

Water Well Survey Report

Highway 400 – Highway 404 Link (Bradford Bypass)

Ontario Ministry of Transportation

60636190

June 19, 2023

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Quality Information

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1. Introduction

The Ontario Ministry of Transportation (the Ministry) has retained AECOM Canada Ltd. (AECOM) to undertake a Preliminary Design and project-specific assessment of environmental impacts for the proposed Highway 400 – Highway 404 Link (Bradford Bypass). The Bradford Bypass (the project) is being assessed in accordance with Ontario Regulation 697/21 (the Regulation).

The Bradford Bypass is part of Ontario's plan to expand highways and public transit across the Greater Golden Horseshoe to fight congestion, create jobs and prepare for the massive population growth expected in the next 30 years. Simcoe County's population is expected to increase to 416,000 by 2031, with the Regional Municipality of York growing to 1.79 million by 2041. The Bradford Bypass has been proposed as a response to this dramatic growth in population and travel demand in the area and the forecasted increase in congestion on key roadways linking Highway 400 to Highway 404.

The project is a new 16.3 kilometres controlled access freeway. The proposed highway will extend from Highway 400 between 8th Line and 9th Line in Bradford West Gwillimbury, will cross a small portion of King Township, and will connect to Highway 404 between Queensville Sideroad and Holborn Road in East Gwillimbury. There are proposed full and partial interchanges, as well as grade separated crossings at intersecting municipal roads and watercourses, including the Holland River and Holland River East Branch. This project also includes the design integration for the replacement of the 9th Line structure on Highway 400, which will accommodate the proposed future ramps north of the Bradford Bypass corridor. The Ministry is considering an interim four-lane configuration and an ultimate eight-lane design for the Bradford Bypass. The interim condition will include two general purpose lanes in each direction and the ultimate condition will include four lanes in each direction (one high-occupancy vehicle lane and three general purpose travel lanes in each direction). The interim and ultimate designs are being reviewed as the project progresses. This Report and its findings are based on the project footprint identified within this Report. Should the footprint change or be modified in any way, a review of the changes shall be undertaken, and the Report will be updated to reflect the changes, impacts, mitigation measures, and any commitments to future work.

This Water Well Survey Report (this Report) provides a summary of the work undertaken and factual data obtained by AECOM as part of the Preliminary Design assignment to fulfil obligations for the pre-construction assessment of private well supplies in the vicinity of the Study Area. The Study Area map is presented in **Figure 1**.

2. Purpose and Work Program Description

The purpose of undertaking a Water Well Survey in Preliminary Design is to review available secondary source information and also to obtain primary data from stakeholders within the Study Area regarding their existing water well. The Door to Door Water Well Survey (DDWWS) provides a baseline for the water wells prior to the proposed construction to determine existing water quality and quantity of each property.

The initial step in the DDWWS involved a review of available project documentation and design information relating to the proposed construction activities and methods, as well as a desktop review of existing published information within a radial distance of approximately 500 m of the Study Area (the 'Study Area') (see **Figure 1**) as a precursor to field assessment activities, including:

- Aerial photographs;
- Available Ontario Ministry of Environment, Conservation, and Parks (MECP) Water Well Record and Permit To Take Water (PTTW) databases (incl. Environmental Bill of Rights registry);

- Available mapping (e.g., topographic, base mapping, geological) and reports (e.g., watershed plans, aquifer vulnerability mapping, site-specific investigations);
- Subsurface or other hydrogeological information that AECOM and/or the MTO may have on file which pertains to the Study Area; and
- Geotechnical data / reports carried out as part of the current project, if available.

Upon completion of the preliminary desktop review undertaken in 2021, a water well survey form was mailed to all known and listed Property Owners in the MECP database on August 31, 2021. In addition to the water well survey form, a letter was also included which provided an explanation of the water well survey works. The Property Owners that were contacted were given time to complete the water well survey form and send it back to the Project Team. The water well survey form allowed the Property Owner to confirm groundwater use and to provide basic well information, including the location, type, depth, condition, use, yield, and water quality of any identified wells. A stamped envelope was left at each residence in a conspicuous location (i.e., in mailbox or front door) for completion by the Property Owner and return mailing to AECOM.

The purpose of the initial desktop review and field reconnaissance was to identify, on a preliminary basis to the extent possible, the following:

- General groundwater usage including aquifers, well types and locations
- Location and use of large volume wells, if present; and
- Wells with known quality and/or quantity problems.

For each identified well source where permission to access was obtained from the Property Owner, a baseline well survey / assessment was carried out to document pre-construction conditions (quality and quantity). The scope of each baseline (pre-construction) well survey was developed based on requirements outlined in the following reference documents:

- a) MTO, April 2004. Guidelines for Drinking Water Sampling and Testing in Ministry of Transportation Activities.
- b) MECP, December 2009. Water Supply Wells – Requirements and Best Management Practices. Chapter 10 – Yield Test.

The baseline survey for each identified well (where accessible) included the following elements, at a minimum:

1. Interview with the current Property Owner and/or tenant.
2. Documentation of well construction details (including well type, diameter, casing material, total depth, stick-up, general condition, co-ordinate location, etc.) in written form and through the collection of digital photographs.
3. Measurement of the static groundwater level within the well.
4. Collection of a representative raw (untreated) water sample for analysis of general water quality (ph; total hardness; total alkalinity; calcium, magnesium, sodium; potassium; iron, manganese; chloride; sulphate; nitrate [NO₃-N]; nitrite [NO₂-N], ammonia / ammonium [NH₃-N]; electrical conductivity; total dissolved solids [TDS]; total suspended solids [TSS]; tannin and lignins) and microbiological (*E. coli*, faecal coliforms, total coliforms) parameters.

Variations to the generalized methodology above were made in the field, as required, based on site-specific conditions encountered at each property and/or requests made by individual Property Owners.

During site investigations, private wells were not opened, and the measurement of groundwater levels and completion of well yield tests were not completed as part of this program. Groundwater samples were obtained from untreated taps to obtain a representative sample. Groundwater quality samples were submitted under chain of custody documentation to a Canadian Association for Laboratory Accreditation (CALA) accredited environmental analytical laboratory for general inorganic and microbiological testing. Any exceedances of the applicable drinking water standards were reported to the well owner, MTO, and to the local public health unit, where appropriate.

As detailed in the MTO Guidance Document (April 2004), the following standard forms were referenced by AECOM in the completion of this assignment:

- Form 1: Field Survey Documentation Form
- Form 2: Standard Checklist for Collection and Handling of Drinking Water Samples
- Form 3: Letter to Licensed Laboratory
- Form 4: Analytical Results Comparison Table
- Form 5: Notification Letter – No exceedance of Regulated Parameters
- Form 6: Notification Letter – Exceedance of MTO Mandatory Parameters
- Form 7: Notification Letter – Exceedance of Other Regulated Parameters
- Form 8: Communication Record
- Form 9: Checklist for Well Water Quantity Testing

Results of the DDWWS are summarized in this Report. The documentation provided includes well owner notification in accordance with the procedures outlined within the MTO Guideline Document (April 2004). All reporting completed for this assignment has been completed by an experienced hydrogeologist licenced by the Professional Geoscientist of Ontario (PGO).

2.1 Identification of Licenced Laboratory

AECOM retained AGAT Laboratories (Mississauga, ON) to provide analytical testing services for this assignment. AGAT is a CAEAL, SCC and MECP-accredited environmental analytical laboratory, and are well qualified to provide the services required.

2.2 Project Staff / Licencing

AECOM is a *Licensed Water Well Contractor* (#7503) with the MECP. Licences presently held by AECOM include Class #4 (Pump Installation) and Class #5 (Monitoring, Sampling, Testing, and Non-Powered Construction).

Mr. Brian Holden (P.Ge.) was designated by AECOM as the Well Technician for this assignment. Brian led the water well survey program, completed all phone and in-person interviews and wrote the exceedance letters as necessary. Brian possesses more than 13 years professional consulting experience in the development and implementation of hydrogeologic / environmental investigations. Brian possesses knowledge of the relevant guidelines, acts and legislation as they apply to water resource development, construction dewatering, aggregate resources, environmental site assessment / investigation, waste management, and remediation. Brian's consulting experience has included a broad range of projects, such as: preliminary and detailed hydrogeological investigations, water budget / balance assessments, groundwater and surface water resource development, aggregate resources (development and operational monitoring), environmental impact and site assessment, environmental permitting (Permit To Take Water (PTTW) / Environmental Compliance Approval (ECA)), and contaminated site remediation / monitoring.

3. Results and Discussion

Upon completion of the initial background information review, a total of one hundred and forty-three (143) properties that were identified within a radial distance of approximately 500 m of the Bradford Bypass Study Area. A summary of the results of the private well survey requests that were mailed to residences is provided in **Table 1**.

Table 1: Summary of Results of Private Well Survey Requests Mailed to Residences

Property ID ¹	Property Description / Address	UTM Co-Ordinate Location	Contact With Owner / Resident (Y/N)	Complete Survey Received	Permission To Complete Testing (Y/N)
1	23 Grandview Crescent, Bradford West Gwillimbury	17T 4888284mN 614823.6mE	N	N	--
2	2360 Line 10, Bradford West Gwillimbury	17T 4889873mN 614514.4mE	N	N	--
3	2388 Line 10, Bradford West Gwillimbury	17T 4889841mN 614405.4mE	N	N	--
4	2438 Line 10, Bradford West Gwillimbury	17T 4889860mN 614338.4mE	N	N	--
5	2445 Line 11, Bradford West Gwillimbury	17T 4891073mN 614164.4mE	N	N	--
5	2450 9TH LINE RR#2 BRADFORD	17T 4889474mN 614331mE	N	N	--
6	2457 Line 10, Bradford West Gwillimbury	17T 4889673mN 614189.4mE	N	N	--
7	2464 Line 11, Bradford West Gwillimbury	17T 4891052mN 613838mE	N	N	--
8	2506 Line 8, Bradford West Gwillimbury	17T 4886913mN 614419mE	N	N	--
9	2516 Line 11, Bradford West Gwillimbury	17T 4890979mN 613650mE	N	N	--
10	2527 Line 11, Bradford West Gwillimbury	17T 4890817mN 613340mE	N	N	--
11	2545 Line 9, Bradford West Gwillimbury	17T 4888163mN 614004.4mE	N	N	--
12	2551 Line 11, Bradford West Gwillimbury	17T 4890838mN 613549.4mE	N	N	--
13	2552 Line 11, Bradford West Gwillimbury	17T 4890923mN 613414.4mE	N	N	--
14	2557 Line 9, Bradford West Gwillimbury	17T 4888153mN 613944.4mE	N	N	--
15	2560 Line 10, Bradford West Gwillimbury	17T 4889593mN 613754.4mE	N	N	--
16	2577 Line 11, Bradford West Gwillimbury	17T 4890833mN 613444.4mE	N	N	--
17	29 Grandview Crescent, Bradford West Gwillimbury	17T 4888395mN 614811.6mE	Y	Y	Y
18	300 Barrie Street, Bradford West Gwillimbury	17T 4886802mN 614492mE	N	N	--
19	3031 Yonge Street, Bradford West Gwillimbury	17T 4888023mN 614414.4mE	N	N	--
20	3086 Yonge Street, Bradford West Gwillimbury	17T 4888431mN 614247.6mE	N	N	--
21	3281 Yonge Street, Bradford West Gwillimbury	17T 4889497mN 614318.4mE	N	N	--
22	3378 Yonge Street, Bradford West Gwillimbury	17T 4889698mN 613982mE	N	N	--
23	3378 Yonge Street, Bradford West Gwillimbury	17T 4889661mN 613676.6mE	N	N	--
24	3415 Yonge Street, Bradford West Gwillimbury	17T 4890054mN 614006mE	N	N	--
25	3479 Yonge Street, Bradford West Gwillimbury	17T 4889973mN 614114.4mE	N	N	--
26	100 Oak Drive, River Drive Park	17T 4887635.28 m N 619074.09 m E	N	N	--
27	101 River Drive, River Drive Park	17T 4887697.88 m N 619296.29 m E	N	N	--
28	103 River Drive, River Drive Park	17T 4887709.27 m N 619276.09 m E	N	N	--
29	103 Oak Avenue, River Drive Park	17T 4887673.50 m N 619113.56 m E	N	N	--
30	104 River Drive, River Drive Park	17T 4887690.44 m N 619190.11 m E	N	N	--
31	1193 Holborn Road, Queensville	17T 4890057.05 m N 622717.10 m E	N	N	--
32	12 Arthur Evans Crescent, Bradford	17T 4887000.36 m N 611644.66 m E	N	N	--
33	120 Artesian Industrial Parkway, Bradford	17T 4887765.67 m N 615458.50 m E	N	N	--
34	1337 Holborn Road, Bradford	17T 4890193.51 m N 623165.05 m E	N	N	--
35	1367 Holborn Road, Bradford	17T 4890310.84 m N 623235.41 m E	N	N	--

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Property ID ¹	Property Description / Address	UTM Co-Ordinate Location	Contact With Owner / Resident (Y/N)	Complete Survey Received	Permission To Complete Testing (Y/N)
36	140 Noble Drive, Bradford	17T 4886661.55 m N 613606.80 m E	N	N	--
37	70 Artesian Industrial Parkway, Bradford	17T 4887545.95 m N 615493.82 m E	N	N	--
38	1512 Holborn Road, Queensville	17T 4890554.44 m N 623564.62 m E	N	N	--
39	1538 Holborn Road, Queensville	17T 4890578.53 m N 623623.52 m E	Y	Y	Y
40	1611 Holborn Road, Queensville	17T 4890454.52 m N 623909.79 m E	N	N	--
41	1737 Holborn Road, Bradford	17T 4890575.99 m N 624269.65 m E	Y	Y	Y
42	1845 Holborn Road, Queensville	17T 4890626.10 m N 624411.09 m E	N	N	--
43	1865 Holborn Road, Queensville	17T 4890810.60 m N 624594.03 m E	N	N	--
44	20717 Yonge Street, East Gwillimbury	17T 4887945.00 m N 620535.09 m E	N	N	--
45	20760 Bathurst Street, Holland Landing	17T 4887079.62 m N 617817.04 m E	N	N	--
46	20760 Yonge Street, East Gwillimbury	17T 4887817.75 m N, 619949.02 m E	N	N	--
47	20767 Bathurst Street, Bradford	17T 4887141.90 m N 617929.78 m E	N	N	--
48	20772 Yonge Street, Bradford	17T 4887884.64 m N 619967.13 m E	N	N	--
49	20775 2nd Concession Road, Bradford	17T 4888531.08 m N 621844.85 m E	N	N	--
50	20775 Yonge Street, East Gwillimbury	17T 4887905.36 m N 619974.98 m E	N	N	--
51	20799 Bathurst Street, Holland Landing	17T 4887276.32 m N 617979.95 m E	N	N	--
52	20812 Yonge Street, East Gwillimbury	17T 4887983.06 m N 619923.92 m E	N	N	--
53	20820 Bathurst Street, Holland Landing	17T 4887351.42 m N 617869.50 m E	N	N	--
54	20831 2nd Concession Road, East Gwillimbury	17T 4888697.31 m N 621911.76 m E	N	N	--
55	20832 2nd Concession Road, East Gwillimbury	17T 4888656.34 m N 621764.37 m E	N	N	--
56	20841 2nd Concession Road, East Gwillimbury	17T 4888674.80 m N 621811.60 m E	N	N	--
57	20843 Yonge Street, East Gwillimbury	17T 4888130.98 m N 619985.83 m E	N	N	--
58	20854 Leslie Street, Queensville	17T 4889801.76 m N 623625.60 m E	N	N	--
59	20877 Yonge Street	17T 4888181.90 m N 619953.40 m E	Y	Y	Y
60	20901 Yonge Street, East Gwillimbury	17T 4888239.78 m N 619942.70 m E	Y	Y	Y
61	20908 Leslie Street, Bradford	17T 4889853.08 m N 623654.70 m E	N	N	--
62	20913 Leslie Street, Queensville	17T 4889457.25 m N 623752.20 m E	N	N	--
63	20918 Yonge Street	17T 4888295.50 m N 619783.22 m E	N	N	--
64	20929 2nd Concession Road, Holland Landing	17T 4888587.29 m N 620857.88 m E	N	N	--
65	20967 2nd Concession Road, East Gwillimbury	17T 4889042.63 m N 621738.31 m E	N	N	--
66	20989 Yonge Street	17T 4888553.37 m N 620234.90 m E	Y	Y	Y
67	2100 8th Line, Bradford	17T 4887281.58 m N 615670.44 m E	N	N	--
68	21019 Bathurst Street, River Drive Park	17T 4888185.79 m N 618365.91 m E	N	N	--
69	21022 Leslie Street, Queensville	17T 4889854.95 m N 623654.85 m E	N	N	--
70	21028 Leslie Street, Queensville	17T 4889854.98 m N 623654.94 m E	N	N	--
71	21032 Leslie Street, Queensville	17T 4889820.85 m N 623616.26 m E	N	N	--
72	21044 Leslie Street, Bradford	17T 4889770.90 m N 623520.56 m E	Y	Y	Y
73	21087 Leslie Street, Queensville	17T 4890209.66 m N 624109.23 m E	N	N	--

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Property ID ¹	Property Description / Address	UTM Co-Ordinate Location	Contact With Owner / Resident (Y/N)	Complete Survey Received	Permission To Complete Testing (Y/N)
74	21114 Yonge Street	17T 4888660.49 m N 619307.79 m E	N	N	--
75	21138 Leslie Street, Queensville	17T 4890121.27 m N 623591.49 m E	N	N	--
76	21145 Leslie Street, Queensville	17T 4890177.43 m N 623598.38 m E	Y	Y	Y
77	21153 2nd Concession Road, East Gwillimbury	17T 4889573.23 m N 621730.16 m E	N	N	--
78	21170 Woodbine Avenue, Bradford	17T 4890754.32 m N 625078.81 m E	N	N	--
79	21173 2nd Concession Road, Queensville	17T 4889577.39 m N 621623.40 m E	N	N	--
80	21186 2nd Concession Road, East Gwillimbury	17T 4889621.86 m N 621569.38 m E	N	N	--
81	21192 Leslie Street, Queensville	17T 4890255.16 m N 623488.95 m E	N	N	--
82	21210 Bathurst Street, Bradford	17T 4888021.42 m N 617288.97 m E	N	N	--
83	21320 Leslie Street, Queensville	17T 4890681.16 m N 623425.24 m E	N	N	--
84	22 Morgans Road, East Gwillimbury	17T 4888000.71 m N 619909.28 m E	N	N	--
85	2244 8th Line, Bradford	17T 4887212.22 m N 615449.56 m E	N	N	--
86	2316 8th Line, Bradford	17T 4887198.69 m N 615326.50 m E	N	N	--
87	2362 Line 8, Bradford West Gwillimbury	17T 4887135.20 m N 615102.41 m E	N	N	--
88	2374 Line 11, Bradford	17T 4891185.55 m N 614336.19 m E	Y	Y	Y
89	24 Morgans Road, East Gwillimbury	17T 4887946.53 m N 619765.14 m E	N	N	--
90	2533 Line 9, Bradford West Gwillimbury	17T 4888198.21 m N 614047.28 m E	N	N	--
91	2580 8th Line, Bradford	17T 4886785.01 m N 614102.56 m E	N	N	--
92	2594 8th Line, Bradford	17T 4886771.67 m N 614026.99 m E	N	N	--
93	2636 8th Line, Bradford	17T 4886706.74 m N 613864.44 m E	N	N	--
94	2646 8th Line, Bradford	17T 4886677.26 m N 613803.25 m E	Y	Y	Y
95	2676 8th Line, Bradford	17T 4886665.98 m N 613762.80 m E	N	N	--
96	3 Arthur Evans Crescent, Bradford	17T 4886961.58 m N 611445.98 m E	N	N	--
97	30 Morgans Road, East Gwillimbury	17T 4887873.28 m N 619628.09 m E	N	N	--
98	3004 Line 8, Bradford West Gwillimbury	17T 4886112.80 m N 612059.82 m E	N	N	--
99	3111 Sideroad 10, Bradford	17T 4886455.65 m N 611526.58 m E	N	N	--
100	3163 Sideroad 10, Bradford	17T 4886742.55 m N 611477.40 m E	N	N	--
101	3173 Sideroad 10, Bradford	17T 4886795.03 m N 611469.08 m E	Y	Y	Y
102	3183 Sideroad 10, Bradford	17T 4886819.01 m N 611464.83 m E	Y	Y	Y
103	3199 Sideroad 10, Bradford	17T 4886895.22 m N 611453.12 m E	N	N	--
104	32 Morgan's Road, East Gwillimbury	17T 4887927.56 m N 619699.20 m E	N	N	--
105	3223 Sideroad 10, Bradford	17T 4887046.91 m N 611423.23 m E	Y	Y	Y
106	3224 Sideroad 10, Bradford West Gwillimbury	17T 4886998.38 m N 611363.19 m E	N	N	--
107	3231 Sideroad 10, Bradford	17T 4887053.35 m N 611412.98 m E	N	N	--
108	3241 Sideroad 10, Bradford	17T 4887102.76 m N 611405.75 m E	Y	Y	Y
109	3247 Sideroad 10, Bradford	17T 4887134.39 m N 611397.38 m E	Y	Y	Y
110	33 Morgans Road, East Gwillimbury	17T 4887848.06 m N 619703.85 m E	N	N	--
111	3381 Line 9, Bradford	17T 4886885.64 m N 610057.67 m E	N	N	--

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112	3385 Sideroad 5, Bradford West Gwillimbury	17T 4887236.77 m N 608253.17 m E	N	N	--
113	34 Morgans Road, East Gwillimbury	17T 4887877.45 m N 619582.72 m E	N	N	--
114	3412 8th Line, Bradford	17T 4885473.65 m N, 609475.55 m E	N	N	--
115	3474 8th Line, Bradford	17T 4885364.31 m N 609864.95 m E	N	N	--
116	3483 8th Line, Bradford	17T 4885361.36 m N 609826.61 m E	N	N	--
117	3484 Line 9, Bradford	17T 4886729.87 m N 609585.48 m E	N	N	--
118	35 Morgans Road, East Gwillimbury	17T 4887878.31 m N 619637.81 m E	N	N	--
119	3500 Line 9, Bradford	17T 4886711.49 m N 609500.03 m E	N	N	--
120	3507 8th Line, Bradford West Gwillimbury	17T 4885313.03 m N 609690.47 m E	N	N	--
121	3538 8th Line, Bradford West Gwillimbury	17T 4885264.09 m N 609508.22 m E	N	N	--
122	3556 8th Line, Bradford West Gwillimbury	17T 4885303.90 m N 609434.17 m E	N	N	--
123	3566 Line 9, Bradford West Gwillimbury	17T 4886586.11 m N 609161.53 m E	N	N	--
124	3634 Line 9, Bradford	17T 4886479.45 m N 608842.66 m E	N	N	--
125	3658 Line 9, Bradford West Gwillimbury	17T 4886449.64 m N 608750.47 m E	N	N	--
126	3663 8th Line, Bradford	17T 4885069.36 m N 608948.70 m E	N	N	--
127	3664 8th Line, Bradford	17T 4885084.36 m N 608947.78 m E	N	N	--
128	37 Morgans Road, East Gwillimbury	17T 4887857.20 m N 619640.00 m E	N	N	--
129	4 Arthur Evans Crescent, Bradford	17T 4886969.48 m N 611589.37 m E	N	N	--
130	45 Morgans Road, East Gwillimbury	17T 4887840.53 m N 619638.67 m E	N	N	--
131	682 Holborn Road, Bradford	17T 4889844.50 m N 621315.94 m E	N	N	--
132	7 Arthur Evans Crescent, Bradford	17T 4886991.03 m N 611550.60 m E	N	N	--
133	7 Morgan's Road, Bradford	17T 4887917.05 m N 619904.91 m E	N	N	--
134	750 Hochreiter Road, Holland Landing	17T 4887864.29 m N 616815.04 m E	N	N	--
135	87 Oak Avenue, River Drive Park	17T 4887586.41 m N 619206.10 m E	N	N	--
136	89 Oak Avenue, River Drive Park	17T 4887589.67 m N 619205.46 m E	N	N	--
137	9 Arthur Evans Crescent, Bradford	17T 4887048.98 m N 611631.68 m E	N	N	--
138	91 River Drive, River Drive Park	17T 4887645.88 m N 619333.35 m E	N	N	--
139	92 River Drive, River Drive Park	17T 4887635.21 m N 619257.03 m E	N	N	--
140	95 Oak Avenue, River Drive Park	17T 4887624.75 m N 619170.12 m E	N	N	--
141	98 Oak Avenue, River Drive Park	17T 4887614.28 m N 619069.18 m E	N	N	--
142	1562 Holborn Road, Queensville	17T 4890578.42 m N 623674.93 m E	Y	Y	Y
143	3236 Sideroad 10, Bradford	17T 4887084.65 m N 611372.46 m E	Y	Y	Y

Note: 1 – Water well records are not available on the MECP database for property IDs 142 and 143.

Following the mailing of the form and letter to 143 Property Owners, a response was received from a total of seventeen (17) Property Owners, or 12% of the identified properties. The properties were scheduled for participation within the pre-construction Private Well Monitoring Program (PWMP) between October 6th, 2021, and May 31st, 2022, as summarized in **Table 2**.

Table 2: Private Well Monitoring Program Testing Summary

Property ID	Property Description / Address	Date of Site Visit	Well Accessible for Monitoring (Y/N)	Raw (Untreated) Water Sample Obtained (Y/N)
17	29 Grandview Crescent (Residence) – c/o Jennifer and Frank Caietta	3-Mar-22 & 31-May-22	N	Y
39	1538 Holborn Road (Residence) – c/o Janice Hachkowski and Brian Hachkowski	13-Oct-21	Y	Y
41	1737 Holborn Road (Residence) – c/o Alan Watman and Beverly Watman	6-Oct-21	Y	Y
59	20877 Yonge Street (Residence) – c/o Nicholas Dargus	14-Oct-21	Y	Y
60	20901 Yonge Street (Residence) – c/o Glenn Duclos and Rebecca Duclos	14-Oct-21	Y	Y
66	20989 Yonge Street (Residence) – c/o Charles W and Karen C Foster	13-Oct-21	Y	Y
72	21044 Leslie Street (Residence) – c/o Florence Lewis	7-Oct-21	Y	Y
76	21145 Leslie Street (Residence) – c/o Bruce Newland and Pat Newland	7-Oct-21	Y	Y
88	2374 Line 11 (Residence) – c/o Joe Rodrigues	14-Oct-21	Y	Y
94	2646 8th Line (Residence) – c/o Don Monforton	7-Oct-21	Y	Y
101	3173 Sideroad 10 (Residence) – c/o Thomas Mayville	14-Oct-21	Y	Y
102	3183 Sideroad 10 (Residence) – c/o Manuel Marques	31-May-22	Y	Y
105	3223 Sideroad 10 (Residence) – c/o Ben Dalimonte	6-Oct-21	Y	Y
108	3241 Sideroad 10 (Residence) – c/o Ric Bourgeois and Sue Bourgeois	7-Oct-21	Y	Y
109	3247 Sideroad 10 (Residence) – c/o Marie A. Pearson	6-Oct-21	Y	Y
142	1562 Holborn Road (Residence) – c/o Bob and Ann Liszon	3-Mar-22	Y	Y
143	3236 Sideroad 10 (Residence) – c/o Paul Watson	3-Mar-22	Y	Y

Further property specific details regarding the testing work that was completed at each property is provided in the appendices attached to this Report. A general summary of the results of the DDWWS is summarized below:

- Water quality sampling results from eleven (11) of the properties determined that the drinking water sample obtained had exceedances above the Ontario Drinking Water Standards (ODWS) for health-related parameters. Owners were contacted by phone to resample the well water and they were informed to contact the Local Public Health Units to discuss the results further.
- Other parameters that were exceeded for the ODWS fell into the aesthetic objectives which may impair the taste, odour, and colour of water which may interfere with good water quality or are operational guidelines that must be controlled to make water treatment systems effective.

- Drilled wells were in excellent condition; however, dug wells had historical lid issues or debris/objects blocking assessment of the well lid.
- All properties except for one have water softeners and/or some form of water treatment (chlorination, reverse osmosis or ultraviolet lights).

A copy of the lab results, including the completed AECOM field investigation and any exceedances, were hand delivered to all respective properties in an envelope.

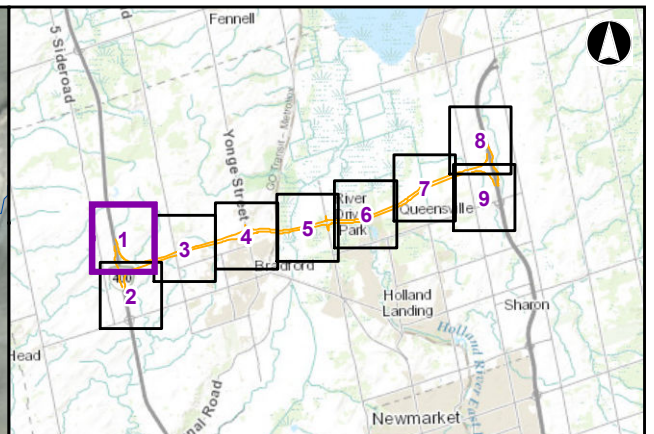
4. Conclusion

It is recommended that prior to any construction dewatering occurring near the seventeen (17) properties listed in **Table 2**, that the Property Owners be contacted regarding the undertaking of a repeat monitoring and sampling of the residential well during and after construction to confirm that there is no effect on the water quality from the baseline assessed. For the remaining 126 Property Owners for which no response was provided, an attempt shall be undertaken during Detail Design to contact these owners via mail, email, phone calls, site visit, etc. The DDWWS provides a baseline for the water wells prior to the proposed construction to determine existing water quality and quantity of each property.

As the Preliminary Design progresses, and as the project moves into the next phase, there is the potential for Study Area refinements to the project footprint to be made. Should changes be made, a review of water wells shall be completed, and efforts shall be made to contact the Property Owner to inquire about the status of their well. Additionally, it is recommended that during Detail Design, a second round of letters be mailed to all Property Owners within 500 m of the Study Area to confirm that all impacted and/ or concerned Property Owners with wells are monitored during and after construction to capture and ensure potential well issues are addressed and monitored.

Figures





Legend

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

Roads

- Provincial Highway
- Other
- Municipality Boundary
- Waterbody
- Watercourses
- Parcel Boundary

0 115 230 460 690
Meters

Bradford Bypass Project

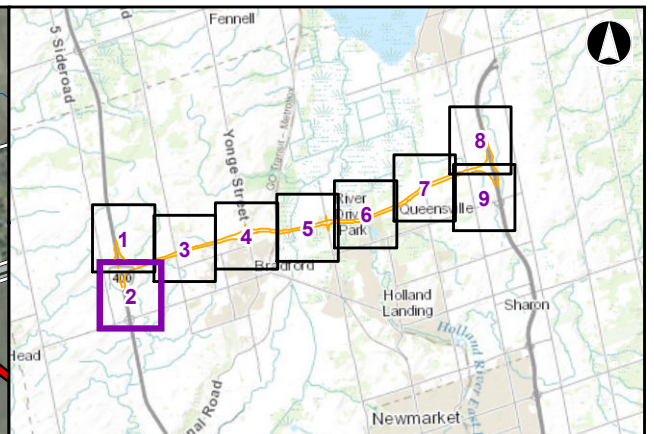
Well Survey

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V: Study Area		Figure 2-1

AECOM

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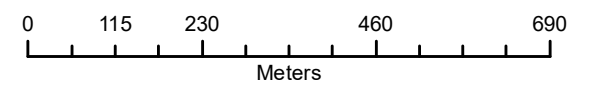


Legend

- Inside of Study Area
- Bradford Bypass - MTO Right-Of-Way
- Bradford Bypass Preliminary Design
- Bradford Bypass/Detail Design (by Others)
- Separate MTO EA Study
- Study Area (500m)

Roads

- Provincial Highway
- Other
- Municipality Boundary
- Waterbody
- Watercourses
- Parcel Boundary



Bradford Bypass Project

Well Survey

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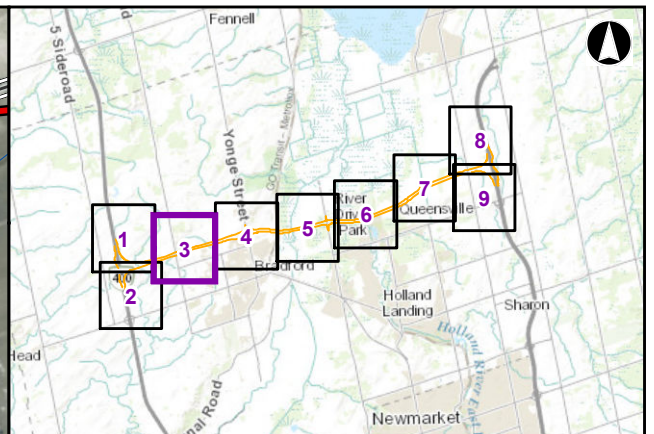
V: Study Area



Figure 2-2

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Legend

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

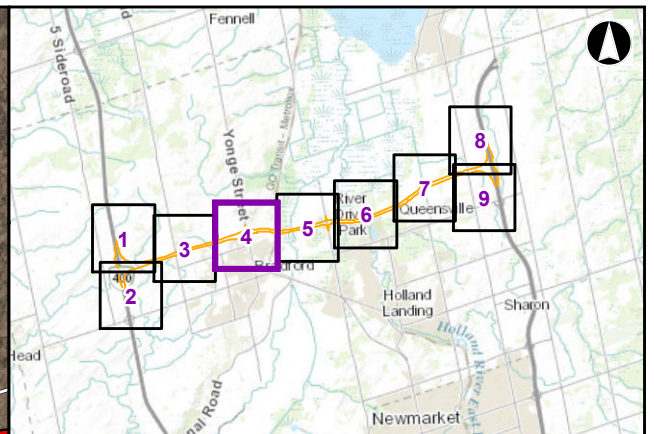
Roads

- Provincial Highway
- Other
- Municipality Boundary
- Waterbody
- Watercourses
- Parcel Boundary

0 115 230 460 690
Meters

Bradford Bypass Project		
Well Survey		
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V: Study Area		Figure 2-3
AECOM		
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Legend

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

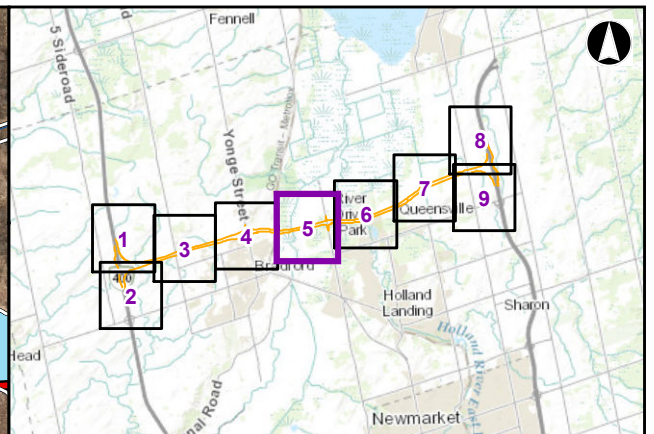
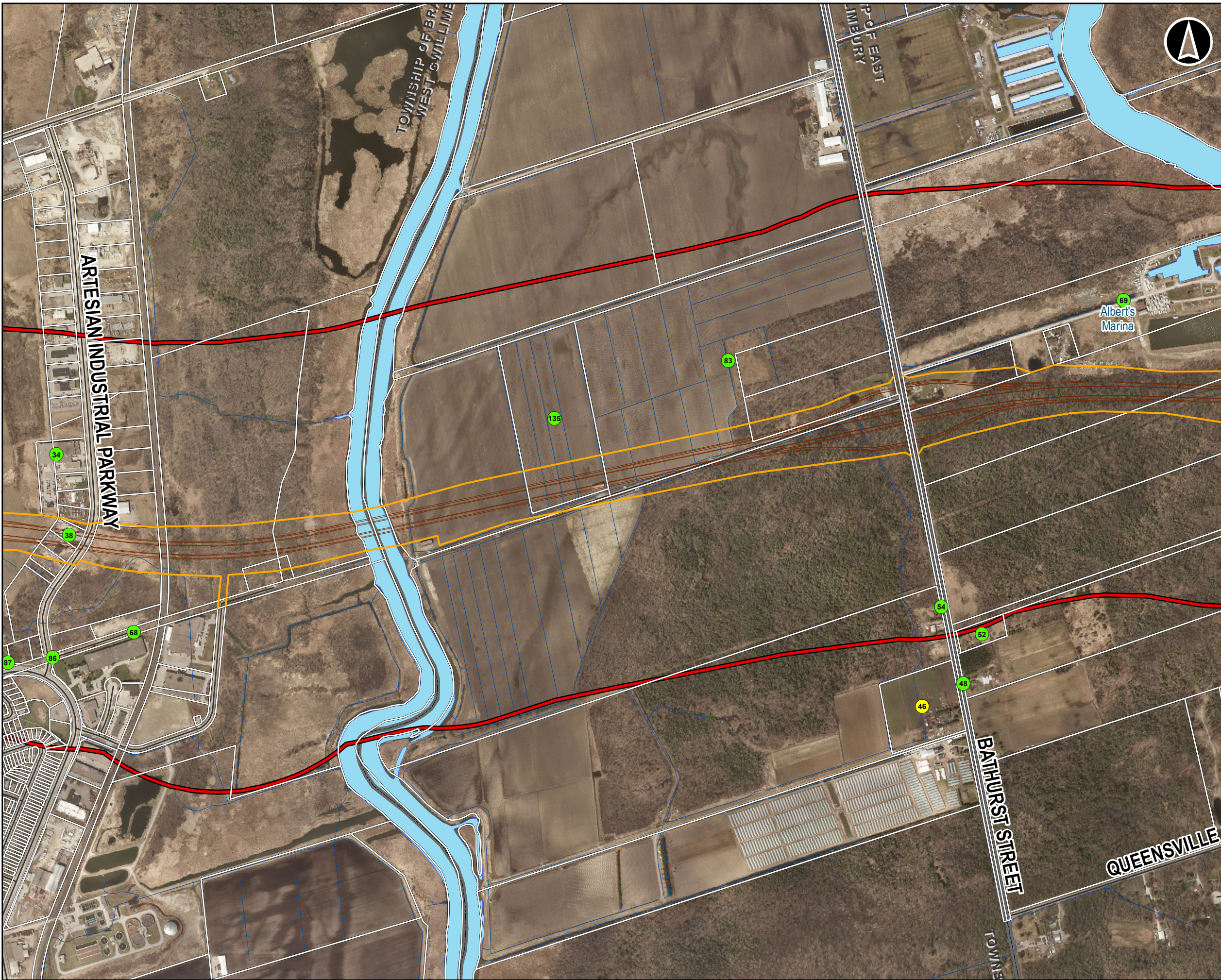
Roads

- Provincial Highway
- Other
- Municipality Boundary
- Waterbody
- Watercourses
- Parcel Boundary

0 115 230 460 690
Meters

Bradford Bypass Project		
Well Survey		
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V: Study Area		Figure 2-4
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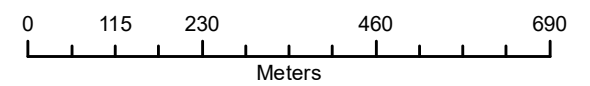


Legend

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

Roads

- Provincial Highway
- Other
- Municipality Boundary
- Waterbody
- Watercourses
- Parcel Boundary



Bradford Bypass Project

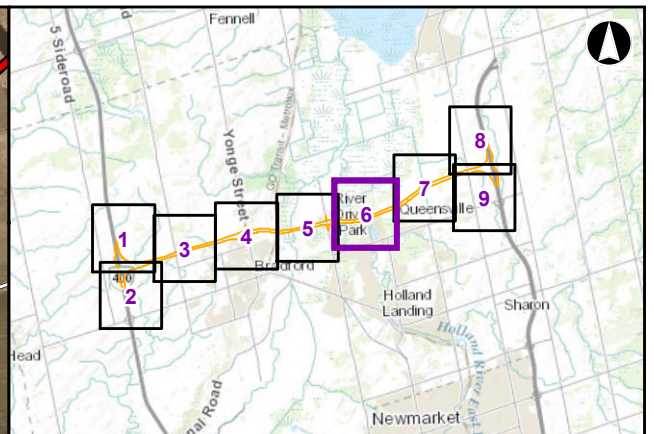
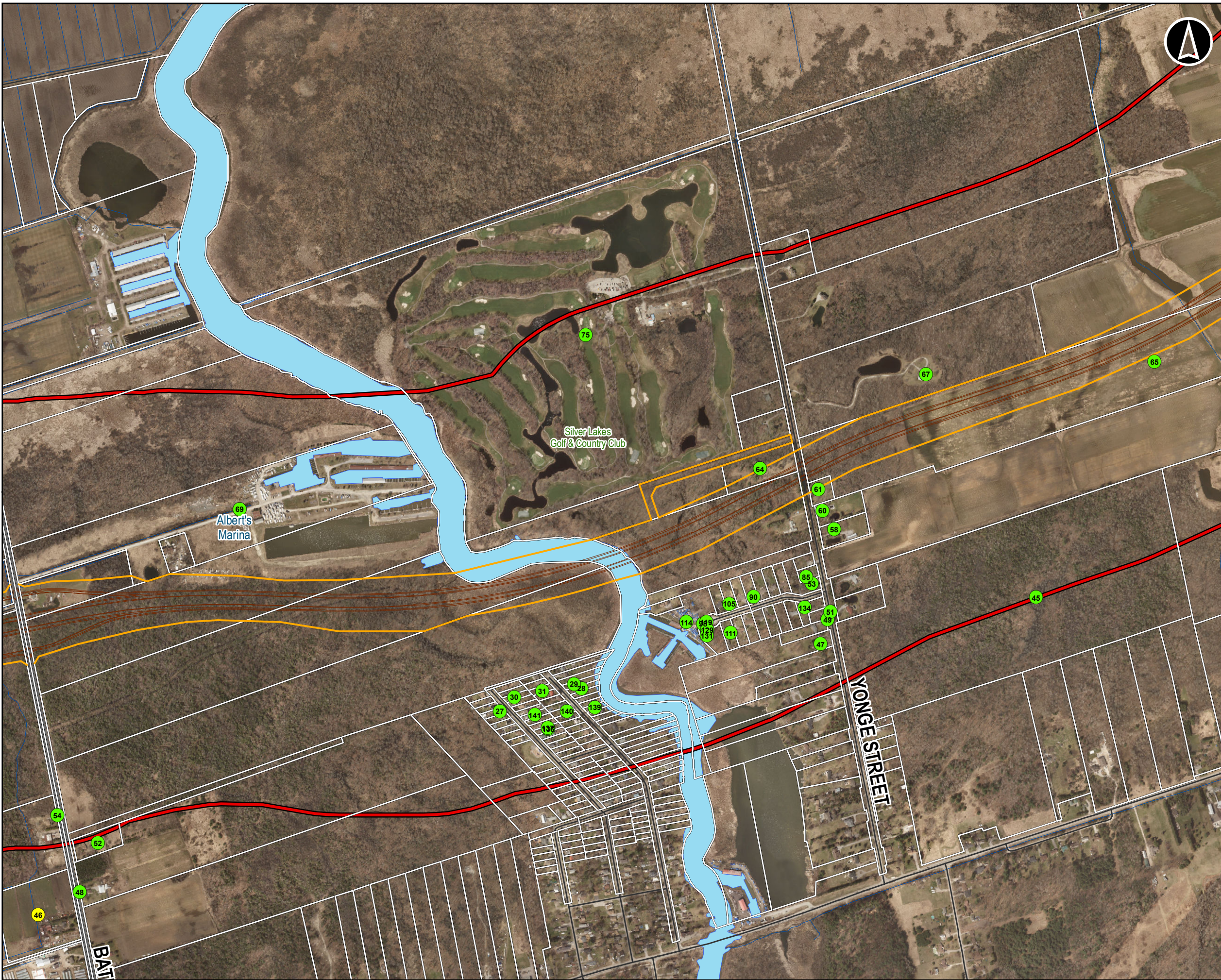
Well Survey

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		V: Study Area

Figure 2-5

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Legend

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

Roads

- Provincial Highway
- Other
- Municipality Boundary
- Waterbody
- Watercourses
- Parcel Boundary

0 115 230 460 690
Meters

Bradford Bypass Project

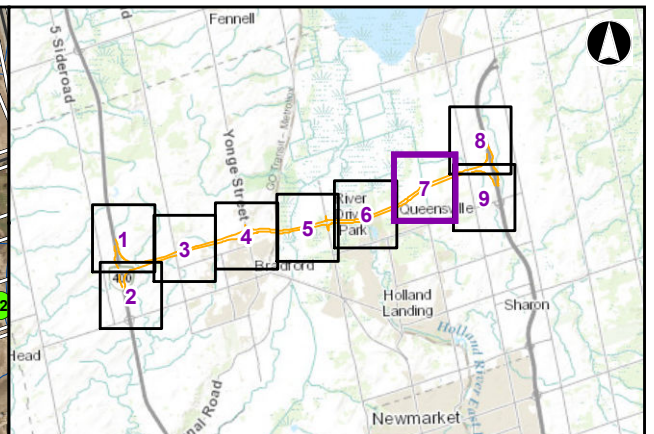
Well Survey

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V: Study Area		Figure 2-6

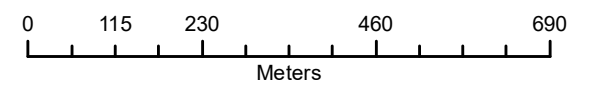
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- Legend**
- Inside of Study Area
 - Bradford Bypass - MTO Right-Of-Way
 - Bradford Bypass Preliminary Design
 - Study Area (500m)
- Roads**
- Provincial Highway
 - Other
- Other**
- Municipality Boundary
 - Waterbody
 - Watercourses
 - Parcel Boundary



Bradford Bypass Project

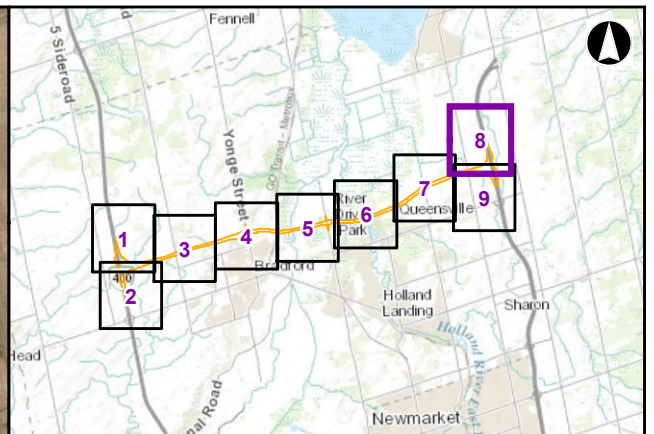
Well Survey

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V: Study Area		Figure 2-7

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Legend

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

Roads

- Provincial Highway
- Other
- Municipality Boundary
- Waterbody
- Watercourses
- Parcel Boundary

0 115 230 460 690
Meters

Bradford Bypass Project

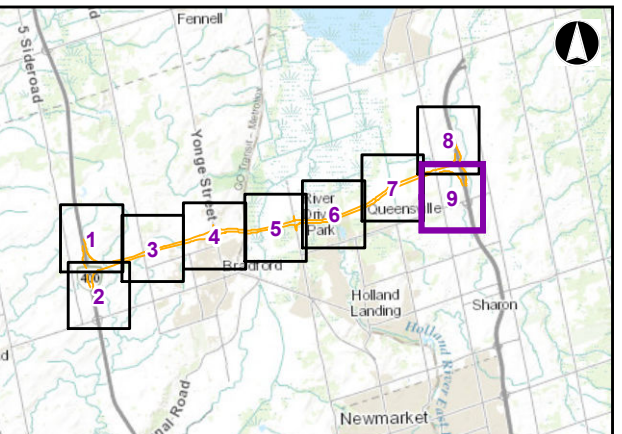
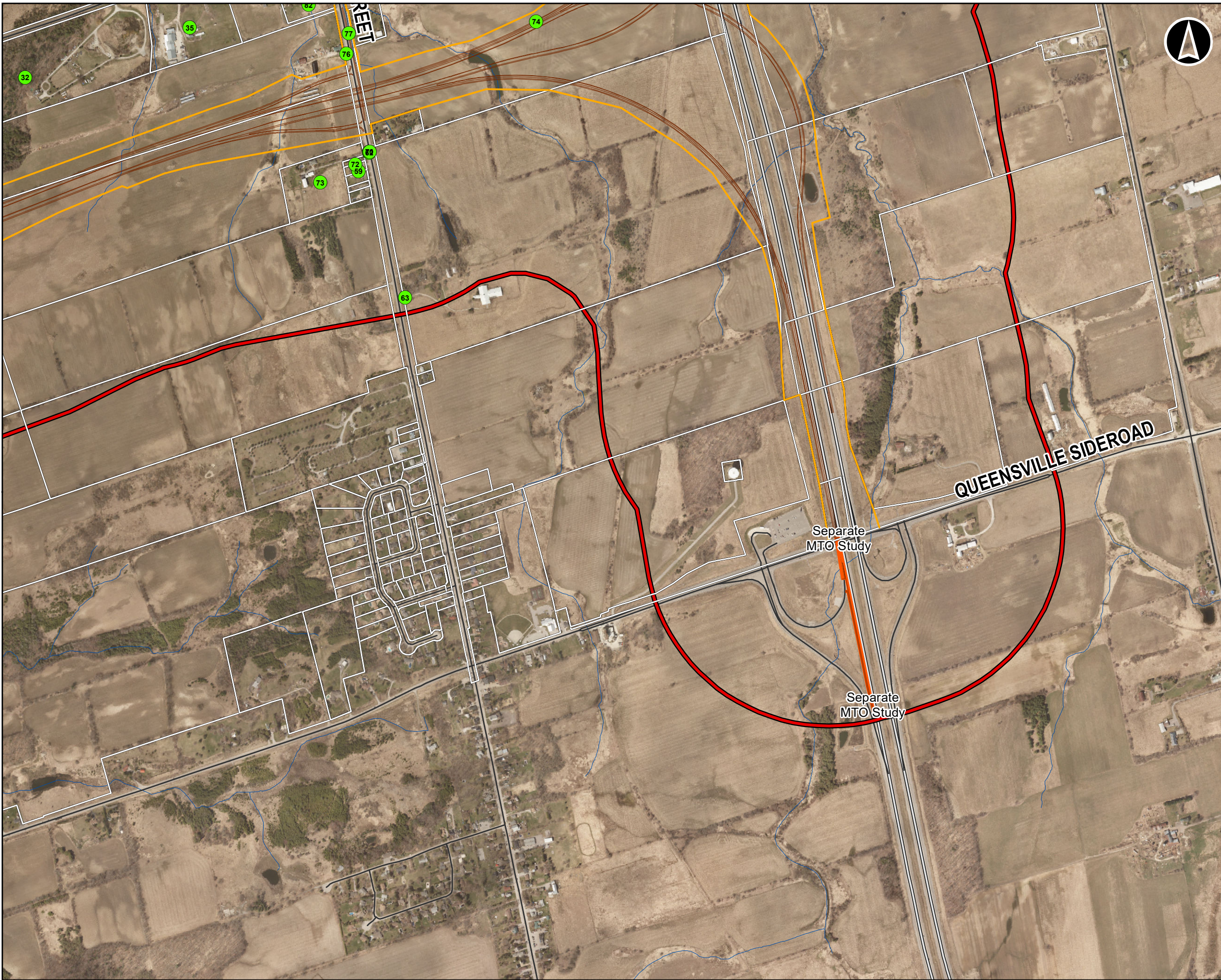
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V: Study Area		Figure 2-8

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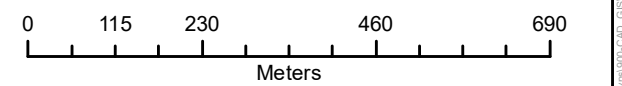


Legend

- Inside of Study Area
- Bradford Bypass - MTO Right-Of-Way
- Bradford Bypass Preliminary Design
- Separate MTO EA Study
- Study Area (500m)

Roads

- Provincial Highway
- Other
- Municipality Boundary
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Bradford Bypass Project			
Well Survey			
Feb, 2023	1:10,000	Datum: NAD 1983 UTM Zone 17N Source: Imagery Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, * when printed 11"x17"	
		V: Study Area	Figure 2-9
AECOM			

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Appendix **A**

Property ID #39 – 1538 Holborn Road

November 22nd, 2021

Janice & Brian Hachkowski
1538 Holborn Road
Queensville, ON
LOG 1R0

Project No: 60636190
Regarding: Pre-Construction Water Quality Testing Results
MTO Bradford Bypass Project

Dear Mr. and Ms. Hachkowski,

AECOM Canada Ltd. (AECOM) would like to thank you for your participation in the Pre-Construction Well Assessment Program offered to local residents as part of the Bradford Bypass Project. Based on receipt of written permission from yourself, a sample of raw (untreated) groundwater from your private well was collected for laboratory analysis by AECOM staff on October 13th, 2021. Please find attached a copy of the water quality testing results for your review and record.

Laboratory testing results for the sample / duplicate obtained indicate that concentrations of certain parameters, as shown in the table below, are in excess of the *Ontario Drinking Water Standards, Objectives and Guidelines* (Ontario Ministry of the Environment, 2006). It should be noted, however, that these results are based on a single sample analysis and that additional testing is recommended.

PARAMETER	CONCENTRATION IN YOUR WATER	STANDARD VALUE / RANGE	STANDARD TYPE	HEALTH RELATED (Y / N)
Total Coliforms	4 / 3 CFU/100mL	0 CFU/100mL	MAC	Y
Hardness (as CaCO ₃)	118 / 117 mg/L	80 - 100 mg/L	OG	N

NOTE: MAC – Maximum Acceptable Concentration; AO – Aesthetic Objective; OG – Operational Guideline.

As discussed via telephone with Mr. Hachkowski on November 19th, 2021, following receipt of the water quality testing results, the presence of bacteriological parameters (Total Coliforms) in your drinking water may represent an immediate health concern. It is recommended that you discuss this exceedance with your Local Public Health Unit.

For your information, the *Well Aware Booklet – A Guide To Caring For Your Well* created by Green Communities Canada is available on the Walkerton Clean Water Centre (WCWC) website at:

<https://wcwc.ca/well-aware-and-well-wise-program-resources-for-homeowners/>

Should you have any questions or concerns regarding the quality of your well water, it is recommended that you contact your local Public Health Unit for further information and advice. Contact information for your Local Public Health Unit is provided, as follows:

Simcoe Muskoka District Health Unit
80 Bradford St. #403
Barrie, ON L4N 6S7
Website: <https://www.simcoemuskokahealth.org/>
Telephone: 705.721.7520

If you have any further questions, please contact:

AECOM Canada Ltd. C/O Brian Holden, P.Geo.
Hydrogeology, Environment
Telephone: 226-821-2486
Email: brian.holden@aecom.com

Sincerely,
AECOM Canada Ltd.



Brian Holden, P.Geo.
Hydrogeologist
DCS Americas, Canada East (Greater Ontario / Metro Toronto)
Environment
Brian.holden@aecom.com

Encl.

cc: R. Sheikh, N. Valenton, S. Rankin, S.Schmied – AECOM;
H. Singh, L. Sarris, J. MacKinnon, R. Gribbon – MTO



Water Well Survey

Groundwater Supply Well Location 1538 Holborn Road

Project Name: Bradford Bypass – BBP Expansion

Project#: 60636190

Residence Address:

1538 Holborn Road E, Queensville, Ontario, L0G 1R0

Owner Information:

Owner Name: Janice Hachkowski and Brian Hachkowski

Phone Number: 905-478-2325

Email: jansgingerbread@hotmail.com



Well Record

Coordinates (UTM).....623639E/4890556N
(NAD83 Zone17)

Type of Well..... Bored/Drilled

Constructed (year)..... 1977/1992

Well Location..... In front and right of house

Well Diameter.....0.76 m/ 0.15m

Well Depth.....8.84 m/ 86.26 m

Casing Position.....N/A

Casing Condition.....Fair

Water Usage.....Residential

Water Source.....Overburden

Static Water Level.....N/A; 12.19 m



Water Quality & Well Testing

Past Water Quality Problems..... None

Potential Contamination Sources... None

Location of Septic Tank..... 100' from well

Treatment System.....None

Recent Test Results.....None

Water Sampled.....Yes (October 13, 2021)

Sample Source..... Drilled tap

Appearance.....clear

Comments:

- Bored well replaced by drilled well in 1992
- Dug well flows seasonally, overflow into swale
- Duplicate sample taken as requested

Quality Testing

Groundwater quality met the applicable standards for bacteriological, selected inorganic and metal parameters analyzed except for the following:

<i>Parameters</i>	<i>Test Results</i>	<i>Guideline/Standard</i>	<i>Criteria Type</i>
Total Coliforms	4 CFU/ 100 ml	0 CFU / 100 ml	MAC
Hardness (as CaCO ₃)	118 mg/L	80 – 100 mg/L	OG

Notes:

1. Criteria are from “Ontario Drinking Water Standards” (Ontario Regulation 169/03) and “Technical Support Document for Ontario Drinking Water Standards, Objectives and Guidelines” (MOE, June 2003, revised June 2006)
2. AO - Aesthetic Objectives (parameters that may impair the taste, odour or colour of water or which may interfere with good water quality)
3. MAC- Maximum Acceptable Concentration (health related)
4. OG - Operational Guideline (parameters which must be controlled for effective treatment)
5. NDOGT – No data; sample overgrown with target bacteria; over-crowding microbial growth
6. CFU – Colony forming units
7. **Bold** - test result exceeding guideline/standard.





**CLIENT NAME: AECOM CANADA LTD
50 SPORTSWORLD CROSSING RD UNIT 290
KITCHENER, ON N2P0A4
(519) 650-5313**

**ATTENTION TO: Brian Holden
PROJECT: 60636190 - BBP - Well Survey**

AGAT WORK ORDER: 21T815177

MICROBIOLOGY ANALYSIS REVIEWED BY: Amanjot Bhela, Inorganic Lab Manager

WATER ANALYSIS REVIEWED BY: Jacky Zhu, Spectroscopy Technician

DATE REPORTED: Oct 20, 2021

PAGES (INCLUDING COVER): 12

VERSION*: 1

Should you require any information regarding this analysis please contact your client services representative at (905) 712-5100

***Notes**

Disclaimer:

- All work conducted herein has been done using accepted standard protocols, and generally accepted practices and methods. AGAT test methods may incorporate modifications from the specified reference methods to improve performance.
- All samples will be disposed of within 30 days after receipt unless a Long Term Storage Agreement is signed and returned. Some specialty analysis may be exempt, please contact your Client Project Manager for details.
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- The test results reported herewith relate only to the samples as received by the laboratory.
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- All reportable information as specified by ISO/IEC 17025:2017 is available from AGAT Laboratories upon request.



Certificate of Analysis

AGAT WORK ORDER: 21T815177

PROJECT: 60636190 - BBP - Well Survey

5835 COOPERS AVENUE
MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
TEL (905)712-5100
FAX (905)712-5122
<http://www.agatlabs.com>

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Brian Holden

SAMPLING SITE:

SAMPLED BY:

Total Coliforms & E. Coli (Using MI Agar)

DATE RECEIVED: 2021-10-13

DATE REPORTED: 2021-10-20

SAMPLE DESCRIPTION: 1538 Holborn

SAMPLE TYPE: Water

DATE SAMPLED: 2021-10-13
10:50

Parameter	Unit	G / S	RDL	3086557
Escherichia coli	CFU/100mL	0	1	ND
Total Coliforms	CFU/100mL	0	1	4

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to O. Reg 169/03 - Ontario Drinking Water Quality Standards. Na value derived from O. Reg 248
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.
3086557 If RDL >1 indicates dilutions of the sample.
ND - Not Detected.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:





Certificate of Analysis

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CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Brian Holden

SAMPLING SITE:

SAMPLED BY:

Water Quality Assessment (mg/L) Groundwater

DATE RECEIVED: 2021-10-13

DATE REPORTED: 2021-10-20

SAMPLE DESCRIPTION: 1538 Holborn

SAMPLE TYPE: Water

DATE SAMPLED: 2021-10-13
10:50

Parameter	Unit	G / S: A	G / S: B	RDL	3086557
Electrical Conductivity	µS/cm			2	395
pH	pH Units		6.5-8.5	NA	7.97
Saturation pH (Calculated)					7.51
Langelier Index (Calculated)					0.459
Hardness (as CaCO3) (Calculated)	mg/L		80-100	0.5	118
Total Dissolved Solids	mg/L		500	10	210[<B]
Alkalinity (as CaCO3)	mg/L		30-500	5	177
Bicarbonate (as CaCO3)	mg/L			5	177
Carbonate (as CaCO3)	mg/L			5	<5
Hydroxide (as CaCO3)	mg/L			5	<5
Fluoride	mg/L	1.5		0.05	0.14[<A]
Chloride	mg/L		250	0.10	16.4[<B]
Nitrate as N	mg/L	10.0		0.05	<0.05[<A]
Nitrite as N	mg/L	1.0		0.05	<0.05[<A]
Bromide	mg/L			0.05	0.14
Sulphate	mg/L		500	0.10	<0.10[<B]
Ortho Phosphate as P	mg/L			0.10	<0.10
Ammonia as N	mg/L			0.02	0.49
Total Phosphorus	mg/L			0.02	<0.02
Total Organic Carbon	mg/L			0.5	35.8
True Colour	TCU		5	5	<5[<B]
Turbidity	NTU		5	0.5	0.5[<B]
Dissolved Calcium	mg/L			0.05	23.4
Dissolved Magnesium	mg/L			0.05	14.4
Dissolved Potassium	mg/L			0.50	1.65
Dissolved Sodium	mg/L	20		0.05	32.1[>A]
Dissolved Aluminum	mg/L			0.004	0.014
Dissolved Antimony	mg/L	0.006		0.001	<0.001[<A]
Dissolved Arsenic	mg/L	0.01		0.001	<0.001[<A]

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Certificate of Analysis

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CLIENT NAME: AECOM CANADA LTD

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SAMPLING SITE:

SAMPLED BY:

Water Quality Assessment (mg/L) Groundwater

DATE RECEIVED: 2021-10-13

DATE REPORTED: 2021-10-20

SAMPLE DESCRIPTION: 1538 Holborn

SAMPLE TYPE: Water

DATE SAMPLED: 2021-10-13
10:50

Parameter	Unit	G / S: A	G / S: B	RDL	3086557
Dissolved Barium	mg/L	1.0		0.002	0.081[<A]
Dissolved Beryllium	mg/L			0.0005	<0.0005
Dissolved Boron	mg/L	5.0		0.010	0.095[<A]
Dissolved Cadmium	mg/L	0.005		0.0001	<0.0001[<A]
Dissolved Chromium	mg/L	0.05		0.002	<0.002[<A]
Dissolved Cobalt	mg/L			0.0005	<0.0005
Dissolved Copper	mg/L			0.001	<0.001
Dissolved Iron	mg/L			0.010	<0.010
Dissolved Lead	mg/L	0.010		0.0005	<0.0005[<A]
Dissolved Manganese	mg/L			0.002	0.012
Dissolved Mercury	mg/L	0.001		0.0001	<0.0001[<A]
Dissolved Molybdenum	mg/L			0.002	<0.002
Dissolved Nickel	mg/L			0.003	<0.003
Dissolved Selenium	mg/L	0.05		0.001	<0.001[<A]
Dissolved Silver	mg/L			0.0001	<0.0001
Dissolved Strontium	mg/L			0.005	0.962
Dissolved Thallium	mg/L			0.0003	<0.0003
Dissolved Tin	mg/L			0.002	<0.002
Dissolved Titanium	mg/L			0.002	<0.002
Dissolved Tungsten	mg/L			0.010	<0.010
Dissolved Uranium	mg/L	0.02		0.0005	<0.0005[<A]
Dissolved Vanadium	mg/L			0.002	<0.002
Dissolved Zinc	mg/L			0.005	<0.005
Dissolved Zirconium	mg/L			0.004	<0.004

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: A Refers to O. Reg 169/03 - Ontario Drinking Water Quality Standards. Na value derived from O. Reg 248, B Refers to O. Reg 169/03 - Ontario Drinking Water Quality Standards - Aesthetic Objectives and Operational Guidelines
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

Analysis performed at AGAT Toronto (unless marked by *)

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Exceedance Summary

AGAT WORK ORDER: 21T815177

PROJECT: 60636190 - BBP - Well Survey

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CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Brian Holden

SAMPLEID	SAMPLE TITLE	GUIDELINE	ANALYSIS PACKAGE	PARAMETER	UNIT	GUIDEVALUE	RESULT
3086557	1538 Holborn	ON 169/03 AO&OG	Water Quality Assessment (mg/L) Groundwater	Hardness (as CaCO3) (Calculated)	mg/L	80-100	118
3086557	1538 Holborn	ON 169/03 MAC/IMAC	Total Coliforms & E. Coli (Using MI Agar)	Total Coliforms	CFU/100mL	0	4
3086557	1538 Holborn	ON 169/03 MAC/IMAC	Water Quality Assessment (mg/L) Groundwater	Dissolved Sodium	mg/L	20	32.1

Quality Assurance

CLIENT NAME: AECOM CANADA LTD
PROJECT: 60636190 - BBP - Well Survey
SAMPLING SITE:

AGAT WORK ORDER: 21T815177
ATTENTION TO: Brian Holden
SAMPLED BY:

Microbiology Analysis

RPT Date: Oct 20, 2021			DUPLICATE			Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD		Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper

Total Coliforms & E. Coli (Using MI Agar)

Escherichia coli	3085462	ND	ND	NA	< 1
Total Coliforms	3085462	ND	ND	NA	< 1

Comments: ND - Not Detected, NA - % RPD Not Applicable.

Certified By:




Quality Assurance

CLIENT NAME: AECOM CANADA LTD
PROJECT: 60636190 - BBP - Well Survey
SAMPLING SITE:

AGAT WORK ORDER: 21T815177
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Water Analysis															
RPT Date: Oct 20, 2021			DUPLICATE				Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE		MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Measured Value		Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper

Water Quality Assessment (mg/L) Groundwater

Electrical Conductivity	3086235		6120	6130	0.2%	< 2	104%	90%	110%						
pH	3086235		7.42	7.44	0.3%	NA	103%	90%	110%						
Total Dissolved Solids	3086147		540	558	3.3%	< 10	102%	80%	120%						
Alkalinity (as CaCO3)	3086235		689	702	1.9%	< 5	85%	80%	120%						
Bicarbonate (as CaCO3)	3086235		689	702	1.9%	< 5									
Carbonate (as CaCO3)	3086235		<5	<5	NA	< 5									
Hydroxide (as CaCO3)	3086235		<5	<5	NA	< 5									
Fluoride	3080984		<0.05	<0.05	NA	< 0.05	107%	70%	130%	93%	80%	120%	112%	70%	130%
Chloride	3080984		59.6	58.8	1.4%	< 0.10	94%	70%	130%	101%	80%	120%	103%	70%	130%
Nitrate as N	3080984		7.76	7.58	2.3%	< 0.05	94%	70%	130%	102%	80%	120%	101%	70%	130%
Nitrite as N	3080984		<0.05	<0.05	NA	< 0.05	106%	70%	130%	103%	80%	120%	112%	70%	130%
Bromide	3080984		<0.05	<0.05	NA	< 0.05	98%	70%	130%	92%	80%	120%	88%	70%	130%
Sulphate	3080984		27.6	27.5	0.4%	< 0.10	95%	70%	130%	99%	80%	120%	98%	70%	130%
Ortho Phosphate as P	3080984		<0.10	<0.10	NA	< 0.10	105%	70%	130%	100%	80%	120%	100%	70%	130%
Ammonia as N	3084096		0.03	0.03	NA	< 0.02	103%	70%	130%	106%	80%	120%	89%	70%	130%
Total Phosphorus	3070594		0.03	0.03	NA	< 0.02	99%	70%	130%	96%	80%	120%	97%	70%	130%
Total Organic Carbon	3080535		11.2	11.2	0.0%	< 0.5	95%	90%	110%	100%	90%	110%	NA	80%	120%
True Colour	3095546		46	46	0.0%	< 5	100%	90%	110%						
Turbidity	3089426		14.4	15.2	5.4%	< 0.5	99%	80%	120%						
Dissolved Calcium	3086543		75.0	75.2	0.3%	< 0.05	96%	70%	130%	98%	80%	120%	97%	70%	130%
Dissolved Magnesium	3086543		24.7	24.7	0.0%	< 0.05	98%	70%	130%	100%	80%	120%	100%	70%	130%
Dissolved Potassium	3086543		2.72	2.68	1.5%	< 0.50	100%	70%	130%	101%	80%	120%	102%	70%	130%
Dissolved Sodium	3086543		8.64	8.57	0.8%	< 0.05	96%	70%	130%	96%	80%	120%	102%	70%	130%
Dissolved Aluminum	3086788		0.028	0.026	7.4%	< 0.004	104%	70%	130%	110%	80%	120%	105%	70%	130%
Dissolved Antimony	3086788		< 0.001	< 0.001	NA	< 0.001	94%	70%	130%	99%	80%	120%	95%	70%	130%
Dissolved Arsenic	3086788		0.001	0.001	NA	< 0.001	96%	70%	130%	98%	80%	120%	104%	70%	130%
Dissolved Barium	3086788		0.050	0.047	6.2%	< 0.002	98%	70%	130%	100%	80%	120%	100%	70%	130%
Dissolved Beryllium	3086788		< 0.0005	< 0.0005	NA	< 0.0005	107%	70%	130%	105%	80%	120%	103%	70%	130%
Dissolved Boron	3086788		0.031	0.030	NA	< 0.010	103%	70%	130%	106%	80%	120%	101%	70%	130%
Dissolved Cadmium	3086788		< 0.0001	< 0.0001	NA	< 0.0001	98%	70%	130%	100%	80%	120%	100%	70%	130%
Dissolved Chromium	3086788		0.003	0.003	NA	< 0.002	99%	70%	130%	104%	80%	120%	101%	70%	130%
Dissolved Cobalt	3086788		0.0008	0.0007	NA	< 0.0005	94%	70%	130%	102%	80%	120%	104%	70%	130%
Dissolved Copper	3086788		< 0.001	< 0.001	NA	< 0.001	95%	70%	130%	102%	80%	120%	104%	70%	130%
Dissolved Iron	3086788		5970	5440	9.3%	< 0.010	87%	70%	130%	112%	80%	120%	101%	70%	130%
Dissolved Lead	3086788		< 0.0005	< 0.0005	NA	< 0.0005	97%	70%	130%	108%	80%	120%	103%	70%	130%
Dissolved Manganese	3086788		0.949	0.875	8.1%	< 0.002	95%	70%	130%	100%	80%	120%	96%	70%	130%
Dissolved Mercury	3073029		<0.0001	<0.0001	NA	< 0.0001	98%	70%	130%	97%	80%	120%	97%	70%	130%
Dissolved Molybdenum	3086788		0.008	0.007	NA	< 0.002	95%	70%	130%	102%	80%	120%	104%	70%	130%
Dissolved Nickel	3086788		< 0.003	< 0.003	NA	< 0.003	99%	70%	130%	104%	80%	120%	106%	70%	130%

Quality Assurance

CLIENT NAME: AECOM CANADA LTD
 PROJECT: 60636190 - BBP - Well Survey
 SAMPLING SITE:

AGAT WORK ORDER: 21T815177
 ATTENTION TO: Brian Holden
 SAMPLED BY:

Water Analysis (Continued)

RPT Date: Oct 20, 2021			DUPLICATE				Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Measured Value		Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits		
								Lower	Upper		Lower	Upper		Lower	Upper	
Dissolved Selenium	3086788		<0.001	0.001	NA	< 0.001	97%	70%	130%	93%	80%	120%	98%	70%	130%	
Dissolved Silver	3086788		< 0.0001	< 0.0001	NA	< 0.0001	99%	70%	130%	104%	80%	120%	102%	70%	130%	
Dissolved Strontium	3086788		0.271	0.249	8.5%	< 0.005	94%	70%	130%	102%	80%	120%	103%	70%	130%	
Dissolved Thallium	3086788		< 0.0003	< 0.0003	NA	< 0.0003	99%	70%	130%	108%	80%	120%	103%	70%	130%	
Dissolved Tin	3086788		< 0.002	< 0.002	NA	< 0.002	98%	70%	130%	102%	80%	120%	101%	70%	130%	
Dissolved Titanium	3086788		< 0.002	< 0.002	NA	< 0.002	96%	70%	130%	101%	80%	120%	99%	70%	130%	
Dissolved Tungsten	3086788		< 0.010	< 0.010	NA	< 0.010	98%	70%	130%	100%	80%	120%	101%	70%	130%	
Dissolved Uranium	3086788		0.0013	0.0012	NA	< 0.0005	96%	70%	130%	104%	80%	120%	100%	70%	130%	
Dissolved Vanadium	3086788		< 0.002	< 0.002	NA	< 0.002	94%	70%	130%	100%	80%	120%	97%	70%	130%	
Dissolved Zinc	3086788		< 0.005	< 0.005	NA	< 0.005	100%	70%	130%	99%	80%	120%	96%	70%	130%	
Dissolved Zirconium	3086788		< 0.004	< 0.004	NA	< 0.004	94%	70%	130%	99%	80%	120%	100%	70%	130%	

Comments: NA Signifies Not Applicable.
 Duplicate NA: results are less than 5X the RDL and RPD will not be calculated.
 Matrix spike: Spike level < native concentration. Matrix spike acceptance limits do not apply.

Certified By:



Method Summary

CLIENT NAME: AECOM CANADA LTD
 PROJECT: 60636190 - BBP - Well Survey
 SAMPLING SITE:

AGAT WORK ORDER: 21T815177
 ATTENTION TO: Brian Holden
 SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Microbiology Analysis			
Escherichia coli	MIC-93-7010	EPA 1604	Membrane Filtration
Total Coliforms	MIC-93-7010	EPA 1604	Membrane Filtration

Method Summary

CLIENT NAME: AECOM CANADA LTD
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PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Water Analysis			
Electrical Conductivity	INOR-93-6000	modified from SM 2510 B	PC TITRATE
pH	INOR-93-6000	modified from SM 4500-H+ B	PC TITRATE
Saturation pH (Calculated)		SM 2320 B	CALCULATION
Langelier Index (Calculated)		SM 2330B	CALCULATION
Hardness (as CaCO ₃) (Calculated)	MET-93-6105	modified from EPA SW-846 6010C & 200.7 & SM 2340 B	CALCULATION
Total Dissolved Solids	INOR-93-6028	modified from EPA 1684, ON MOECC E3139, SM 2540C, D	BALANCE
Alkalinity (as CaCO ₃)	INOR-93-6000	Modified from SM 2320 B	PC TITRATE
Bicarbonate (as CaCO ₃)	INOR-93-6000	modified from SM 2320 B	PC TITRATE
Carbonate (as CaCO ₃)	INOR-93-6000	modified from SM 2320 B	PC TITRATE
Hydroxide (as CaCO ₃)	INOR-93-6000	modified from SM 2320 B	PC TITRATE
Fluoride	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Chloride	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Nitrate as N	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Nitrite as N	INOR-93-6004	SM 4110 B	ION CHROMATOGRAPH
Bromide	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Sulphate	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Ortho Phosphate as P	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Ammonia as N	INOR-93-6059	modified from SM 4500-NH ₃ H	LACHAT FIA
Total Phosphorus	INOR-93-6057	modified from LACHAT 10-115-01-3A	LACHAT FIA
Total Organic Carbon	INOR-93-6049	modified from SM 5310 B	SHIMADZU CARBON ANALYZER
True Colour	INOR-93-6074	modified from SM 2120 B	LACHAT FIA
Turbidity	INOR-93-6044	modified from SM 2130 B	NEPHELOMETER
Dissolved Calcium	MET-93-6105	modified from EPA 6010D	ICP/OES
Dissolved Magnesium	MET-93-6105	modified from EPA 6010D	ICP/OES
Dissolved Potassium	MET-93-6105	modified from EPA 6010D	ICP/OES
Dissolved Sodium	MET-93-6105	modified from EPA 6010D	ICP/OES
Dissolved Aluminum	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Antimony	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Arsenic	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Barium	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Beryllium	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Boron	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Cadmium	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Chromium	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Cobalt	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Copper	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Iron	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Lead	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS

Method Summary

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PROJECT: 60636190 - BBP - Well Survey
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PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Dissolved Manganese	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Mercury	MET-93-6100	modified from EPA 245.2 and SM 3112 B	CVAAS
Dissolved Molybdenum	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Nickel	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Selenium	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Silver	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Strontium	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Thallium	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Tin	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Titanium	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Tungsten	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Uranium	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Vanadium	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Zinc	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Zirconium	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS



**CLIENT NAME: AECOM CANADA LTD
50 SPORTSWORLD CROSSING RD UNIT 290
KITCHENER, ON N2P0A4
(519) 650-5313**

**ATTENTION TO: Brian Holden
PROJECT: 60636190 - BBP - Well Survey**

AGAT WORK ORDER: 21T815177

MICROBIOLOGY ANALYSIS REVIEWED BY: Amanjot Bhela, Inorganic Lab Manager

WATER ANALYSIS REVIEWED BY: Jacky Zhu, Spectroscopy Technician

DATE REPORTED: Oct 20, 2021

PAGES (INCLUDING COVER): 12

VERSION*: 1

Should you require any information regarding this analysis please contact your client services representative at (905) 712-5100

***Notes**

Disclaimer:

- All work conducted herein has been done using accepted standard protocols, and generally accepted practices and methods. AGAT test methods may incorporate modifications from the specified reference methods to improve performance.
- All samples will be disposed of within 30 days after receipt unless a Long Term Storage Agreement is signed and returned. Some specialty analysis may be exempt, please contact your Client Project Manager for details.
- AGAT's liability in connection with any delay, performance or non-performance of these services is only to the Client and does not extend to any other third party. Unless expressly agreed otherwise in writing, AGAT's liability is limited to the actual cost of the specific analysis or analyses included in the services.
- This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
- The test results reported herewith relate only to the samples as received by the laboratory.
- Application of guidelines is provided "as is" without warranty of any kind, either expressed or implied, including, but not limited to, warranties of merchantability, fitness for a particular purpose, or non-infringement. AGAT assumes no responsibility for any errors or omissions in the guidelines contained in this document.
- All reportable information as specified by ISO/IEC 17025:2017 is available from AGAT Laboratories upon request.



Certificate of Analysis

AGAT WORK ORDER: 21T815177

PROJECT: 60636190 - BBP - Well Survey

5835 COOPERS AVENUE
MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
TEL (905)712-5100
FAX (905)712-5122
<http://www.agatlabs.com>

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Brian Holden

SAMPLING SITE:

SAMPLED BY:

Total Coliforms & E. Coli (Using MI Agar)

DATE RECEIVED: 2021-10-13

DATE REPORTED: 2021-10-20

SAMPLE DESCRIPTION: 1539 Holborn

SAMPLE TYPE: Water

DATE SAMPLED: 2021-10-13
10:56

3086558

Parameter	Unit	G / S	RDL	3086558
Escherichia coli	CFU/100mL	0	1	ND
Total Coliforms	CFU/100mL	0	1	3

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to O. Reg 169/03 - Ontario Drinking Water Quality Standards. Na value derived from O. Reg 248
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

3086558 If RDL >1 indicates dilutions of the sample.
ND - Not Detected.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:





Certificate of Analysis

AGAT WORK ORDER: 21T815177

PROJECT: 60636190 - BBP - Well Survey

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CANADA L4Z 1Y2
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<http://www.agatlabs.com>

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Brian Holden

SAMPLING SITE:

SAMPLED BY:

Water Quality Assessment (mg/L) Groundwater

DATE RECEIVED: 2021-10-13

DATE REPORTED: 2021-10-20

SAMPLE DESCRIPTION: 1539 Holborn

SAMPLE TYPE: Water

DATE SAMPLED: 2021-10-13
10:56

Parameter	Unit	G / S: A	G / S: B	RDL	3086558
Electrical Conductivity	µS/cm			2	394
pH	pH Units		6.5-8.5	NA	8.00
Saturation pH (Calculated)					7.51
Langelier Index (Calculated)					0.493
Hardness (as CaCO3) (Calculated)	mg/L		80-100	0.5	117
Total Dissolved Solids	mg/L		500	10	204[<B]
Alkalinity (as CaCO3)	mg/L		30-500	5	179
Bicarbonate (as CaCO3)	mg/L			5	179
Carbonate (as CaCO3)	mg/L			5	<5
Hydroxide (as CaCO3)	mg/L			5	<5
Fluoride	mg/L	1.5		0.05	0.14[<A]
Chloride	mg/L		250	0.10	16.5[<B]
Nitrate as N	mg/L	10.0		0.05	<0.05[<A]
Nitrite as N	mg/L	1.0		0.05	<0.05[<A]
Bromide	mg/L			0.05	0.14
Sulphate	mg/L		500	0.10	<0.10[<B]
Ortho Phosphate as P	mg/L			0.10	<0.10
Ammonia as N	mg/L			0.02	0.50
Total Phosphorus	mg/L			0.02	<0.02
Total Organic Carbon	mg/L			0.5	25.0
True Colour	TCU		5	5	<5[<B]
Turbidity	NTU		5	0.5	0.5[<B]
Dissolved Calcium	mg/L			0.05	23.3
Dissolved Magnesium	mg/L			0.05	14.4
Dissolved Potassium	mg/L			0.50	1.60
Dissolved Sodium	mg/L	20		0.05	32.2[>A]
Dissolved Aluminum	mg/L			0.004	0.010
Dissolved Antimony	mg/L	0.006		0.001	<0.001[<A]
Dissolved Arsenic	mg/L	0.01		0.001	0.002[<A]

Certified By:





Certificate of Analysis

AGAT WORK ORDER: 21T815177

PROJECT: 60636190 - BBP - Well Survey

5835 COOPERS AVENUE
MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
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<http://www.agatlabs.com>

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Brian Holden

SAMPLING SITE:

SAMPLED BY:

Water Quality Assessment (mg/L) Groundwater

DATE RECEIVED: 2021-10-13

DATE REPORTED: 2021-10-20

SAMPLE DESCRIPTION: 1539 Holborn

SAMPLE TYPE: Water

DATE SAMPLED: 2021-10-13
10:56

Parameter	Unit	G / S: A	G / S: B	RDL	3086558
Dissolved Barium	mg/L	1.0		0.002	0.089[<A]
Dissolved Beryllium	mg/L			0.0005	<0.0005
Dissolved Boron	mg/L	5.0		0.010	0.100[<A]
Dissolved Cadmium	mg/L	0.005		0.0001	<0.0001[<A]
Dissolved Chromium	mg/L	0.05		0.002	<0.002[<A]
Dissolved Cobalt	mg/L			0.0005	<0.0005
Dissolved Copper	mg/L			0.001	<0.001
Dissolved Iron	mg/L			0.010	<0.010
Dissolved Lead	mg/L	0.010		0.0005	<0.0005[<A]
Dissolved Manganese	mg/L			0.002	0.007
Dissolved Mercury	mg/L	0.001		0.0001	<0.0001[<A]
Dissolved Molybdenum	mg/L			0.002	<0.002
Dissolved Nickel	mg/L			0.003	<0.003
Dissolved Selenium	mg/L	0.05		0.001	<0.001[<A]
Dissolved Silver	mg/L			0.0001	<0.0001
Dissolved Strontium	mg/L			0.005	1.03
Dissolved Thallium	mg/L			0.0003	<0.0003
Dissolved Tin	mg/L			0.002	<0.002
Dissolved Titanium	mg/L			0.002	<0.002
Dissolved Tungsten	mg/L			0.010	<0.010
Dissolved Uranium	mg/L	0.02		0.0005	<0.0005[<A]
Dissolved Vanadium	mg/L			0.002	<0.002
Dissolved Zinc	mg/L			0.005	0.006
Dissolved Zirconium	mg/L			0.004	<0.004

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: A Refers to O. Reg 169/03 - Ontario Drinking Water Quality Standards. Na value derived from O. Reg 248, B Refers to O. Reg 169/03 - Ontario Drinking Water Quality Standards - Aesthetic Objectives and Operational Guidelines
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

Analysis performed at AGAT Toronto (unless marked by *)

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Exceedance Summary

AGAT WORK ORDER: 21T815177

PROJECT: 60636190 - BBP - Well Survey

5835 COOPERS AVENUE
 MISSISSAUGA, ONTARIO
 CANADA L4Z 1Y2
 TEL (905)712-5100
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<http://www.agatlabs.com>

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Brian Holden

SAMPLEID	SAMPLE TITLE	GUIDELINE	ANALYSIS PACKAGE	PARAMETER	UNIT	GUIDEVALUE	RESULT
3086558	1539 Holborn	ON 169/03 AO&OG	Water Quality Assessment (mg/L) Groundwater	Hardness (as CaCO3) (Calculated)	mg/L	80-100	117
3086558	1539 Holborn	ON 169/03 MAC/IMAC	Total Coliforms & E. Coli (Using MI Agar)	Total Coliforms	CFU/100mL	0	3
3086558	1539 Holborn	ON 169/03 MAC/IMAC	Water Quality Assessment (mg/L) Groundwater	Dissolved Sodium	mg/L	20	32.2

Quality Assurance

CLIENT NAME: AECOM CANADA LTD
PROJECT: 60636190 - BBP - Well Survey
SAMPLING SITE:

AGAT WORK ORDER: 21T815177
ATTENTION TO: Brian Holden
SAMPLED BY:

Microbiology Analysis

RPT Date: Oct 20, 2021			DUPLICATE			Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD		Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper

Total Coliforms & E. Coli (Using MI Agar)

Escherichia coli	3085462	ND	ND	NA	< 1
Total Coliforms	3085462	ND	ND	NA	< 1

Comments: ND - Not Detected, NA - % RPD Not Applicable.

Certified By:




AGAT Laboratories is accredited to ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA) and/or Standards Council of Canada (SCC) for specific tests listed on the scope of accreditation. AGAT Laboratories (Mississauga) is also accredited by the Canadian Association for Laboratory Accreditation Inc. (CALA) for specific drinking water tests. Accreditations are location and parameter specific. A complete listing of parameters for each location is available from www.cala.ca and/or www.scc.ca. The tests in this report may not necessarily be included in the scope of accreditation. RPDs calculated using raw data. The RPD may not be reflective of duplicate values shown, due to rounding of final results.

Results relate only to the items tested. Results apply to samples as received.

Quality Assurance

CLIENT NAME: AECOM CANADA LTD
PROJECT: 60636190 - BBP - Well Survey
SAMPLING SITE:

AGAT WORK ORDER: 21T815177
ATTENTION TO: Brian Holden
SAMPLED BY:

Water Analysis															
RPT Date: Oct 20, 2021			DUPLICATE				Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE		MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Measured Value		Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper

Water Quality Assessment (mg/L) Groundwater															
Electrical Conductivity	3086235		6120	6130	0.2%	< 2	104%	90%	110%						
pH	3086235		7.42	7.44	0.3%	NA	103%	90%	110%						
Total Dissolved Solids	3086147		540	558	3.3%	< 10	102%	80%	120%						
Alkalinity (as CaCO3)	3086235		689	702	1.9%	< 5	85%	80%	120%						
Bicarbonate (as CaCO3)	3086235		689	702	1.9%	< 5									
Carbonate (as CaCO3)	3086235		<5	<5	NA	< 5									
Hydroxide (as CaCO3)	3086235		<5	<5	NA	< 5									
Fluoride	3080984		<0.05	<0.05	NA	< 0.05	107%	70%	130%	93%	80%	120%	112%	70%	130%
Chloride	3080984		59.6	58.8	1.4%	< 0.10	94%	70%	130%	101%	80%	120%	103%	70%	130%
Nitrate as N	3080984		7.76	7.58	2.3%	< 0.05	94%	70%	130%	102%	80%	120%	101%	70%	130%
Nitrite as N	3080984		<0.05	<0.05	NA	< 0.05	106%	70%	130%	103%	80%	120%	112%	70%	130%
Bromide	3080984		<0.05	<0.05	NA	< 0.05	98%	70%	130%	92%	80%	120%	88%	70%	130%
Sulphate	3080984		27.6	27.5	0.4%	< 0.10	95%	70%	130%	99%	80%	120%	98%	70%	130%
Ortho Phosphate as P	3080984		<0.10	<0.10	NA	< 0.10	105%	70%	130%	100%	80%	120%	100%	70%	130%
Ammonia as N	3084096		0.03	0.03	NA	< 0.02	103%	70%	130%	106%	80%	120%	89%	70%	130%
Total Phosphorus	3070594		0.03	0.03	NA	< 0.02	99%	70%	130%	96%	80%	120%	97%	70%	130%
Total Organic Carbon	3080535		11.2	11.2	0.0%	< 0.5	95%	90%	110%	100%	90%	110%	NA	80%	120%
True Colour	3095546		46	46	0.0%	< 5	100%	90%	110%						
Turbidity	3089426		14.4	15.2	5.4%	< 0.5	99%	80%	120%						
Dissolved Calcium	3086543		75.0	75.2	0.3%	< 0.05	96%	70%	130%	98%	80%	120%	97%	70%	130%
Dissolved Magnesium	3086543		24.7	24.7	0.0%	< 0.05	98%	70%	130%	100%	80%	120%	100%	70%	130%
Dissolved Potassium	3086543		2.72	2.68	1.5%	< 0.50	100%	70%	130%	101%	80%	120%	102%	70%	130%
Dissolved Sodium	3086543		8.64	8.57	0.8%	< 0.05	96%	70%	130%	96%	80%	120%	102%	70%	130%
Dissolved Aluminum	3086788		0.028	0.026	7.4%	< 0.004	104%	70%	130%	110%	80%	120%	105%	70%	130%
Dissolved Antimony	3086788		< 0.001	< 0.001	NA	< 0.001	94%	70%	130%	99%	80%	120%	95%	70%	130%
Dissolved Arsenic	3086788		0.001	0.001	NA	< 0.001	96%	70%	130%	98%	80%	120%	104%	70%	130%
Dissolved Barium	3086788		0.050	0.047	6.2%	< 0.002	98%	70%	130%	100%	80%	120%	100%	70%	130%
Dissolved Beryllium	3086788		< 0.0005	< 0.0005	NA	< 0.0005	107%	70%	130%	105%	80%	120%	103%	70%	130%
Dissolved Boron	3086788		0.031	0.030	NA	< 0.010	103%	70%	130%	106%	80%	120%	101%	70%	130%
Dissolved Cadmium	3086788		< 0.0001	< 0.0001	NA	< 0.0001	98%	70%	130%	100%	80%	120%	100%	70%	130%
Dissolved Chromium	3086788		0.003	0.003	NA	< 0.002	99%	70%	130%	104%	80%	120%	101%	70%	130%
Dissolved Cobalt	3086788		0.0008	0.0007	NA	< 0.0005	94%	70%	130%	102%	80%	120%	104%	70%	130%
Dissolved Copper	3086788		< 0.001	< 0.001	NA	< 0.001	95%	70%	130%	102%	80%	120%	104%	70%	130%
Dissolved Iron	3086788		5970	5440	9.3%	< 0.010	87%	70%	130%	112%	80%	120%	101%	70%	130%
Dissolved Lead	3086788		< 0.0005	< 0.0005	NA	< 0.0005	97%	70%	130%	108%	80%	120%	103%	70%	130%
Dissolved Manganese	3086788		0.949	0.875	8.1%	< 0.002	95%	70%	130%	100%	80%	120%	96%	70%	130%
Dissolved Mercury	3073029		<0.0001	<0.0001	NA	< 0.0001	98%	70%	130%	97%	80%	120%	97%	70%	130%
Dissolved Molybdenum	3086788		0.008	0.007	NA	< 0.002	95%	70%	130%	102%	80%	120%	104%	70%	130%
Dissolved Nickel	3086788		< 0.003	< 0.003	NA	< 0.003	99%	70%	130%	104%	80%	120%	106%	70%	130%

Quality Assurance

CLIENT NAME: AECOM CANADA LTD
 PROJECT: 60636190 - BBP - Well Survey
 SAMPLING SITE:

AGAT WORK ORDER: 21T815177
 ATTENTION TO: Brian Holden
 SAMPLED BY:

Water Analysis (Continued)

RPT Date: Oct 20, 2021			DUPLICATE				Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Measured Value		Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits		
								Lower	Upper		Lower	Upper		Lower	Upper	
Dissolved Selenium	3086788		<0.001	0.001	NA	< 0.001	97%	70%	130%	93%	80%	120%	98%	70%	130%	
Dissolved Silver	3086788		< 0.0001	< 0.0001	NA	< 0.0001	99%	70%	130%	104%	80%	120%	102%	70%	130%	
Dissolved Strontium	3086788		0.271	0.249	8.5%	< 0.005	94%	70%	130%	102%	80%	120%	103%	70%	130%	
Dissolved Thallium	3086788		< 0.0003	< 0.0003	NA	< 0.0003	99%	70%	130%	108%	80%	120%	103%	70%	130%	
Dissolved Tin	3086788		< 0.002	< 0.002	NA	< 0.002	98%	70%	130%	102%	80%	120%	101%	70%	130%	
Dissolved Titanium	3086788		< 0.002	< 0.002	NA	< 0.002	96%	70%	130%	101%	80%	120%	99%	70%	130%	
Dissolved Tungsten	3086788		< 0.010	< 0.010	NA	< 0.010	98%	70%	130%	100%	80%	120%	101%	70%	130%	
Dissolved Uranium	3086788		0.0013	0.0012	NA	< 0.0005	96%	70%	130%	104%	80%	120%	100%	70%	130%	
Dissolved Vanadium	3086788		< 0.002	< 0.002	NA	< 0.002	94%	70%	130%	100%	80%	120%	97%	70%	130%	
Dissolved Zinc	3086788		< 0.005	< 0.005	NA	< 0.005	100%	70%	130%	99%	80%	120%	96%	70%	130%	
Dissolved Zirconium	3086788		< 0.004	< 0.004	NA	< 0.004	94%	70%	130%	99%	80%	120%	100%	70%	130%	

Comments: NA Signifies Not Applicable.
 Duplicate NA: results are less than 5X the RDL and RPD will not be calculated.
 Matrix spike: Spike level < native concentration. Matrix spike acceptance limits do not apply.

Certified By:



Method Summary

CLIENT NAME: AECOM CANADA LTD
 PROJECT: 60636190 - BBP - Well Survey
 SAMPLING SITE:

AGAT WORK ORDER: 21T815177
 ATTENTION TO: Brian Holden
 SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Microbiology Analysis			
Escherichia coli	MIC-93-7010	EPA 1604	Membrane Filtration
Total Coliforms	MIC-93-7010	EPA 1604	Membrane Filtration

Method Summary

CLIENT NAME: AECOM CANADA LTD
PROJECT: 60636190 - BBP - Well Survey
SAMPLING SITE:

AGAT WORK ORDER: 21T815177
ATTENTION TO: Brian Holden
SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Water Analysis			
Electrical Conductivity	INOR-93-6000	modified from SM 2510 B	PC TITRATE
pH	INOR-93-6000	modified from SM 4500-H+ B	PC TITRATE
Saturation pH (Calculated)		SM 2320 B	CALCULATION
Langelier Index (Calculated)		SM 2330B	CALCULATION
Hardness (as CaCO ₃) (Calculated)	MET-93-6105	modified from EPA SW-846 6010C & 200.7 & SM 2340 B	CALCULATION
Total Dissolved Solids	INOR-93-6028	modified from EPA 1684, ON MOECC E3139, SM 2540C, D	BALANCE
Alkalinity (as CaCO ₃)	INOR-93-6000	Modified from SM 2320 B	PC TITRATE
Bicarbonate (as CaCO ₃)	INOR-93-6000	modified from SM 2320 B	PC TITRATE
Carbonate (as CaCO ₃)	INOR-93-6000	modified from SM 2320 B	PC TITRATE
Hydroxide (as CaCO ₃)	INOR-93-6000	modified from SM 2320 B	PC TITRATE
Fluoride	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Chloride	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Nitrate as N	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Nitrite as N	INOR-93-6004	SM 4110 B	ION CHROMATOGRAPH
Bromide	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Sulphate	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Ortho Phosphate as P	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Ammonia as N	INOR-93-6059	modified from SM 4500-NH ₃ H	LACHAT FIA
Total Phosphorus	INOR-93-6057	modified from LACHAT 10-115-01-3A	LACHAT FIA
Total Organic Carbon	INOR-93-6049	modified from SM 5310 B	SHIMADZU CARBON ANALYZER
True Colour	INOR-93-6074	modified from SM 2120 B	LACHAT FIA
Turbidity	INOR-93-6044	modified from SM 2130 B	NEPHELOMETER
Dissolved Calcium	MET-93-6105	modified from EPA 6010D	ICP/OES
Dissolved Magnesium	MET-93-6105	modified from EPA 6010D	ICP/OES
Dissolved Potassium	MET-93-6105	modified from EPA 6010D	ICP/OES
Dissolved Sodium	MET-93-6105	modified from EPA 6010D	ICP/OES
Dissolved Aluminum	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Antimony	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Arsenic	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Barium	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Beryllium	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Boron	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Cadmium	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Chromium	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Cobalt	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Copper	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Iron	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Lead	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS

Method Summary

CLIENT NAME: AECOM CANADA LTD
PROJECT: 60636190 - BBP - Well Survey
SAMPLING SITE:

AGAT WORK ORDER: 21T815177
ATTENTION TO: Brian Holden
SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Dissolved Manganese	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Mercury	MET-93-6100	modified from EPA 245.2 and SM 3112 B	CVAAS
Dissolved Molybdenum	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Nickel	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Selenium	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Silver	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Strontium	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Thallium	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Tin	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Titanium	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Tungsten	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Uranium	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Vanadium	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Zinc	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Zirconium	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS



Ontario

WATER WELL RECORD

#1034

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

11

6914136

MUNICIPALITY 69003

CON. CON

03

COUNTY OR DISTRICT: YORK TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE: TOWN OF EAST GWILLIMBURY 3 CON. BLOCK, TRACT, SURVEY, ETC.: 3 LOT: 026

R. R. # 1, QUEENSVILLE, ONTARIO. DATE COMPLETED: DAY 13 MO 06 YR 77

390350 5 0775 5 72

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET	
				FROM	TO
		top soil		0	2
		brown clay		2	18
		blue silty clay		18	27
		silty sand		27	29

31 0002 02 0018605 002730584 0029 2884

32

41 WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER			
10-13	<input checked="" type="checkbox"/> FRESH	<input type="checkbox"/> SALTY	<input type="checkbox"/> SULPHUR	<input type="checkbox"/> MINERAL
15-18	<input type="checkbox"/> FRESH	<input type="checkbox"/> SALTY	<input type="checkbox"/> SULPHUR	<input type="checkbox"/> MINERAL
20-23	<input type="checkbox"/> FRESH	<input type="checkbox"/> SALTY	<input type="checkbox"/> SULPHUR	<input type="checkbox"/> MINERAL
25-28	<input type="checkbox"/> FRESH	<input type="checkbox"/> SALTY	<input type="checkbox"/> SULPHUR	<input type="checkbox"/> MINERAL
30-33	<input type="checkbox"/> FRESH	<input type="checkbox"/> SALTY	<input type="checkbox"/> SULPHUR	<input type="checkbox"/> MINERAL

51 CASING & OPEN HOLE RECORD

INSIDE DIAM. INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET	
			FROM	TO
30	<input checked="" type="checkbox"/> CONCRETE	3	0	0029
17-18	<input type="checkbox"/> STEEL			20-23
24-25	<input type="checkbox"/> STEEL			27-30

SCREEN

SIZE (S) OF OPENING (SLOT NO.)	DIAMETER INCHES	LENGTH FEET
31-33	34-38	39-40

MATERIAL AND TYPE: _____ DEPTH TO TOP OF SCREEN: 41-44 FEET

61 PLUGGING & SEALING RECORD

DEPTH SET AT - FEET	MATERIAL AND TYPE (CEMENT GROUT, LEAD PACKER, ETC.)
10-13	14-17
18-21	22-25
26-29	30-33 80

71 PUMPING TEST

PUMPING TEST METHOD	PUMPING RATE GPM	DURATION OF PUMPING HOURS
<input type="checkbox"/> PUMP <input type="checkbox"/> BAILER		

25 WATER LEVELS DURING

15 MINUTES	30 MINUTES	45 MINUTES	60 MINUTES
19-21 FEET	22-24 FEET	26-28 FEET	29-31 FEET

IF FLOWING, GIVE RATE: 001 FEET

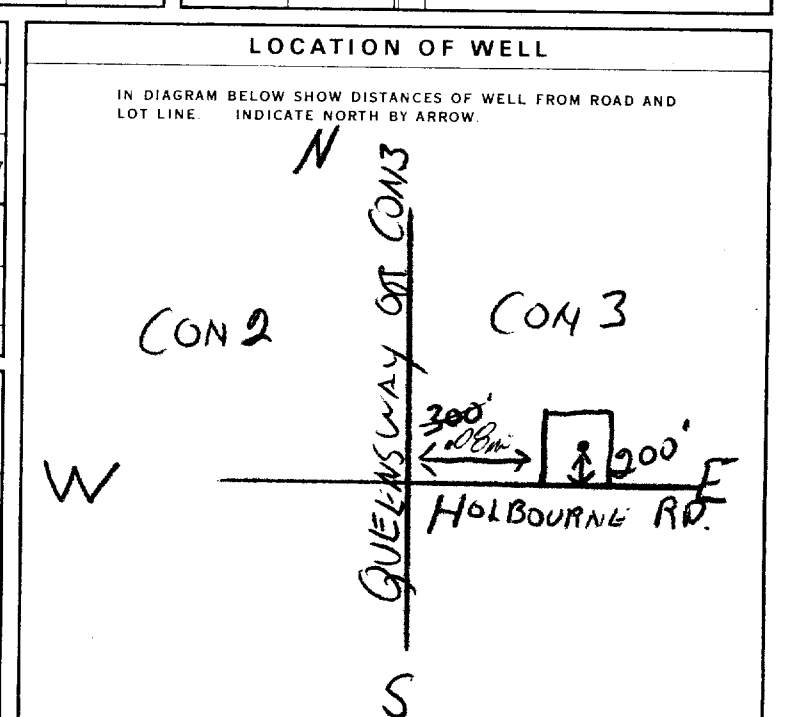
38-41 PUMP INTAKE SET AT: 18 ft. 8 hrs

42 WATER AT END OF TEST: 0004 FEET

RECOMMENDED PUMP TYPE: SHALLOW DEEP

RECOMMENDED PUMP SETTING: 0.27

RECOMMENDED PUMPING RATE: 3 1/2 GPM



54 FINAL STATUS OF WELL

WATER SUPPLY OBSERVATION WELL

55-56 WATER USE

STOCK

57 METHOD OF DRILLING

BOREING

CONTRACTOR

NAME OF WELL CONTRACTOR: J.F. KITCHING & SON LTD. LICENCE NUMBER: 3109

ADDRESS: Box 20, HOLLAND LANDING, ONT.

NAME OF DRILLER OR BORER: BRUCE DAILY

SIGNATURE OF CONTRACTOR: [Signature]

SUBMISSION DATE: DAY 31 MO 7 YR 77

OFFICE USE ONLY

DATA SOURCE: 1 CONTRACTOR: 3109 DATE RECEIVED: 290977

DATE OF INSPECTION: _____ INSPECTOR: _____

REMARKS: _____

CSS.S8

P [Signature]

WI

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2. CHECK CORRECT BOX WHERE APPLICABLE

11

6921997

MUNICIPALITY 69003

CON. 103

26

COUNTY OR DISTRICT: **NAAG**
 TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE: **BRILLIMBURY**
 CON. BLOCK, TRACT, SURVEY ETC: **3**
 DATE COMPLETED: DAY **22** MO **08** YR **92**
 ADDRESS: **HOUGEN RD QUEENSVILLE**
 DISTRICT: **QNT** COUNTY: **NOG** ELEVATION: **120** BASIN CODE: **11**

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET	
				FROM	TO
BROWN	CLAY	STONES	PACKED	0	7
GREY	CLAY	STONES	PACKED 3 0 1 1 1	7	30
GREY	GRAVEL	CLAY	SILTY	30	37
GREY	CLAY	STONES	PACKED	37	50
GREY	CLAY	PEBBLES	DENSE	50	100
GREY	CLAY	STONES	PACKED	100	216
BROWN	GRAVEL	SAND	COURSE	216	223
GREY	CLAY	PEBBLES	PACKED	223	241
GREY	CLAY	HARD PAN - GRAVEL	SALTY	241	259
GREY	LIMESTONE	FRACTURED	HARD	259	280

31
32

41 WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER					
280	1 <input checked="" type="checkbox"/> FRESH	2 <input type="checkbox"/> SALTY	3 <input type="checkbox"/> SULPHUR	4 <input type="checkbox"/> MINERALS	5 <input type="checkbox"/> GAS	6 <input type="checkbox"/> OTHER
15-18	1 <input type="checkbox"/> FRESH	2 <input type="checkbox"/> SALTY	3 <input type="checkbox"/> SULPHUR	4 <input type="checkbox"/> MINERALS	5 <input type="checkbox"/> GAS	6 <input type="checkbox"/> OTHER
20-23	1 <input type="checkbox"/> FRESH	2 <input type="checkbox"/> SALTY	3 <input type="checkbox"/> SULPHUR	4 <input type="checkbox"/> MINERALS	5 <input type="checkbox"/> GAS	6 <input type="checkbox"/> OTHER
25-28	1 <input type="checkbox"/> FRESH	2 <input type="checkbox"/> SALTY	3 <input type="checkbox"/> SULPHUR	4 <input type="checkbox"/> MINERALS	5 <input type="checkbox"/> GAS	6 <input type="checkbox"/> OTHER
30-33	1 <input type="checkbox"/> FRESH	2 <input type="checkbox"/> SALTY	3 <input type="checkbox"/> SULPHUR	4 <input type="checkbox"/> MINERALS	5 <input type="checkbox"/> GAS	6 <input type="checkbox"/> OTHER

51 CASING & OPEN HOLE RECORD

INSIDE DIAM INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET	
			FROM	TO
6"	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	SCH 40	0	259
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 1): **2**
 DIAMETER: **2** INCHES
 LENGTH: **2** FEET
 MATERIAL AND TYPE: **2**
 DEPTH TO TOP OF SCREEN: **2** FEET

61 PLUGGING & SEALING RECORD

DEPTH SET AT - FEET	MATERIAL AND TYPE (CEMENT GROUT LEAD PACKER ETC.)
0-13	15' BENSEALED
18-21	22-25
26-29	30-33

71 PUMPING TEST

PUMPING TEST METHOD: 1 PUMP 2 **AIR LIFT**
 PUMPING RATE: **45** GPM
 DURATION OF PUMPING: **2** HOURS **5** MINS
 WATER LEVELS DURING: 15 MINUTES: **55.3** FEET, 30 MINUTES: **64.7** FEET, 45 MINUTES: **72** FEET, 60 MINUTES: **73** FEET
 STATIC LEVEL: **40** FEET, WATER LEVEL END OF PUMPING: **100** FEET
 IF FLOWING: GIVE RATE, PUMP INTAKE SET AT: **140** FEET
 WATER AT END OF TEST: 1 CLEAR 2 CLOUDY
 RECOMMENDED PUMP TYPE: SHALLOW DEEP
 RECOMMENDED PUMP SETTING: **140** FEET, RECOMMENDED PUMPING RATE: **10** GPM

LOCATION OF WELL

IN DIAGRAM BELOW SHOW DISTANCES OF WELL FROM ROAD AND LOT LINE INDICATE NORTH BY ARROW

WOODBINE AVE
 LESLIE ST
 119558

DRILLERS REMARKS: **30' WELL 0-350'**

FINAL STATUS OF WELL

1 WATER SUPPLY
 2 OBSERVATION WELL
 3 TEST HOLE
 4 RECHARGE WELL
 5 ABANDONED, INSUFFICIENT SUPPLY
 6 ABANDONED, POOR QUALITY
 7 UNFINISHED
 8 DEWATERING

WATER USE

1 DOMESTIC
 2 STOCK
 3 IRRIGATION
 4 INDUSTRIAL
 5 OTHER
 6 COMMERCIAL
 7 MUNICIPAL
 8 PUBLIC SUPPLY
 9 COOLING OR AIR CONDITIONING
 10 NOT USED

METHOD OF CONSTRUCTION

1 CABLE TOOL
 2 ROTARY (CONVENTIONAL)
 3 ROTARY (REVERSE)
 4 ROTARY (AIR)
 5 AIR PERCUSSION
 6 BORING
 7 DIAMOND
 8 JETTING
 9 DRIVING
 10 DIGGING
 11 OTHER

CONTRACTOR

NAME OF WELL CONTRACTOR: **FEVELLA WELL DRILLING**
 WELL CONTRACTOR'S LICENCE NUMBER: **6418**
 ADDRESS: **RR#4 ROSEMEAD ONT K0K 2X0**
 NAME OF WELL TECHNICIAN: **HANK DETKAUICH**
 WELL TECHNICIAN'S LICENCE NUMBER: **0487**
 SIGNATURE OF TECHNICIAN/CONTRACTOR: **[Signature]**
 SUBMISSION DATE: DAY **26** MO **08** YR **92**

OFFICE USE ONLY

DATA SOURCE: **6418**
 CONTRACTOR: **6418**
 DATE RECEIVED: **AUG 31 1992**
 DATE OF INSPECTION: _____
 INSPECTOR: _____
 REMARKS: _____

BBP

Water Well Survey

AECOM

Well I.D. #: _____ AECOM Project No.: 60636190
 MECP WWR# 6914136 Client Project No.: _____

Well Owner Information:

Property Owner Name:	JANICE & BRIAN HACHKOWSKI		
Property Address:	1538 HOLBORN ROAD E., QUEBENSVILLE, LOG 180		
Telephone:	905-478-2325	Email:	JanSgingerbread@hotmail.com
Name of Person Completing Survey:	BRIAN HACHKOWSKI		
Telephone:	905-478-2325	Email:	Integratedlea-th@sympatico.ca
Relationship to Property Owner:	Husband	Date of Survey Completion:	September 17, 2021
Name of Original Well Owner: (if known/different from above)	original		

Occupant of Property Served by Well: (if other than Owner)

Name:	as above		
Telephone:	as above		
Address:	as above		

Well Location:

Lot:	<u>pt 26</u>	Concession:	<u>3</u>	Township:	<u>East Gwillimbury</u>
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Well Construction Details:

Well Record Available?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Date Well Constructed:	<u>June 1977</u>	Well Contractor Name:	<u>Contractor 3109 JFK. fehrig and Son</u>
Well Type: (Drilled/Bored/Dug)	<u>Bored</u>	Casing Material: (Steel, Concrete, etc.)	<u>Concrete</u>	Well Casing Diameter:	<u>30 inch</u>
Well Stick Up: (Above Ground)	<u>12 inch</u>	Well Depth: (Below Ground)	<u>29 Feet</u>	Water Level: (Below Ground)	<u>1 foot/Static</u>
Is Well Located in a Well Pit?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Well Pit Depth: (Below Ground)	<u>Ø</u>	Well Stick Up: (Above Pit Bottom)	<u>Ø</u>
Is Well Flowing?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Flow Rate:	<u>< 1 GPM</u>	Contractor:	<u>as above</u>
Well Cap Type:	<u>Concrete</u>	Does Cap Create a Good Seal?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is Wire Conduit Tight to Well Cap?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Is the Well:	Accessible for Direct Sampling?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	OR	Buried, In a Well Pit, or Other Confined Space?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Well Screen Installed?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If Yes, Length & Slot Size:		Depth of Top of Screen: (Below Ground)	

Water Well Survey

AECOM

Well I.D. #: _____ AECOM Project No.: 60030190
 MECP WWR 694136 Client Project No.: _____

Pumping Equipment:

Pump Type:	<input checked="" type="checkbox"/> Jet Pump <input type="checkbox"/> Submersible <input type="checkbox"/> Piston Pump <input type="checkbox"/> Other (please describe):					
Pump Horsepower:	<u>3/4 HP</u>	Pump Age:	<u>40 years</u>	Pumping Capacity:		
Pump Intake Depth: (Below Ground)	<u>27 ft</u>	Pump Location: (If Not in Well)	<u>House Basement</u>	Pumping Rate: (If Known)	<u>> 3 GPM</u>	
Pressure Tank:	Type:	<u>Bladder</u>			Capacity:	<u>44 Gallon</u>
Water Treatment: (if present)	<input type="checkbox"/> Chlorinator <input type="checkbox"/> Water Softener <input type="checkbox"/> Water Filter (indicate type) _____ <input type="checkbox"/> U.V. <input type="checkbox"/> R.O. <input type="checkbox"/> Other (please describe): <u>None</u>					

Well Usage:

Primary Use(s):	Domestic:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <u>not present</u>	Livestock:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <u>in past</u>	Lawn Watering:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
# of Persons Using Well:	<u>7 ↓ 2</u>	# of Livestock Watered:	<u>100</u>	Other Uses:		Daily Amount: (if known)
Indoor Plumbing Fixtures: (Washroom(s), Shower(s), Dishwasher, Laundry, Pool, Spa, etc.)	<u>1-5 piece bath</u> <u>4- bedroom house</u> <u>1- Kitchen and Laundry Room</u>					

Sewage Servicing:

Private Sewage System or Municipal:	<u>PRIVATE</u>	System Type: (septic tank, etc.)	<u>Septic Tank + 500 ft tile bed</u>	Distance from Well:	<u>100 ft</u>
Well Location:	<input type="checkbox"/> Uphill <input type="checkbox"/> Downhill <input checked="" type="checkbox"/> Same Grade				
Presence of Any Above Ground Storage Tank or Other Potential Source(s) of Contamination: (including distance on / off property)	<u>None</u>				

Previous Concerns:

How Long Have You Owned, Resided, or Operated a Business on this Property?	<u>45 years</u>		
Have You Experienced Any Previous Concerns with Your Well Supply? (Quantity or Quality)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If Yes, When?	
Cause(s) of the Previous Concern?	<input type="checkbox"/> Drought <input type="checkbox"/> Pump Failure <input type="checkbox"/> Plugging <input type="checkbox"/> Increased Usage <input type="checkbox"/> Interference <input type="checkbox"/> Contamination <input type="checkbox"/> Other (Please describe): <u>N/A</u>		

Water Well Survey

AECOM

Well I.D. #: _____ AECOM Project No.: 60036190
 MECP WWS# 6914136 Client Project No.: _____

Well Modification / Maintenance:

Has Your Well Ever Been...	Deepened?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Cleaned?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Reconstructed or Replaced?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
If Yes to Any of the Above, Please Provide Details:		<u>BORED WELL Replaced by DRILLED WELL</u>				

Other Details:

Other Details that May be Relevant to Assessing the Current Condition of Your Well Supply:

- Dug well flows seasonally, overflow into swale.

