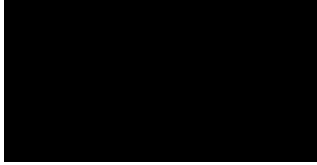


C. William D. Foster



April 13, 2023

Tim Sorochinsky, P.Eng.
AECOM Project Manager
Bradford Bypass
AECOM Canada Ltd.
30 Leek Crescent Floor 4
Richmond Hill, ON
L4B 4N4

By Email: ProjectTeam@BradfordBypass.ca

Dear Mr. Sorochinsky

RE: Draft Groundwater Protection and Well Monitoring Plan (the Draft Plan)
Highway 400 - Highway 404 Link (Bradford Bypass)

Introduction

I read the Draft Plan in some detail. I expected to see a detailed plan on how the province would protect the groundwater along the Bradford Bypass corridor and how it would monitor the impact of the highway on nearby water wells. My expectation was based on my reading of the title of the Draft Plan. My detailed read indicated that the Draft Plan did little to protect the groundwater.

At the conclusion of my reading, I came across Section 8 which states:
“This Plan was prepared in accordance with the requirements of O. Reg. 697/21, Section 23.”¹ (Exemption Regulation)

Section 23 (2) of the Exemption Regulation states:

The Groundwater Protection and Well Monitoring Plan shall, at a minimum, include,

- (a) the identification of all areas where the Bradford Bypass Project may directly or indirectly affect groundwater;
- (b) a groundwater monitoring program for the identified areas;
- (c) a description of the locations and parameters for the monitoring of groundwater quality and quantity;
- (d) the proposed start date and frequency of groundwater monitoring; and

¹ Ibid Page 21

(e) a well water survey, including plans to collect appropriate water quality and quantity information as determined by the proponent.

Plan to Plan

I now realize that this Draft Plan is actually a “plan to plan” how to “monitor” the impact of the highway on both groundwater and local wells. It is not a plan to protect the groundwater but only to monitor the highway’s impact on the groundwater.

“The subsequent Detail Design phase shall carryout all necessary and required works as outlined in this Report as a minimum.”²

Because of the lack of detailed topographical knowledge, the Draft Plan provides only general provisions to be implemented at the detailed planning stage. The Draft Plan requires the following Plans be prepared prior to commencement of construction:

- A Construction Dewatering Plan (Water Discharge/Management);
- An Erosion and Sediment Control Plan and
- A Groundwater Quality Monitoring Program.

“The Construction Dewatering Plan, is required to include details on where and when all groundwater is obtained, stored, transferred, used and returned to the environment (if applicable) and the proper decommissioning of the dewatering wells upon the completion of the construction, must be implemented prior to the discharge to the natural environment.”³

“These three reports should be prepared during Detail Design prior to the commencement of the dewatering activities and submitted to MECP when finalizing the draft permit to take water (if one is determined to be required during subsequent Detail Design and construction phases).”⁴

From this writer’s perspective, these “reports” should be mandatory, detailed “Plans”. The use of the word “should” and “reports” in the Draft Plan provides no comfort to anyone relying on O. Reg. 697/21 that groundwater in the vicinity of the Bradford Bypass will actually receive any form of effective protection.

The results of the baseline water quality sampling completed within the Study Area indicates that dewatering effluent may not fulfill the water quality requirements for sewer discharge in each of Bradford West Gwillimbury, York Region and King Township. The Draft Plan says: “The results of the baseline water quality sampling completed within the Study Area indicates that dewatering effluent may not fulfill the water quality requirements of [these municipalities] sic without pre-treatment for the exceeded parameters identified by AECOM sampling in 2021 and 2022 (AECOM, 2022A).”⁵

² AECOM - Draft Groundwater Protection and Well Monitoring Plan - Page 22

³ Ibid Page 6

⁴ Ibid Page

⁵ Ibid Page 7

The Draft Plan notes that, while the preferable discharging method for the dewatering groundwater is to the municipal sewer system in the vicinity of the study area if one exists, given the nature of the study area, opportunities to connect to municipal sewer systems may be limited and challenging.⁶

