
To:	Nevena Gazibara	From:	Hagit Blumenthal / Lesley Veale
	Stantec - Hamilton		Stantec - Waterloo
File:	1650-01090/10	Date:	February 13, 2019

**Reference: Groundwater Overview Assessment Memo
Highway 401 Planning Study from Cobourg to Colborne
Ontario Ministry of Transportation (GWP 4060-11-00)**

Stantec Consulting Ltd. (Stantec) has completed a groundwater overview assessment in support of the Highway 401 Planning Study from Cobourg to Colborne. The Ministry of Transportation (MTO) has retained Stantec Consulting Ltd. to undertake a Planning, Preliminary Design, and Class Environmental Assessment (Class EA) Study on Highway 401 for the replacement and rehabilitation of structures, interchange modifications, future widening of the highway, and commuter parking lot expansions, from 2 km east of Nagle Road to 800 m east of Percy Street (approximately 18 km) (Attachment A, Figure 1). The purpose of the study is to identify a Recommended Plan that addresses current and future transportation needs in the study area as part of the Ministry's ongoing review of safety and operational needs for the provincial highway network. This study will include reviewing existing conditions, developing and evaluating alternatives, identifying appropriate improvements, and developing environmental protection/mitigation measures. A Recommended Plan will be confirmed and designated (protected) at the completion of the study. This study is a "Group B" project under the *Class Environmental Assessment (EA) for Provincial Transportation Facilities* (2000) and includes undertaking environmental and engineering field investigations and seeking input from stakeholders.

This memorandum provides a background review of existing hydrogeological conditions for the study area, which includes Highway 401 plus a 100 m buffer. The memorandum was completed based on review of the Ministry of the Environment, Conservation and Parks (MECP) water well records (WWRs)¹, regional geological mapping and groundwater studies, and local source water protection reports for the Ganaraska Source Protection Area (SPA)² and the Lower Trent SPA.³ Field investigations were not completed as part of this review.

PHYSIOGRAPHY

The study area traverses along the northern boundary of the Iroquois Plain physiographic region (Chapman and Putnam, 1984)⁴. The western portion of the alignment also passes through the South Slope physiographic region. These regions are described by Chapman and Putnam as follows (1984)⁴:

- Iroquois Plain- a lowland region adjacent to Lake Ontario of undulating topography, characterized by cliffs, bars, beaches, boulder pavement, and sandy offshore deposits as well as till plains, drumlins, and silty lacustrine deposits.
- South Slope- located on the southern slope of the Oak Ridges Moraine and is predominantly comprised of till plains and drumlins.

¹ Ministry of Environment, Conservation and Parks, 2018. Well Record Dataset, Ontario Water Well Information System. [Online] <http://www.ontario.ca/environment-and-energy/well-record-data>. Accessed June 25, 2018.

² Trent Conservation Coalition, 2018. Ganaraska Source Protection Plan. March 7, 2018.

³ Trent Conservation Coalition, 2018. Trent Source Protection Plan. February 15, 2018.

⁴ Chapman, L.J. and Putnam D.F., 1984. The Physiography of Southern Ontario. Ontario Geological Survey, special volume 2.

Reference: Groundwater Overview Assessment Memo
Highway 401 Planning Study from Cobourg to Colborne
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- In the vicinity of the study area the majority of the material is described as sand plains with nearby beach deposits and eskers.

GEOLOGY

Ontario Geological Survey (OGS) (2010)⁵ surficial geology mapping indicates that the surficial geology within the study area is predominantly composed of littoral, foreshore and basinal coarse textured glaciolacustrine deposits of sand, gravel with minor silt and clay (Attachment A, Figure 2, units 9b and 9c). Some minor occurrences of stone poor sandy silt to silty sand till (Attachment A, Figure 2, unit 5b) and modern alluvial deposits of clay, silt, sand and gravel (Attachment A, Figure 2, unit 19) are found adjacent to Nagle Road, Old Gully Road and Shelter Valley Road and are typically associated with watercourses.

Based on review of the MECP WWRs, the depth to top of bedrock ranges across the study area from 20 m below ground surface (BGS) to approximately 100 m BGS. A review of overburden thickness mapping indicated the shallow overburden is predominantly located along the western portion of the study area near Cobourg (Gao et al., 2006)⁶.

Based on the OGS paleozoic geology mapping (Armstrong and Dodge, 2007)⁷ overburden in the study area is underlain by limestone of the Lindsay Formation.

WATER WELL RECORDS

Based on a review of aerial imagery, there are about 36 properties within 100 m of the alignment which may have active private wells for water supply. A review of the MECP WWRs (MECP, 2018)¹ indicated 38 WWRs for water supply wells mapped within 100 m of the alignment (Attachment A, Figure 3). Several of these WWRs may be mapped inaccurately in the centre of a lot and concession. As a result, the correct location of these WWRs may therefore be outside the 100 m buffer.

The majority of the proposed construction activity is expected to be no more than 2 m BGS, with some deeper cuts of up to 10 m BGS. Therefore, as a conservative measure, shallow wells were defined as 12 m BGS or less. Shallow water wells (< 12 m deep) are presumed to be at greater risk from the proposed construction. Only 11% of the 38 water supply WWRs within 100 m of the study area are shallow wells. Static water levels of the shallow wells range from 0.3 m to 4.0 m BGS.

It is recommended that the need for a private well monitoring program be further evaluated for shallow wells in the vicinity of the deeper cuts as part of detailed design.

SURFACE WATER FEATURES

Portions of the study area intersect environmentally sensitive areas that may be dependent on groundwater recharge or discharge to function, such as the Provincially Significant Wetland (PSW), Cranberry (Little) Lake wetland, which is located just west of Country Road 23 and unevaluated wetlands found along the study area (Attachment A, Figure 1). Several surface water features with cold water thermal regimes were noted to

⁵ Ontario Geological Survey 2010. Surficial geology of Southern Ontario; Ontario Geological Survey, Miscellaneous Release--Data 128-REV

⁶ Gao, C., Shirota, J., Kelly, R. I., Brunton, F.R., van Haften, S., 2006. Bedrock topography and overburden thickness mapping, southern Ontario; Ontario Geological Survey, Miscellaneous Release--Data 207.