Property Owner Participation in Monitoring Program:

Does the Property Owner and/or Occupant Grant Permission for MTO/AECOM to Monitor and/or Sample Your Well? YES - ONLY WITH PRIOR ^{24hr} Notification Yes No

Jean and Brian Hochkowski and copy of observation and analytical results and duplicate sample to be taken @ same time
Brian Hochkowski Sept 17, 2021
 Property Owner / Occupant Name Signature Date
 (Please Print in BLOCK letters)

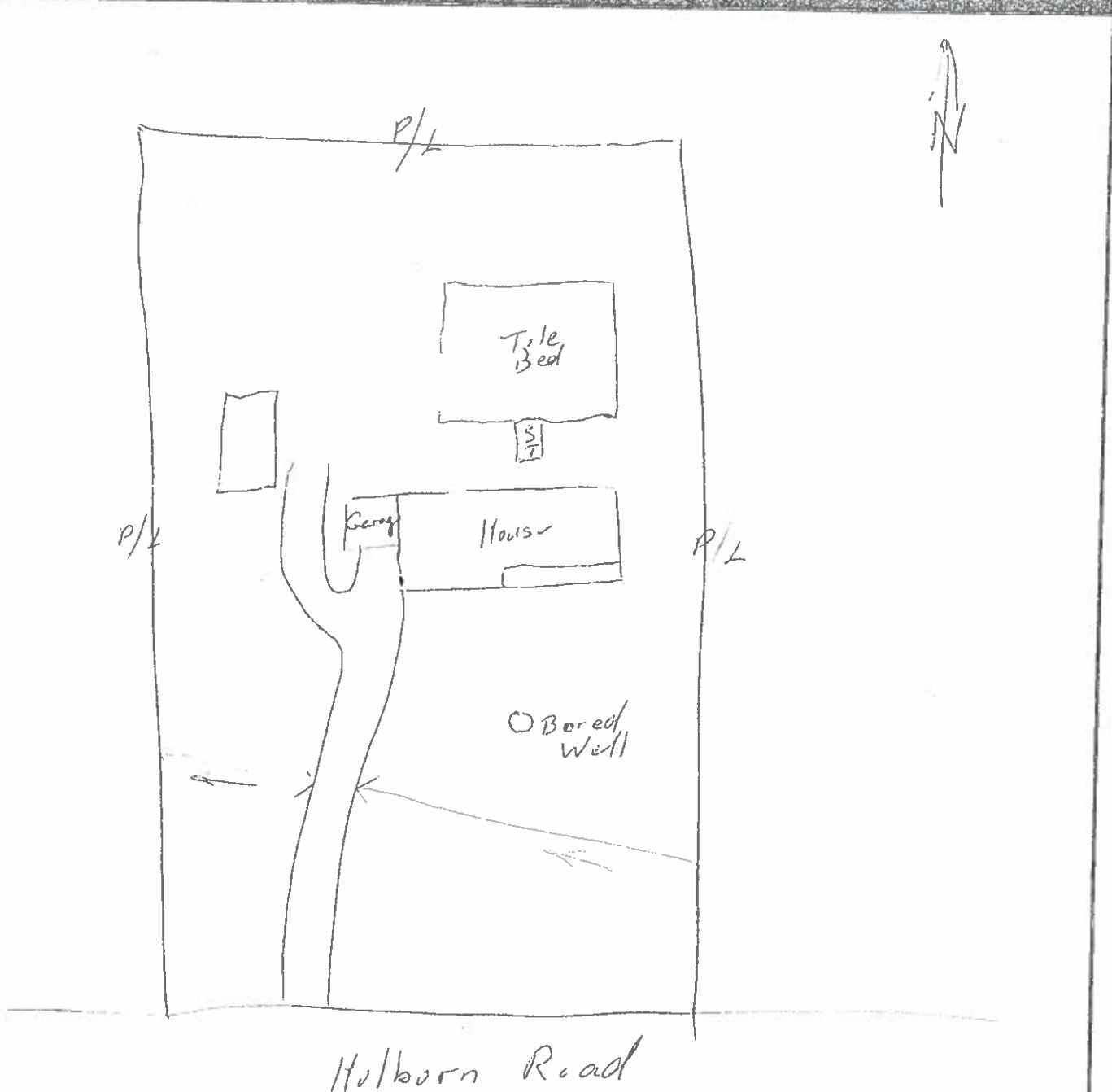
Water Well Survey

AECOM

Well I.D. #: _____
MECP WW# 6914136

AECOM Project No.: 60630190
Client Project No.: _____

Location Sketch (To be Completed by Property Owner / Occupant)



Include details such as property lines, buildings, well, sewage system (if present), as well as any other potential sources of contamination (e.g., tanks, barnyards, chemical/manure storage, etc.).

Water Well Survey

AECOM

Well I.D. #: _____ AECOM Project No.: C0030190
 MECP WWR #: 14136 Client Project No.: _____
0921997

Water Quality Sampling:

Water Quality Sample Obtained?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If No, Provide Reason:	
Sampling Location:	<u>Drilled top</u>	Raw or Treated Sample?	
Disinfected Sample Port?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Disinfection Method:	<u>Clorox</u>
Photo of Sample Obtained? (against white background)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If No, Provide Reason:	

Analyte Suite:	<u>93179 + E.coli / Total Coliform</u>				
Sample I.D.:	<u>1538 Holborn</u> <u>1539 Holborn</u>	Date / Time of Sampling:	<u>October 13/21</u> <u>10:50</u> <u>10:56</u>	Number of Sample Bottles:	<u>9</u>

Field Water Quality Parameters (record units)					
Temperature:	<u>11.4</u>	pH:	<u>7.92</u>	Conductivity:	<u>366</u>
Turbidity:		D.O.:		Colour:	<u>clear</u>
Odours?	<u>No</u>	Appearance/Odour:	<u>None</u>		

1538 (N)
1539 (S)

Type of Concern: (if applicable)	<input checked="" type="checkbox"/> Water Quantity <input checked="" type="checkbox"/> Water Quality (Note any differences in taste, odour, colour or clarity)
If the concern was contamination what changes were apparent to water quality?	
Were there any effects of this concern?	
What action was taken to overcome this concern?	

AECOM Canada Ltd.
 105 Commerce Valley Drive West, 7th Floor
 Markham, ON L3T 7W3
 Canada

T: 905.886.7022
 F: 905.538.8076
 www.aecom.com

Water Well Survey

AECOM

Well I.D. #: _____ AECOM Project No.: 60030190
 MECP WWR #: 6921997 Client Project No.: _____

Well Owner Information:

Property Owner Name:	JANICE + BRIAN HACHKOWSKI		
Property Address:	1538 Holborn Road E. Queensville Ontario L0G 1R0		
Telephone:	905-478-2325	Email:	Jansyingerbread@hotmail.ca
Name of Person Completing Survey:	BRIAN HACHKOWSKI		
Telephone:	905-478-2325	Email:	Integratedearth@sympatico.ca
Relationship to Property Owner:	Husband	Date of Survey Completion:	September 17, 2021
Name of Original Well Owner: (if known/different from above)	Original		

Occupant of Property Served by Well: (if other than Owner)

Name:			
Telephone:	as above	Email:	as above
Address:	as above		

Well Location:

623638 4890572 1T

Lot:	<u>Pt 26</u>	Concession:	<u>3</u>	Township:	<u>East Gwillimbury</u>
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Well Construction Details:

Well Record Available?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Date Well Constructed:	<u>August 22, 1992</u>	Well Contractor Name:	<u>#6418 Fennella Well Drilling</u>
Well Type: (Drilled / Bored / Dug)	<u>DRILLED</u>	Casing Material: (Steel, Concrete, etc.)	<u>PVC</u>	Well Casing Diameter:	<u>6 inch</u>
Well Stick Up: (Above Ground)	<u>2 feet</u>	Well Depth: (Below Ground)	<u>283 ft</u>	Water Level: (Below Ground)	<u>Static 40 feet</u>
Is Well Located in a Well Pit?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Well Pit Depth: (Below Ground)	<u>N/A</u>	Well Stick Up: (Above Pit Bottom)	<u>N/A</u>
Is Well Flowing?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Flow Rate:	<u>N/A</u>	Contractor:	<u>as above</u>
Well Cap Type:	<u>Aluminum</u>	Does Cap Create a Good Seal?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is Wire Conduit Tight to Well Cap?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Is the Well:	Accessible for Direct Sampling?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	OR	Buried, in a Well Pit, or Other Confined Space?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Well Screen Installed?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If Yes, Length & Slot Size:	<u>N/A</u>	Depth of Top of Screen: (Below Ground)	<u>Casing Set into Bedrock @ 259 feet</u>

Water Well Survey

AECOM

Well I.D. #: _____ AECOM Project No.: 60036190
 MECP WWR #: 0921997 Client Project No.: _____

Pumping Equipment:

Pump Type:	<input type="checkbox"/> Jet Pump <input checked="" type="checkbox"/> Submersible <input type="checkbox"/> Piston Pump <input type="checkbox"/> Other (please describe):				
Pump Horsepower:	<u>1/2 HP</u>	Pump Age:	<u>30 years</u>	Pumping Capacity:	<u>45 GPM</u>
Pump Intake Depth: (Below Ground)	<u>259 → 280 feet / Open hole</u>	Pump Location: (If Not in Well)	<u>N/A</u>	Pumping Rate: (If Known)	<u>45 GPM</u>
Pressure Tank:	Type: <u>Bladder</u>	Capacity: <u>44 Gallons</u>			
Water Treatment: (if present)	<input type="checkbox"/> Chlorinator <input type="checkbox"/> Water Softener <input type="checkbox"/> Water Filter (indicate type) _____ <input type="checkbox"/> U.V. <input type="checkbox"/> R.O. <input type="checkbox"/> Other (please describe): <u>None</u>				

Well Usage:

Primary Use(s):	Domestic: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Livestock: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Lawn Watering: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
# of Persons Using Well:	<u>7 ↓ 2</u>	# of Livestock Watered:	<u>100</u>
Indoor Plumbing Fixtures: (Washroom(s), Shower(s), Dishwasher, Laundry, Pool, Spa, etc.)		<u>1-5 piece bath</u> <u>4- bedroom</u> <u>1- Kitchen and Laundry Room</u>	

Sewage Servicing:

Private Sewage System or Municipal:	<u>Private</u>	System Type: (septic tank, etc.)	<u>Septic Tank 500 plus ft tile bed</u>	Distance from Well:	<u>50 feet</u>
Well Location:	<input checked="" type="checkbox"/> Uphill <input type="checkbox"/> Downhill <input type="checkbox"/> Same Grade				
Presence of Any Above Ground Storage Tank or Other Potential Source(s) of Contamination: (including distance on / off property)	<u>None</u>				

Previous Concerns:

How Long Have You Owned, Resided, or Operated a Business on this Property?	<u>Owned Since 1976</u>		
Have You Experienced Any Previous Concerns with Your Well Supply? (Quantity or Quality)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If Yes, When?	
Cause(s) of the Previous Concern?	<input type="checkbox"/> Drought <input type="checkbox"/> Pump Failure <input type="checkbox"/> Plugging <input type="checkbox"/> Increased Usage <input type="checkbox"/> Interference <input type="checkbox"/> Contamination <input type="checkbox"/> Other (Please describe): <u>N/A</u>		

Water Well Survey

AECOM

Well I.D. #: _____
MECP WWR #: 092 1997

AECOM Project No.: 00030196
Client Project No.: _____

Well Modification / Maintenance:

Has Your Well Ever Been...	Deepened? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Cleaned? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Reconstructed or Replaced? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
If Yes to Any of the Above, Please Provide Details:			

Other Details:

Other Details that May be Relevant to Assessing the Current Condition of Your Well Supply:

Property Owner Participation in Monitoring Program:

Does the Property Owner and/or Occupant Grant Permission for MTO/AECOM to Monitor and/or Sample Your Well? <u>Yes - subject to 24 hr advance notice</u>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
<u>for each site visit and sampling and a copy of all analytical results along with an duplicate analytical sample when taken</u>		
<u>Janice + Brian Haenkowski</u>	<u>Brian Haenkowski</u>	<u>September 17, 2004</u>
Property Owner / Occupant Name <small>(Please Print in BLOCK letters)</small>	Signature	Date

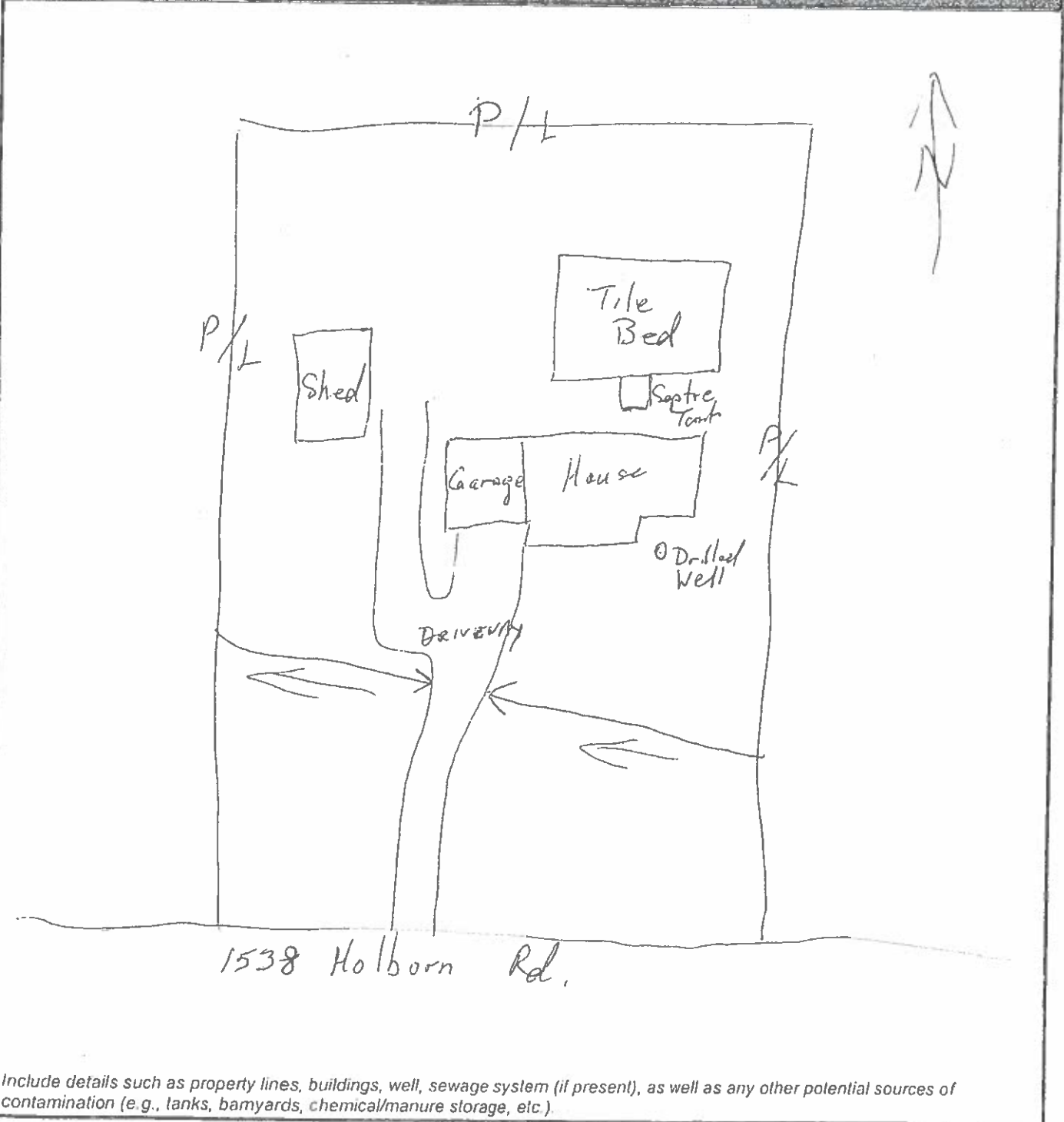
Water Well Survey

AECOM

Well I.D. #: _____
MECP WWR #: 0721997

AECOM Project No.: 60036190
Client Project No.: _____

Location Sketch (To be Completed by Property Owner / Occupant)



Include details such as property lines, buildings, well, sewage system (if present), as well as any other potential sources of contamination (e.g., tanks, barnyards, chemical/manure storage, etc).

Appendix **B**

Property ID #41 – 1737 Holborn Road

November 22nd, 2021

Alan & Beverley Watman
1737 Holborn Road
Queensville, ON
L0G 1R0

Project No: 60636190
Regarding: Pre-Construction Water Quality Testing Results
MTO Bradford Bypass Project

Dear Mr. and Ms. Watman,

AECOM Canada Ltd. (AECOM) would like to thank you for your participation in the Pre-Construction Well Assessment Program offered to local residents as part of the Bradford Bypass Project. Based on receipt of written permission from yourself, a sample of raw (untreated) groundwater from your private well was collected for laboratory analysis by AECOM staff on October 6th, 2021. Please find attached a copy of the water quality testing results for your review and record.

Laboratory testing results for the sample obtained indicate that concentrations of certain parameters, as shown in the table below, are in excess of the *Ontario Drinking Water Standards, Objectives and Guidelines* (Ontario Ministry of the Environment, 2006). It should be noted, however, that these results are based on a single sample analysis and that additional testing is recommended.

PARAMETER	CONCENTRATION IN YOUR WATER	STANDARD VALUE / RANGE	STANDARD TYPE	HEALTH RELATED (Y / N)
Total Coliforms	1 CFU/ 100mL	0 CFU/100mL	MAC	Y
Iron	6.29 mg/L	0.3 mg/L	AO	N
Manganese	0.123 mg/L	0.05 mg/L	AO	N
Turbidity	105 NTU	5 NTU	AO	N
Hardness (as CaCO ₃)	410 mg/L	80 - 100 mg/L	OG	N

NOTE: MAC – Maximum Acceptable Concentration; AO – Aesthetic Objective; OG – Operational Guideline.

As discussed via telephone with Ms. Watman on November 19th, 2021, following receipt of the water quality testing results, the presence of bacteriological parameters (Total Coliforms) in your drinking water may represent an immediate health concern. It is recommended that you discuss this exceedance with your Local Public Health Unit.

For your information, the *Well Aware Booklet – A Guide To Caring For Your Well* created by Green Communities Canada is available on the Walkerton Clean Water Centre (WCWC) website at:

<https://wcwc.ca/well-aware-and-well-wise-program-resources-for-homeowners/>

Should you have any questions or concerns regarding the quality of your well water, it is recommended that you contact your local Public Health Unit for further information and advice. Contact information for your Local Public Health Unit is provided, as follows:

Simcoe Muskoka District Health Unit
80 Bradford St. #403
Barrie, ON L4N 6S7

Website: <https://www.simcoemuskokahealth.org/>
Telephone: 705.721.7520

If you have any further questions, please contact:

AECOM Canada Ltd. C/O Brian Holden, P.Geo.
Hydrogeology, Environment
Telephone: 226-821-2486
Email: brian.holden@aecom.com

Sincerely,
AECOM Canada Ltd.



Brian Holden, P.Geo.
Hydrogeologist
DCS Americas, Canada East (Greater Ontario / Metro Toronto)
Environment
Brian.holden@aecom.com

Encl.

cc: R. Sheikh, N. Valenton, S. Rankin, S.Schmied – AECOM;
H. Singh, L. Sarris, J. MacKinnon, R. Gribbon – MTO



Water Well Survey

Groundwater Supply Well Location 1737 Holborn Road

Project Name: Bradford Bypass – BBP Expansion

Project#: 60636190

Residence Address:

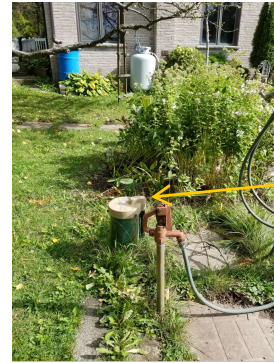
1737 Holborn Road, Queensville, Ontario, L0G 1R0

Owner Information:

Owner Name: Alan Watman and Beverly Watman

Phone Number: 905-478-4423

Email: N/A



Well

Well Record

Coordinates (UTM).....624420E/4890640N
(NAD83 Zone17)

Type of Well..... Drilled

Constructed (year)..... 1996

Well Location..... behind garage

Well Diameter.....0.20 m

Well Depth.....41.45 m

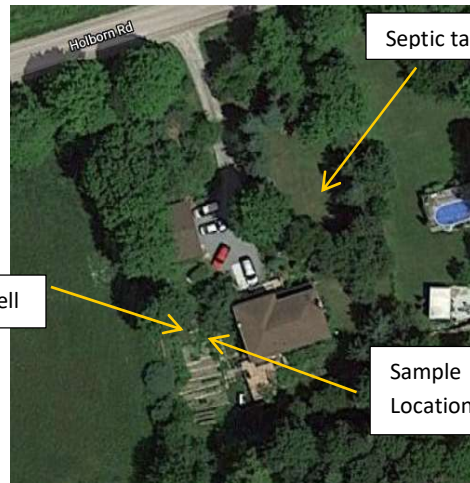
Casing Position.....N/A

Casing Condition.....Fair

Water Usage.....Residential

Water Source.....Overburden

Static Water Level.....N/A



Septic tank

Well

Sample Location

Water Quality & Well Testing

Past Water Quality Problems..... None

Potential Contamination Sources... None

Location of Septic Tank..... in front of house

Treatment System.....None

Recent Test Results.....None

Water Sampled..... Yes (October 6, 2021)

Sample Source..... Well pump

Appearance.....clear

Comments:

- Well has hand gravity pump
- Drilled well replaced old dug well near septic
- PVC pipes added from well to house in 2020

Quality Testing

Groundwater quality met the applicable standards for bacteriological, selected inorganic and metal parameters analyzed except for the following:

<i>Parameters</i>	<i>Test Results</i>	<i>Guideline/Standard</i>	<i>Criteria Type</i>
Total Coliforms	1 CFU/ 100 ml	0 CFU / 100 ml	MAC
Hardness (as CaCO ₃)	410 mg/L	80 – 100 mg/L	OG

Notes:

1. Criteria are from “Ontario Drinking Water Standards” (Ontario Regulation 169/03) and “Technical Support Document for Ontario Drinking Water Standards, Objectives and Guidelines” (MOE, June 2003, revised June 2006)
2. AO - Aesthetic Objectives (parameters that may impair the taste, odour or colour of water or which may interfere with good water quality)
3. MAC- Maximum Acceptable Concentration (health related)
4. OG - Operational Guideline (parameters which must be controlled for effective treatment)
5. NDOGT – No data; sample overgrown with target bacteria; over-crowding microbial growth
6. CFU – Colony forming units
7. **Bold** - test result exceeding guideline/standard.





**CLIENT NAME: AECOM CANADA LTD
50 SPORTSWORLD CROSSING RD UNIT 290
KITCHENER, ON N2P0A4
(519) 650-5313**

ATTENTION TO: Brian Holden

PROJECT: 60636190

AGAT WORK ORDER: 21T812334

MICROBIOLOGY ANALYSIS REVIEWED BY: Nivine Basily, Inorganics Report Writer

WATER ANALYSIS REVIEWED BY: Yris Verastegui, Report Reviewer

DATE REPORTED: Oct 13, 2021

PAGES (INCLUDING COVER): 13

VERSION*: 1

Should you require any information regarding this analysis please contact your client services representative at (905) 712-5100

***Notes**

Empty box for notes.

Disclaimer:

- All work conducted herein has been done using accepted standard protocols, and generally accepted practices and methods. AGAT test methods may incorporate modifications from the specified reference methods to improve performance.
- All samples will be disposed of within 30 days after receipt unless a Long Term Storage Agreement is signed and returned. Some specialty analysis may be exempt, please contact your Client Project Manager for details.
- AGAT's liability in connection with any delay, performance or non-performance of these services is only to the Client and does not extend to any other third party. Unless expressly agreed otherwise in writing, AGAT's liability is limited to the actual cost of the specific analysis or analyses included in the services.
- This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
- The test results reported herewith relate only to the samples as received by the laboratory.
- Application of guidelines is provided "as is" without warranty of any kind, either expressed or implied, including, but not limited to, warranties of merchantability, fitness for a particular purpose, or non-infringement. AGAT assumes no responsibility for any errors or omissions in the guidelines contained in this document.
- All reportable information as specified by ISO/IEC 17025:2017 is available from AGAT Laboratories upon request.



Certificate of Analysis

AGAT WORK ORDER: 21T812334

PROJECT: 60636190

5835 COOPERS AVENUE
 MISSISSAUGA, ONTARIO
 CANADA L4Z 1Y2
 TEL (905)712-5100
 FAX (905)712-5122
<http://www.agatlabs.com>

CLIENT NAME: AECOM CANADA LTD

SAMPLING SITE: Bradford

ATTENTION TO: Brian Holden

SAMPLED BY: Justin Borrmann

Total Coliforms & E. Coli (Using MI Agar)

DATE RECEIVED: 2021-10-06

DATE REPORTED: 2021-10-13

SAMPLE DESCRIPTION: 1737 Halburn

SAMPLE TYPE: Water

DATE SAMPLED: 2021-10-06
13:17

Parameter	Unit	G / S	RDL	3061871
Escherichia coli	CFU/100mL	100	1	ND
Total Coliforms	CFU/100mL		1	1

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to PWQO * Variable - refer to guideline reference document
 Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

3061871 ND - Not Detected.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:



Justin Borrmann



Certificate of Analysis

AGAT WORK ORDER: 21T812334

PROJECT: 60636190

5835 COOPERS AVENUE
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CANADA L4Z 1Y2
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CLIENT NAME: AECOM CANADA LTD

SAMPLING SITE: Bradford

ATTENTION TO: Brian Holden

SAMPLED BY: Justin Borrmann

Water Quality Assessment - PWQO (mg/L)

DATE RECEIVED: 2021-10-06

DATE REPORTED: 2021-10-13

SAMPLE DESCRIPTION: 1737 Halburn

SAMPLE TYPE: Water

DATE SAMPLED: 2021-10-06
13:17

Parameter	Unit	G / S	RDL	3061871
Electrical Conductivity	µS/cm		2	887
pH	pH Units	6.5-8.5	NA	7.85
Saturation pH (Calculated)				6.82
Langelier Index (Calculated)				1.03
Hardness (as CaCO3) (Calculated)	mg/L		0.5	410
Total Dissolved Solids	mg/L		10	584
Alkalinity (as CaCO3)	mg/L		5	287
Bicarbonate (as CaCO3)	mg/L		5	287
Carbonate (as CaCO3)	mg/L		5	<5
Hydroxide (as CaCO3)	mg/L		5	<5
Fluoride	mg/L		0.05	<0.05
Chloride	mg/L		0.12	87.2
Nitrate as N	mg/L		0.05	<0.05
Nitrite as N	mg/L		0.05	<0.05
Bromide	mg/L		0.05	<0.05
Sulphate	mg/L		0.10	59.5
Ortho Phosphate as P	mg/L		0.10	<0.10
Ammonia as N	mg/L		0.02	<0.02
Ammonia-Un-ionized (Calculated)	mg/L	0.02	0.000002	<0.000002
Total Phosphorus	mg/L	*	0.02	<0.02
Total Organic Carbon	mg/L		0.5	1.0
True Colour	TCU		5	<5
Turbidity	NTU		0.5	105
Total Calcium	mg/L		0.16	118
Total Magnesium	mg/L		0.17	28.1
Total Potassium	mg/L		0.58	1.65
Total Sodium	mg/L		0.22	17.5
Aluminum-dissolved	mg/L	*	0.004	<0.004
Total Antimony	mg/L	0.020	0.001	<0.001

Certified By:

Jris Vera'stegui



Certificate of Analysis

AGAT WORK ORDER: 21T812334

PROJECT: 60636190

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CLIENT NAME: AECOM CANADA LTD

SAMPLING SITE: Bradford

ATTENTION TO: Brian Holden

SAMPLED BY: Justin Borrmann

Water Quality Assessment - PWQO (mg/L)

DATE RECEIVED: 2021-10-06

DATE REPORTED: 2021-10-13

SAMPLE DESCRIPTION: 1737 Halburn

SAMPLE TYPE: Water

DATE SAMPLED: 2021-10-06
13:17

3061871

Parameter	Unit	G / S	RDL	3061871
Total Arsenic	mg/L	0.1	0.003	<0.003
Total Barium	mg/L		0.002	0.082
Total Beryllium	mg/L	*	0.001	<0.001
Total Boron	mg/L	0.2	0.010	0.018
Total Cadmium	mg/L	0.0002	0.0001	<0.0001
Total Chromium	mg/L		0.003	<0.003
Total Cobalt	mg/L	0.0009	0.0005	<0.0005
Total Copper	mg/L	0.005	0.001	0.001
Total Iron	mg/L	0.3	0.010	6.29
Total Lead	mg/L	*	0.001	<0.001
Total Manganese	mg/L		0.002	0.123
Dissolved Mercury	mg/L	0.0002	0.0001	<0.0001
Total Molybdenum	mg/L	0.040	0.002	<0.002
Total Nickel	mg/L	0.025	0.003	<0.003
Total Selenium	mg/L	0.1	0.002	<0.002
Total Silver	mg/L	0.0001	0.0001	<0.0001
Total Strontium	mg/L		0.005	0.324
Total Thallium	mg/L	0.0003	0.0003	<0.0003
Total Tin	mg/L		0.002	<0.002
Total Titanium	mg/L		0.010	<0.010
Total Tungsten	mg/L	0.030	0.010	<0.010
Total Uranium	mg/L	0.005	0.002	<0.002
Total Vanadium	mg/L	0.006	0.002	<0.002
Total Zinc	mg/L	0.030	0.020	0.058
Total Zirconium	mg/L	0.004	0.004	<0.004
Lab Filtration Aluminum Dissolved				2021/10/7
Lab Filtration mercury				2021/10/7

Certified By:

Jris Vera'stegui



Certificate of Analysis

AGAT WORK ORDER: 21T812334

PROJECT: 60636190

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CLIENT NAME: AECOM CANADA LTD

SAMPLING SITE:Bradford

ATTENTION TO: Brian Holden

SAMPLED BY:Justin Borrmann

Water Quality Assessment - PWQO (mg/L)

DATE RECEIVED: 2021-10-06

DATE REPORTED: 2021-10-13

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to PWQO * Variable - refer to guideline reference document
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

3061871 Dilution required, RDL has been increased accordingly.
Un-ionized Ammonia detection limit is a calculated RDL. The calculation of Un-ionized Ammonia is based on lab measured parameters (ammonia as N, pH and temperature). Values are reported as calculated.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:



Exceedance Summary

AGAT WORK ORDER: 21T812334

PROJECT: 60636190

5835 COOPERS AVENUE
MISSISSAUGA, ONTARIO
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TEL (905)712-5100
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<http://www.agatlabs.com>

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Brian Holden

SAMPLEID	SAMPLE TITLE	GUIDELINE	ANALYSIS PACKAGE	PARAMETER	UNIT	GUIDEVALUE	RESULT
3061871	1737 Halburn	ON PWQO	Water Quality Assessment - PWQO (mg/L)	Total Iron	mg/L	0.3	6.29
3061871	1737 Halburn	ON PWQO	Water Quality Assessment - PWQO (mg/L)	Total Zinc	mg/L	0.030	0.058

Quality Assurance

CLIENT NAME: AECOM CANADA LTD
PROJECT: 60636190
SAMPLING SITE:Bradford

AGAT WORK ORDER: 21T812334
ATTENTION TO: Brian Holden
SAMPLED BY:Justin Borrmann

Microbiology Analysis

RPT Date: Oct 13, 2021			DUPLICATE			Method Blank	REFERENCE MATERIAL		METHOD BLANK SPIKE		MATRIX SPIKE				
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD		Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper

Total Coliforms & E. Coli (Using MI Agar)

Escherichia coli	3061729	ND	ND	NA	< 1
Total Coliforms	3061729	50	40	22.2%	< 1

Comments: ND - Not Detected, NA - % RPD Not Applicable.

Certified By:



Nivine Basily

Quality Assurance

CLIENT NAME: AECOM CANADA LTD
AGAT WORK ORDER: 21T812334
PROJECT: 60636190
ATTENTION TO: Brian Holden
SAMPLING SITE:Bradford
SAMPLED BY:Justin Borrmann

Water Analysis																
RPT Date: Oct 13, 2021			DUPLICATE				Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Measured Value		Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits		
								Lower	Upper		Lower	Upper		Lower	Upper	
Water Quality Assessment - PWQO (mg/L)																
Electrical Conductivity	3062184		40	40	0.0%	< 2	100%	90%	110%							
pH	3062184		6.69	6.73	0.6%	NA	102%	90%	110%							
Total Dissolved Solids	3060808		172	186	7.8%	< 10	98%	80%	120%							
Alkalinity (as CaCO3)	3062184		17	16	NA	< 5	87%	80%	120%							
Bicarbonate (as CaCO3)	3062184		17	16	NA	< 5	NA									
Carbonate (as CaCO3)	3062184		<5	<5	NA	< 5	NA									
Hydroxide (as CaCO3)	3062184		<5	<5	NA	< 5	NA									
Fluoride	3068146		<0.05	<0.05	NA	< 0.05	94%	70%	130%	107%	80%	120%	103%	70%	130%	
Chloride	3068146		64.1	64.1	0.0%	< 0.10	93%	70%	130%	110%	80%	120%	109%	70%	130%	
Nitrate as N	3068146		<0.05	<0.05	NA	< 0.05	100%	70%	130%	108%	80%	120%	108%	70%	130%	
Nitrite as N	3068146		<0.05	<0.05	NA	< 0.05	102%	70%	130%	99%	80%	120%	112%	70%	130%	
Bromide	3068146		<0.05	<0.05	NA	< 0.05	107%	70%	130%	106%	80%	120%	107%	70%	130%	
Sulphate	3068146		123	123	0.0%	< 0.10	97%	70%	130%	109%	80%	120%	106%	70%	130%	
Ortho Phosphate as P	3068146		<0.10	<0.10	NA	< 0.10	100%	70%	130%	100%	80%	120%	100%	70%	130%	
Ammonia as N	3062181		<0.02	<0.02	NA	< 0.02	105%	70%	130%	99%	80%	120%	90%	70%	130%	
Total Phosphorus	3061760		0.87	0.89	2.3%	< 0.02	98%	70%	130%	97%	80%	120%	NA	70%	130%	
Total Organic Carbon	3062196		1.3	1.3	NA	< 0.5	103%	90%	110%	103%	90%	110%	95%	80%	120%	
True Colour	3051121		232	237	2.1%	< 5	105%	90%	110%							
Turbidity	3061372		42.1	44.5	5.5%	< 0.5	98%	80%	120%							
Total Calcium	3059717		40.8	40.3	1.2%	< 0.10	93%	70%	130%	94%	80%	120%	100%	70%	130%	
Total Magnesium	3059717		14.1	13.8	2.2%	< 0.10	97%	70%	130%	97%	80%	120%	103%	70%	130%	
Total Potassium	3059717		1.29	1.24	NA	< 0.50	94%	70%	130%	95%	80%	120%	101%	70%	130%	
Total Sodium	3059717		8.59	8.44	1.8%	< 0.10	92%	70%	130%	92%	80%	120%	101%	70%	130%	
Aluminum-dissolved	3057466		<0.004	<0.004	NA	< 0.004	110%	70%	130%	107%	80%	120%	85%	70%	130%	
Total Antimony	3059717		<0.001	<0.001	NA	< 0.001	99%	70%	130%	104%	80%	120%	105%	70%	130%	
Total Arsenic	3059717		<0.003	<0.003	NA	< 0.003	93%	70%	130%	116%	80%	120%	112%	70%	130%	
Total Barium	3059717		0.062	0.062	0.0%	< 0.002	101%	70%	130%	103%	80%	120%	109%	70%	130%	
Total Beryllium	3059717		<0.001	<0.001	NA	< 0.001	96%	70%	130%	112%	80%	120%	112%	70%	130%	
Total Boron	3059717		0.023	0.026	NA	< 0.010	99%	70%	130%	103%	80%	120%	111%	70%	130%	
Total Cadmium	3059717		<0.0001	<0.0001	NA	< 0.0001	100%	70%	130%	105%	80%	120%	107%	70%	130%	
Total Chromium	3059717		<0.003	<0.003	NA	< 0.003	107%	70%	130%	102%	80%	120%	107%	70%	130%	
Total Cobalt	3059717		<0.0005	<0.0005	NA	< 0.0005	107%	70%	130%	109%	80%	120%	111%	70%	130%	
Total Copper	3059717		0.002	0.002	NA	< 0.001	105%	70%	130%	104%	80%	120%	110%	70%	130%	
Total Iron	3059717		0.162	0.181	11.1%	< 0.010	102%	70%	130%	105%	80%	120%	101%	70%	130%	
Total Lead	3059717		<0.001	<0.001	NA	< 0.001	96%	70%	130%	109%	80%	120%	109%	70%	130%	
Total Manganese	3059717		0.100	0.112	11.3%	< 0.002	103%	70%	130%	109%	80%	120%	107%	70%	130%	
Dissolved Mercury	3065987		<0.0001	<0.0001	NA	< 0.0001	99%	70%	130%	99%	80%	120%	99%	70%	130%	
Total Molybdenum	3059717		<0.002	<0.002	NA	< 0.002	106%	70%	130%	107%	80%	120%	110%	70%	130%	
Total Nickel	3059717		<0.003	<0.003	NA	< 0.003	104%	70%	130%	105%	80%	120%	106%	70%	130%	

Quality Assurance

CLIENT NAME: AECOM CANADA LTD
PROJECT: 60636190
SAMPLING SITE: Bradford

AGAT WORK ORDER: 21T812334
ATTENTION TO: Brian Holden
SAMPLED BY: Justin Borrmann

Water Analysis (Continued)

RPT Date: Oct 13, 2021			DUPLICATE				Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Measured Value		Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits		
								Lower	Upper		Lower	Upper		Lower	Upper	
Total Selenium	3059717		<0.002	<0.002	NA	< 0.002	96%	70%	130%	113%	80%	120%	105%	70%	130%	
Total Silver	3059717		<0.0001	<0.0001	NA	< 0.0001	99%	70%	130%	109%	80%	120%	106%	70%	130%	
Total Strontium	3059717		0.261	0.287	9.5%	< 0.005	100%	70%	130%	107%	80%	120%	100%	70%	130%	
Total Thallium	3059717		<0.0003	<0.0003	NA	< 0.0003	96%	70%	130%	111%	80%	120%	110%	70%	130%	
Total Tin	3059717		<0.002	<0.002	NA	< 0.002	105%	70%	130%	110%	80%	120%	106%	70%	130%	
Total Titanium	3059717		<0.010	<0.010	NA	< 0.010	95%	70%	130%	107%	80%	120%	110%	70%	130%	
Total Tungsten	3059717		<0.010	<0.010	NA	< 0.010	97%	70%	130%	103%	80%	120%	104%	70%	130%	
Total Uranium	3059717		<0.002	<0.002	NA	< 0.002	93%	70%	130%	110%	80%	120%	111%	70%	130%	
Total Vanadium	3059717		<0.002	<0.002	NA	< 0.002	107%	70%	130%	106%	80%	120%	107%	70%	130%	
Total Zinc	3059717		0.029	<0.020	NA	< 0.020	107%	70%	130%	103%	80%	120%	110%	70%	130%	
Total Zirconium	3059717		<0.004	<0.004	NA	< 0.004	110%	70%	130%	106%	80%	120%	107%	70%	130%	

Comments: NA signifies Not Applicable.
 If the RPD value is NA, the results of the duplicates are under 5X the RDL and will not be calculated.
 Matrix spike: Spike level < native concentration. Matrix spike acceptance limits do not apply.

Certified By:





Method Summary

CLIENT NAME: AECOM CANADA LTD

PROJECT: 60636190

SAMPLING SITE:Bradford

AGAT WORK ORDER: 21T812334

ATTENTION TO: Brian Holden

SAMPLED BY:Justin Borrmann

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Microbiology Analysis			
Escherichia coli	MIC-93-7010	EPA 1604	Membrane Filtration
Total Coliforms	MIC-93-7010	EPA 1604	Membrane Filtration

Method Summary

CLIENT NAME: AECOM CANADA LTD
AGAT WORK ORDER: 21T812334
PROJECT: 60636190
ATTENTION TO: Brian Holden
SAMPLING SITE:Bradford
SAMPLED BY:Justin Borrmann

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Water Analysis			
Electrical Conductivity	INOR-93-6000	modified from SM 2510 B	PC TITRATE
pH	INOR-93-6000	modified from SM 4500-H+ B	PC TITRATE
Saturation pH (Calculated)		SM 2320 B	CALCULATION
Langelier Index (Calculated)		SM 2330B	CALCULATION
Hardness (as CaCO ₃) (Calculated)	MET-93-6105	modified from EPA SW-846 6010C & 200.7 & SM 2340 B	CALCULATION
Total Dissolved Solids	INOR-93-6028	modified from EPA 1684,ON MOECC E3139,SM 2540C,D	BALANCE
Alkalinity (as CaCO ₃)	INOR-93-6000	Modified from SM 2320 B	PC TITRATE
Bicarbonate (as CaCO ₃)	INOR-93-6000	modified from SM 2320 B	PC TITRATE
Carbonate (as CaCO ₃)	INOR-93-6000	modified from SM 2320 B	PC TITRATE
Hydroxide (as CaCO ₃)	INOR-93-6000	modified from SM 2320 B	PC TITRATE
Fluoride	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Chloride	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Nitrate as N	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Nitrite as N	INOR-93-6004	SM 4110 B	ION CHROMATOGRAPH
Bromide	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Sulphate	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Ortho Phosphate as P	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Ammonia as N	INOR-93-6059	modified from SM 4500-NH ₃ H	LACHAT FIA
Ammonia-Un-ionized (Calculated)		MOE REFERENCE, PWQOs Tab 2	CALCULATION
Total Phosphorus	INOR-93-6022	modified from SM 4500-P B and SM 4500-P E	SPECTROPHOTOMETER
Total Organic Carbon	INOR-93-6049	modified from SM 5310 B	SHIMADZU CARBON ANALYZER
True Colour	INOR-93-6074	modified from SM 2120 B	LACHAT FIA
Turbidity	INOR-93-6044	modified from SM 2130 B	NEPHELOMETER
Total Calcium	MET-93-6105	modified from EPA 6010D	ICP/OES
Total Magnesium	MET-93-6105	modified from EPA 6010D	ICP/OES
Total Potassium	MET-93-6105	modified from EPA 6010D	ICP/OES
Total Sodium	MET-93-6105	modified from EPA 6010D	ICP/OES
Aluminum-dissolved	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Total Antimony	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Arsenic	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Barium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Beryllium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Boron	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Cadmium	MET -93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Chromium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Cobalt	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Copper	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Iron	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS



Method Summary

CLIENT NAME: AECOM CANADA LTD

AGAT WORK ORDER: 21T812334

PROJECT: 60636190

ATTENTION TO: Brian Holden

SAMPLING SITE:Bradford

SAMPLED BY:Justin Borrmann

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Total Lead	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Manganese	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Dissolved Mercury	MET-93-6100	modified from EPA 245.2 and SM 3112 B	CVAAS
Total Molybdenum	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Nickel	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Selenium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Silver	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Strontium	INOR-93-6003	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Thallium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Tin	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Titanium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Tungsten	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Uranium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Vanadium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Zinc	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Zirconium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Lab Filtration Aluminum Dissolved	SR-78-9001		FILTRATION
Lab Filtration mercury	SR-78-9001		FILTRATION

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ONTARIO WATER RESOURCES COMMISSION

The Ontario Water Resources Commission Act

WATER WELL RECORD

County or District York Township, Village, Town or City East Swillimbury
Con. 8 III Lot 25 Date completed 9 Sept. 1968
(day month year)
Address SS#1 Y39 Keswick

Casing and Screen Record

Inside diameter of casing 30"
Total length of casing 40'
Type of screen
Length of screen
Depth to top of screen
Diameter of finished hole 36"

Pumping Test

Static level 20'
RECOVERY
Test pumping rate 3 G.P.M.
Pumping level 39'
Duration of test pumping 1 hr.
Water clear or cloudy at end of test clear
Recommended pumping rate 3 G.P.M.
with pump setting of 39' feet below ground surface

Well Log

Water Record

Overburden and Bedrock Record	From ft.	To ft.	Depth(s) at which water(s) found	Kind of water (fresh, salty, sulphur)
<u>6" top soil</u>	<u>0'</u>	<u>6"</u>		
<u>10' hard brown clay</u>	<u>6"</u>	<u>10'6"</u>		
<u>11' stone & sand</u>	<u>10'6"</u>	<u>21'6"</u>		
<u>9' hard clay & stone</u>	<u>30'6"</u>	<u>30'6"</u>	<u>25'</u>	<u>fresh</u>
<u>9'6" layers of sand & stone</u>	<u>30'6"</u>	<u>40'</u>		

For what purpose(s) is the water to be used?
house

Is well on upland, in valley, or on hillside? upland

Drilling or Boring Firm James C. Cross

Address R.R. 1 Keswick Ont.

Licence Number 159

Name of Driller or Borer James Cross

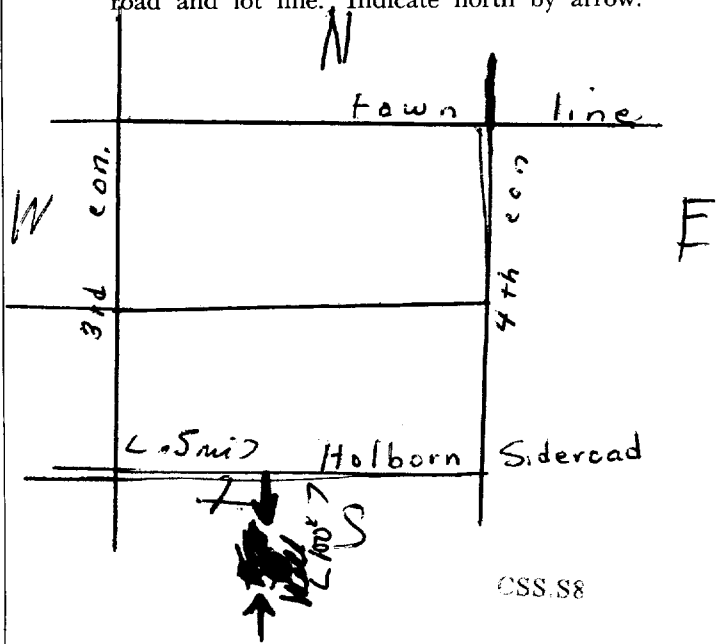
Address Keswick, R.R.#1,

Date Sept 9/68

(Signature of Licensed Drilling or Boring Contractor)

Location of Well

In diagram below show distances of well from road and lot line. Indicate north by arrow.



BBP

Water Well Survey

AECOM

Well I.D. #: _____ AECOM Project No.: 60636190
 MECP WWR #: 0923707 Client Project No.: _____

Well Owner Information:

Property Owner Name:	Alan + Beverley Watman		
Property Address:	1737 Holborn Rd Queensville Ont L0G 1R0		
Telephone:	905 478 4123	Email:	
Name of Person Completing Survey:	Beverley Watman		
Telephone:		Email:	
Relationship to Property Owner:		Date of Survey Completion:	Sept 12 2021
Name of Original Well Owner: (if known/different from above)			

Occupant of Property Served by Well: (if other than Owner)

Name:			
Telephone:		Email:	
Address:			

Well Location:

Lot:	R4 Lot 25	Concession:	Con-3	Township:	East Millinburg
------	-----------	-------------	-------	-----------	-----------------

Well Construction Details:

Well Record Available?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Date Well Constructed:	Oct. 1986	Well Contractor Name:	Boadway
Well Type: (Drilled / Bored / Dug)	drilled	Casing Material: (Steel, Concrete, etc.)	steel	Well Casing Diameter:	6 1/2"
Well Stick Up: (Above Ground)	424 0.36m	Well Depth: (Below Ground)	133	Water Level: (Below Ground)	136'
Is Well Located in a Well Pit?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Well Pit Depth: (Below Ground)		Well Stick Up: (Above Pit Bottom)	
Is Well Flowing?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Flow Rate:		Contractor:	
Well Cap Type:	Yard Hydrant	Does Cap Create a Good Seal?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is Wire Conduit Tight to Well Cap?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Is the Well:	Accessible for Direct Sampling?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	OR	Buried, in a Well Pit, or Other Confined Space?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Well Screen Installed?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If Yes, Length & Slot Size:	lg. 3 ft slot #18	Depth of Top of Screen: (Below Ground)	133'

Water Well Survey

AECOM

Well I.D. #: _____ AECOM Project No.: 00036190
 MECP WWR #: 0923707 Client Project No.: _____

Pumping Equipment:

Pump Type:	<input type="checkbox"/> Jet Pump <input checked="" type="checkbox"/> Submersible <input type="checkbox"/> Piston Pump <input type="checkbox"/> Other (please describe): _____				
Pump Horsepower:	<u>230v</u>	Pump Age:	<u>Oct. 1996</u>	Pumping Capacity:	<u>Pumping Rate 4.0 GPM</u>
Pump Intake Depth: (Below Ground)	<u>70'</u>	Pump Location: (If Not in Well)		Pumping Rate: (If Known)	<u>8 Recommended Rate 8 GPM</u>
Pressure Tank:	Type:	<u>Pentair</u>		Capacity:	
Water Treatment: (if present)	<input type="checkbox"/> Chlorinator <input checked="" type="checkbox"/> Water Softener <input type="checkbox"/> Water Filter (indicate type) _____ <input type="checkbox"/> U.V. <input type="checkbox"/> R.O. <input type="checkbox"/> Other (please describe): _____				

Well Usage:

Primary Use(s):	Domestic:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Livestock:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Lawn Watering:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
# of Persons Using Well:	<u>2</u>	# of Livestock Watered:		Other Uses:	<u>outside tap on well</u>	Daily Amount: (if known)
Indoor Plumbing Fixtures: (Washroom(s), Shower(s), Dishwasher, Laundry, Pool, Spa, etc.)			<u>Dishwasher laundry washer 3 Baths. 3 showers 1 Tub.</u>			

Sewage Servicing:

Private Sewage System or Municipal:	<u>Private</u>	System Type: (septic tank, etc.)	<u>septic</u>	Distance from Well:	
Well Location:	<input checked="" type="checkbox"/> Uphill <input type="checkbox"/> Downhill <input type="checkbox"/> Same Grade				
Presence of Any Above Ground Storage Tank or Other Potential Source(s) of Contamination: (including distance on / off property)					

Previous Concerns:

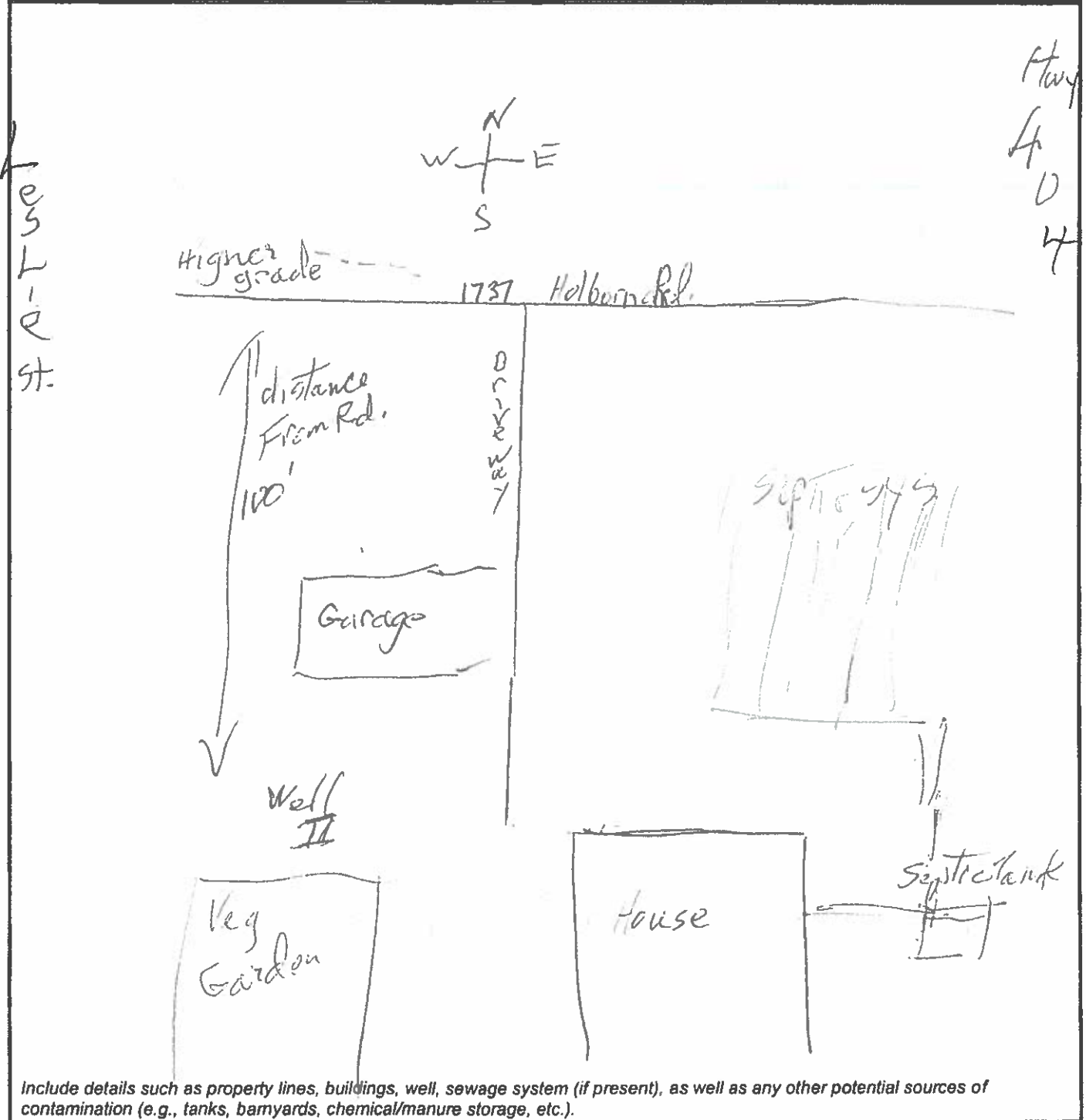
How Long Have You Owned, Resided, or Operated a Business on this Property?	<u>July 1980</u>				
Have You Experienced Any Previous Concerns with Your Well Supply? (Quantity or Quality)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If Yes, When?	<u>50' dug well (when fresh) No concerns with supply since new drilled well.</u>		
Cause(s) of the Previous Concern?	<input type="checkbox"/> Drought <input type="checkbox"/> Pump Failure <input type="checkbox"/> Plugging <input type="checkbox"/> Increased Usage <input type="checkbox"/> Interference <input type="checkbox"/> Contamination <input type="checkbox"/> Other (Please describe): _____				

Water Well Survey

AECOM

Well I.D. #: _____ AECOM Project No.: 60636190
MECP WWR #: 6923707 Client Project No.: _____

Location Sketch (To be Completed by Property Owner / Occupant)



Include details such as property lines, buildings, well, sewage system (if present), as well as any other potential sources of contamination (e.g., tanks, barnyards, chemical/manure storage, etc.).

Water Well Survey



Well I.D. #: _____ AECOM Project No.: 60630190
 MECP WWR #: 6923707 Client Project No.: _____

Well Modification / Maintenance:

Has Your Well Ever Been...	Deepened?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Cleaned?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Reconstructed or Replaced?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
If Yes to Any of the Above, Please Provide Details:		Galvanized pipe replaced with PVC pipe				

Other Details:

Other Details that May be Relevant to Assessing the Current Condition of Your Well Supply:
dissolved iron in water

Property Owner Participation in Monitoring Program:

Does the Property Owner and/or Occupant Grant Permission for MTO/AECOM to Monitor and/or Sample Your Well?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
--	---

Beverley Watman Beverley Watman Sept 14/21
 Property Owner / Occupant Name Signature Date
 (Please Print in BLOCK letters)

Water Well Survey

AECOM

Well I.D. #: _____ AECOM Project No.: 60636190
 MECP WWR #: 6923707 Client Project No.: _____

Field Visit Log (To Be Completed by AECOM Staff)

General Details:

Project Name:	<u>BBP - Well Survey</u>			Project No.:	<u>60636190</u>
Address:	<u>2023 1737 Holborn Road</u>			Inspected By:	<u>Holder/Borner</u>
Date:	<u>Oct-6/21</u>	Time:	<u>13:00-13:40</u>	Weather:	<u>Sunny / cloudy</u>
Easting:	<u>624240</u>	Northing:	<u>4890640</u>	Datum:	<u>17T</u>

Well Details:

Is Well Accessible for Inspection?		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If No, Provide Reason:		
MECP Water Well Record No.:	<u>6923707</u>	Date Well Constructed:	<u>9/18/96</u>	Contractor Name:	<u>Broadway</u>
Well Type: (Drilled / Bored / Dug)	<u>Drilled</u>	Well Stick Up: (Above Ground)	<u>0.36m</u>	Casing Material: (Steel, Concrete, etc.)	<u>Steel</u>
Well Located in a Well Pit?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Well Pit Depth: (Below Ground)	<u>—</u>	Well Stick Up: (Above Pit Bottom)	<u>—</u>
Well Casing Diameter:	<u>8"</u>	Well Depth: (Below Ground)	<u>136ft</u>	Groundwater Level: (Below Ground)	
Pump On / Off?	<input checked="" type="checkbox"/> On <input type="checkbox"/> Off	Water Level Condition:	<input type="checkbox"/> Stable (Static) <input checked="" type="checkbox"/> Declining (Drawdown) <input type="checkbox"/> Rising (Recovery)		
Flowing Well?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Flow Rate: (Estimated)	<u>8 GPM</u>	Well Cap Type:	<u>Bolt</u>
Well Screen Installed?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If Yes, Length & Slot Size:	<u>18 Slot</u>	Top of Screen: (Below Ground)	<u>133</u>
Is There a Depression Around the Well Casing Exterior?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Photo(s) of Well Obtained?		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Observation(s) Summary:

gravity

- well has hand pump
- drilled well replaced old dug well near septic
- PVC pipes added from well to house in 2020

Water Well Survey

AECOM

Well I.D. #: _____ AECOM Project No.: 60436190
 MECP WWR #: 6925707 Client Project No.: _____

Water Quality Sampling:

Water Quality Sample Obtained?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If No, Provide Reason:	
Sampling Location:	<u>Well pump</u>	Raw or Treated Sample?	<u>raw</u>
Disinfected Sample Port?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Disinfection Method:	<u>alcorox + DI</u>
Photo of Sample Obtained? (against white background)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If No, Provide Reason:	

Analyte Suite:	<u>93179 + E. coli + Total Coliforms</u>				
Sample I.D.:	<u>1737 Holborn</u>	Date / Time of Sampling:	<u>Oct. 6, 21 e</u> <u>13:17</u>	Number of Sample Bottles:	<u>9</u>

Field Water Quality Parameters: (record units)					
Temperature:	<u>12.9 °C</u>	pH:	<u>7.44</u>	Conductivity:	<u>1.08 mS</u>
Turbidity:	<u>—</u>	D.O.:	<u>—</u>	Colour:	<u>clear + colourless</u>
Odours?	<u>Yes</u>	Appearance/Odour:			

Type of Concern: (if applicable)	<input checked="" type="checkbox"/> Water Quantity <input checked="" type="checkbox"/> Water Quality (Note any differences in taste, odour, colour or clarity)
If the concern was contamination what changes were apparent to water quality?	<u>Some concern about location.</u>
Were there any effects of this concern?	
What action was taken to overcome this concern?	

AECOM Canada Ltd.
 105 Commerce Valley Drive West, 7th Floor
 Markham, ON L3T 7W3
 Canada

T: 905.886.7022
 F: 905.538.8076
 www.aecom.com

Appendix **C**

Property ID #59 – 20877 Yonge Street

November 22nd, 2021

Nicholas Dargus
20877 Yonge St.
East Gwillumbury, ON
L9N 0J6

Project No: 60636190
Regarding: Pre-Construction Water Quality Testing Results
MTO Bradford Bypass Project

Dear Mr. Dargus,

AECOM Canada Ltd. (AECOM) would like to thank you for your participation in the Pre-Construction Well Assessment Program offered to local residents as part of the Bradford Bypass Project. Based on receipt of written permission from yourself, a sample of raw (untreated) groundwater from your private well was collected for laboratory analysis by AECOM staff on October 14th, 2021. Please find attached a copy of the water quality testing results for your review and record.

Laboratory testing results for the sample obtained indicate that concentrations of certain parameters, as shown in the table below, are in excess of the *Ontario Drinking Water Standards, Objectives and Guidelines* (Ontario Ministry of the Environment, 2006). It should be noted, however, that these results are based on a single sample analysis and that additional testing is recommended.

PARAMETER	CONCENTRATION IN YOUR WATER	STANDARD VALUE / RANGE	STANDARD TYPE	HEALTH RELATED (Y / N)
Total Coliforms	364 CFU/ 100mL	0 CFU/100mL	MAC	Y
Escherichia coli (E. coli)	3 CFU/ 100 ml	0 CFU/100mL	MAC	Y
Colour	7 TCU	5 TCU	AO	N
Manganese	0.15 mg/L	0.05 mg/L	AO	N
Hardness (as CaCO ₃)	303 mg/L	80 - 100 mg/L	OG	N

NOTE: MAC – Maximum Acceptable Concentration; AO – Aesthetic Objective; OG – Operational Guideline.

As discussed via telephone with Mr. Dargus on November 19, 2021, following receipt of the water quality testing results, the presence of bacteriological parameters (Total Coliforms and E. Coli) in your drinking water may represent an immediate health concern. It is recommended that you discuss this exceedance with your Local Public Health Unit.

For your information, the *Well Aware Booklet – A Guide To Caring For Your Well* created by Green Communities Canada is available on the Walkerton Clean Water Centre (WCWC) website at:

<https://wcwc.ca/well-aware-and-well-wise-program-resources-for-homeowners/>

Should you have any questions or concerns regarding the quality of your well water, it is recommended that you contact your local Public Health Unit for further information and advice. Contact information for your Local Public Health Unit is provided, as follows:

Simcoe Muskoka District Health Unit
80 Bradford St. #403
Barrie, ON L4N 6S7

Website: <https://www.simcoemuskokahealth.org/>
Telephone: 705.721.7520

If you have any further questions, please contact:

AECOM Canada Ltd. C/O Brian Holden, P.Geo.
Hydrogeology, Environment
Telephone: 226-821-2486
Email: brian.holden@aecom.com

Sincerely,
AECOM Canada Ltd.



Brian Holden, P.Geo.
Hydrogeologist
DCS Americas, Canada East (Greater Ontario / Metro Toronto)
Environment
Brian.holden@aecom.com

Encl.

cc: R. Sheikh, N. Valenton, S. Rankin, S.Schmied – AECOM;
H. Singh, L. Sarris, J. MacKinnon, R. Gribbon – MTO



Water Well Survey

Groundwater Supply Well Location 20877 Yonge Street

Project Name: Bradford Bypass – BBP Expansion

Project#: 60636190

Residence Address:

20877 Yonge Street, East Gwillimbury, Ontario, L7N 0J6

Owner Information:

Owner Name: Nicholas Dargus

Phone Number: 905-235-2337

Email: nick.dargus@gmail.com



Well

Well Record

Coordinates (UTM).....619969E/4888202N
(NAD83 Zone17)

Type of Well..... Dug

Constructed (year)..... 1973

Well Location..... In front of the house

Well Diameter.....0.914 m

Well Depth.....8.84 m

Casing Position.....N/A

Casing Condition.....Fair

Water Usage.....Residential

Water Source.....Overburden

Static Water Level.....N/A



Septic Bed

Sample Location

Well

Water Quality & Well Testing

Past Water Quality Problems..... None

Potential Contamination Sources... None

Location of Septic Tank..... Backyard 100' away from well

Treatment System.....Water softener, (sediment/iron)filter, U.V.

Recent Test Results.....None

Water Sampled.....Yes (October 14, 2021)

Sample Source..... Basement Tap

Appearance.....brown – clear after running; Sulphur

Comments:

- Home owner not present for start of visit

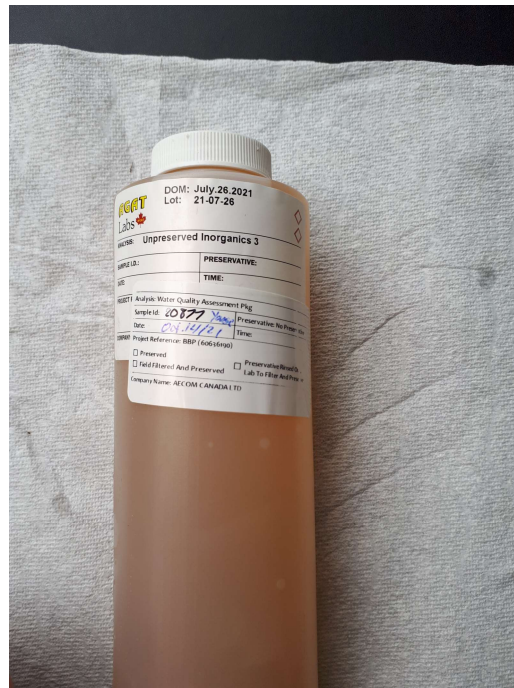
Quality Testing

Groundwater quality met the applicable standards for bacteriological, selected inorganic and metal parameters analyzed except for the following:

<i>Parameters</i>	<i>Test Results</i>	<i>Guideline/Standard</i>	<i>Criteria Type</i>
Total Coliforms	364 CFU / 100 ml	0 CFU / 100 ml	MAC
Hardness (as CaCO ₃)	303 mg/L	80 – 100 mg/L	OG

Notes:

1. Criteria are from “Ontario Drinking Water Standards” (Ontario Regulation 169/03) and “Technical Support Document for Ontario Drinking Water Standards, Objectives and Guidelines” (MOE, June 2003, revised June 2006)
2. AO - Aesthetic Objectives (parameters that may impair the taste, odour or colour of water or which may interfere with good water quality)
3. MAC- Maximum Acceptable Concentration (health related)
4. OG - Operational Guideline (parameters which must be controlled for effective treatment)
5. NDOGT – No data; sample overgrown with target bacteria; over-crowding microbial growth
6. CFU – Colony forming units
7. **Bold** - test result exceeding guideline/standard.



**CLIENT NAME: AECOM CANADA LTD
50 SPORTSWORLD CROSSING RD UNIT 290
KITCHENER, ON N2P0A4
(519) 650-5313**

ATTENTION TO: Brian Holden

PROJECT: 60636190

AGAT WORK ORDER: 21T815956

MICROBIOLOGY ANALYSIS REVIEWED BY: Amanjot Bhela, Inorganic Lab Manager

WATER ANALYSIS REVIEWED BY: Yris Verastegui, Report Reviewer

DATE REPORTED: Oct 23, 2021

PAGES (INCLUDING COVER): 12

VERSION*: 1

Should you require any information regarding this analysis please contact your client services representative at (905) 712-5100

***Notes**

Disclaimer:

- *All work conducted herein has been done using accepted standard protocols, and generally accepted practices and methods. AGAT test methods may incorporate modifications from the specified reference methods to improve performance.*
- *All samples will be disposed of within 30 days after receipt unless a Long Term Storage Agreement is signed and returned. Some specialty analysis may be exempt, please contact your Client Project Manager for details.*
- *AGAT's liability in connection with any delay, performance or non-performance of these services is only to the Client and does not extend to any other third party. Unless expressly agreed otherwise in writing, AGAT's liability is limited to the actual cost of the specific analysis or analyses included in the services.*
- *This Certificate shall not be reproduced except in full, without the written approval of the laboratory.*
- *The test results reported herewith relate only to the samples as received by the laboratory.*
- *Application of guidelines is provided "as is" without warranty of any kind, either expressed or implied, including, but not limited to, warranties of merchantability, fitness for a particular purpose, or non-infringement. AGAT assumes no responsibility for any errors or omissions in the guidelines contained in this document.*
- *All reportable information as specified by ISO/IEC 17025:2017 is available from AGAT Laboratories upon request.*



Certificate of Analysis

AGAT WORK ORDER: 21T815956

PROJECT: 60636190

5835 COOPERS AVENUE
MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
TEL (905)712-5100
FAX (905)712-5122
<http://www.agatlabs.com>

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Brian Holden

SAMPLING SITE:

SAMPLED BY:

Total Coliforms & E. Coli (Using MI Agar)

DATE RECEIVED: 2021-10-14

DATE REPORTED: 2021-10-23

SAMPLE DESCRIPTION: 20887 Yonge

SAMPLE TYPE: Water

DATE SAMPLED: 2021-10-14
13:25

Parameter	Unit	G / S	RDL	3091522
Escherichia coli	CFU/100mL	100	1	3
Total Coliforms	CFU/100mL		1	364

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to PWQO * Variable - refer to guideline reference document
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

3091522 If RDL >1 indicates dilutions of the sample.
ND - Not Detected.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:





Certificate of Analysis

AGAT WORK ORDER: 21T815956

PROJECT: 60636190

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<http://www.agatlabs.com>

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Brian Holden

SAMPLING SITE:

SAMPLED BY:

Water Quality Assessment - Dissolved Metals - PWQO (mg/L)

DATE RECEIVED: 2021-10-14

DATE REPORTED: 2021-10-23

SAMPLE DESCRIPTION: 20887 Yonge

SAMPLE TYPE: Water

DATE SAMPLED: 2021-10-14
13:25

3091522

Parameter	Unit	G / S	RDL	3091522
Electrical Conductivity	µS/cm		2	734
pH	pH Units	6.5-8.5	NA	7.96
Saturation pH (Calculated)				6.95
Langelier Index (Calculated)				1.01
Hardness (as CaCO3) (Calculated)	mg/L		0.5	303
Total Dissolved Solids	mg/L		10	436
Alkalinity (as CaCO3)	mg/L		5	270
Bicarbonate (as CaCO3)	mg/L		5	270
Carbonate (as CaCO3)	mg/L		5	<5
Hydroxide (as CaCO3)	mg/L		5	<5
Fluoride	mg/L		0.05	<0.05
Chloride	mg/L		0.10	56.3
Nitrate as N	mg/L		0.05	<0.05
Nitrite as N	mg/L		0.05	<0.05
Bromide	mg/L		0.05	<0.05
Sulphate	mg/L		0.10	27.2
Ortho Phosphate as P	mg/L		0.10	<0.10
Ammonia as N	mg/L		0.02	0.07
Ammonia-Un-ionized (Calculated)	mg/L	0.02	0.000002	0.00379
Total Phosphorus	mg/L	*	0.02	0.05
Total Organic Carbon	mg/L		0.5	74.6
True Colour	TCU		5	7
Turbidity	NTU		0.5	46.0
Dissolved Calcium	mg/L		0.25	106
Dissolved Magnesium	mg/L		0.25	9.37
Dissolved Potassium	mg/L		2.50	<2.50
Dissolved Sodium	mg/L		0.25	26.1
Aluminum-dissolved	mg/L	*	0.004	<0.004
Dissolved Antimony	mg/L	0.020	0.001	<0.001

Certified By:

José Verástegui



Certificate of Analysis

AGAT WORK ORDER: 21T815956

PROJECT: 60636190

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<http://www.agatlabs.com>

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Brian Holden

SAMPLING SITE:

SAMPLED BY:

Water Quality Assessment - Dissolved Metals - PWQO (mg/L)

DATE RECEIVED: 2021-10-14

DATE REPORTED: 2021-10-23

SAMPLE DESCRIPTION: 20887 Yonge

SAMPLE TYPE: Water

DATE SAMPLED: 2021-10-14
13:25

3091522

Parameter	Unit	G / S	RDL	3091522
Dissolved Arsenic	mg/L	0.1	0.003	<0.003
Dissolved Barium	mg/L		0.002	0.071
Dissolved Beryllium	mg/L	*	0.0005	<0.0005
Dissolved Boron	mg/L	0.2	0.010	0.019
Dissolved Cadmium	mg/L	0.0002	0.0001	<0.0001
Dissolved Chromium	mg/L		0.003	<0.003
Dissolved Cobalt	mg/L	0.0009	0.0005	<0.0005
Dissolved Copper	mg/L	0.005	0.001	0.001
Dissolved Iron	mg/L	0.3	0.010	0.014
Dissolved Lead	mg/L	*	0.001	<0.001
Dissolved Manganese	mg/L		0.002	0.150
Dissolved Mercury	mg/L	0.0002	0.0001	<0.0001
Dissolved Molybdenum	mg/L	0.040	0.002	<0.002
Dissolved Nickel	mg/L	0.025	0.003	<0.003
Dissolved Selenium	mg/L	0.1	0.004	<0.004
Dissolved Silver	mg/L	0.0001	0.0001	<0.0001
Dissolved Strontium	mg/L		0.005	0.263
Dissolved Thallium	mg/L	0.0003	0.0003	<0.0003
Dissolved Tin	mg/L		0.002	<0.002
Dissolved Titanium	mg/L		0.002	<0.002
Dissolved Tungsten	mg/L	0.030	0.010	<0.010
Dissolved Uranium	mg/L	0.005	0.002	<0.002
Dissolved Vanadium	mg/L	0.006	0.002	<0.002
Dissolved Zinc	mg/L	0.030	0.005	0.019
Dissolved Zirconium	mg/L	0.004	0.004	<0.004
Lab Filtration Aluminum Dissolved				2021/10/18
Lab Filtration mercury				2021/10/18
Lab Filtration Metals				2021/10/18

Certified By:

Jris Vera'stegui



AGAT Laboratories

Certificate of Analysis

AGAT WORK ORDER: 21T815956

PROJECT: 60636190

5835 COOPERS AVENUE
MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
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CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Brian Holden

SAMPLING SITE:

SAMPLED BY:

Water Quality Assessment - Dissolved Metals - PWQO (mg/L)

DATE RECEIVED: 2021-10-14

DATE REPORTED: 2021-10-23

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to PWQO * Variable - refer to guideline reference document
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

3091522 Metals analysis completed on a lab filtered sample.
Dilution required, RDL has been increased accordingly.
Un-ionized Ammonia detection limit is a calculated RDL. The calculation of Un-ionized Ammonia is based on lab measured parameters (ammonia as N, pH and temperature). Values are reported as calculated.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:

Quality Assurance

CLIENT NAME: AECOM CANADA LTD

AGAT WORK ORDER: 21T815956

PROJECT: 60636190

ATTENTION TO: Brian Holden

SAMPLING SITE:

SAMPLED BY:

Microbiology Analysis

RPT Date: Oct 23, 2021			DUPLICATE			Method Blank	REFERENCE MATERIAL		METHOD BLANK SPIKE		MATRIX SPIKE				
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD		Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper

Total Coliforms & E. Coli (Using MI Agar)

Escherichia coli	3091472	3091472	ND	ND	NA	< 1								
Total Coliforms	3091472	3091472	116	114	1.7%	< 1								

Comments: ND - Not Detected, NA - % RPD Not Applicable.

Certified By:



Quality Assurance

CLIENT NAME: AECOM CANADA LTD

AGAT WORK ORDER: 21T815956

PROJECT: 60636190

ATTENTION TO: Brian Holden

SAMPLING SITE:

SAMPLED BY:

Water Analysis																
RPT Date: Oct 23, 2021			DUPLICATE				Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Measured Value		Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits		
								Lower	Upper		Lower	Upper		Lower	Upper	

Water Quality Assessment - Dissolved Metals - PWQO (mg/L)

Electrical Conductivity	3090117		138	138	0.0%	< 2	97%	90%	110%						
pH	3090117		7.17	7.13	0.6%	NA	102%	90%	110%						
Total Dissolved Solids	3091472	3091472	520	524	0.8%	< 10	102%	80%	120%						
Alkalinity (as CaCO3)	3090117		64	62	3.2%	< 5	84%	80%	120%						
Bicarbonate (as CaCO3)	3090117		64	62	3.2%	< 5	NA								
Carbonate (as CaCO3)	3090117		<5	<5	NA	< 5	NA								
Hydroxide (as CaCO3)	3090117		<5	<5	NA	< 5	NA								
Fluoride	3091521	3091521	<0.05	<0.05	NA	< 0.05	94%	70%	130%	95%	80%	120%	112%	70%	130%
Chloride	3091521	3091521	54.3	54.3	0.0%	< 0.10	96%	70%	130%	104%	80%	120%	110%	70%	130%
Nitrate as N	3091521	3091521	4.07	4.16	2.2%	< 0.05	106%	70%	130%	106%	80%	120%	109%	70%	130%
Nitrite as N	3091521	3091521	<0.05	<0.05	NA	< 0.05	95%	70%	130%	101%	80%	120%	110%	70%	130%
Bromide	3091521	3091521	<0.05	<0.05	NA	< 0.05	107%	70%	130%	104%	80%	120%	102%	70%	130%
Sulphate	3091521	3091521	25.8	25.7	0.4%	< 0.10	99%	70%	130%	105%	80%	120%	108%	70%	130%
Ortho Phosphate as P	3091521	3091521	<0.10	<0.10	NA	< 0.10	105%	70%	130%	100%	80%	120%	94%	70%	130%
Ammonia as N	3087154		<0.02	<0.02	NA	< 0.02	115%	70%	130%	99%	80%	120%	96%	70%	130%
Total Phosphorus	3090116		0.02	0.03	NA	< 0.02	97%	70%	130%	97%	80%	120%	105%	70%	130%
Total Organic Carbon	3094303		47.1	47.2	0.2%	< 0.5	99%	90%	110%	98%	90%	110%	NA	80%	120%
True Colour	3090232		31	31	0.0%	< 5	106%	90%	110%						
Turbidity	3091472	3091472	<0.5	<0.5	NA	< 0.5	101%	80%	120%						
Dissolved Calcium	3095356		101	101	0.0%	< 0.05	95%	70%	130%	97%	80%	120%	98%	70%	130%
Dissolved Magnesium	3095356		12.2	12.2	0.0%	< 0.05	99%	70%	130%	101%	80%	120%	102%	70%	130%
Dissolved Potassium	3095356		0.83	0.89	NA	< 0.50	99%	70%	130%	100%	80%	120%	101%	70%	130%
Dissolved Sodium	3095356		2.75	2.72	1.1%	< 0.05	97%	70%	130%	96%	80%	120%	101%	70%	130%
Aluminum-dissolved	3091472	3091472	<0.004	<0.004	NA	< 0.004	104%	70%	130%	116%	80%	120%	119%	70%	130%
Dissolved Antimony	3091472	3091472	<0.001	<0.001	NA	< 0.001	102%	70%	130%	103%	80%	120%	107%	70%	130%
Dissolved Arsenic	3091472	3091472	<0.003	<0.003	NA	< 0.003	92%	70%	130%	103%	80%	120%	112%	70%	130%
Dissolved Barium	3091472	3091472	0.073	0.079	7.9%	< 0.002	100%	70%	130%	103%	80%	120%	104%	70%	130%
Dissolved Beryllium	3091472	3091472	<0.0005	<0.0005	NA	< 0.0005	97%	70%	130%	109%	80%	120%	115%	70%	130%
Dissolved Boron	3091472	3091472	0.036	0.038	NA	< 0.010	98%	70%	130%	106%	80%	120%	108%	70%	130%
Dissolved Cadmium	3091472	3091472	<0.0001	<0.0001	NA	< 0.0001	100%	70%	130%	106%	80%	120%	108%	70%	130%
Dissolved Chromium	3091472	3091472	<0.003	<0.003	NA	< 0.003	102%	70%	130%	105%	80%	120%	104%	70%	130%
Dissolved Cobalt	3091472	3091472	<0.0005	<0.0005	NA	< 0.0005	100%	70%	130%	107%	80%	120%	104%	70%	130%
Dissolved Copper	3091472	3091472	0.021	0.025	17.4%	< 0.001	99%	70%	130%	105%	80%	120%	104%	70%	130%
Dissolved Iron	3091472	3091472	0.012	<0.010	NA	< 0.010	101%	70%	130%	106%	80%	120%	101%	70%	130%
Dissolved Lead	3091472	3091472	<0.001	<0.001	NA	< 0.001	98%	70%	130%	104%	80%	120%	102%	70%	130%
Dissolved Manganese	3091472	3091472	<0.002	0.003	NA	< 0.002	96%	70%	130%	104%	80%	120%	102%	70%	130%
Dissolved Mercury	3095856		<0.0001	<0.0001	NA	< 0.0001	98%	70%	130%	100%	80%	120%	98%	70%	130%
Dissolved Molybdenum	3091472	3091472	<0.002	<0.002	NA	< 0.002	104%	70%	130%	105%	80%	120%	108%	70%	130%
Dissolved Nickel	3091472	3091472	<0.003	<0.003	NA	< 0.003	100%	70%	130%	106%	80%	120%	103%	70%	130%

Quality Assurance

CLIENT NAME: AECOM CANADA LTD
PROJECT: 60636190
SAMPLING SITE:

AGAT WORK ORDER: 21T815956
ATTENTION TO: Brian Holden
SAMPLED BY:

Water Analysis (Continued)

RPT Date: Oct 23, 2021			DUPLICATE				Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Measured Value		Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits		
								Lower	Upper		Lower	Upper		Lower	Upper	
Dissolved Selenium	3091472	3091472	<0.004	<0.004	NA	< 0.004	101%	70%	130%	108%	80%	120%	113%	70%	130%	
Dissolved Silver	3091472	3091472	<0.0001	<0.0001	NA	< 0.0001	99%	70%	130%	106%	80%	120%	104%	70%	130%	
Dissolved Strontium	3091472	3091472	0.249	0.253	1.6%	< 0.005	95%	70%	130%	101%	80%	120%	99%	70%	130%	
Dissolved Thallium	3091472	3091472	<0.0003	<0.0003	NA	< 0.0003	97%	70%	130%	103%	80%	120%	104%	70%	130%	
Dissolved Tin	3091472	3091472	<0.002	<0.002	NA	< 0.002	101%	70%	130%	103%	80%	120%	107%	70%	130%	
Dissolved Titanium	3091472	3091472	<0.002	<0.002	NA	< 0.002	100%	70%	130%	106%	80%	120%	105%	70%	130%	
Dissolved Tungsten	3091472	3091472	<0.010	<0.010	NA	< 0.010	96%	70%	130%	99%	80%	120%	101%	70%	130%	
Dissolved Uranium	3091472	3091472	<0.002	<0.002	NA	< 0.002	97%	70%	130%	106%	80%	120%	108%	70%	130%	
Dissolved Vanadium	3091472	3091472	<0.002	<0.002	NA	< 0.002	100%	70%	130%	104%	80%	120%	108%	70%	130%	
Dissolved Zinc	3091472	3091472	0.044	0.053	18.6%	< 0.005	100%	70%	130%	109%	80%	120%	107%	70%	130%	
Dissolved Zirconium	3091472	3091472	<0.004	<0.004	NA	< 0.004	100%	70%	130%	106%	80%	120%	108%	70%	130%	

Comments: NA signifies Not Applicable.
 If the RPD value is NA, the results of the duplicates are under 5X the RDL and will not be calculated.
 Matrix spike: Spike level < native concentration. Matrix spike acceptance limits do not apply.

Certified By:

Yris Veraestegui



Method Summary

CLIENT NAME: AECOM CANADA LTD

AGAT WORK ORDER: 21T815956

PROJECT: 60636190

ATTENTION TO: Brian Holden

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Microbiology Analysis			
Escherichia coli	MIC-93-7010	EPA 1604	Membrane Filtration
Total Coliforms	MIC-93-7010	EPA 1604	Membrane Filtration

Method Summary

CLIENT NAME: AECOM CANADA LTD
AGAT WORK ORDER: 21T815956
PROJECT: 60636190
ATTENTION TO: Brian Holden
SAMPLING SITE:
SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Water Analysis			
Electrical Conductivity	INOR-93-6000	modified from SM 2510 B	PC TITRATE
pH	INOR-93-6000	modified from SM 4500-H+ B	PC TITRATE
Saturation pH (Calculated)		SM 2320 B	CALCULATION
Langelier Index (Calculated)		SM 2330B	CALCULATION
Hardness (as CaCO ₃) (Calculated)	MET-93-6105	modified from EPA SW-846 6010C & 200.7 & SM 2340 B	CALCULATION
Total Dissolved Solids	INOR-93-6028	modified from EPA 1684, ON MOECC E3139, SM 2540C, D	BALANCE
Alkalinity (as CaCO ₃)	INOR-93-6000	Modified from SM 2320 B	PC TITRATE
Bicarbonate (as CaCO ₃)	INOR-93-6000	modified from SM 2320 B	PC TITRATE
Carbonate (as CaCO ₃)	INOR-93-6000	modified from SM 2320 B	PC TITRATE
Hydroxide (as CaCO ₃)	INOR-93-6000	modified from SM 2320 B	PC TITRATE
Fluoride	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Chloride	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Nitrate as N	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Nitrite as N	INOR-93-6004	SM 4110 B	ION CHROMATOGRAPH
Bromide	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Sulphate	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Ortho Phosphate as P	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Ammonia as N	INOR-93-6059	modified from SM 4500-NH ₃ H	LACHAT FIA
Ammonia-Un-ionized (Calculated)		MOE REFERENCE, PWQOs Tab 2	CALCULATION
Total Phosphorus	INOR-93-6022	modified from SM 4500-P B and SM 4500-P E	SPECTROPHOTOMETER
Total Organic Carbon	INOR-93-6049	modified from SM 5310 B	SHIMADZU CARBON ANALYZER
True Colour	INOR-93-6074	modified from SM 2120 B	LACHAT FIA
Turbidity	INOR-93-6044	modified from SM 2130 B	NEPHELOMETER
Dissolved Calcium	MET-93-6105	modified from EPA 6010D	ICP/OES
Dissolved Magnesium	MET-93-6105	modified from EPA 6010D	ICP/OES
Dissolved Potassium	MET-93-6105	modified from EPA 6010D	ICP/OES
Dissolved Sodium	MET-93-6105	modified from EPA 6010D	ICP/OES
Aluminum-dissolved	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Antimony	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Arsenic	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Barium	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Beryllium	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Boron	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Cadmium	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Chromium	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Cobalt	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Copper	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Iron	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS



Method Summary

CLIENT NAME: AECOM CANADA LTD

AGAT WORK ORDER: 21T815956

PROJECT: 60636190

ATTENTION TO: Brian Holden

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Dissolved Lead	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Manganese	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Mercury	MET-93-6100	modified from EPA 245.2 and SM 3112 B	CVAAS
Dissolved Molybdenum	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Nickel	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Selenium	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Silver	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Strontium	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Thallium	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Tin	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Titanium	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Tungsten	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Uranium	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Vanadium	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Zinc	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Zirconium	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Lab Filtration Aluminum Dissolved	SR-78-9001		FILTRATION
Lab Filtration mercury	SR-78-9001		FILTRATION
Lab Filtration Metals	SR-78-9001		FILTRATION



Ontario

MINISTRY OF THE ENVIRONMENT
The Ontario Water Resources Act

WATER WELL RECORD

310/4E

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

11

6911658

MUNICIP. 69.003

CON. Y.S. E

01

COUNTY OR DISTRICT: **YORK** TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE: **E. GUILDFORD** CON. BLOCK, TRACT, SURVEY, ETC.: **#1E** LOT 25-27: **118**

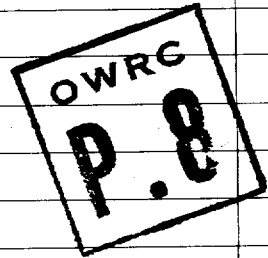
DATE COMPLETED: DAY **19** MO. **06** YR. **73**

ADDRESS: **BOYER DR HOLLAND LANDING ONT**

6911658 17 619956 4887949 4 730 5 22 JUN 22, 1976

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET	
				FROM	TO
	TOP SOIL			3	3
BROWN	CLAY	SAND	SANDY LOSS	11	11
BLUE	CLAY	SILT SREEKED	H. PACKED	29	29



31 0003 02 001160528 002930504

32

41 WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER
00/0	1 <input checked="" type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERAL
15-18	1 <input type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERAL
20-23	1 <input type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERAL
25-28	1 <input type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERAL
30-33	1 <input type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERAL

51 CASING & OPEN HOLE RECORD

INSIDE DIAM. INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET	
			FROM	TO
30	1 <input type="checkbox"/> STEEL 2 <input type="checkbox"/> GALVANIZED 3 <input checked="" type="checkbox"/> CONCRETE 4 <input type="checkbox"/> OPEN HOLE	3	0	0013 12 1/2
24	1 <input type="checkbox"/> STEEL 2 <input checked="" type="checkbox"/> GALVANIZED 3 <input type="checkbox"/> CONCRETE 4 <input type="checkbox"/> OPEN HOLE		9	0029 27
24-25	1 <input type="checkbox"/> STEEL 2 <input type="checkbox"/> GALVANIZED 3 <input type="checkbox"/> CONCRETE 4 <input type="checkbox"/> OPEN HOLE		27-30	

SCREEN

SIZE(S) OF OPENING (SLOT NO.)	DIAMETER	LENGTH
	31-33 INCHES	34-38 FEET
		39-40 FEET

MATERIAL AND TYPE: _____ DEPTH TO TOP OF SCREEN: 41-44 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	80

71 PUMPING TEST

PUMPING TEST METHOD: 1 PUMP 2 BAILER

PUMPING RATE: _____ GPM DURATION OF PUMPING: 15-16 HOURS 17-18 MINS

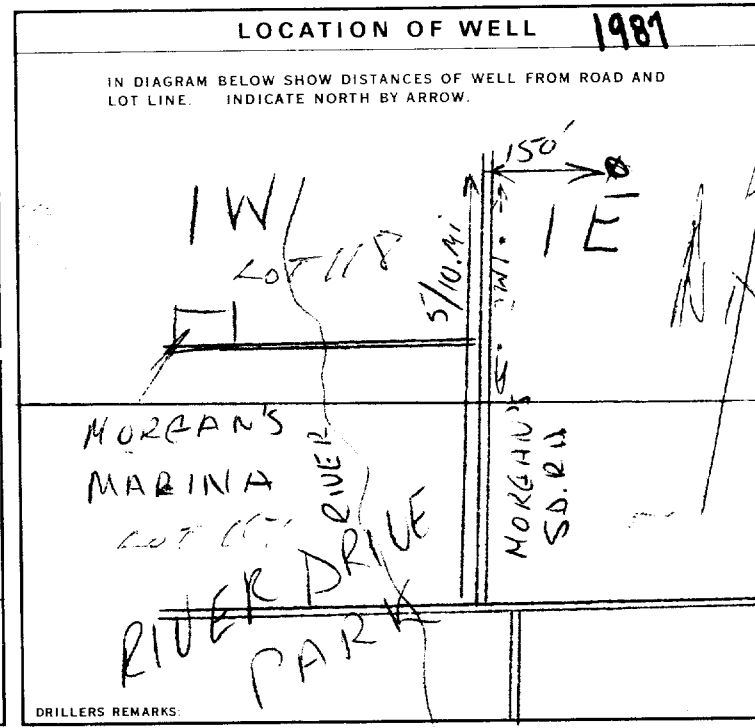
STATIC LEVEL	WATER LEVEL END OF PUMPING	WATER LEVELS DURING				
005		15 MINUTES	30 MINUTES	45 MINUTES	60 MINUTES	
		26.28	29.31	32.34	35.37	
		FEET	FEET	FEET	FEET	FEET

IF FLOWING, GIVE RATE: _____ GPM

PUMP INTAKE SET AT: _____ FEET WATER AT END OF TEST: _____ FEET

RECOMMENDED PUMP TYPE: SHALLOW DEEP

RECOMMENDED PUMP SETTING: 025 FEET RECOMMENDED PUMPING RATE: 0005 GPM



FINAL STATUS OF WELL

1 WATER SUPPLY 5 ABANDONED, INSUFFICIENT SUPPLY
2 OBSERVATION WELL 6 ABANDONED, POOR QUALITY
3 TEST HOLE 7 UNFINISHED
4 RECHARGE WELL

WATER USE

1 DOMESTIC 5 COMMERCIAL
2 STOCK 6 MUNICIPAL
3 IRRIGATION 7 PUBLIC SUPPLY
4 INDUSTRIAL 8 COOLING OR AIR CONDITIONING
 OTHER 9 NOT USED

METHOD OF DRILLING

1 CABLE TOOL 6 BORING
2 ROTARY (CONVENTIONAL) 7 DIAMOND
3 ROTARY (REVERSE) 8 JETTING
4 ROTARY (AIR) 9 DRIVING
5 AIR PERCUSSION

CONTRACTOR

NAME OF WELL CONTRACTOR: **ONTARIO WELL DRILLING CO** LICENCE NUMBER: **4102**

ADDRESS: **657 GORDON STREET NEWMARKET ONT.**

NAME OF DRILLER OR BOWER: **DAVE MOORE** LICENCE NUMBER: **4102**

SIGNATURE OF CONTRACTOR: *[Signature]* SUBMISSION DATE: DAY **10** MO. **10** YR. **73**

OFFICE USE ONLY

DATA SOURCE: **1** CONTRACTOR: **4102** DATE RECEIVED: **07 11 73**

DATE OF INSPECTION: **SEPT. 6/74** INSPECTOR: **J.B.**

REMARKS: **CSS.S8 P/J.B.**

BBP

Water Well Survey

AECOM

Well I.D. #: 6911657 or 6911658

AECOM Project No.: 60636190

MECP WWR #: _____

Client Project No.: _____

Paper

Well Owner Information:

Property Owner Name:	NICHOLAS DARGUS		
Property Address:	20877 YONGE ST, EAST GUILDFORD, ON L7N 0J6		
Telephone:	905-235-2237	Email:	nick.dargus@gmail.com
Name of Person Completing Survey:	NICHOLAS DARGUS		
Telephone:	same	Email:	/
Relationship to Property Owner:	OWNER	Date of Survey Completion:	SEP 2/21
Name of Original Well Owner: (if known/different from above)	?		

Occupant of Property Served by Well: (if other than Owner)

Name:			
Telephone:		Email:	
Address:			

Well Location:

Lot:	118	Concession:	1 YE PT	Township:	EAST GUILDFORD
------	-----	-------------	---------	-----------	----------------

Well Construction Details: (CONTACT EG TOWN HALL FOR DETAILS)

Well Record Available?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Date Well Constructed:	unknown	Well Contractor Name:	unknown
Well Type: (Drilled/Bored/Dug)	DUG	Casing Material: (Steel, Concrete, etc.)	concrete	Well Casing Diameter:	30"
Well Stick Up: (Above Ground)	YES	Well Depth: (Below Ground)	unknown 29ft	Water Level: (Below Ground)	? pretty high
Is Well Located in a Well Pit?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Well Pit Depth: (Below Ground)	29ft	Well Stick Up: (Above Pit Bottom)	-
Is Well Flowing?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Flow Rate:	2 FAST RECHARGE	Contractor:	?
Well Cap Type:	concrete	Does Cap Create a Good Seal?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Is Wire Conduit Tight to Well Cap?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Is the Well:	Accessible for Direct Sampling?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	OR	Buried, in a Well Pit, or Other Confined Space?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Well Screen Installed?	<input type="checkbox"/> Yes <input type="checkbox"/> No	If Yes, Length & Slot Size:		Depth of Top of Screen: (Below Ground)	

Water Well Survey

AECOM

Well I.D. #: 6911057 or 6911058 AECOM Project No.: 60030190
 MECP WWR #: _____ Client Project No.: _____

Pumping Equipment:

Pump Type:	<input checked="" type="checkbox"/> Jet Pump <input type="checkbox"/> Submersible <input type="checkbox"/> Piston Pump <input type="checkbox"/> Other (please describe):				
Pump Horsepower:	<u>1/2 HP</u>	Pump Age:	<u>3-4 YRS</u>	Pumping Capacity:	<u>?</u>
Pump Intake Depth: (Below Ground)	<u>6-7 ft?</u>	Pump Location: (If Not in Well)	<u>BASEMENT</u>	Pumping Rate: (If Known)	<u>?</u>
Pressure Tank:	Type: <u>PENTAIR</u>	Capacity:			<u>111.7 L</u>
Water Treatment: (if present)	<input type="checkbox"/> Chlorinator <input checked="" type="checkbox"/> Water Softener <input checked="" type="checkbox"/> Water Filter (indicate type) <u>SEDIMENT + IRON</u> <input checked="" type="checkbox"/> U.V. <input type="checkbox"/> R.O. <input type="checkbox"/> Other (please describe): _____				

Well Usage:

Primary Use(s):	Domestic: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Livestock: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Lawn Watering: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
# of Persons Using Well:	<u>3</u>	# of Livestock Watered:	<u>0</u>
Other Uses:	<u>fill up pool from time to time</u>	Daily Amount: (if known)	<u>?</u>
Indoor Plumbing Fixtures: (Washroom(s), Shower(s), Dishwasher, Laundry, Pool, Spa, etc.)	<u>4 washrooms, 2 showers, dishwasher, laundry, pool, sinks, wash basin</u>		

Sewage Servicing:

Private Sewage System or Municipal:	<u>PRIVATE</u>	System Type: (septic tank, etc.)	<u>SEPTIC</u>	Distance from Well:	<u>100 FT +</u>
Well Location:	<input type="checkbox"/> Uphill <input checked="" type="checkbox"/> Downhill <input type="checkbox"/> Same Grade				
Presence of Any Above Ground Storage Tank or Other Potential Source(s) of Contamination: (including distance on / off property)					

Previous Concerns:

How Long Have You Owned, Resided, or Operated a Business on this Property?	<u>6 YEARS</u>		
Have You Experienced Any Previous Concerns with Your Well Supply? (Quantity or Quality)	<input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If Yes, When?	<u>3-4 years ago. Well line failed, which failed out equipment</u>
Cause(s) of the Previous Concern?	<input type="checkbox"/> Drought <input checked="" type="checkbox"/> Pump Failure <input type="checkbox"/> Plugging <input type="checkbox"/> Increased Usage <input type="checkbox"/> Interference <input type="checkbox"/> Contamination <input type="checkbox"/> Other (Please describe): _____		

Water Well Survey

AECOM

Well I.D. #: 6911657 or 6911658

AECOM Project No.: 60636190

MECP WWR #: _____

Client Project No.: _____

Well Modification / Maintenance:

Has Your Well Ever Been...	Deepened? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Cleaned? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Reconstructed or Replaced? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
If Yes to Any of the Above, Please Provide Details:			

Other Details:

Other Details that May be Relevant to Assessing the Current Condition of Your Well Supply:

If you could complete the form with the details I am missing from the well record. I would also need to see the results of the testing and subsequent study information. Also please provide how my well will be protected with such proximity to the Bypass

Property Owner Participation in Monitoring Program:

Does the Property Owner and/or Occupant Grant Permission for MTO/AECOM to Monitor and/or Sample Your Well? Yes No

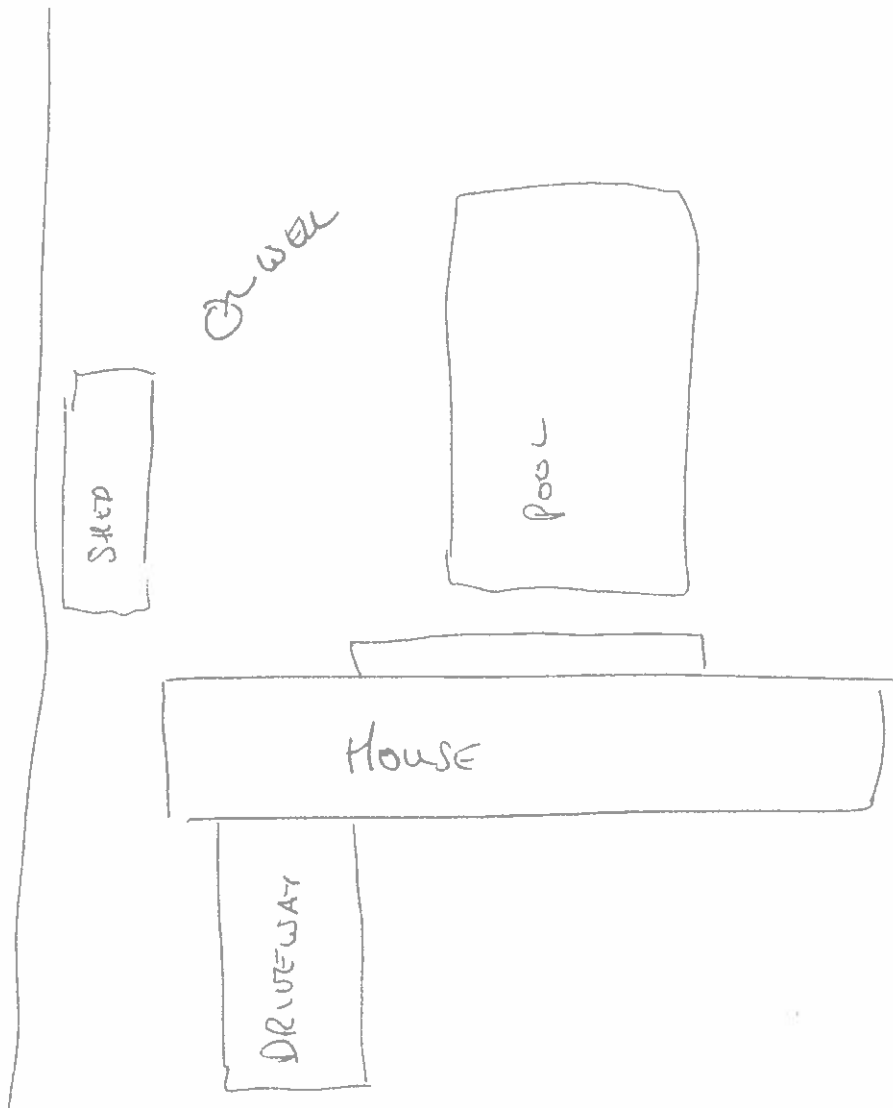
NICHOLAS DARGUS  Sept 2/21
 Property Owner / Occupant Name Signature Date
 (Please Print in BLOCK letters)

Water Well Survey

AECOM

Well I.D. #: _____ AECOM Project No.: 60636190
MECP WWR #: 0911658 Client Project No.: _____

Location Sketch *(To be Completed by Property Owner / Occupant)*



Include details such as property lines, buildings, well, sewage system (if present), as well as any other potential sources of contamination (e.g., tanks, barnyards, chemical/manure storage, etc.).

Water Well Survey

AECOM

Well I.D. #: _____ AECOM Project No.: 00636190
 MECP WWR #: 6911658 Client Project No.: _____

Field Visit Log (To Be Completed by AECOM Staff)

General Details:

Project Name:	<u>BBP - Well Surveys</u>			Project No.:	<u>00636190</u>
Address:	<u>20877 Yonge St.</u>			Inspected By:	<u>Holden / Mudrak</u>
Date:	<u>Oct. 14 / 21</u>	Time:	<u>13:00 - 13:50</u>	Weather:	<u>Sunny</u>
Easting:	<u>619969</u>	Northing:	<u>4888202</u>	Datum:	<u>17T</u>

Well Details:

Is Well Accessible for Inspection?		<input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If No, Provide Reason:		<u>Debris / Pavers on Lid.</u>
MECP Water Well Record No.:	<u>6911658</u>	Date Well Constructed:	<u>19/6/73</u>	Contractor Name:	<u>Artorio Well Drilling Co.</u>
Well Type: <small>(Drilled / Bored / Dug)</small>	<u>Dug</u>	Well Stick Up: <small>(Above Ground)</small>	<u>16"</u>	Casing Material: <small>(Steel, Concrete, etc.)</small>	<u>Concrete.</u>
Well Located in a Well Pit?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Well Pit Depth: <small>(Below Ground)</small>	<u>—</u>	Well Stick Up: <small>(Above Pit Bottom)</small>	<u>—</u>
Well Casing Diameter:	<u>3 ft</u>	Well Depth: <small>(Below Ground)</small>	<u>29 ft.</u>	Groundwater Level: <small>(Below Ground)</small>	<u>—</u>
Pump On / Off?	<input checked="" type="checkbox"/> On <input type="checkbox"/> Off	Water Level Condition:	<input type="checkbox"/> Stable (Static) <input type="checkbox"/> Declining (Drawdown) <input type="checkbox"/> Rising (Recovery)		
Flowing Well?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Flow Rate: <small>(Estimated)</small>	<u>5 GPM</u>	Well Cap Type:	<u>Concrete</u>
Well Screen Installed?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If Yes, Length & Slot Size:	<u>—</u>	Top of Screen: <small>(Below Ground)</small>	<u>—</u>
Is There a Depression Around the Well Casing Exterior?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Photo(s) of Well Obtained?		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Observation(s) Summary:

- Homeowner not present for start of visit

Water Well Survey

AECOM

Well I.D. #: _____ AECOM Project No.: 00036190
 MECP WWR #: 6911658 Client Project No.: _____

Water Quality Sampling:

Water Quality Sample Obtained?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If No, Provide Reason:	
Sampling Location:	<u>Basement Tap</u>	Raw or Treated Sample?	<u>Raw</u>
Disinfected Sample Port?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Disinfection Method:	
Photo of Sample Obtained? (against white background)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If No, Provide Reason:	

Analyte Suite:	<u>93179 + E. Coli / Total Coliform</u>				
Sample I.D.:	<u>20877 Yonse</u>	Date / Time of Sampling:	<u>13:25</u>	Number of Sample Bottles:	<u>9</u>

Field Water Quality Parameters: (record units)					
Temperature:	<u>16.7</u>	pH:	<u>7.34</u>	Conductivity:	<u>730</u>
Turbidity:		D.O.:		Colour:	<u>Brown / Clear</u>
Odours?		Appearance/Odour:	<u>Sulphur</u>		

after swimming

Type of Concern: (if applicable)	<input type="checkbox"/> Water Quantity <input type="checkbox"/> Water Quality (Note any differences in taste, odour, colour or clarity)
If the concern was contamination what changes were apparent to water quality?	
Were there any effects of this concern?	
What action was taken to overcome this concern?	

