THE CORPORATION OF THE TOWNSHIP OF HORTON

TRANSPORTATION & ENVIRONMENTAL SERVICES

September 1st, 2021
8:30 a.m.

NOTE: This meeting will be sparsely attended, due to social distancing protocols that have been recommended by the federal and provincial governments. Members of the Public, Media and other staff are requested not to attend. Please contact the CAO/Clerk if you have any questions or require additional information.

1. Call to Order & Roll Call
2. Declaration of Pecuniary Interest
3. Minutes from Previous Meeting:
   i. July 7, 2021 **PG.2**
4. Landfill Site Expansion Feasibility Draft Letters **PG.4**
5. Proposed 2022 Capital Building Plan **PG.38**
6. Proposed 2022 Capital Roads Equipment Purchasing Plan **PG.40**
7. Proposed 2022 Capital Road Infrastructure Plan **PG.52**
8. Road Surface Optimization, Preservation, and Development Policy **PG.62**
9. MTO Highway 17 Twinning Update **PG.75**
10. New/Other Business
11. Next Meeting:
    i. October 6th, 2021 at 8:30 a.m.
12. Adjournment

RETURN TO AGENDA

THE CORPORATION OF THE TOWNSHIP OF HORTON

TES Committee Meeting

July 7, 2021
8:30 a.m.

There was a meeting of the Transportation and Environmental Services Committee held electronically via Zoom on Wednesday July 7, 2021. Present was Chair Tom Webster, Councillor Lane Cleroux, Mayor David Bennett, Public Advisory Members, Murray Humphries, Rick Lester, and Tyler Anderson. Staff present was Public Works Manager, Adam Knapp, and Admin/Planning Assistant, Nichole Dubeau – Recording Secretary.

1. CALL TO ORDER

Chair Webster called the meeting to order at 8:31 a.m.

2. DECLARATION OF PECUNIARY INTEREST

There was no declaration of pecuniary interest from committee members.

3. MINUTES FROM PREVIOUS MEETING:

- June 3rd, 2021

Moved by Tyler Anderson
Seconded by Murray Humphries
THAT the Committee approve the June 3rd, 2021 Minutes.

Carried

4. RE-ISSUE OF MUNICIPAL DOCK RFQ

Public Works Manager Adam Knapp reviewed the report. He added that he has inspected the dock and it is in good enough condition to last the 2021 season. The Committee was in agreeance to wait until the market slows down and prices decrease to release the RFQ again but aimed for fall/winter of 2021 to have for the 2022 season.

5. GOLF COURSE ROAD REHABILITATION

Public Works Manager Adam Knapp reviewed the report. The Committee was in agreeance to put funds towards the project in 2022.

Moved by Murray Humphries
Seconded by Rick Lester
THAT the TES Committee recommend to Council to contribute 50% of the cost toward the rehabilitation of Golf Course Road with Admaston/Bromley and allocate $53,371 in the 2022 Capital Budget from the Roads Infrastructure Reserves;

AND FURTHER THAT any remaining funds available from the $80,000 upset amount requested for the shared rehabilitation of McBride Road be allocated toward a down payment for the Township of Horton's portion of the rehabilitation of Golf Course Road.

Carried

6. UNOFFICIAL RESULTS – PW 2021-10 CONCRETE FUEL CONTAINMENT PAD

Public Works Manager Adam Knapp reviewed the report. The Committee was in agreeance to reject the submission of $33,722.14. After Committee discussion, Public Works Manager Adam Knapp is to contact the contractor that quoted the project initially to see if the offer still stands, or is lower than the bid submission, and move forward with the installation.

Moved by Rick Lester
Seconded by Tyler Anderson
THAT the TES Committee recommend to Council reject the sole bid submission from '11475579' for PW 2021-10 Concrete Fuel Containment Pad in the amount of $33,722.14.

Carried

RETURN TO AGENDA

7. SUSTAINABILITY COMPARISON

Public Works Manager Adam Knapp reviewed the report.

8. NEW/OTHER BUSINESS

Public Works Manager Adam Knapp gave a brief update on the Thompsonnhill Detailed Design. Chair Webster requested that Jp2g Consultants provide another update for the September TES meeting, and hopes to see more progress. Public Advisory Member Tyler Anderson questioned how the Public Works Manager's summer hours are going. Mr. Knapp stated that they are working well, but it is a temporary basis for now after he, CAO/Clerk Hope Dillabough, Mayor Bennett, and Chair Webster meet to discuss at the end of summer.

9. NEXT MEETING DATE

i. September 1st, 2021 at 8:30 a.m.

10. ADJOURNMENT

Chair Webster declared the meeting adjourned at 9:31 a.m.

CHAIR Tom Webster

CAO/CLERK Hope Dillabough

RETURN TO AGENDA

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Jp2g No. 20-6128A

August 18, 2021

Ministry of the Environment, Conservation and Parks
2430 Don Reid Drive
Ottawa, ON K1H 1E1

Attention: Thandeka Ponalo
Sr. Environmental Officer

Re: Horton Landfill Site
Township of Horton
ECA No. A412505
Expansion Feasibility Study

Dear Thandeka:

On behalf of the Township of Horton, we are pleased to provide this feasibility assessment regarding the potential for an expansion at the Horton Landfill Site. This report provides the preliminary steps to obtain approval for an expansion and is intended to provide the Township with a foundation for waste management decision making pending Ministry comments.

1.0 Introduction

The Horton Landfill Site located at 2082 Eady Road, in the Township of Horton, Ontario, currently operates under ECA No. A412505 issued March 25, 2011, as amended. The following provides the additional Notices under the ECA:

Notice No. 1 September 19, 2012	Added Stantec submission of a soak pit design as Item 23 in Schedule A
Notice No. 2 June 3, 2015	Amended Condition 92 approving biennial reporting and the revised monitoring program Schedule B and C
Notice No. 3 December 1, 2017	Amended Conditions 25, 48 and 55 and added Condition 98 to reflect modified operations

The environmental compliance program is based on a Hydrogeology, Hydrology and Geotechnical Report by Golder Associates Ltd. dated May 2009, and letters dated May 24, 2013, and February 5, 2014 which resulted in the current ECA monitoring and reporting requirements. Operations compliance is based on a May 2009 Landfill Development, Operations and Closure Report by Stantec, and the March 14, 2017 Stantec application for amendments to the ECA.

As required under Conditions 96 and 97 of the ECA, Jp2g has been completing the operations and environmental monitoring and reporting since April 2017.

2.0 REMAINING CAPACITY

Under the January 14, 1998, ECA amendment, a Site Development and Operation Plan by McNeely Engineering dated July 1995, revised September 1997, determined there was 44,020m^3 of landfill space utilized within a 2.5 ha fill area based mainly on a trench method of disposal, with an area method over the former landfilling area. The 1998 expansion over a 1.0 ha area provided additional capacity of 36,100m^3 which was completed in 2011. Under the March 24, 2011 ECA an additional 39,900m^3 was approved, as described in the Landfill Development, Operation and Closure Report by Stantec dated May 2009, as amended. The ECA Condition 28 states the total site capacity is 120,020m^3.

Under the current program Jp2g conducts an annual survey of the waste mound to determine the annual landfilling rate and remaining capacity. As the survey is only done once per year there is often areas and associated landfill quantities which are not identified. As presented in the 2017/2018 Biennial Report it was assumed there is a remaining total site capacity of 23,830m^3 at the end of 2018 based on a comparison to the 2010 design drawings. This assessment did not account for the application of final cover in the northerly portion of the site. Based on Stantec's estimate of remaining capacity on December 31, 2016 of 32,947m^3 and Jp2g capacity surveys since 2017, the following table summarizes the results based on comparative surveys to the previous year, and the Stantec Design Water Contours Figure No. 5 (May 2009). Over the past 5 years on average 2077m^3 has been landfilled.

Year	Landfilled (m^3)	Remaining Capacity (m^3)
2016	2053	32,947
2017	1750	31,200
2018	2475	28,725
2019	2108	26,617
2020	1996	24,621

The 2017 and 2019 Ottawa River flooding events created large quantities of waste from shoreline clean up, building demolition, and sandbags. The majority of this waste was diverted from disposal at the Horton WDS through funding relief programs, however if it was to be landfilled there would have been significant capacity used.

The projected life expectancy of the Horton Landfill Site is approximately 11 years, however technical review of expansion proposals are often comprehensive in nature and can take upwards of 3 to 5 years. The associated costs of this review process, including the application fee, must be considered by the Township in their annual waste management budgets. Alternatively, if expansion is not feasible the municipality would require time to investigate and select another cost-effective solution.

3.0 LEGISLATIVE REQUIREMENTS

Under Ontario Regulation 101/07, made under the EA Act, a proponent may increase the capacity by 40,000m^3 or more but not more than 100,000m^3 subject to fulfilling the Environmental Screening Process. A change of less than 40,000m^3 is exempt from the EA Act.

Approvals for changes to waste disposal sites is obtained under Part V of the Environmental Protection Act (EPA) and reviewed under the Environmental Compliance Approval (ECA) process set by O.Reg 255/11. Under the Ministry's Requirement for Fees with ECA's (formerly O.Reg 363/98 Section 27 EPA) the province applies fees to review applications.

RETURN TO AGENDA

The Township has decided to determine the feasibility of expansion <40,000m^3, a preliminary design is included as **Drawing 1** "2021 Expansion Design". Pre-submission consultation with the Ottawa District Office and TSS Regional Office is required prior to the application. This letter combined with the recent Biennial Report is anticipated to facilitate this review.

4.0 HORTON LANDFILL SITE ASSESSMENT

In order to assess the feasibility of a successful expansion application three (3) main issues need to be considered in consultation with the Ministry.

Legal – the status of the ECA, the adequacy of the landholdings and the municipality's compliance with the conditions.

- correct description of the site defining the landfilling area and total site
- correct legal survey or description of the site
- adequate contaminant attenuation zone (CAZ)
- outstanding ECA conditions to be satisfied
- submissions to satisfy a condition requiring Ministry review and approval

Environmental – the status of the water quality and landfill gas monitoring program and any measured or potential impacts on the surface and groundwater, and the potential impact to other natural environmental features.

- groundwater quality impacts
- surface water quality impacts
- adequacy of surface water flow control/stormwater management
- adequacy of the landfill gas monitoring program
- proximity to environmentally sensitive areas (ESA)
- potential impact on rare or endangered species and habitat (SAR)
- outstanding actions to address Ministry Technical Support Section (TSS) review comments

Operations – the status of site operations and the potential impact on adjacent land uses and the local community.

- any record of negative effects on-site or on adjacent land uses, i.e. litter, dust, noise, odour, landfill gas
- any record of operational concerns
- outstanding actions to address Ministry inspection reports

4.1 Legal

The ECA No. A412001 dated March 25, 2011, as amended, defines the Horton Landfill Site as a 2.5 ha waste disposal site within a total site area of 20.64 ha. Condition 14 of the ECA requires that a Certificate of Requirement be registered on title which has been completed when the lands were purchased from Findlay Barr in 1996. Under the terms of that agreement annual sampling of the drinking supply well and creek on the Barr property is required. The proposed expansion will increase the landfilling area from 2.5 ha to 3.38 ha as shown on **Drawing 1**.

The proposed expansion application will require supporting documentation that an adequate CAZ is provided to ensure compliance with provincial standards. In addition, there are a number of ECA Conditions which can be addressed under an application for an ECA Amendment, which are discussed in the following sections:

- Soak Pit Conditions 19-24 and 65
- Groundwater and Surface Water Monitoring Conditions 76 to 79
- Landfill Gas Monitoring Conditions 77, 80 and 81
- MSW and MHW Transfer Condition 98

4.2 Environmental

The monitoring program approved under the current ECA is to satisfy Conditions 92 and 93(a), (b), (i) and (j). The monitoring program as detailed in ECA Schedule "B", "C" and "D" consists of the biennial (every 2 years) collection of static water levels, groundwater samples from twenty-one (21) monitoring wells and the Barr well, and surface water samples from three (3) locations and the Barr Creek, in addition to annual sampling of landfill gas for eight (8) events.

Overview

The analytical results show a diffuse leachate plume to the east that is characterized by decreasing chemical concentrations with increasing distance from the fill area, indicating some level of natural attenuation occurring. **Figure 1** shows the dispersion of the leachate plume, which (based on borehole logs and analysis of chemistry) is situated in the upper silty sand zone. **Attachment 1** illustrates the leachate plume characteristics at impacted monitoring wells.

Various downgradient wells were used as RUC compliance wells, including G93-5A, G93-5B, G96-8A, G96-8B, G96-10A, G96-10B, G96-10C, G96-12, G96-13. Based on the chemical results from the most recent sampling event and 2019/2020 Biennial Monitoring Report (Jp2g, 2021) the site is considered to be compliant with the Guideline B-7.

Groundwater monitoring wells (G96-8A, G96-8B, G96-10A, G96-10B, G96-10C) near surface water stations SW17 and SW18 were compared to PWQO/CWQG to determine if leachate impacts were affecting the surface water receiving body. Results indicate no exceedances to PWQO/CWQG suggesting the surface water is not impacted by the leachate. The surface water in Barr Creek located over 1 km from the fill area is also interpreted to not be affected by the landfill.

The presence of methane gas in the subsurface was not detected at the northern property boundary during the last biennial monitoring period, and the landfill is in compliance with the requirements of the ECA related to landfill gas at the boundary limits.

Part of the feasibility study for the landfill expansion has included a critical review of the monitoring program:

- Including enhancement of water quality sampling of key wells, a reduction of water quality sampling where feasible, and removal of unnecessary monitoring wells;
- Decommissioning of any wells not necessary for the monitoring program;
- Reduction of landfill gas monitoring program; and
- Review the agreement with Barr to reduce monitoring of the drinking well and creek.

It is anticipated that a proposed expansion will not impact Environmentally Sensitive Areas (ESA) or Species At Risk (SAR), or their habitat as the expansion of the landfilling area is immediately adjacent to the operating fill area, see **Figure 1**.

Revised Groundwater Monitoring Program

The existing monitoring program was reviewed to assess groundwater and surface water conditions, and where feasible condense the program to accurately address necessary impacts from the landfill. **Attachment 2** indicates the existing, and proposed revision of the monitoring program. As shown, monitoring wells including G93-1, G93-5B, G93-7B, G96-8B, G96-9B/C, G96-10C, G96-12 & G96-13 are to be sampled on an annual basis for the full set of parameters 'surveillance' (Column 1 of Schedule 5). This increase in parameters will help establish a more comprehensive data set for the boundary compliance wells, to compare with the background and leachate wells. The updated program will continue to sample the other monitoring wells on a biennial basis as per ECA Schedule "A", with the proposed decommissioning of G93-6A, 91-A2 and G9611A/B. The decommissioning of these wells will not change our understanding of the landfill plume delineation.

In accordance with ECA Conditions 75 the expansion application will request Director approval to decommission the four (4) monitoring wells. To establish a more comprehensive water quality data base, in accordance with ECA Condition 76 we request District Manager approval to alter the groundwater and surface water monitoring program, which will receive Director approval under an amended ECA.

Revised Landfill Gas Monitoring Program

In the past there has been discussion with Ministry to have a reduction in the landfill gas monitoring program, which is currently at 8 times per year for monitoring wells GW 11-1 and GW 11-2. As per ECA Condition 80 a critical limit of 2.5% methane (25,000 ppm) is applied as the trigger concentration. Based on consistently low levels of gas readings at these wells, the previous consultant (Golder) requested a reduction to the program in 2015. A memorandum dated February 13, 2017 from a TSS Air Quality Analyst suggested that various recommendations must be undertaken prior to consideration of reducing the monitoring program. Recommendations included monitoring of on-site buildings and adding contextual and subsurface pressure information. During the latest monitoring event, completed in June 2021, monitoring wells 91-A3, 93-6A, GW 11-1 and GW 11-2, were outfitted with Waterra Sampling Well Plugs complete with Vapour Sampling Port Adapters. These specialized well caps prevent gasses from escaping to the atmosphere and use a valve which allows a measurement of gas pressure and trapped headspace vapours without removing the cap.

To reduce the amount of landfill gas monitoring events, the requested recommendations have been adopted into the revised monitoring program. This will help to establish a background database set that would support the assumption that landfill gas build-up in on-site buildings or off-site migration is not a concern. Once there is sufficient data, in accordance with ECA Condition 76 a request for District Manager approval of a modified gas monitoring program will be filed.

Revised Barr Creek and Barr Well Sampling Program

It is also proposed to reduce the sampling required under the agreement between the Township and Mr. Barr. Due to historical and current analysis of the Barr Creek and Barr Well which indicates no signs of any landfill leachate impact, the proposed reduction will be to sample these locations on a biennial basis.

4.3 Operational

Landfilling at the Horton WDS since 1994 has involved the "area" method of landfilling over the former 2.5 ha landfilling area, with the exception of the southerly portion. The proposed expansion design will be an extension of this operation to the east providing an additional capacity of 39,973m^3 as shown on **Drawing No. 1**. Options considered the expansion of the landfilling area in other directions and/or increasing the height of the existing waste pile. The proposed design maintains the buffer and setback distances to sensitive uses including residential to the west, and the road to the south, while maintaining the same height elevation.

Landfilling Operations

The Landfill Development, Operations and Closure Report dated May 2009 details the current landfilling procedures. The proposed expansion will involve the "Area" Method of landfilling extending from the northerly slope over the remaining 2.5 ha landfilling area (which was previously trenched), then extending approximately another 85m in an easterly direction parallel to Eady Road. A base elevation of 161m will be developed using a 6430m^3 clean fill prior to any waste disposal to maintain a meter above the water table elevation.

Waste compaction and weekly cover is to continue as per ECA Conditions 48 to 52.

Soak Pit

In accordance with ECA Conditions 19-24 and 65, Stantec filed the soak pit design May 24, 2012, and obtained approval under ECA No. A412505 Notice No. 1 dated September 19, 2012. Copies of relevant documentation are included in **Attachment 3**.

To date, the soak pit has not been constructed. The current groundwater monitoring program does not indicate any significant impact as a result of surface water flow from the waste mound, and the current infiltration into the groundwater occurs in a natural wetland area where the engineered soak pit is proposed. A request for District Manager approval to remove the soak pit from the ECA will be filed.

NSW and NHW Transfer

Under a July 31, 2017 application to amend the ECA, supported with a Stantec letter report March 14, 2017 the Township received conditional approval for the storage of municipal special waste (MSW) and municipal hazardous waste (MHW) as per ECA Conditions 25(b) and 98. Storage containers are on-site, but no transfer operations have been initiated. Currently the Township residents have access to the Town of Renfrew Household Hazardous Waste Facility at the Town Landfill Site.

We trust this summary is satisfactory and will be considered by TSS in their review of the latest Biennial Report. Should you have any questions please do not hesitate to contact the undersigned.

Yours very truly,
Jp2g Consultants Inc.
Engineers • Planners • Project Managers

Kevin Mooder, MCIP, RPP
Principal I Environmental Services

Andrea Sare, C.Tech,EP.
Environmental Technician

Andrew Buzza, P.Geo
Sr. Hydrogeologist

KM/AS/jlp

c.c. Adam Knapp (Public Works Manager)

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Figures and Drawings

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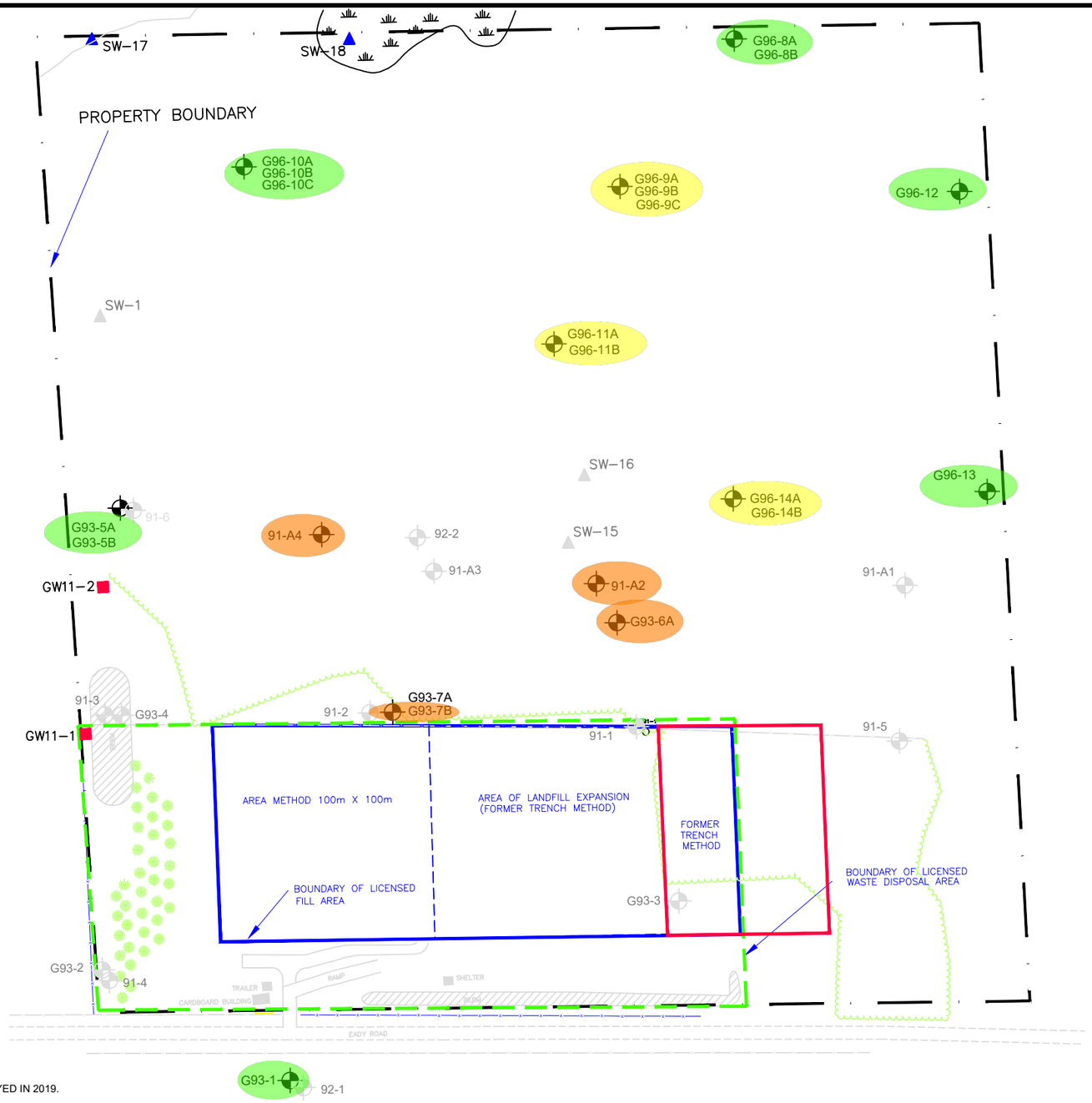

LEGEND

- MW96-X — MONITORING WELL
- MW96-X — FORMER MONITORING WELL SAMPLING LOCATION
- SWX — SURFACE WATER SAMPLING STATION
- SWX — FORMER SURFACE WATER SAMPLING LOCATION
- GW11-X — LANDFILL GAS MONITOR
- SATURATED AREA
- TREELINE
- FENCELINE
- BOUNDARY OF FILL AREA
- BOUNDARY OF WASTE DISPOSAL AREA
- LEACHATE IMPACTED OVERBURDEN WELL
- MINOR LEACHATE IMPACTED OVERBURDEN WELL
- NO EVIDENCE OF LEACHATE OVERBURDEN
- PROPOSED EXPANSION AREA

Meters

69 0 69 138

1:2300

NOTES

1. EXISTING CONDITIONS PLAN FROM GOLDER ASSOCIATES LTD.
2. BUILDING LOCATIONS ARE APPROXIMATE AND WILL BE SURVEYED IN 2019.

Jp2g Consultants Inc.
ENGINEERS · PLANNERS · PROJECT MANAGERS

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HORTON WDS

~

SITE PLAN & PROPOSED EXPANSION AREA

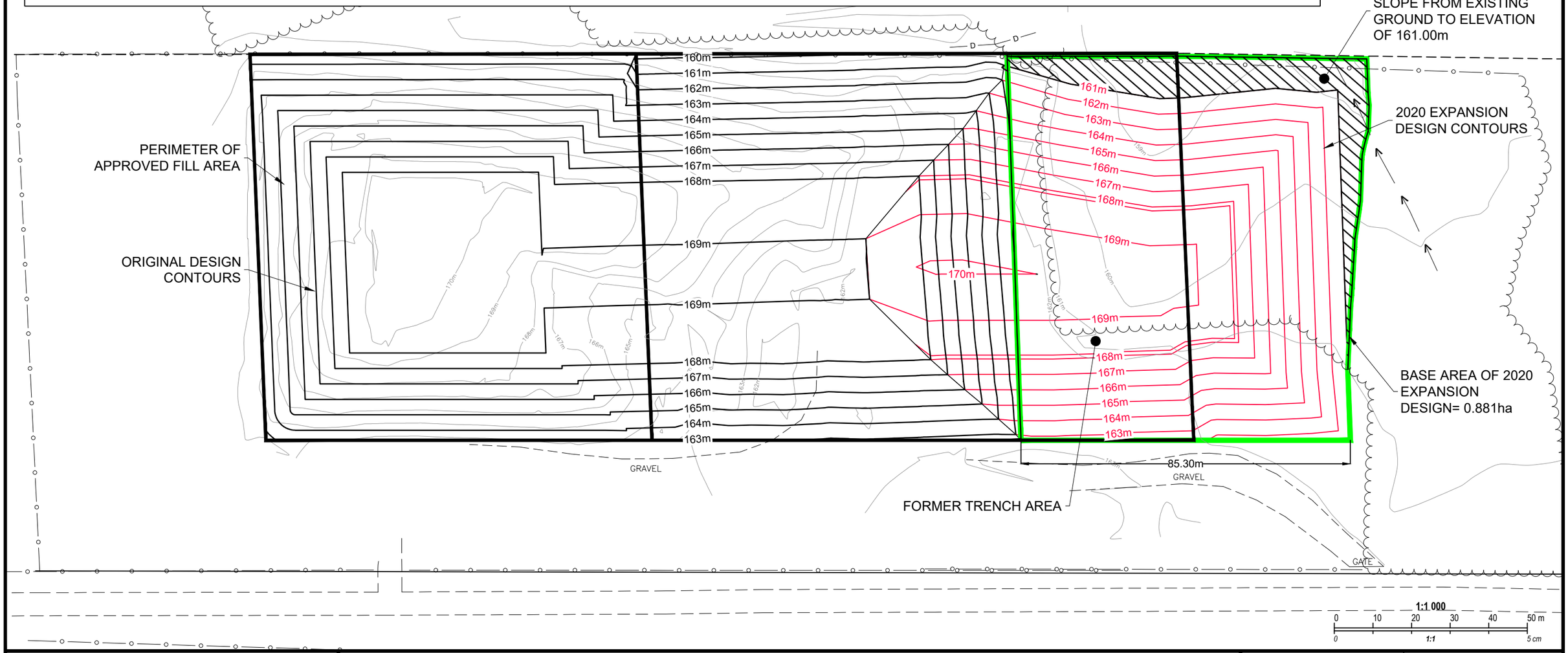
DESIGNED: AS		PROJECT No.:	21-6128A
DRAFTED: AS		REVISION DATE:	2021-08-17
CHECKED: AB	APPROVED: KM	REVISION No.:	.
SCALE: 1:2300		FIGURE 1	

DWG NAME: J:\6-ENVIRONMENTAL\ACTIVE\17-6022A - HORTON WDS\9. DRAWINGS\ONGOING\2020 UPDATED\SITE PLAN 2020.DWG LAYOUT: LEACHATE PLUME (2) SAVED ON August 17, 2021

RETURN TO AGENDA

NOTES

1. EXPANSION DESIGN CONTOURS START AT A 4:1 SLOPE TO ELEVATION 168.25m.
2. EXPANSION DESIGN CONTOURS AT 12:1 SLOPE FROM ELEVATION 168.25m TO TIE IN. PEAK ELEVATION= 170.15m.
3. EXPANSION DESIGN CONTOURS SHOWN ARE TO TOP OF WASTE.
4. GROUND LEVEL BELOW 161.00m TO BE FILLED WITH APPROVED FILL AT 4:1 SLOPE TO 161.00m.
5. EXISTING FENCE LINE ON THE NORTH EAST SIDE TO BE REMOVED AND REPLACED FOR EXPANSION DESIGN CONTOURS
6. EXPANSION DESIGN CAPACITY= 39,973m³.
7. ELEVATIONS ARE GEODETIC.
8. APPROXIMATELY 6430m³ OF APPROVED FILL IS NEEDED TO HAVE A BASE ELEVATION OF 161.00m FOR THE EXPANSION DESIGN CONTOURS.