“If the collected groundwater from dewatering activities is expected to be discharged to the natural environment (only in areas of no previous development) this water must be tested for Provincial Water Quality Objectives (PWQO) and be in compliance with these objectives. Given the variability in geological material encountered throughout the proposed ROW, it is suggested that the dewatering Contractor be prepared to potentially deal with treatment for suspended solids prior to discharge to the sanitary sewer. Given the Highly Vulnerable Aquifer (HVA), Significant Groundwater Recharge Areas (SGRA), and Wellhead Protection Areas (WHPA) present within the Study Area, ***discharge to the natural environment is unlikely to be an option.***”⁷
[Emphasis added]

My concern with this finding is that contractors, and perhaps even the province, will ignore this requirement (or eliminate it by way of a further O. Reg or Ministerial Order) due to the substantial added costs of trucking this water to an acceptable discharge location. My question to ACOM and MTO with respect to this very important issue is: *what steps will you take to ensure that dewatering material (potentially contaminated water) will be disposed of properly rather than simply being dumped into a roadside ditch when presumably no-one is looking?*

It would also be very useful, from a value for money perspective, to provide an estimate to the province and the public of the cost of offsite disposal of extracted water that does not meet Provincial Water Quality Objectives.

Please also advise the conditions being encountered by the Early Works contractor and confirm that this contractor is in full compliance with the actions set out in this Draft Plan.

Road Salt

“Based on AECOM’s understanding of the regional hydrogeology, the potential effect of road salt runoff from the highway on the shallow groundwater system and shallow surficial materials is considered high. These areas of high aquifer vulnerability could potentially be impacted by saline runoff. As such, berms around the excavated areas are required during dewatering to limit runoff. Additional mitigation measures are identified in the Preliminary Design Stormwater Management Plan (AECOM, 2022C), which is recommended to be consulted during review of this plan in Detail Design.”⁸

Please explain, given the nature of the surrounding ground, how berms will mitigate the effects of this salt runoff. While the issue of stormwater salt runoff will be addressed in

⁶ Ibid Page 7

⁷ Ibid Page 8

⁸ Ibid Page 4

your Preliminary Design Stormwater Management Plan, having not yet seen this plan and given the extreme permeability of the ground along the Bradford Bypass route, please explain in this Plan how you intend to prevent the absorption of further salt into the ground water along either side of the highway once it is in operation. As this is the Lake Simcoe Basin, my understanding is that this salinated groundwater will eventually find its way into Lake Simcoe. This is a deleterious substance that will, over time, severely impact the health of fish and other wildlife in Lake Simcoe.

Please also provide me with a copy of your Preliminary Design Stormwater Management Plan (AECOM, 2022C or better yet, tell me where I can find it on the BradfordBypass.ca website.

Well Monitoring

The second part of the Draft Plan addresses Well Monitoring. This is the most critical part of this entire study as it addresses the potential impact of the highway on potable water used by households along the Bradford Bypass corridor.

“As shown in Figure 2, there are potentially at least 260 domestic, livestock, commercial, industrial or public water supply wells within the Study Area and these **should be visited** prior to construction beginning to determine if the well is still used for the residence.”⁹ **[Emphasis added]**

This is not just a matter of gaining inexpensive access to private wells along the corridor for monitoring purposes, but also an issue of public health which may be impacted by the Bradford Bypass. The identification and subsequent monitoring of all wells used for residential water service within the Study Area should be mandatory with water samples taken and logged for each such well prior to commencement of construction and at regular intervals thereafter. Question: are any wells close to the early works project currently being monitored, and if yes, do the resultant test reports indicate any negative impact?

“AECOM completed an initial Door to Door Water Well Survey in 2021 and 2022 (AECOM, 2022B) that contacted all MECP domestic water well owners within 500 m of the Study Area. There was limited response to this survey and the homeowners should be contacted again during subsequent Detail Design as required after the dewatering assessment is completed. 143 domestic water well owners were contacted via mail in 2021 as part of AECOM’s Water Well Survey Report (AECOM, 2022B) and **17 responses were received.**”¹⁰ **[emphasis added]**

This response level is slightly less than 12% of those contacted. This is a woefully inadequate participation level from a public health perspective. There should be no requirement to await receipt of a homeowners “Permission to Enter” to perform this monitoring. Just as the government was able to register Highway Corridor Restrictions

⁹ Ibid Page 9

¹⁰ Ibid Page 9

against all properties in the Study Area and legislate that surveyors have right of access to private property to conduct their surveys, the government should be able to require that AECOM staff be given external access to all wells in the Bradford Bypass Study area.

