SOSCIA
PROFESSIONAL ENGINEERS INC.





10376YongeStreet•Suite307•RichmondHill•Ontario•L4C3B8•T:905•237•5410,F:905•237•5413

FUNCTIONAL SERVICING REPORT

PROPOSED INDUSTRIAL WAREHOUSE

10533 KEELE STREET
CITY OF VAUGHAN, ONTARIO

York Region File - SP.23.V.0097
4th Submission

14th OCTOBER, 2026

SOSCIA PROJECT # 24-020





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Appendix D - Sanitary Demand Calculations
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1.0 INTRODUCTION

SOSCIA Professional Engineers Inc. is retained by the owner of the property to undertake the Servicing and Stormwater Management (SWM) design for the proposed site development. The purpose of this report is to present the storm sewer, sanitary sewage disposal, water distribution and appropriate SWM measures to mitigate the impact of post development storm runoff from the proposed development.

2.0 STUDY AREA

Municipal address of the site is 10533 Keele Street, Vaughan, Ontario. Site is located at north east corner of Keele Street and Drummond Dr. in the City of Vaughan. The total area of the property is approximately 0.22 ha. (Refer Key Plan in Figure 1).

A legal and topographic survey has been prepared by KRCMAR SURVEYORS LTD., dated 17th of August 2022 which identifies the site as part of Lot 24 Concession 3 in the City of Vaughan under Municipality of York.



Figure 1 – Key Plan

3.0 PROPOSED DEVELOPMENT

The subject land is proposed to develop an Industrial Warehouse with finished floor elevation of 258.55. The proposed finished floor elevation is above highest water level (HWL) of proposed parking lot ponding for 100 year rainfall event of 258.35. Grades around the site are proposed to be matched at the boundary limits.



Figure 2 - Existing Site Conditions

4.0 EXISTING TOPOGRAPHY AND DRAINAGE PATTERN

The total site area is approximately 0.22 ha. At present time, shown in Figure 2, the site contains an existing building and surface is mainly covered with concrete. The topographical survey plan (Refer: Appendix A – Topographical Survey Plan) indicates that the site is sloped from north towards south limit. The highest elevation of the property is 258.87 m, at the north side and it goes down to 257.59m at south side at a slope of approximately 4.9%.





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5.0 STORMWATER MANAGEMENT

5.1 DESIGN CRITERIA

SWM Criteria for the proposed development site was determined based on following guidelines and manuals:

- Stormwater Management Planning and Design Manual, MECP, 2003
- Engineering Design Criteria and Standard Drawings (EDCSD), City of Vaughan
- York Region Road Design Guidelines, January 2023

The criteria for the proposed development are summarized below:

- **Water Quantity Control** - As per York Region guidelines, 100 year Post Development Flows from the site to be controlled to 5 year Pre-Development flow rate

- **Water Quality Control -** –Stormwater discharged from the post-development site are required to meet an enhanced level of Ministry of the Environment, Conservation and Parks guidelines (80% TSS removal);

- **Erosion and Sediment Control** – Potential erosion during construction to be assessed using methods described in "Erosion and Sediment Control Guideline for Urban Construction (December 2006)" of temporary erosion and sediment control measures suitable for construction sites.

5.2 Proposed Servicing:-

Post-Development flows upto 100 years have been controlled to allow stornwater at release rate of 6 l/s with the help of 375-CF75-A Vortex flow regulator proposed upstream of control MH No.11.A Jellyfish filter model JF4 is proposed to achieve 80% removal of Total Suspended Solids (TSS) to substantially improve the water quality of the stormwater leaving the site.The stormwater after quality and quantity control will be discharged into existing CBMH along 600mm municipal storm sewer running along the Keele Street.




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6.0 WaterSupply:

6.1 Existing Infrastructure:-

The proposed development area is located in Pressure District Zone 7. Existing watermains in the vicinity of the site include the following:

- 300 mm diameter watermain along Keele Street
- 450 mm Regional diameter watermain along Keele Street
- 900 mm Regional diameter watermain along Keele Street

For water service, the existing building uses a 50mm diameter pipe connected from 300mm diameter water main that runs along Keele Street.

6.2 Design Criteria:-

The water demand calculations are based on following City of Vaughan's guidelines. The water demand should be equal to the Fire Flow Demand plusthe Maximum Day Demand or the Peak Hour Demand, whichever is greater. The followingassumptions were used for demand calculations:

Typical Water Demand Criteria:

- Average DailyDemand rate - 300 L/cap/day
- Maximum Day demand factor -1.8
- Peak Hour demand factor -3
- Fire Flow Demand for industrial building as per City's design criteria - 17 l/s

6.3 Water Demand:-

The anticipated water supply needs are summarized in Table below. Please refer to Appendix B for detailed calculations.

Expected Population	Average Day Demand (l/s)	Maximum Day Demand (l/s)	Peak Hour Demand (l/s)	Fire Flow Demand* (l/s)	Fire Flow + Max Day* (l/s)
31	0.11	0.19	0.32	17	17.19

*The proposed building is sprinklered.

6.4 Fire Hydrant Flow Test:-

The Hydrant flow test conducted by Sparkman shows a residual flow of 1267GPM (79.93 l/s) which is sufficient as per the requirement. Please refer to flow test results in Appendix C.

6.5 Proposed Water Supply Servicing:-

Water supply for the proposed industrial building will be provided using the existing 50mm connection only. A separate 250 mm fire service line is proposed to supply the building's sprinkler system. Please refer to servicing plan in Appendix A.




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7.0 Construction Dewatering

As per the Hydrogeological Assessment prepared by GHD (Appendix E), construction-related groundwater takings for utility services excavation are estimated at up to 45,660 L/day (including a 3× safety factor), with typical rates around 15,200 L/day. These are below the 400,000 L/day EASR threshold, and EASR registration is not anticipated. Please refer to Hydrogeological assessment report in Appendix E for more details.

8.0 Sanitary Servicing:

8.1 Existing Infrastructure:-

The proposed development area is tributary to Maple-Langstaff sanitary collector system. There is a 300 mm diameter municipal sewer along the Keele Street. A 150mm diameter sanitary pipe from existing building already connects this municipal sewer.

8.2 Design Criteria:-

The sanitary sewer design and flow calculations are based on following City of Vaughan's guidelines:-

- Domestic sewage flow rate for residential area is 370 L/cap/day.
- Infiltration rate is 0.26 L/s/ha of gross area.
- Harmon Peaking Factor, K is $1 + 14/(4 + P^{0.5})$, where P is population in thousands

8.3 Sanitary Demand:-

The anticipated sewage flows were estimated using City of Vaughans Criteria and summarized in table below. Please refer to Appendix D for detailed calculations.

Design Population	Average Flow (l/s)	Infiltration Allowance (l/s)	Peak Flow (l/s)	Total Flow
31	0.13	0.06	0.53	0.59

8.4 Proposed Servicing:-

The proposed industrial building will be serviced with proposed 200mm sanitary pipe which will connect to 300 mm sanitary main along Keele Street. The existing 150mm sanitary sewer will be decommossioned. Please refer to servicing plan in Appendix A.





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9.0 SUMMARY & CONCLUSIONS

Presently, the existing building is fully serviced with municipal water and sanitary. The existing building will be modified to addition of an industrial warehouse on the west side. The proposed development will continue to use existing service connection

Sanitary Service:

The proposed industrial building will be serviced with proposed 200mm sanitary pipe which will connect to 300 mm sanitary main along Keele Street.

Water Service:

For water service, the existing building uses a 50mm diameter pipe connected from 300mm diameter City of Vaughan's water main that runs along Keele Street. A separate 250 mm fire service line is proposed to supply the building's sprinkler system. The water services to the proposed industrial building will be provided using the existing connection.

Stormwater Drainage:

The stormwater management plan for the site involves a 375mm storm connection to the 600mm regional sewer, with a flow rate restricted to 6 L/s by a 375-CF75-A Vortex flow regulator at control manhole MH11. On-site storage, including a combination of underground tanks, pipes, and surface ponding, will manage runoff from up to 100-year storm events. Additionally, a JF4 Jellyfish OGS filter will be implemented to achieve 80% TSS removal, enhancing water quality before discharging into the existing CBMH along Keele Street. This comprehensive system effectively manages both stormwater quantity and quality, ensuring compliance with regulatory requirements and minimizing environmental impact.

PREPARED BY:

Yours truly,

Sandro Soscia, P. Eng.
SOSCIA Professional Engineers Inc.





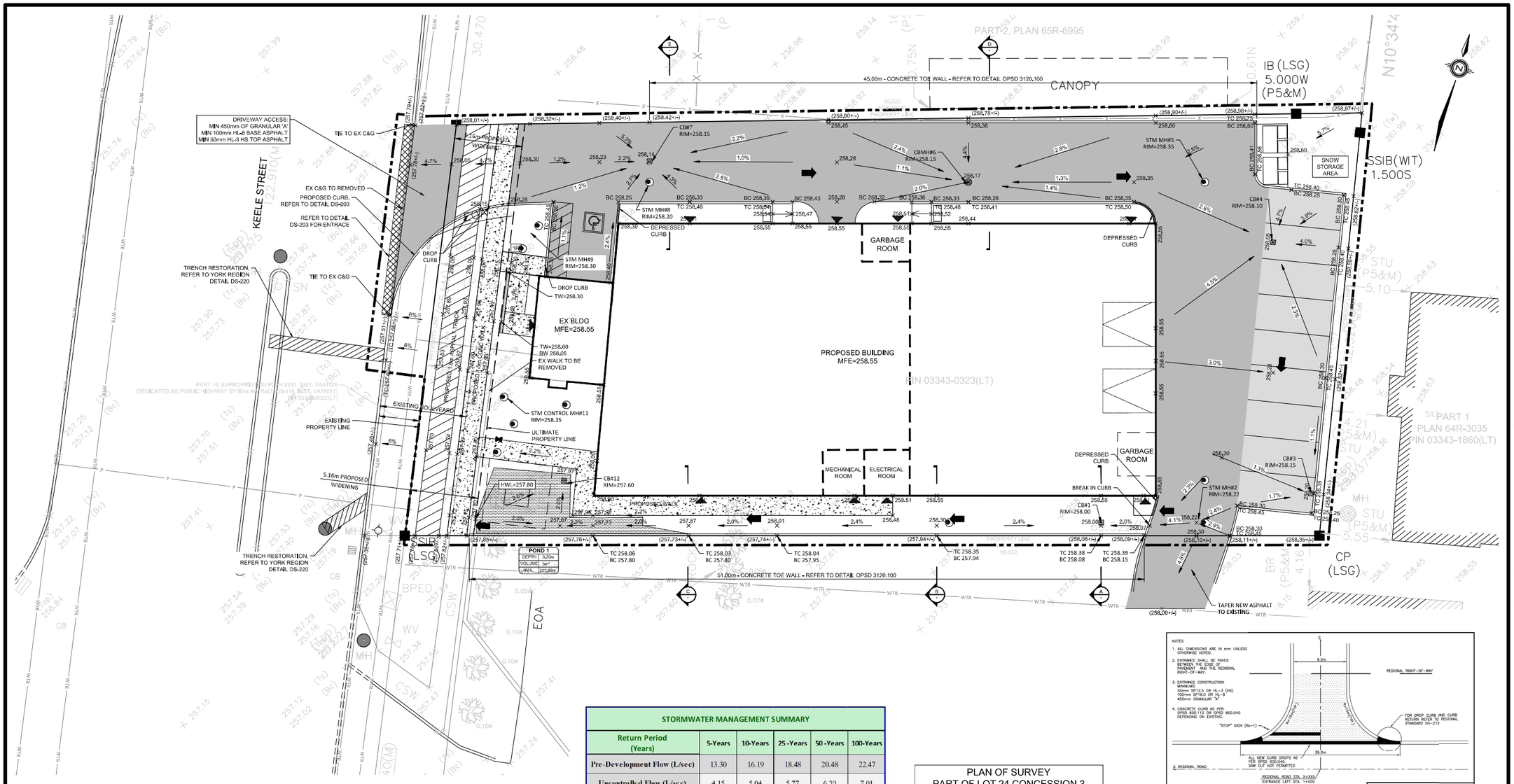


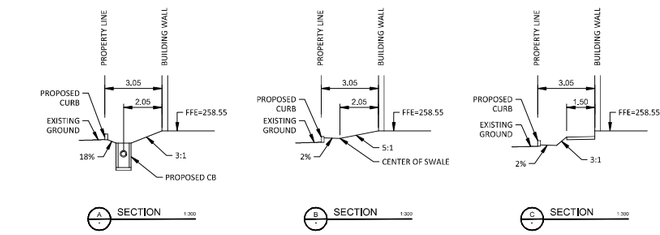


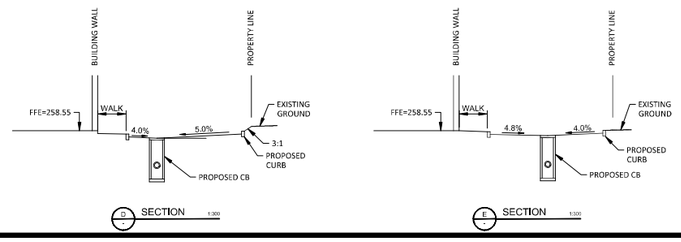
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APPENDIX

Appendix A
Drawings







STORMWATER MANAGEMENT SUMMARY					
Return Period (Years)	5-Years	10-Years	25-Years	50-Years	100-Years
Pre-Development Flow (L/sec)	13.30	16.19	18.48	20.48	22.47
Uncontrolled Flow (L/sec)	4.15	5.04	5.77	6.39	7.01
Post-Development Flow (L/sec)	42.71	52.00	59.37	65.78	72.18
Allowable Flow (L/sec)	6.29				
Vortex Controlled Flow (L/sec)	6				

PLAN OF SURVEY
PART OF LOT 24 CONCESSION 3
CITY OF VAUGHAN
REGIONAL MUNICIPALITY OF YORK

NOTES:

1. BEARINGS SHOWN HEREON ARE ASTRONOMIC AND ARE REFERRED TO THE EASTERLY LIMIT OF KEELE STREET AS SHOWN ON EXPROPRIATION PLAN 8291, INST. VA61426 HAVING A BEARING OF N09°12'10"W.
2. ELEVATIONS SHOWN HEREON ARE GEODETIC AND ARE RELATED TO CITY OF VAUGHAN BENCH MARK No. 105090140 HAVING AN ELEVATION OF 240.744 METRES.

ROADWORKS NOTES:

1. ENTRANCE DRIVEWAYS SHALL BE CONSTRUCTED WITH HEAVY DUTY ASPHALT FROM THE BACK OF THE MUNICIPAL CURB OR EDGE OF PAVEMENT TO THE PROPERTY LINE (AREA HIGHLIGHTED ON DRAWING(S)) IN ACCORDANCE WITH THE FOLLOWING SPECIFICATIONS:
   - 50mm COMPACTED DEPTH OF HL3 ASPHALT - TOP COURSE
   - 100mm COMPACTED DEPTH OF HL8 ASPHALT - BINDER COURSE
   - 150mm COMPACTED DEPTH OF 20 MM CRUSHER-RUN LIMESTONE - GRANULAR BASE
   - 300mm COMPACTED DEPTH OF 50 MM CRUSHER-RUN LIMESTONE - GRANULAR SUB-BASE
2. THE SURFACE OF ALL LOADING SPACES AND RELATED DRIVEWAYS, PARKING SPACES, AND MANEUVERING AREAS WITHIN THE SITE SHALL BE PAVED WITH A HARD SURFACE. THE MINIMUM DEPTH REQUIREMENTS ARE AS FOLLOWS, OR AS SPECIFIED BY GEOTECHNICAL ENGINEER:
   - 40mm COMPACTED DEPTH HL3 ASPHALT - TOP COURSE
   - 150mm COMPACTED DEPTH 20 MM CRUSHER-RUN LIMESTONE - GRANULAR BASE
   - 200mm COMPACTED DEPTH 50 MM CRUSHER-RUN LIMESTONE - GRANULAR SUB-BASE
3. FOR CONDOMINIUM UNIT DRIVEWAYS, THE MINIMUM DEPTH REQUIREMENTS ARE AS FOLLOWS, OR AS SPECIFIED BY GEOTECHNICAL ENGINEER:
4. 25mm COMPACTED DEPTH HL3 ASPHALT TOP COURSE (TOP COURSE ASPHALT SHALL NOT BE PLACED UNTIL THE BASE COURSE ASPHALT HAS BEEN IN PLACE FOR ONE WINTER SEASON. OTHER HARD SURFACES MAY BE INSTALLED AS APPROVED BY THE CITY.)
5. 50mm COMPACTED DEPTH HL8 ASPHALT BASE COURSE
6. 200mm COMPACTED DEPTH 20 MM CRUSHER-RUN LIMESTONE BASE
7. ALL CONCRETE CURB FROM EXISTING ROAD CURB TO STREET LINE SHALL BE BARRIER CURB OPSD 600.110. ALL CONCRETE CURB HEIGHTS SHALL BE 150mm UNLESS OTHERWISE NOTED. ENTRANCE DRIVEWAY CURB TO BE DISCONTINUOUS AT SIDEWALK AND TAPERED BACK 600mm MINIMUM.
8. ALL REQUIRED CURB CUTTING AT ENTRANCE DRIVEWAY AND CURB DEPRESSIONS AT SIDEWALK CROSSINGS SHALL BE INSTALLED TO THE SATISFACTION OF THE CITY.
9. EXISTING ROADWAY CURB AND GUTTER TO BE CONTINUOUS THROUGH THE PROPOSED NEW DRIVEWAY ENTRANCE(S) ALONG WITH THE MUNICIPAL SIDEWALK.
10. SIDEWALK TO BE 200 MM THICK THROUGH DRIVEWAY ENTRANCE PER CITY STANDARD R-128 AND TO INCLUDE TACTILE INDICATORS IN ACCORDANCE WITH YORK REGION STANDARD.
11. ENTRANCE DRIVEWAYS SHALL BE SETBACK A MINIMUM CLEARANCE OF 1.0m FROM ALL ABOVEGROUND SERVICES OR OTHER OBSTRUCTIONS.
12. PAVEMENT GRADES: MIN. 0.5%; MAX 5%.

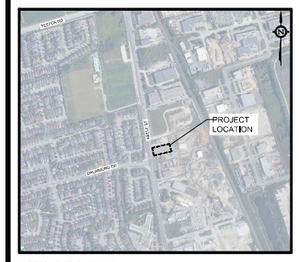
GENERAL NOTES:

1. STANDARD DRAWINGS OF THE CITY OF VAUGHAN CONSTITUTE PART OF THESE DRAWING(S).
2. ALL CONSTRUCTION WORK TO BE CARRIED OUT IN ACCORDANCE WITH THE REQUIREMENTS OF THE OCCUPATIONAL HEALTH AND SAFETY ACT AND REGULATIONS FOR CONSTRUCTION PROJECTS.
3. THE OWNER SHALL RETAIN THE SERVICES OF HIS CONSULTANTS TO ENSURE REQUIRED INSPECTION REPORTS AND OR CERTIFICATION REQUIREMENTS ARE SUBMITTED TO THE DEVELOPMENT ENGINEERING DEPARTMENT AND OTHER AFFECTED CITY DEPARTMENTS.
4. THE OWNER AND/OR HIS REPRESENTATIVE SHALL RECTIFY ALL DISTURBED AREAS TO ORIGINAL CONDITION OR BETTER AND TO THE SATISFACTION OF THE CITY.
5. THE LOCATION OF ALL UNDERGROUND/ABOVE GROUND UTILITIES AND STRUCTURES IS APPROXIMATE ONLY AND WHERE SHOWN ON THE DRAWING(S) THE ACCURACY OF THE LOCATION OF SUCH UTILITIES IS NOT GUARANTEED. THE OWNER AND/OR HIS REPRESENTATIVE SHALL DETERMINE THE LOCATION OF ALL SUCH UTILITIES AND STRUCTURES BY CONSULTING THE APPROPRIATE AUTHORITIES OR UTILITY COMPANIES CONCERNED. THE OWNER SHALL PROVE THE LOCATION OF SUCH UTILITIES AND STRUCTURES AND SHALL ASSUME ALL LIABILITY FOR DAMAGE OR RESTORATION OR ADJUSTMENT FOR THE SAME.
6. ANY CONFLICTS WITH EXISTING SERVICES SHALL BE RECTIFIED AT THE OWNER'S EXPENSE.
7. APPROPRIATE CONSTRUCTION DETAILS SHOULD BE PROVIDED FOR RETAINING WALLS HIGHER THAN 1.0 M. DETAILS SHALL BE DESIGNED AND CERTIFIED BY A PROFESSIONAL ENGINEER UPON APPROVAL. HANDRAIL/GUARD/FENCE IS REQUIRED WHEN HEIGHT EXCEEDS 0.60 M (AS PER CITY STANDARD DRAWING FRW-105 OR APPROVED EQUAL), UPON COMPLETION. RETAINING WALLS GREATER THAN 1.0 M TO BE CERTIFIED BY A STRUCTURAL AND GEOTECHNICAL ENGINEERS.
8. LANDSCAPING WORK SHALL NOT ENCROACH ON BOULEVARD NOR SHALL BOULEVARD GRADES BE ALTERED.
9. SLOPES IN LANDSCAPED AREAS AND ON BERMS SHALL NOT EXCEED 3 HORIZONTAL TO 1 VERTICAL.
10. GRASSED DRAINAGE SWALE GRADES: MIN. 2%. MAX 5%.
11. OUTSIDE LIGHTING SHALL BE DIRECTED DOWNWARD AND INWARD AND DESIGNED TO MAINTAIN ZERO CUT-OFF LIGHT LEVEL DISTRIBUTION AT THE PROPERTY LINE.
12. SILT FENCE(S) AND OTHER EROSION CONTROL MEASURES TO BE INSTALLED AND MAINTAINED TO PREVENT SILT FLOWING ONTO ADJACENT LANDS UNTIL THE COMPLETION OF SODDING ACTIVITIES.
13. CONSTRUCTION ACCESS SHALL BE CONSTRUCTED WITH A MINIMUM DEPTH OF 450 MM CRUSHED STONE BASE FROM THE MUNICIPAL CURB OR EDGE OF PAVEMENT TO THE PROPERTY LINE, TO THE SATISFACTION OF THE CITY.
14. ALL PROPOSED BARRIER-FREE PARKING SPACES TO INCLUDE "RB-93 BY PERMIT ONLY" TRAFFIC SIGN AND BARRIER-FREE PAVEMENT SYMBOL MARKING.

Contractor must check and verify all dimensions and be res- ponsible for same, reporting any discrepancies to the Engineer before commencing work.
Prints shall not be used for construction until signed 'Approved For Construction' by the Engineer.
Prints are not to be scaled.
All drawings, prints and specifications are the property of the Engineer and shall be returned to him on completion of the work.
All work shall be performed in accordance with the latest edition of the ONTARIO BUILDING CODE, NATIONAL BUILDING CODE and regulatory regulations of the Town of Oshawa Building Department.
These notes are to be read in conjunction with all drawings and specifications.

The Contractor shall check all dimensions and other data from the job and report any discrepancies to the Architects before proceeding.

No	DATE	REVISION	DRN	CHKD
1	2024-04-18	ISSUED FOR APPROVAL	DB	SS
2	2024-10-28	ISSUED FOR APPROVAL	DB	SS
3	2025-03-19	ISSUED FOR APPROVAL	DB	SS
4	2025-09-25	REVISED AS PER CITY & REGION COMMENTS	DB	SS
5	2026-05-12	REVISED AS PER UPDATED ARCH SITE PLAN	DB	SS
6	2026-08-05	REVISED AS PER UPDATED ARCH SITE PLAN / BLDG MECH	DB	SS
7	2026-10-13	REVISED AS PER SPA COMMENTS	DB	SS



KEY PLAN

SCALE: NTS

LEGEND

- CONSTRUCTION BOUNDARY
- EXISTING PROPERTY LINE
- ULTIMATE PROPERTY LINE
- 258.20 PROPOSED ELEVATION
- BC 258.00 PROPOSED ELEVATION BOTTOM CURB
- TC 258.00 PROPOSED ELEVATION TOP OF CURB
- (183.34±) EXISTING ELEVATION
- 1.0% PROPOSED SLOPE
- (1.0%) EXISTING SLOPE
- DIRECTION OF PROPOSED OVERLAND FLOW
- PROPERTY LINE
- EXISTING CURB & GUTTER
- EXISTING FENCE
- CATCHBASIN
- CATCHBASIN MAINTENANCE HOLE
- MAINTENANCE HOLE
- EXISTING MAINTENANCE HOLE
- PONDING AREA
- HEAVY DUTY PAVEMENT
- LIGHT DUTY PAVEMENT
- ASPHALT CYCLE TRACK
- CONCRETE WALK

LICENSED PROFESSIONAL ENGINEER — SOSCIA — OCTOBER 7, 2024 — PROVINCE OF ONTARIO

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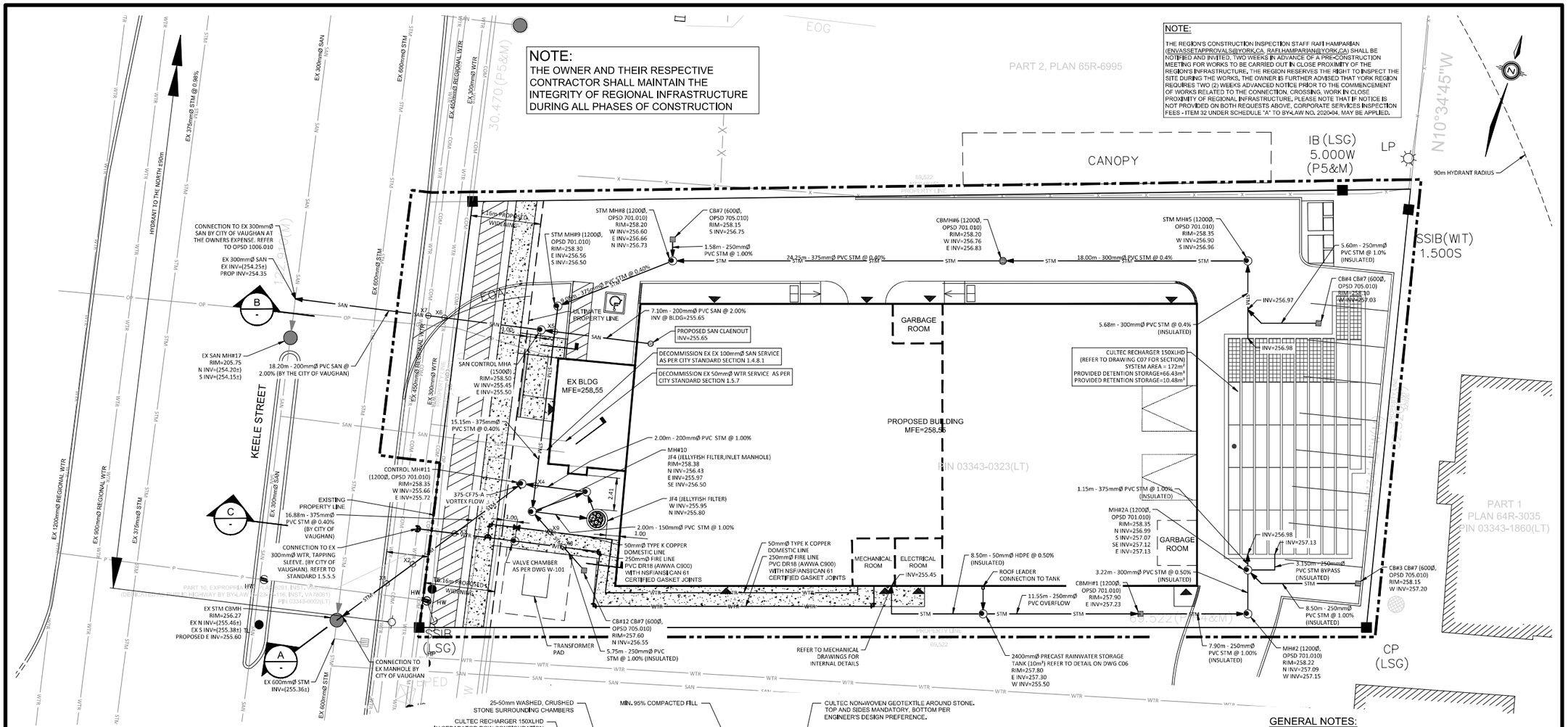
PROJECT: PROPOSED INDUSTRIAL WAREHOUSE
CITY FILE:DA.24.032

10533 KEELE STREET
VAUGHAN (MAPLE), ONTARIO

SHEET TITLE:	JOB NO:
SITE GRADING PLAN	24-020
SCALE: 1:150	DATE: OCTOBER, 2026
DRAWN: DB	CHECKED: SS
DWG NO: C01	

NOTE:
THE OWNER AND THEIR RESPECTIVE CONTRACTOR SHALL MAINTAIN THE INTEGRITY OF REGIONAL INFRASTRUCTURE DURING ALL PHASES OF CONSTRUCTION

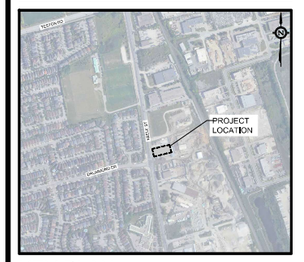
NOTE:
THE REGION'S CONSTRUCTION INSPECTION STAFF RAFI HAMPARIAN (ENVASSETAPPROVALS@YORK.CA, RAFI.HAMPARIAN@YORK.CA) SHALL BE NOTIFIED AND INVITED, TWO WEEKS IN ADVANCE OF A PRE-CONSTRUCTION MEETING FOR WORKS TO BE CARRIED OUT IN CLOSE PROXIMITY OF THE REGION'S INFRASTRUCTURE. THE REGION RESERVES THE RIGHT TO INSPECT THE SITE DURING THE WORKS. THE OWNER IS FURTHER ADVISED THAT YORK REGION REQUIRES TWO (2) WEEKS ADVANCED NOTICE PRIOR TO THE COMMENCEMENT OF WORKS RELATED TO THE CONNECTION, CROSSING, WORK IN CLOSE PROXIMITY OF REGIONAL INFRASTRUCTURE. PLEASE NOTE THAT IF NOTICE IS NOT PROVIDED ON BOTH REQUESTS ABOVE, CORPORATE SERVICES INSPECTION FEES - ITEM 32 UNDER SCHEDULE 'A' TO BY-LAW NO. 2020-04, MAY BE APPLIED.