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HORTON WDS
~
2021 EXPANSION DESIGN

DESIGNED: BWS		PROJECT No.:	20-6128A
DRAFTED: BWS		REVISION DATE:	2021-07-20
CHECKED: KM	APPROVED: KM	REVISION No.:	.
SCALE: 1:1000		SHEET No.:	1 of 1

DWG NAME: J:\6-ENVIRONMENTAL\ACTIVE\20-6128A - HORTON WDS EXPANSION\DRAWINGS\2020 EXPANSION DESIGN-3.DWG LAYOUT: EXPANSION SAVED ON July 20, 2021

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Attachment 1

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MAJOR IMPACTED WELLS

Monitoring Well	Distance from Fill Area	Approx. Screen Depth	Soil Characteristics	2020 Parameters >ODWS/OG
93-7B	0m	1.5 – 3.2m	Loose sand	Alkalinity 635, DOC 12, Iron 39.3, Manganese 0.61
93-6A	50m	3.0 – 4.5m	Sandy silt and fine sand seam	Hardness 635, TDS 897, Manganese 4.51
91-A2	70m	NA	NA	Hardness 534, TDS 812, Manganese 6.71
91-A4	95m	NA	NA	DOC 5.3, TDS 523, Iron 0.5, Manganese 0.88

MINOR IMPACTED WELLS

Monitoring Well	Distance from Fill Area	Approx. Screen Depth	Soil Characteristics	2020 Parameters >ODWS/OG
96-14A	110m	6.1 – 6.9m	Dense glacial till	Iron 0.56 Manganese 0.5
96-14B	110m	2.8 – 4.3m	Sandy silty clayey silt seam	Manganese 0.08
96-11A	190m	2.5 – 4.0m	Sandy silt to silty clay	Manganese 0.07
96-11B	190m	1.8 – 2.2m	Clayey silt to silty sand	Iron 1.63 Manganese 0.18
96-9A	220m	4 – 5.6m	Sandy silt thin clayey silt seams	Manganese 0.06
96-9B	220m	2 – 3.4m	Sandy silt thin clayey silt seams	-
96-9C	220m	0.5 – 1.5m	Silty sand to silty clay	-

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Attachment 2

Current Monitoring Plan

Monitoring Location	Spring	Fall
	Groundwater	
Surveillance Groundwater Monitors: G93-1 (Background), G93-7B (Leachate), 91-A4 (downgradient) Routine Groundwater Monitors: 91-A2, G93-6A, G93-5A, G93-5B, G96-8A, G96-8B, G96-9A, G96-9B, G96-9C, G96-10A, G96-10B, G96-10C, G96-11A, G96-11B, G96-12, G96-13, G96-14A, G96-14B, Barr Well *One field blank, one duplicate taken during each sample event	All Monitoring Locations Water Level – Column 1 Sampling Parameters as listed in Schedule B Field Measurements: Temperature pH Conductivity	Barr Well: Sampling Parameters as listed in Schedule B Field Measurements: Temperature pH Conductivity
	Surface Water	
SW-17 (Background) SW-18 (Downgradient) Barr Creek *One duplicate taken during each sample event	All Monitoring Locations Parameters as listed in Schedule C Field Measurements: Temperature pH Conductivity Dissolved Oxygen Flow	Barr Creek: Parameters as listed in Schedule C Field Measurements: Temperature pH Conductivity Dissolved Oxygen Flow

Bi-annual Monitoring

Schedule B (Ground water) Parameters:

Routine: chloride, hardness, potassium, barium, boron, manganese, strontium, TDS, ammonia, iron. Field: temperature, pH, conductivity.

Surveillance: alkalinity, ammonia, arsenic, barium, boron, cadmium, calcium, chloride, chromium, copper, hardness, iron, lead, magnesium, manganese, mercury, nitrate, nitrite, TKN, orthophosphate, potassium, sodium, strontium, sulphate, TDS, zinc, benzene, 1,4-dichlorobenzene, dichloromethane, toluene, vinyl chloride, COD, DOC, phenol. Field: temperature, pH, conductivity.

Schedule C (Surface Water) Parameters:

Routine: chloride, hardness, potassium, barium, boron, manganese, strontium, TDS, ammonia, iron. Field: temperature, pH, conductivity, dissolved oxygen, velocity, depth and cross-sectional measurements.

Surveillance: alkalinity, unionized ammonia, arsenic, barium, boron, cadmium, calcium, chloride, chromium, copper, hardness, iron, lead, magnesium, manganese, mercury, nitrate, nitrite, TKN, total phosphorus, potassium, sodium, strontium, sulphate, TDS, zinc, COD, phenol. Field: temperature, pH, conductivity, dissolved oxygen, velocity, depth and cross-sectional measurements.

Bi-annual Residential (Barr) sampling:

Barr Well: Routine Parameters (spring/fall)
Barr Creek: Routine Parameters (spring/fall)

Landfill Gas Monitoring:

8 times per year. Monthly form November to April, and two other times.

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Proposed Monitoring Plan

Wells	Annual Monitoring (Spring)	Biennial Monitoring	
		Spring	Fall
Groundwater			
G93-1 (Background)	1 + WL + Gas		
G93-5A		1 + WL + Gas	
G93-5B	1 + WL + Gas		
G93-6A	To be Decommissioned		
91-A2	To be Decommissioned		
91-A4		1 + WL + Gas	
G93-7A		WL + Gas	
G93-7B (leachate)	1 + WL + Gas		
G96-8A		1 + WL + Gas	
G96-8B	1+ WL + Gas		
G96-9A		WL + Gas	
G96-9B	1+ WL + Gas		
G96-9C	1 + WL + Gas		
G96-10A		WL + Gas	
G96-10B		1+ WL + Gas	
G96-10C	1 + WL + Gas		
G96-11A	To be Decommissioned		
G96-11B	To be Decommissioned		
G96-12	2 + WL + Gas		
G96-13	2 + WL + Gas		
G96-14A		1 + WL + Gas	
G96-14B		1 + WL + Gas	
Barr Well		2 + WL + Gas	2 + WL + Gas
Surface Water			
SW17	3		
SW18	3		
Barr Creek		4	4

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Groundwater Monitoring Frequency: Spring (May/June) and Fall (Sept/Oct) with a minimum of 60 days between events

Analysis:

WL Water level

1 Surveillance: alkalinity, ammonia, arsenic, barium, boron, cadmium, calcium, chloride, chromium, copper, hardness, iron, lead, magnesium, manganese, mercury, nitrate, nitrite, TKN, orthophosphate, potassium, sodium, strontium, sulphate, TDS, zinc, benzene, 1,4-dichlorobenzene, dichloromethane, toluene, vinyl chloride, COD, DOC, phenol.
Field: temperature, pH, conductivity.

2 Routine: chloride, hardness, potassium, barium, boron, manganese, strontium, TDS, ammonia, iron. Field: temperature, pH, conductivity

Gas - Landfill gas to be recorded at all locations concurrent with sampling

All detection limits must meet applicable guidelines

*One field blank, one duplicate taken during each sample event

Surface water Monitoring Frequency: Spring (May/June) and Fall (Sept/Oct) with a minimum of 60 days between events

Analysis:

3 Surveillance: alkalinity, unionized ammonia, arsenic, barium, boron, cadmium, calcium, chloride, chromium, copper, hardness, iron, lead, magnesium, manganese, mercury, nitrate, nitrite, TKN, total phosphorus, potassium, sodium, strontium, sulphate, TDS, zinc, COD, phenol. Field: temperature, pH, conductivity, dissolved oxygen, velocity, depth and cross-sectional measurements

4 Routine: chloride, hardness, potassium, barium, boron, manganese, strontium, TDS, ammonia, iron. Field: temperature, pH, conductivity, dissolved oxygen, velocity, depth and cross-sectional measurements.

- Lowest possible detection limits are required to meet provincial or federal surface water standards (PWQO, or CWQG).
- Visual inspection for seeps during the spring and summer sampling events. If a seep is found the location and sampling results are to be provided in the Annual Report.

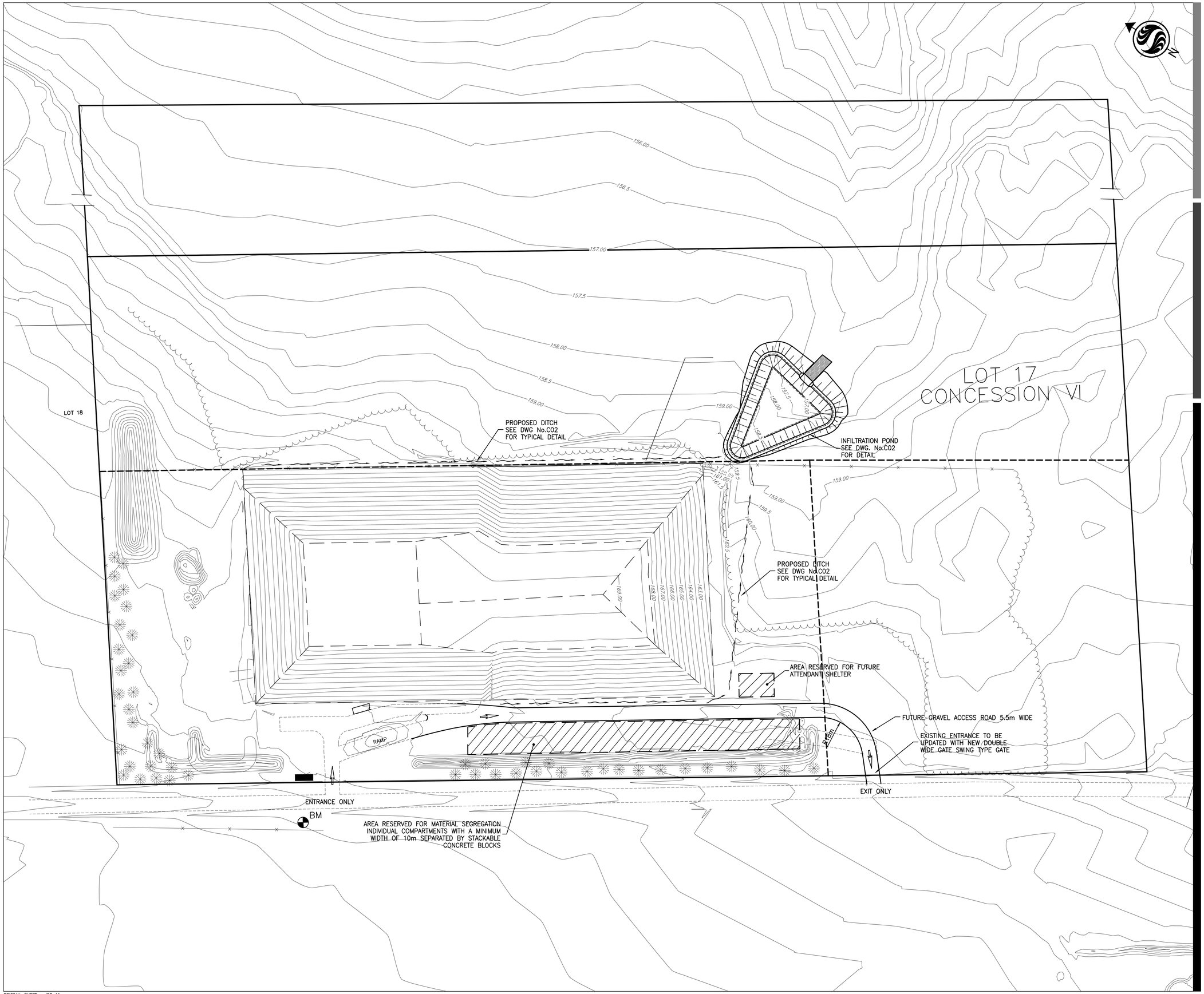
*One field blank, one duplicate taken during each sample event

Landfill Gas Monitoring:
8 times per year. Monthly form November to April, and two other times.

RETURN TO AGENDA

Attachment 3

RETURN TO AGENDA



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Legend

Notes

1. BENCHMARK (BM) ELEVATION 165.180, SPIKE IN EAST SIDE OF PINE TREE.

Revision	By	Appd.	YY.MM.DD
A ISSUED FOR APPROVALS	G.L.	G.L.	12.05.11

Issued	By	Appd.	YY.MM.DD
File Name:	Dwn.	Chkd.	Dsgn. YY.MM.DD

Permit-Seal

Client/Project

TOWNSHIP OF HORTON

WASTE DISPOSAL SITE

Horton, ON Canada

Title

SITE PLAN

Project No. 163400775

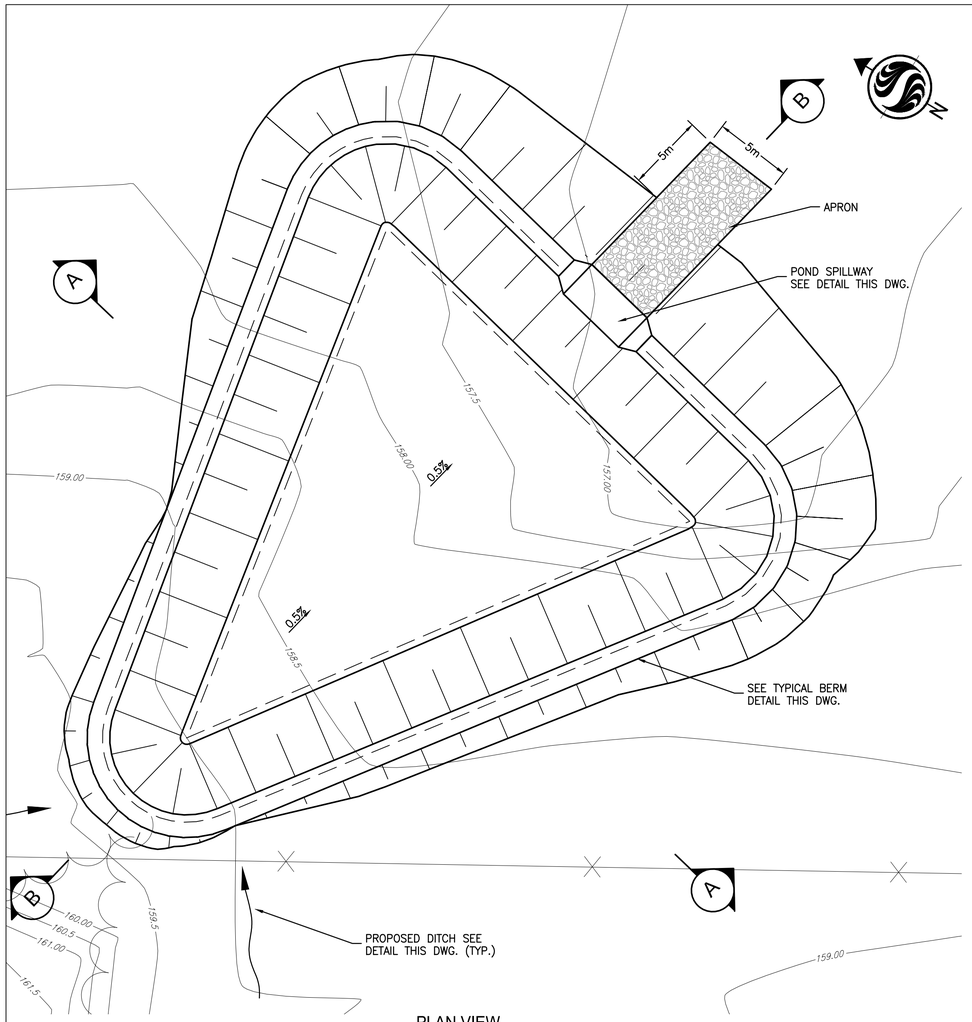
Scale 0 7.5 22.5 37.5m

Drawing No. C01

Sheet of

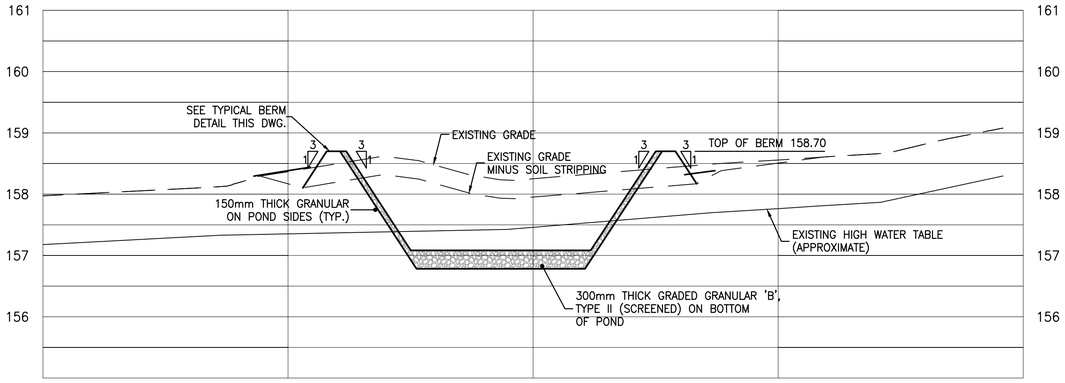
Revision 0

ORIGINAL SHEET – ISO A1



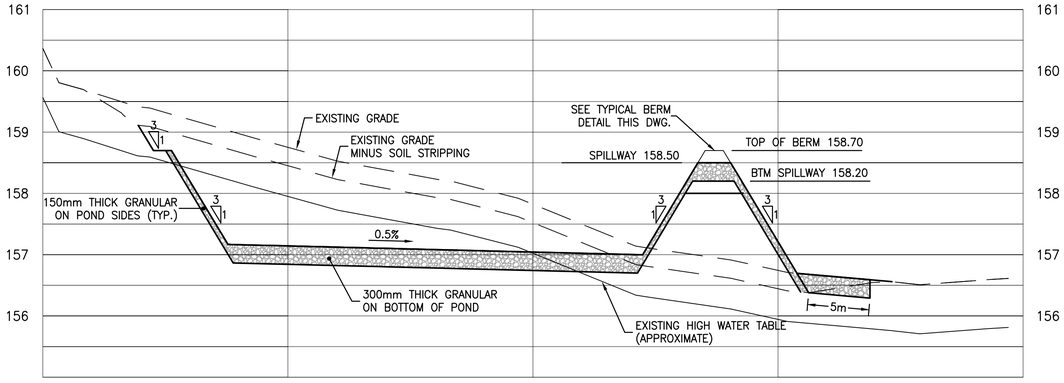
PLAN VIEW

0 2 6 8m



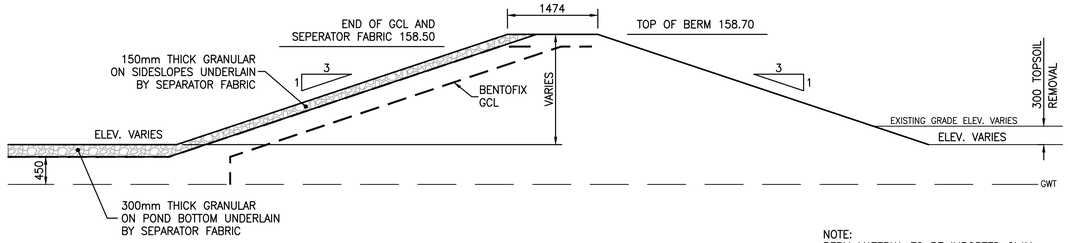
SECTION A-A

0 2.5 7.5 12.5m
0 0.5 1.5 2.5m



SECTION B-B

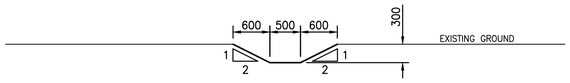
0 2.5 7.5 12.5m
0 0.5 1.5 2.5m



TYPICAL BERM DETAIL

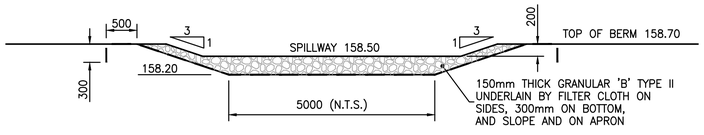
0 500 1500 2500m

NOTE:
BERM MATERIAL TO BE IMPORTED CLAY.



TYPICAL DITCH DETAIL

0 500 1500 2500m



SPILLWAY DETAIL

0 500 1500 2500m

GENERAL NOTES:

1. SEASONAL HIGH GROUNDWATER TABLE WAS ASSUMED TO DIP EASTWARD AT THE SAME SLOPE AS NATURAL GROUND. IN VICINITY OF SOAK PIT (REFER TO FIGURE 9, SHALLOW GROUNDWATER FLOW DIRECTION BY GOLDER ASSOCIATES 2009) SHALLOW FLOW DIRECTION 92–93 LOCAL DATUM OR 157.35–158.35 (CORRECTION FOR LOCAL DATUM:65.32m).
2. STRIP ORGANIC SOIL BENEATH THE ENTIRE FOOTPRINT – ORGANICS ASSUMED TO BE 0.3m THICK (BH93–6).
3. ORIGINAL GROUND AT ENTRANCE TO SOAK PIT IS AT ELEVATION 159.5m SO DITCH BOTTOM COULD BE AT 159.2 OR DECREASE TO 158.9m (ENTRANCE DITCH CAN BE UP TO 0.6m DEEP)
4. NET EFFECTIVE AREA FOR SOAK PIT BOTTOM IS 450m^2.
5. PONDING TO BE CREATED THRU BERM WITHIN EXISTING DEPRESSION – EFFECTIVE HEIGHT OF BERM IS 1.5m (BASE OF SPILLWAY).
6. BERM TO HAVE 3H:1V SIDESLOPES AND BE CONSTRUCTED OF LOW PERMEABILITY MATERIAL. A GCL IS TO BE INCORPORATED INTO THE BERM AT 1m DEPTH TO IMPROVE HYDRAULIC RETENTION. THE BASE OF THE GCL IS TO EXTEND 450mm BELOW THE BASE OF THE BERM. THE GCL SHALL BE A BENTOFIX NW THERMALOCK. THE BERM SIDESLOPE IS TO BE COVERED WITH A SEPARATOR GEOTEXTILE AND OVERLAID WITH 150mm THICKNESS OF GRADED GRANULAR 'B' TYPE II MATERIAL.
7. TOP OF BERM TO BE 1m WIDE AT MAXIMUM ELEVATION 158.7m. A SPILLWAY 5m WIDE SHALL BE CONSTRUCTED WITH 3H:1v SIDESLOPES. SPILLWAY TO BE COVERED WITH GEOTEXTILE SEPARATION FABRIC AND 200mm THICKNESS OF GRADED GRANULAR 'B' TYPE II MATERIAL. THE SPILLWAY APRON ON THE DOWNSTREAM SIDE TO EXTEND TO A WIDTH OF 8m FOR ENTIRE LENGTH OF APRON.
8. THE HYDRAULIC RETENTION CAPACITY OF THE FACILITY IS 500m^3.
9. ASSUMED PERCOLATION RATE FOR THE NATIVE SILTY SAND WAS TAKEN TO BE 15 MINUTES/cm (BASED ON CHART 6.3.11 OF THE MANUAL OF POLICY, PROCEDURES AND GUIDELINES FOR PRIVATE SEWAGE DISPOSAL SYSTEMS, 1982). THE 25 YEAR STORM EVENT THAT GENERATES THE 500M^3 OF RUNOFF WOULD TAKE LESS THAN 48 HOURS TO COMPLETELY DRAIN FROM THE POND AT THE ABOVE RATE.
10. THE POND WILL NEED TO BE INSPECTED TWICE PER YEAR, SPRING AND FALL TO OBSERVE IF RODENTS OR OTHER SMALL MAMMALS COULD HAVE BURROWED INTO THE BERM OR IF ANY RAINFALL EVENTS HAVE CAUSED EROSION OF THE PROTECTIVE GRANULAR BLANKET.
11. THE GEOTEXTILE PLACED ON THE BASE OF THE SOAK PIT SHALL BE A 360R NON–WOVEN GEOTEXTILE MADE BY TERRAFIX.

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Notes

Revision	By	Appd.	YY.MM.DD
A ISSUED FOR APPROVALS			

Issued	By	Appd.	YY.MM.DD
File Name:	Dwn.	Chkd.	Dsgn. YY.MM.DD

Permit-Seal

Client/Project
TOWNSHIP OF HORTON

WASTE DISPOSAL SITE

Horton, ON Canada

Title
INFILTRATION POND
PLAN AND DETAILS

Project No.	Scale	
163400775		
Drawing No.	Sheet	Revision
C02	of	0

ORIGINAL SHEET – ISO A1

Memo

Stantec

To:	Gerry Lalonde	From:	Karyn Cornfield
File:	163400775	Date:	May 23, 2012

Reference: Horton Landfill – Environmental Compliance Approval A 412505 – Infiltration Pond Design

INTRODUCTION

The Ministry of the Environment (MOE) issued an Environmental Compliance Approval (ECA) for the expansion of the Horton Township landfill on March 25, 2011 that contains a condition (#20) requiring that a design report and specifications be submitted for the construction of an infiltration pond. The landfill location is shown in the key plan in **Attachment 1**. The proposed infiltration pond will store potentially contaminated stormwater runoff from the waste footprint into the downgradient groundwater regime using infiltration. As part of the EPA approval submission application, Golder Associates had completed groundwater and contaminant transport modeling in 2009[1] to demonstrate that the downgradient attenuation zone width of 340m (east of the waste footprint) of the landfill site was large enough to accommodate this loading. **Attachment 2** shows the landfill site area, waste footprint expansion area and the groundwater attenuation zone (Figure 4 from Golder, 2009). This treatment measure is referred to as a soak pit in the ECA, but is herein referred to as an infiltration pond due to the modifications from its original design.

PROPOSED DRAINAGE PLAN

The proposed infiltration pond will capture and treat stormwater runoff from the existing and expanded landfill footprint for a total drainage area of 1.96 hectares and a 25 year rainfall event. Swales are required around the base of the landfill to convey stormwater runoff to the pond. Swales have the capacity to carry the 25 year storm event. The pond has been sized for stormwater runoff from the landfill side slopes (based on approved final design slopes). Rainfall that infiltrates through the landfill is assumed to go directly to groundwater.

STORMWATER RUNOFF VOLUME

Stormwater runoff volumes were computed using the SWMMHYMO stormwater model and the SCS Curve Number approach for various storm frequencies and durations. Input parameters to the stormwater model were selected to represent high runoff potential that will likely result from the steep slopes of the landfill.

The closest climate station to Horton is Renfrew, however, there are no IDF curves for this station; therefore, IDF curves for Ottawa were used to generate the design storm.

Note that the Ottawa rainfall is 16% greater than the Renfrew rainfall (Canadian Climate Normals, 1971-2000); thus, it can be considered that the use of the Ottawa IDF will contribute to a more conservative design. The model input parameters used to compute stormwater volumes are listed in Table 1. The results from the stormwater model (SWMMHYMO) are given in Table 2.

Table 1. Stormwater Model Parameters

Drainage Area	1.96 ha	Landfill (existing and expanded)
Time to Peak	11 min	Calculated based on SCS uplands method and Bransby-Williams method. Accounts for steep slopes (15%) and silty/fine sand.
SCS Curve Number (AMC II)	80	Assumes initial saturation of the soil is normal (between wet and dry)
Design Storm	25 year (4 hour)	Chicago rainfall distribution

Table 2. Stormwater Model Results

Time to Peak	1.5 hours
Rainfall Depth	62 mm
Runoff Depth	29 mm
Runoff Coefficient	0.48
Peak Flow	0.2 m^3/s
Runoff Volume	575 m^3

A runoff volume of 575 m^3 was calculated by multiplying the runoff depth (29 mm) by the landfill area (1.96 ha). Thus, a runoff volume of 575 m^3 must be stored within the infiltration pond and reintroduced into the groundwater regime of the attenuation zone.

INFILTRATION POND DESIGN

The infiltration pond will be located in the southeast portion of the landfill site. The pond will receive stormwater runoff conveyed from swales bordering the east, west and south sides of the landfill embankments. Stormwater will drain into the pond in two ditches, store in the pond, and then infiltrate into the ground as a treatment measure.

A triangular footprint (450 m^2 in surface area), in combination with the slight re-grading of the ground within the pond, provides for 780 m^3 of storage, thus satisfying the 575 m^3 storage requirement. The ground slopes downwards towards the overland flow outlet, requiring minimal excavation of the pond bottom in addition to the build-up of berms to match the inlet elevation of 158.7 m (a maximum build-up of 1.5 m with 3H:1V interior and exterior side slopes). A 0.5% longitudinal slope will be used (parallel to the flow direction) to convey the flow along the pond bottom. A spillway is located along the downstream berm of the pond to allow for overflows.

Drawing C01 shows the site plan**. Drawing C02** shows the plan, profile and details of the pond.

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Reference: Horton Infiltration Pond Design

DRAWDOWN TIME

The drawdown time of the infiltration pond is dependent on the volume of stormwater, the surface area of the pond, and most importantly, the infiltration rate of the native soil. A 300mm layer of granular material will be placed along the bottom of the pond, which will help to provide a higher level of treatment for the stormwater. However, the drawdown time is governed by the native soil due to its lower porosity. The following equation was used to estimate the drawdown time of the infiltration pond;

$$\Delta t = \frac{1000V}{iA}$$

Where Δt is the retention time, or drawdown time, of the stormwater in hours, A is the surface area of the infiltration bed in square meters, V is the volume of stormwater for infiltration in cubic meters, and i is the infiltration rate of the surrounding native soil in millimeters per hour.

