BBQ	Union NE	FALSE	Propane	-	119	119	119	-	-	$0.00			
Fireplace	Union NE	FALSE	Wood	-	-	-	-	-	-	$0.00			
Pool Heater	Union NE	FALSE	Propane	-	1,936	1,936	1,936	-	-	$0.00			
Other	Union NE	FALSE	Oil	-	430	430	430	-	-	$0.00			
Fixed Fees										$0.00			
Converted Appliances:		1								$244.67	0	1	0

BLDG/OCCUPANT APPLIANCE NAC ADJUSTMENT FACTORS

Home Type		Factor	Home Size	Sq Ft	Factor	Home Year	Age	Factor	Occupants	Factors WH	Range	Dryer	BBQ	FP
	Type													
	Single deta	110%		1,000	65%		Before 1920	135%	1	56%	90%	90%	100%	100%
	Semi-deta	80%		1,250	75%		1920-1945	130%	2	74%	100%	100%	100%	100%
	Row or To	45%		1,750	100%		1946-1960	125%	3	111%	100%	100%	100%	100%
	Seasonal n	53%		2,250	128%		1961-1970	115%	4	148%	120%	120%	100%	100%
Selected:	**Single deta**	**110%**		2,750	157%		1971-1980	100%	5.5	204%	130%	140%	100%	100%
				3,500	200%		1981-1985	100%	7	259%	130%	160%	100%	100%
				4,500	257%		1986-1990	95%	**Selected:**	3 111%	100%	100%	100%	100%
			Selected:	**1,750**	**100%**		1991-1995	90%						
							1996 or later	85%						
						Selected:	**1971-1980**	**100%**						

Transmission Network Charge cents/kwh	0.97	0.64	0.62	0.51	0.00	0.67
Rural Rate Protection Charge cents/kwh	0.03	0.03	0.03	$0.03	0.03	0.21
Wholesale Market Service Charge cents/kwh	0.36	0.36	0.36	$0.36	0.36	0.32
Ont Electricity Support Prgrm Charge cents/k	0.00	0.00	0.00	$0.00	0.00	
Volumetric Rate Riders cents/kwh	0.00	0.00	0.00	$0.00	0.00	-0.36
Dist Rate Protection Max per Month*	$0.00	$36.43	$36.43	$0.00	$0.00	$0.00
Metered Useage Adjustment Factor:	1.057	1.076	1.105	1.104	1.105	1.037
Tax Rate (applicable GST and PST or HST)	5%	5%	5%	5%	0%	5%

* DRP applied to HOne L & M customers, as well as a number of remote utilities, where a cap on monthly Dist Vol and Fixed monhtly charge is set.

Commodity:	TOU Rate
Delivery:	https://www.hydroone.com/rates-and-billing
Regulatory:	https://www.hydroone.com/rates-and-billing
Debt Ret.:	
Taxes:	

Time-of-Use Demand Periods and Prices

Time-of-Use prices change three times a day, when demand is at peak, mid-peak and off-peak.

Winter Demand

Winter demand periods are effective November 1 to April 30 each year.

Weekends & Holidays

Weekends and designated holidays are off-peak electricity prices all day.

6.5 ¢/kWh OFF-PEAK

9.5 ¢/kWh MID-PEAK

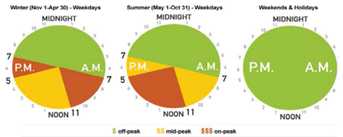
13.2 ¢/kWh ON-PEAK

Prices per Demand

Prices shown are effective July 1, 2017 to April 30, 2018.

TOU price periods are different in the summer than they are in the winter.

The difference reflects the seasonal variations in how customers use electricity. During the summer, people use more during the hottest part of the day, when air conditioners are running on high. In winter, with less daylight, electricity use peaks twice: once when people wake up in the morning and turn on their lights and appliances, and again when people get home from work.



Seasonal Delivery Charges

	Seasonal
Distribution Flat Charge	$37.12
Smart Metering Entity Charge	$0.79
Distribution Volume Charge (¢/kWh - metered)	6.38
Transmission Connection Charge (¢/kWh - adjusted)	0.42¢
Transmission Network Charge (¢/kWh - adjusted)	0.51¢
Adjustment Factor	1.104

Residential Delivery Charges

	High Density	Medium Density	Low Density
Distribution Flat Charge	$25.50	$34.59	$21.19*
Smart Metering Entity Charge	$0.79	$0.79	$0.79
Distribution Volume Charge (¢/kWh - metered)	0.91¢	2.28¢	3.74¢
Transmission Connection Charge (¢/kWh - adjusted)	0.47¢	0.47¢	0.44¢
Transmission Network Charge (¢/kWh - adjusted)	0.67¢	0.64¢	0.62¢
Adjustment Factor	1.057	1.076	1.105

Residential Regulatory Charges

	High Density	Medium Density	Low Density
Standard Supply Admin Charge ($.25/month)	$0.25	$0.25	$0.25
Rural Rate Protection Charge (¢/kWh - adjusted)	0.03¢	0.03¢	0.03¢
IESO Wholesale Market Service Rate (¢/kWh - adjusted)	0.36¢	0.36¢	0.36¢
Ontario Electricity Support Program Charge ($/kWh - adjusted)	$0.00	$0.00	$0.00

*A $60.50 credit for rural or remote rate protection has been applied to the distribution service charge.

South M1

CHARGES	RATES (Conv By Appl)
Monthly Charge	$21.00
Gas Used (¢/m3)	13.6260
Gas Price Adjustment (¢/m3)	2.2893
Transportation to Union Gas (¢/m3)	0.0000
Storage (¢/m3)	0.7153
Storage Price Adjustment (¢/m3)	0.0000
Delivery	
First 100 m^3 (¢/m3)	8.0011
Next 150 m^3 (¢/m3)	7.7602
All over 250 m^3 (¢/m3)	7.1378
Delivery Price Adjustment (¢/m3)	0.5143
SES (¢/m3)	23.0000

Conversion By Appliance	**Annual**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sept**	**Oct**	**Nov**	**Dec**
Heating %	100%	22.1%	19.0%	16.0%	8.3%	2.8%				0.2%	3.4%	10.4%	17.7%
Furnace	1,807	399.72	343.80	289.19	150.52	50.88	-	-	-	4.18	61.21	188.45	319.35
Water Heater	-	-	-	-	-	-	-	-	-	-	-	-	-
Range/Oven	-	-	-	-	-	-	-	-	-	-	-	-	-
Dryer	-	-	-	-	-	-	-	-	-	-	-	-	-
BBQ	-					-	-	-	-	-			
Fireplace	-	-	-	-	-						-	-	-
Pool Heater	-					-	-	-	-	-			
Other	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Consumption (m^3)	1,807	400	344	289	151	51	-	-	-	4	61	188	319
Other variable	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
First 100 m^3 (¢/m3)	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Next 150 m^3 (¢/m3)	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
All over 250 m^3 (¢/m3)	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
SES	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Fixed Monthly Charge	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Total	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**
Tax	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Total Incl Taxes	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**
Avg cost per m3	**$0.0000**		**Nontax total variable per m3**		**$0.0000**								

NW-01

CHARGES	RATES (Conv By Appl)
Monthly Charge	$21.00
Gas Used (¢/m3)	10.1887
Gas Price Adjustment (¢/m3)	0.2388
Transportation to Union Gas (¢/m3)	6.8558
Transportation Price Adjustment (¢/m3)	0.7080
Storage (¢/m3)	2.0541
Storage Price Adjustment (¢/m3)	0.0000
Delivery	
First 100 m³ (¢/m3)	12.4418
Next 200 m³ (¢/m3)	12.2088
Next 200 m³ (¢/m3)	11.8411
Next 500 m³ (¢/m3)	11.5036
All Over 1,000 m³ (¢/m3)	11.2248
Delivery Price Adjustment (¢/m3)	1.2219
SES (¢/m3)	23.0000

Conversion By Appliance	**Annual**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sept**	**Oct**	**Nov**	**Dec**
Heating %	100%	22.1%	19.0%	16.0%	8.3%	2.8%				0.2%	3.4%	10.4%	17.7%
Furnace	1,807	399.72	343.80	289.19	150.52	50.88	-	-	-	4.18	61.21	188.45	319.35
Water Heater	-	-	-	-	-	-	-	-	-	-	-	-	-
Range/Oven	-	-	-	-	-	-	-	-	-	-	-	-	-
Dryer	-	-	-	-	-	-	-	-	-	-	-	-	-
BBQ	-					-	-	-	-	-			
Fireplace	-	-	-	-	-						-	-	-
Pool Heater	-					-	-	-	-	-			
Other	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Consumption (m³)	1,807	400	344	289	151	51	-	-	-	4	61	188	319
Other variable	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
First 100 m³ (¢/m3)	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Next 200 m³ (¢/m3)	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Next 200 m³ (¢/m3)	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Next 500 m³ (¢/m3)	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
All Over 1,000 m³ (¢/m3)	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
SES	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Fixed Monthly Charge	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Total	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**
Tax	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Total Incl Taxes	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**
Avg cost per m3	**$0.0000**		**Nontax total variable per m3**		**$0.0000**								

NE-01

CHARGES	RATES (Conv By Appl)
Monthly Charge	$21.00
Gas Used (¢/m3)	13.9084
Gas Price Adjustment (¢/m3)	0.6535
Transportation to Union Gas (¢/m3)	2.9991
Transportation Price Adjustment (¢/m3)	0.8819
Storage (¢/m3)	6.6687
Storage Price Adjustment (¢/m3)	0.0000
Delivery	
First 100 m³ (¢/m3)	12.4418
Next 200 m³ (¢/m3)	12.2088
Next 200 m³ (¢/m3)	11.8411
Next 500 m³ (¢/m3)	11.5036
All Over 1,000 m³ (¢/m3)	11.2248
Delivery Price Adjustment (¢/m3)	1.2219
SES (¢/m3)	23.0000

Conversion By Appliance	**Annual**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sept**	**Oct**	**Nov**	**Dec**
Heating %	100%	22.1%	19.0%	16.0%	8.3%	2.8%				0.2%	3.4%	10.4%	17.7%
Furnace	1,807	399.72	343.80	289.19	150.52	50.88	-	-	-	4.18	61.21	188.45	319.35
Water Heater	-	-	-	-	-	-	-	-	-	-	-	-	-
Range/Oven	-	-	-	-	-	-	-	-	-	-	-	-	-
Dryer	-	-	-	-	-	-	-	-	-	-	-	-	-
BBQ	-					-	-	-	-	-			
Fireplace	-	-	-	-	-						-	-	-
Pool Heater	-					-	-	-	-	-			
Other	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Consumption (m³)	1,807	400	344	289	151	51	-	-	-	4	61	188	319
Other variable	$370.67	$0.00	$90.53	$76.15	$39.64	$13.40	$0.00	$0.00	$0.00	$1.10	$16.12	$49.63	$84.10
First 100 m³ (¢/m3)	$76.67	$0.00	$12.44	$12.44	$12.44	$6.33	$0.00	$0.00	$0.00	$0.52	$7.62	$12.44	$12.44
Next 200 m³ (¢/m3)	$88.90	$0.00	$24.42	$23.10	$6.17	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$10.80	$24.42
Next 200 m³ (¢/m3)	$7.48	$0.00	$5.19	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$2.29
Next 500 m³ (¢/m3)	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
All Over 1,000 m³ (¢/m3)	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
SES	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Fixed Monthly Charge	$252.00	$21.00	$21.00	$21.00	$21.00	$21.00	$21.00	$21.00	$21.00	$21.00	$21.00	$21.00	$21.00
Total	**$795.72**	**$21.00**	**$153.58**	**$132.70**	**$79.25**	**$40.73**	**$21.00**	**$21.00**	**$21.00**	**$22.62**	**$44.73**	**$93.87**	**$144.25**
Tax	$103.44	$2.73	$19.97	$17.25	$10.30	$5.29	$2.73	$2.73	$2.73	$2.94	$5.82	$12.20	$18.75
Total Incl Taxes	**$899.16**	**$23.73**	**$173.55**	**$149.95**	**$89.55**	**$46.02**	**$23.73**	**$23.73**	**$23.73**	**$25.56**	**$50.55**	**$106.07**	**$163.00**
Avg cost per m3	**$0.4975**		**Nontax total variable per m3**		**$0.3008**								

ENBRIDGE GAS INC.

Answer to Interrogatory from
Environmental Defence (ED)

INTERROGATORY

Reference:

Exhibit B, Tab 1, Schedule 2, Page 2; Exhibit B, Tab 2, Schedule 2

Questions:

(a) Please complete the following table based over the project lifetime (40 years) and the volume forecasts underlying the project economics in the application.

Carbon Cost Assumptions Underlying Customer Attachment Forecast vs. Federal Backstop Rates and Ecofiscal Commission Scenario				
	Year 1	…	Year 40	Total
Forecast volume (m3)				
Carbon emissions (CO2e)				
Carbon costs underlying customer attachment forecast[4]				
Carbon costs – federal carbon price, no increases beyond 2022[5]				
Carbon costs per Canada' Ecofiscal Commission[6]				

[4] This is the cost of carbon emissions assumed in the savings estimates communicated to potential customers in the door-to-door survey on which the attachment forecast is based (see Exhibit B, Tab 1, Schedule 2, Page 2; Exhibit B, Tab 2, Schedule 2). If carbon is not accounted for, please include 0.
[5] This is the cost of carbon emissions based on the federal carbon backstop assuming no increases beyond $50/tonne.
[6] This is the cost of carbon emissions based on "Canada's Ecofiscal Commission, Bridging the Gap: Real Options for Meeting Canada's 2030 GHG Target, November 2019" (https://ecofiscal.ca/wp-content/uploads/2019/11/Ecofiscal-Commission-Bridging-the-Gap-November-27-2019-FINAL.pdf). This assumes the carbon price increases on a straight-line basis to $210 tonne CO2e in 2030.

Please make assumptions as necessary and state all assumptions. If forecasting is a challenge, please answer the question on a best-efforts basis and with any caveats as necessary. If certain parts of the table cannot be estimated, please explain why and complete as much of the table as possible.

Please provide a live spreadsheet with any formulas.

Response:

Please see Attachment 1.

Enbridge Gas notes that the Federal Carbon Pricing Program applicable to natural gas in Ontario has only established a cost of carbon until 2022. At this time, estimates of carbon costs beyond 2022 are speculative and become increasingly less meaningful. As such, Enbridge Gas provides a forecast of carbon emissions and carbon costs only up until 2030.

Enbridge Gas does not believe it is appropriate to perform calculations based on carbon prices which are speculative, and therefore has not completed the table for the cost of carbon based on the Ecofiscal Commission report.

Carbon Cost Assumptions Underlying Customer Attachment Forecast vs. Federal Backstop Rates

Table 1: Summary of Carbon Costs

	Year 1[5]	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11
Forecast volume (m^3)[1]	41,496	117,758	169,347	194,020	211,964	228,786	245,609	262,431	279,254	293,833	300,562
Carbon emissions (tCO_2e)[2]	78	221	317	364	397	429	460	492	523	551	563
Carbon costs - underlying customer attachment forecast[3]	$ 1,565	$ 4,663	$ 7,042	$ 8,471	$ 9,717	$ 11,013	$ 12,414	$ 13,927	$ 15,561	$ 17,192	$ 18,465
Carbon costs - Federal Carbon Charge, no increases beyond 2022[4]	$ 2,436	$ 9,220	$ 16,579	$ 18,995	$ 20,751	$ 22,398	$ 24,045	$ 25,692	$ 27,339	$ 28,766	$ 29,425

1. The volume forecast is based on the customer attachment forecast shown in Exhibit B, Tab 2, Schedule 2, and assumes an average annual consumption for residential customers of 2,243 m^3.

2. Carbon emissions have been calculated using the default emission factor for natural gas of 0.001874 tCO_2e/m^3 natural gas, based on the Ontario Ministry of Environment, Conservation and Parks "Guideline for Quantification, Reporting and Verification of Greenhouse Gas Emissions", April 2019 version.

3. This is the cost of carbon emissions assumed in the savings estimates communicated to potential customers in the door-to-door survey on which the attachment forecast is based. The carbon price used has been escalated by 5% per year, the minimum price increase per year under the Cap and Trade Program.

4. This is the cost of carbon emissions based on the Federal Carbon Pricing Program, assuming the carbon price remains constant at $50/$tCO_2e$ post-2022.

5. For simplicity, the carbon price is held constant for each calendar year starting with year 1 using 2020 carbon price.

Table 2: Cost of Carbon Used in Table 1

	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Cost of Carbon - Cap and Trade ($/$m^3$ natural gas)	$ 0.0377	$ 0.0396	$ 0.0416	$ 0.0437	$ 0.0458	$ 0.0481	$ 0.0505	$ 0.0531	$ 0.0557	$ 0.0585	$ 0.0614
Cost of Carbon - Federal Carbon Charge ($/$m^3$ natural gas)	$ 0.0587	$ 0.0783	$ 0.0979	$ 0.0979	$ 0.0979	$ 0.0979	$ 0.0979	$ 0.0979	$ 0.0979	$ 0.0979	$ 0.0979

Filed: 2020-03-27
EB-2019-0188
Exhibit I.ED.8
Attachment 1
Page 1 of 1

ENBRIDGE GAS INC.

Answer to Interrogatory from
Environmental Defence (ED)

INTERROGATORY

Reference:

Exhibit B, Tab 1, Schedule 2, Page 2; Exhibit B, Tab 2, Schedule 2

Questions:

(a) The federal government has committed to "help homeowners and landlords pay for retrofits by giving them an interest-free loan of up to $40,000."[7] Has Enbridge asked the federal government whether heat pumps will qualify? If not, why not. If yes, what information did Enbridge receive?

(b) If heat pumps will qualify for the federal governments $40,000 interest free loans, does Enbridge expect this will impact its customer attachment forecast (e.g. due to customers choosing to convert to heat pumps instead of natural gas due to the lack of up-front cost for the former)? If not, why not. If yes, by how much?

(c) With respect to the savings estimates communicated to potential customers in the door-to-door survey on which the attachment forecast is based, please confirm that the costs of heating with electricity were based on resistance hearing (e.g. baseboards).

(d) Please compare the cost of (1) heating a typical residential home with natural gas and cooling it with electricity versus (2) heating and cooling it with electric air source heat pumps. Please provide the comparison over a ten-year period. Please make assumptions as necessary and state all assumptions. If the calculations are a challenge, please answer the question on a best-efforts basis and with any caveats as necessary.

[7] https://www2.liberal.ca/wp-content/uploads/sites/292/2019/09/Forward-A-real-plan-for-the-middle-class.pdf

(e) With respect to the savings estimates communicated to potential customers in the door-to-door survey on which the attachment forecast is based, please compare (i) the cost of electric heating assumed in the estimates and (ii) the cost of electric heating by heat pumps per "Szekeres, A., Jeswiet, J. Heat pumps in Ontario. Int J Energy Environ Eng 10, 157–179 (2019)".[8] Please provide the comparison on an annual basis and over a 10 year period.

(f) With respect to the savings estimates communicated to potential customers in the door-to-door survey on which the attachment forecast is based, please compare (i) the cost of electric heating assumed in the estimates and (ii) the cost of electric heating by heat pumps per "IESO, *An Examination of the Opportunity for Residential Heat Pumps in Ontario*, March 6, 2017".[9] Please provide the comparison on an annual basis and over a 10 year period.

Response:

(a) Enbridge Gas is not aware of any details related to the federal government loan program referenced in the question. Once the program details are available for consultation, Enbridge Gas will explore alignment opportunities with its existing conservation programs.

(b) It is Enbridge Gas's understanding that qualifying product details have yet to be released along with other important details related to the government announcement and as such Enbridge Gas cannot estimate the impact.

(c) Prospective customers who reported using a heat pump for home heating were provided with different cost saving estimates through the survey than those with electric resistance heating.

(d) The cost to operate a heat pump, particularly a geothermal system, is difficult to estimate without knowing the specific control systems in the home or details of the installation. In order to avoid misleading survey respondents, the survey provided prospective customers using a heat pump for home heating with a very high-level estimate of possible cost savings, which was $350 per year without the System Expansion Surcharge ("SES"). With the SES estimated to cost an average home an additional $500-$600/year in the survey, it was made clear that savings could be negative.

[8] https://link.springer.com/article/10.1007/s40095-018-0292-6
[9] http://www.ieso.ca/-/media/files/ieso/document-library/conservation-reports/an-examination-of-opportunity-for-residential-heat-pumps-in-ontario.pdf?la=en

(e) and f) Enbridge Gas declines to provide the requested information as it is onerous to complete and does not impact the requested relief in the Application.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Environmental Defence (ED)

INTERROGATORY

Reference:

Exhibit B, Tab 1, Schedule 2, Page 2; Exhibit B, Tab 2, Schedule 2

Preamble:

Enbridge states that: “the results of the door-to-door survey described above indicate that 37% of the people surveyed are interested in obtaining natural gas service.”

Questions:

(a) Please contact the individuals who stated that they are interested in obtaining natural gas service, provide them with information on potential cost savings from converting to heat pumps, and ask (a) whether they would be interested in converting to electric heat pumps and (b) whether they would be interested in converting to electric heat pumps if given an interest-free federal government loan to do so.

(b) In a confidential interrogatory response, please provide the names and contact information of the potential customers who stated that they are interested in obtaining natural gas service so Environmental Defence can survey (a) whether they would be interested in converting to electric heat pumps and (b) whether they would be interested in converting to electric heat pumps if given an interest-free federal government loan.

Response:

a) and b) Enbridge Gas declines to provide the requested information. As described at Exhibit B, Tab 1, Schedule 2 Enbridge Gas conducted a survey to inform residents about the Project and to determine interest in obtaining natural gas service.