AECOM Canada Ltd.
 105 Commerce Valley Drive West, 7th Floor
 Markham, ON L3T 7W3
 Canada

T: 905.886.7022
 F: 905.538.8076
 www.aecom.com

Appendix **D**

Property ID #60 – 20901 Yonge Street

November 22nd, 2021

Glenn and Rebecca Duclos
20901 Yonge St.
East Gwillumbury, ON
L9N 0J6

Project No: 60636190
Regarding: Pre-Construction Water Quality Testing Results
MTO Bradford Bypass Project

Dear Mr. and Mrs. Duclos,

AECOM Canada Ltd. (AECOM) would like to thank you for your participation in the Pre-Construction Well Assessment Program offered to local residents as part of the Bradford Bypass Project. Based on receipt of written permission from yourself, a sample of raw (untreated) groundwater from your private well was collected for laboratory analysis by AECOM staff on October 14th, 2021. Please find attached a copy of the water quality testing results for your review and record.

Laboratory testing results for the sample obtained indicate that concentrations of certain parameters, as shown in the table below, are in excess of the *Ontario Drinking Water Standards, Objectives and Guidelines* (Ontario Ministry of the Environment, 2006). It should be noted, however, that these results are based on a single sample analysis and that additional testing is recommended.

PARAMETER	CONCENTRATION IN YOUR WATER	STANDARD VALUE / RANGE	STANDARD TYPE	HEALTH RELATED (Y / N)
Colour	7 TCU	5 TCU	AO	N
Hardness (as CaCO ₃)	50.6 mg/L	80 - 100 mg/L	OG	N

NOTE: MAC – Maximum Acceptable Concentration; AO – Aesthetic Objective; OG – Operational Guideline.

For your information, the *Well Aware Booklet – A Guide To Caring For Your Well* created by Green Communities Canada is available on the Walkerton Clean Water Centre (WCWC) website at:

<https://wcwc.ca/well-aware-and-well-wise-program-resources-for-homeowners/>

Should you have any questions or concerns regarding the quality of your well water, it is recommended that you contact your local Public Health Unit for further information and advice. Contact information for your Local Public Health Unit is provided, as follows:

Simcoe Muskoka District Health Unit
80 Bradford St. #403
Barrie, ON L4N 6S7
Website: <https://www.simcoemuskokahealth.org/>
Telephone: 705.721.7520

If you have any further questions, please contact:

AECOM Canada Ltd. C/O Brian Holden, P.Geo.
Hydrogeology, Environment
Telephone: 226-821-2486

Email: brian.holden@aecom.com

Sincerely,
AECOM Canada Ltd.



Brian Holden, P. Geo.
Hydrogeologist
DCS Americas, Canada East (Greater Ontario / Metro Toronto)
Environment
Brian.holden@aecom.com

Encl.

cc: R. Sheikh, N. Valenton, S. Rankin, S. Schmied – AECOM;
H. Singh, L. Sarris, J. MacKinnon, R. Gribbon – MTO



Water Well Survey

Groundwater Supply Well Location 20901 Yonge Street

Project Name: Bradford Bypass – BBP Expansion

Project#: 60636190

Residence Address:

20901 Yonge Street, East Gwillimbury, Ontario, L9N 0J6

Owner Information:

Owner Name: Glenn Duclos and Rebecca Duclos

Phone Number: 416-570-2986

Email: glennduclos@hotmail.com

Well Record

Coordinates (UTM).....619918E/4888246N
(NAD83 Zone17)

Type of Well..... Drilled

Constructed (year)..... 1986

Well Location..... In front and right of house

Well Diameter.....0.15 m

Well Depth.....16.15 m

Casing Position.....N/A

Casing Condition.....Fair

Water Usage.....Residential

Water Source.....Overburden

Static Water Level.....14.63 m



Well

Septic tank



Water Quality & Well Testing

Past Water Quality Problems..... None

Potential Contamination Sources... None

Location of Septic Tank..... Backyard

Treatment System.....Water softener, (reverse osmosis)filter

Recent Test Results.....None

Water Sampled.....Yes (October 14, 2021)

Sample Source..... Outside Tap behind the house

Appearance.....clear

Comments:

- Geothermal loop in the backyard
- Other neighbours are having water quality issues
- Concerned about water quality and quantity due to proximity to bypass

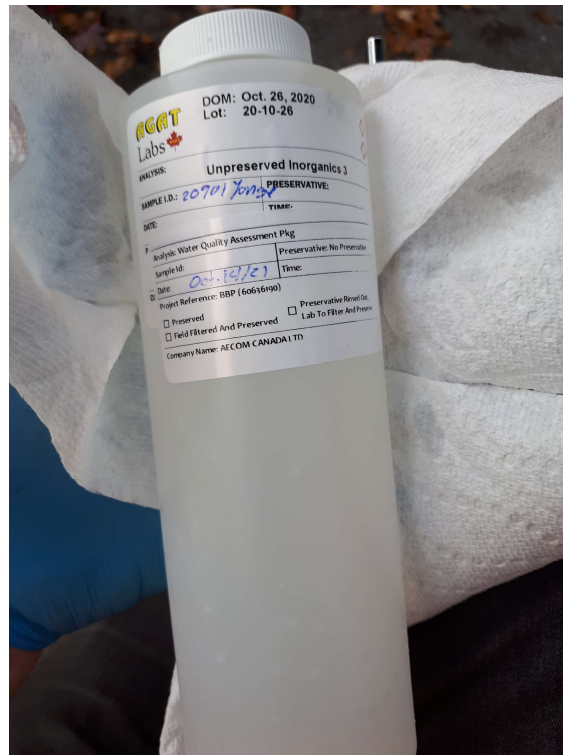
Quality Testing

Groundwater quality met the applicable standards for bacteriological, selected inorganic and metal parameters analyzed except for the following:

<i>Parameters</i>	<i>Test Results</i>	<i>Guideline/Standard</i>	<i>Criteria Type</i>
Total Coliforms	ND / 100 ml	0 CFU / 100 ml	MAC
Hardness (as CaCO ₃)	50.6 mg/L	80 – 100 mg/L	OG

Notes:

1. Criteria are from “Ontario Drinking Water Standards” (Ontario Regulation 169/03) and “Technical Support Document for Ontario Drinking Water Standards, Objectives and Guidelines” (MOE, June 2003, revised June 2006)
2. AO - Aesthetic Objectives (parameters that may impair the taste, odour or colour of water or which may interfere with good water quality)
3. MAC- Maximum Acceptable Concentration (health related)
4. OG - Operational Guideline (parameters which must be controlled for effective treatment)
5. NDOGT – No data; sample overgrown with target bacteria; over-crowding microbial growth
6. CFU – Colony forming units
7. **Bold** - test result exceeding guideline/standard.





**CLIENT NAME: AECOM CANADA LTD
50 SPORTSWORLD CROSSING RD UNIT 290
KITCHENER, ON N2P0A4
(519) 650-5313**

ATTENTION TO: Brian Holden

PROJECT: 60636190

AGAT WORK ORDER: 21T815956

MICROBIOLOGY ANALYSIS REVIEWED BY: Amanjot Bhela, Inorganic Lab Manager

WATER ANALYSIS REVIEWED BY: Yris Verastegui, Report Reviewer

DATE REPORTED: Oct 23, 2021

PAGES (INCLUDING COVER): 12

VERSION*: 1

Should you require any information regarding this analysis please contact your client services representative at (905) 712-5100

***Notes**

Disclaimer:

- All work conducted herein has been done using accepted standard protocols, and generally accepted practices and methods. AGAT test methods may incorporate modifications from the specified reference methods to improve performance.
- All samples will be disposed of within 30 days after receipt unless a Long Term Storage Agreement is signed and returned. Some specialty analysis may be exempt, please contact your Client Project Manager for details.
- AGAT's liability in connection with any delay, performance or non-performance of these services is only to the Client and does not extend to any other third party. Unless expressly agreed otherwise in writing, AGAT's liability is limited to the actual cost of the specific analysis or analyses included in the services.
- This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
- The test results reported herewith relate only to the samples as received by the laboratory.
- Application of guidelines is provided "as is" without warranty of any kind, either expressed or implied, including, but not limited to, warranties of merchantability, fitness for a particular purpose, or non-infringement. AGAT assumes no responsibility for any errors or omissions in the guidelines contained in this document.
- All reportable information as specified by ISO/IEC 17025:2017 is available from AGAT Laboratories upon request.



Certificate of Analysis

AGAT WORK ORDER: 21T815956

PROJECT: 60636190

5835 COOPERS AVENUE
 MISSISSAUGA, ONTARIO
 CANADA L4Z 1Y2
 TEL (905)712-5100
 FAX (905)712-5122
<http://www.agatlabs.com>

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Brian Holden

SAMPLING SITE:

SAMPLED BY:

Total Coliforms & E. Coli (Using MI Agar)

DATE RECEIVED: 2021-10-14

DATE REPORTED: 2021-10-23

20901 Yonge				
SAMPLE DESCRIPTION:		Street		
SAMPLE TYPE:		Water		
DATE SAMPLED:		2021-10-14 11:17		
Parameter	Unit	G / S	RDL	3091520
Escherichia coli	CFU/100mL	100	1	ND
Total Coliforms	CFU/100mL		1	ND

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to PWQO * Variable - refer to guideline reference document
 Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

3091520 If RDL >1 indicates dilutions of the sample.
 ND - Not Detected.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:

Anamjot Bhela




Certificate of Analysis

AGAT WORK ORDER: 21T815956

PROJECT: 60636190

5835 COOPERS AVENUE
MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
TEL (905)712-5100
FAX (905)712-5122
<http://www.agatlabs.com>

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Brian Holden

SAMPLING SITE:

SAMPLED BY:

Water Quality Assessment - Dissolved Metals - PWQO (mg/L)

DATE RECEIVED: 2021-10-14

DATE REPORTED: 2021-10-23

20901 Yonge				
		SAMPLE DESCRIPTION: Street		
		SAMPLE TYPE: Water		
		DATE SAMPLED: 2021-10-14 11:17		
Parameter	Unit	G / S	RDL	3091520
Electrical Conductivity	µS/cm		2	364
pH	pH Units	6.5-8.5	NA	8.09
Saturation pH (Calculated)				7.84
Langelier Index (Calculated)				0.245
Hardness (as CaCO ₃) (Calculated)	mg/L		0.5	50.6
Total Dissolved Solids	mg/L		10	228
Alkalinity (as CaCO ₃)	mg/L		5	191
Bicarbonate (as CaCO ₃)	mg/L		5	191
Carbonate (as CaCO ₃)	mg/L		5	<5
Hydroxide (as CaCO ₃)	mg/L		5	<5
Fluoride	mg/L		0.05	<0.05
Chloride	mg/L		0.10	3.77
Nitrate as N	mg/L		0.05	<0.05
Nitrite as N	mg/L		0.05	<0.05
Bromide	mg/L		0.05	<0.05
Sulphate	mg/L		0.10	0.24
Ortho Phosphate as P	mg/L		0.10	<0.10
Ammonia as N	mg/L		0.02	0.11
Ammonia-Un-ionized (Calculated)	mg/L	0.02	0.000002	0.00791
Total Phosphorus	mg/L	*	0.02	0.04
Total Organic Carbon	mg/L		0.5	42.3
True Colour	TCU		5	7
Turbidity	NTU		0.5	0.9
Dissolved Calcium	mg/L		0.05	13.2
Dissolved Magnesium	mg/L		0.05	4.29
Dissolved Potassium	mg/L		0.50	<0.50
Dissolved Sodium	mg/L		0.05	5.63
Aluminum-dissolved	mg/L	*	0.004	<0.004

Certified By:

Jris Veraestegui



Certificate of Analysis

AGAT WORK ORDER: 21T815956

PROJECT: 60636190

5835 COOPERS AVENUE
MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
TEL (905)712-5100
FAX (905)712-5122
<http://www.agatlabs.com>

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Brian Holden

SAMPLING SITE:

SAMPLED BY:

Water Quality Assessment - Dissolved Metals - PWQO (mg/L)

DATE RECEIVED: 2021-10-14

DATE REPORTED: 2021-10-23

20901 Yonge				
	SAMPLE DESCRIPTION: Street			
	SAMPLE TYPE: Water			
	DATE SAMPLED: 2021-10-14 11:17			
Parameter	Unit	G / S	RDL	3091520
Dissolved Antimony	mg/L	0.020	0.001	<0.001
Dissolved Arsenic	mg/L	0.1	0.003	0.007
Dissolved Barium	mg/L		0.002	0.079
Dissolved Beryllium	mg/L	*	0.0005	<0.0005
Dissolved Boron	mg/L	0.2	0.010	0.028
Dissolved Cadmium	mg/L	0.0002	0.0001	<0.0001
Dissolved Chromium	mg/L		0.003	<0.003
Dissolved Cobalt	mg/L	0.0009	0.0005	<0.0005
Dissolved Copper	mg/L	0.005	0.001	0.003
Dissolved Iron	mg/L	0.3	0.010	0.013
Dissolved Lead	mg/L	*	0.001	<0.001
Dissolved Manganese	mg/L		0.002	0.015
Dissolved Mercury	mg/L	0.0002	0.0001	<0.0001
Dissolved Molybdenum	mg/L	0.040	0.002	0.006
Dissolved Nickel	mg/L	0.025	0.003	<0.003
Dissolved Selenium	mg/L	0.1	0.004	<0.004
Dissolved Silver	mg/L	0.0001	0.0001	<0.0001
Dissolved Strontium	mg/L		0.005	0.163
Dissolved Thallium	mg/L	0.0003	0.0003	<0.0003
Dissolved Tin	mg/L		0.002	<0.002
Dissolved Titanium	mg/L		0.002	<0.002
Dissolved Tungsten	mg/L	0.030	0.010	<0.010
Dissolved Uranium	mg/L	0.005	0.002	<0.002
Dissolved Vanadium	mg/L	0.006	0.002	<0.002
Dissolved Zinc	mg/L	0.030	0.005	<0.005
Dissolved Zirconium	mg/L	0.004	0.004	<0.004
Lab Filtration Aluminum Dissolved				2021/10/18
Lab Filtration mercury				2021/10/18

Certified By:

Jris Veraestegui



Certificate of Analysis

AGAT WORK ORDER: 21T815956

PROJECT: 60636190

5835 COOPERS AVENUE
MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
TEL (905)712-5100
FAX (905)712-5122
<http://www.agatlabs.com>

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Brian Holden

SAMPLING SITE:

SAMPLED BY:

Water Quality Assessment - Dissolved Metals - PWQO (mg/L)				
DATE RECEIVED: 2021-10-14			DATE REPORTED: 2021-10-23	
20901 Yonge				
SAMPLE DESCRIPTION: Street				
SAMPLE TYPE: Water				
DATE SAMPLED: 2021-10-14 11:17				
Parameter	Unit	G / S	RDL	3091520
Lab Filtration Metals				2021/10/18

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to PWQO * Variable - refer to guideline reference document
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

3091520 Metals analysis completed on a lab filtered sample.
Dilution required, RDL has been increased accordingly.
Un-ionized Ammonia detection limit is a calculated RDL. The calculation of Un-ionized Ammonia is based on lab measured parameters (ammonia as N, pH and temperature). Values are reported as calculated.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:

Jris Veraístequi

Quality Assurance

CLIENT NAME: AECOM CANADA LTD
 PROJECT: 60636190
 SAMPLING SITE:

AGAT WORK ORDER: 21T815956
 ATTENTION TO: Brian Holden
 SAMPLED BY:

Microbiology Analysis

RPT Date: Oct 23, 2021			DUPLICATE				Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Measured Value		Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits		
								Lower	Upper		Lower	Upper		Lower	Upper	

Total Coliforms & E. Coli (Using MI Agar)

Escherichia coli	3091472	3091472	ND	ND	NA	< 1
Total Coliforms	3091472	3091472	116	114	1.7%	< 1

Comments: ND - Not Detected, NA - % RPD Not Applicable.

Certified By:




Quality Assurance

CLIENT NAME: AECOM CANADA LTD

AGAT WORK ORDER: 21T815956

PROJECT: 60636190

ATTENTION TO: Brian Holden

SAMPLING SITE:

SAMPLED BY:

Water Analysis																
RPT Date: Oct 23, 2021			DUPLICATE				Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Measured Value		Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits		
								Lower	Upper		Lower	Upper		Lower	Upper	

Water Quality Assessment - Dissolved Metals - PWQO (mg/L)

Electrical Conductivity	3090117		138	138	0.0%	< 2	97%	90%	110%						
pH	3090117		7.17	7.13	0.6%	NA	102%	90%	110%						
Total Dissolved Solids	3091472	3091472	520	524	0.8%	< 10	102%	80%	120%						
Alkalinity (as CaCO3)	3090117		64	62	3.2%	< 5	84%	80%	120%						
Bicarbonate (as CaCO3)	3090117		64	62	3.2%	< 5	NA								
Carbonate (as CaCO3)	3090117		<5	<5	NA	< 5	NA								
Hydroxide (as CaCO3)	3090117		<5	<5	NA	< 5	NA								
Fluoride	3091521	3091521	<0.05	<0.05	NA	< 0.05	94%	70%	130%	95%	80%	120%	112%	70%	130%
Chloride	3091521	3091521	54.3	54.3	0.0%	< 0.10	96%	70%	130%	104%	80%	120%	110%	70%	130%
Nitrate as N	3091521	3091521	4.07	4.16	2.2%	< 0.05	106%	70%	130%	106%	80%	120%	109%	70%	130%
Nitrite as N	3091521	3091521	<0.05	<0.05	NA	< 0.05	95%	70%	130%	101%	80%	120%	110%	70%	130%
Bromide	3091521	3091521	<0.05	<0.05	NA	< 0.05	107%	70%	130%	104%	80%	120%	102%	70%	130%
Sulphate	3091521	3091521	25.8	25.7	0.4%	< 0.10	99%	70%	130%	105%	80%	120%	108%	70%	130%
Ortho Phosphate as P	3091521	3091521	<0.10	<0.10	NA	< 0.10	105%	70%	130%	100%	80%	120%	94%	70%	130%
Ammonia as N	3087154		<0.02	<0.02	NA	< 0.02	115%	70%	130%	99%	80%	120%	96%	70%	130%
Total Phosphorus	3090116		0.02	0.03	NA	< 0.02	97%	70%	130%	97%	80%	120%	105%	70%	130%
Total Organic Carbon	3094303		47.1	47.2	0.2%	< 0.5	99%	90%	110%	98%	90%	110%	NA	80%	120%
True Colour	3090232		31	31	0.0%	< 5	106%	90%	110%						
Turbidity	3091472	3091472	<0.5	<0.5	NA	< 0.5	101%	80%	120%						
Dissolved Calcium	3095356		101	101	0.0%	< 0.05	95%	70%	130%	97%	80%	120%	98%	70%	130%
Dissolved Magnesium	3095356		12.2	12.2	0.0%	< 0.05	99%	70%	130%	101%	80%	120%	102%	70%	130%
Dissolved Potassium	3095356		0.83	0.89	NA	< 0.50	99%	70%	130%	100%	80%	120%	101%	70%	130%
Dissolved Sodium	3095356		2.75	2.72	1.1%	< 0.05	97%	70%	130%	96%	80%	120%	101%	70%	130%
Aluminum-dissolved	3091472	3091472	<0.004	<0.004	NA	< 0.004	104%	70%	130%	116%	80%	120%	119%	70%	130%
Dissolved Antimony	3091472	3091472	<0.001	<0.001	NA	< 0.001	102%	70%	130%	103%	80%	120%	107%	70%	130%
Dissolved Arsenic	3091472	3091472	<0.003	<0.003	NA	< 0.003	92%	70%	130%	103%	80%	120%	112%	70%	130%
Dissolved Barium	3091472	3091472	0.073	0.079	7.9%	< 0.002	100%	70%	130%	103%	80%	120%	104%	70%	130%
Dissolved Beryllium	3091472	3091472	<0.0005	<0.0005	NA	< 0.0005	97%	70%	130%	109%	80%	120%	115%	70%	130%
Dissolved Boron	3091472	3091472	0.036	0.038	NA	< 0.010	98%	70%	130%	106%	80%	120%	108%	70%	130%
Dissolved Cadmium	3091472	3091472	<0.0001	<0.0001	NA	< 0.0001	100%	70%	130%	106%	80%	120%	108%	70%	130%
Dissolved Chromium	3091472	3091472	<0.003	<0.003	NA	< 0.003	102%	70%	130%	105%	80%	120%	104%	70%	130%
Dissolved Cobalt	3091472	3091472	<0.0005	<0.0005	NA	< 0.0005	100%	70%	130%	107%	80%	120%	104%	70%	130%
Dissolved Copper	3091472	3091472	0.021	0.025	17.4%	< 0.001	99%	70%	130%	105%	80%	120%	104%	70%	130%
Dissolved Iron	3091472	3091472	0.012	<0.010	NA	< 0.010	101%	70%	130%	106%	80%	120%	101%	70%	130%
Dissolved Lead	3091472	3091472	<0.001	<0.001	NA	< 0.001	98%	70%	130%	104%	80%	120%	102%	70%	130%
Dissolved Manganese	3091472	3091472	<0.002	0.003	NA	< 0.002	96%	70%	130%	104%	80%	120%	102%	70%	130%
Dissolved Mercury	3095856		<0.0001	<0.0001	NA	< 0.0001	98%	70%	130%	100%	80%	120%	98%	70%	130%
Dissolved Molybdenum	3091472	3091472	<0.002	<0.002	NA	< 0.002	104%	70%	130%	105%	80%	120%	108%	70%	130%
Dissolved Nickel	3091472	3091472	<0.003	<0.003	NA	< 0.003	100%	70%	130%	106%	80%	120%	103%	70%	130%

Quality Assurance

CLIENT NAME: AECOM CANADA LTD
PROJECT: 60636190
SAMPLING SITE:

AGAT WORK ORDER: 21T815956
ATTENTION TO: Brian Holden
SAMPLED BY:

Water Analysis (Continued)

RPT Date: Oct 23, 2021			DUPLICATE				Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Measured Value		Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits		
								Lower	Upper		Lower	Upper		Lower	Upper	
Dissolved Selenium	3091472	3091472	<0.004	<0.004	NA	< 0.004	101%	70%	130%	108%	80%	120%	113%	70%	130%	
Dissolved Silver	3091472	3091472	<0.0001	<0.0001	NA	< 0.0001	99%	70%	130%	106%	80%	120%	104%	70%	130%	
Dissolved Strontium	3091472	3091472	0.249	0.253	1.6%	< 0.005	95%	70%	130%	101%	80%	120%	99%	70%	130%	
Dissolved Thallium	3091472	3091472	<0.0003	<0.0003	NA	< 0.0003	97%	70%	130%	103%	80%	120%	104%	70%	130%	
Dissolved Tin	3091472	3091472	<0.002	<0.002	NA	< 0.002	101%	70%	130%	103%	80%	120%	107%	70%	130%	
Dissolved Titanium	3091472	3091472	<0.002	<0.002	NA	< 0.002	100%	70%	130%	106%	80%	120%	105%	70%	130%	
Dissolved Tungsten	3091472	3091472	<0.010	<0.010	NA	< 0.010	96%	70%	130%	99%	80%	120%	101%	70%	130%	
Dissolved Uranium	3091472	3091472	<0.002	<0.002	NA	< 0.002	97%	70%	130%	106%	80%	120%	108%	70%	130%	
Dissolved Vanadium	3091472	3091472	<0.002	<0.002	NA	< 0.002	100%	70%	130%	104%	80%	120%	108%	70%	130%	
Dissolved Zinc	3091472	3091472	0.044	0.053	18.6%	< 0.005	100%	70%	130%	109%	80%	120%	107%	70%	130%	
Dissolved Zirconium	3091472	3091472	<0.004	<0.004	NA	< 0.004	100%	70%	130%	106%	80%	120%	108%	70%	130%	

Comments: NA signifies Not Applicable.
 If the RPD value is NA, the results of the duplicates are under 5X the RDL and will not be calculated.
 Matrix spike: Spike level < native concentration. Matrix spike acceptance limits do not apply.

Certified By:





Method Summary

CLIENT NAME: AECOM CANADA LTD

AGAT WORK ORDER: 21T815956

PROJECT: 60636190

ATTENTION TO: Brian Holden

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Microbiology Analysis			
Escherichia coli	MIC-93-7010	EPA 1604	Membrane Filtration
Total Coliforms	MIC-93-7010	EPA 1604	Membrane Filtration

Method Summary

CLIENT NAME: AECOM CANADA LTD
AGAT WORK ORDER: 21T815956
PROJECT: 60636190
ATTENTION TO: Brian Holden
SAMPLING SITE:
SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Water Analysis			
Electrical Conductivity	INOR-93-6000	modified from SM 2510 B	PC TITRATE
pH	INOR-93-6000	modified from SM 4500-H+ B	PC TITRATE
Saturation pH (Calculated)		SM 2320 B	CALCULATION
Langelier Index (Calculated)		SM 2330B	CALCULATION
Hardness (as CaCO ₃) (Calculated)	MET-93-6105	modified from EPA SW-846 6010C & 200.7 & SM 2340 B	CALCULATION
Total Dissolved Solids	INOR-93-6028	modified from EPA 1684, ON MOECC E3139, SM 2540C, D	BALANCE
Alkalinity (as CaCO ₃)	INOR-93-6000	Modified from SM 2320 B	PC TITRATE
Bicarbonate (as CaCO ₃)	INOR-93-6000	modified from SM 2320 B	PC TITRATE
Carbonate (as CaCO ₃)	INOR-93-6000	modified from SM 2320 B	PC TITRATE
Hydroxide (as CaCO ₃)	INOR-93-6000	modified from SM 2320 B	PC TITRATE
Fluoride	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Chloride	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Nitrate as N	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Nitrite as N	INOR-93-6004	SM 4110 B	ION CHROMATOGRAPH
Bromide	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Sulphate	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Ortho Phosphate as P	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Ammonia as N	INOR-93-6059	modified from SM 4500-NH ₃ H	LACHAT FIA
Ammonia-Un-ionized (Calculated)		MOE REFERENCE, PWQOs Tab 2	CALCULATION
Total Phosphorus	INOR-93-6022	modified from SM 4500-P B and SM 4500-P E	SPECTROPHOTOMETER
Total Organic Carbon	INOR-93-6049	modified from SM 5310 B	SHIMADZU CARBON ANALYZER
True Colour	INOR-93-6074	modified from SM 2120 B	LACHAT FIA
Turbidity	INOR-93-6044	modified from SM 2130 B	NEPHELOMETER
Dissolved Calcium	MET-93-6105	modified from EPA 6010D	ICP/OES
Dissolved Magnesium	MET-93-6105	modified from EPA 6010D	ICP/OES
Dissolved Potassium	MET-93-6105	modified from EPA 6010D	ICP/OES
Dissolved Sodium	MET-93-6105	modified from EPA 6010D	ICP/OES
Aluminum-dissolved	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Antimony	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Arsenic	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Barium	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Beryllium	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Boron	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Cadmium	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Chromium	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Cobalt	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Copper	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Iron	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS



Method Summary

CLIENT NAME: AECOM CANADA LTD

AGAT WORK ORDER: 21T815956

PROJECT: 60636190

ATTENTION TO: Brian Holden

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Dissolved Lead	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Manganese	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Mercury	MET-93-6100	modified from EPA 245.2 and SM 3112 B	CVAAS
Dissolved Molybdenum	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Nickel	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Selenium	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Silver	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Strontium	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Thallium	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Tin	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Titanium	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Tungsten	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Uranium	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Vanadium	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Zinc	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Zirconium	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Lab Filtration Aluminum Dissolved	SR-78-9001		FILTRATION
Lab Filtration mercury	SR-78-9001		FILTRATION
Lab Filtration Metals	SR-78-9001		FILTRATION



Ministry
of the
Environment
Ontario

The Ontario Water Resources Act

WATER WELL RECORD

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

6918208

COUNTY OR DISTRICT YORK	TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE GWILLEMURRY	CON. BLOCK, TRACT, SURVEY, ETC. #1 1W	LOT 118
DATE COMPLETED DAY 18 MO 8 YR 86			

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET	
				FROM	TO
BROWN	SAND			0	15
GREY	CLAY			15	48
BROWN	SAND			48	53

31 _____

32 _____

41 WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER			
10-13	1 <input checked="" type="checkbox"/> FRESH	3 <input type="checkbox"/> SULPHUR		
48-53	2 <input type="checkbox"/> SALTY	4 <input type="checkbox"/> MINERAL		

51 CASING & OPEN HOLE RECORD

INSIDE DIAM. INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET	
			FROM	TO
10-11	1 <input checked="" type="checkbox"/> STEEL		0	49
64	2 <input type="checkbox"/> GALVANIZED	.188		
17-18	3 <input type="checkbox"/> CONCRETE			
(SCREEN)	4 <input type="checkbox"/> OPEN HOLE		49	53

SCREEN

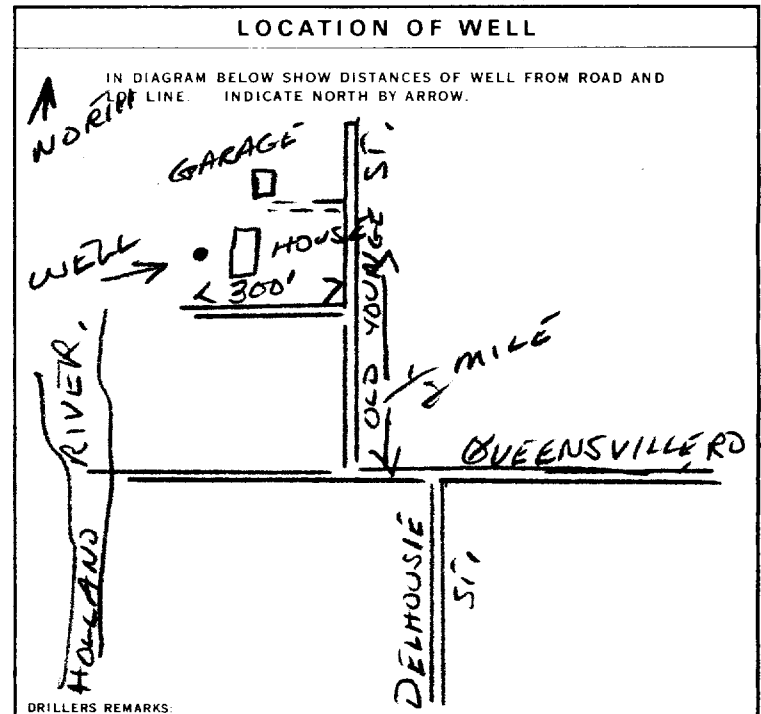
SIZE(S) OF OPENING (SLOT NO.) .010	DIAMETER 6 INCHES	LENGTH 4 FEET
MATERIAL AND TYPE STAINLESS		DEPTH TO TOP OF SCREEN 49

61 PLUGGING & SEALING RECORD

DEPTH SET AT - FEET	MATERIAL AND TYPE
10-13	8 DRILL MUD
18-21	

71 PUMPING TEST

PUMPING TEST METHOD 1 <input type="checkbox"/> PUMP 2 <input checked="" type="checkbox"/> BAILER	PUMPING RATE 5 GPM	DURATION OF PUMPING 15-16 HOURS 17-18 MINS
STATIC LEVEL 19-21 9 FEET	WATER LEVEL END OF PUMPING 22-24 40 FEET	WATER LEVELS DURING PUMPING 15 MINUTES 26-28 15 FEET 30 MINUTES 29-31 9 FEET 45 MINUTES 32-34 9 FEET 60 MINUTES 35-37 9 FEET
IF FLOWING, GIVE RATE	PUMP INTAKE SET AT	WATER AT END OF TEST
RECOMMENDED PUMP TYPE <input type="checkbox"/> SHALLOW <input checked="" type="checkbox"/> DEEP	RECOMMENDED PUMP SETTING 46 FEET	RECOMMENDED PUMPING RATE 5 GPM



FINAL STATUS OF WELL

1 WATER SUPPLY 5 ABANDONED, INSUFFICIENT SUPPLY
2 OBSERVATION WELL 6 ABANDONED, POOR QUALITY
3 TEST HOLE 7 UNFINISHED
4 RECHARGE WELL

WATER USE

1 DOMESTIC 5 COMMERCIAL
2 STOCK 6 MUNICIPAL
3 IRRIGATION 7 PUBLIC SUPPLY
4 INDUSTRIAL 8 COOLING OR AIR CONDITIONING
9 NOT USED

METHOD OF DRILLING

1 CABLE TOOL 6 BORING
2 ROTARY (CONVENTIONAL) 7 DIAMOND
3 ROTARY (REVERSE) 8 JETTING
4 ROTARY (AIR) 9 DRIVING
5 AIR PERCUSSION

CONTRACTOR

NAME OF WELL CONTRACTOR: **DALE BARANIESKI 1350**
ADDRESS: **Rte 3 NEW MARKET**
NAME OF DRILLER OR BORER: **SAME**
SIGNATURE OF CONTRACTOR: *[Signature]*
SUBMISSION DATE: _____

OFFICE USE ONLY

DATA SOURCE: _____ CONTRACTOR: _____ DATE RECEIVED: **100986**
DATE OF INSPECTION: _____ INSPECTOR: _____
REMARKS: _____

BBP

Water Well Survey

AECOM

Well I.D. #: _____ AECOM Project No.: 60636190
 MECP WWR #: 6918208 Client Project No.: _____

Well Owner Information:

Property Owner Name:	Glenn and Rebecca Duclos		
Property Address:	20901 Yonge Street, East Gwillimbury, Ont.		
Telephone:	416-570-2986	Email:	glennduclos@hotmail.com
Name of Person Completing Survey:	AECOM, Glenn Duclos		
Telephone:	416-570-2986	Email:	
Relationship to Property Owner:	OWNER	Date of Survey Completion:	
Name of Original Well Owner: (if known/different from above)			

Occupant of Property Served by Well: (if other than Owner)

Name:			
Telephone:		Email:	
Address:			

Well Location:

Lot:		Concession:		Township:	
------	--	-------------	--	-----------	--

Well Construction Details:

Well Record Available?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Date Well Constructed:		Well Contractor Name:	
Well Type: (Drilled / Bored / Dug)	Drilled.	Casing Material: (Steel, Concrete, etc.)	steel	Well Casing Diameter:	
Well Stick Up: (Above Ground)	Yes	Well Depth: (Below Ground)	38 feet	Water Level: (Below Ground)	
Is Well Located in a Well Pit?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Well Pit Depth: (Below Ground)		Well Stick Up: (Above Pit Bottom)	
Is Well Flowing?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Flow Rate:	5 gallon/minute	Contractor:	
Well Cap Type:	encased.	Does Cap Create a Good Seal?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Is Wire Conduit Tight to Well Cap?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Is the Well:	Accessible for Direct Sampling?	<input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No	OR	Buried, in a Well Pit, or Other Confined Space?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Well Screen Installed?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If Yes, Length & Slot Size:		Depth of Top of Screen: (Below Ground)	

Water Well Survey

AECOM

Well I.D. #: _____ AECOM Project No.: 60636190
 MECP WWR #: 0918208 Client Project No.: _____

Pumping Equipment:

Pump Type:	<input checked="" type="checkbox"/> Jet Pump <input type="checkbox"/> Submersible <input type="checkbox"/> Piston Pump <input type="checkbox"/> Other (please describe):				
Pump Horsepower:	<u>1/3</u>	Pump Age:	<u>15 years</u>	Pumping Capacity:	
Pump Intake Depth: (Below Ground)	<u>?</u>	Pump Location: (If Not in Well)	<u>Basement</u>	Pumping Rate: (If Known)	
Pressure Tank:	Type:				Capacity:
Water Treatment: (if present)	<input type="checkbox"/> Chlorinator <input checked="" type="checkbox"/> Water Softener <input checked="" type="checkbox"/> Water Filter (indicate type) <u>Reverse osmosis</u> <input type="checkbox"/> U.V. <input type="checkbox"/> R.O. <input type="checkbox"/> Other (please describe): _____				

Well Usage:

Primary Use(s):	Domestic:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Livestock:	<input type="checkbox"/> Yes <input type="checkbox"/> No	Lawn Watering:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
# of Persons Using Well:	<u>5</u>	# of Livestock Watered:		Other Uses:		Daily Amount: (if known)
Indoor Plumbing Fixtures: (Washroom(s), Shower(s), Dishwasher, Laundry, Pool, Spa, etc.)			<u>3 showers - washing machine</u> <u>5 sinks - pool</u> <u>1 dishwasher - spa</u>			

Sewage Servicing:

Private Sewage System or Municipal:		System Type: (septic tank, etc.)	<u>Septic tank</u>	Distance from Well:	
Well Location:	<input type="checkbox"/> Uphill <input type="checkbox"/> Downhill <input checked="" type="checkbox"/> Same Grade				
Presence of Any Above Ground Storage Tank or Other Potential Source(s) of Contamination: (including distance on / off property)			<u>NO.</u>		

Previous Concerns:

How Long Have You Owned, Resided, or Operated a Business on this Property?	<u>13 years.</u>				
Have You Experienced Any Previous Concerns with Your Well Supply? (Quantity or Quality)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If Yes, When?	<u>Never</u>		
Cause(s) of the Previous Concern?	<input type="checkbox"/> Drought <input type="checkbox"/> Pump Failure <input type="checkbox"/> Plugging <input type="checkbox"/> Increased Usage <input type="checkbox"/> Interference <input checked="" type="checkbox"/> Contamination <input type="checkbox"/> Other (Please describe): <u>Highway - Bradford Bypass.</u>				

Water Well Survey

AECOM

Well I.D. #: _____ AECOM Project No.: 60636190
MECP WWR #: 0918208 Client Project No.: _____

Well Modification / Maintenance:

Has Your Well Ever Been...	Deepened? <input type="checkbox"/> Yes <input checked="checked" type="checkbox"/> No	Cleaned? <input type="checkbox"/> Yes <input checked="checked" type="checkbox"/> No	Reconstructed or Replaced? <input type="checkbox"/> Yes <input checked="checked" type="checkbox"/> No
If Yes to Any of the Above, Please Provide Details:			

Other Details:

Other Details that May be Relevant to Assessing the Current Condition of Your Well Supply:

Property Owner Participation in Monitoring Program:

Does the Property Owner and/or Occupant Grant Permission for MTO/AECOM to Monitor and/or Sample Your Well?	<input checked="checked" type="checkbox"/> Yes <input type="checkbox"/> No
---	--

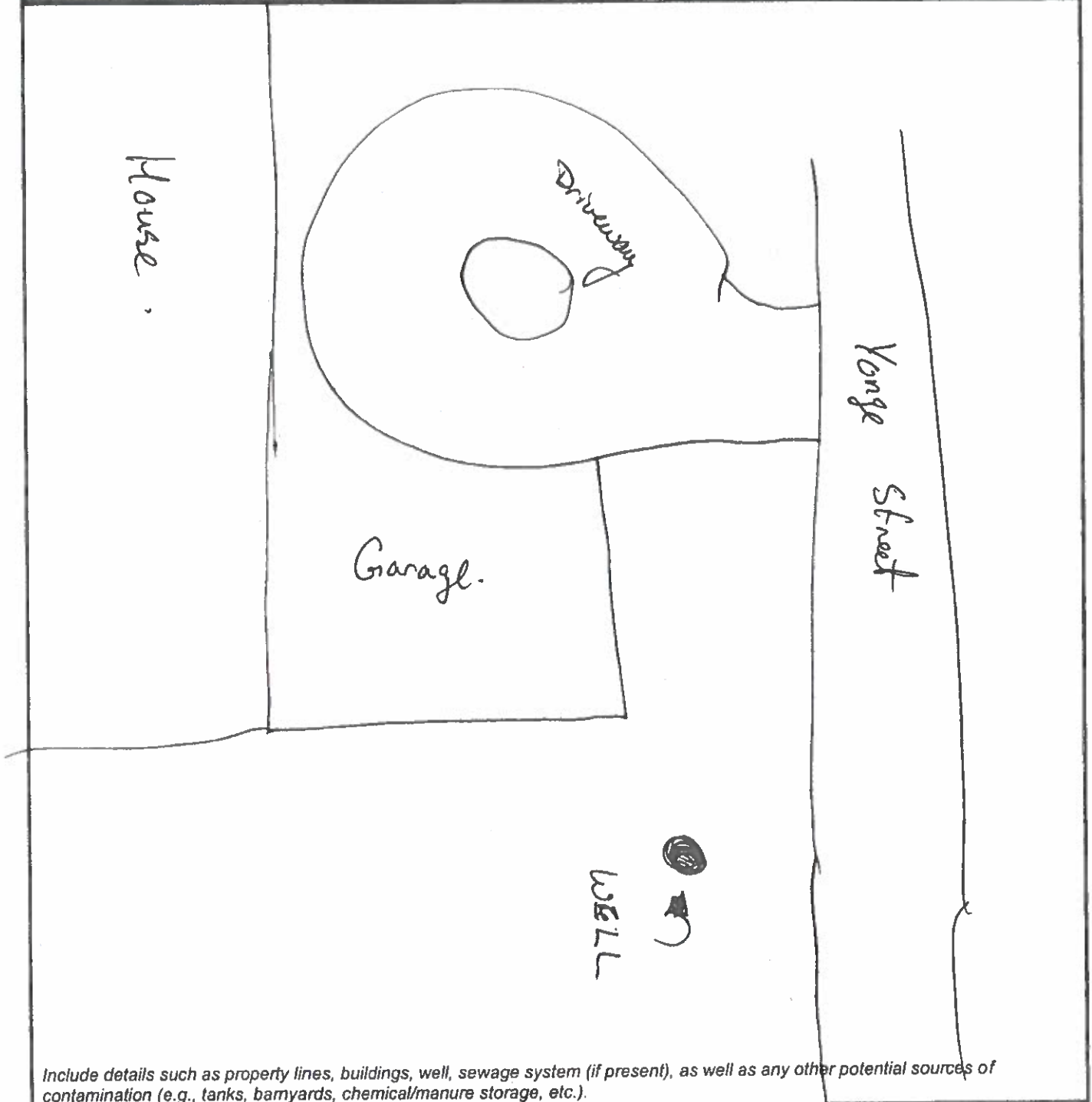
Glenn Duclos [Signature] 16 SEP 21
Property Owner / Occupant Name Signature Date
(Please Print in BLOCK letters)

Water Well Survey

AECOM

Well I.D. #: _____ AECOM Project No.: 60636190
MECP WWR #: 6918208 Client Project No.: _____

Location Sketch (To be Completed by Property Owner / Occupant)



Include details such as property lines, buildings, well, sewage system (if present), as well as any other potential sources of contamination (e.g., tanks, barnyards, chemical/manure storage, etc.).

Water Well Survey

AECOM

Well I.D. #: _____ AECOM Project No.: 60636190
 MECP WWR #: 6918208 Client Project No.: _____

Field Visit Log (To Be Completed by AECOM Staff)

General Details:

Project Name:	<u>BRP - Well Survey</u>	Project No.:	<u>60636190</u>
Address:	<u>20901 Yonge Street</u>	Inspected By:	<u>Hadden / Mudrak</u>
Date:	<u>Oct. 14 / 21</u>	Time:	<u>11:00 - 11:30</u>
Weather:	<u>Sunny</u>		
Easting:	<u>619918</u>	Northing:	<u>4888246</u>
Datum:	<u>17T</u>		

Well Details:

Is Well Accessible for Inspection?	<input type="checkbox"/> Yes <input type="checkbox"/> No	If No, Provide Reason:	
MECP Water Well Record No.:	<u>6918208</u>	Date Well Constructed:	<u>18/8/86</u>
Well Type: <small>(Drilled / Bored / Dug)</small>	<u>Drilled</u>	Well Stick Up: <small>(Above Ground)</small>	<u>2 ft</u>
Well Located in a Well Pit?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Well Pit Depth: <small>(Below Ground)</small>	<u>—</u>
Well Casing Diameter:	<u>6"</u>	Well Depth: <small>(Below Ground)</small>	<u>53 ft</u>
Pump On / Off?	<input type="checkbox"/> On <input checked="" type="checkbox"/> Off	Water Level Condition:	<input type="checkbox"/> Stable (Static) <input checked="" type="checkbox"/> Declining (Drawdown) <input type="checkbox"/> Rising (Recovery)
Flowing Well?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Flow Rate: <small>(Estimated)</small>	<u>5 GPM</u>
Well Screen Installed?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If Yes, Length & Slot Size:	<u>10</u>
Is There a Depression Around the Well Casing Exterior?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Photo(s) of Well Obtained?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

Observation(s) Summary:
<u>- geo thermal system (loop) in backyard</u>
<u>- other neighbours are having water issues (quality)</u>

Water Well Survey

AECOM

Well I.D. #: _____ AECOM Project No.: 60636190
 MECP WWR #: 6918208 Client Project No.: _____

Water Quality Sampling:

Water Quality Sample Obtained?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If No, Provide Reason:	
Sampling Location:	<u>Tap (outside)</u>	Raw or Treated Sample?	<u>Raw</u>
Disinfected Sample Port?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Disinfection Method:	<u>Bleach</u>
Photo of Sample Obtained? (against white background)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If No, Provide Reason:	

Analyte Suite:	<u>93179 + E. coli / Total Coliform</u>				
Sample I.D.:	<u>20901 Yonge</u>	Date / Time of Sampling:	<u>11:17</u>	Number of Sample Bottles:	<u>9</u>

Field Water Quality Parameters: (record units)					
Temperature:	<u>16.4°C</u>	pH:	<u>8.08</u>	Conductivity:	<u>647</u>
Turbidity:	<u>-</u>	D.O.:	<u>-</u>	Colour:	<u>Clear</u>
Odours?	<u>None</u>	Appearance/Odour:	<u>None.</u>		

Type of Concern: (if applicable)	<input checked="" type="checkbox"/> Water Quantity <input checked="" type="checkbox"/> Water Quality (Note any differences in taste, odour, colour or clarity)
If the concern was contamination what changes were apparent to water quality?	<u>Proximity to bypass.</u>
Were there any effects of this concern?	
What action was taken to overcome this concern?	

AECOM Canada Ltd.
 105 Commerce Valley Drive West, 7th Floor
 Markham, ON L3T 7W3
 Canada

T: 905.886.7022
 F: 905.538.8076
 www.aecom.com

Appendix **E**

Property ID #66 – 20989 Yonge Street



November 22nd, 2021

C. William D. Foster
20989 Yonge St.
East Gwillumbury, ON
L9N 0J6

Project No: 60636190
Regarding: Pre-Construction Water Quality Testing Results
MTO Bradford Bypass Project

Dear Mr. Foster,

AECOM Canada Ltd. (AECOM) would like to thank you for your participation in the Pre-Construction Well Assessment Program offered to local residents as part of the Bradford Bypass Project. Based on receipt of written permission from yourself, a sample of raw (untreated) groundwater from your private well was collected for laboratory analysis by AECOM staff on October 13th, 2021. Please find attached a copy of the water quality testing results for your review and record.

Laboratory testing results for the sample obtained indicate that concentrations of certain parameters, as shown in the table below, are in excess of the *Ontario Drinking Water Standards, Objectives and Guidelines* (Ontario Ministry of the Environment, 2006). It should be noted, however, that these results are based on a single sample analysis and that additional testing is recommended.

PARAMETER	CONCENTRATION IN YOUR WATER	STANDARD VALUE / RANGE	STANDARD TYPE	HEALTH RELATED (Y / N)
Hardness (as CaCO ₃)	145 mg/L	80 - 100 mg/L	OG	N

NOTE: MAC – Maximum Acceptable Concentration; AO – Aesthetic Objective; OG – Operational Guideline.

For your information, the *Well Aware Booklet – A Guide To Caring For Your Well* created by Green Communities Canada is available on the Walkerton Clean Water Centre (WCWC) website at:

<https://wcwc.ca/well-aware-and-well-wise-program-resources-for-homeowners/>

Should you have any questions or concerns regarding the quality of your well water, it is recommended that you contact your local Public Health Unit for further information and advice. Contact information for your Local Public Health Unit is provided, as follows:

Simcoe Muskoka District Health Unit
80 Bradford St. #403
Barrie, ON L4N 6S7
Website: <https://www.simcoemuskokahealth.org/>
Telephone: 705.721.7520

If you have any further questions, please contact:

AECOM Canada Ltd. C/O Brian Holden, P.Geo.
Hydrogeology, Environment
Telephone: 226-821-2486
Email: brian.holden@aecom.com

Sincerely,
AECOM Canada Ltd.



Brian Holden, P. Geo.
Hydrogeologist
DCS Americas, Canada East (Greater Ontario / Metro Toronto)
Environment

Brian.holden@aecom.com

Encl.

cc: R. Sheikh, N. Valenton, S. Rankin, S. Schmied – AECOM;
H. Singh, L. Sarris, J. MacKinnon, R. Gribbon – MTO



Water Well Survey

Groundwater Supply Well Location 20989 Yonge Street

Project Name: Bradford Bypass – BBP Expansion

Project#: 60636190

Residence Address:

20989 Yonge Street, East Gwillimbury, Ontario, L9N 0J6

Owner Information:

Owner Name: Charles W and Karen C Foster

Phone Number: 905-836-0663

Email: bfoste4@gmail.com

Well Record

Coordinates (UTM).....620209E/4888530N
(NAD83 Zone17)

Type of Well..... Drilled

Constructed (year)..... 1990

Well Location..... Left of house

Well Diameter.....N/A

Well Depth.....N/A

Casing Position.....N/A

Casing Condition.....Fair

Water Usage.....Residential

Water Source.....Overburden

Static Water Level.....9.71 m



Well

Septic tank



Sample Location

Well

Water Quality & Well Testing

Past Water Quality Problems..... None

Potential Contamination Sources... None

Location of Septic Tank..... Right of property 80' from well

Treatment System.....Water softener

Recent Test Results.....None

Water Sampled.....Yes (October 13, 2021)

Sample Source..... **Outside Tap**

Appearance.....clear

Comments:

- Ground source heat pump in washroom (no issues)
- Well record is filed under the wrong location
- House is built on fill. 3' foundation
- Variable pump
- Notes from Owner: -Totally illegal; needs a new EA; Ravenshoe Road – Provincial vs Municipal Roads

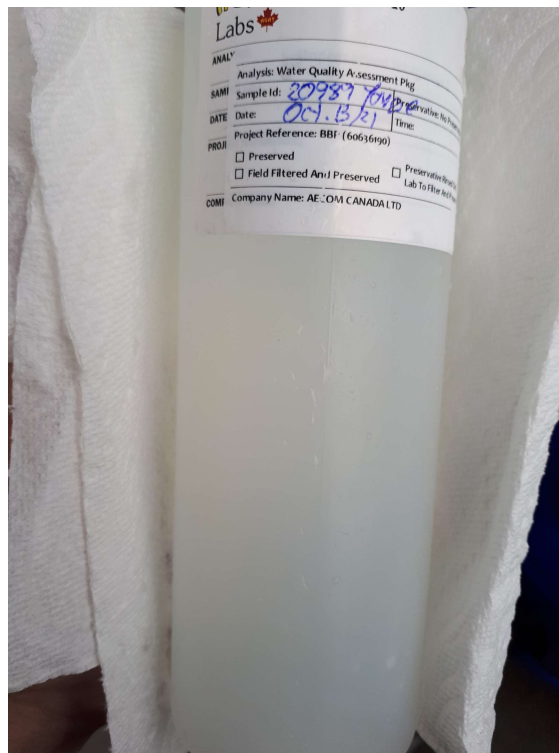
Quality Testing

Groundwater quality met the applicable standards for bacteriological, selected inorganic and metal parameters analyzed except for the following:

<i>Parameters</i>	<i>Test Results</i>	<i>Guideline/Standard</i>	<i>Criteria Type</i>
Total Coliforms	1 CFU / 100 ml	0 CFU / 100 ml	MAC
Hardness (as CaCO ₃)	145 mg/L	80 – 100 mg/L	OG

Notes:

1. Criteria are from “Ontario Drinking Water Standards” (Ontario Regulation 169/03) and “Technical Support Document for Ontario Drinking Water Standards, Objectives and Guidelines” (MOE, June 2003, revised June 2006)
2. AO - Aesthetic Objectives (parameters that may impair the taste, odour or colour of water or which may interfere with good water quality)
3. MAC- Maximum Acceptable Concentration (health related)
4. OG - Operational Guideline (parameters which must be controlled for effective treatment)
5. NDOGT – No data; sample overgrown with target bacteria; over-crowding microbial growth
6. CFU – Colony forming units
7. **Bold** - test result exceeding guideline/standard.





CLIENT NAME: AECOM CANADA LTD
50 SPORTSWORLD CROSSING RD UNIT 290
KITCHENER, ON N2P0A4
(519) 650-5313

ATTENTION TO: Brian Holden
PROJECT: 60636190 - BBP - Well Survey

AGAT WORK ORDER: 21T815177

MICROBIOLOGY ANALYSIS REVIEWED BY: Amanjot Bhela, Inorganic Lab Manager

WATER ANALYSIS REVIEWED BY: Jacky Zhu, Spectroscopy Technician

DATE REPORTED: Oct 20, 2021

PAGES (INCLUDING COVER): 12

VERSION*: 1

Should you require any information regarding this analysis please contact your client services representative at (905) 712-5100

***Notes**

Disclaimer:

- All work conducted herein has been done using accepted standard protocols, and generally accepted practices and methods. AGAT test methods may incorporate modifications from the specified reference methods to improve performance.
- All samples will be disposed of within 30 days after receipt unless a Long Term Storage Agreement is signed and returned. Some specialty analysis may be exempt, please contact your Client Project Manager for details.
- AGAT's liability in connection with any delay, performance or non-performance of these services is only to the Client and does not extend to any other third party. Unless expressly agreed otherwise in writing, AGAT's liability is limited to the actual cost of the specific analysis or analyses included in the services.
- This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
- The test results reported herewith relate only to the samples as received by the laboratory.
- Application of guidelines is provided "as is" without warranty of any kind, either expressed or implied, including, but not limited to, warranties of merchantability, fitness for a particular purpose, or non-infringement. AGAT assumes no responsibility for any errors or omissions in the guidelines contained in this document.
- All reportable information as specified by ISO/IEC 17025:2017 is available from AGAT Laboratories upon request.



Certificate of Analysis

AGAT WORK ORDER: 21T815177

PROJECT: 60636190 - BBP - Well Survey

5835 COOPERS AVENUE
MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
TEL (905)712-5100
FAX (905)712-5122
<http://www.agatlabs.com>

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Brian Holden

SAMPLING SITE:

SAMPLED BY:

Total Coliforms & E. Coli (Using MI Agar)

DATE RECEIVED: 2021-10-13

DATE REPORTED: 2021-10-20

SAMPLE DESCRIPTION: 20989 Yonge

SAMPLE TYPE: Water

DATE SAMPLED: 2021-10-13
13:48

Parameter	Unit	G / S	RDL	3086554
Escherichia coli	CFU/100mL	0	1	ND
Total Coliforms	CFU/100mL	0	1	ND

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to O. Reg 169/03 - Ontario Drinking Water Quality Standards. Na value derived from O. Reg 248
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

3086554 If RDL >1 indicates dilutions of the sample.
ND - Not Detected.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:

Anamjot Bhela




Certificate of Analysis

AGAT WORK ORDER: 21T815177

PROJECT: 60636190 - BBP - Well Survey

5835 COOPERS AVENUE
MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
TEL (905)712-5100
FAX (905)712-5122
<http://www.agatlabs.com>

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Brian Holden

SAMPLING SITE:

SAMPLED BY:

Water Quality Assessment (mg/L) Groundwater

DATE RECEIVED: 2021-10-13

DATE REPORTED: 2021-10-20

SAMPLE DESCRIPTION: 20989 Yonge

SAMPLE TYPE: Water

DATE SAMPLED: 2021-10-13
13:48

Parameter	Unit	G / S: A	G / S: B	RDL	3086554
Electrical Conductivity	µS/cm			2	569
pH	pH Units		6.5-8.5	NA	8.02
Saturation pH (Calculated)					7.40
Langelier Index (Calculated)					0.618
Hardness (as CaCO3) (Calculated)	mg/L		80-100	0.5	145
Total Dissolved Solids	mg/L		500	10	292[<B]
Alkalinity (as CaCO3)	mg/L		30-500	5	185
Bicarbonate (as CaCO3)	mg/L			5	185
Carbonate (as CaCO3)	mg/L			5	<5
Hydroxide (as CaCO3)	mg/L			5	<5
Fluoride	mg/L	1.5		0.05	0.14[<A]
Chloride	mg/L		250	0.10	71.3[<B]
Nitrate as N	mg/L	10.0		0.05	<0.05[<A]
Nitrite as N	mg/L	1.0		0.05	<0.05[<A]
Bromide	mg/L			0.05	<0.05
Sulphate	mg/L		500	0.10	<0.10[<B]
Ortho Phosphate as P	mg/L			0.10	<0.10
Ammonia as N	mg/L			0.02	0.67
Total Phosphorus	mg/L			0.02	<0.02
Total Organic Carbon	mg/L			0.5	30.3
True Colour	TCU		5	5	<5[<B]
Turbidity	NTU		5	0.5	0.9[<B]
Dissolved Calcium	mg/L			0.05	23.3
Dissolved Magnesium	mg/L			0.05	21.0
Dissolved Potassium	mg/L			0.50	1.26
Dissolved Sodium	mg/L	20		0.05	53.7[>A]
Dissolved Aluminum	mg/L			0.004	0.010
Dissolved Antimony	mg/L	0.006		0.001	<0.001[<A]
Dissolved Arsenic	mg/L	0.01		0.001	0.001[<A]

Certified By:



Certificate of Analysis

AGAT WORK ORDER: 21T815177

PROJECT: 60636190 - BBP - Well Survey

 5835 COOPERS AVENUE
 MISSISSAUGA, ONTARIO
 CANADA L4Z 1Y2
 TEL (905)712-5100
 FAX (905)712-5122
 http://www.agatlabs.com

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Brian Holden

SAMPLING SITE:

SAMPLED BY:

Water Quality Assessment (mg/L) Groundwater

DATE RECEIVED: 2021-10-13

DATE REPORTED: 2021-10-20

SAMPLE DESCRIPTION: 20989 Yonge

SAMPLE TYPE: Water

 DATE SAMPLED: 2021-10-13
 13:48

Parameter	Unit	G / S: A	G / S: B	RDL	3086554
Dissolved Barium	mg/L	1.0		0.002	0.198[<A]
Dissolved Beryllium	mg/L			0.0005	<0.0005
Dissolved Boron	mg/L	5.0		0.010	0.093[<A]
Dissolved Cadmium	mg/L	0.005		0.0001	<0.0001[<A]
Dissolved Chromium	mg/L	0.05		0.002	<0.002[<A]
Dissolved Cobalt	mg/L			0.0005	<0.0005
Dissolved Copper	mg/L			0.001	0.002
Dissolved Iron	mg/L			0.010	<0.010
Dissolved Lead	mg/L	0.010		0.0005	<0.0005[<A]
Dissolved Manganese	mg/L			0.002	0.012
Dissolved Mercury	mg/L	0.001		0.0001	<0.0001[<A]
Dissolved Molybdenum	mg/L			0.002	<0.002
Dissolved Nickel	mg/L			0.003	<0.003
Dissolved Selenium	mg/L	0.05		0.001	<0.001[<A]
Dissolved Silver	mg/L			0.0001	<0.0001
Dissolved Strontium	mg/L			0.005	0.609
Dissolved Thallium	mg/L			0.0003	<0.0003
Dissolved Tin	mg/L			0.002	<0.002
Dissolved Titanium	mg/L			0.002	<0.002
Dissolved Tungsten	mg/L			0.010	<0.010
Dissolved Uranium	mg/L	0.02		0.0005	<0.0005[<A]
Dissolved Vanadium	mg/L			0.002	<0.002
Dissolved Zinc	mg/L			0.005	0.019
Dissolved Zirconium	mg/L			0.004	<0.004

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: A Refers to O. Reg 169/03 - Ontario Drinking Water Quality Standards. Na value derived from O. Reg 248, B Refers to O. Reg 169/03 - Ontario Drinking Water Quality Standards - Aesthetic Objectives and Operational Guidelines
 Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:




Exceedance Summary

AGAT WORK ORDER: 21T815177

PROJECT: 60636190 - BBP - Well Survey

5835 COOPERS AVENUE
MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
TEL (905)712-5100
FAX (905)712-5122
<http://www.agatlabs.com>

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Brian Holden

SAMPLEID	SAMPLE TITLE	GUIDELINE	ANALYSIS PACKAGE	PARAMETER	UNIT	GUIDEVALUE	RESULT
3086554	20989 Yonge	ON 169/03 AO&OG	Water Quality Assessment (mg/L) Groundwater	Hardness (as CaCO3) (Calculated)	mg/L	80-100	145
3086554	20989 Yonge	ON 169/03 MAC/IMAC	Water Quality Assessment (mg/L) Groundwater	Dissolved Sodium	mg/L	20	53.7

Quality Assurance

CLIENT NAME: AECOM CANADA LTD
PROJECT: 60636190 - BBP - Well Survey
SAMPLING SITE:

AGAT WORK ORDER: 21T815177
ATTENTION TO: Brian Holden
SAMPLED BY:

Microbiology Analysis

RPT Date: Oct 20, 2021			DUPLICATE			Method Blank	REFERENCE MATERIAL		METHOD BLANK SPIKE		MATRIX SPIKE				
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD		Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper

Total Coliforms & E. Coli (Using MI Agar)

Escherichia coli	3085462	ND	ND	NA	< 1
Total Coliforms	3085462	ND	ND	NA	< 1

Comments: ND - Not Detected, NA - % RPD Not Applicable.

Certified By:




Quality Assurance

CLIENT NAME: AECOM CANADA LTD
PROJECT: 60636190 - BBP - Well Survey
SAMPLING SITE:

AGAT WORK ORDER: 21T815177
ATTENTION TO: Brian Holden
SAMPLED BY:

Water Analysis															
RPT Date: Oct 20, 2021			DUPLICATE				Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE		MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Measured Value		Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper

Water Quality Assessment (mg/L) Groundwater

Electrical Conductivity	3086235		6120	6130	0.2%	< 2	104%	90%	110%						
pH	3086235		7.42	7.44	0.3%	NA	103%	90%	110%						
Total Dissolved Solids	3086147		540	558	3.3%	< 10	102%	80%	120%						
Alkalinity (as CaCO3)	3086235		689	702	1.9%	< 5	85%	80%	120%						
Bicarbonate (as CaCO3)	3086235		689	702	1.9%	< 5									
Carbonate (as CaCO3)	3086235		<5	<5	NA	< 5									
Hydroxide (as CaCO3)	3086235		<5	<5	NA	< 5									
Fluoride	3080984		<0.05	<0.05	NA	< 0.05	107%	70%	130%	93%	80%	120%	112%	70%	130%
Chloride	3080984		59.6	58.8	1.4%	< 0.10	94%	70%	130%	101%	80%	120%	103%	70%	130%
Nitrate as N	3080984		7.76	7.58	2.3%	< 0.05	94%	70%	130%	102%	80%	120%	101%	70%	130%
Nitrite as N	3080984		<0.05	<0.05	NA	< 0.05	106%	70%	130%	103%	80%	120%	112%	70%	130%
Bromide	3080984		<0.05	<0.05	NA	< 0.05	98%	70%	130%	92%	80%	120%	88%	70%	130%
Sulphate	3080984		27.6	27.5	0.4%	< 0.10	95%	70%	130%	99%	80%	120%	98%	70%	130%
Ortho Phosphate as P	3080984		<0.10	<0.10	NA	< 0.10	105%	70%	130%	100%	80%	120%	100%	70%	130%
Ammonia as N	3084096		0.03	0.03	NA	< 0.02	103%	70%	130%	106%	80%	120%	89%	70%	130%
Total Phosphorus	3070594		0.03	0.03	NA	< 0.02	99%	70%	130%	96%	80%	120%	97%	70%	130%
Total Organic Carbon	3080535		11.2	11.2	0.0%	< 0.5	95%	90%	110%	100%	90%	110%	NA	80%	120%
True Colour	3095546		46	46	0.0%	< 5	100%	90%	110%						
Turbidity	3089426		14.4	15.2	5.4%	< 0.5	99%	80%	120%						
Dissolved Calcium	3086543		75.0	75.2	0.3%	< 0.05	96%	70%	130%	98%	80%	120%	97%	70%	130%
Dissolved Magnesium	3086543		24.7	24.7	0.0%	< 0.05	98%	70%	130%	100%	80%	120%	100%	70%	130%
Dissolved Potassium	3086543		2.72	2.68	1.5%	< 0.50	100%	70%	130%	101%	80%	120%	102%	70%	130%
Dissolved Sodium	3086543		8.64	8.57	0.8%	< 0.05	96%	70%	130%	96%	80%	120%	102%	70%	130%
Dissolved Aluminum	3086788		0.028	0.026	7.4%	< 0.004	104%	70%	130%	110%	80%	120%	105%	70%	130%
Dissolved Antimony	3086788		< 0.001	< 0.001	NA	< 0.001	94%	70%	130%	99%	80%	120%	95%	70%	130%
Dissolved Arsenic	3086788		0.001	0.001	NA	< 0.001	96%	70%	130%	98%	80%	120%	104%	70%	130%
Dissolved Barium	3086788		0.050	0.047	6.2%	< 0.002	98%	70%	130%	100%	80%	120%	100%	70%	130%
Dissolved Beryllium	3086788		< 0.0005	< 0.0005	NA	< 0.0005	107%	70%	130%	105%	80%	120%	103%	70%	130%
Dissolved Boron	3086788		0.031	0.030	NA	< 0.010	103%	70%	130%	106%	80%	120%	101%	70%	130%
Dissolved Cadmium	3086788		< 0.0001	< 0.0001	NA	< 0.0001	98%	70%	130%	100%	80%	120%	100%	70%	130%
Dissolved Chromium	3086788		0.003	0.003	NA	< 0.002	99%	70%	130%	104%	80%	120%	101%	70%	130%
Dissolved Cobalt	3086788		0.0008	0.0007	NA	< 0.0005	94%	70%	130%	102%	80%	120%	104%	70%	130%
Dissolved Copper	3086788		< 0.001	< 0.001	NA	< 0.001	95%	70%	130%	102%	80%	120%	104%	70%	130%
Dissolved Iron	3086788		5970	5440	9.3%	< 0.010	87%	70%	130%	112%	80%	120%	101%	70%	130%
Dissolved Lead	3086788		< 0.0005	< 0.0005	NA	< 0.0005	97%	70%	130%	108%	80%	120%	103%	70%	130%
Dissolved Manganese	3086788		0.949	0.875	8.1%	< 0.002	95%	70%	130%	100%	80%	120%	96%	70%	130%
Dissolved Mercury	3073029		<0.0001	<0.0001	NA	< 0.0001	98%	70%	130%	97%	80%	120%	97%	70%	130%
Dissolved Molybdenum	3086788		0.008	0.007	NA	< 0.002	95%	70%	130%	102%	80%	120%	104%	70%	130%
Dissolved Nickel	3086788		< 0.003	< 0.003	NA	< 0.003	99%	70%	130%	104%	80%	120%	106%	70%	130%

Quality Assurance

CLIENT NAME: AECOM CANADA LTD
 PROJECT: 60636190 - BBP - Well Survey
 SAMPLING SITE:

AGAT WORK ORDER: 21T815177
 ATTENTION TO: Brian Holden
 SAMPLED BY:

Water Analysis (Continued)

RPT Date: Oct 20, 2021			DUPLICATE				Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Measured Value		Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits		
								Lower	Upper		Lower	Upper		Lower	Upper	
Dissolved Selenium	3086788		<0.001	0.001	NA	< 0.001	97%	70%	130%	93%	80%	120%	98%	70%	130%	
Dissolved Silver	3086788		< 0.0001	< 0.0001	NA	< 0.0001	99%	70%	130%	104%	80%	120%	102%	70%	130%	
Dissolved Strontium	3086788		0.271	0.249	8.5%	< 0.005	94%	70%	130%	102%	80%	120%	103%	70%	130%	
Dissolved Thallium	3086788		< 0.0003	< 0.0003	NA	< 0.0003	99%	70%	130%	108%	80%	120%	103%	70%	130%	
Dissolved Tin	3086788		< 0.002	< 0.002	NA	< 0.002	98%	70%	130%	102%	80%	120%	101%	70%	130%	
Dissolved Titanium	3086788		< 0.002	< 0.002	NA	< 0.002	96%	70%	130%	101%	80%	120%	99%	70%	130%	
Dissolved Tungsten	3086788		< 0.010	< 0.010	NA	< 0.010	98%	70%	130%	100%	80%	120%	101%	70%	130%	
Dissolved Uranium	3086788		0.0013	0.0012	NA	< 0.0005	96%	70%	130%	104%	80%	120%	100%	70%	130%	
Dissolved Vanadium	3086788		< 0.002	< 0.002	NA	< 0.002	94%	70%	130%	100%	80%	120%	97%	70%	130%	
Dissolved Zinc	3086788		< 0.005	< 0.005	NA	< 0.005	100%	70%	130%	99%	80%	120%	96%	70%	130%	
Dissolved Zirconium	3086788		< 0.004	< 0.004	NA	< 0.004	94%	70%	130%	99%	80%	120%	100%	70%	130%	

Comments: NA Signifies Not Applicable.
 Duplicate NA: results are less than 5X the RDL and RPD will not be calculated.
 Matrix spike: Spike level < native concentration. Matrix spike acceptance limits do not apply.

Certified By:



Method Summary

CLIENT NAME: AECOM CANADA LTD
 PROJECT: 60636190 - BBP - Well Survey
 SAMPLING SITE:

AGAT WORK ORDER: 21T815177
 ATTENTION TO: Brian Holden
 SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Microbiology Analysis			
Escherichia coli	MIC-93-7010	EPA 1604	Membrane Filtration
Total Coliforms	MIC-93-7010	EPA 1604	Membrane Filtration

Method Summary

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PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Water Analysis			
Electrical Conductivity	INOR-93-6000	modified from SM 2510 B	PC TITRATE
pH	INOR-93-6000	modified from SM 4500-H+ B	PC TITRATE
Saturation pH (Calculated)		SM 2320 B	CALCULATION
Langelier Index (Calculated)		SM 2330B	CALCULATION
Hardness (as CaCO ₃) (Calculated)	MET-93-6105	modified from EPA SW-846 6010C & 200.7 & SM 2340 B	CALCULATION
Total Dissolved Solids	INOR-93-6028	modified from EPA 1684, ON MOECC E3139, SM 2540C, D	BALANCE
Alkalinity (as CaCO ₃)	INOR-93-6000	Modified from SM 2320 B	PC TITRATE
Bicarbonate (as CaCO ₃)	INOR-93-6000	modified from SM 2320 B	PC TITRATE
Carbonate (as CaCO ₃)	INOR-93-6000	modified from SM 2320 B	PC TITRATE
Hydroxide (as CaCO ₃)	INOR-93-6000	modified from SM 2320 B	PC TITRATE
Fluoride	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Chloride	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Nitrate as N	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Nitrite as N	INOR-93-6004	SM 4110 B	ION CHROMATOGRAPH
Bromide	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Sulphate	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Ortho Phosphate as P	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Ammonia as N	INOR-93-6059	modified from SM 4500-NH ₃ H	LACHAT FIA
Total Phosphorus	INOR-93-6057	modified from LACHAT 10-115-01-3A	LACHAT FIA
Total Organic Carbon	INOR-93-6049	modified from SM 5310 B	SHIMADZU CARBON ANALYZER
True Colour	INOR-93-6074	modified from SM 2120 B	LACHAT FIA
Turbidity	INOR-93-6044	modified from SM 2130 B	NEPHELOMETER
Dissolved Calcium	MET-93-6105	modified from EPA 6010D	ICP/OES
Dissolved Magnesium	MET-93-6105	modified from EPA 6010D	ICP/OES
Dissolved Potassium	MET-93-6105	modified from EPA 6010D	ICP/OES
Dissolved Sodium	MET-93-6105	modified from EPA 6010D	ICP/OES
Dissolved Aluminum	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Antimony	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Arsenic	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Barium	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Beryllium	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Boron	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Cadmium	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Chromium	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Cobalt	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Copper	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Iron	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Lead	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS

Method Summary

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PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Dissolved Manganese	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Mercury	MET-93-6100	modified from EPA 245.2 and SM 3112 B	CVAAS
Dissolved Molybdenum	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Nickel	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Selenium	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Silver	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Strontium	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Thallium	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Tin	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Titanium	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Tungsten	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Uranium	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Vanadium	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Zinc	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Zirconium	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS

SIM 117 2 6119870 Y.S.E. Cont'd
4R 4888280 CODED Lot 119
 Elev. 5R 0730
 Basin 22
 County or District YORK
 Con. I-E Lot 119



6909832

DIVISION OF
 WATER RESOURCES
 MAY 28 1970
 ONTARIO WATER
 RESOURCES COMMISSION

The Ontario Water Resources Commission Act

WATER WELL RECORD

Township, Village, Town or City EAST Gwillimbury
 Date completed 2 MAY 1970
 (day month year)
 Address R.R.1. NEW MARKET

Casing and Screen Record

Inside diameter of casing 5"
 Total length of casing 59'
 Type of screen # 6 stainless
 Length of screen 7 ft
 Depth to top of screen 55'
 Diameter of finished hole 5"

Pumping Test

Static level 3'
 Test-pumping rate 10 G.P.M.
 Pumping level 25'
 Duration of test pumping 1 hr
 Water clear or cloudy at end of test clear
 Recommended pumping rate 10 G.P.M.
 with pump setting of 40 feet below ground surface

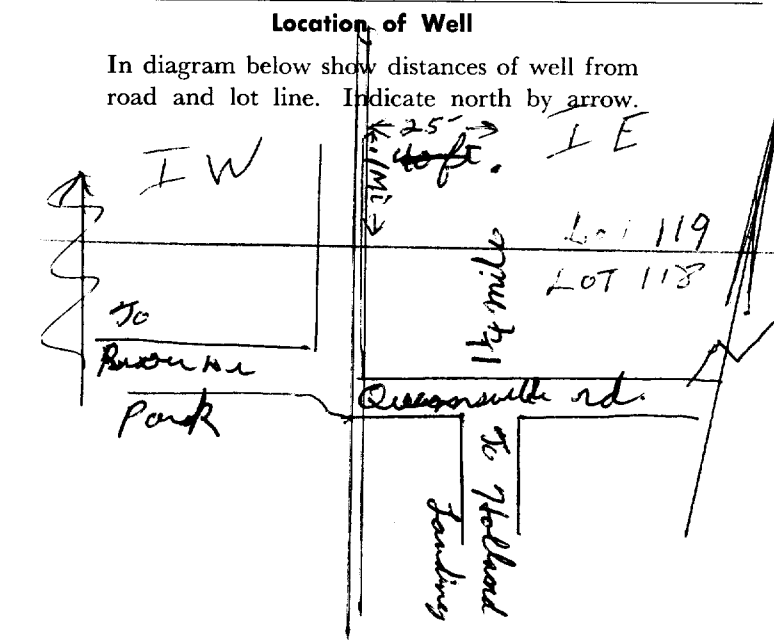
Well Log

Overburden and Bedrock Record	From ft.	To ft.
<u>grey clay</u>	<u>2</u>	<u>15</u>
<u>sandy blue clay</u>	<u>15</u>	<u>55</u>
<u>fine sand</u>	<u>55</u>	<u>62</u>

Water Record

Depth(s) at which water(s) found	Kind of water (fresh, salty, sulphur)
<u>55</u>	<u>fresh</u>

For what purpose(s) is the water to be used? house
 Is well on upland, in valley, or on hillside? upland
 Drilling or Boring Firm W.F. Gartschore
 Address Sharon
 Licence Number 1711
 Name of Driller or Borer J. Niceman
 Address Sharon
 Date May 21 70
W.F. Gartschore
 (Signature of Licensed Drilling or Boring Contractor)





WATER WELL RECORD

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

11

6921153

MUNICIP 69003

CON. YS E 01

COUNTY OR DISTRICT *Hamilton* TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE *East Gwillimbury* CON. BLOCK, TRACT, SURVEY, ETC. *CON 1E* LOT 25-27 *118*

DATE COMPLETED 48-53 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
<i>Brown</i>	<i>sand</i>			0	6
<i>Gray</i>	<i>clay</i>		<i>soft</i>	6	40
<i>"</i>	<i>"</i>	<i>silt</i>		40	55
<i>"</i>	<i>"</i>		<i>soft</i>	55	137
<i>"</i>	<i>"</i>	<i>sand</i>	<i>hard</i>	137	150
<i>"</i>	<i>"</i>	<i>gravel</i>		150	154
<i>"</i>	<i>sand</i>		<i>coarse</i>	154	162

31

32

41 WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER					
10-13 <i>154</i>	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"/>
15-18	1 <input 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"/>
20-23	1 <input 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"/>
25-28	1 <input 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"/>
30-33	1 <input 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"/>

51 CASING & OPEN HOLE RECORD

INSIDE DIAM. INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET	
10-11 <i>6 1/4</i>	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	<i>188</i>	FROM	TO
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

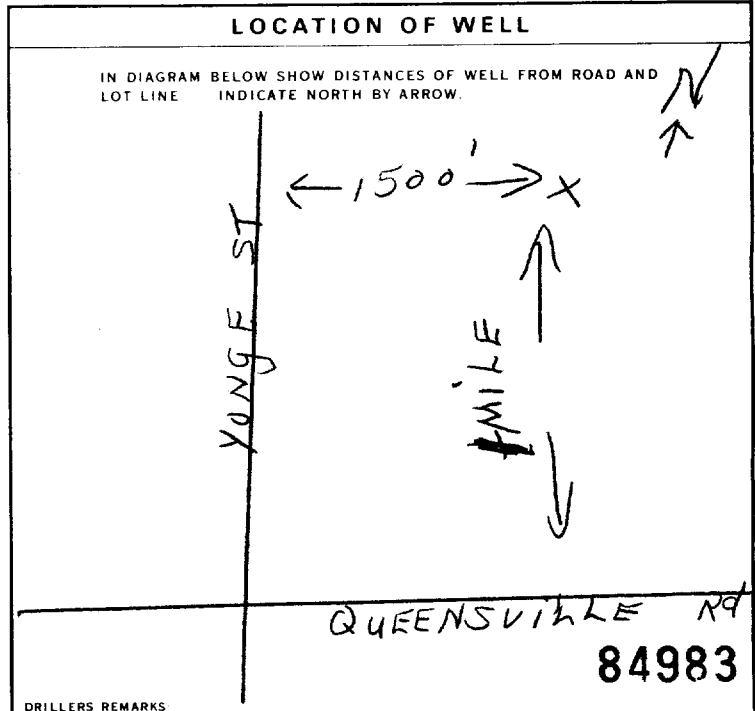
SIZE(S) OF OPENING (SLOT NO.)	31-33 DIAMETER	34-38 LENGTH
<i># 16</i>	<i>6</i> INCHES	<i>6</i> FEET
MATERIAL AND TYPE	DEPTH TO TOP OF SCREEN	
<i>SS</i>	<i>156</i> FEET	

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	<i>80</i>

71 PUMPING TEST

PUMPING TEST METHOD	10 PUMPING RATE	11-14 DURATION OF PUMPING
1 <input type="checkbox"/> PUMP 2 <input checked="" type="checkbox"/> BAILER	<i>20</i> GPM	1 <input type="checkbox"/> 15-16 HOURS 00 MINS
STATIC LEVEL	WATER LEVEL END OF PUMPING	WATER LEVELS DURING
17 FEET	50 FEET	15 MINUTES 40 FEET
		30 MINUTES 45 FEET
		45 MINUTES 50 FEET
		60 MINUTES 50 FEET
IF FLOWING GIVE RATE	PUMP INTAKE SET AT	WATER AT END OF TEST
	100 GPM	1 <input checked="" type="checkbox"/> CLEAR 2 <input type="checkbox"/> CLOUDY
RECOMMENDED PUMP TYPE	RECOMMENDED PUMP SETTING	RECOMMENDED PUMPING RATE
<input type="checkbox"/> SHALLOW <input checked="" type="checkbox"/> DEEP	100 FEET	20 GPM



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	8 <input type="checkbox"/> DEWATERING

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

METHOD OF CONSTRUCTION

1 <input checked="" type="checkbox"/> CABLE TOOL	6 <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 *Wilson Water Wells* WELL CONTRACTOR'S LICENCE NUMBER *5459*

ADDRESS *RR # 4 Stouffville*

NAME OF WELL TECHNICIAN *Norm Rennie* WELL TECHNICIAN'S LICENCE NUMBER

SIGNATURE OF TECHNICIAN/CONTRACTOR *Norm Rennie* SUBMISSION DATE

DAY _____ MO _____ YR _____

OFFICE USE ONLY

DATE RECEIVED *5459* *JUL 10 1990*

DATE OF INSPECTION

REMARKS

Water Well Survey

AECOM

Well I.D. #: _____ AECOM Project No.: 0921153
 MECP WWR #: 40636190 Client Project No.: _____

Well Owner Information:

Property Owner Name:	Charles W and Karen C Foster		
Property Address:	20989 Yonge St. East Gwillimbury ON L9N 0J6		
Telephone:	905-836-0663	Email:	bfoste4@gmail.com
Name of Person Completing Survey:			
Telephone:		Email:	
Relationship to Property Owner:		Date of Survey Completion:	
Name of Original Well Owner: (if known/different from above)			

Occupant of Property Served by Well: (if other than Owner)

Name:			
Telephone:		Email:	
Address:			

Well Location:

Lot:	118	Concession:	1 East	Township:	East Gwillimbury
-------------	-----	--------------------	--------	------------------	------------------

Well Construction Details:

Well Record Available?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Date Well Constructed:		Well Contractor Name:	
Well Type: (Drilled / Bored / Dug)		Casing Material: (Steel, Concrete, etc.)		Well Casing Diameter:	
Well Stick Up: (Above Ground)		Well Depth: (Below Ground)		Water Level: (Below Ground)	
Is Well Located in a Well Pit?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Well Pit Depth: (Below Ground)		Well Stick Up: (Above Pit Bottom)	
Is Well Flowing?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Flow Rate:		Contractor:	
Well Cap Type:		Does Cap Create a Good Seal?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Is Wire Conduit Tight to Well Cap?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Is the Well:	Accessible for Direct Sampling?	<input type="checkbox"/> Yes <input type="checkbox"/> No	OR	Buried, in a Well Pit, or Other Confined Space?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Well Screen Installed?	<input type="checkbox"/> Yes <input type="checkbox"/> No	If Yes, Length & Slot Size:		Depth of Top of Screen: (Below Ground)	

Water Well Survey

AECOM

Well I.D. #: _____ AECOM Project No.: 00030190
 MECP WWR #: 0921153 Client Project No.: _____

Pumping Equipment:

Pump Type:	<input type="checkbox"/> Jet Pump <input checked="" type="checkbox"/> Submersible <input type="checkbox"/> Piston Pump <input type="checkbox"/> Other (please describe): _____				
Pump Horsepower:	<u>3/4"</u>	Pump Age:	<u>30 years</u>	Pumping Capacity:	
Pump Intake Depth: (Below Ground)		Pump Location: (If Not in Well)		Pumping Rate: (If Known)	<u>20-25 gallons</u>
Pressure Tank:	Type:			Capacity:	<u>60 gallon</u>
Water Treatment: (if present)	<input type="checkbox"/> Chlorinator <input checked="" type="checkbox"/> Water Softener <input type="checkbox"/> Water Filter (indicate type) _____ <input type="checkbox"/> U.V. <input type="checkbox"/> R.O. <input type="checkbox"/> Other (please describe): _____				

Well Usage:

Primary Use(s):	Domestic:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Livestock:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Lawn Watering:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
# of Persons Using Well:	<u>2</u>	# of Livestock Watered:	<u>0</u>	Other Uses:		Daily Amount: (if known)
Indoor Plumbing Fixtures: (Washroom(s), Shower(s), Dishwasher, Laundry, Pool, Spa, etc.)			<u>- sand source heat pump (no issues)</u>			

Sewage Servicing:

Private Sewage System or Municipal:	<u>Private</u>	System Type: (septic tank, etc.)	<u>Bed (tile)</u>	Distance from Well:	<u>80 ft</u>
Well Location:	<input type="checkbox"/> Uphill <input checked="" type="checkbox"/> Downhill <input type="checkbox"/> Same Grade				
Presence of Any Above Ground Storage Tank or Other Potential Source(s) of Contamination: (Including distance on / off property)			<u>None</u>		

Previous Concerns:

How Long Have You Owned, Resided, or Operated a Business on this Property?	<u>33 years</u>		
Have You Experienced Any Previous Concerns with Your Well Supply? (Quantity or Quality)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If Yes, When?	
Cause(s) of the Previous Concern?	<input type="checkbox"/> Drought <input type="checkbox"/> Pump Failure <input type="checkbox"/> Plugging <input type="checkbox"/> Increased Usage <input type="checkbox"/> Interference <input type="checkbox"/> Contamination <input type="checkbox"/> Other (Please describe): _____		

Surge issue a few years back, now protected

Water Well Survey

AECOM

Well I.D. #: _____ AECOM Project No.: 60636190
MECP WWR #: 692153 Client Project No.: _____

Well Modification / Maintenance:

Has Your Well Ever Been...	Deepened?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Cleaned?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Reconstructed or Replaced?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
If Yes to Any of the Above, Please Provide Details:						

Other Details:

Other Details that May be Relevant to Assessing the Current Condition of Your Well Supply:

Property Owner Participation in Monitoring Program:

Does the Property Owner and/or Occupant Grant Permission for MTO/AECOM to Monitor and/or Sample Your Well?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
--	---

Charles W Foster

Property Owner / Occupant Name
(Please Print in BLOCK letters)

 _____
Signature

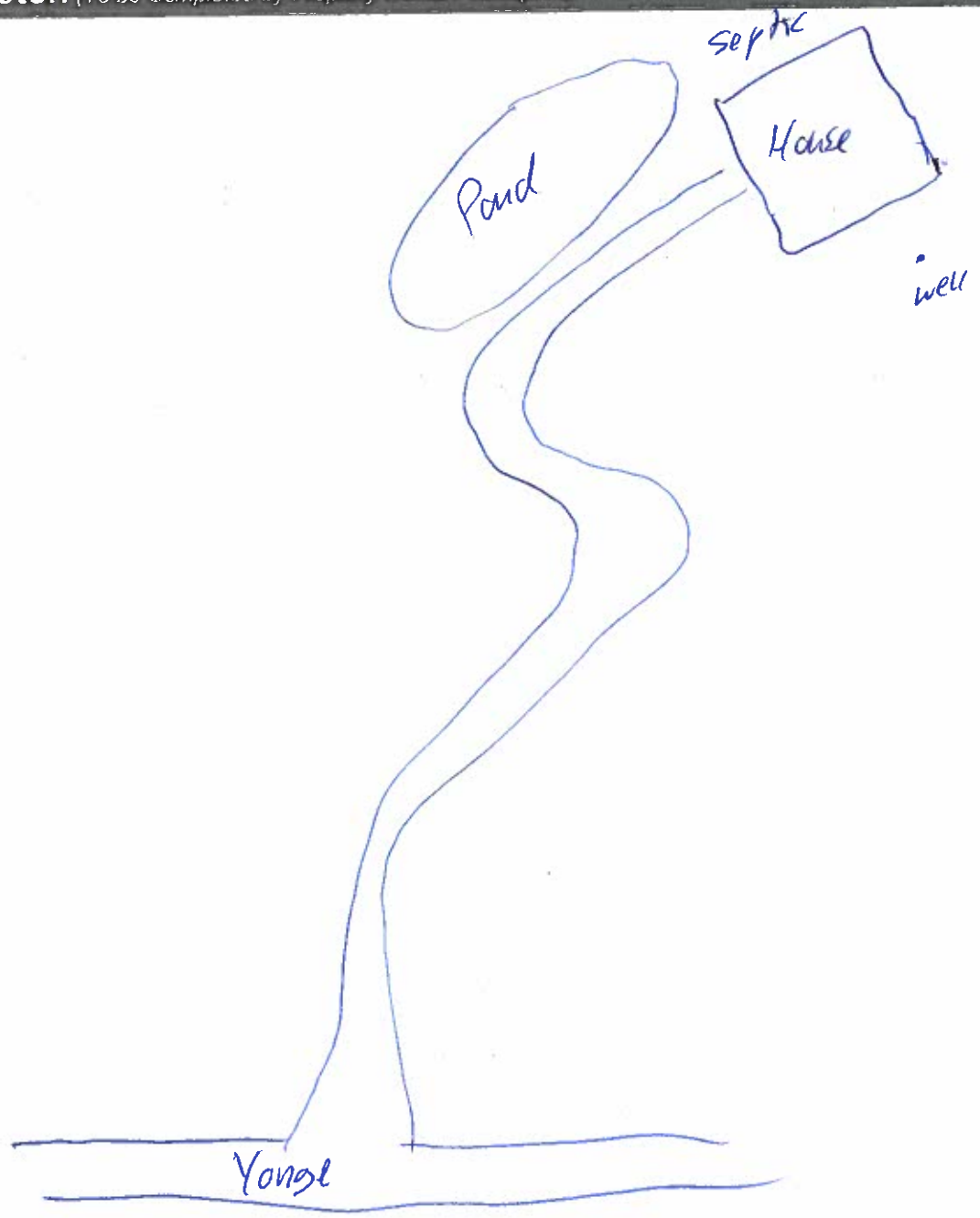
Sept 13/21
Date

Water Well Survey

AECOM

Well I.D. #: _____ AECOM Project No.: 60636190
MECP WWR #: 692 1153 Client Project No.: _____

Location Sketch *(To be Completed by Property Owner / Occupant)*



Include details such as property lines, buildings, well, sewage system (if present), as well as any other potential sources of contamination (e.g., tanks, barnyards, chemical/manure storage, etc.).

Water Well Survey

AECOM

Well I.D. #: _____ AECOM Project No.: 00636190
 MECP WWR #: 092153 Client Project No.: _____

Field Visit Log (To Be Completed by AECOM Staff)

General Details:

Project Name:	<u>BBP - Well Survey</u>		Project No.:	<u>00636190</u>	
Address:	<u>20989 Yonge Street</u>		Inspected By:	<u>Hadden / Murchison</u>	
Date:	<u>Oct. 13/21</u>	Time:	<u>13:00 - 13:40</u>	Weather:	<u>Cloudy</u>
Easting:	<u>620209</u>	Northing:	<u>4888530</u>	Datum:	<u>17T</u>

Well Details:

Is Well Accessible for Inspection?	<input type="checkbox"/> Yes <input type="checkbox"/> No	If No, Provide Reason:			
MECP Water Well Record No.:	<u>092153</u>	Date Well Constructed:	<u>5/7/90</u>	Contractor Name:	<u>Wilson Water Wells</u>
Well Type: <small>(Drilled / Bored / Dug)</small>	<u>Drilled</u>	Well Stick Up: <small>(Above Ground)</small>	<u>12"</u>	Casing Material: <small>(Steel, Concrete, etc.)</small>	<u>Steel</u>
Well Located in a Well Pit?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Well Pit Depth: <small>(Below Ground)</small>	<u>—</u>	Well Stick Up: <small>(Above Pit Bottom)</small>	<u>12"</u>
Well Casing Diameter:		Well Depth: <small>(Below Ground)</small>		Groundwater Level: <small>(Below Ground)</small>	<u>9.71 m - 9.73</u>
Pump On / Off?	<input checked="" type="checkbox"/> On <input type="checkbox"/> Off	Water Level Condition:	<input checked="" type="checkbox"/> Stable (Static) <input checked="" type="checkbox"/> Declining (Drawdown) <input type="checkbox"/> Rising (Recovery)		
Flowing Well?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Flow Rate: <small>(Estimated)</small>		Well Cap Type:	
Well Screen Installed?	<input type="checkbox"/> Yes <input type="checkbox"/> No	If Yes, Length & Slot Size:		Top of Screen: <small>(Below Ground)</small>	
Is There a Depression Around the Well Casing Exterior?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Photo(s) of Well Obtained?		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Observation(s) Summary:

<u>- Well record is filed under the wrong location</u>
<u>- house is built on fill. 3ft foundation</u>
<u>- variable pump</u>

Water Well Survey

AECOM

Well I.D. #: _____ AECOM Project No.: 60639190
 MECP WWR #: 692 1153 Client Project No.: _____

Water Quality Sampling:

Water Quality Sample Obtained?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If No, Provide Reason:	
Sampling Location:		Raw or Treated Sample?	
Disinfected Sample Port?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Disinfection Method:	
Photo of Sample Obtained? (against white background)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If No, Provide Reason:	

Analyte Suite:			
Sample I.D.:	Date / Time of Sampling:	Number of Sample Bottles:	
	<u>od. 13/21</u> <u>13:28</u>	<u>9</u>	

Field Water Quality Parameters: (record units)			
Temperature:	<u>20.280C</u>	pH:	<u>7.83</u>
Turbidity:	<u>8.1 NTU</u>	D.O.:	<u>—</u>
Odours?	<u>NONE</u>	Appearance/Odour:	<u>ENTRAINED GAS - DISSIPATES QUICKLY</u> <u>- NO SEDIMENT</u>
Conductivity:	<u>655</u> <u>0.521 uS/cm</u>	Colour:	<u>NONE</u>

Type of Concern: (if applicable)	<input checked="" type="checkbox"/> Water Quantity <input checked="" type="checkbox"/> Water Quality (Note any differences in taste, odour, colour or clarity)
If the concern was contamination what changes were apparent to water quality?	
Were there any effects of this concern?	
What action was taken to overcome this concern?	

- totally illegal, btw
 newmarket / aaron
 - needs a new environmental
 assessment
 - Ravenshoe road, provincial vs
 municipal roads.

AECOM Canada Ltd.
 105 Commerce Valley Drive West, 7th Floor
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 Canada
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Appendix **F**

Property ID #72 – 21044 Leslie Street

November 22nd, 2021

Florence Lewis
21044 Leslie St.
Queensville, ON
L6G 1R0

Project No: 60636190
Regarding: Pre-Construction Water Quality Testing Results
MTO Bradford Bypass Project

Dear Ms. Lewis,

AECOM Canada Ltd. (AECOM) would like to thank you for your participation in the Pre-Construction Well Assessment Program offered to local residents as part of the Bradford Bypass Project. Based on receipt of written permission from yourself, a sample of raw (untreated) groundwater from your private well was collected for laboratory analysis by AECOM staff on October 7th, 2021. Please find attached a copy of the water quality testing results for your review and record.

Laboratory testing results for the sample obtained indicate that concentrations of certain parameters, as shown in the table below, are in excess of the *Ontario Drinking Water Standards, Objectives and Guidelines* (Ontario Ministry of the Environment, 2006). It should be noted, however, that these results are based on a single sample analysis and that additional testing is recommended.

PARAMETER	CONCENTRATION IN YOUR WATER	STANDARD VALUE / RANGE	STANDARD TYPE	HEALTH RELATED (Y / N)
Total Coliforms	42 CFU/ 100mL	0 CFU/100mL	MAC	Y
Hardness (as CaCO ₃)	20.4 mg/L	80 - 100 mg/L	OG	N

NOTE: MAC – Maximum Acceptable Concentration; AO – Aesthetic Objective; OG – Operational Guideline.

As discussed via telephone with Ms. Lewis on November 19th, 2021, following receipt of the water quality testing results, the presence of bacteriological parameters (Total Coliforms) in your drinking water may represent an immediate health concern. It is recommended that you discuss this exceedance with your Local Public Health Unit.

For your information, the *Well Aware Booklet – A Guide To Caring For Your Well* created by Green Communities Canada is available on the Walkerton Clean Water Centre (WCWC) website at:

<https://wcwc.ca/well-aware-and-well-wise-program-resources-for-homeowners/>

Should you have any questions or concerns regarding the quality of your well water, it is recommended that you contact your local Public Health Unit for further information and advice. Contact information for your Local Public Health Unit is provided, as follows:

Simcoe Muskoka District Health Unit
80 Bradford St. #403
Barrie, ON L4N 6S7
Website: <https://www.simcoemuskokahealth.org/>
Telephone: 705.721.7520

If you have any further questions, please contact:

AECOM Canada Ltd. C/O Brian Holden, P.Geo.
Hydrogeology, Environment
Telephone: 226-821-2486
Email: brian.holden@aecom.com

Sincerely,
AECOM Canada Ltd.



Brian Holden, P.Geo.
Hydrogeologist
DCS Americas, Canada East (Greater Ontario / Metro Toronto)
Environment
Brian.holden@aecom.com

Encl.

cc: R. Sheikh, N. Valenton, S. Rankin, S.Schmied – AECOM;
H. Singh, L. Sarris, J. MacKinnon, R. Gribbon – MTO



Water Well Survey

Groundwater Supply Well Location 21044 Leslie Street

Project Name: Bradford Bypass – BBP Expansion

Project#: 60636190

Residence Address:

21044 Leslie Street, Queensville, Ontario, L0G 1R0

Owner Information:

Owner Name: Florence Lewis

Phone Number: 905-478-1456

Email: donlewis_2@sympatico.ca



Well Record

Coordinates (UTM).....623484E/4889824N
(NAD83 Zone17)

Type of Well..... Drilled

Constructed (year)..... 1987

Well Location..... behind the house past the pool

Well Diameter.....0.25 m

Well Depth.....129.54 m

Casing Position.....N/A

Casing Condition.....Fair

Water Usage.....Residential

Water Source.....Overburden

Static Water Level.....126.80 m



Water Quality & Well Testing

Past Water Quality Problems..... None

Potential Contamination Sources... None

Location of Septic Tank..... in front of the house

Treatment System.....N/A

Recent Test Results.....None

Water Sampled.....Yes (October 7, 2021)

Sample Source..... Side house tap

Appearance.....clear/colourless

Comments:

- Owner concerned about bypass proximity to well
- Would prefer that it does not happen

Quality Testing

Groundwater quality met the applicable standards for bacteriological, selected inorganic and metal parameters analyzed except for the following:

<i>Parameters</i>	<i>Test Results</i>	<i>Guideline/Standard</i>	<i>Criteria Type</i>
Total Coliforms	42 CFU / 100 ml	0 CFU / 100 ml	MAC
Hardness (as CaCO ₃)	20.4 mg/L	80 – 100 mg/L	OG

Notes:

1. Criteria are from “Ontario Drinking Water Standards” (Ontario Regulation 169/03) and “Technical Support Document for Ontario Drinking Water Standards, Objectives and Guidelines” (MOE, June 2003, revised June 2006)
2. AO - Aesthetic Objectives (parameters that may impair the taste, odour or colour of water or which may interfere with good water quality)
3. MAC- Maximum Acceptable Concentration (health related)
4. OG - Operational Guideline (parameters which must be controlled for effective treatment)
5. NDOGT – No data; sample overgrown with target bacteria; over-crowding microbial growth
6. CFU – Colony forming units
7. **Bold** - test result exceeding guideline/standard.





CLIENT NAME: AECOM CANADA LTD
50 SPORTSWORLD CROSSING RD UNIT 290
KITCHENER, ON N2P0A4
(519) 650-5313

ATTENTION TO: Brian Holden

PROJECT: 60636110

AGAT WORK ORDER: 21T813002

MICROBIOLOGY ANALYSIS REVIEWED BY: Nivine Basily, Inorganics Report Writer

WATER ANALYSIS REVIEWED BY: Jacky Zhu, Spectroscopy Technician

DATE REPORTED: Oct 15, 2021

PAGES (INCLUDING COVER): 13

VERSION*: 1

Should you require any information regarding this analysis please contact your client services representative at (905) 712-5100

***Notes**

Disclaimer:

- All work conducted herein has been done using accepted standard protocols, and generally accepted practices and methods. AGAT test methods may incorporate modifications from the specified reference methods to improve performance.
- All samples will be disposed of within 30 days after receipt unless a Long Term Storage Agreement is signed and returned. Some specialty analysis may be exempt, please contact your Client Project Manager for details.
- AGAT's liability in connection with any delay, performance or non-performance of these services is only to the Client and does not extend to any other third party. Unless expressly agreed otherwise in writing, AGAT's liability is limited to the actual cost of the specific analysis or analyses included in the services.
- This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
- The test results reported herewith relate only to the samples as received by the laboratory.
- Application of guidelines is provided "as is" without warranty of any kind, either expressed or implied, including, but not limited to, warranties of merchantability, fitness for a particular purpose, or non-infringement. AGAT assumes no responsibility for any errors or omissions in the guidelines contained in this document.
- All reportable information as specified by ISO/IEC 17025:2017 is available from AGAT Laboratories upon request.



Certificate of Analysis

AGAT WORK ORDER: 21T813002

PROJECT: 60636110

5835 COOPERS AVENUE
MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
TEL (905)712-5100
FAX (905)712-5122
<http://www.agatlabs.com>

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Brian Holden

SAMPLING SITE:

SAMPLED BY:

Total Coliforms & E. Coli (Using MI Agar)

DATE RECEIVED: 2021-10-07

DATE REPORTED: 2021-10-15

SAMPLE DESCRIPTION: 21044 Leslie

SAMPLE TYPE: Water

DATE SAMPLED: 2021-10-07
13:10

Parameter	Unit	G / S	RDL	3067646
Escherichia coli	CFU/100mL	100	1	ND
Total Coliforms	CFU/100mL		1	42

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to PWQO * Variable - refer to guideline reference document
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

3067646 If RDL >1 indicates dilutions of the sample.
ND - Not Detected.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:



Ally Bass



Certificate of Analysis

AGAT WORK ORDER: 21T813002

PROJECT: 60636110

5835 COOPERS AVENUE
MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
TEL (905)712-5100
FAX (905)712-5122
<http://www.agatlabs.com>

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Brian Holden

SAMPLING SITE:

SAMPLED BY:

Water Quality Assessment - PWQO (mg/L)

DATE RECEIVED: 2021-10-07

DATE REPORTED: 2021-10-15

SAMPLE DESCRIPTION: 21044 Leslie

SAMPLE TYPE: Water

DATE SAMPLED: 2021-10-07
13:10

3067646

Parameter	Unit	G / S	RDL	3067646
Electrical Conductivity	µS/cm		2	1240
pH	pH Units	6.5-8.5	NA	8.08
Saturation pH (Calculated)				8.12
Langelier Index (Calculated)				-0.0369
Hardness (as CaCO3) (Calculated)	mg/L		0.5	20.4
Total Dissolved Solids	mg/L		10	666
Alkalinity (as CaCO3)	mg/L		5	291
Bicarbonate (as CaCO3)	mg/L		5	291
Carbonate (as CaCO3)	mg/L		5	<5
Hydroxide (as CaCO3)	mg/L		5	<5
Fluoride	mg/L		0.05	<0.05
Chloride	mg/L		0.12	157
Nitrate as N	mg/L		0.05	4.26
Nitrite as N	mg/L		0.05	<0.05
Bromide	mg/L		0.05	<0.05
Sulphate	mg/L		0.10	83.8
Ortho Phosphate as P	mg/L		0.10	<0.10
Ammonia as N	mg/L		0.02	<0.02
Ammonia-Un-ionized (Calculated)	mg/L	0.02	0.000002	<0.000002
Total Phosphorus	mg/L	*	0.02	<0.02
Total Organic Carbon	mg/L		0.5	1.9
True Colour	TCU		5	<5
Turbidity	NTU		0.5	<0.5
Total Calcium	mg/L		0.16	4.83
Total Magnesium	mg/L		0.17	2.02
Total Potassium	mg/L		0.58	3.02
Total Sodium	mg/L		0.22	276
Aluminum-dissolved	mg/L	*	0.004	0.006
Total Antimony	mg/L	0.020	0.001	<0.001

Certified By:





Certificate of Analysis

AGAT WORK ORDER: 21T813002

PROJECT: 60636110

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CANADA L4Z 1Y2
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FAX (905)712-5122
<http://www.agatlabs.com>

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Brian Holden

SAMPLING SITE:

SAMPLED BY:

Water Quality Assessment - PWQO (mg/L)

DATE RECEIVED: 2021-10-07

DATE REPORTED: 2021-10-15

SAMPLE DESCRIPTION: 21044 Leslie

SAMPLE TYPE: Water

DATE SAMPLED: 2021-10-07
13:10

3067646

Parameter	Unit	G / S	RDL	3067646
Total Arsenic	mg/L	0.1	0.003	<0.003
Total Barium	mg/L		0.002	<0.002
Total Beryllium	mg/L	*	0.001	<0.001
Total Boron	mg/L	0.2	0.010	0.059
Total Cadmium	mg/L	0.0002	0.0001	<0.0001
Total Chromium	mg/L		0.003	<0.003
Total Cobalt	mg/L	0.0009	0.0005	<0.0005
Total Copper	mg/L	0.005	0.001	0.009
Total Iron	mg/L	0.3	0.010	0.015
Total Lead	mg/L	*	0.001	<0.001
Total Manganese	mg/L		0.002	0.004
Dissolved Mercury	mg/L	0.0002	0.0001	<0.0001
Total Molybdenum	mg/L	0.040	0.002	<0.002
Total Nickel	mg/L	0.025	0.003	<0.003
Total Selenium	mg/L	0.1	0.002	<0.002
Total Silver	mg/L	0.0001	0.0001	<0.0001
Total Strontium	mg/L		0.005	0.011
Total Thallium	mg/L	0.0003	0.0003	<0.0003
Total Tin	mg/L		0.002	<0.002
Total Titanium	mg/L		0.010	<0.010
Total Tungsten	mg/L	0.030	0.010	<0.010
Total Uranium	mg/L	0.005	0.002	0.002
Total Vanadium	mg/L	0.006	0.002	<0.002
Total Zinc	mg/L	0.030	0.020	<0.020
Total Zirconium	mg/L	0.004	0.004	<0.004
Lab Filtration Aluminum Dissolved				2021/10/12
Lab Filtration mercury				2021/10/12

Certified By:





AGAT Laboratories

Certificate of Analysis

AGAT WORK ORDER: 21T813002

PROJECT: 60636110

5835 COOPERS AVENUE
MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
TEL (905)712-5100
FAX (905)712-5122
<http://www.agatlabs.com>

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Brian Holden

SAMPLING SITE:

SAMPLED BY:

Water Quality Assessment - PWQO (mg/L)

DATE RECEIVED: 2021-10-07

DATE REPORTED: 2021-10-15

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to PWQO * Variable - refer to guideline reference document
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

3067646 Dilution required, RDL has been increased accordingly.
Analysis performed at AGAT Toronto (unless marked by *)

Certified By:





Exceedance Summary

AGAT WORK ORDER: 21T813002

PROJECT: 60636110

5835 COOPERS AVENUE
MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
TEL (905)712-5100
FAX (905)712-5122
<http://www.agatlabs.com>

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Brian Holden

SAMPLEID	SAMPLE TITLE	GUIDELINE	ANALYSIS PACKAGE	PARAMETER	UNIT	GUIDEVALUE	RESULT
3067646	21044 Leslie	ON PWQO	Water Quality Assessment - PWQO (mg/L)	Total Copper	mg/L	0.005	0.009

Quality Assurance

CLIENT NAME: AECOM CANADA LTD
PROJECT: 60636110
SAMPLING SITE:

AGAT WORK ORDER: 21T813002
ATTENTION TO: Brian Holden
SAMPLED BY:

Microbiology Analysis

RPT Date: Oct 15, 2021			DUPLICATE				Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Measured Value		Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits		
								Lower	Upper		Lower	Upper		Lower	Upper	

Total Coliforms & E. Coli (Using MI Agar)

Escherichia coli	3067628	3067628	ND	ND	NA	< 1
Total Coliforms	3067628	3067628	400	400	0.0%	< 1

Comments: ND - Not Detected, NA - % RPD Not Applicable.