Based on a preferred drawdown time of 48 hours, the storage volume of 575 m^3 and surface area of 450 m^2, an infiltration rate of 27 mm/hr was calculated. **Attachment 3** shows the surficial soils mapping for the site as silty sand (Figure 6 from Golder, 2009). Appendix 6.3.1 (page 6.3.11) in the MOE's "Guidelines for Private Sewage Disposal Systems"[2] notes that the infiltration rates for silty sands vary from 30 mm/hr to 75 mm/hr (8 to 20 min/cm). As these values are typically based upon a head of approximately 1 m, it was assumed that this range of infiltration rates can be used as an appropriate comparison for the Horton Landfill Infiltration Pond. Based on the above, we anticipate that all infiltration would occur over a 1 to 3 day period.

SWALES

Swales will be required on either side of the landfill to convey flow from the upstream end of the landfill and around each side to the inlet of the infiltration pond. A peak flow of 200 L/s must be conveyed through both swales. Thus, each swale must be designed to convey 100 L/s. Assuming bottom width is 0.5 m for each swale, side slopes of 2:1 and a longitudinal slope of 0.2%, the recommended depth of the swales is 0.3 m.

DESIGN AND CONSTRUCTION DETAILS

Please refer to **Drawing C02**, as the notes regarding construction should be reviewed.

To summarize, the main design/construction features of the facility include:

- Removal of organic material beneath pond bottom and beneath berms;
- Berm side slopes of 3H:1V along interior and exterior;
- All interior side slopes and pond bottom are to be overlain by separator geotextile, such as Terrafix NW 360 before applying granular layer.

RETURN TO AGENDA

- The granular layer shall consist of Granular B Type II with a thickness of 300 mm on the pond bottom and 150 mm thickness on the side slopes.

- A spillway with a 5 m wide bottom at elevation 158.2 m and a depth of 500 mm shall be constructed at the center of the berm on the downstream end of the pond. The spillway bottom shall be overlain by geotextile fabric Terrafix NW 360 with 300mm of graded rip rap (nominal diameter 100 to 150 mm) placed on top. The spillway side slopes are to extend to the top of the berm at 3H:1V grading. The depth of the spillway on the downstream slope can be reduced to 300 mm. The spillway will be continued to form an apron, 5m by 5m by 300mm thick at base.

- The berm shall be constructed with low permeability clay. Should clay not be available, other types of soil material can be used with the implementation of a geosynthetic clay liner (GCL), such as Bentofix 501NWL, on the upstream face to reduce hydraulic conductivity. The top of the GCL will be anchored into the berm at an elevation of 158.5 m. The bottom of GCL will extend below the base of the berm by 500 mm to form a vertical cutoff.

- Compaction of the clay berm is to be done in accordance with OPSS 501 Compacting.

- 50mm of organic soil is to be applied to all exterior berms and seeded with Canada No. 1 seed mixture, in accordance with OPSS 570 Topsoil and OPSS 572 Seed and Cover.

WINTER OPERATION

Performance capacity of the infiltration pond may be reduced during winter/spring runoff because of frozen ground.

MONITORING

No changes to the environmental monitoring program are proposed. The soak pit will mostly be in a dry state except for the period following rainfall events.

MAINTENANCE ACTIVITIES

The following maintenance activities are proposed:

- Inspect the facility after significant storms to ensure proper functioning in addition to quarterly inspections for the first 2 years and annual inspections afterward;

- Weed control on pond bottom (as required, summer only);

- Wind-blown debris removal (spring cleanup and then as required);

RETURN TO AGENDA

- If there is standing water for more than 48 hours after rain events, remove the sediment crust that forms over the bottom of the pond. If sediment removal does not improve the hydraulic performance, reconstruct the granular base and filter fabric. Sediment deposition will likely occur upstream in the proposed swales around the landfill, thus reducing the sediment loading to the facility. Any sediment removed during maintenance operations shall remain on site and be used for alternate cover; and

- The site custodian should record all inspections conducted in their log book.

REPAIR ACTIVITIES

While unlikely, the only repair activity that may be required for the pond would be due to a tear or protrusion through the GCL liner within the berm. This tear or protrusion would result in potentially contaminated stormwater being released to the surrounding surface water instead of being infiltrated to groundwater. A repair would consist of removing the granular, separator geotextile and soil cover in the area of the damaged GCL and adding a second layer of GCL over the damaged section. A minimum of 500 mm overlap on all sides of the damaged section should be placed. Bentonite powder may also be used to seal the tear and/or bond the two GCL layers.

STANTEC CONSULTING LTD.

Karyn Cornfield, P.Eng.
Water Resources Engineer
Karyn.Cornfield@stantec.com

Reference: Horton Infiltration Pond Design

ATTACHMENTS

1. Figure 1 Key Plan
2. Figure 4 Groundwater Flow Model Input and Calibration Data (Golder, 2009)
3. Figure 6 Surfcial Geology (Golder, 2009)
4. Drawing C01 – Site Plan
5. Drawing C02 – Infiltration Pond Details

REFERENCES

1. Golder, 2009. “Report on Hydrogeology, Hydrology and Geotechnical Studies in Support of Proposed Landfill Expansion – Township of Horton, Ontario”. Report Number 07-1122-0298.
2. MOE, 1982. “Manual of Policy, Procedures and Guidelines for Private Sewage Disposal Systems”. Manual No. 101.

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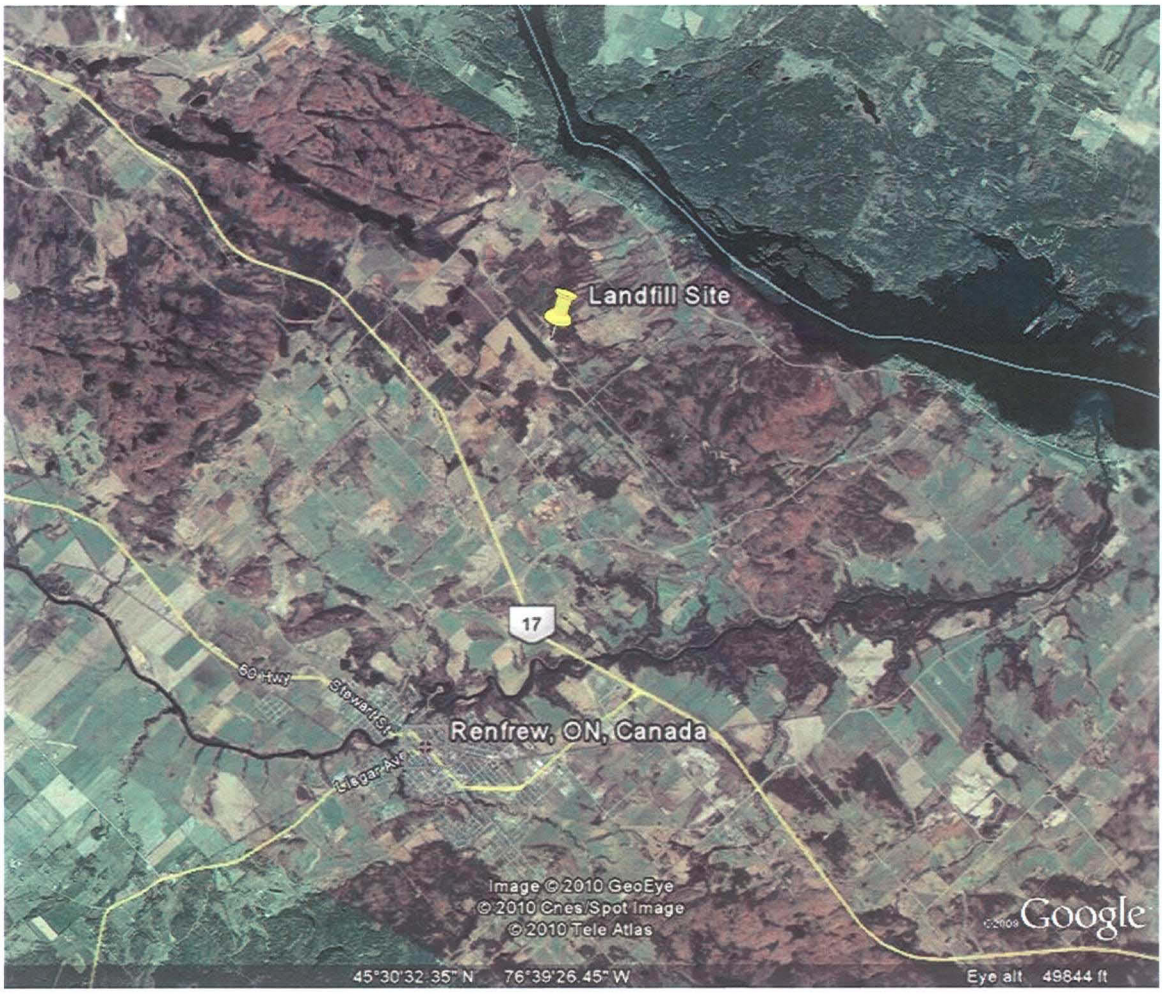

Stantec

Client / Project
Township of Horton Landfill Site

Figure No.
1

Title
Key Plan

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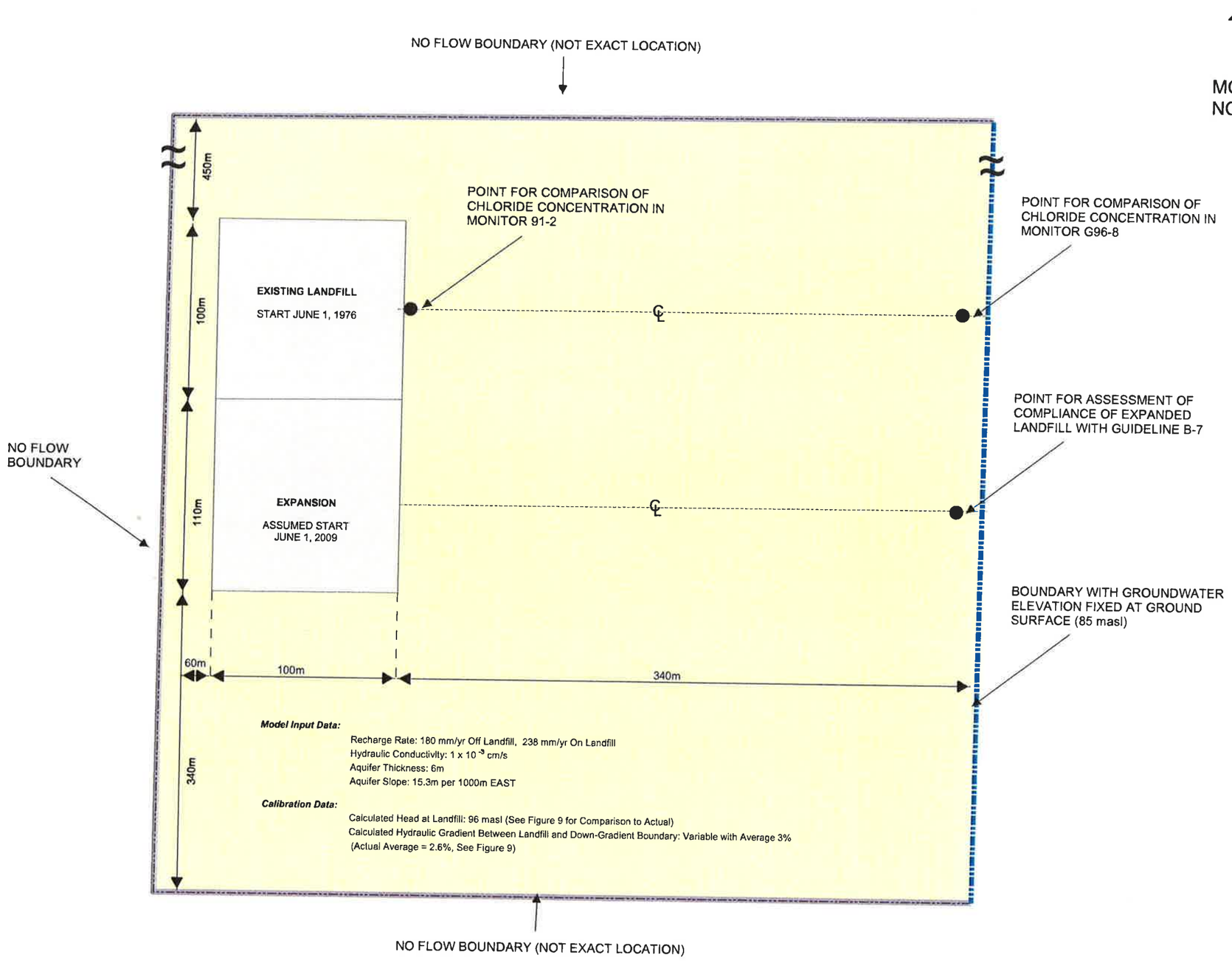


LEGEND

NOTE

DRAFT

This figure is to be read in conjunction with the accompanying Golder Associates Ltd. report No. 07-1122-0298

REFERENCE

Base plan provided by Basemapping Co. Ltd.
Projection: Transverse Mercator Datum: NAD 83 Coordinate System: UTM Zone 18

PROJECT

TOWNSHIP OF HORTON LANDFILL SITE

TITLE

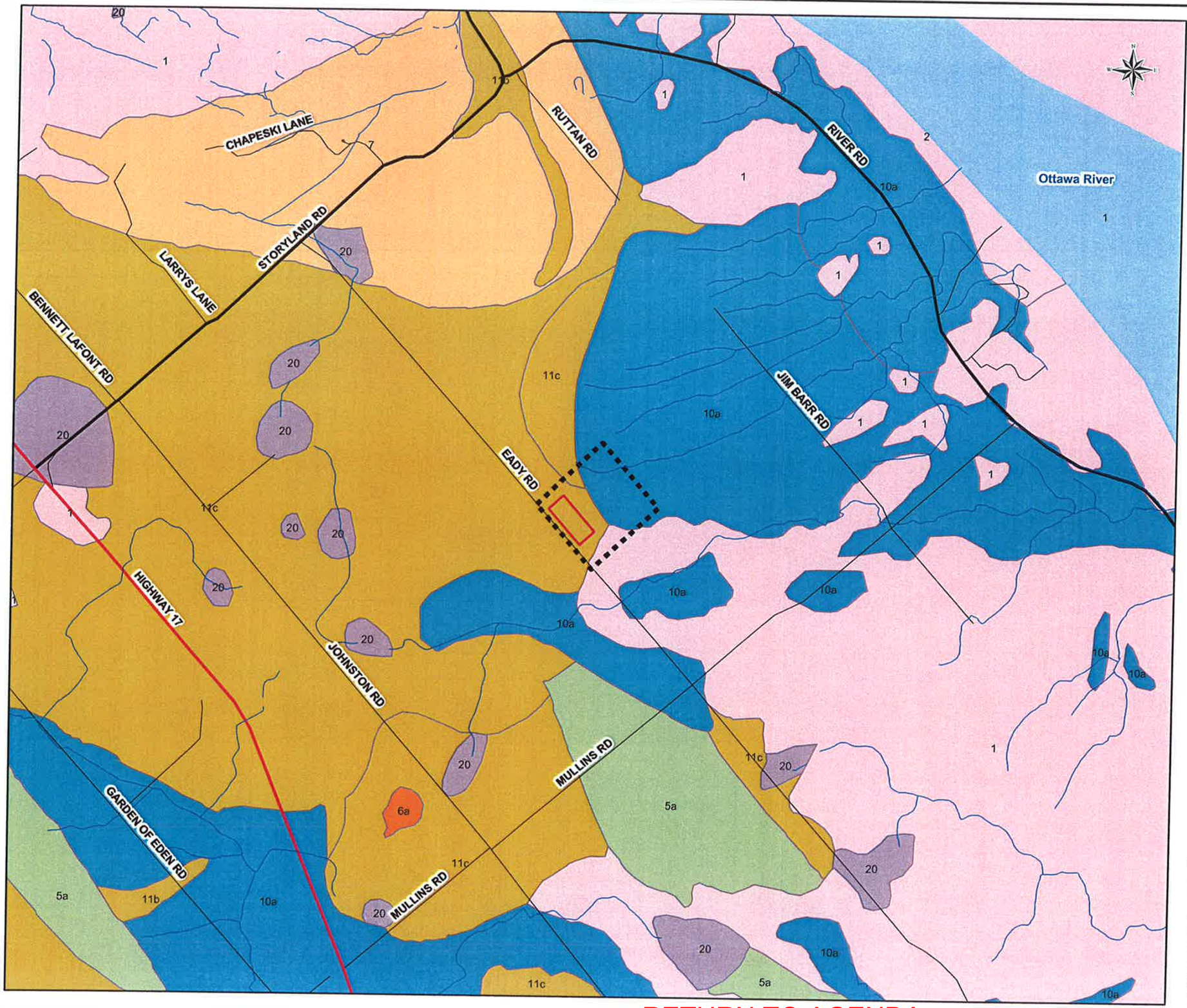
GROUNDWATER FLOW MODEL INPUT AND CALIBRATION DATA

Golder Associates
Ottawa, Ontario

PROJECT No. 07-1122-0298			SCALE:NOT TO SCALE	REV. 0
DESIGN	AW	15 DEC. 2008		
GIS	BT/AB	06 MAR. 2009		
CHECK				
REVIEW				

FIGURE: 4

N:Active/GIS Clients/Township of Horton/HortonLandfill/mxd/07-1122-0298_ModelSchematic.mxd



LEGEND

- TOWNSHIP PROPERTY BOUNDARY
- BOUNDARY OF LICENSED FILL AREA
- 20 **Organic deposits**:peat,muck,marl
- 11 **Coarse-textured glaciomarine deposits**:sand,gravel,minor silt and clay
  - 11a: Deltaic deposits
  - 11b: Littoral deposits
  - 11c: Foreshore and basinal deposits
- 10 **Fine-textured glaciomarine deposits**: silt and clay,minor sand and gravel
  - 10a: Massive-well laminated
  - 10b:Interbedded silt and clay and gritty, pebbly flow till and rainout deposits
- 7 **Glaciofluvial deposits**: river deposits and delta topset facies
  - 7a: Sandy deposits
  - 7b: Gravelly deposits
- 6 **Ice-contact stratified deposits**:sand and gravel,minor silt,clay and till
  - 6a: In moraines, kames, eskers and crevasse fills
  - 6b: In subaquatic fans
- 5a **Till**: Silty sand to sand-textured till on Precambrian terrain
  - 5a: Shield-derived silty to sandy till
- 5b Stone-poor, sandy silt to silty sand-textured till on Paleozoic terrain
- 5c Stony,sandy silt to silty sand-textured till on Paleozoic terrain
- Clay to silt-textured till(derived from glaciolacustrine deposits or shale)
- Undifferentiated older till may include stratified deposits
- 2 **Bedrock-drift complex in Precambrian terrain**
  - 2a: Primary till cover
  - 2b: Primary stratified dirft cover
- 1 **Precambrian bedrock**

DRAFT

NOTE

This figure is to be read in conjunction with the accompanying Golder Associates Ltd. report No. 07-1122-0298

REFERENCE

PRODUCED BY GOLDER ASSOCIATES UNDER LICENCE WITH THE MINISTRY OF NORTHERN DEVELOPMENT AND MINES © QUEEN'S PRINTER FOR ONTARIO, 2000.
Projection: Transverse Mercator Datum: NAD 83 Coordinate System: UTM Zone 18

500 0 500
SCALE:1:2,000 METRES

PROJECT
TOWNSHIP OF HORTON LANDFILL SITE

TITLE
SURFICIAL GEOLOGY

Golder Associates
Ottawa, Ontario

PROJECT No. 07-1122-0298			SCALE:1:20,000	REV. 0
DESIGN	AW	15 DEC. 2008	FIGURE: 6	
GIS	BT/AB	06 MAR. 2009		
CHECK				
REVIEW				

N:\...\GIS Original\Township of Horton\Landfill\mxd\07-1122-0298_SurficialGeology.mxd

Jp2g Consultants Inc.
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T 613-828-7800, F 613-828-2600, www.jp2g.com

Jp2g No. 20-6128A

August 18, 2020

Findlay James Barr
183 Jim Barr Road
Renfrew, ON K7V 3Z8

Re: Horton Waste Disposal Site (WDS)
Reduction to Monitoring Program

Dear Sir:

The Township of Horton has requested Jp2g Consultants Inc. to review the current and historical leachate analysis of the Horton WDS and assess the feasibility of a capacity expansion. Based on the existing monitoring program we have determined that there is no indication of groundwater and surface water impact beyond the limits of the municipal landholdings. Under the 1996 offer to purchase agreement the Township is to sample your well and creek twice a year, every year. We are requesting a reduction in the monitoring of the creek and drinking well to once a year, every other year (on a biennial basis) similar to the monitoring program for the majority of the wells on the landfill site.

In support of this reduction, we have provided a summary of the key leachate indicator parameters which reveal no trends of increasing concentration and/or exceedances to the Ontario Drinking Water Standards (OWDS) and Provincial Water Quality Guidelines (PWQO). These are the provincial guidelines used to determine safe concentrations of various parameters in groundwater sources and surface water.

Barr Creek

Upon agreement with the Township, the creek has been consecutively sampled since the mid-1990s. Below are various trend graphs indicating key parameter concentrations over time. As shown, total dissolved solids (TDS), hardness, boron and chloride (which are key leachate indicator parameters) have all shown to be fairly consistent with no increasing trends. This analysis, in addition to the results in the Horton landfill Monitoring Reports demonstrates that the creek is not being impacted by the landfill site. We are proposing the annual monitoring of the wells located along the landfill site perimeter which will provide early warning detection of the landfill plume before it would reach your property.

Graph 1 shows the TDS and Hardness concentrations over the period of 20+ years. Aside from small variations, which can be attributed to seasonal sampling (wet vs dry) it remains fairly constant.

Graph 2 shown the Boron concentrations in the range of <0.01 mg/L – 0.06 mg/L, the PWQO limit is 0.2 mg/L.

Graph 3 shows the Chloride concentrations in the range of 4 mg/L – 12 mg/L, the PWQO limit is 120 mg/L.

Barr Well

As per agreement with the Township, the drinking well has also been sampled consecutively since the mid-1990s. Below are trend graphs showing the key leachate parameters and concentrations overtime. Similar to the creek, no increasing trends are apparent which demonstrates the water supply is not being impact by the landfill site.

Graph 4 shows the concentrations of various parameters used to assess the suitability of the drinking water supply.

Graph 5 shows the Boron concentrations in the range of <0.1 mg/L – 0.24 mg/L, the ODWS is 5 mg/L.

Graph 6 shows the Chloride concentrations in the range of 8 mg/L – 52 mg/L, the ODWS is 250 mg/L.

Graphs 1 to 6 included in **Attachment** at end of letter.

Based on a comparison of historical results, and due to the monitoring locations on your property being over 1 km from the landfill area, the creek and drinking well are interpreted to not be impacted by landfill leachate now or in the future.

With your consent, beginning in 2021 your creek and drinking well will be sampled once a year on a biennial basis. The sampling results and a letter will be provided to you after each sampling event. Should any trends or significant indicators arise that may be problematic to health of the stream and/or drinking water you shall be advised immediately.

If you have any questions, please do not hesitate to contact the undersigned.

Yours very truly,

Jp2g Consultants Inc.

ENGINEERS • PLANNERS • PROJECT MANAGERS

Kevin Mooder, MCIP, RPP
Principal I Environmental Services

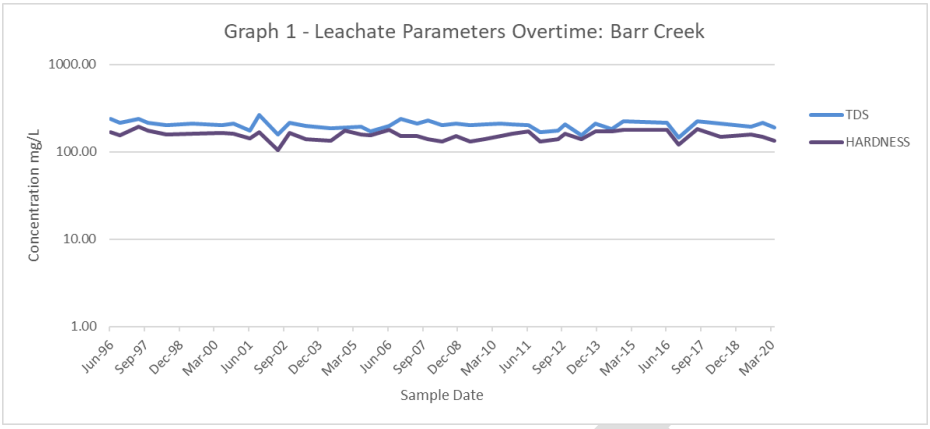
Andrea Sare, C.Tech,EP.
Environmental Technician

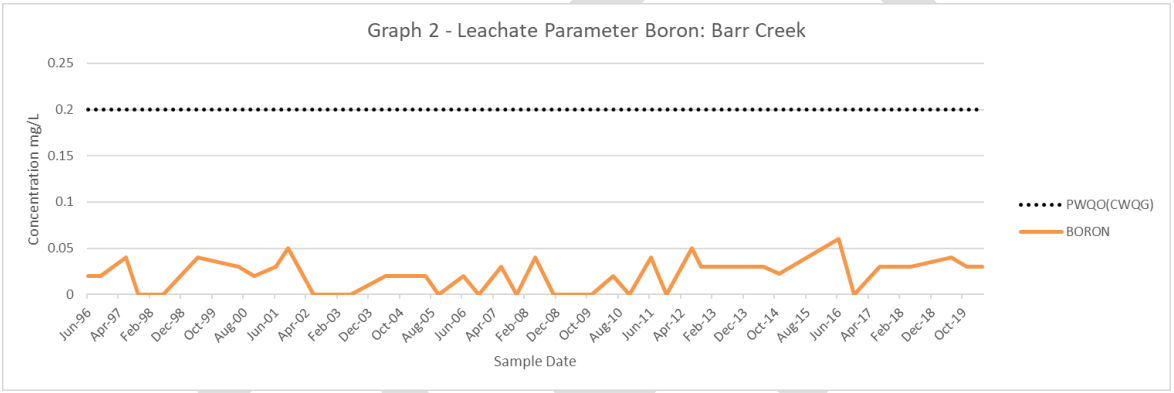
KJM/jlp

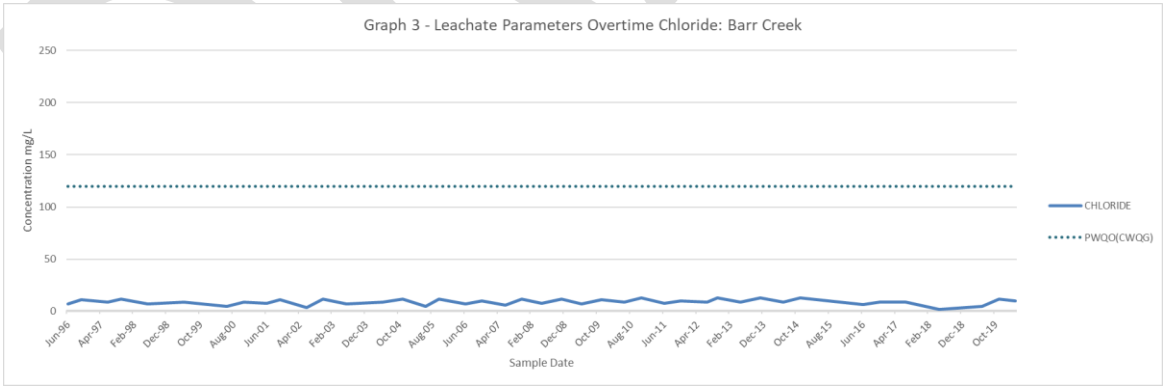
c.c. Adam Knapp (Public Works Manager)

ATTACHMENT

RETURN TO AGENDA







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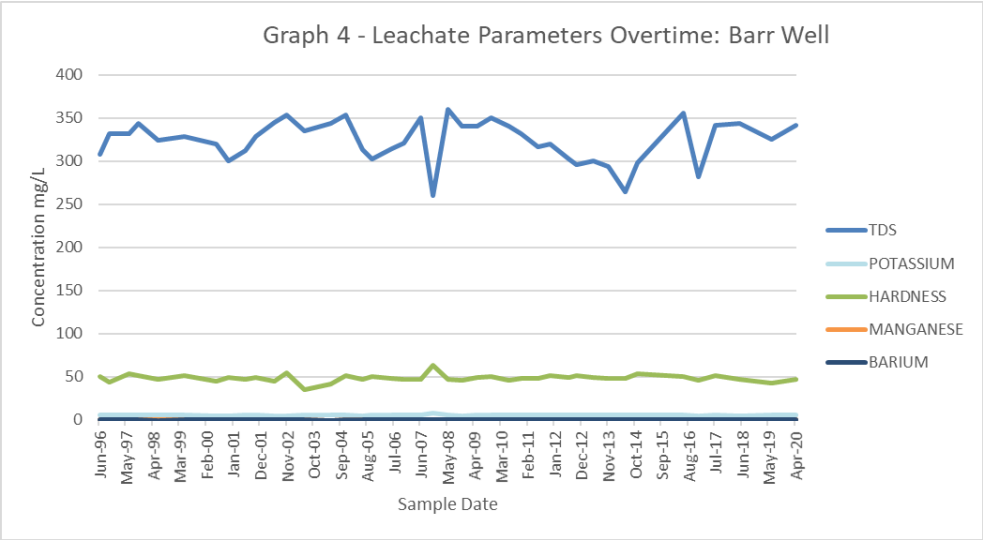