Enbridge Gas follows the ICC/ESOMAR International Code on Market, Opinion and Social Research and Data Analytics for all market research activities. In accordance with the Code, the survey results provided to Enbridge Gas were anonymized and do not contain any identifying information. In addition, researchers must inform respondents during the survey if there is an activity that will involve re-contact and respondents must agree to be re-contacted – this agreement was not obtained with the survey undertaken.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Environmental Defence (ED)

INTERROGATORY

Reference:

Exhibit B, Tab 1, Schedule 2, Page 2; Exhibit B, Tab 2, Schedule 2

Questions:

(a) Please provide a breakdown of the cost to connect an average-sized residential customer to the gas distribution system, including a breakdown between the costs the customer is responsible for (e.g. new equipment, etc.) and the costs Enbridge is responsible for (e.g. connection from the meter to the distribution pipe). Please provide an estimate (i) where the required ducts already exist (e.g. oil-furnace conversion) and (ii) where the required ducts need to be added (e.g. baseboard conversion).

(b) If not included in (a), please provide the approximate average cost for connecting a residence to the distribution system, including the work from the customer meter to the distribution system.

(c) Based on average residential consumption, how long would it take for a customer to pay sufficient distribution charges to Enbridge to cover the capital costs incurred by Enbridge to initially connect the customer to the distribution system? Please make assumption as necessary and state any assumptions. Please provide the underlying calculations.

Response:

(a) Based on its current Residential attachment policy for the Union North rate zone, Enbridge Gas will install one service line per civic address at no charge provided that the measurement from the customer's property line to the meter location does not exceed 30 metres. The customer is responsible for an excess footage charge for any pipe length beyond 30 metres at $45 per metre.

The customer is also responsible for all costs related to natural gas piping from the meter to their appliances along with the complete cost of equipment conversion and/or replacement. Since Enbridge Gas does not install HVAC equipment, it is not prepared to provide mechanical cost estimates as each situation could vary.

(b) Based on 2020 forecast costs, Enbridge Gas estimates the weighted average cost of an individual residential customer service, meter and regulator installation to be approximately $4,097.

(c) The response to this question calculates a payback period, not reflecting the time value of money. It is estimated to take approximately 4.3 years for a customer to pay sufficient distribution charges to Enbridge Gas to cover the capital costs incurred by Enbridge Gas to initially connect the customer to the distribution system. The weighted average annual distribution charge for an Enbridge Gas residential customer is $943, including SES. The 4.3 year payback period is calculated as $4,097 divided by $943.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Environmental Defence (ED)

INTERROGATORY

Reference:

Exhibit B, Tab 1, Schedule 2, Page 2; Exhibit B, Tab 2, Schedule 2

Questions:

(a) Please provide Enbridge's best data on the current fuel types used by existing customers, including an estimated breakdown between electricity, wood, propane etc.

Response:

(a) Please see Table 1 on page 2 of the Natural Gas Pipeline Expansion Study filed in Attachment 1 at Exhibit I.STAFF.5 for the current fuel types used by customers in the Project area.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Environmental Defence (ED)

INTERROGATORY

Reference:

Exhibit B, Tab 1, Schedule 2, Page 2; Exhibit B, Tab 2, Schedule 2

Preamble:

The project economics depend in large part on Enbridge's customer attachment forecast.

Questions:

(a) For the purpose of assessing the risks associated with customer attachment forecasts, please complete the following table comparing the forecast customer attachments in past Enbridge expansion projects and actual attachment figures.

Please make assumptions as necessary and state all assumptions. If forecasting is a challenge, please answer the question on a best-efforts basis and with any caveats as necessary. If providing the volumes and revenue is too onerous, please explain why and provide at least the customer attachment figures.

Enbridge Customer Attachment Forecast Track Record				
	Year 1	Year 2	Year 3	…
Chippewas of Kettle and Stony Point First Nation				
Forecast customer attachments (#/yr)				
Actual customer attachments completed (#/yr)				
Forecast volumes (m3/yr)				
Actual volumes (m3/yr)				
Annual Demand (GJ)				
Forecast revenue ($)				
Actual revenue ($)				

Lambton Shores				
Forecast customer attachments (#/yr)				
Actual customer attachments completed (#/yr)				
Forecast volumes (m3/yr)				
Actual volumes (m3/yr)				
Annual Demand (GJ)				
Forecast revenue ($)				
Actual revenue ($)				
Milverton, Wartburg & Rostock				
Forecast customer attachments (#/yr)				
Actual customer attachments completed (#/yr)				
Forecast volumes (m3/yr)				
Actual volumes (m3/yr)				
Annual Demand (GJ)				
Forecast revenue ($)				
Actual revenue ($)				
Delaware Nation at Moraviantown				
Forecast customer attachments (#/yr)				
Actual customer attachments completed (#/yr)				
Forecast volumes (m3/yr)				
Actual volumes (m3/yr)				
Annual Demand (GJ)				
Forecast revenue ($)				
Actual revenue ($)				
Prince Township				
Forecast customer attachments (#/yr)				
Actual customer attachments completed (#/yr)				
Forecast volumes (m3/yr)				
Actual volumes (m3/yr)				
Annual Demand (GJ)				

Forecast revenue ($)				
Actual revenue ($)				

(b) For each project listed in the above table, please list the planned and actual in-service date.

Response:

a) Please see Attachment 1.
- Actual customer attachments reflect meters spinning where revenue is actively generated, and do not reflect any pending service applications under design or construction.

Although not requested, Enbridge Gas notes that for its Fenelon Falls expansion project (EB-2017-0147) this project is considerably ahead of schedule on the forecast number of customer attachments. Enbridge Gas's forecast total customer additions for Fenelon Falls at December 31, 2019 was 122. At present, the Fenelon Falls expansion project has 437 "unlocked" services with another 201 labelled as work in progress for a total of 638 at the end of February 2020. For added clarity, at the time a service is installed the meter is not unlocked. Natural gas typically begins to flow through the meter after the customer's HVAC contractor installs the natural gas appliances and unlocks the meter.

b) The table below shows the planned and actual in-service dates for the projects listed in part a) above.

Project	**Planned In-Service Date**	**Actual In-Service Date****
Lambton Shores/Kettle & Stony Point	Dec. 11, 2017	Dec. 19, 2017
Milverton	Dec. 14, 2017	Dec. 19, 2017
Rostock/Wartburg	Aug. 3, 2018	Jun. 25, 2018
Moraviantown	Sept. 5, 2018	Jul. 30, 2018
Prince Township	Aug. 24, 2018*	Sep. 18, 2018

*In-service date does not include Year 1 services.
**Date includes Year 1 services

	Year 1	Year 2	Year 3[1]
Lambton Shores, Chippewas of Kettle and Stony Point F.N.			
Forecast Customer Attachments (#/yr)	158	68	27
Actual Customer Attachments (#/yr)	201	125	-
Forecast Volumes (m3/yr)	234,981	545,748	651,892
Actual Volumes (m3/yr)	112,436	413,102	245,807
Annual Demand (GJ)	4,334	15,925	9,476
Forecast Revenue ($):			
Distribution Margin	26,658	64,036	79,019
System Expansion Surcharge	54,046	125,522	149,935
Total Forecast Revenue ($)	80,703	189,558	228,954
Actual Revenue ($)	38,616	143,485	86,331
Milverton, Wartburg & Rostock			
Forecast Customer Attachments (#/yr)	185	163	67
Actual Customer Attachments (#/yr)	372	145	14
Forecast Volumes (m3/yr)	622,102	1,494,711	1,836,945
Actual Volumes (m3/yr)	410,339	1,508,475	778,029
Annual Demand (GJ)	15,819	58,152	29,993
Forecast Revenue ($):			
Distribution Margin	41,089	109,841	148,454
System Expansion Surcharge	143,083	343,784	422,497
Total Forecast Revenue ($)	184,173	453,625	570,951
Actual Revenue ($)	121,480	457,802	241,824
Delaware Nation at Moraviantown			
Forecast Customer Attachments (#/yr)	23	5	2
Actual Customer Attachments (#/yr)	2	32	-
Forecast Volumes (m3/yr)	25,876	57,292	65,048
Actual Volumes (m3/yr)	83	96,534	53,907
Annual Demand (GJ)	3	3,721	2,078
Forecast Revenue ($):			
Distribution Margin	3,678	8,144	9,246
System Expansion Surcharge	5,951	13,177	14,961
Total Forecast Revenue ($)	9,630	21,321	24,207
Actual Revenue ($)	31	35,925	20,061
Prince Township			
Forecast Customer Attachments (#/yr)	76	68	26
Actual Customer Attachments (#/yr)	109	64	13
Forecast Volumes (m3/yr)	94,425	271,498	383,696
Actual Volumes (m3/yr)	40,416	345,434	179,166
Annual Demand (GJ)	1,558	13,316	6,907
Forecast Revenue ($):			
Distribution Margin	18,167	52,432	74,510
System Expansion Surcharge	21,718	62,445	88,250
Total Forecast Revenue ($)	39,885	114,877	162,760
Actual Revenue ($)	17,072	146,160	76,001

Notes:

1 - Actual year 3 data is as of March 18, 2020. Forecast information is for a full year.

2 - Enbridge Gas has created Attachment 1 on a best efforts basis. Enbridge Gas is confident in the accuracy of the Project's customer attachment forecast as it was developed using the same tools and methodology as that applied to the comparator projects. However, due to the availability of data and the timing of available data, Enbridge Gas cautions attempts to draw conclusions based on the detail provided in Attachment 1. For example, forecast and actual customer attachments presented are not cumulative values whereas the volumes cited are. Further, due to late in-service dates of certain projects some volumes expected in Year 1 are being reflected in Year 2. Also, depending on the date of a customer service attachment, some consumption may have been initiated partway through a year and thus did not use the total volume forecast for that year. It should also be noted that as Year 3 values are year to date ("YTD"), actual volumes have not been prorated to include the expected year-end volume total.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Environmental Defence (ED)

INTERROGATORY

Reference:

Exhibit B, Tab 2, Schedule 2; Exhibit B, Tab 1, Schedule 4, p. 1

Questions:

(a) Please complete the below table.

Forecast Demand from Customers in the Project Area				
	Year 1	Year 2	…	Year 11
Annual Demand (m3)				
Average Day Demand (m3/day)				
Design Day Demand (m3/day)				
Annual Demand (GJ)				
Average Day Demand (GJ/day)				
Design Day Demand (GJ/day)				

(b) Will the gas for this expansion project travel through the Hamilton Value? If the answer is no or maybe, please describe the likely gas transmission pathway(s) that will serve the project area.

(c) Please express the forecast demand from customers in the project area as a percentage of the demand from all community expansion projects listed in O. Reg. 24/19. Please include annual, average day, and design day demand. Please provide the figures for each year over the first 10 years. If that is not possible, please explain why and please provide the best information available (e.g an average or a figure for year 10). If Enbridge does not have and cannot publicly access the forecast demand from expansion projects put forward by other proponents, please provide as much information as possible on a best efforts basis.

(d) What annual, average day, and design day demands are assumed per customer for (i) residential, (ii) residential – seasonal, and (iii) small commercial.

Response:

a)

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Annual Demand (m3)	41,496	117,758	169,347	194,020	211,964	228,786	245,609	262,431	279,254	293,833
Average Day Demand (m3/day)	221	418	504	559	602	651	694	744	787	823
Design Day Demand (m3/day)	1192	2259	2765	3046	3264	3514	3732	3982	4200	4387
Annual Demand (GJ)	1600	4540	6528	7479	8171	8820	9468	10117	10765	11327
Average Day Demand (GJ/day)	9	16	19	22	23	25	27	29	30	32
Design Day Demand (GJ/day)	46	87	107	117	126	135	144	153	162	169

b) Enbridge Gas cannot confirm whether this community expansion project will be fed through the Hamilton Valve. This community is located in the NDA. As outlined within Enbridge Gas's 5-Year Gas Supply Plan filed on May 1, 2019 there are multiple options to serve demands. The options to serve the NDA include TC Energy long haul capacity, TC Energy short haul capacity and LNG. When new demands for this area are added to the forecast and included in the plan, Gas Supply looks at the reliability, flexibility, diversity and cost of each option to select the alternative that meets the demands while balancing the portfolio and meeting the guiding principles.

c) The table below shows the percentages of annual/daily demand for each Enbridge Gas project listed in O. Reg. 24/19. Design day demand values are not readily available and would require considerable time and effort to provide.

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
North Bay	14%	7%	5%	5%	5%	5%	5%	5%	6%	6%
Saugeen	12%	7%	5%	4%	4%	4%	4%	4%	4%	4%
Chippewas	8%	4%	3%	2%	2%	2%	2%	2%	2%	2%
Scugog Island	37%	46%	49%	51%	52%	52%	52%	52%	52%	52%
Hiawatha	12%	11%	11%	12%	11%	11%	12%	12%	12%	12%
Cornwall	16%	25%	26%	26%	26%	25%	25%	25%	25%	25%
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

d) For this Project small commercial and seasonal – residential demands were considered approximately equivalent to residential in North Bay. The figures used were: annual volume of 2,243 m^3, average day (annual divided by 365) of 6 m^3 and design day of approximately 31 m^3.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Environmental Defence (ED)

INTERROGATORY

Reference:

Exhibit B, Tab 1, Schedule 4

Questions:

(a) How much capital does Enbridge expect to invest in this project? Please provide a table showing an annual breakdown and the total as nominal and NPV values.

(b) How much profit (i.e. return) does Enbridge plan to earn in relation to this project ($ and %)? Please provide a table showing an annual breakdown and the total. Please make assumptions as necessary, state all assumptions, and state any caveats.

(c) If the actual volumes (m3) are 20% higher than forecast in the application throughout the economic lifetime of the project, who would benefit from the additional revenues? Would Enbridge increase its profits, and if yes, by how much? Please provide a table showing an annual breakdown and the total. Assume capital costs remain as forecast.

(d) If the capital costs are 20% lower than forecast in the application throughout the economic lifetime of the project, who would benefit? Would Enbridge increase its profits, and if yes, by how much? Please provide a table showing an annual breakdown and the total. Assume revenues remaining as forecast.

(e) Does Enbridge undertake not to seek to increase the surcharge levied on customers in the project area (the SES) in years 11 through 40 to recover revenue shortfalls or cost overruns arising in years 1 through 10?

Response:

(a) On a nominal (undiscounted) basis, Enbridge Gas expects to invest a gross amount of $10,095,000 and receive government funding of $8,670,000, for a net investment of $1,425,000.

On a net present value ("NPV") basis, Enbridge Gas expects to invest a gross amount of $9,866,000 and receive government funding of $8,670,000, for a net investment of $1,196,000.

Please refer to Attachment 1 for the requested tables.

(b) Enbridge Gas has analyzed this project in accordance with E.B.O. 188 guidelines and as such, has used NPV of net cash inflow (NPV) and profitability index ("PI") as the economic measures. The question requests Enbridge Gas to provide how much profit it plans to earn in relation to this project. For the purpose of this response, Enbridge Gas is interpreting profit to be NPV. Please refer to Attachment 2 for a summary NPV table.

As for the requested profit percentage, Enbridge Gas's OEB approved return on equity ("ROE") for the Union rate zone is 8.93% with an approved equity weighting of 36%. At an NPV of zero, the effective project ROE is 8.93%.

(c) If actual volumes are 20% higher than forecast, the NPV of the project would be $221,000 as compared to the filed base case of $12,000. Please refer to Attachment 3 for the requested table. Once the increased profitability of this project is captured in the base upon which Enbridge Gas's rates are set, this surplus would serve to reduce rates for all customers.

(d) If capital costs are 20% lower than forecast, the NPV of the project would be $1,688,000 as compared to the filed base case of $12,000. Please refer to Attachment 4 for the requested table. Once the increased profitability of this project is captured in the base upon which Enbridge Gas's rates are set, this surplus would serve to reduce rates for all customers.

(e) Enbridge Gas does not intend to seek an increase to the SES to be levied on customers in the project area in years 11 through 40 to recover revenue shortfalls or cost overruns arising in years 1 through 10.

Nominal Values

Year	1	2	3	4	5	6	7	8	9	10
Proposed Capital ($000's)	Total									
Pipeline & Station Capital	8,124	8,124								
Service, M&R Installation	1,971	524	473	207	133	103	118	103	118	103	89
Gross Investment by Enbridge Gas	10,095	8,648	473	207	133	103	118	103	118	103	89
Less: Government Funding	8,670	8,670								
Net Investment by Enbridge Gas	1,425	(22)	473	207	133	103	118	103	118	103	89

Net Present Value

Year	1	2	3	4	5	6	7	8	9	10
Proposed Capital ($000's)	Total									
Pipeline & Station Capital	8,124	8,124								
Service, M&R Installation	1,742	524	451	188	115	85	92	77	84	70	57
Gross Investment by Enbridge Gas	9,866	8,648	451	188	115	85	92	77	84	70	57
Less: Government Funding	8,670	8,670								
Net Investment by Enbridge Gas	1,196	(22)	451	188	115	85	92	77	84	70	57

	Net Present Value															Net Present Value				
Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	
($000's)	Total																			
Cash Inflow[1]	1,208	27	34	45	51	51	55	55	59	58	58	50	46	43	41	38	36	34	32	30
Cash Outflow[1]	1,196	(22)	451	188	115	85	92	77	84	70	57	-	-	-	-	-	-	-	-	-
Net Cash Inflow	12	49	(417)	(143)	(64)	(33)	(37)	(21)	(25)	(11)	1	50	46	43	41	38	36	34	32	30

Enbridge Gas's OEB approved return on equity (ROE) for the Union rate zones is 8.93% with an approved equity weighting of 36%. At an NPV of zero, the effective project ROE is 8.93%.

Notes:
1 - See Exhibit B, Tab 2, Schedule 6

	Net Present Value																Net Present Value				
	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
($000's)																					
Cash Inflow[1]	29	27	25	24	23	21	20	19	18	17	16	15	15	14	13	12	12	11	11	11	11
Cash Outflow[1]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Cash Inflow	29	27	25	24	23	21	20	19	18	17	16	15	15	14	13	12	12	11	11	11	11

Notes:
1 - See Exhibit B, Tab 2, Schedule 6

	Net Present Value															Net Present Value				
Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
($000's)	Total																			
Cash Inflow[1]	1,417	29	39	53	59	60	63	65	66	67	67	58	54	51	48	46	43	40	38	36
Cash Outflow[1]	1,196	(22)	451	188	115	85	92	77	84	70	57	-	-	-	-	-	-	-	-	-
Net Cash Inflow	221	51	(412)	(135)	(56)	(25)	(29)	(12)	(18)	(3)	10	58	54	51	48	46	43	40	38	36

Enbridge Gas's NPV of Net Cash Inflow increases from $12,000 in the base case to $221,000 in this scenario

Notes:
1 - See Exhibit B, Tab 2, Schedule 6

	Net Present Value																Net Present Value				
	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
($000's)																					
Cash Inflow[1]	34	33	30	29	27	26	24	23	22	20	20	18	18	17	15	15	14	14	12	13	11
Cash Outflow[1]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Cash Inflow	34	33	30	29	27	26	24	23	22	20	20	18	18	17	15	15	14	14	12	13	11

Notes:
1 - See Exhibit B, Tab 2, Schedule 6

Net Present Value

Year	1	2	3	4	5	6	7	8	9	10	11	12	13
($000's) Total													
Cash Inflow[1]	911	(18)	9	23	31	34	38	41	43	46	47	38	37	36
Cash Outflow[1]	(777)	(1,751)	360	151	92	68	74	62	67	56	46	-	-	-
Net Cash Inflow	1,688	1,733	(351)	(128)	(61)	(34)	(36)	(21)	(24)	(10)	1	38	37	36

Enbridge Gas's NPV of Net Cash Inflow increases from $12,000 in the base case to $1,688,000 in this scenario

Notes:
1 - See Exhibit B, Tab 2, Schedule 6

	Net Present Value												Net Present Value
	14	15	16	17	18	19	20	21	22	23	24	25	26
($000's)													
Cash Inflow[1]	33	32	30	29	27	27	24	24	22	22	20	19	18
Cash Outflow[1]	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Cash Inflow	33	32	30	29	27	27	24	24	22	22	20	19	18

Notes:
1 - See Exhibit B, Tab 2, Schedule 6

Net Present Value

($000's)	27	28	29	30	31	32	33	34	35	36	37	38	39	40
Cash Inflow[1]	18	16	16	15	14	14	12	13	11	11	11	10	9	9
Cash Outflow[1]	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Cash Inflow	18	16	16	15	14	14	12	13	11	11	11	10	9	9

Notes:
1 - See Exhibit B, Tab 2, Schedule 6

ENBRIDGE GAS INC.

Answer to Interrogatory from
Environmental Defence (ED)

INTERROGATORY

Reference:

Exhibit B, Tab 2, Schedule 6

Questions:

(a) If revenues are higher than forecast in years 1 to 10, does Enbridge undertake to reimburse all of those surplus funds to customers? If yes, would they be reimbursed to existing customers (e.g. refunding part of the $8.7 million subsidy) or to customers in the project area (e.g. through decreases in the SES)? Please explain. Please provide an example based on 20% higher-than-expected revenues. Assume capital costs remain as forecast.

(b) If capital costs are lower than forecast in years 1 to 10, does Enbridge undertake to reimburse all of those surplus funds to customers? If yes, would they be reimbursed to existing customers (e.g. refunding part of the $8.7 million subsidy) or to customers in the project area (e.g. through decreases in the SES)? Please explain. Please provide an example based on 20% higher-than-expected revenues. Assume revenues remain as forecast.

(c) If revenues are higher than forecast in years 11 to 40, does Enbridge undertake to reimburse all of those funds to customers? If yes, would they be reimbursed to existing customers (e.g. refunding part of the $8.7 million subsidy) or to customers in the project area (e.g. through decreases in the SES)? Please explain. Please provide an example based on 20% higher-than-expected revenues. Assume capital costs remain as forecast

Response:

(a) No. Under this scenario, the net present value (NPV) of the project is $130,000 as compared to the filed base case of $12,000. Once the increased profitability of this project is captured in the base upon which rates are set, this surplus would serve to reduce rates for all customers.

(b) No. Enbridge Gas believes that the question was intended to read “Please provide an example based on 20% lower-than-expected capital costs” and has answered accordingly. Under this scenario, the NPV of the project is $1,688,000 as compared to the filed base case of $12,000. Once the increased profitability of this project is captured in the base upon which rates are set, this surplus would serve to reduce rates for all customers.