Certified By:



Nivine Basily

Quality Assurance

CLIENT NAME: AECOM CANADA LTD

AGAT WORK ORDER: 21T813002

PROJECT: 60636110

ATTENTION TO: Brian Holden

SAMPLING SITE:

SAMPLED BY:

Water Analysis															
RPT Date: Oct 15, 2021			DUPLICATE				Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE		MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Measured Value		Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper

Water Quality Assessment - PWQO (mg/L)															
Electrical Conductivity	3066943		558	559	0.2%	< 2	103%	90%	110%						
pH	3066943		7.69	7.78	1.2%	NA	101%	90%	110%						
Total Dissolved Solids	3067628	3067628	430	436	1.4%	< 10	100%	80%	120%						
Alkalinity (as CaCO3)	3066943		191	197	3.1%	< 5	85%	80%	120%						
Bicarbonate (as CaCO3)	3066943		191	197	3.1%	< 5									
Carbonate (as CaCO3)	3066943		<5	<5	NA	< 5									
Hydroxide (as CaCO3)	3066943		<5	<5	NA	< 5									
Fluoride	3080535		0.09	0.10	NA	< 0.05	95%	70%	130%	94%	80%	120%	101%	70%	130%
Chloride	3080535		6.53	6.55	0.3%	< 0.10	90%	70%	130%	97%	80%	120%	100%	70%	130%
Nitrate as N	3080535		0.52	0.51	1.9%	< 0.05	94%	70%	130%	102%	80%	120%	103%	70%	130%
Nitrite as N	3080535		<0.05	<0.05	NA	< 0.05	102%	70%	130%	100%	80%	120%	106%	70%	130%
Bromide	3080535		<0.05	<0.05	NA	< 0.05	97%	70%	130%	92%	80%	120%	90%	70%	130%
Sulphate	3080535		21.1	21.2	0.5%	< 0.10	92%	70%	130%	99%	80%	120%	99%	70%	130%
Ortho Phosphate as P	3080535		<0.10	<0.10	NA	< 0.10	94%	70%	130%	100%	80%	120%	102%	70%	130%
Ammonia as N	3067694		<0.02	<0.02	NA	< 0.02	105%	70%	130%	108%	80%	120%	99%	70%	130%
Total Phosphorus	3065782		0.04	0.05	NA	< 0.02	98%	70%	130%	97%	80%	120%	91%	70%	130%
Total Organic Carbon	3067628	3067628	2.0	2.0	NA	< 0.5	104%	90%	110%	99%	90%	110%	102%	80%	120%
True Colour	3068388		<5	<5	NA	< 5	97%	90%	110%						
Turbidity	3067628	3067628	0.8	0.8	NA	< 0.5	99%	80%	120%						
Total Calcium	3073029		20.9	20.3	2.9%	< 0.10	93%	70%	130%	97%	80%	120%	98%	70%	130%
Total Magnesium	3073029		3.15	3.20	1.6%	< 0.10	97%	70%	130%	99%	80%	120%	102%	70%	130%
Total Potassium	3073029		3.71	3.69	0.5%	< 0.50	95%	70%	130%	99%	80%	120%	101%	70%	130%
Total Sodium	3073029		24.3	23.3	4.2%	< 0.10	93%	70%	130%	96%	80%	120%	100%	70%	130%
Aluminum-dissolved	3069932		0.024	0.024	0.0%	< 0.004	108%	70%	130%	112%	80%	120%	104%	70%	130%
Total Antimony	3070856		<0.001	<0.001	NA	< 0.001	104%	70%	130%	106%	80%	120%	107%	70%	130%
Total Arsenic	3070856		0.004	0.003	NA	< 0.003	94%	70%	130%	109%	80%	120%	108%	70%	130%
Total Barium	3070856		0.055	0.057	3.6%	< 0.002	96%	70%	130%	103%	80%	120%	103%	70%	130%
Total Beryllium	3070856		<0.001	<0.001	NA	< 0.001	97%	70%	130%	105%	80%	120%	115%	70%	130%
Total Boron	3070856		0.206	0.206	0.0%	< 0.010	99%	70%	130%	105%	80%	120%	107%	70%	130%
Total Cadmium	3070856		<0.0001	<0.0001	NA	< 0.0001	104%	70%	130%	109%	80%	120%	127%	70%	130%
Total Chromium	3070856		<0.003	<0.003	NA	< 0.003	103%	70%	130%	110%	80%	120%	107%	70%	130%
Total Cobalt	3070856		<0.0005	0.0005	NA	< 0.0005	107%	70%	130%	113%	80%	120%	105%	70%	130%
Total Copper	3070856		0.002	0.002	NA	< 0.001	101%	70%	130%	110%	80%	120%	125%	70%	130%
Total Iron	3070856		0.219	0.241	9.6%	< 0.010	105%	70%	130%	110%	80%	120%	105%	70%	130%
Total Lead	3070856		<0.001	<0.001	NA	< 0.001	100%	70%	130%	108%	80%	120%	122%	70%	130%
Total Manganese	3070856		0.158	0.167	5.5%	< 0.002	101%	70%	130%	106%	80%	120%	108%	70%	130%
Dissolved Mercury	3080894		<0.0001	<0.0001	NA	< 0.0001	103%	70%	130%	98%	80%	120%	100%	70%	130%
Total Molybdenum	3070856		<0.002	<0.002	NA	< 0.002	106%	70%	130%	113%	80%	120%	110%	70%	130%
Total Nickel	3070856		0.006	0.007	NA	< 0.003	100%	70%	130%	108%	80%	120%	128%	70%	130%

Quality Assurance

CLIENT NAME: AECOM CANADA LTD

AGAT WORK ORDER: 21T813002

PROJECT: 60636110

ATTENTION TO: Brian Holden

SAMPLING SITE:

SAMPLED BY:

Water Analysis (Continued)

RPT Date: Oct 15, 2021			DUPLICATE				Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Measured Value		Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits		
								Lower	Upper		Lower	Upper		Lower	Upper	
Total Selenium	3070856		0.075	0.062	19.0%	< 0.002	101%	70%	130%	107%	80%	120%	116%	70%	130%	
Total Silver	3070856		<0.0001	<0.0001	NA	< 0.0001	102%	70%	130%	109%	80%	120%	122%	70%	130%	
Total Strontium	3070856		0.685	0.759	10.2%	< 0.005	105%	70%	130%	108%	80%	120%	104%	70%	130%	
Total Thallium	3070856		<0.0003	<0.0003	NA	< 0.0003	100%	70%	130%	110%	80%	120%	125%	70%	130%	
Total Tin	3070856		<0.002	<0.002	NA	< 0.002	99%	70%	130%	108%	80%	120%	124%	70%	130%	
Total Titanium	3070856		<0.010	<0.010	NA	< 0.010	97%	70%	130%	104%	80%	120%	128%	70%	130%	
Total Tungsten	3070856		<0.010	<0.010	NA	< 0.010	96%	70%	130%	99%	80%	120%	99%	70%	130%	
Total Uranium	3070856		<0.002	<0.002	NA	< 0.002	96%	70%	130%	105%	80%	120%	129%	70%	130%	
Total Vanadium	3070856		<0.002	<0.002	NA	< 0.002	102%	70%	130%	111%	80%	120%	109%	70%	130%	
Total Zinc	3070856		<0.020	<0.020	NA	< 0.020	106%	70%	130%	113%	80%	120%	116%	70%	130%	
Total Zirconium	3070856		<0.004	<0.004	NA	< 0.004	108%	70%	130%	111%	80%	120%	108%	70%	130%	

Comments: NA Signifies Not Applicable.

Duplicate NA: results are less than 5X the RDL and RPD will not be calculated.

Matrix spike: Spike level < native concentration. Matrix spike acceptance limits do not apply.

Certified By:


Method Summary

CLIENT NAME: AECOM CANADA LTD

AGAT WORK ORDER: 21T813002

PROJECT: 60636110

ATTENTION TO: Brian Holden

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Microbiology Analysis			
Escherichia coli	MIC-93-7010	EPA 1604	Membrane Filtration
Total Coliforms	MIC-93-7010	EPA 1604	Membrane Filtration

Method Summary

CLIENT NAME: AECOM CANADA LTD
AGAT WORK ORDER: 21T813002
PROJECT: 60636110
ATTENTION TO: Brian Holden
SAMPLING SITE:
SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Water Analysis			
Electrical Conductivity	INOR-93-6000	modified from SM 2510 B	PC TITRATE
pH	INOR-93-6000	modified from SM 4500-H+ B	PC TITRATE
Saturation pH (Calculated)		SM 2320 B	CALCULATION
Langelier Index (Calculated)		SM 2330B	CALCULATION
Hardness (as CaCO ₃) (Calculated)	MET-93-6105	modified from EPA SW-846 6010C & 200.7 & SM 2340 B	CALCULATION
Total Dissolved Solids	INOR-93-6028	modified from EPA 1684, ON MOECC E3139, SM 2540C, D	BALANCE
Alkalinity (as CaCO ₃)	INOR-93-6000	Modified from SM 2320 B	PC TITRATE
Bicarbonate (as CaCO ₃)	INOR-93-6000	modified from SM 2320 B	PC TITRATE
Carbonate (as CaCO ₃)	INOR-93-6000	modified from SM 2320 B	PC TITRATE
Hydroxide (as CaCO ₃)	INOR-93-6000	modified from SM 2320 B	PC TITRATE
Fluoride	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Chloride	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Nitrate as N	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Nitrite as N	INOR-93-6004	SM 4110 B	ION CHROMATOGRAPH
Bromide	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Sulphate	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Ortho Phosphate as P	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Ammonia as N	INOR-93-6059	modified from SM 4500-NH ₃ H	LACHAT FIA
Ammonia-Un-ionized (Calculated)		MOE REFERENCE, PWQOs Tab 2	CALCULATION
Total Phosphorus	INOR-93-6022	modified from SM 4500-P B and SM 4500-P E	SPECTROPHOTOMETER
Total Organic Carbon	INOR-93-6049	modified from SM 5310 B	SHIMADZU CARBON ANALYZER
True Colour	INOR-93-6074	modified from SM 2120 B	LACHAT FIA
Turbidity	INOR-93-6044	modified from SM 2130 B	NEPHELOMETER
Total Calcium	MET-93-6105	modified from EPA 6010D	ICP/OES
Total Magnesium	MET-93-6105	modified from EPA 6010D	ICP/OES
Total Potassium	MET-93-6105	modified from EPA 6010D	ICP/OES
Total Sodium	MET-93-6105	modified from EPA 6010D	ICP/OES
Aluminum-dissolved	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Total Antimony	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Arsenic	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Barium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Beryllium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Boron	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Cadmium	MET -93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Chromium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Cobalt	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Copper	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Iron	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS



Method Summary

CLIENT NAME: AECOM CANADA LTD

AGAT WORK ORDER: 21T813002

PROJECT: 60636110

ATTENTION TO: Brian Holden

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Total Lead	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Manganese	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Dissolved Mercury	MET-93-6100	modified from EPA 245.2 and SM 3112 B	CVAAS
Total Molybdenum	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Nickel	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Selenium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Silver	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Strontium	INOR-93-6003	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Thallium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Tin	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Titanium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Tungsten	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Uranium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Vanadium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Zinc	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Zirconium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Lab Filtration Aluminum Dissolved	SR-78-9001		FILTRATION
Lab Filtration mercury	SR-78-9001		FILTRATION

UTM 172 623577E



3103e

GROUND WATER BRANCH
OCT 28 1962
174
ONTARIO WATER RESOURCES COMMISSION

5R 4889636N

The Ontario Water Resources Commission Act

WATER WELL RECORD

Elev. 3R 0800
Lot 24

Basin 22 YORK

County or District
Con. II Lot PART 25 Township, Village, Town or City EAST Gwillimburgh
Date completed 10 DEC 1962
(day month year)

Owner [Redacted] Address QUEENSVILLE

Casing and Screen Record

Inside diameter of casing 34"
Total length of casing 23 ft
Type of screen
Length of screen
Depth to top of screen
Diameter of finished hole 34"

Pumping Test

Static level 10 ft
Test-pumping rate 3 G.P.M.
Pumping level
Duration of test pumping
Water clear or cloudy at end of test clear
Recommended pumping rate 3 G.P.M.
with pump setting of 22 feet below ground surface

Well Log

Overburden and Bedrock Record

Blue clay	0	20
Sand	20	23

Water Record

From ft.	To ft.	Depth(s) at which water(s) found	Kind of water (fresh, salty, sulphur)
0	20	20	fresh
20	23		

For what purpose(s) is the water to be used? house

Is well on upland, in valley, or on hillside? hillside

Drilling **ONTARIO WELL DIGGING COMPANY**

Address R.R. # NEWMARKET, ONT.

Licence Number 727

Name of Driller or Borer S. Moore

Address

Date

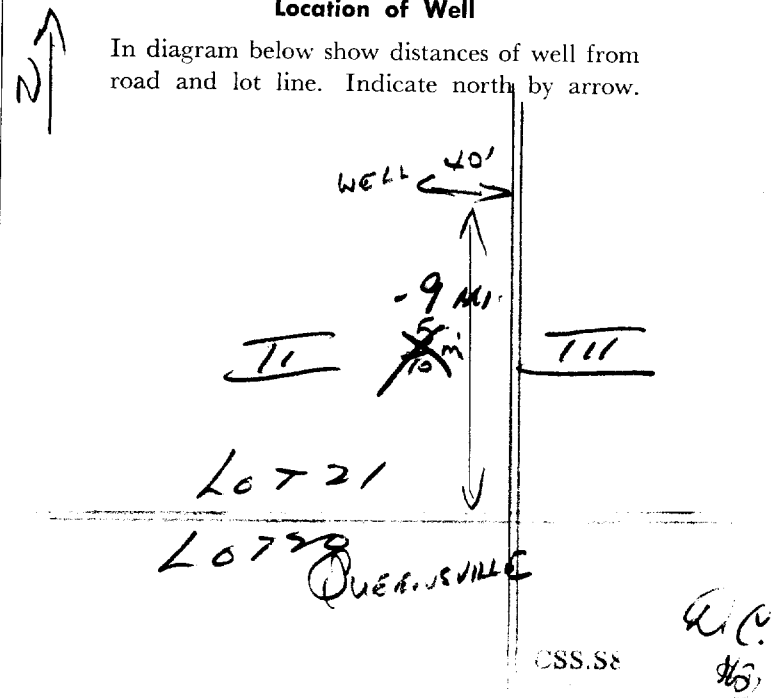
(Signature of Licensed Drilling or Boring Contractor) Ray Weddel

Form 745M-60-4138

OWRC COPY

Location of Well

In diagram below show distances of well from road and lot line. Indicate north by arrow.



CSS.SS

W.C. No.

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

11

6919030

MUNICIPALITY: 10 14 15 22 23 24
CONTRACTOR: 11 12 13 14 15 16 17 18 19 20 21 22 23 24

COUNTY OR DISTRICT: York
TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE: East Gwillimbury
CON. BLOCK, TRACT, SURVEY, ETC: Plan 402 II?
LOT: 23-27: 23
DATE COMPLETED: DAY 12 MO 09 YR 87
Address: [Redacted] lan Lane Queensville, ON

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET	
				FROM	TO
Brown	Clay	Stones	Sandy	0	33
Brown	Sand	Clayey	Packed	33	35
Brown	Clay	Stones	Sandy	35	42
Brown	Sand		Loose	42	63
Brown	Clay	Stones	Packed	63	65
Grey	Clay	Stones	Dense	65	70
Grey	Clay	Stones	Silty	70	149
Grey	Clay	Stones	Dense	149	201
Grey	Clay	Stones	Silty	201	230
Grey	Clay	Stones	Packed	230	335
Grey	Clay	Stones	Silty	335	361
Grey	Gravel	Sand	Cemented	361	380
Grey	Clay	Stones	Silty	380	412
Brown	Gravel	Sand	Clean	412	416
Grey	Limestone		Hard	416	425

41 WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER
10-13	1 <input checked="" type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 4 <input type="checkbox"/> MINERALS 6 <input type="checkbox"/> GAS
416	2 <input type="checkbox"/> SALTY
15-18	1 <input type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 4 <input type="checkbox"/> MINERALS 6 <input type="checkbox"/> GAS
20-23	1 <input type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 4 <input type="checkbox"/> MINERALS 6 <input type="checkbox"/> GAS
25-28	1 <input type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 4 <input type="checkbox"/> MINERALS 6 <input type="checkbox"/> GAS
30-33	1 <input type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 4 <input type="checkbox"/> MINERALS 6 <input type="checkbox"/> GAS

51 CASING & OPEN HOLE RECORD

INSIDE DIAM INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET	
			FROM	TO
5 1/2	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	188	0	416
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

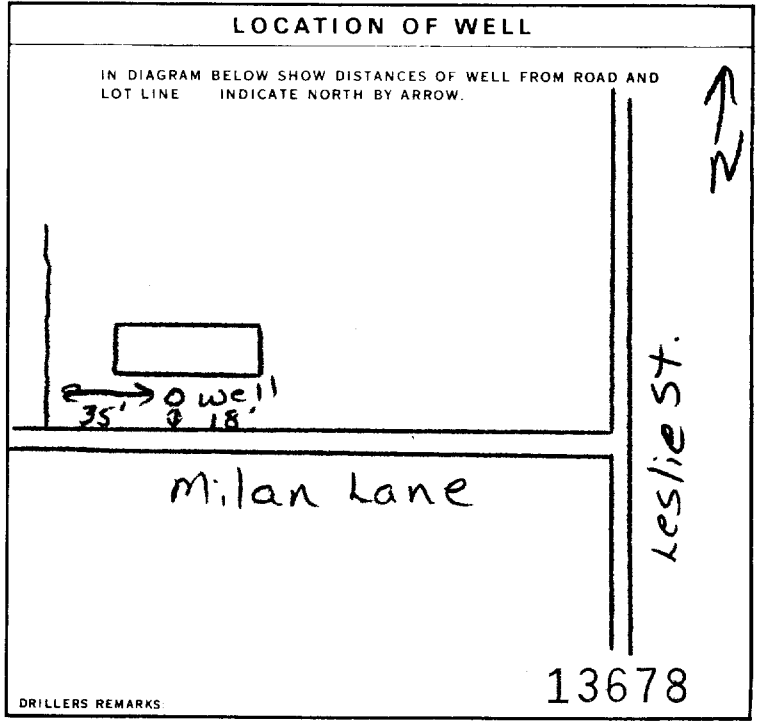
SIZE (SI) OF OPENING (SLOT NO)	DIAMETER INCHES	LENGTH FEET
31-33	34-38	39-40
MATERIAL AND TYPE		DEPTH TO TOP OF SCREEN 41-44

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 GPM	DURATION OF PUMPING HOURS
1 <input type="checkbox"/> PUMP 2 <input type="checkbox"/> BAILER	25	12
15-18		50
17-18		
19-21	190 FEET	22-24
22-24	220 FEET	15 MINUTES
25-28		30 MINUTES
29-31		45 MINUTES
32-34		60 MINUTES
35-37		
38-41		
42		
43-45		
46-49		
50-53		



FINAL STATUS OF WELL

1 WATER SUPPLY 6 ABANDONED, INSUFFICIENT SUPPLY
2 OBSERVATION WELL 8 ABANDONED POOR QUALITY
3 TEST HOLE 7 UNFINISHED
4 RECHARGE WELL 9 DEWATERING

WATER USE

1 DOMESTIC 5 COMMERCIAL
2 STOCK 6 MUNICIPAL
3 IRRIGATION 7 PUBLIC SUPPLY
4 INDUSTRIAL 8 COOLING OR AIR CONDITIONING
 OTHER 9 NOT USED

METHOD OF CONSTRUCTION

1 CABLE TOOL 6 BORING
2 ROTARY (CONVENTIONAL) 7 DIAMOND
3 ROTARY (REVERSE) 8 JETTING
4 ROTARY (AIR) 9 DRIVING
5 AIR PERCUSSION DIGGING OTHER

CONTRACTOR

NAME OF WELL CONTRACTOR: Roger Roadway Ent., Ltd.
WELL CONTRACTOR'S LICENCE NUMBER: 1413
ADDRESS: Box 397 Sutton West, ON L0E 1R0
NAME OF WELL TECHNICIAN: James O'Neill
WELL TECHNICIAN'S LICENCE NUMBER: T0030
SIGNATURE OF TECHNICIAN/CONTRACTOR: Roger Roadway
SUBMISSION DATE: DAY 12 MO 09 YR 87

OFFICE USE ONLY

DATA SOURCE: 58 CONTRACTOR: 59-62 DATE RECEIVED: OCT 15 1987 63-68 80
DATE OF INSPECTION: INSPECTOR:
REMARKS:

BBD

Water Well Survey

AECOM

Well I.D. #: _____
MECP WWR #: 0919030

AECOM Project No.: 690 60636190
Client Project No.: _____

Well Owner Information:

Property Owner Name:	FLORENCE LEWIS		
Property Address:	21044 LESLIE ST QUEBENSVILLE Bldg 24b L661RD		
Telephone:	905-478-1456	Email:	donlewis3 - 20 symplecti.ca
Name of Person Completing Survey:	FLORENCE LEWIS donlewis3 - 20 symplecti.ca		
Telephone:	11	Email:	"
Relationship to Property Owner:	owner	Date of Survey Completion:	SEPT. 10
Name of Original Well Owner: (if known/different from above)	WRIGHT JR COOPER		

Occupant of Property Served by Well: (if other than Owner)

Name:			
Telephone:		Email:	
Address:			

Well Location:

Lot:	Concession:	Township:	A. (61-200-1000)
------	-------------	-----------	------------------

Well Construction Details:

Well Record Available?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Date Well Constructed:	?	Well Contractor Name:	
Well Type: (Drilled / Bored / Dug)	DRILLED	Casing Material: (Steel, Concrete, etc.)	Steel	Well Casing Diameter:	
Well Stick Up: (Above Ground)		Well Depth: (Below Ground)		Water Level: (Below Ground)	
Is Well Located in a Well Pit?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Well Pit Depth: (Below Ground)		Well Stick Up: (Above Pit Bottom)	
Is Well Flowing?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Flow Rate:		Contractor:	
Well Cap Type:		Does Cap Create a Good Seal?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Is Wire Conduit Tight to Well Cap?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Is the Well:	Accessible for Direct Sampling?	<input type="checkbox"/> Yes <input type="checkbox"/> No	OR	Buried, in a Well Pit, or Other Confined Space?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Well Screen Installed?	<input type="checkbox"/> Yes <input type="checkbox"/> No	If Yes, Length & Slot Size:		Depth of Top of Screen: (Below Ground)	

Water Well Survey

AECOM

Well I.D. #: _____ AECOM Project No.: 60636190
 MECP WWR #: 6919030 Client Project No.: _____

Pumping Equipment:

Pump Type:	<input type="checkbox"/> Jet Pump <input type="checkbox"/> Submersible <input type="checkbox"/> Piston Pump <input type="checkbox"/> Other (please describe): <u>?</u>		
Pump Horsepower:		Pump Age:	Pumping Capacity:
Pump Intake Depth: (Below Ground)		Pump Location: (If Not in Well)	Pumping Rate: (If Known)
Pressure Tank:	Type:		Capacity:
Water Treatment: (if present)	<input type="checkbox"/> Chlorinator <input type="checkbox"/> Water Softener <input type="checkbox"/> Water Filter (indicate type) _____ <input type="checkbox"/> U.V. <input type="checkbox"/> R.O. <input type="checkbox"/> Other (please describe): _____		

Well Usage:

Primary Use(s):	Domestic: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Livestock: <input type="checkbox"/> Yes <input type="checkbox"/> No	Lawn Watering: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
# of Persons Using Well:	<u>2+</u>	# of Livestock Watered:	Other Uses:
Indoor Plumbing Fixtures: (Washroom(s), Showers, Dishwasher, Laundry, Pool, Spa, etc.)		<u>washroom (6)</u>	
		Daily Amount: (if known)	

Sewage Servicing:

Private Sewage System or Municipal:		System Type: (septic tank, etc.)		Distance from Well:	<u>GAR</u>
Well Location:	<input type="checkbox"/> Uphill <input type="checkbox"/> Downhill <input type="checkbox"/> Same Grade				
Presence of Any Above Ground Storage Tank or Other Potential Source(s) of Contamination: (including distance on / off property)			<u>NO</u>		

Previous Concerns:

How Long Have You Owned, Resided, or Operated a Business on this Property?	<u>10⁺ yrs</u>		<u>12-13 yrs</u>
Have You Experienced Any Previous Concerns with Your Well Supply? (Quantity or Quality)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If Yes, When?	
Cause(s) of the Previous Concern?	<input type="checkbox"/> Drought <input type="checkbox"/> Pump Failure <input type="checkbox"/> Plugging <input type="checkbox"/> Increased Usage <input type="checkbox"/> Interference <input type="checkbox"/> Contamination <input type="checkbox"/> Other (Please describe): _____		

Water Well Survey

AECOM

Well I.D. #: _____ AECOM Project No.: 60636190
 MECP WWR #: 6919030 Client Project No.: _____

Well Modification / Maintenance:

Has Your Well Ever Been...	Deepened? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Cleaned? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Reconstructed or Replaced? <input type="checkbox"/> Yes <input type="checkbox"/> No
If Yes to Any of the Above, Please Provide Details: <div style="text-align: right; margin-right: 50px;">(650102)</div>			

Other Details:

Other Details that May be Relevant to Assessing the Current Condition of Your Well Supply:

Can't find a lot of info re well. Know it is drilled and well was affected by road construction

Property Owner Participation in Monitoring Program:

Does the Property Owner and/or Occupant Grant Permission for MTO/AECOM to Monitor and/or Sample Your Well?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
---	---

FLORENCE LEWIS [Signature] April 26/21
 Property Owner / Occupant Name Signature Date
 (Please Print in BLOCK letters)

Water Well Survey

AECOM

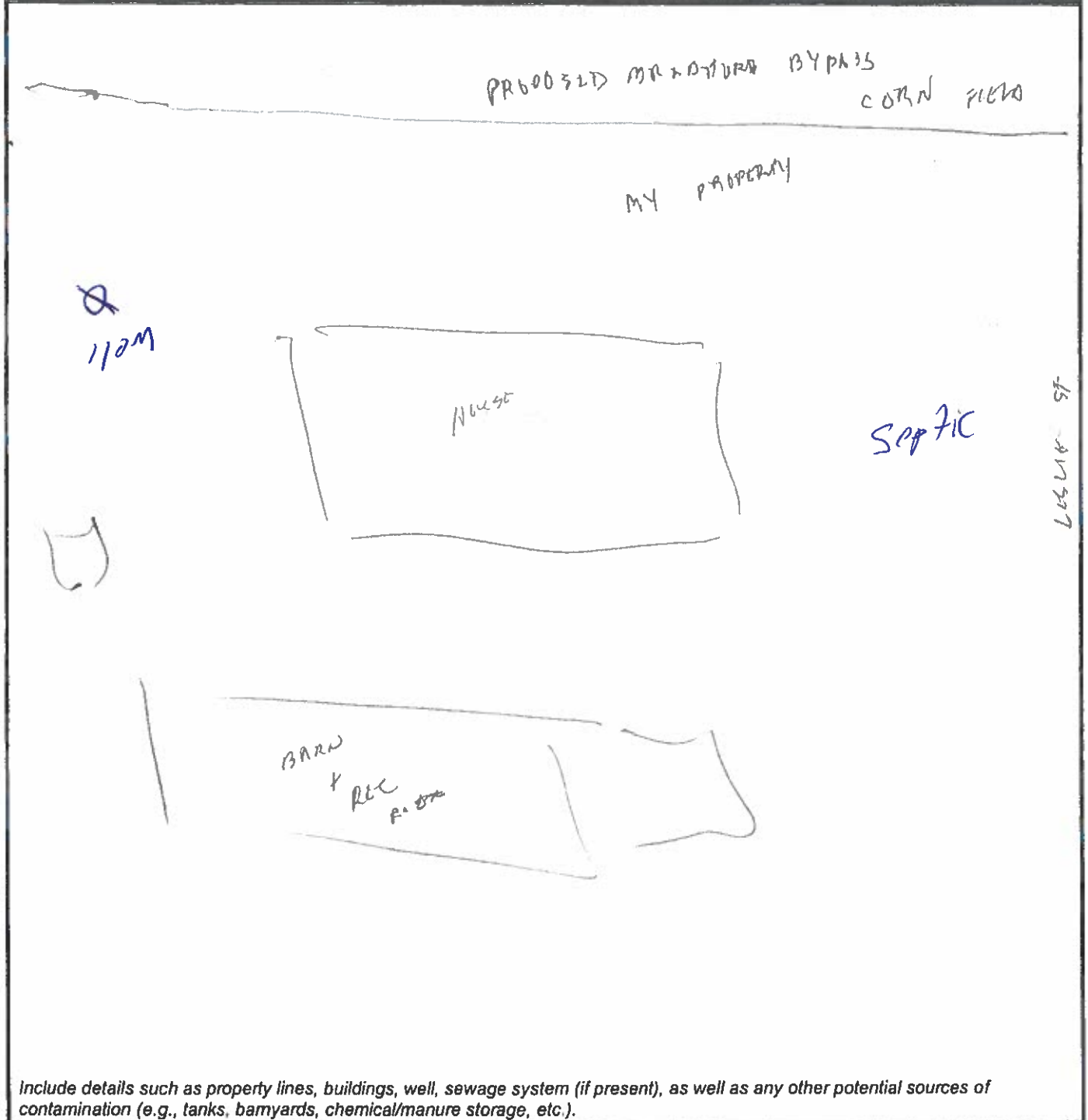
Well I.D. #: _____

AECOM Project No.: 60636190

MECP WWR #: 0919030

Client Project No.: _____

Location Sketch (To be Completed by Property Owner / Occupant)



Include details such as property lines, buildings, well, sewage system (if present), as well as any other potential sources of contamination (e.g., tanks, bamyards, chemical/manure storage, etc.).

Water Well Survey

AECOM

Well I.D. #: _____ AECOM Project No.: 80636190
 MECP WWR #: 6919030 Client Project No.: _____

Field Visit Log (To Be Completed by AECOM Staff)

General Details:

Project Name:	<u>BRADFORD BYPASS</u>	Project No.:	<u>60636190</u>
Address:	<u>21044 Leslie St.</u>	Inspected By:	<u>Holden/Borrmann</u>
Date:	<u>Oct 7/21</u>	Time:	<u>13:00 - 13:30</u>
Weather:	<u>Cloudy</u>		
Easting:	<u>623484</u>	Northing:	<u>4889829</u>
Datum:	<u>MT</u>		

Well Details:

Is Well Accessible for inspection?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If No, Provide Reason:			
MECP Water Well Record No.:	<u>6919030</u>	Date Well Constructed:	<u>12/9/87</u>	Contractor Name:	<u>Rose Broadway Ltd.</u>
Well Type: (<u>Drilled</u>) Bored / Dug		Well Stick Up: (Above Ground)	<u>0.55m</u>	Casing Material: (Steel, Concrete, etc.)	<u>Steel</u>
Well Located in a Well Pit?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Well Pit Depth: (Below Ground)	<u>—</u>	Well Stick Up: (Above Pit Bottom)	<u>—</u>
Well Casing Diameter:	<u>10"</u>	Well Depth: (Below Ground)	<u>425ft</u>	Groundwater Level: (Below Ground)	<u>416ft</u>
Pump On / Off?	<input checked="" type="checkbox"/> On <input type="checkbox"/> Off	Water Level Condition:	<input checked="" type="checkbox"/> Stable (Static) <input type="checkbox"/> Declining (Drawdown) <input type="checkbox"/> Rising (Recovery)		
Flowing Well?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Flow Rate: (Estimated)	<u>5 GPM</u>	Well Cap Type:	<u>locking cap.</u>
Well Screen Installed?	<input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If Yes, Length & Slot Size:		Top of Screen: (Below Ground)	
Is There a Depression Around the Well Casing Exterior?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Photo(s) of Well Obtained?		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Observation(s) Summary:

NOT SURE ABOUT LOCATION

WILL SURELY AFFECT OUR WELL AS IT'S SO CLOSE.

Proximity to bypass

6000174 - no longer in use, decommissioned

Water Well Survey

AECOM

Well I.D. #: _____ AECOM Project No.: 60036190
 MECP WWR #: 0919030 Client Project No.: _____

Water Quality Sampling:

Water Quality Sample Obtained?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If No, Provide Reason:	
Sampling Location:	<u>side hose tap</u>	Raw or Treated Sample?	<u>Raw</u>
Disinfected Sample Port?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Disinfection Method:	<u>Alconex</u>
Photo of Sample Obtained? (against white background)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If No, Provide Reason:	

Analyte Suite:	<u>93179 + E.Coli / Total Coliform</u>				
Sample I.D.:	<u>21044 LES/NE</u>	Date / Time of Sampling:	<u>13:10 Oct 21/21</u>	Number of Sample Bottles:	<u>9</u>

Field Water Quality Parameters: (record units)					
Temperature:	<u>15.1</u>	pH:	<u>7.34</u>	Conductivity:	<u>1.40</u>
Turbidity:	<u>—</u>	D.O.:	<u>—</u>	Colour:	<u>clear / colourless</u>
Odours?	<u>No</u>	Appearance/Odour:	<u>None</u>		

Type of Concern: (if applicable)	<input checked="" type="checkbox"/> Water Quantity <input checked="" type="checkbox"/> Water Quality (Note any differences in taste, odour, colour or clarity)
If the concern was contamination what changes were apparent to water quality?	<u>proximity to well.</u>
Were there any effects of this concern?	<u>would prefer it does not happen.</u>
What action was taken to overcome this concern?	

AECOM Canada Ltd.
 105 Commerce Valley Drive West, 7th Floor
 Markham, ON L3T 7W3
 Canada

T: 905.886.7022
 F: 905.538.8076
 www.aecom.com

Appendix G

Property ID #76 – 21145 Leslie Street

November 22nd, 2021

Bruce & Pat Newland
21145 Leslie St.
Queensville, ON
L0G 1R0

Project No: 60636190
Regarding: Pre-Construction Water Quality Testing Results
MTO Bradford Bypass Project

Dear Mr. and Ms. Newland,

AECOM Canada Ltd. (AECOM) would like to thank you for your participation in the Pre-Construction Well Assessment Program offered to local residents as part of the Bradford Bypass Project. Based on receipt of written permission from yourself, a sample of raw (untreated) groundwater from your private well was collected for laboratory analysis by AECOM staff on October 7th, 2021. Please find attached a copy of the water quality testing results for your review and record.

Laboratory testing results for the sample obtained indicate that concentrations of certain parameters, as shown in the table below, are in excess of the *Ontario Drinking Water Standards, Objectives and Guidelines* (Ontario Ministry of the Environment, 2006). It should be noted, however, that these results are based on a single sample analysis and that additional testing is recommended.

PARAMETER	CONCENTRATION IN YOUR WATER	STANDARD VALUE / RANGE	STANDARD TYPE	HEALTH RELATED (Y / N)
Total Coliforms	24 CFU/ 100mL	0 CFU/100mL	MAC	Y
Iron	0.489 mg/L	0.3 mg/L	AO	N
Turbidity	8.4 NTU	5 NTU	AO	N
Hardness (as CaCO ₃)	163 mg/L	80 - 100 mg/L	OG	N

NOTE: MAC – Maximum Acceptable Concentration; AO – Aesthetic Objective; OG – Operational Guideline.

As discussed via telephone with Mr. Newland on November 19th, 2021, following receipt of the water quality testing results, the presence of bacteriological parameters (Total Coliforms) in your drinking water may represent an immediate health concern. It is recommended that you discuss this exceedance with your Local Public Health Unit.

For your information, the *Well Aware Booklet – A Guide To Caring For Your Well* created by Green Communities Canada is available on the Walkerton Clean Water Centre (WCWC) website at:

<https://wcwc.ca/well-aware-and-well-wise-program-resources-for-homeowners/>

Should you have any questions or concerns regarding the quality of your well water, it is recommended that you contact your local Public Health Unit for further information and advice. Contact information for your Local Public Health Unit is provided, as follows:

Simcoe Muskoka District Health Unit
80 Bradford St. #403
Barrie, ON L4N 6S7
Website: <https://www.simcoemuskokahealth.org/>
Telephone: 705.721.7520

If you have any further questions, please contact:

AECOM Canada Ltd. C/O Brian Holden, P.Geo.
Hydrogeology, Environment
Telephone: 226-821-2486
Email: brian.holden@aecom.com

Sincerely,
AECOM Canada Ltd.



Brian Holden, P.Geo.
Hydrogeologist
DCS Americas, Canada East (Greater Ontario / Metro Toronto)
Environment
Brian.holden@aecom.com

Encl.

cc: R. Sheikh, N. Valenton, S. Rankin, S.Schmied – AECOM;
H. Singh, L. Sarris, J. MacKinnon, R. Gribbon – MTO



Water Well Survey

Groundwater Supply Well Location 21145 Leslie Street

Project Name: Bradford Bypass – BBP Expansion

Project#: 60636190

Residence Address:

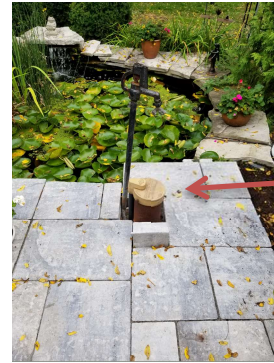
21145 Leslie Street, Queensville, Ontario, L0G 1R0

Owner Information:

Owner Name: Bruce Newland and Pat Newland

Phone Number: 905-952-9226

Email: newlandbruce97@gmail.com



Well Record

Coordinates (UTM).....623649E/4890917N
(NAD83 Zone17)

Type of Well..... Drilled

Constructed (year)..... 1988

Well Location..... behind the house

Well Diameter.....0.16 m

Well Depth.....79.86 m

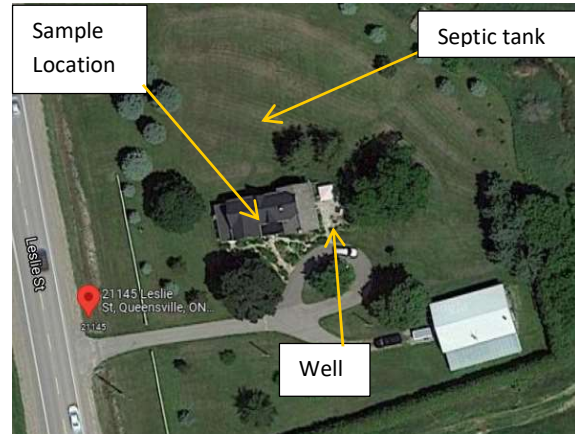
Casing Position.....N/A

Casing Condition.....Fair

Water Usage.....Residential

Water Source.....Overburden

Static Water Level.....N/A



Water Quality & Well Testing

Past Water Quality Problems..... None

Potential Contamination Sources... None

Location of Septic Tank..... To the right of house; 110' from well

Treatment System.....Water softener, Sediment filter, U.V

Recent Test Results.....None

Water Sampled.....Yes (October 7, 2021)

Sample Source..... Pressure tank bypass

Appearance.....clear/colourless

Comments:

- Well lid is older style; Sample taken from tap near pressure tank
- Owner concerned about water quality and quantity
 - Why? Runoff to Lake Simcoe
 - Noise/odours from vehicles
 - Salt impacts
 - Bypass is too far north
 - Better alternatives?

Quality Testing

Groundwater quality met the applicable standards for bacteriological, selected inorganic and metal parameters analyzed except for the following:

<i>Parameters</i>	<i>Test Results</i>	<i>Guideline/Standard</i>	<i>Criteria Type</i>
Total Coliforms	24 CFU / 100 ml	0 CFU / 100 ml	MAC
Hardness (as CaCO ₃)	163 mg/L	80 – 100 mg/L	OG

Notes:

1. Criteria are from “Ontario Drinking Water Standards” (Ontario Regulation 169/03) and “Technical Support Document for Ontario Drinking Water Standards, Objectives and Guidelines” (MOE, June 2003, revised June 2006)
2. AO - Aesthetic Objectives (parameters that may impair the taste, odour or colour of water or which may interfere with good water quality)
3. MAC- Maximum Acceptable Concentration (health related)
4. OG - Operational Guideline (parameters which must be controlled for effective treatment)
5. NDOGT – No data; sample overgrown with target bacteria; over-crowding microbial growth
6. CFU – Colony forming units
7. **Bold** - test result exceeding guideline/standard.





CLIENT NAME: AECOM CANADA LTD
50 SPORTSWORLD CROSSING RD UNIT 290
KITCHENER, ON N2P0A4
(519) 650-5313

ATTENTION TO: Brian Holden

PROJECT: 60636110

AGAT WORK ORDER: 21T813002

MICROBIOLOGY ANALYSIS REVIEWED BY: Nivine Basily, Inorganics Report Writer

WATER ANALYSIS REVIEWED BY: Jacky Zhu, Spectroscopy Technician

DATE REPORTED: Oct 15, 2021

PAGES (INCLUDING COVER): 13

VERSION*: 1

Should you require any information regarding this analysis please contact your client services representative at (905) 712-5100

***Notes**

Disclaimer:

- *All work conducted herein has been done using accepted standard protocols, and generally accepted practices and methods. AGAT test methods may incorporate modifications from the specified reference methods to improve performance.*
- *All samples will be disposed of within 30 days after receipt unless a Long Term Storage Agreement is signed and returned. Some specialty analysis may be exempt, please contact your Client Project Manager for details.*
- *AGAT's liability in connection with any delay, performance or non-performance of these services is only to the Client and does not extend to any other third party. Unless expressly agreed otherwise in writing, AGAT's liability is limited to the actual cost of the specific analysis or analyses included in the services.*
- *This Certificate shall not be reproduced except in full, without the written approval of the laboratory.*
- *The test results reported herewith relate only to the samples as received by the laboratory.*
- *Application of guidelines is provided "as is" without warranty of any kind, either expressed or implied, including, but not limited to, warranties of merchantability, fitness for a particular purpose, or non-infringement. AGAT assumes no responsibility for any errors or omissions in the guidelines contained in this document.*
- *All reportable information as specified by ISO/IEC 17025:2017 is available from AGAT Laboratories upon request.*



Certificate of Analysis

AGAT WORK ORDER: 21T813002

PROJECT: 60636110

5835 COOPERS AVENUE
MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
TEL (905)712-5100
FAX (905)712-5122
<http://www.agatlabs.com>

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Brian Holden

SAMPLING SITE:

SAMPLED BY:

Total Coliforms & E. Coli (Using MI Agar)

DATE RECEIVED: 2021-10-07

DATE REPORTED: 2021-10-15

SAMPLE DESCRIPTION: 21145 Leslie

SAMPLE TYPE: Water

DATE SAMPLED: 2021-10-07
13:53

Parameter	Unit	G / S	RDL	3067647
Escherichia coli	CFU/100mL	100	1	ND
Total Coliforms	CFU/100mL		1	24

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to PWQO * Variable - refer to guideline reference document
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

3067647 If RDL >1 indicates dilutions of the sample.
ND - Not Detected.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:



Nancy Basch



Certificate of Analysis

AGAT WORK ORDER: 21T813002

PROJECT: 60636110

5835 COOPERS AVENUE
MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
TEL (905)712-5100
FAX (905)712-5122
<http://www.agatlabs.com>

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Brian Holden

SAMPLING SITE:

SAMPLED BY:

Water Quality Assessment - PWQO (mg/L)

DATE RECEIVED: 2021-10-07

DATE REPORTED: 2021-10-15

SAMPLE DESCRIPTION: 21145 Leslie

SAMPLE TYPE: Water

DATE SAMPLED: 2021-10-07
13:53

3067647

Parameter	Unit	G / S	RDL	3067647
Electrical Conductivity	µS/cm		2	397
pH	pH Units	6.5-8.5	NA	7.99
Saturation pH (Calculated)				7.35
Langelier Index (Calculated)				0.642
Hardness (as CaCO3) (Calculated)	mg/L		0.5	163
Total Dissolved Solids	mg/L		10	206
Alkalinity (as CaCO3)	mg/L		5	186
Bicarbonate (as CaCO3)	mg/L		5	186
Carbonate (as CaCO3)	mg/L		5	<5
Hydroxide (as CaCO3)	mg/L		5	<5
Fluoride	mg/L		0.05	0.10
Chloride	mg/L		0.10	11.0
Nitrate as N	mg/L		0.05	<0.05
Nitrite as N	mg/L		0.05	<0.05
Bromide	mg/L		0.05	<0.05
Sulphate	mg/L		0.10	<0.10
Ortho Phosphate as P	mg/L		0.10	<0.10
Ammonia as N	mg/L		0.02	0.54
Ammonia-Un-ionized (Calculated)	mg/L	0.02	0.000002	0.0310
Total Phosphorus	mg/L	*	0.02	<0.02
Total Organic Carbon	mg/L		0.5	1.8
True Colour	TCU		5	<5
Turbidity	NTU		0.5	8.4
Total Calcium	mg/L		0.16	33.6
Total Magnesium	mg/L		0.17	19.2
Total Potassium	mg/L		0.58	1.93
Total Sodium	mg/L		0.22	30.6
Aluminum-dissolved	mg/L	*	0.004	<0.004
Total Antimony	mg/L	0.020	0.001	<0.001

Certified By:





Certificate of Analysis

AGAT WORK ORDER: 21T813002

PROJECT: 60636110

5835 COOPERS AVENUE
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CANADA L4Z 1Y2
TEL (905)712-5100
FAX (905)712-5122
<http://www.agatlabs.com>

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Brian Holden

SAMPLING SITE:

SAMPLED BY:

Water Quality Assessment - PWQO (mg/L)

DATE RECEIVED: 2021-10-07

DATE REPORTED: 2021-10-15

SAMPLE DESCRIPTION: 21145 Leslie

SAMPLE TYPE: Water

DATE SAMPLED: 2021-10-07
13:53

3067647

Parameter	Unit	G / S	RDL	3067647
Total Arsenic	mg/L	0.1	0.003	<0.003
Total Barium	mg/L		0.002	0.107
Total Beryllium	mg/L	*	0.001	<0.001
Total Boron	mg/L	0.2	0.010	0.073
Total Cadmium	mg/L	0.0002	0.0001	<0.0001
Total Chromium	mg/L		0.003	<0.003
Total Cobalt	mg/L	0.0009	0.0005	<0.0005
Total Copper	mg/L	0.005	0.001	0.003
Total Iron	mg/L	0.3	0.010	0.489
Total Lead	mg/L	*	0.001	<0.001
Total Manganese	mg/L		0.002	0.026
Dissolved Mercury	mg/L	0.0002	0.0001	<0.0001
Total Molybdenum	mg/L	0.040	0.002	<0.002
Total Nickel	mg/L	0.025	0.003	<0.003
Total Selenium	mg/L	0.1	0.002	<0.002
Total Silver	mg/L	0.0001	0.0001	<0.0001
Total Strontium	mg/L		0.005	1.08
Total Thallium	mg/L	0.0003	0.0003	<0.0003
Total Tin	mg/L		0.002	<0.002
Total Titanium	mg/L		0.010	<0.010
Total Tungsten	mg/L	0.030	0.010	<0.010
Total Uranium	mg/L	0.005	0.002	<0.002
Total Vanadium	mg/L	0.006	0.002	<0.002
Total Zinc	mg/L	0.030	0.020	0.048
Total Zirconium	mg/L	0.004	0.004	<0.004
Lab Filtration Aluminum Dissolved				2021/10/12
Lab Filtration mercury				2021/10/12

Certified By:





AGAT Laboratories

Certificate of Analysis

AGAT WORK ORDER: 21T813002

PROJECT: 60636110

5835 COOPERS AVENUE
MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
TEL (905)712-5100
FAX (905)712-5122
<http://www.agatlabs.com>

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Brian Holden

SAMPLING SITE:

SAMPLED BY:

Water Quality Assessment - PWQO (mg/L)

DATE RECEIVED: 2021-10-07

DATE REPORTED: 2021-10-15

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to PWQO * Variable - refer to guideline reference document
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

3067647 Dilution required, RDL has been increased accordingly.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:





Exceedance Summary

AGAT WORK ORDER: 21T813002

PROJECT: 60636110

5835 COOPERS AVENUE
 MISSISSAUGA, ONTARIO
 CANADA L4Z 1Y2
 TEL (905)712-5100
 FAX (905)712-5122
<http://www.agatlabs.com>

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Brian Holden

SAMPLEID	SAMPLE TITLE	GUIDELINE	ANALYSIS PACKAGE	PARAMETER	UNIT	GUIDEVALUE	RESULT
3067647	21145 Leslie	ON PWQO	Water Quality Assessment - PWQO (mg/L)	Ammonia-Un-ionized (Calculated)	mg/L	0.02	0.0310
3067647	21145 Leslie	ON PWQO	Water Quality Assessment - PWQO (mg/L)	Total Iron	mg/L	0.3	0.489
3067647	21145 Leslie	ON PWQO	Water Quality Assessment - PWQO (mg/L)	Total Zinc	mg/L	0.030	0.048

Quality Assurance

CLIENT NAME: AECOM CANADA LTD
PROJECT: 60636110
SAMPLING SITE:

AGAT WORK ORDER: 21T813002
ATTENTION TO: Brian Holden
SAMPLED BY:

Microbiology Analysis

RPT Date: Oct 15, 2021			DUPLICATE			Method Blank	REFERENCE MATERIAL		METHOD BLANK SPIKE		MATRIX SPIKE				
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD		Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper

Total Coliforms & E. Coli (Using MI Agar)

Escherichia coli	3067628	3067628	ND	ND	NA	< 1
Total Coliforms	3067628	3067628	400	400	0.0%	< 1

Comments: ND - Not Detected, NA - % RPD Not Applicable.

Certified By:



Nivine Basily

Quality Assurance

CLIENT NAME: AECOM CANADA LTD

AGAT WORK ORDER: 21T813002

PROJECT: 60636110

ATTENTION TO: Brian Holden

SAMPLING SITE:

SAMPLED BY:

Water Analysis																
RPT Date: Oct 15, 2021			DUPLICATE				Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Measured Value		Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits		
								Lower	Upper		Lower	Upper		Lower	Upper	

Water Quality Assessment - PWQO (mg/L)															
Electrical Conductivity	3066943		558	559	0.2%	< 2	103%	90%	110%						
pH	3066943		7.69	7.78	1.2%	NA	101%	90%	110%						
Total Dissolved Solids	3067628	3067628	430	436	1.4%	< 10	100%	80%	120%						
Alkalinity (as CaCO3)	3066943		191	197	3.1%	< 5	85%	80%	120%						
Bicarbonate (as CaCO3)	3066943		191	197	3.1%	< 5									
Carbonate (as CaCO3)	3066943		<5	<5	NA	< 5									
Hydroxide (as CaCO3)	3066943		<5	<5	NA	< 5									
Fluoride	3080535		0.09	0.10	NA	< 0.05	95%	70%	130%	94%	80%	120%	101%	70%	130%
Chloride	3080535		6.53	6.55	0.3%	< 0.10	90%	70%	130%	97%	80%	120%	100%	70%	130%
Nitrate as N	3080535		0.52	0.51	1.9%	< 0.05	94%	70%	130%	102%	80%	120%	103%	70%	130%
Nitrite as N	3080535		<0.05	<0.05	NA	< 0.05	102%	70%	130%	100%	80%	120%	106%	70%	130%
Bromide	3080535		<0.05	<0.05	NA	< 0.05	97%	70%	130%	92%	80%	120%	90%	70%	130%
Sulphate	3080535		21.1	21.2	0.5%	< 0.10	92%	70%	130%	99%	80%	120%	99%	70%	130%
Ortho Phosphate as P	3080535		<0.10	<0.10	NA	< 0.10	94%	70%	130%	100%	80%	120%	102%	70%	130%
Ammonia as N	3067694		<0.02	<0.02	NA	< 0.02	105%	70%	130%	108%	80%	120%	99%	70%	130%
Total Phosphorus	3065782		0.04	0.05	NA	< 0.02	98%	70%	130%	97%	80%	120%	91%	70%	130%
Total Organic Carbon	3067628	3067628	2.0	2.0	NA	< 0.5	104%	90%	110%	99%	90%	110%	102%	80%	120%
True Colour	3068388		<5	<5	NA	< 5	97%	90%	110%						
Turbidity	3067628	3067628	0.8	0.8	NA	< 0.5	99%	80%	120%						
Total Calcium	3073029		20.9	20.3	2.9%	< 0.10	93%	70%	130%	97%	80%	120%	98%	70%	130%
Total Magnesium	3073029		3.15	3.20	1.6%	< 0.10	97%	70%	130%	99%	80%	120%	102%	70%	130%
Total Potassium	3073029		3.71	3.69	0.5%	< 0.50	95%	70%	130%	99%	80%	120%	101%	70%	130%
Total Sodium	3073029		24.3	23.3	4.2%	< 0.10	93%	70%	130%	96%	80%	120%	100%	70%	130%
Aluminum-dissolved	3069932		0.024	0.024	0.0%	< 0.004	108%	70%	130%	112%	80%	120%	104%	70%	130%
Total Antimony	3070856		<0.001	<0.001	NA	< 0.001	104%	70%	130%	106%	80%	120%	107%	70%	130%
Total Arsenic	3070856		0.004	0.003	NA	< 0.003	94%	70%	130%	109%	80%	120%	108%	70%	130%
Total Barium	3070856		0.055	0.057	3.6%	< 0.002	96%	70%	130%	103%	80%	120%	103%	70%	130%
Total Beryllium	3070856		<0.001	<0.001	NA	< 0.001	97%	70%	130%	105%	80%	120%	115%	70%	130%
Total Boron	3070856		0.206	0.206	0.0%	< 0.010	99%	70%	130%	105%	80%	120%	107%	70%	130%
Total Cadmium	3070856		<0.0001	<0.0001	NA	< 0.0001	104%	70%	130%	109%	80%	120%	127%	70%	130%
Total Chromium	3070856		<0.003	<0.003	NA	< 0.003	103%	70%	130%	110%	80%	120%	107%	70%	130%
Total Cobalt	3070856		<0.0005	0.0005	NA	< 0.0005	107%	70%	130%	113%	80%	120%	105%	70%	130%
Total Copper	3070856		0.002	0.002	NA	< 0.001	101%	70%	130%	110%	80%	120%	125%	70%	130%
Total Iron	3070856		0.219	0.241	9.6%	< 0.010	105%	70%	130%	110%	80%	120%	105%	70%	130%
Total Lead	3070856		<0.001	<0.001	NA	< 0.001	100%	70%	130%	108%	80%	120%	122%	70%	130%
Total Manganese	3070856		0.158	0.167	5.5%	< 0.002	101%	70%	130%	106%	80%	120%	108%	70%	130%
Dissolved Mercury	3080894		<0.0001	<0.0001	NA	< 0.0001	103%	70%	130%	98%	80%	120%	100%	70%	130%
Total Molybdenum	3070856		<0.002	<0.002	NA	< 0.002	106%	70%	130%	113%	80%	120%	110%	70%	130%
Total Nickel	3070856		0.006	0.007	NA	< 0.003	100%	70%	130%	108%	80%	120%	128%	70%	130%

Quality Assurance

CLIENT NAME: AECOM CANADA LTD
 PROJECT: 60636110
 SAMPLING SITE:

AGAT WORK ORDER: 21T813002
 ATTENTION TO: Brian Holden
 SAMPLED BY:

Water Analysis (Continued)

RPT Date: Oct 15, 2021			DUPLICATE				Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Measured Value		Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits		
								Lower	Upper		Lower	Upper		Lower	Upper	
Total Selenium	3070856		0.075	0.062	19.0%	< 0.002	101%	70%	130%	107%	80%	120%	116%	70%	130%	
Total Silver	3070856		<0.0001	<0.0001	NA	< 0.0001	102%	70%	130%	109%	80%	120%	122%	70%	130%	
Total Strontium	3070856		0.685	0.759	10.2%	< 0.005	105%	70%	130%	108%	80%	120%	104%	70%	130%	
Total Thallium	3070856		<0.0003	<0.0003	NA	< 0.0003	100%	70%	130%	110%	80%	120%	125%	70%	130%	
Total Tin	3070856		<0.002	<0.002	NA	< 0.002	99%	70%	130%	108%	80%	120%	124%	70%	130%	
Total Titanium	3070856		<0.010	<0.010	NA	< 0.010	97%	70%	130%	104%	80%	120%	128%	70%	130%	
Total Tungsten	3070856		<0.010	<0.010	NA	< 0.010	96%	70%	130%	99%	80%	120%	99%	70%	130%	
Total Uranium	3070856		<0.002	<0.002	NA	< 0.002	96%	70%	130%	105%	80%	120%	129%	70%	130%	
Total Vanadium	3070856		<0.002	<0.002	NA	< 0.002	102%	70%	130%	111%	80%	120%	109%	70%	130%	
Total Zinc	3070856		<0.020	<0.020	NA	< 0.020	106%	70%	130%	113%	80%	120%	116%	70%	130%	
Total Zirconium	3070856		<0.004	<0.004	NA	< 0.004	108%	70%	130%	111%	80%	120%	108%	70%	130%	

Comments: NA Signifies Not Applicable.
 Duplicate NA: results are less than 5X the RDL and RPD will not be calculated.
 Matrix spike: Spike level < native concentration. Matrix spike acceptance limits do not apply.

Certified By:



Method Summary

CLIENT NAME: AECOM CANADA LTD

AGAT WORK ORDER: 21T813002

PROJECT: 60636110

ATTENTION TO: Brian Holden

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Microbiology Analysis			
Escherichia coli	MIC-93-7010	EPA 1604	Membrane Filtration
Total Coliforms	MIC-93-7010	EPA 1604	Membrane Filtration

Method Summary

CLIENT NAME: AECOM CANADA LTD
AGAT WORK ORDER: 21T813002
PROJECT: 60636110
ATTENTION TO: Brian Holden
SAMPLING SITE:
SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Water Analysis			
Electrical Conductivity	INOR-93-6000	modified from SM 2510 B	PC TITRATE
pH	INOR-93-6000	modified from SM 4500-H+ B	PC TITRATE
Saturation pH (Calculated)		SM 2320 B	CALCULATION
Langelier Index (Calculated)		SM 2330B	CALCULATION
Hardness (as CaCO ₃) (Calculated)	MET-93-6105	modified from EPA SW-846 6010C & 200.7 & SM 2340 B	CALCULATION
Total Dissolved Solids	INOR-93-6028	modified from EPA 1684, ON MOECC E3139, SM 2540C, D	BALANCE
Alkalinity (as CaCO ₃)	INOR-93-6000	Modified from SM 2320 B	PC TITRATE
Bicarbonate (as CaCO ₃)	INOR-93-6000	modified from SM 2320 B	PC TITRATE
Carbonate (as CaCO ₃)	INOR-93-6000	modified from SM 2320 B	PC TITRATE
Hydroxide (as CaCO ₃)	INOR-93-6000	modified from SM 2320 B	PC TITRATE
Fluoride	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Chloride	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Nitrate as N	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Nitrite as N	INOR-93-6004	SM 4110 B	ION CHROMATOGRAPH
Bromide	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Sulphate	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Ortho Phosphate as P	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Ammonia as N	INOR-93-6059	modified from SM 4500-NH ₃ H	LACHAT FIA
Ammonia-Un-ionized (Calculated)		MOE REFERENCE, PWQOs Tab 2	CALCULATION
Total Phosphorus	INOR-93-6022	modified from SM 4500-P B and SM 4500-P E	SPECTROPHOTOMETER
Total Organic Carbon	INOR-93-6049	modified from SM 5310 B	SHIMADZU CARBON ANALYZER
True Colour	INOR-93-6074	modified from SM 2120 B	LACHAT FIA
Turbidity	INOR-93-6044	modified from SM 2130 B	NEPHELOMETER
Total Calcium	MET-93-6105	modified from EPA 6010D	ICP/OES
Total Magnesium	MET-93-6105	modified from EPA 6010D	ICP/OES
Total Potassium	MET-93-6105	modified from EPA 6010D	ICP/OES
Total Sodium	MET-93-6105	modified from EPA 6010D	ICP/OES
Aluminum-dissolved	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Total Antimony	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Arsenic	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Barium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Beryllium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Boron	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Cadmium	MET -93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Chromium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Cobalt	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Copper	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Iron	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS



Method Summary

CLIENT NAME: AECOM CANADA LTD

AGAT WORK ORDER: 21T813002

PROJECT: 60636110

ATTENTION TO: Brian Holden

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Total Lead	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Manganese	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Dissolved Mercury	MET-93-6100	modified from EPA 245.2 and SM 3112 B	CVAAS
Total Molybdenum	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Nickel	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Selenium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Silver	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Strontium	INOR-93-6003	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Thallium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Tin	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Titanium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Tungsten	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Uranium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Vanadium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Zinc	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Zirconium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Lab Filtration Aluminum Dissolved	SR-78-9001		FILTRATION
Lab Filtration mercury	SR-78-9001		FILTRATION

Print only in spaces provided.
Mark correct box with a checkmark, where applicable.

11
1 2

6924647

Municipality 69003 Con. CON 03
10 11 15 22 23 24

County or District YORK	Township/Borough/City/Town/Village EAST GWILLIMBURY	Con block tract survey, etc. 3	Lot pt. 25
Address 21145 Leslie St. R.R.1 Queensville		Date completed 19 10 98	

Northings 10 12 17 18 24 25 26 30 31 47
RC Elevation RC Basin Code ii iii iv

LOG OF OVERBURDEN AND BEDROCK MATERIALS (see instructions)					
General colour	Most common material	Other materials	General description	Depth - feet	
				From	To
Brown	Soil		Soft	0	1
Brown	Clay		Soft	1	12
Grey	Clay	F. Gravel, Stones	Soft	12	47
Grey	Clay		Hard	47	74
Grey	Clay	Sand	Layered	74	138
Grey	Clay		Very Dense	138	153
Grey	Clay	Sand	Layered	153	183
Grey	Clay		Hard	183	244
Grey	Limestone	Clay	broken, Layered	244	251
Grey	Limestone		hard	251	253
Grey	Limestone		Fractured	253	262

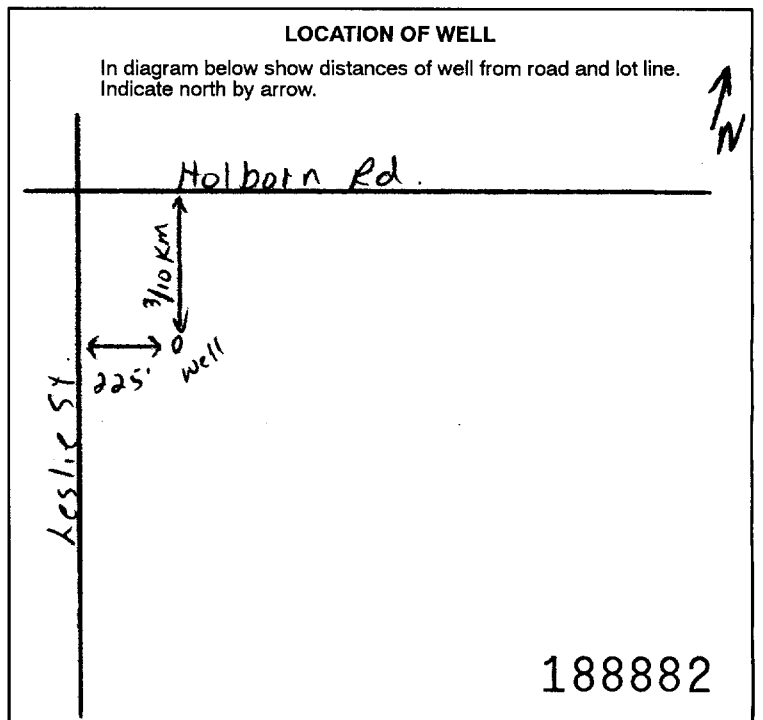
41 WATER RECORD			
Water found at - feet	Kind of water		
253-262	<input checked="" type="checkbox"/> Fresh <input type="checkbox"/> Salty	<input type="checkbox"/> Sulphur <input type="checkbox"/> Minerals <input type="checkbox"/> Gas	
15-18	<input type="checkbox"/> Fresh <input type="checkbox"/> Salty	<input type="checkbox"/> Sulphur <input type="checkbox"/> Minerals <input type="checkbox"/> Gas	
20-23	<input type="checkbox"/> Fresh <input type="checkbox"/> Salty	<input type="checkbox"/> Sulphur <input type="checkbox"/> Minerals <input type="checkbox"/> Gas	
25-28	<input type="checkbox"/> Fresh <input type="checkbox"/> Salty	<input type="checkbox"/> Sulphur <input type="checkbox"/> Minerals <input type="checkbox"/> Gas	
30-33	<input type="checkbox"/> Fresh <input type="checkbox"/> Salty	<input type="checkbox"/> Sulphur <input type="checkbox"/> Minerals <input type="checkbox"/> Gas	

51 CASING & OPEN HOLE RECORD				
Inside diam inches	Material	Wall thickness inches	Depth - feet	
			From	To
6 1/2	<input checked="" type="checkbox"/> Steel <input type="checkbox"/> Galvanized <input type="checkbox"/> Concrete <input type="checkbox"/> Open hole <input type="checkbox"/> Plastic	188	+1	253
6	<input type="checkbox"/> Steel <input type="checkbox"/> Galvanized <input type="checkbox"/> Concrete <input checked="" type="checkbox"/> Open hole <input type="checkbox"/> Plastic		253	262
24-25	<input type="checkbox"/> Steel <input type="checkbox"/> Galvanized <input type="checkbox"/> Concrete <input type="checkbox"/> Open hole <input type="checkbox"/> Plastic			27-30

SCREEN	Sizes of opening (Slot No.)	Diameter	Length
		inches	feet
	Material and type	Depth at top of screen	
		feet	

61 PLUGGING & SEALING RECORD			
<input checked="" type="checkbox"/> Annular space		<input type="checkbox"/> Abandonment	
Depth set at - feet		Material and type (Cement grout, bentonite, etc.)	
From	To		
10-13	14-17		
18-21	22-25		
26-29	30-33	0	20
Benseal			

71 PUMPING TEST			
Pumping test method	Pumping rate	Duration of pumping	
<input type="checkbox"/> Pump <input checked="" type="checkbox"/> AIR	50 GPM	2	Hours
Static level	Water level end of pumping	Water levels during	
60 feet	195 feet	15 minutes	30 minutes
		45 minutes	60 minutes
If flowing give rate	Pump intake set at	Water at end of test	
		<input checked="" type="checkbox"/> Clear <input type="checkbox"/> Cloudy	
Recommended pump type	Recommended pump setting	Recommended pump rate	
<input type="checkbox"/> Shallow <input checked="" type="checkbox"/> Deep	100 feet	10 GPM	



FINAL STATUS OF WELL			
<input checked="" type="checkbox"/> Water supply	<input type="checkbox"/> Abandoned, insufficient supply	<input type="checkbox"/> Unfinished	
<input type="checkbox"/> Observation well	<input type="checkbox"/> Abandoned, poor quality	<input type="checkbox"/> Replacement well	
<input type="checkbox"/> Test hole	<input type="checkbox"/> Abandoned (Other)		
<input type="checkbox"/> Recharge well	<input type="checkbox"/> Dewatering		

WATER USE			
<input checked="" type="checkbox"/> Domestic	<input type="checkbox"/> Commercial	<input type="checkbox"/> Not used	
<input type="checkbox"/> Stock	<input type="checkbox"/> Municipal	<input type="checkbox"/> Other	
<input type="checkbox"/> Irrigation	<input type="checkbox"/> Public supply		
<input type="checkbox"/> Industrial	<input type="checkbox"/> Cooling & air conditioning		

METHOD OF CONSTRUCTION			
<input type="checkbox"/> Cable tool	<input type="checkbox"/> Air percussion	<input type="checkbox"/> Driving	
<input checked="" type="checkbox"/> Rotary (conventional)	<input type="checkbox"/> Boring	<input type="checkbox"/> Digging	
<input type="checkbox"/> Rotary (reverse)	<input type="checkbox"/> Diamond	<input type="checkbox"/> Other	
<input type="checkbox"/> Rotary (air)	<input type="checkbox"/> Jetting		

Name of Well Contractor Roger Roadway Ent., Ltd.	Well Contractor's Licence No. 1413
Address Box 397 Sutton West, ON L0E 1R0	
Name of Well Technician Phil Brown	Well Technician's Licence No. T0035
Signature of Technician/Contractor <i>Roger Roadway</i>	Submission date 19 10 98

MINISTRY USE ONLY	Data source	Contractor	Date received
		1413	NOV 06 1998
	Date of inspection	Inspector	
Remarks			CSS. ES9

BBP

Water Well Survey

AECOM

Well I.D. #: _____ AECOM Project No.: 60636190
 MECP WWR #: 6924697 Client Project No.: _____

Well Owner Information:

Property Owner Name:	BRUCE & PAT NEWLAND		
Property Address:	21145 LESLIE ST., QUEENSVILLE LOGIRO		
Telephone:	905-952-9226	Email:	newlandbruce97@gmail.com
Name of Person Completing Survey:	PAT + BRUCE NEWLAND <i>paper copy</i>		
Telephone:	905-952-9226	Email:	as above
Relationship to Property Owner:	SELVES	Date of Survey Completion:	SEPT. 7/21
Name of Original Well Owner: <i>(if known/different from above)</i>	CHARLES WADDELL		

Occupant of Property Served by Well: *(if other than Owner)*

Name:	/			
Telephone:				Email:
Address:				

Well Location:

Lot:	PT.25	Concession:	3	Township:	EAST GWILLIMBURY
------	-------	-------------	---	-----------	------------------

Well Construction Details:

Well Record Available?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Date Well Constructed:	OCT. 19 / 98	Well Contractor Name:	ROGER BORDWAY
Well Type: <i>(Drilled / Bored / Dug)</i>	DRILLED	Casing Material: <i>(Steel, Concrete, etc.)</i>	STEEL	Well Casing Diameter:	6 1/4"
Well Stick Up: <i>(Above Ground)</i>	12"	Well Depth: <i>(Below Ground)</i>	262 FT.	Water Level: <i>(Below Ground)</i>	
Is Well Located in a Well Pit?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Well Pit Depth: <i>(Below Ground)</i>	—	Well Stick Up: <i>(Above Pit Bottom)</i>	—
Is Well Flowing?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Flow Rate:		Contractor:	
Well Cap Type:	ROYER	Does Cap Create a Good Seal?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is Wire Conduit Tight to Well Cap?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Is the Well:	Accessible for Direct Sampling?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	OR	Buried, In a Well Pit, or Other Confined Space?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Well Screen Installed?	<input type="checkbox"/> Yes <input type="checkbox"/> No	If Yes, Length & Slot Size:		Depth of Top of Screen: <i>(Below Ground)</i>	

Water Well Survey

AECOM

Well I.D. #: _____ AECOM Project No.: 60636190
 MECP WWR #: 0924647 Client Project No.: _____


Pumping Equipment:

Pump Type:	<input type="checkbox"/> Jet Pump <input checked="" type="checkbox"/> Submersible <input type="checkbox"/> Piston Pump <input type="checkbox"/> Other (please describe):				
Pump Horsepower:		Pump Age:	<u>23 yrs</u>	Pumping Capacity:	
Pump Intake Depth: (Below Ground)		Pump Location: (If Not in Well)		Pumping Rate: (If Known)	
Pressure Tank:	Type:	<u>SCA 120-J</u>		Capacity:	<u>50 US GAL.</u>
Water Treatment: (if present)	<input type="checkbox"/> Chlorinator <input checked="" type="checkbox"/> Water Softener <input checked="" type="checkbox"/> Water Filter (indicate type) <u>SEDIMENT</u> <input checked="" type="checkbox"/> U.V. <input type="checkbox"/> R.O. <input type="checkbox"/> Other (please describe): _____				

Well Usage:

Primary Use(s):	Domestic:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Livestock:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Lawn Watering:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
# of Persons Using Well:	<u>2</u>	#of Livestock Watered:		Other Uses:		Daily Amount: (if known)
Indoor Plumbing Fixtures: (Washroom(s), Shower(s), Dishwasher, Laundry, Pool, Spa, etc.)			<u>3 w/r</u> <u>1 SHOWER</u> <u>1 DISH/W</u> <u>1 LAUNDRY</u>			

Sewage Servicing:

Private Sewage System or Municipal:	<u>PRIVATE</u>	System Type: (septic tank, etc.)	<u>SEPTIC</u>	Distance from Well:	<u>110 FT ±</u>
Well Location:	<input checked="" type="checkbox"/> Uphill <input type="checkbox"/> Downhill <input type="checkbox"/> Same Grade				
Presence of Any Above Ground Storage Tank or Other Potential Source(s) of Contamination: (including distance on / off property)					

Previous Concerns:

How Long Have You Owned, Resided, or Operated a Business on this Property?	<u>18 YEARS</u>		
Have You Experienced Any Previous Concerns with Your Well Supply? (Quantity or Quality)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If Yes, When?	
Cause(s) of the Previous Concern?	<input type="checkbox"/> Drought <input type="checkbox"/> Pump Failure <input type="checkbox"/> Plugging <input type="checkbox"/> Increased Usage <input type="checkbox"/> Interference <input type="checkbox"/> Contamination <input type="checkbox"/> Other (Please describe): _____		

Water Well Survey

AECOM

Well I.D. #: _____ AECOM Project No.: 60636190
 MECP WWR #: 6924697 Client Project No.: _____

Well Modification / Maintenance:

Has Your Well Ever Been...	Deepened?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Cleaned?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Reconstructed or Replaced?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
If Yes to Any of the Above, Please Provide Details:						

Other Details:

Other Details that May be Relevant to Assessing the Current Condition of Your Well Supply:

*CONSTRUCTION OF BRADFORD BYPASS!
 Could affect underground water supply!*

Property Owner Participation in Monitoring Program:

Does the Property Owner and/or Occupant Grant Permission for MTO/AECOM to Monitor and/or Sample Your Well? Yes No

BRUCE NEWLAND
PAT NEWLAND
 Property Owner / Occupant Name
 (Please Print in BLOCK letters)

[Signature]
Pat Newland
 Signature

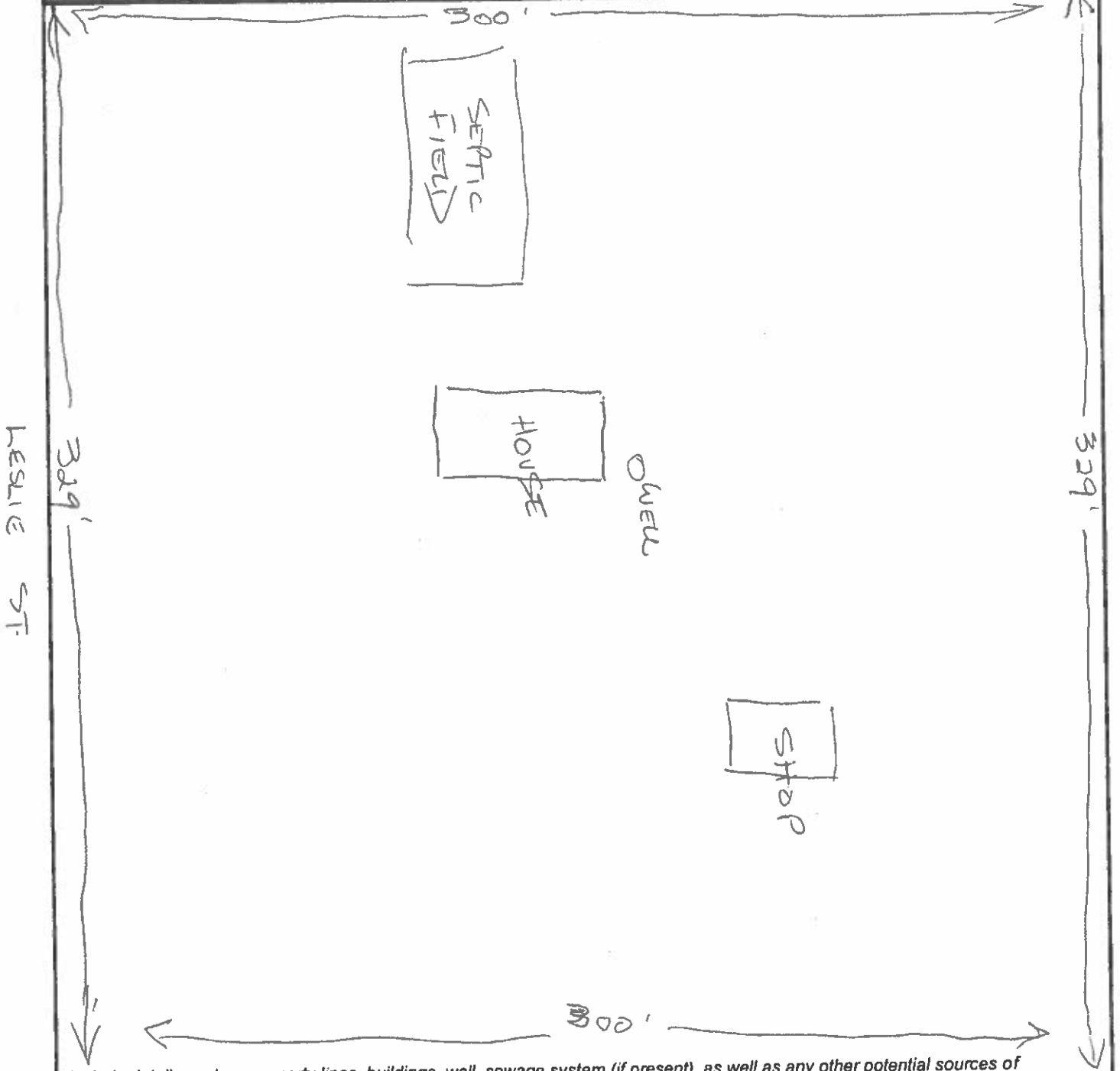
Sept. 7/21
 Date

Water Well Survey

AECOM

Well I.D. #: _____ AECOM Project No.: 60636190
MECP WWR #: 69246617 Client Project No.: _____

Location Sketch (To be Completed by Property Owner / Occupant)



Include details such as property lines, buildings, well, sewage system (if present), as well as any other potential sources of contamination (e.g., tanks, banyards, chemical/manure storage, etc.).

Water Well Survey

AECOM

Well I.D. #: _____ AECOM Project No.: 60636190
 MECP WWR #: 6924647 Client Project No.: _____

Field Visit Log (To Be Completed by AECOM Staff)

General Details:

Project Name:	<u>BBP - Well Survey</u>		Project No.:	<u>60636190</u>	
Address:	<u>21145 Leslie Street</u>		Inspected By:	<u>Holden / Borrmann</u>	
Date:	<u>Oct. 7/21</u>	Time:	<u>14:00 - 14:45</u>	Weather:	<u>Cloudy</u>
Easting:	<u>023649</u>	Northing:	<u>4890197</u>	Datum:	<u>17T</u>

Well Details:

Is Well Accessible for Inspection?		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If No, Provide Reason:		
MECP Water Well Record No.:	<u>6924647</u>	Date Well Constructed:	<u>Oct. 19/98</u>	Contractor Name:	<u>Roger Broadway</u>
Well Type: (Drilled / Bored / Dug)	<u>Drilled</u>	Well Stick Up: (Above Ground)	<u>0.32m</u>	Casing Material: (Steel, Concrete, etc.)	<u>Steel</u>
Well Located in a Well Pit?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Well Pit Depth: (Below Ground)	<u>262 ft</u>	Well Stick Up: (Above Pit Bottom)	<u>—</u>
Well Casing Diameter:	<u>6"</u>	Well Depth: (Below Ground)	<u>26</u>	Groundwater Level: (Below Ground)	<u>—</u>
Pump On / Off?	<input checked="" type="checkbox"/> On <input type="checkbox"/> Off	Water Level Condition:	<input checked="" type="checkbox"/> Stable (Static) <input type="checkbox"/> Declining (Drawdown) <input type="checkbox"/> Rising (Recovery)		
Flowing Well?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Flow Rate: (Estimated)	<u>10 GPM</u>	Well Cap Type:	<u>Belt</u>
Well Screen Installed?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If Yes, Length & Slot Size:	<u>—</u>	Top of Screen: (Below Ground)	<u>253 ft</u>
Is There a Depression Around the Well Casing Exterior?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Photo(s) of Well Obtained?		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Observation(s) Summary:

<u>- Well lid is older style.</u>
<u>- Sample taken from tap near pressure tank</u>

Water Well Survey

AECOM

Well I.D. #: _____ AECOM Project No.: 6063@190
 MECP WWR #: 0924647 Client Project No.: _____

Water Quality Sampling:

Water Quality Sample Obtained?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If No, Provide Reason:	
Sampling Location:	<u>Preserve tank</u>	Raw or Treated Sample?	<u>Raw</u>
Disinfected Sample Port?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Disinfection Method:	<u>Alconex</u>
Photo of Sample Obtained? (against white background)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If No, Provide Reason:	

Analyte Suite:	<u>93179 + E. coli / Total Coliform</u>				
Sample I.D.:	<u>21145 Leslie</u>	Date / Time of Sampling:	<u>13:53</u>	Number of Sample Bottles:	<u>9</u>

Field Water Quality Parameters: (record units)					
Temperature:	<u>14.7</u>	pH:	<u>7.91</u>	Conductivity:	<u>0.48</u>
Turbidity:	<u>Turbid initially</u>	D.O.:	<u>-</u>	Colour:	<u>Cloudy</u>
Odours?	<u>None</u>	Appearance/Odour:	<u>Normal</u>		

Type of Concern: (if applicable)	<input checked="" type="checkbox"/> Water Quantity <input checked="" type="checkbox"/> Water Quality (Note any differences in taste, odour, colour or clarity)
If the concern was contamination what changes were apparent to water quality?	<u>Why? Better attractiveness</u> <u>- Don Road + 400'</u> <u>- Runoff to lake Simcoe</u> <u>- Noise / Odours from vehicle</u> <u>- Salt impacts</u> <u>- bypass is too far north.</u> <u>-</u>
Were there any effects of this concern?	
What action was taken to overcome this concern?	

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 105 Commerce Valley Drive West, 7th Floor
 Markham, ON L3T 7W3
 Canada

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 F: 905.538.8076
 www.aecom.com

Appendix **H**

Property ID #88 – 2374 Line 11

November 22th, 2021

Joe Rodrigues
2374 Line 11
Bradford, ON
L3Z 3M5

Project No: 60636190
Regarding: Pre-Construction Water Quality Testing Results
MTO Bradford Bypass Project

Dear Mr. Rodrigues,

AECOM Canada Ltd. (AECOM) would like to thank you for your participation in the Pre-Construction Well Assessment Program offered to local residents as part of the Bradford Bypass Project. Based on receipt of written permission from yourself, a sample of raw (untreated) groundwater from your private well was collected for laboratory analysis by AECOM staff on October 14th, 2021. Please find attached a copy of the water quality testing results for your review and record.

Laboratory testing results for the sample obtained indicate that concentrations of certain parameters, as shown in the table below, are in excess of the *Ontario Drinking Water Standards, Objectives and Guidelines* (Ontario Ministry of the Environment, 2006). It should be noted, however, that these results are based on a single sample analysis and that additional testing is recommended.

PARAMETER	CONCENTRATION IN YOUR WATER	STANDARD VALUE / RANGE	STANDARD TYPE	HEALTH RELATED (Y / N)
Total Coliforms	244 CFU/ 100mL	0 CFU/100mL	MAC	Y
Colour	15 TCU	5 TCU	AO	N
Hardness (as CaCO ₃)	269 mg/L	80 - 100 mg/L	OG	N

NOTE: MAC – Maximum Acceptable Concentration; AO – Aesthetic Objective; OG – Operational Guideline.

As you were informed via email on November 19th, 2021, following receipt of the water quality testing results, the presence of bacteriological parameters (Total Coliforms) in your drinking water may represent an immediate health concern. It is recommended that you discuss this exceedance with your Local Public Health Unit.

For your information, the *Well Aware Booklet – A Guide To Caring For Your Well* created by Green Communities Canada is available on the Walkerton Clean Water Centre (WCWC) website at:

<https://wcwc.ca/well-aware-and-well-wise-program-resources-for-homeowners/>

Should you have any questions or concerns regarding the quality of your well water, it is recommended that you contact your local Public Health Unit for further information and advice. Contact information for your Local Public Health Unit is provided, as follows:

Simcoe Muskoka District Health Unit
80 Bradford St. #403
Barrie, ON L4N 6S7
Website: <https://www.simcoemuskokahealth.org/>
Telephone: 705.721.7520

If you have any further questions, please contact:

AECOM Canada Ltd. C/O Brian Holden, P.Geo.
Hydrogeology, Environment
Telephone: 226-821-2486
Email: brian.holden@aecom.com

Sincerely,
AECOM Canada Ltd.



Brian Holden, P.Geo.
Hydrogeologist
DCS Americas, Canada East (Greater Ontario / Metro Toronto)
Environment
Brian.holden@aecom.com

Encl.

cc: R. Sheikh, N. Valenton, S. Rankin, S.Schmied – AECOM;
H. Singh, L. Sarris, J. MacKinnon, R. Gribbon – MTO



Water Well Survey

Groundwater Supply Well Location 2374 Line 11

Project Name: Bradford Bypass – BBP Expansion

Project#: 60636190

Residence Address:

2374 Line 11, Bradford, Ontario

Owner Information:

Owner Name: Joe Rodrigues

Phone Number: NA

Email: Joefariarodriguez@hotmail.com



Well Record

Coordinates (UTM).....614254E/4891173N
(NAD83 Zone17)

Type of Well..... Dug

Constructed (year).....August 1972

Well Location..... In the Front Yard, just to the
Left of the house.

Well Diameter.....0.914 m

Well Depth.....9.45 m

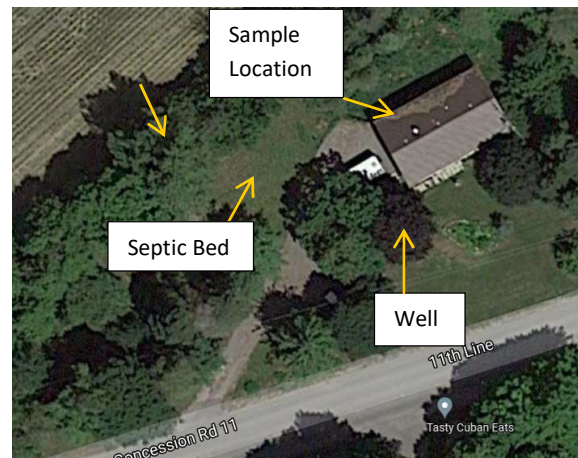
Casing Position.....0.457 m above ground;

Casing Condition.....Fair

Water Usage.....Residential

Water Source.....Overburden

Static Water Level.....8.83 m



Water Quality & Well Testing

Past Water Quality Problems..... Homeowner’s mother has noted a yellow tinge at time with the water

Potential Contamination Sources...None

Location of Septic Tank.....Downgrade in the back yard

Treatment System.....Water Softener, Chlorinator

Recent Test Results.....None

Water Sampled.....Yes (October 14, 2021)

Sample Source..... Basement Tap, next to pressure tank, softener cannot be bypassed.

Appearance.....Clear, no odour

Comments:

- *The well sampled is the residential well. Home was purchased less than a year ago. Currently undergoing significant renovations and homeowners are new to wells and septic tanks.*

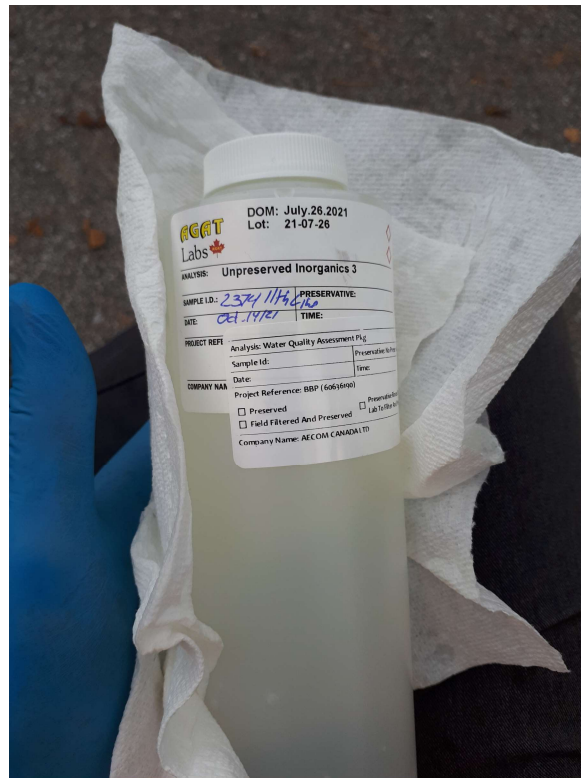
Quality Testing

Groundwater quality met the applicable standards for bacteriological, selected inorganic and metal parameters analyzed except for the following:

<i>Parameters</i>	<i>Test Results</i>	<i>Guideline/Standard</i>	<i>Criteria Type</i>
Total Coliforms	244 CFU / 100 ml	0 CFU / 100 ml	MAC
Colour	15 TCU	5 TCU	AO
Hardness (as CaCO ₃)	269 mg/L	80 – 100 mg/L	OG

Notes:

1. Criteria are from “Ontario Drinking Water Standards” (Ontario Regulation 169/03) and “Technical Support Document for Ontario Drinking Water Standards, Objectives and Guidelines” (MOE, June 2003, revised June 2006)
2. AO - Aesthetic Objectives (parameters that may impair the taste, odour or colour of water or which may interfere with good water quality)
3. MAC- Maximum Acceptable Concentration (health related)
4. OG - Operational Guideline (parameters which must be controlled for effective treatment)
5. NDOGT – No data; sample overgrown with target bacteria; over-crowding microbial growth
6. CFU – Colony forming units
7. **Bold** - test result exceeding guideline/standard.





**CLIENT NAME: AECOM CANADA LTD
50 SPORTSWORLD CROSSING RD UNIT 290
KITCHENER, ON N2P0A4
(519) 650-5313**

ATTENTION TO: Brian Holden

PROJECT: 60636190

AGAT WORK ORDER: 21T815956

MICROBIOLOGY ANALYSIS REVIEWED BY: Amanjot Bhela, Inorganic Lab Manager

WATER ANALYSIS REVIEWED BY: Yris Verastegui, Report Reviewer

DATE REPORTED: Oct 23, 2021

PAGES (INCLUDING COVER): 13

VERSION*: 1

Should you require any information regarding this analysis please contact your client services representative at (905) 712-5100

***Notes**

Disclaimer:

- All work conducted herein has been done using accepted standard protocols, and generally accepted practices and methods. AGAT test methods may incorporate modifications from the specified reference methods to improve performance.
- All samples will be disposed of within 30 days after receipt unless a Long Term Storage Agreement is signed and returned. Some specialty analysis may be exempt, please contact your Client Project Manager for details.
- AGAT's liability in connection with any delay, performance or non-performance of these services is only to the Client and does not extend to any other third party. Unless expressly agreed otherwise in writing, AGAT's liability is limited to the actual cost of the specific analysis or analyses included in the services.
- This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
- The test results reported herewith relate only to the samples as received by the laboratory.
- Application of guidelines is provided "as is" without warranty of any kind, either expressed or implied, including, but not limited to, warranties of merchantability, fitness for a particular purpose, or non-infringement. AGAT assumes no responsibility for any errors or omissions in the guidelines contained in this document.
- All reportable information as specified by ISO/IEC 17025:2017 is available from AGAT Laboratories upon request.



Certificate of Analysis

AGAT WORK ORDER: 21T815956

PROJECT: 60636190

5835 COOPERS AVENUE
 MISSISSAUGA, ONTARIO
 CANADA L4Z 1Y2
 TEL (905)712-5100
 FAX (905)712-5122
<http://www.agatlabs.com>

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Brian Holden

SAMPLING SITE:

SAMPLED BY:

Total Coliforms & E. Coli (Using MI Agar)

DATE RECEIVED: 2021-10-14

DATE REPORTED: 2021-10-23

SAMPLE DESCRIPTION: 2374 11th Line

SAMPLE TYPE: Water

DATE SAMPLED: 2021-10-14
 14:16

Parameter	Unit	G / S	RDL	3091523
Escherichia coli	CFU/100mL	100	1	ND
Total Coliforms	CFU/100mL		1	244

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to PWQO * Variable - refer to guideline reference document
 Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

3091523 If RDL >1 indicates dilutions of the sample.
 ND - Not Detected.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:

Anamjot Bhela




Certificate of Analysis

AGAT WORK ORDER: 21T815956

PROJECT: 60636190

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FAX (905)712-5122
<http://www.agatlabs.com>

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Brian Holden

SAMPLING SITE:

SAMPLED BY:

Water Quality Assessment - Dissolved Metals - PWQO (mg/L)

DATE RECEIVED: 2021-10-14

DATE REPORTED: 2021-10-23

SAMPLE DESCRIPTION: 2374 11th Line

SAMPLE TYPE: Water

DATE SAMPLED: 2021-10-14
14:16

3091523

Parameter	Unit	G / S	RDL	3091523
Electrical Conductivity	µS/cm		2	997
pH	pH Units	6.5-8.5	NA	8.04
Saturation pH (Calculated)				7.02
Langelier Index (Calculated)				1.02
Hardness (as CaCO3) (Calculated)	mg/L		0.5	269
Total Dissolved Solids	mg/L		10	534
Alkalinity (as CaCO3)	mg/L		5	277
Bicarbonate (as CaCO3)	mg/L		5	277
Carbonate (as CaCO3)	mg/L		5	<5
Hydroxide (as CaCO3)	mg/L		5	<5
Fluoride	mg/L		0.05	<0.05
Chloride	mg/L		0.12	145
Nitrate as N	mg/L		0.05	0.74
Nitrite as N	mg/L		0.05	<0.05
Bromide	mg/L		0.05	<0.05
Sulphate	mg/L		0.10	14.7
Ortho Phosphate as P	mg/L		0.10	<0.10
Ammonia as N	mg/L		0.02	<0.02
Ammonia-Un-ionized (Calculated)	mg/L	0.02	0.000002	<0.000002
Total Phosphorus	mg/L	*	0.02	<0.02
Total Organic Carbon	mg/L		0.5	53.4
True Colour	TCU		5	15
Turbidity	NTU		0.5	0.9
Dissolved Calcium	mg/L		0.25	75.1
Dissolved Magnesium	mg/L		0.25	19.8
Dissolved Potassium	mg/L		2.50	3.16
Dissolved Sodium	mg/L		0.25	88.3
Aluminum-dissolved	mg/L	*	0.004	<0.004
Dissolved Antimony	mg/L	0.020	0.001	<0.001

Certified By:

Jris Veraistegui



Certificate of Analysis

AGAT WORK ORDER: 21T815956

PROJECT: 60636190

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FAX (905)712-5122
<http://www.agatlabs.com>

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Brian Holden

SAMPLING SITE:

SAMPLED BY:

Water Quality Assessment - Dissolved Metals - PWQO (mg/L)

DATE RECEIVED: 2021-10-14

DATE REPORTED: 2021-10-23

SAMPLE DESCRIPTION: 2374 11th Line

SAMPLE TYPE: Water

DATE SAMPLED: 2021-10-14
14:16

3091523

Parameter	Unit	G / S	RDL	3091523
Dissolved Arsenic	mg/L	0.1	0.003	<0.003
Dissolved Barium	mg/L		0.002	0.039
Dissolved Beryllium	mg/L	*	0.0005	<0.0005
Dissolved Boron	mg/L	0.2	0.010	0.012
Dissolved Cadmium	mg/L	0.0002	0.0001	<0.0001
Dissolved Chromium	mg/L		0.003	<0.003
Dissolved Cobalt	mg/L	0.0009	0.0005	<0.0005
Dissolved Copper	mg/L	0.005	0.001	0.048
Dissolved Iron	mg/L	0.3	0.010	<0.010
Dissolved Lead	mg/L	*	0.001	0.002
Dissolved Manganese	mg/L		0.002	<0.002
Dissolved Mercury	mg/L	0.0002	0.0001	<0.0001
Dissolved Molybdenum	mg/L	0.040	0.002	<0.002
Dissolved Nickel	mg/L	0.025	0.003	<0.003
Dissolved Selenium	mg/L	0.1	0.004	<0.004
Dissolved Silver	mg/L	0.0001	0.0001	<0.0001
Dissolved Strontium	mg/L		0.005	0.165
Dissolved Thallium	mg/L	0.0003	0.0003	<0.0003
Dissolved Tin	mg/L		0.002	<0.002
Dissolved Titanium	mg/L		0.002	<0.002
Dissolved Tungsten	mg/L	0.030	0.010	<0.010
Dissolved Uranium	mg/L	0.005	0.002	<0.002
Dissolved Vanadium	mg/L	0.006	0.002	<0.002
Dissolved Zinc	mg/L	0.030	0.005	0.055
Dissolved Zirconium	mg/L	0.004	0.004	<0.004
Lab Filtration Aluminum Dissolved				2021/10/18
Lab Filtration mercury				2021/10/18
Lab Filtration Metals				2021/10/18

Certified By:

Jris Veraestegui



AGAT Laboratories

Certificate of Analysis

AGAT WORK ORDER: 21T815956

PROJECT: 60636190

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CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Brian Holden

SAMPLING SITE:

SAMPLED BY:

Water Quality Assessment - Dissolved Metals - PWQO (mg/L)

DATE RECEIVED: 2021-10-14

DATE REPORTED: 2021-10-23

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to PWQO * Variable - refer to guideline reference document
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

3091523 Metals analysis completed on a lab filtered sample.
Dilution required, RDL has been increased accordingly.
Un-ionized Ammonia detection limit is a calculated RDL. The calculation of Un-ionized Ammonia is based on lab measured parameters (ammonia as N, pH and temperature). Values are reported as calculated.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:



Exceedance Summary

AGAT WORK ORDER: 21T815956

PROJECT: 60636190

5835 COOPERS AVENUE
 MISSISSAUGA, ONTARIO
 CANADA L4Z 1Y2
 TEL (905)712-5100
 FAX (905)712-5122
<http://www.agatlabs.com>

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Brian Holden

SAMPLEID	SAMPLE TITLE	GUIDELINE	ANALYSIS PACKAGE	PARAMETER	UNIT	GUIDEVALUE	RESULT
3091523	2374 11th Line	ON PWQO	Water Quality Assessment - Dissolved Metals - PWQO (mg/L)	Dissolved Copper	mg/L	0.005	0.048
3091523	2374 11th Line	ON PWQO	Water Quality Assessment - Dissolved Metals - PWQO (mg/L)	Dissolved Zinc	mg/L	0.030	0.055

Quality Assurance

CLIENT NAME: AECOM CANADA LTD
PROJECT: 60636190
SAMPLING SITE:

AGAT WORK ORDER: 21T815956
ATTENTION TO: Brian Holden
SAMPLED BY:

Microbiology Analysis

RPT Date: Oct 23, 2021			DUPLICATE			Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD		Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper

Total Coliforms & E. Coli (Using MI Agar)

Escherichia coli	3091472	3091472	ND	ND	NA	< 1
Total Coliforms	3091472	3091472	116	114	1.7%	< 1

Comments: ND - Not Detected, NA - % RPD Not Applicable.

Certified By:




Quality Assurance

CLIENT NAME: AECOM CANADA LTD

AGAT WORK ORDER: 21T815956

PROJECT: 60636190

ATTENTION TO: Brian Holden

SAMPLING SITE:

SAMPLED BY:

Water Analysis																
RPT Date: Oct 23, 2021			DUPLICATE				Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Measured Value		Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits		
								Lower	Upper		Lower	Upper		Lower	Upper	

Water Quality Assessment - Dissolved Metals - PWQO (mg/L)

Electrical Conductivity	3090117		138	138	0.0%	< 2	97%	90%	110%						
pH	3090117		7.17	7.13	0.6%	NA	102%	90%	110%						
Total Dissolved Solids	3091472	3091472	520	524	0.8%	< 10	102%	80%	120%						
Alkalinity (as CaCO3)	3090117		64	62	3.2%	< 5	84%	80%	120%						
Bicarbonate (as CaCO3)	3090117		64	62	3.2%	< 5	NA								
Carbonate (as CaCO3)	3090117		<5	<5	NA	< 5	NA								
Hydroxide (as CaCO3)	3090117		<5	<5	NA	< 5	NA								
Fluoride	3091521	3091521	<0.05	<0.05	NA	< 0.05	94%	70%	130%	95%	80%	120%	112%	70%	130%
Chloride	3091521	3091521	54.3	54.3	0.0%	< 0.10	96%	70%	130%	104%	80%	120%	110%	70%	130%
Nitrate as N	3091521	3091521	4.07	4.16	2.2%	< 0.05	106%	70%	130%	106%	80%	120%	109%	70%	130%
Nitrite as N	3091521	3091521	<0.05	<0.05	NA	< 0.05	95%	70%	130%	101%	80%	120%	110%	70%	130%
Bromide	3091521	3091521	<0.05	<0.05	NA	< 0.05	107%	70%	130%	104%	80%	120%	102%	70%	130%
Sulphate	3091521	3091521	25.8	25.7	0.4%	< 0.10	99%	70%	130%	105%	80%	120%	108%	70%	130%
Ortho Phosphate as P	3091521	3091521	<0.10	<0.10	NA	< 0.10	105%	70%	130%	100%	80%	120%	94%	70%	130%
Ammonia as N	3087154		<0.02	<0.02	NA	< 0.02	115%	70%	130%	99%	80%	120%	96%	70%	130%
Total Phosphorus	3090116		0.02	0.03	NA	< 0.02	97%	70%	130%	97%	80%	120%	105%	70%	130%
Total Organic Carbon	3094303		47.1	47.2	0.2%	< 0.5	99%	90%	110%	98%	90%	110%	NA	80%	120%
True Colour	3090232		31	31	0.0%	< 5	106%	90%	110%						
Turbidity	3091472	3091472	<0.5	<0.5	NA	< 0.5	101%	80%	120%						
Dissolved Calcium	3095356		101	101	0.0%	< 0.05	95%	70%	130%	97%	80%	120%	98%	70%	130%
Dissolved Magnesium	3095356		12.2	12.2	0.0%	< 0.05	99%	70%	130%	101%	80%	120%	102%	70%	130%
Dissolved Potassium	3095356		0.83	0.89	NA	< 0.50	99%	70%	130%	100%	80%	120%	101%	70%	130%
Dissolved Sodium	3095356		2.75	2.72	1.1%	< 0.05	97%	70%	130%	96%	80%	120%	101%	70%	130%
Aluminum-dissolved	3091472	3091472	<0.004	<0.004	NA	< 0.004	104%	70%	130%	116%	80%	120%	119%	70%	130%
Dissolved Antimony	3091472	3091472	<0.001	<0.001	NA	< 0.001	102%	70%	130%	103%	80%	120%	107%	70%	130%
Dissolved Arsenic	3091472	3091472	<0.003	<0.003	NA	< 0.003	92%	70%	130%	103%	80%	120%	112%	70%	130%
Dissolved Barium	3091472	3091472	0.073	0.079	7.9%	< 0.002	100%	70%	130%	103%	80%	120%	104%	70%	130%
Dissolved Beryllium	3091472	3091472	<0.0005	<0.0005	NA	< 0.0005	97%	70%	130%	109%	80%	120%	115%	70%	130%
Dissolved Boron	3091472	3091472	0.036	0.038	NA	< 0.010	98%	70%	130%	106%	80%	120%	108%	70%	130%
Dissolved Cadmium	3091472	3091472	<0.0001	<0.0001	NA	< 0.0001	100%	70%	130%	106%	80%	120%	108%	70%	130%
Dissolved Chromium	3091472	3091472	<0.003	<0.003	NA	< 0.003	102%	70%	130%	105%	80%	120%	104%	70%	130%
Dissolved Cobalt	3091472	3091472	<0.0005	<0.0005	NA	< 0.0005	100%	70%	130%	107%	80%	120%	104%	70%	130%
Dissolved Copper	3091472	3091472	0.021	0.025	17.4%	< 0.001	99%	70%	130%	105%	80%	120%	104%	70%	130%
Dissolved Iron	3091472	3091472	0.012	<0.010	NA	< 0.010	101%	70%	130%	106%	80%	120%	101%	70%	130%
Dissolved Lead	3091472	3091472	<0.001	<0.001	NA	< 0.001	98%	70%	130%	104%	80%	120%	102%	70%	130%
Dissolved Manganese	3091472	3091472	<0.002	0.003	NA	< 0.002	96%	70%	130%	104%	80%	120%	102%	70%	130%
Dissolved Mercury	3095856		<0.0001	<0.0001	NA	< 0.0001	98%	70%	130%	100%	80%	120%	98%	70%	130%
Dissolved Molybdenum	3091472	3091472	<0.002	<0.002	NA	< 0.002	104%	70%	130%	105%	80%	120%	108%	70%	130%
Dissolved Nickel	3091472	3091472	<0.003	<0.003	NA	< 0.003	100%	70%	130%	106%	80%	120%	103%	70%	130%

Quality Assurance

CLIENT NAME: AECOM CANADA LTD
PROJECT: 60636190
SAMPLING SITE:

AGAT WORK ORDER: 21T815956
ATTENTION TO: Brian Holden
SAMPLED BY:

Water Analysis (Continued)

RPT Date: Oct 23, 2021			DUPLICATE				Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Measured Value		Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits		
								Lower	Upper		Lower	Upper		Lower	Upper	
Dissolved Selenium	3091472	3091472	<0.004	<0.004	NA	< 0.004	101%	70%	130%	108%	80%	120%	113%	70%	130%	
Dissolved Silver	3091472	3091472	<0.0001	<0.0001	NA	< 0.0001	99%	70%	130%	106%	80%	120%	104%	70%	130%	
Dissolved Strontium	3091472	3091472	0.249	0.253	1.6%	< 0.005	95%	70%	130%	101%	80%	120%	99%	70%	130%	
Dissolved Thallium	3091472	3091472	<0.0003	<0.0003	NA	< 0.0003	97%	70%	130%	103%	80%	120%	104%	70%	130%	
Dissolved Tin	3091472	3091472	<0.002	<0.002	NA	< 0.002	101%	70%	130%	103%	80%	120%	107%	70%	130%	
Dissolved Titanium	3091472	3091472	<0.002	<0.002	NA	< 0.002	100%	70%	130%	106%	80%	120%	105%	70%	130%	
Dissolved Tungsten	3091472	3091472	<0.010	<0.010	NA	< 0.010	96%	70%	130%	99%	80%	120%	101%	70%	130%	
Dissolved Uranium	3091472	3091472	<0.002	<0.002	NA	< 0.002	97%	70%	130%	106%	80%	120%	108%	70%	130%	
Dissolved Vanadium	3091472	3091472	<0.002	<0.002	NA	< 0.002	100%	70%	130%	104%	80%	120%	108%	70%	130%	
Dissolved Zinc	3091472	3091472	0.044	0.053	18.6%	< 0.005	100%	70%	130%	109%	80%	120%	107%	70%	130%	
Dissolved Zirconium	3091472	3091472	<0.004	<0.004	NA	< 0.004	100%	70%	130%	106%	80%	120%	108%	70%	130%	

Comments: NA signifies Not Applicable.
 If the RPD value is NA, the results of the duplicates are under 5X the RDL and will not be calculated.
 Matrix spike: Spike level < native concentration. Matrix spike acceptance limits do not apply.

Certified By:





Method Summary

CLIENT NAME: AECOM CANADA LTD

AGAT WORK ORDER: 21T815956

PROJECT: 60636190

ATTENTION TO: Brian Holden

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Microbiology Analysis			
Escherichia coli	MIC-93-7010	EPA 1604	Membrane Filtration
Total Coliforms	MIC-93-7010	EPA 1604	Membrane Filtration

Method Summary

CLIENT NAME: AECOM CANADA LTD
AGAT WORK ORDER: 21T815956
PROJECT: 60636190
ATTENTION TO: Brian Holden
SAMPLING SITE:
SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Water Analysis			
Electrical Conductivity	INOR-93-6000	modified from SM 2510 B	PC TITRATE
pH	INOR-93-6000	modified from SM 4500-H+ B	PC TITRATE
Saturation pH (Calculated)		SM 2320 B	CALCULATION
Langelier Index (Calculated)		SM 2330B	CALCULATION
Hardness (as CaCO ₃) (Calculated)	MET-93-6105	modified from EPA SW-846 6010C & 200.7 & SM 2340 B	CALCULATION
Total Dissolved Solids	INOR-93-6028	modified from EPA 1684, ON MOECC E3139, SM 2540C, D	BALANCE
Alkalinity (as CaCO ₃)	INOR-93-6000	Modified from SM 2320 B	PC TITRATE
Bicarbonate (as CaCO ₃)	INOR-93-6000	modified from SM 2320 B	PC TITRATE
Carbonate (as CaCO ₃)	INOR-93-6000	modified from SM 2320 B	PC TITRATE
Hydroxide (as CaCO ₃)	INOR-93-6000	modified from SM 2320 B	PC TITRATE
Fluoride	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Chloride	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Nitrate as N	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Nitrite as N	INOR-93-6004	SM 4110 B	ION CHROMATOGRAPH
Bromide	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Sulphate	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Ortho Phosphate as P	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Ammonia as N	INOR-93-6059	modified from SM 4500-NH ₃ H	LACHAT FIA
Ammonia-Un-ionized (Calculated)		MOE REFERENCE, PWQOs Tab 2	CALCULATION
Total Phosphorus	INOR-93-6022	modified from SM 4500-P B and SM 4500-P E	SPECTROPHOTOMETER
Total Organic Carbon	INOR-93-6049	modified from SM 5310 B	SHIMADZU CARBON ANALYZER
True Colour	INOR-93-6074	modified from SM 2120 B	LACHAT FIA
Turbidity	INOR-93-6044	modified from SM 2130 B	NEPHELOMETER
Dissolved Calcium	MET-93-6105	modified from EPA 6010D	ICP/OES
Dissolved Magnesium	MET-93-6105	modified from EPA 6010D	ICP/OES
Dissolved Potassium	MET-93-6105	modified from EPA 6010D	ICP/OES
Dissolved Sodium	MET-93-6105	modified from EPA 6010D	ICP/OES
Aluminum-dissolved	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Antimony	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Arsenic	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Barium	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Beryllium	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Boron	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Cadmium	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Chromium	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Cobalt	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Copper	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Iron	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS

Method Summary

CLIENT NAME: AECOM CANADA LTD
AGAT WORK ORDER: 21T815956
PROJECT: 60636190
ATTENTION TO: Brian Holden
SAMPLING SITE:
SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Dissolved Lead	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Manganese	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Mercury	MET-93-6100	modified from EPA 245.2 and SM 3112 B	CVAAS
Dissolved Molybdenum	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Nickel	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Selenium	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Silver	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Strontium	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Thallium	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Tin	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Titanium	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Tungsten	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Uranium	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Vanadium	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Zinc	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Zirconium	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Lab Filtration Aluminum Dissolved	SR-78-9001		FILTRATION
Lab Filtration mercury	SR-78-9001		FILTRATION
Lab Filtration Metals	SR-78-9001		FILTRATION



WATER WELL RECORD

#745

310/46

Water management in Ontario 1. PRINT ONLY IN SPACES PROVIDED
2. CHECK CORRECT BOX WHERE APPLICABLE

11
1 2

15709154

MUNICIP. 57004

CON. CAN

22 23 24

COUNTY OR DISTRICT SIMCOE	TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE WEST GWILLIMBURY	CON., BLOCK, TRACT, SURVEY, ETC. 11	LOT 016
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BONDHEAD, ONTARIO.