⁷ Armstrong, D.K. and Dodge, J.E.P. 2007. Paleozoic geology of southern Ontario; Ontario Geological Survey, Miscellaneous Release--Data 219.

Reference: Groundwater Overview Assessment Memo
Highway 401 Planning Study from Cobourg to Colborne
Ontario Ministry of Transportation (GWP 4060-11-00)

intersect portions of the study area. Cold water thermal regimes indicate the potential for groundwater discharge that supports aquatic habitat. If temporary construction dewatering is required, the potential impact to surface water features should be assessed.

SOURCE WATER PROTECTION

In accordance with the *Clean Water Act* (S.O. 2006, Chapter 22), the Trent Conservation Coalition Source Protection Region (2018)²³ completed a source water protection assessment for the Ganaraska and Lower Trent SPAs. As part of the assessment process, vulnerable areas within the source water area were defined and policies created to regulate activities that may pose a threat to drinking water quality or quantity as outlined in the *Source Protection Plans for the Lower Trent SPA and the Ganaraska SPA* (2018).

The study area intersects Well Head Protection Area (WHPA)-B and WHPA-C of the Colborne Municipal Well Field (Attachment B, Figure 1) on the eastern end of the study area and includes vulnerability scoring of 2 to 8. Vulnerability is measured on a 10-point scale based on how quickly water can move from the ground surface to the aquifer. A high vulnerability area has a score of 8 to 10. WHPA-A is located approximately 200 m downgradient of the study area. Activities that may be related to the proposed construction such as the handling and storage of fuel are deemed significant drinking water threats in these areas.

Other WHPA's in the vicinity of the study area listed from west to east are: the Creighton Heights Municipal Well Field (Attachment B, Figure 2) located approximately 2.7 km north of the study area and the Grafton Municipal Well Field (Attachment B, Figure 3) located approximately 100 m north of the study area. The Creighton Heights and Grafton Well Fields are both located upgradient of the study area. However, as a due diligence measure, mitigation should be considered to minimize the risk of water quality impacts to these municipal production wells.

In addition, portions of the 18 km long study area are classified as Highly Vulnerable Aquifer (HVA) and Significant Groundwater Recharge Area (SGRA) with a score of 6.

A review of source water protection policies indicates the following significant threat within the WHPA-B:

- Handling or storage of Dense Non-Aqueous Phase Liquid (DNAPL) of any quantity

DNAPL's are chemicals that are denser than water and do not readily dissolve in water. They are commonly used in commercial and industrial operations, such as coolants, solvents for degreasing and dry cleaning, paint strippers and spot removers. It is not expected that these chemicals are required for the proposed construction. Under source water protection policies, no handling or storage of DNAPL's of any quantity are permitted within the WHPA-B.

There were no other significant threats noted due to the proposed activity within the WHPA-C, SGRA or HVA areas, however, low to moderate threats may exist and this should be confirmed during detailed design.

DEWATERING ACTIVITIES

The majority of the proposed construction activity (i.e structural replacements, highway widening) is not expected to include any significant below ground excavation of more than 2 m BGS, with the exception of culvert installation and several deeper cuts with a proposed depth of up to 10 m BGS (located just east of Lyle

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Street, west of Shelter Valley Creek and east of Boyce Road/Heron Road). Based on the proposed depth elevations (based on preliminary design information) of the deeper cuts and groundwater elevations provided in the MECP WWR database, groundwater dewatering may be required.

An Environmental Activity and Sector Registry (EASR) should be obtained from the MECP for groundwater dewatering in excess of 50,000 L/day while a PTTW should be obtained from the MECP for groundwater dewatering in excess of 400,000 L/day. Detailed dewatering calculations and an assessment of site-specific conditions would need to be completed based on expected construction details (during detailed design) to further evaluate whether an EASR or a PTTW would be required for the deep cuts.

An EASR or groundwater PTTW would not be required for the shallow works and any localized dewatering in support of culvert installation would be detailed and included in a surface water PTTW, if required.

CONSTRAINTS AND MITIGATION MEASURES

Based on the preliminary review of available data, the following constraints are identified:

- The study area intersects a portion of WHPA-B/C of the Colborne municipal production wells, where significant drinking water threats are defined for activities that may be relevant for the proposed temporary construction
- The study area intersects an HVA and SGRA with a vulnerability score of 6, where low to moderate drinking water threats may exist
- Approximately 11% of the 38 water supply WWRs within 100 m of the study area are shallow wells (< 12 m BGS). A private well monitoring program of these wells should be evaluated during detailed design
- The study area intersects Cranberry (Little) Lake PSW, several unevaluated wetlands and streams mapped with cold water thermal regimes
- Based on the proposed depth elevations of the deeper cuts and groundwater elevations provided in the MECP WWR database, some groundwater dewatering may be required during construction activities

Based on the preliminary review of available data, the following recommendations are provided:

- Construction should avoid handling and storage of DNAPL where possible, which is a significant drinking water threat in WHPA-B areas
- Depending on the extent and location of proposed construction activity, the need for a private well monitoring program should be reviewed during detailed design
- Any construction activity in a vicinity of environmentally sensitive areas such as PSWs or cold water thermal regimes may require additional monitoring to minimize the risk of water quality and/or surface water -groundwater interaction impacts

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- Once the construction details become available, detailed dewatering calculations and an assessment of site specific conditions would need to be completed to further evaluate whether an EASR or a PTTW would be required
- During construction activity, the primary concern regarding groundwater quality would be the potential for a contaminant spill. To minimize the impact of potential contaminant spills, the Contractor should implement best management protocols such as secondary containment of any temporary fuel storage and preparation of a spill response plan and proper facility management during operation and maintenance

We trust the information provided within the above memorandum meets with your requirements. Should you have any questions or concerns, please do not hesitate to contact the undersigned.