(c) No. Under this scenario, the NPV of the project is $198,000 as compared to the filed base case of $12,000. Once the increased profitability of this project is captured in the base upon which rates are set, this surplus would serve to reduce rates for all customers.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Pollution Probe (PP)

INTERROGATORY

Questions:

a) Please provide a summary of when Enbridge received OEB Franchise approval for the City of North Bay and what number of customers and percentage of the community has been serviced by natural gas to-date.

b) If the OEB approves the proposed project, what number of customers and percentage of the City of North Bay will be served by natural gas?

Response:

a) Enbridge Gas (and its predecessors) have been providing natural gas service in North Bay since 1955. The existing franchise agreement between Enbridge Gas (legacy Union Gas) and the City of North Bay was approved by the Ontario Energy Board on February 26, 2002 (RP-2000-0080).

   As of March 1, 2020, Enbridge Gas is providing service to approximately 17,480 customers within the City of North Bay – 15,768 residential, 1,666 commercial and 46 industrial.

   The 15,768 residential customers represent approximately 31% of North Bay's population of 50,396 (per Statistics Canada's 2016 census statistics).

b) If an additional 134 customers are added in the Project area by year 10, approximately 31.5% of North Bay's population would be supplied with natural gas.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Pollution Probe (PP)

INTERROGATORY

Reference:

Exhibit A, Tab 3, Schedule 1

Questions:

a) Enbridge indicates that it is targeting an in-service date of fall 2020. Will the proposed in-service date provide sufficient time for customers to hire contractors and install heating equipment prior to the start of the 2020 heating season?

b) Please provide a summary of all capital expenditures made to-date related to the project.

c) Please provide a table of required permits and approval for this project including the following columns:

   • Permit/Approval Description
   • Date (actual or expected) permit applied for
   • Date (actual or expected) permit or approval received

d) Please indicate what the impacts would be to the project timing and costs if the project was not completed and in service until 2021.

Response:

a) The target in-service date of fall 2020 refers to the main pipeline and relies upon the LTC approval, as well as all other permits being received. As stated at Exhibit I.PP.7 d), although there may be time for some customers to hire contractors to install heating equipment for the 2020 heating season, pursuant to the customer attachment forecast for the Project the expectation is customer services and meter/regulator installations will continue for years beyond the in-service date.

   Customers will be able to hire contractors of their choosing prior to the in-service date to allow them to be prepared for natural gas service, using Enbridge Gas's normal attachment process. Through this regular process, Enbridge Gas will provide

guidance and updates on timelines to customers based on the progress of the Project.

b) Capital expenditures made to-date totalling approximately $320,000, are related to land purchases, surveys, easements, pre-work such as test digs and tree clearing, permit applications, project management, as well as station design and material acquisition for this Project. The environmental studies and work related to the EPP are also included in these costs.

c)

Permit/Approval	**Date of application**	**Anticipated date of approval/Date of approval**
Ministry of Transportation Ontario (MTO) - Encroachment Permit to construct on Hwy 63	Late March 2020	May 2020
Municipal Consent (MC) - Approval for location of pipeline with road allowance	Late March 2020	May 2020
Conservation Authorities (CA) - Permit for Development, Interference with Wetlands and Alterations to Shorelines and Watercourses	Late March 2020	May 2020
Ministry of Tourism, Culture and Sport (MTCS) 1. Archaeological Assessment acceptance 2. Cultural Heritage Overview Report acceptance	February 2019	1. July 18 2019 2. May 7 2019
City of North Bay Council Resolution		June 28 2017

d) If the Project was not completed and in-service until 2021, there would be a delay in natural gas availability to customers.

Financially, in addition to inflation, there would be extended yard costs, and additional mobilization costs, as well as a general loss of efficiencies experienced when one project is completed at one time. These cost impacts cannot be quantified at this time.

Permits and approvals also have a time window within which they remain in effect. Certain permits and approvals may have to be re-submitted due to expiry dates. Any internally stamped approvals for designs must also be re-submitted after a certain amount of time.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Pollution Probe (PP)

INTERROGATORY

Reference:

Exhibit B, Tab 1, Schedule 1

Questions:

a) Please explain why the forecasted customer penetration rate is so low, i.e. 131/394 or 33%.

b) Please confirm if energy and cost saving opportunities through Enbridge's DSM programs were highlighted to attract potential customers. If yes, please provide a copy of all materials leveraged for this purpose.

c) Please provide the System Expansion Surcharge ("SES") charge and total SES revenue amount required if all 394 potential customers were attached by year 10 instead of just 131 customers.

Response:

(a) Seasonal properties are less likely to connect to natural gas because cost saving opportunities related to space heating are reduced if the property is not occupied throughout the heating season. The attachment forecast reflects a lower attachment rate for the seasonal properties in the Project area, as described at Exhibit B, Tab 1, Schedule 2.

For properties occupied year-round, the results of a market survey completed in January 2018 informed the forecasted number of attachments. Compared to other potential expansion areas that have been surveyed, the Project area has a higher than average incidence of geothermal systems as the primary source of heat. In the Project Area, the stated likelihood to connect to natural gas was lower among survey respondents with this type of heating equipment. Additionally, respondents who indicated they were unlikely to connect to natural gas in the January 2018 survey had the option to provide a reason. The most frequently provided reasons were:

- "Not worth it" (presumably in reference to the initial cost and/or effort required)
- "Current heating system is new" (61% of survey respondents replaced their heating system within the past 5 years)
- "I prefer my present heating system"

(b) Energy and cost saving opportunities through Enbridge's DSM programs were not highlighted in the survey completed in the Project area due to survey length considerations. This type of information is typically shared through marketing and other engagement efforts when applications for new gas services are actively being accepted. Enbridge's DSM programs are also highlighted on the community expansion website at: https://www.savewithgas.com/why-gas/

(c) The SES charge would be $\$0.23/m^3$. Assuming all 394 customers were attached by year 10, the undiscounted total SES revenue would be $7,468,000, as compared to $2,544,000 in the filed base case. On a discounted basis, the total SES revenue would be $2,986,000, as compared to $1,019,000 in the filed base case.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Pollution Probe (PP)

INTERROGATORY

Reference:

Exhibit B, Tab 1, Schedule 1

Questions:

a) Please provide a copy of consumer information (including any door to door questionnaire) materials that were used during public consultation and customer canvassing for this project.

b) Please provide a summary of all energy efficiency and community energy planning information provided at any public consultation meetings held related to this project.

c) Enbridge Gas held a public information session in June of 2019 to provide general Project information and solicit any public questions or concerns. Does Enbridge intend to hold any additional public information sessions in the future? If so, please confirm that Enbridge will share detailed information on its DSM programs during those sessions.

Response:

a) A door-to-door survey was completed in January 2018 to gauge interest in connecting to natural gas within the Project area. A copy of the survey instrument is included as an appendix to the research report provided at Exhibit I.STAFF.5 Attachment 1.

b) and c)
Northshore and Peninsula Roads in North Bay is an area currently not served by natural gas. For this reason, DSM and the potential savings a customer can realize through efficiency and conservation measures were not prioritized in initial public consultation meetings. Rather, efforts at these initial meetings were focused on communicating the benefits of natural gas and the savings potential new customers can realize from a fuel switching perspective.

Enbridge Gas plans to hold additional public information sessions in 2020 at which time informational materials explaining existing DSM programming available to Enbridge Gas customers will be made available to attendees.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Pollution Probe (PP)

INTERROGATORY

Reference:

Exhibit B, Tab 1, Schedule 7

Reference: “An Environmental Protection Plan (EPP) for the Project was prepared by Enbridge Gas' Environmental Planning Department. The EPP was prepared to meet the intent of the Board's document "Environmental Guidelines for Location, Construction and Operation of Hydrocarbon Pipelines and Facilities in Ontario" (7th Edition, 2016).”

Questions:

a) Please describe what Enbridge meant by prepared to meet the “**intent**” of the Board’s Environmental Guidelines.

b) Please confirm if Enbridge strictly met all sections and requirements outlined in the Board’s Environmental Guidelines. If yes, please explain the process used to EB-2019-0188 Pollution Probe Interrogatories ensure that every requirement in the Board’s Environmental Guidelines were met. If no, please explain which sections and requirements were not strictly complied with.

c) Please provide a copy of all completed checklist, reports, sign-offs or other tools Enbridge used to unsure that requirement under the Board’s Environmental Guidelines were met prior to filing for Leave to Construct approval.

d) Enbridge indicates that one objective of its EPP is to “provide pipeline contractors and environmental inspectors involved in the construction of the pipeline with general and site-specific guidelines for environmental protection that supplement Enbridge Gas's construction specifications”. The detailed mitigation plans for the pipeline appear to be missing from the EPP. Please provide a copy of these for this pipeline.

Response:

a) The Ontario Energy Board’s (“OEB”) Environmental Guidelines are designed to provide direction to the applicant in the preparation of a project’s environmental report. As noted in Section 1.1 of the Guidelines, they “are not statutory regulations

nor are they a rule or code issued under the OEB's Authority". The Guidelines should be considered when making an application to the OEB and therefore the Environmental Protection Plan ("EPP") for this proposed project has been prepared to take into consideration and to meet the intent of the Guidelines.

b) As noted above, the OEBs' Environmental Guidelines should be considered when making a Leave to Construct ("LTC") application to the OEB. As noted in Section 1.3.1 of the Guidelines, "the level of detail in the ER should reflect the environmental issues or concerns encountered on the project". The principal objective of the EPP is to outline various environmental mitigation and protection measures for the construction and operation of the project. To meet this objective, the EPP was prepared to:
    - Identify a preferred route that minimizes potential environmental impacts, i.e. the pipeline will be located entirely in road allowance designed to accommodate utilities.
    - Review the environmental features along the preferred route and assess the potential environmental impacts
    - Establish mitigation and protective measures to avoid or minimize environmental impacts
    - Obtain input from interested and potentially affected parties
    - Identify any necessary supplemental studies

c) Please see response at part b) above. Enbridge Gas notes that the EPP was circulated to OPCC member ministries and other stakeholders identified at Exhibit I.PP.8 part a) for review and comment. A summary of those responses are provided at Exhibit B, Tab 2, Schedule 12.

d) Mitigation measures are discussed and summarized in Section 7.0 of the EPP provided at Exhibit B, Tab 2, Schedule 11. As noted in Chapter 2 of the OEB's Environmental Guidelines, "the level of detail of the analysis is expected to increase as planning progresses". As such, the need for further mitigation may be identified and proposed through the design and permitting process. Please see the response at Exhibit I.PP.11 part a) for more information regarding mitigation plans.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Pollution Probe (PP)

INTERROGATORY

Reference:

Exhibit B, Tab 2, Schedule 2

Questions:

a) Please provide the maximum annual volume and peak hourly throughput required to feed this project from the existing gas system once all customers are attached.

b) Are any incremental pipeline investments required to ensure adequate natural gas supply to the City of North Bay over the life of the proposed assets. If so, please provide a summary and the estimated costs.

c) Does the proposed pipeline provide any excess capacity that could be used to reinforces Enbridge's system or expand to additional customers?

Response:

a) Please see the response at Exhibit I.ED.14 a) for the maximum annual volume required to feed the Project.

   Based on the customer attachment forecast identified at Exhibit B, Tab 2, Schedule 2, the ultimate potential totals for the Project require approximately 680 m^3/hr from the existing gas network over a span of 10 years.

b) At this time, no incremental pipeline investments are required to attach the ultimate potential identified at Exhibit B, Tab 2, Schedule 2. The abandonment of an existing pressure regulating station and the installation of a new station on Anita Avenue is required to accommodate the new customers as shown in the detailed drawing of the proposed facilities at Exhibit B, Tab 2, Schedule 4 b). Please see Exhibit B, Tab 2, Schedules 5 a) and b) for a breakdown of the estimated Project capital costs (one and 10 years respectively).

c) The proposed pipeline is designed to supply the ultimate potential identified for the Project area at Exhibit B, Tab 2, Schedule 2.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Pollution Probe (PP)

INTERROGATORY

Reference:

Exhibit B, Tab 2, Schedule 5

Questions:

a) Please confirm that the following is correct or update if not correct.

- Total project capital costs are $10.1 million over 10 years.
- Contribution through the provincial grant is $8.7 million and will be applied to costs in year 1.
- Enbridge's capital contribution over 10 years is $1.4 million.
- Enbridge proposes to spend $8.848 million in year 1 (2020-2021).
- Enbridge proposes to spend approximately $1.25 million of capital from year 2 through year 10.

b) The construction schedule in Ex.B, T2, Sch. 10 indicates that the project completes in 2021. However the table in Ex.B, T2, Sch. 5 indicates that project capital continues to be installed up to year 10. Please explain the discrepancy.

c) For the amounts in part a above, please provide a table indicating the year any of these capital amounts would be put into rate base and what approval are required to allow this. Please also include which approvals are included in this application.

d) An OEB Leave to Construct approval typically expires within a year or two of being issued by the OEB. Please explain how this would affect the ability for Enbridge to install capital related to this project in future years (e.g. year 10).

e) Please provide an update of the status of the $8.7 million provincial grant funding (i.e. has Enbridge received this funding).

f) Please confirm that Ratepayers will not pay for any revenue shortfall or project overruns incurred for this project.

Response:

a) Please see comments for each of the points below
   - Total project capital costs are $10.1 million over 10 years. - Confirmed
   - Contribution through the provincial grant is $8.7 million and will be applied to costs in year 1. - For the purpose of simplicity in financial modelling, Enbridge Gas assumed that the full amount of the grant will be received in year 1 of the project. Actual funding provided in support of the project will be based on O. Reg. 24/19. Some funding may be received after year 1 of the project.
   - Enbridge's capital contribution over 10 years is $1.4 million. – Not confirmed. Enbridge Gas's capital contribution over 10 years, net of the provincial grant, is $1.4 million.
   - Enbridge proposes to spend $8.848 million in year 1 (2020-2021). – Not confirmed. Enbridge Gas proposes to spend $8.648 million in year 1 (2020-2021) prior to applying the provincial grant.
   - Enbridge proposes to spend approximately $1.25 million of capital from year 2 through year 10. – Not confirmed. Enbridge Gas proposes to spend approximately $1.45 million of capital from year 2 through year 10.

b) Assuming no delays related to any required permits or approvals, or unforeseen construction challenges, the construction schedule represents the installation of the main pipeline within the Project area as well as the new distribution station, all to be completed in late fall 2020. The activities identified to take place in 2021 are related to clean-up which refers to addressing any outstanding remediation such as asphalt repairs or planting grass seed in areas that were not complete in the preceding year, either due to winter weather conditions, or some other circumstance. Due to the size of the Project, the expected late construction finish will likely result in some clean-up work required in the following year.

   Project capital in the following years represents service, meter and regulation equipment related to new service installations.

c) Capital costs are added to rate base as they are placed into service. The expected in-service is detailed in the table below. Enbridge Gas notes that as stated in part a) some of the grant may be received after year 1 of the Project. The Board's approval of this application would grant Enbridge Gas leave to construct the Project and to include the associated capital amounts in rate base subject to a prudence review.

$000's	YR 1	YR 2	YR 3	YR 4	YR 5	YR 6	YR 7	YR 8	YR 9	YR 10
In-Service	8,648	473	207	133	103	118	103	118	103	89
Grant	8,670	-	-	-	-	-	-	-	-	-
Total	(22)	473	207	133	103	118	103	118	103	89

d) As noted in part b) of this response and at Exhibit B, Tab 2, Schedule 5 b, the capital spend beyond 2021 (year 3 to year 10) is attributable to customer service and meter/regulator installations based on the Project's forecast number of customer attachments. The Section 90 Leave to Construct application was triggered by the need to install the proposed pipeline to serve the Project area as it met the Board's LTC criteria. The work scheduled in years 3 to 10 is outside the Section 90 request.

e) O. Reg. 24/19 stipulates that $8.7 million will be provided by the Province of Ontario to financially support this Project. The regulation sets-out a formula for the payment of these funds to the Company on a quarterly basis. Portions of these funds will begin to flow to the Company following the OEB's approval of the Project each calendar quarter until the $8.7 in provincial government funding has been conveyed to the Company.

f) Please see the response at Exhibit I.ED.3 a).

ENBRIDGE GAS INC.

Answer to Interrogatory from
Pollution Probe (PP)

INTERROGATORY

Reference:

Environmental Guidelines for Location, Construction and Operation of Hydrocarbon Pipelines and Facilities in Ontario" (7th Edition, 2016), Section 1.3.1 OPCC Review Process.

“The OPCC always reviews the completed ER [Environmental Report], but on some projects individual OPCC representatives or ministry personnel may choose to review draft documentation of the preferred route or site before the ER is completed”

The OPCC includes representatives from “Technical Standards and Safety Authority (TSSA), Ministry of Energy (MOE), Ministry of Environment and Climate Change (MOECC), Ministry of Agriculture, Food and Rural Affairs (OMAFRA), Ministry of Tourism. Culture and Sport (MTCS), Ministry of Municipal Affairs and Housing (MMAH), Ministry of Natural Resources and Forestry (MNRF), Ministry of Transportation (MTO), Infrastructure Ontario (IO), and Ministry of Economic Development, Employment and Infrastructure (MEDEI)”

‘In the process of the OPCC review, the ER should be submitted to upper and lower tier municipalities, Conservation Authorities, where these exist, and upon request to directly affected landowners or tenured persons, as well as any other affected parties and Indigenous communities.”

“The applicant is expected to file all correspondence from the OPCC as part of the application before the OEB”

Questions:

a) Please provide the full list of persons, ministries, agencies and organisations that Enbridge circulated the Environmental Report to.

b) Enbridge included correspondence from three members of the OPCC in its application. Please explain why correspondence from all the other OPCC members and additional stakeholders identifies above was not filed with the application.

c) Please provide a list and supporting correspondence for all OPCC agencies which explicitly approved or endorsed the project.

d) Please explain how all feedback from the OPCC and other relevant stakeholders listed above was considered in the routing and mitigation planning process and what changes were made to incorporate that feedback.

e) This project crosses watercourses and is in proximity to fish habitat. Please confirm that Enbridge coordinated directly with the Department of Fisheries and Oceans and received the required approvals. If not, please confirm when Enbridge is planning to meet this requirement.

Response:

a) Enbridge Gas circulated its Environmental Protection Plan ("EPP") to the following parties:

OPCC MEMBERS	
Ms. Zora Crnojacki Ontario Energy Board P.O. Box 2319 2300 Yonge Street, 26th Floor Toronto, ON M4P 1E4 Tel: 416-440-8104 Fax: 416-440-7656 Zora.Crnojacki@oeb.gov.on.ca	Ms. Linda Pim Ministry of Agriculture, Food and Rural Affairs 1 Stone Road West, 3rd floor SE Guelph, ON N1G 4Y2 Tel: 519-826-3380 Linda.Pim@ontario.ca
Ms. Laura Hatcher Team Lead, Heritage Ministry of Tourism, Culture & Sport 401 Bay Street Toronto, ON M7A 0A7 Tel:416-314-3108 Laura.e.hatcher@ontario.ca	Mr. Tony Di Fabio Ministry of Transportation 301 St. Paul Street, 2nd floor St. Catharines, ON L2R 7R4 Tel: (905) 704-2656 Tony.difabio@ontario.ca
Mr. Kourosh Manouchehri Technical Standards and Safety Authority	Ms. Sally Renwick Team Lead, Environmental Planning

345 Carlingview Drive Toronto, ON M9W 6N9 Tel: (416) 734-3539 Fax: (416) 231-7525 kmanouchehri@tssa.org	Ministry of Natural Resources and Forestry Land Use and Environmental Planning Section Policy and Planning Coordination Branch 300 Water Street, Peterborough, ON K9J 8M5 Tel: 705-755-5195 Fax: 705-755-1971 sally.renwick@ontario.ca
Ms. Shereen Smithanik Senior Advisor Indigenous Energy Policy Unit Ministry of Energy 6th Floor, 77 Grenville Street Toronto, ON M7A 2C1 Tel.:416-326-0513 shereensmithanik@ontario.ca	Ministry of Environment and Cimate Change (MOECC) Regional Contact-Northern Ms. Paula Allen Supervisor, APEP 199 Larch Street, Suite 1101 Sudbury, ON P3E 5P9 Tel: (705) 564-3273 Fax: (705) 564-4180 email: paula.allen@ontario.ca
Mr. Patrick Grace Infrastructure Ontario 1 Dundas Street West Suite 2000 Toronto, ON M5G 2L5 Patrick.Grace@infrastructure.ca	Ministry of Economic Development, Employment and Infrastructure Mr. Joseph Vecchiolla 777 Bay Street, 2nd Floor, Suite 2400 Toronto, ON M5G 2E5 Tel: 416-325-1561 Fax 416-212-4941 Joseph.Vecchiolla@ontario.ca
Ms. Bridget Schulte-Hostedde Manager, Community Planning and Development Ministry of Municipal Affairs and Housing, Municipal Services Office - North (Sudbury) 159 Cedar St, Suite 401 Sudbury, ON P3E 6A5 Tel: 705-564-681	

bridget.schulte-hostedde@ontario.ca	
LOCAL AGENCIES	
Ms. Paula Scott Director, Planning & Development North Bay – Mattawa Conservation Authority 15 Janey Avenue North Bay, ON P1C 1N1	Ms. Carroll Leith Manager Timmins District Office Ministry of the Environment and Climate Change Ontario Government Complex 5520 Hwy 101 E, PO Bag 3080 South Porcupine, ON P0N 1H0
Mr. Mitch Baldwin District Manager North Bay – District Office Ministry of Natural Resources and Forestry 3301 Trout Lake Rd North Bay, ON P1A 4L7	
CITY OF NORTH BAY	
Mr. Keith Robicheau Chief Administrative Officer 200 McIntyre Street East PO Box 360 North Bay, ON P1B 8H8	Ms. Beverly Hillier Manager, Planning & Building Services 200 McIntyre Street East PO Box 360 North Bay, ON P1B 8H8
INDIGENOUS COMMUNITIES	
Chief Scott McLeod Nipissing First Nation 36 Semo Road Garden Village, ON P2B 3K2	Ms. Joan McLeod Nipissing First Nation 36 Semo Road Garden Village, ON P2B 3K2
Ms. Janet Stavinga Executive, Algonquins of Ontario Algonquins of Ontario Consultation Office 31 Riverside Drive, Suite 101	Chief Gerry Duquette Jr. Dokis First Nation 940-A Main Street Dokis First Nation, ON P0M 2N1

Pembroke, ON K8A 8R6	
Mr. Randy Restoule Aboriginal Consultation Coordinator Dokis First Nation 940-A Main Street Dokis First Nation, ON P0M 2N1	Chief Lance Haymond Kebaowek First Nation PO Box 756 Temiscaming, Quebec J0Z 3R0
Chief Henry St – Denis Wolf Lake First Nation PO Box 998, Hunter's Point Temiscaming, Quebec J0Z 3R0	Mr. Steven Sarrazin MNO Mattawa Metis Council 260 Alder Street Sudbury, ON P3C 5P4

b) Enbridge Gas filed all OPCC correspondence received at Exhibit B, Tab 2, Schedule 12 of the Application and pre-filed evidence. Other than the three members noted in the question, no additional correspondence was received from OPCC members and additional stakeholders.

c) As part of the OPCC process and as identified in the OEB Environmental Guidelines, once the review of the Environmental Report or EPP is complete by the OPCC representatives, the Chair of the OPCC will advise the Applicant in writing of any issues which remain outstanding. To date Enbridge Gas is not aware of any issues as part of the OPCC review.

d) Enbridge Gas received comments from three OPCC agencies, as filed with the OEB. No refinements to routing or mitigation were necessary based on the comments received.

e) This Project does not require any in-water works as all watercourses are proposed to be installed by Horizontal Directional Drill within the road allowance and therefore does not trigger a review by the Department of Fisheries and Oceans.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Pollution Probe (PP)

INTERROGATORY

Reference:

Environmental Guidelines for Location, Construction and Operation of Hydrocarbon Pipelines and Facilities in Ontario" (7th Edition, 2016), Section 4.3.9 Air Emissions and Noise.