Is this authorized access what is meant with respect to the reference to public health in the following statement? "These residential properties could act as outlying monitoring wells to confirm there are not connections that may develop during short-term dewatering operations. The frequency of private well water level and water quality monitoring will be the same as the monitoring wells listed in Section 4.2 and 4.3. Prior to the initiation of the monitoring and sampling of the residential properties listed above, the Detail Design designer will contact local public health (Simcoe Muskoka Public Health, York Region Public Health) to allow for involvement as requested/required."¹¹

Given the nature of the work to be performed, I also recommend that MTO properly decommission all abandoned wells identified within its study area. This is the only way there can be any certainty that groundwater will be protected from the impacts of this highway.

In closing, I have to question the accuracy of your private well information. I am one of the 17 responders mentioned above. Representatives from your corporation attended at my property, tested my well and subsequently sent me a report of their findings. At the time, they mentioned that my well was not included in their records. Based on your Draft Plan, this appears to still be the case. Enclosed for your records is both my official well record together with an updated map of well locations contained in your draft Plan.

Respectfully submitted.

C.W.D. Foster

P.S.

I encourage you to read the following quotes. Ontario appears to be taking an extremely cavalier approach to our wetlands, greenbelts, water sources and climate change. The consequences of these policies will be Ontario's Achilles Heel for decades to come.

Quote of the Day

"Some \$300 billion of business value is at risk due to water scarcity, pollution and climate change. It is vital the corporate sector invest now to protect this natural asset."

¹¹ ibid

Sanda Ojiambo, CEO and executive director of the United Nations Global Compact

Mark Smith, strategic water sector director at UK-based environmental consultancy RSK, shares his thoughts on the water crisis and destroyed wetlands:

"People across the globe are now experiencing climate change as a water crisis. Whether it's floods, droughts or storms, global warming changes water. So, it's not right to treat water as somehow separate from climate change."

"There is a water crisis, but the planet is not running out of water. What we have is a clean water access problem, and this problem is growing globally. In most parts of the world there IS sufficient water, but it's often polluted and unusable."

"We've destroyed ecosystems – as the U.N. Secretary General once said – and in particular we've destroyed wetlands. Wetlands are the key to local water cycles, and it's in wetlands that most of our natural water sources have been eroded. We urgently need to regenerate wetlands. These include mangrove swamps in the Middle East and wetlands in East Africa."

"Low tech solutions that can be operated within the community can restore wetlands. The international community needs to support low tech solutions in developing countries, such as maintaining or fixing local water purification infrastructure."

The Ontario Water Resources Act
WATER WELL RECORD

1. PRINT ONLY IN SPACES PROVIDED
2. CHECK CORRECT BOX WHERE APPLICABLE

11 6921153 69003 15 YS E 01

COUNTY OR DISTRICT: York TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE: East Gwillimbury CON. BLOCK, TRACT, SURVEY, ETC: CON 1E LOT: 118
 OWNER (SURNAME FIRST): FOSTER ADDRESS: Holland Landing DATE COMPLETED: DAY 5 MO 7 YR 90

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET	
				FROM	TO
<u>Brown</u>	<u>sand</u>			<u>0</u>	<u>6</u>
<u>Gray</u>	<u>clay</u>		<u>soft</u>	<u>6</u>	<u>40</u>
<u>"</u>	<u>"</u>	<u>silt</u>		<u>40</u>	<u>55</u>
<u>"</u>	<u>"</u>		<u>soft</u>	<u>55</u>	<u>137</u>
<u>"</u>	<u>"</u>	<u>sand</u>	<u>hard</u>	<u>137</u>	<u>150</u>
<u>"</u>	<u>"</u>	<u>gravel</u>	<u>#</u>	<u>150</u>	<u>154</u>
<u>"</u>	<u>sand</u>		<u>coarse</u>	<u>154</u>	<u>162</u>

31
32

41 WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER					
<u>154</u>	1 <input checked="" type="checkbox"/> FRESH	3 <input type="checkbox"/> SULPHUR	4 <input type="checkbox"/> MINERALS	5 <input type="checkbox"/> GAS	6 <input type="checkbox"/>	7 <input type="checkbox"/>
	2 <input type="checkbox"/> SALTY	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>	6 <input type="checkbox"/>	7 <input type="checkbox"/>