STANTEC CONSULTING LTD.



for

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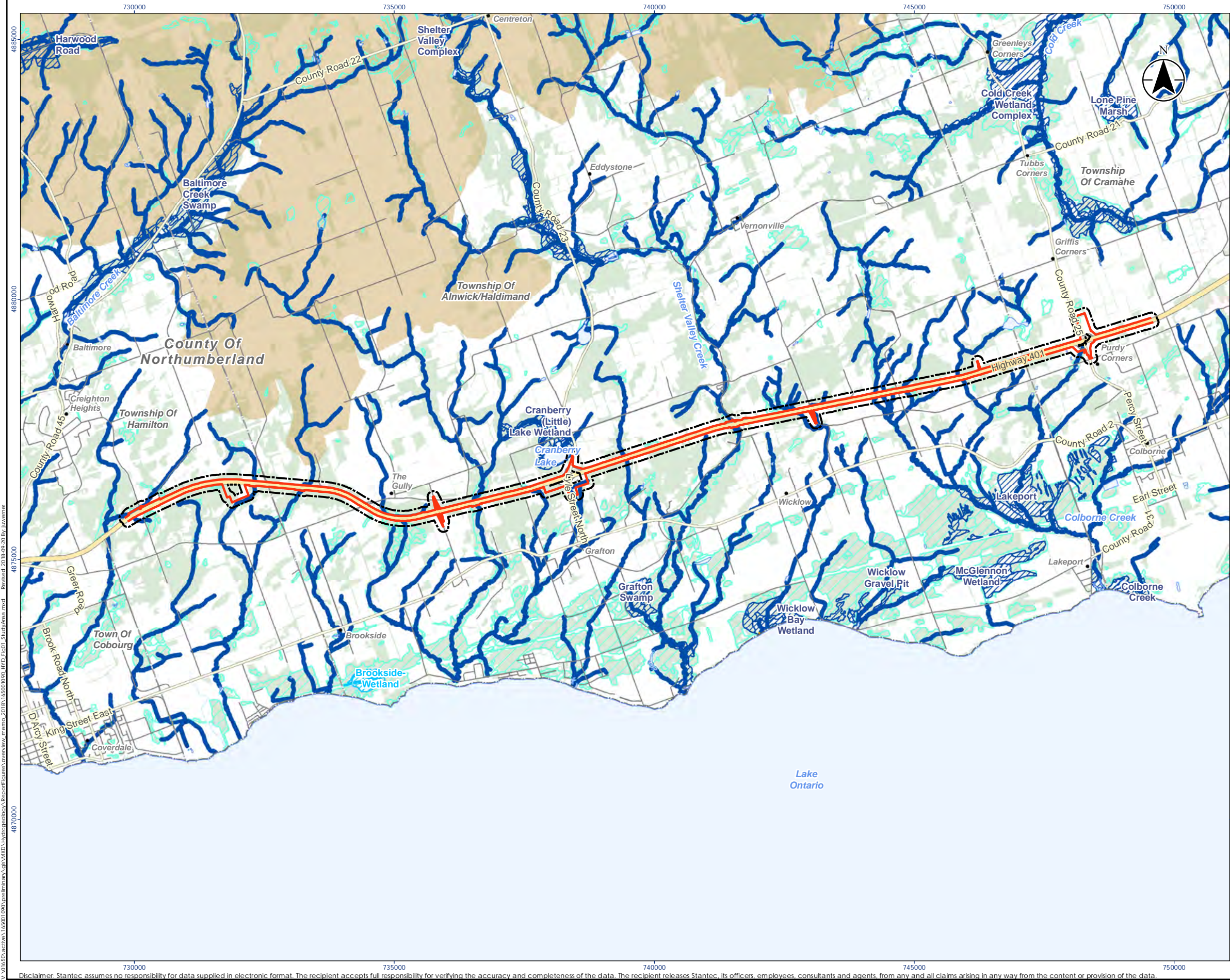
Lesley Veale M.Sc., P.Geo.
Senior Hydrogeologist
Phone: 519-585-7377
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Attachment: A: Figures
Figure 1: Study Area
Figure 2: Surficial Geology
Figure 3: MECP Water Wells

B: Source Water Protection Policy Areas
Colborne Well Head Protection Area (Source Protection Plans for the Lower Trent Source Protection Area, 2015)
Creighton Heights Well Head Protection Area (Source Protection Plans for the Ganaraska Region Source Protection Area, 2014)
Grafton Well Head Protection Area (Source Protection Plans for the Lower Trent Source Protection Area, 2015)

ATTACHMENT A:

Figures



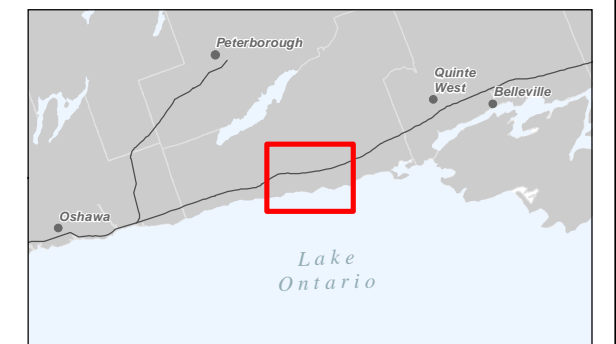
Legend

- Study Area
- Study Area (100 m Buffer)
- Highway
- Major Road
- Minor Road
- Watercourse (Intermittent)
- Watercourse (Permanent)
- Thermal Regime, Cold
- Thermal Regime, Warm
- Municipal Boundary, Upper
- Municipal Boundary, Lower
- Oak Ridges Moraine
- Wetland, Provincially Significant
- Wetland, Other Evaluated
- Wetland, Not evaluated per OWES
- Waterbody
- Wooded Area

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Notes

- Coordinate System: NAD 1983 UTM Zone 17N
- Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © Queen's Printer for Ontario, 2018.