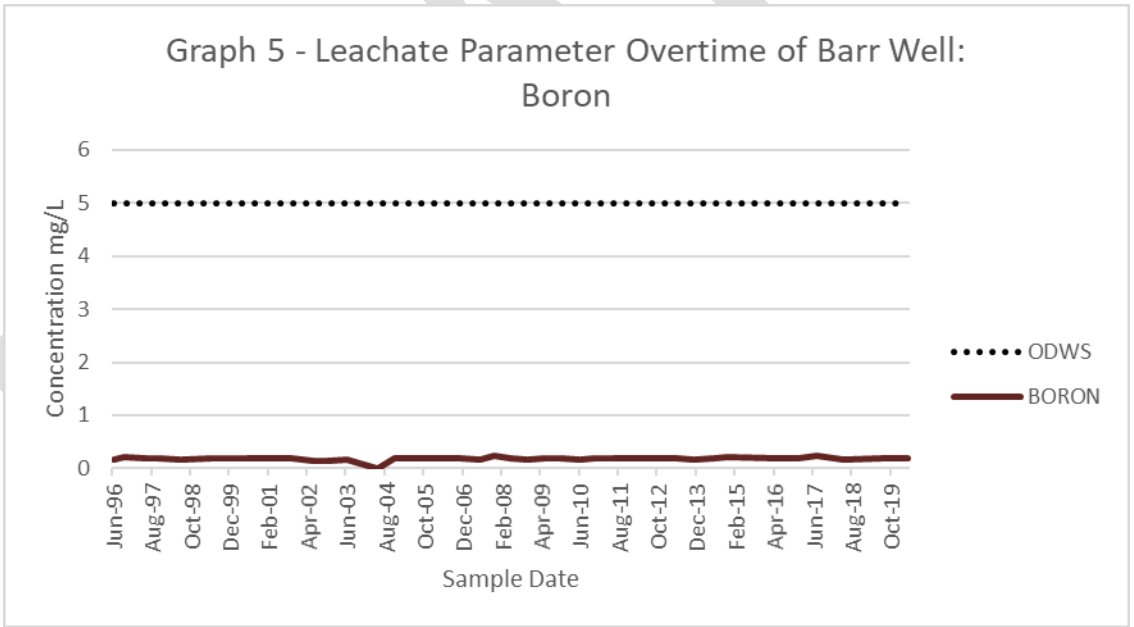

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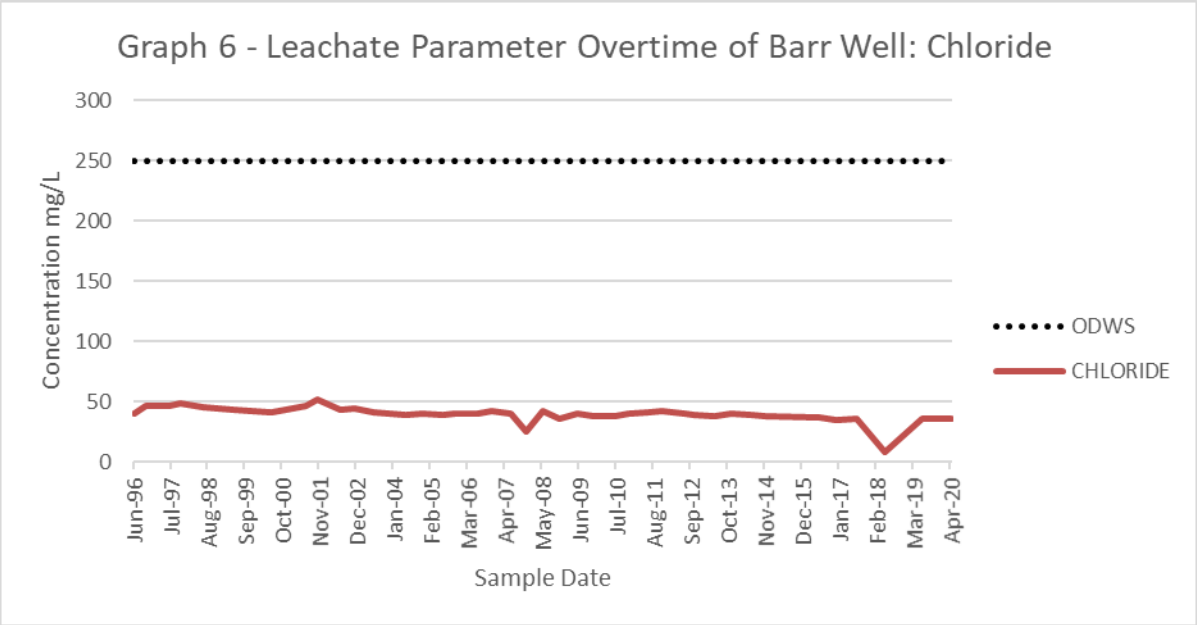

Graph 6 - Leachate Parameter Overtime of Barr Well: Chloride
Concentration mg/L
300
250
200
150
100
50
0
Jun-96
Jul-97
Aug-98
Sep-99
Oct-00
Nov-01
Dec-02
Jan-04
Feb-05
Mar-06
Apr-07
May-08
Jun-09
Jul-10
Aug-11
Sep-12
Oct-13
Nov-14
Dec-15
Jan-17
Feb-18
Mar-19
Apr-20
Sample Date
ODWS
CHLORIDE

Township of Horton
COUNCIL / COMMITTEE REPORT

Title:	Date:	Sept 1st 2021
Proposed 2022 Capital Buildings Plan **Public Works Garage Upgrades and Renovations**	**Council/Committee:**	**TES Committee**
	Author:	**Adam Knapp,** **Public Works Manager**
	Department:	**Public Works**

RECOMMENDATIONS:

THAT the TES Committee accept this report as information.

AND THAT considerations shall be reviewed during 2022 budgetary deliberations.

BACKGROUND:

The Public Works garage is dated, the fans and overhead lighting are showing signs of wear and are not energy efficient and the electrical supply in the public works managers office is insufficient for today's demands, there are also health and safety concerns due to rodents in the walls of the office.

Staff is proposing the following upgrades and renovations:

Garage Area

- Replace all existing lighting (14) with industrial grade 20,000+ lumen LED bay lighting with motion sensors.
- Replace all existing ceiling fans (4) with new 60 inch 8000+ CFM overhead ceiling fans.
- Replace the 2 existing ventilation fans in the garage area with indoor/outdoor 5000+ CFM Shutter Exhaust fans and ensure the building is properly equipped to allow for adequate ventilation.

Public Works Manager's Office

- Remove all existing wall and ceiling paneling and replace with standard ½" gypsum drywall board
- Upgrade electrical outlet supply to adequately supply current and future power needs in the office and replace all switch and outlet covers to match the main office scheme.
- Install communications conduit in the framed wall and ceiling to accommodate all existing communication lines, ensuring adequate room for future upgrades.
- Remove existing flooring and replace with commercial grade tile flooring to match the main office lobby area.
- Insulate existing framed in walls with open cell spray foam insulation.
- Paint and finish trim the entire office to match the main office design and color scheme.
- Remove existing lighting (2) and replace with 2400+ switchable lumen LED flat panel lighting fixtures
- Install a high quality dual ductless mini split heating and cooling system, with a minimum 5 year compressor warranty and 1 year parts and labour. 18,000 plus BTU and 20 + SEER in the Public Works Managers Office.

RETURN TO AGENDA

Roads Superintendent's Office

- Remove existing lighting (2) and replace with 2400+ switchable lumen LED flat panel lighting fixtures
- Install the second high quality ductless mini split heating and cooling system with 9000 + BTU and 20 + SEER in the Road Superintendents Office.

Washroom

- Remove existing lighting (1) and replace with 2400+ switchable lumen LED flat panel lighting fixtures

ALTERNATIVES:

N/A

FINANCIAL IMPLICATIONS:

Estimated $40,000.

Sufficient funding is available in the Roads Department Buildings Reserve.

ATTACHMENTS:

N/A

CONSULTATIONS:

Hope Dillabough – CAO/Clerk
Nathalie Moore - Treasurer

Author:  signature

Other: _____ signature

Treasurer: _____ signature

C.A.O. _____ signature

RETURN TO AGENDA

Township of Horton
COUNCIL / COMMITTEE REPORT

Title:	Date:	Sept 1st 2021
Proposed 2022 Capital Roads Equipment Purchasing Plan	**Council/Committee:**	**TES Committee**
	Author:	**Adam Knapp, Public Works Manager**
	Department:	**Public Works**

RECOMMENDATIONS:

THAT the TES Committee accept this report as information.

AND THAT considerations shall be reviewed during 2022 budgetary deliberations.

BACKGROUND:

Staff has prepared a proposal of equipment purchasing for the 2022 budget. The purchases are as follows:

Fleet Radios

The current roads department radios have become obsolete and do not have adequate coverage. Roads department staff struggle to communicate and resort to using text or phone calls to communicate with each other. This is inefficient and in the case of an emergency could be life threatening, if cell service were not available in the area which is the case throughout much of Horton Township. Currently Admaston Bromley and McNab Braeside are using the simulcast broadcasting system by Motorola and are pleased with the coverage.

Staff is proposing to sole source the purchase to Bearcom who is the only provider in the area, as discovered in the LEG group meetings.

This purchase would include:

- Fleet Upgrade cost –2 base stations (1 with display), 7 vehicle mounted units and 1 portable non-display radio.

  $25,000 including tax and contingency and excluding the monthly airtime rental.

- Monthly Airtime Costs - month to month for $25.00 per unit, per month.
  -1 year commitment for $20.00 per unit, per month.
  - Multi-year (2+) commitment $15.00 per unit, per month.

  Staff believe a multiyear commitment would be the best option for airtime and would cost **$1,800** per year from the road departments radio licensing, budget line item 1-7-13030-700240. Currently the department pays $818 a year for licensing of radios that are ineffective and dated.

RETURN TO AGENDA

Pavement Edger

A pavement edger would increase productivity and lower the risk of incidents and injuries by minimizing heavy lifting and reducing or eliminating the need for employees on the ground for multiple maintenance activities such as pavement delineation repair, shoulder drop off, cold patching and shoulder widening. Staff have identified numerous areas in the Township requiring the listed repairs above and believe the purchase would be an effective solution.

The estimated cost of this purchase is **$14,000** including HST.

Chain Saws

Currently the department is not adequately supplied and some of the saws are showing signs of wear and becoming unreliable. Staff plan to purchase two (2) Stihl MS 362 C-M saws. These saws are forestry grade, 59 cc equipped with an 18" bar, and can be sourced locally for **$1009.95** plus tax, each.

Staff does acknowledge that the Excavator has been problematic in the past few years but is running reliably now with some minor issues occurring. It has flagged for replacement in 2023, per the Roads Department 10 year Capital Forecasting plan at an estimated replacement value of $375,000 to 450,000. Staff is attempting to minimize equipment purchasing in 2022 to allow roads equipment reserves to recuperate sufficiently for the purchase to be feasible in 2023.

Staff shall retain the 2008 ¾ tonne GMC as a spare vehicle to be shared between all departments as required until the truck becomes unmaintainable. At that time staff shall recommend it be deemed surplus and release the ¾ tonne and the western plow as a package.

ALTERNATIVES:

Fund fleet radio upgrade through modernization funding.

FINANCIAL IMPLICATIONS:

Yearly Budget Line Item 1-7-13030-700240
Radio Airtime Rental - $1800 per year

Proposed 2022 Capital Equipment Purchases
Radio Upgrade – $25,000
Pavement Edger - $14,000
2 Chain Saws - $2,400

Total Capital Equipment - $41,400

ATTACHMENTS:

Radio Upgrade Quotation and Coverage Maps
Pavement Edger Brochure

RETURN TO AGENDA

Stihl MS 362 C-M Saw Brochure

CONSULTATIONS:

Hope Dillabough – CAO/Clerk

Author:  signature

Other: _____ signature

Treasurer: _____ signature

C.A.O. _____ signature

RETURN TO AGENDA

BEARCOM Always On

Proposal

06/09/21 11:55:03 CST Page 1

Quote Date: 05/28/21 Branch 40520

Quote Number: 472759

Customer/Prospect Number 1973390

HORTON TOWNSHIP
2253 JOHNSTON RD
RENFREW ON -K7V 3Z8

Ship To 1973393

HORTON TOWNSHIP
2253 JOHNSTON RD
RENFREW ON -K7V 3Z8

Customer Contact: ADAM KNAPP Email: aknapp@hortontownship.ca
Phone Number: 613 432-6217 Delivery Instr:

Quantity	Part Number	Unit Price	Extended Price
1	AAM28JNN9RA1ES MOT XPR5550E VHF 25W 136-174 ESSENTIAL SERVICES ENABLED	1,400.00	1,400.00
8	AAM28JNC9RA1ES MOT XPR5350E VHF 25W 136-174 ESSENTIAL SERVICES ENABLED	1,250.00	10,000.00
1	AAH56JDC9RA1AN MOT XPR7350E 5W 136-174 ESSENTIAL SERVICES ENABLED	1,550.00	1,550.00
9	SVB1482 ANTENNA, WIDEBAND VHF COIL + WHIP 34INCH WHIP,	65.00	585.00
2	RMN5050 MOT TRBO LTD DESKTOP MIC	165.00	330.00
2	GLN7318 MOT DESKTOP TRAY WO/SPEAKER	60.00	120.00
2	ICT1201215A TES ICT POWER SUPPLY, 13A, 7.1 370957	275.00	550.00
2	MYA1503KN 3 ELEMENT YAGI FOR VHF 35 PACK	160.00	320.00
2	RFU-505 PL259 UHF MALE CONN CRIMP RG58 TES 91538, LMR-195/RG58	6.00	12.00
2	MINI UHF CONNECTOR MINI-UHF(M) CRIMP RG -58	6.00	12.00
2	IS-50NX-C2 TES POLYPHASER MOUNT ARRESTOR 20573	100.00	200.00
2	RFN-1005-3C TES RFI N-MALE CRIMP CONNECTOR 36421	12.00	24.00
2	MBSWM MAXRAD BASE STAT MOUNTING KIT 91014	30.00	60.00

Quantity	Part Number	Unit Price	Extended Price
9	AT14-3/4 BRACKET FENDER MOUNT CHEV/GMC PICK UPS 07-14	20.00	180.00
7	FSMINI MINI FUSE TAP POWER SPLITTER	10.00	70.00
7	MINI UHF CONNECTOR MINI-UHF(M) CRIMP RG -58	6.00	42.00
30	ON-SITE INSTALLATION SERVICES	115.00	3,450.00
12	TRAVEL TRAVEL FEE	100.00	1,200.00
10	IN-SHOP PROGRAMMING FEE	26.50	265.00

Protect your investment now! Purchase an affordable BearCom Extended Warranty!

Quote valid until 09/30/21 **Confidential and Proprietary**

Sub Total	20,370.00	
Shipping and Handling	TBD	
Tax	2,648.10	Tax Estimate
Total	23,018.10	

X_____
Customer Signature

PATRICK MAGUIRE
Account Executive
Pat.Maguire@BearCom.com

OTTAWA Branch Office: 613-739-3636

Proposal

Quote Date: 06/09/21 Branch 40520

Quote Number: 474411

Customer/Prospect Number 1973390

HORTON TOWNSHIP
2253 JOHNSTON RD
RENFREW ON -K7V 3Z8

Ship To 1973393

HORTON TOWNSHIP
2253 JOHNSTON RD
RENFREW ON -K7V 3Z8

Customer Contact: ADAM KNAPP Email: aknapp@hortontownship.ca
Phone Number: 613 432-6217 Delivery Instr:

Quantity	Part Number	Unit Price	Extended Price
2	BASE STATION	20.00	40.00
	BASE STATION AIRTIME		
7	VEHICLE MOUNTED UNITS	20.00	140.00
	MOBILE AIRTIME		
1	PORTABLE UNIT	20.00	20.00
	PORTABLE AIRTIME		

Quote valid until **07/16/21** **Confidential and Proprietary**

Sub Total	200.00	
Shipping and Handling	TBD	
Tax	26.00	Tax Estimate
Total	226.00	

X _____
Customer Signature

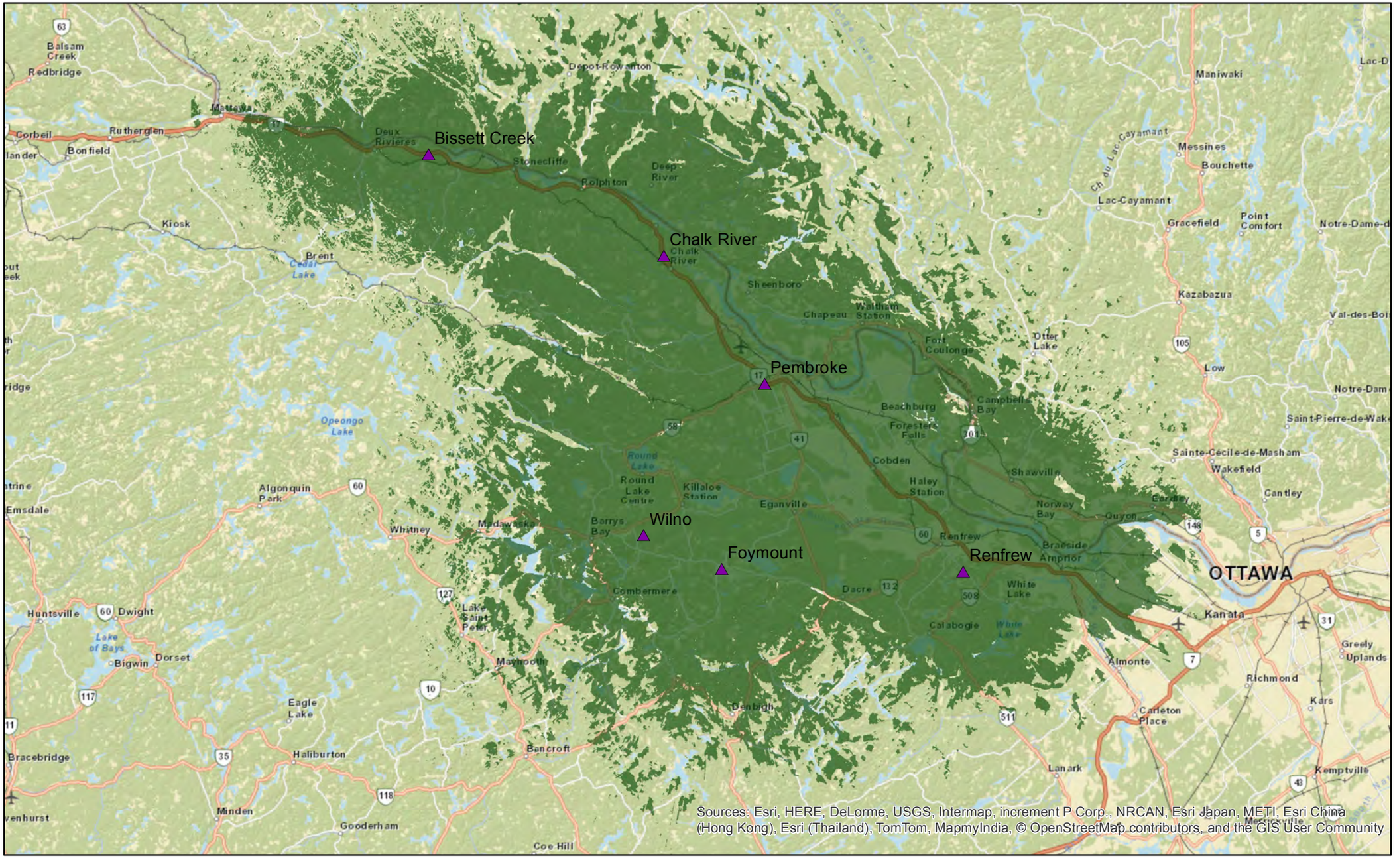
PATRICK MAGUIRE
Account Executive
Pat.Maguire@BearCom.com

OTTAWA Branch Office: 613-739-3636

Renfrew, Ontario

MOTOROLA

FOR REFERENCE ONLY This document does not imply coverage or performance guarantees.



0 5 10 20 Miles

1 in - 23.67 miles

Vehicular and Base coverage map for inbound and outbound

RETURN TO AGENDA

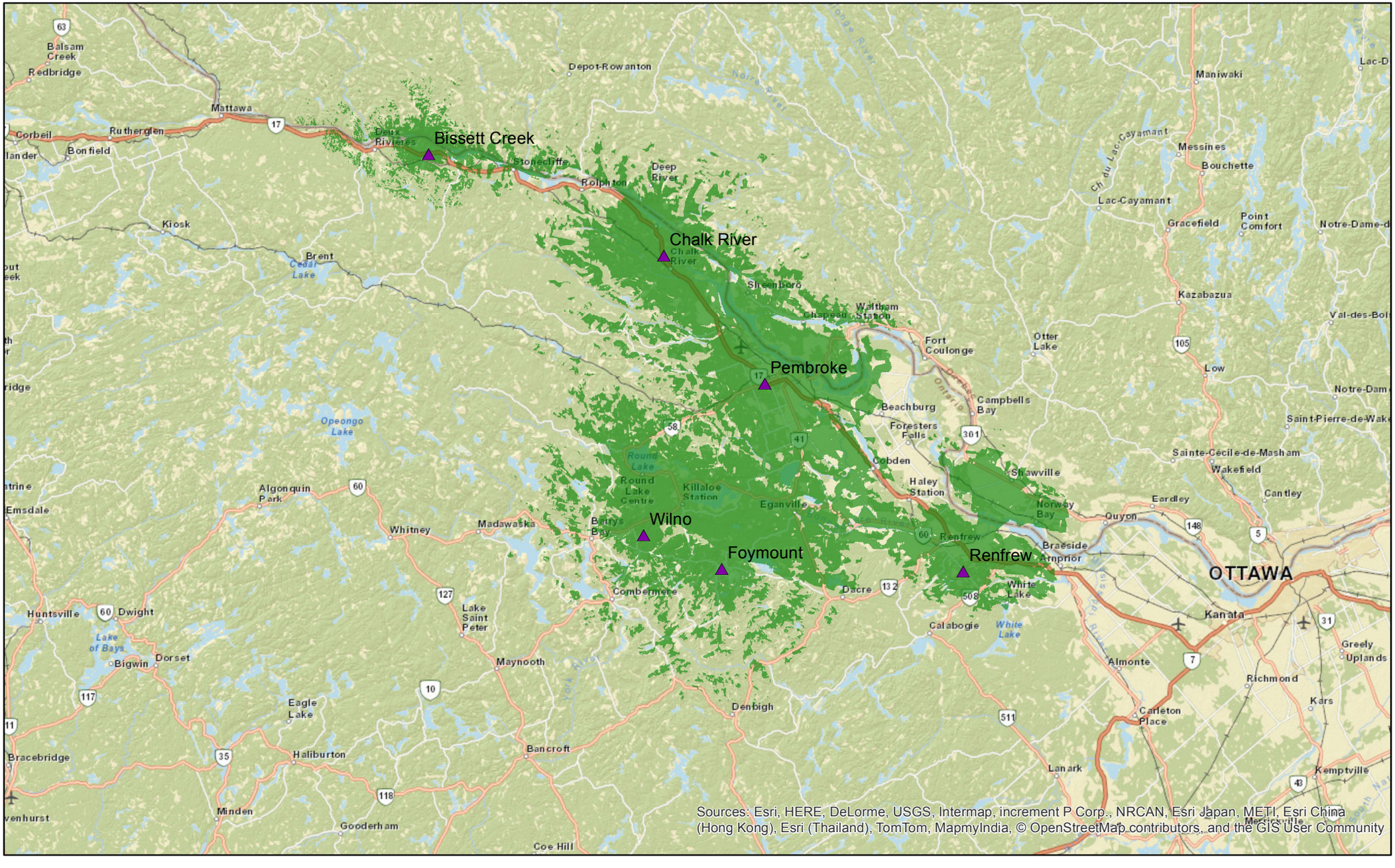
CCDTLAB-356
BKG783
R_7

MOTOROLA

Renfrew, Ontario

6 Site Simulcast Analog FM System

FOR REFERENCE ONLY This document does not imply coverage or performance guarantees.



0 5 10 20 Miles

1 in - 23.67 miles

Shaded Area Represents Coverage for 5W XPR Portable Radio Transmits at Head Level and Receives on Hip

Outbound - DAQ 3.0 - Portable on Street

RETURN TO AGENDA

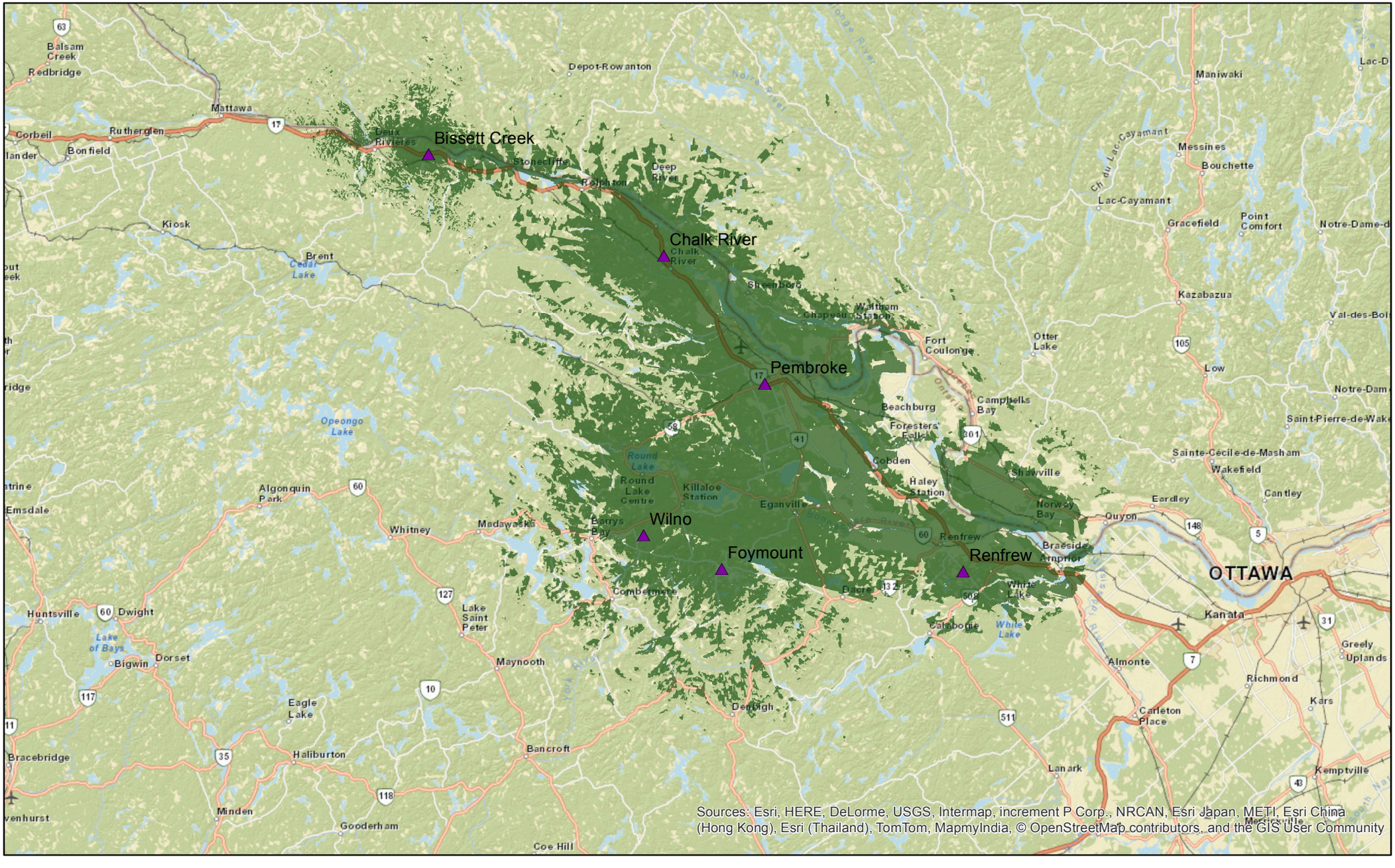
CCDTLAB-356
BKG783
R_7

MOTOROLA

Renfrew, Ontario

6 Site Simulcast Analog FM System

FOR REFERENCE ONLY This document does not imply coverage or performance guarantees.