DATE COMPLETED 48-53
DAY **03** MO **08** YR **72**

90950 4 0875 16 22

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET	
				FROM	TO
	top soil			0	2
	sandy clay			2	28
	sand			28	31

31	0002 02	0028 0528	0031 28						
32									

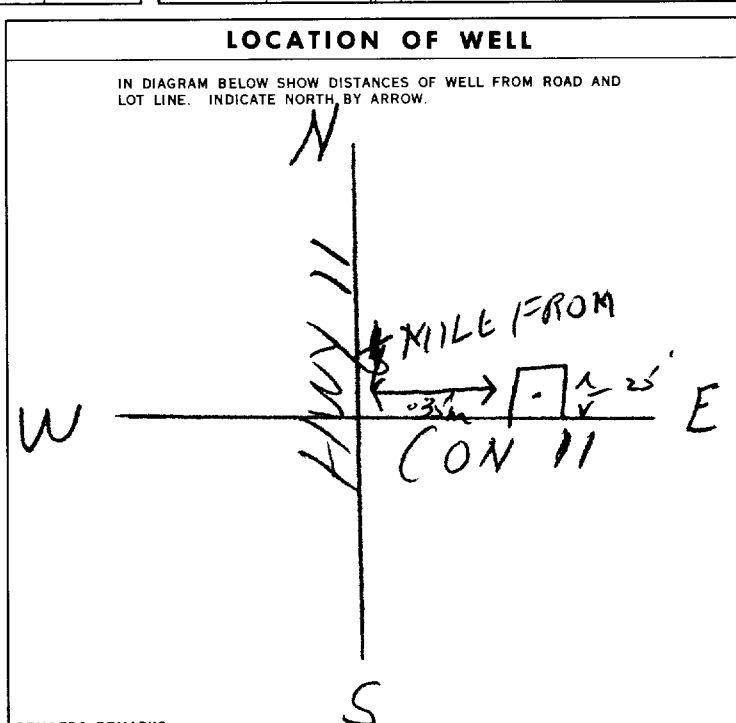
41 WATER RECORD			
WATER FOUND AT FEET	KIND OF WATER		
10-13	<input checked="" type="checkbox"/> FRESH <input type="checkbox"/> SALTY	3 <input type="checkbox"/> SULPHUR 4 <input type="checkbox"/> MINERAL	14
0029			
15-18	<input type="checkbox"/> FRESH <input type="checkbox"/> SALTY	3 <input type="checkbox"/> SULPHUR 4 <input type="checkbox"/> MINERAL	19
20-23	<input type="checkbox"/> FRESH <input type="checkbox"/> SALTY	3 <input type="checkbox"/> SULPHUR 4 <input type="checkbox"/> MINERAL	24
25-28	<input type="checkbox"/> FRESH <input type="checkbox"/> SALTY	3 <input type="checkbox"/> SULPHUR 4 <input type="checkbox"/> MINERAL	29
30-33	<input type="checkbox"/> FRESH <input type="checkbox"/> SALTY	3 <input type="checkbox"/> SULPHUR 4 <input type="checkbox"/> MINERAL	34-80

51 CASING & OPEN HOLE RECORD				
INSIDE DIAM. INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET	
			FROM	TO
10-11	<input type="checkbox"/> STEEL <input type="checkbox"/> GALVANIZED <input checked="" type="checkbox"/> CONCRETE <input type="checkbox"/> OPEN HOLE	12		13-16
30		3	0	0031 34
17-18	<input type="checkbox"/> STEEL <input type="checkbox"/> GALVANIZED <input type="checkbox"/> CONCRETE <input type="checkbox"/> OPEN HOLE	19		20-23
24-25	<input type="checkbox"/> STEEL <input type="checkbox"/> GALVANIZED <input type="checkbox"/> CONCRETE <input type="checkbox"/> OPEN HOLE	26		27-30

SCREEN	SIZE(S) OF OPENING (SLOT NO.)	DIAMETER		LENGTH
		INCHES	FEET	FEET
		31-33	34-38	39-40
MATERIAL AND TYPE			DEPTH TO TOP OF SCREEN	
			41-44	80

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	80

71 PUMPING TEST	PUMPING TEST METHOD		PUMPING RATE		DURATION OF PUMPING	
	1 <input type="checkbox"/> PUMP 2 <input type="checkbox"/> BAILER		GPM.		15-16 HOURS 17-18 MINS.	
	STATIC LEVEL		WATER LEVEL END OF PUMPING		WATER LEVELS DURING	
	19-21 FEET		22-24 FEET		15 MINUTES 26-28 FEET 30 MINUTES 29-31 FEET 45 MINUTES 32-34 FEET 60 MINUTES 35-37 FEET	
	022		9 ft over night			
	IF FLOWING, GIVE RATE		PUMP INTAKE SET AT		WATER AT END OF TEST	
GPM.		FEET		1 <input type="checkbox"/> CLEAR 2 <input type="checkbox"/> CLOUDY		
RECOMMENDED PUMP TYPE		RECOMMENDED PUMP SETTING		RECOMMENDED PUMPING RATE		
<input type="checkbox"/> SHALLOW <input checked="" type="checkbox"/> DEEP		029		0002		
50-53		GPM./FT. SPECIFIC CAPACITY				



FINAL STATUS OF WELL	54	
	<input checked="" type="checkbox"/> WATER SUPPLY <input type="checkbox"/> OBSERVATION WELL <input type="checkbox"/> TEST HOLE <input type="checkbox"/> RECHARGE WELL	5 <input type="checkbox"/> ABANDONED, INSUFFICIENT SUPPLY 6 <input type="checkbox"/> ABANDONED, POOR QUALITY 7 <input type="checkbox"/> UNFINISHED
WATER USE	55-56	
	<input checked="" type="checkbox"/> DOMESTIC <input type="checkbox"/> STOCK <input type="checkbox"/> IRRIGATION <input type="checkbox"/> INDUSTRIAL <input type="checkbox"/> OTHER	5 <input type="checkbox"/> COMMERCIAL 6 <input type="checkbox"/> MUNICIPAL 7 <input type="checkbox"/> PUBLIC SUPPLY 8 <input type="checkbox"/> COOLING OR AIR CONDITIONING 9 <input type="checkbox"/> NOT USED
METHOD OF DRILLING	57	
	<input type="checkbox"/> CABLE TOOL <input type="checkbox"/> ROTARY (CONVENTIONAL) <input type="checkbox"/> ROTARY (REVERSE) <input type="checkbox"/> ROTARY (AIR) <input type="checkbox"/> AIR PERCUSSION	<input checked="" type="checkbox"/> BORING <input type="checkbox"/> DIAMOND <input type="checkbox"/> JETTING <input type="checkbox"/> DRIVING

CONTRACTOR	NAME OF WELL CONTRACTOR		LICENCE NUMBER	
	J.F. KITCHING & SON LTD.		3109	
	ADDRESS			
	BOX 20, HOLLAND LANDING, ONT			
CONTRACTOR	NAME OF DRILLER OR BORER		LICENCE NUMBER	
	DIXIE DAVE DRAPER			
CONTRACTOR	SIGNATURE OF CONTRACTOR		SUBMISSION DATE	
	<i>[Signature]</i>		DAY 31 MO 8 YR 72	

OFFICE USE ONLY	DATA SOURCE		CONTRACTOR		DATE RECEIVED		63-68	
	1		3109		041072		80	
	DATE OF INSPECTION				INSPECTOR			
REMARKS:				J.B. CSS.SS PIAN				

Water Well Survey

CR4
AECOM

Well I.D. #: _____ AECOM Project No.: 60639190
MECP WWR #: 5709154 Client Project No.: _____

Well Owner Information:

Property Owner Name:	Joe Rodrigues		
Property Address:	2374 Line 11 Bradford, ON L3Z 3M5		
Telephone:		Email:	Joe.faria.rodrigues@hotmail.com
Name of Person Completing Survey:	Joe Rodrigues		
Telephone:		Email:	" "
Relationship to Property Owner:		Date of Survey Completion:	Sept. 11 / 2021
Name of Original Well Owner: (if known/different from above)	unknown		

Occupant of Property Served by Well: (if other than Owner)

Name:			
Telephone:		Email:	
Address:			

Well Location:

Lot:		Concession:		Township:	
------	--	-------------	--	-----------	--

Well Construction Details:

Well Record Available?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Date Well Constructed:	1970's	Well Contractor Name:	unknown
Well Type: (Drilled / Bored / Dug)	?	Casing Material: (Steel, Concrete, etc.)	?	Well Casing Diameter:	?
Well Stick Up: (Above Ground)	yes	Well Depth: (Below Ground)	?	Water Level: (Below Ground)	?
Is Well Located in a Well Pit?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Well Pit Depth: (Below Ground)	?	Well Stick Up: (Above Pit Bottom)	Yes?
Is Well Flowing?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Flow Rate:		Contractor:	
Well Cap Type:		Does Cap Create a Good Seal?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Is Wire Conduit Tight to Well Cap?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Is the Well:	Accessible for Direct Sampling?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	OR	Buried, in a Well Pit, or Other Confined Space?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Well Screen Installed?	<input type="checkbox"/> Yes <input type="checkbox"/> No	If Yes, Length & Slot Size:		Depth of Top of Screen: (Below Ground)	?

Water Well Survey

AECOM

Well I.D. #: _____ AECOM Project No.: 60636190
 MECP WWR #: 5709154 Client Project No.: _____

Pumping Equipment: A.O. Smith

Pump Type:	<input checked="" type="checkbox"/> Jet Pump <input type="checkbox"/> Submersible <input type="checkbox"/> Piston Pump <input type="checkbox"/> Other (please describe): <u>unknown</u>				
Pump Horsepower:	<u>1/2</u>	Pump Age:	<u>2005</u>	Pumping Capacity:	<u>10.8 / 15.4</u>
Pump Intake Depth: (Below Ground)		Pump Location: (If Not in Well)	<u>Basement</u>	Pumping Rate: (If Known)	<u>—</u>
Pressure Tank:	Type:	<u>Star Charge pneumatic</u>			Capacity:
Water Treatment: (if present)	<input checked="" type="checkbox"/> Chlorinator <input checked="" type="checkbox"/> Water Softener <input type="checkbox"/> Water Filter (indicate type) _____ <input type="checkbox"/> U.V. <input type="checkbox"/> R.O. <input type="checkbox"/> Other (please describe): _____				

Well Usage:

Primary Use(s):	Domestic:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Livestock:	<input type="checkbox"/> Yes <input type="checkbox"/> No	Lawn Watering:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
# of Persons Using Well:	<u>4</u>	# of Livestock Watered:		Other Uses:		Daily Amount: (if known)
Indoor Plumbing Fixtures: (Washroom(s), Shower(s), Dishwasher, Laundry, Pool, Spa, etc.)			<u>2 washrooms (1 shower)</u> <u>1 Dishwasher</u> <u>2 toilets</u> <u>Laundry</u>			

Sewage Servicing:

Private Sewage System or Municipal:	<u>Private</u>	System Type: (septic tank, etc.)	<u>tile bed</u>	Distance from Well:	<u>80ft</u>
Well Location:	<input checked="" type="checkbox"/> Uphill <input type="checkbox"/> Downhill <input type="checkbox"/> Same Grade				
Presence of Any Above Ground Storage Tank or Other Potential Source(s) of Contamination: (including distance on / off property)					

Previous Concerns:

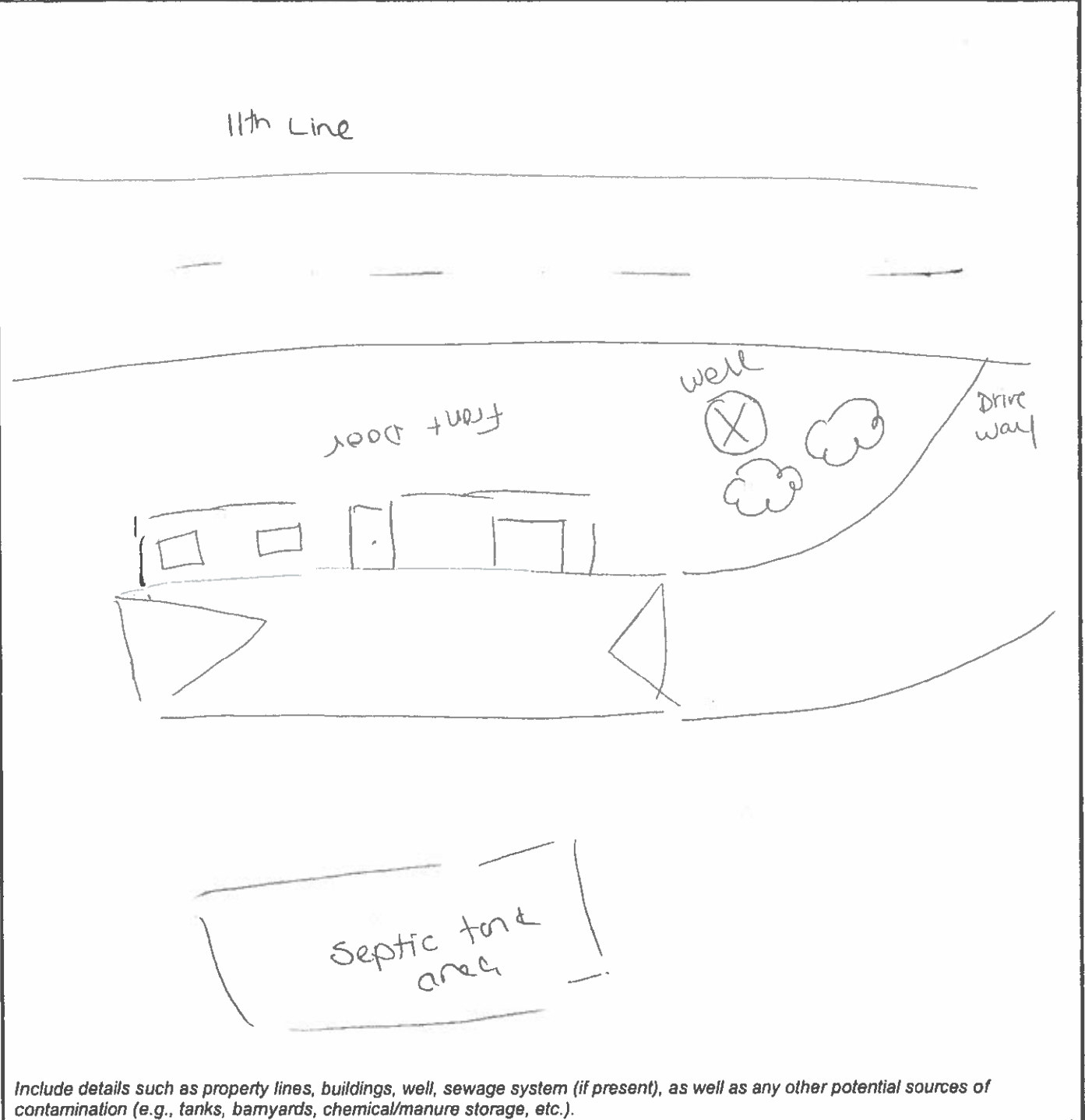
How Long Have You Owned, Resided, or Operated a Business on this Property?			
Have You Experienced Any <u>Previous</u> Concerns with Your Well Supply? (Quantity or Quality)	<input type="checkbox"/> Yes <input type="checkbox"/> No	If Yes, When?	
Cause(s) of the Previous Concern?	<input type="checkbox"/> Drought <input type="checkbox"/> Pump Failure <input type="checkbox"/> Plugging <input type="checkbox"/> Increased Usage <input type="checkbox"/> Interference <input type="checkbox"/> Contamination <input type="checkbox"/> Other (Please describe): _____		

Water Well Survey

AECOM

Well I.D. #: _____ AECOM Project No.: 00636190
MECP WWR #: S709154 Client Project No.: _____

Location Sketch (To be Completed by Property Owner / Occupant)



Include details such as property lines, buildings, well, sewage system (if present), as well as any other potential sources of contamination (e.g., tanks, barnyards, chemical/manure storage, etc.).

Water Well Survey

AECOM

Well I.D. #: _____ AECOM Project No.: 60636190
 MECP WWR #: 5709154 Client Project No.: _____

Well Modification / Maintenance:

Has Your Well Ever Been...	Deepened? <input type="checkbox"/> Yes <input type="checkbox"/> No	Cleaned? <input type="checkbox"/> Yes <input type="checkbox"/> No	Reconstructed or Replaced? <input type="checkbox"/> Yes <input type="checkbox"/> No
If Yes to Any of the Above, Please Provide Details:			

Other Details:

Other Details that May be Relevant to Assessing the Current Condition of Your Well Supply:

Home was purchased less than a year ago from 2nd owner. We are under renovations and are new to wells + septic tanks. Please feel free to come onto property for the environmental assessment.

Thanks

Property Owner Participation in Monitoring Program:

Via Phone. [Signature]

Does the Property Owner and/or Occupant Grant Permission for MTO/AECOM to Monitor and/or Sample Your Well?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
---	---

 Property Owner / Occupant Name (Please Print in BLOCK letters) Signature Date

Water Well Survey

AECOM

Well I.D. #: _____ AECOM Project No.: 60636190
 MECP WWR #: 5709154 Client Project No.: _____

Field Visit Log (To Be Completed by AECOM Staff)

General Details:

Project Name:	<u>BBP - Well Survey</u>		Project No.:	<u>60636190</u>	
Address:	<u>2374 Line 11</u>		Inspected By:	<u>Holden / Mudrak</u>	
Date:	<u>October 14, 2021</u>	Time:	<u>14:00 - 14:40</u>	Weather:	<u>Cloudy</u>
Easting:	<u>614304</u>	Northing:	<u>4891202</u>	Datum:	<u>17T</u>

Well Details:

Is Well Accessible for Inspection?		<input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If No, Provide Reason: <u>Decorative Cover</u>		
MECP Water Well Record No.:	<u>318172</u>	Date Well Constructed:	<u>5709154</u>	Contractor Name:	<u>JF HITCHING</u>
Well Type: (Drilled / Bored / Dug)	<u>Dug</u>	Well Stick Up: (Above Ground)	<u>18"</u>	Casing Material: (Steel, Concrete, etc.)	<u>Concrete</u>
Well Located in a Well Pit?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Well Pit Depth: (Below Ground)	<u>31 ft</u>	Well Stick Up: (Above Pit Bottom)	<u>-</u>
Well Casing Diameter:	<u>3 ft</u>	Well Depth: (Below Ground)		Groundwater Level: (Below Ground)	<u>29 ft</u>
Pump On / Off?	<input checked="" type="checkbox"/> On <input type="checkbox"/> Off	Water Level Condition:	<input type="checkbox"/> Stable (Static) <input checked="" type="checkbox"/> Declining (Drawdown) <input type="checkbox"/> Rising (Recovery)		
Flowing Well?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Flow Rate: (Estimated)	<u>2 GPM</u>	Well Cap Type:	<u>Concrete</u>
Well Screen Installed?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If Yes, Length & Slot Size:	<u>2</u>	Top of Screen: (Below Ground)	<u>-</u>
Is There a Depression Around the Well Casing Exterior?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Photo(s) of Well Obtained?		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Observation(s) Summary:

Homeowner unsure of septic location
Mother of homeowner says yellowish tinge in bathroom tap

Water Well Survey

AECOM

Well I.D. #: _____ AECOM Project No.: 60636190
 MECP WWR #: 5709154 Client Project No.: _____

Water Quality Sampling:

Water Quality Sample Obtained?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If No, Provide Reason:	
Sampling Location:	<u>Basin</u>	Raw or Treated Sample?	<u>Sattered, no raw option</u>
Disinfected Sample Port?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Disinfection Method:	<u>bleach mix</u>
Photo of Sample Obtained? (against white background)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If No, Provide Reason:	

Analyte Suite:	<u>93179 + E.coli / Total Coliform</u>				
Sample I.D.:	<u>2374 Linell</u>	Date / Time of Sampling:	<u>oct 14 14:16</u>	Number of Sample Bottles:	<u>9</u>

Field Water Quality Parameters: (record units)					
Temperature:	<u>16.6°C</u>	pH:	<u>7.62</u>	Conductivity:	<u>971</u>
Turbidity:	<u>—</u>	D.O.:	<u>—</u>	Colour:	<u>clear</u>
Odours?	<u>None</u>	Appearance/Odour: <u>Clear / odourless</u>			

Type of Concern: (if applicable)	<input checked="" type="checkbox"/> Water Quantity <input checked="" type="checkbox"/> Water Quality (Note any differences in taste, odour, colour or clarity)
If the concern was contamination what changes were apparent to water quality?	
Were there any effects of this concern?	
What action was taken to overcome this concern?	

AECOM Canada Ltd.
 105 Commerce Valley Drive West, 7th Floor
 Markham, ON L3T 7W3
 Canada

T: 905.886.7022
 F: 905.538.8076
 www.aecom.com

Appendix **I**

Property ID #94 – 2646 8th Line

November 22nd, 2021

Don & Dell Ann Monforton
2646 8 Line
Bradford, ON
L3Z 4G3

Project No: 60636190
Regarding: Pre-Construction Water Quality Testing Results
MTO Bradford Bypass Project

Dear Mr. and Ms. Monforton,

AECOM Canada Ltd. (AECOM) would like to thank you for your participation in the Pre-Construction Well Assessment Program offered to local residents as part of the Bradford Bypass Project. Based on receipt of written permission from yourself, a sample of raw (untreated) groundwater from your private well was collected for laboratory analysis by AECOM staff on October 7th, 2021. Please find attached a copy of the water quality testing results for your review and record.

Laboratory testing results for the sample obtained indicate that concentrations of certain parameters, as shown in the table below, are in excess of the *Ontario Drinking Water Standards, Objectives and Guidelines* (Ontario Ministry of the Environment, 2006). It should be noted, however, that these results are based on a single sample analysis and that additional testing is recommended.

PARAMETER	CONCENTRATION IN YOUR WATER	STANDARD VALUE / RANGE	STANDARD TYPE	HEALTH RELATED (Y / N)
Total Coliforms	400 CFU/ 100mL	0 CFU/100mL	MAC	Y
Nitrate	21.3 mg/L	10 mg/L	MAC	N
Hardness (as CaCO ₃)	346 mg/L	80 - 100 mg/L	OG	N

NOTE: MAC – Maximum Acceptable Concentration; AO – Aesthetic Objective; OG – Operational Guideline.

As discussed via telephone with Mr. Monforton on November 19th, 2021, following receipt of the water quality testing results, the presence of bacteriological parameters (Total Coliforms) in your drinking water may represent an immediate health concern. It is recommended that you discuss this exceedance with your Local Public Health Unit.

For your information, the *Well Aware Booklet – A Guide To Caring For Your Well* created by Green Communities Canada is available on the Walkerton Clean Water Centre (WCWC) website at:

<https://wcwc.ca/well-aware-and-well-wise-program-resources-for-homeowners/>

Should you have any questions or concerns regarding the quality of your well water, it is recommended that you contact your local Public Health Unit for further information and advice. Contact information for your Local Public Health Unit is provided, as follows:

Simcoe Muskoka District Health Unit
80 Bradford St. #403
Barrie, ON L4N 6S7
Website: <https://www.simcoemuskokahealth.org/>
Telephone: 705.721.7520

If you have any further questions, please contact:

AECOM Canada Ltd. C/O Brian Holden, P.Geo.
Hydrogeology, Environment
Telephone: 226-821-2486
Email: brian.holden@aecom.com

Sincerely,
AECOM Canada Ltd.



Brian Holden, P.Geo.
Hydrogeologist
DCS Americas, Canada East (Greater Ontario / Metro Toronto)
Environment
Brian.holden@aecom.com

Encl.

cc: R. Sheikh, N. Valenton, S. Rankin, S.Schmied – AECOM;
H. Singh, L. Sarris, J. MacKinnon, R. Gribbon – MTO



Water Well Survey

Groundwater Supply Well Location 2646 8 Line

Project Name: Bradford Bypass – BBP Expansion

Project#: 60636190

Residence Address:

2646 8 Line, Bradford, Ontario, L3Z 2A5

Owner Information:

Owner Name: Don Monforton

Phone Number: 905-868-5419

Email: donm@rogers.com

Well Record

Coordinates (UTM).....613795E/4886723N
(NAD83 Zone17)

Type of Well..... Dug

Constructed (year)..... 1973

Well Location..... In front of the house

Well Diameter.....0.98 m

Well Depth.....17.37 m

Casing Position.....0.14 m above ground;

Casing Condition.....Fair

Water Usage.....Residential

Water Source.....Overburden

Static Water Level.....15.24 m



Water Quality & Well Testing

Past Water Quality Problems..... None

Potential Contamination Sources... None

Location of Septic Tank..... 150' from well

Treatment System.....Water softener

Recent Test Results.....None

Water Sampled.....Yes (October 7, 2021)

Sample Source..... Main feeder tap in basement.

Appearance.....Clear, no odour

Comments:

- *Sampled from basement tap – no raw source outside*
- *Historical development of homes in the area has not affected the well*

Quality Testing

Groundwater quality met the applicable standards for bacteriological, selected inorganic and metal parameters analyzed except for the following:

<i>Parameters</i>	<i>Test Results</i>	<i>Guideline/Standard</i>	<i>Criteria Type</i>
Total Coliforms	400 CFU / 100 ml	0 CFU / 100 ml	MAC
Hardness (as CaCO ₃)	346 mg/L	80 – 100 mg/L	OG

Notes:

1. Criteria are from “Ontario Drinking Water Standards” (Ontario Regulation 169/03) and “Technical Support Document for Ontario Drinking Water Standards, Objectives and Guidelines” (MOE, June 2003, revised June 2006)
2. AO - Aesthetic Objectives (parameters that may impair the taste, odour or colour of water or which may interfere with good water quality)
3. MAC- Maximum Acceptable Concentration (health related)
4. OG - Operational Guideline (parameters which must be controlled for effective treatment)
5. NDOGT – No data; sample overgrown with target bacteria; over-crowding microbial growth
6. CFU – Colony forming units
7. **Bold** - test result exceeding guideline/standard.





**CLIENT NAME: AECOM CANADA LTD
50 SPORTSWORLD CROSSING RD UNIT 290
KITCHENER, ON N2P0A4
(519) 650-5313**

ATTENTION TO: Brian Holden

PROJECT: 60636110

AGAT WORK ORDER: 21T813002

MICROBIOLOGY ANALYSIS REVIEWED BY: Nivine Basily, Inorganics Report Writer

WATER ANALYSIS REVIEWED BY: Jacky Zhu, Spectroscopy Technician

DATE REPORTED: Oct 15, 2021

PAGES (INCLUDING COVER): 13

VERSION*: 1

Should you require any information regarding this analysis please contact your client services representative at (905) 712-5100

***Notes**

Disclaimer:

- All work conducted herein has been done using accepted standard protocols, and generally accepted practices and methods. AGAT test methods may incorporate modifications from the specified reference methods to improve performance.
- All samples will be disposed of within 30 days after receipt unless a Long Term Storage Agreement is signed and returned. Some specialty analysis may be exempt, please contact your Client Project Manager for details.
- AGAT's liability in connection with any delay, performance or non-performance of these services is only to the Client and does not extend to any other third party. Unless expressly agreed otherwise in writing, AGAT's liability is limited to the actual cost of the specific analysis or analyses included in the services.
- This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
- The test results reported herewith relate only to the samples as received by the laboratory.
- Application of guidelines is provided "as is" without warranty of any kind, either expressed or implied, including, but not limited to, warranties of merchantability, fitness for a particular purpose, or non-infringement. AGAT assumes no responsibility for any errors or omissions in the guidelines contained in this document.
- All reportable information as specified by ISO/IEC 17025:2017 is available from AGAT Laboratories upon request.



Certificate of Analysis

AGAT WORK ORDER: 21T813002

PROJECT: 60636110

5835 COOPERS AVENUE
MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
TEL (905)712-5100
FAX (905)712-5122
<http://www.agatlabs.com>

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Brian Holden

SAMPLING SITE:

SAMPLED BY:

Total Coliforms & E. Coli (Using MI Agar)

DATE RECEIVED: 2021-10-07

DATE REPORTED: 2021-10-15

SAMPLE DESCRIPTION: 2646 8 Line

SAMPLE TYPE: Water

DATE SAMPLED: 2021-10-07
10:10

Parameter	Unit	G / S	RDL	3067628
Escherichia coli	CFU/100mL	100	1	ND
Total Coliforms	CFU/100mL		100	400

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to PWQO * Variable - refer to guideline reference document
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

3067628 If RDL >1 indicates dilutions of the sample.
ND - Not Detected.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:



Ally Bass



Certificate of Analysis

AGAT WORK ORDER: 21T813002

PROJECT: 60636110

5835 COOPERS AVENUE
MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
TEL (905)712-5100
FAX (905)712-5122
<http://www.agatlabs.com>

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Brian Holden

SAMPLING SITE:

SAMPLED BY:

Water Quality Assessment - PWQO (mg/L)

DATE RECEIVED: 2021-10-07

DATE REPORTED: 2021-10-15

SAMPLE DESCRIPTION: 2646 8 Line

SAMPLE TYPE: Water

DATE SAMPLED: 2021-10-07
10:10

3067628

Parameter	Unit	G / S	RDL	3067628
Electrical Conductivity	µS/cm		2	721
pH	pH Units	6.5-8.5	NA	7.96
Saturation pH (Calculated)				6.92
Langelier Index (Calculated)				1.04
Hardness (as CaCO3) (Calculated)	mg/L		0.5	346
Total Dissolved Solids	mg/L		10	430
Alkalinity (as CaCO3)	mg/L		5	252
Bicarbonate (as CaCO3)	mg/L		5	252
Carbonate (as CaCO3)	mg/L		5	<5
Hydroxide (as CaCO3)	mg/L		5	<5
Fluoride	mg/L		0.05	<0.05
Chloride	mg/L		0.10	16.3
Nitrate as N	mg/L		0.05	21.3
Nitrite as N	mg/L		0.05	<0.05
Bromide	mg/L		0.05	<0.05
Sulphate	mg/L		0.10	15.9
Ortho Phosphate as P	mg/L		0.10	<0.10
Ammonia as N	mg/L		0.02	<0.02
Ammonia-Un-ionized (Calculated)	mg/L	0.02	0.000002	<0.000002
Total Phosphorus	mg/L	*	0.02	<0.02
Total Organic Carbon	mg/L		0.5	2.0
True Colour	TCU		5	<5
Turbidity	NTU		0.5	0.8
Total Calcium	mg/L		0.16	109
Total Magnesium	mg/L		0.17	17.9
Total Potassium	mg/L		0.58	2.71
Total Sodium	mg/L		0.22	16.9
Aluminum-dissolved	mg/L	*	0.004	0.005
Total Antimony	mg/L	0.020	0.001	<0.001

Certified By:





Certificate of Analysis

AGAT WORK ORDER: 21T813002

PROJECT: 60636110

5835 COOPERS AVENUE
MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
TEL (905)712-5100
FAX (905)712-5122
<http://www.agatlabs.com>

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Brian Holden

SAMPLING SITE:

SAMPLED BY:

Water Quality Assessment - PWQO (mg/L)

DATE RECEIVED: 2021-10-07

DATE REPORTED: 2021-10-15

SAMPLE DESCRIPTION: 2646 8 Line

SAMPLE TYPE: Water

DATE SAMPLED: 2021-10-07
10:10

3067628

Parameter	Unit	G / S	RDL	3067628
Total Arsenic	mg/L	0.1	0.003	<0.003
Total Barium	mg/L		0.002	0.065
Total Beryllium	mg/L	*	0.001	<0.001
Total Boron	mg/L	0.2	0.010	0.029
Total Cadmium	mg/L	0.0002	0.0001	<0.0001
Total Chromium	mg/L		0.003	<0.003
Total Cobalt	mg/L	0.0009	0.0005	<0.0005
Total Copper	mg/L	0.005	0.001	0.009
Total Iron	mg/L	0.3	0.010	0.048
Total Lead	mg/L	*	0.001	<0.001
Total Manganese	mg/L		0.002	<0.002
Dissolved Mercury	mg/L	0.0002	0.0001	<0.0001
Total Molybdenum	mg/L	0.040	0.002	<0.002
Total Nickel	mg/L	0.025	0.003	<0.003
Total Selenium	mg/L	0.1	0.002	<0.002
Total Silver	mg/L	0.0001	0.0001	<0.0001
Total Strontium	mg/L		0.005	0.261
Total Thallium	mg/L	0.0003	0.0003	<0.0003
Total Tin	mg/L		0.002	<0.002
Total Titanium	mg/L		0.010	<0.010
Total Tungsten	mg/L	0.030	0.010	<0.010
Total Uranium	mg/L	0.005	0.002	<0.002
Total Vanadium	mg/L	0.006	0.002	<0.002
Total Zinc	mg/L	0.030	0.020	0.020
Total Zirconium	mg/L	0.004	0.004	<0.004
Lab Filtration Aluminum Dissolved				2021/10/12
Lab Filtration mercury				2021/10/12

Certified By:





AGAT Laboratories

Certificate of Analysis

AGAT WORK ORDER: 21T813002

PROJECT: 60636110

5835 COOPERS AVENUE
MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
TEL (905)712-5100
FAX (905)712-5122
<http://www.agatlabs.com>

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Brian Holden

SAMPLING SITE:

SAMPLED BY:

Water Quality Assessment - PWQO (mg/L)

DATE RECEIVED: 2021-10-07

DATE REPORTED: 2021-10-15

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to PWQO * Variable - refer to guideline reference document
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

3067628 Dilution required, RDL has been increased accordingly.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:





Exceedance Summary

AGAT WORK ORDER: 21T813002

PROJECT: 60636110

5835 COOPERS AVENUE
MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
TEL (905)712-5100
FAX (905)712-5122
<http://www.agatlabs.com>

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Brian Holden

SAMPLEID	SAMPLE TITLE	GUIDELINE	ANALYSIS PACKAGE	PARAMETER	UNIT	GUIDEVALUE	RESULT
3067628	2646 8 Line	ON PWQO	Water Quality Assessment - PWQO (mg/L)	Total Copper	mg/L	0.005	0.009

Quality Assurance

CLIENT NAME: AECOM CANADA LTD
PROJECT: 60636110
SAMPLING SITE:

AGAT WORK ORDER: 21T813002
ATTENTION TO: Brian Holden
SAMPLED BY:

Microbiology Analysis

RPT Date: Oct 15, 2021			DUPLICATE			Method Blank	REFERENCE MATERIAL		METHOD BLANK SPIKE		MATRIX SPIKE				
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD		Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper

Total Coliforms & E. Coli (Using MI Agar)

Escherichia coli	3067628	3067628	ND	ND	NA	< 1
Total Coliforms	3067628	3067628	400	400	0.0%	< 1

Comments: ND - Not Detected, NA - % RPD Not Applicable.

Certified By:



Nivine Basily

Quality Assurance

CLIENT NAME: AECOM CANADA LTD
PROJECT: 60636110
SAMPLING SITE:
AGAT WORK ORDER: 21T813002
ATTENTION TO: Brian Holden
SAMPLED BY:

Water Analysis																
RPT Date: Oct 15, 2021			DUPLICATE				Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Measured Value		Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits		
								Lower	Upper		Lower	Upper		Lower	Upper	

Water Quality Assessment - PWQO (mg/L)															
Electrical Conductivity	3066943		558	559	0.2%	< 2	103%	90%	110%						
pH	3066943		7.69	7.78	1.2%	NA	101%	90%	110%						
Total Dissolved Solids	3067628	3067628	430	436	1.4%	< 10	100%	80%	120%						
Alkalinity (as CaCO3)	3066943		191	197	3.1%	< 5	85%	80%	120%						
Bicarbonate (as CaCO3)	3066943		191	197	3.1%	< 5									
Carbonate (as CaCO3)	3066943		<5	<5	NA	< 5									
Hydroxide (as CaCO3)	3066943		<5	<5	NA	< 5									
Fluoride	3080535		0.09	0.10	NA	< 0.05	95%	70%	130%	94%	80%	120%	101%	70%	130%
Chloride	3080535		6.53	6.55	0.3%	< 0.10	90%	70%	130%	97%	80%	120%	100%	70%	130%
Nitrate as N	3080535		0.52	0.51	1.9%	< 0.05	94%	70%	130%	102%	80%	120%	103%	70%	130%
Nitrite as N	3080535		<0.05	<0.05	NA	< 0.05	102%	70%	130%	100%	80%	120%	106%	70%	130%
Bromide	3080535		<0.05	<0.05	NA	< 0.05	97%	70%	130%	92%	80%	120%	90%	70%	130%
Sulphate	3080535		21.1	21.2	0.5%	< 0.10	92%	70%	130%	99%	80%	120%	99%	70%	130%
Ortho Phosphate as P	3080535		<0.10	<0.10	NA	< 0.10	94%	70%	130%	100%	80%	120%	102%	70%	130%
Ammonia as N	3067694		<0.02	<0.02	NA	< 0.02	105%	70%	130%	108%	80%	120%	99%	70%	130%
Total Phosphorus	3065782		0.04	0.05	NA	< 0.02	98%	70%	130%	97%	80%	120%	91%	70%	130%
Total Organic Carbon	3067628	3067628	2.0	2.0	NA	< 0.5	104%	90%	110%	99%	90%	110%	102%	80%	120%
True Colour	3068388		<5	<5	NA	< 5	97%	90%	110%						
Turbidity	3067628	3067628	0.8	0.8	NA	< 0.5	99%	80%	120%						
Total Calcium	3073029		20.9	20.3	2.9%	< 0.10	93%	70%	130%	97%	80%	120%	98%	70%	130%
Total Magnesium	3073029		3.15	3.20	1.6%	< 0.10	97%	70%	130%	99%	80%	120%	102%	70%	130%
Total Potassium	3073029		3.71	3.69	0.5%	< 0.50	95%	70%	130%	99%	80%	120%	101%	70%	130%
Total Sodium	3073029		24.3	23.3	4.2%	< 0.10	93%	70%	130%	96%	80%	120%	100%	70%	130%
Aluminum-dissolved	3069932		0.024	0.024	0.0%	< 0.004	108%	70%	130%	112%	80%	120%	104%	70%	130%
Total Antimony	3070856		<0.001	<0.001	NA	< 0.001	104%	70%	130%	106%	80%	120%	107%	70%	130%
Total Arsenic	3070856		0.004	0.003	NA	< 0.003	94%	70%	130%	109%	80%	120%	108%	70%	130%
Total Barium	3070856		0.055	0.057	3.6%	< 0.002	96%	70%	130%	103%	80%	120%	103%	70%	130%
Total Beryllium	3070856		<0.001	<0.001	NA	< 0.001	97%	70%	130%	105%	80%	120%	115%	70%	130%
Total Boron	3070856		0.206	0.206	0.0%	< 0.010	99%	70%	130%	105%	80%	120%	107%	70%	130%
Total Cadmium	3070856		<0.0001	<0.0001	NA	< 0.0001	104%	70%	130%	109%	80%	120%	127%	70%	130%
Total Chromium	3070856		<0.003	<0.003	NA	< 0.003	103%	70%	130%	110%	80%	120%	107%	70%	130%
Total Cobalt	3070856		<0.0005	0.0005	NA	< 0.0005	107%	70%	130%	113%	80%	120%	105%	70%	130%
Total Copper	3070856		0.002	0.002	NA	< 0.001	101%	70%	130%	110%	80%	120%	125%	70%	130%
Total Iron	3070856		0.219	0.241	9.6%	< 0.010	105%	70%	130%	110%	80%	120%	105%	70%	130%
Total Lead	3070856		<0.001	<0.001	NA	< 0.001	100%	70%	130%	108%	80%	120%	122%	70%	130%
Total Manganese	3070856		0.158	0.167	5.5%	< 0.002	101%	70%	130%	106%	80%	120%	108%	70%	130%
Dissolved Mercury	3080894		<0.0001	<0.0001	NA	< 0.0001	103%	70%	130%	98%	80%	120%	100%	70%	130%
Total Molybdenum	3070856		<0.002	<0.002	NA	< 0.002	106%	70%	130%	113%	80%	120%	110%	70%	130%
Total Nickel	3070856		0.006	0.007	NA	< 0.003	100%	70%	130%	108%	80%	120%	128%	70%	130%

Quality Assurance

CLIENT NAME: AECOM CANADA LTD

AGAT WORK ORDER: 21T813002

PROJECT: 60636110

ATTENTION TO: Brian Holden

SAMPLING SITE:

SAMPLED BY:

Water Analysis (Continued)

RPT Date: Oct 15, 2021			DUPLICATE				Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Measured Value		Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits		
								Lower	Upper		Lower	Upper		Lower	Upper	
Total Selenium	3070856		0.075	0.062	19.0%	< 0.002	101%	70%	130%	107%	80%	120%	116%	70%	130%	
Total Silver	3070856		<0.0001	<0.0001	NA	< 0.0001	102%	70%	130%	109%	80%	120%	122%	70%	130%	
Total Strontium	3070856		0.685	0.759	10.2%	< 0.005	105%	70%	130%	108%	80%	120%	104%	70%	130%	
Total Thallium	3070856		<0.0003	<0.0003	NA	< 0.0003	100%	70%	130%	110%	80%	120%	125%	70%	130%	
Total Tin	3070856		<0.002	<0.002	NA	< 0.002	99%	70%	130%	108%	80%	120%	124%	70%	130%	
Total Titanium	3070856		<0.010	<0.010	NA	< 0.010	97%	70%	130%	104%	80%	120%	128%	70%	130%	
Total Tungsten	3070856		<0.010	<0.010	NA	< 0.010	96%	70%	130%	99%	80%	120%	99%	70%	130%	
Total Uranium	3070856		<0.002	<0.002	NA	< 0.002	96%	70%	130%	105%	80%	120%	129%	70%	130%	
Total Vanadium	3070856		<0.002	<0.002	NA	< 0.002	102%	70%	130%	111%	80%	120%	109%	70%	130%	
Total Zinc	3070856		<0.020	<0.020	NA	< 0.020	106%	70%	130%	113%	80%	120%	116%	70%	130%	
Total Zirconium	3070856		<0.004	<0.004	NA	< 0.004	108%	70%	130%	111%	80%	120%	108%	70%	130%	

Comments: NA Signifies Not Applicable.

Duplicate NA: results are less than 5X the RDL and RPD will not be calculated.

Matrix spike: Spike level < native concentration. Matrix spike acceptance limits do not apply.

Certified By:


Method Summary

CLIENT NAME: AECOM CANADA LTD

AGAT WORK ORDER: 21T813002

PROJECT: 60636110

ATTENTION TO: Brian Holden

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Microbiology Analysis			
Escherichia coli	MIC-93-7010	EPA 1604	Membrane Filtration
Total Coliforms	MIC-93-7010	EPA 1604	Membrane Filtration

Method Summary

CLIENT NAME: AECOM CANADA LTD
AGAT WORK ORDER: 21T813002
PROJECT: 60636110
ATTENTION TO: Brian Holden
SAMPLING SITE:
SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Water Analysis			
Electrical Conductivity	INOR-93-6000	modified from SM 2510 B	PC TITRATE
pH	INOR-93-6000	modified from SM 4500-H+ B	PC TITRATE
Saturation pH (Calculated)		SM 2320 B	CALCULATION
Langelier Index (Calculated)		SM 2330B	CALCULATION
Hardness (as CaCO ₃) (Calculated)	MET-93-6105	modified from EPA SW-846 6010C & 200.7 & SM 2340 B	CALCULATION
Total Dissolved Solids	INOR-93-6028	modified from EPA 1684, ON MOECC E3139, SM 2540C, D	BALANCE
Alkalinity (as CaCO ₃)	INOR-93-6000	Modified from SM 2320 B	PC TITRATE
Bicarbonate (as CaCO ₃)	INOR-93-6000	modified from SM 2320 B	PC TITRATE
Carbonate (as CaCO ₃)	INOR-93-6000	modified from SM 2320 B	PC TITRATE
Hydroxide (as CaCO ₃)	INOR-93-6000	modified from SM 2320 B	PC TITRATE
Fluoride	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Chloride	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Nitrate as N	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Nitrite as N	INOR-93-6004	SM 4110 B	ION CHROMATOGRAPH
Bromide	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Sulphate	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Ortho Phosphate as P	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Ammonia as N	INOR-93-6059	modified from SM 4500-NH ₃ H	LACHAT FIA
Ammonia-Un-ionized (Calculated)		MOE REFERENCE, PWQOs Tab 2	CALCULATION
Total Phosphorus	INOR-93-6022	modified from SM 4500-P B and SM 4500-P E	SPECTROPHOTOMETER
Total Organic Carbon	INOR-93-6049	modified from SM 5310 B	SHIMADZU CARBON ANALYZER
True Colour	INOR-93-6074	modified from SM 2120 B	LACHAT FIA
Turbidity	INOR-93-6044	modified from SM 2130 B	NEPHELOMETER
Total Calcium	MET-93-6105	modified from EPA 6010D	ICP/OES
Total Magnesium	MET-93-6105	modified from EPA 6010D	ICP/OES
Total Potassium	MET-93-6105	modified from EPA 6010D	ICP/OES
Total Sodium	MET-93-6105	modified from EPA 6010D	ICP/OES
Aluminum-dissolved	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Total Antimony	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Arsenic	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Barium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Beryllium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Boron	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Cadmium	MET -93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Chromium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Cobalt	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Copper	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Iron	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS



Method Summary

CLIENT NAME: AECOM CANADA LTD

AGAT WORK ORDER: 21T813002

PROJECT: 60636110

ATTENTION TO: Brian Holden

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Total Lead	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Manganese	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Dissolved Mercury	MET-93-6100	modified from EPA 245.2 and SM 3112 B	CVAAS
Total Molybdenum	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Nickel	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Selenium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Silver	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Strontium	INOR-93-6003	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Thallium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Tin	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Titanium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Tungsten	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Uranium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Vanadium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Zinc	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Zirconium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Lab Filtration Aluminum Dissolved	SR-78-9001		FILTRATION
Lab Filtration mercury	SR-78-9001		FILTRATION

WATER WELL RECORD

31D/4e

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

11 5719105 57004 CON 08

COUNTY OR DISTRICT: SIMCOE TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE: WEST GULL CON. BLOCK, TRACT, SHREY, ETC.: 8 VILL LOT: 014

DATE COMPLETED: DAY 19 MO 11 YR 83

ELEVATION: 886.500 BASIN CODE: 5 0875 5 22

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET	
				FROM	TO
BROWN	TOP SOIL		HARD	0	1'
BROWN	CLAY		"	1'	20'
GREY	CLAY		"	20	50'
GREY	GRAVEL		HARD	50	57
ETH CON RD NTS					

JAN 07 1987

31 000100273 002060573 005020573 005721173

32

41 WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER
10-13	1 <input checked="" type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR
2 <input checked="" type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERAL	
15-16	1 <input checked="" type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR
2 <input checked="" type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERAL	
20-23	1 <input type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR
2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERAL	
25-28	1 <input type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR
2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERAL	
30-33	1 <input type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR
2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERAL	

51 CASING & OPEN HOLE RECORD

INSIDE DIAM INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET
10-11	1 <input type="checkbox"/> STEEL 12		13-16
2 <input type="checkbox"/> GALVANIZED			
3 <input type="checkbox"/> CONCRETE			
4 <input type="checkbox"/> OPEN HOLE			
17-18	1 <input type="checkbox"/> STEEL 19		20-23
2 <input checked="" type="checkbox"/> GALVANIZED			
3 <input type="checkbox"/> CONCRETE			
4 <input type="checkbox"/> OPEN HOLE			
24-25	1 <input type="checkbox"/> STEEL 26		27-30
2 <input type="checkbox"/> GALVANIZED			
3 <input type="checkbox"/> CONCRETE			
4 <input type="checkbox"/> OPEN HOLE			

SCREEN

SIZE OF OPENING (SLOT NO.)	DIAMETER	LENGTH
31-33	34-38	39-40
	INCHES	FEET
MATERIAL AND TYPE		DEPTH TO TOP OF SCREEN
		41-44
		FEET
		30

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	80

71 PUMPING TEST METHOD

1 PUMP 2 BAILER

PUMPING RATE: 00 GPM

DURATION OF PUMPING: 15-16 30 HOURS 17-18 30 MINS

STATIC LEVEL	WATER LEVEL END OF PUMPING	WATER LEVELS DURING			
19-21	22-24	15 MINUTES	30 MINUTES	45 MINUTES	60 MINUTES
020	050	049	048	047	046
FEET	FEET	FEET	FEET	FEET	FEET

IF FLOWING GIVE RATE: 050 GPM

PUMP INTAKE SET AT: 050 FEET

WATER AT END OF TEST: 1 CLEAR 2 CLOUDY

RECOMMENDED PUMP TYPE: SHALLOW DEEP

RECOMMENDED PUMP SETTING: 050 FEET

RECOMMENDED PUMP RATE: 0001 GPM

LOCATION OF WELL

IN DIAGRAM BELOW SHOW DISTANCES OF WELL FROM ROAD AND LOT LINE. INDICATE NORTH BY ARROW.

005 230

DRILLERS REMARKS

FINAL STATUS OF WELL 1

1 WATER SUPPLY 5 ABANDONED, INSUFFICIENT SUPPLY

2 OBSERVATION WELL 6 ABANDONED POOR QUALITY

3 TEST HOLE 7 UNFINISHED

4 RECHARGE WELL

WATER USE 01

1 DOMESTIC 5 COMMERCIAL

2 STOCK 6 MUNICIPAL

3 IRRIGATION 7 PUBLIC SUPPLY

4 INDUSTRIAL 8 COOLING OR AIR CONDITIONING

OTHER 9 NOT USED

METHOD OF DRILLING 6

1 CABLE TOOL 6 BORING

2 ROTARY (CONVENTIONAL) 7 DIAMOND

3 ROTARY (REVERSE) 8 JETTING

4 ROTARY (AIR) 9 DRIVING

5 AIR PERCUSSION

CONTRACTOR

NAME OF WELL CONTRACTOR: L.B. Small Rigging LICENCE NUMBER: 4919

ADDRESS: [Signature]

NAME OF DRILLER OR BORER: [Signature] LICENCE NUMBER: 4919

SIGNATURE OF CONTRACTOR: [Signature] SUBMISSION DATE: DAY _____ MO _____ YR _____

OFFICE USE ONLY

DATA SOURCE: 1 CONTRACTOR: 4919 DATE RECEIVED: 22 03 84

DATE OF INSPECTION: _____ INSPECTOR: _____

REMARKS: located only 11/85 PK

CSS.ES

CR4

Water Well Survey

AECOM

Well I.D. #: _____ AECOM Project No.: 60636190
 MECP WWR #: 5719105 Client Project No.: _____

Well Owner Information:

Property Owner Name:	DON VIKI ANN MONFORTON		
Property Address:	2646 SHINE BRADFORD ON.		
Telephone:		Email:	donm@rogers.com
Name of Person Completing Survey:	DON MONFORTON		
Telephone:	905-868-5719	Email:	
Relationship to Property Owner:	OWNER	Date of Survey Completion:	Sept. 7/21
Name of Original Well Owner: (if known/different from above)	DON MONFORTON		

Occupant of Property Served by Well: (if other than Owner)

Name:			
Telephone:		Email:	
Address:			

Well Location:

Lot:	14	Concession:	8	Township:	BRADFORD W.
------	----	-------------	---	-----------	-------------

Well Construction Details:

Well Record Available?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Date Well Constructed:	N/A	Well Contractor Name:	
Well Type: (Drilled / Bored / Dug)	DUG	Casing Material: (Steel, Concrete, etc.)	CONCRETE	Well Casing Diameter:	3'
Well Stick Up: (Above Ground)	YES	Well Depth: (Below Ground)		Water Level: (Below Ground)	30'
Is Well Located in a Well Pit?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Well Pit Depth: (Below Ground)	N/A	Well Stick Up: (Above Pit Bottom)	YES
Is Well Flowing?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Flow Rate:	N/A	Contractor:	
Well Cap Type:	CEMENT	Does Cap Create a Good Seal?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is Wire Conduit Tight to Well Cap?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Is the Well:	Accessible for Direct Sampling?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	OR	Buried, in a Well Pit, or Other Confined Space?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Well Screen Installed?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If Yes, Length & Slot Size:	N/A	Depth of Top of Screen: (Below Ground)	

Water Well Survey

AECOM

Well I.D. #: _____ AECOM Project No.: 60030190
 MECP WWR #: 5719105 Client Project No.: _____

Pumping Equipment:

Pump Type:	<input checked="" type="checkbox"/> Jet Pump <input type="checkbox"/> Submersible <input type="checkbox"/> Piston Pump <input type="checkbox"/> Other (please describe): _____				
Pump Horsepower:		Pump Age:	<u>NEW</u>	Pumping Capacity:	
Pump Intake Depth: (Below Ground)		Pump Location: (If Not in Well)	<u>IN HOUSE</u>	Pumping Rate: (If Known)	
Pressure Tank:	Type:				Capacity:
Water Treatment: (if present)	<input type="checkbox"/> Chlorinator <input checked="" type="checkbox"/> Water Softener <input type="checkbox"/> Water Filter (indicate type) _____ <input type="checkbox"/> U.V. <input type="checkbox"/> R.O. <input type="checkbox"/> Other (please describe): _____				

Well Usage:

Primary Use(s):	Domestic:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Livestock:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Lawn Watering:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
# of Persons Using Well:	<u>2</u>	#of Livestock Watered:		Other Uses:		Daily Amount: (if known)
Indoor Plumbing Fixtures: (Washroom(s), Shower(s), Dishwasher, Laundry, Rest Spa , etc.)			<u>190 years old home.</u>			

Sewage Servicing:

Private Sewage System or Municipal:	<u>Private</u>	System Type: (septic tank, etc.)	<u>YES / new bed 2021</u>	Distance from Well:	<u>150'</u>
Well Location:	<input type="checkbox"/> Uphill <input type="checkbox"/> Downhill <input checked="" type="checkbox"/> Same Grade				
Presence of Any Above Ground Storage Tank or Other Potential Source(s) of Contamination: (including distance on / off property)			<u>NO</u>		

Previous Concerns:

How Long Have You Owned, Resided, or Operated a Business on this Property?	<u>40 YR.</u>		
Have You Experienced Any Previous Concerns with Your Well Supply? (Quantity or Quality)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If Yes, When?	
Cause(s) of the Previous Concern?	<input type="checkbox"/> Drought <input type="checkbox"/> Pump Failure <input type="checkbox"/> Plugging <input type="checkbox"/> Increased Usage <input type="checkbox"/> Interference <input type="checkbox"/> Contamination <input type="checkbox"/> Other (Please describe): <u>NOISE</u>		

Water Well Survey

AECOM

Well I.D. #: _____ AECOM Project No.: 60636190
 MECP WWR #: 5719105 Client Project No.: _____

Field Visit Log (To Be Completed by AECOM Staff)

General Details:

Project Name:	<u>WATER WELL SURVEY</u>		Project No.:	<u>60636190</u>	
Address:	<u>2646 SHINE</u>		Inspected By:	<u>Holder / Borrmann</u>	
Date:	<u>4-7-21</u>	Time:	<u>3:42 PM</u>	Weather:	<u>Cloudy</u>
Easting:	<u>10-7-21</u> <u>613795</u>	Northing:	<u>10:00 - 10:30</u> <u>4886723</u>	Datum:	<u>17T</u>

Well Details:

Is Well Accessible for Inspection?		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		If No, Provide Reason:	
MECP Water Well Record No.:	<u>Y</u>	Date Well Constructed:	<u>11/19/1973</u>	Contractor Name:	<u>4919 T+B Drilling</u>
Well Type: (Drilled/Bored/Dug)	<u>DUG</u>	Well Stick Up: (Above Ground)	<u>0.14</u>	Casing Material: (Steel, Concrete, etc.)	<u>Concrete</u>
Well Located in a Well Pit?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Well Pit Depth: (Below Ground)	<u>37</u>	Well Stick Up: (Above Pit Bottom)	<u>6"</u>
Well Casing Diameter:	<u>#0.94</u>	Well Depth: (Below Ground)	<u>57</u>	Groundwater Level: (Below Ground)	<u>50 ft</u>
Pump On / Off?	<input checked="" type="checkbox"/> On <input type="checkbox"/> Off	Water Level Condition:	<input checked="" type="checkbox"/> Stable (Static) <input type="checkbox"/> Declining (Drawdown) <input type="checkbox"/> Rising (Recovery)		
Flowing Well?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Flow Rate: (Estimated)	<u>1</u>	Well Cap Type:	<u>Concrete</u>
Well Screen Installed?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If Yes, Length & Slot Size:	<u>NA</u>	Top of Screen: (Below Ground)	<u>37 ft</u>
Is There a Depression Around the Well Casing Exterior?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		Photo(s) of Well Obtained?		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

Observation(s) Summary:

- Sampled from tap in basement, no raw outside taps.
- Historical development at homes in area has not affected well.

Water Well Survey

AECOM

Well I.D. #: _____ AECOM Project No.: 606-36190
 MECF WWR #: 5719105 Client Project No.: _____

Water Quality Sampling:

Water Quality Sample Obtained?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If No, Provide Reason:	
Sampling Location:	<u>Main Feeder Tap</u> <u>Coak's Farm</u>	Raw or Treated Sample?	<u>Yes Raw</u>
Disinfected Sample Port?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Disinfection Method:	<u>Alconex</u>
Photo of Sample Obtained? (against white background)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If No, Provide Reason:	

Analyte Suite:	<u>93179 & E. coli / Total Coliform</u>		
Sample I.D.:	<u>2646 8 line</u>	Date / Time of Sampling:	<u>SEPT. 2020</u> <u>10.10</u>
		Number of Sample Bottles:	<u>ONE 9</u>

Field Water Quality Parameters: (record units)					
Temperature:	<u>37.0</u> <u>14.5</u>	pH:	<u>7.61</u>	Conductivity:	<u>0.84</u>
Turbidity:		D.O.:	<u>7.55</u>	Colour:	<u>CLEAR / colourless</u>
Odours?	<u>NONE</u>	Appearance/Odour:	<u>✓</u>		

Type of Concern: (if applicable)	<input type="checkbox"/> Water Quantity <input type="checkbox"/> Water Quality (Note any differences in taste, odour, colour or clarity)
If the concern was contamination what changes were apparent to water quality?	<u>None.</u>
Were there any effects of this concern?	
What action was taken to overcome this concern?	

AECOM Canada Ltd.
 105 Commerce Valley Drive West, 7th Floor
 Markham, ON L3T 7W3
 Canada

T: 905.886.7022
 F: 905.538.8076
 www.aecom.com

Water Well Survey

AECOM

Well I.D. #: _____ AECOM Project No.: 606-36190
MECP WWR #: 5719105 Client Project No.: _____

Well Modification / Maintenance:

Has Your Well Ever Been...	Deepened?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Cleaned?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Reconstructed or Replaced?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
If Yes to Any of the Above, Please Provide Details:						

Other Details:

Other Details that May be Relevant to Assessing the Current Condition of Your Well Supply:

Property Owner Participation in Monitoring Program:

Does the Property Owner and/or Occupant Grant Permission for MTO/AECOM to Monitor and/or Sample Your Well?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
--	---

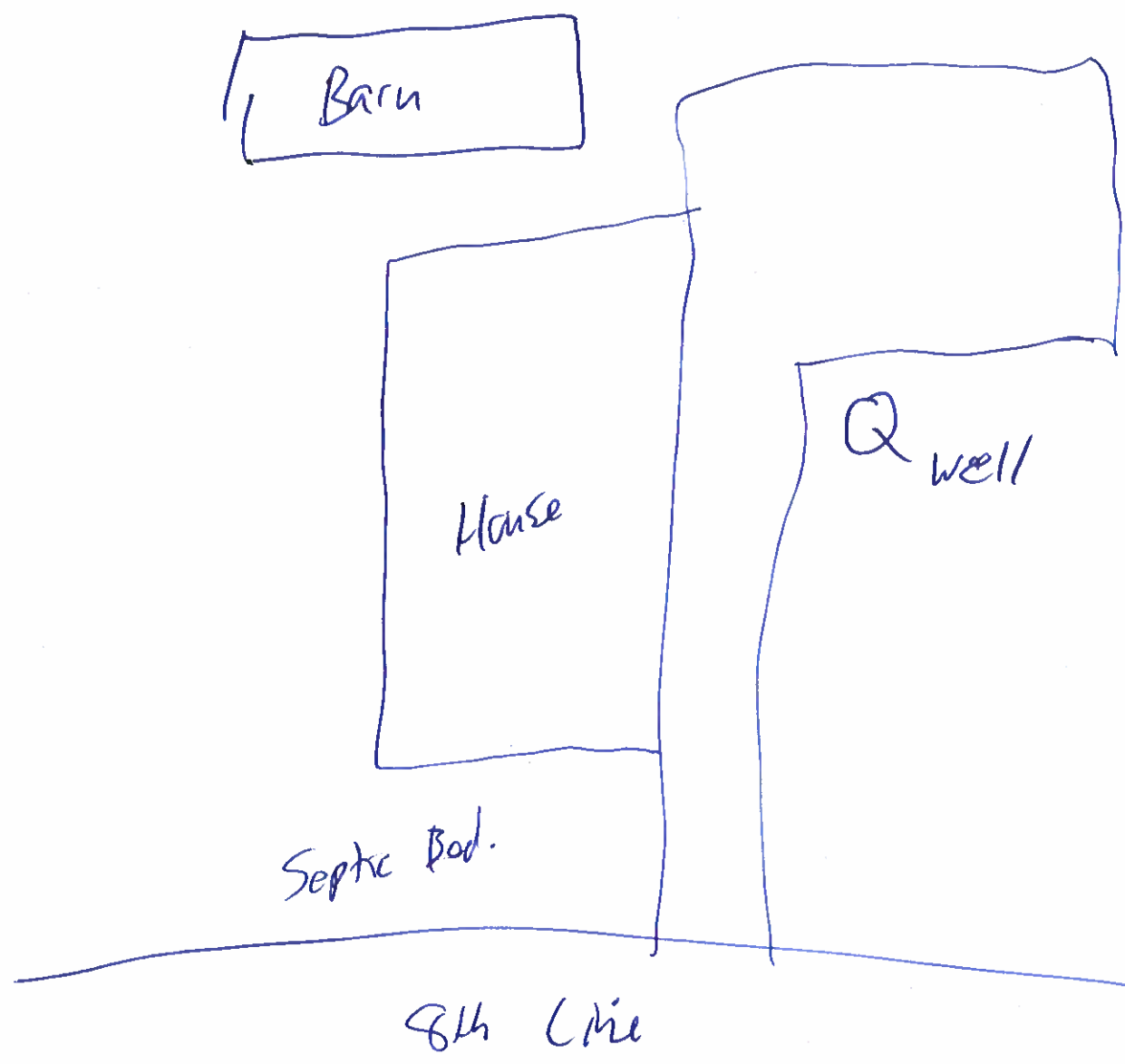
Don Mowforton Don Mowforton 9-7-21
Property Owner / Occupant Name Signature Date
(Please Print in BLOCK letters)

Water Well Survey

AECOM

Well I.D. #: _____ AECOM Project No.: 00630190
MECP WWR #: 5719105 Client Project No.: _____

Location Sketch (To be Completed by Property Owner / Occupant)



Include details such as property lines, buildings, well, sewage system (if present), as well as any other potential sources of contamination (e.g., tanks, barnyards, chemical/manure storage, etc.).

Appendix **J**

Property ID #101 – 3173 Sideroad 10

November 22nd, 2021

Thomas Mayville
3173 Sideroad 10
Bradford, ON
L3Z 3V4

Project No: 60636190
Regarding: Pre-Construction Water Quality Testing Results
MTO Bradford Bypass Project

Dear Mr. Mayville,

AECOM Canada Ltd. (AECOM) would like to thank you for your participation in the Pre-Construction Well Assessment Program offered to local residents as part of the Bradford Bypass Project. Based on receipt of written permission from yourself, a sample of raw (untreated) groundwater from your private well was collected for laboratory analysis by AECOM staff on October 14th, 2021. Please find attached a copy of the water quality testing results for your review and record.

Laboratory testing results for the sample obtained indicate that concentrations of certain parameters, as shown in the table below, are in excess of the *Ontario Drinking Water Standards, Objectives and Guidelines* (Ontario Ministry of the Environment, 2006). It should be noted, however, that these results are based on a single sample analysis and that additional testing is recommended.

PARAMETER	CONCENTRATION IN YOUR WATER	STANDARD VALUE / RANGE	STANDARD TYPE	HEALTH RELATED (Y / N)
Total Coliforms	72 CFU/ 100mL	0 CFU/100mL	MAC	Y
Chloride	1680 mg/L	250 mg/L	AO	N
Colour	10 TCU	5 TCU	AO	N
Turbidity	7.5 NTU	5 NTU	AO	N
Hardness (as CaCO ₃)	966 mg/L	80 - 100 mg/L	OG	N

NOTE: MAC – Maximum Acceptable Concentration; AO – Aesthetic Objective; OG – Operational Guideline.

As discussed via telephone with Mr. Mayville on November 19th 2021, following receipt of the water quality testing results, the presence of bacteriological parameters (Total Coliforms) in your drinking water may represent an immediate health concern. It is recommended that you discuss this exceedance with your Local Public Health Unit.

For your information, the *Well Aware Booklet – A Guide To Caring For Your Well* created by Green Communities Canada is available on the Walkerton Clean Water Centre (WCWC) website at:

<https://wcwc.ca/well-aware-and-well-wise-program-resources-for-homeowners/>

Should you have any questions or concerns regarding the quality of your well water, it is recommended that you contact your local Public Health Unit for further information and advice. Contact information for your Local Public Health Unit is provided, as follows:

Simcoe Muskoka District Health Unit
80 Bradford St. #403
Barrie, ON L4N 6S7

Website: <https://www.simcoemuskokahealth.org/>
Telephone: 705.721.7520

If you have any further questions, please contact:

AECOM Canada Ltd. C/O Brian Holden, P.Geo.
Hydrogeology, Environment
Telephone: 226-821-2486
Email: brian.holden@aecom.com

Sincerely,
AECOM Canada Ltd.



Brian Holden, P.Geo.
Hydrogeologist
DCS Americas, Canada East (Greater Ontario / Metro Toronto)
Environment
Brian.holden@aecom.com

Encl.

cc: R. Sheikh, N. Valenton, S. Rankin, S.Schmied – AECOM;
H. Singh, L. Sarris, J. MacKinnon, R. Gribbon – MTO

Water Well Survey

Groundwater Supply Well Location 3173 Sideroad 10

Project Name: Bradford Bypass – BBP Expansion

Project#: 60636190

Residence Address:

3173 Sideroad 10, Bradford, Ontario, L3Z 3V4

Owner Information:

Owner Name: Thomas Mayville

Phone Number: 905-806-0882

Email: owen.mayville30@gmail.com



Well

Well Record

Coordinates (UTM).....611514E/4886823N
(NAD83 Zone17)

Type of Well..... Dug

Constructed (year)..... 1974

Well Location..... end of driveway behind house

Well Diameter.....0.914 m

Well Depth.....NA

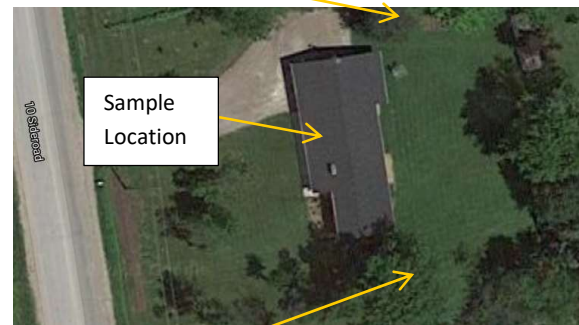
Casing Position.....N/A

Casing Condition.....Fair

Water Usage.....Residential

Water Source.....Overburden

Static Water Level.....1.52 m



Well

Sample Location

Septic Bed

Water Quality & Well Testing

Past Water Quality Problems..... None

Potential Contamination Sources... None

Location of Septic Tank..... 150' away from well

Treatment System.....Unknown

Recent Test Results.....None

Water Sampled.....Yes (October 14, 2021)

Sample Source..... Kitchen Tap

Appearance.....Clear, no odour

Comments:

- *Casing in good condition*
- *High water level in well*

Quality Testing

Groundwater quality met the applicable standards for bacteriological, selected inorganic and metal parameters analyzed except for the following:

<i>Parameters</i>	<i>Test Results</i>	<i>Guideline/Standard</i>	<i>Criteria Type</i>
Total Coliforms	72 CFU / 100 ml	0 CFU / 100 ml	MAC
Hardness (as CaCO ₃)	966 mg/L	80 – 100 mg/L	OG

Notes:

1. Criteria are from “Ontario Drinking Water Standards” (Ontario Regulation 169/03) and “Technical Support Document for Ontario Drinking Water Standards, Objectives and Guidelines” (MOE, June 2003, revised June 2006)
2. AO - Aesthetic Objectives (parameters that may impair the taste, odour or colour of water or which may interfere with good water quality)
3. MAC- Maximum Acceptable Concentration (health related)
4. OG - Operational Guideline (parameters which must be controlled for effective treatment)
5. NDOGT – No data; sample overgrown with target bacteria; over-crowding microbial growth
6. CFU – Colony forming units
7. **Bold** - test result exceeding guideline/standard.





CLIENT NAME: AECOM CANADA LTD
50 SPORTSWORLD CROSSING RD UNIT 290
KITCHENER, ON N2P0A4
(519) 650-5313

ATTENTION TO: Brian Holden

PROJECT: 60636190

AGAT WORK ORDER: 21T815956

MICROBIOLOGY ANALYSIS REVIEWED BY: Amanjot Bhela, Inorganic Lab Manager

WATER ANALYSIS REVIEWED BY: Yris Verastegui, Report Reviewer

DATE REPORTED: Oct 23, 2021

PAGES (INCLUDING COVER): 13

VERSION*: 1

Should you require any information regarding this analysis please contact your client services representative at (905) 712-5100

***Notes**

Disclaimer:

- *All work conducted herein has been done using accepted standard protocols, and generally accepted practices and methods. AGAT test methods may incorporate modifications from the specified reference methods to improve performance.*
- *All samples will be disposed of within 30 days after receipt unless a Long Term Storage Agreement is signed and returned. Some specialty analysis may be exempt, please contact your Client Project Manager for details.*
- *AGAT's liability in connection with any delay, performance or non-performance of these services is only to the Client and does not extend to any other third party. Unless expressly agreed otherwise in writing, AGAT's liability is limited to the actual cost of the specific analysis or analyses included in the services.*
- *This Certificate shall not be reproduced except in full, without the written approval of the laboratory.*
- *The test results reported herewith relate only to the samples as received by the laboratory.*
- *Application of guidelines is provided "as is" without warranty of any kind, either expressed or implied, including, but not limited to, warranties of merchantability, fitness for a particular purpose, or non-infringement. AGAT assumes no responsibility for any errors or omissions in the guidelines contained in this document.*
- *All reportable information as specified by ISO/IEC 17025:2017 is available from AGAT Laboratories upon request.*



Certificate of Analysis

AGAT WORK ORDER: 21T815956

PROJECT: 60636190

5835 COOPERS AVENUE
MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
TEL (905)712-5100
FAX (905)712-5122
<http://www.agatlabs.com>

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Brian Holden

SAMPLING SITE:

SAMPLED BY:

Total Coliforms & E. Coli (Using MI Agar)

DATE RECEIVED: 2021-10-14

DATE REPORTED: 2021-10-23

SAMPLE DESCRIPTION: 3173 SDRD 10

SAMPLE TYPE: Water

DATE SAMPLED: 2021-10-14
14:57

3091524

Parameter	Unit	G / S	RDL	3091524
Escherichia coli	CFU/100mL	100	1	ND
Total Coliforms	CFU/100mL		1	72

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to PWQO * Variable - refer to guideline reference document
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

3091524 If RDL >1 indicates dilutions of the sample.
ND - Not Detected.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:

Anamjot Bhela




Certificate of Analysis

AGAT WORK ORDER: 21T815956

PROJECT: 60636190

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CANADA L4Z 1Y2
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<http://www.agatlabs.com>

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Brian Holden

SAMPLING SITE:

SAMPLED BY:

Water Quality Assessment - Dissolved Metals - PWQO (mg/L)

DATE RECEIVED: 2021-10-14

DATE REPORTED: 2021-10-23

SAMPLE DESCRIPTION: 3173 SDRD 10

SAMPLE TYPE: Water

DATE SAMPLED: 2021-10-14
14:57

3091524

Parameter	Unit	G / S	RDL	3091524
Electrical Conductivity	µS/cm		2	5470
pH	pH Units	6.5-8.5	NA	7.86
Saturation pH (Calculated)				6.31
Langelier Index (Calculated)				1.55
Hardness (as CaCO3) (Calculated)	mg/L		0.5	966
Total Dissolved Solids	mg/L		10	3880
Alkalinity (as CaCO3)	mg/L		5	401
Bicarbonate (as CaCO3)	mg/L		5	401
Carbonate (as CaCO3)	mg/L		5	<5
Hydroxide (as CaCO3)	mg/L		5	<5
Fluoride	mg/L		0.13	<0.13
Chloride	mg/L		1.2	1680
Nitrate as N	mg/L		0.36	<0.36
Nitrite as N	mg/L		0.27	<0.27
Bromide	mg/L		0.28	<0.28
Sulphate	mg/L		0.95	88.8
Ortho Phosphate as P	mg/L		0.65	<0.65
Ammonia as N	mg/L		0.02	0.02
Ammonia-Un-ionized (Calculated)	mg/L	0.02	0.000002	0.000868
Total Phosphorus	mg/L	*	0.02	<0.02
Total Organic Carbon	mg/L		0.5	94.9
True Colour	TCU		5	10
Turbidity	NTU		0.5	7.5
Dissolved Calcium	mg/L		0.5	263
Dissolved Magnesium	mg/L		0.5	75.0
Dissolved Potassium	mg/L		5.0	7.2
Dissolved Sodium	mg/L		0.5	840
Aluminum-dissolved	mg/L	*	0.004	<0.004
Dissolved Antimony	mg/L	0.020	0.001	<0.001

Certified By:

Jris Veraistegui



Certificate of Analysis

AGAT WORK ORDER: 21T815956

PROJECT: 60636190

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MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
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FAX (905)712-5122
<http://www.agatlabs.com>

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Brian Holden

SAMPLING SITE:

SAMPLED BY:

Water Quality Assessment - Dissolved Metals - PWQO (mg/L)

DATE RECEIVED: 2021-10-14

DATE REPORTED: 2021-10-23

SAMPLE DESCRIPTION: 3173 SDRD 10

SAMPLE TYPE: Water

DATE SAMPLED: 2021-10-14
14:57

3091524

Parameter	Unit	G / S	RDL	3091524
Dissolved Arsenic	mg/L	0.1	0.003	<0.003
Dissolved Barium	mg/L		0.002	0.310
Dissolved Beryllium	mg/L	*	0.0005	<0.0005
Dissolved Boron	mg/L	0.2	0.010	0.021
Dissolved Cadmium	mg/L	0.0002	0.0001	<0.0001
Dissolved Chromium	mg/L		0.003	<0.003
Dissolved Cobalt	mg/L	0.0009	0.0005	<0.0005
Dissolved Copper	mg/L	0.005	0.001	0.075
Dissolved Iron	mg/L	0.3	0.010	0.019
Dissolved Lead	mg/L	*	0.001	0.001
Dissolved Manganese	mg/L		0.002	0.032
Dissolved Mercury	mg/L	0.0002	0.0001	<0.0001
Dissolved Molybdenum	mg/L	0.040	0.002	<0.002
Dissolved Nickel	mg/L	0.025	0.003	<0.003
Dissolved Selenium	mg/L	0.1	0.004	<0.004
Dissolved Silver	mg/L	0.0001	0.0001	<0.0001
Dissolved Strontium	mg/L		0.005	0.997
Dissolved Thallium	mg/L	0.0003	0.0003	<0.0003
Dissolved Tin	mg/L		0.002	<0.002
Dissolved Titanium	mg/L		0.002	<0.002
Dissolved Tungsten	mg/L	0.030	0.010	<0.010
Dissolved Uranium	mg/L	0.005	0.002	<0.002
Dissolved Vanadium	mg/L	0.006	0.002	<0.002
Dissolved Zinc	mg/L	0.030	0.005	0.071
Dissolved Zirconium	mg/L	0.004	0.004	<0.004
Lab Filtration Aluminum Dissolved				2021/10/18
Lab Filtration mercury				2021/10/18
Lab Filtration Metals				2021/10/18

Certified By:

Jris Vera'stegui



AGAT Laboratories

Certificate of Analysis

AGAT WORK ORDER: 21T815956

PROJECT: 60636190

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MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
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CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Brian Holden

SAMPLING SITE:

SAMPLED BY:

Water Quality Assessment - Dissolved Metals - PWQO (mg/L)

DATE RECEIVED: 2021-10-14

DATE REPORTED: 2021-10-23

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to PWQO * Variable - refer to guideline reference document
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

3091524 Metals analysis completed on a lab filtered sample.
Dilution required, RDL has been increased accordingly.
Un-ionized Ammonia detection limit is a calculated RDL. The calculation of Un-ionized Ammonia is based on lab measured parameters (ammonia as N, pH and temperature). Values are reported as calculated.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:



Exceedance Summary

AGAT WORK ORDER: 21T815956

PROJECT: 60636190

5835 COOPERS AVENUE
 MISSISSAUGA, ONTARIO
 CANADA L4Z 1Y2
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<http://www.agatlabs.com>

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Brian Holden

SAMPLEID	SAMPLE TITLE	GUIDELINE	ANALYSIS PACKAGE	PARAMETER	UNIT	GUIDEVALUE	RESULT
3091524	3173 SDRD 10	ON PWQO	Water Quality Assessment - Dissolved Metals - PWQO (mg/L)	Dissolved Copper	mg/L	0.005	0.075
3091524	3173 SDRD 10	ON PWQO	Water Quality Assessment - Dissolved Metals - PWQO (mg/L)	Dissolved Zinc	mg/L	0.030	0.071

Quality Assurance

CLIENT NAME: AECOM CANADA LTD
PROJECT: 60636190
SAMPLING SITE:

AGAT WORK ORDER: 21T815956
ATTENTION TO: Brian Holden
SAMPLED BY:

Microbiology Analysis

RPT Date: Oct 23, 2021			DUPLICATE			Method Blank	REFERENCE MATERIAL		METHOD BLANK SPIKE		MATRIX SPIKE				
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD		Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper

Total Coliforms & E. Coli (Using MI Agar)

Escherichia coli	3091472	3091472	ND	ND	NA	< 1
Total Coliforms	3091472	3091472	116	114	1.7%	< 1

Comments: ND - Not Detected, NA - % RPD Not Applicable.

Certified By:




Quality Assurance

CLIENT NAME: AECOM CANADA LTD

AGAT WORK ORDER: 21T815956

PROJECT: 60636190

ATTENTION TO: Brian Holden

SAMPLING SITE:

SAMPLED BY:

Water Analysis																
RPT Date: Oct 23, 2021			DUPLICATE				Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Measured Value		Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits		
								Lower	Upper		Lower	Upper		Lower	Upper	

Water Quality Assessment - Dissolved Metals - PWQO (mg/L)

Electrical Conductivity	3090117		138	138	0.0%	< 2	97%	90%	110%						
pH	3090117		7.17	7.13	0.6%	NA	102%	90%	110%						
Total Dissolved Solids	3091472	3091472	520	524	0.8%	< 10	102%	80%	120%						
Alkalinity (as CaCO3)	3090117		64	62	3.2%	< 5	84%	80%	120%						
Bicarbonate (as CaCO3)	3090117		64	62	3.2%	< 5	NA								
Carbonate (as CaCO3)	3090117		<5	<5	NA	< 5	NA								
Hydroxide (as CaCO3)	3090117		<5	<5	NA	< 5	NA								
Fluoride	3091521	3091521	<0.05	<0.05	NA	< 0.05	94%	70%	130%	95%	80%	120%	112%	70%	130%
Chloride	3091521	3091521	54.3	54.3	0.0%	< 0.10	96%	70%	130%	104%	80%	120%	110%	70%	130%
Nitrate as N	3091521	3091521	4.07	4.16	2.2%	< 0.05	106%	70%	130%	106%	80%	120%	109%	70%	130%
Nitrite as N	3091521	3091521	<0.05	<0.05	NA	< 0.05	95%	70%	130%	101%	80%	120%	110%	70%	130%
Bromide	3091521	3091521	<0.05	<0.05	NA	< 0.05	107%	70%	130%	104%	80%	120%	102%	70%	130%
Sulphate	3091521	3091521	25.8	25.7	0.4%	< 0.10	99%	70%	130%	105%	80%	120%	108%	70%	130%
Ortho Phosphate as P	3091521	3091521	<0.10	<0.10	NA	< 0.10	105%	70%	130%	100%	80%	120%	94%	70%	130%
Ammonia as N	3087154		<0.02	<0.02	NA	< 0.02	115%	70%	130%	99%	80%	120%	96%	70%	130%
Total Phosphorus	3090116		0.02	0.03	NA	< 0.02	97%	70%	130%	97%	80%	120%	105%	70%	130%
Total Organic Carbon	3094303		47.1	47.2	0.2%	< 0.5	99%	90%	110%	98%	90%	110%	NA	80%	120%
True Colour	3090232		31	31	0.0%	< 5	106%	90%	110%						
Turbidity	3091472	3091472	<0.5	<0.5	NA	< 0.5	101%	80%	120%						
Dissolved Calcium	3095356		101	101	0.0%	< 0.05	95%	70%	130%	97%	80%	120%	98%	70%	130%
Dissolved Magnesium	3095356		12.2	12.2	0.0%	< 0.05	99%	70%	130%	101%	80%	120%	102%	70%	130%
Dissolved Potassium	3095356		0.83	0.89	NA	< 0.50	99%	70%	130%	100%	80%	120%	101%	70%	130%
Dissolved Sodium	3095356		2.75	2.72	1.1%	< 0.05	97%	70%	130%	96%	80%	120%	101%	70%	130%
Aluminum-dissolved	3091472	3091472	<0.004	<0.004	NA	< 0.004	104%	70%	130%	116%	80%	120%	119%	70%	130%
Dissolved Antimony	3091472	3091472	<0.001	<0.001	NA	< 0.001	102%	70%	130%	103%	80%	120%	107%	70%	130%
Dissolved Arsenic	3091472	3091472	<0.003	<0.003	NA	< 0.003	92%	70%	130%	103%	80%	120%	112%	70%	130%
Dissolved Barium	3091472	3091472	0.073	0.079	7.9%	< 0.002	100%	70%	130%	103%	80%	120%	104%	70%	130%
Dissolved Beryllium	3091472	3091472	<0.0005	<0.0005	NA	< 0.0005	97%	70%	130%	109%	80%	120%	115%	70%	130%
Dissolved Boron	3091472	3091472	0.036	0.038	NA	< 0.010	98%	70%	130%	106%	80%	120%	108%	70%	130%
Dissolved Cadmium	3091472	3091472	<0.0001	<0.0001	NA	< 0.0001	100%	70%	130%	106%	80%	120%	108%	70%	130%
Dissolved Chromium	3091472	3091472	<0.003	<0.003	NA	< 0.003	102%	70%	130%	105%	80%	120%	104%	70%	130%
Dissolved Cobalt	3091472	3091472	<0.0005	<0.0005	NA	< 0.0005	100%	70%	130%	107%	80%	120%	104%	70%	130%
Dissolved Copper	3091472	3091472	0.021	0.025	17.4%	< 0.001	99%	70%	130%	105%	80%	120%	104%	70%	130%
Dissolved Iron	3091472	3091472	0.012	<0.010	NA	< 0.010	101%	70%	130%	106%	80%	120%	101%	70%	130%
Dissolved Lead	3091472	3091472	<0.001	<0.001	NA	< 0.001	98%	70%	130%	104%	80%	120%	102%	70%	130%
Dissolved Manganese	3091472	3091472	<0.002	0.003	NA	< 0.002	96%	70%	130%	104%	80%	120%	102%	70%	130%
Dissolved Mercury	3095856		<0.0001	<0.0001	NA	< 0.0001	98%	70%	130%	100%	80%	120%	98%	70%	130%
Dissolved Molybdenum	3091472	3091472	<0.002	<0.002	NA	< 0.002	104%	70%	130%	105%	80%	120%	108%	70%	130%
Dissolved Nickel	3091472	3091472	<0.003	<0.003	NA	< 0.003	100%	70%	130%	106%	80%	120%	103%	70%	130%

Quality Assurance

CLIENT NAME: AECOM CANADA LTD
PROJECT: 60636190
SAMPLING SITE:

AGAT WORK ORDER: 21T815956
ATTENTION TO: Brian Holden
SAMPLED BY:

Water Analysis (Continued)

RPT Date: Oct 23, 2021			DUPLICATE				Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Measured Value		Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits		
								Lower	Upper		Lower	Upper		Lower	Upper	
Dissolved Selenium	3091472	3091472	<0.004	<0.004	NA	< 0.004	101%	70%	130%	108%	80%	120%	113%	70%	130%	
Dissolved Silver	3091472	3091472	<0.0001	<0.0001	NA	< 0.0001	99%	70%	130%	106%	80%	120%	104%	70%	130%	
Dissolved Strontium	3091472	3091472	0.249	0.253	1.6%	< 0.005	95%	70%	130%	101%	80%	120%	99%	70%	130%	
Dissolved Thallium	3091472	3091472	<0.0003	<0.0003	NA	< 0.0003	97%	70%	130%	103%	80%	120%	104%	70%	130%	
Dissolved Tin	3091472	3091472	<0.002	<0.002	NA	< 0.002	101%	70%	130%	103%	80%	120%	107%	70%	130%	
Dissolved Titanium	3091472	3091472	<0.002	<0.002	NA	< 0.002	100%	70%	130%	106%	80%	120%	105%	70%	130%	
Dissolved Tungsten	3091472	3091472	<0.010	<0.010	NA	< 0.010	96%	70%	130%	99%	80%	120%	101%	70%	130%	
Dissolved Uranium	3091472	3091472	<0.002	<0.002	NA	< 0.002	97%	70%	130%	106%	80%	120%	108%	70%	130%	
Dissolved Vanadium	3091472	3091472	<0.002	<0.002	NA	< 0.002	100%	70%	130%	104%	80%	120%	108%	70%	130%	
Dissolved Zinc	3091472	3091472	0.044	0.053	18.6%	< 0.005	100%	70%	130%	109%	80%	120%	107%	70%	130%	
Dissolved Zirconium	3091472	3091472	<0.004	<0.004	NA	< 0.004	100%	70%	130%	106%	80%	120%	108%	70%	130%	

Comments: NA signifies Not Applicable.
 If the RPD value is NA, the results of the duplicates are under 5X the RDL and will not be calculated.
 Matrix spike: Spike level < native concentration. Matrix spike acceptance limits do not apply.

Certified By:



Method Summary

CLIENT NAME: AECOM CANADA LTD

AGAT WORK ORDER: 21T815956

PROJECT: 60636190

ATTENTION TO: Brian Holden

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Microbiology Analysis			
Escherichia coli	MIC-93-7010	EPA 1604	Membrane Filtration
Total Coliforms	MIC-93-7010	EPA 1604	Membrane Filtration

Method Summary

CLIENT NAME: AECOM CANADA LTD
AGAT WORK ORDER: 21T815956
PROJECT: 60636190
ATTENTION TO: Brian Holden
SAMPLING SITE:
SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Water Analysis			
Electrical Conductivity	INOR-93-6000	modified from SM 2510 B	PC TITRATE
pH	INOR-93-6000	modified from SM 4500-H+ B	PC TITRATE
Saturation pH (Calculated)		SM 2320 B	CALCULATION
Langelier Index (Calculated)		SM 2330B	CALCULATION
Hardness (as CaCO ₃) (Calculated)	MET-93-6105	modified from EPA SW-846 6010C & 200.7 & SM 2340 B	CALCULATION
Total Dissolved Solids	INOR-93-6028	modified from EPA 1684, ON MOECC E3139, SM 2540C, D	BALANCE
Alkalinity (as CaCO ₃)	INOR-93-6000	Modified from SM 2320 B	PC TITRATE
Bicarbonate (as CaCO ₃)	INOR-93-6000	modified from SM 2320 B	PC TITRATE
Carbonate (as CaCO ₃)	INOR-93-6000	modified from SM 2320 B	PC TITRATE
Hydroxide (as CaCO ₃)	INOR-93-6000	modified from SM 2320 B	PC TITRATE
Fluoride	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Chloride	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Nitrate as N	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Nitrite as N	INOR-93-6004	SM 4110 B	ION CHROMATOGRAPH
Bromide	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Sulphate	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Ortho Phosphate as P	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Ammonia as N	INOR-93-6059	modified from SM 4500-NH ₃ H	LACHAT FIA
Ammonia-Un-ionized (Calculated)		MOE REFERENCE, PWQOs Tab 2	CALCULATION
Total Phosphorus	INOR-93-6022	modified from SM 4500-P B and SM 4500-P E	SPECTROPHOTOMETER
Total Organic Carbon	INOR-93-6049	modified from SM 5310 B	SHIMADZU CARBON ANALYZER
True Colour	INOR-93-6074	modified from SM 2120 B	LACHAT FIA
Turbidity	INOR-93-6044	modified from SM 2130 B	NEPHELOMETER
Dissolved Calcium	MET-93-6105	modified from EPA 6010D	ICP/OES
Dissolved Magnesium	MET-93-6105	modified from EPA 6010D	ICP/OES
Dissolved Potassium	MET-93-6105	modified from EPA 6010D	ICP/OES
Dissolved Sodium	MET-93-6105	modified from EPA 6010D	ICP/OES
Aluminum-dissolved	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Antimony	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Arsenic	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Barium	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Beryllium	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Boron	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Cadmium	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Chromium	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Cobalt	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Copper	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Iron	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS

Method Summary

CLIENT NAME: AECOM CANADA LTD
AGAT WORK ORDER: 21T815956
PROJECT: 60636190
ATTENTION TO: Brian Holden
SAMPLING SITE:
SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Dissolved Lead	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Manganese	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Mercury	MET-93-6100	modified from EPA 245.2 and SM 3112 B	CVAAS
Dissolved Molybdenum	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Nickel	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Selenium	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Silver	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Strontium	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Thallium	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Tin	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Titanium	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Tungsten	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Uranium	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Vanadium	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Zinc	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Zirconium	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Lab Filtration Aluminum Dissolved	SR-78-9001		FILTRATION
Lab Filtration mercury	SR-78-9001		FILTRATION
Lab Filtration Metals	SR-78-9001		FILTRATION



Ontario

WATER WELL RECORD

3104E
#903

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

5711907

MUNICIPALITY 57004

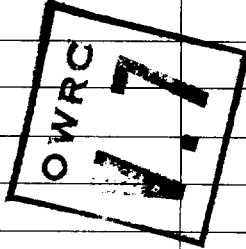
CON. C/N

08

COUNTY OR DISTRICT SIMCOE	TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE WEST GWILLIMBURY	CON., BLOCK, TRACT, SURVEY, ETC. 8	LOT N.W. 1/4 011
ADDRESS X 49, BONDHEAD, ONT.			DATE COMPLETED DAY 15 MO. 11 YR. 74
GRIDING 886.550	R.C. 4	ELEVATION 0930	R.C. 5
BASIN CODE 22			

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET	
				FROM	TO
		top soil		0	2
		stony brown clay		2	12
		stony blue clay		12	30
		course sand		30	32



31	0002 02	0012 05 12	0030 30 5 12	0032 10
32				

41 WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER
0030	1 <input checked="" type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERAL
15-18	1 <input type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERAL
20-23	1 <input type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERAL
25-28	1 <input type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERAL
30-33	1 <input type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERAL

51 CASING & OPEN HOLE RECORD

INSIDE DIAM. INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET
30	1 <input type="checkbox"/> STEEL 2 <input type="checkbox"/> GALVANIZED 3 <input checked="" type="checkbox"/> CONCRETE 4 <input type="checkbox"/> OPEN HOLE	3	0 0032
17-18	1 <input type="checkbox"/> STEEL 2 <input type="checkbox"/> GALVANIZED 3 <input type="checkbox"/> CONCRETE 4 <input type="checkbox"/> OPEN HOLE		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		27-30

SCREEN

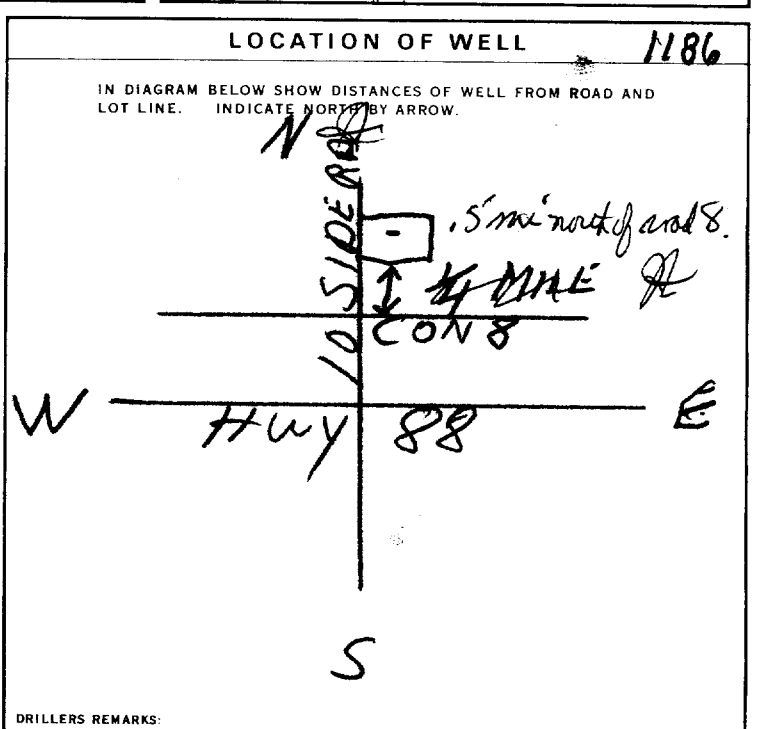
SIZE(S) OF OPENING (SLOT NO.)	DIAMETER	LENGTH
	INCHES	FEET
MATERIAL AND TYPE		DEPTH TO TOP OF SCREEN
		FEET

61 PLUGGING & SEALING RECORD

DEPTH SET AT - FEET	MATERIAL AND TYPE (CEMENT GROUT, LEAD PACKER, ETC.)
FROM TO	
10-12 14-17	
18-21 22-25	
26-29 30-33 80	

71 PUMPING TEST

PUMPING TEST METHOD 1 <input type="checkbox"/> PUMP 2 <input type="checkbox"/> BAILER	PUMPING RATE GPM	DURATION OF PUMPING HOURS
STATIC LEVEL 014 FEET	WATER LEVEL END OF PUMPING 014 FEET	WATER LEVELS DURING 15 MINUTES 26-28 30 MINUTES 29-31 45 MINUTES 32-34 60 MINUTES 35-37
IF FLOWING, GIVE RATE	PUMP INTAKE SET AT 030 FEET	WATER AT END OF TEST 1 <input type="checkbox"/> CLEAR 2 <input type="checkbox"/> CLOUDY
RECOMMENDED PUMP TYPE <input type="checkbox"/> SHALLOW <input checked="" type="checkbox"/> DEEP	RECOMMENDED PUMP SETTING 030 FEET	RECOMMENDED PUMPING RATE 0006 GPM



FINAL STATUS OF WELL

1 <input checked="" 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	

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

METHOD OF DRILLING

1 <input type="checkbox"/> CABLE TOOL	6 <input checked="" 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	

DRILLERS REMARKS:

OFFICE USE ONLY

DATA SOURCE 1	CONTRACTOR 3109	DATE RECEIVED 170275
DATE OF INSPECTION Aug 28, 1975	INSPECTOR J.B.	
REMARKS		CSS.S8
		P WI

CONTRACTOR

NAME OF WELL CONTRACTOR J.F. KITCHING & SON LTD.	LICENCE NUMBER 3109
ADDRESS HOLLAND LANDING, ONT.	
NAME OF DRILLER OR BORER BRUCE DAILY	LICENCE NUMBER
SIGNATURE OF CONTRACTOR	SUBMISSION DATE DAY 31 MO. 12 YR. 74

Water Well Survey

BBP

AECOM

Well I.D. #: _____ AECOM Project No.: 60036190
 MECP WWR #: 571907 Client Project No.: _____

Well Owner Information:

Property Owner Name:	Thomas Mayville		
Property Address:	3173 Sideroad 10, Bradford, ON L3Z3V4		
Telephone:	905-806-0882-Owen	Email:	owen.mayville30@gmail.com
Name of Person Completing Survey:	Garth Mayville ^{Mayville}		
Telephone:	647-203-3918	Email:	mg.mayville@gmail.com
Relationship to Property Owner:	Son	Date of Survey Completion:	Sept 28, 2021
Name of Original Well Owner: (if known/different from above)			

Occupant of Property Served by Well: (if other than Owner)

Name:			
Telephone:		Email:	
Address:			

Well Location: 3173 Sideroad 10

Lot:	11	Concession:	8N	Township:	Bradford West
------	----	-------------	----	-----------	---------------

Well Construction Details: Some Details are not known (sorry)

Well Record Available?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Date Well Constructed:	1974 ish	Well Contractor Name:	J.F. Hitchcock & Son Ltd.
Well Type: (Drilled/Bored/Dug)		Casing Material: (Steel, Concrete, etc.)		Well Casing Diameter:	
Well Stick Up: (Above Ground)		Well Depth: (Below Ground)		Water Level: (Below Ground)	
Is Well Located in a Well Pit?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Well Pit Depth: (Below Ground)		Well Stick Up: (Above Pit Bottom)	
Is Well Flowing?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Flow Rate:		Contractor:	
Well Cap Type:		Does Cap Create a Good Seal?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Is Wire Conduit Tight to Well Cap?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Is the Well:	Accessible for Direct Sampling?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	OR	Buried, in a Well Pit, or Other Confined Space?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Well Screen Installed?	<input type="checkbox"/> Yes <input type="checkbox"/> No	If Yes, Length & Slot Size:		Depth of Top of Screen: (Below Ground)	

Agulla bury

Water Well Survey

AECOM

Well I.D. #: _____ AECOM Project No.: 00630196
 MECP WWR #: 5711907 Client Project No.: _____

Pumping Equipment: Unknown

Pump Type:	<input type="checkbox"/> Jet Pump <input type="checkbox"/> Submersible <input type="checkbox"/> Piston Pump <input type="checkbox"/> Other (please describe): _____				
Pump Horsepower:		Pump Age:		Pumping Capacity:	
Pump Intake Depth: (Below Ground)		Pump Location: (If Not in Well)		Pumping Rate: (If Known)	
Pressure Tank:	Type:			Capacity:	
Water Treatment: (if present)	<input type="checkbox"/> Chlorinator <input type="checkbox"/> Water Softener <input type="checkbox"/> Water Filter (indicate type) _____ <input type="checkbox"/> U.V. <input type="checkbox"/> R.O. <input type="checkbox"/> Other (please describe): _____				

Well Usage:

Primary Use(s):	Domestic: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Livestock: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Lawn Watering: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
# of Persons Using Well:	<u>1-2</u>	# of Livestock Watered:	<u>0</u>
		Other Uses:	<u>None</u>
Indoor Plumbing Fixtures: (Washroom(s), Shower(s), Dishwasher, Laundry, Pool, Spa, etc.)	<u>3 washrooms, 2 shower/bath, 1 dishwasher, 1 laundry, 2 other sinks</u>		
		Daily Amount: (if known)	

Sewage Servicing:

Private Sewage System or Municipal:	<u>Private</u>	System Type: (septic tank, etc.)	<u>Septic Tank</u>	Distance from Well:	<u>150'</u>
Well Location:	<input checked="" type="checkbox"/> Uphill <input type="checkbox"/> Downhill <input type="checkbox"/> Same Grade				
Presence of Any Above Ground Storage Tank or Other Potential Source(s) of Contamination: (including distance on / off property)	<u>None</u>				

Previous Concerns:

How Long Have You Owned, Resided, or Operated a Business on this Property?	<u>47 years</u>		
Have You Experienced Any Previous Concerns with Your Well Supply? (Quantity or Quality)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If Yes, When?	<u>high bacteria unknown</u>
Cause(s) of the Previous Concern?	<input type="checkbox"/> Drought <input type="checkbox"/> Pump Failure <input type="checkbox"/> Plugging <input type="checkbox"/> Increased Usage <input type="checkbox"/> Interference <input type="checkbox"/> Contamination <input checked="" type="checkbox"/> Other (Please describe): <u>high bacteria I believe, cleared w/ Ph bleach</u>		

Water Well Survey

AECOM

Well I.D. #: _____ AECOM Project No.: 60030190
MECP WWR #: 571907 Client Project No.: _____

Well Modification / Maintenance:

Has Your Well Ever Been...	Deepened?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Cleaned?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Reconstructed or Replaced?	<input type="checkbox"/> Yes <input type="checkbox"/> No
If Yes to Any of the Above, Please Provide Details:		cleaned with bleach once				

Other Details:

Other Details that May be Relevant to Assessing the Current Condition of Your Well Supply:

Thomas Mayville, is property owner
Garth Mayville and Owen Mayville are sons managing property
Sons have Power of Attorney

Sorry for stains

Property Owner Participation in Monitoring Program:

Does the Property Owner and/or Occupant Grant Permission for MTO/AECOM to Monitor and/or Sample Your Well?	<input type="checkbox"/> Yes <input type="checkbox"/> No
--	--

THOMAS MAYVILLE
Property Owner / Occupant Name
(Please Print in BLOCK letters)

Thomas Mayville
By Garth Mayville as POA
Signature

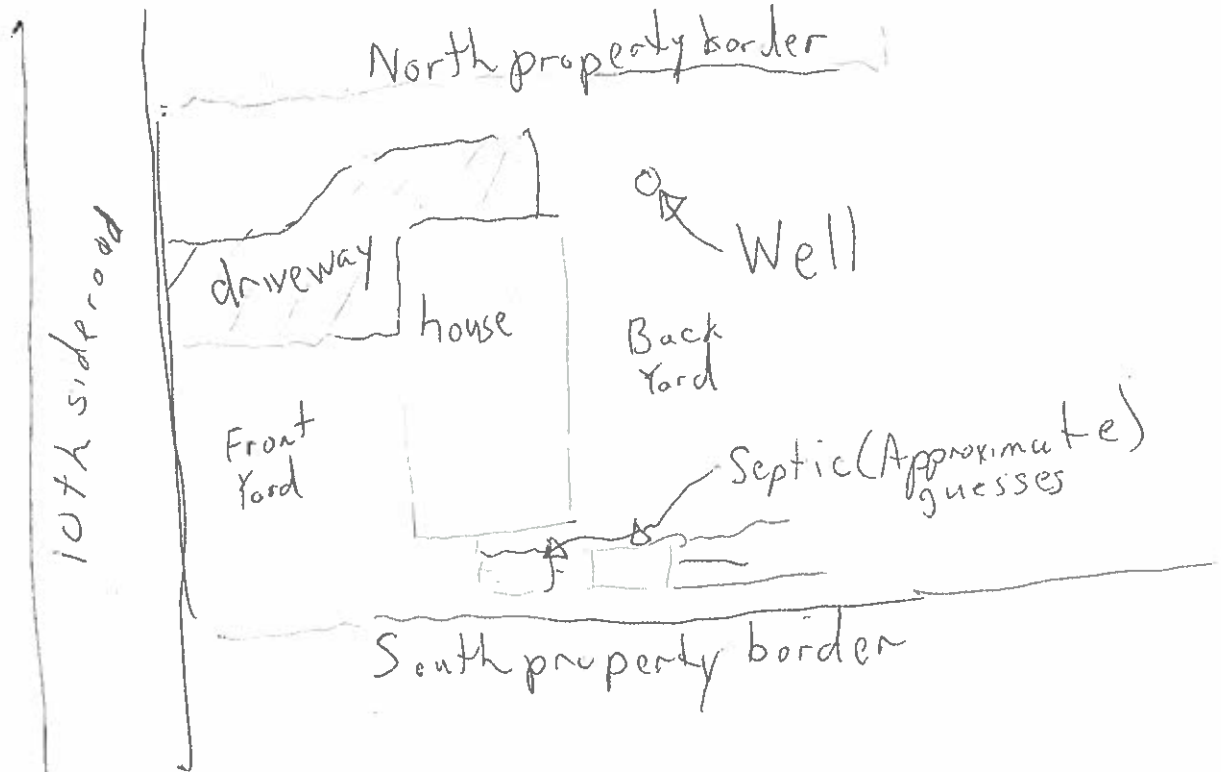
Sept 29, 2020
Date

Water Well Survey

AECOM

Well I.D. #: _____ AECOM Project No.: 60636190
MECP WWR #: 5711907 Client Project No.: _____

Location Sketch (To be Completed by Property Owner / Occupant)



Include details such as property lines, buildings, well, sewage system (if present), as well as any other potential sources of contamination (e.g., tanks, barnyards, chemical/manure storage, etc.).

Water Well Survey

AECOM

Well I.D. #: _____
MECP WWR #: 5711907

AECOM Project No.: 60030190
Client Project No.: _____

Field Visit Log (To Be Completed by AECOM Staff)

General Details:

Project Name:	BBP - Water Well Survey		Project No.:	60030190	
Address:	3173 Sideroad 10, Bradford		Inspected By:	Holden / Audette	
Date:	October 14, 21	Time:	15:00 - 15:30	Weather:	cloudy
Easting:	611514.15	Northing:	4886823.31	Datum:	17T

Well Details:

Is Well Accessible for Inspection?		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		If No, Provide Reason:	
MECP Water Well Record No.:	5711907	Date Well Constructed:	Nov. 15, 1974	Contractor Name:	J. F. Kibben & Son Ltd.
Well Type: <small>(Drilled / Bored / Dug)</small>	Dug	Well Stick Up: <small>(Above Ground)</small>	16"	Casing Material: <small>(Steel, Concrete, etc.)</small>	Concrete
Well Located in a Well Pit?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Well Pit Depth: <small>(Below Ground)</small>	—	Well Stick Up: <small>(Above Pit Bottom)</small>	—
Well Casing Diameter:	3ft	Well Depth: <small>(Below Ground)</small>	—	Groundwater Level: <small>(Below Ground)</small>	SA.
Pump On / Off?	<input type="checkbox"/> On <input checked="" type="checkbox"/> Off	Water Level Condition:	<input checked="" type="checkbox"/> Stable (Static) <input type="checkbox"/> Declining (Drawdown) <input type="checkbox"/> Rising (Recovery)		
Flowing Well?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Flow Rate: <small>(Estimated)</small>	6 GPM	Well Cap Type:	—
Well Screen Installed?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If Yes, Length & Slot Size:	—	Top of Screen: <small>(Below Ground)</small>	—
Is There a Depression Around the Well Casing Exterior?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Photo(s) of Well Obtained?		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Observation(s) Summary:
- Casing in good condition, high water level in well

Water Well Survey

AECOM

Well I.D. #: _____ AECOM Project No.: 60636190
 MECP WWR #: 5711907 Client Project No.: _____

Water Quality Sampling:

Water Quality Sample Obtained?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If No, Provide Reason:	
Sampling Location:	<u>Kitchen tap</u>	Raw or Treated Sample?	<u>Raw</u>
Disinfected Sample Port?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Disinfection Method:	<u>Bleach</u>
Photo of Sample Obtained? (against white background)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If No, Provide Reason:	

Analyte Suite:	<u>Routine Package Code: 93179 + E.coli / Total Coliforms</u>				
Sample I.D.:	<u>3173 SPRD10</u>	Date / Time of Sampling:	<u>October 14th 14:57</u>	Number of Sample Bottles:	<u>9</u>

Field Water Quality Parameters: (record units)					
Temperature:	<u>18.1</u>	pH:	<u>7.09</u>	Conductivity:	<u>73999</u>
Turbidity:	<u>—</u>	D.O.:	<u>—</u>	Colour:	<u>Clear</u>
Odours?	<u>—</u>	Appearance/Odour:	<u>Clear</u>		

Type of Concern: (if applicable)	<input checked="" type="checkbox"/> Water Quantity <input type="checkbox"/> Water Quality (Note any differences in taste, odour, colour or clarity)
If the concern was contamination what changes were apparent to water quality?	<u>No concerns</u>
Were there any effects of this concern?	
What action was taken to overcome this concern?	

AECOM Canada Ltd.
 105 Commerce Valley Drive West, 7th Floor
 Markham, ON L3T 7W3
 Canada

T: 905.886.7022
 F: 905.538.8076
 www.aecom.com

Appendix K

Property ID #105 – 3223 Sideroad 10

November 22nd, 2021

Ben Dalimonte
3223 10th Sideroad
Bradford, ON
L3z 4G3

Project No: 60636190
Regarding: Pre-Construction Water Quality Testing Results
MTO Bradford Bypass Project

Dear Mr. Dalimonte,

AECOM Canada Ltd. (AECOM) would like to thank you for your participation in the Pre-Construction Well Assessment Program offered to local residents as part of the Bradford Bypass Project. Based on receipt of written permission from yourself, a sample of raw (untreated) groundwater from your private well was collected for laboratory analysis by AECOM staff on October 6th, 2021. Please find attached a copy of the water quality testing results for your review and record.

Laboratory testing results for the sample obtained indicate that concentrations of certain parameters, as shown in the table below, are in excess of the *Ontario Drinking Water Standards, Objectives and Guidelines* (Ontario Ministry of the Environment, 2006). It should be noted, however, that these results are based on a single sample analysis and that additional testing is recommended.