Project Location 165001090 REVA
County of Northumberland Prepared by JW on 2018-09-20
Technical Review by ABC on yyyy-mm-dd
Independent Review by ABC on yyyy-mm-dd

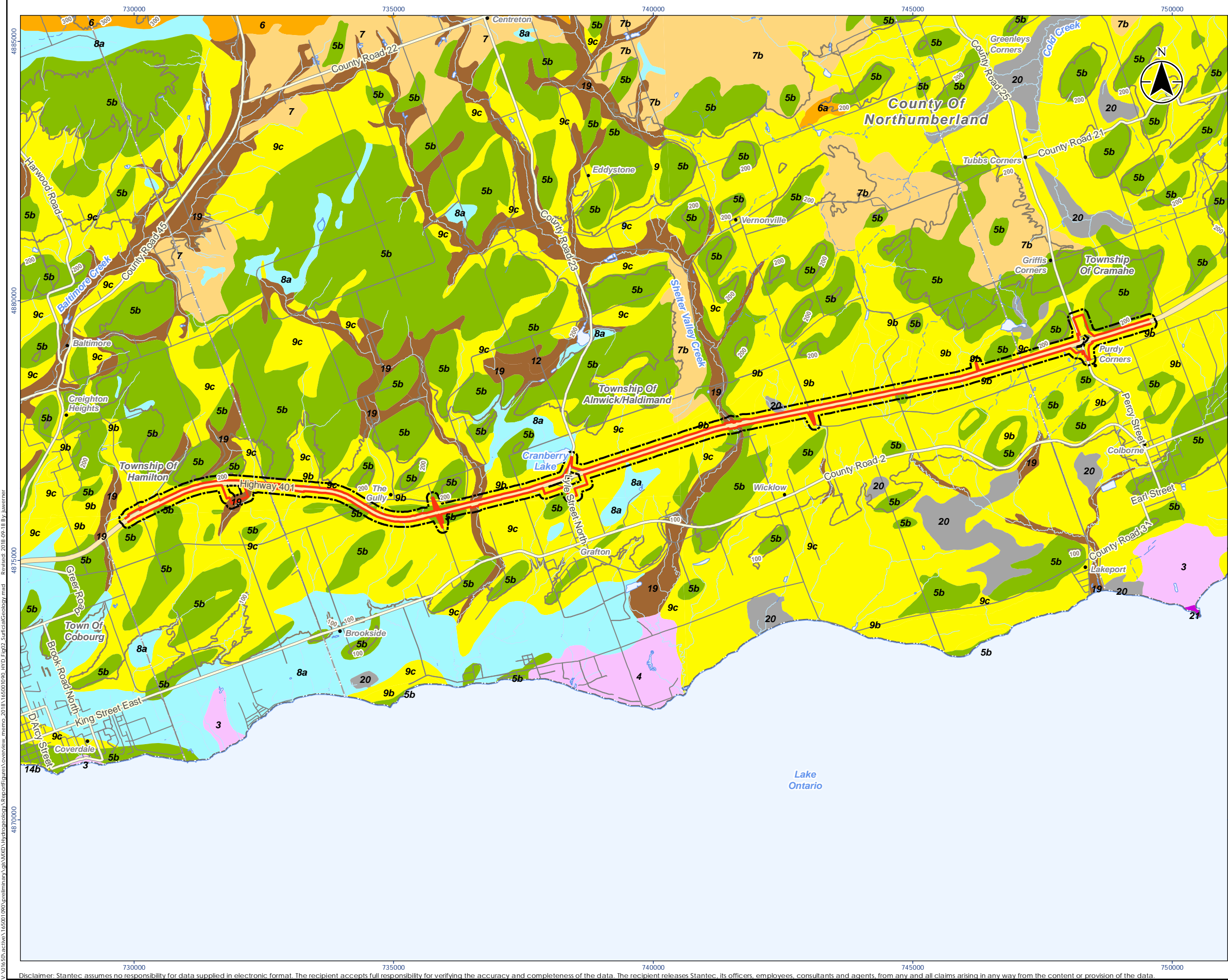
Client/Project
MINISTRY OF TRANSPORTATION
HIGHWAY 401 PLANNING STUDY FROM COBOURG TO COLBORNE (GWP 4060-11-00)

Figure No.

1

Title

Study Area Overview



Legend

- Study Area
- Study Area (100 m Buffer)
- Highway
- Major Road
- Minor Road
- Contour (100 m Interval)
- Watercourse (Intermittent)
- Watercourse (Permanent)
- Municipal Boundary, Upper
- Municipal Boundary, Lower
- Waterbody

Surficial Geology (OGS)

- 21: Man-made deposits
- 20: Organic deposits
- 19: Modern alluvial deposits
- 14b: Coarse-textured lacustrine deposits (Littoral-foreshore deposits)
- 12: Older alluvial deposits
- 9: Coarse-textured glaciolacustrine deposits
- 9b: Coarse-textured glaciolacustrine deposits (Littoral-foreshore deposits)
- 9c: Coarse-textured glaciolacustrine deposits (Foreshore-basinal deposits)
- 8a: Fine-textured glaciolacustrine deposits (Massive-well laminated)
- 7: Glaciofluvial deposits
- 7b: Glaciofluvial deposits (Gravelly deposits)
- 6: Ice-contact stratified deposits
- 6a: Ice-contact stratified deposits (In moraines, kames, eskers and crevasse fills)
- 5b: Stone-poor, carbonate-derived silty to sandy till
- 4: Paleozoic bedrock-drift complex
- 3: Paleozoic bedrock