Contractor must check and verify all dimensions and be res- ponsible for same, reporting any discrepancies to the Engineer before commencing work.
Prints shall not be used for construction until signed 'Approved For Construction' by the Engineer.
Prints are not to be scaled.
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All work shall be performed in accordance with the latest edition of the ONTARIO BUILDING CODE. NATIONAL BUILDING CODE and regulatory regulations of the Town of Oshawa Building Department.
These notes are to be read in conjunction with all drawings and specifications.

The Contractor shall check all dimensions and other data from the job and report any discrepancies to the Architects before proceeding.

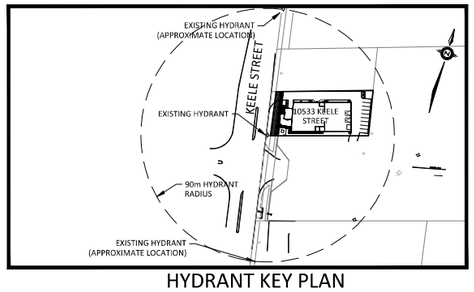
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4	2025-09-25	REVISED AS PER CITY & REGION COMMENTS	DB	SS
5	2026-05-12	REVISED AS PER UPDATED ARCH SITE PLAN	DB	SS
6	2026-08-05	REVISED AS PER UPDATED ARCH SITE PLAN / BLDG MECH	DB	SS
7	2026-10-13	REVISED AS PER SPA COMMENTS	DB	SS



KEY PLAN
SCALE: NTS

LEGEND
- CONSTRUCTION BOUNDARY
- PROPERTY LINE
- EXISTING CURB & GUTTER
- STM — EXISTING STORM
- SAN — EXISTING SANITARY
- WTR — EXISTING WATER
- EXISTING MAINTENANCE HOLE
- EXISTING VALVE
- EXISTING CATCHBASIN
- EXISTING HYDRANT
- STM — PROPOSED STORM
- SAN — PROPOSED SANITARY
- WTR — PROPOSED WATER
- PROPOSED MAINTENANCE HOLE
- PROPOSED CATCHBASIN MAINTENANCE HOLE
- PROPOSED CATCHBASIN
- PROPOSED WATER METER
- PROPOSED BACKFLOW PREVENTER

LICENSED PROFESSIONAL ENGINEER — S. SOSCIA — OCTOBER 13, 2026 — PROVINCE OF ONTARIO



HYDRANT KEY PLAN
1:2000

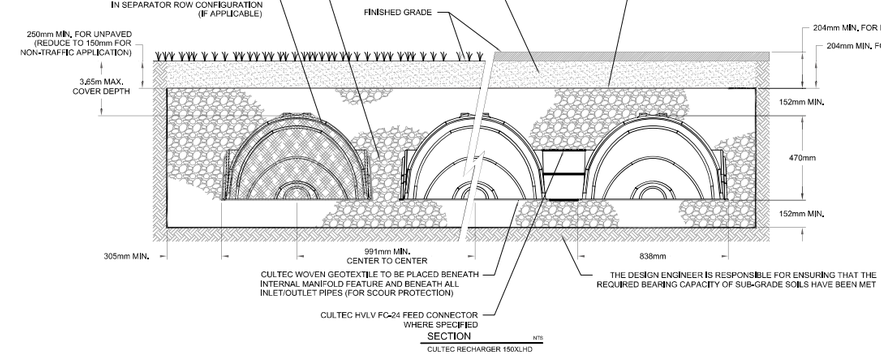
PLAN OF SURVEY
PART OF LOT 24 CONCESSION 3
CITY OF VAUGHAN
REGIONAL MUNICIPALITY OF YORK

NOTES:
1. BEARINGS SHOWN HEREON ARE ASTRONOMIC AND ARE REFERRED TO THE EASTERLY LIMIT OF KEELE STREET AS SHOWN ON EXPROPRIATION PLAN 8291, INST. VA61426 HAVING A BEARING OF N09°12'10"W
2. ELEVATIONS SHOWN HEREON ARE GEODETIC AND ARE RELATED TO CITY OF VAUGHAN BENCH MARK No. 1000901140 HAVING AN ELEVATION OF 240.744 METRES.

DEEP UTILITY PIPE CROSSING TABLE

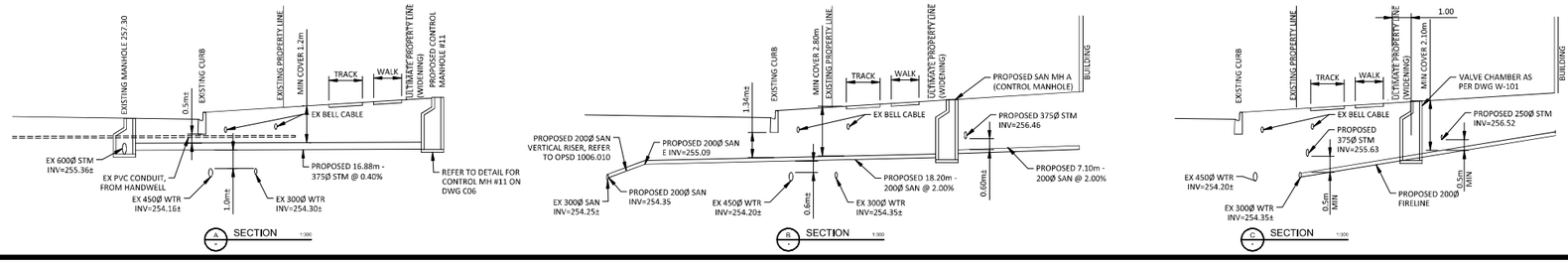
PROJECT NAME: 10533 Keele Street Industrial Warehouse — DATE: August 5, 2026
PROJECT No.: 24-020 — CALCULATED BY: DB

CROSSING No.	PIPE 1	INV 1	SIZE	TOP 1	PIPE 2	INV 2	SIZE	TOP 2	DIFF (m)
X1	STM	256.01	0.375	256.39	WTR	254.60	0.450	255.05	0.96
X2	STM	256.02	0.375	256.40	WTR	254.60	0.300	254.90	1.12
X3	STM	255.64	0.375	256.02	WTR	254.66	0.150	254.81	0.83
X4	STM	255.73	0.200	255.93	STM	256.45	0.375	256.83	0.52
X5	STM	256.49	0.375	256.87	SAN	255.52	0.200	255.72	0.77
X6	SAN	255.31	0.200	255.51	WTR	254.35	0.300	254.65	0.66
X7	SAN	255.27	0.200	255.47	WTR	254.20	0.450	254.65	0.62
X8	STM	256.53	0.250	256.78	WTR	255.88	0.150	256.03	0.50
X9	STM	256.51	0.250	256.76	WTR	255.88	0.050	255.93	0.58



SEWER & WATER NOTES:
1. SANITARY AND STORM CONTROL MAINTENANCE HOLES SHALL BE IN ACCORDANCE WITH ALL APPLICABLE OPSD
2. DETAILS, FRAME AND COVER SHALL BE OPSD 401.010 TYPE A OR APPROVED EQUAL. THE MAINTENANCE HOLES SHALL BE BENCHED TO THE OBVERT (TOP) OF PIPES.
3. ALL SANITARY MAINTENANCE HOLE COVERS IN THE PONDING AREAS TO BE WATER TIGHT SEALED COVERS.
4. ALL CATCHBASINS SHALL BE INSTALLED IN ACCORDANCE WITH CITY STANDARD DRAWING S-103. ALL CATCHBASIN
5. FRAMES AND GRATES SHALL BE OPSD 400.010 OR OPSD 400.110 OR APPROVED EQUAL.
6. WATERMAIN SHALL HAVE A MINIMUM VERTICAL SEPARATION OF 0.5 M AND HORIZONTAL SEPARATION OF 2.5m BETWEEN ANY SEWER OR MAINTENANCE HOLE UNLESS OTHERWISE NOTED.
7. HYDRANTS TO BE INSTALLED AS PER CITY STANDARD W-104 WITH 1.0 M MINIMUM CLEAR FROM ALL OBSTRUCTIONS.
8. ALL INDUSTRIAL/COMMERCIAL/CONDO/MINIUM WATERMAIN CONNECTIONS SHALL BE CONSTRUCTED IN ACCORDANCE WITH CITY STANDARD DRAWINGS C-102, C-103, W-106, W-109 AND RELATED STANDARD DRAWINGS.
9. SANITARY, STORM AND WATER SERVICE CONNECTIONS WHICH ARE NOT IN PLACE ON THE MUNICIPAL ROAD ALLOWANCE TO THE PROPERTY LINE SHALL BE ARRANGED FOR INSTALLATION BY THE CITY ON PAYMENT OF INSTALLATION COSTS BY THE OWNER. TO INITIATE THE INSTALLATION OF THE SERVICE CONNECTION(S), THE OWNER SHALL FILE AN APPLICATION WITH THE CONSTRUCTION SERVICES DIVISION OF THE DEVELOPMENT ENGINEERING DEPARTMENT WHICH INCLUDES 2 COPIES OF THE APPROVED SITE SERVICING AND GRADING DRAWING(S) WITH DEPARTMENT'S APPROVAL SEAL AND, IF REQUIRED, A COPY OF THE REGION OF YORK APPROVAL SCHEDULE AS PER THE EXECUTED SITE PLAN AGREEMENT.

GENERAL NOTES:
1. STANDARD DRAWINGS OF THE CITY OF VAUGHAN CONSTITUTE PART OF THESE DRAWING(S).
2. ALL CONSTRUCTION WORK TO BE CARRIED OUT IN ACCORDANCE WITH THE REQUIREMENTS OF THE OCCUPATIONAL HEALTH AND SAFETY ACT AND REGULATIONS FOR CONSTRUCTION PROJECTS.
3. THE OWNER SHALL RETAIN THE SERVICES OF HIS CONSULTANTS TO ENSURE REQUIRED INSPECTION REPORTS AND OR CERTIFICATION REQUIREMENTS ARE SUBMITTED TO THE DEVELOPMENT ENGINEERING DEPARTMENT AND OTHER AFFECTED CITY DEPARTMENTS.
4. THE OWNER AND/OR HIS REPRESENTATIVE SHALL RECTIFY ALL DISTURBED AREAS TO ORIGINAL CONDITION OR BETTER AND TO THE SATISFACTION OF THE CITY.
5. THE LOCATION OF ALL UNDERGROUND UTILITIES AND STRUCTURES IS APPROXIMATE ONLY AND WHERE SHOWN ON THE DRAWING(S) THE ACCURACY OF THE LOCATION OF SUCH UTILITIES IS NOT GUARANTEED. THE OWNER AND/OR HIS REPRESENTATIVE SHALL DETERMINE THE LOCATION OF ALL SUCH UTILITIES AND STRUCTURES BY CONSULTING THE APPROPRIATE AUTHORITIES OR UTILITY COMPANIES CONCERNED. THE OWNER SHALL PROVE THE LOCATION OF SUCH UTILITIES AND STRUCTURES AND SHALL ASSUME ALL LIABILITY FOR DAMAGE OR RESTORATION OR ADJUSTMENT FOR THE SAME.
6. ANY CONFLICTS WITH EXISTING SERVICES SHALL BE RECTIFIED AT THE OWNER'S EXPENSE.
7. APPROPRIATE CONSTRUCTION DETAILS SHOULD BE PROVIDED FOR RETAINING WALLS HIGHER THAN 1.0 M. DETAILS SHALL BE DESIGNED AND CERTIFIED BY A PROFESSIONAL ENGINEER UPON APPROVAL. HANDRAIL/GUARD/FENCE IS REQUIRED WHEN HEIGHT EXCEEDS 0.60 M (AS PER CITY STANDARD DRAWING FRW-105 OR APPROVED EQUAL), UPON COMPLETION. RETAINING WALLS GREATER THAN 1.0 M TO BE CERTIFIED BY A STRUCTURAL AND GEOTECHNICAL ENGINEERS.
8. LANDSCAPING WORK SHALL NOT ENCROACH ON BOULEVARD NOR SHALL BOULEVARD GRADES BE ALTERED.
9. SLOPES IN LANDSCAPED AREAS AND ON BERMS SHALL NOT EXCEED 3 HORIZONTAL TO 1 VERTICAL.
10. GRASSED DRAINAGE SWALE GRADES: MIN. 2%; MAX 5%.
11. OUTSIDE LIGHTING SHALL BE DIRECTED DOWNWARD AND INWARD AND DESIGNED TO MAINTAIN ZERO CUT-OFF LIGHT LEVEL DISTRIBUTION AT THE PROPERTY LINE.
12. SILT FENCE(S) AND OTHER EROSION CONTROL MEASURES TO BE INSTALLED AND MAINTAINED TO PREVENT SILT FLOWING ONTO ADJACENT LANDS UNTIL THE COMPLETION OF SODDING ACTIVITIES.
13. CONSTRUCTION ACCESS SHALL BE CONSTRUCTED WITH A MINIMUM DEPTH OF 450 MM CRUSHED STONE BASE FROM THE MUNICIPAL CURB OR EDGE OF PAVEMENT TO THE PROPERTY LINE, TO THE SATISFACTION OF THE CITY.
14. ALL PROPOSED BARRIER-FREE PARKING SPACES TO INCLUDE "RB-93 BY PERMIT ONLY" TRAFFIC SIGN AND BARRIER-FREE PAVEMENT SYMBOL MARKING.

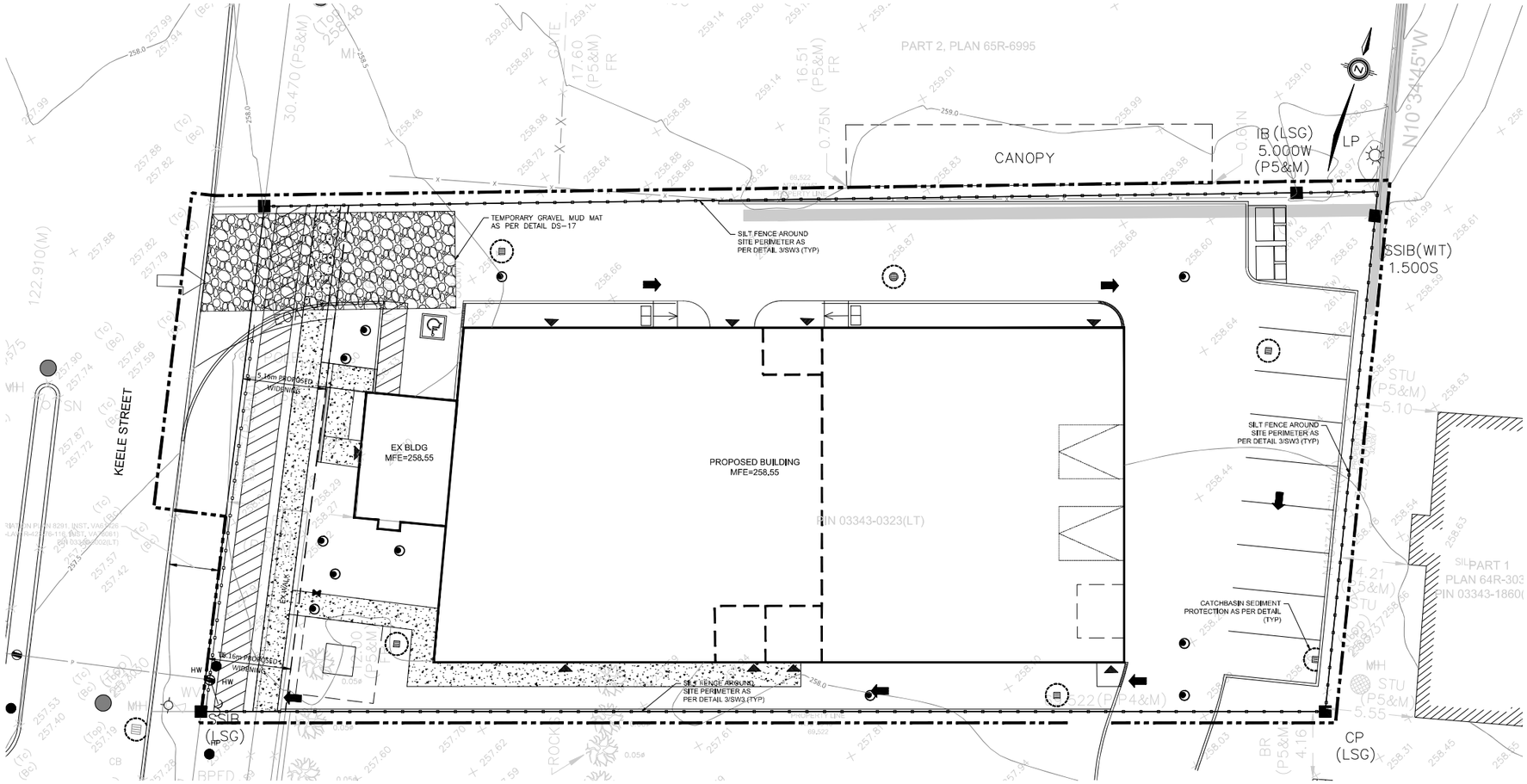


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PROJECT: PROPOSED
INDUSTRIAL WAREHOUSE
CITY FILE:DA.24.032

10533 KEELE STREET
VAUGHAN (MAPLE), ONTARIO

SHEET TITLE:		JOB NO:
SITE SERVICING PLAN		24-020
SCALE: 1:150	DATE: OCTOBER, 2026	DWG NO: C02
DRAWN: DB	CHECKED: SS	



GENERAL NOTES:

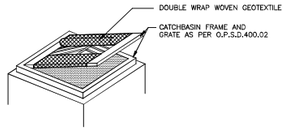
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2. ALL CONSTRUCTION WORK TO BE CARRIED OUT IN ACCORDANCE WITH THE REQUIREMENTS OF THE OCCUPATIONAL HEALTH AND SAFETY ACT AND REGULATIONS FOR CONSTRUCTION PROJECTS.
3. THE OWNER SHALL RETAIN THE SERVICES OF HIS CONSULTANTS TO ENSURE REQUIRED INSPECTION REPORTS AND OR CERTIFICATION REQUIREMENTS ARE SUBMITTED TO THE DEVELOPMENT ENGINEERING DEPARTMENT AND OTHER AFFECTED CITY DEPARTMENTS.
4. THE OWNER AND/OR HIS REPRESENTATIVE SHALL RECTIFY ALL DISTURBED AREAS TO ORIGINAL CONDITION OR BETTER AND TO THE SATISFACTION OF THE CITY.
5. THE LOCATION OF ALL UNDER/ABOVE GROUND UTILITIES AND STRUCTURES IS APPROXIMATE ONLY AND WHERE SHOWN ON THE DRAWING(S) THE ACCURACY OF THE LOCATION OF SUCH UTILITIES IS NOT GUARANTEED. THE OWNER AND/OR HIS REPRESENTATIVE SHALL DETERMINE THE LOCATION OF ALL SUCH UTILITIES AND STRUCTURES BY CONSULTING THE APPROPRIATE AUTHORITIES OR UTILITY COMPANIES CONCERNED. THE OWNER SHALL PROVE THE LOCATION OF SUCH UTILITIES AND STRUCTURES AND SHALL ASSUME ALL LIABILITY FOR DAMAGE OR RESTORATION OR ADJUSTMENT FOR THE SAME.
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13. CONSTRUCTION ACCESS SHALL BE CONSTRUCTED WITH A MINIMUM DEPTH OF 450 MM CRUSHED STONE BASE FROM THE MUNICIPAL CURB OR EDGE OF PAVEMENT TO THE PROPERTY LINE, TO THE SATISFACTION OF THE CITY.
14. ALL PROPOSED BARRIER-FREE PARKING SPACES TO INCLUDE "RB-93 BY PERMIT ONLY" TRAFFIC SIGN AND BARRIER-FREE PAVEMENT SYMBOL MARKING.

EROSION CONTROL NOTES:

1. PROTECT ALL EXPOSED SURFACES AND CONTROL RUNOFF DURING CONSTRUCTION.
2. ALL EROSION CONTROL MEASURES ARE TO BE IN PLACE BEFORE STARTING CONSTRUCTION AND REMAIN IN PLACE UNTIL RESTORATION IS COMPLETE.
3. MAINTAIN EROSION CONTROL MEASURES DURING CONSTRUCTION..
4. ALL COLLECTED SEDIMENT MUST BE DISPOSED OF AT AN APPROVAL LOCATION.
5. MINIMIZE THE AREA DISTURBED DURING CONSTRUCTION.
6. ALL DEWATERING MUST BE DISPOSED OF IN AN APPROVED SEDIMENTATION BASIN.
7. PROTECT ALL CATCH BASINS, MAINTENANCE HOLES AND PIPE ENDS FROM SEDIMENT INTRUSION WITH GEOTAXTILE (TERRAFIX 270R OR EQUAL).
8. KEEP ALL SUMPS CLEAN DURING CONSTRUCTION.
9. PREVENT WIND-BLOWN DUST.
10. STRAW BALES TO BE USED IN LOCALIZED AREAS AS SHOWN AND AS DIRECTED BY THE ENGINEER DURING CONSTRUCTION FOR WORKS WHICH ARE IN OR ADJACENT TO FLOODLINES, FILL LINES AND HAZARDOUS SLOPES.
11. STRAW BALES TO BE TEMINATED USING ROUNDING BALES TO CONTAIN AND FILTER RUNOFF.
12. EROSION AND SEDIMENTATION CONTROL DEVICES ARE TO BE INSPECTED MINIMUM WEEKLY, AFTER EVERY RAINFALL AND MAINTAINED AND CLEARED AS REQUIRED.

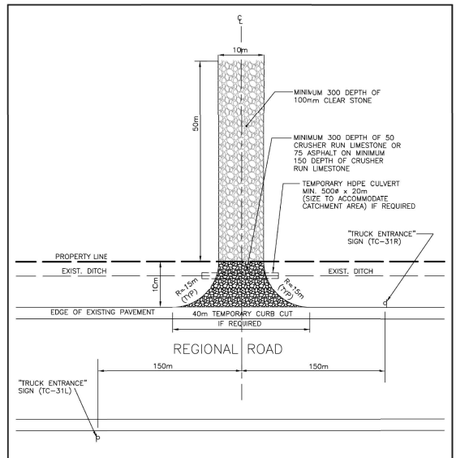
NOTE

1. TO BE USED UNDER APPROPRIATE DRAINAGE CIRCUMSTANCES, BETWEEN APRIL AND DECEMBER
2. WOVEN GEOTEXTILE TO HAVE EQUIVALENT OPENING SIZE OF 0.15mm AND A MAXIMUM EQUIVALENT OPENING SIZE OF 0.25mm
3. WOVEN GEOTEXTILE TO BE REPLACED PERIODICALLY WHEN ACCUMULATED SEDIMENTS INTERFERES WITH DRAINAGE.



CATCHBASIN
SEDIMENT PROTECTION

1
SW3



NOTES

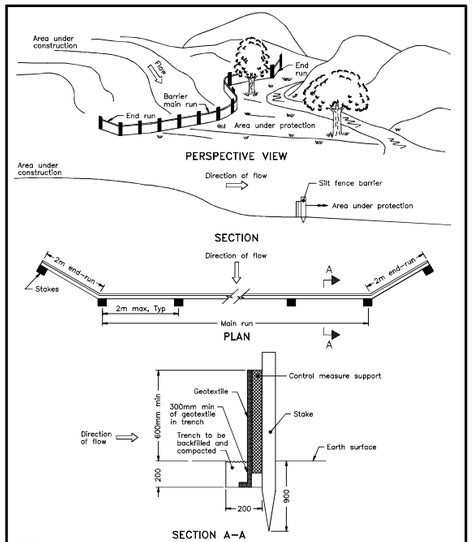
1. ALL DIMENSIONS ARE IN mm UNLESS OTHERWISE NOTED.
2. TEMPORARY "TRUCK ENTRANCE" SIGNS(TC-31) SHALL BE INSTALLED ON THE SHOULDER, 150M IN ADVANCE OF THE ACCESS (NOTE: SEE DETAILS ON USE OF THESE SIGNS IN THE ONTARIO TRAFFIC MANUAL, BOOK 7.) THE APPLICANT WILL BE RESPONSIBLE FOR THE COST OF OBTAINING, ERECTING AND MAINTAINING THESE SIGNS.
3. TEMPORARY CONSTRUCTION ACCESS SHALL BE REMOVED FROM THE REGIONAL ROAD ALLOWANCE AND ALL DISTURBED AREAS SHALL BE RESTORED TO ORIGINAL OR BETTER CONDITION.

York Region Transportation Services

MUD MAT FOR TEMPORARY CONSTRUCTION ACCESS

DATE:	MARCH 2015	SCALE N.T.S.
REV.	X	X

DS-217



NOTE:
A All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING

Nov 2006 | Rev | 1

3
SW4

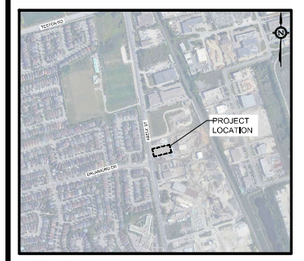
HEAVY-DUTY
SILT FENCE BARRIER

OPSD 219.130

Contractor must check and verify all dimensions and be res- ponsible for same, reporting any discrepancies to the Engineer before commencing work.
Prints shall not be used for construction until signed 'Approved For Construction' by the Engineer.
Prints are not to be scaled.
All drawings, prints and specifications are the property of the Engineer and shall be returned to him on completion of the work.
All work shall be performed in accordance with the latest edition of the ONTARIO BUILDING CODE. NATIONAL BUILDING CODE and regulatory regulations of the Town of Oshawa Building Department.
These notes are to be read in conjunction with all drawings and specifications.

The Contractor shall check all dimensions and other data from the job and report any discrepancies to the Architects before proceeding.