PARAMETER	CONCENTRATION IN YOUR WATER	STANDARD VALUE / RANGE	STANDARD TYPE	HEALTH RELATED (Y / N)
Total Coliforms	42 CFU/ 100mL	0 CFU/100mL	MAC	Y
Hardness (as CaCO ₃)	425 mg/L	80 - 100 mg/L	OG	N

NOTE: MAC – Maximum Acceptable Concentration; AO – Aesthetic Objective; OG – Operational Guideline.

As discussed via telephone with Ms. Dalimonte on November 19th 2021, following receipt of the water quality testing results, the presence of bacteriological parameters (Total Coliforms) in your drinking water may represent an immediate health concern. It is recommended that you discuss this exceedance with your Local Public Health Unit.

For your information, the *Well Aware Booklet – A Guide To Caring For Your Well* created by Green Communities Canada is available on the Walkerton Clean Water Centre (WCWC) website at:

<https://wcwc.ca/well-aware-and-well-wise-program-resources-for-homeowners/>

Should you have any questions or concerns regarding the quality of your well water, it is recommended that you contact your local Public Health Unit for further information and advice. Contact information for your Local Public Health Unit is provided, as follows:

Simcoe Muskoka District Health Unit
80 Bradford St. #403
Barrie, ON L4N 6S7
Website: <https://www.simcoemuskokahealth.org/>
Telephone: 705.721.7520

If you have any further questions, please contact:

AECOM Canada Ltd. C/O Brian Holden, P.Geo.
Hydrogeology, Environment
Telephone: 226-821-2486
Email: brian.holden@aecom.com

Sincerely,
AECOM Canada Ltd.



Brian Holden, P.Geo.
Hydrogeologist
DCS Americas, Canada East (Greater Ontario / Metro Toronto)
Environment
Brian.holden@aecom.com

Encl.

cc: R. Sheikh, N. Valenton, S. Rankin, S.Schmied – AECOM;
H. Singh, L. Sarris, J. MacKinnon, R. Gribbon – MTO



Water Well Survey

Groundwater Supply Well Location 3223 Sideroad 10

Project Name: Bradford Bypass – BBP Expansion

Project#: 60636190

Residence Address:

3223 Sideroad 10, Bradford, Ontario, L3Z 4G3

Owner Information:

Owner Name: Ben Dalimonte

Phone Number: 416-990-9843

Email: bendalimonte@hotmail.com



Well

Well Record

Coordinates (UTM).....611485E/4887034N
(NAD83 Zone17)

Type of Well..... Dug

Constructed (year)..... 1980

Well Location..... In front of the house

Well Diameter.....0.914 m

Well Depth.....12.50 m

Casing Position.....N/A

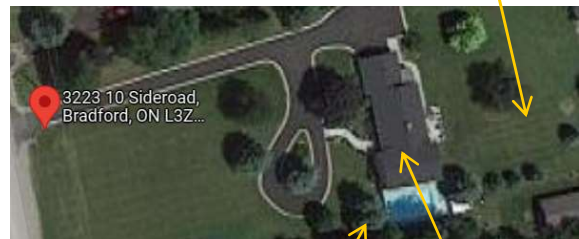
Casing Condition.....Fair

Water Usage.....Residential

Water Source.....Overburden

Static Water Level.....5.79 m

Septic Bed



Well

Sample Location

Water Quality & Well Testing

Past Water Quality Problems..... None

Potential Contamination Sources... None

Location of Septic Tank..... Backyard 80' away from well

Treatment System.....Water softener, filter, U.V.

Recent Test Results.....None

Water Sampled.....Yes (October 6, 2021)

Sample Source..... Pump valve

Appearance.....Clear, no odour

Comments:

- *Decorative well cover*
- *Declining water levels*

Quality Testing

Groundwater quality met the applicable standards for bacteriological, selected inorganic and metal parameters analyzed except for the following:

<i>Parameters</i>	<i>Test Results</i>	<i>Guideline/Standard</i>	<i>Criteria Type</i>
Total Coliforms	42 CFU / 100 ml	0 CFU / 100 ml	MAC
Hardness (as CaCO ₃)	425 mg/L	80 – 100 mg/L	OG

Notes:

1. Criteria are from “Ontario Drinking Water Standards” (Ontario Regulation 169/03) and “Technical Support Document for Ontario Drinking Water Standards, Objectives and Guidelines” (MOE, June 2003, revised June 2006)
2. AO - Aesthetic Objectives (parameters that may impair the taste, odour or colour of water or which may interfere with good water quality)
3. MAC- Maximum Acceptable Concentration (health related)
4. OG - Operational Guideline (parameters which must be controlled for effective treatment)
5. NDOGT – No data; sample overgrown with target bacteria; over-crowding microbial growth
6. CFU – Colony forming units
7. **Bold** - test result exceeding guideline/standard.





**CLIENT NAME: AECOM CANADA LTD
50 SPORTSWORLD CROSSING RD UNIT 290
KITCHENER, ON N2P0A4
(519) 650-5313**

ATTENTION TO: Brian Holden

PROJECT: 60636190

AGAT WORK ORDER: 21T812334

MICROBIOLOGY ANALYSIS REVIEWED BY: Nivine Basily, Inorganics Report Writer

WATER ANALYSIS REVIEWED BY: Yris Verastegui, Report Reviewer

DATE REPORTED: Oct 13, 2021

PAGES (INCLUDING COVER): 12

VERSION*: 1

Should you require any information regarding this analysis please contact your client services representative at (905) 712-5100

***Notes**

Empty box for notes.

Disclaimer:

- All work conducted herein has been done using accepted standard protocols, and generally accepted practices and methods. AGAT test methods may incorporate modifications from the specified reference methods to improve performance.
- All samples will be disposed of within 30 days after receipt unless a Long Term Storage Agreement is signed and returned. Some specialty analysis may be exempt, please contact your Client Project Manager for details.
- AGAT's liability in connection with any delay, performance or non-performance of these services is only to the Client and does not extend to any other third party. Unless expressly agreed otherwise in writing, AGAT's liability is limited to the actual cost of the specific analysis or analyses included in the services.
- This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
- The test results reported herewith relate only to the samples as received by the laboratory.
- Application of guidelines is provided "as is" without warranty of any kind, either expressed or implied, including, but not limited to, warranties of merchantability, fitness for a particular purpose, or non-infringement. AGAT assumes no responsibility for any errors or omissions in the guidelines contained in this document.
- All reportable information as specified by ISO/IEC 17025:2017 is available from AGAT Laboratories upon request.



Certificate of Analysis

AGAT WORK ORDER: 21T812334

PROJECT: 60636190

5835 COOPERS AVENUE
MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
TEL (905)712-5100
FAX (905)712-5122
<http://www.agatlabs.com>

CLIENT NAME: AECOM CANADA LTD

SAMPLING SITE:Bradford

ATTENTION TO: Brian Holden

SAMPLED BY:Justin Borrmann

Total Coliforms & E. Coli (Using MI Agar)

DATE RECEIVED: 2021-10-06

DATE REPORTED: 2021-10-13

SAMPLE DESCRIPTION: 3223 sdrd 10

SAMPLE TYPE: Water

DATE SAMPLED: 2021-10-06
15:18

Parameter	Unit	G / S	RDL	3061873
Escherichia coli	CFU/100mL	100	1	ND
Total Coliforms	CFU/100mL		1	42

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to PWQO * Variable - refer to guideline reference document
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

3061873 ND - Not Detected.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:



Nvine Basly



Certificate of Analysis

AGAT WORK ORDER: 21T812334

PROJECT: 60636190

5835 COOPERS AVENUE
MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
TEL (905)712-5100
FAX (905)712-5122
<http://www.agatlabs.com>

CLIENT NAME: AECOM CANADA LTD

SAMPLING SITE:Bradford

ATTENTION TO: Brian Holden

SAMPLED BY:Justin Borrmann

Water Quality Assessment - PWQO (mg/L)

DATE RECEIVED: 2021-10-06

DATE REPORTED: 2021-10-13

SAMPLE DESCRIPTION: 3223 sdrd 10

SAMPLE TYPE: Water

DATE SAMPLED: 2021-10-06
15:18

3061873

Parameter	Unit	G / S	RDL	3061873
Electrical Conductivity	µS/cm		2	1000
pH	pH Units	6.5-8.5	NA	7.78
Saturation pH (Calculated)				6.74
Langelier Index (Calculated)				1.04
Hardness (as CaCO3) (Calculated)	mg/L		0.5	425
Total Dissolved Solids	mg/L		10	598
Alkalinity (as CaCO3)	mg/L		5	332
Bicarbonate (as CaCO3)	mg/L		5	332
Carbonate (as CaCO3)	mg/L		5	<5
Hydroxide (as CaCO3)	mg/L		5	<5
Fluoride	mg/L		0.05	<0.05
Chloride	mg/L		0.12	99.4
Nitrate as N	mg/L		0.05	7.36
Nitrite as N	mg/L		0.05	<0.05
Bromide	mg/L		0.05	<0.05
Sulphate	mg/L		0.10	29.7
Ortho Phosphate as P	mg/L		0.10	<0.10
Ammonia as N	mg/L		0.02	<0.02
Ammonia-Un-ionized (Calculated)	mg/L	0.02	0.000002	<0.000002
Total Phosphorus	mg/L	*	0.02	<0.02
Total Organic Carbon	mg/L		0.5	1.5
True Colour	TCU		5	<5
Turbidity	NTU		0.5	<0.5
Total Calcium	mg/L		0.16	129
Total Magnesium	mg/L		0.17	25.0
Total Potassium	mg/L		0.58	1.60
Total Sodium	mg/L		0.22	33.7
Aluminum-dissolved	mg/L	*	0.004	<0.004
Total Antimony	mg/L	0.020	0.001	<0.001

Certified By:

Jris Veraátegui



Certificate of Analysis

AGAT WORK ORDER: 21T812334

PROJECT: 60636190

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CLIENT NAME: AECOM CANADA LTD

SAMPLING SITE:Bradford

ATTENTION TO: Brian Holden

SAMPLED BY:Justin Borrmann

Water Quality Assessment - PWQO (mg/L)

DATE RECEIVED: 2021-10-06

DATE REPORTED: 2021-10-13

SAMPLE DESCRIPTION: 3223 sdrd 10

SAMPLE TYPE: Water

DATE SAMPLED: 2021-10-06
15:18

3061873

Parameter	Unit	G / S	RDL	3061873
Total Arsenic	mg/L	0.1	0.003	<0.003
Total Barium	mg/L		0.002	0.071
Total Beryllium	mg/L	*	0.001	<0.001
Total Boron	mg/L	0.2	0.010	0.035
Total Cadmium	mg/L	0.0002	0.0001	<0.0001
Total Chromium	mg/L		0.003	<0.003
Total Cobalt	mg/L	0.0009	0.0005	<0.0005
Total Copper	mg/L	0.005	0.001	0.003
Total Iron	mg/L	0.3	0.010	0.024
Total Lead	mg/L	*	0.001	<0.001
Total Manganese	mg/L		0.002	<0.002
Dissolved Mercury	mg/L	0.0002	0.0001	<0.0001
Total Molybdenum	mg/L	0.040	0.002	<0.002
Total Nickel	mg/L	0.025	0.003	<0.003
Total Selenium	mg/L	0.1	0.002	<0.002
Total Silver	mg/L	0.0001	0.0001	<0.0001
Total Strontium	mg/L		0.005	0.326
Total Thallium	mg/L	0.0003	0.0003	<0.0003
Total Tin	mg/L		0.002	<0.002
Total Titanium	mg/L		0.010	<0.010
Total Tungsten	mg/L	0.030	0.010	<0.010
Total Uranium	mg/L	0.005	0.002	<0.002
Total Vanadium	mg/L	0.006	0.002	<0.002
Total Zinc	mg/L	0.030	0.020	<0.020
Total Zirconium	mg/L	0.004	0.004	<0.004
Lab Filtration Aluminum Dissolved				2021/10/7
Lab Filtration mercury				2021/10/7

Certified By:

José Verástegui



Certificate of Analysis

AGAT WORK ORDER: 21T812334

PROJECT: 60636190

5835 COOPERS AVENUE
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CLIENT NAME: AECOM CANADA LTD

SAMPLING SITE:Bradford

ATTENTION TO: Brian Holden

SAMPLED BY:Justin Borrmann

Water Quality Assessment - PWQO (mg/L)

DATE RECEIVED: 2021-10-06

DATE REPORTED: 2021-10-13

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to PWQO * Variable - refer to guideline reference document
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

3061873 Dilution required, RDL has been increased accordingly.
Un-ionized Ammonia detection limit is a calculated RDL. The calculation of Un-ionized Ammonia is based on lab measured parameters (ammonia as N, pH and temperature). Values are reported as calculated.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:

Quality Assurance

CLIENT NAME: AECOM CANADA LTD
PROJECT: 60636190
SAMPLING SITE:Bradford

AGAT WORK ORDER: 21T812334
ATTENTION TO: Brian Holden
SAMPLED BY:Justin Borrmann

Microbiology Analysis

RPT Date: Oct 13, 2021			DUPLICATE			Method Blank	REFERENCE MATERIAL		METHOD BLANK SPIKE		MATRIX SPIKE				
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD		Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper

Total Coliforms & E. Coli (Using MI Agar)

Escherichia coli	3061729	ND	ND	NA	< 1
Total Coliforms	3061729	50	40	22.2%	< 1

Comments: ND - Not Detected, NA - % RPD Not Applicable.

Certified By:



Nivine Basily

Quality Assurance

CLIENT NAME: AECOM CANADA LTD
PROJECT: 60636190
SAMPLING SITE:Bradford

AGAT WORK ORDER: 21T812334
ATTENTION TO: Brian Holden
SAMPLED BY:Justin Borrmann

Water Analysis															
RPT Date: Oct 13, 2021			DUPLICATE				Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE		MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Measured Value		Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper

Water Quality Assessment - PWQO (mg/L)															
Electrical Conductivity	3062184		40	40	0.0%	< 2	100%	90%	110%						
pH	3062184		6.69	6.73	0.6%	NA	102%	90%	110%						
Total Dissolved Solids	3060808		172	186	7.8%	< 10	98%	80%	120%						
Alkalinity (as CaCO3)	3062184		17	16	NA	< 5	87%	80%	120%						
Bicarbonate (as CaCO3)	3062184		17	16	NA	< 5	NA								
Carbonate (as CaCO3)	3062184		<5	<5	NA	< 5	NA								
Hydroxide (as CaCO3)	3062184		<5	<5	NA	< 5	NA								
Fluoride	3068146		<0.05	<0.05	NA	< 0.05	94%	70%	130%	107%	80%	120%	103%	70%	130%
Chloride	3068146		64.1	64.1	0.0%	< 0.10	93%	70%	130%	110%	80%	120%	109%	70%	130%
Nitrate as N	3068146		<0.05	<0.05	NA	< 0.05	100%	70%	130%	108%	80%	120%	108%	70%	130%
Nitrite as N	3068146		<0.05	<0.05	NA	< 0.05	102%	70%	130%	99%	80%	120%	112%	70%	130%
Bromide	3068146		<0.05	<0.05	NA	< 0.05	107%	70%	130%	106%	80%	120%	107%	70%	130%
Sulphate	3068146		123	123	0.0%	< 0.10	97%	70%	130%	109%	80%	120%	106%	70%	130%
Ortho Phosphate as P	3068146		<0.10	<0.10	NA	< 0.10	100%	70%	130%	100%	80%	120%	100%	70%	130%
Ammonia as N	3062181		<0.02	<0.02	NA	< 0.02	105%	70%	130%	99%	80%	120%	90%	70%	130%
Total Phosphorus	3061760		0.87	0.89	2.3%	< 0.02	98%	70%	130%	97%	80%	120%	NA	70%	130%
Total Organic Carbon	3062196		1.3	1.3	NA	< 0.5	103%	90%	110%	103%	90%	110%	95%	80%	120%
True Colour	3051121		232	237	2.1%	< 5	105%	90%	110%						
Turbidity	3061372		42.1	44.5	5.5%	< 0.5	98%	80%	120%						
Total Calcium	3059717		40.8	40.3	1.2%	< 0.10	93%	70%	130%	94%	80%	120%	100%	70%	130%
Total Magnesium	3059717		14.1	13.8	2.2%	< 0.10	97%	70%	130%	97%	80%	120%	103%	70%	130%
Total Potassium	3059717		1.29	1.24	NA	< 0.50	94%	70%	130%	95%	80%	120%	101%	70%	130%
Total Sodium	3059717		8.59	8.44	1.8%	< 0.10	92%	70%	130%	92%	80%	120%	101%	70%	130%
Aluminum-dissolved	3057466		<0.004	<0.004	NA	< 0.004	110%	70%	130%	107%	80%	120%	85%	70%	130%
Total Antimony	3059717		<0.001	<0.001	NA	< 0.001	99%	70%	130%	104%	80%	120%	105%	70%	130%
Total Arsenic	3059717		<0.003	<0.003	NA	< 0.003	93%	70%	130%	116%	80%	120%	112%	70%	130%
Total Barium	3059717		0.062	0.062	0.0%	< 0.002	101%	70%	130%	103%	80%	120%	109%	70%	130%
Total Beryllium	3059717		<0.001	<0.001	NA	< 0.001	96%	70%	130%	112%	80%	120%	112%	70%	130%
Total Boron	3059717		0.023	0.026	NA	< 0.010	99%	70%	130%	103%	80%	120%	111%	70%	130%
Total Cadmium	3059717		<0.0001	<0.0001	NA	< 0.0001	100%	70%	130%	105%	80%	120%	107%	70%	130%
Total Chromium	3059717		<0.003	<0.003	NA	< 0.003	107%	70%	130%	102%	80%	120%	107%	70%	130%
Total Cobalt	3059717		<0.0005	<0.0005	NA	< 0.0005	107%	70%	130%	109%	80%	120%	111%	70%	130%
Total Copper	3059717		0.002	0.002	NA	< 0.001	105%	70%	130%	104%	80%	120%	110%	70%	130%
Total Iron	3059717		0.162	0.181	11.1%	< 0.010	102%	70%	130%	105%	80%	120%	101%	70%	130%
Total Lead	3059717		<0.001	<0.001	NA	< 0.001	96%	70%	130%	109%	80%	120%	109%	70%	130%
Total Manganese	3059717		0.100	0.112	11.3%	< 0.002	103%	70%	130%	109%	80%	120%	107%	70%	130%
Dissolved Mercury	3065987		<0.0001	<0.0001	NA	< 0.0001	99%	70%	130%	99%	80%	120%	99%	70%	130%
Total Molybdenum	3059717		<0.002	<0.002	NA	< 0.002	106%	70%	130%	107%	80%	120%	110%	70%	130%
Total Nickel	3059717		<0.003	<0.003	NA	< 0.003	104%	70%	130%	105%	80%	120%	106%	70%	130%

Quality Assurance

CLIENT NAME: AECOM CANADA LTD
PROJECT: 60636190
SAMPLING SITE: Bradford

AGAT WORK ORDER: 21T812334
ATTENTION TO: Brian Holden
SAMPLED BY: Justin Borrmann

Water Analysis (Continued)

RPT Date: Oct 13, 2021			DUPLICATE				Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE		MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Measured Value		Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
Total Selenium	3059717		<0.002	<0.002	NA	< 0.002	96%	70%	130%	113%	80%	120%	105%	70%	130%
Total Silver	3059717		<0.0001	<0.0001	NA	< 0.0001	99%	70%	130%	109%	80%	120%	106%	70%	130%
Total Strontium	3059717		0.261	0.287	9.5%	< 0.005	100%	70%	130%	107%	80%	120%	100%	70%	130%
Total Thallium	3059717		<0.0003	<0.0003	NA	< 0.0003	96%	70%	130%	111%	80%	120%	110%	70%	130%
Total Tin	3059717		<0.002	<0.002	NA	< 0.002	105%	70%	130%	110%	80%	120%	106%	70%	130%
Total Titanium	3059717		<0.010	<0.010	NA	< 0.010	95%	70%	130%	107%	80%	120%	110%	70%	130%
Total Tungsten	3059717		<0.010	<0.010	NA	< 0.010	97%	70%	130%	103%	80%	120%	104%	70%	130%
Total Uranium	3059717		<0.002	<0.002	NA	< 0.002	93%	70%	130%	110%	80%	120%	111%	70%	130%
Total Vanadium	3059717		<0.002	<0.002	NA	< 0.002	107%	70%	130%	106%	80%	120%	107%	70%	130%
Total Zinc	3059717		0.029	<0.020	NA	< 0.020	107%	70%	130%	103%	80%	120%	110%	70%	130%
Total Zirconium	3059717		<0.004	<0.004	NA	< 0.004	110%	70%	130%	106%	80%	120%	107%	70%	130%

Comments: NA signifies Not Applicable.
 If the RPD value is NA, the results of the duplicates are under 5X the RDL and will not be calculated.
 Matrix spike: Spike level < native concentration. Matrix spike acceptance limits do not apply.

Certified By:





Method Summary

CLIENT NAME: AECOM CANADA LTD

PROJECT: 60636190

SAMPLING SITE:Bradford

AGAT WORK ORDER: 21T812334

ATTENTION TO: Brian Holden

SAMPLED BY:Justin Borrmann

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Microbiology Analysis			
Escherichia coli	MIC-93-7010	EPA 1604	Membrane Filtration
Total Coliforms	MIC-93-7010	EPA 1604	Membrane Filtration

Method Summary

CLIENT NAME: AECOM CANADA LTD
AGAT WORK ORDER: 21T812334
PROJECT: 60636190
ATTENTION TO: Brian Holden
SAMPLING SITE:Bradford
SAMPLED BY:Justin Borrmann

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Water Analysis			
Electrical Conductivity	INOR-93-6000	modified from SM 2510 B	PC TITRATE
pH	INOR-93-6000	modified from SM 4500-H+ B	PC TITRATE
Saturation pH (Calculated)		SM 2320 B	CALCULATION
Langelier Index (Calculated)		SM 2330B	CALCULATION
Hardness (as CaCO ₃) (Calculated)	MET-93-6105	modified from EPA SW-846 6010C & 200.7 & SM 2340 B	CALCULATION
Total Dissolved Solids	INOR-93-6028	modified from EPA 1684,ON MOECC E3139,SM 2540C,D	BALANCE
Alkalinity (as CaCO ₃)	INOR-93-6000	Modified from SM 2320 B	PC TITRATE
Bicarbonate (as CaCO ₃)	INOR-93-6000	modified from SM 2320 B	PC TITRATE
Carbonate (as CaCO ₃)	INOR-93-6000	modified from SM 2320 B	PC TITRATE
Hydroxide (as CaCO ₃)	INOR-93-6000	modified from SM 2320 B	PC TITRATE
Fluoride	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Chloride	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Nitrate as N	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Nitrite as N	INOR-93-6004	SM 4110 B	ION CHROMATOGRAPH
Bromide	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Sulphate	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Ortho Phosphate as P	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Ammonia as N	INOR-93-6059	modified from SM 4500-NH ₃ H	LACHAT FIA
Ammonia-Un-ionized (Calculated)		MOE REFERENCE, PWQOs Tab 2	CALCULATION
Total Phosphorus	INOR-93-6022	modified from SM 4500-P B and SM 4500-P E	SPECTROPHOTOMETER
Total Organic Carbon	INOR-93-6049	modified from SM 5310 B	SHIMADZU CARBON ANALYZER
True Colour	INOR-93-6074	modified from SM 2120 B	LACHAT FIA
Turbidity	INOR-93-6044	modified from SM 2130 B	NEPHELOMETER
Total Calcium	MET-93-6105	modified from EPA 6010D	ICP/OES
Total Magnesium	MET-93-6105	modified from EPA 6010D	ICP/OES
Total Potassium	MET-93-6105	modified from EPA 6010D	ICP/OES
Total Sodium	MET-93-6105	modified from EPA 6010D	ICP/OES
Aluminum-dissolved	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Total Antimony	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Arsenic	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Barium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Beryllium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Boron	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Cadmium	MET -93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Chromium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Cobalt	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Copper	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Iron	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS



Method Summary

CLIENT NAME: AECOM CANADA LTD

AGAT WORK ORDER: 21T812334

PROJECT: 60636190

ATTENTION TO: Brian Holden

SAMPLING SITE:Bradford

SAMPLED BY:Justin Borrmann

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Total Lead	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Manganese	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Dissolved Mercury	MET-93-6100	modified from EPA 245.2 and SM 3112 B	CVAAS
Total Molybdenum	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Nickel	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Selenium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Silver	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Strontium	INOR-93-6003	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Thallium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Tin	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Titanium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Tungsten	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Uranium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Vanadium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Zinc	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Zirconium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Lab Filtration Aluminum Dissolved	SR-78-9001		FILTRATION
Lab Filtration mercury	SR-78-9001		FILTRATION



Ontario

WATER WELL RECORD

3104E

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

#1158
11 5716995

MUNICIPALITY: 57.004 CON. CAN LOT: 08

COUNTY OR DISTRICT SIMCOE	TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE West Gwillimbury	CON., BLOCK, TRACT, SURVEY, ETC. Conc. 8	LOT 011
ADDRESS Simcoe Road, Bradford, Ont.			DATE COMPLETED DAY <u>09</u> MO <u>06</u> YR <u>80</u>
GRID COORDINATE <u>86.850</u>	RC <u>5</u>	ELEVATION <u>0925</u>	RC <u>5</u>
BASIN CODE <u>22</u>			

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET	
				FROM	TO
		Topsoil		0	1
		Brown stony clay		1	19
		Blue stony clay		19	41

31 0001 02 001960587 004130587

32

41 WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER
<u>019</u>	<input checked="" type="checkbox"/> FRESH <input type="checkbox"/> SALTY <input type="checkbox"/> SULPHUR <input type="checkbox"/> MINERAL

51 CASING & OPEN HOLE RECORD

INSIDE DIAM INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET
<u>30"</u>	<input checked="" type="checkbox"/> CONCRETE	<u>#3"</u>	<u>0</u> <u>0041</u>

SCREEN

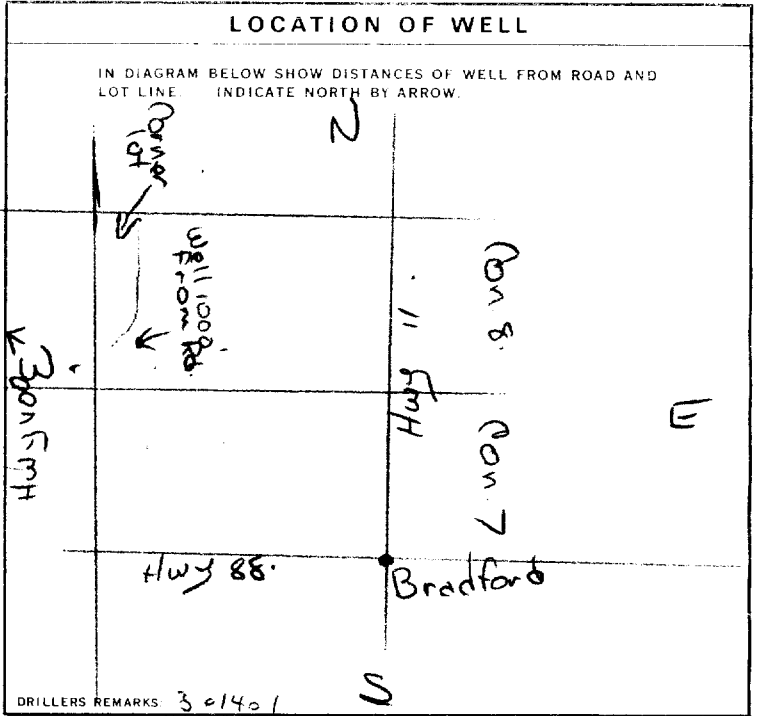
SIZE(S) OF OPENING (SLOT NO.)	DIAMETER INCHES	LENGTH FEET

61 PLUGGING & SEALING RECORD

DEPTH SET AT - FEET	MATERIAL AND TYPE

71 PUMPING TEST

PUMPING TEST METHOD <input type="checkbox"/> PUMP <input checked="" type="checkbox"/> BAILER	PUMPING RATE GPM <u>12</u>	DURATION OF PUMPING HOURS <u>00</u> MINS <u>17-18</u>
STATIC LEVEL FEET <u>018</u>	WATER LEVEL END OF PUMPING FEET <u>14 ft.</u>	WATER LEVELS DURING 15 MINUTES <u>14 ft.</u> 30 MINUTES <u>14 ft.</u> 45 MINUTES <u>14 ft.</u> 60 MINUTES <u>001</u>
IF FLOWING, GIVE RATE GPM	PUMP INTAKE SET AT FEET <u>039</u>	WATER AT END OF TEST FEET <u>0003</u>



FINAL STATUS OF WELL 1

WATER USE 01

METHOD OF DRILLING 6

CONTRACTOR

NAME OF WELL CONTRACTOR: J. F. KITCHING & SON LTD. LICENCE NUMBER: 3109

ADDRESS: R. R. # 1, Queensville, Ont.

NAME OF DRILLER OR BORER: BRUCE DAILY LICENCE NUMBER: _____

SIGNATURE OF CONTRACTOR: _____ SUBMISSION DATE: DAY 10 NO 09 YR 80

OFFICE USE ONLY

DATA SOURCE: 1 CONTRACTOR: 3109 DATE RECEIVED: 290980

DATE OF INSPECTION: _____ INSPECTOR: _____

REMARKS: _____

P _____

CSS: WS

EBP

Water Well Survey

AECOM

Well I.D. #: _____ AECOM Project No.: 60636190
 MECP WWR #: 5716995 Client Project No.: _____

Well Owner Information:

Property Owner Name:		<u>BEN DALIMONTE</u>	
Property Address:		<u>3223 SIDER ROAD 10</u>	
Telephone:	<u>416 990 9843</u>	Email:	<u>BENDALIMONTE@HOTMAIL.COM</u>
Name of Person Completing Survey:		<u>SAME</u>	
Telephone:		Email:	
Relationship to Property Owner:	<u>-</u>	Date of Survey Completion:	<u>SEPT 6/21</u>
Name of Original Well Owner: (if known/different from above)		<u>JOHN EVANS</u>	

Occupant of Property Served by Well: (if other than Owner)

Name:			
Telephone:		Email:	
Address:			

Well Location:

Lot:		Concession:		Township:	
------	--	-------------	--	-----------	--

Well Construction Details:

Well Record Available?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Date Well Constructed:	<u>-</u>	Well Contractor Name:	<u>-</u>
Well Type: (Drilled / Bored / Dug)		Casing Material: (Steel, Concrete, etc.)	<u>CONCRETE</u>	Well Casing Diameter:	<u>3 FT</u>
Well Stick Up: (Above Ground)	<u>3 FT</u>	Well Depth: (Below Ground)	<u>30-40 FT</u>	Water Level: (Below Ground)	<u>-</u>
Is Well Located in a Well Pit?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Well Pit Depth: (Below Ground)		Well Stick Up: (Above Pit Bottom)	
Is Well Flowing?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Flow Rate:	<u>-</u>	Contractor:	
Well Cap Type:	<u>CONCRETE</u>	Does Cap Create a Good Seal?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is Wire Conduit Tight to Well Cap?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Is the Well:	Accessible for Direct Sampling?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	OR	Buried, in a Well Pit, or Other Confined Space?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Well Screen Installed?	<input type="checkbox"/> Yes <input type="checkbox"/> No	If Yes, Length & Slot Size:		Depth of Top of Screen: (Below Ground)	

PROTECTIVE HAND FOR DBYPASS. CA.

Water Well Survey

AECOM

Well I.D. #: _____ AECOM Project No.: 60636190
 MECF WWR #: 5716995 Client Project No.: _____

Pumping Equipment:

Pump Type:	<input type="checkbox"/> Jet Pump <input checked="" type="checkbox"/> Submersible <input type="checkbox"/> Piston Pump <input type="checkbox"/> Other (please describe): _____		
Pump Horsepower:	_____	Pump Age:	_____
Pump Intake Depth: (Below Ground)	_____	Pump Location: (If Not in Well)	_____
Pressure Tank:	Type: <u>STEEL</u>	Capacity:	_____
Water Treatment: (if present)	<input type="checkbox"/> Chlorinator <input checked="" type="checkbox"/> Water Softener <input checked="" type="checkbox"/> Water Filter (indicate type) _____ <input checked="" type="checkbox"/> U.V. <input type="checkbox"/> R.O. <input type="checkbox"/> Other (please describe): _____		

Well Usage:

Primary Use(s):	Domestic: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Livestock: <input type="checkbox"/> Yes <input type="checkbox"/> No	Lawn Watering: <input type="checkbox"/> Yes <input type="checkbox"/> No
# of Persons Using Well: <u>7</u>	# of Livestock Watered: _____	Other Uses: _____	Daily Amount: (if known) _____
Indoor Plumbing Fixtures: (Washroom(s), Shower(s), Dishwasher, Laundry, Pool, Spa, etc.)		<u>5 WASHROOMS</u> <u>2 LAUNDRY</u> <u>2 DISHWASHERS</u>	

OCCASIONAL

Sewage Servicing:

Private Sewage System or Municipal:	_____	System Type: (septic tank, etc.)	<input checked="" type="checkbox"/>	Distance from Well:	<u>80'</u>
Well Location:	<input checked="" type="checkbox"/> Uphill <input type="checkbox"/> Downhill <input type="checkbox"/> Same Grade				
Presence of Any Above Ground Storage Tank or Other Potential Source(s) of Contamination: (including distance on / off property)			<u>NO</u>		

Previous Concerns:

How Long Have You Owned, Resided, or Operated a Business on this Property?	<u>5 YEARS</u>		
Have You Experienced Any Previous Concerns with Your Well Supply? (Quantity or Quality)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If Yes, When?	_____
Cause(s) of the Previous Concern?	<input type="checkbox"/> Drought <input type="checkbox"/> Pump Failure <input type="checkbox"/> Plugging <input type="checkbox"/> Increased Usage <input type="checkbox"/> Interference <input type="checkbox"/> Contamination <input type="checkbox"/> Other (Please describe): _____		

Water Well Survey

AECOM

Well I.D. #: _____ AECOM Project No.: 00030190
 MECP WWR #: 5716995 Client Project No.: _____

Pumping Equipment:

Pump Type:	<input type="checkbox"/> Jet Pump <input checked="" type="checkbox"/> Submersible <input type="checkbox"/> Piston Pump <input type="checkbox"/> Other (please describe): _____				
Pump Horsepower:	_____	Pump Age:	_____	Pumping Capacity:	_____
Pump Intake Depth: (Below Ground)	_____	Pump Location: (If Not in Well)	_____	Pumping Rate: (If Known)	_____
Pressure Tank:	Type:	<u>STEEL</u>		Capacity:	_____
Water Treatment: (if present)	<input type="checkbox"/> Chlorinator <input checked="" type="checkbox"/> Water Softener <input checked="" type="checkbox"/> Water Filter (indicate type) _____ <input checked="" type="checkbox"/> U.V. <input type="checkbox"/> R.O. <input type="checkbox"/> Other (please describe): _____				

Well Usage:

Primary Use(s):	Domestic:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Livestock:	<input type="checkbox"/> Yes <input type="checkbox"/> No	Lawn Watering:	<input type="checkbox"/> Yes <input type="checkbox"/> No
# of Persons Using Well:	<u>7</u>	# of Livestock Watered:	_____	Other Uses:	_____	Daily Amount: (if known)
Indoor Plumbing Fixtures: (Washroom(s), Shower(s), Dishwasher, Laundry, Pool, Spa, etc.)			<u>OCCASIONAL</u> <u>5 WASHROOMS</u> <u>2 LAUNDRY</u> <u>2 DISHWASHERS</u>			

Sewage Servicing:

Private Sewage System or Municipal:	_____	System Type: (septic tank, etc.)	<input checked="" type="checkbox"/>	Distance from Well:	<u>50'</u>
Well Location:	<input checked="" type="checkbox"/> Uphill <input type="checkbox"/> Downhill <input type="checkbox"/> Same Grade				
Presence of Any Above Ground Storage Tank or Other Potential Source(s) of Contamination: (including distance on / off property)	<u>NO</u>				

Previous Concerns:

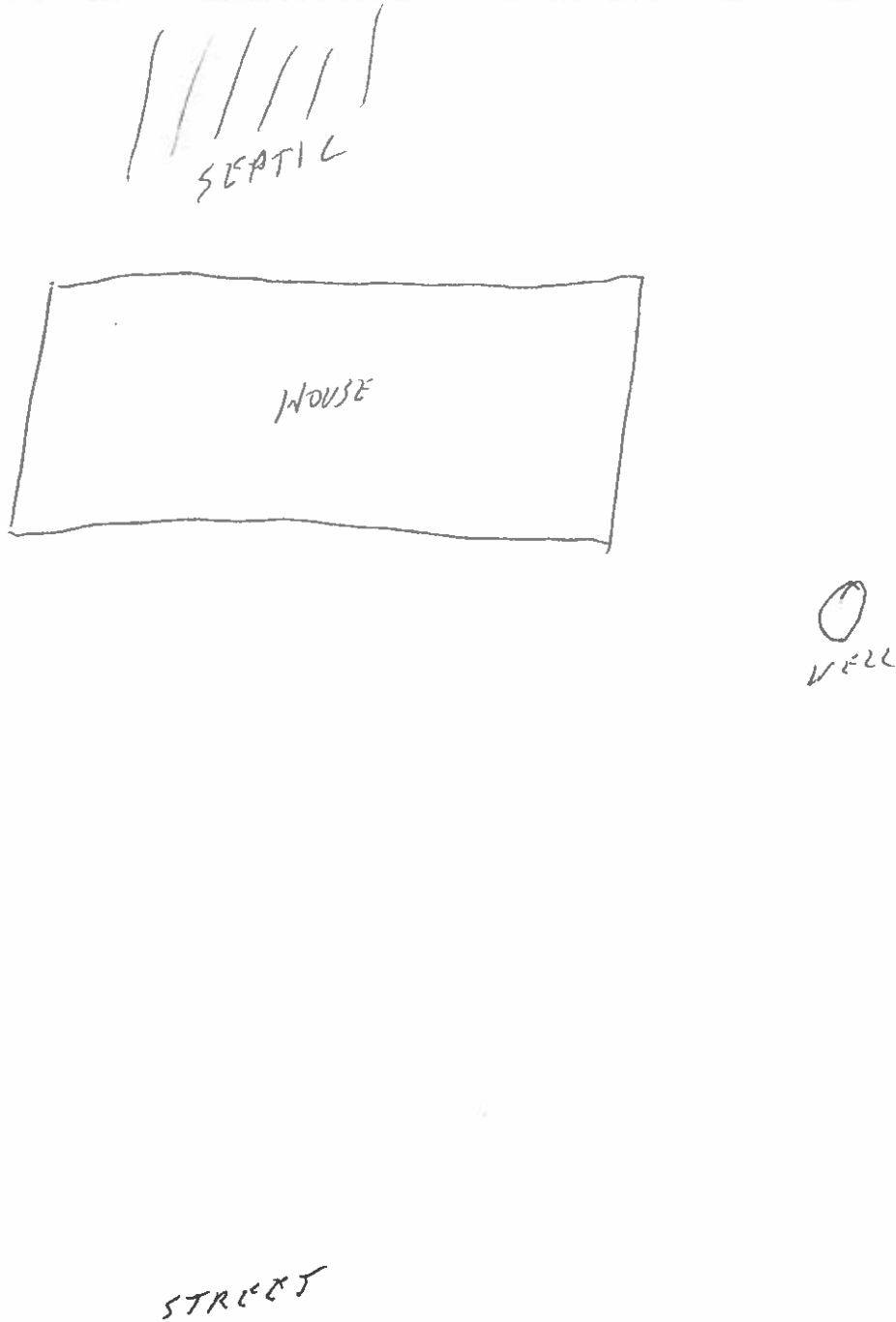
How Long Have You Owned, Resided, or Operated a Business on this Property?	<u>5 YEARS</u>		
Have You Experienced Any Previous Concerns with Your Well Supply? (Quantity or Quality)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If Yes, When?	_____
Cause(s) of the Previous Concern?	<input type="checkbox"/> Drought <input type="checkbox"/> Pump Failure <input type="checkbox"/> Plugging <input type="checkbox"/> Increased Usage <input type="checkbox"/> Interference <input type="checkbox"/> Contamination <input type="checkbox"/> Other (Please describe): _____		

Water Well Survey

AECOM

Well I.D. #: _____ AECOM Project No.: 60636190
MECP WWR #: 5716995 Client Project No.: _____

Location Sketch (To be Completed by Property Owner / Occupant)



Include details such as property lines, buildings, well, sewage system (if present), as well as any other potential sources of contamination (e.g., tanks, barnyards, chemical/manure storage, etc.).

Water Well Survey

AECOM

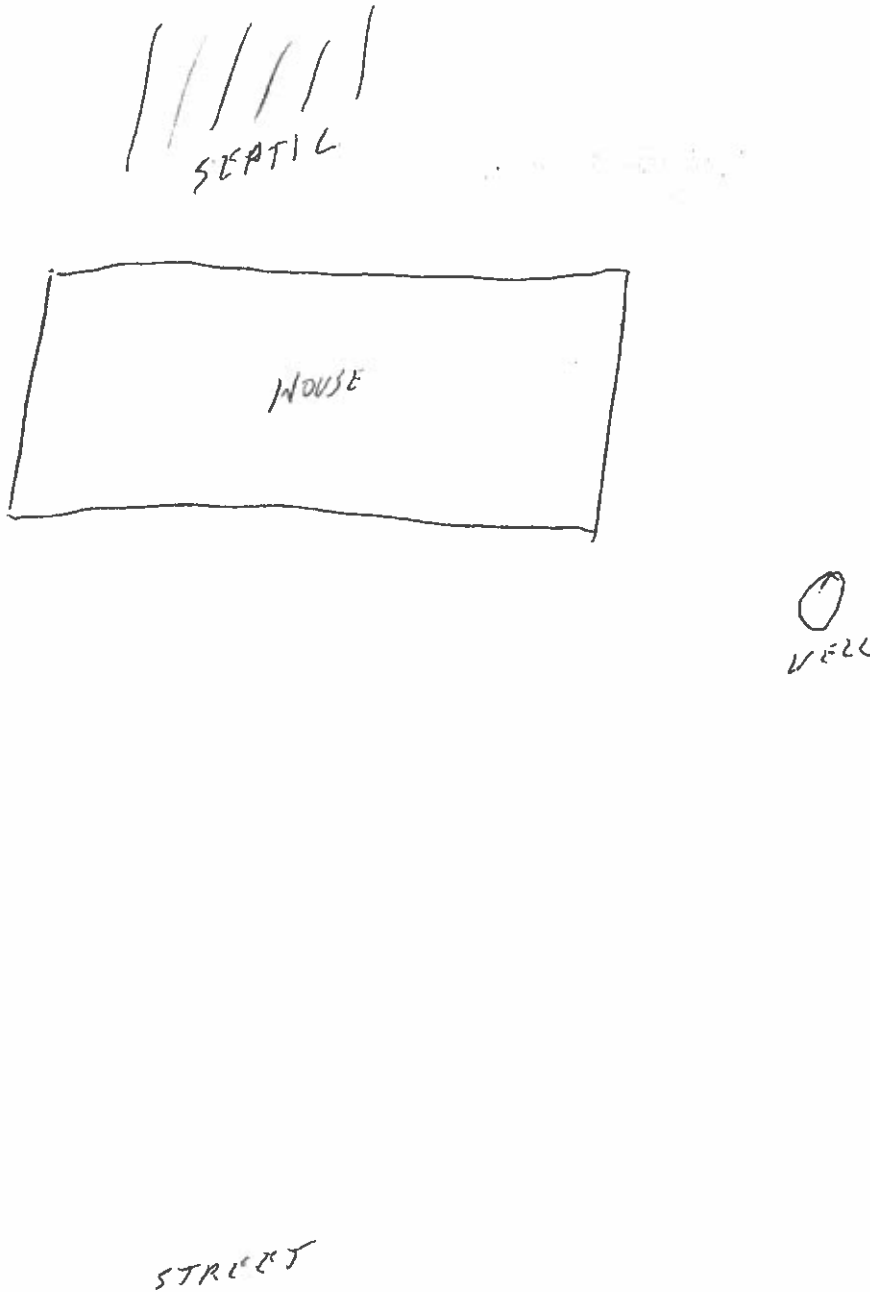
Well I.D. #: _____

AECOM Project No.: 60036190

MECP WWR #: 5710995

Client Project No.: _____

Location Sketch (To be Completed by Property Owner / Occupant)



Include details such as property lines, buildings, well, sewage system (if present), as well as any other potential sources of contamination (e.g., tanks, barnyards, chemical/manure storage, etc.).

Water Well Survey

AECOM

Well I.D. #: _____ AECOM Project No.: 00036190
 MECP WWR #: 5716995 Client Project No.: _____

Field Visit Log (To Be Completed by AECOM Staff)

General Details:

Project Name:	<u>BBP - Well Survey</u>		Project No.:	<u>00036190</u>	
Address:	<u>3223 Sideroad 10</u>		Inspected By:	<u>Holden / Borriam</u>	
Date:	<u>Oct 6/21</u>	Time:	<u>15:00 - 15:30</u>	Weather:	<u>Sunny / Cloudy</u>
Easting:	<u>611485</u>	Northing:	<u>4887034</u>	Datum:	<u>17T</u>

Well Details:

Is Well Accessible for Inspection?		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If No, Provide Reason: <u>Decorative Cover</u>		
MECP Water Well Record No.:	<u>5716995</u>	Date Well Constructed:	<u>9/8/80</u>	Contractor Name:	<u>JF Kitching & Son Cte</u>
Well Type: <small>(Drilled / Bored / Dug)</small>	<u>DUG</u>	Well Stick Up: <small>(Above Ground)</small>	<u>NA</u>	Casing Material: <small>(Steel, Concrete, etc.)</small>	<u>Concrete</u>
Well Located in a Well Pit?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Well Pit Depth: <small>(Below Ground)</small>	<u>41 ft</u>	Well Stick Up: <small>(Above Pit Bottom)</small>	<u>-</u>
Well Casing Diameter:	<u>3 ft</u>	Well Depth: <small>(Below Ground)</small>	<u>-</u>	Groundwater Level: <small>(Below Ground)</small>	<u>19 ft</u>
Pump On / Off?	<input checked="" type="checkbox"/> On <input type="checkbox"/> Off	Water Level Condition:	<input type="checkbox"/> Stable (Static) <input checked="" type="checkbox"/> Declining (Drawdown) <input type="checkbox"/> Rising (Recovery)		
Flowing Well?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Flow Rate: <small>(Estimated)</small>	<u>3 GPM</u>	Well Cap Type:	<u>concrete</u>
Well Screen Installed?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If Yes, Length & Slot Size:	<u>-</u>	Top of Screen: <small>(Below Ground)</small>	<u>-</u>
Is There a Depression Around the Well Casing Exterior?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Photo(s) of Well Obtained?		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Observation(s) Summary:

<u>- Decorative well cover.</u>

Water Well Survey

AECOM

Well I.D. #: _____ AECOM Project No.: 60036190
 MECP WWR #: S716995 Client Project No.: _____

Water Quality Sampling:

Water Quality Sample Obtained?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If No, Provide Reason:	
Sampling Location:	<u>Pump valve</u>	Raw or Treated Sample?	<u>Raw</u>
Disinfected Sample Port?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Disinfection Method:	<u>Alconex</u>
Photo of Sample Obtained? (against white background)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If No, Provide Reason:	

Analyte Suite:					
Sample I.D.:	<u>3225 SDRD10</u>	Date / Time of Sampling:	<u>15:18</u>	Number of Sample Bottles:	<u>9</u>

Field Water Quality Parameters: (record units)					
Temperature:	<u>14.8</u>	pH:	<u>7.31</u>	Conductivity:	<u>1.14</u>
Turbidity:	<u>-</u>	D.O.:	<u>-</u>	Colour:	<u>Clear/Colorless</u>
Odours?	<u>-</u>	Appearance/Odour:	<u>None</u>		

Type of Concern: (if applicable)	<input type="checkbox"/> Water Quantity <input type="checkbox"/> Water Quality (Note any differences in taste, odour, colour or clarity)
If the concern was contamination what changes were apparent to water quality?	<u>None.</u>
Were there any effects of this concern?	
What action was taken to overcome this concern?	

AECOM Canada Ltd.
 105 Commerce Valley Drive West, 7th Floor
 Markham, ON L3T 7W3
 Canada

T: 905.886.7022
 F: 905.538.8076
 www.aecom.com

Appendix **L**

Property ID #108 – 3241 Sideroad 10

November 22nd, 2021

Ric & Sue Bourgeois
3241 10th Sideroad
Bradford, ON
L3z 4G3

Project No: 60636190
Regarding: Pre-Construction Water Quality Testing Results
MTO Bradford Bypass Project

Dear Mr. and Ms. Bourgeois,

AECOM Canada Ltd. (AECOM) would like to thank you for your participation in the Pre-Construction Well Assessment Program offered to local residents as part of the Bradford Bypass Project. Based on receipt of written permission from yourself, a sample of raw (untreated) groundwater from your private well was collected for laboratory analysis by AECOM staff on October 6th, 2021. Please find attached a copy of the water quality testing results for your review and record.

Laboratory testing results for the sample obtained indicate that concentrations of certain parameters, as shown in the table below, are in excess of the *Ontario Drinking Water Standards, Objectives and Guidelines* (Ontario Ministry of the Environment, 2006). It should be noted, however, that these results are based on a single sample analysis and that additional testing is recommended.

PARAMETER	CONCENTRATION IN YOUR WATER	STANDARD VALUE / RANGE	STANDARD TYPE	HEALTH RELATED (Y / N)
Total Coliforms	200 CFU/ 100mL	0 CFU/100mL	MAC	Y
Hardness (as CaCO ₃)	297 mg/L	80 - 100 mg/L	OG	N

NOTE: MAC – Maximum Acceptable Concentration; AO – Aesthetic Objective; OG – Operational Guideline.

As discussed via telephone with Mr. Bourgeois on November 19th, 2021, following receipt of the water quality testing results, the presence of bacteriological parameters (Total Coliforms) in your drinking water may represent an immediate health concern. It is recommended that you discuss this exceedance with your Local Public Health Unit.

For your information, the *Well Aware Booklet – A Guide To Caring For Your Well* created by Green Communities Canada is available on the Walkerton Clean Water Centre (WCWC) website at:

<https://wcwc.ca/well-aware-and-well-wise-program-resources-for-homeowners/>

Should you have any questions or concerns regarding the quality of your well water, it is recommended that you contact your local Public Health Unit for further information and advice. Contact information for your Local Public Health Unit is provided, as follows:

Simcoe Muskoka District Health Unit
80 Bradford St. #403
Barrie, ON L4N 6S7
Website: <https://www.simcoemuskokahealth.org/>
Telephone: 705.721.7520

If you have any further questions, please contact:

AECOM Canada Ltd. C/O Brian Holden, P.Geo.
Hydrogeology, Environment
Telephone: 226-821-2486
Email: brian.holden@aecom.com

Sincerely,
AECOM Canada Ltd.



Brian Holden, P.Geo.
Hydrogeologist
DCS Americas, Canada East (Greater Ontario / Metro Toronto)
Environment
Brian.holden@aecom.com

Encl.

cc: R. Sheikh, N. Valenton, S. Rankin, S.Schmied – AECOM;
H. Singh, L. Sarris, J. MacKinnon, R. Gribbon – MTO



Water Well Survey

Groundwater Supply Well Location 3241 Sideroad 10

Project Name: Bradford Bypass – BBP Expansion

Project#: 60636190

Residence Address:

3241 Sideroad 10, Bradford, Ontario, L3Z 4G3

Owner Information:

Owner Name: Ric Bourgeois and Sue Bourgeois

Phone Number: 905-252-6806

Email: bourgeois.ric@gmail.com

Well Record

Coordinates (UTM).....614423E/4887107N
(NAD83 Zone17)

Type of Well..... Dug

Constructed (year)..... 1987

Well Location..... In front of the house

Well Diameter.....0.914 m

Well Depth.....16.74 m

Casing Position.....0.30 m above ground;

Casing Condition.....Fair

Water Usage.....Residential

Water Source.....Overburden

Static Water Level.....13.72 m



Well

Septic Bed



Well

Sample Location

Water Quality & Well Testing

Past Water Quality Problems..... None

Potential Contamination Sources... None

Location of Septic Tank..... Backyard 100' away from house

Treatment System.....Water softener, filter, U.V.

Recent Test Results.....None

Water Sampled.....Yes (October 7, 2021)

Sample Source..... Side house tap.

Appearance.....Clear, no odour

Comments:

- The well sampled is the residential well and has been used for 34 years. No history of well issues.
- Concern about bypass construction influences
- Extreme drought conditions observed

Quality Testing

Groundwater quality met the applicable standards for bacteriological, selected inorganic and metal parameters analyzed except for the following:

<i>Parameters</i>	<i>Test Results</i>	<i>Guideline/Standard</i>	<i>Criteria Type</i>
Total Coliforms	200 CFU / 100 ml	0 CFU / 100 ml	MAC
Hardness (as CaCO ₃)	297 mg/L	80 – 100 mg/L	OG

Notes:

1. Criteria are from “Ontario Drinking Water Standards” (Ontario Regulation 169/03) and “Technical Support Document for Ontario Drinking Water Standards, Objectives and Guidelines” (MOE, June 2003, revised June 2006)
2. AO - Aesthetic Objectives (parameters that may impair the taste, odour or colour of water or which may interfere with good water quality)
3. MAC- Maximum Acceptable Concentration (health related)
4. OG - Operational Guideline (parameters which must be controlled for effective treatment)
5. NDOGT – No data; sample overgrown with target bacteria; over-crowding microbial growth
6. CFU – Colony forming units
7. **Bold** - test result exceeding guideline/standard.





**CLIENT NAME: AECOM CANADA LTD
50 SPORTSWORLD CROSSING RD UNIT 290
KITCHENER, ON N2P0A4
(519) 650-5313**

ATTENTION TO: Brian Holden

PROJECT: 60636110

AGAT WORK ORDER: 21T813002

MICROBIOLOGY ANALYSIS REVIEWED BY: Nivine Basily, Inorganics Report Writer

WATER ANALYSIS REVIEWED BY: Jacky Zhu, Spectroscopy Technician

DATE REPORTED: Oct 15, 2021

PAGES (INCLUDING COVER): 12

VERSION*: 1

Should you require any information regarding this analysis please contact your client services representative at (905) 712-5100

***Notes**

Disclaimer:

- All work conducted herein has been done using accepted standard protocols, and generally accepted practices and methods. AGAT test methods may incorporate modifications from the specified reference methods to improve performance.
- All samples will be disposed of within 30 days after receipt unless a Long Term Storage Agreement is signed and returned. Some specialty analysis may be exempt, please contact your Client Project Manager for details.
- AGAT's liability in connection with any delay, performance or non-performance of these services is only to the Client and does not extend to any other third party. Unless expressly agreed otherwise in writing, AGAT's liability is limited to the actual cost of the specific analysis or analyses included in the services.
- This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
- The test results reported herewith relate only to the samples as received by the laboratory.
- Application of guidelines is provided "as is" without warranty of any kind, either expressed or implied, including, but not limited to, warranties of merchantability, fitness for a particular purpose, or non-infringement. AGAT assumes no responsibility for any errors or omissions in the guidelines contained in this document.
- All reportable information as specified by ISO/IEC 17025:2017 is available from AGAT Laboratories upon request.



Certificate of Analysis

AGAT WORK ORDER: 21T813002

PROJECT: 60636110

5835 COOPERS AVENUE
 MISSISSAUGA, ONTARIO
 CANADA L4Z 1Y2
 TEL (905)712-5100
 FAX (905)712-5122
<http://www.agatlabs.com>

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Brian Holden

SAMPLING SITE:

SAMPLED BY:

Total Coliforms & E. Coli (Using MI Agar)

DATE RECEIVED: 2021-10-07

DATE REPORTED: 2021-10-15

SAMPLE DESCRIPTION: 3241 Sdrd 10

SAMPLE TYPE: Water

DATE SAMPLED: 2021-10-07

11:08

3067645

Parameter	Unit	G / S	RDL	3067645
Escherichia coli	CFU/100mL	100	1	ND
Total Coliforms	CFU/100mL		100	200

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to PWQO * Variable - refer to guideline reference document
 Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

3067645 If RDL >1 indicates dilutions of the sample.
 ND - Not Detected.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:



Ally Basch



Certificate of Analysis

AGAT WORK ORDER: 21T813002

PROJECT: 60636110

5835 COOPERS AVENUE
MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
TEL (905)712-5100
FAX (905)712-5122
<http://www.agatlabs.com>

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Brian Holden

SAMPLING SITE:

SAMPLED BY:

Water Quality Assessment - PWQO (mg/L)

DATE RECEIVED: 2021-10-07

DATE REPORTED: 2021-10-15

SAMPLE DESCRIPTION: 3241 Sdrd 10

SAMPLE TYPE: Water

DATE SAMPLED: 2021-10-07
11:08

3067645

Parameter	Unit	G / S	RDL	3067645
Electrical Conductivity	µS/cm		2	673
pH	pH Units	6.5-8.5	NA	7.99
Saturation pH (Calculated)				6.99
Langelier Index (Calculated)				0.999
Hardness (as CaCO3) (Calculated)	mg/L		0.5	297
Total Dissolved Solids	mg/L		10	376
Alkalinity (as CaCO3)	mg/L		5	249
Bicarbonate (as CaCO3)	mg/L		5	249
Carbonate (as CaCO3)	mg/L		5	<5
Hydroxide (as CaCO3)	mg/L		5	<5
Fluoride	mg/L		0.05	<0.05
Chloride	mg/L		0.10	20.9
Nitrate as N	mg/L		0.05	9.81
Nitrite as N	mg/L		0.05	<0.05
Bromide	mg/L		0.05	<0.05
Sulphate	mg/L		0.10	16.4
Ortho Phosphate as P	mg/L		0.10	<0.10
Ammonia as N	mg/L		0.02	<0.02
Ammonia-Un-ionized (Calculated)	mg/L	0.02	0.000002	<0.000002
Total Phosphorus	mg/L	*	0.02	<0.02
Total Organic Carbon	mg/L		0.5	3.1
True Colour	TCU		5	<5
Turbidity	NTU		0.5	<0.5
Total Calcium	mg/L		0.16	106
Total Magnesium	mg/L		0.17	7.86
Total Potassium	mg/L		0.58	1.87
Total Sodium	mg/L		0.22	18.2
Aluminum-dissolved	mg/L	*	0.004	0.005
Total Antimony	mg/L	0.020	0.001	<0.001

Certified By:





Certificate of Analysis

AGAT WORK ORDER: 21T813002

PROJECT: 60636110

5835 COOPERS AVENUE
MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
TEL (905)712-5100
FAX (905)712-5122
<http://www.agatlabs.com>

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Brian Holden

SAMPLING SITE:

SAMPLED BY:

Water Quality Assessment - PWQO (mg/L)

DATE RECEIVED: 2021-10-07

DATE REPORTED: 2021-10-15

SAMPLE DESCRIPTION: 3241 Sdrd 10

SAMPLE TYPE: Water

DATE SAMPLED: 2021-10-07
11:08

3067645

Parameter	Unit	G / S	RDL	3067645
Total Arsenic	mg/L	0.1	0.003	<0.003
Total Barium	mg/L		0.002	0.026
Total Beryllium	mg/L	*	0.001	<0.001
Total Boron	mg/L	0.2	0.010	0.016
Total Cadmium	mg/L	0.0002	0.0001	<0.0001
Total Chromium	mg/L		0.003	<0.003
Total Cobalt	mg/L	0.0009	0.0005	<0.0005
Total Copper	mg/L	0.005	0.001	0.001
Total Iron	mg/L	0.3	0.010	0.013
Total Lead	mg/L	*	0.001	<0.001
Total Manganese	mg/L		0.002	<0.002
Dissolved Mercury	mg/L	0.0002	0.0001	<0.0001
Total Molybdenum	mg/L	0.040	0.002	<0.002
Total Nickel	mg/L	0.025	0.003	<0.003
Total Selenium	mg/L	0.1	0.002	<0.002
Total Silver	mg/L	0.0001	0.0001	<0.0001
Total Strontium	mg/L		0.005	0.196
Total Thallium	mg/L	0.0003	0.0003	<0.0003
Total Tin	mg/L		0.002	<0.002
Total Titanium	mg/L		0.010	<0.010
Total Tungsten	mg/L	0.030	0.010	<0.010
Total Uranium	mg/L	0.005	0.002	<0.002
Total Vanadium	mg/L	0.006	0.002	<0.002
Total Zinc	mg/L	0.030	0.020	<0.020
Total Zirconium	mg/L	0.004	0.004	<0.004
Lab Filtration Aluminum Dissolved				2021/10/12
Lab Filtration mercury				2021/10/12

Certified By:





AGAT Laboratories

Certificate of Analysis

AGAT WORK ORDER: 21T813002

PROJECT: 60636110

5835 COOPERS AVENUE
MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
TEL (905)712-5100
FAX (905)712-5122
<http://www.agatlabs.com>

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Brian Holden

SAMPLING SITE:

SAMPLED BY:

Water Quality Assessment - PWQO (mg/L)

DATE RECEIVED: 2021-10-07

DATE REPORTED: 2021-10-15

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to PWQO * Variable - refer to guideline reference document
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

3067645 Dilution required, RDL has been increased accordingly.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:



Quality Assurance

CLIENT NAME: AECOM CANADA LTD
PROJECT: 60636110
SAMPLING SITE:

AGAT WORK ORDER: 21T813002
ATTENTION TO: Brian Holden
SAMPLED BY:

Microbiology Analysis

RPT Date: Oct 15, 2021			DUPLICATE			Method Blank	REFERENCE MATERIAL		METHOD BLANK SPIKE		MATRIX SPIKE				
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD		Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper

Total Coliforms & E. Coli (Using MI Agar)

Escherichia coli	3067628	3067628	ND	ND	NA	< 1
Total Coliforms	3067628	3067628	400	400	0.0%	< 1

Comments: ND - Not Detected, NA - % RPD Not Applicable.

Certified By:



Nivine Basily

Quality Assurance

CLIENT NAME: AECOM CANADA LTD
PROJECT: 60636110
SAMPLING SITE:

AGAT WORK ORDER: 21T813002
ATTENTION TO: Brian Holden
SAMPLED BY:

Water Analysis															
RPT Date: Oct 15, 2021			DUPLICATE				Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE		MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Measured Value		Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper

Water Quality Assessment - PWQO (mg/L)															
Electrical Conductivity	3066943		558	559	0.2%	< 2	103%	90%	110%						
pH	3066943		7.69	7.78	1.2%	NA	101%	90%	110%						
Total Dissolved Solids	3067628	3067628	430	436	1.4%	< 10	100%	80%	120%						
Alkalinity (as CaCO3)	3066943		191	197	3.1%	< 5	85%	80%	120%						
Bicarbonate (as CaCO3)	3066943		191	197	3.1%	< 5									
Carbonate (as CaCO3)	3066943		<5	<5	NA	< 5									
Hydroxide (as CaCO3)	3066943		<5	<5	NA	< 5									
Fluoride	3080535		0.09	0.10	NA	< 0.05	95%	70%	130%	94%	80%	120%	101%	70%	130%
Chloride	3080535		6.53	6.55	0.3%	< 0.10	90%	70%	130%	97%	80%	120%	100%	70%	130%
Nitrate as N	3080535		0.52	0.51	1.9%	< 0.05	94%	70%	130%	102%	80%	120%	103%	70%	130%
Nitrite as N	3080535		<0.05	<0.05	NA	< 0.05	102%	70%	130%	100%	80%	120%	106%	70%	130%
Bromide	3080535		<0.05	<0.05	NA	< 0.05	97%	70%	130%	92%	80%	120%	90%	70%	130%
Sulphate	3080535		21.1	21.2	0.5%	< 0.10	92%	70%	130%	99%	80%	120%	99%	70%	130%
Ortho Phosphate as P	3080535		<0.10	<0.10	NA	< 0.10	94%	70%	130%	100%	80%	120%	102%	70%	130%
Ammonia as N	3067694		<0.02	<0.02	NA	< 0.02	105%	70%	130%	108%	80%	120%	99%	70%	130%
Total Phosphorus	3065782		0.04	0.05	NA	< 0.02	98%	70%	130%	97%	80%	120%	91%	70%	130%
Total Organic Carbon	3067628	3067628	2.0	2.0	NA	< 0.5	104%	90%	110%	99%	90%	110%	102%	80%	120%
True Colour	3068388		<5	<5	NA	< 5	97%	90%	110%						
Turbidity	3067628	3067628	0.8	0.8	NA	< 0.5	99%	80%	120%						
Total Calcium	3073029		20.9	20.3	2.9%	< 0.10	93%	70%	130%	97%	80%	120%	98%	70%	130%
Total Magnesium	3073029		3.15	3.20	1.6%	< 0.10	97%	70%	130%	99%	80%	120%	102%	70%	130%
Total Potassium	3073029		3.71	3.69	0.5%	< 0.50	95%	70%	130%	99%	80%	120%	101%	70%	130%
Total Sodium	3073029		24.3	23.3	4.2%	< 0.10	93%	70%	130%	96%	80%	120%	100%	70%	130%
Aluminum-dissolved	3069932		0.024	0.024	0.0%	< 0.004	108%	70%	130%	112%	80%	120%	104%	70%	130%
Total Antimony	3070856		<0.001	<0.001	NA	< 0.001	104%	70%	130%	106%	80%	120%	107%	70%	130%
Total Arsenic	3070856		0.004	0.003	NA	< 0.003	94%	70%	130%	109%	80%	120%	108%	70%	130%
Total Barium	3070856		0.055	0.057	3.6%	< 0.002	96%	70%	130%	103%	80%	120%	103%	70%	130%
Total Beryllium	3070856		<0.001	<0.001	NA	< 0.001	97%	70%	130%	105%	80%	120%	115%	70%	130%
Total Boron	3070856		0.206	0.206	0.0%	< 0.010	99%	70%	130%	105%	80%	120%	107%	70%	130%
Total Cadmium	3070856		<0.0001	<0.0001	NA	< 0.0001	104%	70%	130%	109%	80%	120%	127%	70%	130%
Total Chromium	3070856		<0.003	<0.003	NA	< 0.003	103%	70%	130%	110%	80%	120%	107%	70%	130%
Total Cobalt	3070856		<0.0005	0.0005	NA	< 0.0005	107%	70%	130%	113%	80%	120%	105%	70%	130%
Total Copper	3070856		0.002	0.002	NA	< 0.001	101%	70%	130%	110%	80%	120%	125%	70%	130%
Total Iron	3070856		0.219	0.241	9.6%	< 0.010	105%	70%	130%	110%	80%	120%	105%	70%	130%
Total Lead	3070856		<0.001	<0.001	NA	< 0.001	100%	70%	130%	108%	80%	120%	122%	70%	130%
Total Manganese	3070856		0.158	0.167	5.5%	< 0.002	101%	70%	130%	106%	80%	120%	108%	70%	130%
Dissolved Mercury	3080894		<0.0001	<0.0001	NA	< 0.0001	103%	70%	130%	98%	80%	120%	100%	70%	130%
Total Molybdenum	3070856		<0.002	<0.002	NA	< 0.002	106%	70%	130%	113%	80%	120%	110%	70%	130%
Total Nickel	3070856		0.006	0.007	NA	< 0.003	100%	70%	130%	108%	80%	120%	128%	70%	130%

Quality Assurance

CLIENT NAME: AECOM CANADA LTD
 PROJECT: 60636110
 SAMPLING SITE:

AGAT WORK ORDER: 21T813002
 ATTENTION TO: Brian Holden
 SAMPLED BY:

Water Analysis (Continued)

RPT Date: Oct 15, 2021			DUPLICATE				Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Measured Value		Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits		
								Lower	Upper		Lower	Upper		Lower	Upper	
Total Selenium	3070856		0.075	0.062	19.0%	< 0.002	101%	70%	130%	107%	80%	120%	116%	70%	130%	
Total Silver	3070856		<0.0001	<0.0001	NA	< 0.0001	102%	70%	130%	109%	80%	120%	122%	70%	130%	
Total Strontium	3070856		0.685	0.759	10.2%	< 0.005	105%	70%	130%	108%	80%	120%	104%	70%	130%	
Total Thallium	3070856		<0.0003	<0.0003	NA	< 0.0003	100%	70%	130%	110%	80%	120%	125%	70%	130%	
Total Tin	3070856		<0.002	<0.002	NA	< 0.002	99%	70%	130%	108%	80%	120%	124%	70%	130%	
Total Titanium	3070856		<0.010	<0.010	NA	< 0.010	97%	70%	130%	104%	80%	120%	128%	70%	130%	
Total Tungsten	3070856		<0.010	<0.010	NA	< 0.010	96%	70%	130%	99%	80%	120%	99%	70%	130%	
Total Uranium	3070856		<0.002	<0.002	NA	< 0.002	96%	70%	130%	105%	80%	120%	129%	70%	130%	
Total Vanadium	3070856		<0.002	<0.002	NA	< 0.002	102%	70%	130%	111%	80%	120%	109%	70%	130%	
Total Zinc	3070856		<0.020	<0.020	NA	< 0.020	106%	70%	130%	113%	80%	120%	116%	70%	130%	
Total Zirconium	3070856		<0.004	<0.004	NA	< 0.004	108%	70%	130%	111%	80%	120%	108%	70%	130%	

Comments: NA Signifies Not Applicable.
 Duplicate NA: results are less than 5X the RDL and RPD will not be calculated.
 Matrix spike: Spike level < native concentration. Matrix spike acceptance limits do not apply.

Certified By:



Method Summary

CLIENT NAME: AECOM CANADA LTD

AGAT WORK ORDER: 21T813002

PROJECT: 60636110

ATTENTION TO: Brian Holden

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Microbiology Analysis			
Escherichia coli	MIC-93-7010	EPA 1604	Membrane Filtration
Total Coliforms	MIC-93-7010	EPA 1604	Membrane Filtration

Method Summary

CLIENT NAME: AECOM CANADA LTD
AGAT WORK ORDER: 21T813002
PROJECT: 60636110
ATTENTION TO: Brian Holden
SAMPLING SITE:
SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Water Analysis			
Electrical Conductivity	INOR-93-6000	modified from SM 2510 B	PC TITRATE
pH	INOR-93-6000	modified from SM 4500-H+ B	PC TITRATE
Saturation pH (Calculated)		SM 2320 B	CALCULATION
Langelier Index (Calculated)		SM 2330B	CALCULATION
Hardness (as CaCO ₃) (Calculated)	MET-93-6105	modified from EPA SW-846 6010C & 200.7 & SM 2340 B	CALCULATION
Total Dissolved Solids	INOR-93-6028	modified from EPA 1684, ON MOECC E3139, SM 2540C, D	BALANCE
Alkalinity (as CaCO ₃)	INOR-93-6000	Modified from SM 2320 B	PC TITRATE
Bicarbonate (as CaCO ₃)	INOR-93-6000	modified from SM 2320 B	PC TITRATE
Carbonate (as CaCO ₃)	INOR-93-6000	modified from SM 2320 B	PC TITRATE
Hydroxide (as CaCO ₃)	INOR-93-6000	modified from SM 2320 B	PC TITRATE
Fluoride	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Chloride	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Nitrate as N	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Nitrite as N	INOR-93-6004	SM 4110 B	ION CHROMATOGRAPH
Bromide	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Sulphate	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Ortho Phosphate as P	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Ammonia as N	INOR-93-6059	modified from SM 4500-NH ₃ H	LACHAT FIA
Ammonia-Un-ionized (Calculated)		MOE REFERENCE, PWQOs Tab 2	CALCULATION
Total Phosphorus	INOR-93-6022	modified from SM 4500-P B and SM 4500-P E	SPECTROPHOTOMETER
Total Organic Carbon	INOR-93-6049	modified from SM 5310 B	SHIMADZU CARBON ANALYZER
True Colour	INOR-93-6074	modified from SM 2120 B	LACHAT FIA
Turbidity	INOR-93-6044	modified from SM 2130 B	NEPHELOMETER
Total Calcium	MET-93-6105	modified from EPA 6010D	ICP/OES
Total Magnesium	MET-93-6105	modified from EPA 6010D	ICP/OES
Total Potassium	MET-93-6105	modified from EPA 6010D	ICP/OES
Total Sodium	MET-93-6105	modified from EPA 6010D	ICP/OES
Aluminum-dissolved	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Total Antimony	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Arsenic	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Barium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Beryllium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Boron	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Cadmium	MET -93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Chromium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Cobalt	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Copper	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Iron	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS

Method Summary

CLIENT NAME: AECOM CANADA LTD
AGAT WORK ORDER: 21T813002
PROJECT: 60636110
ATTENTION TO: Brian Holden
SAMPLING SITE:
SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Total Lead	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Manganese	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Dissolved Mercury	MET-93-6100	modified from EPA 245.2 and SM 3112 B	CVAAS
Total Molybdenum	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Nickel	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Selenium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Silver	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Strontium	INOR-93-6003	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Thallium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Tin	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Titanium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Tungsten	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Uranium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Vanadium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Zinc	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Zirconium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Lab Filtration Aluminum Dissolved	SR-78-9001		FILTRATION
Lab Filtration mercury	SR-78-9001		FILTRATION

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

5722617

MUNICIPALITY: [] LOCATION: []

COUNTY OR DISTRICT: [] TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE: **WEST GUILF** CON. BLOCK, TRACT, SUBDIV. ETC: **IX** LOT: **11**
DATE COMPLETED: **8 OCT 87**

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET	
				FROM	TO
BROWN	TOP SOIL		CLAY	0	1'
BROWN	CLAY			1	20'
GREY	CLAY, SAND LAYERS			20	55'

31 [] 32 []

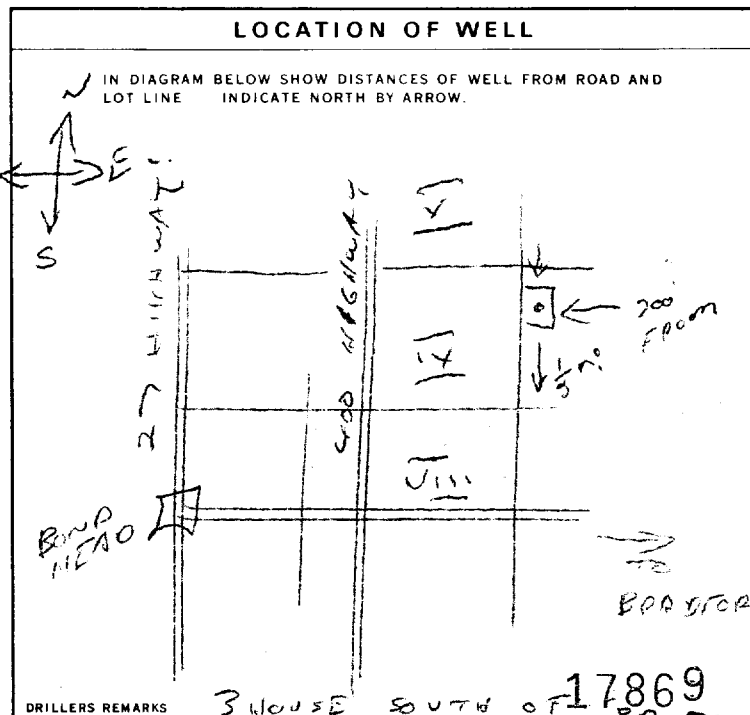
WATER FOUND AT - FEET	KIND OF WATER
20	1 <input type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 4 <input type="checkbox"/> MINERALS 5 <input type="checkbox"/> SALTY 6 <input type="checkbox"/> GAS
40	1 <input type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 4 <input type="checkbox"/> MINERALS 5 <input type="checkbox"/> SALTY 6 <input type="checkbox"/> GAS
	1 <input type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 4 <input type="checkbox"/> MINERALS 5 <input type="checkbox"/> SALTY 6 <input type="checkbox"/> GAS
	1 <input type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 4 <input type="checkbox"/> MINERALS 5 <input type="checkbox"/> SALTY 6 <input type="checkbox"/> GAS

INSIDE DIAM INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET	
			FROM	TO
30	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	2 1/2	0	35
30	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	1 1/2	35	55

SIZE(S) OF OPENING (SLOT NO.)	DIAMETER INCHES	LENGTH FEET

DEPTH SET AT - FEET	MATERIAL AND TYPE (CEMENT GROUT, LEAD PACKER ETC.)
10-13	
18-21	
26-29	

PUMPING TEST METHOD	PUMPING RATE GPM	DURATION OF PUMPING HOURS
1 <input type="checkbox"/> PUMP 2 <input checked="" type="checkbox"/> BAILER		1
STATIC LEVEL	WATER LEVEL END OF PUMPING	WATER LEVELS DURING
10 FEET	50 FEET	15 MINUTES: 49 FEET, 30 MINUTES: 48 FEET, 45 MINUTES: 47 FEET, 60 MINUTES: 46 FEET
RECOMMENDED PUMP TYPE: <input checked="" type="checkbox"/> SHALLOW <input type="checkbox"/> DEEP	RECOMMENDED PUMP SETTING: 50 FEET	RECOMMENDED PUMPING RATE: 3 GPM



FINAL STATUS OF WELL	1 <input checked="" type="checkbox"/> WATER SUPPLY 2 <input type="checkbox"/> OBSERVATION WELL 3 <input type="checkbox"/> TEST HOLE 4 <input type="checkbox"/> RECHARGE WELL	5 <input type="checkbox"/> ABANDONED INSUFFICIENT SUPPLY 6 <input type="checkbox"/> ABANDONED POOR QUALITY 7 <input type="checkbox"/> UNFINISHED 8 <input type="checkbox"/> DEWATERING
WATER USE	1 <input checked="" type="checkbox"/> DOMESTIC 2 <input type="checkbox"/> STOCK 3 <input type="checkbox"/> IRRIGATION 4 <input type="checkbox"/> INDUSTRIAL	5 <input type="checkbox"/> COMMERCIAL 6 <input type="checkbox"/> MUNICIPAL 7 <input type="checkbox"/> PUBLIC SUPPLY 8 <input type="checkbox"/> COOLING OR AIR CONDITIONING 9 <input type="checkbox"/> NOT USED
METHOD OF CONSTRUCTION	1 <input type="checkbox"/> CABLE TOOL 2 <input type="checkbox"/> ROTARY (CONVENTIONAL) 3 <input type="checkbox"/> ROTARY (REVERSE) 4 <input type="checkbox"/> ROTARY (AIR) 5 <input type="checkbox"/> AIR PERCUSSION	6 <input checked="" type="checkbox"/> BORING 7 <input type="checkbox"/> DIAMOND 8 <input type="checkbox"/> JETTING 9 <input type="checkbox"/> DRIVING 10 <input type="checkbox"/> DIGGING 11 <input type="checkbox"/> OTHER

NAME OF WELL CONTRACTOR: Art B. Wells	WELL CONTRACTOR'S LICENCE NUMBER
ADDRESS: Alliston	
NAME OF WELL TECHNICIAN: Newman	WELL TECHNICIAN'S LICENCE NUMBER: 4919
SIGNATURE OF TECHNICIAN/CONTRACTOR	SUBMISSION DATE

DATA SOURCE	CONTRACTOR	DATE RECEIVED: DEC 18 1987
DATE OF INSPECTION	INSPECTOR	
REMARKS		

Water Well Survey

AECOM

Well I.D. #: _____ AECOM Project No.: 00630190
 MECP WWR #: 5722017 Client Project No.: _____

Well Owner Information:

Property Owner Name:	<u>Ric & SUR BOURGEOIS</u>		
Property Address:	<u>3241 SIDE ROAD 10, BRADFORD, L3Z 4G3</u>		
Telephone:	<u>905-252-6806</u>	Email:	<u>bourgeois.ric@gmail.com</u>
Name of Person Completing Survey:	<u>Ric</u>		
Telephone:	<u>905-252-6806</u>	Email:	<u>↓</u>
Relationship to Property Owner:	<u>owner</u>	Date of Survey Completion:	<u>Sept 5/21</u>
Name of Original Well Owner: <small>(if known/different from above)</small>	<u>Ric & Bourgeois</u>		

Occupant of Property Served by Well: (if other than Owner)

Name:			
Telephone:		Email:	
Address:			

Well Location:

Lot:		Concession:		Township:	
------	--	-------------	--	-----------	--

Well Construction Details:

Well Record Available?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Date Well Constructed:	<u>1987</u>	Well Contractor Name:	<u>T+B Well Drilling</u>
Well Type: <small>(Drilled / Bored / Dug)</small>	<u>DUG</u>	Casing Material: <small>(Steel, Concrete, etc.)</small>	<u>CONCRETE</u>	Well Casing Diameter:	
Well Stick Up: <small>(Above Ground)</small>	<u>12" 0"</u>	Well Depth: <small>(Below Ground)</small>	<u>45'</u>	Water Level: <small>(Below Ground)</small>	<u>10'</u>
Is Well Located in a Well Pit?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Well Pit Depth: <small>(Below Ground)</small>		Well Stick Up: <small>(Above Pit Bottom)</small>	
Is Well Flowing?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Flow Rate:		Contractor:	
Well Cap Type:		Does Cap Create a Good Seal?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Is Wire Conduit Tight to Well Cap?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Is the Well:	Accessible for Direct Sampling?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	OR	Buried, in a Well Pit, or Other Confined Space?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Well Screen Installed?	<input type="checkbox"/> Yes <input type="checkbox"/> No	If Yes, Length & Slot Size:		Depth of Top of Screen: <small>(Below Ground)</small>	

Water Well Survey

AECOM

Well I.D. #: _____ AECOM Project No.: 60630190
 MECP WWR #: ST22017 Client Project No.: _____

Pumping Equipment:

Pump Type:	<input type="checkbox"/> Jet Pump <input checked="" type="checkbox"/> Submersible <input type="checkbox"/> Piston Pump <input type="checkbox"/> Other (please describe): _____				
Pump Horsepower:		Pump Age:	<u>1995</u>	Pumping Capacity:	
Pump Intake Depth: (Below Ground)	<u>45'</u>	Pump Location: (If Not in Well)		Pumping Rate: (If Known)	
Pressure Tank:	Type:			Capacity:	
Water Treatment: (if present)	<input type="checkbox"/> Chlorinator <input checked="" type="checkbox"/> Water Softener <input checked="" type="checkbox"/> Water Filter (indicate type) _____ <input checked="" type="checkbox"/> U.V. <input type="checkbox"/> R.O. <input type="checkbox"/> Other (please describe): _____				

Well Usage:

Primary Use(s):	Domestic:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Livestock:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Lawn Watering:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
# of Persons Using Well:	<u>3</u>	# of Livestock Watered:		Other Uses:		Daily Amount: (if known)
Indoor Plumbing Fixtures: (Washroom(s), Shower(s), Dishwasher, Laundry, Pool, Spa, etc.)			<u>2 1/2 washrooms</u> <u>Pool</u> <u>Dishwasher</u> <u>Laundry</u>			

Sewage Servicing: Backyard - 100 ft away

Private Sewage System or Municipal:		System Type: (septic tank, etc.)		Distance from Well:	
Well Location:	<input type="checkbox"/> Uphill <input type="checkbox"/> Downhill <input type="checkbox"/> Same Grade				
Presence of Any Above Ground Storage Tank or Other Potential Source(s) of Contamination: (including distance on / off property)					

Previous Concerns:

How Long Have You Owned, Resided, or Operated a Business on this Property?	<u>1987</u> <u>We built residence</u>		
Have You Experienced Any Previous Concerns with Your Well Supply? (Quantity or Quality)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If Yes, When?	
Cause(s) of the Previous Concern?	<input type="checkbox"/> Drought <input type="checkbox"/> Pump Failure <input type="checkbox"/> Plugging <input type="checkbox"/> Increased Usage <input type="checkbox"/> Interference <input type="checkbox"/> Contamination <input type="checkbox"/> Other (Please describe): _____		

Used to add Javey, prior to system

Water Well Survey

AECOM

Well I.D. #: _____ AECOM Project No.: 60030190
 MECP WWR #: 5722617 Client Project No.: _____

Field Visit Log (To Be Completed by AECOM Staff)

General Details:

Project Name:	<u>BBP - Well Surveys</u>		Project No.:	<u>60030190</u>	
Address:	<u>3241 SIDERSAD RD, BRADFORD</u>		Inspected By:	<u>Holden / Bergmann.</u>	
Date:	<u>Oct 6, 2021</u> Sept 8, 2021	Time:	<u>10:30 am</u>	Weather:	<u>Sunny / Some Cloud</u>
Easting:	<u>611423</u>	Northing:	<u>4887107</u>	Datum:	<u>17T</u>

Well Details:

Is Well Accessible for Inspection?		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		If No, Provide Reason:	
MECP Water Well Record No.:	<u>5722617</u>	Date Well Constructed:	<u>10/8/1987</u>	Contractor Name:	<u>T & B Well Drilling</u>
Well Type: (Drilled / Bored / Dug)	<u>DUG</u>	Well Stick Up: (Above Ground)	<u>12"</u>	Casing Material: (Steel, Concrete, etc.)	<u>CONCRETE</u>
Well Located in a Well Pit?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Well Pit Depth: (Below Ground)	<u>SS PL</u> SS	Well Stick Up: (Above Pit Bottom)	<u>—</u>
Well Casing Diameter:	<u>3 ft.</u>	Well Depth: (Below Ground)	<u>55'</u>	Groundwater Level: (Below Ground)	<u>45'</u>
Pump On / Off?	<input checked="" type="checkbox"/> On <input type="checkbox"/> Off	Water Level Condition:	<input checked="" type="checkbox"/> Stable (Static) <input type="checkbox"/> Declining (Drawdown) <input type="checkbox"/> Rising (Recovery)		
Flowing Well?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Flow Rate: (Estimated)	<u>3 GPM</u>	Well Cap Type:	<u>HOLE</u>
Well Screen Installed?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If Yes, Length & Slot Size:	<u>—</u>	Top of Screen: (Below Ground)	<u>—</u>
Is There a Depression Around the Well Casing Exterior?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		Photo(s) of Well Obtained?		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

Observation(s) Summary:

- Extreme drought conditions

—

—

—

—

Water Well Survey

AECOM

Well I.D. #: _____ AECOM Project No.: 00036190
 MECP WWR #: 5722617 Client Project No.: _____

Water Quality Sampling:

Water Quality Sample Obtained?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If No, Provide Reason:	
Sampling Location:	<u>Well Tar</u>	Raw or Treated Sample?	<u>Raw</u>
Disinfected Sample Port?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Disinfection Method:	<u>Alconey</u>
Photo of Sample Obtained? (against white background)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If No, Provide Reason:	

Analyte Suite:	<u>93179 + E. Coli / Total Coliforms</u>				
Sample I.D.:	<u>3241 SDRD 10</u>	Date / Time of Sampling:	<u>Oct. 7/21</u> <u>11:08</u>	Number of Sample Bottles:	<u>9</u>

Field Water Quality Parameters: (record units)					
Temperature:	<u>16.5</u>	pH:	<u>7.65</u>	Conductivity:	<u>0.84</u>
Turbidity:	<u>—</u>	D.O.:	<u>—</u>	Colour:	<u>Clear / colorless</u>
Odours?	<u>—</u>	Appearance/Odour:	<u>New</u>		

Type of Concern: (if applicable)	<input checked="" type="checkbox"/> Water Quantity <input type="checkbox"/> Water Quality (Note any differences in taste, odour, colour or clarity)
If the concern was contamination what changes were apparent to water quality?	<u>Supply recovery / Backup supply is lost</u>
Were there any effects of this concern?	<u>due to construction</u>
What action was taken to overcome this concern?	

- Sample to be taken Oct. 7/21

AECOM Canada Ltd.
 105 Commerce Valley Drive West, 7th Floor
 Markham, ON L3T 7W3
 Canada

T: 905.886.7022
 F: 905.538.8076
 www.aecom.com

Water Well Survey

AECOM

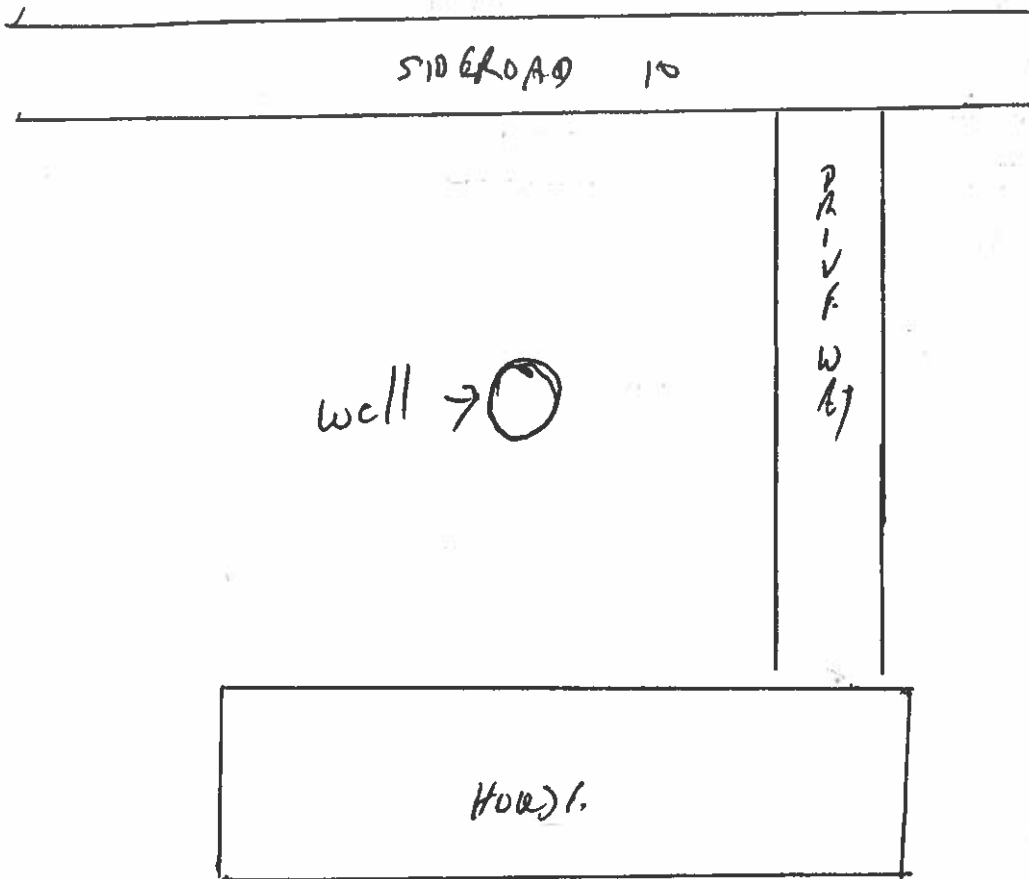
Well I.D. #: _____

AECOM Project No.: 60036190

MECP WWR #: 5722617

Client Project No.: _____

Location Sketch *(To be Completed by Property Owner / Occupant)*



Include details such as property lines, buildings, well, sewage system (if present), as well as any other potential sources of contamination (e.g., tanks, barnyards, chemical/manure storage, etc.).

Water Well Survey

AECOM

Well I.D. #: _____ AECOM Project No.: 60636190
 MECP WWR #: S722017 Client Project No.: _____

Well Modification / Maintenance:

Has Your Well Ever Been...	Deepened? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Cleaned? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Reconstructed or Replaced? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
If Yes to Any of the Above, Please Provide Details:			

Other Details:

Other Details that May be Relevant to Assessing the Current Condition of Your Well Supply:

Property Owner Participation in Monitoring Program:

Does the Property Owner and/or Occupant Grant Permission for MTO/AECOM to Monitor and/or Sample Your Well? Yes No

R. Bourgeois
 Property Owner / Occupant Name
 (Please Print in BLOCK letters)

[Signature]
 Signature

Sept 5/22
 Date

Appendix **M**

Property ID #109 – 3247 Sideroad 10

November 22nd, 2021

Marie A. Pearson
3247 10th Sideroad
Bradford, ON
L3Z 4G3

Project No: 60636190
Regarding: Pre-Construction Water Quality Testing Results
MTO Bradford Bypass Project

Dear Ms. Pearson,

AECOM Canada Ltd. (AECOM) would like to thank you for your participation in the Pre-Construction Well Assessment Program offered to local residents as part of the Bradford Bypass Project. Based on receipt of written permission from yourself, a sample of raw (untreated) groundwater from your private well was collected for laboratory analysis by AECOM staff on October 6th, 2021. Please find attached a copy of the water quality testing results for your review and record.

Laboratory testing results for the sample obtained indicate that concentrations of certain parameters, as shown in the table below, are in excess of the *Ontario Drinking Water Standards, Objectives and Guidelines* (Ontario Ministry of the Environment, 2006). It should be noted, however, that these results are based on a single sample analysis and that additional testing is recommended.

PARAMETER	CONCENTRATION IN YOUR WATER	STANDARD VALUE / RANGE	STANDARD TYPE	HEALTH RELATED (Y / N)
Total Coliforms	148 CFU/ 100mL	0 CFU/100mL	MAC	Y
Iron	0.464 mg/L	0.3 mg/L	AO	N
Turbidity	5.8 NTU	5 NTU	AO	N
Hardness (as CaCO ₃)	411 mg/L	80 - 100 mg/L	OG	N

NOTE: MAC – Maximum Acceptable Concentration; AO – Aesthetic Objective; OG – Operational Guideline.

As discussed via telephone with Ms. Pearson on November 19th 2021, following receipt of the water quality testing results, the presence of bacteriological parameters (Total Coliforms) in your drinking water may represent an immediate health concern. It is recommended that you discuss this exceedance with your Local Public Health Unit.

For your information, the *Well Aware Booklet – A Guide To Caring For Your Well* created by Green Communities Canada is available on the Walkerton Clean Water Centre (WCWC) website at:

<https://wcwc.ca/well-aware-and-well-wise-program-resources-for-homeowners/>

Should you have any questions or concerns regarding the quality of your well water, it is recommended that you contact your local Public Health Unit for further information and advice. Contact information for your Local Public Health Unit is provided, as follows:

Simcoe Muskoka District Health Unit
80 Bradford St. #403
Barrie, ON L4N 6S7
Website: <https://www.simcoemuskokahealth.org/>
Telephone: 705.721.7520

If you have any further questions, please contact:

AECOM Canada Ltd. C/O Brian Holden, P.Ge.
Hydrogeology, Environment
Telephone: 226-821-2486
Email: brian.holden@aecom.com

Sincerely,
AECOM Canada Ltd.



Brian Holden, P.Ge.
Hydrogeologist
DCS Americas, Canada East (Greater Ontario / Metro Toronto)
Environment
Brian.holden@aecom.com

Encl.

cc: R. Sheikh, N. Valenton, S. Rankin, S.Schmied – AECOM;
H. Singh, L. Sarris, J. MacKinnon, R. Gribbon – MTO



Water Well Survey

Groundwater Supply Well Location 3247 Sideroad 10

Project Name: Bradford Bypass – BBP Expansion

Project#: 60636190

Residence Address:

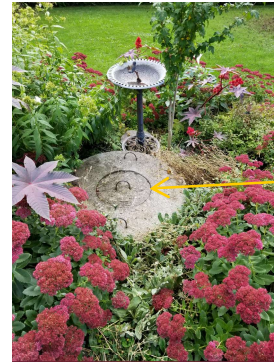
3247 Sideroad 10, Bradford, Ontario, L3Z 4G3

Owner Information:

Owner Name: Marie A. Pearson

Phone Number: 905-830-4856

Email: marie.pearson@sympatico.ca



Well

Well Record

Coordinates (UTM).....611429E/4887134N
(NAD83 Zone17)

Type of Well..... Dug

Constructed (year)..... 1982

Well Location..... In front of the house

Well Diameter.....0.914 m

Well Depth.....16.91 m

Casing Position.....0.30 m above ground;

Casing Condition.....Fair

Water Usage.....Residential

Water Source.....Overburden

Static Water Level.....12.19 m



Septic Bed

Well

Sample Location

Water Quality & Well Testing

Past Water Quality Problems..... None

Potential Contamination Sources... None

Location of Septic Tank..... Rear of property

Treatment System.....Water softener

Recent Test Results.....None

Water Sampled.....Yes (October 6, 2021)

Sample Source..... Outside tap

Appearance.....Clear, no odour

Comments:

- Concerned about water supply – What happens if the well goes dry?

Quality Testing

Groundwater quality met the applicable standards for bacteriological, selected inorganic and metal parameters analyzed except for the following:

<i>Parameters</i>	<i>Test Results</i>	<i>Guideline/Standard</i>	<i>Criteria Type</i>
Total Coliforms	148 CFU / 100 ml	0 CFU / 100 ml	MAC
Hardness (as CaCO ₃)	411 mg/L	80 – 100 mg/L	OG

Notes:

1. Criteria are from “Ontario Drinking Water Standards” (Ontario Regulation 169/03) and “Technical Support Document for Ontario Drinking Water Standards, Objectives and Guidelines” (MOE, June 2003, revised June 2006)
2. AO - Aesthetic Objectives (parameters that may impair the taste, odour or colour of water or which may interfere with good water quality)
3. MAC- Maximum Acceptable Concentration (health related)
4. OG - Operational Guideline (parameters which must be controlled for effective treatment)
5. NDOGT – No data; sample overgrown with target bacteria; over-crowding microbial growth
6. CFU – Colony forming units
7. **Bold** - test result exceeding guideline/standard.





**CLIENT NAME: AECOM CANADA LTD
50 SPORTSWORLD CROSSING RD UNIT 290
KITCHENER, ON N2P0A4
(519) 650-5313**

ATTENTION TO: Brian Holden

PROJECT: 60636190

AGAT WORK ORDER: 21T812334

MICROBIOLOGY ANALYSIS REVIEWED BY: Nivine Basily, Inorganics Report Writer

WATER ANALYSIS REVIEWED BY: Yris Verastegui, Report Reviewer

DATE REPORTED: Oct 13, 2021

PAGES (INCLUDING COVER): 20

VERSION*: 1

Should you require any information regarding this analysis please contact your client services representative at (905) 712-5100

***Notes**

Disclaimer:

- All work conducted herein has been done using accepted standard protocols, and generally accepted practices and methods. AGAT test methods may incorporate modifications from the specified reference methods to improve performance.
- All samples will be disposed of within 30 days after receipt unless a Long Term Storage Agreement is signed and returned. Some specialty analysis may be exempt, please contact your Client Project Manager for details.
- AGAT's liability in connection with any delay, performance or non-performance of these services is only to the Client and does not extend to any other third party. Unless expressly agreed otherwise in writing, AGAT's liability is limited to the actual cost of the specific analysis or analyses included in the services.
- This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
- The test results reported herewith relate only to the samples as received by the laboratory.
- Application of guidelines is provided "as is" without warranty of any kind, either expressed or implied, including, but not limited to, warranties of merchantability, fitness for a particular purpose, or non-infringement. AGAT assumes no responsibility for any errors or omissions in the guidelines contained in this document.
- All reportable information as specified by ISO/IEC 17025:2017 is available from AGAT Laboratories upon request.



Certificate of Analysis

AGAT WORK ORDER: 21T812334

PROJECT: 60636190

5835 COOPERS AVENUE
MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
TEL (905)712-5100
FAX (905)712-5122
<http://www.agatlabs.com>

CLIENT NAME: AECOM CANADA LTD

SAMPLING SITE:Bradford

ATTENTION TO: Brian Holden

SAMPLED BY:Justin Borrmann

Total Coliforms & E. Coli (Using MI Agar)

DATE RECEIVED: 2021-10-06

DATE REPORTED: 2021-10-13

SAMPLE DESCRIPTION: 3247 sdrd 10

SAMPLE TYPE: Water

DATE SAMPLED: 2021-10-06
14:14

Parameter	Unit	G / S	RDL	3061872
Escherichia coli	CFU/100mL	100	1	ND
Total Coliforms	CFU/100mL		1	148

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to PWQO * Variable - refer to guideline reference document
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

3061872 ND - Not Detected.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:



Justin Borrmann



Certificate of Analysis

AGAT WORK ORDER: 21T812334

PROJECT: 60636190

5835 COOPERS AVENUE
MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
TEL (905)712-5100
FAX (905)712-5122
<http://www.agatlabs.com>

CLIENT NAME: AECOM CANADA LTD

SAMPLING SITE:Bradford

ATTENTION TO: Brian Holden

SAMPLED BY:Justin Borrmann

Water Quality Assessment - PWQO (mg/L)

DATE RECEIVED: 2021-10-06

DATE REPORTED: 2021-10-13

SAMPLE DESCRIPTION: 3247 sdrd 10

SAMPLE TYPE: Water

DATE SAMPLED: 2021-10-06
14:14

3061872

Parameter	Unit	G / S	RDL	3061872
Electrical Conductivity	µS/cm		2	1380
pH	pH Units	6.5-8.5	NA	7.93
Saturation pH (Calculated)				6.86
Langelier Index (Calculated)				1.07
Hardness (as CaCO3) (Calculated)	mg/L		0.5	411
Total Dissolved Solids	mg/L		10	930
Alkalinity (as CaCO3)	mg/L		5	270
Bicarbonate (as CaCO3)	mg/L		5	270
Carbonate (as CaCO3)	mg/L		5	<5
Hydroxide (as CaCO3)	mg/L		5	<5
Fluoride	mg/L		0.05	<0.05
Chloride	mg/L		0.12	269
Nitrate as N	mg/L		0.05	9.80
Nitrite as N	mg/L		0.05	<0.05
Bromide	mg/L		0.05	<0.05
Sulphate	mg/L		0.10	16.6
Ortho Phosphate as P	mg/L		0.10	<0.10
Ammonia as N	mg/L		0.02	<0.02
Ammonia-Un-ionized (Calculated)	mg/L	0.02	0.000002	<0.000002
Total Phosphorus	mg/L	*	0.02	<0.02
Total Organic Carbon	mg/L		0.5	1.2
True Colour	TCU		5	<5
Turbidity	NTU		0.5	5.8
Total Calcium	mg/L		0.16	134
Total Magnesium	mg/L		0.17	18.5
Total Potassium	mg/L		0.58	1.59
Total Sodium	mg/L		0.22	101
Aluminum-dissolved	mg/L	*	0.004	<0.004
Total Antimony	mg/L	0.020	0.001	<0.001

Certified By:

José Veraástegui



Certificate of Analysis

AGAT WORK ORDER: 21T812334

PROJECT: 60636190

5835 COOPERS AVENUE
MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
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<http://www.agatlabs.com>

CLIENT NAME: AECOM CANADA LTD

SAMPLING SITE: Bradford

ATTENTION TO: Brian Holden

SAMPLED BY: Justin Borrmann

Water Quality Assessment - PWQO (mg/L)

DATE RECEIVED: 2021-10-06

DATE REPORTED: 2021-10-13

SAMPLE DESCRIPTION: 3247 sdrd 10

SAMPLE TYPE: Water

DATE SAMPLED: 2021-10-06
14:14

3061872

Parameter	Unit	G / S	RDL	3061872
Total Arsenic	mg/L	0.1	0.003	<0.003
Total Barium	mg/L		0.002	0.082
Total Beryllium	mg/L	*	0.001	<0.001
Total Boron	mg/L	0.2	0.010	0.049
Total Cadmium	mg/L	0.0002	0.0001	<0.0001
Total Chromium	mg/L		0.003	<0.003
Total Cobalt	mg/L	0.0009	0.0005	0.0007
Total Copper	mg/L	0.005	0.001	0.013
Total Iron	mg/L	0.3	0.010	0.458
Total Lead	mg/L	*	0.001	<0.001
Total Manganese	mg/L		0.002	0.005
Dissolved Mercury	mg/L	0.0002	0.0001	<0.0001
Total Molybdenum	mg/L	0.040	0.002	<0.002
Total Nickel	mg/L	0.025	0.003	<0.003
Total Selenium	mg/L	0.1	0.002	<0.002
Total Silver	mg/L	0.0001	0.0001	<0.0001
Total Strontium	mg/L		0.005	0.393
Total Thallium	mg/L	0.0003	0.0003	<0.0003
Total Tin	mg/L		0.002	<0.002
Total Titanium	mg/L		0.010	<0.010
Total Tungsten	mg/L	0.030	0.010	<0.010
Total Uranium	mg/L	0.005	0.002	<0.002
Total Vanadium	mg/L	0.006	0.002	<0.002
Total Zinc	mg/L	0.030	0.020	0.083
Total Zirconium	mg/L	0.004	0.004	<0.004
Lab Filtration Aluminum Dissolved				2021/10/7
Lab Filtration mercury				2021/10/7

Certified By:

José Veraástegui



Certificate of Analysis

AGAT WORK ORDER: 21T812334

PROJECT: 60636190

5835 COOPERS AVENUE
MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
TEL (905)712-5100
FAX (905)712-5122
<http://www.agatlabs.com>

CLIENT NAME: AECOM CANADA LTD

SAMPLING SITE:Bradford

ATTENTION TO: Brian Holden

SAMPLED BY:Justin Borrmann

Water Quality Assessment - PWQO (mg/L)

DATE RECEIVED: 2021-10-06

DATE REPORTED: 2021-10-13

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to PWQO * Variable - refer to guideline reference document
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

3061872 Dilution required, RDL has been increased accordingly.
Un-ionized Ammonia detection limit is a calculated RDL. The calculation of Un-ionized Ammonia is based on lab measured parameters (ammonia as N, pH and temperature). Values are reported as calculated.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:



Exceedance Summary

AGAT WORK ORDER: 21T812334

PROJECT: 60636190

5835 COOPERS AVENUE
 MISSISSAUGA, ONTARIO
 CANADA L4Z 1Y2
 TEL (905)712-5100
 FAX (905)712-5122
<http://www.agatlabs.com>

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Brian Holden

SAMPLEID	SAMPLE TITLE	GUIDELINE	ANALYSIS PACKAGE	PARAMETER	UNIT	GUIDEVALUE	RESULT
3061872	3247 sdrd 10	ON PWQO	Water Quality Assessment - PWQO (mg/L)	Total Copper	mg/L	0.005	0.013
3061872	3247 sdrd 10	ON PWQO	Water Quality Assessment - PWQO (mg/L)	Total Iron	mg/L	0.3	0.458
3061872	3247 sdrd 10	ON PWQO	Water Quality Assessment - PWQO (mg/L)	Total Zinc	mg/L	0.030	0.083

Quality Assurance

CLIENT NAME: AECOM CANADA LTD
PROJECT: 60636190
SAMPLING SITE:Bradford

AGAT WORK ORDER: 21T812334
ATTENTION TO: Brian Holden
SAMPLED BY:Justin Borrmann

Microbiology Analysis

RPT Date: Oct 13, 2021			DUPLICATE			Method Blank	REFERENCE MATERIAL		METHOD BLANK SPIKE		MATRIX SPIKE				
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD		Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper

Total Coliforms & E. Coli (Using MI Agar)

Escherichia coli	3061729	ND	ND	NA	< 1
Total Coliforms	3061729	50	40	22.2%	< 1

Comments: ND - Not Detected, NA - % RPD Not Applicable.