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Notes

- Coordinate System: NAD 1983 UTM Zone 17N
- Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © Queen's Printer for Ontario, 2018.
- Ontario Geological Survey 2010. Surficial geology of Southern Ontario: Ontario Geological Survey, Miscellaneous Release--Data 128-REV ISBN 978-1-4435-2483-4

Project Location 165001090 REVA
County of Northumberland Prepared by JW on 2018-09-18
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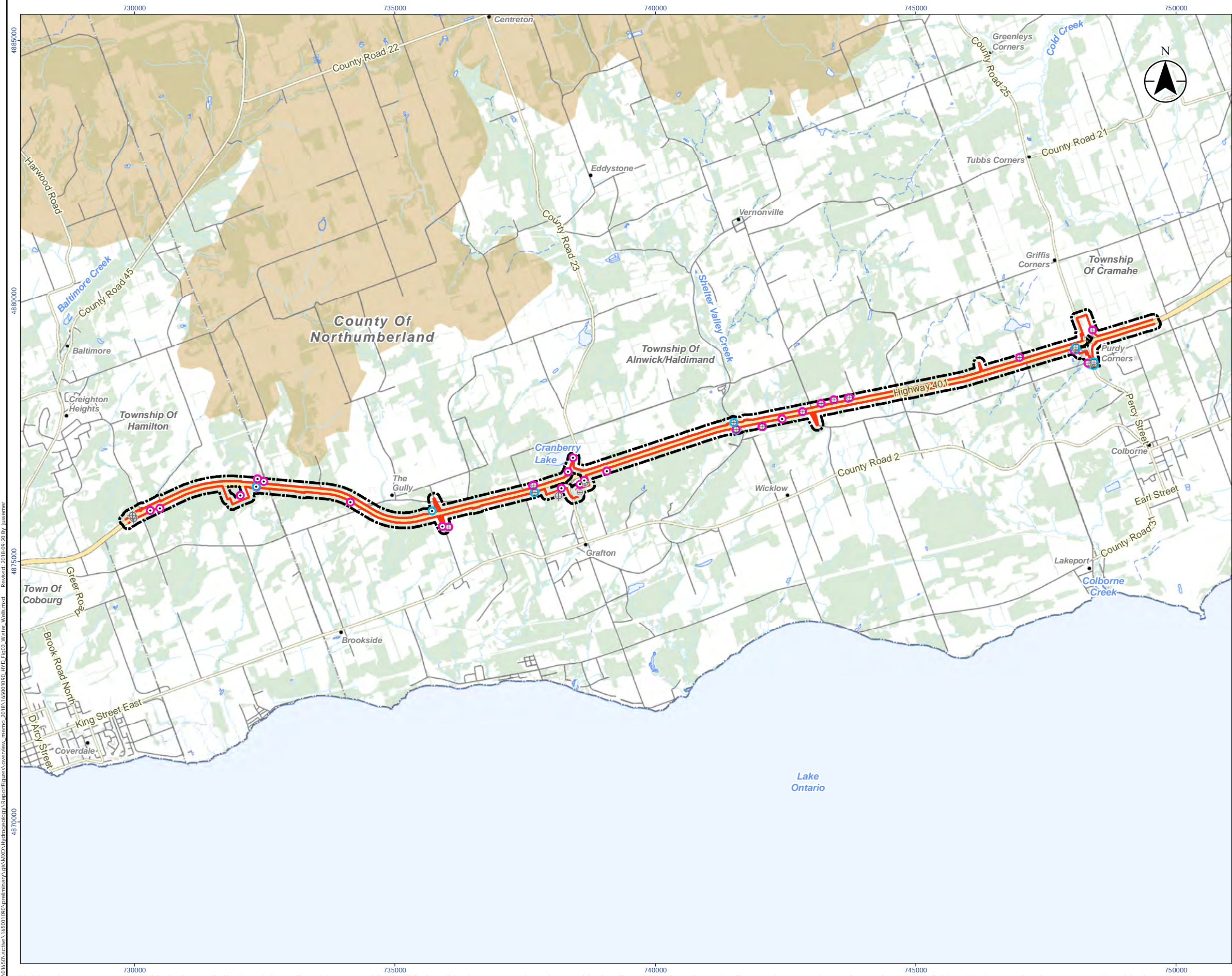
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HIGHWAY 401 PLANNING STUDY FROM COBOURG TO COLBORNE (GWP 4060-11-00)

Figure No.

2

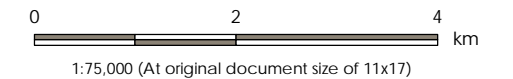
Title

Surficial Geology



Legend

- Study Area
- Study Area (100 m Buffer)
- MECP Water Well
 - Water Supply
 - Abandoned
 - Other
 - Well - No Depth Data
 - Well - Shallow (<12 m)
 - Well - Deep (>12 m)
- Highway
- Major Road
- Minor Road
- Watercourse (Intermittent)
- Watercourse (Permanent)
- Municipal Boundary, Upper
- Municipal Boundary, Lower
- Oak Ridges Moraine
- Waterbody
- Wooded Area



- Notes
- Coordinate System: NAD 1983 UTM Zone 17N
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Project Location 165001090 REVA
County of Northumberland Prepared by JW on 2018-09-20
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HIGHWAY 401 PLANNING STUDY FROM COBOURG TO COLBORNE (GWP 4060-11-00)