0 5 10 20 Miles

1 in - 23.67 miles

Shaded Area Represents Coverage for 5W XPR Portable Radio Transmits at Head Level and Receives on Hip

Inbound - DAQ 3.0 - Portable on Street

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CCDTLAB-356
BKG783
R_7

PAVEMENT EDGER

13.5 TONNES
IN 13 MINUTES

THE FASTEST & SAFEST WAY TO MAINTAIN ROADS

AMI ATTACHMENTS

SEE IT IN ACTION + ONLINE

www.amiattachments.com

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AMI ATTACHMENTS

"Using two Pavement Edgers, we shouldered over 10 kilometers of new pavement directly behind the asphalt crew in less than 2 full working days."

- Sandy Vallance, C.R.S.S. Township of Mapleton

CDN PATENT # 2,215,119
US PATENT # 6089785

Specifications:

Height: 36"
Length: 47.25"
Width: 36.75"
Weight (approx): 570 lbs

Shouldering and pothole repair is now a one-person job that requires no shovels and keeps the operator in the safety of the cab. The Pavement Edger simply attaches to your road maintenance truck's snowplow hydraulics and is ready to work.

Increase the productivity and safety of your road crew with the new AMI Pavement Edger by contacting AMI Attachments today.

AMI PAVEMENT EDGER: COST ANALYSIS

NO PAVEMENT EDGER	WITH PAVEMENT EDGER
5 MEN	1 MAN
1 TRUCK	1 TRUCK
1 ROLLER	
13.5 TONNES	13.5 TONNES
4 Hours	**13 Minutes**

Distributed By

AMI ATTACHMENTS INC.
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1270 Geddes St., Hawkesville, ON, Canada N0B 1X0
www.amiattachments.com

Specifications are subject to change without notice.

EEC114462 PRINTED IN CANADA

The MS 362 professional chain saw is now equipped with M-Tronic™ - STIHL's electronic engine management system for optimum engine power at all times - and is part of STIHL's new generation of fuel-efficient, low-emission chain saws. Featuring stratified scavenging engine technology which reduces fuel consumption by up to 20% and fullfils all emission regulations, as well as a new long-life air filtration system, this powerful professional unit also includes an advanced anti-vibration system and excellent power-to-weight ratio, making it ideal for daily forest work.

$1,009.95*

All versions below are available with wrap handle.

Versions	Featured Price	
MS 362 C-M - 16" bar	$1,009.95*	+ Compare
MS 362 C-M - 18" bar	$1,019.95*	+ Compare

Model	Displacement (cc)	Weight (kg / lbs)	Power Output (kW)
MS 261 C-M	50.2	4.9 / 10.8	3.0
MS 261 C-M VW	50.2	5.0 / 11.0	2.9
MS 362 C-M	59.0	5.6 / 12.4	3.5

RETURN TO AGENDA

Township of Horton
COUNCIL / COMMITTEE REPORT

Title:	Date:	September 1st' 2021
Proposed 2022 Capital Roads Infrastructure Works Plan	**Council/Committee:**	**TES Committee**
	Author:	**Adam Knapp, Public Works Manager**
	Department:	**Public Works**

RECOMMENDATIONS:

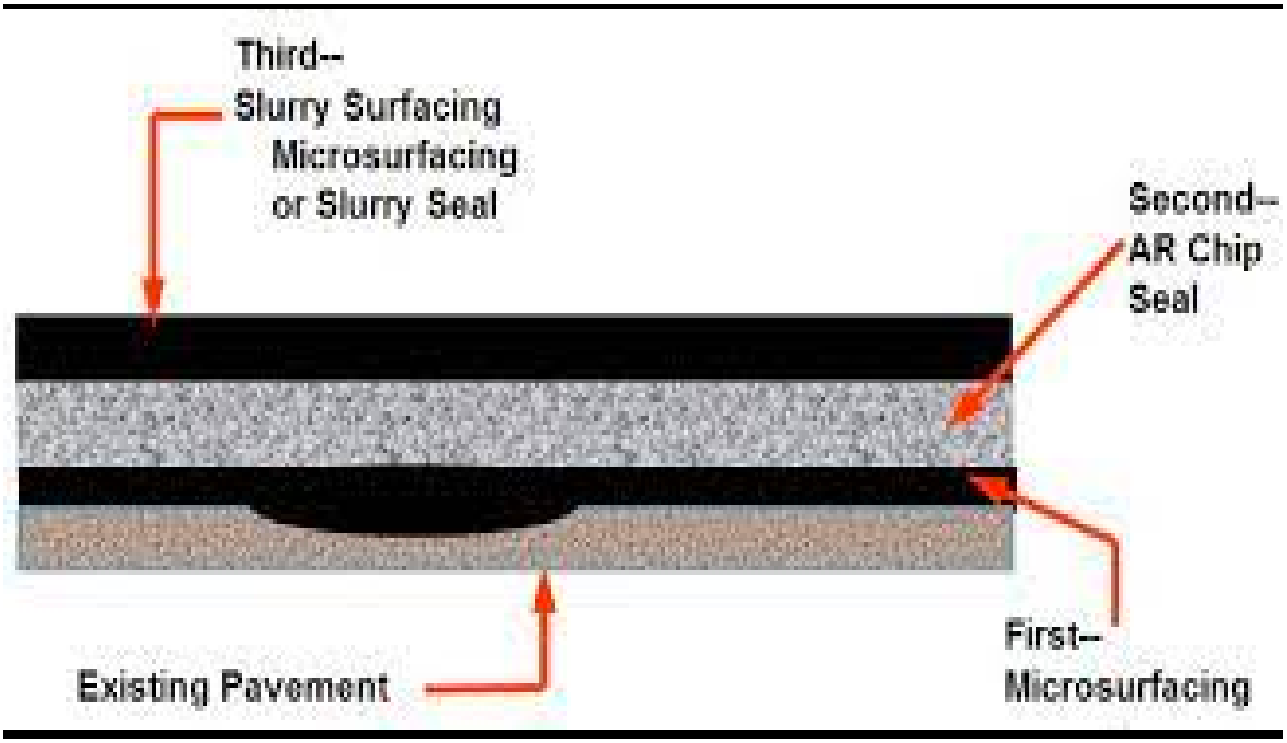
THAT the TES Committee accept this report as information.

AND THAT considerations shall be reviewed during 2022 budgetary deliberations.

BACKGROUND:

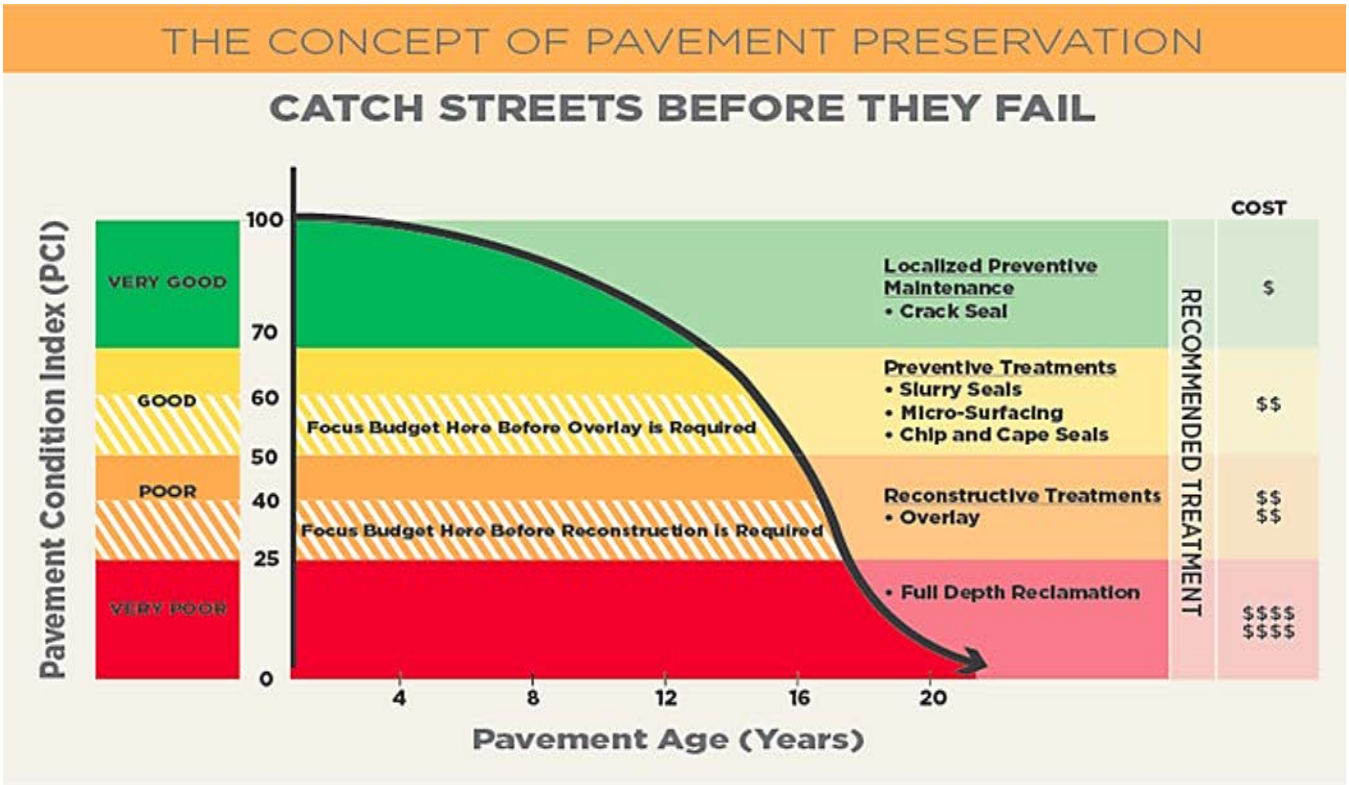
Staff has compiled information through our MESH Pavement Condition Index module and our Road Management Plan to assess and compose a plan within budgetary constraints for reconstruction and preservation of the Townships road network in the 2022 construction season.

This plan shall align the Township on course with our Roads Management Plan and support the industry initiative to preserve good roads first to lengthen road life cycles and lower associated capital infrastructure costs. Proper implementation of preservation techniques such as crack sealing, micro surfacing, fog sealing, and cape sealing, which is a single lift “chip stone” surface with a micro surface overlay maximizes pavement life cycles and reduces capital roads infrastructure costs

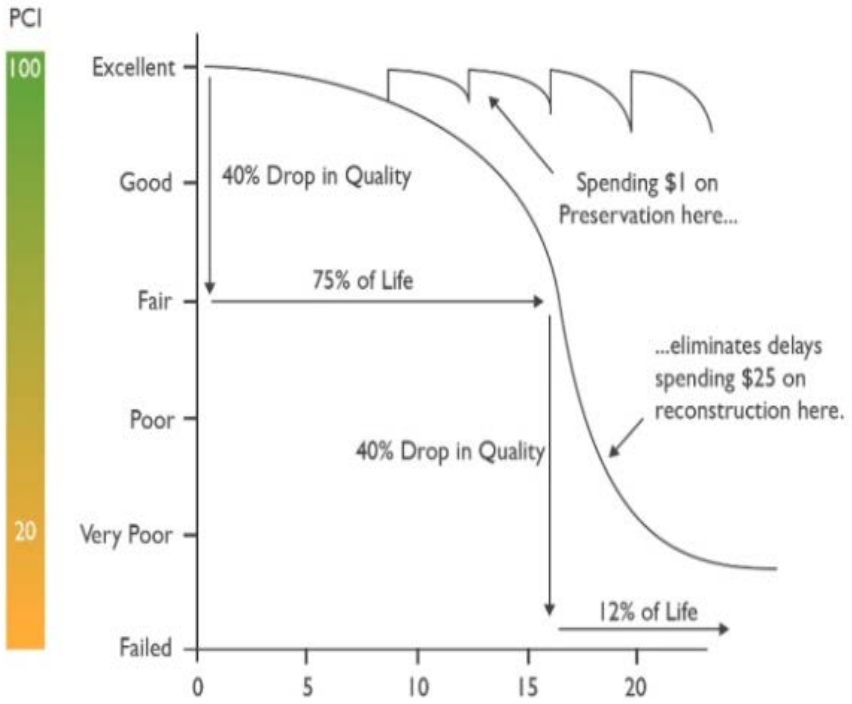


RETURN TO AGENDA

Staff's plan is to gradually shift the focus of the Townships Road Management Plan to pavement preservation versus reconstruction and extend pavement life cycles in the process.



Every dollar spent in preservation of a roadway can postpone spending twenty five dollars in reconstruction costs. Proper preservation can extend the life cycle of a roadway well beyond the 25 year mark while maintaining an acceptable and safe pavement condition rating, prevent untimely deterioration in the road's life cycle and ensure sustainable infrastructure expenditures. This in turn will help to minimize levy increases.
As shown below the Equivalent Annual Cost (EAC) per square meter for preservative maintenance versus reconstruction is significantly lower. By optimizing the life cycle of our



Condition Category	Pavement Condition Index (PCI)
Excellent	100 – 86
Good	85 – 75
Fair	74 – 58
Poor	57 – 40
Failed	39 – 0

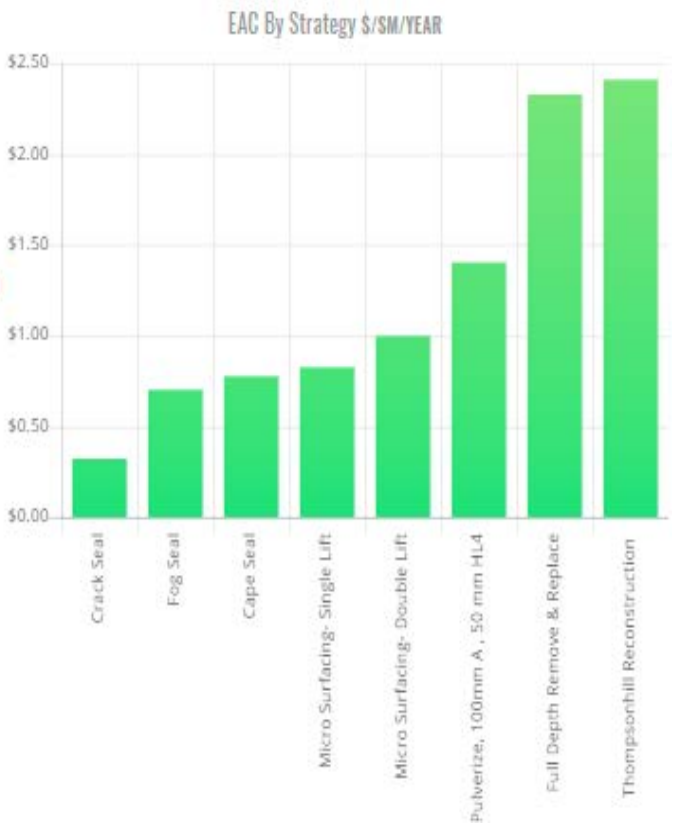
RETURN TO AGENDA

current paved roads network, the Township shall ensure sustainable infrastructure for our rate payers and increase the probability of future expansion to the paved roads network.

Treatment Type	Cost Per Sq Meter	Life Extension	EAC $ SM/YEAR
Crack Seal	1.60	5.0	0.32
Fog Seal	1.40	2.0	0.70
Cape Seal	7.77	10.0	0.78
Micro Surfacing- Single Lift	5.00	6.0	0.83
Micro Surfacing- Double Lift	8.00	8.0	1.00
Pulverize, 100mm A , 50 mm	35.00	25.0	1.40
Full Depth Remove & Replac	58.32	25.0	2.33
Thompsonhill Reconstructior	60.26	25.0	2.41

ADD ROW

Clear Data / Chart Your Own



CONVENTIONAL APPROACH

TREATMENT:	Pulverize, 100mm A , 50 mm H
UNIT COST:	35.00
LIFE EXTENSION:	25.0
SQUARE METERS:	6500

Total Cost: **$227,500**

Equivalent Annualized Cost: **1.40**

PRESERVATION & RECYCLING APPROACH

TREATMENT:	Cape Seal
UNIT COST:	7.77
LIFE EXTENSION:	10.0
SQUARE METERS:	6500

Total Cost: **$50,505**

Equivalent Annualized Cost: **0.78**

By choosing a preservation & recycling approach...

COST SAVINGS

$176,995

78% LESS THAN PULVERIZE, 100MM A , 50 MM HL4

Factoring in recent road reconstruction projects and completion of the proposed 2022 capital works plan staff believe it will be time to switch our focus to preservation and maintenance of our good roads.

RETURN TO AGENDA

The proposed 2022 roads infrastructure capital works plan shall begin to incorporate these fundamentals of preservation and is as follows.

Phase #1 Thompsonhill

Thomsonhill reconstruction shall be debentured. The works shall be comprised of a complete reconstruction of all street surfaces in the area with Pucker Street surface as a provisional item in the Tender and the surface reconstructed if prices are favorable. Some areas shall have additional gravel added to the roadway and others shall see a complete removal and replacement of the granular base, the topography of the existing roadway and properties shall be the deciding factor of lifting versus digging out. The storm system is in overall good condition with some spot repairs and surface drainage improvements required.

Export

Treatment Type	Category	Life Extension	Lane-Km* Treated	Lane-Km-Years	Unit Cost	Total Cost
Thomsonhill Reconstruction		25.0	3.6	90	56.00	$1,310,400
Select...				0		$0
Select...				0		$0
Select...				0		$0
Select...				0		$0
Select...				0		$0
Select...				0		$0
Select...				0		$0

ADD ROW

Total Lane-Km Treated
4

Total Lane-Km-Years
90

Total Cost
$1,310,400

The total estimated upset cost of this Project is 1,480,752 including HST and Pucker Street resurfacing.

Phase #2 Cotieville

Cotieville is being proposed with the funding sources to be finalized by staff during 2022 budget preparation.

Gerald Street requires full depth surface reconstruction by pulverizing the existing surface, adding 100 mm of Granular “A”, and resurfacing with 50mm HL4. This will extend the life cycle of Gerald St. to 25 years or longer if proper preservation techniques are applied in the future. Sherwood St, Harper Ave, Harold Ave, and Leslie Ave shall have a cape seal or micro surface applied. This will extend the life of these streets to between 10-15 years, during that time they shall need re-evaluation whether further preservation or reconstruction is the proper next step. No culvert replacements are required and only in house ditch cleanout is necessary for the entire area.

RETURN TO AGENDA

Export

Treatment Type	Category	Life Extension	Lane-Km* Treated	Lane-Km-Years	Unit Cost	Total Cost
Cape Seal	Preservation	10.0	1.2	12	7.77	$60,606
Pulverize, 100mm A , 50 mm HL4		25.0	.4	10	35.00	$91,000
Select..				0		$0
Select..				0		$0
Select..				0		$0
Select..				0		$0
Select..				0		$0
Select..				0		$0

ADD ROW

Total Lane-Km Treated	Total Lane-Km-Years	Total Cost
2	22	$151,606

The estimated upset cost of this project is $171,314 including HST.

If all streets in Cotieville are left to deteriorate further they shall require full reconstruction at an estimated cost of $498,670, meaning that the combination of reconstruction and preservation being proposed by staff shall restore the surface of these streets to an acceptable condition and cost $347,064 less than full surface reconstruction.

Phase #3 Eady Road

The middle section of Eady Road is being proposed for further rehabilitation in 2022 as sufficient funding was not available to complete all necessary improvements in 2021. Staff's proposal is to remove the 2 cross culverts near 1400 Eady Road. Currently there is a 500mm and an 800mm CSP, the 800mm is being used as an overflow for spring melt. Staff is proposing to install a 1000mm polymer lined corrugated steel pipe in place of the 2 existing culverts, this will increase the flow rate capacity by 13,507 gallons per minute compared to the existing capacity. The roadway over the cross culvert will then be realigned to reduce the sharpness of the curve and profile the ditch slope to between a 2:1 or 3:1 slope. The final step will be to cap the remainder of the roadway with Granular "M" as necessary. Funding for this project shall be from the yearly Granular Haul and Supply fund, $50,000 and the culverts operating budget $5,000.

The total estimated upset cost of this project is $55,000 including HST.

2021 Golf Course Road Additional Works

Golf Course Road shared rehabilitation with Admaston Bromley. As presented in the July 7th' 2021 TES meeting.

Total cost $53,371.

Future works

Staff does acknowledge that other roads are on the priority list such as Mullins Road from Johnston to Eady and Jamieson Lane although adequate funding is not available at this time and further preparation and planning needs to be performed before proceeding. Staff believe it

would be wise to plan for Jamieson Lane once the proposed subdivision in that area is established due to concerns that the new roadway may be damaged during construction. It has been brought to the attention of staff that Lime Kiln Road should be considered for pavement and staff does agree that it would benefit the Township and surrounding Municipalities although the cost is too high for Horton to assume alone without significant funding from the upper tiers of government or surrounding municipalities that would benefit from the roads service as a by-pass.

Export

Treatment Type	Category	Life Extension	Lane-Km* Treated	Lane-Km-Years	Unit Cost	Total Cost
50mm HL4		25.0	2.3	57.49999999999999	16.00	$239,200
100mm Granular A Lift		5.0	2.3	11.5	6.00	$89,700
Select...				0		$0
Select...				0		$0
Select...				0		$0
Select...				0		$0
Select...				0		$0
Select...				0		$0

ADD ROW

Total Lane-Km Treated	Total Lane-Km-Years	Total Cost
5	69	$328,900

The estimated upset cost to pave Lime Kiln Road would be is $371,657 including HST.

2022 Maintenance activities and preparation works for 2023 construction.

During the 2022 construction season staff wish to minimize the amount of construction projects in-house, excluding Eady Road. Staff's plan is to focus the roads department on general maintenance and field study activities during the 2022 construction season. These activities shall include granular base testing of Mullins Road as well as extensive brushing and ditching of Orin Road and McInnes Road if time allows. Shoulder drop on Pinnacle Road has also been flagged as a priority repair. Staff shall also compile a culvert replacement plan for 2023 and on from the culvert inventory and condition data collected in 2021.

Granular base testing shall be performed by utilizing a vac truck to excavate test holes and measure the base and surface depth of the roadway, Staff shall then perform granular base equivalency calculations to ensure the base is sufficient for the traffic volume of the roadway.

ALTERNATIVES:

N/A

FINANCIAL IMPLICATIONS:

Phase #1 Thompsonhill Debentured

Phase #1 Thomsonhill Reconstruction – Upset limit estimated at **$1,480,752**

Phase #2 Cotieville (Reserves, Gas Tax, other sources to be determined)

Full Funding feasibility to be determined - Estimated at **$171,314**

RETURN TO AGENDA

Phase #3 Eady Road (Gas Tax and Taxation)
Funded through annual gravel haul and Supply, Taxation and Gas Tax, Estimated at **$55,000**

2021 Golf Course Road Additional Works (Reserves)
Funding sources to be determined - **$53,371**

Grand Total

$1,480,752 Thomsonhill
+ $171,314 Cotieville
+ $55,000 Eady Road
+ $53,371 Golf Course Road

$1,760,437 in Capital Roads Infrastructure projects proposed for 2022.

ATTACHMENTS:
2022 Capital Roads Infrastructure Works Plan Support Documentation

CONSULTATIONS:
Hope Dillabough - CAO/Clerk
Nathalie Moore - Treasurer

Author: _____ signature

Other: _____ signature

Treasurer: _____ signature

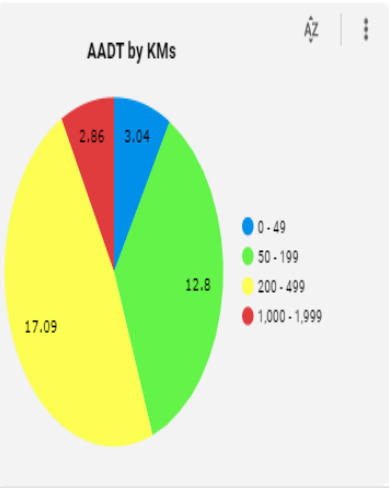
C.A.O. _____ signature

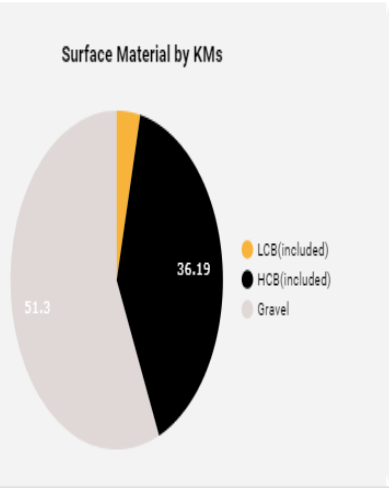
Current Pavement Condition Rating (All Paved Roads)

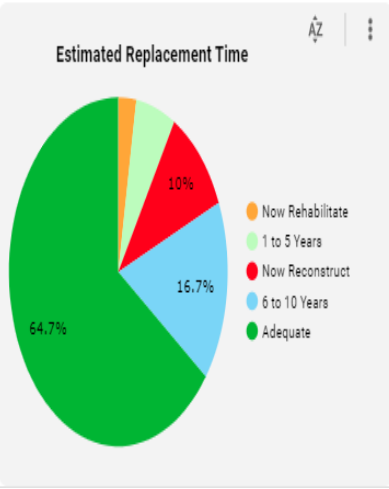
Number of Center Line Kilometers
39.4

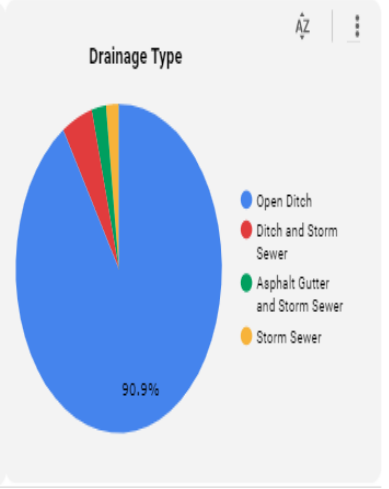
Total Estimated Reconstruction Cost
$12.25M

Pavement Condition Rating (PCR)
65.4









Roads Management Plan

Paved Roads 10 Year Capital Program

APPENDIX D-1

SECTION ID	DESCRIPTION	LENGTH	SURFACE WIDTH	SURFACE TYPE	2017 Condition Rating	CAPITAL FOR CONDITION RATING 6	CAPITAL FOR CONDITION RATING 10	YEAR FOR CAPITAL
R001	Johnston Rd. - South Section *	1.7	6.5	LCB	4	$ -	$ 1,096,000	2018
R062	Knight St.	0.4	7.0	HCB - Single Lift	4	$ 72,400	$ 720,000	2018
R073	Gerald St.	0.36	6.3	HCB - Single Lift	3	$ 65,160	$ 100,000	2018
R067	Paddy St.	0.1	5.4	HCB - Single Lift	5	$ 21,200	$ 75,000	2018
R063	Thomsonhill Cemetary St.	0.3	6.3	HCB - Single Lift	3	$ 63,000	$ 540,000	2018
R064	Nadobny Ln.	0.6	6.6	HCB - Single Lift	3	$ 127,000	$ 1,080,000	2018
R065	Margaret St.	0.2	5.4	HCB - Single Lift	4	$ 42,000	$ 360,000	2018
R061	Dregas St.	0.2	7	HCB - Single Lift	5	$ 42,000	$ 375,000	2018
R066	Jane St.	0.1	5.1	HCB - Single Lift	5	$ 21,200	$ 75,000	2018
R026	Cotieville Rd	0.6	7.2	LCB	3	$ 103,000	$ 234,000	2019
R025A	Elliot Cresent - Paved Section	0.2	5.3	HCB - Single Lift	3	$ 34,400	$ 75,000	2019
R027	McBride Rd. - South Section	1	6.2	LCB	3	$ 93,500	$ 150,000	2019
R054	Whitton Rd. - Paved South Section	0.38	5.6	LCB	4	$ 55,000	$ 228,000	2020
R059	Pucker St.	1.5	10	HCB - Single Lift	6	$ 258,000	$ 315,000	2020
R056	Jamieson Ln.	0.7	5.8	HCB - Single Lift	3	$ 111,000	$ 216,000	2021
R070	Harold Ave.	0.35	6.0	HCB - Single Lift	5	$ -	$ 60,000	2021
R071	Harper Ave.	0.3	6.4	HCB - Single Lift	5	$ -	$ 64,000	2021
R020	Pinnacle Rd.	3.8	7	HCB - Single Lift	7	$ 653,000	$ 800,000	2022
R069	Leslie Ave.	0.3	6.2	HCB - Single Lift	5	$ 63,600	$ 78,600	2023
R050	Goshen Rd. - South Section	3	8.3	LCB	7	$ 319,000	$ 450,000	2024
R053	Whitton Rd. - Paved North Section	1.6	6.4	HCB - Single Lift	7	$ 258,000	$ 315,000	2025
R072	Sherwood St.	0.23	6.5	HCB - Single Lift	6	$ 42,000	$ 50,000	2025
R003	Mullins Rd. - Paved Middle Section	1.4	5.1	LCB	6	$ 50,000	$ 150,000	2026
R075	Grantham Rd.	0.1	7.5	HCB - Single Lift	8	$ -	$ 18,000	2026
R019	Pinnacle Rd	3.5	6.1	HCB - Single Lift	9	$ -	$ 455,000	2027