Certified By:



Nivine Basily

Quality Assurance

CLIENT NAME: AECOM CANADA LTD
PROJECT: 60636190
SAMPLING SITE:Bradford

AGAT WORK ORDER: 21T812334
ATTENTION TO: Brian Holden
SAMPLED BY:Justin Borrmann

Water Analysis																
RPT Date: Oct 13, 2021			DUPLICATE				Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Measured Value		Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits		
								Lower	Upper		Lower	Upper		Lower	Upper	

Water Quality Assessment - PWQO (mg/L)															
Electrical Conductivity	3062184		40	40	0.0%	< 2	100%	90%	110%						
pH	3062184		6.69	6.73	0.6%	NA	102%	90%	110%						
Total Dissolved Solids	3060808		172	186	7.8%	< 10	98%	80%	120%						
Alkalinity (as CaCO3)	3062184		17	16	NA	< 5	87%	80%	120%						
Bicarbonate (as CaCO3)	3062184		17	16	NA	< 5	NA								
Carbonate (as CaCO3)	3062184		<5	<5	NA	< 5	NA								
Hydroxide (as CaCO3)	3062184		<5	<5	NA	< 5	NA								
Fluoride	3068146		<0.05	<0.05	NA	< 0.05	94%	70%	130%	107%	80%	120%	103%	70%	130%
Chloride	3068146		64.1	64.1	0.0%	< 0.10	93%	70%	130%	110%	80%	120%	109%	70%	130%
Nitrate as N	3068146		<0.05	<0.05	NA	< 0.05	100%	70%	130%	108%	80%	120%	108%	70%	130%
Nitrite as N	3068146		<0.05	<0.05	NA	< 0.05	102%	70%	130%	99%	80%	120%	112%	70%	130%
Bromide	3068146		<0.05	<0.05	NA	< 0.05	107%	70%	130%	106%	80%	120%	107%	70%	130%
Sulphate	3068146		123	123	0.0%	< 0.10	97%	70%	130%	109%	80%	120%	106%	70%	130%
Ortho Phosphate as P	3068146		<0.10	<0.10	NA	< 0.10	100%	70%	130%	100%	80%	120%	100%	70%	130%
Ammonia as N	3062181		<0.02	<0.02	NA	< 0.02	105%	70%	130%	99%	80%	120%	90%	70%	130%
Total Phosphorus	3061760		0.87	0.89	2.3%	< 0.02	98%	70%	130%	97%	80%	120%	NA	70%	130%
Total Organic Carbon	3062196		1.3	1.3	NA	< 0.5	103%	90%	110%	103%	90%	110%	95%	80%	120%
True Colour	3051121		232	237	2.1%	< 5	105%	90%	110%						
Turbidity	3061372		42.1	44.5	5.5%	< 0.5	98%	80%	120%						
Total Calcium	3059717		40.8	40.3	1.2%	< 0.10	93%	70%	130%	94%	80%	120%	100%	70%	130%
Total Magnesium	3059717		14.1	13.8	2.2%	< 0.10	97%	70%	130%	97%	80%	120%	103%	70%	130%
Total Potassium	3059717		1.29	1.24	NA	< 0.50	94%	70%	130%	95%	80%	120%	101%	70%	130%
Total Sodium	3059717		8.59	8.44	1.8%	< 0.10	92%	70%	130%	92%	80%	120%	101%	70%	130%
Aluminum-dissolved	3057466		<0.004	<0.004	NA	< 0.004	110%	70%	130%	107%	80%	120%	85%	70%	130%
Total Antimony	3059717		<0.001	<0.001	NA	< 0.001	99%	70%	130%	104%	80%	120%	105%	70%	130%
Total Arsenic	3059717		<0.003	<0.003	NA	< 0.003	93%	70%	130%	116%	80%	120%	112%	70%	130%
Total Barium	3059717		0.062	0.062	0.0%	< 0.002	101%	70%	130%	103%	80%	120%	109%	70%	130%
Total Beryllium	3059717		<0.001	<0.001	NA	< 0.001	96%	70%	130%	112%	80%	120%	112%	70%	130%
Total Boron	3059717		0.023	0.026	NA	< 0.010	99%	70%	130%	103%	80%	120%	111%	70%	130%
Total Cadmium	3059717		<0.0001	<0.0001	NA	< 0.0001	100%	70%	130%	105%	80%	120%	107%	70%	130%
Total Chromium	3059717		<0.003	<0.003	NA	< 0.003	107%	70%	130%	102%	80%	120%	107%	70%	130%
Total Cobalt	3059717		<0.0005	<0.0005	NA	< 0.0005	107%	70%	130%	109%	80%	120%	111%	70%	130%
Total Copper	3059717		0.002	0.002	NA	< 0.001	105%	70%	130%	104%	80%	120%	110%	70%	130%
Total Iron	3059717		0.162	0.181	11.1%	< 0.010	102%	70%	130%	105%	80%	120%	101%	70%	130%
Total Lead	3059717		<0.001	<0.001	NA	< 0.001	96%	70%	130%	109%	80%	120%	109%	70%	130%
Total Manganese	3059717		0.100	0.112	11.3%	< 0.002	103%	70%	130%	109%	80%	120%	107%	70%	130%
Dissolved Mercury	3065987		<0.0001	<0.0001	NA	< 0.0001	99%	70%	130%	99%	80%	120%	99%	70%	130%
Total Molybdenum	3059717		<0.002	<0.002	NA	< 0.002	106%	70%	130%	107%	80%	120%	110%	70%	130%
Total Nickel	3059717		<0.003	<0.003	NA	< 0.003	104%	70%	130%	105%	80%	120%	106%	70%	130%

Quality Assurance

CLIENT NAME: AECOM CANADA LTD
PROJECT: 60636190
SAMPLING SITE: Bradford

AGAT WORK ORDER: 21T812334
ATTENTION TO: Brian Holden
SAMPLED BY: Justin Borrmann

Water Analysis (Continued)

RPT Date: Oct 13, 2021			DUPLICATE				Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE		MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Measured Value		Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
Total Selenium	3059717		<0.002	<0.002	NA	< 0.002	96%	70%	130%	113%	80%	120%	105%	70%	130%
Total Silver	3059717		<0.0001	<0.0001	NA	< 0.0001	99%	70%	130%	109%	80%	120%	106%	70%	130%
Total Strontium	3059717		0.261	0.287	9.5%	< 0.005	100%	70%	130%	107%	80%	120%	100%	70%	130%
Total Thallium	3059717		<0.0003	<0.0003	NA	< 0.0003	96%	70%	130%	111%	80%	120%	110%	70%	130%
Total Tin	3059717		<0.002	<0.002	NA	< 0.002	105%	70%	130%	110%	80%	120%	106%	70%	130%
Total Titanium	3059717		<0.010	<0.010	NA	< 0.010	95%	70%	130%	107%	80%	120%	110%	70%	130%
Total Tungsten	3059717		<0.010	<0.010	NA	< 0.010	97%	70%	130%	103%	80%	120%	104%	70%	130%
Total Uranium	3059717		<0.002	<0.002	NA	< 0.002	93%	70%	130%	110%	80%	120%	111%	70%	130%
Total Vanadium	3059717		<0.002	<0.002	NA	< 0.002	107%	70%	130%	106%	80%	120%	107%	70%	130%
Total Zinc	3059717		0.029	<0.020	NA	< 0.020	107%	70%	130%	103%	80%	120%	110%	70%	130%
Total Zirconium	3059717		<0.004	<0.004	NA	< 0.004	110%	70%	130%	106%	80%	120%	107%	70%	130%

Comments: NA signifies Not Applicable.
 If the RPD value is NA, the results of the duplicates are under 5X the RDL and will not be calculated.
 Matrix spike: Spike level < native concentration. Matrix spike acceptance limits do not apply.

Certified By:





Time Markers

AGAT WORK ORDER: 21T812334

PROJECT: 60636190

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Brian Holden

Sample ID	Sample Description	Sample Type	Date Sampled	Date Received
3061845	24 Grandview	Water	06-OCT-2021	06-OCT-2021

Total Coliforms & E. Coli (Using MI Agar)

Parameter	Date Prepared	Date Analyzed	Initials
Escherichia coli	07-OCT-2021	08-OCT-2021	SJM
Total Coliforms	07-OCT-2021	08-OCT-2021	SJM

Water Quality Assessment - PWQO (mg/L)

Parameter	Date Prepared	Date Analyzed	Initials
Electrical Conductivity	07-OCT-2021	07-OCT-2021	ND
pH	07-OCT-2021	07-OCT-2021	ND
Saturation pH (Calculated)	13-OCT-2021	13-OCT-2021	SYS
Langelier Index (Calculated)	13-OCT-2021	13-OCT-2021	SYS
Hardness (as CaCO3) (Calculated)	13-OCT-2021	13-OCT-2021	SYS
Total Dissolved Solids	12-OCT-2021	13-OCT-2021	VD
Alkalinity (as CaCO3)	07-OCT-2021	07-OCT-2021	ND
Bicarbonate (as CaCO3)	07-OCT-2021	07-OCT-2021	ND
Carbonate (as CaCO3)	07-OCT-2021	07-OCT-2021	ND
Hydroxide (as CaCO3)	07-OCT-2021	07-OCT-2021	ND
Fluoride	08-OCT-2021	08-OCT-2021	LC
Chloride	08-OCT-2021	08-OCT-2021	LC
Nitrate as N	08-OCT-2021	08-OCT-2021	LC
Nitrite as N	08-OCT-2021	08-OCT-2021	LC
Bromide	08-OCT-2021	08-OCT-2021	LC
Sulphate	08-OCT-2021	08-OCT-2021	LC
Ortho Phosphate as P	08-OCT-2021	08-OCT-2021	LC
Ammonia as N	08-OCT-2021	08-OCT-2021	SK
Ammonia-Un-ionized (Calculated)	08-OCT-2021	08-OCT-2021	SYS
Total Phosphorus	07-OCT-2021	07-OCT-2021	XL
Total Organic Carbon	08-OCT-2021	08-OCT-2021	ND
True Colour	12-OCT-2021	12-OCT-2021	NK
Turbidity	07-OCT-2021	07-OCT-2021	NK
Total Calcium	13-OCT-2021	13-OCT-2021	AA
Total Magnesium	13-OCT-2021	13-OCT-2021	AA
Total Potassium	13-OCT-2021	13-OCT-2021	AA
Total Sodium	13-OCT-2021	13-OCT-2021	AA
Aluminum-dissolved	08-OCT-2021	08-OCT-2021	DW
Total Antimony	09-OCT-2021	09-OCT-2021	DW
Total Arsenic	09-OCT-2021	09-OCT-2021	DW
Total Barium	09-OCT-2021	09-OCT-2021	DW
Total Beryllium	09-OCT-2021	09-OCT-2021	DW
Total Boron	09-OCT-2021	09-OCT-2021	DW
Total Cadmium	09-OCT-2021	09-OCT-2021	DW



Time Markers

AGAT WORK ORDER: 21T812334

PROJECT: 60636190

5835 COOPERS AVENUE
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<http://www.agatlabs.com>

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Brian Holden

Sample ID	Sample Description	Sample Type	Date Sampled	Date Received
3061845	24 Grandview	Water	06-OCT-2021	06-OCT-2021

Water Quality Assessment - PWQO (mg/L)

Parameter	Date Prepared	Date Analyzed	Initials
Total Chromium	09-OCT-2021	09-OCT-2021	DW
Total Cobalt	09-OCT-2021	09-OCT-2021	DW
Total Copper	09-OCT-2021	09-OCT-2021	DW
Total Iron	09-OCT-2021	09-OCT-2021	DW
Total Lead	09-OCT-2021	09-OCT-2021	DW
Total Manganese	09-OCT-2021	09-OCT-2021	DW
Dissolved Mercury	08-OCT-2021	08-OCT-2021	DL
Total Molybdenum	09-OCT-2021	09-OCT-2021	DW
Total Nickel	09-OCT-2021	09-OCT-2021	DW
Total Selenium	09-OCT-2021	09-OCT-2021	DW
Total Silver	09-OCT-2021	09-OCT-2021	DW
Total Strontium	09-OCT-2021	09-OCT-2021	DW
Total Thallium	09-OCT-2021	09-OCT-2021	DW
Total Tin	09-OCT-2021	09-OCT-2021	DW
Total Titanium	09-OCT-2021	09-OCT-2021	DW
Total Tungsten	09-OCT-2021	09-OCT-2021	DW
Total Uranium	09-OCT-2021	09-OCT-2021	DW
Total Vanadium	09-OCT-2021	09-OCT-2021	DW
Total Zinc	09-OCT-2021	09-OCT-2021	DW
Total Zirconium	09-OCT-2021	09-OCT-2021	DW
Lab Filtration Aluminum Dissolved			
Lab Filtration mercury			

3061871	1737 Halburn	Water	06-OCT-2021	06-OCT-2021
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Total Coliforms & E. Coli (Using MI Agar)

Parameter	Date Prepared	Date Analyzed	Initials
Escherichia coli	07-OCT-2021	08-OCT-2021	SJM
Total Coliforms	07-OCT-2021	08-OCT-2021	SJM

Water Quality Assessment - PWQO (mg/L)

Parameter	Date Prepared	Date Analyzed	Initials
Electrical Conductivity	07-OCT-2021	07-OCT-2021	ND
pH	07-OCT-2021	07-OCT-2021	ND
Saturation pH (Calculated)	13-OCT-2021	13-OCT-2021	SYS
Langelier Index (Calculated)	13-OCT-2021	13-OCT-2021	SYS
Hardness (as CaCO3) (Calculated)	13-OCT-2021	13-OCT-2021	SYS
Total Dissolved Solids	12-OCT-2021	13-OCT-2021	VD
Alkalinity (as CaCO3)	07-OCT-2021	07-OCT-2021	ND



Time Markers

AGAT WORK ORDER: 21T812334

PROJECT: 60636190

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Brian Holden

Sample ID	Sample Description	Sample Type	Date Sampled	Date Received
3061871	1737 Halburn	Water	06-OCT-2021	06-OCT-2021

Water Quality Assessment - PWQO (mg/L)

Parameter	Date Prepared	Date Analyzed	Initials
Bicarbonate (as CaCO3)	07-OCT-2021	07-OCT-2021	ND
Carbonate (as CaCO3)	07-OCT-2021	07-OCT-2021	ND
Hydroxide (as CaCO3)	07-OCT-2021	07-OCT-2021	ND
Fluoride	08-OCT-2021	08-OCT-2021	LC
Chloride	08-OCT-2021	08-OCT-2021	LC
Nitrate as N	08-OCT-2021	08-OCT-2021	LC
Nitrite as N	08-OCT-2021	08-OCT-2021	LC
Bromide	08-OCT-2021	08-OCT-2021	LC
Sulphate	08-OCT-2021	08-OCT-2021	LC
Ortho Phosphate as P	08-OCT-2021	08-OCT-2021	LC
Ammonia as N	08-OCT-2021	08-OCT-2021	SK
Ammonia-Un-ionized (Calculated)	08-OCT-2021	08-OCT-2021	SYS
Total Phosphorus	07-OCT-2021	07-OCT-2021	XL
Total Organic Carbon	07-OCT-2021	07-OCT-2021	ND
True Colour	12-OCT-2021	12-OCT-2021	NK
Turbidity	07-OCT-2021	07-OCT-2021	NK
Total Calcium	13-OCT-2021	13-OCT-2021	AA
Total Magnesium	13-OCT-2021	13-OCT-2021	AA
Total Potassium	13-OCT-2021	13-OCT-2021	AA
Total Sodium	13-OCT-2021	13-OCT-2021	AA
Aluminum-dissolved	08-OCT-2021	08-OCT-2021	DW
Total Antimony	09-OCT-2021	09-OCT-2021	DW
Total Arsenic	09-OCT-2021	09-OCT-2021	DW
Total Barium	09-OCT-2021	09-OCT-2021	DW
Total Beryllium	09-OCT-2021	09-OCT-2021	DW
Total Boron	09-OCT-2021	09-OCT-2021	DW
Total Cadmium	09-OCT-2021	09-OCT-2021	DW
Total Chromium	09-OCT-2021	09-OCT-2021	DW
Total Cobalt	09-OCT-2021	09-OCT-2021	DW
Total Copper	09-OCT-2021	09-OCT-2021	DW
Total Iron	09-OCT-2021	09-OCT-2021	DW
Total Lead	09-OCT-2021	09-OCT-2021	DW
Total Manganese	09-OCT-2021	09-OCT-2021	DW
Dissolved Mercury	08-OCT-2021	08-OCT-2021	DL
Total Molybdenum	09-OCT-2021	09-OCT-2021	DW
Total Nickel	09-OCT-2021	09-OCT-2021	DW
Total Selenium	09-OCT-2021	09-OCT-2021	DW
Total Silver	09-OCT-2021	09-OCT-2021	DW
Total Strontium	09-OCT-2021	09-OCT-2021	DW



Time Markers

AGAT WORK ORDER: 21T812334

PROJECT: 60636190

5835 COOPERS AVENUE
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<http://www.agatlabs.com>

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Brian Holden

Sample ID	Sample Description	Sample Type	Date Sampled	Date Received
3061871	1737 Halburn	Water	06-OCT-2021	06-OCT-2021

Water Quality Assessment - PWQO (mg/L)

Parameter	Date Prepared	Date Analyzed	Initials
Total Thallium	09-OCT-2021	09-OCT-2021	DW
Total Tin	09-OCT-2021	09-OCT-2021	DW
Total Titanium	09-OCT-2021	09-OCT-2021	DW
Total Tungsten	09-OCT-2021	09-OCT-2021	DW
Total Uranium	09-OCT-2021	09-OCT-2021	DW
Total Vanadium	09-OCT-2021	09-OCT-2021	DW
Total Zinc	09-OCT-2021	09-OCT-2021	DW
Total Zirconium	09-OCT-2021	09-OCT-2021	DW
Lab Filtration Aluminum Dissolved			
Lab Filtration mercury			

3061872	3247 sdrd 10	Water	06-OCT-2021	06-OCT-2021
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Total Coliforms & E. Coli (Using MI Agar)

Parameter	Date Prepared	Date Analyzed	Initials
Escherichia coli	07-OCT-2021	08-OCT-2021	SJM
Total Coliforms	07-OCT-2021	08-OCT-2021	SJM

Water Quality Assessment - PWQO (mg/L)

Parameter	Date Prepared	Date Analyzed	Initials
Electrical Conductivity	07-OCT-2021	07-OCT-2021	ND
pH	07-OCT-2021	07-OCT-2021	ND
Saturation pH (Calculated)	13-OCT-2021	13-OCT-2021	SYS
Langelier Index (Calculated)	13-OCT-2021	13-OCT-2021	SYS
Hardness (as CaCO3) (Calculated)	13-OCT-2021	13-OCT-2021	SYS
Total Dissolved Solids	12-OCT-2021	13-OCT-2021	VD
Alkalinity (as CaCO3)	07-OCT-2021	07-OCT-2021	ND
Bicarbonate (as CaCO3)	07-OCT-2021	07-OCT-2021	ND
Carbonate (as CaCO3)	07-OCT-2021	07-OCT-2021	ND
Hydroxide (as CaCO3)	07-OCT-2021	07-OCT-2021	ND
Fluoride	08-OCT-2021	08-OCT-2021	LC
Chloride	08-OCT-2021	08-OCT-2021	LC
Nitrate as N	08-OCT-2021	08-OCT-2021	LC
Nitrite as N	08-OCT-2021	08-OCT-2021	LC
Bromide	08-OCT-2021	08-OCT-2021	LC
Sulphate	08-OCT-2021	08-OCT-2021	LC
Ortho Phosphate as P	08-OCT-2021	08-OCT-2021	LC
Ammonia as N	08-OCT-2021	08-OCT-2021	SK
Ammonia-Un-ionized (Calculated)	08-OCT-2021	08-OCT-2021	SYS



Time Markers

AGAT WORK ORDER: 21T812334

PROJECT: 60636190

5835 COOPERS AVENUE
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<http://www.agatlabs.com>

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Brian Holden

Sample ID	Sample Description	Sample Type	Date Sampled	Date Received
3061872	3247 sdrd 10	Water	06-OCT-2021	06-OCT-2021

Water Quality Assessment - PWQO (mg/L)

Parameter	Date Prepared	Date Analyzed	Initials
Total Phosphorus	07-OCT-2021	07-OCT-2021	XL
Total Organic Carbon	07-OCT-2021	07-OCT-2021	ND
True Colour	12-OCT-2021	12-OCT-2021	NK
Turbidity	07-OCT-2021	07-OCT-2021	NK
Total Calcium	13-OCT-2021	13-OCT-2021	AA
Total Magnesium	13-OCT-2021	13-OCT-2021	AA
Total Potassium	13-OCT-2021	13-OCT-2021	AA
Total Sodium	13-OCT-2021	13-OCT-2021	AA
Aluminum-dissolved	08-OCT-2021	08-OCT-2021	DW
Total Antimony	09-OCT-2021	09-OCT-2021	DW
Total Arsenic	09-OCT-2021	09-OCT-2021	DW
Total Barium	09-OCT-2021	09-OCT-2021	DW
Total Beryllium	09-OCT-2021	09-OCT-2021	DW
Total Boron	09-OCT-2021	09-OCT-2021	DW
Total Cadmium	09-OCT-2021	09-OCT-2021	DW
Total Chromium	09-OCT-2021	09-OCT-2021	DW
Total Cobalt	09-OCT-2021	09-OCT-2021	DW
Total Copper	09-OCT-2021	09-OCT-2021	DW
Total Iron	09-OCT-2021	09-OCT-2021	DW
Total Lead	09-OCT-2021	09-OCT-2021	DW
Total Manganese	09-OCT-2021	09-OCT-2021	DW
Dissolved Mercury	08-OCT-2021	08-OCT-2021	DL
Total Molybdenum	09-OCT-2021	09-OCT-2021	DW
Total Nickel	09-OCT-2021	09-OCT-2021	DW
Total Selenium	09-OCT-2021	09-OCT-2021	DW
Total Silver	09-OCT-2021	09-OCT-2021	DW
Total Strontium	09-OCT-2021	09-OCT-2021	DW
Total Thallium	09-OCT-2021	09-OCT-2021	DW
Total Tin	09-OCT-2021	09-OCT-2021	DW
Total Titanium	09-OCT-2021	09-OCT-2021	DW
Total Tungsten	09-OCT-2021	09-OCT-2021	DW
Total Uranium	09-OCT-2021	09-OCT-2021	DW
Total Vanadium	09-OCT-2021	09-OCT-2021	DW
Total Zinc	09-OCT-2021	09-OCT-2021	DW
Total Zirconium	09-OCT-2021	09-OCT-2021	DW
Lab Filtration Aluminum Dissolved			
Lab Filtration mercury			

3061873	3223 sdrd 10	Water	06-OCT-2021	06-OCT-2021
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Time Markers

AGAT WORK ORDER: 21T812334

PROJECT: 60636190

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Brian Holden

Sample ID	Sample Description	Sample Type	Date Sampled	Date Received
3061873	3223 sdrrd 10	Water	06-OCT-2021	06-OCT-2021

Total Coliforms & E. Coli (Using MI Agar)

Parameter	Date Prepared	Date Analyzed	Initials
Escherichia coli	07-OCT-2021	08-OCT-2021	SJM
Total Coliforms	07-OCT-2021	08-OCT-2021	SJM

Water Quality Assessment - PWQO (mg/L)

Parameter	Date Prepared	Date Analyzed	Initials
Electrical Conductivity	07-OCT-2021	07-OCT-2021	ND
pH	07-OCT-2021	07-OCT-2021	ND
Saturation pH (Calculated)	13-OCT-2021	13-OCT-2021	SYS
Langelier Index (Calculated)	13-OCT-2021	13-OCT-2021	SYS
Hardness (as CaCO3) (Calculated)	13-OCT-2021	13-OCT-2021	SYS
Total Dissolved Solids	12-OCT-2021	13-OCT-2021	VD
Alkalinity (as CaCO3)	07-OCT-2021	07-OCT-2021	ND
Bicarbonate (as CaCO3)	07-OCT-2021	07-OCT-2021	ND
Carbonate (as CaCO3)	07-OCT-2021	07-OCT-2021	ND
Hydroxide (as CaCO3)	07-OCT-2021	07-OCT-2021	ND
Fluoride	08-OCT-2021	08-OCT-2021	LC
Chloride	08-OCT-2021	08-OCT-2021	LC
Nitrate as N	08-OCT-2021	08-OCT-2021	LC
Nitrite as N	08-OCT-2021	08-OCT-2021	LC
Bromide	08-OCT-2021	08-OCT-2021	LC
Sulphate	08-OCT-2021	08-OCT-2021	LC
Ortho Phosphate as P	08-OCT-2021	08-OCT-2021	LC
Ammonia as N	08-OCT-2021	08-OCT-2021	SK
Ammonia-Un-ionized (Calculated)	08-OCT-2021	08-OCT-2021	SYS
Total Phosphorus	07-OCT-2021	07-OCT-2021	XL
Total Organic Carbon	07-OCT-2021	07-OCT-2021	ND
True Colour	12-OCT-2021	12-OCT-2021	NK
Turbidity	07-OCT-2021	07-OCT-2021	NK
Total Calcium	13-OCT-2021	13-OCT-2021	AA
Total Magnesium	13-OCT-2021	13-OCT-2021	AA
Total Potassium	13-OCT-2021	13-OCT-2021	AA
Total Sodium	13-OCT-2021	13-OCT-2021	AA
Aluminum-dissolved	08-OCT-2021	08-OCT-2021	DW
Total Antimony	09-OCT-2021	09-OCT-2021	DW
Total Arsenic	09-OCT-2021	09-OCT-2021	DW
Total Barium	09-OCT-2021	09-OCT-2021	DW
Total Beryllium	09-OCT-2021	09-OCT-2021	DW
Total Boron	09-OCT-2021	09-OCT-2021	DW
Total Cadmium	09-OCT-2021	09-OCT-2021	DW



Time Markers

AGAT WORK ORDER: 21T812334

PROJECT: 60636190

5835 COOPERS AVENUE
 MISSISSAUGA, ONTARIO
 CANADA L4Z 1Y2
 TEL (905)712-5100
 FAX (905)712-5122
<http://www.agatlabs.com>

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Brian Holden

Sample ID	Sample Description	Sample Type	Date Sampled	Date Received
3061873	3223 sdrrd 10	Water	06-OCT-2021	06-OCT-2021

Water Quality Assessment - PWQO (mg/L)

Parameter	Date Prepared	Date Analyzed	Initials
Total Chromium	09-OCT-2021	09-OCT-2021	DW
Total Cobalt	09-OCT-2021	09-OCT-2021	DW
Total Copper	09-OCT-2021	09-OCT-2021	DW
Total Iron	09-OCT-2021	09-OCT-2021	DW
Total Lead	09-OCT-2021	09-OCT-2021	DW
Total Manganese	09-OCT-2021	09-OCT-2021	DW
Dissolved Mercury	08-OCT-2021	08-OCT-2021	DL
Total Molybdenum	09-OCT-2021	09-OCT-2021	DW
Total Nickel	09-OCT-2021	09-OCT-2021	DW
Total Selenium	09-OCT-2021	09-OCT-2021	DW
Total Silver	09-OCT-2021	09-OCT-2021	DW
Total Strontium	09-OCT-2021	09-OCT-2021	DW
Total Thallium	09-OCT-2021	09-OCT-2021	DW
Total Tin	09-OCT-2021	09-OCT-2021	DW
Total Titanium	09-OCT-2021	09-OCT-2021	DW
Total Tungsten	09-OCT-2021	09-OCT-2021	DW
Total Uranium	09-OCT-2021	09-OCT-2021	DW
Total Vanadium	09-OCT-2021	09-OCT-2021	DW
Total Zinc	09-OCT-2021	09-OCT-2021	DW
Total Zirconium	09-OCT-2021	09-OCT-2021	DW
Lab Filtration Aluminum Dissolved			
Lab Filtration mercury			



Method Summary

CLIENT NAME: AECOM CANADA LTD

PROJECT: 60636190

SAMPLING SITE:Bradford

AGAT WORK ORDER: 21T812334

ATTENTION TO: Brian Holden

SAMPLED BY:Justin Borrmann

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Microbiology Analysis			
Escherichia coli	MIC-93-7010	EPA 1604	Membrane Filtration
Total Coliforms	MIC-93-7010	EPA 1604	Membrane Filtration

Method Summary

CLIENT NAME: AECOM CANADA LTD
AGAT WORK ORDER: 21T812334
PROJECT: 60636190
ATTENTION TO: Brian Holden
SAMPLING SITE:Bradford
SAMPLED BY:Justin Borrmann

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Water Analysis			
Electrical Conductivity	INOR-93-6000	modified from SM 2510 B	PC TITRATE
pH	INOR-93-6000	modified from SM 4500-H+ B	PC TITRATE
Saturation pH (Calculated)		SM 2320 B	CALCULATION
Langelier Index (Calculated)		SM 2330B	CALCULATION
Hardness (as CaCO ₃) (Calculated)	MET-93-6105	modified from EPA SW-846 6010C & 200.7 & SM 2340 B	CALCULATION
Total Dissolved Solids	INOR-93-6028	modified from EPA 1684,ON MOECC E3139,SM 2540C,D	BALANCE
Alkalinity (as CaCO ₃)	INOR-93-6000	Modified from SM 2320 B	PC TITRATE
Bicarbonate (as CaCO ₃)	INOR-93-6000	modified from SM 2320 B	PC TITRATE
Carbonate (as CaCO ₃)	INOR-93-6000	modified from SM 2320 B	PC TITRATE
Hydroxide (as CaCO ₃)	INOR-93-6000	modified from SM 2320 B	PC TITRATE
Fluoride	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Chloride	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Nitrate as N	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Nitrite as N	INOR-93-6004	SM 4110 B	ION CHROMATOGRAPH
Bromide	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Sulphate	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Ortho Phosphate as P	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Ammonia as N	INOR-93-6059	modified from SM 4500-NH ₃ H	LACHAT FIA
Ammonia-Un-ionized (Calculated)		MOE REFERENCE, PWQOs Tab 2	CALCULATION
Total Phosphorus	INOR-93-6022	modified from SM 4500-P B and SM 4500-P E	SPECTROPHOTOMETER
Total Organic Carbon	INOR-93-6049	modified from SM 5310 B	SHIMADZU CARBON ANALYZER
True Colour	INOR-93-6074	modified from SM 2120 B	LACHAT FIA
Turbidity	INOR-93-6044	modified from SM 2130 B	NEPHELOMETER
Total Calcium	MET-93-6105	modified from EPA 6010D	ICP/OES
Total Magnesium	MET-93-6105	modified from EPA 6010D	ICP/OES
Total Potassium	MET-93-6105	modified from EPA 6010D	ICP/OES
Total Sodium	MET-93-6105	modified from EPA 6010D	ICP/OES
Aluminum-dissolved	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Total Antimony	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Arsenic	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Barium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Beryllium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Boron	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Cadmium	MET -93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Chromium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Cobalt	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Copper	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Iron	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS



Method Summary

CLIENT NAME: AECOM CANADA LTD

AGAT WORK ORDER: 21T812334

PROJECT: 60636190

ATTENTION TO: Brian Holden

SAMPLING SITE:Bradford

SAMPLED BY:Justin Borrmann

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Total Lead	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Manganese	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Dissolved Mercury	MET-93-6100	modified from EPA 245.2 and SM 3112 B	CVAAS
Total Molybdenum	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Nickel	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Selenium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Silver	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Strontium	INOR-93-6003	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Thallium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Tin	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Titanium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Tungsten	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Uranium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Vanadium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Zinc	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Zirconium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Lab Filtration Aluminum Dissolved	SR-78-9001		FILTRATION
Lab Filtration mercury	SR-78-9001		FILTRATION

BBP

Water Well Survey

AECOM

Well I.D. #: _____ AECOM Project No.: 60630190
 MECP WWR #: 5718402 Client Project No.: _____

Well Owner Information:

Property Owner Name:	Marie A. Pearson		
Property Address:	3247 10 th Side road Bradford ON L3Z 4G3		
Telephone:	905 830 4856	Email:	marie.pearson@sympatico.ca
Name of Person Completing Survey:	Marie Pearson		
Telephone:	905 830 4856	Email:	Marie.pearson@sympatico.ca
Relationship to Property Owner:	owner	Date of Survey Completion:	Sept 23/21
Name of Original Well Owner: (if known/different from above)	unknown		

Occupant of Property Served by Well: (if other than Owner)

Name:			
Telephone:		Email:	
Address:			

Well Location:

Lot:	NPT LOT 11	Concession:	CONS 8	Township:	BWG
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Well Construction Details:

Well Record Available?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Date Well Constructed:		Well Contractor Name:	
Well Type: (Drilled / Bored / Dug)	Dug	Casing Material: (Steel, Concrete, etc.)	Concrete	Well Casing Diameter:	
Well Stick Up: (Above Ground)		Well Depth: (Below Ground)	55', 5"	Water Level: (Below Ground)	40'
Is Well Located in a Well Pit?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Well Pit Depth: (Below Ground)		Well Stick Up: (Above Pit Bottom)	
Is Well Flowing?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Flow Rate:	46 PPM	Contractor:	
Well Cap Type:	Concrete	Does Cap Create a Good Seal?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Is Wire Conduit Tight to Well Cap?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Is the Well:	Accessible for Direct Sampling?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	OR	Buried, in a Well Pit, or Other Confined Space?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Well Screen Installed?	<input type="checkbox"/> Yes <input type="checkbox"/> No	If Yes, Length & Slot Size:		Depth of Top of Screen: (Below Ground)	

Water Well Survey

AECOM

Well I.D. #: _____ AECOM Project No.: 60036195
 MECP WWR #: 5718402 Client Project No.: _____

Pumping Equipment:

Pump Type:	<input type="checkbox"/> Jet Pump <input checked="" type="checkbox"/> Submersible <input type="checkbox"/> Piston Pump <input type="checkbox"/> Other (please describe): _____				
Pump Horsepower:		Pump Age:	<u>5 yr</u>	Pumping Capacity:	
Pump Intake Depth: (Below Ground)	<u>50 ft</u>	Pump Location: (If Not in Well)	<u>In Well</u>	Pumping Rate: (If Known)	
Pressure Tank:	Type:			Capacity:	
Water Treatment: (if present)	<input type="checkbox"/> Chlorinator <input checked="" type="checkbox"/> Water Softener <input type="checkbox"/> Water Filter (indicate type) _____ <input type="checkbox"/> U.V. <input type="checkbox"/> R.O. <input type="checkbox"/> Other (please describe): _____				

Well Usage:

Primary Use(s):	Domestic:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Livestock:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Lawn Watering:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
# of Persons Using Well:	<u>2</u>	# of Livestock Watered:		Other Uses:		Daily Amount: (if known)
Indoor Plumbing Fixtures: (Washroom(s), Shower(s), Dishwasher, Laundry, Pool, Spa, etc.)			<u>2 washrm Dishwasher Laundry</u>			
			<u>Pool</u>			

Sewage Servicing:

Private Sewage System or Municipal:		System Type: (septic tank, etc.)	<u>Septic</u>	Distance from Well:	<u>rear of property</u>
Well Location:	<input type="checkbox"/> Uphill <input type="checkbox"/> Downhill <input checked="" type="checkbox"/> Same Grade	<u>front yard</u>			
Presence of Any Above Ground Storage Tank or Other Potential Source(s) of Contamination: (including distance on / off property)			<u>NO</u>		

Previous Concerns:

How Long Have You Owned, Resided, or Operated a Business on this Property?	<u>16 yrs</u>				
Have You Experienced Any Previous Concerns with Your Well Supply? (Quantity or Quality)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If Yes, When?			
Cause(s) of the Previous Concern?	<input type="checkbox"/> Drought <input type="checkbox"/> Pump Failure <input type="checkbox"/> Plugging <input type="checkbox"/> Increased Usage <input type="checkbox"/> Interference <input type="checkbox"/> Contamination <input type="checkbox"/> Other (Please describe): _____				

Water Well Survey

AECOM

Well I.D. #: _____ AECOM Project No.: 00036190
MECP WWR #: 5718402 Client Project No.: _____

Location Sketch (To be Completed by Property Owner / Occupant)



Include details such as property lines, buildings, well, sewage system (if present), as well as any other potential sources of contamination (e.g., tanks, barnyards, chemical/manure storage, etc.).

Water Well Survey

AECOM

Well I.D. #: _____ AECOM Project No.: 60630190
 MECP WWR #: 5718402 Client Project No.: _____

Field Visit Log (To Be Completed by AECOM Staff)

General Details:

Project Name:	<u>BBP Well Survey</u>		Project No.:	<u>60630190</u>	
Address:	<u>3247 10th Sideroad</u>		Inspected By:	<u>Hadden / Borman</u>	
Date:	<u>Oct 6/21</u>	Time:	<u>14:00 - 14:30</u>	Weather:	<u>Sunny / Cloudy</u>
Easting:	<u>611929</u>	Northing:	<u>4887134</u>	Datum:	<u>17T</u>

Well Details:

Is Well Accessible for Inspection?		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If No, Provide Reason:		
MECP Water Well Record No.:	<u>5718402</u>	Date Well Constructed:	<u>18/10/82</u>	Contractor Name:	<u>T and B Well Drilling</u>
Well Type: (Drilled / Bored / Dug)	<u>Dug</u>	Well Stick Up: (Above Ground)	<u>0-18</u>	Casing Material: (Steel, Concrete, etc.)	<u>Concrete</u>
Well Located in a Well Pit?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Well Pit Depth: (Below Ground)	<u>61 ft</u>	Well Stick Up: (Above Pit Bottom)	<u>12"</u>
Well Casing Diameter:	<u>0.9 m</u>	Well Depth: (Below Ground)	<u>55' 5"</u>	Groundwater Level: (Below Ground)	<u>40'</u>
Pump On / Off?	<input checked="" type="checkbox"/> On <input type="checkbox"/> Off	Water Level Condition:	<input checked="" type="checkbox"/> Stable (Static) <input type="checkbox"/> Declining (Drawdown) <input type="checkbox"/> Rising (Recovery)		
Flowing Well?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Flow Rate: (Estimated)	<u>1 GPM</u>	Well Cap Type:	<u>-</u>
Well Screen Installed?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If Yes, Length & Slot Size:	<u>-</u>	Top of Screen: (Below Ground)	<u>-</u>
Is There a Depression Around the Well Casing Exterior?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Photo(s) of Well Obtained?		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Observation(s) Summary:

- Located in front yard w/ birdbath

Water Well Survey



Well I.D. #: _____ AECOM Project No.: 60636190
 MECP WWR #: 5718402 Client Project No.: _____

Water Quality Sampling:

Water Quality Sample Obtained?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If No, Provide Reason:	
Sampling Location:	<u>outside Tap</u>	Raw or Treated Sample?	<u>Raw</u>
Disinfected Sample Port?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Disinfection Method:	<u>Alconox</u>
Photo of Sample Obtained? (against white background)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If No, Provide Reason:	

Analyte Suite:	<u>93179 + E. coli + Total Coliforms</u>				
Sample I.D.:	<u>3247 10th Side one</u>	Date / Time of Sampling:	<u>14:19</u>	Number of Sample Bottles:	<u>9</u>

Field Water Quality Parameters: (record units)					
Temperature:	<u>14.1</u>	pH:	<u>7.48</u>	Conductivity:	<u>1.18</u>
Turbidity:	<u>-</u>	D.O.:	<u>-</u>	Colour:	<u>Clear</u>
Odours?	<u>None</u>	Appearance/Odour:	<u>Clear</u>		

Type of Concern: (if applicable)	<input checked="" type="checkbox"/> Water Quantity <input type="checkbox"/> Water Quality (Note any differences in taste, odour, colour or clarity)
If the concern was contamination what changes were apparent to water quality?	<u>Concerned about water supply, what</u>
Were there any effects of this concern?	<u>happens if the well goes dry</u>
What action was taken to overcome this concern?	

AECOM Canada Ltd.
 105 Commerce Valley Drive West, 7th Floor
 Markham, ON L3T 7W3
 Canada

T: 905.886.7022
 F: 905.538.8076
 www.aecom.com

Appendix **N**

Property ID #17 – 29 Grandview Crescent



AECOM Canada Ltd.
55 Cedar Pointe Drive, Suite 620
Barrie, ON, Canada L4M 5R7
www.aecom.com

705.721.9222 tel
905.734.0764 fax

May 3, 2022

Jennifer and Frank Caietta
29 Grandview Crescent
Bradford, ON
L3Z 3L1

Project No: 60636190
Regarding: Pre-Construction Water Quality Testing Results
MTO Bradford Bypass Project

Dear Mr. and Ms. Caietta,

AECOM Canada Ltd. (AECOM) would like to thank you for your participation in the Pre-Construction Well Assessment Program offered to local residents as part of the Bradford Bypass Project. Based on receipt of verbal permission from yourself, a sample of treated groundwater from your private well was collected for laboratory analysis by AECOM staff on March 3rd, 2022. Please find attached a copy of the water quality testing results for your review and record.

Laboratory testing results for the sample obtained indicate that concentrations of certain parameters, as shown in the table below, are in excess of the *Ontario Drinking Water Standards, Objectives and Guidelines* (Ontario Ministry of the Environment, 2006). It should be noted, however, that these results are based on a single sample analysis and that additional testing is recommended.

PARAMETER	CONCENTRATION IN YOUR WATER	STANDARD VALUE / RANGE	STANDARD TYPE	HEALTH RELATED (Y / N)
Hardness (as CaCO ₃)	<0.5 mg/L	80 - 100 mg/L	OG	N
True Colour	6 TCU	5 TCU	AO	N
Total Sodium	121 mg/L	20 mg/L	AO	N

NOTE: AO – Aesthetic Objective; OG – Operational Guideline; TCU – True Colour Units.
mg/L = milligrams per Litre

The presence of sodium in excess of 20 mg/L should be considered for water users who are on a sodium-restricted diet which would warrant a follow-up with the Health Department and/or their physician.

For your information, the *Well Aware Booklet – A Guide To Caring For Your Well* created by Green Communities Canada is available on the Walkerton Clean Water Centre (WCWC) website at:

<https://wcwc.ca/well-aware-and-well-wise-program-resources-for-homeowners/>

Should you have any questions or concerns regarding the quality of your well water, it is recommended that you contact your local Public Health Unit for further information and advice. Contact information for your Local Public Health Unit is provided, as follows:

Simcoe Muskoka District Health Unit
80 Bradford St. #403
Barrie, ON L4N 6S7
Website: <https://www.simcoemuskokahealth.org/>
Telephone: 705.721.7520

If you have any further questions, please contact:

AECOM Canada Ltd. C/O Brian Holden, P.Geo.
Hydrogeology, Environment
Telephone: 226-821-2486
Email: brian.holden@aecom.com

Sincerely,
AECOM Canada Ltd.



Brian Holden, P.Geo.
Hydrogeologist
DCS Americas, Canada East (Greater Ontario / Metro Toronto)
Environment
Brian.holden@aecom.com

Encl.

cc: R. Sheikh, N. Valenton, S. Rankin, S.Schmied – AECOM;
H. Singh, L. Sarris, J. MacKinnon, R. Gribbon – MTO



Water Well Survey

Groundwater Supply Well Location 29 Grandview Cres

Project Name: Bradford Bypass – BBP Expansion

Project#: 60636190

Residence Address:

29 Grandview Cres, Bradford, Ontario

Owner Information:

Owner Name: Jennifer and Frank Caietta

Phone Number: 905-252-2052

Email: fcaietta@rogers.com

The well was not accessible for inspection due to snow covered. Therefore, the photo of the well is not available.

Well Record

Coordinates (UTM).....614838E/4888360N
(NAD83 Zone17)

Type of Well..... Drilled

Constructed (year).....May 2006

Well Location..... In front yard

Well Diameter.....0.152 m

Well Depth.....73.76 m

Casing Position.....0.61 m above ground;

Casing Condition.....Good

Water Usage.....Residential

Water Source.....Overburden

Static Water Level.....42.67 m



Water Quality & Well Testing

Past Water Quality Problems..... None

Potential Contamination Sources...None

Location of Septic Tank.....Downgrade in the rear yard

Treatment System.....Reverse Osmosis, iron filter, and water softener

Recent Test Results.....None

Water Sampled.....Yes (March 3, 2022)

Sample Source..... Kitchen sink tap (treated)

Appearance.....Clear

Comments:

- The well sampled is the residential well and as been used for 16 years. No previous issues.
- Curious about when the BBP construction will occur.
- Every single tap at the property goes through treatment system.
- When the kitchen sink tap was set to cold, the water felt more warmer than usual.

Quality Testing

Groundwater quality met the applicable standards for bacteriological, selected inorganic and metal parameters analyzed except for the following:

<i>Parameters</i>	<i>Test Results</i>	<i>Guideline/Standard</i>	<i>Criteria Type</i>
Hardness (as CaCO ₃)	<0.5 mg/L	80 - 100 mg/L	OG
True Colour	6 TCU	5 TCU	AO
Total Sodium	121 mg/L	20 mg/L	AO

Notes:

1. Criteria are from “*Ontario Drinking Water Standards*” (Ontario Regulation 169/03) and “*Technical Support Document for Ontario Drinking Water Standards, Objectives and Guidelines*” (MOE, June 2003, revised June 2006)
2. AO - Aesthetic Objectives (parameters that may impair the taste, odour or colour of water or which may interfere with good water quality)
3. OG - Operational Guideline (parameters which must be controlled for effective treatment)
4. mg/L – Milligrams per Litre
5. TCU – True Colour Units



June 17th, 2022

Jennifer and Frank Caietta
29 Grandview Crescent
Bradford, ON
L3Z 3L1

Project No: 60636190
Regarding: Pre-Construction Water Quality Testing Results
MTO Bradford Bypass Project

Dear Mr. and Ms. Caietta,

AECOM Canada Ltd. (AECOM) would like to thank you for your participation in the Pre-Construction Well Assessment Program offered to local residents as part of the Bradford Bypass Project. Based on receipt of verbal permission from yourself, a sample of raw groundwater from your private well was collected for laboratory analysis by AECOM staff on May 31st, 2022. Please find attached a copy of the water quality testing results for your review and record.

Laboratory testing results for the sample obtained indicate that concentrations of certain parameters, as shown in the table below, are in excess of the *Ontario Drinking Water Standards, Objectives and Guidelines* (Ontario Ministry of the Environment, 2006). It should be noted, however, that these results are based on a single sample analysis and that additional testing is recommended.

PARAMETER	CONCENTRATION IN YOUR WATER	STANDARD VALUE / RANGE	STANDARD TYPE	HEALTH RELATED (Y / N)
Total Sodium	67.1 mg/L	20 mg/L	AO	N
Apparent Colour	43.3 TCU	5 TCU	AO	N
Total Iron	0.650 mg/L	0.3 mg/L	AO	N

NOTE: AO – Aesthetic Objective; OG – Operational Guideline; TCU – True Colour Units.
mg/L = milligrams per Litre

The presence of sodium in excess of 20 mg/L should be considered for water users who are on a sodium-restricted diet which would warrant a follow-up with the Health Department and/or their physician.

For your information, the *Well Aware Booklet – A Guide To Caring For Your Well* created by Green Communities Canada is available on the Walkerton Clean Water Centre (WCWC) website at:

<https://wcwc.ca/well-aware-and-well-wise-program-resources-for-homeowners/>

Should you have any questions or concerns regarding the quality of your well water, it is recommended that you contact your local Public Health Unit for further information and advice. Contact information for your Local Public Health Unit is provided, as follows:

Simcoe Muskoka District Health Unit
80 Bradford St. #403
Barrie, ON L4N 6S7
Website: <https://www.simcoemuskokahealth.org/>
Telephone: 705.721.7520

If you have any further questions, please contact:

AECOM Canada Ltd. C/O Brian Holden, P.Geo.
Hydrogeology, Environment
Telephone: 226-821-2486
Email: brian.holden@aecom.com

Sincerely,
AECOM Canada Ltd.



Brian Holden, P.Geo.
Hydrogeologist
DCS Americas, Canada East (Greater Ontario / Metro Toronto)
Environment
Brian.holden@aecom.com

Encl.

cc: R. Sheikh, N. Valenton, S. Rankin, S.Schmied – AECOM;
H. Singh, L. Sarris, J. MacKinnon, R. Gribbon – MTO



Water Well Survey

Groundwater Supply Well Location 29 Grandview Cres

Project Name: Bradford Bypass – CR4 Expansion

Project#: 60636190

Residence Address:

29 Grandview Cres, Bradford, Ontario

Owner Information:

Owner Name: Jennifer and Frank Caietta

Phone Number: 905-252-2052

Email: fcaietta@rogers.com



Well Record

Coordinates (UTM).....614838E/4888360N
(NAD83 Zone17)

Type of Well..... Drilled

Constructed (year).....May 2006

Well Location..... In front yard

Well Diameter.....0.152 m

Well Depth.....73.76 m

Casing Position.....0.61 m above ground;

Casing Condition.....Good

Water Usage.....Residential

Water Source.....Overburden

Static Water Level.....42.67 m



Water Quality & Well Testing

Past Water Quality Problems..... None

Potential Contamination Sources...None

Location of Septic Tank.....Downgrade in the rear yard

Treatment System.....Reverse Osmosis, iron filter, and water softener

Recent Test Results..... Treated Sample on March 3, 2022

Water Sampled.....Yes (May 31, 2022)

Sample Source..... Outside Tap (raw)

Appearance.....Clear, Yellowish Tint

Comments:

- The well sampled is the residential well and as been used for 16 years. No previous issues.
- Curious about when the BBP construction will occur.
- Flushmount casing/casing lid of well is exactly at the ground/grass level.

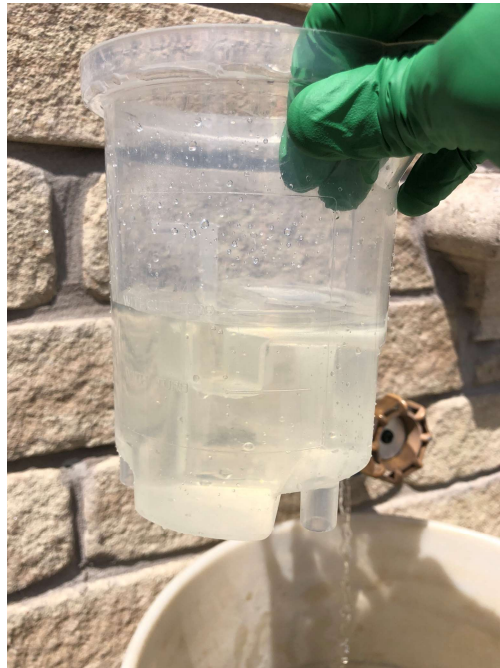
Quality Testing

Groundwater quality met the applicable standards for bacteriological, selected inorganic and metal parameters analyzed except for the following:

<i>Parameters</i>	<i>Test Results</i>	<i>Guideline/Standard</i>	<i>Criteria Type</i>
Total Sodium	67.1 mg/L	20 mg/L	AO
Apparent Colour	43.3 TCU	5 TCU	AO
Total Iron	0.650 mg/L	0.3 mg/L	AO

Notes:

1. Criteria are from “*Ontario Drinking Water Standards*” (Ontario Regulation 169/03) and “*Technical Support Document for Ontario Drinking Water Standards, Objectives and Guidelines*” (MOE, June 2003, revised June 2006)
2. AO - Aesthetic Objectives (parameters that may impair the taste, odour or colour of water or which may interfere with good water quality)
3. OG - Operational Guideline (parameters which must be controlled for effective treatment)
4. mg/L – Milligrams per Litre
5. TCU – True Colour Units





**CLIENT NAME: AECOM CANADA LTD
50 SPORTSWORLD CROSSING RD UNIT 290
KITCHENER, ON N2P0A4
(519) 650-5313**

ATTENTION TO: Brian Holden

PROJECT: 60636190

AGAT WORK ORDER: 22T869736

MICROBIOLOGY ANALYSIS REVIEWED BY: Nivine Basily, Inorganics Report Writer

WATER ANALYSIS REVIEWED BY: Yris Verastegui, Report Reviewer

DATE REPORTED: Mar 11, 2022

PAGES (INCLUDING COVER): 14

VERSION*: 1

Should you require any information regarding this analysis please contact your client services representative at (905) 712-5100

***Notes**

Empty box for notes.

Disclaimer:

- All work conducted herein has been done using accepted standard protocols, and generally accepted practices and methods. AGAT test methods may incorporate modifications from the specified reference methods to improve performance.
- All samples will be disposed of within 30 days after receipt unless a Long Term Storage Agreement is signed and returned. Some specialty analysis may be exempt, please contact your Client Project Manager for details.
- AGAT's liability in connection with any delay, performance or non-performance of these services is only to the Client and does not extend to any other third party. Unless expressly agreed otherwise in writing, AGAT's liability is limited to the actual cost of the specific analysis or analyses included in the services.
- This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
- The test results reported herewith relate only to the samples as received by the laboratory.
- Application of guidelines is provided "as is" without warranty of any kind, either expressed or implied, including, but not limited to, warranties of merchantability, fitness for a particular purpose, or non-infringement. AGAT assumes no responsibility for any errors or omissions in the guidelines contained in this document.
- All reportable information as specified by ISO/IEC 17025:2017 is available from AGAT Laboratories upon request.



Certificate of Analysis

AGAT WORK ORDER: 22T869736

PROJECT: 60636190

5835 COOPERS AVENUE
 MISSISSAUGA, ONTARIO
 CANADA L4Z 1Y2
 TEL (905)712-5100
 FAX (905)712-5122
<http://www.agatlabs.com>

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Brian Holden

SAMPLING SITE:

SAMPLED BY: Brian Holden

Total Coliforms & E. Coli (Using MI Agar)

DATE RECEIVED: 2022-03-03

DATE REPORTED: 2022-03-11

SAMPLE DESCRIPTION: 29 Grandview

SAMPLE TYPE: Water

DATE SAMPLED: 2022-03-03
 11:35

Parameter	Unit	G / S	RDL	3575541
Escherichia coli	CFU/100mL	0	0	
Total Coliforms	CFU/100mL	0	0	

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to O. Reg 169/03 - Ontario Drinking Water Quality Standards. Na value derived from O. Reg 248
 Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

3575541 Escherichia coli, Total Coliforms RDL = 1 CFU/100mL.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:



Nancy Basch



Certificate of Analysis

AGAT WORK ORDER: 22T869736

PROJECT: 60636190

5835 COOPERS AVENUE
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CANADA L4Z 1Y2
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CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Brian Holden

SAMPLING SITE:

SAMPLED BY: Brian Holden

Water Quality Assessment (mg/L)

DATE RECEIVED: 2022-03-03

DATE REPORTED: 2022-03-11

SAMPLE DESCRIPTION: 29 Grandview

SAMPLE TYPE: Water

DATE SAMPLED: 2022-03-03
11:35

Parameter	Unit	G / S: A	G / S: B	RDL	3575541
Electrical Conductivity	µS/cm			2	505
pH	pH Units		6.5-8.5	NA	8.15
Saturation pH (Calculated)					9.63
Langelier Index (Calculated)					-1.48
Hardness (as CaCO ₃) (Calculated)	mg/L		80-100	0.5	<0.5
Total Dissolved Solids	mg/L		500	10	290[<B]
Alkalinity (as CaCO ₃)	mg/L		30-500	5	240
Bicarbonate (as CaCO ₃)	mg/L			5	240
Carbonate (as CaCO ₃)	mg/L			5	<5
Hydroxide (as CaCO ₃)	mg/L			5	<5
Fluoride	mg/L	1.5		0.05	0.32[<A]
Chloride	mg/L		250	0.10	17.7[<B]
Nitrate as N	mg/L	10.0		0.05	<0.05[<A]
Nitrite as N	mg/L	1.0		0.05	<0.05[<A]
Bromide	mg/L			0.05	<0.05
Sulphate	mg/L		500	0.10	<0.10[<B]
Ortho Phosphate as P	mg/L			0.10	<0.10
Ammonia as N	mg/L			0.02	0.32
Total Phosphorus	mg/L			0.02	0.10
Total Organic Carbon	mg/L			0.5	3.0
True Colour	TCU		5	5	6[>B]
Turbidity	NTU		5	0.5	<0.5[<B]
Total Calcium	mg/L			0.10	<0.10
Total Magnesium	mg/L			0.10	<0.10
Total Potassium	mg/L			0.50	<0.50
Total Sodium	mg/L	20	200	0.10	121[A-B]
Total Aluminum	mg/L		0.1	0.010	<0.010[<B]
Total Antimony	mg/L	0.006		0.003	<0.003[<A]
Total Arsenic	mg/L	0.01		0.003	<0.003[<A]

Certified By:

Jris Veraestegui



Certificate of Analysis

AGAT WORK ORDER: 22T869736

PROJECT: 60636190

5835 COOPERS AVENUE
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CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Brian Holden

SAMPLING SITE:

SAMPLED BY: Brian Holden

Water Quality Assessment (mg/L)

DATE RECEIVED: 2022-03-03

DATE REPORTED: 2022-03-11

SAMPLE DESCRIPTION: 29 Grandview

SAMPLE TYPE: Water

DATE SAMPLED: 2022-03-03

11:35

Parameter	Unit	G / S: A	G / S: B	RDL	3575541
Total Barium	mg/L	1.0		0.002	<0.002[<A]
Total Beryllium	mg/L			0.001	<0.001
Total Boron	mg/L	5.0		0.010	0.102[<A]
Total Cadmium	mg/L	0.005		0.001	<0.001[<A]
Total Chromium	mg/L	0.05		0.003	<0.003[<A]
Total Cobalt	mg/L			0.001	<0.001
Total Copper	mg/L		1	0.003	0.013[<B]
Total Iron	mg/L		0.3	0.010	0.073[<B]
Total Lead	mg/L	0.010		0.001	<0.001[<A]
Total Manganese	mg/L		0.05	0.002	<0.002[<B]
Total Mercury	mg/L	0.001		0.0001	<0.0001[<A]
Total Molybdenum	mg/L			0.002	0.003
Total Nickel	mg/L			0.003	<0.003
Total Selenium	mg/L	0.05		0.002	<0.002[<A]
Total Silver	mg/L			0.002	<0.002
Total Strontium	mg/L			0.005	<0.005
Total Thallium	mg/L			0.006	<0.006
Total Tin	mg/L			0.002	<0.002
Total Titanium	mg/L			0.010	<0.010
Total Tungsten	mg/L			0.010	<0.010
Total Uranium	mg/L	0.02		0.002	<0.002[<A]
Total Vanadium	mg/L			0.002	<0.002
Total Zinc	mg/L		5	0.020	<0.020[<B]
Total Zirconium	mg/L			0.004	<0.004

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: A Refers to O. Reg 169/03 - Ontario Drinking Water Quality Standards. Na value derived from O. Reg 248, B Refers to O. Reg 169/03 - Ontario Drinking Water Quality Standards - Aesthetic Objectives and Operational Guidelines
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

3575541 Dilution required, RDL has been increased accordingly.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:

José Verástegui



Exceedance Summary

AGAT WORK ORDER: 22T869736

PROJECT: 60636190

5835 COOPERS AVENUE
 MISSISSAUGA, ONTARIO
 CANADA L4Z 1Y2
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 FAX (905)712-5122
<http://www.agatlabs.com>

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Brian Holden

SAMPLEID	SAMPLE TITLE	GUIDELINE	ANALYSIS PACKAGE	PARAMETER	UNIT	GUIDEVALUE	RESULT
3575541	29 Grandview	ON 169/03 AO&OG	Water Quality Assessment (mg/L)	Hardness (as CaCO3) (Calculated)	mg/L	80-100	<0.5
3575541	29 Grandview	ON 169/03 AO&OG	Water Quality Assessment (mg/L)	True Colour	TCU	5	6
3575541	29 Grandview	ON 169/03 MAC/IMAC	Water Quality Assessment (mg/L)	Total Sodium	mg/L	20	121

Quality Assurance

CLIENT NAME: AECOM CANADA LTD
 PROJECT: 60636190
 SAMPLING SITE:

AGAT WORK ORDER: 22T869736
 ATTENTION TO: Brian Holden
 SAMPLED BY: Brian Holden

Microbiology Analysis

RPT Date: Mar 11, 2022			DUPLICATE			Method Blank	REFERENCE MATERIAL		METHOD BLANK SPIKE		MATRIX SPIKE				
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD		Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper

Total Coliforms & E. Coli (Using MI Agar)

Escherichia coli	3575532	3575532	0	0	NA
Total Coliforms	3575532	3575532	0	0	NA

Comments: NA - % RPD Not Applicable.

Certified By:



Nivine Basily

Quality Assurance

CLIENT NAME: AECOM CANADA LTD
PROJECT: 60636190
SAMPLING SITE:

AGAT WORK ORDER: 22T869736
ATTENTION TO: Brian Holden
SAMPLED BY: Brian Holden

Water Analysis																
RPT Date: Mar 11, 2022			DUPLICATE				Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Measured Value		Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits		
								Lower	Upper		Lower	Upper		Lower	Upper	

Water Quality Assessment (mg/L)

Electrical Conductivity	3575532	3575532	1400	1410	0.7%	< 2	103%	90%	110%						
pH	3575532	3575532	7.80	7.83	0.4%	NA	102%	90%	110%						
Total Dissolved Solids	3571729		412	416	1.0%	< 10	96%	80%	120%						
Alkalinity (as CaCO3)	3575532	3575532	302	302	0.0%	< 5	95%	80%	120%						
Bicarbonate (as CaCO3)	3575532	3575532	302	302	0.0%	< 5	NA								
Carbonate (as CaCO3)	3575532	3575532	<5	<5	NA	< 5	NA								
Hydroxide (as CaCO3)	3575532	3575532	<5	<5	NA	< 5	NA								
Fluoride	3579620		<0.05	<0.05	NA	< 0.05	102%	70%	130%	101%	80%	120%	104%	70%	130%
Chloride	3579620		20.8	20.3	2.4%	< 0.10	90%	70%	130%	104%	80%	120%	110%	70%	130%
Nitrate as N	3579620		0.17	0.19	NA	< 0.05	95%	70%	130%	103%	80%	120%	106%	70%	130%
Nitrite as N	3579620		<0.05	<0.05	NA	< 0.05	98%	70%	130%	98%	80%	120%	101%	70%	130%
Bromide	3579620		<0.05	<0.05	NA	< 0.05	100%	70%	130%	99%	80%	120%	91%	70%	130%
Sulphate	3579620		49.4	48.7	1.4%	< 0.10	97%	70%	130%	103%	80%	120%	108%	70%	130%
Ortho Phosphate as P	3579620		<0.10	<0.10	NA	< 0.10	95%	70%	130%	108%	80%	120%	100%	70%	130%
Ammonia as N	3575532	3575532	<0.02	<0.02	NA	< 0.02	100%	70%	130%	103%	80%	120%	86%	70%	130%
Total Phosphorus	3575532	3575532	<0.02	<0.02	NA	< 0.02	101%	70%	130%	101%	80%	120%	104%	70%	130%
Total Organic Carbon	3575532	3575532	1.1	1.1	NA	< 0.5	92%	90%	110%	96%	90%	110%	93%	80%	120%
True Colour	3573150		<5	<5	NA	< 5	99%	90%	110%						
Turbidity	3573150		3.1	3.1	0.0%	< 0.5	102%	80%	120%						
Total Calcium	3575539	3575539	108	107	0.9%	< 0.10	99%	70%	130%	97%	80%	120%	95%	70%	130%
Total Magnesium	3575539	3575539	39.8	39.0	2.0%	< 0.10	103%	70%	130%	100%	80%	120%	96%	70%	130%
Total Potassium	3575539	3575539	2.68	2.53	5.8%	< 0.50	101%	70%	130%	98%	80%	120%	93%	70%	130%
Total Sodium	3575539	3575539	128	126	1.6%	< 0.10	101%	70%	130%	98%	80%	120%	94%	70%	130%
Total Aluminum	3575532	3575532	0.013	<0.010	NA	< 0.010	111%	70%	130%	118%	80%	120%	96%	70%	130%
Total Antimony	3575532	3575532	<0.003	<0.003	NA	< 0.003	101%	70%	130%	104%	80%	120%	102%	70%	130%
Total Arsenic	3575532	3575532	<0.003	<0.003	NA	< 0.003	89%	70%	130%	101%	80%	120%	104%	70%	130%
Total Barium	3575532	3575532	0.135	0.128	5.3%	< 0.002	99%	70%	130%	107%	80%	120%	106%	70%	130%
Total Beryllium	3575532	3575532	<0.005	<0.005	NA	< 0.001	106%	70%	130%	118%	80%	120%	93%	70%	130%
Total Boron	3575532	3575532	<0.010	<0.010	NA	< 0.010	100%	70%	130%	107%	80%	120%	90%	70%	130%
Total Cadmium	3575532	3575532	<0.001	<0.001	NA	< 0.001	100%	70%	130%	100%	80%	120%	101%	70%	130%
Total Chromium	3575532	3575532	<0.003	<0.003	NA	< 0.003	99%	70%	130%	98%	80%	120%	100%	70%	130%
Total Cobalt	3575532	3575532	<0.001	<0.001	NA	< 0.001	89%	70%	130%	101%	80%	120%	95%	70%	130%
Total Copper	3575532	3575532	0.019	0.020	5.1%	< 0.003	95%	70%	130%	100%	80%	120%	97%	70%	130%
Total Iron	3575532	3575532	0.012	0.026	NA	< 0.010	94%	70%	130%	105%	80%	120%	98%	70%	130%
Total Lead	3575532	3575532	0.005	0.005	0.0%	< 0.001	94%	70%	130%	100%	80%	120%	92%	70%	130%
Total Manganese	3575532	3575532	<0.002	<0.002	NA	< 0.002	93%	70%	130%	104%	80%	120%	102%	70%	130%
Total Mercury	3575532	3575532	<0.0001	<0.0001	NA	< 0.0001	102%	70%	130%	101%	80%	120%	102%	70%	130%
Total Molybdenum	3575532	3575532	<0.002	<0.002	NA	< 0.002	98%	70%	130%	102%	80%	120%	105%	70%	130%
Total Nickel	3575532	3575532	<0.003	<0.003	NA	< 0.003	94%	70%	130%	105%	80%	120%	95%	70%	130%

Quality Assurance

CLIENT NAME: AECOM CANADA LTD
PROJECT: 60636190
SAMPLING SITE:

AGAT WORK ORDER: 22T869736
ATTENTION TO: Brian Holden
SAMPLED BY: Brian Holden

Water Analysis (Continued)

RPT Date: Mar 11, 2022			DUPLICATE				Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Measured Value		Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits		
								Lower	Upper		Lower	Upper		Lower	Upper	
Total Selenium	3575532	3575532	<0.002	<0.002	NA	< 0.002	102%	70%	130%	105%	80%	120%	96%	70%	130%	
Total Silver	3575532	3575532	<0.002	<0.002	NA	< 0.002	92%	70%	130%	105%	80%	120%	97%	70%	130%	
Total Strontium	3575532	3575532	0.403	0.410	1.7%	< 0.005	82%	70%	130%	106%	80%	120%	103%	70%	130%	
Total Thallium	3575532	3575532	<0.006	<0.006	NA	< 0.006	98%	70%	130%	99%	80%	120%	92%	70%	130%	
Total Tin	3575532	3575532	<0.002	<0.002	NA	< 0.002	103%	70%	130%	107%	80%	120%	104%	70%	130%	
Total Titanium	3575532	3575532	<0.010	<0.010	NA	< 0.010	88%	70%	130%	86%	80%	120%	110%	70%	130%	
Total Tungsten	3575532	3575532	<0.010	<0.010	NA	< 0.010	97%	70%	130%	96%	80%	120%	102%	70%	130%	
Total Uranium	3575532	3575532	<0.002	<0.002	NA	< 0.002	94%	70%	130%	98%	80%	120%	93%	70%	130%	
Total Vanadium	3575532	3575532	<0.002	<0.002	NA	< 0.002	91%	70%	130%	104%	80%	120%	98%	70%	130%	
Total Zinc	3575532	3575532	0.041	0.034	NA	< 0.020	95%	70%	130%	101%	80%	120%	95%	70%	130%	
Total Zirconium	3575532	3575532	<0.004	<0.004	NA	< 0.004	96%	70%	130%	103%	80%	120%	105%	70%	130%	

Comments: NA signifies Not Applicable.
 If the RPD value is NA, the results of the duplicates are under 5X the RDL and will not be calculated.
 Matrix spike: Spike level < native concentration. Matrix spike acceptance limits do not apply.

Certified By:





Method Summary

CLIENT NAME: AECOM CANADA LTD

AGAT WORK ORDER: 22T869736

PROJECT: 60636190

ATTENTION TO: Brian Holden

SAMPLING SITE:

SAMPLED BY: Brian Holden

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Microbiology Analysis			
Escherichia coli	MIC-93-7010	EPA 1604	Membrane Filtration
Total Coliforms	MIC-93-7010	EPA 1604	Membrane Filtration

Method Summary

CLIENT NAME: AECOM CANADA LTD
AGAT WORK ORDER: 22T869736
PROJECT: 60636190
ATTENTION TO: Brian Holden
SAMPLING SITE:
SAMPLED BY: Brian Holden

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Water Analysis			
Electrical Conductivity	INOR-93-6000	modified from SM 2510 B	PC TITRATE
pH	INOR-93-6000	modified from SM 4500-H+ B	PC TITRATE
Saturation pH (Calculated)		SM 2320 B	CALCULATION
Langelier Index (Calculated)		SM 2330B	CALCULATION
Hardness (as CaCO ₃) (Calculated)	MET-93-6105	modified from EPA SW-846 6010C & 200.7 & SM 2340 B	CALCULATION
Total Dissolved Solids	INOR-93-6028	modified from EPA 1684, ON MOECC E3139, SM 2540C, D	BALANCE
Alkalinity (as CaCO ₃)	INOR-93-6000	Modified from SM 2320 B	PC TITRATE
Bicarbonate (as CaCO ₃)	INOR-93-6000	modified from SM 2320 B	PC TITRATE
Carbonate (as CaCO ₃)	INOR-93-6000	modified from SM 2320 B	PC TITRATE
Hydroxide (as CaCO ₃)	INOR-93-6000	modified from SM 2320 B	PC TITRATE
Fluoride	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Chloride	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Nitrate as N	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Nitrite as N	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Bromide	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Sulphate	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Ortho Phosphate as P	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Ammonia as N	INOR-93-6059	modified from SM 4500-NH ₃ H	LACHAT FIA
Total Phosphorus	INOR-93-6057	modified from LACHAT 10-115-01-3A	LACHAT FIA
Total Organic Carbon	INOR-93-6049	modified from SM 5310 B	SHIMADZU CARBON ANALYZER
True Colour	INOR-93-6074	modified from SM 2120 B	LACHAT FIA
Turbidity	INOR-93-6044	modified from SM 2130 B	NEPHELOMETER
Total Calcium	MET-93-6105	modified from EPA 6010D	ICP/OES
Total Magnesium	MET-93-6105	modified from EPA 6010D	ICP/OES
Total Potassium	MET-93-6105	modified from EPA 6010D	ICP/OES
Total Sodium	MET-93-6105	modified from EPA 6010D	ICP/OES
Total Aluminum	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Antimony	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Arsenic	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Barium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Beryllium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Boron	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Cadmium	MET -93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Chromium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Cobalt	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Copper	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Iron	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Lead	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS



Method Summary

CLIENT NAME: AECOM CANADA LTD

AGAT WORK ORDER: 22T869736

PROJECT: 60636190

ATTENTION TO: Brian Holden

SAMPLING SITE:

SAMPLED BY: Brian Holden

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Total Manganese	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Mercury	MET-93-6100	modified from EPA 245.2 and SM 3112 B	CVAAS
Total Molybdenum	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Nickel	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Selenium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Silver	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Strontium	INOR-93-6003	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Thallium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Tin	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Titanium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Tungsten	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Uranium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Vanadium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Zinc	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Zirconium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS

**CLIENT NAME: AECOM CANADA LTD
50 SPORTSWORLD CROSSING RD UNIT 290
KITCHENER, ON N2P0A4
(519) 650-5313**

ATTENTION TO: Brian Holden

PROJECT: 60636190

AGAT WORK ORDER: 22T901602

MICROBIOLOGY ANALYSIS REVIEWED BY: Nivine Basily, Inorganics Report Writer

WATER ANALYSIS REVIEWED BY: Nivine Basily, Inorganics Report Writer

DATE REPORTED: Jun 08, 2022

PAGES (INCLUDING COVER): 14

VERSION*: 1

Should you require any information regarding this analysis please contact your client services representative at (905) 712-5100

***Notes**

Empty box for notes.

Disclaimer:

- All work conducted herein has been done using accepted standard protocols, and generally accepted practices and methods. AGAT test methods may incorporate modifications from the specified reference methods to improve performance.
- All samples will be disposed of within 30 days after receipt unless a Long Term Storage Agreement is signed and returned. Some specialty analysis may be exempt, please contact your Client Project Manager for details.
- AGAT's liability in connection with any delay, performance or non-performance of these services is only to the Client and does not extend to any other third party. Unless expressly agreed otherwise in writing, AGAT's liability is limited to the actual cost of the specific analysis or analyses included in the services.
- This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
- The test results reported herewith relate only to the samples as received by the laboratory.
- Application of guidelines is provided "as is" without warranty of any kind, either expressed or implied, including, but not limited to, warranties of merchantability, fitness for a particular purpose, or non-infringement. AGAT assumes no responsibility for any errors or omissions in the guidelines contained in this document.
- All reportable information as specified by ISO/IEC 17025:2017 is available from AGAT Laboratories upon request.



Certificate of Analysis

AGAT WORK ORDER: 22T901602

PROJECT: 60636190

5835 COOPERS AVENUE
MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
TEL (905)712-5100
FAX (905)712-5122
<http://www.agatlabs.com>

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Brian Holden

SAMPLING SITE:

SAMPLED BY:

Total Coliforms & E. Coli (Using MI Agar)

DATE RECEIVED: 2022-05-31

DATE REPORTED: 2022-06-08

29 Grandview				
SAMPLE DESCRIPTION:		Cres.		
SAMPLE TYPE:		Water		
DATE SAMPLED:		2022-05-31 11:30		
Parameter	Unit	G / S	RDL	3916843
Escherichia coli	CFU/100mL	0		0
Total Coliforms	CFU/100mL	0		0

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to O. Reg 169/03 - Ontario Drinking Water Quality Standards. Na value derived from O. Reg 248
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

3916843 Escherichia coli, Total Coliforms RDL = 1 CFU/100mL.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:



Nvine Basly



Certificate of Analysis

AGAT WORK ORDER: 22T901602

PROJECT: 60636190

5835 COOPERS AVENUE
MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
TEL (905)712-5100
FAX (905)712-5122
<http://www.agatlabs.com>

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Brian Holden

SAMPLING SITE:

SAMPLED BY:

DRINKING WATER - Water Quality Assessment (mg/L)

DATE RECEIVED: 2022-05-31

DATE REPORTED: 2022-06-08

29 Grandview					
		SAMPLE DESCRIPTION: Cres.			
		SAMPLE TYPE: Water			
		DATE SAMPLED: 2022-05-31			
		11:30			
Parameter	Unit	G / S: A	G / S: B	RDL	3916843
Electrical Conductivity	µS/cm			2	467
pH	pH Units	6.5-8.5		NA	8.00
Hardness (as CaCO3) (Calculated)	mg/L	80-100		0.5	93.2
Total Dissolved Solids	mg/L	500		10	258[<A]
Alkalinity (as CaCO3)	mg/L	30-500		5	257
Fluoride	mg/L		1.5	0.05	0.30[<B]
Chloride	mg/L	250		0.10	6.36[<A]
Nitrate as N	mg/L		10.0	0.05	<0.05[<B]
Nitrite as N	mg/L		1.0	0.05	<0.05[<B]
Bromide	mg/L			0.05	<0.05
Sulphate	mg/L	500		0.10	<0.10[<A]
Ortho Phosphate as P	mg/L			0.10	<0.10
Ammonia as N	mg/L			0.02	1.59
Total Phosphorus	mg/L			0.02	0.12
Total Organic Carbon	mg/L			0.5	7.1
Apparent Colour	TCU	5		2.50	43.3[>A]
Turbidity	NTU	5		0.5	1.8[<A]
Total Calcium	mg/L			0.10	18.7
Total Magnesium	mg/L			0.10	11.3
Total Potassium	mg/L			0.50	1.17
Total Sodium	mg/L	200	20	0.10	67.1[B-A]
Total Aluminum	mg/L	0.1		0.010	<0.010[<A]
Total Antimony	mg/L		0.006	0.003	<0.003[<B]
Total Arsenic	mg/L		0.01	0.003	<0.003[<B]
Total Barium	mg/L		1.0	0.002	0.094[<B]
Total Beryllium	mg/L			0.001	<0.001
Total Boron	mg/L		5.0	0.010	0.138[<B]
Total Cadmium	mg/L		0.005	0.001	<0.001[<B]

Certified By:



Ally Basch



Certificate of Analysis

AGAT WORK ORDER: 22T901602

PROJECT: 60636190

5835 COOPERS AVENUE
MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
TEL (905)712-5100
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<http://www.agatlabs.com>

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Brian Holden

SAMPLING SITE:

SAMPLED BY:

DRINKING WATER - Water Quality Assessment (mg/L)

DATE RECEIVED: 2022-05-31

DATE REPORTED: 2022-06-08

29 Grandview					
		SAMPLE DESCRIPTION: Cres.			
		SAMPLE TYPE: Water			
		DATE SAMPLED: 2022-05-31			
		11:30			
		3916843			
Parameter	Unit	G / S: A	G / S: B	RDL	
Total Chromium	mg/L		0.05	0.003	<0.003[<B]
Total Cobalt	mg/L			0.001	<0.001
Total Copper	mg/L	1		0.003	0.030[<A]
Total Iron	mg/L	0.3		0.010	0.650[>A]
Total Lead	mg/L		0.010	0.001	<0.001[<B]
Total Manganese	mg/L	0.05		0.002	0.013[<A]
Total Mercury	mg/L		0.001	0.0001	<0.0001[<B]
Total Molybdenum	mg/L			0.002	0.009
Total Nickel	mg/L			0.003	<0.003
Total Selenium	mg/L		0.05	0.002	<0.002[<B]
Total Silver	mg/L			0.002	<0.002
Total Strontium	mg/L			0.005	0.313
Total Thallium	mg/L			0.006	<0.006
Total Tin	mg/L			0.002	<0.002
Total Titanium	mg/L			0.010	<0.010
Total Tungsten	mg/L			0.010	<0.010
Total Uranium	mg/L		0.02	0.002	<0.002[<B]
Total Vanadium	mg/L			0.002	<0.002
Total Zinc	mg/L	5		0.020	0.030[<A]
Total Zirconium	mg/L			0.004	<0.004

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: A Refers to O. Reg 169/03 - Ontario Drinking Water Quality Standards - Aesthetic Objectives and Operational Guidelines, B Refers to O. Reg 169/03 - Ontario Drinking Water Quality Standards. Na value derived from O. Reg 248
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

3916843 Dilution required, RDL has been increased accordingly.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:



Nvine Basly



Exceedance Summary

AGAT WORK ORDER: 22T901602

PROJECT: 60636190

5835 COOPERS AVENUE
MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
TEL (905)712-5100
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<http://www.agatlabs.com>

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Brian Holden

SAMPLEID	SAMPLE TITLE	GUIDELINE	ANALYSIS PACKAGE	PARAMETER	UNIT	GUIDEVALUE	RESULT
3916843	29 Grandview Cres.	ON 169/03 AO&OG	DRINKING WATER - Water Quality Assessment (mg/L)	Apparent Colour	TCU	5	43.3
3916843	29 Grandview Cres.	ON 169/03 AO&OG	DRINKING WATER - Water Quality Assessment (mg/L)	Total Iron	mg/L	0.3	0.650
3916843	29 Grandview Cres.	ON 169/03 MAC/IMAC	DRINKING WATER - Water Quality Assessment (mg/L)	Total Sodium	mg/L	20	67.1

Quality Assurance

CLIENT NAME: AECOM CANADA LTD
PROJECT: 60636190
SAMPLING SITE:

AGAT WORK ORDER: 22T901602
ATTENTION TO: Brian Holden
SAMPLED BY:

Microbiology Analysis

RPT Date: Jun 08, 2022			DUPLICATE			Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD		Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper

Total Coliforms & E. Coli (Using MI Agar)

Escherichia coli	3916758	3916758	0	0	NA
Total Coliforms	3916758	3916758	0	0	NA

Comments: NA - % RPD Not Applicable.

Certified By:



Nivine Basily

Quality Assurance

CLIENT NAME: AECOM CANADA LTD
PROJECT: 60636190
SAMPLING SITE:

AGAT WORK ORDER: 22T901602
ATTENTION TO: Brian Holden
SAMPLED BY:

Water Analysis																
RPT Date: Jun 08, 2022			DUPLICATE				Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Measured Value		Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits		
								Lower	Upper		Lower	Upper		Lower	Upper	

DRINKING WATER - Water Quality Assessment (mg/L)															
Electrical Conductivity	3913596		321	325	1.2%	< 2	103%	90%	110%						
pH	3913596		7.66	7.75	1.2%	NA	102%	90%	110%						
Total Dissolved Solids	3916347		368	376	2.2%	< 10	98%	80%	120%						
Alkalinity (as CaCO3)	3913596		92	95	3.7%	< 5	97%	80%	120%						
Fluoride	3913753		<0.05	<0.05	NA	< 0.05	103%	70%	130%	105%	80%	120%	93%	70%	130%
Chloride	3913753		51.0	51.6	1.2%	< 0.10	97%	70%	130%	102%	80%	120%	106%	70%	130%
Nitrate as N	3913753		<0.05	<0.05	NA	< 0.05	95%	70%	130%	104%	80%	120%	105%	70%	130%
Nitrite as N	3913753		<0.05	<0.05	NA	< 0.05	98%	70%	130%	94%	80%	120%	103%	70%	130%
Bromide	3913753		<0.05	<0.05	NA	< 0.05	102%	70%	130%	103%	80%	120%	100%	70%	130%
Sulphate	3913753		76.2	75.5	1.0%	< 0.10	100%	70%	130%	100%	80%	120%	106%	70%	130%
Ortho Phosphate as P	3913753		<0.10	<0.10	NA	< 0.10	106%	70%	130%	97%	80%	120%	120%	70%	130%
Ammonia as N	3913753		<0.02	<0.02	NA	< 0.02	109%	70%	130%	99%	80%	120%	98%	70%	130%
Total Phosphorus	3916347		0.05	0.04	NA	< 0.02	99%	70%	130%	98%	80%	120%	100%	70%	130%
Total Organic Carbon	3916758	3916758	2.0	2.0	NA	< 0.5	96%	90%	110%	108%	90%	110%	101%	80%	120%
Apparent Colour	3915077		14.2	16.3	13.5%	< 2.5	106%	90%	110%						
Turbidity	3913753		9.6	9.6	0.7%	< 0.5	96%	80%	120%						
Total Calcium	3915077		271	264	2.6%	< 0.10	101%	70%	130%	102%	80%	120%	97%	70%	130%
Total Magnesium	3915077		78.9	77.1	2.3%	< 0.10	104%	70%	130%	104%	80%	120%	96%	70%	130%
Total Potassium	3915077		35.2	34.4	2.4%	< 0.50	103%	70%	130%	103%	80%	120%	94%	70%	130%
Total Sodium	3915077		451	439	2.7%	< 0.10	103%	70%	130%	103%	80%	120%	92%	70%	130%
Total Aluminum	3929053		0.755	0.818	8.0%	< 0.010	100%	70%	130%	107%	80%	120%	117%	70%	130%
Total Antimony	3929053		<0.003	<0.003	NA	< 0.003	100%	70%	130%	101%	80%	120%	101%	70%	130%
Total Arsenic	3929053		0.007	0.008	NA	< 0.003	92%	70%	130%	95%	80%	120%	96%	70%	130%
Total Barium	3929053		0.076	0.081	5.3%	< 0.002	100%	70%	130%	98%	80%	120%	105%	70%	130%
Total Beryllium	3929053		<0.001	<0.001	NA	< 0.001	101%	70%	130%	109%	80%	120%	100%	70%	130%
Total Boron	3929053		0.229	0.225	1.5%	< 0.010	100%	70%	130%	104%	80%	120%	101%	70%	130%
Total Cadmium	3929053		<0.001	<0.001	NA	< 0.001	101%	70%	130%	99%	80%	120%	92%	70%	130%
Total Chromium	3929053		0.004	0.004	NA	< 0.003	101%	70%	130%	102%	80%	120%	101%	70%	130%
Total Cobalt	3929053		0.003	0.003	NA	< 0.001	100%	70%	130%	101%	80%	120%	101%	70%	130%
Total Copper	3929053		0.008	0.008	NA	< 0.003	100%	70%	130%	98%	80%	120%	96%	70%	130%
Total Iron	3929053		1.96	2.05	4.7%	< 0.010	100%	70%	130%	103%	80%	120%	113%	70%	130%
Total Lead	3929053		0.014	0.015	6.1%	< 0.001	101%	70%	130%	98%	80%	120%	97%	70%	130%
Total Manganese	3929053		0.315	0.327	3.9%	< 0.002	100%	70%	130%	103%	80%	120%	109%	70%	130%
Total Mercury	3913753		<0.0001	<0.0001	NA	< 0.0001	105%	70%	130%	99%	80%	120%	99%	70%	130%
Total Molybdenum	3929053		0.013	0.014	6.8%	< 0.002	102%	70%	130%	101%	80%	120%	106%	70%	130%
Total Nickel	3929053		0.009	0.012	NA	< 0.003	101%	70%	130%	102%	80%	120%	102%	70%	130%
Total Selenium	3929053		0.009	0.009	NA	< 0.002	101%	70%	130%	105%	80%	120%	96%	70%	130%
Total Silver	3929053		<0.002	<0.002	NA	< 0.002	99%	70%	130%	99%	80%	120%	95%	70%	130%
Total Strontium	3929053		0.803	0.835	3.9%	< 0.005	99%	70%	130%	105%	80%	120%	107%	70%	130%

Quality Assurance

CLIENT NAME: AECOM CANADA LTD
 PROJECT: 60636190
 SAMPLING SITE:

AGAT WORK ORDER: 22T901602
 ATTENTION TO: Brian Holden
 SAMPLED BY:

Water Analysis (Continued)

RPT Date: Jun 08, 2022			DUPLICATE				Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Measured Value		Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits		
								Lower	Upper		Lower	Upper		Lower	Upper	
Total Thallium	3929053		<0.006	<0.006	NA	< 0.006	94%	70%	130%	105%	80%	120%	102%	70%	130%	
Total Tin	3929053		0.002	0.002	NA	< 0.002	100%	70%	130%	101%	80%	120%	103%	70%	130%	
Total Titanium	3929053		0.033	0.011	NA	< 0.010	97%	70%	130%	105%	80%	120%	109%	70%	130%	
Total Tungsten	3929053		<0.010	<0.010	NA	< 0.010	87%	70%	130%	87%	80%	120%	91%	70%	130%	
Total Uranium	3929053		0.003	0.003	NA	< 0.002	92%	70%	130%	108%	80%	120%	108%	70%	130%	
Total Vanadium	3929053		0.003	0.004	NA	< 0.002	100%	70%	130%	104%	80%	120%	106%	70%	130%	
Total Zinc	3929053		0.076	0.080	NA	< 0.020	105%	70%	130%	109%	80%	120%	104%	70%	130%	
Total Zirconium	3929053		<0.004	<0.004	NA	< 0.004	102%	70%	130%	100%	80%	120%	104%	70%	130%	

Comments: NA Signifies Not Applicable
 Duplicate NA: results are under 5X the RDL and will not be calculated.

DRINKING WATER - Water Quality Assessment (mg/L)

Ammonia as N	3916843	3916843	1.59	1.61	1.3%	< 0.02	104%	70%	130%	101%	80%	120%	NA	70%	130%
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Comments: NA Signifies Not Applicable
 Duplicate NA: results are under 5X the RDL and will not be calculated.

Certified By:



Nivine Basily



Method Summary

CLIENT NAME: AECOM CANADA LTD

AGAT WORK ORDER: 22T901602

PROJECT: 60636190

ATTENTION TO: Brian Holden

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Microbiology Analysis			
Escherichia coli	MIC-93-7010	EPA 1604	Membrane Filtration
Total Coliforms	MIC-93-7010	EPA 1604	Membrane Filtration

Method Summary

CLIENT NAME: AECOM CANADA LTD
AGAT WORK ORDER: 22T901602
PROJECT: 60636190
ATTENTION TO: Brian Holden
SAMPLING SITE:
SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Water Analysis			
Electrical Conductivity	INOR-93-6000	modified from SM 2510 B	PC TITRATE
pH	INOR-93-6000	modified from SM 4500-H+ B	PC TITRATE
Hardness (as CaCO ₃) (Calculated)	MET-93-6105	modified from EPA SW-846 6010C & 200.7 & SM 2340 B	CALCULATION
Total Dissolved Solids	INOR-93-6028	modified from EPA 1684, ON MOECC E3139, SM 2540C, D	BALANCE
Alkalinity (as CaCO ₃)	INOR-93-6000	Modified from SM 2320 B	PC TITRATE
Fluoride	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Chloride	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Nitrate as N	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Nitrite as N	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Bromide	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Sulphate	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Ortho Phosphate as P	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Ammonia as N	INOR-93-6059	modified from SM 4500-NH ₃ H	LACHAT FIA
Total Phosphorus	INOR-93-6022	modified from SM 4500-P B and SM 4500-P E	SPECTROPHOTOMETER
Total Organic Carbon	INOR-93-6049	modified from SM 5310 B	SHIMADZU CARBON ANALYZER
Apparent Colour	INOR-93-6074	modified from SM 2120 B	LACHAT FIA
Turbidity	INOR-93-6044	modified from SM 2130 B	NEPHELOMETER
Total Calcium	MET-93-6105	modified from EPA 6010D	ICP/OES
Total Magnesium	MET-93-6105	modified from EPA 6010D	ICP/OES
Total Potassium	MET-93-6105	modified from EPA 6010D	ICP/OES
Total Sodium	MET-93-6105	modified from EPA 6010D	ICP/OES
Total Aluminum	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Antimony	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Arsenic	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Barium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Beryllium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Boron	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Cadmium	MET -93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Chromium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Cobalt	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Copper	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Iron	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Lead	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Manganese	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Mercury	MET-93-6100	modified from EPA 245.2 and SM 3112 B	CVAAS



Method Summary

CLIENT NAME: AECOM CANADA LTD

AGAT WORK ORDER: 22T901602

PROJECT: 60636190

ATTENTION TO: Brian Holden

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Total Molybdenum	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Nickel	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Selenium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Silver	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Strontium	INOR-93-6003	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Thallium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Tin	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Titanium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Tungsten	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Uranium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Vanadium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Zinc	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Zirconium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS

Water Well Survey

AECOM

Well I.D. #: _____ AECOM Project No.: _____
 MECP WWR #: _____ Client Project No.: _____

Well Owner Information:

Property Owner Name:	Caietta - Jennifer and Frank		
Property Address:	29 Grandview Cres - Bradford W3Z 3L1		
Telephone:	905-252-2052	Email:	fcaietta@rogers.com
Name of Person Completing Survey:	owner - Jennifer		
Telephone:		Email:	
Relationship to Property Owner:		Date of Survey Completion:	
Name of Original Well Owner: (if known/different from above)			

Occupant of Property Served by Well: (if other than Owner)

Name:			
Telephone:		Email:	
Address:			

Well Location:

Lot:		Concession:		Township:	
------	--	-------------	--	-----------	--

Well Construction Details:

Well Record Available?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Date Well Constructed:	2005/06	Well Contractor Name:	
Well Type: (Drilled / Bored / Dug)	Drilled	Casing Material: (Steel, Concrete, etc.)		Well Casing Diameter:	
Well Stick Up: (Above Ground)		Well Depth: (Below Ground)		Water Level: (Below Ground)	
Is Well Located in a Well Pit?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Well Pit Depth: (Below Ground)		Well Stick Up: (Above Pit Bottom)	
Is Well Flowing?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Flow Rate:		Contractor:	
Well Cap Type:		Does Cap Create a Good Seal?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Is Wire Conduit Tight to Well Cap?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Is the Well:	Accessible for Direct Sampling?	<input type="checkbox"/> Yes <input type="checkbox"/> No	OR	Buried, In a Well Pit, or Other Confined Space?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Well Screen Installed?	<input type="checkbox"/> Yes <input type="checkbox"/> No	If Yes, Length & Slot Size:		Depth of Top of Screen: (Below Ground)	

Water Well Survey

Well I.D. #: _____ AECOM Project No.: _____
 MECP WWR #: _____ Client Project No.: _____

Pumping Equipment:

Pump Type:	<input type="checkbox"/> Jet Pump <input type="checkbox"/> Submersible <input type="checkbox"/> Piston Pump <input type="checkbox"/> Other (please describe): _____		
Pump Horsepower:		Pump Age:	Pumping Capacity:
Pump Intake Depth: (Below Ground)		Pump Location: (If Not in Well)	Pumping Rate: (If Known)
Pressure Tank:	Type:		Capacity:
Water Treatment: (if present)	<input type="checkbox"/> Chlorinator <input type="checkbox"/> Water Softener <input type="checkbox"/> Water Filter (indicate type) _____ <input type="checkbox"/> U.V. <input type="checkbox"/> R.O. <input type="checkbox"/> Other (please describe): _____		

Well Usage: Well located in Front yard / Septic in Rear yard

Primary Use(s):	Domestic: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Livestock: <input type="checkbox"/> Yes <input type="checkbox"/> No	Lawn Watering: <input type="checkbox"/> Yes <input type="checkbox"/> No
# of Persons Using Well:	4	# of Livestock Watered:	Other Uses:
Indoor Plumbing Fixtures: (Washroom(s), Shower(s), Dishwasher, Laundry, Pool, Spa, etc.)		- Washrooms x 3 - Dishwasher - Laundry	
		Daily Amount: (if known)	

Sewage Servicing:

Private Sewage System or Municipal:	Private	System Type: (septic tank, etc.)	Septic Gravity	Distance from Well:	
Well Location:	<input type="checkbox"/> Uphill <input type="checkbox"/> Downhill <input checked="" type="checkbox"/> Same Grade				
Presence of Any Above Ground Storage Tank or Other Potential Source(s) of Contamination: (including distance on / off property)					

Previous Concerns:

How Long Have You Owned, Resided, or Operated a Business on this Property?	Occupancy / Built in 2006 - Original owners		
Have You Experienced Any Previous Concerns with Your Well Supply? (Quantity or Quality)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If Yes, When?	
Cause(s) of the Previous Concern?	<input type="checkbox"/> Drought <input type="checkbox"/> Pump Failure <input type="checkbox"/> Plugging <input type="checkbox"/> Increased Usage <input type="checkbox"/> Interference <input type="checkbox"/> Contamination <input type="checkbox"/> Other (Please describe): _____		

Never have had any concerns with Well and Septic.

Water Well Survey

Well I.D. #: _____ AECOM Project No.: _____
MECP WWR #: _____ Client Project No.: _____

Well Modification / Maintenance:

Has Your Well Ever Been...	Deepened? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Cleaned? <input type="checkbox"/> Yes <input type="checkbox"/> No	Reconstructed or Replaced? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
If Yes to Any of the Above, Please Provide Details:			

Other Details:

Other Details that May be Relevant to Assessing the Current Condition of Your Well Supply:

- NO Concerns
- Added booster pump originally
- everything has been operational and servicing

Property Owner Participation in Monitoring Program:

Does the Property Owner and/or Occupant Grant Permission for MTO/AECOM to Monitor and/or Sample Your Well?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
---	---

Jennifer Caietta
Property Owner / Occupant Name
(Please Print in BLOCK letters)

[Signature]
Signature

Sept 14 / 21
Date

Water Well Survey

Well I.D. #: _____ AECOM Project No.: _____

MECP WWR #: _____ Client Project No.: _____

Location Sketch *(To be Completed by Property Owner / Occupant)*

Well located in Front Yard

→ Cap - mid yard
in front of Front entrance

→ Septic Tank - Rear Yard.

Include details such as property lines, buildings, well, sewage system (if present), as well as any other potential sources of contamination (e.g., tanks, barnyards, chemical/manure storage, etc.).

Water Well Survey

AECOM

Well I.D. #: A038292 AECOM Project No.: _____
 MECP WWR #: ↓ Client Project No.: _____

Field Visit Log (To Be Completed by AECOM Staff)

General Details:

Project Name:	BBP		Project No.:	60036190	
Address:	29 Grandview Cres		Inspected By:	Holder / Parikh	
Date:	Mar. 3/22	Time:	11:00 - 12:00	Weather:	Clear / cold
Easting:	614838	Northing:	4888360	Datum:	NAD 83

Well Details:

Is Well Accessible for Inspection?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If No, Provide Reason:	Snow covered		
MECP Water Well Record No.:	A038292	Date Well Constructed:	May 17 2006	Contractor Name:	Maltby's Well Drilling Inc.
Well Type: (Drilled / Bored / Dug)	Drilled	Well Stick Up: (Above Ground)		Casing Material: (Steel, Concrete, etc.)	Steel
Well Located in a Well Pit?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Well Pit Depth: (Below Ground)	—	Well Stick Up: (Above Pit Bottom)	—
Well Casing Diameter:	6 1/4"	Well Depth: (Below Ground)	242 ft.	Groundwater Level: (Below Ground)	235 ft.
Pump On / Off?	<input type="checkbox"/> On <input type="checkbox"/> Off	Water Level Condition:	<input type="checkbox"/> Stable (Static) <input type="checkbox"/> Declining (Drawdown) <input type="checkbox"/> Rising (Recovery)		
Flowing Well?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Flow Rate: (Estimated)		Well Cap Type:	
Well Screen Installed?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If Yes, Length & Slot Size:	4 ft / 1/2 slot	Top of Screen: (Below Ground)	238 ft.
Is There a Depression Around the Well Casing Exterior?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Photo(s) of Well Obtained?	<input type="checkbox"/> Yes <input type="checkbox"/> No		

Observation(s) Summary:

- water tank storage for house
- reverse osmosis, iron filter, 2 filters
- softener.
-

Water Well Survey

AECOM

Well I.D. #: _____ AECOM Project No.: _____
 MECP WWR #: _____ Client Project No.: _____

Water Quality Sampling:

Water Quality Sample Obtained?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If No, Provide Reason:	
Sampling Location:	<i>Kitchener Tap</i>	Raw or Treated Sample?	<i>Treated</i>
Disinfected Sample Port?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Disinfection Method:	<i>Wired</i>
Photo of Sample Obtained? <small>(against white background)</small>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If No, Provide Reason:	

Analyte Suite:	<i>RCAP, Fecal / Total Coliforms</i>				
Sample I.D.:	<i>29 Grandview</i>	Date / Time of Sampling:	<i>11:35</i>	Number of Sample Bottles:	<i>7</i>

Field Water Quality Parameters: <small>(record units)</small>					
Temperature:		<input checked="" type="checkbox"/> pH:		Conductivity:	
Turbidity:		D.O.:		Colour:	
Odours?	<i>None</i>	Appearance/Odour:	<i>Clear</i>		

Type of Concern: <small>(if applicable)</small>	<input type="checkbox"/> Water Quantity <input type="checkbox"/> Water Quality <small>(Note any differences in taste, odour, colour or clarity)</small>
If the concern was contamination what changes were apparent to water quality?	
Were there any effects of this concern?	
What action was taken to overcome this concern?	

** tap when set at cold, is more warm/cold*

AECOM Canada Ltd.
 105 Commerce Valley Drive West, 7th Floor
 Markham, ON L3T 7W3
 Canada

T: 905.886.7022
 F: 905.538.8076
 www.aecom.com

Water Well Survey

AECOM

Well I.D. #: _____ AECOM Project No.: _____
 MECP WWR #: _____ Client Project No.: _____

Field Visit Log *(To Be Completed by AECOM Staff)*

General Details:

Project Name:	29 Grandview BPP		Project No.:	60636190	
Address:	29 Grandview Cres.		Inspected By:	DP	
Date:	05/31/22	Time:	11:00	Weather:	DP
Easting:	44-1394587	Northing:	-79-5612338	Datum:	

Well Details:

Is Well Accessible for Inspection?		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If No, Provide Reason:		
MECP Water Well Record No.:		Date Well Constructed:		Contractor Name:	
Well Type: <i>(Drilled / Bored / Dug)</i>	Drilled	Well Stick Up: <i>(Above Ground)</i>		Casing Material: <i>(Steel, Concrete, etc.)</i>	
Well Located in a Well Pit?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Well Pit Depth: <i>(Below Ground)</i>		Well Stick Up: <i>(Above Pit Bottom)</i>	
Well Casing Diameter:		Well Depth: <i>(Below Ground)</i>		Groundwater Level: <i>(Below Ground)</i>	
Pump On / Off?	<input type="checkbox"/> On <input type="checkbox"/> Off	Water Level Condition:	<input type="checkbox"/> Stable (Static) <input type="checkbox"/> Declining (Drawdown) <input type="checkbox"/> Rising (Recovery)		
Flowing Well?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Flow Rate: <i>(Estimated)</i>		Well Cap Type:	
Well Screen Installed?	<input type="checkbox"/> Yes <input type="checkbox"/> No	If Yes, Length & Slot Size:		Top of Screen: <i>(Below Ground)</i>	
Is There a Depression Around the Well Casing Exterior?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Photo(s) of Well Obtained?		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Observation(s) Summary:

→ flush mount casing / casing lid is cut exactly at the grass / ground level.

Water Well Survey

AECOM

Well I.D. #: _____ AECOM Project No.: _____
 MECP WWR #: _____ Client Project No.: _____

Water Quality Sampling:

Water Quality Sample Obtained?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If No, Provide Reason:	—
Sampling Location:	Backyard tarp located on upper deck	Raw or Treated Sample?	Raw (According to owner)
Disinfected Sample Port?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Disinfection Method:	Chlorine
Photo of Sample Obtained? (against white background)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If No, Provide Reason:	—

Analyte Suite:	ODWAS				
Sample I.D.:	29 Grandview cres	Date / Time of Sampling:	11:30	Number of Sample Bottles:	8

Field Water Quality Parameters: (record units)					
Temperature:	19.92 c	pH:	8.60	Conductivity:	0.976 ms/cm
Turbidity:	0.0 NTU	D.O.:	6.11 mg/L Do	Colour:	Yellow tint
Odours?	0.309 g/L	Appearance/Odour:	0 ppmw - 120		

Type of Concern: (if applicable)	<input type="checkbox"/> Water Quantity <input type="checkbox"/> Water Quality (Note any differences in taste, odour, colour or clarity)
If the concern was contamination what changes were apparent to water quality?	—
Were there any effects of this concern?	—
What action was taken to overcome this concern?	—

AECOM Canada Ltd.
 105 Commerce Valley Drive West, 7th Floor
 Markham, ON L3T 7W3
 Canada

T: 905.886.7022
 F: 905.538.8076
 www.aecom.com

Appendix **O**

Property ID #142 – 1562 Holborn Road



AECOM Canada Ltd.
55 Cedar Pointe Drive, Suite 620
Barrie, ON, Canada L4M 5R7
www.aecom.com

705.721.9222 tel
905.734.0764 fax

May 3, 2022

Bob and Ann Liszon
1562 Holborn Road
Queensville, ON
L0G 1R0

Project No: 60636190
Regarding: Pre-Construction Water Quality Testing Results
MTO Bradford Bypass Project

Dear Mr. and Ms. Liszon,

AECOM Canada Ltd. (AECOM) would like to thank you for your participation in the Pre-Construction Well Assessment Program offered to local residents as part of the Bradford Bypass Project. Based on receipt of written permission from yourself, a sample of raw (untreated) groundwater from your private well was collected for laboratory analysis by AECOM staff on March 3rd, 2022. Please find attached a copy of the water quality testing results for your review and record.

Laboratory testing results for the sample obtained indicate that concentrations of certain parameters, as shown in the table below, are in excess of the *Ontario Drinking Water Standards, Objectives and Guidelines* (Ontario Ministry of the Environment, 2006). It should be noted, however, that these results are based on a single sample analysis and that additional testing is recommended.

PARAMETER	CONCENTRATION IN YOUR WATER	STANDARD VALUE / RANGE	STANDARD TYPE	HEALTH RELATED (Y / N)
Hardness (as CaCO ₃)	120 mg/L	80 - 100 mg/L	OG	N
Total Sodium	41.8 mg/L	20 mg/L	AO	N

NOTE: AO – Aesthetic Objective; OG – Operational Guideline.
mg/L = milligrams per Litre

The presence of sodium in excess of 20 mg/L should be considered for water users who are on a sodium-restricted diet which would warrant a follow-up with the Health Department and/or their physician.

For your information, the *Well Aware Booklet – A Guide To Caring For Your Well* created by Green Communities Canada is available on the Walkerton Clean Water Centre (WCWC) website at:

<https://wcwc.ca/well-aware-and-well-wise-program-resources-for-homeowners/>

Should you have any questions or concerns regarding the quality of your well water, it is recommended that you contact your local Public Health Unit for further information and advice. Contact information for your Local Public Health Unit is provided, as follows:

Simcoe Muskoka District Health Unit
80 Bradford St. #403
Barrie, ON L4N 6S7
Website: <https://www.simcoemuskokahealth.org/>
Telephone: 705.721.7520

If you have any further questions, please contact:

AECOM Canada Ltd. C/O Brian Holden, P.Geo.
Hydrogeology, Environment
Telephone: 226-821-2486
Email: brian.holden@aecom.com

Sincerely,
AECOM Canada Ltd.



Brian Holden, P.Geo.
Hydrogeologist
DCS Americas, Canada East (Greater Ontario / Metro Toronto)
Environment
Brian.holden@aecom.com

Encl.

cc: R. Sheikh, N. Valenton, S. Rankin, S.Schmied – AECOM;
H. Singh, L. Sarris, J. MacKinnon, R. Gribbon – MTO



Water Well Survey

Groundwater Supply Well Location – 1562 Holborn Road

Project Name: Bradford Bypass

Project#: 60636190

Residence Address:

1562 Holborn Road, Queensville, ON

Owner Information:

Owner Name: Bob and Ann Liszon

Phone Number: 416-566-6191

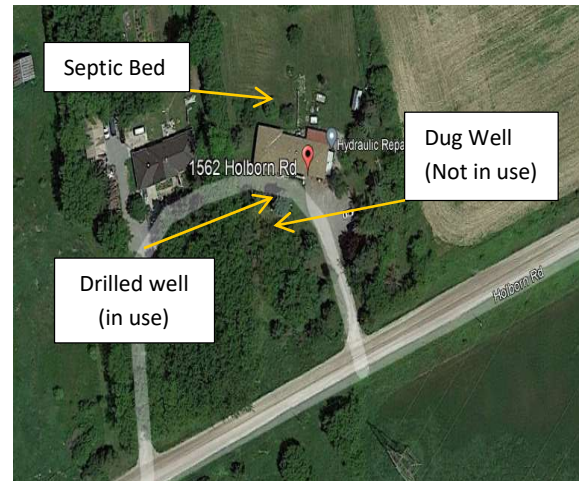
Email: squirtcat123@hotmail.com



Well

Well Record

Ministry of the Environment, Conservation, and Parks (MCEP) – Water Well Record is not available.



Water Quality & Well Testing

Past Water Quality Problems..... None

Potential Contamination Sources... None

Location of Septic Tank.....same grade in the back yard

Treatment System.....Water Softener

Recent Test Results.....None

Water Sampled.....Yes (March 3, 2022)

Sample Source..... Basement untreated tap (near pressure tank)

Appearance.....Clear, slightly Sulphur like odour

Comments:

- The well sampled is the residential well and has no history of well issues.
- On March 3rd, 2022, after completing the sampling, AECOM staff received a phone call from homeowner and informed that there isn't water in the house and wanted to come back, and check and investigate the issue. After careful investigation, it was concluded that the pressure tank lost the pressure, and it may need to be repressurized.
- In addition, there is another supply well (dug well) located about 25 ft south of the drilled supply well. According to the homeowner, this dug well is not in use.

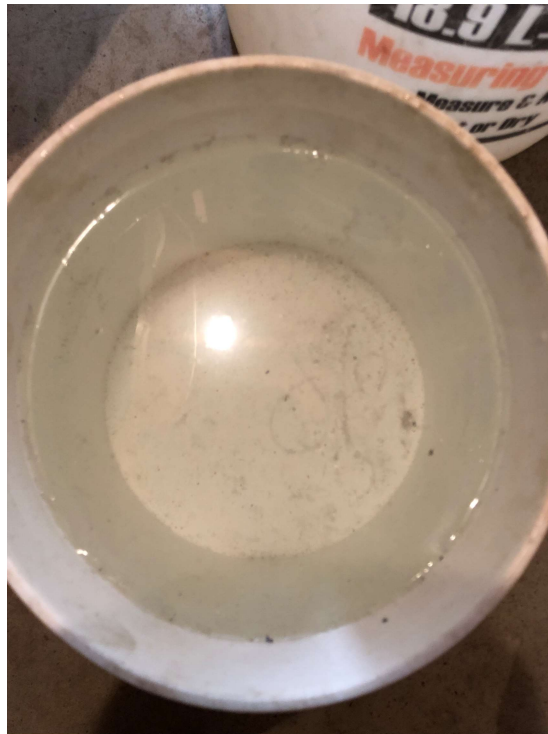
Quality Testing

Groundwater quality met the applicable standards for bacteriological, selected inorganic and metal parameters analyzed except for the following:

<i>Parameters</i>	<i>Test Results</i>	<i>Guideline/Standard</i>	<i>Criteria Type</i>
Hardness (as CaCO ₃)	120 mg/L	80 - 100 mg/L	OG
Total Sodium	41.8 mg/L	20 mg/L	AO

Notes:

1. Criteria are from "Ontario Drinking Water Standards" (Ontario Regulation 169/03) and "Technical Support Document for Ontario Drinking Water Standards, Objectives and Guidelines" (MOE, June 2003, revised June 2006)
2. AO - Aesthetic Objectives (parameters that may impair the taste, odour or colour of water or which may interfere with good water quality)
3. OG - Operational Guideline (parameters which must be controlled for effective treatment)
4. mg/L – Milligrams per Litre





**CLIENT NAME: AECOM CANADA LTD
50 SPORTSWORLD CROSSING RD UNIT 290
KITCHENER, ON N2P0A4
(519) 650-5313**

ATTENTION TO: Brian Holden

PROJECT: 60636190

AGAT WORK ORDER: 22T869736

MICROBIOLOGY ANALYSIS REVIEWED BY: Nivine Basily, Inorganics Report Writer

WATER ANALYSIS REVIEWED BY: Yris Verastegui, Report Reviewer

DATE REPORTED: Mar 11, 2022

PAGES (INCLUDING COVER): 15

VERSION*: 1

Should you require any information regarding this analysis please contact your client services representative at (905) 712-5100

***Notes**

Disclaimer:

- All work conducted herein has been done using accepted standard protocols, and generally accepted practices and methods. AGAT test methods may incorporate modifications from the specified reference methods to improve performance.
- All samples will be disposed of within 30 days after receipt unless a Long Term Storage Agreement is signed and returned. Some specialty analysis may be exempt, please contact your Client Project Manager for details.
- AGAT's liability in connection with any delay, performance or non-performance of these services is only to the Client and does not extend to any other third party. Unless expressly agreed otherwise in writing, AGAT's liability is limited to the actual cost of the specific analysis or analyses included in the services.
- This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
- The test results reported herewith relate only to the samples as received by the laboratory.
- Application of guidelines is provided "as is" without warranty of any kind, either expressed or implied, including, but not limited to, warranties of merchantability, fitness for a particular purpose, or non-infringement. AGAT assumes no responsibility for any errors or omissions in the guidelines contained in this document.
- All reportable information as specified by ISO/IEC 17025:2017 is available from AGAT Laboratories upon request.