Figure No.
3

Title
MECP Water Wells

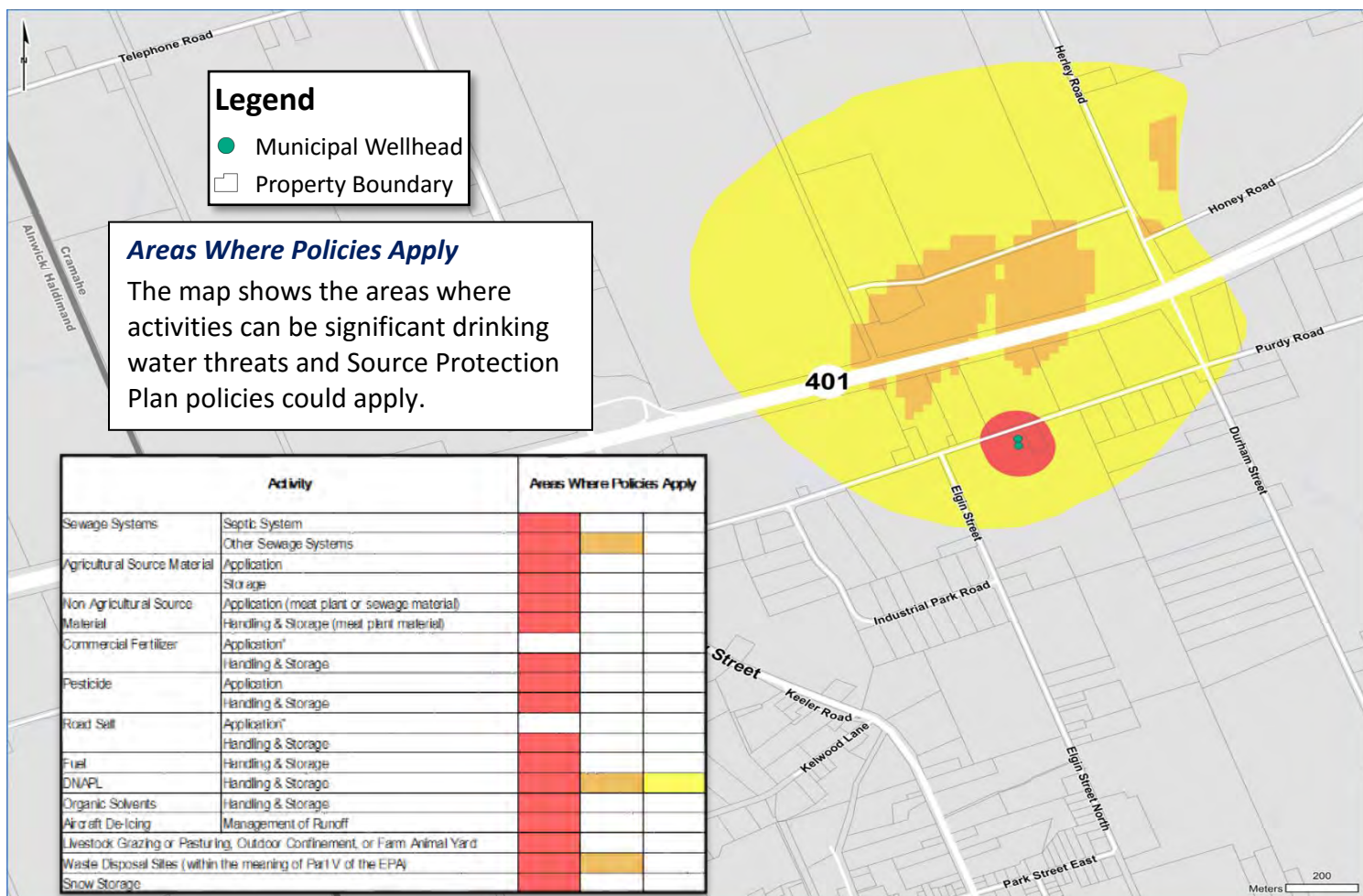
ATTACHMENT B:
Source Water Protection Policy Areas

The Colborne municipal drinking water system is one of 53 systems in the Trent Conservation Coalition Source Protection Region and it was examined as part of the studies completed for the Drinking Water Source Protection program.

The system is located in the **Lower Trent Source Protection Area** and is owned by the **Township of Cramahe**. The areas around the wellhead, the wellhead protection areas, are the vulnerable areas around the system where activities have the potential to be significant threats to the drinking water source. The Trent Source Protection Plan contains policies to manage or eliminate the significant threats that have been identified for the Colborne municipal drinking water system. Policies also apply to activities that would be significant threats if they were carried out in the future. This Factsheet provides a summary of Source Protection planning and the existing significant threats for the Colborne system.

System Summary

<i>Water Source</i>	Groundwater
<i>Operating Authority</i>	Township of Cramahe
<i>SDWA Classification</i>	Large municipal residential ¹
<i>Served Population</i>	~2,000