* Uses all available Funding

TOTAL	$ 2,490,000.00	$ 8,080,000.00
YEARLY AVERAGE	$ 249,000.00	$ 808,000.00

RED = Completed

Yellow = Proposed in 2022 Capital Plan

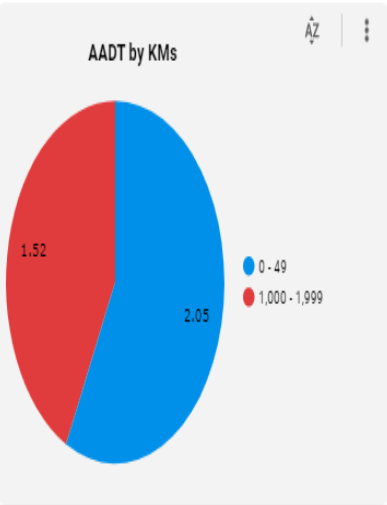
RETURN TO AGENDA

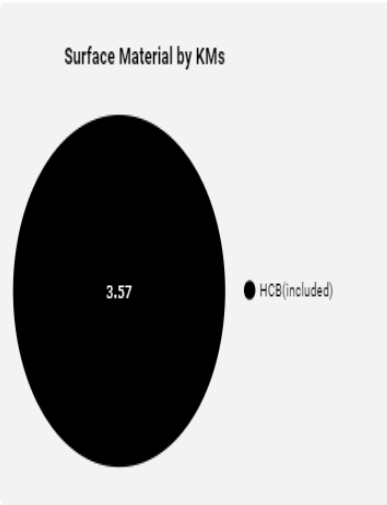
Thompsonhill Re-Construction

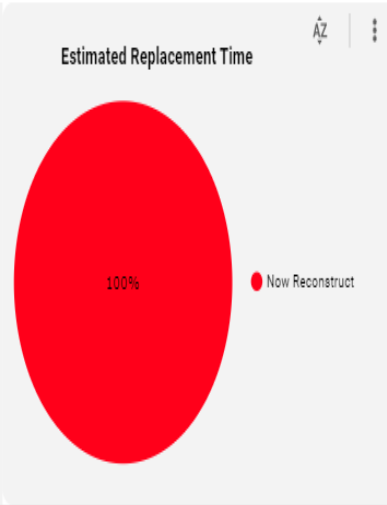
Number of Center Line Kilometers
3.6

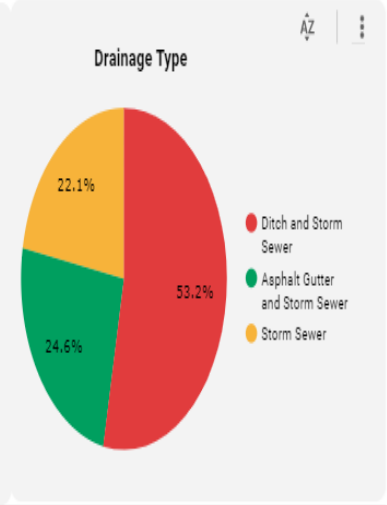
Total Estimated Reconstruction Cost
$1.31M

Pavement Condition Rating (PCR)
43.8









ID	Description	Surface Material	Drainage Type	Time of Improvement	AADT Summer	AADT Winter	Re-Construction Cost	Length (km)	Width (m)	Area (m2)	Surface Depth (mm)	Base (mm)	Subbase (mm)	Platform (m)	DMI	RCR	PCR
001-061	Nadobny Lane - Pucker Street to Knight Street	HCB	DS - Ditch and Storm Sewer	Now Reconstruct	49	-	$313,000	0.62	6.6	4,092	50	660	-	7	-	-	30
001-077	Thomsonhill Cemetery Street - Margaret Street to Burnstown Road	HCB	DS - Ditch and Storm Sewer	Now Reconstruct	49	-	$160,000	0.31	6.3	1,953	50	380	-	6.6	-	-	30
001-044	Knight St - Burnstown Road to Dead End	HCB	AG - Ashphalt Gutter	Now Reconstruct	49	-	$171,000	0.38	7	2,660	80	510	-	7	-	-	40
001-051	Margaret Street - Knight Street to Dead End	HCB	OD - Open Ditch	Now Reconstruct	49	-	$90,200	0.28	5.4	1,512	50	620	-	5.4	-	-	40
001-010	Dregas Street - Burnstown Road to Dead End	HCB	SS - Storm Sewer	Now Reconstruct	49	-	$82,000	0.2	5.4	1,080	70	640	-	5.4	-	-	50
001-017	Elliott Crescent - Pinnacle Road to Elliot Crescent	HCB	OD - Open Ditch	Adequate	25	-	$52,320	0.16	3.5	560	150	750	-	3.5	-	-	50
001-031	Harold Avenue - McBride Road to Dead end	HCB	OD - Open Ditch	Now Rehabilitate	50	-	$116,953	0.36	6	2,160	50	750	-	6	-	-	50
001-032	Harper Avenue - McBride Road to Dead End	HCB	OD - Open Ditch	Now Rehabilitate	50	-	$100,245	0.31	6.4	1,984	50	750	-	6.4	-	-	50
001-037	Jane Street - Dregas Street to Knight Street	HCB	DS - Ditch and Storm Sewer	Now Reconstruct	49	-	$42,000	0.13	5.1	663	80	530	-	5.1	-	-	50
001-046	Leslie Avenue - McBride Road to Dead End	HCB	OD - Open Ditch	Now Rehabilitate	40	-	$121,212	0.37	6.2	2,294	50	750	-	6.2	-	-	50
001-065	Paddy Street - Knight Street to Dregas Street	HCB	DS - Ditch and Storm Sewer	Now Reconstruct	49	-	$50,000	0.13	5.4	702	60	850	-	5.4	-	-	50
001-058	Mullins Rd - Johnston Road to Mullins Road (Paved)	HCB	OD - Open Ditch	1 to 5 Years	150	-	$373,464	1.41	5.1	7,191	50	750	-	6.6	-	-	60
001-072	Pucker St - Burnstown Road to Blackburn Road	HCB	DS - Ditch and Storm Sewer	Now Reconstruct	1000	118	$400,075	1.52	6.4	9,728	50	750	-	10	-	-	60

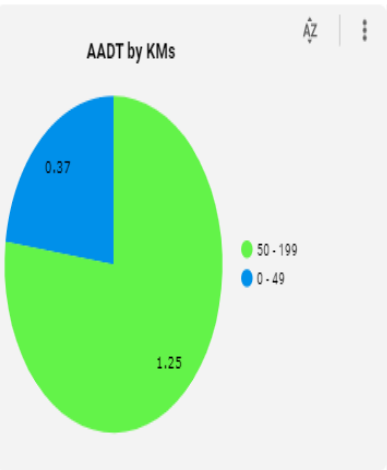
RETURN TO AGENDA

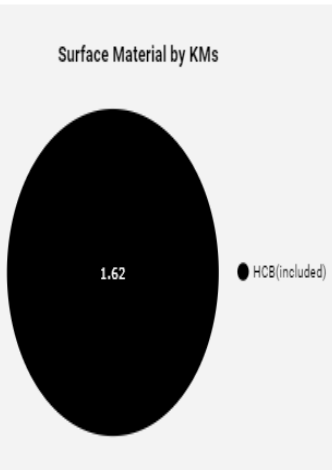
Cotieville cost if left to deteriorate and require full reconstruction

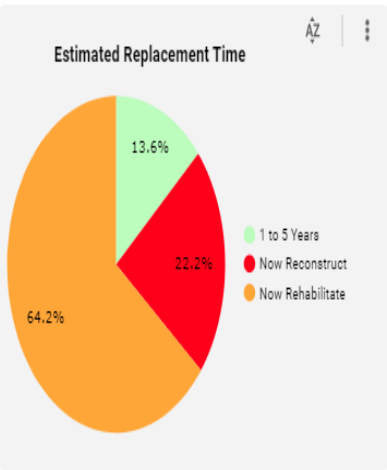
Number of Center Line Kilometers
1.6

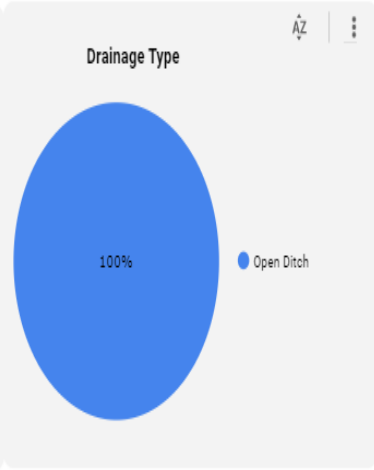
Total Estimated Reconstruction Cost
$498.67K

Pavement Condition Rating (PCR)
48.0









ID	Description	Surface Material	Drainage Type	Time of Improvement	AADT Summer	AADT Winter	Re-Construction Cost	Length (km)	Width (m)	Area (m2)	Surface Depth (mm)	Base (mm)	Subbase (mm)	Platform (m)	DMI	RCR	PCR
001-023	**Gerald St - Leslie Avenue to Cotieville Road**	**HCB**	**OD - Open Ditch**	**Now Reconstruct**	**50**	**-**	**$118,263**	**0.36**	**6.3**	**2,268**	**50**	**750**	**-**	**6.3**	**-**	**-**	**30**
001-036	Jamieson Lane - Gillan Road to Dead End	HCB	OD - Open Ditch	1 to 5 Years	40	-	$229,230	0.7	5.8	4,060	50	750	-	7.8	-	-	30
001-061	Nadobny Lane - Pucker Street to Knight Street	HCB	DS - Ditch and Storm Sewer	Now Reconstruct	49	-	$313,000	0.62	6.6	4,092	50	660	-	7	-	-	30
001-077	Thomsonhill Cemetery Street - Margaret Street to Burnstown Road	HCB	DS - Ditch and Storm Sewer	Now Reconstruct	49	-	$160,000	0.31	6.3	1,953	50	380	-	6.6	-	-	30
001-044	Knight St - Burnstown Road to Dead End	HCB	AG - Ashphalt Gutter	Now Reconstruct	49	-	$171,000	0.38	7	2,660	80	510	-	7	-	-	40
001-051	Margaret Street - Knight Street to Dead End	HCB	OD - Open Ditch	Now Reconstruct	49	-	$90,200	0.28	5.4	1,512	50	620	-	5.4	-	-	40
001-010	Dregas Street - Burnstown Road to Dead End	HCB	SS - Storm Sewer	Now Reconstruct	49	-	$82,000	0.2	5.4	1,080	70	640	-	5.4	-	-	50
001-017	Elliott Crescent - Pinnacle Road to Elliot Crescent	HCB	OD - Open Ditch	Adequate	25	-	$52,320	0.16	3.5	560	150	750	-	3.5	-	-	50
001-031	**Harold Avenue - McBride Road to Dead end**	**HCB**	**OD - Open Ditch**	**Now Rehabilitate**	**50**	**-**	**$116,953**	**0.36**	**6**	**2,160**	**50**	**750**	**-**	**6**	**-**	**-**	**50**
001-032	**Harper Avenue - McBride Road to Dead End**	**HCB**	**OD - Open Ditch**	**Now Rehabilitate**	**50**	**-**	**$100,245**	**0.31**	**6.4**	**1,984**	**50**	**750**	**-**	**6.4**	**-**	**-**	**50**
001-037	Jane Street - Dregas Street to Knight Street	HCB	DS - Ditch and Storm Sewer	Now Reconstruct	49	-	$42,000	0.13	5.1	663	80	530	-	5.1	-	-	50
001-046	**Leslie Avenue - McBride Road to Dead End**	**HCB**	**OD - Open Ditch**	**Now Rehabilitate**	**40**	**-**	**$121,212**	**0.37**	**6.2**	**2,294**	**50**	**750**	**-**	**6.2**	**-**	**-**	**50**
001-065	Paddy Street - Knight Street to Dregas Street	HCB	DS - Ditch and Storm Sewer	Now Reconstruct	49	-	$50,000	0.13	5.4	702	60	850	-	5.4	-	-	50
001-058	Mullins Rd - Johnston Road to Mullins Road (Paved)	HCB	OD - Open Ditch	1 to 5 Years	150	-	$373,464	1.41	5.1	7,191	50	750	-	6.6	-	-	60
001-072	Pucker St - Burnstown Road to Blackburn Road	HCB	DS - Ditch and Storm Sewer	Now Reconstruct	1000	118	$497,952	1.52	6.4	9,728	50	750	-	10	-	-	60
001-075	**Sherwood St - McBride Road to Madeleine Street**	**HCB**	**OD - Open Ditch**	**1 to 5 Years**	**50**	**-**	**$42,000**	**0.22**	**6.5**	**1,430**	**50**	**750**	**-**	**6.5**	**-**	**-**	**60**

Remaining Roadways on 10 Year Capital program list

RETURN TO AGENDA

Township of Horton
COUNCIL / COMMITTEE REPORT

Title:	Date:	Sept 1st, 2021.
Road Surface Optimization, Preservation and Development Policy	**Council/Committee:**	**TES Committee**
	Author:	**Adam Knapp, Public Works Manager**
	Department:	**Public Works**

RECOMMENDATIONS:

THAT the TES Committee agree with staff's recommendation to draft a Road Surface Optimization, Preservation and Development Policy.

AND THAT the draft policy be brought forward to council for approval.

FURTHER THAT all proposed projects in the 2022 Roads Infrastructure Capital Works Plan and the existing surface of Mullins Road and Jamieson Lane be flagged for reconstruction and not be bound to term 1.L of the Road Surface Optimization, Preservation and Development Policy until they have been fully reconstructed.

BACKGROUND:

Staff's proposal to implement a Road Surface Optimization, Preservation and Development Policy shall ensure the roads network within Horton Township is constructed, developed, and maintained to a high quality and promotes life cycle optimization and preservation of the road network. This policy shall ensure that every dollar spent attains high life extension value with low cost per square meter over the life cycle of the roadway while upholding an average Ride Condition Rating (RCR) of 6 or higher and an average Pavement Condition Rating (PCR) of 60 or higher on the Pavement Condition Index (PCI) throughout the Township of Horton's road network.

ALTERNATIVES:

N/A

FINANCIAL IMPLICATIONS:

N/A

ATTACHMENTS:

DRAFT - Road Surface Optimization, Preservation and Development Policy

CONSULTATIONS:

Hope Dillabough – CAO/Clerk

Author: _____ **Other:** _____

RETURN TO AGENDA

signature signature

Treasurer: signature **C.A.O.** signature

RETURN TO AGENDA

The Township of Horton Policy and Procedures			
SECTION: TRANSPORTATION			POLICY #: T-04
POLICY: Road Surface Optimization, Preservation and Development Policy			
DATE: Sept. 1 2021	REV. DATE: June 2020 By-Law 2021-	COVERAGE: Transportation & Environmental Services	PAGE #: 1 of 11

POLICY STATEMENT:

The Township of Horton has established a policy to ensure the roads network within Horton Township is constructed and maintained to a high quality and promotes life cycle optimization and preservation of the road network. This policy shall ensure that every dollar spent attains high life extension value with low cost per square meter over the life cycle of the roadway while upholding an average Ride Condition Rating (RCR) of 6 or higher and an average Pavement Condition Rating (PCR) of 60 or higher on the Pavement Condition Index (PCI) throughout the Township of Horton's road network.

PROCEDURE:

Preservation and Optimization

A. That the Township of Horton shall strive to maintain an average Pavement Condition Index rating (PCI) no lower than 60 over the entire paved roads network. See section 1.

B. That Annual Average Daily Traffic be the sole factor determining the surface course of a roadway or section of roadway. See section 2.

C. That all roads currently paved or double surface treated shall remain as such and not have the surface course downgraded for any reason other than temporarily for the purpose of construction or rehabilitation. Roadways that are under construction or rehabilitation shall have the pre-existing surface course reapplied by December 20th of the year of construction or rehabilitation. If construction proceeds into the next calendar year a temporary surface course acceptable to the Township, in written agreement between the contractor and the Township, must be applied by December 20th of the year that construction or rehabilitation began.

D. That the MTO pavement structural design guidelines for secondary highways shall be the standard for granular base equivalency (GBE) thickness acceptable for pavement application on any municipally maintained or assumed roadway within the Township of Horton. Granular base testing may be performed by Township staff or Contract. See section 3.

E. That prior to reconstruction of an existing paved roadway granular base testing may be requested, if staff or council believe the sub-base is insufficient or degraded, to confirm the granular base thickness is structurally sufficient. See section 3.

RETURN TO AGENDA

The Township of Horton Policy and Procedures			
SECTION: TRANSPORTATION			POLICY #: T-04
POLICY: Road Surface Optimization, Preservation and Development Policy			
DATE: Sept. 1 2021	REV. DATE: June 2020 By-Law 2021-	COVERAGE: Transportation & Environmental Services	PAGE #: 2 of 11

F. That reclaimed Double Surface Treatment shall have a Granular Base Equivalency factor of 0.6 equivalent to Old Granular Base. See section 3.

G. That if the subgrade material is unknown or uncertain the highest GBE factor in the appropriate AADT column per section 3 of this document shall be the acceptable GBE for the roadway in question. See section 3.

H. That prior to upgrading an existing gravel roadway surface to a bituminous surface granular base testing must be performed to confirm the granular base thickness is structurally sufficient per the current AADT of the roadway. See Section 3.

I. That prior to reconstruction of an existing paved roadway a minimum of two preservation treatments or combination of treatments must be applied to the roadway. See section 7.

J. That prior to full reconstruction of any bituminous roadway the PCI rating must be in the 40^{th} percentile or lower and preservation treatments deemed unfeasible to regain a sustainable PCI rating of 60 or above. See section 1.

K. That feasibility related to preservation versus reconstruction shall be determined by the Public Works Manager. If a divergence of opinion between Council and staff arises then an independent consultant or contractor may be requested to confirm in writing staff's categorization.

L. That brushing, grass cutting, ditch clean out, shouldering, cold patching and culvert replacements be deemed regular maintenance activities and not considered preservation treatments.

M. That any roadway receiving (DST) Double Surface Treatment shall have an AADT lower than 300 vehicles per day.

N. That any roadway prior to receiving (DST) Double Surface Treatment shall have a minimum granular base equivalency thickness of 350 millimetres and shall have no less than 200mm of granular A or granular M base material prior to application of DST. See section 3.

The Township of Horton Policy and Procedures			
SECTION: TRANSPORTATION			POLICY #: T-04
POLICY: Road Surface Optimization, Preservation and Development Policy			
DATE: Sept. 1 2021	REV. DATE: June 2020 By-Law 2021-	COVERAGE: Transportation & Environmental Services	PAGE #: 3 of 11

Typical Road Profiles

O. That the typical paved road profile within the Township of Horton shall be as shown in section 4 of this policy. Any road platform width alterations shall be pending approval of the Public Works Manager. See section 4.

P. That any terminated (dead end) roadway must have a typical cul-de sac turn around area. See section 5.

Development and Assumption by the Township

Q. That any private roadway must have a surface course that matches the nearest intersecting roadways surface course not exceeding 50 mm of HL4 or 40 mm HL3.

R. That within 5 to 7 years of a roadway receiving (DST) Double Surface Treatment a Cape Seal, (SST) Single Surface Treatment with an emulsion overlay, or similar treatment must be applied to the roadway. See section 7.

S. That the cost to fulfil procedure 1.R of this policy for any private road, proposed for assumption that has received a double surface treatment, shall be split 50/50 between the Township and the advocate. The payment shall be made to the Township of Horton by the advocate prior to the Township assuming the roadway. The cost shall be estimated by the Township of Horton's Public Works Manager.

T. That any private roadway proposed to be assumed by the Township of Horton shall meet or exceed all terms of this policy. The onus shall be on the advocate of the proposal to assume the roadway to provide documented proof to Council and staff that all terms have been met or exceeded.

RETURN TO AGENDA

The Township of Horton Policy and Procedures			
SECTION: TRANSPORTATION			POLICY #: T-04
POLICY: Road Surface Optimization, Preservation and Development Policy			
DATE: Sept. 1 2021	REV. DATE: June 2020 By-Law 2021-	COVERAGE: Transportation & Environmental Services	PAGE #: 4 of 11

Dust Suppression

U. That only flake dust suppression treatments shall be applied to roadways with an AADT below 49, a maximum once per calendar year. Flake dust suppression shall not be added if the application shall exceed yearly budgetary limits. Road selection shall be in order of AADT determined by the Public Works Manager if budgetary limits are a factor. See section 2.

V. That liquid dust suppression treatments shall be applied to gravel roadways with an AADT above 50 a maximum of once per calendar year. Secondary flake dust suppression may be added as a secondary spot treatment at the discretion of the Public Works Manager a maximum of once per calendar year. Secondary flake dust suppression shall not be added if it shall exceed yearly budgetary limits. See section 2.

1. (PCI) PAVEMENT CONDITION INDEX

The Township of Horton Policy and Procedures			
SECTION: TRANSPORTATION			POLICY #: T-04
POLICY: Road Surface Optimization, Preservation and Development Policy			
DATE: Sept. 1 2021	REV. DATE: June 2020 By-Law 2021-	COVERAGE: Transportation & Environmental Services	PAGE #: 5 of 11

2. ROADS SURFACE AND DUST SUPRESSION TYPE BY (AADT) ANNUAL AVERAGE DAILY TRAFFIC:

All surface courses listed below are minimum standards, surface courses of higher quality may be accepted upon approval of the Public Works Manager. No surface course shall be applied that conflicts with term 1.B of this policy.

ANNUAL AVERAGE DAILY TRAFFIC (AADT)	DUST SUPRESSION TYPE AND APPLICATION	BITUMINIOUS SURFACE COURSES (LAYERS)	SURFACE TYPE
0-49	**1 Application of flake per calendar year**	**0**	**Gravel**
50-199	**1 Application of liquid per calendar year**	**0**	**Gravel**
200-399	**NA**	**1**	**(DST) Double Surface Treatment or 50mm HL4**
400-999	**NA**	**1**	**50mm HL4 or 40mm HL3**
1000+	**NA**	**2**	**Top Course 50mm HL4 or 40mm HL3** **Base Course 50mm HL8**

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3. ACCEPTABLE GRANULAR BASE EQUIVELANCY (GBE) THICKNESS

Table 3.3.3 Structural Design Guidelines for Flexible Pavements (Thickness in mm) – Secondary Highways

		Subgrade Material					
AADT	Pavement Structure Elements	Gravels and Sands Suitable as Gran-Borrow	SANDS AND SILTS 5-75µm <40%	SANDS AND SILTS 5-75µm 40-55%	SANDS AND SILTS 5-75µm >55%	Lacustrine Clays	Varved & Leda Clays
2000-3000 AADT	HM	90	90	90	90	90	90
	B	150	150	150	150	150	150
	SB**	—	300	450	600	450	800
	GBE	330	530	630	730	630	865
1500-2000 AADT	HM	50	50	50	50	50	50
	B	150	150	150	150	150	150
	SB**	—	250	300	450	300	450 (300-600)
	GBE	250	415	450	550	450	550 (450-650)
1000-1500 AADT	CL	50	50	50	50	50	50
	B	150	150	150	150	150	150
	SB**	—	250	300	450	300	450 (300-600)
	GBE	240	405	440	540	450	540 (450-640)
500-1000 AADT	ST*	—	—	—	—	—	—
	B	150	150	150	150	150	150
	SB*	—	150	250	300	250	350 (250-450)
	GBE	150	250	315	350	315	385 (315-450)
200-500 AADT	ST*	—	—	—	—	—	—
	B	150	150	150	150	150	150
	SB**	—	150	250	300	250	300
	GBE	150	250	315	350	315	350
Less than 200 AADT	Gravel	—	—	—	—	—	—
	B	100	100	100	100	100	100
	SB**	—	150	250	300	250	300
	GBE	100	200	265	300	265	300

Notes: All AADT Volumes refer to Present Traffic.

- HM — Hot Mix Asphalt & Thickness
- B — Base Thickness
- SB — Subbase Thickness
- GBE — Granular Base Equivalency Thickness (1 mm HM = 2 mm B = 3 mm SB = 1.11)
- CL — Cold Mixed, Cold Laid or Road Mixed Mulch
- ST — Double Surface Treatment or Single Surface Treatment with Prime.
- * — Apply surface treatments 0.25 m wider than lane width.
- ** — Proposed subbase thicknesses may be decreased or increased respectively, for harder or softer subgrade conditions in each category, except for varved and leda clay subgrade where exceptionally large ranges are shown.

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Granular Base Equivalency Factors

New Materials	
Material	**Equivalency Factor**
New (or Recycled) Hot Mix Asphalt	2.0
Granular A in Base	1.0
Granular B in Subbase	0.67
Cement Treated Material in Subbase (with Gr. A in base)	1.4
Cement Treated Material in Base (no subbase)	1.8
Bituminous Treated Material in Base (with Gr. A in subbase)	1.5
Cold Mix	1.8
OGDL	1.0

Existing or Recycled Materials	
Material	**Equivalency Factor**
Full Depth Reclamation (FDR)	1.0
Full Depth Reclamation Expanded Asphalt Stabilization (EAS)	1.6
Cold In-place Recycling (CIR)	1.8
Cold In-place Recycled with Expanded Asphalt (CIREAM)	1.8
Old HMA	1.25
Old Granular Base	0.75
Old Granular Subbase	0.5

Reconstruction Projects	
Material	**Equivalency Factor**
Old Granular Base*	0.6
Old Granular Subbase*	0.4

GBE calculation example

180 + 150 + 300 = 630 Total GBE

Component	Thickness	Granular Base Equivalency (GBE)
Hot mix asphalt	90 mm	90 x 2.0 = 180
Granular base	150 mm	150 x 1.0 = 150
Granular subbase	450 mm	450 x 0.667 = 300
Total pavement thickness	690 mm	Total GBE = 630

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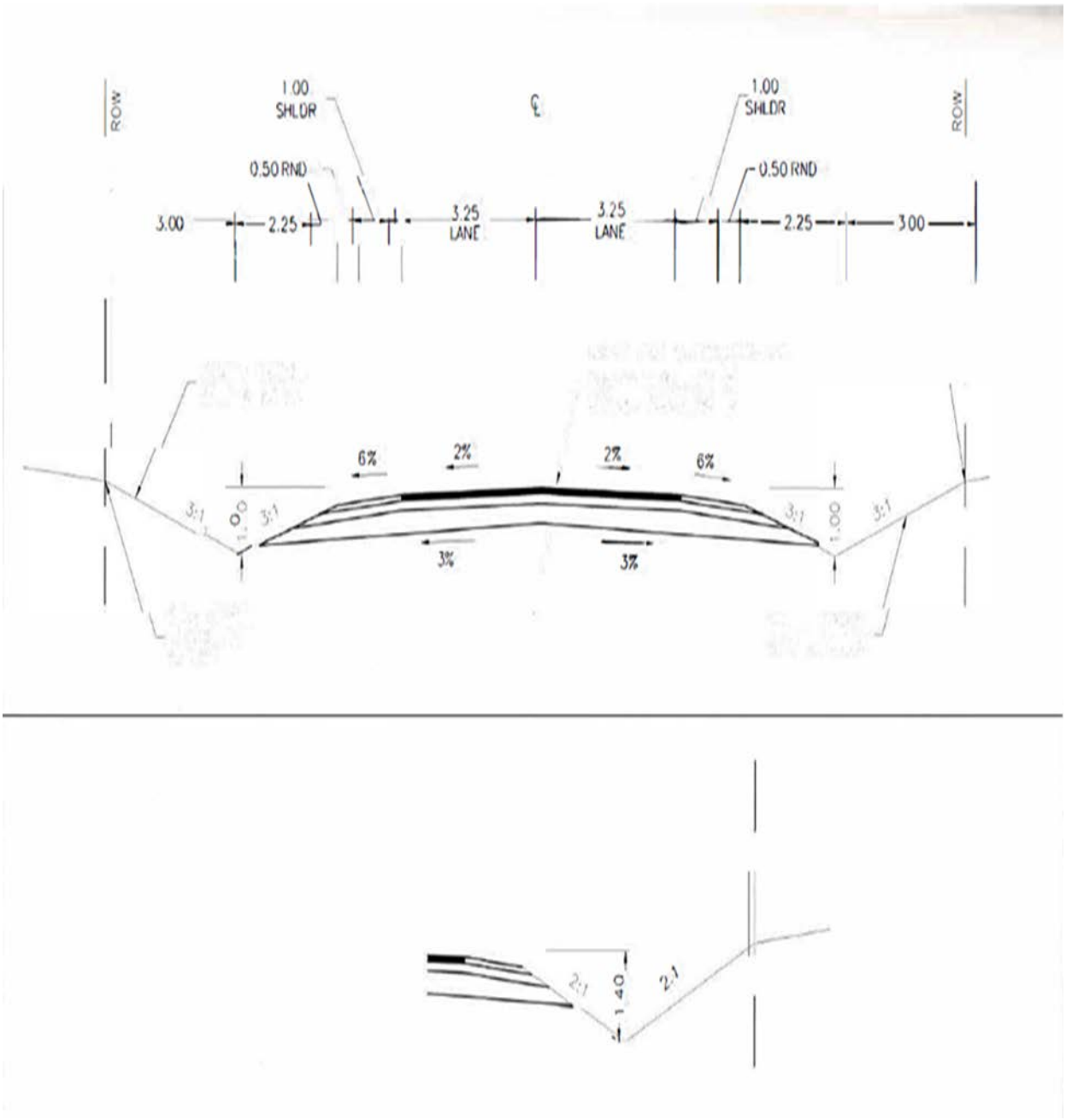
4. TYPICAL PAVED ROAD PROFILE