“Air emissions and their environmental impacts should be compared to all local, provincial and federal regulations, policies and guidelines”

Questions:

a) Please explain what local, provincial and federal regulations, policies and guidelines Enbridge considered when it developed and assessed this project.

b) Please explain how Enbridge assessed direct and cumulative air emissions related to the proposed project.

c) Please indicate how much greenhouse gas emission will increase or decrease annually and cumulatively as a result of this project.

Response:

a) Section 4.3.9 of the Guidelines are focused on compressor stations, which are not a component of this project. Mitigation measures for air emissions and noise during construction are summarized in Section 7.2 of the EPP.

b) Mitigation measures for air emissions during construction are summarized in Section 7.2 of the EPP. Cumulative impacts of the project are outlines in Section 8 of the EPP.

c) See Attachment 1.

Change in Emissions Before and After Natural Gas Community Expansion

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13
Forecast volume (m^3)[1]	41,496	117,758	169,347	194,020	211,964	228,786	245,609	262,431	279,254	293,833	300,562	300,562	300,562
Carbon emissions - with natural gas (tCO_2e)[2]	78	221	317	364	397	429	460	492	523	551	563	563	563
Carbon emissions - before natural gas (tCO_2e)[2,3]	68	192	276	316	345	372	400	427	455	478	489	489	489
Increase (+) / Decrease (-) in emissions	10	29	42	48	52	56	60	65	69	72	74	74	74

1. The volume forecast is based on the customer attachment forecast shown in Exhibit B, Tab 2, Schedule 2, and assumes a consistent use of 2,243 m^3/year for natural gas, which does not factor in any conservation savings over time.

2. Carbon emissions have been calculated using the default emission factor from the Ontario Ministry of Environment, Conservation and Parks "Guideline for Quantification, Reporting and Verification of Greenhouse Gas Emissions", April 2019 version, as well as the 10-yr average electricity emission factor from the Independant Electricity System Operator "Annual Performance Outlook".

3. Carbon emissions have been calculated using the fuel mix of customers likely to switch based on door to door survey results. Like any survey there is a margin of error, and actual emissions from the project may vary.

Year 14	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20	Year 21	Year 22	Year 23	Year 24	Year 25	Year 26	Year 27	Year 28	Year 29	Year 30	Year 31	Year 32
300,562	300,562	300,562	300,562	300,562	300,562	300,562	300,562	300,562	300,562	300,562	300,562	300,562	300,562	300,562	300,562	300,562	300,562	300,562
563	563	563	563	563	563	563	563	563	563	563	563	563	563	563	563	563	563	563
489	489	489	489	489	489	489	489	489	489	489	489	489	489	489	489	489	489	489
74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74

Year 33	Year 34	Year 35	Year 36	Year 37	Year 38	Year 39	Year 40	Total
300,562	300,562	300,562	300,562	300,562	300,562	300,562	300,562	11,061,355
563	563	563	563	563	563	563	563	20,729
489	489	489	489	489	489	489	489	18,008
74	74	74	74	74	74	74	74	2,721

ENBRIDGE GAS INC.

Answer to Interrogatory from
Pollution Probe (PP)

INTERROGATORY

Reference:

"The OEB, as part of its approval process, is required to be consistent with the Provincial Policy Statement"[1]

Questions:

a) Please explain how this project complies with requirements under the Provincial Policy Statement.

b) Please explain how this project complies with the Province's Natural Heritage Reference Manual guidance related to the Provincial Policy Statement.

Response:

a) The Provincial Policy Statement (PPS) provides policy direction on matters of provincial interested related to land use planning and development. The PPS, among other items, provides direction on the provision of infrastructure and the management of resources such as wetlands and woodlands.

   The Environmental Protection Plan (see Exhibit B, Tab 2, Schedule 11) takes this direction into consideration when determining a preferred route, and that the route filed represents the least impact to the environment. This is mainly achieved by locating the pipeline within the existing road allowance. As noted in Section 1.6.8.5 of the 2020 PPS, "The co-location of linear infrastructure should be promoted, where appropriate".

   Enbridge Gas identified a route that minimizes impacts to environmental features as identified in the PPS and therefore is consistent with the PPS while at the same time maximizing the potential for natural gas service connections.

[1] OEB Environmental Guidelines for Location, Construction and Operation of Hydrocarbon Pipelines and Facilities in Ontario" (7th Edition, 2016). Page 4.

b) A Natural Heritage Study was completed for the project by Stantec Consulting Ltd. and is provided at Exhibit I.STAFF.7 Attachment 1. The study addresses matters of provincial interest as outlined in the Natural Heritage Reference Manual. As the majority of the proposed pipeline is located within the existing road allowance, significant features as outlined in the Natural Heritage Reference Manual have been avoided. The only exception are wetlands which at certain locations encroach into the existing road allowance; Enbridge Gas will be avoiding such areas by drilling and by locating the pipeline in the built-up portion of the road.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Pollution Probe (PP)

INTERROGATORY

Reference:

Exhibit B, Tab 2, Schedule 11

Union has retained Stantec Consulting Ltd. (Stantec) to review the proposed running line for environmental constraints and sensitive features. Union will work with Stantec to develop mitigation measures to minimize negative impacts to any features identified.

Questions:

a) The OEB's Environmental Guidelines requires an assessment of all direct and indirect project impacts and detailed mitigation plans to be included in the Environmental Report filed with the OEB. Has Stantec completed the assessment and mitigation plans required as part of the Environmental Report? If so, please provide a copy.

b) Please provide a copy of the scope of work for Stantec and when this work is expected to be conducted.

c) The precedent project (EB-2015-0179) that Enbridge references in its request for approval required route modifications after OEB approval due to the field studies that were not filed with the application. The revised route was required in part on several inaccuracies in the materials filed with the OEB including inaccurate route mapping and two watercourses that were not previously identified to the OEB. Is it possible that route modifications could be required for this project if the detailed field work is not conducted prior to OEB approval?

Response:

a) A Natural Heritage Study and Mitigation Mapping were completed for the project by Stantec Consulting Ltd. Please see Exhibit I.STAFF.7, Attachments 1 and 2 for a copy of each. The purpose of the Natural Heritage Study and Mitigation Mapping was to identify natural features along the proposed route, potential impacts to those features and to recommend mitigation measures to reduce potential impacts.

b) Please see the response at part a).

c) The characterization of the requests to vary associated with EB-2015-0179 is incorrect. As detailed design is prepared for a project, route modifications could be required based on the findings of field studies, landowner requests and/or permitting requirements. As reflected throughout the Environmental Guidelines, avoidance is the preferred mitigation option. For this Project, given that the pipeline route is in existing road allowance, and that sensitive features such as wetlands and watercourses will be avoided through drilling and locating the pipeline in the built-up portion of the road, no route modifications are anticipated at this time.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Pollution Probe (PP)

INTERROGATORY

Reference:

Exhibit B, Tab 2, Schedule 12

Questions:

MECP (formerly MOECC) outlines in its OPCC correspondence it has concerns for the pipeline's impact to sensitive environmental features and water wells.

a) Enbridge indicates that a Hydrological Study and Spill Plan was provided to MECP in response to concerns about well impacts along the pipeline route. Please provide a copy of these documents.

b) In MECP's response dated May 28, 2019 it acknowledged receipt of the Hydrological Study and Spill Plan. I also indicated that it would review the materials and provide a response to Enbridge with any comments. Please confirm that this gap was closed and provide a copy of the MECP response.

Response:

a) Please see Attachments 1 and 2 respectively for the Hydrogeological Study and the NPL Spills Plan.

b) Enbridge Gas did not receive any further communication beyond that provided in Exhibit B, Tab 2, Schedule 12.

May 28, 2019
File: 160961225

Attention: Evan Tomek
Union Gas Ltd.
745 Richmond Street
Chatham, Ontario N7M 5J5

Dear Mr. Tomek,

Reference: Natural Gas Pipeline Community Expansion Project Hydrogeological Study - North Bay

Enbridge Gas Inc. operating as Union Gas Limited (Union Gas) has retained Stantec Consulting Ltd. (Stantec) to conduct a background hydrogeological assessment along the route for their North Bay community expansion project. This letter discusses approximately 27 km of natural gas pipeline located east of North Bay along the north shore of Trout Lake and along the peninsula of Trout Lake.

BACKGROUND

In March, 2018 Union Gas submitted an Environmental Protection Plan (EPP) to the Ministry of the Environment, Conservation and Parks (MECP) in support of this project. In May 2018, the MECP provided comments to Union Gas with respect to the EPP and Union Gas responded to the comments in July 2018 (Attachment C). The MECP subsequently requested additional hydrogeological supporting information including:

- Review local hydrogeologic conditions to determine the risk from proposed construction activity to private wells and determine the need for and extent of private well monitoring
- Identify areas of construction that will be below the groundwater level and indicate how impacts will be mitigated
- Detail procedure for addressing private well complaints

Stantec was retained to support Union Gas in addressing these additional details. The letter details this assessment and provides a description of the proposed well monitoring plan. Figures are included in Attachments A. Attachment B includes background correspondence and Attachment C provides a copy of the Union Gas Complaint Resolution System.

INTRODUCTION

The proposed pipeline is located in the District of Nipissing, east of North Bay along the north shore of Trout Lake and follows along the existing road allowances of Trout Lake Road, Garland Drive, West Peninsula Road, Viceroy Road, Northshore Road, Wild Cherry Lane, Regal Road and Peninsula Road (Site) (Figure 1). The proposed pipeline will be constructed within existing road allowances using 32 mm – 102 mm (1.25” - 4”) diameter plastic pipe. The pipe will be installed via trenchless methods (i.e. horizontal directional

drilling) (HDD) to expected depths of 0.6 m – 1.0 m, with a maximum depth expected at road and/or culvert crossings of up to 5.0 m. Trenching methods are not anticipated anywhere on the pipeline route but will be used as a contingency measure and will have a maximum depth of 2 m.

SURFACE WATER AND NATURAL HERITAGE FEATURES

Doran Creek, Four Mile Creek, Hogan Creek, Lees Creek, as well as several unnamed creeks surround the Site and flow into Trout Lake. The proposed pipeline route crosses Hogan Creek at surface water crossing (SC) SC1 and SC2, Four Mile Creek at SC3, and four (4) unnamed tributaries (SC4 to SC7) to Trout Lake (Figure 2). The Trout Lake watershed is 106 km^2 in size and includes 14 stream subwatersheds (NBMSPC, 2015[1]). The subwatersheds surrounding Trout Lake flow pathways are primarily surface driven as the low permeability bedrock outcrops direct much of the water to runoff to the watercourses (NBMSPC, 2015[1]). During construction, all 7 surface water crossings are to be completed by a trenchless method (i.e. HDD) and as such, surface water takings are not expected during water crossings.

A review of LIO (2018[2]) natural heritage mapping indicated no Provincially Significant Wetlands (PSW) or evaluated wetlands are crossed by the proposed pipeline. Stantec (2019[3]) indicates nearest evaluated wetland is a PSW located south of Trout Lake, approximately 2.5 km from the Site. The proposed pipeline crosses an unevaluated wetland at SC7 and passes within approximately 50 m of two (2) others near SC1 and SC2 (Stantec, 2019[3]). The natural features surrounding the Site are described in detail by Stantec (2019[3]).

GEOLOGY AND HYDROSTRATIGRAPHY

The Site is located within the physiographic region classified by Chapman and Putnam (1984[4]) as the Algonquin Highlands. This is a very large physiographic region, covering an area of over 40,144 km^2. There are frequent outcrops of bare rock, with generally shallow overburden overlaying granite and other Precambrian rocks. The relief is rough, rounded knobs and ridges.

Geological and hydrostratigraphic conditions in the North Bay area have been documented in publications by the Ministry of the Environment (Singer *et al.*, 2002[5]) and North Bay-Mattawa Source Protection Committee (2015[1]). There are two (2) main geologic regions near the Site. The regions are separated by the North Bay Escarpment, which follows along the northern shore of Trout/Turtle Lake. The area above the Escarpment, the northern half of Chippewa Creek subwatershed and the area northwest of Trout/Turtle Lake, has a thicker overburden that is comprised of coarser grained materials including sands and gravels, deposited as till and glaciofluvial outwash. Surficial geological mapping by the OGS (2005) describes this as ground moraine and outwash plain deposits (Figure 2). The area below the Escarpment, the area south and east of Trout/Turtle Lake, is characterized by bedrock with very thin overburden. There are pockets of

[1] North Bay-Mattawa Source Protection Committee (NBMSPC). 2015. North Bay-Mattawa Source Protection Area – Assessment Report. February 2015.

[2] LIO (Land Information Ontario). 2018. Natural Heritage database. Queen's Printer for Ontario, 2018. Accessed April 2018.

[3] Stantec, 2019. Natural Gas Pipeline Community Expansion Project Natural Heritage Study: North Bay. April 2019.

[4] Chapman, L.J. and D.F. Putnam, 1984. The Physiography of Southern Ontario. Ontario Geological Survey, Special Volume 2, 270 p. Accompanied by Map P.2715, scale 1:600,000.

[5] Singer, S.N. and C.K. Cheng. 2002. An Assessment of the Groundwater Resources of Northern Ontario. Hydrogeology of Ontario Series (Report 2). Toronto, Ontario: Environmental Monitoring and Reporting Branch, Ministry of the Environment.

glaciolacustrine and organic deposits throughout the area, which are comprised of finely grained materials such as clays. Bedrock at the Site is mapped as Mesoproterozoic aged (1.0 to 1.6 billion years ago) migmatitic rocks and gneisses (OGS, 2011[6]).

HYDROGEOLOLGY

MECP water well records (WWR) for wells located within a 0.5 km radius of the Site are shown on Figure 3. WWR indicate that 87 of 112 wells are installed within bedrock. Water levels within these wells generally ranged from 0 m to 10 m below ground surface (BGS), with a median of approximately 5 m BGS. Similarly, the overburden water well levels ranged in depth from about 1 m BGS to 10 m BGS, with a median of about 4 m BGS. Stantec notes that static water levels presented in the MECP WWR were measured at their time of installation and that these wells were drilled at different times of the year under varying seasonal conditions.

Along the proposed pipeline route, generally thin overburden overlies bedrock. Based on this setting, groundwater may be encountered in the low-lying areas and at elevations close to the lake surface. Topographic elevations shown on Figure 2 suggest that the proposed pipeline in the vicinity of SC2 and SC3 are in low lying areas and may encounter groundwater in the trench excavations. Nearby WWR # 4301063 (Figure 3.2), which is located near West Peninsula Road and Peninsula Road, indicates a static water level at ground surface. Other low lyings sections of the proposed pipeline such as near SC5 and SC7, as well as where the pipeline drops close to Trout Lake along Peninsula Road may also encounter groundwater in the excavations. In these low-lying areas, if trenching methods are employed which have a maximum depth of up to 2 m BGS, greater volumes of groundwater may be encountered.

CONTAMINATED SITES

Union Gas completed an environment protection plan (EPP) and concluded that contaminated soils are not expected at the Site. The MECP reviewed the EPP and noted that there is a fuel storage location which is found near the intersection of Northshore Road and Peninsula Road (Figure 3). Based on publicly available street level imaging, there appears to be a fuel pump and above ground fuel storage tank behind the building at this location. There are no other locations that have been identified where potentially contaminated soils or groundwater are expected to be encountered.

The Contractor will be made aware of this storage location. Union Gas will implement their standard procedures for notification, handling, and disposal of contaminated soils should any be identified prior to or during construction. During construction dewatering, if required, the Contractor will observe the dewatering for any sheen or odour.

[6] Ontario Geological Survey 2011. 1:250 000 scale bedrock geology of Ontario; Ontario Geological Survey, Miscellaneous Release---Data 126-Revision 1.

PRIVATE WELLS AND WELL MONITORING

A review of MECP WWR by Stantec indicated approximately 44 residential wells are located within 100 m of the proposed construction. Aerial mapping indicated several hundred residences may be located within 100 m of the proposed pipeline. It is expected that the majority of these residences are supplied by water from the lake.

To address potential interference concerns, Union Gas will complete a private well monitoring program prior to any construction activities. The purpose of the monitoring program is to establish baseline conditions that will be used to help assess well interference complaints should they arise. The monitoring program will be conducted as follows:

- Provide a notification letter to all landowners within 100 m of the proposed pipeline. Depending on mail delivery options in the area, other public notifications may be considered.
- The notification letter will detail the proposed work and the potential risk of well interference. The notification letter will include contact information for Union Gas's Landowner Relations Agent regarding construction concerns and contact information for Stantec staff for participation in a well monitoring program. The letter will indicate that depending on response, not all private wells will be included in the program.
- Develop a private well monitoring program to focus on shallow private wells within 25 m of the proposed pipeline, located in low lying areas where groundwater dewatering may be required. The monitoring program for private wells that are selected to be included would consist of completion of a well questionnaire, collection of a water quality sample and documentation of visible well condition at ground surface. Depending on well condition and accessibility, the program would include measurement of groundwater levels under static and pumping conditions if accessible. Monitoring would be completed prior to construction activities. Monitoring would only be completed with permission of the well owner and would be dependent on safe access to the well.
- In the event of a well interference complaint, Union Gas will provide well owners with potable water until the quantity and quality of water from their private well is restored.

A Complaint Resolution System will be implemented throughout construction. A copy is included in Attachment B.

MITIGATION MEASURES

General mitigation and protection measures including measures while working in or adjacent to watercourses are described in detail by Stantec (2019[3]). Horizontal directional drilling (HDD) construction methods for pipeline water crossings and associated mitigation measures are also found in Stantec (2019[3]). Union Gas is planning to implement the HDD method to cross all watercourses along the proposed pipeline route.

Based on the shallow depth of the pipeline and that trenching/dewatering is not anticipated and would only be temporary and completed on an as needed basis, no long-term impacts to groundwater levels are expected. As an additional mitigation measure if the contingent trenching method is utilized, Union Gas will consider installation of clay collars along the pipeline bedding adjacent to wetlands to prevent preferential flow of groundwater and installation of clay collars along steep slopes to protect pipeline bedding.

CLOSURE

With the implementation of the HDD construction method, as needed, the mitigation methods and protective measures described in Stantec (2019[3]), in addition to the well monitoring program and shallow construction depth, no significant adverse residual impacts on groundwater or soils are anticipated.

Regards,

Stantec Consulting Ltd.