No	DATE	REVISION	DRN	CHKD
1	2024-04-18	ISSUED FOR APPROVAL	DB	SS
2	2024-10-28	ISSUED FOR APPROVAL	DB	SS
3	2025-03-19	ISSUED FOR APPROVAL	DB	SS
4	2025-09-25	REVISED AS PER CITY & REGION COMMENTS	DB	SS
5	2026-05-12	REVISED AS PER UPDATED ARCH SITE PLAN	DB	SS
6	2026-08-05	REVISED AS PER UPDATED ARCH SITE PLAN / BLDG MECH	DB	SS
7	2026-10-13	REVISED AS PER SPA COMMENTS	DB	SS



KEY PLAN

SCALE: NTS

LEGEND

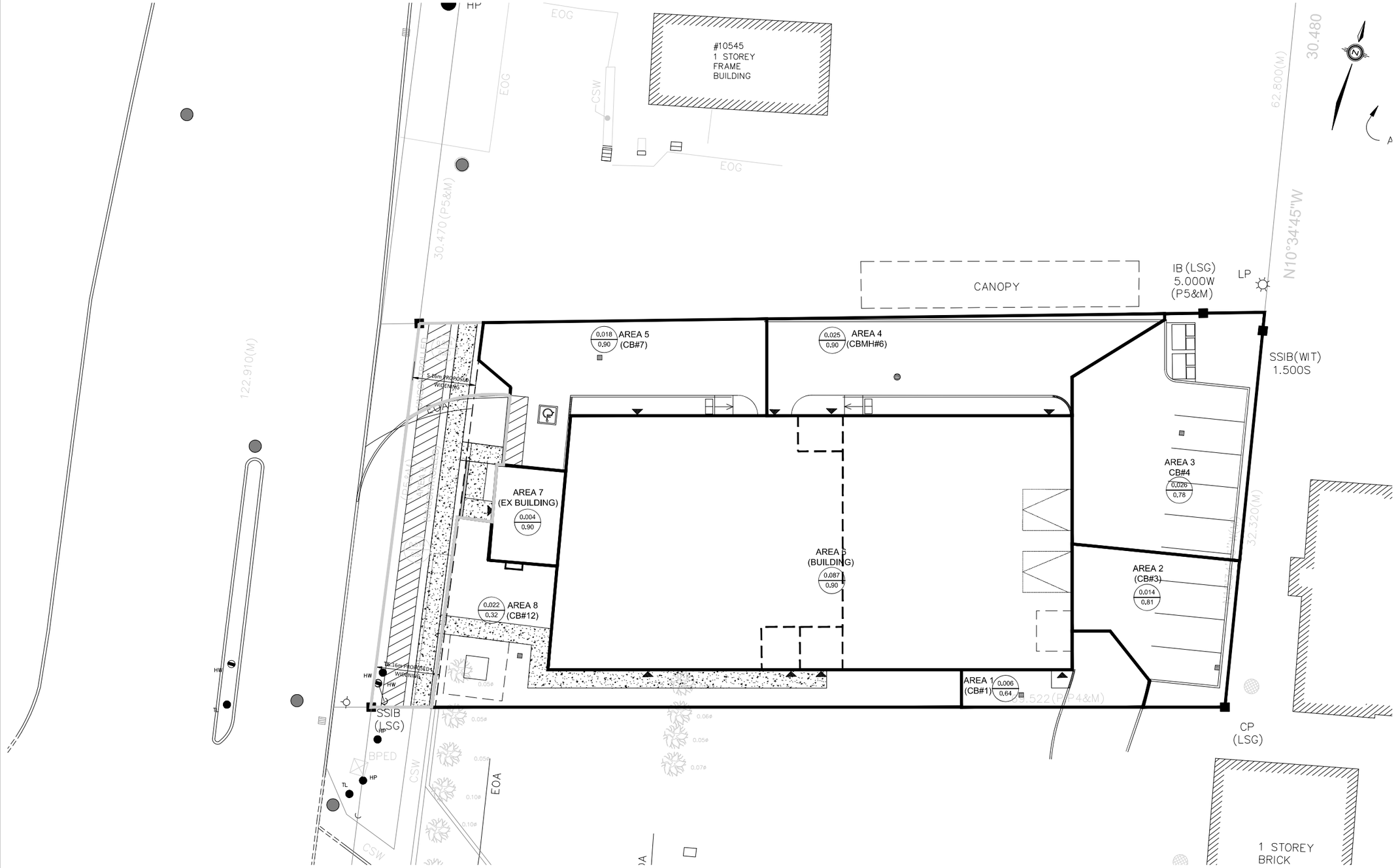
- CONSTRUCTION BOUNDARY
- EXISTING PROPERTY LINE
- ULTIMATE PROPERTY LINE
- EXISTING CURB & GUTTER
- PROPOSED SILT FENCE
- TEMPORARY GRAVEL MUD MAT
- TEMPORARY SEDIMENT TRAP
- TEMPORARY CONSTRUCTION ACCESS
- PROPOSED CATCHBASIN
- EXISTING CATCHBASIN

LICENSED PROFESSIONAL ENGINEER
S. SOSCIA
OCTOBER 1, 2026
PROVINCE OF ONTARIO

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PROFESSIONAL ENGINEERS INC.
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fax 905 237 5413

PROJECT: CITY FILE:DA.24.032
PROPOSED
INDUSTRIAL WAREHOUSE
10533 KEELE STREET
VAUGHAN (MAPLE), ONTARIO

SHEET TITLE:		JOB NO:
EROSION & SEDIMENT CONTROL PLAN		24-020
SCALE: 1:150	DATE: OCTOBER, 2026	DWG NO: C03
DRAWN: DB	CHECKED: SS	

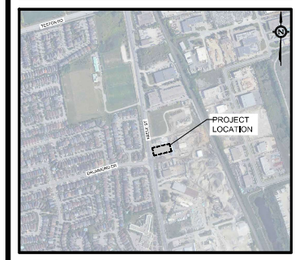


STORM CATCHMENT AREAS					
AREA NO.	AREA NAME	LANDSCAPE AREA (m²)	ASPHALT/CONC AREA (m²)	BUILDING AREA (m²)	TOTAL AREA (m²)
1	CB#1	24	36	-	60
2	CB#3	18	115	-	133
3	CB#4	42	223	-	265
4	CBMH#6	-	250	-	250
5	CB#7	-	165	-	165
6	BUILDING	-	-	865	865
7	EXBUILDING	-	-	44	44
8	CB#12	184	34	-	218
9	UNCONTROLLED	59	133	-	192

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These notes are to be read in conjunction with all drawings and specifications.

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3	2025-03-19	ISSUED FOR APPROVAL	DB	SS
4	2025-09-25	REVISED AS PER CITY & REGION COMMENTS	DB	SS
5	2026-05-12	REVISED AS PER UPDATED ARCH SITE PLAN	DB	SS
6	2026-08-05	REVISED AS PER UPDATED ARCH SITE PLAN / BLDG MECH	DB	SS
7	2026-10-13	REVISED AS PER SPA COMMENTS	DB	SS



KEY PLAN

SCALE: NTS

LEGEND

PRE-DEVELOPMENT DRAINAGE BOUNDARY

AREA 1 — POST DEVELOPMENT DRAINAGE AREA NUMBER
CB#1
--- ha — POST DEVELOPMENT DRAINAGE AREA
--- — POST DEVELOPMENT COEFFICIENT

LICENSED PROFESSIONAL ENGINEER — S. SOSCIA — OCTOBER 13, 2026 — PROVINCE OF ONTARIO

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PROJECT: PROPOSED INDUSTRIAL WAREHOUSE
CITY FILE:DA.24.032

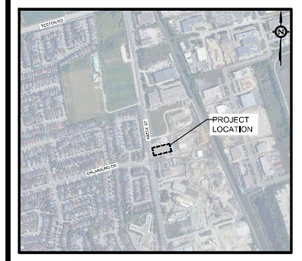
10533 KEELE STREET
VAUGHAN (MAPLE), ONTARIO

SHEET TITLE:		JOB NO:
POST DEVELOPMENT CATCHMENT AREA PLAN		24-020
SCALE: 1:150	DATE: OCTOBER, 2026	DWG NO: C04
DRAWN: DB	CHECKED: SS	

Contractor must check and verify all dimensions and be res- ponsible for same, reporting any discrepancies to the Engineer before commencing work.
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1	2024-04-18	ISSUED FOR APPROVAL	DB	SS
2	2024-10-28	ISSUED FOR APPROVAL	DB	SS
3	2025-03-19	ISSUED FOR APPROVAL	DB	SS
4	2025-09-25	REVISED AS PER CITY & REGION COMMENTS	DB	SS
5	2026-05-12	REVISED AS PER UPDATED ARCH SITE PLAN	DB	SS
6	2026-08-05	REVISED AS PER UPDATED ARCH SITE PLAN / BLDG MECH	DB	SS
7	2026-10-13	REVISED AS PER SPA COMMENTS	DB	SS



KEY PLAN

SCALE: NTS

LEGEND

PRE-DEVELOPMENT DRAINAGE BOUNDARY

A1 PRE
--- ha

PRE-DEVELOPMENT DRAINAGE AREA NUMBER
PRE-DEVELOPMENT DRAINAGE AREA
PRE-DEVELOPMENT COEFFICIENT

PRE
0.22 ha
0.25

#10545
1 STOREY
FRAME
BUILDING

PART 2, PLAN 65R-6995

CANOPY

EX RETAINING WALL

ASPHALT

EDGE OF ASPHALT

CON

SSIB(WIT)
1.500S

IB (LSG)
5.000W
(P5&M)

LP

EXISTING BUILDING

EXISTING BUILDING

ASPHALT AND GRAVEL

PIN 03343-0323(LT)

PART 1
PLAN 64R-3035
PIN 03343-1860(LT)

KEELE STREET

EOA

EX WALK

PERGOLA

SSCB
(LSG)

69.522(P,P4&M)

CP
(LSG)

PART 4
PLAN 65R-29208
PIN 03343-1860(LT)

1 STOREY
BRICK
BUILDING

LOT 24, CONCESSION

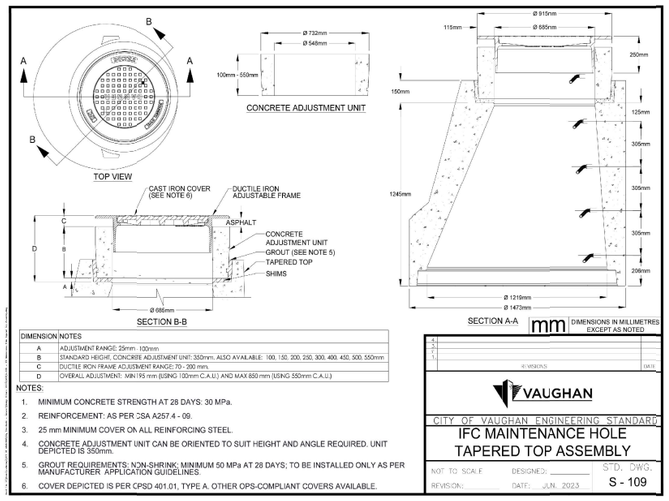
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fax 905 237 5413

PROJECT: PROPOSED
INDUSTRIAL WAREHOUSE

CITY FILE:DA.24.032

10533 KEELE STREET
VAUGHAN (MAPLE), ONTARIO

SHEET TITLE:		JOB NO:
PRE-DEVELOPMENT DRAINAGE PLAN		24-020
SCALE: 1:150	DATE: OCTOBER, 2026	DWG NO: C05
DRAWN: DB	CHECKED: SS	



DIMENSION	NOTES
A	ADJUSTMENT RANGE 25mm - 100mm
B	STANDARD HEIGHT, CONCRETE ADJUSTMENT UNIT: 350mm, ALSO AVAILABLE: 100, 150, 200, 250, 300, 400, 450, 500, 550mm
C	DUCTILE IRON FRAME ADJUSTMENT RANGE: 70 - 200 mm.
D	OVERALL ADJUSTMENT: MIN 195 mm (USING 130mm C.A.U.) AND MAX 850 mm (USING 550mm C.A.U.)

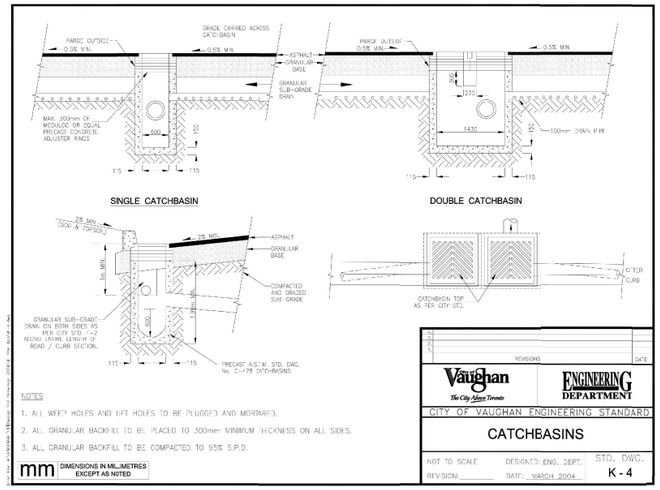
NOTES:
1. MINIMUM CONCRETE STRENGTH AT 28 DAYS: 30 MPa.
2. REINFORCEMENT: AS PER CSA A257.4 - 09.
3. 25 mm MINIMUM COVER ON ALL REINFORCING STEEL.
4. CONCRETE ADJUSTMENT UNIT CAN BE ORIENTED TO SUIT HEIGHT AND ANGLE REQUIRED. UNIT DEPICTED IS 350mm.
5. GROUT REQUIREMENTS: NON-SHRINK; MINIMUM 50 MPa AT 28 DAYS; TO BE INSTALLED ONLY AS PER MANUFACTURER APPLICATION GUIDELINES.
6. COVER DEPICTED IS PER OPSD 401.01, TYPE A. OTHER OPS-COMPLIANT COVERS AVAILABLE.

REVISIONS | DATE

CITY OF VAUGHAN ENGINEERING STANDARD

IFC MAINTENANCE HOLE
TAPERED TOP ASSEMBLY

NOT TO SCALE | DESIGNED: _____ | STD. DWG.
REVISION: _____ | DATE: JUN. 2023 | S - 109



NOTES
1. ALL WEEP HOLES AND LIFT HOLES TO BE PLUGGED AND MORTARED.
2. ALL GRANULAR BACKFILL TO BE PLACED TO 300mm MINIMUM THICKNESS ON ALL SIDES.
3. ALL GRANULAR BACKFILL TO BE COMPACTED TO 95% S.P.D.

mm DIMENSIONS IN MILLIMETRES EXCEPT AS NOTED

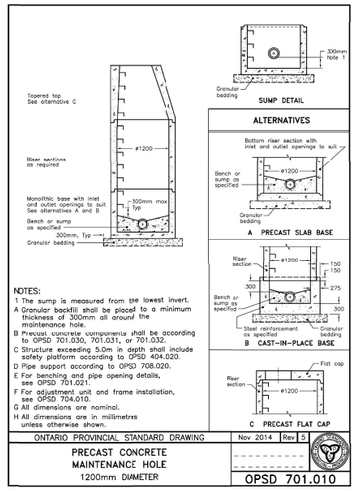
REVISIONS | DATE

The Corporation of the City of Vaughan | ENGINEERING DEPARTMENT

CITY OF VAUGHAN ENGINEERING STANDARD

CATCHBASINS

NOT TO SCALE | DESIGNED: ENG. DEPT. | STD. DWG.
REVISION: _____ | DATE: MARCH 2004 | K - 4

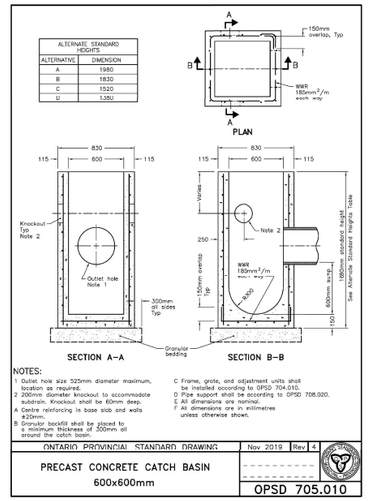


NOTES:
1 The sump is measured from the lowest invert.
A Granular backfill shall be placed to a minimum thickness of 300mm all around the maintenance hole.
B Precast concrete components shall be according to OPSD 701.030, 701.031, or 701.032.
C Structure exceeding 5.0m in depth shall include safety platform according to OPSD 404.020.
D Pipe support according to OPSD 708.020.
E For benching and pipe opening details, see OPSD 701.021
F For adjustment unit and frame installation, see OPSD 704.010.
G All dimensions are nominal.
H All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING | Nov 2014 | Rev 5

PRECAST CONCRETE MAINTENANCE HOLE 1200mm DIAMETER

OPSD 701.010



NOTES:
1 Outlet hole size 525mm diameter maximum, location as required.
2 200mm diameter knockout to accommodate subdrain. Knockout shall be 60mm deep.
A Centre reinforcing in base slab and walls ±20mm.
B Granular backfill shall be placed to a minimum thickness of 300mm all around the catch basin.
C Frame, grate, and adjustment units shall be installed according to OPSD 704.010.
D Pipe support shall be according to OPSD 708.020.
E All dimensions are nominal.
F All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING | Nov 2019 | Rev 4

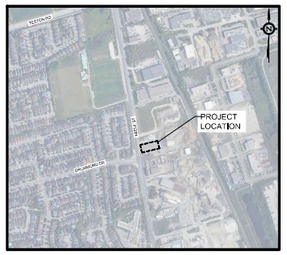
PRECAST CONCRETE CATCH BASIN 600x600mm

OPSD 705.010

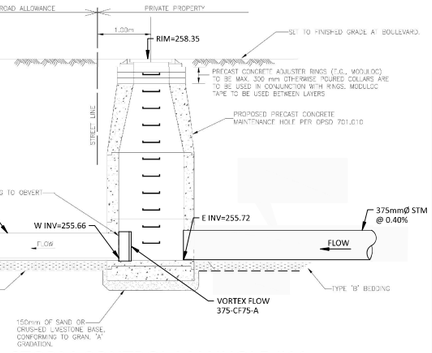
Contractor must check and verify all dimensions and be res- ponsible for same, reporting any discrepancies to the Engineer before commencing work.
Prints shall not be used for construction until signed 'Approved For Construction' by the Engineer.
Prints are not to be scaled.
All drawings, prints and specifications are the property of the Engineer and shall be returned to him on completion of the work.
All work shall be performed in accordance with the latest edition of the ONTARIO BUILDING CODE, NATIONAL BUILDING CODE and regulatory regulations of the Town of Oshawa Building Department.
These notes are to be read in conjunction with all drawings and specifications.

The Contractor shall check all dimensions and other data from the job and report any discrepancies to the Architects before proceeding.

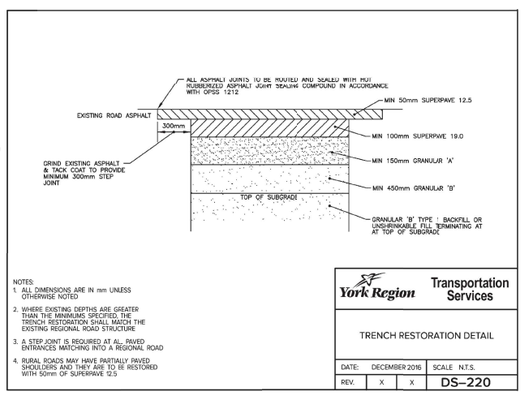
No	DATE	REVISION	DRN	CHKD
1	2024-04-18	ISSUED FOR APPROVAL	DB	SS
2	2024-10-28	ISSUED FOR APPROVAL	DB	SS
3	2025-03-19	ISSUED FOR APPROVAL	DB	SS
4	2025-09-25	REVISED AS PER CITY & REGION COMMENTS	DB	SS
5	2026-05-12	REVISED AS PER UPDATED ARCH SITE PLAN	DB	SS
6	2026-08-05	REVISED AS PER UPDATED ARCH SITE PLAN / BLDG MECH	DB	SS
7	2026-10-13	REVISED AS PER SPA COMMENTS	DB	SS



KEY PLAN
SCALE: NTS



STORM CONTROL MANHOLE #11
WITH VORTEX FLOW CONTROL
NTS

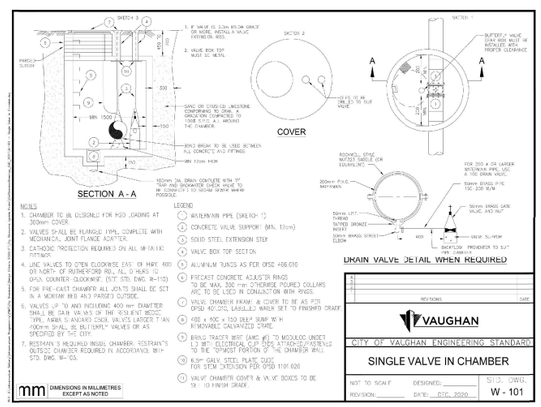


NOTES:
1. ALL DIMENSIONS ARE IN mm UNLESS OTHERWISE NOTED
2. WHERE EXISTING DEPTHS ARE GREATER THAN THE MINIMUMS SPECIFIED, THE TRENCH RESTORATION SHALL MATCH THE EXISTING REGIONAL ROAD STRUCTURE
3. A STEP JOINT IS REQUIRED AT ALL PAVED ENTRANCES MATCHING INTO A REGIONAL ROAD
4. RURAL ROADS MAY HAVE PARTIALLY PAVED SHOULDERS AND THEY ARE TO BE RESTORED WITH 50mm OF SUPERPAVE 12.5

York Region Transportation Services

TRENCH RESTORATION DETAIL

DATE: DECEMBER 2016 | SCALE N.T.S.
REV. | X | X | DS-220



NOTES
1. CHAMBER TO BE DESIGNED FOR H20 LOADING AT 300mm COVER.
2. VALVES SHALL BE FLANGED TYPE, COMPLETE WITH MECHANICAL JOINT FLANGE ADAPTER.
3. CATHODIC PROTECTION REQUIRED ON ALL METALLIC FITTINGS.
4. LINE VALVES TO OPEN CLOCKWISE (CW) OF HWP, 600 CW NORTH OF WATERFORD RD., ALL O HEADS TO OPEN COUNTER-CLOCKWISE (CCT. STD. DWG. W-112)
5. FOR PRE-CAST CHAMBER ALL JOINTS SHALL BE SET IN A MINIMUM BED AND PARGED OUTSIDE.
6. VALVES UP TO AND INCLUDING 400 mm DIAMETER SHALL BE CAST VALVES OR THE EQUIVALENT RESILIENT WEDGE TYPE, AWWA STANDARD C509. VALVES LARGER THAN 400mm SHALL BE BUTTERFLY VALVES OR AS SPECIFIED BY THE CITY.
7. ACCESS IS REQUIRED INSIDE CHAMBER. KOSTMAN'S OUTLET CHAMBER REQUIRED IN ACCORDANCE WITH STD. DWG. W-103.

LEGEND
1. WATERMAIN PIPE (SIZE NO. 1)
2. CONCRETE VALVE SUPPORT (MIN. 10cm)
3. SOLID STEEL EXTENSION STEP
4. VALVE BOX TOP SECTION
5. ALUMINUM RINGS AS PER OPSD 408.010
6. PRECAST CONCRETE ADJUSTER RINGS TO BE MAX. 300 mm OTHERWISE POURED COLLARS ARE TO BE USED IN CONJUNCTION WITH RINGS.
7. VALVE CHAMBER FRAME & COVER TO BE AS PER OPSD 401.010, LABELLED 'WATER' SET TO FINISHED GRADE
8. 400 x 400 x 150 DEEP SUMP W/ H REMOVABLE GALVANIZED COVER
9. BRASS TRACER WIRE (MIN. #6) TO MODULOC UNDER L.I. WIT. ELECTRICAL CLIP TYPE ATTACHED/SOLDERED TO THE TOP MOST PORTION OF THE CHAMBER WALL
10. 6.35mm GALV. STEEL PLATE, CUT20 FOR STEM EXTENSION PER OPSD 1101.020
11. VALVE CHAMBER COVER & VALVE BOXES TO BE 19 : 10 FINISH GRADE.

mm DIMENSIONS IN MILLIMETRES EXCEPT AS NOTED

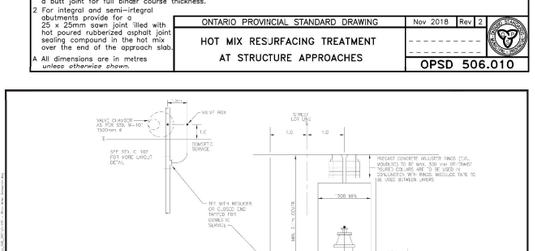
REVISIONS | DATE

VAUGHAN

CITY OF VAUGHAN ENGINEERING STANDARD

SINGLE VALVE IN CHAMBER

NOT TO SCALE | DESIGNED: _____ | STD. DWG.
REVISION: _____ | DATE: DEC. 2020 | W - 101



NOTES:
1 As an alternative, cold mill existing hot mix to provide a butt joint for full binder course thickness.
2 For integral and semi-integral abutments provide for a 25 x 25mm sawn joint filled with hot poured rubberized asphalt joint sealing compound in the hot mix over the end of the approach slab.
A All dimensions are in metres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING | Nov 2018 | Rev 2

HOT MIX RESURFACING TREATMENT AT STRUCTURE APPROACHES

OPSD 506.010

NOTES
1. 'DOG' BREAKER TO BE USED BETWEEN ALL CONCRETE AND FITTINGS.
2. PROVIDE RESTRAINED MECHANICAL JOINTS OR SLIP-ON JOINTS WITH TIE RODS & CLAMPS AS REQUIRED.
3. THRUST BLOCKS SHALL NOT BE USED WITHIN VALVE CHAMBERS.
4. THRUST BLOCKS SHALL NOT BE USED ON PVC WATERMAINS.

mm DIMENSIONS IN METRES EXCEPT AS NOTED

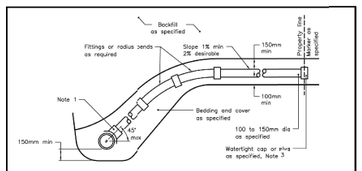
REVISIONS | DATE

VAUGHAN

CITY OF VAUGHAN ENGINEERING STANDARD

BLOCK WATER CONNECTION

NOT TO SCALE | DESIGNED: _____ | STD. DWG.
REVISION: _____ | DATE: DEC. 2020 | C - 103

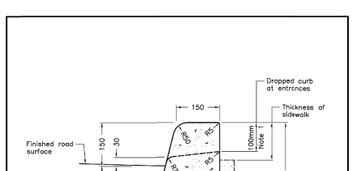


NOTES:
1 Sewer service connections to the main pipe sewer shall be made using factory made tees, strap-on-saddles, or other approved saddles.
2 Vertical risers shall be as specified.
3 Cap or plug at property line shall be adequately braced.
A Maintenance holes shall be used at the main sewer to connect service connections greater than 200mm.
B For new construction, saddles shall be installed on the main pipe before that pipe is laid.
C Approved cut-in tool shall be used for field made connections.
D All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING | Nov 2021 | Rev 4

SEWER SERVICE CONNECTIONS FOR MAIN PIPE SEWER

OPSD 1006.010

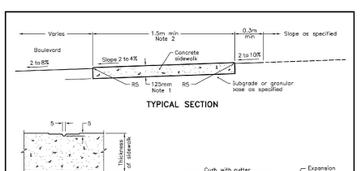


NOTES:
1 When sidewalk is continuously adjacent, the dropped curb at entrances shall be reduced to 75mm.
2 For slipforming procedure a 5% batter is acceptable.
A Treatment at entrances shall be according to OPSD 351.010.
B Outlet treatment shall be according to the OPSD 610 Series.
C The transition from one curb type to another shall be a minimum length of 3.0m, except in conjunction with guide rail where it shall be according to the OPSD 900 Series.
D All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING | Nov 2012 | Rev 2

CONCRETE BARRIER CURB

OPSD 600.110

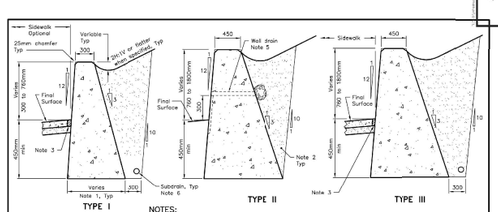


NOTES:
1 Sidewalk thickness at residential driveways and adjacent tc curb shall be 150mm. At commercial and industrial driveways, the thickness shall be 200mm.
2 Sidewalk width shall be wider when specified.
3 This OPSD shall be read in conjunction with OPSD 310.030, 310.031, 310.033, and 310.039.
4 Contraction Joint may be tooled or sawcut.
A All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING | Nov 2019 | Rev 3

CONCRETE SIDEWALK

OPSD 310.010

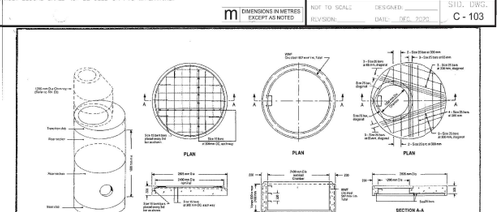


NOTES:
1 Walls shall be founded on undisturbed soil having a minimum bearing capacity at ultimate limit states of 200kPa for Type I and 300kPa for Type II and Type III.
2 Excavation for toe walls shall be backfilled with free draining granular material.
3 10mm preformed joint filler, Type A, non-extruding and resilient bituminous type as specified.
4 Cold applied rubber asphalt joint sealing compound.
5 Where specified, wall drains shall be installed as per OPSD 3190.100.
6 150mm dia perforated pipe subdrain wrapped in geotextile.
A Maximum height of slope above top of wall is 4m.
B Concrete for toe walls shall be 30MPa.
C All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING | Nov 2010 | Rev 2

WALLS RETAINING CONCRETE TOE WALL

OPSD 3120.100



NOTES:
A Max straight through pipe size: 1200 mm dia.
Max right angle side/entry pipe size: 1050 mm dia.
B All monitoring ports shall have 25 mm min cover.
C Where holes, where required, shall be placed so that the bottom of the opening on the inside and the top of the invert on the outside are level.
D All dimensions are in millimetres unless otherwise specified.
E Structures exceeding 6.6 m in depth to invert safety grate as per OPSD 404.02.