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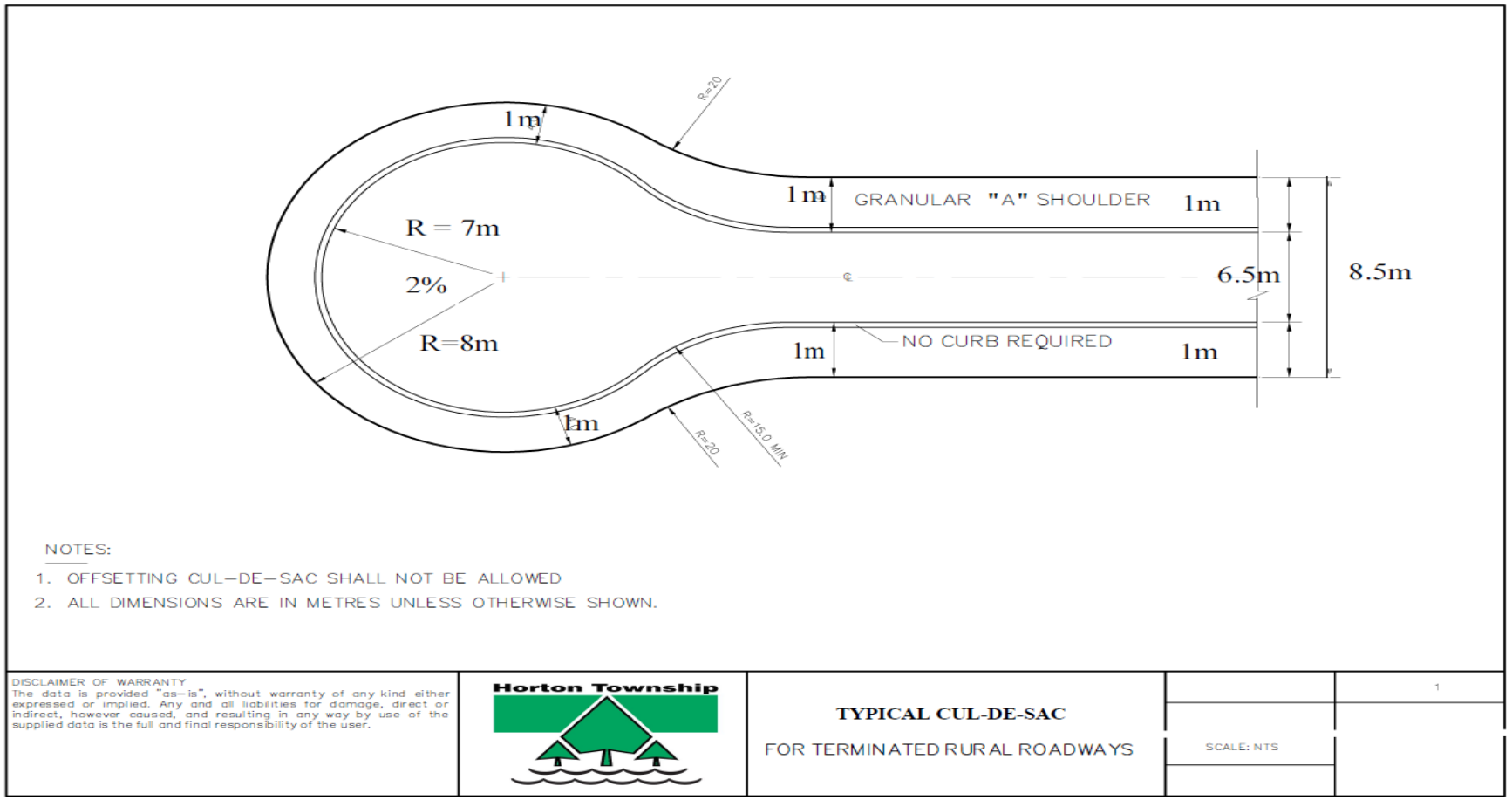
5. TYPICAL CUL DE SAC TURN AROUND



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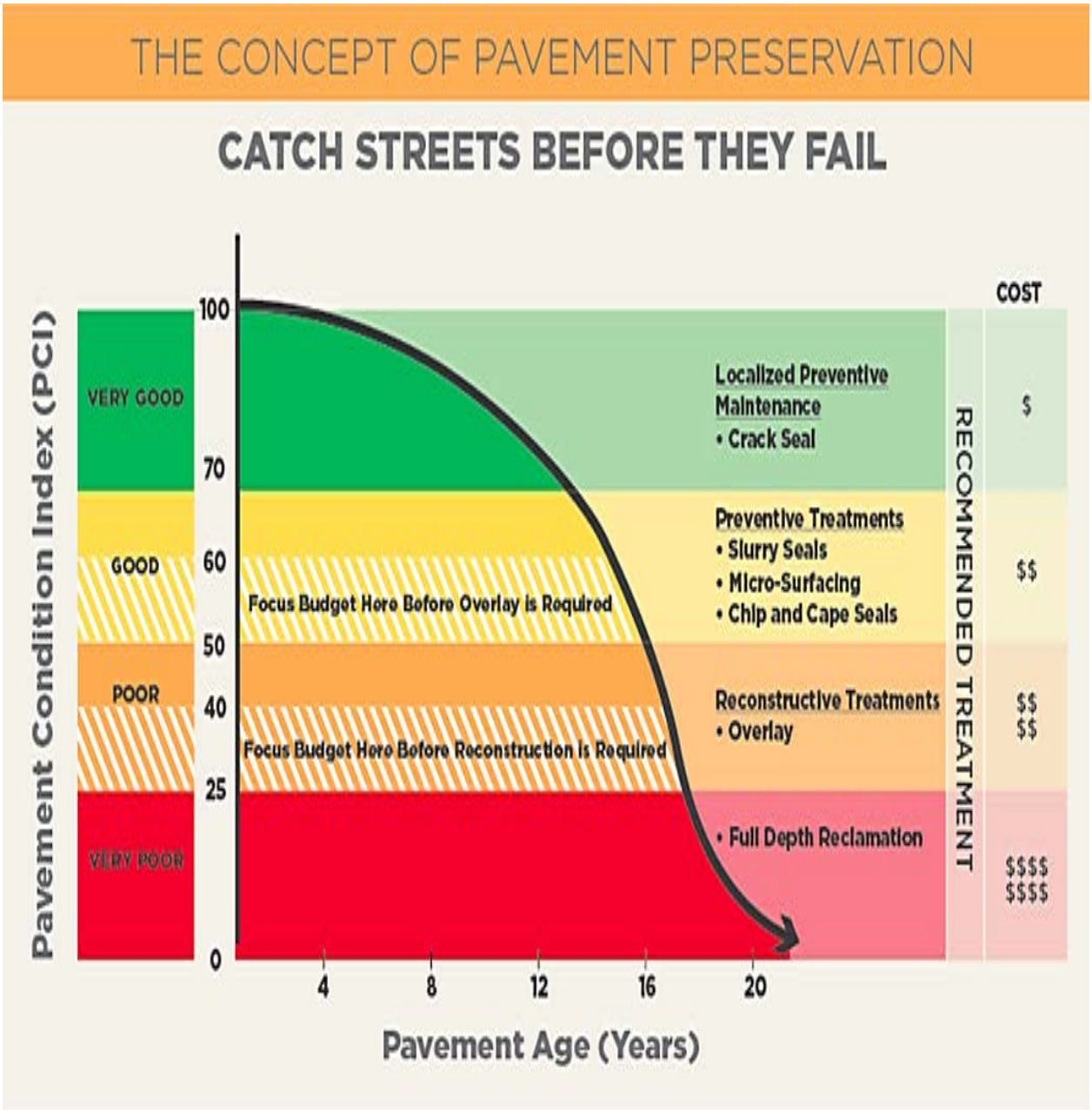
6. THE CONCEPT OF PRESERVATION



The Township of Horton Policy and Procedures			
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7. PAVEMENT OPTIMIZATION AND PRESERVATION PROCEDURE:

i. One treatment or a combination of treatments from category I.
ii. One treatment from category II or combination of treatments from category I and II.
iii. Staff evaluates further preservation feasibility.
iv. If preservation deemed unfeasible then reconstruct the roadway.

Category I preservation treatment options (PCI) rating between 60 and 100)

i. Crack seal
ii. Fog seal
iii. Slurry seal
iv. Micro surfacing
v. Cape seal
vi. Ultra-thin hot mix asphalt
vii. Chip seal
viii. Micro Milling
ix. Hot in place asphalt Recycling
x. Combination of treatments from category I
xi. Other treatments applicable to PCI rating

Category II preservation treatment options (PCI) rating between 40-59)

i. Cape seal
ii. Chip seal
iii. Scrub seal
iv. Micro milling
v. Hot in place asphalt recycling
vi. Combination of treatments from category I and II
vii. Other treatments applicable to PCI rating

Reconstruction (PCI) rating below 40 and preservation deemed unfeasible)

i. Granular base testing as necessary
ii. Brushing as necessary
iii. Ditching and culvert replacements as necessary
iv. Full depth pulverization of existing surface (depth between 200 -250mm)
v. Additional granular material added (minimum 100mm Granular “A”)
vi. Pave with applicable surface for Annual Average Daily Traffic

RETURN TO AGENDA

Township of Horton
COUNCIL / COMMITTEE REPORT

Title:	Date:	Sept 1st 2021
MTO Highway 17 Twinning Update	Council/Committee:	TES Committee
	Author:	Adam Knapp, Public Works Manager
	Department:	Public Works

RECOMMENDATIONS:

THAT the TES Committee accept this report as information.

BACKGROUND:

The Ministry of Transportation of Ontario (Ryan Vandenburg and John Adams) have contacted the Township of Horton to express interest in purchasing a section of the Millennium Trail to facilitate the twinning of Highway 17 as well as any future inspection and maintenance needed on the overpass of the trail, as highlighted in red on the attached Highway 17 update presentation on page 11. Staff have expressed that the Township shall wish to retain deeded access to the land and that the access shall only be restricted for the development, inspection, and maintenance of the overpass of Highway 17 to ensure continued unfettered usage as a recreational trail and that all current and future agreements or memorandums of understanding with recreational clubs implemented through by-law with the Township of Horton shall be incorporated into the deeded access agreement prior to completion of a purchase agreement with the MTO.

The MTO shall also be requesting that a section of Dugald Road, as highlighted in red on the attached Highway 17 update presentation on page 9 and 10, be closed by By-Law once the County Road 20 Interchange and realignment of Dugald Road is completed.

The MTO has also supplied information in regard to the notice of study commencement for a new maintenance patrol yard. The proposed study areas are as highlighted in red on the Highway 17 update presentation on page 7 and in the notice of study commencement letter for the proposed potential Arnprior yard.

ALTERNATIVES:

N/A

FINANCIAL IMPLICATIONS:

N/A

ATTACHMENTS:

1 - MTO Highway 17 update presentation
2 - Notice of Study Commencement Letter
3 - 1999-06 CN RAILWAY PURHCASE (RIGHT OF WAY THAT RUNS THROUGH HORTON)
4 - 2000-06-06 CN Trail – Sno-goers AGREEMENT
5 - 2018-64 MOU WITH RCATV
6 - 2018-64 - APPENDIX - MOU RCATV

RETURN TO AGENDA

CONSULTATIONS:
Hope Dillabough – CAO/Clerk

Author:  signature

Other: _____ signature

Treasurer: _____ signature

C.A.O. _____ signature

RETURN TO AGENDA

Highway 17 Update

Horton Township

August 12, 2021

Ryan Vandenberg, Project Manager – Project Delivery East

Agenda

- Project Background
- Update and Approximate Schedule
  - Interim Calabogie Rd / CR508 Interchange
  - Twinning Arnprior to Renfrew + 3 interchanges
  - New Maintenance Patrol Yard
- Road Closings, Improvements & Property Transfers
- Next Steps / Consultation
- Questions?

RETURN TO AGENDA

Project Background

- PDR/TESR for Highway 17 twinning from Arnprior to Renfrew was finalized in 2005
- Two previous phases for Highway 17 expansion have been delivered through Arnprior:
  - Phase #1 – Lanark Road 29 to Division Street, 5.6 km, construction completed in 2012
  - Phase #2 – Division Street to Scheel Drive, 5.5 km, construction completed in 2017
- The next phase of twinning will span 22.5 km from Scheel Drive to 2.6 km west of Bruce Street, delivered in two stages
  - Calabogie Road Interim Interchange in advance of twinning

RETURN TO AGENDA

Update and Approximate Schedule

- Calabogie Road interchange
  - Design-Build contract awarded to AECON Construction Ontario East Ltd.
  - Detail design and EA underway
  - Construction is planned to start in Fall 2021
  - Construction planned to be complete by the end of 2023

- 22.5km of twinning (Scheel Dr. to W of Bruce St.) and three interchanges
  - Delivery as a Design-Build-Finance Project with Infrastructure Ontario
  - Pre-engineering activities continue in 2021
  - RFP release scheduled for mid-2022
  - Construction timeline yet to be confirmed, approx. 2023 to 2027

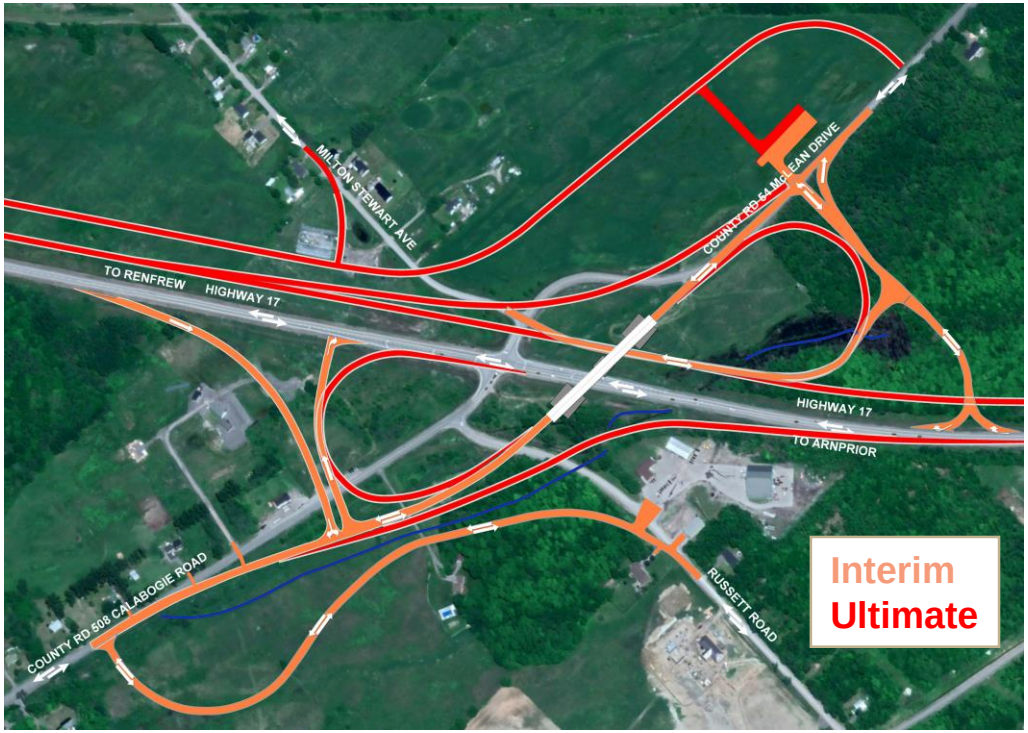
- Maintenance Patrol Yard
  - Site Selection, Preliminary Design, and EA underway in 2021
  - To be delivered with twinning project to support safe operation of the highway expansion

RETURN TO AGENDA

Ontario

Interim Interchange at Calabogie Road

- New structure to carry Calabogie Road/McLean Dr. (County Road 508) traffic over Highway 17
- Local road realignment, access roads, ramp connections
- Interim interchange will improve safety in advance of twinning
- Ultimate configuration will be integrated with 17 expansion



Proposed Highway 17 Improvements at Calabogie Road Interchange

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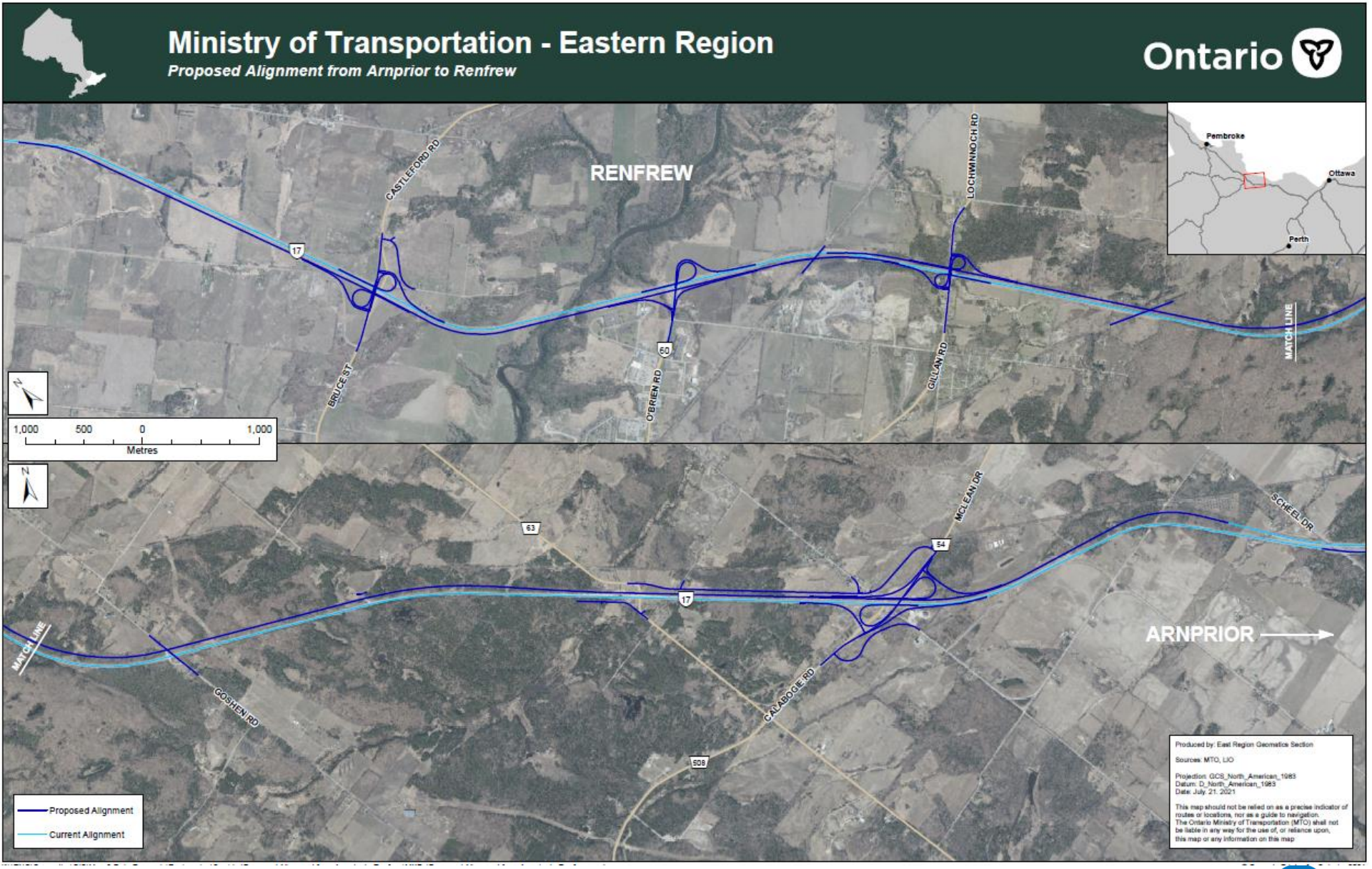
Ontario

Proposed Alignment Hwy 17



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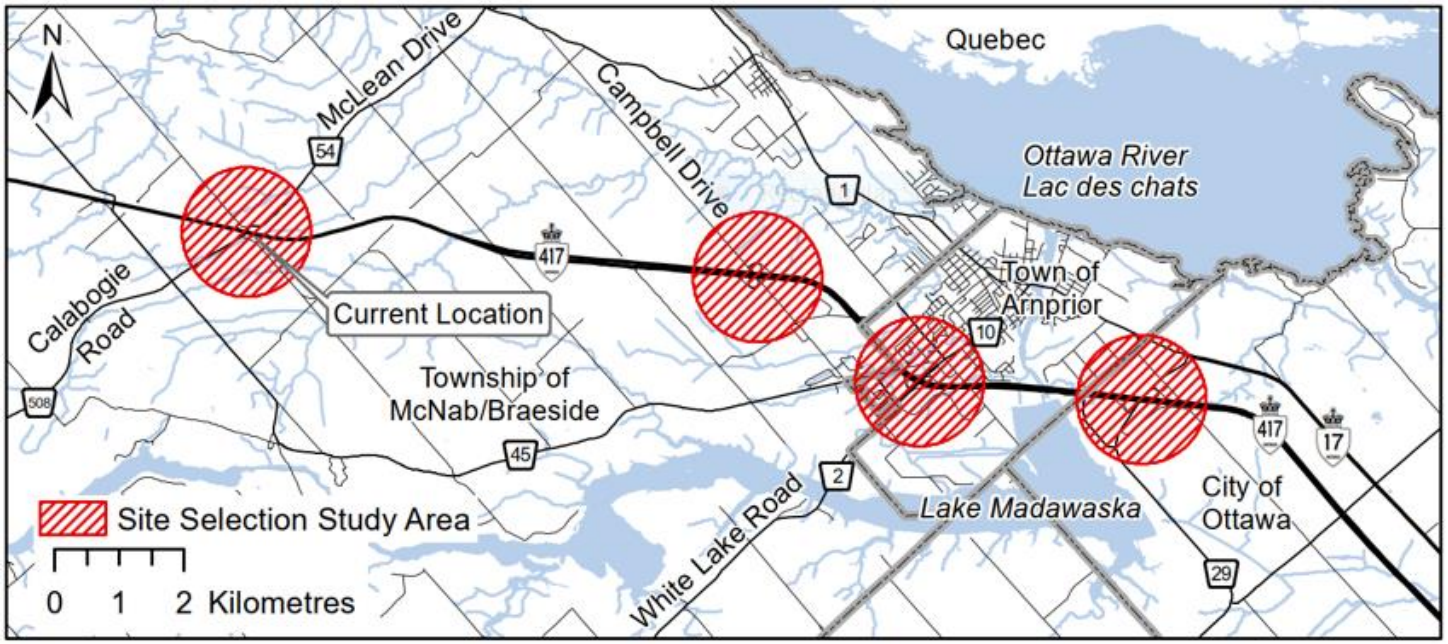
Ontario

Maintenance Patrol Yard

- Notice of Study Commencement – Early August 2021
- Study Area:
  - 1 km radius of interchange
  - Arnprior-Ottawa Road 29 to Twp. McNab/Braeside-Calabogie Road
- Online Public Information Centre anticipated for Fall 2021
  - www.ArnpriorMPY.ca



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Road Closings, Improvements & Property Transfers

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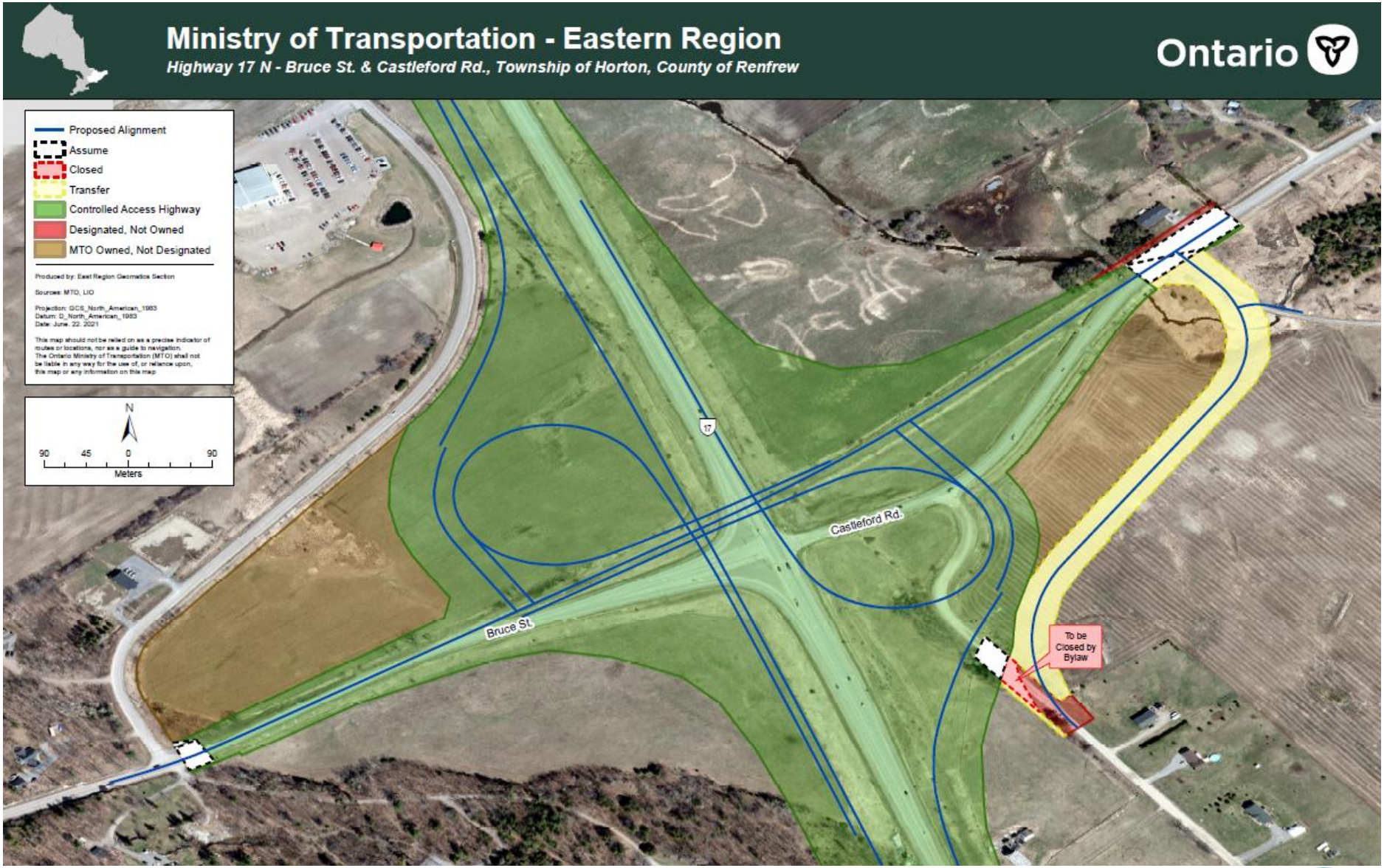
Dugald Road (CR20 Interchange)