Certificate of Analysis

AGAT WORK ORDER: 22T869736

PROJECT: 60636190

5835 COOPERS AVENUE
MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
TEL (905)712-5100
FAX (905)712-5122
<http://www.agatlabs.com>

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Brian Holden

SAMPLING SITE:

SAMPLED BY: Brian Holden

Total Coliforms & E. Coli (Using MI Agar)

DATE RECEIVED: 2022-03-03

DATE REPORTED: 2022-03-11

1562 Holbom				
SAMPLE DESCRIPTION:		Rd.		
SAMPLE TYPE:		Water		
DATE SAMPLED:		2022-03-03 10:30		
Parameter	Unit	G / S	RDL	3575540
Escherichia coli	CFU/100mL	0		0
Total Coliforms	CFU/100mL	0		0

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to O. Reg 169/03 - Ontario Drinking Water Quality Standards. Na value derived from O. Reg 248
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

3575540 Escherichia coli, Total Coliforms RDL = 1 CFU/100mL.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:



Nivine Basly



Certificate of Analysis

AGAT WORK ORDER: 22T869736

PROJECT: 60636190

5835 COOPERS AVENUE
MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
TEL (905)712-5100
FAX (905)712-5122
<http://www.agatlabs.com>

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Brian Holden

SAMPLING SITE:

SAMPLED BY: Brian Holden

Water Quality Assessment (mg/L)

DATE RECEIVED: 2022-03-03

DATE REPORTED: 2022-03-11

Parameter	Unit	1562 Holbom			
		G / S: A	G / S: B	RDL	3575540
Electrical Conductivity	µS/cm			2	411
pH	pH Units		6.5-8.5	NA	7.96
Saturation pH (Calculated)					7.50
Langelier Index (Calculated)					0.461
Hardness (as CaCO ₃) (Calculated)	mg/L		80-100	0.5	120
Total Dissolved Solids	mg/L		500	10	222[<B]
Alkalinity (as CaCO ₃)	mg/L		30-500	5	179
Bicarbonate (as CaCO ₃)	mg/L			5	179
Carbonate (as CaCO ₃)	mg/L			5	<5
Hydroxide (as CaCO ₃)	mg/L			5	<5
Fluoride	mg/L	1.5		0.05	0.16[<A]
Chloride	mg/L		250	0.10	27.4[<B]
Nitrate as N	mg/L	10.0		0.05	<0.05[<A]
Nitrite as N	mg/L	1.0		0.05	<0.05[<A]
Bromide	mg/L			0.05	0.32
Sulphate	mg/L		500	0.10	<0.10[<B]
Ortho Phosphate as P	mg/L			0.10	<0.10
Ammonia as N	mg/L			0.02	0.60
Total Phosphorus	mg/L			0.02	0.03
Total Organic Carbon	mg/L			0.5	1.5
True Colour	TCU		5	5	5[B]
Turbidity	NTU		5	0.5	<0.5[<B]
Total Calcium	mg/L			0.10	23.9
Total Magnesium	mg/L			0.10	14.6
Total Potassium	mg/L			0.50	1.85
Total Sodium	mg/L	20	200	0.10	41.8[A-B]
Total Aluminum	mg/L		0.1	0.010	<0.010[<B]
Total Antimony	mg/L	0.006		0.003	<0.003[<A]

Certified By:

Jris Veraestegui



Certificate of Analysis

AGAT WORK ORDER: 22T869736

PROJECT: 60636190

5835 COOPERS AVENUE
MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
TEL (905)712-5100
FAX (905)712-5122
<http://www.agatlabs.com>

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Brian Holden

SAMPLING SITE:

SAMPLED BY: Brian Holden

Water Quality Assessment (mg/L)

DATE RECEIVED: 2022-03-03

DATE REPORTED: 2022-03-11

1562 Holbom					
		SAMPLE DESCRIPTION:		Rd.	
		SAMPLE TYPE:		Water	
		DATE SAMPLED:		2022-03-03 10:30	
Parameter	Unit	G / S: A	G / S: B	RDL	3575540
Total Arsenic	mg/L	0.01		0.003	<0.003[<A]
Total Barium	mg/L	1.0		0.002	0.104[<A]
Total Beryllium	mg/L			0.001	<0.001
Total Boron	mg/L	5.0		0.010	0.101[<A]
Total Cadmium	mg/L	0.005		0.001	<0.001[<A]
Total Chromium	mg/L	0.05		0.003	<0.003[<A]
Total Cobalt	mg/L			0.001	<0.001
Total Copper	mg/L		1	0.003	0.006[<B]
Total Iron	mg/L		0.3	0.010	0.176[<B]
Total Lead	mg/L	0.010		0.001	0.003[<A]
Total Manganese	mg/L		0.05	0.002	0.006[<B]
Total Mercury	mg/L	0.001		0.0001	<0.0001[<A]
Total Molybdenum	mg/L			0.002	<0.002
Total Nickel	mg/L			0.003	<0.003
Total Selenium	mg/L	0.05		0.002	<0.002[<A]
Total Silver	mg/L			0.002	<0.002
Total Strontium	mg/L			0.005	1.12
Total Thallium	mg/L			0.006	<0.006
Total Tin	mg/L			0.002	<0.002
Total Titanium	mg/L			0.010	<0.010
Total Tungsten	mg/L			0.010	<0.010
Total Uranium	mg/L	0.02		0.002	<0.002[<A]
Total Vanadium	mg/L			0.002	<0.002
Total Zinc	mg/L		5	0.020	<0.020[<B]
Total Zirconium	mg/L			0.004	<0.004

Certified By:

Jris Veraestegui



AGAT Laboratories

Certificate of Analysis

AGAT WORK ORDER: 22T869736

PROJECT: 60636190

5835 COOPERS AVENUE
MISSISSAUGA, ONTARIO
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TEL (905)712-5100
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CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Brian Holden

SAMPLING SITE:

SAMPLED BY: Brian Holden

Water Quality Assessment (mg/L)

DATE RECEIVED: 2022-03-03

DATE REPORTED: 2022-03-11

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: A Refers to O. Reg 169/03 - Ontario Drinking Water Quality Standards. Na value derived from O. Reg 248, B Refers to O. Reg 169/03 - Ontario Drinking Water Quality Standards - Aesthetic Objectives and Operational Guidelines
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.
3575540 Dilution required, RDL has been increased accordingly.
Analysis performed at AGAT Toronto (unless marked by *)

Certified By:



Exceedance Summary

AGAT WORK ORDER: 22T869736

PROJECT: 60636190

5835 COOPERS AVENUE
 MISSISSAUGA, ONTARIO
 CANADA L4Z 1Y2
 TEL (905)712-5100
 FAX (905)712-5122
<http://www.agatlabs.com>

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Brian Holden

SAMPLEID	SAMPLE TITLE	GUIDELINE	ANALYSIS PACKAGE	PARAMETER	UNIT	GUIDEVALUE	RESULT
3575540	1562 Holbom Rd.	ON 169/03 AO&OG	Water Quality Assessment (mg/L)	Hardness (as CaCO3) (Calculated)	mg/L	80-100	120
3575540	1562 Holbom Rd.	ON 169/03 MAC/IMAC	Water Quality Assessment (mg/L)	Total Sodium	mg/L	20	41.8

Quality Assurance

CLIENT NAME: AECOM CANADA LTD
PROJECT: 60636190
SAMPLING SITE:

AGAT WORK ORDER: 22T869736
ATTENTION TO: Brian Holden
SAMPLED BY: Brian Holden

Microbiology Analysis

RPT Date: Mar 11, 2022			DUPLICATE			Method Blank	REFERENCE MATERIAL		METHOD BLANK SPIKE		MATRIX SPIKE				
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD		Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper

Total Coliforms & E. Coli (Using MI Agar)

Escherichia coli	3575532	3575532	0	0	NA
Total Coliforms	3575532	3575532	0	0	NA

Comments: NA - % RPD Not Applicable.

Certified By:



Nivine Basily

Quality Assurance

CLIENT NAME: AECOM CANADA LTD
PROJECT: 60636190
SAMPLING SITE:

AGAT WORK ORDER: 22T869736
ATTENTION TO: Brian Holden
SAMPLED BY: Brian Holden

Water Analysis																
RPT Date: Mar 11, 2022			DUPLICATE				Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Measured Value		Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits		
								Lower	Upper		Lower	Upper		Lower	Upper	

Water Quality Assessment (mg/L)

Electrical Conductivity	3575532	3575532	1400	1410	0.7%	< 2	103%	90%	110%						
pH	3575532	3575532	7.80	7.83	0.4%	NA	102%	90%	110%						
Total Dissolved Solids	3571729		412	416	1.0%	< 10	96%	80%	120%						
Alkalinity (as CaCO3)	3575532	3575532	302	302	0.0%	< 5	95%	80%	120%						
Bicarbonate (as CaCO3)	3575532	3575532	302	302	0.0%	< 5	NA								
Carbonate (as CaCO3)	3575532	3575532	<5	<5	NA	< 5	NA								
Hydroxide (as CaCO3)	3575532	3575532	<5	<5	NA	< 5	NA								
Fluoride	3579620		<0.05	<0.05	NA	< 0.05	102%	70%	130%	101%	80%	120%	104%	70%	130%
Chloride	3579620		20.8	20.3	2.4%	< 0.10	90%	70%	130%	104%	80%	120%	110%	70%	130%
Nitrate as N	3579620		0.17	0.19	NA	< 0.05	95%	70%	130%	103%	80%	120%	106%	70%	130%
Nitrite as N	3579620		<0.05	<0.05	NA	< 0.05	98%	70%	130%	98%	80%	120%	101%	70%	130%
Bromide	3579620		<0.05	<0.05	NA	< 0.05	100%	70%	130%	99%	80%	120%	91%	70%	130%
Sulphate	3579620		49.4	48.7	1.4%	< 0.10	97%	70%	130%	103%	80%	120%	108%	70%	130%
Ortho Phosphate as P	3579620		<0.10	<0.10	NA	< 0.10	95%	70%	130%	108%	80%	120%	100%	70%	130%
Ammonia as N	3575532	3575532	<0.02	<0.02	NA	< 0.02	100%	70%	130%	103%	80%	120%	86%	70%	130%
Total Phosphorus	3575532	3575532	<0.02	<0.02	NA	< 0.02	101%	70%	130%	101%	80%	120%	104%	70%	130%
Total Organic Carbon	3575532	3575532	1.1	1.1	NA	< 0.5	92%	90%	110%	96%	90%	110%	93%	80%	120%
True Colour	3573150		<5	<5	NA	< 5	99%	90%	110%						
Turbidity	3573150		3.1	3.1	0.0%	< 0.5	102%	80%	120%						
Total Calcium	3575539	3575539	108	107	0.9%	< 0.10	99%	70%	130%	97%	80%	120%	95%	70%	130%
Total Magnesium	3575539	3575539	39.8	39.0	2.0%	< 0.10	103%	70%	130%	100%	80%	120%	96%	70%	130%
Total Potassium	3575539	3575539	2.68	2.53	5.8%	< 0.50	101%	70%	130%	98%	80%	120%	93%	70%	130%
Total Sodium	3575539	3575539	128	126	1.6%	< 0.10	101%	70%	130%	98%	80%	120%	94%	70%	130%
Total Aluminum	3575532	3575532	0.013	<0.010	NA	< 0.010	111%	70%	130%	118%	80%	120%	96%	70%	130%
Total Antimony	3575532	3575532	<0.003	<0.003	NA	< 0.003	101%	70%	130%	104%	80%	120%	102%	70%	130%
Total Arsenic	3575532	3575532	<0.003	<0.003	NA	< 0.003	89%	70%	130%	101%	80%	120%	104%	70%	130%
Total Barium	3575532	3575532	0.135	0.128	5.3%	< 0.002	99%	70%	130%	107%	80%	120%	106%	70%	130%
Total Beryllium	3575532	3575532	<0.005	<0.005	NA	< 0.001	106%	70%	130%	118%	80%	120%	93%	70%	130%
Total Boron	3575532	3575532	<0.010	<0.010	NA	< 0.010	100%	70%	130%	107%	80%	120%	90%	70%	130%
Total Cadmium	3575532	3575532	<0.001	<0.001	NA	< 0.001	100%	70%	130%	100%	80%	120%	101%	70%	130%
Total Chromium	3575532	3575532	<0.003	<0.003	NA	< 0.003	99%	70%	130%	98%	80%	120%	100%	70%	130%
Total Cobalt	3575532	3575532	<0.001	<0.001	NA	< 0.001	89%	70%	130%	101%	80%	120%	95%	70%	130%
Total Copper	3575532	3575532	0.019	0.020	5.1%	< 0.003	95%	70%	130%	100%	80%	120%	97%	70%	130%
Total Iron	3575532	3575532	0.012	0.026	NA	< 0.010	94%	70%	130%	105%	80%	120%	98%	70%	130%
Total Lead	3575532	3575532	0.005	0.005	0.0%	< 0.001	94%	70%	130%	100%	80%	120%	92%	70%	130%
Total Manganese	3575532	3575532	<0.002	<0.002	NA	< 0.002	93%	70%	130%	104%	80%	120%	102%	70%	130%
Total Mercury	3575532	3575532	<0.0001	<0.0001	NA	< 0.0001	102%	70%	130%	101%	80%	120%	102%	70%	130%
Total Molybdenum	3575532	3575532	<0.002	<0.002	NA	< 0.002	98%	70%	130%	102%	80%	120%	105%	70%	130%
Total Nickel	3575532	3575532	<0.003	<0.003	NA	< 0.003	94%	70%	130%	105%	80%	120%	95%	70%	130%

Quality Assurance

CLIENT NAME: AECOM CANADA LTD
PROJECT: 60636190
SAMPLING SITE:

AGAT WORK ORDER: 22T869736
ATTENTION TO: Brian Holden
SAMPLED BY: Brian Holden

Water Analysis (Continued)

RPT Date: Mar 11, 2022			DUPLICATE				Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Measured Value		Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits		
								Lower	Upper		Lower	Upper		Lower	Upper	
Total Selenium	3575532	3575532	<0.002	<0.002	NA	< 0.002	102%	70%	130%	105%	80%	120%	96%	70%	130%	
Total Silver	3575532	3575532	<0.002	<0.002	NA	< 0.002	92%	70%	130%	105%	80%	120%	97%	70%	130%	
Total Strontium	3575532	3575532	0.403	0.410	1.7%	< 0.005	82%	70%	130%	106%	80%	120%	103%	70%	130%	
Total Thallium	3575532	3575532	<0.006	<0.006	NA	< 0.006	98%	70%	130%	99%	80%	120%	92%	70%	130%	
Total Tin	3575532	3575532	<0.002	<0.002	NA	< 0.002	103%	70%	130%	107%	80%	120%	104%	70%	130%	
Total Titanium	3575532	3575532	<0.010	<0.010	NA	< 0.010	88%	70%	130%	86%	80%	120%	110%	70%	130%	
Total Tungsten	3575532	3575532	<0.010	<0.010	NA	< 0.010	97%	70%	130%	96%	80%	120%	102%	70%	130%	
Total Uranium	3575532	3575532	<0.002	<0.002	NA	< 0.002	94%	70%	130%	98%	80%	120%	93%	70%	130%	
Total Vanadium	3575532	3575532	<0.002	<0.002	NA	< 0.002	91%	70%	130%	104%	80%	120%	98%	70%	130%	
Total Zinc	3575532	3575532	0.041	0.034	NA	< 0.020	95%	70%	130%	101%	80%	120%	95%	70%	130%	
Total Zirconium	3575532	3575532	<0.004	<0.004	NA	< 0.004	96%	70%	130%	103%	80%	120%	105%	70%	130%	

Comments: NA signifies Not Applicable.
 If the RPD value is NA, the results of the duplicates are under 5X the RDL and will not be calculated.
 Matrix spike: Spike level < native concentration. Matrix spike acceptance limits do not apply.

Certified By:





Method Summary

CLIENT NAME: AECOM CANADA LTD

AGAT WORK ORDER: 22T869736

PROJECT: 60636190

ATTENTION TO: Brian Holden

SAMPLING SITE:

SAMPLED BY: Brian Holden

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Microbiology Analysis			
Escherichia coli	MIC-93-7010	EPA 1604	Membrane Filtration
Total Coliforms	MIC-93-7010	EPA 1604	Membrane Filtration

Method Summary

CLIENT NAME: AECOM CANADA LTD

AGAT WORK ORDER: 22T869736

PROJECT: 60636190

ATTENTION TO: Brian Holden

SAMPLING SITE:

SAMPLED BY: Brian Holden

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Water Analysis			
Electrical Conductivity	INOR-93-6000	modified from SM 2510 B	PC TITRATE
pH	INOR-93-6000	modified from SM 4500-H+ B	PC TITRATE
Saturation pH (Calculated)		SM 2320 B	CALCULATION
Langelier Index (Calculated)		SM 2330B	CALCULATION
Hardness (as CaCO ₃) (Calculated)	MET-93-6105	modified from EPA SW-846 6010C & 200.7 & SM 2340 B	CALCULATION
Total Dissolved Solids	INOR-93-6028	modified from EPA 1684, ON MOECC E3139, SM 2540C, D	BALANCE
Alkalinity (as CaCO ₃)	INOR-93-6000	Modified from SM 2320 B	PC TITRATE
Bicarbonate (as CaCO ₃)	INOR-93-6000	modified from SM 2320 B	PC TITRATE
Carbonate (as CaCO ₃)	INOR-93-6000	modified from SM 2320 B	PC TITRATE
Hydroxide (as CaCO ₃)	INOR-93-6000	modified from SM 2320 B	PC TITRATE
Fluoride	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Chloride	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Nitrate as N	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Nitrite as N	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Bromide	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Sulphate	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Ortho Phosphate as P	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Ammonia as N	INOR-93-6059	modified from SM 4500-NH ₃ H	LACHAT FIA
Total Phosphorus	INOR-93-6057	modified from LACHAT 10-115-01-3A	LACHAT FIA
Total Organic Carbon	INOR-93-6049	modified from SM 5310 B	SHIMADZU CARBON ANALYZER
True Colour	INOR-93-6074	modified from SM 2120 B	LACHAT FIA
Turbidity	INOR-93-6044	modified from SM 2130 B	NEPHELOMETER
Total Calcium	MET-93-6105	modified from EPA 6010D	ICP/OES
Total Magnesium	MET-93-6105	modified from EPA 6010D	ICP/OES
Total Potassium	MET-93-6105	modified from EPA 6010D	ICP/OES
Total Sodium	MET-93-6105	modified from EPA 6010D	ICP/OES
Total Aluminum	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Antimony	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Arsenic	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Barium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Beryllium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Boron	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Cadmium	MET -93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Chromium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Cobalt	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Copper	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Iron	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Lead	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS



Method Summary

CLIENT NAME: AECOM CANADA LTD

AGAT WORK ORDER: 22T869736

PROJECT: 60636190

ATTENTION TO: Brian Holden

SAMPLING SITE:

SAMPLED BY: Brian Holden

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Total Manganese	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Mercury	MET-93-6100	modified from EPA 245.2 and SM 3112 B	CVAAS
Total Molybdenum	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Nickel	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Selenium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Silver	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Strontium	INOR-93-6003	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Thallium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Tin	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Titanium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Tungsten	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Uranium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Vanadium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Zinc	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Zirconium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS

Water Well Survey

AECOM

Well I.D. #:	AECOM Project No.:
MECP WWR #:	Client Project No.:

Well Owner Information:

Property Owner Name:	Bob and Ann Liszon		
Property Address:	1562 Holborn road, Queensville on		
Telephone:	416 566 6191	Email:	HRS@Bell.net
Name of Person Completing Survey:	Ann Liszon		
Telephone:	647 203 4364	Email:	Squirtcat123@hotmail.com
Relationship to Property Owner:	Self	Date of Survey Completion:	Nov. 8. 2021
Name of Original Well Owner: (if known/different from above)			

Occupant of Property Served by Well: (if other than Owner)

Name:	Bob and Ann Liszon		
Telephone:	416 566 6191	Email:	HRS@bell.net
Address:	1562 Holborn road Queensville on LOGIRO		

Well Location:

Lot:	26	Concession:	3	Township:	East Gwillimbury
------	----	-------------	---	-----------	------------------

Well Construction Details:

Well Record Available?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Date Well Constructed:	Unknown	Well Contractor Name:	
Well Type: (Drilled / Bored / Dug)	Drilled	Casing Material: (Steel, Concrete, etc.)	No	Well Casing Diameter:	unknown
Well Stick Up: (Above Ground)	Yes	Well Depth: (Below Ground)	No	Water Level: (Below Ground)	250 feet
Is Well Located in a Well Pit?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Well Pit Depth: (Below Ground)	-	Well Stick Up: (Above Pit Bottom)	-
Is Well Flowing?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Flow Rate:		Contractor:	
Well Cap Type:		Does Cap Create a Good Seal?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Is Wire Conduit Tight to Well Cap?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Is the Well:	Accessible for Direct Sampling?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	OR	Buried, In a Well Pit, or Other Confined Space?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Well Screen Installed?	<input type="checkbox"/> Yes <input type="checkbox"/> No	If Yes, Length & Slot Size:		Depth of Top of Screen: (Below Ground)	

Water Well Survey

AECOM

Well I.D. #: _____ AECOM Project No.: _____
 MECP WWR #: _____ Client Project No.: _____

Pumping Equipment: Not Known to home owner

Pump Type:	<input type="checkbox"/> Jet Pump <input type="checkbox"/> Submersible <input type="checkbox"/> Piston Pump <input type="checkbox"/> Other (please describe): _____		
Pump Horsepower:		Pump Age:	Pumping Capacity:
Pump Intake Depth: (Below Ground)		Pump Location: (If Not in Well)	Pumping Rate: (If Known)
Pressure Tank:	Type:		Capacity:
Water Treatment: (if present)	<input type="checkbox"/> Chlorinator <input checked="" type="checkbox"/> Water Softener <input type="checkbox"/> Water Filter (indicate type) _____ <input type="checkbox"/> U.V. <input type="checkbox"/> R.O. <input type="checkbox"/> Other (please describe): _____		

Well Usage:

Primary Use(s):	Domestic: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Livestock: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Lawn Watering: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
# of Persons Using Well:	3	#of Livestock Watered:	Other Uses: 2 Hose Bibs
Indoor Plumbing Fixtures: (Washroom(s), Shower(s), Dishwasher, Laundry, Pool, Spa, etc.)		15	
Daily Amount: (if known)			

Sewage Servicing:

Private Sewage System or Municipal:	System Type: (septic tank, etc.)	Yes	Distance from Well:	unknown
Well Location:	<input type="checkbox"/> Uphill <input type="checkbox"/> Downhill <input checked="" type="checkbox"/> Same Grade			
Presence of Any Above Ground Storage Tank or Other Potential Source(s) of Contamination: (including distance on / off property)		NONE		

Previous Concerns:

How Long Have You Owned, Resided, or Operated a Business on this Property?	10 years as of 2021		
Have You Experienced Any Previous Concerns with Your Well Supply? (Quantity or Quality)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If Yes, When?	
Cause(s) of the Previous Concern?	<input type="checkbox"/> Drought <input type="checkbox"/> Pump Failure <input type="checkbox"/> Plugging <input type="checkbox"/> Increased Usage <input type="checkbox"/> Interference <input type="checkbox"/> Contamination <input type="checkbox"/> Other (Please describe): _____		

Water Well Survey

AECOM

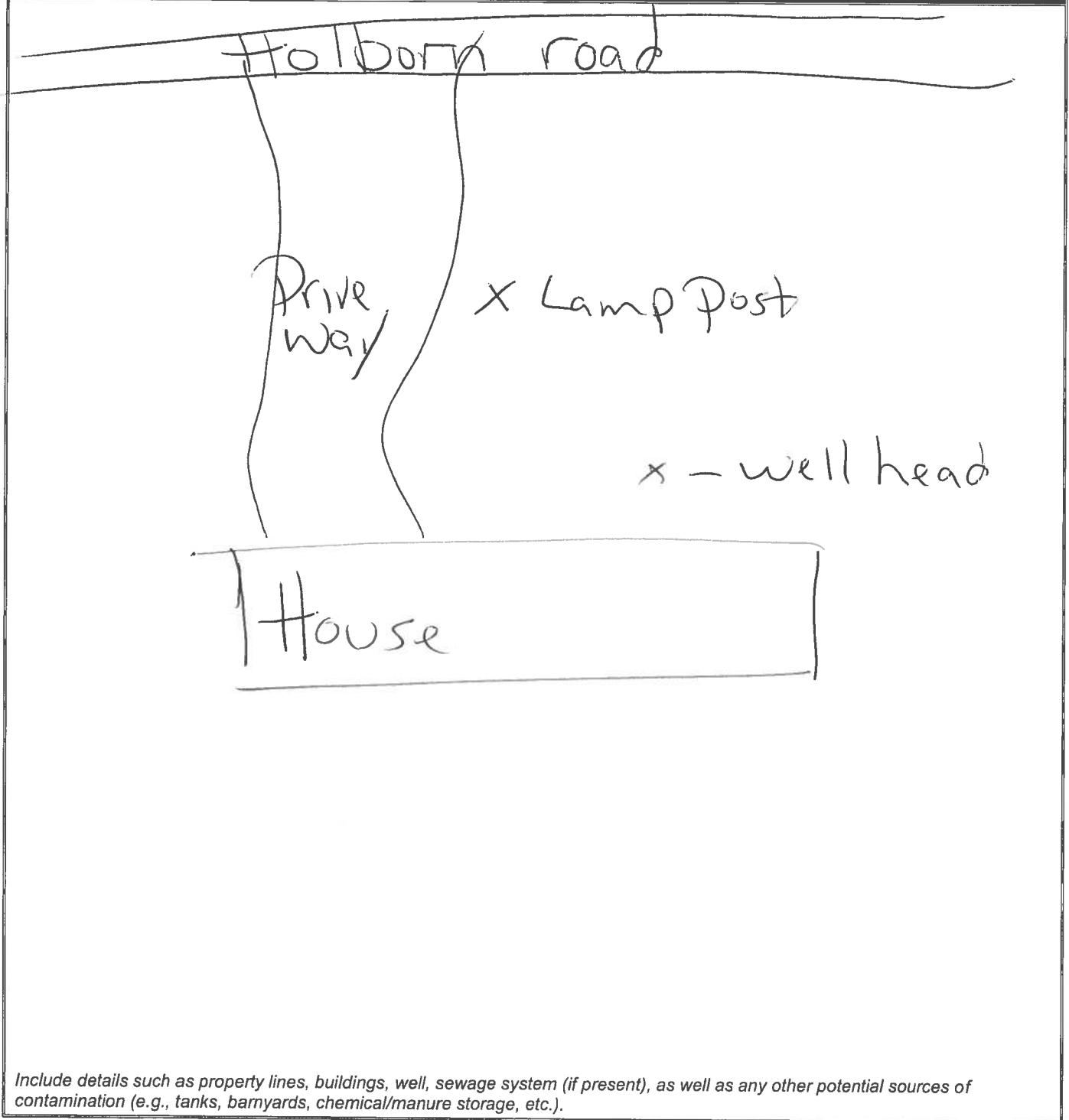
Well I.D. #: _____

AECOM Project No.: _____

MECP WWR #: _____

Client Project No.: _____

Location Sketch *(To be Completed by Property Owner / Occupant)*



Include details such as property lines, buildings, well, sewage system (if present), as well as any other potential sources of contamination (e.g., tanks, barnyards, chemical/manure storage, etc.).

Water Well Survey

AECOM

Well I.D. #: _____ AECOM Project No.: _____
 MECP WWR #: _____ Client Project No.: _____

Well Modification / Maintenance:

Has Your Well Ever Been...	Deepened? <input type="checkbox"/> Yes <input type="checkbox"/> No	Cleaned? <input type="checkbox"/> Yes <input type="checkbox"/> No	Reconstructed or Replaced? <input type="checkbox"/> Yes <input type="checkbox"/> No
If Yes to Any of the Above, Please Provide Details:			

Other Details:

Other Details that May be Relevant to Assessing the Current Condition of Your Well Supply:

- Samples collected at 10:30 Am. (Raw water).
- Reservoir top; before it goes to the system
- water looks clear based on visual observation.
-

Property Owner Participation in Monitoring Program:

Does the Property Owner and/or Occupant Grant Permission for MTO/AECOM to Monitor and/or Sample Your Well? Yes No

Annmarie / Robert Liszon
 Property Owner / Occupant Name
 (Please Print in BLOCK letters)

[Signature]
 Signature

Dec. 9 2021
 Date

Water Well Survey

AECOM

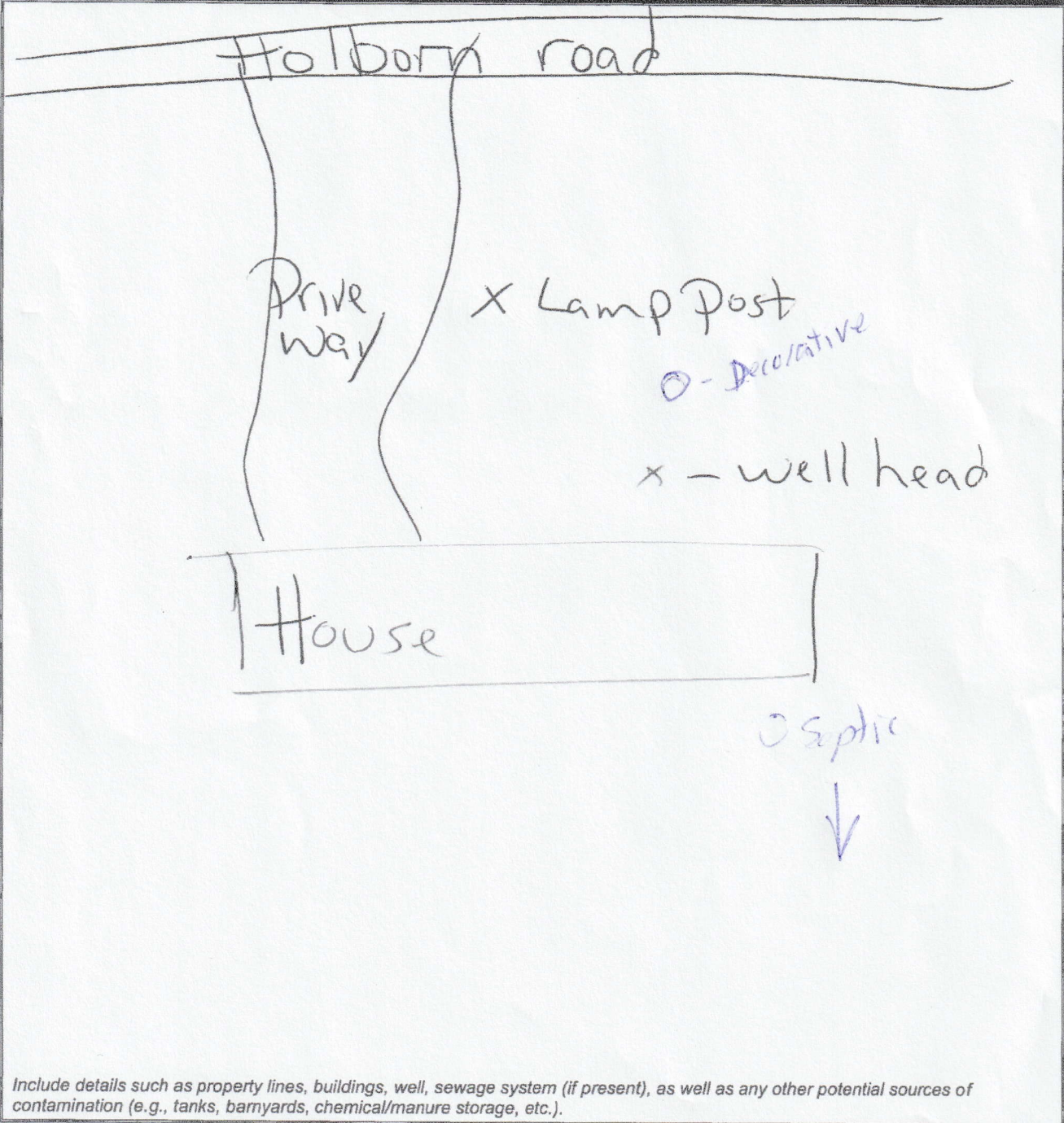
Well I.D. #:

AECOM Project No.:

MECP WWR #:

Client Project No.:

Location Sketch (To be Completed by Property Owner / Occupant)



Include details such as property lines, buildings, well, sewage system (if present), as well as any other potential sources of contamination (e.g., tanks, barnyards, chemical/manure storage, etc.).

Water Well Survey

AECOM

Well I.D. #: 60636190 AECOM Project No.: _____

MECP WWR #: _____ Client Project No.: _____

Field Visit Log (To Be Completed by AECOM Staff)

General Details:

Project Name:	BBP		Project No.:	60636190	
Address:	1562 Holborn Rd.		Inspected By:	Holden / P.../M	
Date:	Mar 3/22	Time:	10:00 - 10:43	Weather:	Clear / Cold
Easting:	623677	Northing:	4890575	Datum:	17T / NAD83

Well Details:

Is Well Accessible for Inspection?		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		If No, Provide Reason:	
MECP Water Well Record No.:	N/A	Date Well Constructed:	—	Contractor Name:	—
Well Type: <small>(Drilled / Bored / Dug)</small>	Drilled	Well Stick Up: <small>(Above Ground)</small>	NA	Casing Material: <small>(Steel, Concrete, etc.)</small>	Steel
Well Located in a Well Pit?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Well Pit Depth: <small>(Below Ground)</small>		Well Stick Up: <small>(Above Pit Bottom)</small>	29 cm
Well Casing Diameter:	6 1/4"	Well Depth: <small>(Below Ground)</small>		Groundwater Level: <small>(Below Ground)</small>	
Pump On / Off?	<input type="checkbox"/> On <input type="checkbox"/> Off	Water Level Condition:	<input type="checkbox"/> Stable (Static) <input type="checkbox"/> Declining (Drawdown) <input type="checkbox"/> Rising (Recovery)		
Flowing Well?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Flow Rate: <small>(Estimated)</small>		Well Cap Type:	Old type
Well Screen Installed?	<input type="checkbox"/> Yes <input type="checkbox"/> No	If Yes, Length & Slot Size:		Top of Screen: <small>(Below Ground)</small>	
Is There a Depression Around the Well Casing Exterior?	<input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No		Photo(s) of Well Obtained?		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

Observation(s) Summary:

Water Well Survey

AECOM

Well I.D. #: _____ AECOM Project No.: _____

MECP WWR #: _____ Client Project No.: _____

Water Quality Sampling:

Water Quality Sample Obtained?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If No, Provide Reason:	
Sampling Location:	Sample port near pressure	Raw or Treated Sample?	RAW
Disinfected Sample Port?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Disinfection Method:	Bleach
Photo of Sample Obtained? (against white background)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If No, Provide Reason:	

Analyte Suite:	RCAP, Fecal / Total Coliform				
Sample I.D.:	1562 Halborn	Date / Time of Sampling:	10:30	Number of Sample Bottles:	7

Field Water Quality Parameters: (record units) 10:30					
Temperature:	10.34	pH:	8.05	Conductivity:	0.434 mS/cm
Turbidity:	0.3 NTU	D.O.:	4.17 mg/L	Colour:	TDS 0.282 g/L
Odours?	Yes	Appearance/Odour:	Clear, slightly sulphur odour		

Type of Concern: (if applicable)	<input type="checkbox"/> Water Quantity <input checked="" type="checkbox"/> Water Quality (Note any differences in taste, odour, colour or clarity)
If the concern was contamination what changes were apparent to water quality?	
Were there any effects of this concern?	
What action was taken to overcome this concern?	

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105 Commerce Valley Drive West, 7th Floor
Markham, ON L3T 7W3
Canada

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www.aecom.com

Appendix **P**

Property ID #143 – 3236 Sideroad 10



May 3, 2022

Paul Watson
3236 Sideroad 10
Bradford, ON
L3Z 3T8

Project No: 60636190
Regarding: Pre-Construction Water Quality Testing Results
MTO Bradford Bypass Project

Dear Mr. Paul Watson,

AECOM Canada Ltd. (AECOM) would like to thank you for your participation in the Pre-Construction Well Assessment Program offered to local residents as part of the Bradford Bypass Project. Based on receipt of written permission from yourself, a sample of raw (untreated) groundwater from your private well was collected for laboratory analysis by AECOM staff on March 3rd, 2022. Please find attached a copy of the water quality testing results for your review and record.

Laboratory testing results for the sample obtained indicate that concentrations of certain parameters, as shown in the table below, are in excess of the *Ontario Drinking Water Standards, Objectives and Guidelines* (Ontario Ministry of the Environment, 2006). It should be noted, however, that these results are based on a single sample analysis and that additional testing is recommended.

PARAMETER	CONCENTRATION IN YOUR WATER	STANDARD VALUE / RANGE	STANDARD TYPE	HEALTH RELATED (Y / N)
Chloride	259 mg/L	250 mg/L	AO	N
Hardness (as CaCO ₃)	443 mg/L	80 - 100 mg/L	OG	N
Total Dissolved Solids	808 mg/L	500 mg/L	AO	N
Total Sodium	132 mg/L	20 mg/L	AO	N

NOTE: AO – Aesthetic Objective; OG – Operational Guideline.
mg/L = milligrams per Litre

The presence of sodium in excess of 20 mg/L should be considered for water users who are on a sodium-restricted diet which would warrant a follow-up with the Health Department and/or their physician.

For your information, the *Well Aware Booklet – A Guide To Caring For Your Well* created by Green Communities Canada is available on the Walkerton Clean Water Centre (WCWC) website at:

<https://wcwc.ca/well-aware-and-well-wise-program-resources-for-homeowners/>

Should you have any questions or concerns regarding the quality of your well water, it is recommended that you contact your local Public Health Unit for further information and advice. Contact information for your Local Public Health Unit is provided, as follows:

Simcoe Muskoka District Health Unit
80 Bradford St. #403
Barrie, ON L4N 6S7
Website: <https://www.simcoemuskokahealth.org/>
Telephone: 705.721.7520

If you have any further questions, please contact:

AECOM Canada Ltd. C/O Brian Holden, P.Ge.
Hydrogeology, Environment
Telephone: 226-821-2486
Email: brian.holden@aecom.com

Sincerely,
AECOM Canada Ltd.

A handwritten signature in black ink, appearing to read 'B Holden', written in a cursive style.

Brian Holden, P.Ge.
Hydrogeologist
DCS Americas, Canada East (Greater Ontario / Metro Toronto)
Environment
Brian.holden@aecom.com

Encl.

cc: R. Sheikh, N. Valenton, S. Rankin, S.Schmied – AECOM;
H. Singh, L. Sarris, J. MacKinnon, R. Gribbon – MTO



Water Well Survey
Groundwater Supply Well Location 3236 Sideroad 10
 Project Name: Bradford Bypass
 Project#: 60636190

Residence Address:

3236 Sideroad 10, Bradford, ON L3Z 3T8

Owner Information:

Owner Name: Paul Watson

Phone Number: 905-392-9350

Email: paul.alewatson@gmail.com



Well Record

Ministry of the Environment, Conservation and Parks (MCEP) – Water Well Record is not available.



Water Quality & Well Testing

Past Water Quality Problems..... None

Potential Contamination Sources... Well is covered by vegetation

Location of Septic Tank.....Downgrade in the backyard (~ 100 ft from well)

Treatment System.....Water Softener and Reverse Osmosis

Recent Test Results.....None

Water Sampled..... Yes (March 3, 2022)

Sample Source..... Attached plastic hose to the tap located near pressure tank (untreated)

Appearance.....Clear, no odour

Comments:

- *The well sampled is the residential well and has no history of previous issues.*
- *UV water treatment system located in the basement does not work.*
- *No water supply well / groundwater related concerns regarding the BBP construction from the homeowner.*

Quality Testing

Groundwater quality met the applicable standards for bacteriological, selected inorganic and metal parameters analyzed except for the following:

<i>Parameters</i>	<i>Test Results</i>	<i>Guideline/Standard</i>	<i>Criteria Type</i>
Chloride	259 mg/L	250 mg/L	AO
Hardness (as CaCO ₃)	443 mg/L	80 - 100 mg/L	OG
Total Dissolved Solids	808 mg/L	500 mg/L	AO
Total Sodium	132 mg/L	20 mg/L	AO

Notes:

1. Criteria are from "Ontario Drinking Water Standards" (Ontario Regulation 169/03) and "Technical Support Document for Ontario Drinking Water Standards, Objectives and Guidelines" (MOE, June 2003, revised June 2006)
2. AO - Aesthetic Objectives (parameters that may impair the taste, odour or colour of water or which may interfere with good water quality)
3. OG - Operational Guideline (parameters which must be controlled for effective treatment)
4. mg/L – Milligrams per Litre
5. Laboratory testing results for the sample / duplicate obtained indicate that concentrations of certain parameters, as shown in the table above, are in excess of Ontario Drinking Water Quality Standards, Objectives and Guidelines (Ontario Ministry of the Environment, 2006).





**CLIENT NAME: AECOM CANADA LTD
50 SPORTSWORLD CROSSING RD UNIT 290
KITCHENER, ON N2P0A4
(519) 650-5313**

ATTENTION TO: Brian Holden

PROJECT: 60636190

AGAT WORK ORDER: 22T869736

MICROBIOLOGY ANALYSIS REVIEWED BY: Nivine Basily, Inorganics Report Writer

WATER ANALYSIS REVIEWED BY: Yris Verastegui, Report Reviewer

DATE REPORTED: Mar 11, 2022

PAGES (INCLUDING COVER): 14

VERSION*: 1

Should you require any information regarding this analysis please contact your client services representative at (905) 712-5100

***Notes**

Empty box for notes.

Disclaimer:

- All work conducted herein has been done using accepted standard protocols, and generally accepted practices and methods. AGAT test methods may incorporate modifications from the specified reference methods to improve performance.
- All samples will be disposed of within 30 days after receipt unless a Long Term Storage Agreement is signed and returned. Some specialty analysis may be exempt, please contact your Client Project Manager for details.
- AGAT's liability in connection with any delay, performance or non-performance of these services is only to the Client and does not extend to any other third party. Unless expressly agreed otherwise in writing, AGAT's liability is limited to the actual cost of the specific analysis or analyses included in the services.
- This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
- The test results reported herewith relate only to the samples as received by the laboratory.
- Application of guidelines is provided "as is" without warranty of any kind, either expressed or implied, including, but not limited to, warranties of merchantability, fitness for a particular purpose, or non-infringement. AGAT assumes no responsibility for any errors or omissions in the guidelines contained in this document.
- All reportable information as specified by ISO/IEC 17025:2017 is available from AGAT Laboratories upon request.



Certificate of Analysis

AGAT WORK ORDER: 22T869736

PROJECT: 60636190

5835 COOPERS AVENUE
 MISSISSAUGA, ONTARIO
 CANADA L4Z 1Y2
 TEL (905)712-5100
 FAX (905)712-5122
<http://www.agatlabs.com>

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Brian Holden

SAMPLING SITE:

SAMPLED BY: Brian Holden

Total Coliforms & E. Coli (Using MI Agar)

DATE RECEIVED: 2022-03-03

DATE REPORTED: 2022-03-11

SAMPLE DESCRIPTION: 3236 SDRD 10

SAMPLE TYPE: Water

DATE SAMPLED: 2022-03-03
 13:45

Parameter	Unit	G / S	RDL	3575532
Escherichia coli	CFU/100mL	0	0	
Total Coliforms	CFU/100mL	0	0	

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to O. Reg 169/03 - Ontario Drinking Water Quality Standards. Na value derived from O. Reg 248
 Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

3575532 Escherichia coli, Total Coliforms RDL = 1 CFU/100mL.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:



Nancy Beach



Certificate of Analysis

AGAT WORK ORDER: 22T869736

PROJECT: 60636190

5835 COOPERS AVENUE
MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
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FAX (905)712-5122
<http://www.agatlabs.com>

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Brian Holden

SAMPLING SITE:

SAMPLED BY: Brian Holden

Water Quality Assessment (mg/L)

DATE RECEIVED: 2022-03-03

DATE REPORTED: 2022-03-11

SAMPLE DESCRIPTION: 3236 SDRD 10

SAMPLE TYPE: Water

DATE SAMPLED: 2022-03-03
13:45

Parameter	Unit	G / S: A	G / S: B	RDL	3575532
Electrical Conductivity	µS/cm			2	1400
pH	pH Units		6.5-8.5	NA	7.80
Saturation pH (Calculated)					6.77
Langelier Index (Calculated)					1.03
Hardness (as CaCO3) (Calculated)	mg/L		80-100	0.5	443
Total Dissolved Solids	mg/L		500	10	808[>B]
Alkalinity (as CaCO3)	mg/L		30-500	5	302
Bicarbonate (as CaCO3)	mg/L			5	302
Carbonate (as CaCO3)	mg/L			5	<5
Hydroxide (as CaCO3)	mg/L			5	<5
Fluoride	mg/L	1.5		0.05	<0.05[<A]
Chloride	mg/L		250	0.12	259[>B]
Nitrate as N	mg/L	10.0		0.05	1.14[<A]
Nitrite as N	mg/L	1.0		0.05	<0.05[<A]
Bromide	mg/L			0.05	<0.05
Sulphate	mg/L		500	0.10	45.6[<B]
Ortho Phosphate as P	mg/L			0.10	<0.10
Ammonia as N	mg/L			0.02	<0.02
Total Phosphorus	mg/L			0.02	<0.02
Total Organic Carbon	mg/L			0.5	1.1
True Colour	TCU		5	5	<5[<B]
Turbidity	NTU		5	0.5	<0.5[<B]
Total Calcium	mg/L			0.32	110
Total Magnesium	mg/L			0.34	40.9
Total Potassium	mg/L			1.15	2.98
Total Sodium	mg/L	20	200	0.45	132[A-B]
Total Aluminum	mg/L		0.1	0.010	0.013[<B]
Total Antimony	mg/L	0.006		0.003	<0.003[<A]
Total Arsenic	mg/L	0.01		0.003	<0.003[<A]

Certified By:

Jris Veraestegui



Certificate of Analysis

AGAT WORK ORDER: 22T869736

PROJECT: 60636190

5835 COOPERS AVENUE
MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
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FAX (905)712-5122
<http://www.agatlabs.com>

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Brian Holden

SAMPLING SITE:

SAMPLED BY: Brian Holden

Water Quality Assessment (mg/L)

DATE RECEIVED: 2022-03-03

DATE REPORTED: 2022-03-11

SAMPLE DESCRIPTION: 3236 SDRD 10

SAMPLE TYPE: Water

DATE SAMPLED: 2022-03-03
13:45

Parameter	Unit	G / S: A	G / S: B	RDL	3575532
Total Barium	mg/L	1.0		0.002	0.135[<A]
Total Beryllium	mg/L			0.005	<0.005
Total Boron	mg/L	5.0		0.010	<0.010[<A]
Total Cadmium	mg/L	0.005		0.001	<0.001[<A]
Total Chromium	mg/L	0.05		0.003	<0.003[<A]
Total Cobalt	mg/L			0.001	<0.001
Total Copper	mg/L		1	0.003	0.019[<B]
Total Iron	mg/L		0.3	0.010	0.012[<B]
Total Lead	mg/L	0.010		0.001	0.005[<A]
Total Manganese	mg/L		0.05	0.002	<0.002[<B]
Total Mercury	mg/L	0.001		0.0001	<0.0001[<A]
Total Molybdenum	mg/L			0.002	<0.002
Total Nickel	mg/L			0.003	<0.003
Total Selenium	mg/L	0.05		0.002	<0.002[<A]
Total Silver	mg/L			0.002	<0.002
Total Strontium	mg/L			0.005	0.403
Total Thallium	mg/L			0.006	<0.006
Total Tin	mg/L			0.002	<0.002
Total Titanium	mg/L			0.010	<0.010
Total Tungsten	mg/L			0.010	<0.010
Total Uranium	mg/L	0.02		0.002	<0.002[<A]
Total Vanadium	mg/L			0.002	<0.002
Total Zinc	mg/L		5	0.020	0.041[<B]
Total Zirconium	mg/L			0.004	<0.004

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: A Refers to O. Reg 169/03 - Ontario Drinking Water Quality Standards. Na value derived from O. Reg 248, B Refers to O. Reg 169/03 - Ontario Drinking Water Quality Standards - Aesthetic Objectives and Operational Guidelines
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

3575532 Dilution required, RDL has been increased accordingly.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:

José Veraestegui



Exceedance Summary

AGAT WORK ORDER: 22T869736

PROJECT: 60636190

5835 COOPERS AVENUE
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CANADA L4Z 1Y2
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FAX (905)712-5122
<http://www.agatlabs.com>

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Brian Holden

SAMPLEID	SAMPLE TITLE	GUIDELINE	ANALYSIS PACKAGE	PARAMETER	UNIT	GUIDEVALUE	RESULT
3575532	3236 SDRD 10	ON 169/03 AO&OG	Water Quality Assessment (mg/L)	Chloride	mg/L	250	259
3575532	3236 SDRD 10	ON 169/03 AO&OG	Water Quality Assessment (mg/L)	Hardness (as CaCO3) (Calculated)	mg/L	80-100	443
3575532	3236 SDRD 10	ON 169/03 AO&OG	Water Quality Assessment (mg/L)	Total Dissolved Solids	mg/L	500	808
3575532	3236 SDRD 10	ON 169/03 MAC/IMAC	Water Quality Assessment (mg/L)	Total Sodium	mg/L	20	132

Quality Assurance

CLIENT NAME: AECOM CANADA LTD
PROJECT: 60636190
SAMPLING SITE:

AGAT WORK ORDER: 22T869736
ATTENTION TO: Brian Holden
SAMPLED BY: Brian Holden

Microbiology Analysis

RPT Date: Mar 11, 2022			DUPLICATE			Method Blank	REFERENCE MATERIAL		METHOD BLANK SPIKE		MATRIX SPIKE				
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD		Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper

Total Coliforms & E. Coli (Using MI Agar)

Escherichia coli	3575532	3575532	0	0	NA
Total Coliforms	3575532	3575532	0	0	NA

Comments: NA - % RPD Not Applicable.

Certified By:



Nivine Basily

Quality Assurance

CLIENT NAME: AECOM CANADA LTD
PROJECT: 60636190
SAMPLING SITE:

AGAT WORK ORDER: 22T869736
ATTENTION TO: Brian Holden
SAMPLED BY: Brian Holden

Water Analysis															
RPT Date: Mar 11, 2022			DUPLICATE				Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE		MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Measured Value		Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper

Water Quality Assessment (mg/L)

Electrical Conductivity	3575532	3575532	1400	1410	0.7%	< 2	103%	90%	110%						
pH	3575532	3575532	7.80	7.83	0.4%	NA	102%	90%	110%						
Total Dissolved Solids	3571729		412	416	1.0%	< 10	96%	80%	120%						
Alkalinity (as CaCO3)	3575532	3575532	302	302	0.0%	< 5	95%	80%	120%						
Bicarbonate (as CaCO3)	3575532	3575532	302	302	0.0%	< 5	NA								
Carbonate (as CaCO3)	3575532	3575532	<5	<5	NA	< 5	NA								
Hydroxide (as CaCO3)	3575532	3575532	<5	<5	NA	< 5	NA								
Fluoride	3579620		<0.05	<0.05	NA	< 0.05	102%	70%	130%	101%	80%	120%	104%	70%	130%
Chloride	3579620		20.8	20.3	2.4%	< 0.10	90%	70%	130%	104%	80%	120%	110%	70%	130%
Nitrate as N	3579620		0.17	0.19	NA	< 0.05	95%	70%	130%	103%	80%	120%	106%	70%	130%
Nitrite as N	3579620		<0.05	<0.05	NA	< 0.05	98%	70%	130%	98%	80%	120%	101%	70%	130%
Bromide	3579620		<0.05	<0.05	NA	< 0.05	100%	70%	130%	99%	80%	120%	91%	70%	130%
Sulphate	3579620		49.4	48.7	1.4%	< 0.10	97%	70%	130%	103%	80%	120%	108%	70%	130%
Ortho Phosphate as P	3579620		<0.10	<0.10	NA	< 0.10	95%	70%	130%	108%	80%	120%	100%	70%	130%
Ammonia as N	3575532	3575532	<0.02	<0.02	NA	< 0.02	100%	70%	130%	103%	80%	120%	86%	70%	130%
Total Phosphorus	3575532	3575532	<0.02	<0.02	NA	< 0.02	101%	70%	130%	101%	80%	120%	104%	70%	130%
Total Organic Carbon	3575532	3575532	1.1	1.1	NA	< 0.5	92%	90%	110%	96%	90%	110%	93%	80%	120%
True Colour	3573150		<5	<5	NA	< 5	99%	90%	110%						
Turbidity	3573150		3.1	3.1	0.0%	< 0.5	102%	80%	120%						
Total Calcium	3575539	3575539	108	107	0.9%	< 0.10	99%	70%	130%	97%	80%	120%	95%	70%	130%
Total Magnesium	3575539	3575539	39.8	39.0	2.0%	< 0.10	103%	70%	130%	100%	80%	120%	96%	70%	130%
Total Potassium	3575539	3575539	2.68	2.53	5.8%	< 0.50	101%	70%	130%	98%	80%	120%	93%	70%	130%
Total Sodium	3575539	3575539	128	126	1.6%	< 0.10	101%	70%	130%	98%	80%	120%	94%	70%	130%
Total Aluminum	3575532	3575532	0.013	<0.010	NA	< 0.010	111%	70%	130%	118%	80%	120%	96%	70%	130%
Total Antimony	3575532	3575532	<0.003	<0.003	NA	< 0.003	101%	70%	130%	104%	80%	120%	102%	70%	130%
Total Arsenic	3575532	3575532	<0.003	<0.003	NA	< 0.003	89%	70%	130%	101%	80%	120%	104%	70%	130%
Total Barium	3575532	3575532	0.135	0.128	5.3%	< 0.002	99%	70%	130%	107%	80%	120%	106%	70%	130%
Total Beryllium	3575532	3575532	<0.005	<0.005	NA	< 0.001	106%	70%	130%	118%	80%	120%	93%	70%	130%
Total Boron	3575532	3575532	<0.010	<0.010	NA	< 0.010	100%	70%	130%	107%	80%	120%	90%	70%	130%
Total Cadmium	3575532	3575532	<0.001	<0.001	NA	< 0.001	100%	70%	130%	100%	80%	120%	101%	70%	130%
Total Chromium	3575532	3575532	<0.003	<0.003	NA	< 0.003	99%	70%	130%	98%	80%	120%	100%	70%	130%
Total Cobalt	3575532	3575532	<0.001	<0.001	NA	< 0.001	89%	70%	130%	101%	80%	120%	95%	70%	130%
Total Copper	3575532	3575532	0.019	0.020	5.1%	< 0.003	95%	70%	130%	100%	80%	120%	97%	70%	130%
Total Iron	3575532	3575532	0.012	0.026	NA	< 0.010	94%	70%	130%	105%	80%	120%	98%	70%	130%
Total Lead	3575532	3575532	0.005	0.005	0.0%	< 0.001	94%	70%	130%	100%	80%	120%	92%	70%	130%
Total Manganese	3575532	3575532	<0.002	<0.002	NA	< 0.002	93%	70%	130%	104%	80%	120%	102%	70%	130%
Total Mercury	3575532	3575532	<0.0001	<0.0001	NA	< 0.0001	102%	70%	130%	101%	80%	120%	102%	70%	130%
Total Molybdenum	3575532	3575532	<0.002	<0.002	NA	< 0.002	98%	70%	130%	102%	80%	120%	105%	70%	130%
Total Nickel	3575532	3575532	<0.003	<0.003	NA	< 0.003	94%	70%	130%	105%	80%	120%	95%	70%	130%

Quality Assurance

CLIENT NAME: AECOM CANADA LTD
PROJECT: 60636190
SAMPLING SITE:

AGAT WORK ORDER: 22T869736
ATTENTION TO: Brian Holden
SAMPLED BY: Brian Holden

Water Analysis (Continued)

RPT Date: Mar 11, 2022			DUPLICATE				Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Measured Value		Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits		
								Lower	Upper		Lower	Upper		Lower	Upper	
Total Selenium	3575532	3575532	<0.002	<0.002	NA	< 0.002	102%	70%	130%	105%	80%	120%	96%	70%	130%	
Total Silver	3575532	3575532	<0.002	<0.002	NA	< 0.002	92%	70%	130%	105%	80%	120%	97%	70%	130%	
Total Strontium	3575532	3575532	0.403	0.410	1.7%	< 0.005	82%	70%	130%	106%	80%	120%	103%	70%	130%	
Total Thallium	3575532	3575532	<0.006	<0.006	NA	< 0.006	98%	70%	130%	99%	80%	120%	92%	70%	130%	
Total Tin	3575532	3575532	<0.002	<0.002	NA	< 0.002	103%	70%	130%	107%	80%	120%	104%	70%	130%	
Total Titanium	3575532	3575532	<0.010	<0.010	NA	< 0.010	88%	70%	130%	86%	80%	120%	110%	70%	130%	
Total Tungsten	3575532	3575532	<0.010	<0.010	NA	< 0.010	97%	70%	130%	96%	80%	120%	102%	70%	130%	
Total Uranium	3575532	3575532	<0.002	<0.002	NA	< 0.002	94%	70%	130%	98%	80%	120%	93%	70%	130%	
Total Vanadium	3575532	3575532	<0.002	<0.002	NA	< 0.002	91%	70%	130%	104%	80%	120%	98%	70%	130%	
Total Zinc	3575532	3575532	0.041	0.034	NA	< 0.020	95%	70%	130%	101%	80%	120%	95%	70%	130%	
Total Zirconium	3575532	3575532	<0.004	<0.004	NA	< 0.004	96%	70%	130%	103%	80%	120%	105%	70%	130%	

Comments: NA signifies Not Applicable.
 If the RPD value is NA, the results of the duplicates are under 5X the RDL and will not be calculated.
 Matrix spike: Spike level < native concentration. Matrix spike acceptance limits do not apply.

Certified By:





Method Summary

CLIENT NAME: AECOM CANADA LTD

AGAT WORK ORDER: 22T869736

PROJECT: 60636190

ATTENTION TO: Brian Holden

SAMPLING SITE:

SAMPLED BY: Brian Holden

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Microbiology Analysis			
Escherichia coli	MIC-93-7010	EPA 1604	Membrane Filtration
Total Coliforms	MIC-93-7010	EPA 1604	Membrane Filtration

Method Summary

CLIENT NAME: AECOM CANADA LTD
AGAT WORK ORDER: 22T869736
PROJECT: 60636190
ATTENTION TO: Brian Holden
SAMPLING SITE:
SAMPLED BY: Brian Holden

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Water Analysis			
Electrical Conductivity	INOR-93-6000	modified from SM 2510 B	PC TITRATE
pH	INOR-93-6000	modified from SM 4500-H+ B	PC TITRATE
Saturation pH (Calculated)		SM 2320 B	CALCULATION
Langelier Index (Calculated)		SM 2330B	CALCULATION
Hardness (as CaCO ₃) (Calculated)	MET-93-6105	modified from EPA SW-846 6010C & 200.7 & SM 2340 B	CALCULATION
Total Dissolved Solids	INOR-93-6028	modified from EPA 1684, ON MOECC E3139, SM 2540C, D	BALANCE
Alkalinity (as CaCO ₃)	INOR-93-6000	Modified from SM 2320 B	PC TITRATE
Bicarbonate (as CaCO ₃)	INOR-93-6000	modified from SM 2320 B	PC TITRATE
Carbonate (as CaCO ₃)	INOR-93-6000	modified from SM 2320 B	PC TITRATE
Hydroxide (as CaCO ₃)	INOR-93-6000	modified from SM 2320 B	PC TITRATE
Fluoride	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Chloride	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Nitrate as N	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Nitrite as N	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Bromide	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Sulphate	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Ortho Phosphate as P	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Ammonia as N	INOR-93-6059	modified from SM 4500-NH ₃ H	LACHAT FIA
Total Phosphorus	INOR-93-6057	modified from LACHAT 10-115-01-3A	LACHAT FIA
Total Organic Carbon	INOR-93-6049	modified from SM 5310 B	SHIMADZU CARBON ANALYZER
True Colour	INOR-93-6074	modified from SM 2120 B	LACHAT FIA
Turbidity	INOR-93-6044	modified from SM 2130 B	NEPHELOMETER
Total Calcium	MET-93-6105	modified from EPA 6010D	ICP/OES
Total Magnesium	MET-93-6105	modified from EPA 6010D	ICP/OES
Total Potassium	MET-93-6105	modified from EPA 6010D	ICP/OES
Total Sodium	MET-93-6105	modified from EPA 6010D	ICP/OES
Total Aluminum	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Antimony	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Arsenic	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Barium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Beryllium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Boron	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Cadmium	MET -93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Chromium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Cobalt	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Copper	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Iron	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Lead	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS



Method Summary

CLIENT NAME: AECOM CANADA LTD

AGAT WORK ORDER: 22T869736

PROJECT: 60636190

ATTENTION TO: Brian Holden

SAMPLING SITE:

SAMPLED BY: Brian Holden

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Total Manganese	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Mercury	MET-93-6100	modified from EPA 245.2 and SM 3112 B	CVAAS
Total Molybdenum	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Nickel	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Selenium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Silver	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Strontium	INOR-93-6003	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Thallium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Tin	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Titanium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Tungsten	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Uranium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Vanadium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Zinc	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Zirconium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS

Water Well Survey

AECOM

Well I.D. #:	AECOM Project No.:
MECP WWR #:	Client Project No.:

Well Owner Information:

Property Owner Name:	D PAUL WATSON		
Property Address:	3236 SIDEROAD 10 BRADFORD L3Z 3T8		
Telephone:	905 392 9350	Email:	paul.alexwatson@gmail.com
Name of Person Completing Survey:	Paul		
Telephone:	SAME	Email:	SAME
Relationship to Property Owner:		Date of Survey Completion:	Nov 20/21
Name of Original Well Owner: <i>(if known/different from above)</i>	Cyril Henderson (deceased)		

Occupant of Property Served by Well: *(if other than Owner)*

Name:	/			
Telephone:				Email:
Address:				

Well Location:

Lot:	Concession:	Township:
------	-------------	-----------

Well Construction Details:

Well Record Available?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Date Well Constructed:	1980±	Well Contractor Name:	
Well Type: <i>(Drilled / Bored / Dug)</i>	Drilled	Casing Material: <i>(Steel, Concrete, etc.)</i>	Concrete	Well Casing Diameter:	
Well Stick Up: <i>(Above Ground)</i>	Yes	Well Depth: <i>(Below Ground)</i>		Water Level: <i>(Below Ground)</i>	
Is Well Located in a Well Pit?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Well Pit Depth: <i>(Below Ground)</i>		Well Stick Up: <i>(Above Pit Bottom)</i>	
Is Well Flowing?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Flow Rate:		Contractor:	
Well Cap Type:	METAL	Does Cap Create a Good Seal?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Is Wire Conduit Tight to Well Cap?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Is the Well:	Accessible for Direct Sampling?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	OR	Buried, In a Well Pit, or Other Confined Space?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Well Screen Installed?	<input type="checkbox"/> Yes <input type="checkbox"/> No	If Yes, Length & Slot Size:		Depth of Top of Screen: <i>(Below Ground)</i>	

Water Well Survey

AECOM

Well I.D. #:	AECOM Project No.:
MECP WWR #:	Client Project No.:

Pumping Equipment:

Pump Type:	<input type="checkbox"/> Jet Pump <input checked="" type="checkbox"/> Submersible <input type="checkbox"/> Piston Pump <input checked="" type="checkbox"/> Other (please describe): <i>Pressure</i>				
Pump Horsepower:		Pump Age:	<i>30 yrs.</i>	Pumping Capacity:	
Pump Intake Depth: (Below Ground)		Pump Location: (If Not in Well)	<i>Basement</i>	Pumping Rate: (If Known)	
Pressure Tank:	Type:	<input checked="" type="checkbox"/>			Capacity:
Water Treatment: (if present)	<input type="checkbox"/> Chlorinator <input checked="" type="checkbox"/> Water Softener <input type="checkbox"/> Water Filter (indicate type) _____ <input type="checkbox"/> U.V. <input checked="" type="checkbox"/> R.O. <input type="checkbox"/> Other (please describe): _____				

Well Usage:

Primary Use(s):	Domestic:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Livestock:	<input type="checkbox"/> Yes <input type="checkbox"/> No	Lawn Watering:	<input type="checkbox"/> Yes <input type="checkbox"/> No
# of Persons Using Well:	<i>4</i>	# of Livestock Watered:		Other Uses:		Daily Amount: (if known)
Indoor Plumbing Fixtures: (Washroom(s), Shower(s), Dishwasher, Laundry, Pool, Spa, etc.)			<i>3 washrooms with 2 showers. Laundry / Kitchen</i>			

Sewage Servicing:

Private Sewage System or Municipal:	<i>Private</i>	System Type: (septic tank, etc.)	<i>TANK</i>	Distance from Well:	
Well Location:	<input checked="" type="checkbox"/> Uphill <input checked="" type="checkbox"/> Downhill <input type="checkbox"/> Same Grade				
Presence of Any Above Ground Storage Tank or Other Potential Source(s) of Contamination: (including distance on / off property)			<i>No.</i>		

Previous Concerns:

How Long Have You Owned, Resided, or Operated a Business on this Property?	<i>5 yrs.</i>		
Have You Experienced Any Previous Concerns with Your Well Supply? (Quantity or Quality)	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	If Yes, When?
Cause(s) of the Previous Concern?	<input type="checkbox"/> Drought <input type="checkbox"/> Pump Failure <input type="checkbox"/> Plugging <input type="checkbox"/> Increased Usage <input type="checkbox"/> Interference <input type="checkbox"/> Contamination <input type="checkbox"/> Other (Please describe): _____		

Water Well Survey



Well I.D. #: _____ AECOM Project No.: _____
MECP WWR #: _____ Client Project No.: _____

Well Modification / Maintenance:

Has Your Well Ever Been...	Deepened? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Cleaned? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Reconstructed or Replaced? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
If Yes to Any of the Above, Please Provide Details:			

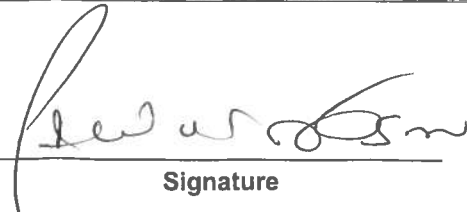
Other Details:

Other Details that May be Relevant to Assessing the Current Condition of Your Well Supply:

- have a pump to get well water in basement

Property Owner Participation in Monitoring Program:

Does the Property Owner and/or Occupant Grant Permission for MTO/AECOM to Monitor and/or Sample Your Well?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
--	---

Paul Watson  Nov 20/21
Property Owner / Occupant Name Signature Date
(Please Print in BLOCK letters)

Water Well Survey

AECOM

Well I.D. #: _____ AECOM Project No.: _____
MECP WWR #: _____ Client Project No.: _____

Location Sketch *(To be Completed by Property Owner / Occupant)*



#3236
Include details such as property lines, buildings, well, sewage system (if present), as well as any other potential sources of contamination (e.g., tanks, barnyards, chemical/manure storage, etc.).

Water Well Survey

AECOM

Well I.D. #: _____ AECOM Project No.: 60630190
 MECP WWR #: _____ Client Project No.: _____

Field Visit Log (To Be Completed by AECOM Staff)

General Details:

Project Name:	BBP		Project No.:	60630190	
Address:	3236 Sideroad 10		Inspected By:	Holden / Parikh	
Date:	Mar 3 / 22	Time:	13:00 - 14:00	Weather:	Clear / cold
Easting:	611 373	Northing:	488 7087	Datum:	17T / NAD83

Well Details:

Is Well Accessible for Inspection?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If No, Provide Reason:	Decorative / Lid.		
MECP Water Well Record No.:	NA	Date Well Constructed:	—	Contractor Name:	—
Well Type: (Drilled / Bored / Dug)	Dug	Well Stick Up: (Above Ground)	—	Casing Material: (Steel, Concrete, etc.)	Concrete
Well Located in a Well Pit?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Well Pit Depth: (Below Ground)	—	Well Stick Up: (Above Pit Bottom)	—
Well Casing Diameter:		Well Depth: (Below Ground)		Groundwater Level: (Below Ground)	
Pump On / Off?	<input type="checkbox"/> On <input type="checkbox"/> Off	Water Level Condition:	<input type="checkbox"/> Stable (Static) <input type="checkbox"/> Declining (Drawdown) <input type="checkbox"/> Rising (Recovery)		
Flowing Well?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Flow Rate: (Estimated)		Well Cap Type:	
Well Screen Installed?	<input type="checkbox"/> Yes <input type="checkbox"/> No	If Yes, Length & Slot Size:		Top of Screen: (Below Ground)	
Is There a Depression Around the Well Casing Exterior?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Photo(s) of Well Obtained?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		

Observation(s) Summary:

Water Well Survey

AECOM

Well I.D. #: _____ AECOM Project No.: _____
 MECP WWR #: _____ Client Project No.: _____

Water Quality Sampling:

Water Quality Sample Obtained?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If No, Provide Reason:	
Sampling Location:	Sample Port	Raw or Treated Sample?	Raw
Disinfected Sample Port?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Disinfection Method:	Wiped
Photo of Sample Obtained? (against white background)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If No, Provide Reason:	

Analyte Suite:	RCAP, Fecal / Total Coliforms				
Sample I.D.:	3236 SDRD 10	Date / Time of Sampling:	13:31	Number of Sample Bottles:	7

Field Water Quality Parameters: (record units)					
Temperature:		pH:		Conductivity:	
Turbidity:		D.O.:		Colour:	
Odours?		Appearance/Odour:			

Type of Concern: (if applicable)	<input type="checkbox"/> Water Quantity <input type="checkbox"/> Water Quality (Note any differences in taste, odour, colour or clarity)
If the concern was contamination what changes were apparent to water quality?	
Were there any effects of this concern?	
What action was taken to overcome this concern?	

- Sound wall, concern over noise in community / church

→ Sample collected at 1:45 PM.

→ DUP collected from this location; ID: 3234 SDRD 10 (2:00 PM).

→ (collected from basement sump; just before filtration system (Raw water)).

AECOM Canada Ltd.
 105 Commerce Valley Drive West, 7th Floor
 Markham, ON L3T 7W3
 Canada

T: 905.886.7022
 F: 905.538.8076
 www.aecom.com

NOTE:

Attached Plastic
 Pipe/hose to the
 sump & collected
 water. (Raw
 water)

→ This property has softener (works fine)

→ UV filter does not work

→ Sample looks clean based on visual observation.

→ NO ODORS.

Appendix **Q**

Property ID #102 – 3183 Sideroad 10

June 17th, 2022

Manuel Marques
3183 10 Sideroad
Bradford, ON
L3Z 3V4

Project No: 60636190
Regarding: Pre-Construction Water Quality Testing Results
MTO Bradford Bypass Project

Dear Mr. Marques,

AECOM Canada Ltd. (AECOM) would like to thank you for your participation in the Pre-Construction Well Assessment Program offered to local residents as part of the Bradford Bypass Project. Based on receipt of verbal permission from yourself, a sample of raw groundwater from your private well was collected for laboratory analysis by AECOM staff on May 31st, 2022. Please find attached a copy of the water quality testing results for your review and record.

Laboratory testing results for the sample obtained indicate that concentrations of certain parameters, as shown in the table below, are in excess of the *Ontario Drinking Water Standards, Objectives and Guidelines* (Ontario Ministry of the Environment, 2006). It should be noted, however, that these results are based on a single sample analysis and that additional testing is recommended.

PARAMETER	CONCENTRATION IN YOUR WATER	STANDARD VALUE / RANGE	STANDARD TYPE	HEALTH RELATED (Y / N)
Total Sodium	698 mg/L	20 mg/L	AO	N
Chloride	1270 mg/L	250 mg/L	AO	N
Apparent Colour	18.8 TCU	5 TCU	AO	N
Hardness (as CaCO ₃)	722 mg/L	80 - 100 mg/L	AO	N
Total Dissolved Solids	2660 mg/L	500 mg/L	AO	N

NOTE: AO – Aesthetic Objective; OG – Operational Guideline; TCU – True Colour Units.
mg/L = milligrams per Litre

The presence of sodium in excess of 20 mg/L should be considered for water users who are on a sodium-restricted diet which would warrant a follow-up with the Health Department and/or their physician.

For your information, the *Well Aware Booklet – A Guide To Caring For Your Well* created by Green Communities Canada is available on the Walkerton Clean Water Centre (WCWC) website at:

<https://wcwc.ca/well-aware-and-well-wise-program-resources-for-homeowners/>

Should you have any questions or concerns regarding the quality of your well water, it is recommended that you contact your local Public Health Unit for further information and advice. Contact information for your Local Public Health Unit is provided, as follows:

Simcoe Muskoka District Health Unit
80 Bradford St. #403
Barrie, ON L4N 6S7
Website: <https://www.simcoemuskokahealth.org/>
Telephone: 705.721.7520

If you have any further questions, please contact:

AECOM Canada Ltd. C/O Brian Holden, P.Geo.
Hydrogeology, Environment
Telephone: 226-821-2486
Email: brian.holden@aecom.com

Sincerely,
AECOM Canada Ltd.



Brian Holden, P.Geo.
Hydrogeologist
DCS Americas, Canada East (Greater Ontario / Metro Toronto)
Environment
Brian.holden@aecom.com

Encl.

cc: R. Sheikh, N. Valenton, S. Rankin, S.Schmied – AECOM;
H. Singh, L. Sarris, J. MacKinnon, R. Gribbon – MTO



Water Well Survey

Groundwater Supply Well Location – 3183 10 Sideroad

Project Name: Bradford Bypass – BBP Expansion

Project#: 60636190

Residence Address:

3183 10 Sideroad, Bradford, ON

Owner Information:

Owner Name: Manuel Marques

Phone Number: 905-716-3555

Email: manuelmarques2009@hotmail.com



Well Record

Coordinates (UTM).....611440E/4886620N
(NAD83 Zone17)

Type of Well..... Dug

Constructed (year)..... July 9, 1968

Well Location..... In backyard

Well Diameter.....0.76 m

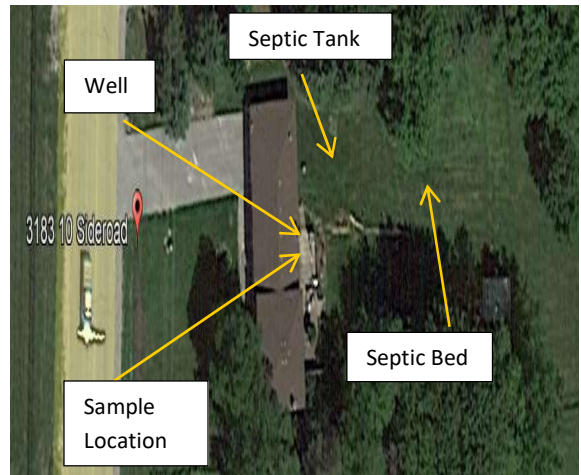
Well Depth.....11.89 m

Casing Condition.....Good

Water Usage.....Residential

Water Source.....Overburden

Static Water Level.....2.44 m



Water Quality & Well Testing

Past Water Quality Problems..... None

Potential Contamination Sources...None

Location of Septic Tank.....Downgrade in the back yard

Treatment System.....None

Recent Test Results.....None

Water Sampled.....Yes (May 31, 2022)

Sample Source..... Backyard tap (raw)

Appearance.....Clear

Comments:

- Curious about when the BBP construction will occur.

Quality Testing

Groundwater quality met the applicable standards for bacteriological, selected inorganic and metal parameters analyzed except for the following:

<i>Parameters</i>	<i>Test Results</i>	<i>Guideline/Standard</i>	<i>Criteria Type</i>
Total Sodium	698 mg/L	20 mg/L	AO
Chloride	1270 mg/L	250 mg/L	AO
Apparent Colour	18.8 TCU	5 TCU	AO
Hardness (as CaCO ₃)	722 mg/L	80 - 100 mg/L	AO
Total Dissolved Solids	2660 mg/L	500 mg/L	AO

Notes:

1. Criteria are from “*Ontario Drinking Water Standards*” (Ontario Regulation 169/03) and “*Technical Support Document for Ontario Drinking Water Standards, Objectives and Guidelines*” (MOE, June 2003, revised June 2006)
2. AO - Aesthetic Objectives (parameters that may impair the taste, odour or colour of water or which may interfere with good water quality)
3. mg/L – Milligrams per Litre
4. TCU – True Colour Units



**CLIENT NAME: AECOM CANADA LTD
50 SPORTSWORLD CROSSING RD UNIT 290
KITCHENER, ON N2P0A4
(519) 650-5313**

ATTENTION TO: Brian Holden

PROJECT: 60636190

AGAT WORK ORDER: 22T901602

MICROBIOLOGY ANALYSIS REVIEWED BY: Nivine Basily, Inorganics Report Writer

WATER ANALYSIS REVIEWED BY: Nivine Basily, Inorganics Report Writer

DATE REPORTED: Jun 08, 2022

PAGES (INCLUDING COVER): 14

VERSION*: 1

Should you require any information regarding this analysis please contact your client services representative at (905) 712-5100

***Notes**

Disclaimer:

- *All work conducted herein has been done using accepted standard protocols, and generally accepted practices and methods. AGAT test methods may incorporate modifications from the specified reference methods to improve performance.*
- *All samples will be disposed of within 30 days after receipt unless a Long Term Storage Agreement is signed and returned. Some specialty analysis may be exempt, please contact your Client Project Manager for details.*
- *AGAT's liability in connection with any delay, performance or non-performance of these services is only to the Client and does not extend to any other third party. Unless expressly agreed otherwise in writing, AGAT's liability is limited to the actual cost of the specific analysis or analyses included in the services.*
- *This Certificate shall not be reproduced except in full, without the written approval of the laboratory.*
- *The test results reported herewith relate only to the samples as received by the laboratory.*
- *Application of guidelines is provided "as is" without warranty of any kind, either expressed or implied, including, but not limited to, warranties of merchantability, fitness for a particular purpose, or non-infringement. AGAT assumes no responsibility for any errors or omissions in the guidelines contained in this document.*
- *All reportable information as specified by ISO/IEC 17025:2017 is available from AGAT Laboratories upon request.*



Certificate of Analysis

AGAT WORK ORDER: 22T901602

PROJECT: 60636190

5835 COOPERS AVENUE
MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
TEL (905)712-5100
FAX (905)712-5122
<http://www.agatlabs.com>

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Brian Holden

SAMPLING SITE:

SAMPLED BY:

Total Coliforms & E. Coli (Using MI Agar)

DATE RECEIVED: 2022-05-31

DATE REPORTED: 2022-06-08

Parameter	Unit	G / S	RDL	3183 10
SAMPLE DESCRIPTION: Sideroad SAMPLE TYPE: Water DATE SAMPLED: 2022-05-31 09:30				
Escherichia coli	CFU/100mL	0	0	0
Total Coliforms	CFU/100mL	0	0	3916758

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to O. Reg 169/03 - Ontario Drinking Water Quality Standards. Na value derived from O. Reg 248
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

3916758 Escherichia coli, Total Coliforms RDL = 1 CFU/100mL.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:



Nivine Basly



Certificate of Analysis

AGAT WORK ORDER: 22T901602

PROJECT: 60636190

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CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Brian Holden

SAMPLING SITE:

SAMPLED BY:

DRINKING WATER - Water Quality Assessment (mg/L)

DATE RECEIVED: 2022-05-31

DATE REPORTED: 2022-06-08

		SAMPLE DESCRIPTION: 3183 10		Sideroad	
		SAMPLE TYPE: Water			
		DATE SAMPLED: 2022-05-31		09:30	
Parameter	Unit	G / S: A	G / S: B	RDL	3916758
Electrical Conductivity	µS/cm			2	4590
pH	pH Units	6.5-8.5		NA	7.56
Hardness (as CaCO3) (Calculated)	mg/L	80-100		0.5	722
Total Dissolved Solids	mg/L	500		10	2660[>A]
Alkalinity (as CaCO3)	mg/L	30-500		5	438
Fluoride	mg/L		1.5	0.13	<0.13[<B]
Chloride	mg/L	250		1.2	1270[>A]
Nitrate as N	mg/L		10.0	0.36	2.40[<B]
Nitrite as N	mg/L		1.0	0.27	<0.27[<B]
Bromide	mg/L			0.28	<0.28
Sulphate	mg/L	500		0.95	83.5[<A]
Ortho Phosphate as P	mg/L			0.65	<0.65
Ammonia as N	mg/L			0.02	<0.02
Total Phosphorus	mg/L			0.02	<0.02
Total Organic Carbon	mg/L			0.5	2.0
Apparent Colour	TCU	5		2.50	18.8[>A]
Turbidity	NTU	5		0.5	<0.5[<A]
Total Calcium	mg/L			0.32	213
Total Magnesium	mg/L			0.34	46.2
Total Potassium	mg/L			1.15	4.03
Total Sodium	mg/L	200	20	0.45	698[>A]
Total Aluminum	mg/L	0.1		0.010	<0.010[<A]
Total Antimony	mg/L		0.006	0.003	<0.003[<B]
Total Arsenic	mg/L		0.01	0.003	<0.003[<B]
Total Barium	mg/L		1.0	0.002	0.309[<B]
Total Beryllium	mg/L			0.001	<0.001
Total Boron	mg/L		5.0	0.010	0.030[<B]
Total Cadmium	mg/L		0.005	0.001	<0.001[<B]

Certified By:



Nivine Basly



Certificate of Analysis

AGAT WORK ORDER: 22T901602

PROJECT: 60636190

5835 COOPERS AVENUE
MISSISSAUGA, ONTARIO
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<http://www.agatlabs.com>

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Brian Holden

SAMPLING SITE:

SAMPLED BY:

DRINKING WATER - Water Quality Assessment (mg/L)

DATE RECEIVED: 2022-05-31

DATE REPORTED: 2022-06-08

3183 10					
		SAMPLE DESCRIPTION: Sideroad			
		SAMPLE TYPE: Water			
		DATE SAMPLED: 2022-05-31 09:30			
Parameter	Unit	G / S: A	G / S: B	RDL	3916758
Total Chromium	mg/L		0.05	0.003	<0.003[<B]
Total Cobalt	mg/L			0.001	<0.001
Total Copper	mg/L	1		0.003	0.032[<A]
Total Iron	mg/L	0.3		0.010	0.016[<A]
Total Lead	mg/L		0.010	0.001	0.002[<B]
Total Manganese	mg/L	0.05		0.002	0.005[<A]
Total Mercury	mg/L		0.001	0.0001	<0.0001[<B]
Total Molybdenum	mg/L			0.002	<0.002
Total Nickel	mg/L			0.003	<0.003
Total Selenium	mg/L		0.05	0.002	<0.002[<B]
Total Silver	mg/L			0.002	<0.002
Total Strontium	mg/L			0.005	0.696
Total Thallium	mg/L			0.006	<0.006
Total Tin	mg/L			0.002	<0.002
Total Titanium	mg/L			0.010	<0.010
Total Tungsten	mg/L			0.010	<0.010
Total Uranium	mg/L		0.02	0.002	<0.002[<B]
Total Vanadium	mg/L			0.002	<0.002
Total Zinc	mg/L	5		0.020	0.044[<A]
Total Zirconium	mg/L			0.004	<0.004

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: A Refers to O. Reg 169/03 - Ontario Drinking Water Quality Standards - Aesthetic Objectives and Operational Guidelines, B Refers to O. Reg 169/03 - Ontario Drinking Water Quality Standards. Na value derived from O. Reg 248
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

3916758 Dilution required, RDL has been increased accordingly.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:



Ally Basch



Exceedance Summary

AGAT WORK ORDER: 22T901602

PROJECT: 60636190

5835 COOPERS AVENUE
MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
TEL (905)712-5100
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CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Brian Holden

SAMPLEID	SAMPLE TITLE	GUIDELINE	ANALYSIS PACKAGE	PARAMETER	UNIT	GUIDEVALUE	RESULT
3916758	3183 10 Sideroad	ON 169/03 AO&OG	DRINKING WATER - Water Quality Assessment (mg/L)	Apparent Colour	TCU	5	18.8
3916758	3183 10 Sideroad	ON 169/03 AO&OG	DRINKING WATER - Water Quality Assessment (mg/L)	Chloride	mg/L	250	1270
3916758	3183 10 Sideroad	ON 169/03 AO&OG	DRINKING WATER - Water Quality Assessment (mg/L)	Hardness (as CaCO3) (Calculated)	mg/L	80-100	722
3916758	3183 10 Sideroad	ON 169/03 AO&OG	DRINKING WATER - Water Quality Assessment (mg/L)	Total Dissolved Solids	mg/L	500	2660
3916758	3183 10 Sideroad	ON 169/03 AO&OG	DRINKING WATER - Water Quality Assessment (mg/L)	Total Sodium	mg/L	200	698
3916758	3183 10 Sideroad	ON 169/03 MAC/IMAC	DRINKING WATER - Water Quality Assessment (mg/L)	Total Sodium	mg/L	20	698

Quality Assurance

CLIENT NAME: AECOM CANADA LTD
PROJECT: 60636190
SAMPLING SITE:

AGAT WORK ORDER: 22T901602
ATTENTION TO: Brian Holden
SAMPLED BY:

Microbiology Analysis

RPT Date: Jun 08, 2022			DUPLICATE			Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD		Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper

Total Coliforms & E. Coli (Using MI Agar)

Escherichia coli	3916758	3916758	0	0	NA
Total Coliforms	3916758	3916758	0	0	NA

Comments: NA - % RPD Not Applicable.

Certified By:



Nivine Basily

Quality Assurance

CLIENT NAME: AECOM CANADA LTD
PROJECT: 60636190
SAMPLING SITE:

AGAT WORK ORDER: 22T901602
ATTENTION TO: Brian Holden
SAMPLED BY:

Water Analysis																
RPT Date: Jun 08, 2022			DUPLICATE				Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Measured Value		Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits		
								Lower	Upper		Lower	Upper		Lower	Upper	

DRINKING WATER - Water Quality Assessment (mg/L)															
Electrical Conductivity	3913596		321	325	1.2%	< 2	103%	90%	110%						
pH	3913596		7.66	7.75	1.2%	NA	102%	90%	110%						
Total Dissolved Solids	3916347		368	376	2.2%	< 10	98%	80%	120%						
Alkalinity (as CaCO3)	3913596		92	95	3.7%	< 5	97%	80%	120%						
Fluoride	3913753		<0.05	<0.05	NA	< 0.05	103%	70%	130%	105%	80%	120%	93%	70%	130%
Chloride	3913753		51.0	51.6	1.2%	< 0.10	97%	70%	130%	102%	80%	120%	106%	70%	130%
Nitrate as N	3913753		<0.05	<0.05	NA	< 0.05	95%	70%	130%	104%	80%	120%	105%	70%	130%
Nitrite as N	3913753		<0.05	<0.05	NA	< 0.05	98%	70%	130%	94%	80%	120%	103%	70%	130%
Bromide	3913753		<0.05	<0.05	NA	< 0.05	102%	70%	130%	103%	80%	120%	100%	70%	130%
Sulphate	3913753		76.2	75.5	1.0%	< 0.10	100%	70%	130%	100%	80%	120%	106%	70%	130%
Ortho Phosphate as P	3913753		<0.10	<0.10	NA	< 0.10	106%	70%	130%	97%	80%	120%	120%	70%	130%
Ammonia as N	3913753		<0.02	<0.02	NA	< 0.02	109%	70%	130%	99%	80%	120%	98%	70%	130%
Total Phosphorus	3916347		0.05	0.04	NA	< 0.02	99%	70%	130%	98%	80%	120%	100%	70%	130%
Total Organic Carbon	3916758	3916758	2.0	2.0	NA	< 0.5	96%	90%	110%	108%	90%	110%	101%	80%	120%
Apparent Colour	3915077		14.2	16.3	13.5%	< 2.5	106%	90%	110%						
Turbidity	3913753		9.6	9.6	0.7%	< 0.5	96%	80%	120%						
Total Calcium	3915077		271	264	2.6%	< 0.10	101%	70%	130%	102%	80%	120%	97%	70%	130%
Total Magnesium	3915077		78.9	77.1	2.3%	< 0.10	104%	70%	130%	104%	80%	120%	96%	70%	130%
Total Potassium	3915077		35.2	34.4	2.4%	< 0.50	103%	70%	130%	103%	80%	120%	94%	70%	130%
Total Sodium	3915077		451	439	2.7%	< 0.10	103%	70%	130%	103%	80%	120%	92%	70%	130%
Total Aluminum	3929053		0.755	0.818	8.0%	< 0.010	100%	70%	130%	107%	80%	120%	117%	70%	130%
Total Antimony	3929053		<0.003	<0.003	NA	< 0.003	100%	70%	130%	101%	80%	120%	101%	70%	130%
Total Arsenic	3929053		0.007	0.008	NA	< 0.003	92%	70%	130%	95%	80%	120%	96%	70%	130%
Total Barium	3929053		0.076	0.081	5.3%	< 0.002	100%	70%	130%	98%	80%	120%	105%	70%	130%
Total Beryllium	3929053		<0.001	<0.001	NA	< 0.001	101%	70%	130%	109%	80%	120%	100%	70%	130%
Total Boron	3929053		0.229	0.225	1.5%	< 0.010	100%	70%	130%	104%	80%	120%	101%	70%	130%
Total Cadmium	3929053		<0.001	<0.001	NA	< 0.001	101%	70%	130%	99%	80%	120%	92%	70%	130%
Total Chromium	3929053		0.004	0.004	NA	< 0.003	101%	70%	130%	102%	80%	120%	101%	70%	130%
Total Cobalt	3929053		0.003	0.003	NA	< 0.001	100%	70%	130%	101%	80%	120%	101%	70%	130%
Total Copper	3929053		0.008	0.008	NA	< 0.003	100%	70%	130%	98%	80%	120%	96%	70%	130%
Total Iron	3929053		1.96	2.05	4.7%	< 0.010	100%	70%	130%	103%	80%	120%	113%	70%	130%
Total Lead	3929053		0.014	0.015	6.1%	< 0.001	101%	70%	130%	98%	80%	120%	97%	70%	130%
Total Manganese	3929053		0.315	0.327	3.9%	< 0.002	100%	70%	130%	103%	80%	120%	109%	70%	130%
Total Mercury	3913753		<0.0001	<0.0001	NA	< 0.0001	105%	70%	130%	99%	80%	120%	99%	70%	130%
Total Molybdenum	3929053		0.013	0.014	6.8%	< 0.002	102%	70%	130%	101%	80%	120%	106%	70%	130%
Total Nickel	3929053		0.009	0.012	NA	< 0.003	101%	70%	130%	102%	80%	120%	102%	70%	130%
Total Selenium	3929053		0.009	0.009	NA	< 0.002	101%	70%	130%	105%	80%	120%	96%	70%	130%
Total Silver	3929053		<0.002	<0.002	NA	< 0.002	99%	70%	130%	99%	80%	120%	95%	70%	130%
Total Strontium	3929053		0.803	0.835	3.9%	< 0.005	99%	70%	130%	105%	80%	120%	107%	70%	130%

Quality Assurance

CLIENT NAME: AECOM CANADA LTD
 PROJECT: 60636190
 SAMPLING SITE:

AGAT WORK ORDER: 22T901602
 ATTENTION TO: Brian Holden
 SAMPLED BY:

Water Analysis (Continued)

RPT Date: Jun 08, 2022			DUPLICATE				Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Measured Value		Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits		
								Lower	Upper		Lower	Upper		Lower	Upper	
Total Thallium	3929053		<0.006	<0.006	NA	< 0.006	94%	70%	130%	105%	80%	120%	102%	70%	130%	
Total Tin	3929053		0.002	0.002	NA	< 0.002	100%	70%	130%	101%	80%	120%	103%	70%	130%	
Total Titanium	3929053		0.033	0.011	NA	< 0.010	97%	70%	130%	105%	80%	120%	109%	70%	130%	
Total Tungsten	3929053		<0.010	<0.010	NA	< 0.010	87%	70%	130%	87%	80%	120%	91%	70%	130%	
Total Uranium	3929053		0.003	0.003	NA	< 0.002	92%	70%	130%	108%	80%	120%	108%	70%	130%	
Total Vanadium	3929053		0.003	0.004	NA	< 0.002	100%	70%	130%	104%	80%	120%	106%	70%	130%	
Total Zinc	3929053		0.076	0.080	NA	< 0.020	105%	70%	130%	109%	80%	120%	104%	70%	130%	
Total Zirconium	3929053		<0.004	<0.004	NA	< 0.004	102%	70%	130%	100%	80%	120%	104%	70%	130%	

Comments: NA Signifies Not Applicable
 Duplicate NA: results are under 5X the RDL and will not be calculated.

DRINKING WATER - Water Quality Assessment (mg/L)

Ammonia as N	3916843	3916843	1.59	1.61	1.3%	< 0.02	104%	70%	130%	101%	80%	120%	NA	70%	130%
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Comments: NA Signifies Not Applicable
 Duplicate NA: results are under 5X the RDL and will not be calculated.

Certified By:



Nivine Basily



Method Summary

CLIENT NAME: AECOM CANADA LTD

AGAT WORK ORDER: 22T901602

PROJECT: 60636190

ATTENTION TO: Brian Holden

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Microbiology Analysis			
Escherichia coli	MIC-93-7010	EPA 1604	Membrane Filtration
Total Coliforms	MIC-93-7010	EPA 1604	Membrane Filtration

Method Summary

CLIENT NAME: AECOM CANADA LTD
AGAT WORK ORDER: 22T901602
PROJECT: 60636190
ATTENTION TO: Brian Holden
SAMPLING SITE:
SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Water Analysis			
Electrical Conductivity	INOR-93-6000	modified from SM 2510 B	PC TITRATE
pH	INOR-93-6000	modified from SM 4500-H+ B	PC TITRATE
Hardness (as CaCO ₃) (Calculated)	MET-93-6105	modified from EPA SW-846 6010C & 200.7 & SM 2340 B	CALCULATION
Total Dissolved Solids	INOR-93-6028	modified from EPA 1684, ON MOECC E3139, SM 2540C, D	BALANCE
Alkalinity (as CaCO ₃)	INOR-93-6000	Modified from SM 2320 B	PC TITRATE
Fluoride	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Chloride	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Nitrate as N	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Nitrite as N	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Bromide	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Sulphate	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Ortho Phosphate as P	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Ammonia as N	INOR-93-6059	modified from SM 4500-NH ₃ H	LACHAT FIA
Total Phosphorus	INOR-93-6022	modified from SM 4500-P B and SM 4500-P E	SPECTROPHOTOMETER
Total Organic Carbon	INOR-93-6049	modified from SM 5310 B	SHIMADZU CARBON ANALYZER
Apparent Colour	INOR-93-6074	modified from SM 2120 B	LACHAT FIA
Turbidity	INOR-93-6044	modified from SM 2130 B	NEPHELOMETER
Total Calcium	MET-93-6105	modified from EPA 6010D	ICP/OES
Total Magnesium	MET-93-6105	modified from EPA 6010D	ICP/OES
Total Potassium	MET-93-6105	modified from EPA 6010D	ICP/OES
Total Sodium	MET-93-6105	modified from EPA 6010D	ICP/OES
Total Aluminum	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Antimony	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Arsenic	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Barium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Beryllium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Boron	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Cadmium	MET -93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Chromium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Cobalt	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Copper	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Iron	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Lead	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Manganese	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Mercury	MET-93-6100	modified from EPA 245.2 and SM 3112 B	CVAAS

Method Summary

CLIENT NAME: AECOM CANADA LTD
AGAT WORK ORDER: 22T901602
PROJECT: 60636190
ATTENTION TO: Brian Holden
SAMPLING SITE:
SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Total Molybdenum	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Nickel	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Selenium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Silver	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Strontium	INOR-93-6003	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Thallium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Tin	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Titanium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Tungsten	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Uranium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Vanadium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Zinc	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Zirconium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS

JTM 172 6111440
4R 488620



5705458
3 9

Elev. 5TR 09570
Basin SB 221

WATER WELL RECORD

The Ontario Water Resources Commission Act

County or District Simcoe Township, Village, Town or City West Gwillimbury
Con. 8 (10 sideroad) Lot 11 Date completed 9 July 1968
(day month year)
Address Box 706, BRADFORD, ONT.

Casing and Screen Record

Inside diameter of casing 30 inches
Total length of casing 39 ft.
Type of screen
Length of screen
Depth to top of screen
Diameter of finished hole 30 inches

Pumping Test

Static level 8 ft.
Test-pumping rate 1 1/2 G.P.M.
Pumping level
Duration of test pumping
Water clear or cloudy at end of test clear
Recommended pumping rate 1 1/2 G.P.M.
with pump setting of 37 feet below ground surface

Well Log

Water Record

Overburden and Bedrock Record	From ft.	To ft.	Depth(s) at which water(s) found	Kind of water (fresh, salty, sulphur)
top soil	0	2	30	fresh
sandy clay	2	14		
sandy stoney blue clay	14	39		

For what purpose(s) is the water to be used? house

Is well on upland, in valley, or on hillside? upland

Drilling or Boring Firm J. F. KILCHING & SON LTD.,

Address HOLLAND LANDING, ONT.

Licence Number 140

Name of Driller or Borer DAVE DRAFER,

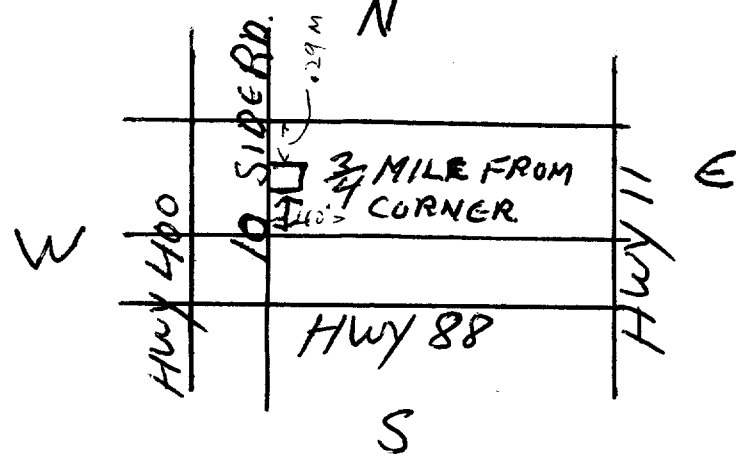
Address KESWICK, ONT.

Date Aug. 26, 1968

(Signature of Licensed Drilling or Boring Contractor)

Location of Well

In diagram below show distances of well from road and lot line. Indicate north by arrow.



Water Well Survey

AECOM

Well I.D. #: _____ AECOM Project No.: _____
 MECP WWR #: _____ Client Project No.: _____

Well Owner Information:

Property Owner Name:	Mamed Marques		
Property Address:	3183 Tenth Sideroad, Bradford, ON. L3Z3V4		
Telephone:	905-716-3555	Email:	mamedmarques@hotmail.com
Name of Person Completing Survey:	No survey		
Telephone:		Email:	
Relationship to Property Owner:		Date of Survey Completion:	
Name of Original Well Owner: (if known/different from above)			

Occupant of Property Served by Well: (if other than Owner)

Name:			
Telephone:		Email:	
Address:			

Well Location:

Lot:		Concession:		Township:	
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Well Construction Details:

Well Record Available?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Date Well Constructed:		Well Contractor Name:	
Well Type: (Drilled / Bored / Dug)		Casing Material: (Steel, Concrete, etc.)		Well Casing Diameter:	
Well Stick Up: (Above Ground)		Well Depth: (Below Ground)		Water Level: (Below Ground)	
Is Well Located in a Well Pit?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Well Pit Depth: (Below Ground)		Well Stick Up: (Above Pit Bottom)	
Is Well Flowing?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Flow Rate:		Contractor:	
Well Cap Type:		Does Cap Create a Good Seal?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Is Wire Conduit Tight to Well Cap?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Is the Well:	Accessible for Direct Sampling?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	OR	Buried, In a Well Pit, or Other Confined Space?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Well Screen Installed?	<input type="checkbox"/> Yes <input type="checkbox"/> No	If Yes, Length & Slot Size:		Depth of Top of Screen: (Below Ground)	

Water Well Survey

AECOM

Well I.D. #: _____ AECOM Project No.: _____
 MECP WWR #: _____ Client Project No.: _____

Pumping Equipment:

Pump Type:	<input checked="" type="checkbox"/> Jet Pump <input type="checkbox"/> Submersible <input type="checkbox"/> Piston Pump <input type="checkbox"/> Other (please describe):			
Pump Horsepower:	1/2	Pump Age:	3 years	Pumping Capacity:
Pump Intake Depth: (Below Ground)		Pump Location: (If Not in Well)	inside the house	Pumping Rate: (If Known)
Pressure Tank:	Type:	Hydro Pro		Capacity:
Water Treatment: (if present)	<input type="checkbox"/> Chlorinator <input type="checkbox"/> Water Softener <input type="checkbox"/> Water Filter (indicate type) <u>None.</u> <input type="checkbox"/> U.V. <input type="checkbox"/> R.O. <input type="checkbox"/> Other (please describe):			

Well Usage:

Primary Use(s):	Domestic:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Livestock:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Lawn Watering:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
# of Persons Using Well:	2	#of Livestock Watered:	—	Other Uses:	—	Daily Amount: (if known)
Indoor Plumbing Fixtures: (Washroom(s), Shower(s), Dishwasher, Laundry, Pool, Spa, etc.)						

Sewage Servicing:

Private Sewage System or Municipal:	No	System Type: (septic tank, etc.)	Septic tank	Distance from Well:	60 ft.
Well Location:	<input type="checkbox"/> Uphill <input type="checkbox"/> Downhill <input type="checkbox"/> Same Grade				
Presence of Any Above Ground Storage Tank or Other Potential Source(s) of Contamination: (including distance on / off property)			NO		

Previous Concerns:

How Long Have You Owned, Resided, or Operated a Business on this Property?	8 years		
Have You Experienced Any Previous Concerns with Your Well Supply? (Quantity or Quality)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If Yes, When?	
Cause(s) of the Previous Concern?	<input type="checkbox"/> Drought <input type="checkbox"/> Pump Failure <input type="checkbox"/> Plugging <input type="checkbox"/> Increased Usage <input type="checkbox"/> Interference <input type="checkbox"/> Contamination <input type="checkbox"/> Other (Please describe): <u>None</u>		

Water Well Survey

AECOM

Well I.D. #: _____ AECOM Project No.: _____
MECP WWR #: _____ Client Project No.: _____

Well Modification / Maintenance:

Has Your Well Ever Been...	Deepened?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Cleaned?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Reconstructed or Replaced?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
If Yes to Any of the Above, Please Provide Details:						

Other Details:

Other Details that May be Relevant to Assessing the Current Condition of Your Well Supply:

Property Owner Participation in Monitoring Program:

Does the Property Owner and/or Occupant Grant Permission for MTO/AECOM to Monitor and/or Sample Your Well?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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Mamed Marques
Property Owner / Occupant Name
(Please Print in BLOCK letters)


Signature

13/05/2020
Date

Water Well Survey

AECOM

Well I.D. #: _____ AECOM Project No.: _____
 MECP WWR #: _____ Client Project No.: _____

Field Visit Log (To Be Completed by AECOM Staff)

General Details:

Project Name:	BPP	Project No.:	60636190
Address:	3183 10 Sideroad	Inspected By:	DP
Date:	05/31/24	Time:	9:15
Weather:	Sunny		
Easting:	44.1262675	Northing:	-79.6062614
Datum:			

Well Details:

Is Well Accessible for Inspection?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If No, Provide Reason:	
MECP Water Well Record No.:		Date Well Constructed:	Contractor Name:
Well Type: (Drilled / Bored / Dug)	Dug	Well Stick Up: (Above Ground)	~ 0.26 m.
Casing Material: (Steel, Concrete, etc.)	Concrete		
Well Located in a Well Pit?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Well Pit Depth: (Below Ground)	Well Stick Up: (Above Pit Bottom)
Well Casing Diameter:		Well Depth: (Below Ground)	Groundwater Level: (Below Ground)
			2.05 m below
Pump On / Off?	<input type="checkbox"/> On <input type="checkbox"/> Off	Water Level Condition:	<input checked="" type="checkbox"/> Stable (Static) <input type="checkbox"/> Declining (Drawdown) <input type="checkbox"/> Rising (Recovery)
Flowing Well?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Flow Rate: (Estimated)	Well Cap Type:
Well Screen Installed?	<input type="checkbox"/> Yes <input type="checkbox"/> No	If Yes, Length & Slot Size:	Top of Screen: (Below Ground)
Is There a Depression Around the Well Casing Exterior?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Photo(s) of Well Obtained?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

Observation(s) Summary:

→ Owner has completed several GW sampling in the past; Quality isn't good for drinking; only uses for showers, washing dishes, etc.

→ well located in backyard; near wooden deck

→ ran the tap for 2-3 min (~ 2L) before collecting samples.

→ Owner is not concerned about construction/BPP project at all. (they are in favour of it).

→ no issues with their water.

Water Well Survey

AECOM

Well I.D. #: _____ AECOM Project No.: _____
 MECP WWR #: _____ Client Project No.: _____

Water Quality Sampling:

Water Quality Sample Obtained?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If No, Provide Reason:	—
Sampling Location:	Backyard tap	Raw or Treated Sample?	Raw
Disinfected Sample Port?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Disinfection Method:	Clorox
Photo of Sample Obtained? (against white background)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If No, Provide Reason:	—

Analyte Suite:	ODWQL		
Sample I.D.:	3183 10 sideroad	Date / Time of Sampling:	9:30 Am
		Number of Sample Bottles:	8

Field Water Quality Parameters: (record units)			
Temperature:	17.15 C	pH:	7.94
		Conductivity:	4.26 ms/cm
Turbidity:	0.0 NTU	D.O.:	17.79 mg/L
		Colour:	0.1 ppm 156
Odours?	2.73 SIL	Appearance/Odour:	clean

Type of Concern: (if applicable)	<input type="checkbox"/> Water Quantity <input type="checkbox"/> Water Quality (Note any differences in taste, odour, colour or clarity)
If the concern was contamination what changes were apparent to water quality?	—
Were there any effects of this concern?	—
What action was taken to overcome this concern?	—

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 105 Commerce Valley Drive West, 7th Floor
 Markham, ON L3T 7W3
 Canada

T: 905.886.7022
 F: 905.538.8076
 www.aecom.com

Water Well Survey

AECOM

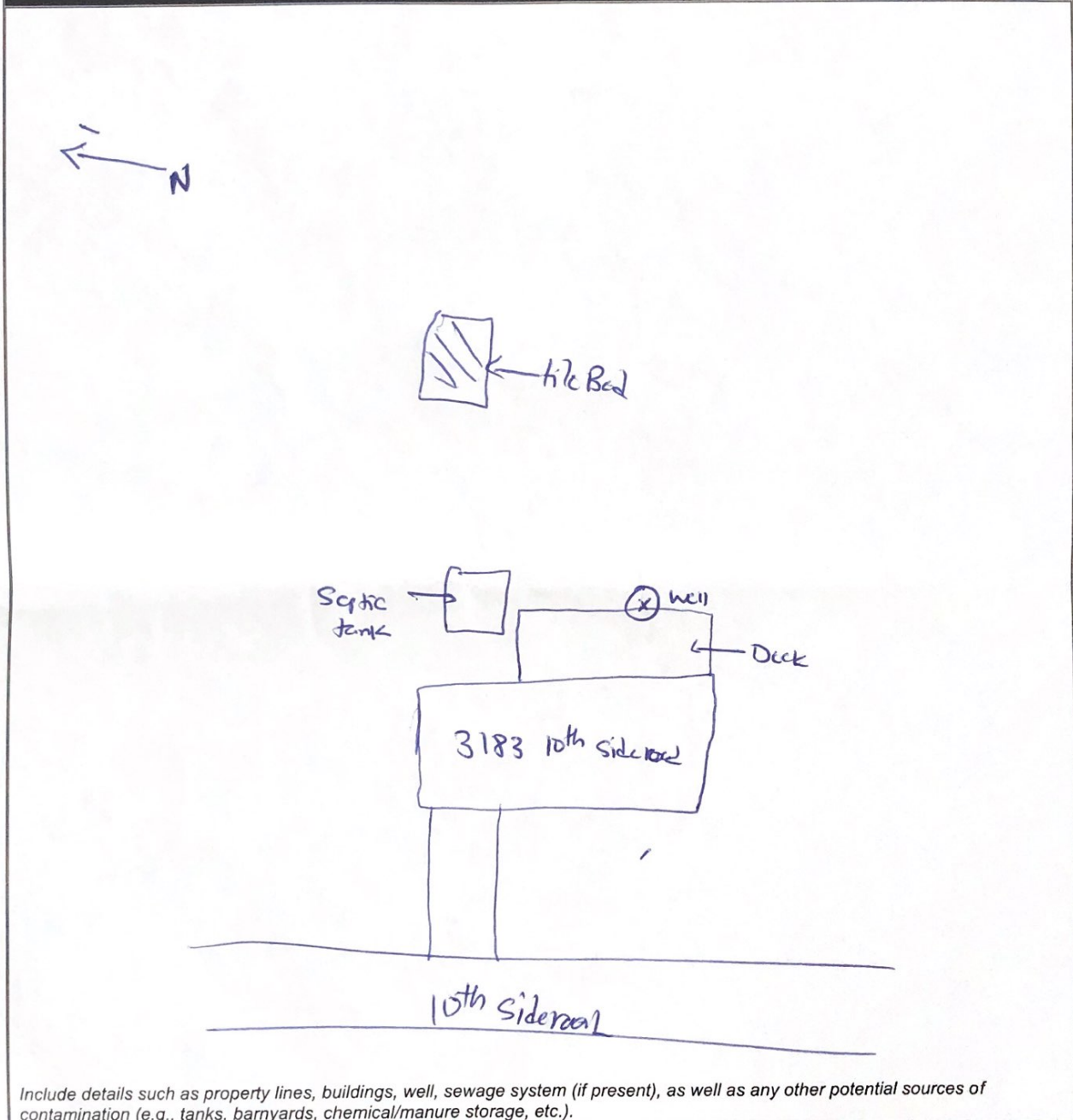
Well I.D. #: _____

AECOM Project No.: _____

MECP WWR #: _____

Client Project No.: _____

Location Sketch (To be Completed by Property Owner / Occupant)



Include details such as property lines, buildings, well, sewage system (if present), as well as any other potential sources of contamination (e.g., tanks, barnyards, chemical/manure storage, etc.).

DP 05/31/22

* Drawing completed by DP

DHANISH
PARIKH

- based on information provided by owner.

Brian Holden, P.Geo.
Hydrogeologist, Environment
Brian.Holden@aecom.com

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