CON CAST PIPE | No. 7C1.08

CONCAST
RR#3, 43, Guelph, Ontario N1H 6H9
Tel: 1-800-668-PIPE (7473)

2400 mm Dia.
PRECAST CONCRETE MAINTENANCE HOLES (COMPONENTS)
DEPTH - 10.0 m MAX

LICENSED PROFESSIONAL ENGINEER
SOSCIA
OCTOBER 1, 2020
PROVINCE OF ONTARIO

SOSCIA
PROFESSIONAL ENGINEERS INC.
10376 Yonge Street, Suite 307
Richmond Hill, ON. L4C 3B8
WWW.ssosciaeng.ca
ph 905 237 5410
fax 905 237 5413

PROJECT: PROPOSED INDUSTRIAL WAREHOUSE
CITY FILE:DA.24.032

10533 KEELE STREET
VAUGHAN (MAPLE), ONTARIO

SHEET TITLE:	JOB NO:
DETAILS	24-020
SCALE: N/A	DATE: OCTOBER, 2026
DRAWN: DB	CHECKED: SS
DWG NO: C06	

Standard Development Construction Practices for Works on York Region Roads

1. It is the responsibility of the Owner/ Developer or his Consultant responsible for administering the contract to notify their Contractor(s) to be familia- with and understand the foregoing conditions below. Contractors are expected to have sufficient knowledge, experience and equipment for working on Regional Roads.

2. **No start-up** of road construction projects will be permitted after November 15th or prior to March 31st without special exemption and permission from York Region's Development Engineering Section.

3. **Winter Work:** Any approved development construction within the Regional road allowance, between **November 15th and March 31st** in any given year, will be considered winter work. Any work (new or ongoing) in the road allowance between these dates may not continence or continue without the written consent of the Region's Program Manager of Development Construction. This written consent may be revoked by the Region at any time. **At the Region's discretion, any non-conforming work, in accordance with Provincial and Regional specifications, shall be removed and replaced at the developer's expense, or other measures implemented as determined by the Region.**

   Prior to demobilizing for the winter (the "Winter Shutdown"), the following requirements must be met:

   (a) All excavations must be backfilled.

   (b) The Site must be left clean, tidy and safe.

   (c) Road subgrade and/or road granular shall not be exposed during the Winter Shutdown unless approved in advance by the Region upon written request from the Contractor. The work shall be scheduled such that the asphalt base course is completed on any completed road granular base prior to the Winter Shutdown. Gravel or milled pavement surfaces will not be permitted for the travelled roadway during the Winter Shutdown period.

   (d) Roadways must have temporary or permanent pavement markings and appropriate traffic signage installed in accordance with the Ontario Traffic Manual (OTM), which must be maintained at all times. All construction work areas shall be properly protected from the travelled lanes during the Winter Shutdown.

   (e) Cut or fill slopes left without vegetative cover or erosion control blankets shall be treated before the onset of winter with hydraulic mulch ground cover.

   (f) Positive flow for all storm culverts shall be maintained. If the Contractor is unable to complete the construction of the storm system within the allotted construction window, then additional measures to allow for positive drainage will be implemented by the contractor. This includes the provision of additional creek channelization and/or sandbags as needed to divert the flow to existing culverts or channels and maintain flow.

   (g) Catchbasins and maintenance hole grates shall be adjusted to match the grade of asphalt, ensuring positive drainage and limiting snow removal hazards.

   (h) Repairs to the roadway, interim drainage conditions, erosion control, signage and delineation shall be performed by the Contractor, as required, throughout the Winter Shutdown period as required at the sole discretion of the Region.

   (i) The Region will perform snow clearing and de-icing operations for roads which are open to the public during the Winter Shutdown period. However, any roads where the Region cannot perform these duties will be responsible solely on the developer's contractor prior to opening lanes to the public.

   (j) The Contractor shall be responsible for snow clearing, snow removal, and de-icing of any areas in which they have elected to perform work during the Winter Shutdown period. Snow in these areas shall be removed from the right-of-way and must not impede Regional efforts to keep travelled lanes clear of snow/winter debris.

4. All traffic control devices and signage must be maintained in their proper locations, cleaned, weighted down by sandbags only, and maintained throughout the duration of the Contract. Regional forces will not reinstate temporary signage displaced by winter maintenance operations. The Contractor shall ensure that all construction signs affected by winter maintenance operations are immediately cleaned and reinstated or replaced. A safety log shall be kept ensuring that all temporary safety measures have been inspected regularly and are in good working condition. The Region may request this log at any time.

5. Unless otherwise specified, Ontario Provincial Standards and Specifications (OPSS) and York Region Design Standard Drawings and construction specifications/practices shall be adhered to.

6. A copy of the "**Notice of Project**" shall be submitted to the Development Construction Coordinator at the pre-construction meeting, posted on the contractor safety board on-site and attached to the pre-construction meeting minutes.

7. The Owner/ Developer will ensure that the Regional road surfaces, ditches and boulevards are kept **clear of dust, mud/building and other debris** until the lands represented by this approval are fully developed and assumed by York Region Road Operations. The Owner/Developer acknowledges that the Region will carry out any work deemed necessary at the Owner's expense if such requirements are not carried out within 24 hours of notice being given to the applicant, consulting engineer, Owner or without any notice if, in the opinion of the Commissioner of Corporate Services Department or the designate, it is required immediately. **Repeat infractions will be considered a safety violation and may be subject to invoking a stop work order, revoking of the Road Occupancy Permit (ROP) and/or the required reapplication of the construction access approval including a safety inspection fee of $2,600.00, or as outlined in Schedule "A" to By-law No. 2020-04, as amended.**

   The Region reserves the right to require a **wheel wash station** if it is deemed necessary for the safety of the public, on per project basis.

   In the event that the Region must rectify any deficiencies, make any remedies or must carry out the cleanup of roads from mud, dust, refuse or debris, the Owner acknowledges that the **Region shall invoice the Owner, for each occurrence, a minimum of $2,600.00 or twice the actual cost to perform the work, whichever is greater, as outlined in Schedule "A" to By-law No. 2020-04, as amended.**

8. **Prior to starting any development construction work** within the Regional Road allowance, please contact the following Development Construction Coordinator, 1-877-464-9675 or email to arrange for a pre-construction meeting prior to construction:

   - Joshua Ashfield; 1-877-464-9675 ext. 78012; email: joshua.ashfield@york.ca
     Municipality Area: Town of Whitchurch-Stouffville, City of Markham
   - Ivan Gonzalez; 1-877-464-9675 ext. 75759; email: ivan.gonzalez@york.ca
     Municipality Area: City of Vaughan
   - Henry Leung; 1-877-464-9675 email: henry.leung@york.ca
     Municipality Area: All York Region
   - Nasir Mahmood; 1-877-464-9675 ext. 76929; email: nasir.mahmood@york.ca
     Municipality Area: Town of Newmarket, Town of East Gwillimbury, Town of Georgina, Town of Aurora
   - Wyatt Werner; 1-877-464-9675 ext. 73114; email: wyatt.werner@york.ca
     Municipality Area: City of Richmond Hill, Township of King

9. It is the responsibility of the Owner/Developer or his Consultant for inspections to ensure that the contractor's **locates are staked out prior to any construction** and all utilities are relocated to the approved design grades and location.

10. Prior to any related development construction activity on the Region Road allowance, the Owner/ Developer or designate shall apply to the Region to obtain a **Road Occupancy Permit (ROP)**. The Road Occupancy Permit application is now online only and can be obtained at www.york.ca/roadpermits. Specific traffic control measures such as temporary traffic lights are to be approved by Traffic Safety and Permit prior to implementation. For general inquires please contact 1-877-464-9675, x75700 or permits@york.ca.

11. If the Region deems necessary, **portable variable messaging signs (PVMS)** shall be provided at least 1 week prior to start of development related road widenings and any other road works in the Region right of way to warn the public of potential traffic delays.

12. It is the responsibility of the Owner/Developer or his Consultant to ensure that all emergency services, public transportation routes and school bus services, including York Region Roads Operations Dispatch (**tm_roads_operations_dispatch@york.ca**), or (905)-830-4444 x75200, are notified of any partial or full Regional road closures at least 2 weeks prior to start of development.

13. All existing Regional and local Municipal sanitary and storm infrastructure in the Regional Right-of-way is to be video inspected and condition assessed prior to commencement and post-construction. Video and pictures of the existing site conditions are to be submitted to the Construction Coordinator at the pre-construction meeting and post-construction video inspection to be submitted prior to any security reductions/releases.

14. All new sewer infrastructure installed within the Regional Right-of-way requires a **post-construction video inspection** submitted to the Development Construction Coordinator prior to any security reductions/releases. This includes any extension to existing infrastructure (e.g., road culverts and sewer extensions).

15. **Construction accesses** onto Regional roads are not permitted unless written approval is granted by the Region, provided the Owner/ Developer apply for approval to the York Region Development Engineering Division. Temporary "truck entrance" signs must be installed on the shoulder of the Regional right-of-way and visible from all approaches. Reference shall be made to OTM Book 7 for details on the use and placement of signs. The Owner shall be responsible for the costs of obtaining, erecting and maintaining these signs until the construction access is decommissioned. **Construction accesses shall be constructed as per York Region Drawing No. DS-217. The mud mat is to be fully paved for the entire width of the Regional boulevard (15.0 m typ.), when the hauling operations exceed 75,000 cu.m. total or 40 truck trips per day, whichever is greater, or at the discretion of York Region.** Truck route is to be monitored and cleaned by the contractor/consultant/builder/developer as required and non-compliance will result in the work being completed by York Region's forces and/or full closure of the access and revoking of the ROP at the full expense of the Owner/ Developer per By Law 2020-04, as amended. After completion of the works, the construction access shall be removed and the road, curbs, ditches and boulevard restored to the satisfaction of the Development Construction Coordinator or designate.

    All existing accesses such as old residential/commercial driveways/farm accesses, etc. to the Regional Road cannot be used as a construction access without expressed approval by the Region.

16. One lane of traffic in each direction on Regional roads **must be kept open** between the hours of 9:30 a.m. and 3:30 p.m. or as otherwise permitted by the ROP permit conditions. This is provided that the proper signage and flag persons are present to protect the workers and direct traffic safely through the work zone as per the Occupational Health and Safety Act and Regulations for Construction Projects and OTM Book 7. At all other times, all existing lanes of traffic shall be kept open.

    Loading and unloading of materials and equipment shall take place **off the travelled portion of road** wherever possible. Otherwise, loading and unloading of material and equipment shall only take place between the hour of 9:30 a.m. and 3:30 p.m., provided that proper signage and warning signs are present to protect the workers and direct traffic safely. All steel track equipment or other equipment that may cause damage to the road surface is not permitted for unloading off a Regional Road. **Any damages to the existing Regional Road surface due to unloading activities shall be reinstated in its entirety at the Owner's cost and at the sole discretion of the Region.**

    Truck queuing on Regional Roads is not permitted at any time for the duration of the construction phase of the project.

17. Prior to the commencement of any construction, the Owner agrees that if construction works involve excavating soil or other material that qualifies as "excess soil" under O. Reg. 406/19 – On-Site and Excess Soil Management, as amended, made under the Environmental Protection Act, R.S.O. 1990, c E.19, (O. Reg. 406/19) and/or the importation from another site of "excess soil" for a beneficial use at the site, the Owner shall comply with the applicable requirements of O. Reg. 406/19.

18. All drainage works require **Erosion and Sediment Controls (ESC)** satisfactory to the approval agencies during construction periods. Prior to and during construction, procedures and controls need to be in place for the minimization of erosion and migration of sediment which might occur during construction. The Owner/ Developer shall ensure routine inspections, as well as after every major storm event, for the ESC control devices to maintain their efficiency as per design and field conditions. **Cleanup/bydowse of existing infrastructure, including manholes, catchbasins, culverts, etc., may be required after ESC failures.** The Owner/ Developer or their consultants responsible for inspections are to ensure the contractor adheres to best construction practices and the T.R.C.A./ L.S.R.C.A.'s "Erosion & Sediment Control Guideline for Urban Construction" (current version) in all regulated areas. The Region is to be copied on all ESC reports.

19. It is the responsibility of the Owner/Developer or their Consultant for inspections to ensure that an elevation detail of the existing aerial plant is submitted when overhead cabling is present. **Cables shall not be less than 5.0 m** clearance from the proposed finished grade to the lowest point of the aerial cable as per 3.2.5.6.-Access Route Design, Ontario Building Code Standards.

20. Any **dewatering** discharge activity requires an approved application. Applications are available online by completing the form at www.york.ca/seweruse or contacting 1-877-464-9675 extension 75067 at Public Works Department, Environmental Services.

21. **Tunnel shafts and auger pits** shall be located at the bottom of the ditch line and back slope of the ditch, or beyond the toe of slope in a fill area. All open excavations impacting pedestrian and vehicular traffic shall be protected by barricades with proper crash attenuation measures in place within the Regional road allowance. **No torpedo is to be used** under any of the Regional paved road at any time unless written approval is granted.

22. Steel Liners are required to be installed for watermain, sanitary sewer and sanitary forcemain crossing Regional Road within the ultimate pavement area and extending a minimum of 1.0 m beyond the ultimate edge of pavement or ultimate back of the curb. Steel liners shall have a minimum cover of 2.1 m below the center line of the road. Steel Liners are not required when watermain, sanitary sewer or forcemain crossing of Regional Road is installed via directional drilling.

23. **Trenches** proposed across Regional roads shall be backfilled with unshrinkable fill as per OPSS 1359 material specification for unshrinkable backfill up to road subgrade. Placement shall be a minimum of 1.0 m beyond the existing edge of pavement or back of curb. The trench shall be covered for a minimum of 24 hours with steel plates of sufficient strength to support traffic, prior to restoration of granular and asphalt make up. **The steel plates shall be recessed** into minimum 300 mm wide by 50 mm deep step joint provided in the existing pavement. If the sewer or watermain within the Regional right-of-way is less than 1.2 m in depth, insulation shall be installed with 50 mm of SM insulation or approved equal, in accordance with OPSD 1109.030 & OPSS MUNI 1605, and self-compacting 19 mm (¾") crushed granular material in lieu of unshrinkable fill shall be placed. **The use of High Performance or other rounded granular stone is not permitted.** No traffic is permitted on the granular backfill unless it is protected by approved road plates or asphalt pavement as specified.

24. Where the stability, safety or function of the existing roadway or underground facilities may be impaired due to the contractor's method of operations, the contractor shall provide such protection as may be required. This protection may include **sheathing, shoring and the driving of piles** where necessary, to prevent damage to existing adjacent services or proposed works. Construction for shoring, bracing and protection schemes shall conform to the specifications of OPSS MUNI 404 and OPSS MUNI 539 current version. Additionally, all works shall be carried out in conformity with the Occupational Health and Safety Act and Regulations for Construction Projects. The Consulting Engineer responsible for inspections and/or York Region Development Engineering Division staff **shall notify the Ministry of Labour**, if in their opinion, unsafe conditions exist on site in accordance with Ontario Regulation for Construction Projects and the Owner fails to rectify said unsafe conditions in a timely manner.

25. In urban sections, **all subdrains** shall be 150 mm diameter perforated pipe (OPSS 405) wrapped in nonwoven geotextile (OPSS 1860). In rural sections, subdrains will be required where granular base does not connect with the ditch invert. Ditch inverts shall be at a lower elevation than the granular base to ensure positive drainage. All rural subdrains shall be 150 mm diameter perforated pipe (OPSS 405) wrapped in nonwoven geotextile (OPSS 1860) with rodent gates installed at all outlets spaced at 50.0 m to 70.0 m intervals.

26. **All curb returns** to Regional curb and gutter to be constructed in accordance with the Regional standard curb return drawing number DS-216, OPSS MUNI 353 and OPSS MUNI 1850 current versions for all standard entrances unless otherwise approved. Curb returns in rural sections shall be offset 0.5 m from the edge of travelled portion of the road.

27. When determined by the Region, **catchbasin lids** on existing maintenance holes shall be replaced with a **maintenance hole cover** OPSD 401.010 and the new catchbasin with frame & grate shall be OPSD 400.1100.

28. Modified needed for final adjustments to maintenance holes and catchbasins on driven portions of road shall be a maximum of 150 mm. Any adjustments requiring greater than 150 mm shall require a riser section to be installed.

29. The Owner acknowledges the asphalt on Regional property may contain asbestos, a prescribed designated substance under O.Reg. 409/19 – Designated Substances, as amended, made under the Occupational Health and Safety Act, R.S.O. 1990, c.O.1. The Owner is solely responsible for completing any due diligence required and for compliance with all applicable laws related to designated substances including, but not limited to the Occupational Health and Safety Act, R.S.O. 1990, c.O.1 and the Environmental Protection Act, R.S.O. 1990, c.E.19. The Owner is responsible to ensure the safety of its workers, contractors, subcontractors, consultants, the general public, and others that may be in proximity to the work.

30. **Granular road base** on Regional Roads shall be installed as per OPSS MUNI 314 and OPSS MUNI 1010 and shall be a minimum of 450 mm Granular 'B Type I' and 150 mm Granular 'A' or match existing depths, whichever is greater, or as approved by the Region. All granular material placed under pavement shall be compacted to 100% of the maximum dry density. All other native materials shall be compacted to 95% of the maximum dry density. The results of the compaction tests and analysis shall be monitored by the geotechnical consultant on a **full-time basis**, and reports shall be submitted to the York Region, Development Engineering Division, and attention: Development Construction Coordinator. **Recycled granular material will not be accepted.**

31. **All new asphalt shall be:**
    - **Base course** – minimum of 100 mm (2 lifts of 50 mm) Superpave 19.0 Performance Graded Asphalt Cement (PGAC) 64-28 Category 'D' Roadway, compacted to between 91.0% to 96.5% of Maximum Relative Density (MRD)
      - The maximum Reclaimed Asphalt Pavement (RAP) content allowed in SP 19.0 hot-mix asphalt (HMA) is 15%.
      - The use of recycled shingle tabs in any mix is not permitted.
      - The use of slag as an aggregate in any mix is not permitted.
      - 4.8% PGAC content
      - 5.0% PGAC content is to be used instead of 4.8% when the base course asphalt will be exposed over one or more winter periods.
    - **Top course** – minimum of 50 mm Superpave 12.5 FC 1 PGAC 64-28 Category 'D' Roadway, compacted to between 92.0% to 97.5% of MRD, or as specified
      - No RAP to be used in SP 12.5 top course asphalt
      - 5.0% PGAC content
    - **Tack coat** required between lifts, on existing asphalt, at step joints and on areas specified by the Geotechnical Engineer and/or Development Construction Coordinator in accordance with OPSS 310
    - The Contractor shall use a **material transfer vehicle** that has on-board mixing capabilities, and a minimum storage capacity of 25 tonnes. A material transfer system such as a shuttle buggy (Roadtec SB-2500C Shuttle Buggy ® or approved equivalent) shall be used (note: delete this requirement if scope of work is relatively small i.e., paving small areas)
    - **Joint heaters** shall be used in the construction of longitudinal joints to eliminate the occurrence of cold joints
    - Longitudinal and transverse step joints between the new HMA pavement and the previously paved pavement shall be constructed by trimming the previously paved pavement edge to a straight, clean, vertical surface of at least 50 mm
    - All mixed designs to be submitted to York Region's Development Construction Coordinator at least 48hrs prior to commencing paving operations
    - A **pre-paving meeting** shall be scheduled by the Owner/ Consultant at the discretion of York Region's Development Construction Coordinator
    - The results of the **compaction tests and analysis** shall be submitted to the York Region, Development Engineering Division, Attention: Development Construction Coordinator. The Region requires copies of original asphalt material tickets and summaries to verify material type and quantities
    - All asphalt placed shall be in accordance with OPSS 310, MUNI 1101, MUNI 1151 current versions.
    - Placing of HMA must adhere to OPSS-310.07.06.02 Operational Constraints

32. **Single Unit Residential Driveway** construction makeup:
    Min. 300 mm of Granular 'A'
    Min. 50 mm HL-3 top asphalt

    Multiple Unit Residential/Condominium/Commercial/Industrial Driveway construction makeup:
    Min. 450 mm of Granular 'A'
    Min. 100 mm HL-8 base asphalt
    Min. 50 mm HL-3 HS top asphalt

33. All asphalt tapers and road widening(s) require a **fully paved shoulder** with full depth granular and asphalt for all rural cross-sections. Typical paved shoulder width is 2.5 m, following a granular rounding to the edge of top of slope.

34. All asphalt joints shall include a minimum 500 mm wide by 50 mm depth **step joint** into the existing top course asphalt. Depending on specific site conditions, the width of the step joint may be required to **be increased at the Region's discretion beyond 500 mm** to ensure proper cross-fall from the existing road cross-section and ensure a stable joint into the existing pavement. The Development Construction Coordinator shall be contacted in advance for an on-site field inspection and consultation prior to any paving. All joints will require rout and seal as per material specification OPSS 1212 and construction specification OPSS-341, DensoBand (OPSS.MUNI 1103) or approved equivalent.

35. All permanent durable pavement markings shall be installed in accordance with Regional Specifications and conform to OPSS 710, OPS 1712, OPS 1713, OPS 1714 & OPS 1750.

36. All new **curb drops** to follow OPSD 600.040 concrete barrier curb and gutter standard. Concrete **sidewalk ramps** at intersections to be AODA compliant in accordance with standard drawings DS-119, 120 and 121 and/or as shown in the approved electrical drawings.

37. Any existing driveways, curb drops or ramps that are not proposed/approved **shall be removed** and replaced with full curb as per OPSD 600.040 in urbanized areas or replaced with proper ditch sloping in rural areas, with 100 mm topsoil and sod to stabilize the restoration. Existing driveways cannot be used as construction accesses without approval from the Region as this is a change of the driveway's use.

38. No landscaping, hoarding, fencing, signs, steps, stairs, canopy, sprinkler systems, temporary accesses or any other **encroaching structures are to be permitted** within the Regional road allowance without written approval or encroachment permit from York Region Development Engineering Division.

39. All **grassed areas** disturbed during construction on the Regional Road right-of-way shall be restored with 100 to 200 mm of topsoil and sod placed (staked on slopes and ditches) to the bottom of the granular 'A' shoulder rounding or as required by the Development Construction Coordinator, in accordance with OPSS 803 current version. **All revegetated areas to be maintained periodically or as required (grass watering,grass cutting and boulevard maintenance) by the applicant until final release of securities/assumption by the Region.**

40. Final **restoration works** are to be completed within 6 months of asphalt placement and non- compliance may result in work completed by York Region forces at the expense of the owner with the project application securities used or withheld to ensure payment and final work.

41. Approved drawings, including engineering, underground, landscaping, electrical and detailed traffic management plans **must be adhered to at all times** unless otherwise directed by the Development Construction Coordinator. All works on Regional right-of-way shall be carried out as per the approved drawings and Regional standards/guidelines, OPSS & OPSD drawings & regulatory specifications, policies and/or as required by the Region's Development Construction Coordinator or designate.

42. **New intersections and/or new legs of an existing intersection are not to be opened to any use** until all traffic control measures are installed, including all illumination, signalization, pavement markings, and signage. For new signalized intersections, a signal inspection shall be scheduled by York Region Electrical prior to energization. Final approval for opening shall be determined by York Region Electrical Construction Coordinators and Traffic Operations Technologists. New intersections are to be barricaded to prevent access until specific permission has been given by the Region.

43. **Regulatory and hazard warnings signs** as per OTM Book 5 and OTM Book 6 shall be shown on the approved drawings and/or as required on site by the Development Construction Coordinator and/or the Electrical Construction Coordinator. All permanent signage in the Region's right-of-way shall be installed on minimum **100 mm x 100 mm pressure-treated wooden posts** and as per OTM/York Region standards.

44. The approach ends of a **raised median** on the Regional road shall have the typical "Keep Right" sign and object marker as per the Region specification E-7.01, installed immediately after the median construction. Right in/right out access controlled by a raised median requires a "one way" regulatory control sign as per OTM Book 5, which must be installed prior to the opening of the access.

45. Approved **emergency accesses** to Regional roads are to be in place prior to any building permits being issued for the subdivision. **All gates, bollards etc. shall be located on private property/local municipal lands.** Temporary construction accesses shall be closed off permanently on the Regional road prior to the first residential occupancy or if the Owner/ Developer can demonstrate to the Region that there is no residential use. Temporary sales access use shall be for sales access only and be relocated to the new adjacent road(if applicable) once constructed and open to public traffic.

46. It is the responsibility of the Owner/Developer to **protect all existing survey monumentation** on or adjacent to the site that may be destroyed/ disturbed during construction. Should these monuments be damaged in any way, the owner shall have the survey monuments replaced by an Ontario Land Surveyor (OLS) prior to the reduction or release of any security.

47. All **landscape features** including retaining walls, steps/stairs, footings and columns, fencing, sprinkler systems, etc. to be located on the Private Property and/or behind 0.3 m reserve, will require an OLS Certificate in conformation, **along with a copy of the survey/drawing/sketch** submitted prior to reduction or release of any security. OLS must certify that all 0.3 m reserves through accesses (i.e.: new intersections or driveways) have been lifted prior to public use.

48. **Interlocking concrete paving stones** must be supported on a 125 mm concrete base (including wire mesh and spacing of drainage holes) as per York Region standard SS-100.

49. The Owner/Developer or their Consulting Engineer responsible for inspections shall advise the Contractor that the integrity of the above and below ground Regional road facilities shall be properly located and maintained. Any above/below ground infrastructure damaged during construction is to be reported to the appropriate Regional Development Construction Coordinator, and the repair may require the work to be completed by the Region at the Owner's expense.

50. All **construction correspondence** is to be directed to the York Region Construction Coordinator, Development Engineering Division, and must specify the appropriate **Regional approval and file numbers.**

51. Prior to any **security reduction or release** of the development security deposit, all applicable requirements listed in the "York Region Security Release and Reduction List of Requirements" (current version) shall be submitted to the attention of the appropriate Development Construction Coordinator for Regional clearance. A final inspection must be conducted by the Region and Owner's/Developer's consultant prior to any security reduction or release.

52. The Owner/Developer agrees to **indemnify** the Region, and its employees, elected officials, contractors and agents against any and all actions, causes of legal action, lawsuits, claims and demands whatsoever which may arise either directly or indirectly by reason of undertaking any of the Owner/ Developer's work with respect to the development approvals and construction.

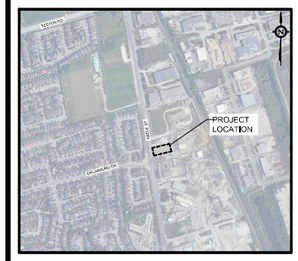
53. The Owner/ Developer must retain a Consulting Engineer as Consultant to ensure compliance of all work within the Region's right-of-way. The Region **at any time may request a copy of the daily construction reports or other timing/scheduling as required** at the sole discretion of the Region.