Jamie Koch M.Sc., P.Geo.
Hydrogeologist
Phone: 519 585 7438
jamie.koch@stantec.com

Lesley Veale, M.Sc., P.Geo.
Senior Hydrogeologist
Phone: 519-585-7377
lesley.veale@statec.com

Attachment: A: Figures
B: Background Correspondence
C: Union Gas Complaint Resolution System

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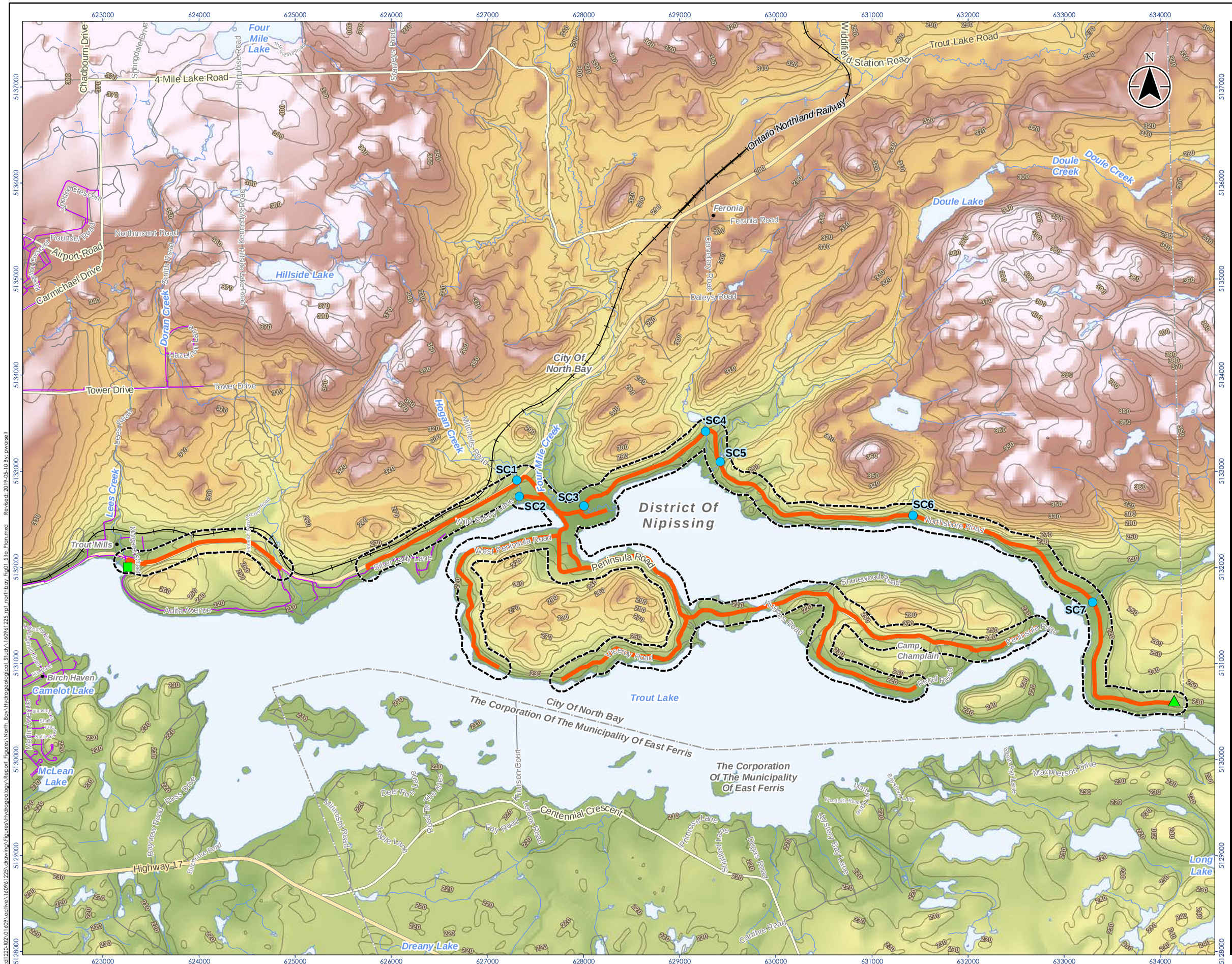
ATTACHMENT A:

Figures



Stantec

Legend

- Study Area
- Start Point
- End Point
- Watercourse Crossing
- Proposed Pipeline Location
- Distribution Pipeline (UG)
- Ground Surface Topographic Contour (metres above mean sea level)
- Highway
- Major Road
- Minor Road
- Railway
- Watercourse (Intermittent)
- Watercourse (Permanent)
- Waterbody
- Municipal Boundary, Upper Tier
- Municipal Boundary, Lower Tier

Ground Surface Elevation (metres above mean sea level)

High : 415
350
300
250
Low : 190

0 500 1,000 m

1:40,000 (At original document size of 11x17)

Notes

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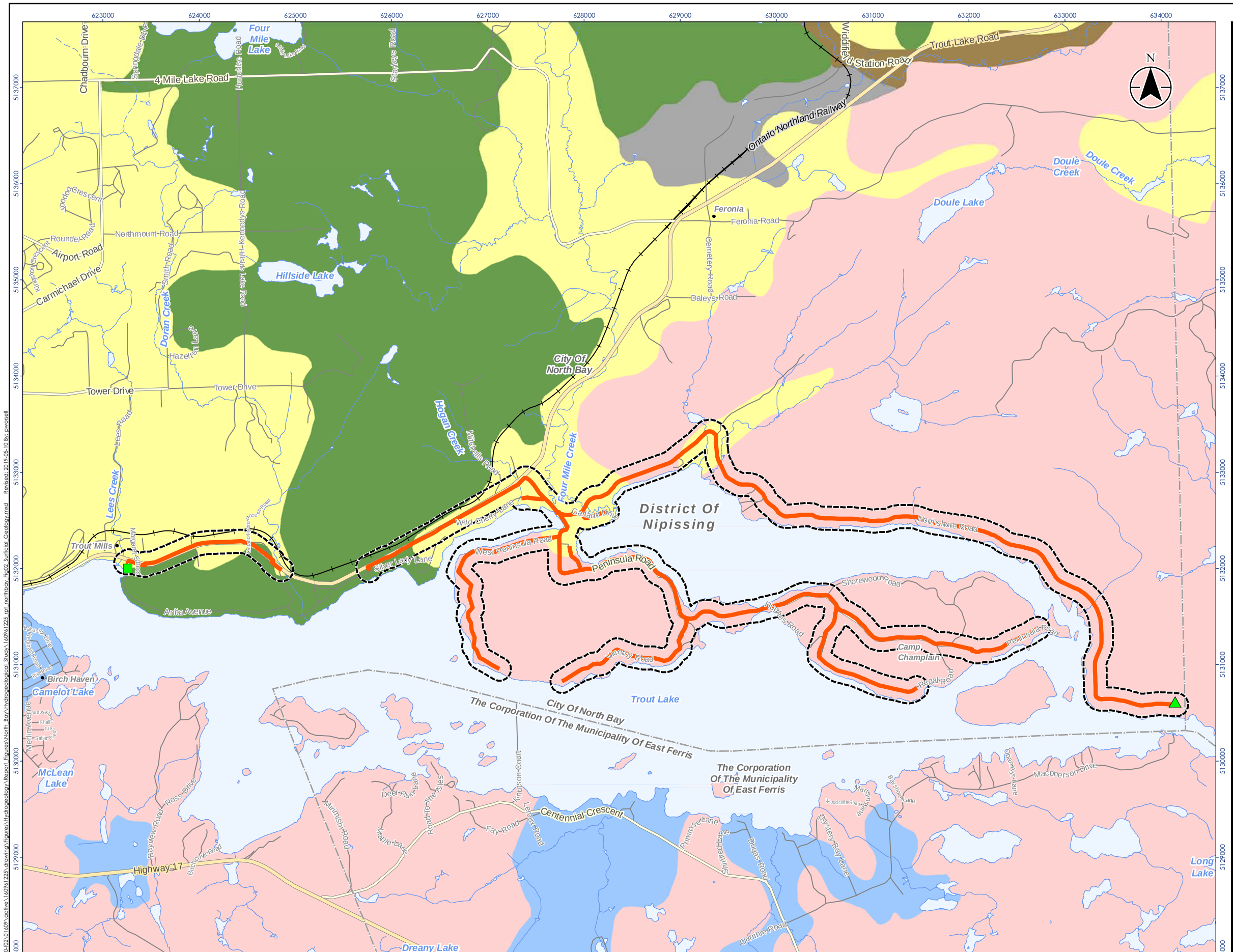
Project Location
District of Nipissing

160961225 REVA
Prepared by PW on 2019-05-10
Technical Review by DH on 2017-06-01

Client/Project
UNION GAS LIMITED
COMMUNITY EXPANSIONS - PHASE 3
NORTH BAY – NORTHSHORE AND PENINSULA ROADS

Figure No.
1

Title
Site Plan



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Legend

- Study Area
- Start Point
- End Point
- Proposed Pipeline Location
- Highway
- Major Road
- Minor Road
- Railway
- Watercourse (Intermittent)
- Watercourse (Permanent)
- Municipal Boundary, Upper Tier
- Municipal Boundary, Lower Tier
- Waterbody

Geological Landform

- Ground moraine
- Outwash plain
- Glaciolacustrine plain
- Alluvial
- Organics
- Bedrock knob

Notes

1. Coordinate System: NAD 1983 UTM Zone 17N
2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © Queen's Printer for Ontario, 2019.
3. Geological landforms data source: Ontario Geological Survey, Ministry of Northern Development and Mines, and Northeast Science and Information Section, Ministry of Natural Resources 2005. Digital Northern Ontario Engineering Geology Terrain Study (NOEGTS); Ontario Geological Survey, Miscellaneous Release--Data 160.

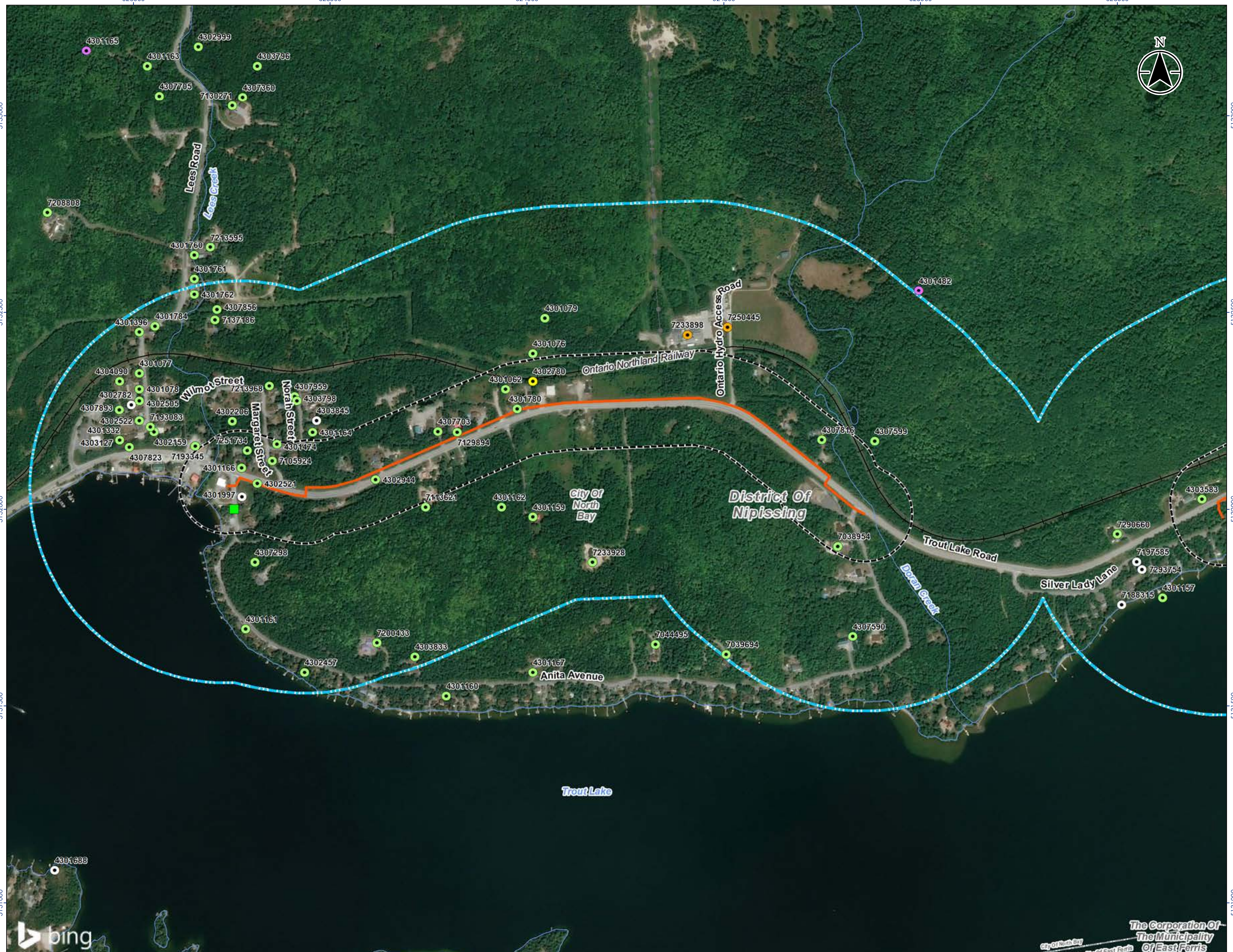
Project Location
District of Nipissing

160961225 REVA
Prepared by PW on 2019-05-10
Technical Review by DH on 2017-06-01

Client/Project
UNION GAS LIMITED
COMMUNITY EXPANSIONS - PHASE 3
NORTH BAY – NORTHSHORE AND PENINSULA ROADS

Figure No.
2

Title
Surficial Geology



Stantec

Legend

- Study Area
- 500 metre Buffer
- Start Point
- Proposed Pipeline Location
- Railway
- Hydro Line
- Watercourse (Permanent)
- Waterbody
- Municipal Boundary, Upper Tier
- Municipal Boundary, Lower Tier

Water Well Record (MECP)

- Commerical
- Domestic
- Industrial
- Monitoring
- Unknown

0 250 500 m

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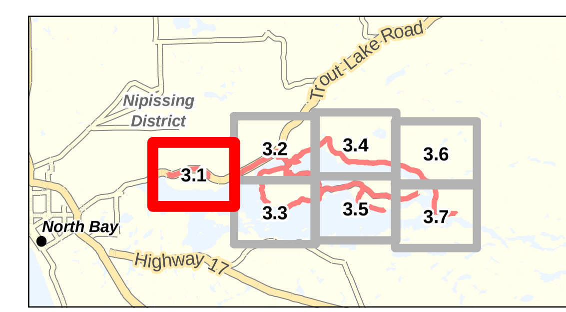

Project Location
District of Nipissing

160961225 REVA
Prepared by PW on 2019-05-10
Technical Review by DH on 2017-06-01

Client/Project
UNION GAS LIMITED
COMMUNITY EXPANSIONS - PHASE 3
NORTH BAY – NORTHSHORE AND PENINSULA ROADS

Figure No.
3.1

Title
MECP Water Well Records

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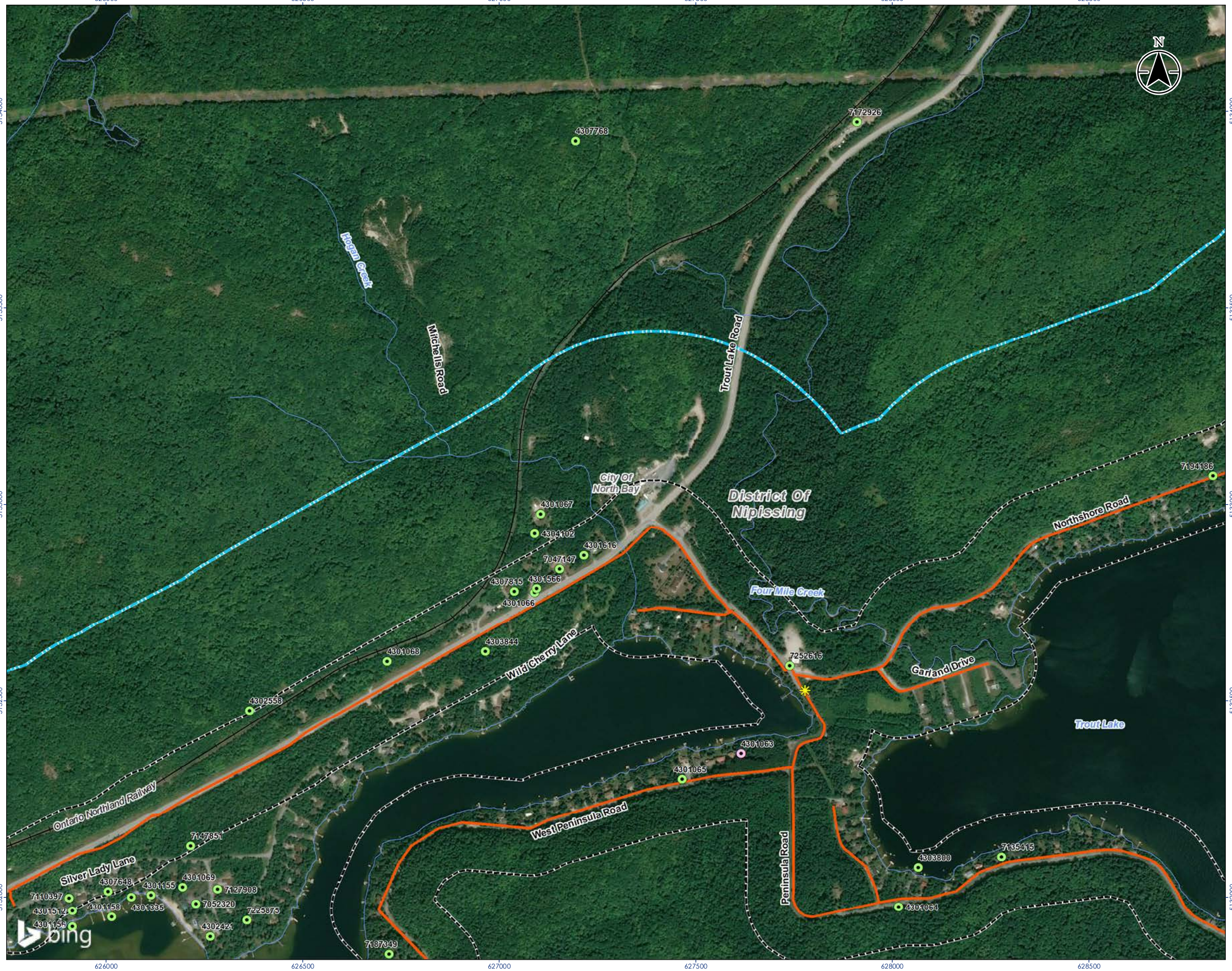

Stantec

Legend

- Study Area
- 500 metre Buffer
- Proposed Pipeline Location
- Fuel Storage
- Railway
- Hydro Line
- Watercourse (Permanent)
- Waterbody
- Municipal Boundary, Upper Tier
- Municipal Boundary, Lower Tier

Water Well Record (MECP)

- Domestic
- Public

0 250 500 m

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Notes

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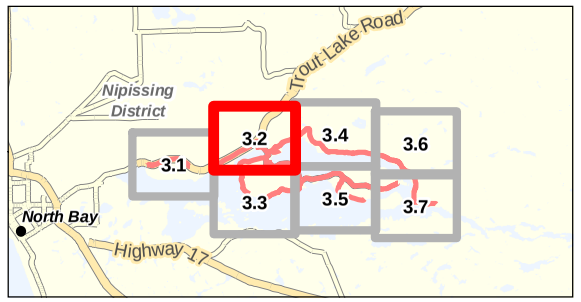


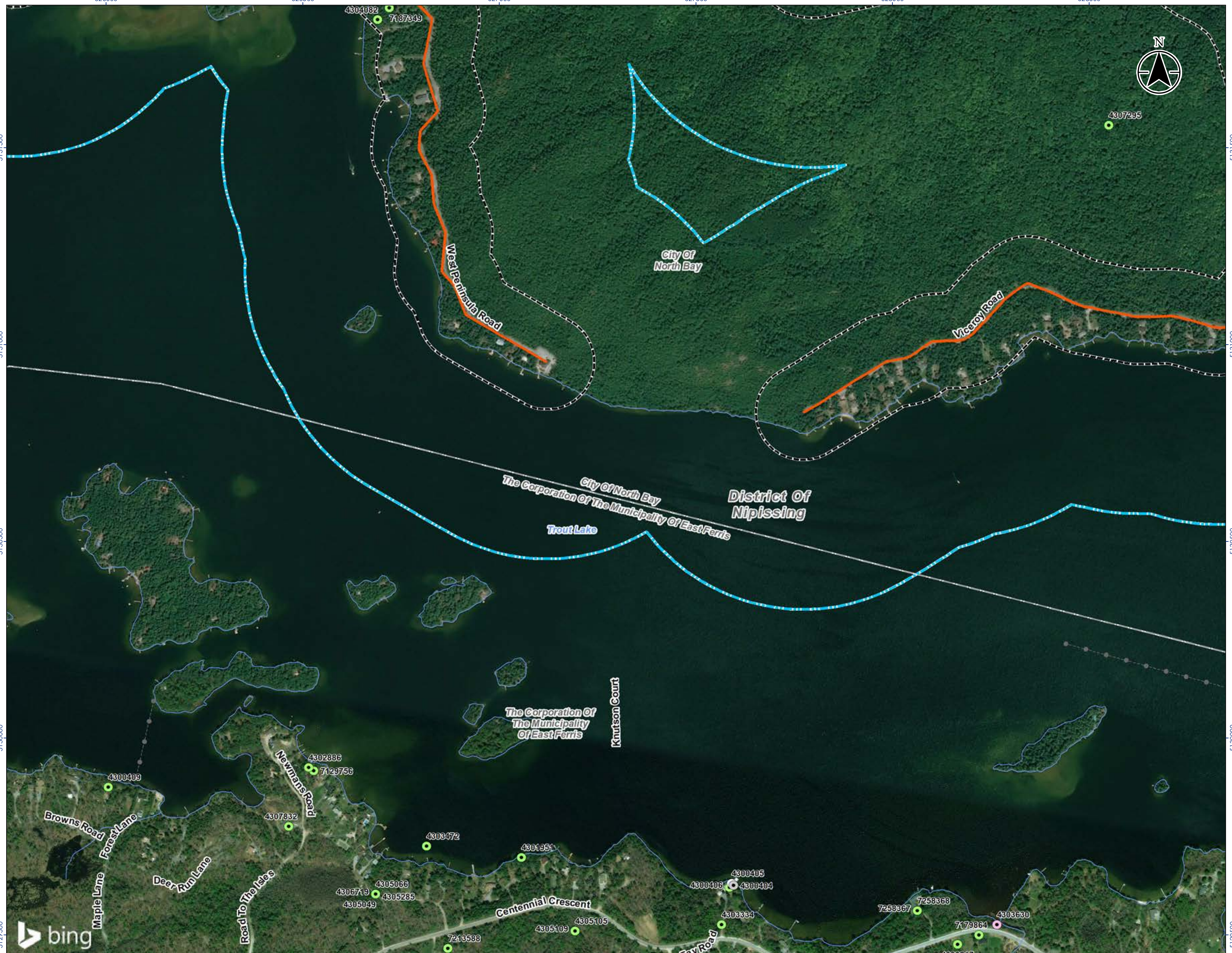
Project Location
District of Nipissing

160961225 REVA
Prepared by PW on 2019-05-10
Technical Review by DH on 2017-06-01

Client/Project
UNION GAS LIMITED
COMMUNITY EXPANSIONS - PHASE 3
NORTH BAY – NORTHSHORE AND PENINSULA ROADS

Figure No.
3.2

Title
MECP Water Well Records



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\\cd1220-f02\01609\active\160961225\drawing\Figures\Hydrogeology\Report_Figures\North_Bay\Hydrogeological_Study\160961225_rpt_northbay_Fig03_MECP_WWR.mxd Revised: 2019-05-10 By: pworsell