Wellhead Protection Zones		Potential Drinking Water Threats for the Colborne System		Learn More
<p>Wellhead protection areas (WHPA) are delineated based on the length of time it takes for water to move from the ground surface, underground to the well. This delineation helps to identify the length of time it would take most contaminants to travel from the location of a spill or leak to the associated well.</p> <p>Once a contaminant comes into contact with a permeable surface, it will percolate through the layers of soil until it reaches an aquifer where it is then transported to the municipal well.</p> <ul style="list-style-type: none"> • WHPA-A is the area immediately adjacent to a well. It is delineated as a circle with a 100 metre radius centered on the well. Since there are three wells in the system, the WHPA-A is a combination of the three circles. • WHPA-B, WHPA-C and WHPA-D are delineated based on the amount of time it takes water to travel horizontally through the aquifer towards the well. These three WHPAs represent two, five, and twenty-five year times of travel, respectively. 		Sewage Systems		<u>Sewage Systems Fact Sheet</u>
		Agricultural Activities		<u>Agricultural Activities Fact Sheet</u>
		Non-Agricultural Source Material		<u>Anne.Anderson@ltc.on.ca</u>
		Commercial Fertilizer	<ul style="list-style-type: none"> • Handling & Storage 	<u>Anne.Anderson@ltc.on.ca</u>
		Pesticide		<u>Pesticide Fact Sheet</u>
		Road Salt	<ul style="list-style-type: none"> • Handling & Storage 	<u>Anne.Anderson@ltc.on.ca</u>
		Fuel		<u>Fuel Fact Sheet</u>
		DNAPL		<u>DNAPL Fact Sheet</u>
		Organic Solvents		<u>Anne.Anderson@ltc.on.ca</u>
		Waste Disposal Sites		<u>Anne.Anderson@ltc.on.ca</u>
Significant Drinking Water Threats		Snow Storage		<u>Anne.Anderson@ltc.on.ca</u>
<p>An activity is considered a significant drinking water threat if it is undertaken in a vulnerable area under circumstances that pose a significant risk to the water source. These circumstances are set out in the <u>2009 Tables of Drinking Water Threats</u>, which are a part of the Clean Water Act regulations. Significant drinking water threats are addressed by policies in the Source Protection Plan.</p> <p>No drinking water issues were identified for the Colborne system as defined under the <i>Clean Water Act, 2006</i>.</p>		Source Protection Plan		
Identifying Drinking Water Threats		<p>Source protection policies make use of a variety of approaches such as education and outreach, land use planning, inspections, and monitoring. For some activities, policies require landowners to work with a Risk Management Official to identify and implement measures to be more protective of drinking water. For activities already managed through existing tools, such as Environmental Compliance Approvals or Nutrient Management Plans, policies call for a review of these documents to ensure drinking water is addressed. In a limited number of cases, policies prohibit new activities from being started. Education and outreach to landowners will be a key component in the successful protection of our drinking water.</p>		
<p>Drinking water threats were initially assessed in 2009-2010 during the preparation of the Assessment Report. A verification of these threats was carried out in summer/fall 2013 to confirm the findings of the initial assessment and to obtain more specific information about the circumstances of the identified activities.</p> <p>The threat verification identified activities taking place at the time of the assessment and activities that take place seasonally, rotationally, or occasionally as part of regular operations on the property (e.g. application of manure). These activities are considered existing threats. Activities that begin to occur after the Source Protection Plan comes into effect are considered future threats.</p>		Fun Facts		
		<ul style="list-style-type: none"> ■ The annual average pumping rate of the Colborne system is 954 cubic metres per day. ■ There are 2 wells servicing the Colborne system, and each is dug to a depth of 78 meters. 		

For more information about the Clean Water Act or drinking water source protection:

- Visit our website at www.trentsourceprotection.on.ca
- Anne Anderson, Lower Trent Conservation, at (613) 394-3915 ext. 219 or anne.anderson@ltc.on.ca



The Grafton municipal drinking water system is one of 53 systems in the Trent Conservation Coalition Source Protection Region and it was examined as part of the studies completed for the Drinking Water Source Protection program.

The system is located in the **Lower Trent Source Protection Area** and is owned by the **Township of Alnwick/Haldimand**. The areas around the wellhead, the wellhead protection areas, are the vulnerable areas around the system where activities have the potential to be significant threats to the drinking water source. The Trent Source Protection Plan contains policies to manage or eliminate the significant threats that have been identified for the Grafton municipal drinking water system. Policies also apply to activities that would be significant threats if they were carried out in the future. This Factsheet provides a summary of Source Protection planning and the existing significant threats for the Grafton system.

System Summary

<i>Water Source</i>	Groundwater
<i>Operating Authority</i>	Twp of Alnwick/Haldimand
<i>SDWA Classification</i>	Large municipal residential ¹
<i>Serviced Population</i>	~1,000