54. It is a condition of Regional Approval that the Owner/ Developer or their Consultant (responsible for inspections and compliance) **is liable with respect to all work done on Regional property.** This liability shall extend to such time as the works have been granted final compliance, including all invoices paid, land conveyances and listed Region requirements are completed to the Region's satisfaction prior to reduction or release of any security.

Contractor must check and verify all dimensions and be res- possible for same, reporting any discrepancies to the Engineer before commencing work.
Prints shall not be used for construction until signed 'Approved For Construction' by the Engineer.
Prints are not to be scaled.
All drawings, prints and specifications are the property of the Engineer and shall be returned to him on completion of the work.
All work shall be performed in accordance with the latest edition of the ONTARIO BUILDING CODE. NATIONAL BUILDING CODE and regulatory regulations of the Town of Oshawa Building Department.
These notes are to be read in conjunction with all drawings and specifications.

The Contractor shall check all dimensions and other data from the job and report any discrepancies to the Architects before proceeding.

No	DATE	REVISION	DRN	CHKD
1	2024-04-18	ISSUED FOR APPROVAL	DB	SS
2	2024-10-28	ISSUED FOR APPROVAL	DB	SS
3	2025-03-19	ISSUED FOR APPROVAL	DB	SS
4	2025-09-25	REVISED AS PER CITY & REGION COMMENTS	DB	SS
5	2026-05-12	REVISED AS PER UPDATED ARCH SITE PLAN	DB	SS
6	2026-08-05	REVISED AS PER UPDATED ARCH SITE PLAN / BLDG MECH	DB	SS
7	2026-10-13	REVISED AS PER SPA COMMENTS	DB	SS



KEY PLAN

SCALE: NTS

SOSCIA
PROFESSIONAL ENGINEERS INC.
10376 Yonge Street, Suite 307
Richmond Hill, ON. L4C 3B8
WWW.sosciaeng.ca
ph 905 237 5410
fax 905 237 5413

PROJECT: CITY FILE:DA.24.032
PROPOSED
INDUSTRIAL WAREHOUSE

10533 KEELE STREET
VAUGHAN (MAPLE), ONTARIO

SHEET TITLE:		JOB NO:
NOTES		24-020
SCALE: N/A	DATE: OCTOBER, 2026	DWG NO: C07
DRAWN: DB	CHECKED: SS	

Appendix B

Water Demand Calculations

Water Demand Calculation

PROPOSED INDUSTRIAL WAREHOUSE
10533 KEELE STREET VAUGHAN (MAPLE), ONTARIO
City of Vaughan, ON
Project # 24-020

Average Daily Demand	300	l/(ca.day)
N0. of people	31	
Average Water Demand	9300	L/day
	0.11	L/sec
Max Day Demand (1.8 x Ave Day Demand)	0.19	L/sec
Peak Hour Deamd (3 x Ave Day Demand)	0.32	L/sec
Fire Flow (L/S)	17	
WATER DEMAND (Maximuim Day Demand + Fire Flow)	17.19	L/sec

Note:

1. City of Vaughan - Engineering Design Criteria & Standard Drawings (December 2020) Section 1.5

Calculation Sheet 6

FIRE FLOW CALCULATION
FIRE UNDERWRITERS SURVEY (1999)

PROJECT: PROPOSED INDUSTRIAL WAREHOUSE
10533 KEELE STREET VAUGHAN (MAPLE), ONTARIO

1. Fire Flow Equation

$F = 220\ C\ \sqrt{A}$

where ,
F is the required fire flow [LPM]
C is the coefficient determined by type of construction [unitless]
A is the total protection area [sq.m]

2. Architecture Information

	C-Store/Retail
Type of Construction	Combustible
Fire Rating	
Sprinkler Provided (Y/N)	N
Floor Area (Largest Unit)	
Total Floor Area [sq.m]	949
Coefficient, C [1]	0.8
Fire Flow, F [LPM]	5423

3. Combustible Product Risk

Occupancy Adjustment	75%
Fire Flow, F [LPM]	4067

4. Sprinkler Reduction

Sprinkler Reduction	0.30
Sprinkler Reduction [LPM]	1627

(Note: Sprinkler required for hotel as per OBC 3.2.2.20 - 83)

5. Exposure Adjustment

North	0.005%
East	
South	
West	
	0.005%
Exposure Adjustment [LPM]	0.3

6. Required Fire Flow, Duration & Volume

Fire Flow, F [LPM]	2441
Sprinkler Reduction [LPM]	1627
Exposure Adjustment [LPM]	0.3
Required Fire Flow [LPM]	814
Required Fire Flow [LPS]	**17**

Appendix C

Hydrant Flow Test

SPARKMAN
FIRE PROTECTION SERVICE

Fire Hydrant Flow Tests

Date of Service: June 27, 2025		**Last Service Date:**	
Daily ☐	**Weekly** ☐	**Monthly** ☐	**Quarterly** ☐
Semiannual ☐	**Annual** ☑	**Third Year** ☐	**Fifth Year** ☐
Contact Person:	**Building Name:**		
Phone:	**Address:** 10533 Keele St		
Fax:	**City:** Vaughan	**Postal Code:**	

Purpose of Test	Fire hydrant flow test for fire sprinkler system design and hydro calculation			
Consumption Rate During Test				
If pumps affect test, indicate pumps operating				
Flow Hydrants	**1**	**2**	**3**	**4**
- Nozzle Size	2.5"			
- Pitot Reading	57 psi			
- Discharge coefficient	0.9			
- GPM (Total GPM)	1267			

Static B 80 **PSI** | **Residual B** 65 **PSI**

Project Results at 20 psi Residual **GPM; or at** 65 **PSI Residual** 1267 **GPM**

Yes	No	N/A	Annual Inspection
☑	☐	☐	Fire Hydrant Accessible?
☑	☐	☐	Outlets free from leaking?
☐	☑	☐	Cracks in the hydrant barrel?
☑	☐	☐	Are outlets easily moveable and lubricated?
☑	☐	☐	Threads in good condition?
☑	☐	☐	Operating nut in good condition?
☑	☐	☐	Is there a shut off located within a 2 foot perimeter?
			Annual Test
☑	☐	☐	Test was conducted for longer than 1 minute?
☑	☐	☐	Dry barrel hydrant barrel drained in less than 60 min?
☑	☐	☐	Dry Barrel Hydrant was pumped out?

Remarks/Comments:

Technician	Certification Number	Date	Owner or Authorized Agent
Xin Zhou	16021713	June 27, 2025	

Appendix D

Sanitary Demand Calculations

Sanitary Sewage Flow Calculation
PROPOSED INDUSTRIAL WAREHOUSE
10533 KEELE STREET VAUGHAN (MAPLE), ONTARIO
City of Vaughan, ON
Project No. 24-020

Average Daily Flow Generation Rate	370	L/(ca.day)
No. of People	31	
Average Daily Flow Generation Rate	11470	L/day
	0.13	L/sec
Harmon Peaking Factor K	4.00	
Peak wastewater flow (K x Ave Day Demand)	**0.53**	L/sec
Infilltration Allowance	0.26	L/s/ha
Total Site Area	0.22	ha
Infilltration Allowance IA	**0.06**	L/sec
Total Flow = Peak flow + IA		
Total Flow	**0.59**	L/sec

Note:
1. City of Vaughan - Engineering Design Criteria & Standard Drawings (December 2020) Section 1.4

Appendix E

Hydrogeological Assessment Report

Hydrogeological Assessment

Proposed Development
10533 Keele Street, Vaughan, Ontario

Keele Street (10533) Ltd.

14 July 2025

→ The Power of Commitment

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Appendix C Single Well Response Test Analyses
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Appendix F Construction Water Taking Estimates
Appendix G MECP Well Records

1. Introduction

GHD was retained by Keele Street (10533) Ltd. to carry out a hydrogeological investigation for the proposed self-storage facility located at 10533 Keele Street, Vaughan, Ontario (Site). A site location plan is provided in the attached **Figure 1.1**.

Based on information provided, it is GHD's understanding that the proposed preliminary development will include the construction of industrial slab-on-grade one storey warehouse type building, with a driveway north and east of the proposed building and no basement level. The proposed building is approximately 864.74 m^2 in size. The Site currently consists of a one-story building, which will be demolished, and existing parking lot on the south of the existing building that is bounded by Keele Street. The Site plan as depicted in "Concept Site Plan Study-1 & Site Stats and Elevations" dated April 15, 2024, can be seen in **Figure 1.2.**

The hydrogeological investigation was undertaken concurrently with the geotechnical investigations and environmental (GHD, 2023 a[1],b[2])

2. Background

2.1 Site Description

The Site is located at 10533 Keele Street, Vaughan, Ontario (**Figure 2.1**). The Site is located in an area that is zoned for general employment, agricultural, open space and residential, and industrial land uses. The Site is roughly rectangular in shape and approximately 0.21 hectares in size. The Site is currently owned by Brovi Investments Ltd. and is occupied by a vacant residential structure built in 1890 with an addition completed in the 1970s.

The Site is bound to the north by an independent business and further to the north by undeveloped lands. The Site is bound to the east by a waste management and transfer site, and further by transportation lands and commercial properties. The Site is bound to the south commercial and industrial properties. The Site is bound to the west by Keele Street and further to the residential suburbs.

The Site and surrounding properties are anticipated to have municipal water and sewer services. Potable water at the Site and surrounding area is supplied by City of Vaughan. Water is purchased from the City of Toronto, which is supplied by intake stations at Lake Ontario. The nearest surface water feature to the Site is stormwater management pond, which is located approximately 350 m southeast of the Site. Tributaries of the Don River West Branch are located 1 km northwest of site, the Don River discharges into Lake Ontario approximately 27 km southeast of the Site. (**Figure 2.2**).

2.2 Regional Setting

The Site is located in the Southern Slope and Oak Ridges Moraine physiographic region[3], which is characterized by drumlinized till plain and kame moraines (**Figure 2.3**). The area is underlain by the Halton Till, which is locally a silt to silty clay matrixed till, fine textured glaciolacustrine deposits. Gravelly glaciofluvial ice contact deposits are mapped locally. The topography in the region is generally sloped towards the Lake Ontario with the Site having an elevation of 259 to 258 metres above mean sea level (mAMSL) sloping to the south. Regional surficial geology mapping[4] of the

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1 GHD, April 18, 2023a. Geotechnical Investigation. Proposed Development – 10533 Keele Street, Vaughan, Ontario. Prepared for Keele Street (10533) Ltd.

2 GHD, April 16, 2023b. Phase One Environmental Site Assessment. Proposed Development – 10533 Keele Street, Vaughan, Ontario. Prepared for Keele Street (10533) Ltd.

3 Chapman, L.J. and Putnam, D.F. 2007. Physiography of southern Ontario; Ontario Geological Survey, Miscellaneous Release--Data 228.

4 Surficial Geology of Southern Ontario - Miscellaneous Release--Data 128-REV. Ontario Geological Survey, 2010.

area indicates that the Site and surrounding lands are underlain by clay to silt textured till derived from glaciolacustrine deposits or shale (**Figure 2.4**).

Overburden underlying the Site is generally described as a thick sequence of fine textured glaciolacustrine deposits and Halton Till overlying limestone and shale bedrock from the Georgan Bay Formation[5] (**Figure 2.6**). The surficial geology and general stratigraphic framework for the Site consists of the following deposits:

– Surficial Material – topsoil and fill.
– Glacial Till Deposits – Silt Clay Textured Till, interbedded sandy silt layers.
– Bedrock (Georgian Bay Formation) –Shale and Limestone.

The locations of water wells recorded by the Ministry of the Environment, Conservation and Parks (MECP) within 500 m of the Site are shown on **Figure 2.5**, and a summary of the Well Records is presented in **Appendix F**. Based on a review of the Well Records, the majority of the records are for monitoring wells, observation and test holes or are unknown. Based on the urban nature of the area, local properties are anticipated to have municipally sourced water supply.

2.3 Source Water Protection

The Site is situated within the DO05 sub watershed of the Don River Watershed and is in the Toronto source water protection area. The Toronto source water protection area is under the joint jurisdiction of the Central Lake Ontario, Credit Valley, Region of Toronto Conservation Authority. The approved Source Protection Plan (2015, amended 2022) is the reference document, which outlines the policies with the jurisdiction boundaries.

The Site boundaries were evaluated to identify any potential drinking water vulnerabilities and threats, including the proximity to any vulnerable areas, including the following:

– Wellhead Protection Areas (WHPA).
– Intake Protection Zones (IPZ).
– Highly Vulnerable Aquifers (HVA).
– Significant Groundwater Recharge Areas (SGRA).
– Wellhead Protection Area-Q (WHPA-Q, Water Quantity).

A summary of the information provided in the MECP Source Protection Information Atlas[6] is presented in **Table 2.1**.

Table 2.1 Summary of Source Water Protection Vulnerability

Source Protection Details for Site					
Source Protection Area	Toronto	Wellhead Protection Area (WHPA)	No	Wellhead Protection Area E (GUDI)	No
Intake Protection Zone (IPZ)	No	Issue Contributing Area:	No	Significant Groundwater Recharge Area (SGRA):	No
Highly Vulnerable Aquifer (HVA)	No	Event Based Area	No	Intake Protection Zone Q (IPZ-Q)	No
Wellhead Protection Area Q1 (WHPA-Q1)	Yes; Moderate	Well Head Protection Area Q2 (WHPA-Q2)	Yes; Moderate		

[5] Ontario Geological Survey (1991), Bedrock Geology of Ontario, Southern Sheet – Map 2544, Scale 1:1,000,000.

[6] Ministry of Environment, Conservation and Parks. (Last update August 9, 2023). Source Protection Information Atlas, accessed on October 27, 2023. https://www.lioapplications.lrc.gov.on.ca/SourceWaterProtection/index.html?viewer=SourceWaterProtection.SWPViewer&locale=en-CA.

As indicated in **Table 2.1**, the Site is not located within a wellhead protection area, intake protection zone, issue contributing area, significant groundwater recharge area or event-based area. The Site is located within a wellhead protection area (Q1 and Q2).

3. Methodology

Cognizant of the objectives of the project, the following activities were undertaken:

– Borehole advancement and installation of monitoring wells was undertaken during the geotechnical investigation in selected boreholes to facilitate the collection of groundwater levels to determine groundwater flow conditions.
– Single Well Response Tests (SWRT) to determine hydraulic conductivity and groundwater flux of the saturated stratigraphic deposits investigated.
– Ongoing groundwater monitoring for the duration of six- months to determine seasonal fluctuations of the groundwater table.

The investigative activities listed above were completed concurrently with environmental and geotechnical investigations (GHD, 2023 a,b) undertaken by GHD. Details of these investigations are summarized in the following sections, and GHD's field investigation methodology and protocols are provided in **Appendix A.**

3.1 Borehole Advancement and Monitoring Well Installations

Four (4) boreholes identified as Boreholes MW01-24 to MW13-24 were advanced between March 27 and March 28, 2023, to depth of 6.7 m below ground surface (bgs). All four (4) boreholes were equipped with 50 mm diameter monitoring wells upon completion (designated as MW1-24, MW2-24, MW3-24, and MW4-24). The drilling and monitoring well installation methods and procedures are presented in **Appendix A**. The well completion details for the monitoring wells are presented on **Table 3.1**, and the monitoring well and borehole locations are shown on **Figure 3.1.**

The drilling work was carried out utilizing a track-mounted drill rig supplied and operated by specialty drilling subcontractor Landshark Group, based in Bradford, Ontario, under the full-time supervision of a GHD technical representative. All monitoring wells were installed by Landshark consistent with the requirements of Regulation 903 – Wells (R.R.O 1990) and O.Reg. 153/04 (as amended).

The boreholes were advanced using hollow stem augers. Soil samples were collected at every 0.75 metres to a depth of 3.0 m and every 1.5 m thereafter up to the termination depth of the boreholes. All samplings were conducted using a 50 mm outside diameter split spoon sampler in general accordance with the specifications of the Standard Penetration Test (SPT) Method (ASTM D1586)[7]. In addition, at each borehole location, the relative density or consistency of the soil layers were measured by counting the number of SPT blows (‘N’ values) required to drive a conventional split-barrel soil sampler a vertical distance of 0.3 m. Soil samples were retrieved from each borehole location to verify strata boundaries and soil properties.

The borehole locations and ground surface elevations were obtained using a Leica Global Navigation Satellite System (GNSS). The locations given on the borehole logs are positioned relative to UTM Coordinates (UTM-18 NAD83) northing and easting coordinates and the ground surface elevations are referenced to Geodetic datum. A summary of the borehole locations, geographic coordinates, ground surface elevation, and drilled depths are presented in the table below.

The detailed description of the soil, groundwater conditions and stratigraphy as encountered at the borehole locations are recorded on the accompanying borehole logs presented in **Appendix B**.

[7] ASTM D1586-18 - Standard Test Method for Standard Penetration Test and Split-Barrel Samplings of the soil, ASTM International, West Conshohocken, PA 2015

3.2 Hydraulic Testing

Single well response testing (SWRT) was completed all selected monitoring wells to estimate the horizontal hydraulic conductivity of the saturated geologic deposits underlying the Site. Tests were completed on monitoring wells MW1-24, MW2-24, MW3-24, and MW4-24. The SWRT results are presented in **Table 3.2**.

Single well response tests involve the injection or removal of a known volume of water into/from the well and measuring the water level response in the well until it returns to static conditions (i.e., falling/rising head test). The results of the hydraulic testing were analysed using the Bouwer and Rice (1976)[8] and Dagan (1967)[9] aquifer test solutions for unconfined conditions using the software AQTESOLV™. These solutions were used to determine the horizontal hydraulic conductivity of the geologic deposits within the immediate vicinity of the screened interval of each monitoring well. The AQTESOLV™ analysis reports are presented in **Appendix C** and are summarized in **Table 3.2**.

Prior to undertaking the SWRT, the monitoring wells were developed to repair the formation damage resulting from drilling action and to restore the natural hydraulic properties of the formation. A Waterra® check valve and new dedicated polyethylene tubing was used to develop the wells. The well development results in the surging and agitation of the water column to remove fine materials in the well pack and surrounding geologic formation to achieve a silt free condition prior to sampling. Development activities involved the removal of approximately five to ten well volumes using an inertial pump, depending on the groundwater availability and the recharge characteristics of each groundwater monitoring well. Well volumes were determined by measuring the depth of water between the static groundwater level and the bottom of the well. The development method is described in **Appendix B**.

3.3 Groundwater Level Monitoring

Groundwater levels were measured at all wells on April 5, 2024, June 18, 2024 and June 27. Groundwater levels were measured with reference to the surveyed top of riser pipe using an electronic water level meter. The depth to water below top of riser pipe was converted to depth in metres below ground surface (mBGS), and these levels are presented in **Table 3.3**. The groundwater elevations expressed in geodetic elevation in metres above mean sea level (mAMSL) are presented in **Table 3.4**. The manual groundwater elevation data and level logger data are presented on the hydrograph in **Appendix D**.

4. Geology and Hydrogeology

The following sections provide a description of the geology and hydrogeology of the Site, based on the results of the investigations completed. Hydrostratigraphic cross-section A-A' oriented in a southeast-northwest direction and cross-section B-B’ oriented in a northeast-southwest direction across the Site are shown on **Figure 4.1** and **4.2.** The cross-section locations are presented on **Figure 3.1.**

4.1 Site Geology

Based on the results from the drilling activities, the following surficial materials and geologic deposits underlie the Site (see **Figures 4.1** & **4.2**):

– ***Surficial Material (0 up to 3.0 mBGS) –*** surficial materials & fill
– ***Silty Clay Deposit (1.5 up to 6.7 mBGS) –*** silty clay
– ***Halton Till Deposit (3.0 to 7.9 mBGS) –*** sandy silty clay to sandy silt till

[8] Bouwer, H. and R.C. Rice, 1976. A slug test method for determining hydraulic conductivity of unconfined aquifers with completely or partially penetrating wells, Water Resources Research, vol 12, no. 3, pp. 423-428.

[9] Dagan, G., 1967. A method of determining the permeability and effective porosity of unconfined anisotropic aquifers, Water Resources Research, vol. 3, no. 4, pp. 1059-1071.

Surficial Material – Asphalt/ Tile / Fill

A layer of surficial asphalt and tile approximately 76 to 102 mm thick was encountered at the ground surface at MW1-24 and MW2-24 borehole locations.

Fill material was encountered at each of the borehole locations. The Fill extended to approximately 1.5 to 3.0 mBGS, and consisted of silty sand granular base overlaying reworked native soils comprised of silty clay containing variable amounts of sand and gravel. The fill materials were observed to be oxidized, with intermixed rootlets, asphalt, glass, bricks and organics, moist to very moist, and dark brown to black in colour. The fill material thickness varied from 1.4 to 2.9 m.

Silty Clay Deposit

Native deposits consisting of cohesive silty clay sandy to some sand was encountered underlaying the fill material in boreholes MW2-24, MW3-24, and MW4-24. The cohesive silty clay deposits extended to depths ranging from 1.5 to 3.0 mBGS (elevation 255.3 to 254.9 mAMSL).

The silty clay contained variable amounts of sand and trace amount of gravel, was brown in colour, in a moist to very moist condition and stiff to very stiff in consistency.

Halton Till - Sandy Silty Clay or Sandy Silt Till Deposit

Granular deposits of glacial till generally comprised of sandy silty clay or sandy silt were encountered underlying the fill material in MW1-24 or native cohesive silty clay soils in MW2-24, MW3-24, and MW4-24, extending to termination of the borehole (elevation 251.6 to 250.8 mAMSL).

The silty sand to sandy silt till deposit contained various amounts of clay and trace amount of gravel, was brown to grey in colour, in a moist to very moist condition, with a hard consistency. Silty sand seams were observed in MW3-24.

4.2 Site Hydrogeology

A review of the geologic cross-section (**Figures 4.1** and **4.2**) and **Table 3.2** indicates that the primary aquifer/aquitard units underlying the Site include the following:

Silty Clay Deposit – Sandy Clayey Silt to Silty Clay (Semi-Confining Aquitard) – No hydraulic testing was carried out on this unit. Based on the grainsize distribution from MW2-24 and the range of hydraulic conductivity of natural soils for clayey sand is anticipated to range from 1 x 10^{-4} cm/s to 1 x 10^{-3} cm/s[10]. The hydraulic conductivity range is relatively low and representative of a semi-confining aquitard.

Fine-textured Glacial Till Deposit – Sandy Clayey Silt to Silty Clay Till (Semi-Confining Aquitard) – Based on hydraulic testing, the horizontal hydraulic conductivity of the sandy silty clay till ranged from 9.35 x 10^{-4} cm/s to 1.69 x 10^{-5} cm/s. The geometric mean hydraulic conductivity is 1.67 x 10^{-4} cm/s, which is relatively low and representative of a semi-confining aquitard.

4.3 Groundwater Levels

All groundwater levels collected from the on-site monitoring wells are summarized in **Tables 3.3** & **3.4** and a hydrograph of the observed levels is presented in **Appendix D**. The depth to water table and groundwater elevation contours from the monitoring event on April 5, 2024, are presented on **Figures 4.3 & 4.4** for the overburden monitoring wells.

Review of the manual groundwater monitoring data for the shallow wells on Site and **Figures 4.3** & **4.4** indicates that the groundwater table was on average 2.37 mBGS, with the lowest water level observed as 3.29 mBGS at MW1-24 on April 2, 2024 and the highest water level observed was as 1.23 mBGS at MW3-24 on April 5, 2024. The lowest

[10] J. Patrick Powers, Arther B. Corwin, Paule C. Schmall and Water E. Kaeck, *Construction Dewatering and Groundwater Control: Range of Hydraulic Conductivity of Natural Soils* (New Jersy, John Wiley & Sons, Inc, 2007), 31, table 3.5.

groundwater elevations for the monitoring wells observed as 254.99 mAMSL at MW1-24 on April 2, 2024 and the highest water level observed was at 257.09 mAMSL at MW3-24 on April 5, 2024 (**Figure 4.4**).

Manual groundwater level monitoring is ongoing at the Site and will be collected monthly and continuous levels will be collected with electronic data loggers over the duration of the monitoring period to verify and further assess stable groundwater levels and seasonal fluctuations.

4.4 Groundwater Management - Quality

Groundwater samples were collected from a monitoring well for analysis of the parameters listed in the Region of York Sewer Use By-Law (York Region Sewer Use Bylaw 2021-102) and City of Vaughan Sewer Use By-Law (Vaughan Sewer Use By-law 130-2022). Results from the laboratory analyses are presented in **Table 3.5** and the laboratory analytical report is provided in **Appendix E**.

Based on a review of **Table 3.5**, there were no exceedances of the sewer bylaw criteria. As the water that accumulates in the excavation will primarily be a combination of stormwater seepage and runoff and direct precipitation, the groundwater sample analytical results alone are not representative of the actual excavation discharge water quality. Pre-treatment methods such as settlement, filter bags and/or other methods may be required to meet the storm sewer use criteria. Additional sample collection will be required from the construction water takings prior to discharge to the municipal sewer.

5. Construction Dewatering Estimates

It is GHD's understanding that the Site will be developed into an industrial single-story slab-on-grade warehouse with no basement level, utility services and access roadways as per the above stated conceptual site plan provided. Dewatering is anticipated for the utility services excavation based on the hydrogeological findings at the time of this report.

5.1 Construction Water Takings – Utilities

A summary of the relevant depths and corresponding elevations is provided as follows:

Table 5.2 Summary of Relevant Construction Dewatering Depths – Proposed Utility Excavation

Utility Excavation	Depth (mBGS)	Elevation (mAMSL)
a) Ground	0.0	258.00
b) Water Table	1.23*	256.77
c) Bottom Excavation	3.0	255.00
d) Bottom Dewatering	4.0	254.00

Note: mBGS - metres below ground surface
mAMSL - metres above mean sea level.
*based on a high water level measured on April 5 2024

The required water table drawdown is anticipated to be about 2.77 metres for the utility excavations, based on the above (256.77 mAMSL – 254.0 mAMSL = 2.77 m).

The temporary water takings and area of influence during an open cut excavation were determined using the field test results and the analytical solution for groundwater seepage (unconfined flow) to a trench (CGS, 2013), as presented below.

EQUATION AND PARAMETERS

1) $$Q = \frac{\pi K(H^2-h^2)}{\ln R_O/r_w} + 2\left[\frac{xK(H^2-h^2)}{2L}\right]$$

2) $$r_w = \frac{a+b}{\pi}$$

3) $$L = R_O = 3000(\Delta H)\sqrt{K}$$

where:

Q = constant pumping rate (m^3/day)
K = hydraulic conductivity (m/day)
H = Height of groundwater pressure (m)
h_w = Dewatering height (m)
R_o = Radius of influence (m)
r_w = Radius of footprint (shaft) (m)
a = Length of excavation (m)
b = Width of excavation (m)

Note: Height measurements are relative to base of active groundwater flow system (assumed to be competent bedrock at base of excavation).

The analytical model input parameters are provided on **Appendix F.1**, and are summarized as follows:

Q = calculated groundwater seepage rate for an excavation with dimensions 15 x 3 m
K = 0.45 m/day (5.26 x10^{-4} cm/sec)
H = 2.77 m height of water table
h_w = 0 m dewatering height
Ro = 13.36 m
r_w = 2.55 m
a = 15.0 m
b = 3.0 m

Due to the limited depth of the utility excavation of 3 m the hydraulic conductivity used to estimate the groundwater seepage was the hydraulic conductivity silty clay deposit, a conservative hydraulic conductivity estimate of 1.00 x 10^{-3} cm/sec was used.

The groundwater seepage to the excavation is estimated to be approximately 15.22 cubic metres per day (m^3/day) (**Appendix F**) or 15,220 litres per day (L/day), or 10.57 litres per minute (L/min). As the estimate above is for steady state conditions, it does not consider water taking rates at the commencement of dewatering. During this period, water takings can be higher to remove water storage in the immediate vicinity of the excavation. A safety factor of 3X is applied to the estimated steady state groundwater seepage rate to account for this short-term increased water taking. The maximum short term construction water takings are estimated to be up to 45.66 m^3/day (45,660 L/day) based on a 3X safety factor.