51 CASING & OPEN HOLE RECORD

INSIDE DIAM INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET	
			FROM	TO
<u>64</u>	1 <input type="checkbox"/> STEEL 2 <input type="checkbox"/> GALVANIZED 3 <input type="checkbox"/> CONCRETE 4 <input type="checkbox"/> OPEN HOLE 5 <input type="checkbox"/> PLASTIC	<u>188</u>	<u>0</u>	<u>156</u>

SCREEN

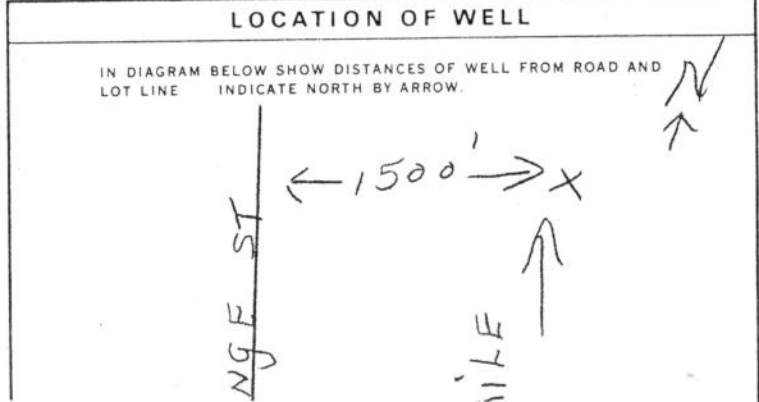
SIZE OF OPENING (SLOT NO.)	DIAMETER	LENGTH
<u>#16</u>	<u>6</u> INCHES	<u>6</u> FEET
<u>SS</u>		<u>156</u> FEET

61 PLUGGING & SEALING RECORD

DEPTH SET AT - FEET	MATERIAL AND TYPE (CEMENT GROUT LEAD PACKER, ETC.)
FROM <u>10-13</u> TO <u>14-17</u>	
FROM <u>18-21</u> TO <u>22-25</u>	
FROM <u>26-29</u> TO <u>30-33</u>	

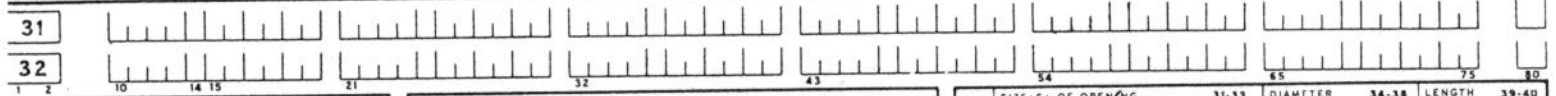
71 PUMPING TEST

PUMPING TEST METHOD	PUMPING RATE	DURATION OF PUMPING
1 <input type="checkbox"/> PUMP 2 <input checked="" type="checkbox"/> BAILER	<u>20</u> GPM	<u>1</u> HOURS <u>00</u> MINS
STATIC LEVEL: <u>17</u> FEET	WATER LEVEL END OF PUMPING: <u>50</u> FEET	WATER LEVELS DURING:
		15 MINUTES: <u>40</u> FEET
		30 MINUTES: <u>45</u> FEET
		45 MINUTES: <u>50</u> FEET
		60 MINUTES: <u>50</u> FEET
IF FLOWING, GIVE RATE	PUMP INTAKE SET AT: <u>100</u> GPM	WATER AT END OF TEST: <u>1</u> CLEAR <u>2</u> CLOUDY
RECOMMENDED PUMP TYPE: <input type="checkbox"/> SHALLOW <input checked="" type="checkbox"/> DEEP	RECOMMENDED PUMP SETTING: <u>100</u> FEET	RECOMMENDED PUMPING RATE: <u>20</u> GPM



FINAL WATER SUPPLY ABANDONED, INSUFFICIENT SUPPLY OBSERVATION WELL ABANDONED, POOR QUALITY

GENERAL COLOUR	COMMON MATERIAL	OTHER MATERIALS	DEPTH - FEET
Brown	sand		0 6
Gray	clay		6 40
"	"	silt	40 55
"	"		55 137
"	"	sand	137 150
"	"	gravel	150 154
"	sand		154 162