Stantec

Legend

- Study Area
- 500 metre Buffer
- Proposed Pipeline Location
- Submerged Hydro Line
- Watercourse (Permanent)
- Waterbody
- Municipal Boundary, Upper Tier
- Municipal Boundary, Lower Tier

Water Well Record (MECP)

- Domestic
- Not Used
- Public
- Unknown

0 250 500 m

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Notes
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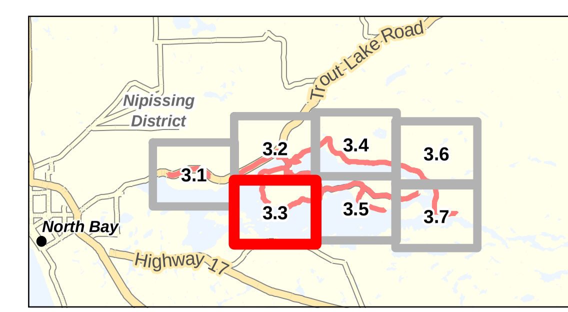

Project Location
District of Nipissing

160961225 REVA
Prepared by PW on 2019-05-10
Technical Review by DH on 2017-06-01

Client/Project
UNION GAS LIMITED
COMMUNITY EXPANSIONS - PHASE 3
NORTH BAY – NORTHSHORE AND PENINSULA ROADS

Figure No.
3.3

Title
MECP Water Well Records

Stantec

Legend
- Study Area
- 500 metre Buffer
- Proposed Pipeline Location
- Hydro Line
- Watercourse (Permanent)
- Waterbody
- Municipal Boundary, Upper Tier
- Municipal Boundary, Lower Tier

Water Well Record (MECP)
- Domestic
- Unknown

0 250 500 m

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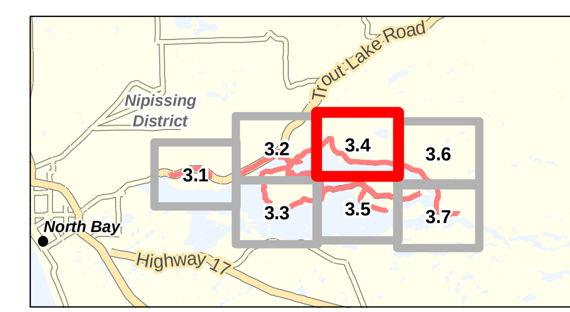

Project Location
District of Nipissing

160961225 REVA
Prepared by PW on 2019-05-10
Technical Review by DH on 2017-06-01

Client/Project
UNION GAS LIMITED
COMMUNITY EXPANSIONS - PHASE 3
NORTH BAY – NORTHSHORE AND PENINSULA ROADS

Figure No.
3.4

Title
MECP Water Well Records

Stantec

Legend
- Study Area
- 500 metre Buffer
- Proposed Pipeline Location
- Submerged Hydro Line
- Watercourse (Permanent)
- Waterbody
- Municipal Boundary, Upper Tier
- Municipal Boundary, Lower Tier

Water Well Record (MECP)
- Domestic
- Not Used
- Public
- Unknown

0 250 500 m

1:10,000 (At original document size of 11x17)

Notes
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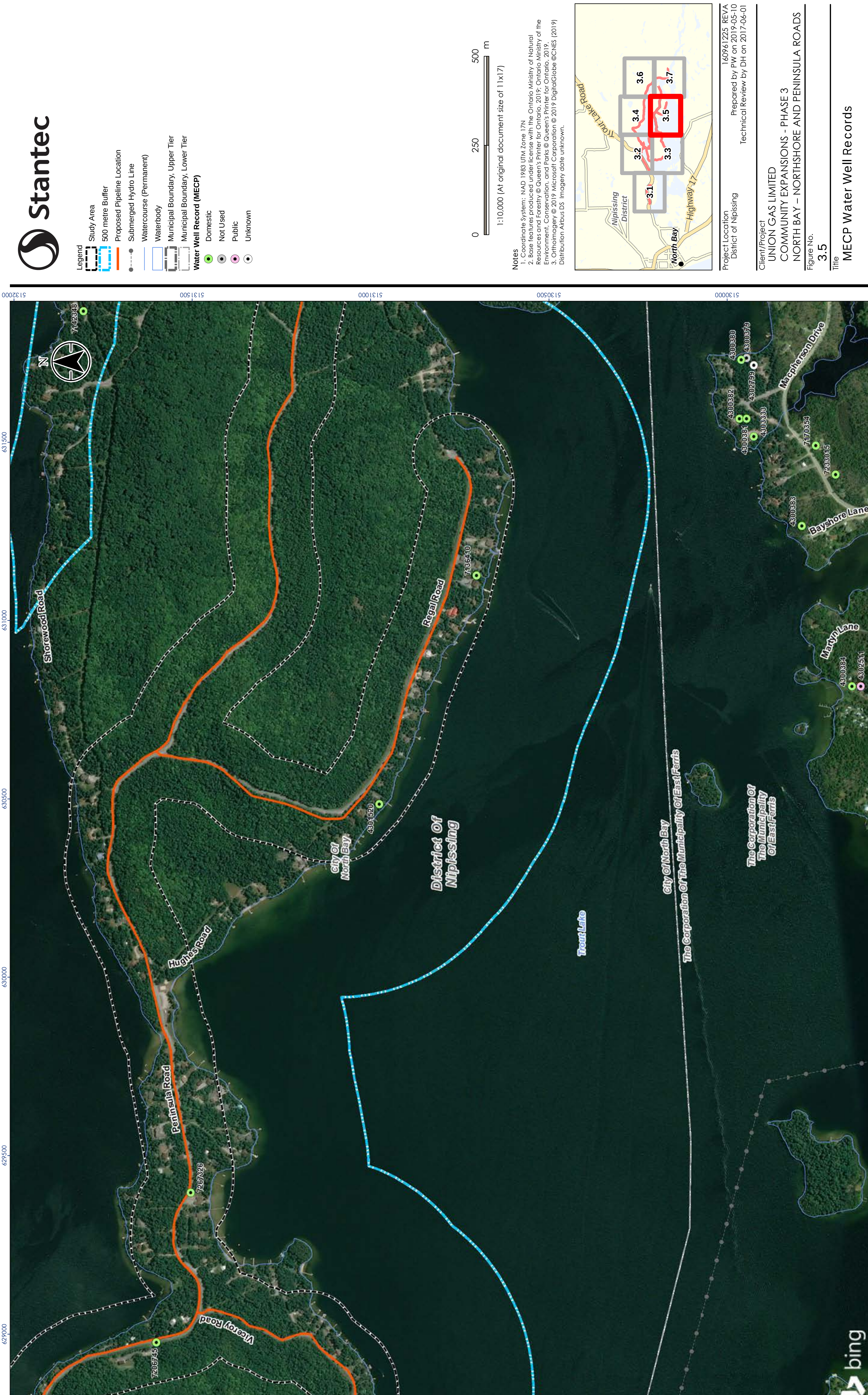

Project Location
District of Nipissing

160961225 REVA
Prepared by PW on 2019-05-10
Technical Review by DH on 2017-06-01

Client/Project
UNION GAS LIMITED
COMMUNITY EXPANSIONS - PHASE 3
NORTH BAY – NORTHSHORE AND PENINSULA ROADS

Figure No.
3.5

Title
MECP Water Well Records

Stantec

Legend
- Study Area
- 500 metre Buffer
- Proposed Pipeline Location
- GAS Natural Gas Pipeline
- Watercourse (Permanent)
- Waterbody
- Municipal Boundary, Upper Tier
- Municipal Boundary, Lower Tier

Water Well Record (MECP)
- Domestic

0 250 500 m

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Notes
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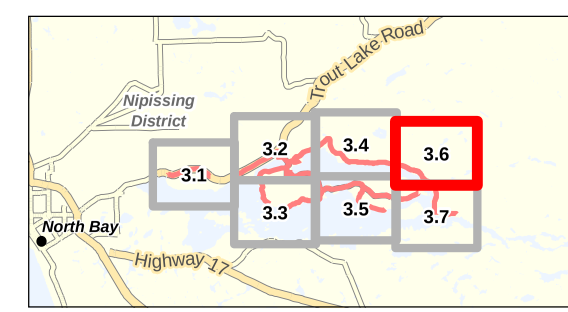


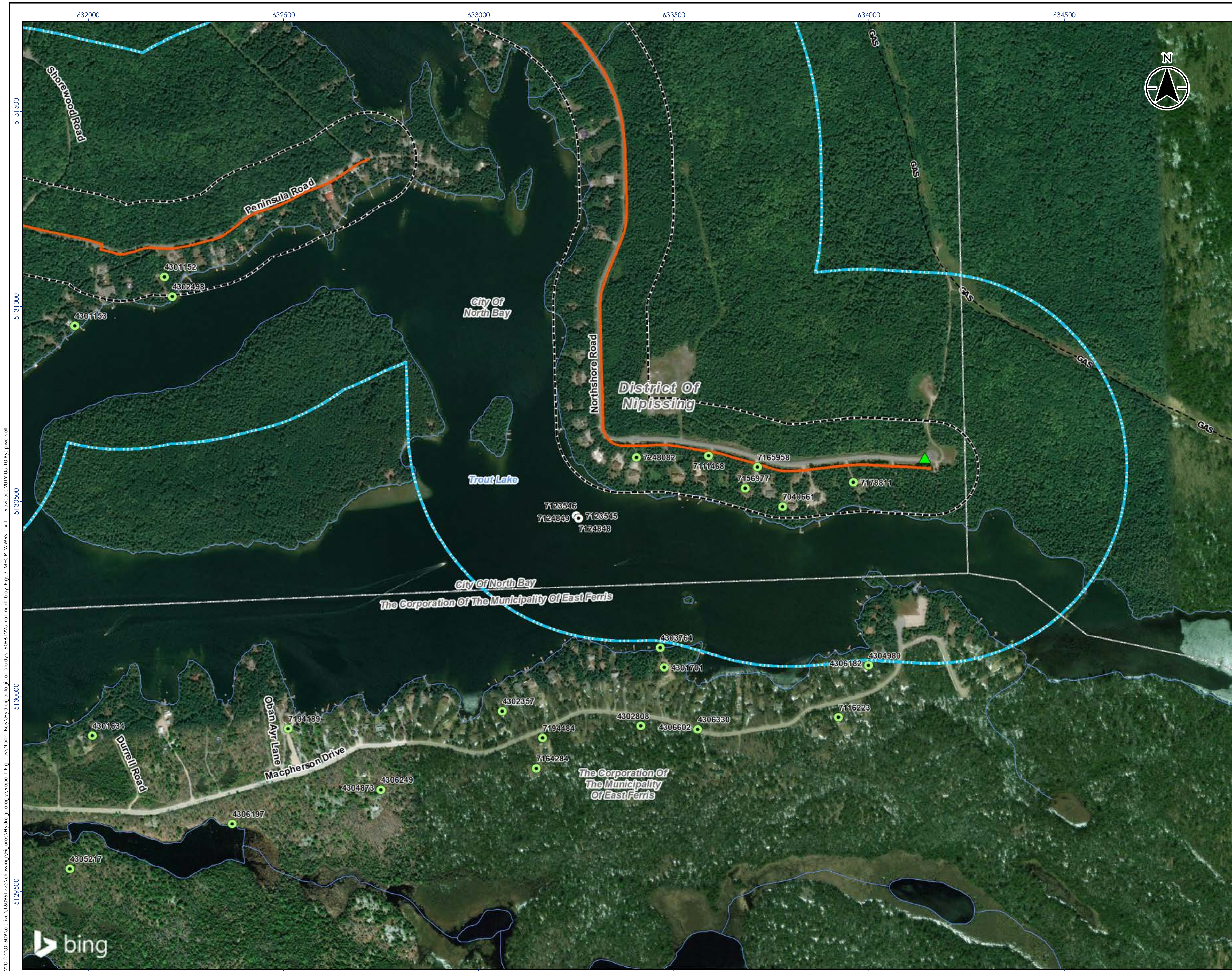
Project Location
District of Nipissing

160961225 REVA
Prepared by PW on 2019-05-10
Technical Review by DH on 2017-06-01

Client/Project
UNION GAS LIMITED
COMMUNITY EXPANSIONS - PHASE 3
NORTH BAY – NORTHSHORE AND PENINSULA ROADS

Figure No.
3.6

Title
MECP Water Well Records



Stantec

Legend
- Study Area
- 500 metre Buffer
- End Point
- Proposed Pipeline Location
- -GAS- Natural Gas Pipeline
- Watercourse (Permanent)
- Waterbody
- Municipal Boundary, Upper Tier
- Municipal Boundary, Lower Tier

Water Well Record (MECP)
- Domestic
- Unknown

0 250 500 m

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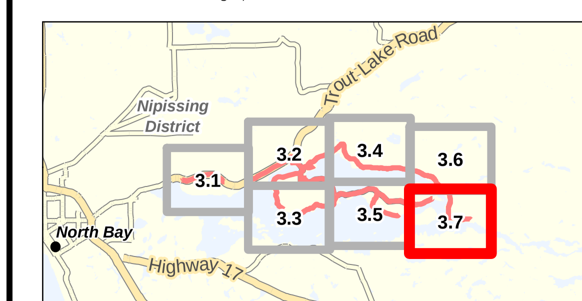

Project Location
District of Nipissing

160961225 REVA
Prepared by PW on 2019-05-10
Technical Review by DH on 2017-06-01

Client/Project
UNION GAS LIMITED
COMMUNITY EXPANSIONS - PHASE 3
NORTH BAY – NORTHSHORE AND PENINSULA ROADS

Figure No.
3.7

Title
MECP Water Well Records

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ATTACHMENT B:

Background Correspondence

Ministry of the Environment and Climate Change

199 Larch Street
Suite 1201
Sudbury ON P3E 5P9
Tel.: (705) 564-3253
Fax: (705) 564-4180

Ministère de l'Environnement et de l'Action en matière de changement climatique

199, rue Larch
Bureau 1201
Sudbury ON P3E 5P9
Tél. : (705) 564-3253
Téléc. : (705) 564-4180

Ontario

May 30, 2018

Evan Tomek,
Environmental Planner
Union Gas Limited
P.O. Box 2001,
50 Keil Drive North
Chatham, Ontario
N7M 5M1

Dear Mr. Tomek:

Re: Union Gas Pipeline Project
Northshore and Peninsula Roads in North Bay, Ontario

Thank-you for the opportunity to comment on the Environmental Protection Plan (EPP) prepared by Union Gas Limited (Union Gas), dated March 2018.

It is our understanding that this project involves the construction of a new pipeline to supply natural gas to residents and businesses in the Northshore and Peninsula Roads area in the City of North Bay. The project will consist of approximately 27 km of small diameter (i.e. 1 ¼"- 4") polyethylene distribution pipeline to service the area. The proposed pipeline will connect to Union Gas's existing pipeline on Trout Lake Road and service Trout Lake Road, Wild Cherry Lane, Garland Drive, West Peninsula Road, Viceroy Road and Regal Road. The pipeline will be installed via a trenching method utilizing a trenching machine or hoe excavator, depending upon the ground conditions.

The Ministry of the Environment offers the following comments for your consideration.

General Comments

It is always good practice in introductory paragraphs to identify which piece of legislation or guideline that governs your process, for ease of review. For the purpose of this review MOECC has assumed that this protection plan has been drafted in accordance with the direction that is provided in the Ontario Energy Board's (OEB) *Environmental Guidelines for the Location, Construction and Operation of Hydrocarbon Pipelines and Facilities in Ontario (2011).*

In the description of the proposed construction project the report outlines the depth of the pipeline trench as a minimum of 0.6 metres, it is unclear what the expected maximum depth of the trench is. Should the excavation advance beyond the groundwater table, dewatering of the trench may be necessary. A Permit to Take Water

(PTTW) is needed when water is taken at a combined rate of over 50,000 litres per day (Ontario Water Resources Act, section 34). This may be required for activities such as dewatering in areas of high water table, or temporary stream diversions to facilitate in-water work at water crossings. If during the course of the assessment of water resources within the study area you determine that dewatering in excess of 50,000 L/day will be required, you may wish to provide sufficient information regarding the impacts that will occur due to dewatering as part of the study to facilitate the ministry's consideration of your PTTW application.

MOECC would request that more detail be provided regarding how the fugitive dust will be controlled, what mechanism or chemicals if any, will be used. Additionally, MOECC would like to see more detail regarding mitigation measures for noise and vibration during construction including any blasting if required.

Description of Environment

It is MOECC's understanding that Union Gas has retained a consultant to review the environmental constraints and sensitive features along the proposed project route. The assessment of the environmental features should be included in the EPP. The EPP must include a written description of environmental features which are affected by the proposed route to help guide the planning process and to determine appropriate mitigation measures that need to be employed. A description of the environment should include sensitive environmental features, the current servicing of the area, a characterization of relevant demographics and a description of the economic base and key commercial activities which may be affected by the project.

Sensitive environmental features located in the study area should be identified early in the process to help guide the decision making process and identify hazards and subsequent mitigation measures. A detailed map of the project area should be provided which clearly outlines the sensitive features, including but not limited to, some of the following features:

- water crossings;
- wetlands;
- groundwater wells;
- recharge areas;
- industries which may have caused contaminated soils;
- buildings adjacent to the road which may be affected by construction activities;
- existing and planned roads and right-of-ways; and,
- habitat of rare, threatened or endangered plant, fish and wildlife species.

Lastly, a drawing should be included showing where in the road allowance the pipeline will be installed.

Groundwater

The report has very limited detail on issues associated with groundwater receptors and protection from potential contamination from the project.

The potential impacts and mitigation outlined in table 1 (mitigation summary), which are of interest to groundwater include disruption to water supply, spills and contaminated soils. Oil spills and leaks, and movement of contaminated soils have the potential to affect the groundwater quality in the area. In addition, several water supply wells are located along the proposed natural gas distribution line and these will need to be identified prior to construction.

The EPP has identified that a hydrogeologist will review the area for water supply wells and this will be followed up by implementation of a water well monitoring program in areas where the pipeline construction may affect the water wells. The hydrogeological assessment should be included in the environmental assessment and those water supply wells found to be potentially at risk of water quality and quantity impacts will require a program of groundwater monitoring prior to and during the construction. MOECC requests that more detail be provided for the water well monitoring program in terms of communication protocol for dealing with landowners, frequency of sampling and parameters being sampled for.

Our database shows that the project area is in an area containing a highly vulnerable aquifer. This needs to be considered in your approach to spill prevention and hazard mitigation. During the construction of the pipeline fuel oils and chemicals may be used and stored on site and if not stored properly have the potential to affect groundwater quality through leaks and spills. Therefore a spill prevention plan should be prepared and should include mitigation measures to deal with any spills that inadvertently occur.

Other activities that could impact groundwater quality include sewage disposal during the construction stage. It is requested that Union Gas provide further details on the means of disposal of sewage and measures to be implemented to protect the water supply wells in the area.

Surface Water

It is our understanding that Horizontal Directional Drilling (HDD) will be utilized when possible for watercrossings. In certain situations HDD may not be possible and considering the close proximity of waterbodies in certain areas of the construction MOECC would request more detailed information about how sedimentation run-off and erosion will be controlled, how the soils will be stockpiled, and how spills will be prevented. At a minimum MNRF's generic sediment control plans and Best Management Practices should be followed.

Contaminated Sites

The EPP states that contaminated soils are not expected in the area. According to MOECC records there is fuel storage occurring along the proposed pipeline route. It should be clearly outlined where there is potential to encounter contaminated sites during the pipeline construction and the appropriate plan for notification, handling and

disposal of the soils. It should be noted the granular soils surrounding the pipeline would provide a contaminant pathway and this should be considered in your planning process.

Consultation

Soliciting input from the general public, aboriginal peoples and directly affected parties is an important component of the process. It provides the opportunity for them to provide meaningful input into the planning process and influencing decisions on matters which affect them. The applicant is encouraged to consult with interested parties during all stages of the development of the environmental study in order to obtain input before decisions are made. Direct notification should be provided to any landowners whose property has been identified as being within a zone of impact, resulting from pipeline construction. An appendix of the report should summarize the concerns of all interested parties that have been identified through the consultation process. The appendix should document the date, time and place of each meeting, the concerns that were raised, how they were addressed, why that approach was taken and describe and explain any concerns left unresolved. Please refer to Chapter 3 of the OEB Environmental Guidelines for more detailed information regarding requirements for the consultation process.

In summary, the sensitive environmental features in the project area should be identified early in the process to properly assess and mitigate the hazards. More detail is required in reference to the mitigation plans outlined for the project. Lastly, consultation efforts should also be carried out early in the process to ensure proper planning in the front end of the project.

If you have any questions regarding the above comments please do not hesitate to contact me either at (705) 564-7171 or at Shelley.Wainio2@ontario.ca

Regards,

Shelley Wainio
EA/Planning Coordinator
MOECC Northern Region

CC: Paula Allen, MOECC
Freduah Agyemang, MOECC

July 25, 2018 (EMAIL ONLY)

Ms. Shelley Wainio
EA/Planning Coordinator
Ministry of the Environment, Conservation and Parks, Northern Region
199 Larch Street, Suite 1201
Sudbury, ON P3E 5P9

Re: Union Gas Limited
North Bay – Northshore & Peninsula Roads Natural Gas Pipeline Project

Dear Ms. Wainio,

Thank you for your review of the Environmental Protection Plan (EPP) for the above noted project and for providing comments in your letter dated May 30, 2018. In an effort to clearly address your comments, I have provided responses below under the headings and comments provided in your letter:

General Comments

It is always good practice in introductory paragraphs to identify which piece of legislation or guideline that governs your process, for ease of review. For the purpose of this review MOECC has assumed that this protection plan has been drafted in accordance with the direction that is provided in the Ontario Energy Board's (OEB) Environmental Guidelines for the Location, Construction and Operation of Hydrocarbon Pipelines and Facilities in Ontario (2011).

Noted – thank you. The Environmental Protection Plan was prepared in accordance with the direction that is provided in the Ontario Energy Board's (OEB) Environmental Guidelines for the Location, Construction and Operation of Hydrocarbon Pipelines and Facilities in Ontario (7th edition, 2016).