Self-registration on the Ministry of the Environment, Conservation and Parks (MECP) Environmental Activity and Sector Registry (EASR) is required for construction water takings between 50,000 to 400,000 litres per day (L/day), and a Permit to Take Water (PTTW) is required for construction water takings of greater than 400,000 L/day. The estimated water takings for the utility trench excavations are estimated to be up to 45,660 L/day. The estimated water takings are below the 50,000 L/day limit. Based on this, an EASR is not required for the construction groundwater takings for the utility trench excavations.

6. Summary

Based on the results of the hydrogeological investigation and monitoring undertaken to date, the following summary and conclusions are provided:

1. The Site is primarily underlain by the following deposits: fill material overlying a silty clay (sandy silt clay to silty clay) and fine-textured (sandy silty clay till) glacial till deposits. The fill was moist, and groundwater was present within the silty clay and sandy silty clay till deposit.
2. The geometric mean hydraulic conductivity calculated for the sandy clayey silt to silty clay till is 1.67×10^{-4} cm/s, which is relatively low and representative of a semi-confining layer. The geometric hydraulic conductivity calculated for the clayey silt till is estimated to range from 1×10^{-4} cm/s to 1×10^{-3} cm/s, which is moderate and representative of an aquitard.
3. Groundwater quality meets the sewer bylaw discharge criteria for all parameters.
4. The groundwater table elevation ranged from approximately 254.99 to 257.09 mAMSL. Manual and electronic groundwater level monitoring is ongoing at the Site.
5. **Proposed Utility Excavations:** The construction groundwater takings for the proposed utility excavations are anticipated to be up to 45,660 L/day) based on a 3X safety factor. The typical groundwater taking is estimated to be approximately 15,200 L/day) once groundwater levels are lowered and during a dry period. The groundwater takings are below the EASR limit of 400,000 L/day. Based on this, an EASR is not anticipated to be required for the construction groundwater takings for the utility excavations.

All of Which is Respectfully Submitted,

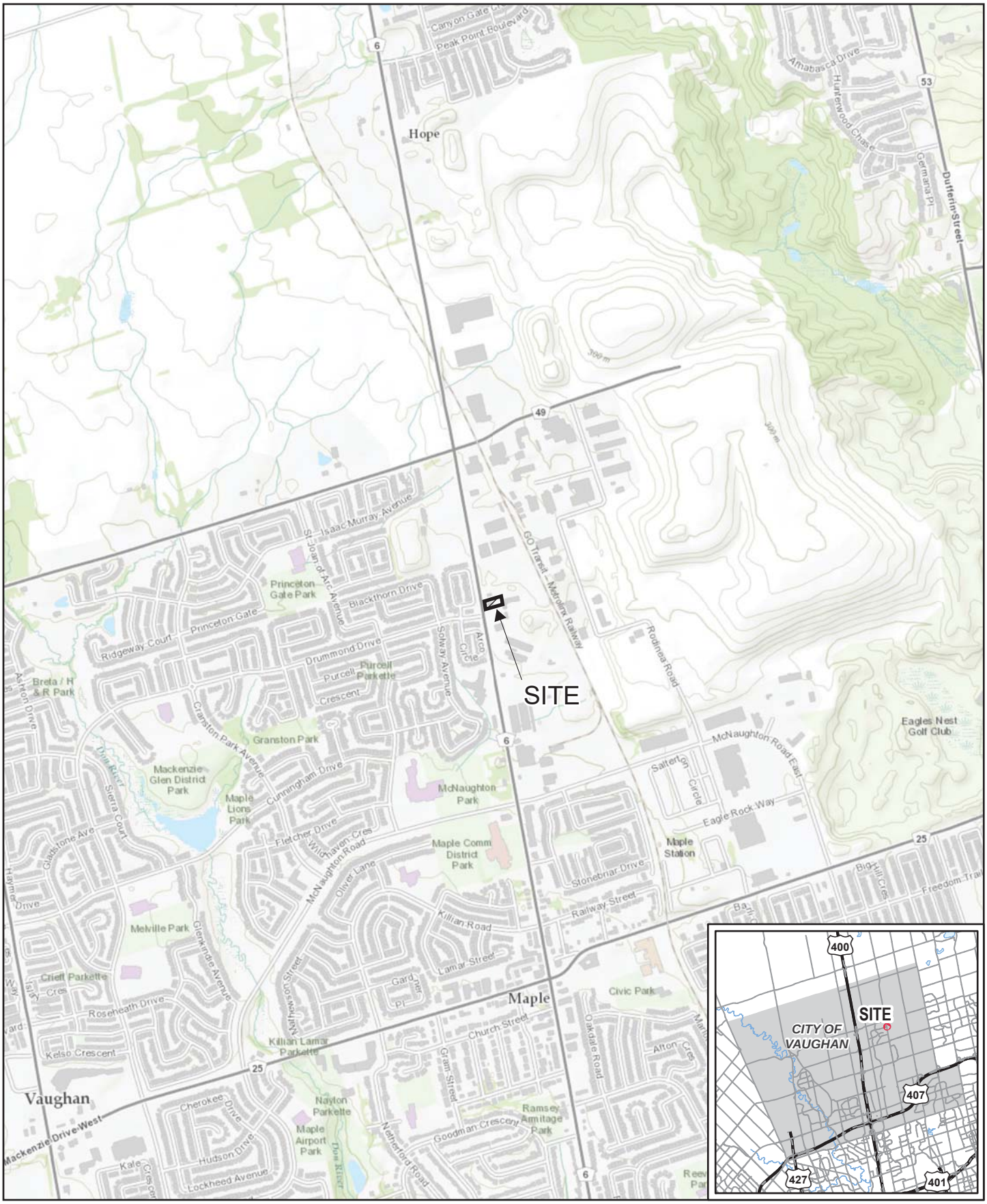
GHD

Palmer Willis, G.I.T.



Sean Andreou, MSc, P.Geo

Figures



Paper Size ANSI A

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Metres

Map Projection: Transverse Mercator
Horizontal Datum: North American 1983
Grid: NAD 1983 UTM Zone 17N

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10533 KEELE STREET, VAUGHAN, ONTARIO
PHASE ONE ENVIRONMENTAL SITE ASSESSMENT

Project No. **12636323**
Revision No. **-**
Date **Apr 19, 2024**

SITE LOCATION MAP

FIGURE 1

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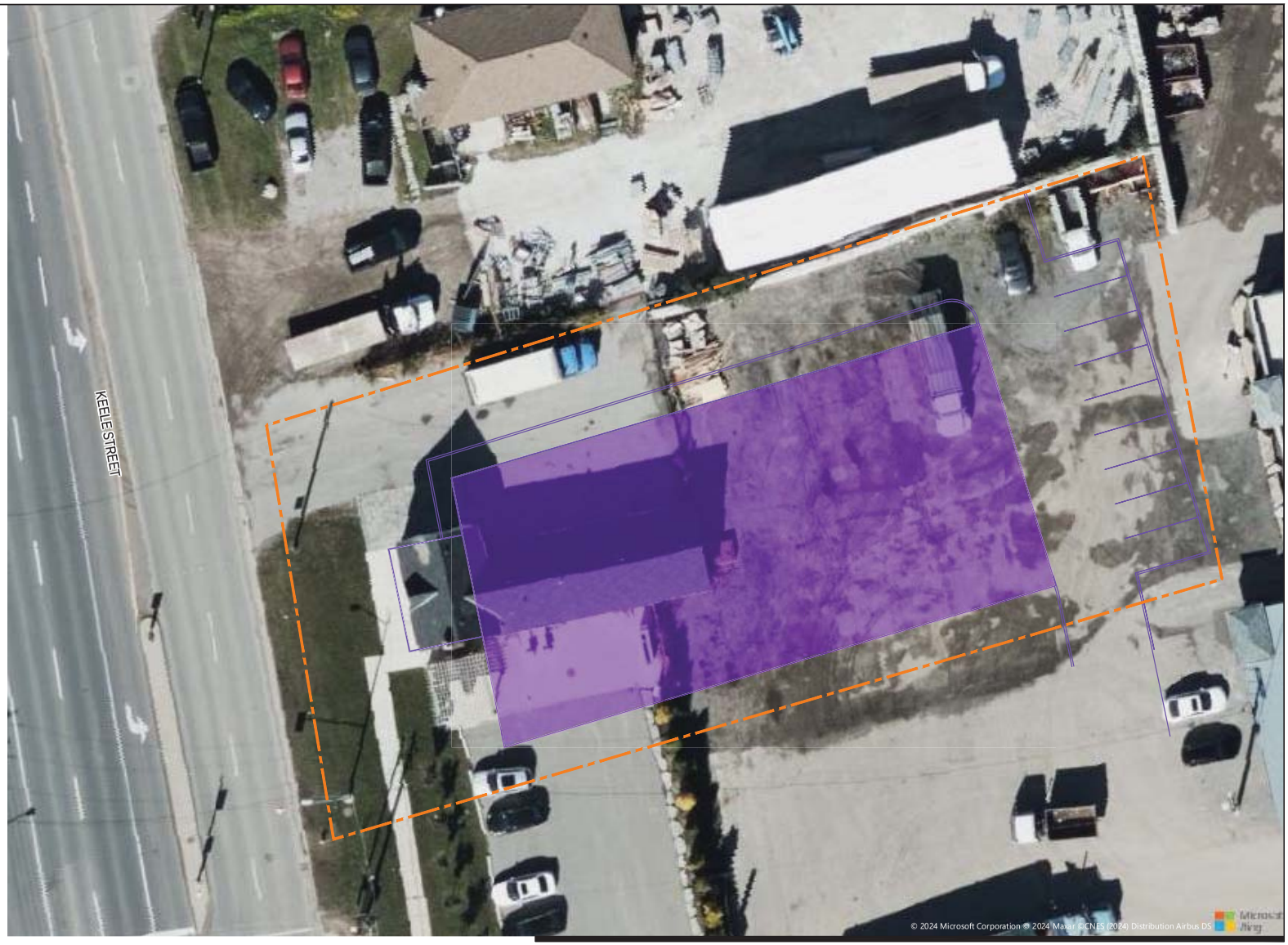
Data source: MNRF NRVIS, 2018. Produced by GHD under licence from Ontario Ministry of Natural Resources and Forestry, © Queen's Printer 2024. Esri World Topographic Basemap, 2024.

LEGEND

PROPERTY BOUNDARY

PROPOSED FEATURE

PROPOSED BUILDING FOOTPRINT



0 3 6 9m

1:300

Coordinate System: UTM83-17

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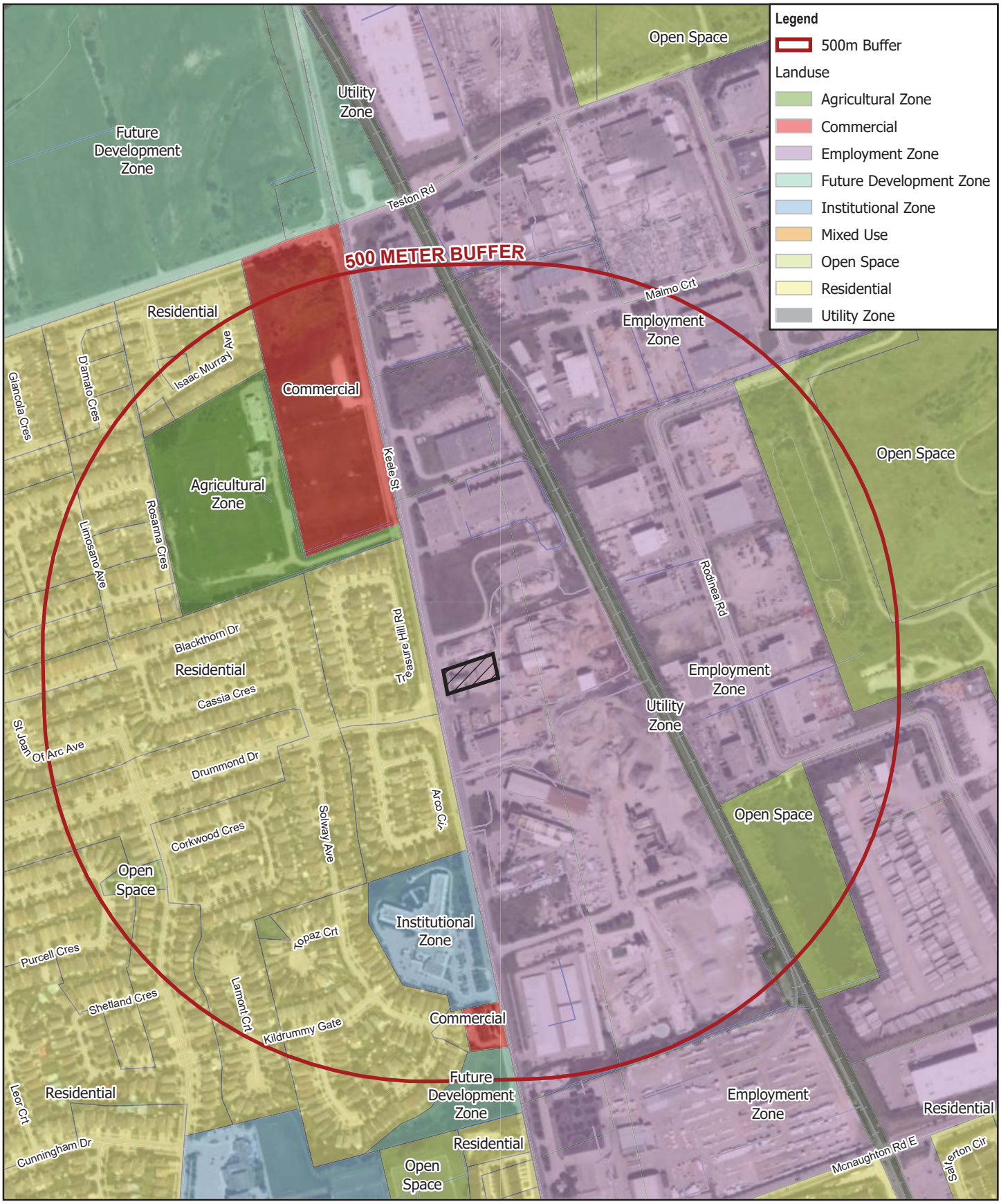
HIGHSIDE COMPANIES
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HYDROGEOLOGICAL ASSESSMENT

SITE PLAN

Project No. 12636323
Date April 2024

FIGURE 1.2

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Meters

Map Projection: Transverse Mercator
Horizontal Datum: North American 1983
Grid: NAD 1983 UTM Zone 17N

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Date **Apr 19, 2024**

LAND USE ZONING MAP

FIGURE 2.1

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Metres

Map Projection: Transverse Mercator
Horizontal Datum: North American 1983
Grid: NAD 1983 UTM Zone 17N

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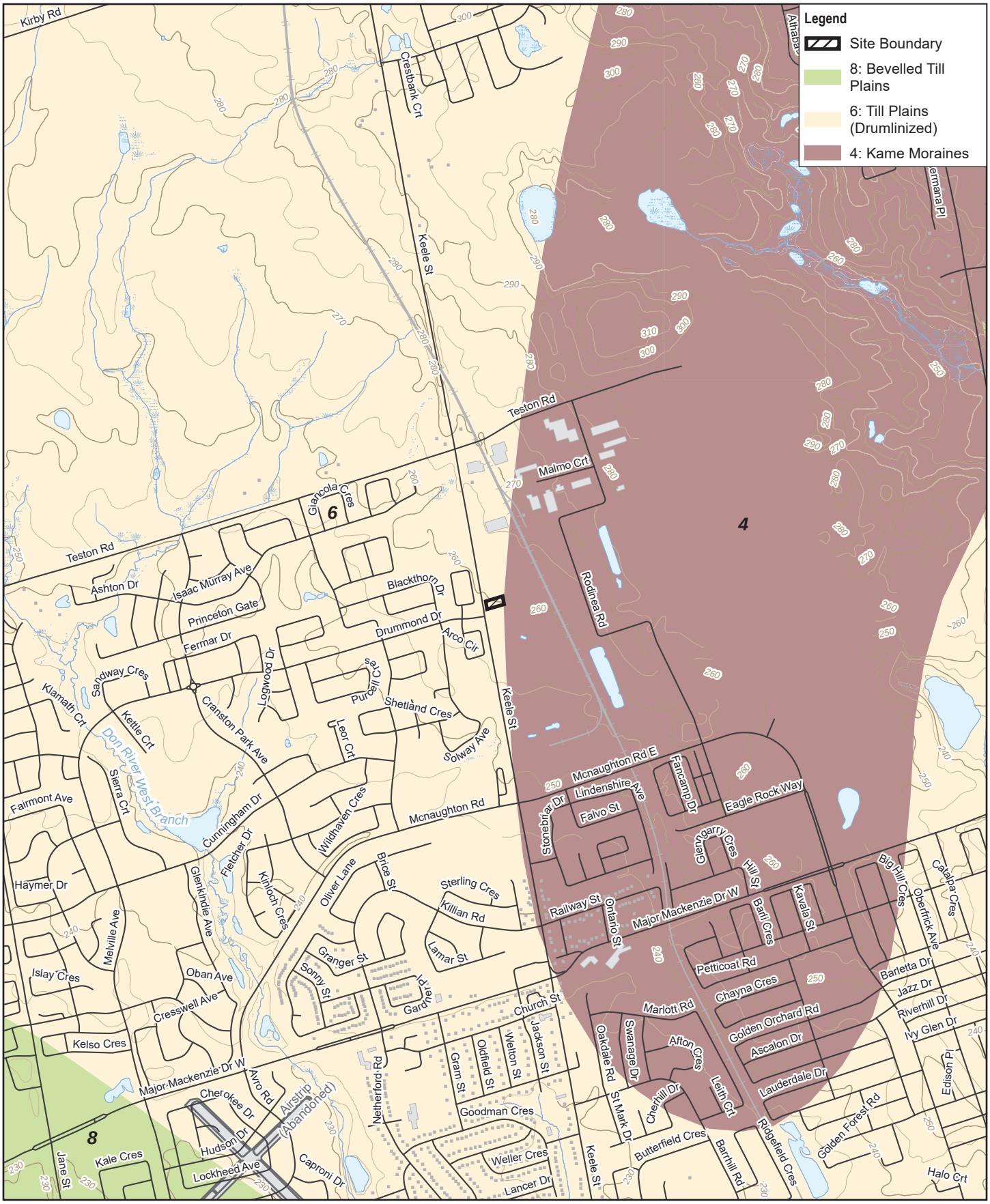
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Date **Apr 19, 2024**

WELLHEAD PROTECTION ZONE

FIGURE 2.2

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Map Projection: Transverse Mercator
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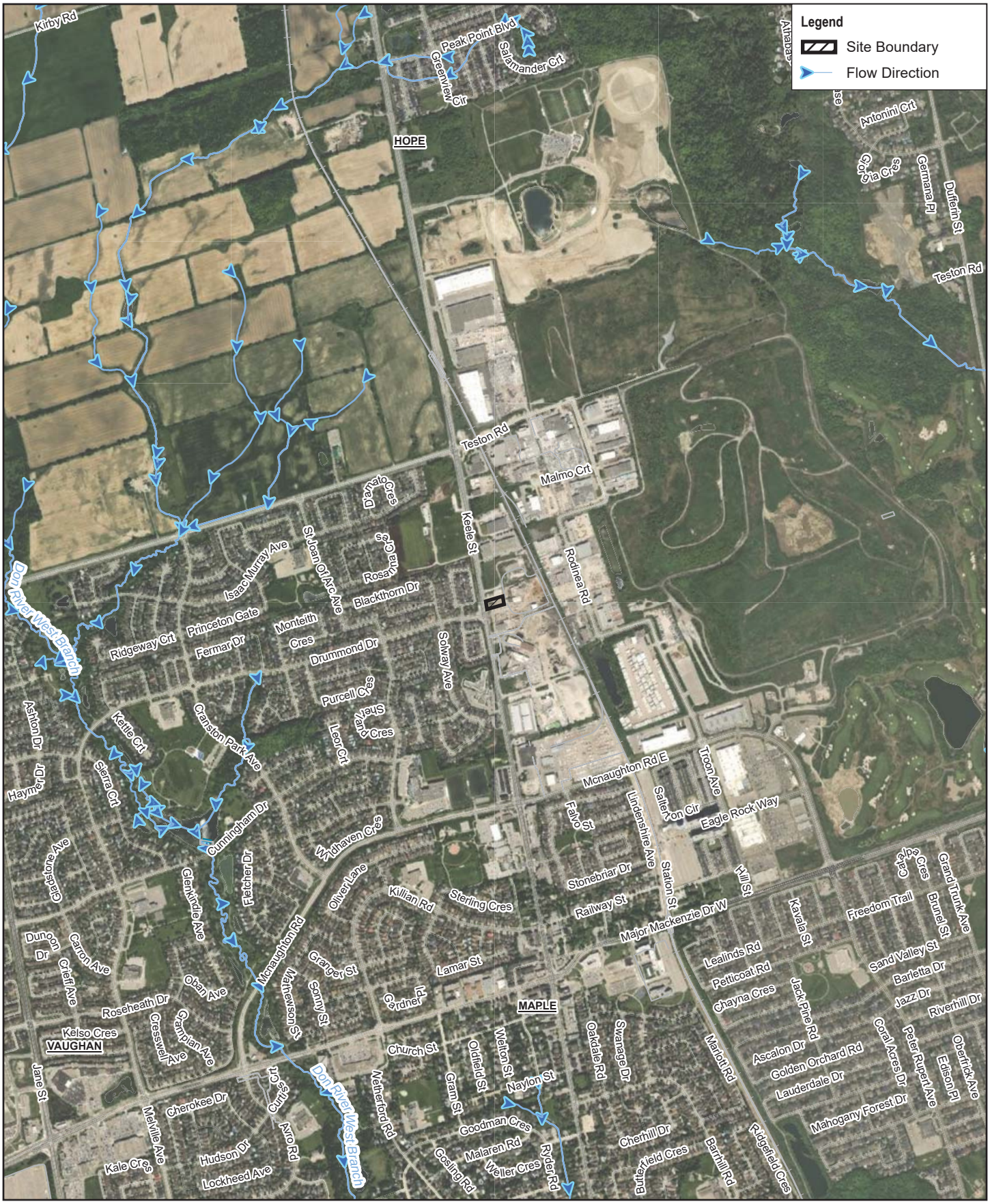
Project No. **12636323**
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Date **Apr 19, 2024**

PHYSIOGRAPHY

FIGURE 2.3

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Print date: 19 Apr 2024 - 14:13

Data source: MNDMNRF NRVIS, 2021. Produced by GHD under licence from Ontario Ministry of Natural Resources and Forestry. © King's Printer 2024. Physiography of Southern Ontario; Ontario Geological Survey, Miscellaneous Release--Data 228 ISBN 978-1-4249-5158-1



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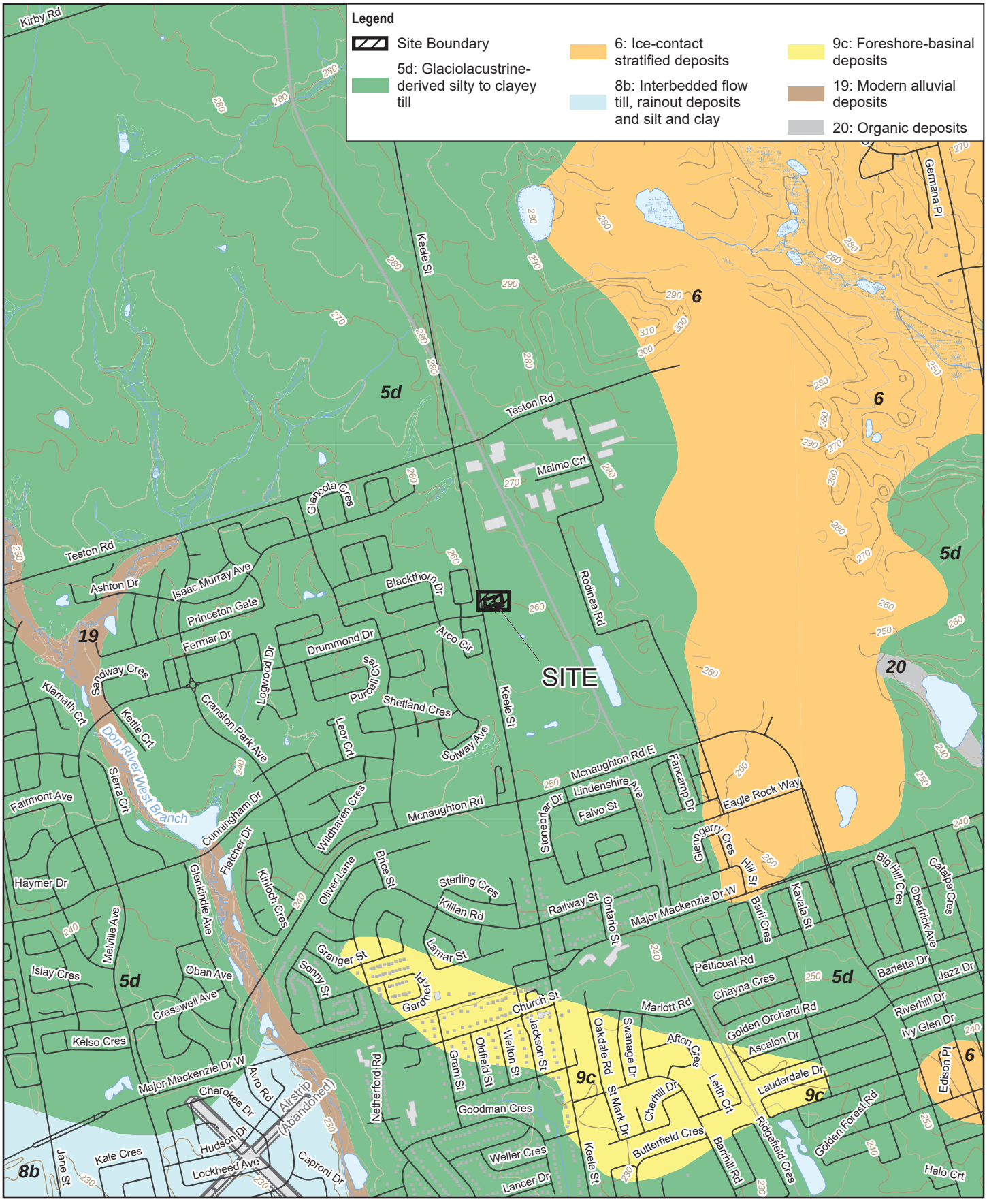
Project No. **12636323**
Revision No. **-**
Date **Apr 19, 2024**

SURFACE WATER FLOW DIRECTION

FIGURE 2.4

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Metres

Map Projection: Transverse Mercator
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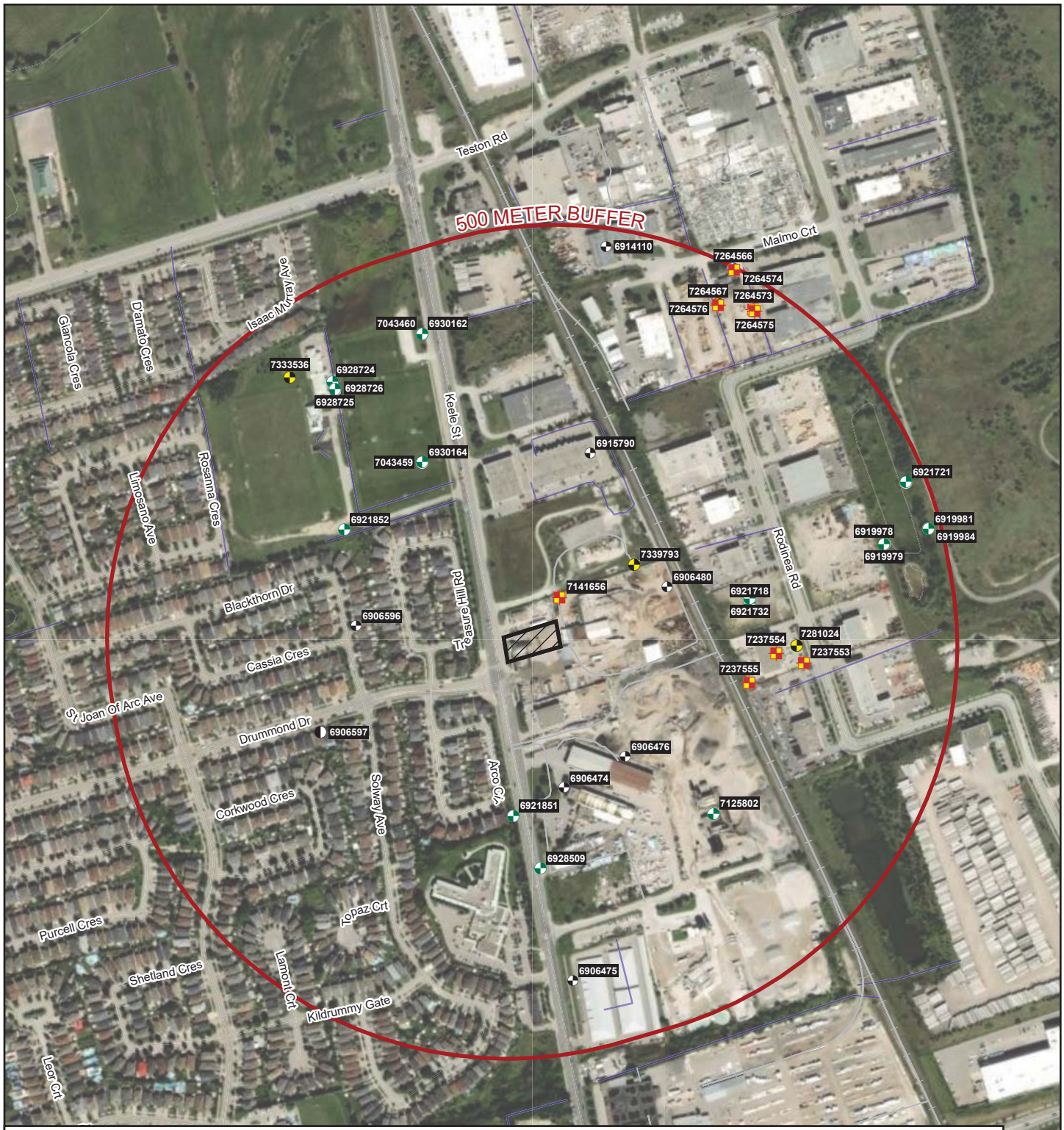
Project No. **12636323**
Revision No. **-**
Date **Apr 19, 2024**

SURFICIAL GEOLOGY

FIGURE 2.5

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Data source: MNDMNRF NRVIS, 2021. Produced by GHD under licence from Ontario Ministry of Natural Resources and Forestry, © King's Printer 2024. Surficial geology of southern Ontario; Ontario Geological Survey, Miscellaneous Release—Data 128 – Revised.