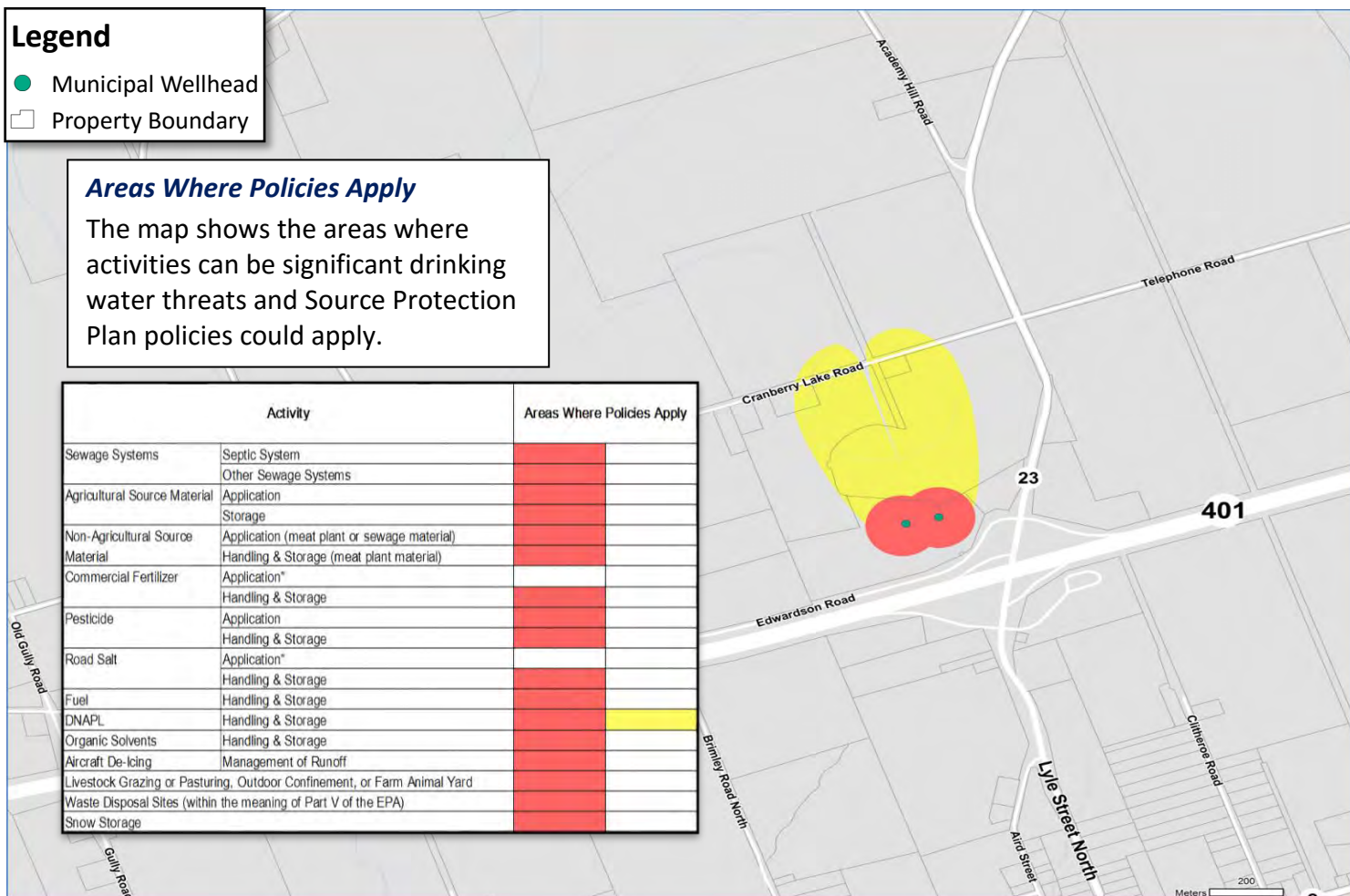
Legend

- Municipal Wellhead
- Property Boundary

Areas Where Policies Apply

The map shows the areas where activities can be significant drinking water threats and Source Protection Plan policies could apply.

Activity		Areas Where Policies Apply	
Sewage Systems	Septic System		
	Other Sewage Systems		
Agricultural Source Material	Application		
	Storage		
Non-Agricultural Source Material	Application (meat plant or sewage material)		
	Handling & Storage (meat plant material)		
Commercial Fertilizer	Application*		
	Handling & Storage		
Pesticide	Application		
	Handling & Storage		
Road Salt	Application*		
	Handling & Storage		
Fuel	Handling & Storage		
DNAPL	Handling & Storage		
Organic Solvents	Handling & Storage		
Aircraft De-icing	Management of Runoff		
Livestock Grazing or Pasturing, Outdoor Confinement, or Farm Animal Yard			
Waste Disposal Sites (within the meaning of Part V of the EPA)			
Snow Storage			



Wellhead Protection Zones

Wellhead protection areas (WHPA) are delineated based on the length of time it takes for water to move from the ground surface, underground to the well. This delineation helps to identify the length of time it would take most contaminants to travel from the location of a spill or leak to the associated well.

Once a contaminant comes into contact with a permeable surface, it will percolate through the layers of soil until it reaches an aquifer where it is then transported to the municipal well.

- **WHPA-A** is the area immediately adjacent to a well. It is delineated as a circle with a 100 metre radius centered on the well. Since there are three wells in the system, the WHPA-A is a combination of the three circles.
- **WHPA-B, WHPA-C and WHPA-D** are delineated based on the amount of time it takes water to travel horizontally through the aquifer towards the well. These three WHPAs represent two, five, and twenty-five year times of travel, respectively.

Significant Drinking Water Threats

An activity is considered a significant drinking water threat if it is undertaken in a vulnerable area under circumstances that pose a significant risk to the water source. These circumstances are set out in the [2009 Tables of Drinking Water Threats](#), which are a part of the Clean Water Act regulations. Significant drinking water threats are addressed by policies in the Source Protection Plan.

No drinking water issues were identified for the Grafton system as defined under the *Clean Water Act, 2006*.

Identifying Drinking Water Threats

Drinking water threats were initially assessed in 2009-2010 during the preparation of the Assessment Report. A verification of these threats was carried out in summer/fall 2013 to confirm the findings of the initial assessment and to obtain more specific information about the circumstances of the identified activities.

The threat verification identified activities taking place at the time of the assessment and activities that take place seasonally, rotationally, or occasionally as part of regular operations on the property (e.g. application of manure). These activities are considered existing threats. Activities that begin to occur after the Source Protection Plan comes into effect are considered future threats.

Potential Drinking Water Threats for the Grafton System

Learn More

Sewage Systems	Sewage Systems Fact Sheet
Agricultural Activities	Agricultural Activities Fact Sheet
Non-Agricultural Source Material	Anne.Anderson@ltc.on.ca
Commercial Fertilizer • Handling & Storage	Anne.Anderson@ltc.on.ca
Pesticide	Pesticide Fact Sheet
Road Salt • Handling & Storage	Anne.Anderson@ltc.on.ca
Fuel	Fuel Fact Sheet
DNAPL	DNAPL Fact Sheet
Organic Solvents	Anne.Anderson@ltc.on.ca
Waste Disposal Sites	Anne.Anderson@ltc.on.ca
Snow Storage	Anne.Anderson@ltc.on.ca

Source Protection Plan

Source protection policies make use of a variety of approaches such as education and outreach, land use planning, inspections, and monitoring. For some activities, policies require landowners to work with a Risk Management Official to identify and implement measures to be more protective of drinking water. For activities already managed through existing tools, such as Environmental Compliance Approvals or Nutrient Management Plans, policies call for a review of these documents to ensure drinking water is addressed. In a limited number of cases, policies prohibit new activities from being started. Education and outreach to landowners will be a key component in the successful protection of our drinking water.

Fun Facts

- The annual average pumping rate of the Grafton system is 183 cubic metres per day.
- There are 2 wells servicing the Grafton system, and each is dug to a depth of 78 meters.

For more information about the Clean Water Act or drinking water source protection:

- Visit our website at www.trentsourceprotection.on.ca
- Anne Anderson, Lower Trent Conservation, at (613) 394-3915 ext. 219 or anne.anderson@ltc.on.ca