Please note that the project consists of 1 ¼" – 4" plastic natural gas service pipelines to be placed within the existing road allowances limiting or avoiding direct impacts to the adjacent land uses.

In the description of the proposed construction project the report outlines the depth of the pipeline trench as a minimum of 0.6 metres, it is unclear what the expected maximum depth of the trench is. Should the excavation advance beyond the groundwater table, dewatering of the trench may be necessary. A Permit to Take Water (PTTW) is needed when water is taken at a combined rate of over 50,000 litres per day (Ontario Water Resources Act, section 34). This may be required for activities such as dewatering in areas of high water table, or temporary stream diversions to facilitate in-water work at water crossings. If during the course of the assessment of water resources within the study area you determine that dewatering in excess of 50,000 L/day will be required, you may wish to provide sufficient information regarding the impacts that will occur due to dewatering as part of the study to facilitate the ministry's consideration of your PTTW application.

The depth of the trench is expected to be between 0.6 m – 1.0 m.
The maximum depth of the trench could be up to 3 m. This depth is only anticipated where regulating agencies require it (i.e. for road crossings).

Excavation is not anticipated to advance beyond the groundwater table. In the unlikely event that excavation does advance past the groundwater table and over 50,000 litres of water is required to be taken per day, Union Gas will work with a professional hydrogeologist to obtain the necessary information to apply to the MOECC for a Permit to Take Water.

Watercourses are currently planned to be crossed via the Horizontal Directional Drilling (HDD) method, and therefore stream diversions are not required. Should the HDD method not be feasible and temporary stream diversions (dam & pump) are required to install the pipeline, it is Union Gas Limited's (UGL) understanding that this activity is exempt from requiring a PTTW. Should this not be the case, please advise and UGL will ensure all necessary permits pertaining to temporary stream diversions are obtained prior to construction.

MOECC would request that more detail be provided regarding how the fugitive dust will be controlled, what mechanism or chemicals if any, will be used. Additionally, MOECC would like to see more detail regarding mitigation measures for noise and vibration during construction including any blasting if required.

Fugitive dust emissions are not anticipated as the majority of the work will occur on paved roads. Should there be any fugitive dust emissions from the work UGL will suppress the dust using a water truck.

Blasting during construction of this project is not anticipated.

To minimize inconveniences brought on by excessive noise all engines associated with construction equipment will be equipped with proper mufflers and construction activities that could create noise will be restricted to daylight hours and adhere to any local noise-by-laws. If construction activities must be carried out which may cause excessive noise outside of this time frame, adjacent residents and the appropriate municipality will be notified.

If nearby residents have concerns with noise or vibration during construction, they will be able to contact an onsite UGL representative who will work with the resident to determine a solution.

It is MOECC's understanding that Union Gas has retained a consultant to review the environmental constraints and sensitive features along the proposed project route. The assessment of the environmental features should be included in the EPP. The EPP must include a written description of environmental features which are affected by the proposed route to help guide the planning process and to determine appropriate mitigation measures that need to be employed. A description of the environment should include sensitive environmental features, the current servicing of the area, a

characterization of relevant demographics and a description of the economic base and key commercial activities which may be affected by the project.

Sensitive environmental features located in the study area should be identified early in the process to help guide the decision making process and identify hazards and subsequent mitigation measures. A detailed map of the project area should be provided which clearly outlines the sensitive features, including but not limited to, some of the following features:
o water crossings;
o wetlands;
o groundwater wells;
o recharge areas;
o industries which may have caused contaminated soils;
o buildings adjacent to the road which may be affected by construction activities;
o existing and planned roads and right-of-ways; and,
o habitat of rare, threatened or endangered plant, fish and wildlife species.

Lastly, a drawing should be included showing where in the road allowance the pipeline will be installed.

Noted – thank you. Stantec completed a Natural Heritage Study in May 2018 for the project. The purpose of the report was to identify natural features along the proposed route, potential impacts to those features and to recommend mitigation measures to reduce potential impacts. The natural features considered in the report included forest and vegetation cover, wetlands, and terrestrial/aquatic wildlife habitat and terrestrial/aquatic species at risk. The report also included a description of the existing conditions in the project study area. I have attached the Natural Heritage Study for your information.

Moving forward, UGL will provide a greater description of such sensitive features and the broader environment within the Environmental Protection Plan.

As this project is still in the preliminary stages, the location of the pipeline within the road allowance will be confirmed during the detailed design stage.

Groundwater
The report has very limited detail on issues associated with groundwater receptors and protection from potential contamination from the project.

The potential impacts and mitigation outlined in table 1 (mitigation summary), which are of interest to groundwater include disruption to water supply, spills and contaminated soils. Oil spills and leaks, and movement of contaminated soils have the potential to affect the groundwater quality in the area. In addition, several water supply wells are located along the proposed natural gas distribution line and these will need to be identified prior to construction.

The EPP has identified that a hydrogeologist will review the area for water supply wells and this will be followed up by implementation of a water well monitoring program in areas where the pipeline construction may affect the water wells. The hydrogeological assessment should be included in the environmental assessment and those water supply

wells found to be potentially at risk of water quality and quantity impacts will require a program of groundwater monitoring prior to and during the construction. MOECC requests that more detail be provided for the water well monitoring program in terms of communication protocol for dealing with landowners, frequency of sampling and parameters being sampled for.

Union Gas will implement its standard well monitoring program which involves retaining the services of an independent qualified hydrogeologist to review the project area and local hydrogeological conditions in order to identify and determine the requirements for well monitoring. The pre-construction well condition information will generally include static water levels, well depths, water quality testing to confirm potability using provincial standards and statements from the property owner on adequacy of their supply. Landowners participating in the well monitoring program will receive a letter detailing their results and all complaints are investigated by the hydrogeologist. If it is shown that a well has been adversely impacted by construction activities it is the responsibility of Union Gas to provide a temporary or permanent water supply. Specific details regarding the water well monitoring program will be confirmed and implemented prior to the start of construction.

Our database shows that the project area is in an area containing a highly vulnerable aquifer. This needs to be considered in your approach to spill prevention and hazard mitigation. During the construction of the pipeline fuel oils and chemicals may be used and stored on site and if not stored properly have the potential to affect groundwater quality through leaks and spills. Therefore a spill prevention plan should be prepared and should include mitigation measures to deal with any spills that inadvertently occur. Other activities that could impact groundwater quality include sewage disposal during the construction stage. It is requested that Union Gas provide further details on the means of disposal of sewage and measures to be implemented to protect the water supply wells in the area.

Noted – thank you. The Contractor will have a spills prevention policy in place during construction. Union Gas will request the spills prevention policy for review prior to construction.

Sewage disposal is not anticipated during construction.

Surface Water
It is our understanding that Horizontal Directional Drilling (HDD) will be utilized when possible for watercrossings. In certain situations HDD may not be possible and considering the close proximity of waterbodies in certain areas of the construction MOECC would request more detailed information about how sedimentation run-off and erosion will be controlled, how the soils will be stockpiled, and how spills will be prevented. At a minimum MNRF's generic sediment control plans and Best Management Practices should be followed.

Noted – thank you. Union Gas will adhere to the *Union Gas Limited and Fisheries and Oceans Canada – Ontario Great Lakes Area Related to Watercourse Crossings for Pipeline Construction and Maintenance (DFO-OGLA / UGL AGREEMENT 2008)* and conditions from the North Bay-Mattawa Conservation Authority for all watercourse

crossings and work occurring near waterbodies. Please see attached the DFO-endorsed sediment control plans for HDD crossings and Dam & Pump crossings (contingency method).

Union will also implement the use of sediment fencing, erosion control matting, check dams and any other items deemed necessary to control sediment along the road allowance. All disturbed areas will be seeded and monitored until deemed stable and free to grow.

Contaminated Sites
The EPP states that contaminated soils are not expected in the area. According to MOECC records there is fuel storage occurring along the proposed pipeline route. It should be clearly outlined where there is potential to encounter contaminated sites during the pipeline construction and the appropriate plan for notification, handling and disposal of the soils. It should be noted the granular soils surrounding the pipeline would provide a contaminant pathway and this should be considered in your planning process.

Noted – thank you. Union Gas will further investigate and work to identify such sites prior to construction and in particular are interested in gaining further details from MOECC regarding the fuel storage area occurring along the proposed route. Union will implement the standard procedures for notification, handling, and disposal of contaminated soils should any sites be identified prior to or encountered during construction.

Consultation
Soliciting input from the general public, aboriginal peoples and directly affected parties is an important component of the process. It provides the opportunity for them to provide meaningful input into the planning process and influencing decisions on matters which affect them. The applicant is encouraged to consult with interested parties during all stages of the development of the environmental study in order to obtain input before decisions are made. Direct notification should be provided to any landowners whose property has been identified as being within a zone of impact, resulting from pipeline construction. An appendix of the report should summarize the concerns of all interested parties that have been identified through the consultation process. The appendix should document the date, time and place of each meeting, the concerns that were raised, how they were addressed, why that approach was taken and describe and explain any concerns left unresolved. Please refer to Chapter 3 of the OEB Environmental Guidelines for more detailed information regarding requirements for the consultation process.

Noted – thank you.

Union Gas has been working with the City of North Bay to provide natural gas service to the Northshore and Peninsula Roads area and received a Letter of Support for the proposed project on June 28, 2017.

A door-to-door survey was completed for the Project Area. The survey informed residents about the proposed project, estimates of the cost to convert to natural gas, and information regarding a surcharge to contribute towards the cost of the proposed project.

The survey also requested information pertaining to dwelling characteristics, use of dwelling, current fuel type and interest in converting to natural gas-fuelled appliances.

Of the 394 potential residential and commercial properties in the Project Area, 193 completed the survey.

Should the proposed project receive approval, additional public consultation efforts will continue in late fall 2018/early spring 2019.

Union Gas has received a Consultation List from the Ministry of Energy of the Indigenous Communities to consult with during the project, and has started the consultation process with such communities. All of the communities were invited to participate in the Archaeological Assessment in July 2018 and will be invited to participate in a Species at Risk survey in August 2018.

Union Gas's Complaint Tracking System will be in effect during construction of the pipeline. Concerned residents will have access to a Union Gas representative during pipeline construction. A summary table will be created that will document the date, time and place of each meeting, the concerns that were raised, how they were addressed, why that approach was taken, and the status on if the concerns were resolved.

Thank you again for your time. If you have any questions, please contact me at 1-519-436-2460 x 5236904 or by email at ETomek@uniongas.com.

Yours very truly,

Evan Tomek
Environmental Planner
Union Gas Limited

Cc: Paula Allen, MOECP (email only)
Freduah Agyemang, MOECP (email only)

From: Evan Tomek
To: Agyemang, Freduah (MECP)
Cc: Wainio, Shelley (MECP)
Subject: RE: UGL North Bay: Northshore & Peninsula Roads

Thanks Freduah. It is anticipated that the hydrogeological study strategy will be developed in early 2019. Should this change, I will let you know and will of course submit any information related to the study to you as soon as it's available.

Thanks,

Evan Tomek, BES
Environmental Planner on behalf of
Union Gas Limited | An Enbridge Company
745 Richmond Street | Chatham, ON N7M 5J5
Tel: 519.436.2460 ext 5236904
Cell: 226.229.9598
email: etomek@uniongas.com

From: Agyemang, Freduah (MECP) [mailto:Freduah.Agyemang@ontario.ca]
Sent: October-15-18 8:55 AM
To: Evan Tomek; Wainio, Shelley (MECP)
Subject: [External] RE: UGL North Bay: Northshore & Peninsula Roads

Hi Evan,

I note the following statements you have provided:

For similar distribution pipeline projects located within the road allowance, the hydrogeologist retained by Union Gas has identified private shallow wells located in close proximity to the proposed pipeline installation and offered to provide well monitoring as requested by the well owner. The strategy for the hydrogeological study will be determined by the hydrogeologist prior to construction and the MECP will be provided a copy of the proposed hydrogeological study strategy and the results of the study itself.

If Union Gas receives a complaint related to well impacts the hydrogeologist will immediately investigate the complaint, which may involve additional well water analyses to compare to the pre-construction results. If it is identified that the well has been adversely impacted by construction activities it is the responsibility of Union Gas to provide a temporary or permanent water supply until the situation is resolved.

Please submit the hydrogeological study strategy to the MECP as soon as possible for comments prior to undertaking the study. All water supply wells must be identified

and any requirement for shallow groundwater dewatering identified. It is strongly recommended that pre-construction water analysis and water level monitoring is implemented before the start of construction.

Thanks,

Freduah Agyemang, M.Sc., P.Geo. | Regional Hydrogeologist | Ministry of the Environment, Conservation and Parks | 199 Larch St., Suite 1201, Sudbury, ON P3E 5P9 | Ph: 705-564-3253 | Fax: 705-564-4180 |
Email: freduah.agyemang@ontario.ca

From: Evan Tomek [mailto:ETomek@uniongas.com]
Sent: October-02-18 10:00 AM
To: Wainio, Shelley (MECP)
Cc: Agyemang, Freduah (MECP)
Subject: RE: UGL North Bay: Northshore & Peninsula Roads

Hi Shelley,

Thank you for your email and the map showing the fuel storage area along the proposed pipeline route.

For similar distribution pipeline projects located within the road allowance, the hydrogeologist retained by Union Gas has identified private shallow wells located in close proximity to the proposed pipeline installation and offered to provide well monitoring as requested by the well owner. The strategy for the hydrogeological study will be determined by the hydrogeologist prior to construction and the MECP will be provided a copy of the proposed hydrogeological study strategy and the results of the study itself.

If Union Gas receives a complaint related to well impacts the hydrogeologist will immediately investigate the complaint, which may involve additional well water analyses to compare to the pre-construction results. If it is identified that the well has been adversely impacted by construction activities it is the responsibility of Union Gas to provide a temporary or permanent water supply until the situation is resolved.

The Contractor will provide a copy of their spill plan to Union Gas prior to construction, and all spills will be reported to the MECP's Spills Action Centre. I will forward you a copy of the spill plan once I've received it.

In addition to the consultation information provided to you in Union Gas' original response letter dated July 25th, 2018 Union Gas offers the following in regards to consultation with the public, the City of North Bay, and Indigenous Communities:

Public Consultation

Union Gas retained the services of Forum Research, a third party research supplier, to conduct quantitative research to ascertain interest in obtaining natural gas service amongst the residential

household and commercial business populations of Northshore, Peninsula and Trout Lake Roads. A total of 193 door-to-door interviews were completed from a list of 405 home and business owners between January 16 and January 28, 2018. The survey informed residents about the project, provided estimates of the cost to convert to natural gas, and information regarding a surcharge to contribute towards the cost of the project. The survey also requested information pertaining to dwelling characteristics, use of dwelling, current fuel type and interest in converting to natural gas-fuelled appliances.

City of North Bay

Union Gas continues robust consultations with the City of North Bay in the planning of the project. This engagement has included conference calls, face to face meetings and direct engagement with local politicians. The project planning is moving forward positively and the project construction will be carried out under the terms of the Municipal Franchise Agreement between the two parties which is approved by the Ontario Energy Board.

Indigenous Communities

Union Gas completed an Indigenous Consultation Report that was included in the project filing with the Ontario Energy Board on May 7th, 2018. The Indigenous Consultation Report includes:

- A summary of all meetings with Indigenous Communities to date;
- A summary of the concerns that were identified by the Indigenous communities and how the concerns were, or plan to be, addressed and/or accommodated; and
- A complete record of all consultation activities to date.

To see the Indigenous Consultation Report, please use the following link and refer to Tab 2, Section B, Schedule 15:

https://www.uniongas.com/-/media/about-us/regulatory/rate-cases/eb-2018-0142-2019-community-expansion/UNION_APPL_2019CommunityExpansion_20180507.pdf?la=en&hash=2FA618D873D7ADB66AB753E4812BED7F7BA7EAA2

Thank you again for your time and please let me know if you have any questions.

Evan Tomek, BES
Environmental Planner on behalf of
Union Gas Limited | An Enbridge Company
745 Richmond Street | Chatham, ON N7M 5J5
Tel: 519.436.2460 ext 5236904
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email: etomek@uniongas.com

From: Wainio, Shelley (MECP) [mailto:Shelley.Wainio2@ontario.ca]
Sent: August-13-18 3:43 PM
To: Evan Tomek
Cc: Agyemang, Freduah (MECP)
Subject: [External] RE: UGL North Bay: Northshore & Peninsula Roads

Hi Evan,
Thank you for providing us with your response to our comments and the associated studies. It would appear that Union Gas have procedures in place that address the majority of our concerns. The Ministry of Environment, Conservation and Parks (MECP) would like to be certain that impacts to the groundwater are properly assessed and planned for. In your response you mention that a hydrogeologist will be retained to review the project area and local hydrogeological conditions to identify and determine the requirements for well monitoring. We would like to make sure this study identifies the potential areas of construction that may advance beyond the groundwater table and how impacts will be mitigated. The MECP would like to have a copy of this study once complete. MECP would also like to have a copy of the spill plan, as well as the procedure for dealing with complaints related to well impacts. Lastly, we would appreciate copies of any consultation efforts made during the project.

As per your request I have attached a map from our GIS platform which shows a single record of fuel storage (red dot). For more detailed information regarding the fuel storage you will have to contact the TSSA.

Let me know if you have any questions.

Regards,

Shelley
705-564-7171

From: Evan Tomek [mailto:ETomek@uniongas.com]
Sent: July 25, 2018 6:49 PM
To: Wainio, Shelley (MECP)
Cc: Allen, Paula (MECP); Agyemang, Freduah (MECP)
Subject: UGL North Bay: Northshore & Peninsula Roads

Hi Shelley,

I have prepared and attached a letter in response to your comments regarding Union Gas's proposed North Bay: Northshore & Peninsula Roads Natural Gas Pipeline Project.
I have also attached the Natural Heritage Study completed by Stantec Consulting Inc., as well as Union Gas's sediment control plans which were referenced within the letter.

Thank you for your time and if you have any questions please do not hesitate to ask.

Regards,

Evan Tomek, BES
Environmental Planner on behalf of
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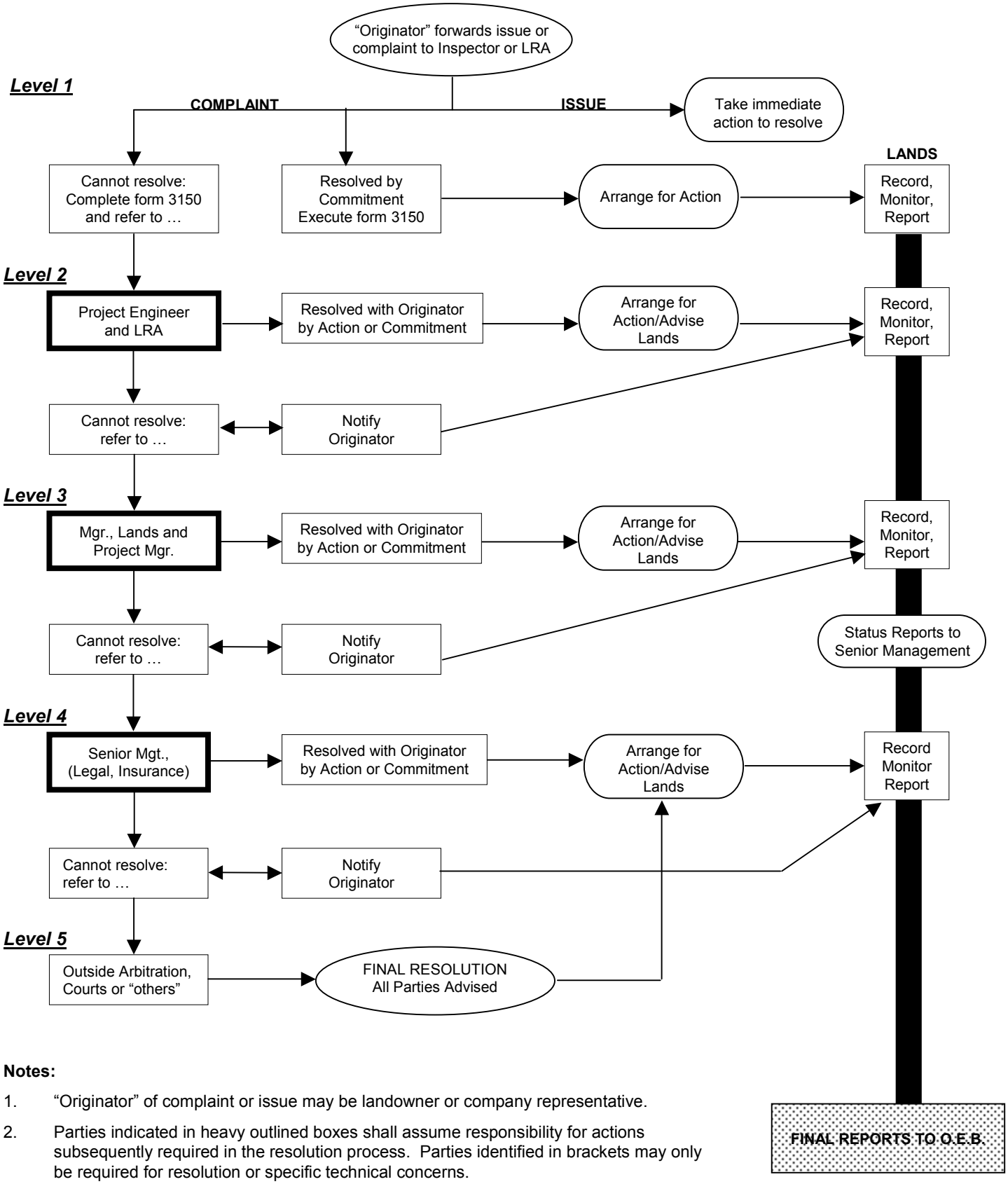
ATTACHMENT C:

Union Gas Complaint Resolution System

Process Chart: Landowner Complaint Resolution System



Notes:

1. "Originator" of complaint or issue may be landowner or company representative.
2. Parties indicated in heavy outlined boxes shall assume responsibility for actions subsequently required in the resolution process. Parties identified in brackets may only be required for resolution or specific technical concerns.
3. "L.R.A." refers to Landowner Relations Agent.
4. "Outside Arbitration" includes the Board of Negotiation, O.M.B. and O.E.B. "Others" refers to other regulatory bodies and tribunals.