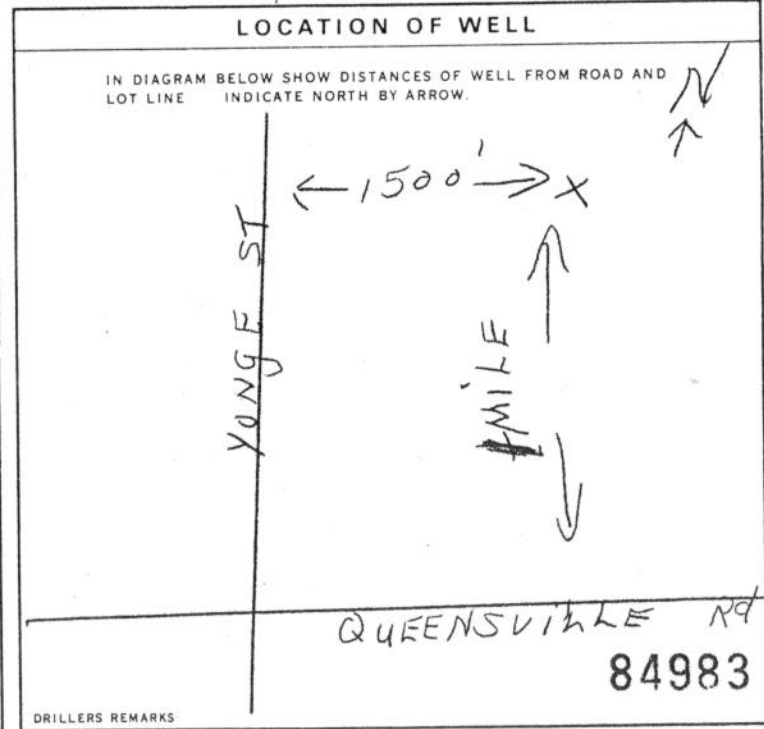
41 WATER RECORD			
WATER FOUND AT - FEET	KIND OF WATER		
10-13 154	1 <input checked="" type="checkbox"/> FRESH 2 <input type="checkbox"/> SALTY	3 <input type="checkbox"/> SULPHUR 4 <input type="checkbox"/> MINERALS 6 <input type="checkbox"/> GAS	14
15-18	1 <input type="checkbox"/> FRESH 2 <input type="checkbox"/> SALTY	3 <input type="checkbox"/> SULPHUR 4 <input type="checkbox"/> MINERALS 6 <input type="checkbox"/> GAS	19
20-23	1 <input type="checkbox"/> FRESH 2 <input type="checkbox"/> SALTY	3 <input type="checkbox"/> SULPHUR 4 <input type="checkbox"/> MINERALS 6 <input type="checkbox"/> GAS	24
25-28	1 <input type="checkbox"/> FRESH 2 <input type="checkbox"/> SALTY	3 <input type="checkbox"/> SULPHUR 4 <input type="checkbox"/> MINERALS 6 <input type="checkbox"/> GAS	29
30-33	1 <input type="checkbox"/> FRESH 2 <input type="checkbox"/> SALTY	3 <input type="checkbox"/> SULPHUR 4 <input type="checkbox"/> MINERALS 6 <input type="checkbox"/> GAS	34-30

51 CASING & OPEN HOLE RECORD				
INSIDE DIAM INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET	
			FROM	TO
10-11 64	1 <input checked="" type="checkbox"/> STEEL 2 <input type="checkbox"/> GALVANIZED 3 <input type="checkbox"/> CONCRETE 4 <input type="checkbox"/> OPEN HOLE 5 <input type="checkbox"/> PLASTIC	188	0	156
17-18	1 <input type="checkbox"/> STEEL 2 <input type="checkbox"/> GALVANIZED 3 <input type="checkbox"/> CONCRETE 4 <input type="checkbox"/> OPEN HOLE 5 <input type="checkbox"/> PLASTIC			20-23
24-25	1 <input type="checkbox"/> STEEL 2 <input type="checkbox"/> GALVANIZED 3 <input type="checkbox"/> CONCRETE 4 <input type="checkbox"/> OPEN HOLE 5 <input type="checkbox"/> PLASTIC			27-30

SCREEN	SIZE OF OPENING (SLOT NO)	DIAMETER	LENGTH
	# 16	6 INCHES	6 FEET
	SS		156 FEET

61 PLUGGING & SEALING RECORD			
DEPTH SET AT - FEET		MATERIAL AND TYPE (CEMENT GROUT LEAD PACKER, ETC.)	
FROM	TO		
10-13	14-17		
18-21	22-25		
26-29	30-33		