Legend

- Site Boundary
- **WWIS - MECP Well Records**
  - Abandoned-Other (10)
  - Abandoned-Supply (1)
  - Dewatering (1)
  - Monitoring and Test Hole (10)
  - Observation Wells (48)
  - Test Hole (17)
  - Water Supply (21)
  - No Data; Not A Well (26)
- **WWIS - UTM Reliability Code**
  - 10 - 30 m (10)
  - 30 - 100 m (97)
  - 100 - 300 m (22)
  - Unknown (5)

Paper Size ANSI A

0 50 100 150 200

Meters

Map Projection: Transverse Mercator
Horizontal Datum: North American 1983
Grid: NAD 1983 UTM Zone 17N

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KEEL STREET (10533) LTD
10533 KEELE STREET, VAUGHAN, ONTARIO
HYDROGEOLOGICAL ASSESSMENT

Project No. **12636323**
Revision No. **-**
Date **Apr 19, 2024**

MECP WATER WELL RECORDS

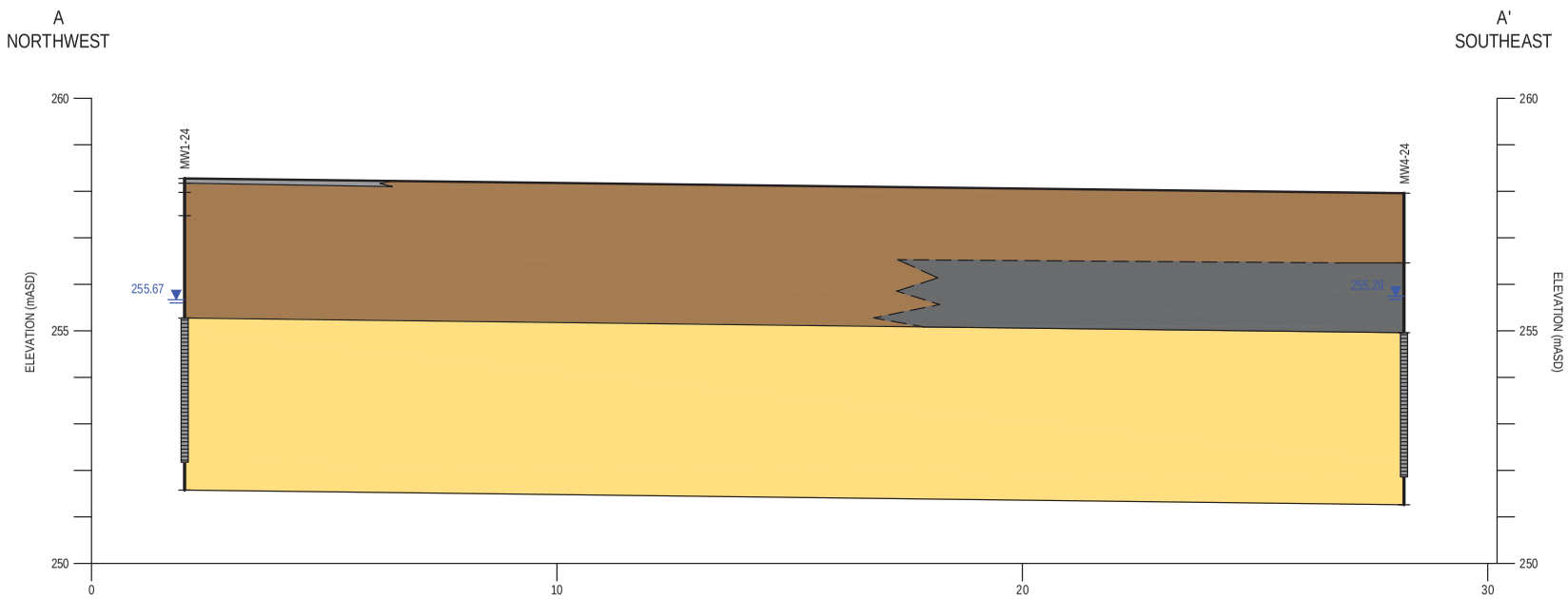
FIGURE 2.6

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Data source: MNDMNRF NRVIS, 2021. Produced by GHD under licence from Ontario Ministry of Natural Resources and Forestry, © King's Printer 2024. WWIS, 2020. Ontario Ministry of the Environment and Climate Change (Accessed January 2020). World Imagery: Maxar



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Plot Date: 16 April 2024 4:10 PM



LEGEND

MW1-24

WELL DESIGNATION

GROUND SURFACE

STRATIGRAPHIC BOUNDARY

GROUNDWATER ELEVATION (APRIL 5, 2024)

SCREENED INTERVAL

ASPHALT/TILE

FILL

SILT CLAY

SANDY SILT CLAY TILL

HORIZONTAL
1:100

VERTICAL
1:100

HIGHSIDE COMPANIES
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HYDROGEOLOGICAL ASSESSMENT

CROSS SECTION A-A'

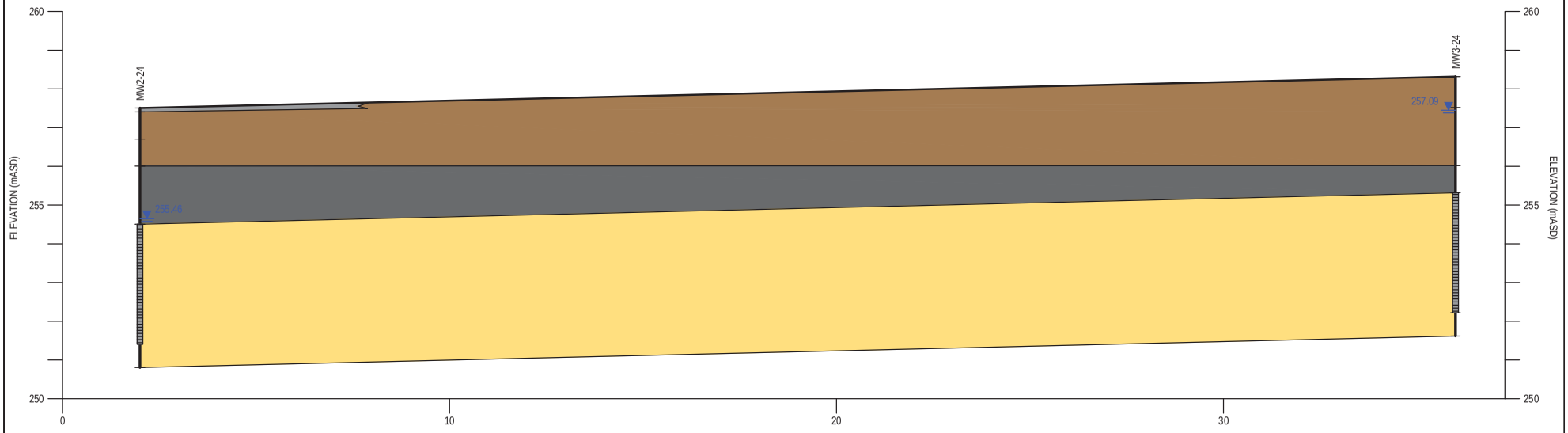
Project No. 12636323
Date April 2024

FIGURE 4.1

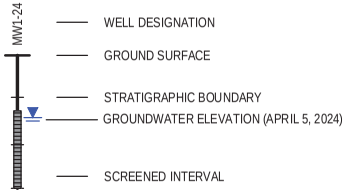
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Plot Date: 17 April 2024 10:12 AM

B
SOUTHWEST

B'
NORTHEAST



LEGEND



ASPHALT/TILE
FILL
SILT CLAY
SANDY SILT CLAY TILL

HORIZONTAL
1:100
0 1 2 3

VERTICAL
1:100
0 1 2 3

HIGHSIDE COMPANIES
10533 KEELE STREET, VAUGHAN, ONTARIO
HYDROGEOLOGICAL ASSESSMENT

CROSS SECTION B-B'

Project No. 12636323
Date April 2024

FIGURE 4.2

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Plot Date: 17 April 2024 10:12 AM

LEGEND

- PROPERTY BOUNDARY
- PROPOSED FEATURE
- PROPOSED BUILDING FOOTPRINT
- MONITORING WELL LOCATION
- (2.61) DEPTH TO WATER TABLE (mBGS)



0 3 6 9m

1:300

Coordinate System: UTM83-17

N

GHD

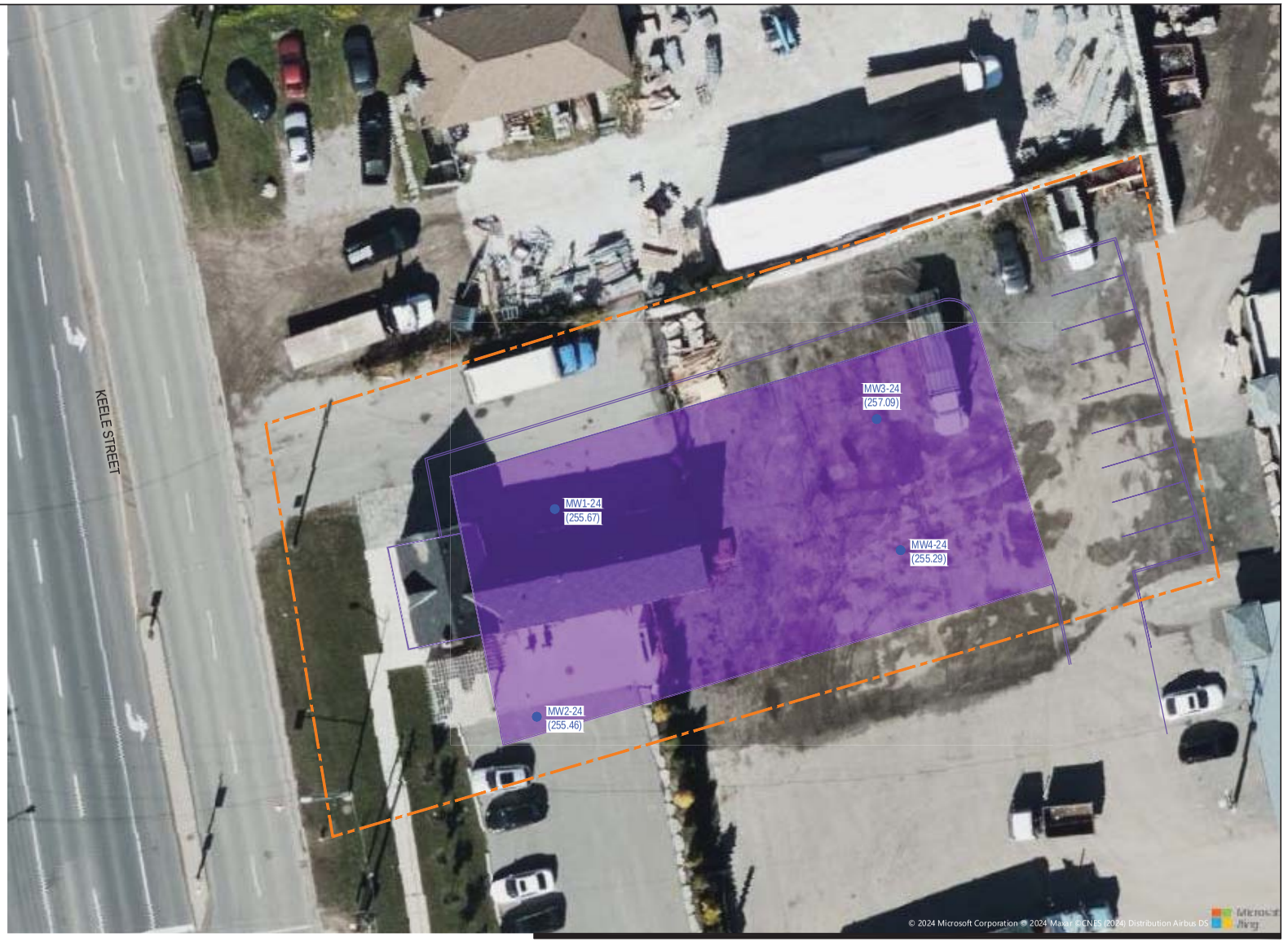
HIGHSIDE COMPANIES
10533 KEELE STREET, VAUGHAN, ONTARIO
HYDROGEOLOGICAL ASSESSMENT

DEPTH TO WATER TABLE
(APRIL 5, 2024)

Project No. 12636323
Date April 2024

FIGURE 4.3

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Plot Date: 17 April 2024 10:12 AM



0 3 6 9m

1:300

Coordinate System: UTM83-17

N

GHD

HIGHSIDE COMPANIES
10533 KEELE STREET, VAUGHAN, ONTARIO
HYDROGEOLOGICAL ASSESSMENT

GROUNDWATER ELEVATION
(APRIL 5, 2024)

Project No. 12636323
Date July 2025

FIGURE 4.4

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Plot Date: 14 July 2025 1:54 PM

Tables

Table 3.1

Monitoring Well Completion Details
Hydrogeological Assessment
Proposed Development
Keele Street (10533) Ltd

Well ID	Date Installed	Easting	Northing	Ground Elevation (m AMSL)	Top of Riser Elevation (m AMSL)	Total Depth Drilled (m BGS)	Screened Interval (m BGS) Top	Screened Interval (m BGS) Bottom	Screened Interval (m AMSL) Top	Screened Interval (m AMSL) Bottom	Sandpack Interval (m BGS) Top	Sandpack Interval (m BGS) Bottom	Sandpack Interval (m AMSL) Top	Sandpack Interval (m AMSL) Bottom	Screened Material
MONITORING WELLS															
MW1-24	28-Mar-24	619327	4858284	258.28	258.176	6.71	3.05	6.10	255.23	252.18	2.44	6.71	255.84	251.57	Sandy Silt Till
MW2-24	28-Mar-24	619326	4858268	257.51	257.356	6.71	3.05	6.10	254.46	251.41	2.44	6.71	255.07	250.80	Sandy Silt Till
MW3-24	27-Mar-24	619351	4858290	258.32	258.129	6.71	3.05	6.10	255.27	252.22	2.44	6.71	255.88	251.61	Silty Clay Till
MW4-24	27-Mar-24	619353	4858281	257.96	257.79	6.71	3.05	6.10	254.91	251.86	2.44	6.71	255.52	251.25	Sandy Silt Clay Till

Notes:

Table 3.2

Summary of Hydraulic Conductivity
Hydrogeological Assessment
10533 Keele Street, Vaughan, Ontario
Keele Street (10533) Ltd

Borehole ID	Geologic Unit (Screened):	Screen Depth (mBGS)	Hydraulic Conductivity (cm/s) Falling	Hydraulic Conductivity (cm/s) Rising	Method
Overburden					
MW01-24	Sandy Silty Clay Till	3.0 - 6.10	-	3.76E-04	Bouwer-Rice
			-	1.09E-04	Dagan
MW02-24	Sandy Silty Clay Till	3.0 - 6.10	3.94E-04	2.03E-04	Bouwer-Rice
MW03-24	Sandy Silty Clay Till	3.0 - 6.10	5.14E-05	1.69E-05	Bouwer-Rice
MW04-24	Sandy Silty Clay Till	3.0 - 6.10	9.35E-04	2.33E-04	Bouwer-Rice
			GEOMEAN	**1.67E-04**	

Table 3.3

Summary of Groundwater Levels (mBGS)
Hydrogeological Assessment
Proposed Development
10533 Keele St, Vaughan, Ontario
Keele Street (10533) Ltd

	MW01-24	MW02-24	MW03-24	MW04-24
Top of Riser (mAMSL):	258.18	257.36	258.13	257.79
Ground Surface (mAMSL):	258.28	257.51	258.32	257.96
5-Apr-24	2.61	2.05	1.23	2.67
18-Jun-24	3.37	2.48	2.07	2.64
27-Jun-25	3.76	2.75	1.94	3.22

Notes:

-	No data available (inaccessible, not found, damaged, destroyed, not measured)
mBGS	metres below ground surface
mAMSL	metres above mean sea level

Table 3.4

Summary of Groundwater Elevation (mAMSL)
Hydrogeological Assessment
Proposed Development
10533 Keele St, Vaughan, Ontario
Keele Street (10533) Ltd

	MW01-24	MW02-24	MW03-24	MW04-24
Top of Riser (mAMSL):	258.176	257.356	258.129	257.79
Ground Surface (mAMSL):	258.276	257.506	258.319	257.96
5-Apr-24	255.67	255.46	257.09	255.29
18-Jun-24	254.91	255.03	256.25	255.32
27-Jun-25	254.52	254.76	256.38	254.74

Notes:

-	No data available (inaccessible, not found, damaged, destroyed, not measured)
mBGS	metres below ground surface
mAMSL	metres above mean sea level

Table 3.5

Groundwater Analytical Results Summary
Hydrogeological Assessment
Proposed Development
Keele Street (10533) Ltd

Sample Location:						**MW2-24**	**MW2-24**
Sample ID:						**GW-12636323-040424-SH-001**	**GW-12636323-040424-SH-001A**
Sample Date:						**4/4/2024**	**4/4/2024**
Lab COA:						**WT2407720**	**WT2407730**
		City of Vaughan		**York Region**			
Parameters	**Units**	**Sanitary Sewer** a	**Storm Sewer** b	**Sanitary Sewer** c	**Storm Sewer** d		
Volatiles							
1,1,2,2-Tetrachloroethane	mg/L	1.4	0.017	1.4	0.017	ND(0.0005)	-
1,2-Dichlorobenzene	mg/L	0.05	0.0056	0.05	0.0056	ND(0.0005)	-
1,4-Dichlorobenzene	mg/L	0.08	0.0068	0.08	0.0068	ND(0.0005)	-
2-Butanone (Methyl ethyl ketone) (MEK)	mg/L	8	-	8	-	ND(0.02)	-
Benzene	mg/L	0.01	0.002	0.01	0.002	ND(0.0005)	-
Chloroform (Trichloromethane)	mg/L	0.04	0.002	0.04	0.002	ND(0.0005)	-
cis-1,2-Dichloroethene	mg/L	4	0.0056	4	0.0056	ND(0.0005)	-
Ethylbenzene	mg/L	0.16	0.002	0.16	0.002	ND(0.0005)	-
m&p-Xylenes	mg/L	-	-	-	-	ND(0.0004)	-
Methylene chloride	mg/L	2	0.0052	2	0.0052	ND(0.001)	-
o-Xylene	mg/L	-	-	-	-	ND(0.0003)	-
Styrene	mg/L	0.2	-	0.2	-	ND(0.0005)	-
Tetrachloroethene	mg/L	1	0.0044	1	0.0044	ND(0.0005)	-
Toluene	mg/L	0.27	0.002	0.27	0.002	ND(0.0005)	-
trans-1,3-Dichloropropene	mg/L	0.14	0.0056	0.14	0.0056	ND(0.0003)	-
Trichloroethene	mg/L	0.4	0.008	0.4	0.008	ND(0.0005)	-
Xylenes (total)	mg/L	1.4	0.0044	1.4	0.0044	ND(0.0005)	-
		-	-	-	-		
Semi-volatiles		-	-	-	-		
1,3-Dinitropyrene	mg/L	-	-	-	-	ND(0.0010)	-
1,6-Dinitropyrene	mg/L	-	-	-	-	ND(0.0010)	-
1,8-Dinitropyrene	mg/L	-	-	-	-	ND(0.0010)	-
3-Methylcholanthrene	mg/L	-	-	-	-	ND(0.000050)	-
7H-Dibenzo(c,g)carbazole	mg/L	-	-	-	-	ND(0.000050)	-
Anthracene	mg/L	-	-	-	-	ND(0.000010)	-
Benzo(a)anthracene	mg/L	-	-	-	-	ND(0.000010)	-
Benzo(a)pyrene	mg/L	-	-	-	-	ND(0.0000050)	-
Benzo(b)fluoranthene/Benzo(j)fluoranthene	mg/L	-	-	-	-	ND(0.000010)	-
Benzo(e)pyrene	mg/L	-	-	-	-	ND(0.000010)	-
Benzo(g,h,i)perylene	mg/L	-	-	-	-	ND(0.000010)	-
Benzo(k)fluoranthene	mg/L	-	-	-	-	ND(0.000010)	-
bis(2-Ethylhexyl)phthalate (DEHP)	mg/L	0.012	0.0088	0.012	0.0088	ND(0.0006)	-
Chrysene	mg/L	-	-	-	-	ND(0.000010)	-
Dibenz(a,h)acridine	mg/L	-	-	-	-	ND(0.000050)	-
Dibenz(a,h)anthracene	mg/L	-	-	-	-	ND(0.0000050)	-
Dibenz(a,j)acridine	mg/L	-	-	-	-	ND(0.000050)	-
Dibenzo(a,i)pyrene	mg/L	-	-	-	-	ND(0.000050)	-
Di-n-butylphthalate (DBP)	mg/L	0.08	0.015	0.08	0.015	ND(0.001)	-
Fluoranthene	mg/L	-	-	-	-	ND(0.000010)	-
Indeno(1,2,3-cd)pyrene	mg/L	-	-	-	-	ND(0.000010)	-
Nonyl phenol	mg/L	0.02	-	0.02	-	ND(0.001)	-
Nonyl phenol diethoxylates	mg/L	-	-	-	-	ND(0.0001)	-
Nonyl phenol ethoxylate (total)	mg/L	0.2	-	-	-	ND(0.002)	-
Nonyl phenol monoethoxylates	mg/L	-	-	-	-	ND(0.002)	-
Perylene	mg/L	-	-	-	-	ND(0.000010)	-
Phenanthrene	mg/L	-	-	-	-	ND(0.000010)	-
Pyrene	mg/L	-	-	-	-	ND(0.000010)	-
Total PAH	mg/L	-	-	-	-	ND(0.00175)	-
		-	-	-	-		

Table 3.5

Groundwater Analytical Results Summary
Hydrogeological Assessment
Proposed Development
Keele Street (10533) Ltd

Sample Location:						MW2-24	MW2-24
Sample ID:						GW-12636323-040424-SH-001	GW-12636323-040424-SH-001A
Sample Date:						4/4/2024	4/4/2024
Lab COA:						WT2407720	WT2407730
		City of Vaughan		York Region			
Parameters	**Units**	**Sanitary**	**Storm**	**Sanitary**	**Storm**		
Total Metals		-	-	-	-		
Aluminum	mg/L	50	-	50	-	0.0431	-
Antimony	mg/L	5	-	5	-	0.00010	-
Arsenic	mg/L	1	0.020	1	0.020	0.00032	-
Cadmium	mg/L	0.7	0.008	0.7	0.008	0.0000637	-
Chromium	mg/L	2	0.080	2	0.080	ND(0.00050)	-
Cobalt	mg/L	5	-	5	-	0.00428	-
Copper	mg/L	3	0.050	3	0.050	0.00062	-
Iron	mg/L	-	-	50	-	0.062	-
Lead	mg/L	1	0.120	1	0.120	0.000061	-
Manganese	mg/L	5	0.150	5	0.150	0.0412	-
Mercury	mg/L	0.01	0.0004	0.01	0.0004	ND(0.0000050)	-
Molybdenum	mg/L	5	-	5	-	0.000870	-
Nickel	mg/L	2	0.080	2	0.080	0.00396	-
Selenium	mg/L	1	0.020	1	0.020	0.000800	-
Silver	mg/L	5	0.120	5	0.120	ND(0.000010)	-
Sulfur	mg/L	-	-	-	-	-	26.8
Tin	mg/L	5	-	5	-	ND(0.00010)	-
Titanium	mg/L	5	-	5	-	ND(0.00200)	-
Zinc	mg/L	2	0.040	2	0.040	ND(0.0030)	-
Dissolved Metals							
Aluminum (dissolved)	mg/L	50	-	50	-	-	0.0036
Antimony (dissolved)	mg/L	5	-	5	-	-	ND(0.00010)
Arsenic (dissolved)	mg/L	1	0.020	1	0.020	-	0.00029
Barium (dissolved)	mg/L	-	-	-	-	-	0.0635
Beryllium (dissolved)	mg/L	-	-	-	-	-	ND(0.000020)
Bismuth (dissolved)	mg/L	5	-	5	-	-	ND(0.000050)
Boron (dissolved)	mg/L	-	-	-	-	-	0.148
Cadmium (dissolved)	mg/L	0.7	0.008	0.7	0.008	-	0.0000653
Caesium (dissolved)	mg/L	-	-	-	-	-	0.000010
Calcium (dissolved)	mg/L	-	-	-	-	-	119
Chromium (dissolved)	mg/L	2	0.080	2	0.080	-	ND(0.00050)
Cobalt (dissolved)	mg/L	5	-	5	-	-	0.00426
Copper (dissolved)	mg/L	3	0.050	3	0.050	-	0.00078
Iron (dissolved)	mg/L	50	-	50	-	-	ND(0.010)
Lead (dissolved)	mg/L	1	0.120	1	0.120	-	ND(0.000050)
Lithium (dissolved)	mg/L	-	-	-	-	-	0.0078
Magnesium (dissolved)	mg/L	-	-	-	-	-	19.5
Manganese (dissolved)	mg/L	5	0.150	5	0.150	-	0.0402
Molybdenum (dissolved)	mg/L	5	-	5	-	-	0.000917
Nickel (dissolved)	mg/L	2	0.080	2	0.080	-	0.00390
Phosphorus (dissolved)	mg/L	10	0.400	10	0.400	-	ND(0.050)
Potassium (dissolved)	mg/L	-	-	-	-	-	3.20
Rubidium (dissolved)	mg/L	-	-	-	-	-	0.00244
Selenium (dissolved)	mg/L	1	0.020	1	0.020	-	0.000909
Silicon (dissolved)	mg/L	-	-	-	-	-	7.78
Silver (dissolved)	mg/L	5	0.120	5	0.120	-	ND(0.000010)
Sodium (dissolved)	mg/L	-	-	-	-	-	59.9
Strontium (dissolved)	mg/L	-	-	-	-	-	0.284
Tellurium (dissolved)	mg/L	-	-	-	-	-	ND(0.00020)
Thallium (dissolved)	mg/L	-	-	-	-	-	0.000026
Thorium (dissolved)	mg/L	-	-	-	-	-	ND(0.00010)
Tin (dissolved)	mg/L	5	-	5	-	-	ND(0.00010)
Titanium (dissolved)	mg/L	5	-	5	-	-	ND(0.00030)
Tungsten (dissolved)	mg/L	-	-	-	-	-	ND(0.00010)
Uranium (dissolved)	mg/L	-	-	-	-	-	0.00116
Vanadium (dissolved)	mg/L	5	-	5	-	-	ND(0.00050)
Zinc (dissolved)	mg/L	2	0.040	2	0.040	-	0.0027
Zirconium (dissolved)	mg/L	-	-	-	-	-	ND(0.00030)

Table 3.5

Groundwater Analytical Results Summary
Hydrogeological Assessment
Proposed Development
Keele Street (10533) Ltd

Sample Location:						MW2-24	MW2-24
Sample ID:						GW-12636323-040424-SH-001	GW-12636323-040424-SH-001A
Sample Date:						4/4/2024	4/4/2024
Lab COA:						WT2407720	WT2407730
		City of Vaughan		York Region			
Parameters	**Units**	**Sanitary**	**Storm**	**Sanitary**	**Storm**		
PCBs							
Aroclor-1016 (PCB-1016)	mg/L	-	-	-	-	ND(0.00002)	-
Aroclor-1221 (PCB-1221)	mg/L	-	-	-	-	ND(0.00002)	-
Aroclor-1232 (PCB-1232)	mg/L	-	-	-	-	ND(0.00002)	-
Aroclor-1242 (PCB-1242)	mg/L	-	-	-	-	ND(0.00002)	-
Aroclor-1248 (PCB-1248)	mg/L	-	-	-	-	ND(0.00002)	-
Aroclor-1254 (PCB-1254)	mg/L	-	-	-	-	ND(0.00002)	-
Aroclor-1260 (PCB-1260)	mg/L	-	-	-	-	ND(0.00002)	-
Aroclor-1262 (PCB-1262)	mg/L	-	-	-	-	ND(0.00002)	-
Aroclor-1268 (PCB-1268)	mg/L	-	-	-	-	ND(0.00002)	-
Total PCBs	mg/L	0.001	0.0004	0.001	0.0004	ND(0.00006)	-
Misc							
Oil and grease, animal and vegetable	mg/L	150	-	150	-	ND(5.0)	-
Mineral oil and grease	mg/L	15	-	15	-	ND(5.0)	-
Oil and grease	mg/L	-	-	-	-	ND(5.0)	-
General Chemistry							
Biochemical oxygen demand (BOD)	mg/L	300	15	300	15	ND(3.0)	-
Biochemical oxygen demand (carbonaceous)	mg/L	300	15	300	15	ND(3.0)	-
Chloride (dissolved)	mg/L	-	-	-	-	67.5	-
Chlorine	mg/L	-	-	-	-	ND(0.050)	-
Cyanide (total)	mg/L	2	0.020	2	0.020	ND(0.0020)	-
Fluoride	mg/L	10	-	10	-	0.095	-
pH, lab	s.u.	6.5-10	6.5-9.0	5.5-9.5	-	8.18	-
Phenolics (total)	mg/L	1	0.008	1	0.008	ND(0.0010)	-
Phosphorus	mg/L	10	0.400	10	0.400	0.0039	-
Sulfate (dissolved)	mg/L	1500	-	1500	-	74.3	-
Total kjeldahl nitrogen (TKN)	mg/L	100	1	100	1	0.382	-
Total suspended solids (TSS)	mg/L	350	15	350	15	3.4	-

Footnotes:

ND Not detected at the associated reporting limit.