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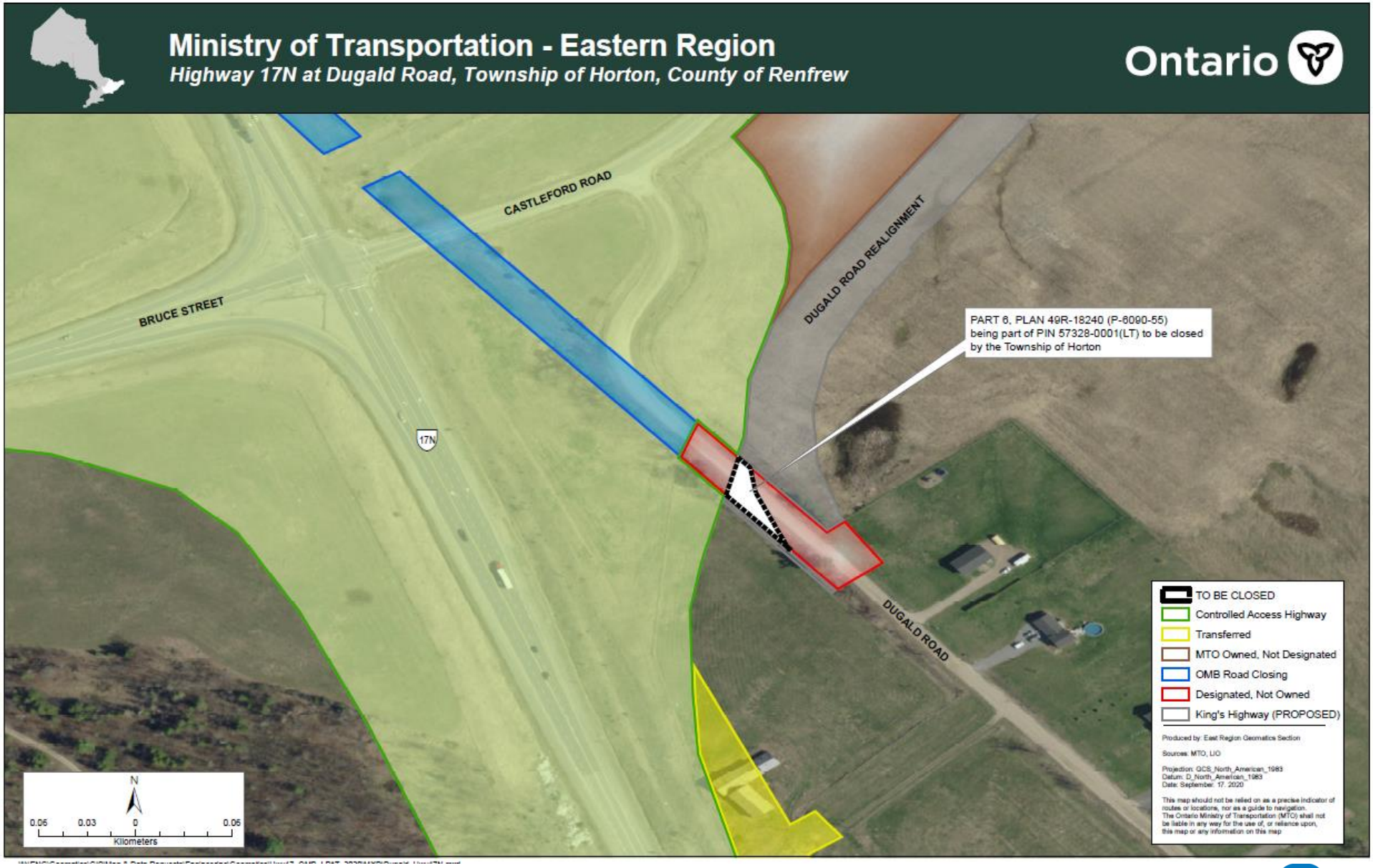
Dugald Road (CR20 Interchange)



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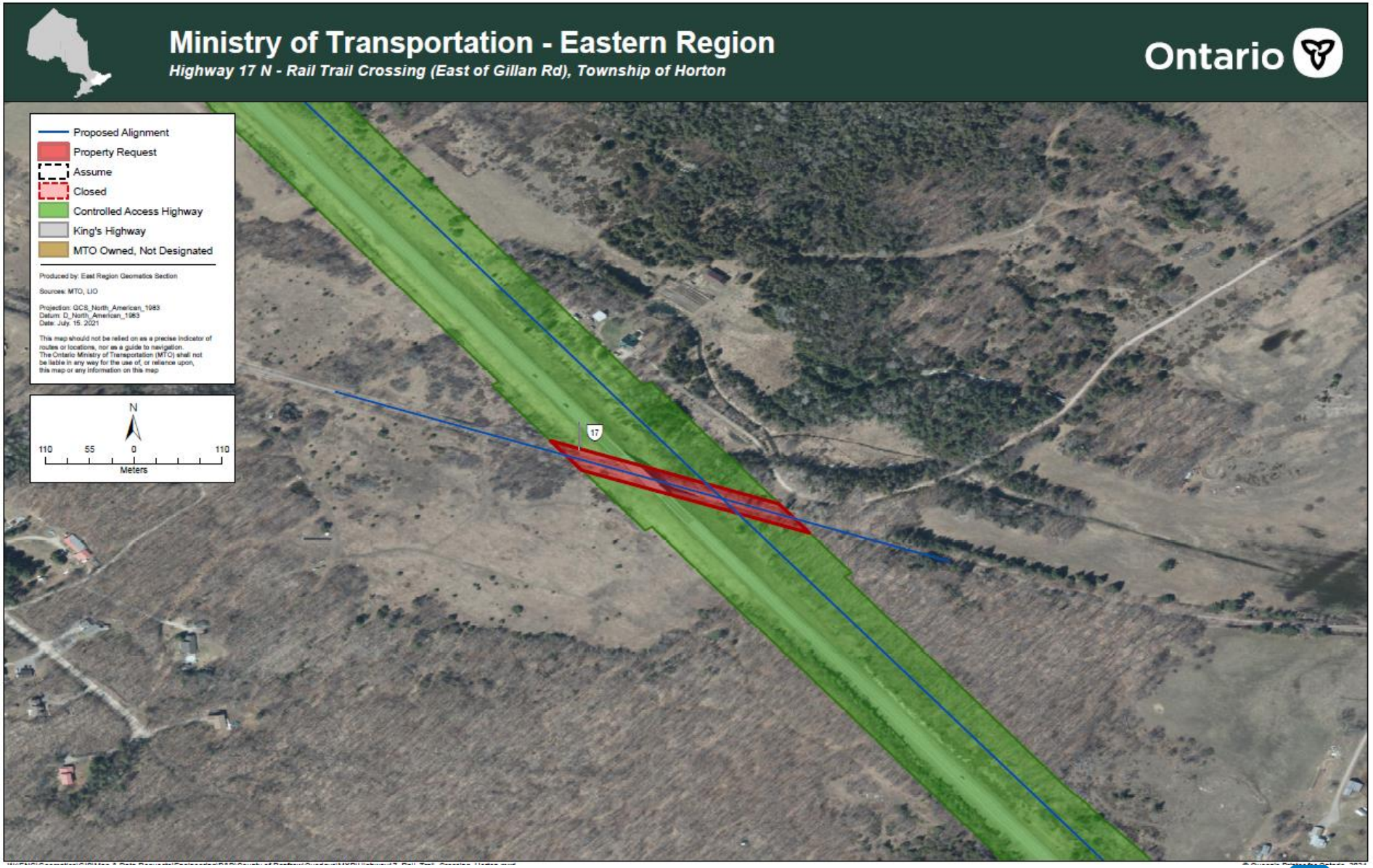
Recreational Trail (East of County Rd 6)



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Next Steps / Consultation

- The Ministry is continuing pre-engineering studies and advanced stakeholder consultation through 2021:

- Township of McNab/Braeside
- Horton Township
- Town of Renfrew
- County of Renfrew
- Indigenous Communities
- Other local stakeholders

- Further project-specific consultation will be completed by P3 consortium during detail design

RETURN TO AGENDA

Ontario

Questions?

RETURN TO AGENDA

Notice of Study Commencement

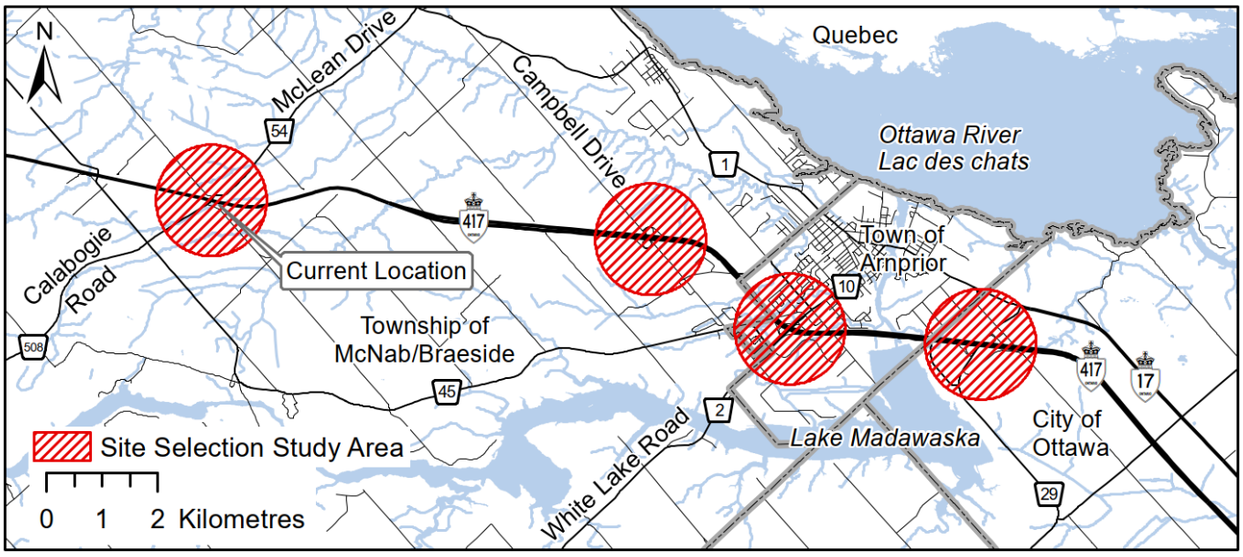
Ministry of Transportation, Ontario

Site Selection, Preliminary Design, and Class Environmental Assessment Study

Arnprior Maintenance Patrol Yard (Project Reference: WP 4059-21-01)

The Ministry of Transportation, Ontario (MTO) has retained Dillon Consulting Limited to complete a Site Selection, Preliminary Design, and Class Environmental Assessment (EA) Study for a Maintenance Patrol Yard (MPY) in the Arnprior area in the County of Renfrew and the City of Ottawa. The purpose of the study is to determine the preferred location and Preliminary Design for a new MPY to service the Highway 17/417 corridor, including the recently announced 22.5 kilometre (km) expansion of Highway 417 to 2.6 km west of Bruce Street.

The study area is focused on four interchanges within the core service area: Calabogie Road (future interchange), Campbell Drive, White Lake Road, and Ottawa Road 29. The map below depicts the study area and the current patrol yard location, where MTO operates out of the Township of McNab/Braeside's Glasgow Public Works Yard. The current location cannot facilitate the capacity increase required to maintain safety standards on the expanded Highway 417. More information about the project is available on the project website at: www.ArnpriorMPY.ca



Study Process

The study is being completed in accordance with the *Class Environmental Assessment for Provincial Transportation Facilities* (2000) as a Group 'B' project. The EA process involves the collection and integration of input from engineering and environmental studies, as well as public and agency consultation, and engagement with Indigenous communities. Public consultation is an important part of the study.

A Transportation Environmental Study Report (TESR) will be prepared for a 30-day public review at the end of the study. The TESR will describe the site selection process, evaluation and selection of the preferred location (i.e., Technically Preferred Alternative or TPA), the Preliminary Design of the TPA, and any environmental mitigation measures and provisions incorporated into the project.

Consultation

As part of ongoing consultation activities, a project update newsletter, including potential alternative sites, will be posted to the project website (www.ArnpriorMPY.ca) later in the summer. An online Public Information Centre (PIC) is also anticipated for early fall 2021 to present the study findings and provide members of the public and other stakeholders with an additional opportunity to review and provide comments. The PIC will be advertised in local newspapers and notifications will be sent by email and regular mail.

Comments

We are interested in receiving any comments or concerns you may have with the study. For further information, to receive project updates, or to be added to the project mailing list, please contact either of the project team members listed in this notice. Your comments are requested by **August 19, 2021**.

Michael Plant, P. Eng., Project Manager
Dillon Consulting Limited
177 Colonnade Road, Suite 101
Ottawa, Ontario, K2E 7J4
Tel.: 1-877-934-5566 ext. 1224
Email: ArnpriorMPY@dillon.ca

Ryan Vandenberg, MTO Project Manager
Ministry of Transportation, Ontario
1355 John Counter Boulevard
Kingston, Ontario K7L 5A3
Tel.: 613-539-1514 / 1-800-267-0295
Email: Ryan.Vandenberg@ontario.ca

Comments and information collected during the study will be used in accordance with the *Freedom of Information and Protection of Privacy Act* and *Access to Information Act*. With the exception of personal information, all comments will become part of the public record. If you have accessibility requirements in order to participate in this project, please contact one of the project team members listed above.

Pour des renseignements en français veuillez communiquer avec Sydney Tasfi au 1-877-934-5566, poste 1005.

Ontario

DILLON CONSULTING

RETURN TO AGENDA

THE CORPORATION OF THE TOWNSHIP OF HORTON

BY-LAW NO. 99-06

Being a by-law to authorize the purchase of the Canadian National Railway (CN) Right-of-way that runs through Horton Township.

WHEREAS the Council of the Corporation of the Township of Horton wishes to purchase the CN Right-of-Way that runs through the Township of Horton;

AND WHEREAS the Township and CN have reached an agreement on the purchase price;

AND WHEREAS Section 191 of the Municipal Act, Chapter M.45 R.S.O. 1990, as amended, requires that a by-law be passed authorizing the purchase.

NOW THEREFORE the Council of the Corporation of the Township of Horton ENACTS AS FOLLOWS:

1. That the Corporation of the Township of Horton purchase the CN Right-of-Way that runs through Horton Township at a cost of $100.00 per acre (estimated acreage is 30.62 acres).

2. That Adam Kasprzak Surveying Ltd. be authorized to carry out the necessary survey work to meet the requirements of the Registry Office. The estimated cost of survey work is $2,000.00, less a $1,000.00 credit to be paid by CN towards the cost of surveying.

3. That Richard Dickinson of Cooke and Dickinson be authorized to represent the Township on the closing of this purchase.

4. That the Reeve and Clerk are hereby authorized to execute the Agreement of Purchase and Sale for the CN Right-of-Way.

5. That the Reeve and Clerk are hereby authorized to do or cause to be done all such matters or act or thing as may be required to give full force and effect of this by-law.

Read a First and Second Time this 5th day of January, 1999

Read a Third Time and Passed this 5th day of January, 1999

REEVE

CLERK

RETURN TO AGENDA

THIS AGREEMENT made this 6th day of June , 2000

B E T W E E N :

THE CORPORATION OF THE TOWNSHIP OF HORTON

(hereinafter called the "Township")

OF THE FIRST PART

- and -

WHITE WATER SNO-GOERS
Of the
Township of Horton and Town of Renfrew
In the
County of Renfrew
Province of Ontario

(hereinafter called the "Licensee")

OF THE SECOND PART

WHEREAS the Licensee desires to obtain the permission of the Township to use the licensed premises (as hereinafter defined) for recreational snowmobiling:

AS WHEREAS the Township agrees to grant to the Licensee permission to use, for recreational purpose the licensed premises set out below upon the following terms and conditions:

NOW THEREFORE in consideration of the premises the parties hereto agree as follows:

1. The Township hereby grants permission to the Licensee to use for recreational snowmobiling purposes only, approximately seven kilometres of the Railway's abandoned Renfrew Subdivision right of way lands situated in the County of Renfrew, Province of Ontario, being generally located in the area outlined in red on the attached undated, unnumbered Plan marked as Schedule "A", (the "licensed premises") which schedule is attached hereto and forms part hereof.

2. The Licensee agrees to use and maintain the licensed premises at its sole risk and expense all to the satisfaction of the Township, and in compliance with all laws, by-laws, orders, rules and regulations of lawful authorities whether federal, provincial, municipal or otherwise; such maintenance to include, but not be limited to:

   (a) the installation and maintenance of such warning signs upon the licensed premises as considered necessary to notify trail users of road crossings or other hazards and to prohibit unauthorized entry;

   (b) the removal from the licensed premises of all garbage and debris by snowmobilers deposited; and

   (c) the regular inspection of the licensed premises by sufficient patrols to ensure compliance with the obligations assumed hereunder.

   (d) providing for, and placing concrete barricades at all municipal road intersections of the trail by the Twentieth Day of May each year

RETURN TO AGENDA

3. The Licensee agrees that it shall at all times indemnify and save harmless the Township, its employees, servants and agents, from any and all claims, direct or derivative, demands, actions, losses, suits, expenses and liability or other proceedings, cost or liabilities arising out of loss, damage or injury to any persons (including death) or to property attributable to or connected with the exercise of this License (collectively the "Claims") by or on behalf of the Licensee howsoever incurred by the Township, its servants and agents.

   The Licensee, for itself, its employees, servants, agents and members, hereby waives as against the Township, its employees, servants, and agents all Claims of whatsoever nature or kind, where such Claims arise directly of indirectly out of or are attributable to the exercise by the Licensee or others of the privileges herein granted, whether or not such Claims result from the negligence of the Township, its servants, agent, or otherwise.

4. The Licensee for and on behalf of its employees, servants, agents and members releases and forever discharges the Township, its employees, servants, and agents, from any and all Claims, demands, actions, suits or other proceedings which the Licensee may have which in any manner whatsoever arise out of the use of the licensed premises, including any Claims or demands for loss of or damage to snowmobiles or other equipment brought upon the licensed premises or injuries to or death of persons on the licensed premises, pursuant to this License or otherwise.

5. The Licensee hereby agrees to obtain and maintain in force during the continuance hereof, a policy of insurance containing terms and conditions satisfactory to the Township, in which the Township shall be named as one of the insured, to provide for public liability respecting the property of the Township, including the licensed premises in the amount of FIVE MILLION DOLLARS ($5,000,000.00) or such further or other amount as shall be deemed appropriate by the Township from time to time during the currency hereof. Such policy of insurance shall contain the following provisions:

   "Cross Liability

   In the event of an employee, servant, agent or member of one of the insured named herein being injured by an event for which another insured named herein is or may be liable, this policy shall apply to such insured against whom the claim is made or may be made in the same manner as if separate policies had been issued to each insured named herein.

   In the event of damage to property belonging to any one or more insured for which another insured is or may be liable, this policy shall apply to such insured against whom claim is or may be made in the same manner as if separate policies had been issued to each insured"

   And shall additionally require to insurer to furnish the Township with no less than thirty (30) days prior written notice of cancellation.

   During the continuance hereof, the Licensee further agrees to forward to the Township the original or a certified copy of the policy of such insurance and any renewals thereof. The Licensee also understands and agrees that the placing of such insurance shall in no way relieve the Licensee of the obligations assumed by the Licensee under the indemnity or other provisions of this License.

6. The Licensee hereby accepts the licensed premises on an "as is where is" basis and hereby waives as against the Township, all rights and resources of any nature whatsoever in respect of any defects therein. The Township makes no representation or warranty with respect to the condition, nature, composition, use (past, present or future) of the licensed premises.

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7. (a) The Licensee agrees that it shall immediately carry out all measures necessary to keep the licensed premises free and clear of all environmental contaminants or residue (hereinafter referred to as "environmental contamination") resulting from the Licensee's occupation or use of the licensed premises. The Licensee shall be solely responsible for the cost of all work carried out to correct any environmental contamination which occurs on the licensed premises, or which occurs on other lands as a result of the Licensee's occupation or use of the licensed premises;

(b) The Licensee shall comply with the provisions of any federal, provincial or municipal environmental laws which during the continuance of this License shall become applicable to the licensed premises; and

(c) The responsibility of the Licensee to the Township with respect to the environmental obligations contained herein shall continue to be enforceable by the Township notwithstanding the termination or expiration of this License.

THE TOWNSHIP AND THE LICENSEE MUTUALLY AGREE AS FOLLOWS:

8. (a) That the licensed premises are for the exclusive use of the Licensee, Its servants, agents and members. Use by any motorized vehicle other than snowmobiles and trail groomers shall be prohibited. Prior to any individual's use of the licensed premises as set out herein, said individual(s) shall obtain a permit from the Licensee which permit shall be executed by said individual and shall include a release and indemnity provision in favour of the Township, its employees, servants and agents, containing the wording set out in paragraphs 3 and 4 hereof;

(b) Notwithstanding clause 8 (a) above, use of the licensed premises by others for cross-country skiing, hiking and other non motorized winter sport activities shall be permitted.

9. That no buildings, structures or facilities shall be placed upon the licensed premise without the prior written approval of the Township;

10. That this License shall take effect as from the First day of November, One Thousand Nine Hundred and Ninety-Nine, for a period of one (1) year and shall thereafter continue in force from year to year subject to termination at any time after the effective date hereof by either party hereto giving to the other party not less than thirty (30) days prior notice in writing; PROVIDED that if the Licensee shall be in breach of any of the terms, convenants, provisos or conditions herein set forth, the Township shall have the right to cancel this License forthwith. Notice hereunder by be delivered personally, sent by prepaid mail or by faxmittal transmission (if such electronic means of communication is designated hereunder) addressed:

to the Licensee:

WHITE WATER SNO-GOERS
Attention: Debra Hanniman
95 Argyle St. N.
Renfrew, Ontario K7V 1S7

and to the Township:

CORPORATION OF THE TOWNSHIP OF HORTON
Attention: Clerk-Treasurer
R.R. #5 - 2253 Johnston Road
Renfrew, Ontario K7V 3Z8

and shall be effective as the date of delivery in the case of personal delivery, two business days after mailing in the case of prepaid mail, and the date of confirmed transmission in the case of faxmittal communication. Either party may from time to time give notice to the other of any change of address for the purpose of giving notice hereunder;

11. Neither this License nor any privileges arising hereunder shall be transferred or assigned by the Licensee without the prior written consent of the Township; and

12. Upon termination of this License in any manner, the Licensee shall forthwith at its risk and expense remove any buildings, structures, facilities, including posted warning signs, garbage or debris from the licensed premises and shall restore such licensed premises to a condition satisfactory to the Township. Should the Licensee default in so doing, such work or removal and restoration may be performed by or on behalf of the Township at the risk and expense of the Licensee.

IN WITNESS WHEREOF the parties hereto hereby set their hands and the corporate parties hereto hereby set their corporate seals attested to by the hands of the proper signing officers duly authorized in that regard.

SIGNED, SEALED AND DELIVERED
in the presence of

Witness

THE CORPORATION OF THE
TOWNSHIP OF HORTON

Per: Milton R. Stevenson, Reeve

Per: Mackie J. McLaren, Clerk-Treasurer

Witness

WHITE WATER SNO-GOERS

By its members:

R. B. McDonald
PRESIDENT

Vice-President

Debra-Lynn R. Hanniman
SECRETARY/TREASURER

We have authority to bind
White Water Sno-goers

THE CORPORATION OF THE TOWNSHIP OF HORTON

BY-LAW NO. 2018-64

A BY-LAW TO AUTHORIZE THE MAYOR AND THE CAO/CLERK TO ENTER INTO A MEMORANDUM OF UNDERSTANDING WITH THE RENFREW COUNTY ATV CLUB FOR USE OF THE MILLENNIUM TRAIL

WHEREAS the Council of the Corporation of the Township of Horton wishes to enter into a Memorandum of Understanding with the Renfrew County ATV Club;

NOW THEREFORE the Council of the Corporation of the Township of Horton **ENACTS AS FOLLOWS:**

1. That the Mayor and CAO/Clerk be authorized and are hereby authorized to enter into a Memorandum of Understanding with the Renfrew County ATV Club for use of the former Millennium Trail as form attached to this by-law as Schedule “A”, and such schedule to form part of this by-law and to have the same force and effect as if recited in full herein; and

2. That the Mayor and CAO/Clerk be authorized and are hereby authorized to do or cause to be done all such matter of act or thing as may be required to give full force and effect of this by-law and to the said Memorandum of Understanding in the form of Schedule “A” attached herein; and

3. That this By-law shall come into full force and effect on the date of its passage.

READ a first and second time this 18th day of September, 2018.

READ a third time and passed this 18th day of September, 2018.

MAYOR Robert Kingsbury

CAO/CLERK Hope Dillabough

RETURN TO AGENDA

Renfrew County ATV Club
PO Box 181, Eganville ON K0J 1T0
Land Use Permission

MEMORANDUM OF UNDERSTANDING

On this 18TH day of **September, 2018**. I, the undersigned, owner/occupier of the premises located in the County of **RENFREW**, in the Township of **HORTON**, do hereby give the undersigned named Renfrew County ATV Club Incorporated (RCATV), permission to legally enter, establish, maintain, sign and use that portion of the premises herein designated by me without fee, for the exclusive purpose of allowing authorized trails users to access said premises for recreational use under the following terms and conditions:

1. Authorized trail users include motorized and non-motorized trail users and riders in possession of a valid trail permit, or other RCATV permitted vehicles for the purposes of trail maintenance.

2. Renfrew County ATV Club shall continue to maintain a minimum of **$15 million in third-party liability insurance**. This insurance can be confirmed by RCATV in the form of a Certificate of Insurance to be provided at the request of the owner/occupier. The insurance shall have adequate limits to cover land uses specified by the Renfrew County ATV Club and authorized trail users on the designated premises.

3. The designated premises shall be detailed on an attached addendum, in the form of a sketch or map, and a copy of each/both shall be initialed by both parties and attached to this agreement.

4. For the purposes of this designated premise, the recreational ATV season will be from the date of **1 May** until the date of **1 December of each year**. It is understood that RCATV and its designated volunteers, with the owner/occupier's written or verbal consent, shall have access to the designated premises prior to and after the recreational ATV season for the purposes of opening and closing, upgrading and maintaining the trail.

5. RCATV Club shall maintain the portion of the designated premises to be used by authorized trail users in reasonably good condition for RCATV recreation purposes only; and undertake to post appropriate signage; remove on an annual basis any litter caused by authorized trail users; and repair or replace property damaged by authorized trail users on that portion of the designated property used for multi-use trail recreation.

6. Each party shall give the other sixty (60) days prior written notice to the address above of any changes to, or cancellation of this agreement.

7. RCATV, its wardens and executives are hereby authorized to be the undersigned owner/occupier's agent(s) to supervise and enforce the uses defined hereunder with respect to the designated premises in accordance with the Trespass to Property Act and the Occupiers Liability Act.

Landowner/Occupier

NAME	Hope Dillabough, Clerk/CAO Township of Horton
ADDRESS	2253 Johnston Rd., Renfrew, ON K7V 3Z8
PHONE	613-432-6271

Renfrew County ATV Club

Greg Tatton, RCATV Director, Renfrew and Area	705-571-3551
Teresa Gamble, RCATV President	613-585-9236

Landowner	RCATV Representative
Date	Date

RETURN TO AGENDA

1. Former CN Railbed, Horton Township:

- RCATV/OFATV lease on the full extent of the railbed in Horton Township to be maintained and wardened in compliance with this land use agreement.

- Sign as ATV Route along Whitton Rd (Algonquin Trail to Jamieson Rd), Jamieson Rd (Whitton Rd to Gillan Rd), and Gillan Road (Jamieson to Horton Twp Railbed)

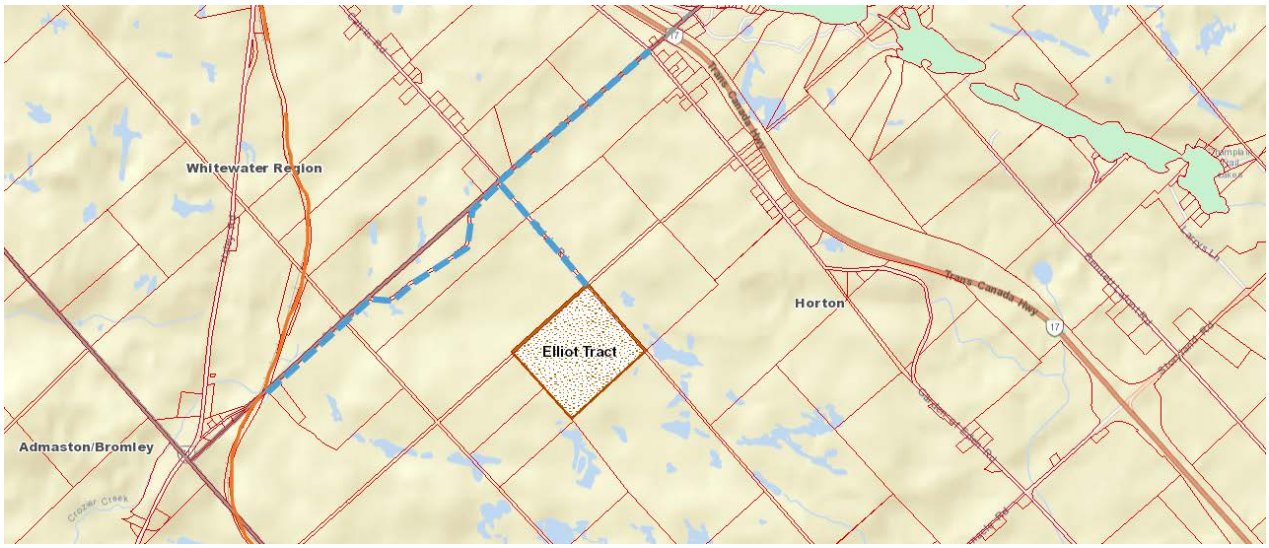
- Brushed and sign an ATV access at Gillan Road along the unopened road allowance that will be respectful of adjacent residents and provide an identified enter and exit point from the railbed.

RETURN TO AGENDA

2. ATV Route signage on Orin Road (Algonquin Trail to Garden of Eden Road) and Calvin Road from Orin Road to Elliot Tract

- Safely connects riders to the Algonquin Trail and to Whitewater Region via a rail tunnel under Highway 17 at Garden of Eden Road

- Connects to future trail system at County of Renfrew forestry – Elliot Tract.



RETURN TO AGENDA