LANDOWNER COMPLAINT RESOLUTION SYSTEM
EXPLANATION OF PROCESS CHART

Key Definitions

Originator – The originator of a complaint or issue is the landowner or Union Gas personnel who initiates a complaint or issue by making it known to the Landowner Relations Agent or a company inspector.

Landowner Relations Agent (LRA) – A person assigned on a full time or part time basis to record, monitor, and ensure follow-up on any complaint or issue received by Union related to construction, to address questions and concerns of the landowners, and to act as a liaison between landowners and the contractor and engineering personnel.

Issue – A concern of a landowner which can be resolved within three (3) working days. Immediate action is taken to resolve such matters.

Complaint – A concern of a landowner which cannot be resolved within three (3) working days.

Commitment – If an issue or complaint is resolved at any level of the Complaint Resolution system through the efforts and liaison activities of the Landowner Relations Agent or other personnel, the resolution is recorded to ensure proper future follow-up.

Outside Arbitration – includes the Board of Negotiation, O.M.B., and O.E.B.

Others – refers to other regulatory bodies and tribunals

Levels of the Complaint Resolution System

Level 1: The LRA or company inspector receives issues or complaints, and the following can happen:

a) Immediate action could be arranged by the LRA or inspector to resolve the issue or complaint; or
b) A complaint can be resolved by a commitment in which case the LRA is responsible for arranging for the committed action and having the commitment recorded in the Complaint Resolution system; or
c) If a complaint cannot be resolved through the efforts of the LRA or inspector, the applicable form (Form 3150) is completed and then recorded, and the complaint is referred to **Level 2**.

Level 2: The LRA and the Construction Supervisor work together to develop a resolution for the complaint, and the following can happen:

a) the complaint may be resolved with the originator by action or commitment and the action or commitment is recorded in the Complaint Resolution System; or
b) if the complaint cannot be resolved, the originator is notified, the non-resolution is recorded, and the complaint is referred to **Level 3**.

Level 3: The Manager, Lands and the Project Manager work together to develop a resolution for the complaint, and the following can happen:

a) complaint may be resolved with the originator by action or commitment and the action or commitment is recorded in the Complaint Resolution System; or
b) if the complaint cannot be resolved, the originator is notified, the non-resolution is recorded, and the complaint is referred to **Level 4**;

When complaints reach this level, status reports are generated through the Complaint Resolution System and are forwarded to Senior Management.

Level 4: Senior Management (with possible input from the Legal and Risk and Claims Departments) attempts to develop a resolution to the complaint, and the following can happen:

a) the complaint may be resolved with the originator by action or commitment and the action or commitment is recorded in the Complaint Resolution System; or
b) if the complaint cannot be resolved, the originator is notified, the non-resolution is recorded, and the complaint is referred to **Level 5**;

Level 5: Involves the resolution of a complaint by outside arbitration or others, and the following will happen:

A final resolution will occur, all parties will be advised, and any action required will be arranged by the LRA or other Lands Department personnel.

Note: the Complaint Resolution System is used to generate final reports to the Ontario Energy Board

INDEX

1.0 POLICY

1.1 Spill response practices will be covered by worker orientation for all NPL Canada and subcontractor field personnel prior to commencement of field operations.

1.2 All field supervisors will receive spill responder, and NPL Canada and CLIENT specifications training prior to conducting field operations. Reorientation shall be conducted on a yearly basis.

2.0 PURPOSE

2.1 The purpose of this procedure is to set out the requirements for NPL Canada employees in responding to spills, incidents and unplanned emissions as required by federal and provincial legislation and in a manner consistent with the commitments made in our Company Environmental Policy.

3.0 SCOPE

3.1 All NPL Canada operations supervision and staff are affected by this procedure.

3.2 All subcontractors are affected by this procedure

3.3 This procedure shall apply to any spill resulting from Company operations regardless of location.

4.0 RESPONSIBILITIES

4.1 The onsite supervision for NPL Canada and its sub-contractors will strictly adhere to the Policies and Procedures for spill control as outlined in the CLIENTS requirements.

4.2 The onsite supervision will conduct a pre-work hazard analysis to determine the possibilities of a spill or natural gas leak. Once the determination is made, the appropriate safeguards will be put into place and communicated to the members of the crew.

4.3 Chemical substances should be stored in proper containers to minimize the potential for a spill. Whenever possible, chemicals should be kept in closed containers and stored so they are not exposed to storm water.

4.4 The onsite supervision will report all spills of pipeline liquids to EHS Department immediately at the time of occurrence. EHS Department staff are responsible for notification to the Ministry of Environment and/or other affected agencies.

4.5 The supervisor of record shall, within one working day of the incident, complete Incident Report - 05-13 and forward to the EHS Manager.

4.6 The onsite supervision will report all unplanned (outdoor) releases of natural gas, which threatens either the environment or the health and safety of the general public or are significant **(**if the pipeline is over 6" diameter or the internal pressure is over 420 kPa (60 psig)**)** are to be reported to the Environmental Health and Safety Manager. EHS Department staff are responsible for notification to the Ministry of Environment and or other affected agencies.

4.7 **Reportable Spills/Leaks:** Recent legislative changes – Spill Reporting Exemptions O. Reg 675/98 have exempted 11 classes of spill from reporting to the Ministry of the Environment (MOE) under certain scenarios. It has also allowed industry to set reporting thresholds. The following conditions outlined below do not require the completion of a spill report form to be sent to the Ministry of the Environment:

4.7.1 A spill of oil, gasoline, hydraulic fluid, power steering fluid, transmission fluid, diesel fuel, windshield washer fluid or glycol only if it is:

- less than 100 litres; and
- on a paved surface (concrete or asphalt); and
- not on a private property.

4.8 The foreman shall ensure that adequate supplies of spill kits are available on site to accommodate any anticipated spill. These kits shall be inspected prior to the start of work to be performed on a daily basis.

4.9 The foreman will ensure all workers are instructed on the proper response and disposal procedures for spilled materials according to the manufacturers operating /use instructions.

5.0 DEFINITIONS

5.1 **Client** – Owner of the utility, service or conveyance.

5.2 C**lient Procedures** – specific process, instructions – methods – materials – schedules – testing – codes – practices.

5.3 **TSSA** – Technical Standards and Safety Authority

5.4 **Supervisor** – defined as a 'competent person' by the OH&SA.

5.5 **P.P.E.** – personal protective equipment (devices)

5.6 **CSA** – Canadian Standards Association.

5.7 NPL Canada - NPL Canada Ltd.

5.8 **OH&SA and Regs.** – Occupation Health and Safety Act and Regulations for Construction Projects 213/91 as amended.

5.9 **WHMIS –** Workplace Hazardous Materials Information System.

5.10 **Adverse Effect*:*** Impairment of the quality of human health and safety, or of the natural environment, or any living or non-living part thereof.

5.11 **Combustible Liquid:** Any liquid having a flashpoint at or above 37.8 °C and below 93.3 °C.

5.12 **Flammable Liquid:** A liquid having a flashpoint below 37.8 °C and having a vapour pressure not more than 275.8 kPa (absolute) at 37.8 °C as determined by ASTM D323, "Vapour Pressure of Petroleum Products" (Reid Method).

5.13 **Land Based Spill:** A spill occurring on land with no discharge into surface water or seepage into groundwater.

5.14 **Natural environment:** Air, land and water, or combination. This also includes drains to storm or sanitary sewers.

5.15 **Pollutant:** A solid, liquid, gas or odour (or combination of any of them) resulting directly or indirectly from human activities that may cause an **adverse effect.**

5.16 **Spill:** Any release of a pollutant into the natural environment that is abnormal in quantity or quality and that requires immediate effort to restrict and clean up the affected area.

5.17 **CLASS I Spill:**
A spill of such magnitude and nature which does not cause significant adverse effect or public concerns and which the Spill Responder can,

using his/her own resources, undertake the necessary activities to contain and clean-up the spilled material. For a spill to be considered a Level I, the material spilled should be one which is known / familiar with respect to company operations. Example: small land-based spills (of materials such as paints, oils and glycols but not including mercury or odourant)

5.18 **CLASS II Spill:**
A spill of such magnitude and nature that it is likely to cause significant adverse effects in the immediate vicinity. Spill Responders may require additional assistance, internal to the Company, in order to effectively contain and clean-up the spill.

5.19 **CLASS III Spill:**
A spill of such magnitude and nature which is likely to cause significant adverse effects on a larger scale or a spill which requires the Spill Responder to access additional assistance, external to the company, such as local municipalities (e.g. fire department, police department) or a third party spill response team.

5.20 **Spill Response Kit:** A ready-to-use package containing spill-response and personal protective equipment. NPL Canada spill kits must be easily accessible when required for any anticipated spills.

5.21 **Sensitive Area:** An area which is: A Provincial Nature Reserve or Provincial Park established under the Provincial Parks Act, and/or an environmentally sensitive wetland or other environmentally sensitive area identified by a municipality, conservation authority or other local land use planning authority or an area identified by the Ministry of Natural Resources (presence of signage or noted in permits).

6.0 EXHIBITS

6.1 Spill Kit Type "A" - should be carried in a vehicle or available on the site where more than 4 litres (1 gallon) of liquids (e.g. glycol, methanol, paint) are carried on a vehicle or used at a site.

Quantity Description

1 Oil Absorbent Boom (blue) - 10’ x 5”
5 Oil Absorbent Pads (blue) - 18” x 18” x 3/8”
5 Chemical Absorbent Pads (yellow) - 18” x 18” x 3/8”
1 Neoprene Drain Cover - 36” x 36” x 1/16”
1 1 lb. container Plug N Dyke granule
2 6 mil Disposal Bags
1 Laminated contents list
Packed in a Nylon Fabric Spill Kit Bag

6.2 Spill Kit Type “B” - should be available within a reasonable time where more than 205 L (45 gallons) of liquids are carried on a vehicle or where more than 455 L (100 gallons) of liquid are stored on the site.

Quantity Description

2 Oil Absorbent Boom (blue) - 10’ x 5”

2 Chemical Absorbent Booms (yellow) - 10’ x 5”
15 Oil Absorbent Pads (blue) - 18” x 18” x 3/8”
10 Chemical Absorbent Pads (yellow) - 18” x 18” x 3/8”
1 Chemical Absorbent Blanket Roll - 75’ X 30” X 3/8”
1 Neoprene Drain Cover - 36” x 36” x 1/16”
1 1 Gallon container Plug N Dyke granule
4 6 mil Disposal Bags
1 Laminated contents list
Packed in a Spill Kit Drum

7.0 PROCEDURE

In the event of a spill or the unplanned release of natural gas the following sequence should take place:

7.1 Assess the hazard
7.2 If necessary provide first aid to any injured parties and
7.3 Incorporate NPL CANADA emergency procedures.

7.4 Don all necessary P.P.E. as prescribed the correct M.S.D. S. Sheet.

7.5 Isolate the area; make emergency calls e.g. fire and police if evacuation of area is prudent, EHS NPL CANADA and or CLIENT.

7.6 If possible have the source of the spill shut down. Begin containment immediately, blocking run off areas and protecting drains and water ways etc.

7.7 If determined as a **CLASS I Spill:** onsite personal and equipment will be sufficient for containment and removal.

7.8 If determined as a **CLASS II Spill:** onsite personal will utilize the type **"A" Spill Kit**, additional company personnel and or client staff may be required.

7.9 If determined as a **CLASS III Spill:** onsite personnel will utilize as many TYPE "B" SPILL KITS as are necessary until third party responders are capable of participation in clean up.

7.10 Clean up and removal of all contaminants shall proceed in accordance with all regulatory bodies and agencies requirements.

7.11 A sufficient quantity of absorbent should be used to ensure that the waste is not in a liquid state. Leaking bags are not allowed.

7.12 A 6mm, clear polyethylene bag (filled to half capacity in order to permit easier handling) is to be used. **Disposal of Spent Clean-up Material:** Spill absorbent material can be disposed of in the regular waste stream provided the material is not considered to be leachate toxic does not contain asbestos or PCBs.

7.13 The cleanup will be conducted by the onsite supervisor in consultation with the Superintendent and the Manager of EHS as required by the Client and the Ministry of the Environment taking the following conditions and scenarios into account;

7.13.1 Some of the following conditions outlined below do not require the completion of a spill report form submitted to the client and the Ministry of the Environment (MOE). All reports will made as required to the MOE by NPL Canada's Manager of EHS.

7.13.2 A spill of oil, gasoline, hydraulic fluid, power steering fluid, transmission fluid, diesel fuel, windshield washer fluid or glycol only if it:

- Is less than 100 litres; and
- Is on a paved surface (concrete or asphalt); and

- Is not on a private property.

7.13.3 **Clean-up of the Spill or Leak**: Once the spill has been contained and communicated to a supervisor or Head Office (if required), the area will be cleaned in a safe manner.

7.13.4 **Paved Areas (i.e. concrete, asphalt)**: The designated on-site supervisor will maintain supervision responsibilities and remain at the scene until clean-up is complete. The impacted material will be disposed of accordingly.

7.13.5 **Un-Paved Areas (i.e. grass, gravel, ballasts, soil):** In the event the spill/leak has entered an unpaved area (i.e. grass, gravel, ballasts, soil) in a quantity that cannot be cleaned readily, the site supervisor will contact Head office to address potential soil impacts and means of remediation (i.e. delineation of the extent of the impacted material and proper disposal.

7.13.6 **Product Entered Drain/Sewer:** For spills or leaks where product has entered a drain/sewer, the following scenarios will apply:

- **Greater than 100 L into a drain**

Site supervisor to call for a pumper vehicle or make arrangements to have the product removed from any drain.

- **Less than 100 L into a drain**

Site supervisor to soak up product within the drain with sock/pads.

- **Greater than 100 L at all other locations**

Site supervisor to call for a pumper vehicle or make arrangement to have the product removed from any drain.

- **Less than 100 L at all other locations**

Site supervisor to soak up product from the drain, with socks/pads.

7.13.7 **Product Contacting Personnel:** If the spilled product has contacted personnel, the MSDS (SDS) for the product should be referenced, to determine the proper first aid requirements. If doubt remains about safe handling, NPL Canada's EHS

coordinator can provide further information. Evacuating the area and/or wearing personal protective equipment may be appropriate during the clean-up.

7.13.8 **Product Contacting Equipment/Rails:** If the spilled product has contacted any equipment they should be properly cleaned. The spilled product should be cleaned immediately to reduce the potential of the product to be spread over a larger area. The equipment should be inspected by the foreperson prior to usage.

7.14 NPL Canada's EHS Manager will file all reports as required to the Client and the Ministry of the Environment in consultation with the Superintendent the onsite Supervision.

Requirements for the Cleanup of Hydraulic Spill to Meet MOE Requirements and Reporting:

1. Identify the contaminated area (paint a border to show where the contamination is). Paint another border to show that area was excavated beyond the contaminated area. Pictures will be required.
2. A sample of the hydraulic fluid needs to be provided to the facility that will be performing the soil testing. A jar to be provided.
3. The excavated material needs to be stored in such a manner that the contamination is contained and so that it can be disposed of in a proper manner.
4. The MOE requires that area is excavated 18"-24" below the last visible sign of contamination. Pictures should be taken with a tape measure to show this depth was reached.
5. Soil samples need to be taken in various areas of the area that has been excavated. Jars will be provided for these samples.
6. Pictures need to be taken of this process as part of the reporting process.
7. The soil samples along with the hydraulic fluid sample will be sent to a test facility. The soil will be sampled against the hydraulic fluid sample to ensure there is no contamination left.
8. The results of the testing as well as the documentation collected to be provided to the MOE.

8.0 REFERENCES

8.1 Environmental Protection Act (Ontario)
8.2 Canadian Environmental Protection Act
8.3 Technical Standards and Safety Act
8.4 Ontario Water Resources
8.5 Federal Transportation and Dangerous Goods
8.6 Clients Emergency Spill Response Procedures
8.7 WHMIS (MSDS/SDS)
8.8 W.S.I.B. First Aid Regulation 1101.
8.9 Emergency Contacts
8.10 NPL Canada Incident Report - Form 05-18 Incident Investigation
8.11 CLIENT Safety Polices and Program for spill response.

9.0 APPENDIX

Ministry of Environment - Phone Number 1-800-268-6060

ENBRIDGE GAS INC.

Answer to Interrogatory from
Pollution Probe (PP)

INTERROGATORY

Reference:

Ministry Directives to the OEB requiring that all cost-effective natural gas energy efficiency opportunities be pursued.[2] Provincial policy and Environment Plan[3] identifying the need to leverage all natural gas Demand Side Management (DSM) opportunities.

Questions:

a) Assuming that Enbridge's current DSM programs continue to be available (as requested by Enbridge in EB-2019-0271), please provide an estimate of the DSM potential (cumulative m3 volume and economic value) for homes and businesses in this community. A simple manner to do this is to take residential and commercial savings for average participants and apply it to the total potential customers in this community. If Enbridge has a better method, please explain it with the results.

b) Enbridge has promoted broader conservation programs and consumer education in alignment with DSM and provincial policy (e.g. opportunities to save water, electricity, reduce emissions, etc.). Enbridge has also partnered with organization such as IESO to promote energy efficiency in a cost-effective manner. Please describe all partnerships Enbridge intends to leverage to reduce energy costs for consumers in this community.

Response:

a) In an effort to be responsive, Enbridge Gas has provided an estimate below using the approach outlined in the question, using average savings for both residential and commercial customers to determine what lifetime savings might look like assuming all expected potential customers that commit to being attached, also participate in the available energy efficiency programs. However, Enbridge Gas does not believe this approach will provide an accurate representation of realistic potential as historical average savings are based on a different building stock and consumption levels.

[2] Minister's Directive, March 26, 2014, para. 4(i) and Minister's Directive, March 06, 2019, para. 5.
[3] Ontario, *Preserving and Protecting our Environment for Future Generations: A Made-in-Ontario Environment Plan*, November 29, 2018, p. 23.

Classification	North-Bay Northshore & Peninsula Road	
	# Total Potential Customers	Lifetime Savings (CCM)
Residential	131	1,502,054
Commercial	3	768,797

North-Bay Northshore and Peninsula Roads

Classification	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Total	Ultimate Potential	Total Attachments % Potential
Residential Conversion	34	30	12	8	6	8	7	8	7	6	126	341	37%
Residential - Seasonal	1	1	1	1	1	0	0	0	0	0	5	50	10%
Small Commercial	1	1	1	0	0	0	0	0	0	0	3	3	100%
Total	36	32	14	9	7	8	7	8	7	6	134	394	34%

b) Enbridge Gas is working with the IESO on program collaboration. Enbridge Gas and IESO recently launched a jointly delivered Direct Install program for Demand Control Kitchen Ventilation that will provide business customers with access to gas and electric incentives through a single point of contact. However, beyond 2020, Enbridge Gas is not sure what opportunities will be available as IESO's CDM framework is ending. Currently, Enbridge Gas has no visibility as to what the potential new CDM framework focus would be and therefore what partnership opportunities might be available to be leveraged.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Pollution Probe (PP)

INTERROGATORY

Reference:

On December 17, 2019 the Board published the Minister's letter and notice that supports additional Potential Projects to Expand Access to Natural Gas Distribution in Ontario[4].

Questions:

a) What is the potential to provide natural gas access to additional communities from the proposed pipeline?

b) If all 394 potential customers attached for service, what capacity would be left for additional community expansion and/or reinforcement purposes?

Response:

a) Beyond the potential future growth within the Project area (i.e. Shorewood Rd., extensions along private driveways shared by multiple homes, etc.) there is no potential to provide natural gas to additional communities.

b) The proposed pipeline is designed only to supply the ultimate potential identified in Exhibit B, Tab 2, Schedule 2 for the community expansion area filed. It is does not serve to reinforce the existing gas network in North Bay. Beyond the ultimate potential, the proposed pipeline can accommodate approximately 10 additional residential customers at the system minimum point within the proposed community expansion area.

[4] https://www.oeb.ca/industry/policy-initiatives-and-consultations/potential-projects-expand-access-natural-gas

ENBRIDGE GAS INC.

Answer to Interrogatory from
Pollution Probe (PP)

INTERROGATORY

Reference:

Provincial policy requires effective integrated community energy planning in alignment with integrated resource planning, particularly where new energy infrastructure is being built[5]. The City of North Bay competed an Energy Conservation and Demand Management Plan[6] in accordance with provincial requirements to reduce energy and greenhouse gas emissions under Ontario Regulation 397/11.

Questions:

a) Please provide details on any support (financial, resource or otherwise) Enbridge has provided or intends to provide the City of North Bay to support its CDM Plan goals.

b) Please identify what elements from the City of North Bay CDM Plan Enbridge considered when developing their plan for construction and operation of this pipeline project.

Response:

a) and b) The City of North Bay has not raised its CDM plan in discussions with Enbridge Gas, nor has it requested to participate in any of Enbridge Gas's DSM offerings. However, Enbridge Gas will inform the City of North Bay of its DSM offerings and connect the city with resources as required.

[5] http://www.mah.gov.on.ca/AssetFactory.aspx?did=10463, Provincial Policy Statement sections 1.6 and 1.8
[6] https://www.cityofnorthbay.ca/media/24637/2019-cdm-plan_final.pdf?v=637018202340000000

ENBRIDGE GAS INC.

Answer to Interrogatory from
Pollution Probe (PP)

INTERROGATORY

Questions:

a) Please provide the annual average consumption Enbridge uses for a typical residential dwelling attached to its system.

b) If the average residential consumption used for calculating the PI for this project differs from the answer in “a”, please provide the value and explain the difference.

Response:

a) The annual average consumption for a typical residential customer in the Union Rate Zones that Enbridge Gas uses for its attached customers for year 2020 is 2,239 m^3. This average consumption is based on the 2020 weather normal.

b) The average residential consumption used for calculating the PI for this Project was 2,243 m^3/yr and was based on data available at the time of this Application.