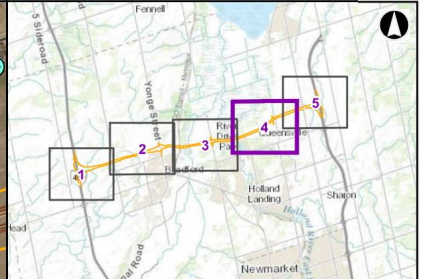
71 PUMPING TEST	PUMPING TEST METHOD		PUMPING RATE		DURATION OF PUMPING		
	1 <input type="checkbox"/> PUMP	2 <input checked="" type="checkbox"/> BAILER	20	GPM	1	15-16	00
					HOURS		MIN
	17	50	40	45	50	50	
	IF FLOWING GIVE RATE	PUMP INTAKE SET AT	WATER LEVELS DURING				
		100	15 MINUTES	30 MINUTES	45 MINUTES	60 MINUTES	
			40	45	50	50	
	RECOMMENDED PUMP TYPE	RECOMMENDED PUMP SETTING	RECOMMENDED PUMPING RATE				
	<input type="checkbox"/> SHALLOW <input checked="" type="checkbox"/> DEEP	100	20				



74 FINAL STATUS OF WELL	
1 <input type="checkbox"/> WATER SUPPLY	5 <input type="checkbox"/> ABANDONED, INSUFFICIENT SUPPLY
2 <input type="checkbox"/> OBSERVATION WELL	6 <input type="checkbox"/> ABANDONED POOR QUALITY
3 <input type="checkbox"/> TEST HOLE	7 <input type="checkbox"/> UNFINISHED
4 <input type="checkbox"/> RECHARGE WELL	<input type="checkbox"/> DEWATERING
75-76 WATER USE	
1 <input checked="" type="checkbox"/> DOMESTIC	5 <input type="checkbox"/> COMMERCIAL
2 <input type="checkbox"/> STOCK	6 <input type="checkbox"/> MUNICIPAL
3 <input type="checkbox"/> IRRIGATION	7 <input type="checkbox"/> PUBLIC SUPPLY
4 <input type="checkbox"/> INDUSTRIAL	8 <input type="checkbox"/> COOLING OR AIR CONDITIONING
<input type="checkbox"/> OTHER	9 <input type="checkbox"/> NOT USED
77 METHOD OF CONSTRUCTION	
1 <input checked="" type="checkbox"/> CABLE TOOL	5 <input type="checkbox"/> BORING
2 <input type="checkbox"/> ROTARY (CONVENTIONAL)	7 <input type="checkbox"/> DIAMOND
3 <input type="checkbox"/> ROTARY (REVERSE)	8 <input type="checkbox"/> JETTING
4 <input type="checkbox"/> ROTARY (AIR)	9 <input type="checkbox"/> DRIVING
5 <input type="checkbox"/> AIR PERCUSSION	<input type="checkbox"/> DIGGING <input type="checkbox"/> OTHER

CONTRACTOR	NAME OF WELL CONTRACTOR		WELL CONTRACTOR'S LICENCE NUMBER
	Wilson water wells		5459
	ADDRESS		
	RR# 4 Stouffville		
NAME OF WELL TECHNICIAN		WELL TECHNICIAN'S LICENCE NUMBER	
Norm Rennie			
SIGNATURE OF TECHNICIAN/CONTRACTOR		SUBMISSION DATE	
P. R. 11/11		DAY MO YR.	

OFFICE USE ONLY	DATA SOURCE	CONTRACTOR	DATE RECEIVED
		5459	JUL 10 1990
	DATE OF INSPECTION	INSPECTOR	
REMARKS			



Legend

- Bradford Bypass - MTO Right-Of-Way
- Bradford Bypass Preliminary Design
- Study Area (500m)

Roads

- Provincial Highway
- Other

Municipality Boundary

- Municipality Boundary

Waterbody

- Waterbody
- Watercourses

EASR

- EASR

PTTW Purpose

- Agricultural
- Commercial
- Water Supply

MECP Water Wells

- Commerical
- Domestic
- Livestock
- Monitoring
- Not Used
- Unknown

0 145 290 580 870
Meters

Bradford Bypass Project

Built Features Within the Groundwater and Hydrogeology Study Area

Jan, 2023	1:12,500	Datum: NAD 1983 UTM Zone 17N Source: Imagery Sources: Esri, HERE, Garmin, InfoMap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN.
* when printed 11"x17"		V: Study Area

AECOM	Figure 2d
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