Appendices

Appendix A

Field Investigation Methodology and Protocols

Appendix A Field Investigation Methodology and Protocols

Utility Locates

Prior to initiating the subsurface investigation activities, all applicable utility companies (gas, telephone, network cables, pipelines and sewers) were contacted through Ontario One-Call. Also, a private utility locator was utilized to demarcate the location of the respective underground utilities to ensure the lines were not damaged during the investigation work.

Health and Safety

A Site-specific Health and Safety Plan (HASP) outlining specific job tasks and their related hazards was prepared and implemented by GHD prior to initiating field activities. The HASP presents the visually observed Site conditions and identifies potential physical hazards to field personnel. All GHD field and project staff working on and/or visiting the site were required to sign the HASP to document their knowledge of the potential hazards while on-site.

All drilling activities were conducted under Level D Personal Protective Equipment (PPE), which consisted of protective gloves, hard hats, safety glasses, safety boots and reflective vests at all times.

Soil Classification

The soil was logged using the Unified Soil Classification System (USGS), making special note of any visual or olfactory evidence of potential impacts.

Monitoring Well Installation

Monitoring wells were installed in selected boreholes by the licensed water well drillers consistent with Regulation 903 – Wells. GHD technical staff supervised the monitoring well construction and well development to ensure conformance with GHD's Standard Operating Procedures.

The monitoring wells were constructed with 2-inch (~50 mm) Schedule 40 PVC screen and casing. The screen length used for the monitoring wells was 1.5 or 3.0 metres on average and pre-slotted (No. 10 slot). The annular space between the monitoring well screen and surrounding geological formation were backfilled with No. 3 grade silica sand to an average height of 0.6 metres above the top of the screen. The remaining annular space was backfilled with bentonite. Some monitoring wells were installed with minor alteration to the above installation details, due to the specific conditions encountered.

To complete the instrumentation, an expandable J-plug was installed on the riser style casing to cover the top of the riser pipe to protect against debris falling into the well and surface runoff infiltration. All wells were installed in a flushmount or monument configuration with concrete collar around the protective casing. Each groundwater monitoring well was instrumented with dedicated sampling equipment consisting of polyethylene tubing and Waterra foot valves for monitoring well development and installation.

Monitoring Well Development

Subsequent to the monitoring well installation, each well was developed to ensure hydraulic connection with the screened hydrostratigraphic unit. A hydraulic connection ensures that groundwater levels and samples are representative of the subsurface condition. Development also aids in achieving low-turbidity samples.

The wells were developed using dedicated 5/8” (~16 mm) diameter polyethylene tubing with a Waterra foot valve. Well development activities were undertaken until purged water was clear. In cases where a well was purged dry before sufficient development, the well water level was allowed to recover before continuing.

Surveying

Subsequent to installation, all wells and boreholes were surveyed for vertical and lateral control, and for water table elevation reference, using a geodetic benchmark to tie in vertical elevations relative to metres above mean sea level (mAMSL) at the Site. The ground surface and top of riser pipe elevation of each of well were surveyed with respect to this benchmark.

Water Level Measurements

The measurement of groundwater levels in monitoring wells was required during the hydrogeological investigation in order to determine the presence and depth of groundwater. Water level measurements were used to determine: hydraulic head, hydraulic gradients and the direction of groundwater flow.

Since many decisions concerning the vertical and horizontal flow of groundwater through various types of geologic conditions depend on groundwater/fluid measurements, the accuracy of the measurements made at an appropriate level of precision is very important. Typically, the precision required is 1 mm, and the equipment employed had measurement resolution at this level.

Manual groundwater level measurements were measured using a Solinst water level meter. Measurements were obtained by lowering the electrode, attached to a graduated polyethylene tape, slowly into the well until the indicator sounded. To ensure accuracy, all fluid level readings were double-checked in the field when recorded.

In order to provide reliable data, each round of water level measurements was collected over as short a period of time as possible. Barometric pressure can affect groundwater levels and, therefore, observation of significant weather changes during the period of water level measurements was noted. Rainfall events and groundwater pumping can also affect groundwater level measurements. Personnel collecting water level data noted if any of these controls are in effect during the groundwater level collection period.

Groundwater Sampling

Prior to initiating groundwater sample collection, the wells were purged of the standing stagnant groundwater volume using a dedicated Waterra foot valve and polyethylene tubing. Purging was performed until the water in the well was representative of the actual conditions in the hydrostratigraphic unit. Stabilization was achieved by the removal of at least three times the volume of standing water in the well. Purging was considered complete once purged groundwater field parameters including conductivity, temperature and pH were stable. Stabilization was achieved when field measurements for conductivity and temperature were within a range of plus or minus 10 percent of the average for the last three readings and field measurements for pH were within a range of plus or minus 0.1 pH unit of the average for the last three readings.

The wells were purged using dedicated inertial pumps. In the event of a slowly recharging well, the well was pumped dry to ensure all standing water was removed from the sand pack and then allowed to recover prior to sample collection.

In the event of a well with groundwater that contains a high amount of silt or sediment after well development, a 0.75"x36" PVC water bailer was used to collect the water.

Water samples were collected directly from the dedicated tubing or bailer to laboratory supplied sample containers. Samples were relinquished to an accredited analytical laboratory under Chain of Custody protocols.

Single Well Response Tests

Single well response tests (SWRT) were completed in selected monitoring well installations to determine the hydraulic conductivity of the screened geologic formation. The SWRT consisted of falling head tests (slug tests), and rising head tests (recovery rests) as described in the sections below.

1.1 Falling Head Test (Slug Test)

The slug test involves causing a sudden change in water level in a well and measuring the water level response within that well. Water level change may be induced by suddenly injecting or emplacing a known quantity or "slug" into the well. The slug can water or solid (stainless steel, polyvinyl chloride). A detailed description of the procedure is provided, as follows:

i) The static water level was determined prior to any testing of the well.

ii) A datalogger, programmed to measure water pressure at an appropriate interval (eg. 5 seconds), was installed in the well at a known depth.

iii) A slug of known dimensions was set in place just above the static water level.

iv) The slug was then released instantaneously until it was completely submerged in the water column.

v) After the initial positive displacement of the water column, water levels were monitored manually.

vi) When the water level reached approximately 90 percent of the original observed (static) water level, the slug was then rapidly removed from the water column to initiate a "rising-head" test.

1.2 Rising Head Test (Recovery Test)

The recovery test also involves causing a sudden change in water level in a well and measuring the water level response within that well. Water level change may be induced by suddenly removing a known quantity or "slug" out of the well. The slug is usually a stainless steel or polyvinyl chloride rod.

Recovery tests were carried out after the slug tests described above. Water level monitoring continued until the water level was within 10 percent of the original static level.

Appendix B

Stratigraphic and Instrumentation Logs

REFERENCE No.: 12636323

BOREHOLE REPORT

Page 1 of 1

BOREHOLE No.: MW1-24

ELEVATION: 258.3 m

CLIENT: Keele Street (10533) Ltd.

PROJECT: Geotechnical Investigation - Proposed Development

LOCATION: 10533 Keele Street, Vaughan, Ontario

DESCRIBED BY: Reza Bay CHECKED BY: Omar Badaoui

DATE (START): 28 March 2024 DATE (FINISH): 28 March 2024

LEGEND

- SS - SPLIT SPOON
- ST - SHELBY TUBE
- VA - VANE SHEAR
- AU - AUGER PROBE
- RC - CORE SAMPLE
- ▼ - WATER LEVEL (MEASURED)
- ▽ - WATER LEVEL (OBSERVED)

NORTHING: 4858283.7 EASTING: 619327.3 DRILLING TYPE: DRILLING METHOD: Hollow Stem Augers

△ Undisturbed Vane Value (kPa)
□ Remoulded Field Vane Value (kPa)
△³ Number refer to Sensitivity
○ Water content (%)
W_p W_l Atterberg limits (%)
● "N" Value (blows/12 in.-30 cm)
☆ "DCPT" Value (blows/12 in.-30 cm)

Depth Feet	Depth Metres	Elevation (m)	Stratigraphy	DESCRIPTION OF SOIL	SAMPLES State	SAMPLES Type and Number	LAB Testing Comments Gravel Sand Silt Clay %	LAB Testing Unit Weight (Dry) KN/m³	LAB Testing Moisture Content %	Recovery/ TCR(%)	Blows per/15cm/ RQD(%)	'N' Value SCR(%)	COMMENTS PIEZOMETER/ STANDPIPE INSTALLATION
0		258.3		GROUND SURFACE									
	0.1	258.2		TILE (75 mm)		SS1A			7	100	4-3-1-2	4	Concrete 0.3 m
1	0.3	258.0		FILL: SILTY SAND, light grey, very moist, very loose		SS1B			24	100	--	--	
2	0.8	257.5		CLAYEY SILT, trace sand, rootlets, dark brown, very moist, soft									
3	1.0			SILTY CLAY, rootlets, brown, very moist, very soft		SS2			17	25	0-0-0-1	0	
4													Bentonite
5				some sand, trace gravel, oxidized, firm									
6						SS3			13	100	3-3-3-4	6	
7	2.0												
8				very moist, very soft, ashphalt fragments									2.4 m
9						SS4			17	100	0-0-2-7	2	4/5/2024
10	3.0	255.2		NATIVE: SANDY SILTY CLAY TILL, some sand, trace gravel, brown, oxidized, moist to very moist, very stiff									3.0 m
11						SS5			12	100	4-7-9-13	16	
12				VANE SHEAR TEST Refusal at 3.0 m bgs moist, hard									
13	4.0					SS6			11	100	50/25mm	50/25 mm	
14													
15				rock fragments (could be boulder)		SS7			9	22.2	38-50/76 mm	50/76 mm	Screen with sand
16	5.0												
17													
18				oxidized, hard									3/28/2024
19						SS8			10	75	16-46-30-39	76	
20	6.0												6.1 m
21				brown to grey		SS9			7	100	14-23-34-32	57	
22	6.7	251.6		END OF BOREHOLE									6.7 m
23	7.0												
24				NOTES:									
25				- End of borehole at 6.7 m bgs									
26	8.0			- Groundwater at 5.2 m bgs upon completion of drilling.									
27				- 'bgs' denotes 'below ground surface'									
28				- Water Level Reading:									
29	9.0			Date W. L Depth (m bgs) Elevation (m)									
30				04/05/2024 2.5 255.8									
31													
32													

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Report: 12636323 SOIL LOG Date: 18/4/24

REFERENCE No.: 12636323

BOREHOLE REPORT

Page 1 of 1

BOREHOLE No.: MW2-24

ELEVATION: 257.5 m

CLIENT: Keele Street (10533) Ltd.

PROJECT: Geotechnical Investigation - Proposed Development

LOCATION: 10533 Keele Street, Vaughan, Ontario

DESCRIBED BY: Reza Bay CHECKED BY: Omar Badaoui

DATE (START): 27 March 2024 DATE (FINISH): 28 March 2024

LEGEND

- SS - SPLIT SPOON
- ST - SHELBY TUBE
- VA - VANE SHEAR
- AU - AUGER PROBE
- RC - CORE SAMPLE
- ▼ - WATER LEVEL (MEASURED)
- ▽ - WATER LEVEL (OBSERVED)

NORTHING: 4858268.1 EASTING: 619325.9 DRILLING TYPE: DRILLING METHOD: Hollow Stem Augers

Depth Feet	Depth Metres	Elevation (m)	Stratigraphy	DESCRIPTION OF SOIL	SAMPLES State	SAMPLES Type and Number	LAB Testing Comments Gravel Sand Silt Clay	LAB Testing Unit Weight (Dry)	LAB Testing Moisture Content	Recovery/ TCR(%)	Blows per/15cm/ RQD(%)	'N' Value SCR(%)	Undisturbed Vane Value (kPa) / Remoulded Field Vane Value (kPa) / Number refer to Sensitivity / Water content (%) / Atterberg limits (%) / "N" Value (blows/12 in.-30 cm) / "DCPT" Value (blows/12 in.-30 cm)	COMMENTS PIEZOMETER/ STANDPIPE INSTALLATION
							%	KN/m³	%	%			10 20 30 40 50 60 70 80 90	
0		257.5		GROUND SURFACE										
	0.1	257.4		ASPHALT (100 mm)										Concrete 0.3 m
1				FILL: SILTY SAND, some gravel, black, moist, compact		SS1			21	54.2	5-9-4-3	13		
2	0.8	256.7		SILTY CLAY, some sand, trace gravel, dark brown, moist to very moist, stiff										
3	1.0					SS2			13	79.2	1-3-6-5	9		
4														Bentonite
5	1.5	256.0		NATIVE: SANDY SILTY CLAY, some gravel, brown, oxidized, very moist, stiff		SS3			16	100	3-5-6-10	11		
6	2.0													4/5/2024
7				trace gravel, oxidized, very moist to moist, very stiff										
8						SS4	0-32-54-14		10	100	3-7-9-11	16	13 17	2.4 m
9														
10	3.0	3.0	254.5	SANDY SILTY CLAY TILL, trace gravel, brown, oxidized, moist to very moist, hard										3.0 m
11						SS5			9	100	7-15-18-17	33		
12														
13	4.0			moist augers grinding from 4.0 m bgs to 4.3 m bgs		SS6			12	75	12-50/51 mm	50/51 mm		
14														
15														Screen with sand
16	5.0					SS7			13	100	7-16-17-23	33		
17														
18				oxidized, moist to very moist		SS8			8	100	6-15-26-33	41		
19														
20	6.0			brown to grey, oxidized										6.1 m
21						SS9			7	100	14-22-25-29	47		
22	6.7	250.8		END OF BOREHOLE										6.7 m
23	7.0													
24														
25														
26	8.0													
27														
28														
29	9.0													
30														
31														
32														

NOTES:
- End of borehole at 6.7 m bgs.
- Borehole open and dry upon completion of drilling.
- 'bgs' denotes 'below ground surface'.
- Water Level Reading:

Date	W. L Depth (m bgs)	Elevation (m)
04/05/2024	1.9	255.6

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Report: 12636323 SOIL LOG Date: 18/4/24

REFERENCE No.: 12636323

GHD

BOREHOLE No.: MW3-24

ELEVATION: 258.3 m

BOREHOLE REPORT

CLIENT: Keele Street (10533) Ltd.

PROJECT: Geotechnical Investigation - Proposed Development

LOCATION: 10533 Keele Street, Vaughan, Ontario

DESCRIBED BY: Reza Bay CHECKED BY: Omar Badaoui

DATE (START): 27 March 2024 DATE (FINISH): 27 March 2024

LEGEND

- SS - SPLIT SPOON
- ST - SHELBY TUBE
- VA - VANE SHEAR
- AU - AUGER PROBE
- RC - CORE SAMPLE
- ▼ - WATER LEVEL (MEASURED)
- ▽ - WATER LEVEL (OBSERVED)

NORTHING: 4858290.5 EASTING: 619351.5 DRILLING TYPE: DRILLING METHOD: Hollow Stem Augers

Depth Feet	Depth Metres	Elevation (m)	Stratigraphy	DESCRIPTION OF SOIL	SAMPLES State	SAMPLES Type and Number	LAB Testing Comments (Gravel Sand Silt Clay)	LAB Testing Unit Weight (Dry)	LAB Testing Moisture Content	Recovery/ TCR(%)	Blows per/15cm/ RQD(%)	'N' Value SCR(%)	COMMENTS
		258.3		GROUND SURFACE			%	KN/m³	%	%			
0				FILL: SILTY SAND, some gravel, dark brown, moist, dense (Granular Base)		SS1			9	95.8	15-16-22-40	38	Concrete 0.3 m
	0.8	257.6		SILTY CLAY, some sand, trace gravel, fragments (brick, metals, glass), rootlets, black, oxidized, moist, stiff		SS2			21	100	3-5-5-5	10	
	1.0			very moist, green to grey, soft, odour		SS3			21	66.7	1-2-1-1	3	Bentonite
	2.0												
	2.3	256.0		NATIVE: SILTY CLAY, some sand, trace gravel, brown, moist to very moist, stiff		SS4			13	100	0-5-6-8	11	2.4 m
	3.0	255.3		SILTY CLAY TILL, with sand, trace gravel, brown, moist to very moist, hard		SS5	0-26-56-18		10	95.8	3-18-12-19	30	3.0 m
	4.0					SS6			17	100	50/102mm	50/102 mm	
	5.0			rock fragments (could be boulder/cobble), grey, moist		SS7			9	14.3	50-50/25 mm	50/25 mm	Screen with sand
	6.0			trace gravel		SS8			11	28.6	10-50/25mm	50/25 mm	
	6.1	252.2		SANDY SILT TILL, trace clay, trace gravel, grey, moist, very dense		SS9			8	95.8	13-34-35-39	69	6.1 m
	6.7	251.6		END OF BOREHOLE									6.7 m
	7.0												
	8.0												
	9.0												

Undisturbed Vane Value (kPa); Remoulded Field Vane Value (kPa); Number refer to Sensitivity; Water content (%); Atterberg limits (%); "N" Value (blows/12 in.-30 cm); "DCPT" Value (blows/12 in.-30 cm)

10 20 30 40 50 60 70 80 90

COMMENTS: PIEZOMETER/ STANDPIPE INSTALLATION

▼ 4/5/2024

NOTES:
- End of borehole at 6.7 m bgs.
- Borehole open and dry upon completion of drilling.
- 'bgs' denotes 'below ground surface'.
- Water Level Reading:

Date	W. L Depth (m bgs)	Elevation (m)
04/05/2024	1.0	257.3

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Report: 12636323 SOIL LOG Date: 18/4/24

REFERENCE No.: 12636323

BOREHOLE REPORT

Page 1 of 1

BOREHOLE No.: MW4-24

ELEVATION: 258.0 m

CLIENT: Keele Street (10533) Ltd.

PROJECT: Geotechnical Investigation - Proposed Development

LOCATION: 10533 Keele Street, Vaughan, Ontario

DESCRIBED BY: Reza Bay CHECKED BY: Omar Badaoui

DATE (START): 27 March 2024 DATE (FINISH): 27 March 2024

LEGEND

- SS - SPLIT SPOON
- ST - SHELBY TUBE
- VA - VANE SHEAR
- AU - AUGER PROBE
- RC - CORE SAMPLE
- ▼ - WATER LEVEL (MEASURED)
- ▽ - WATER LEVEL (OBSERVED)

NORTHING: 4858280.6 EASTING: 619353.3 DRILLING TYPE: DRILLING METHOD: Hollow Stem Augers

Depth Feet	Depth Metres	Elevation (m)	Stratigraphy	DESCRIPTION OF SOIL	SAMPLES State	SAMPLES Type and Number	LAB Testing Comments (Gravel Sand Silt Clay)	LAB Testing Unit Weight (Dry) KN/m³	LAB Testing Moisture Content %	Recovery/ TCR(%)	Blows per/15cm/ RQD(%)	'N' Value SCR(%)	COMMENTS
0		258.0		GROUND SURFACE			%		%	%			
0				FILL: SILTY SAND, some gravel, fragments (brick, glass), rootlets, black, moist, very dense (Granular Base)		SS1			5	100	20-29-23-13	52	Concrete 0.3 m
1													
2													
3	1.0					SS2			8	100	2-8-11-12	19	Bentonite
4													
5	1.5	256.4		NATIVE: SILTY CLAY, some sand, trace gravel, brown, moist, stiff		SS3			12	100	3-6-6-7	12	
6													
7	2.0												
8						SS4			14	12.5	4-7-8-11	15	2.4 m ▼ 4/5/2024 3/27/2024
9													
10	3.0	3.0	254.9	SANDY SILTY CLAY TILL, trace gravel, brown, extreme oxidized, moist, hard		SS5			9	100	6-25-39-41	64	3.0 m
11													
12				some gravel, extreme oxidized									
13	4.0					SS6			8	100	17-37-36-39	73	
14													
15													Screen with sand
16	5.0					SS7			7	100	22-42-41-50/102mm	83	
17													
18				oxidized		SS8	0-37-49-14		8	100	13-39-50/102mm	89/254 mm	13 17 H
19													
20	6.0			grey, sandy silt seam									6.1 m
21						SS9			9	100	7-18-30-39	48	
22	6.7	251.3		END OF BOREHOLE									6.7 m
23	7.0												
24													
25													
26	8.0												
27													
28													
29	9.0												
30													
31													
32													

△ Undisturbed Vane Value (kPa)
□ Remoulded Field Vane Value (kPa)
△³ Number refer to Sensitivity
○ Water content (%)
W_p W_l Atterberg limits (%)
● "N" Value (blows/12 in.-30 cm)
☆ "DCPT" Value (blows/12 in.-30 cm)

10 20 30 40 50 60 70 80 90

PIEZOMETER/ STANDPIPE INSTALLATION

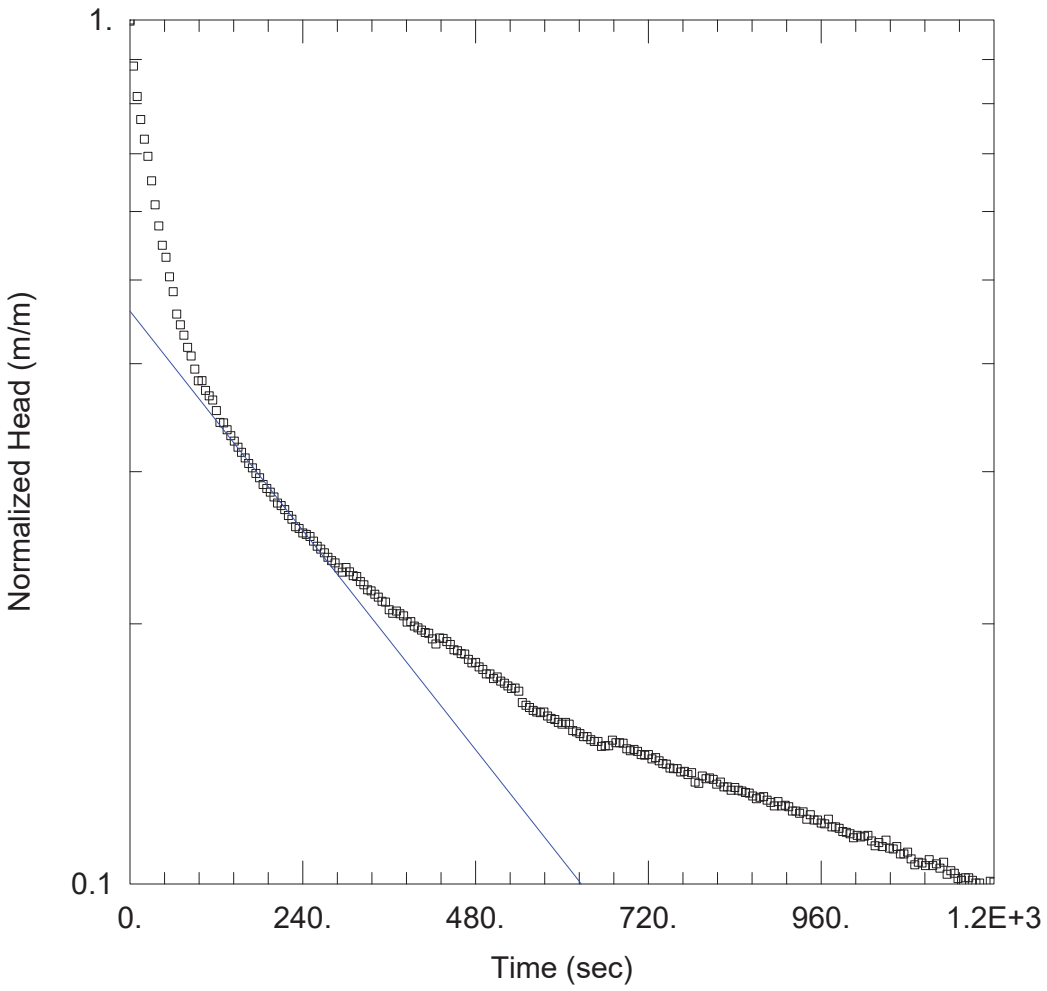
NOTES:
- End of borehole at 6.7 m bgs
- Groundwater at 2.6 m bgs upon completion of drilling.
- 'bgs' denotes 'below ground surface'.
- Water Level Reading:

Date	W. L Depth (m bgs)	Elevation (m)
04/05/2024	2.5	255.5

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Report: 12636323 SOIL LOG Date: 18/4/24

Appendix C

Single Well Response Test Analyses



MW01-24 RISING HEAD TEST

Data Set: \...\MW1-23 RH BR.aqt
Date: 04/17/24 Time: 11:10:53

PROJECT INFORMATION

Company: GHD
Client: Highside Companies
Project: 12636323
Location: 10533 Keele Street, Vaughan,
Test Well: MW01-24
Test Date: 04/02/24

AQUIFER DATA

Saturated Thickness: 2.9 m Anisotropy Ratio (Kz/Kr): 1.

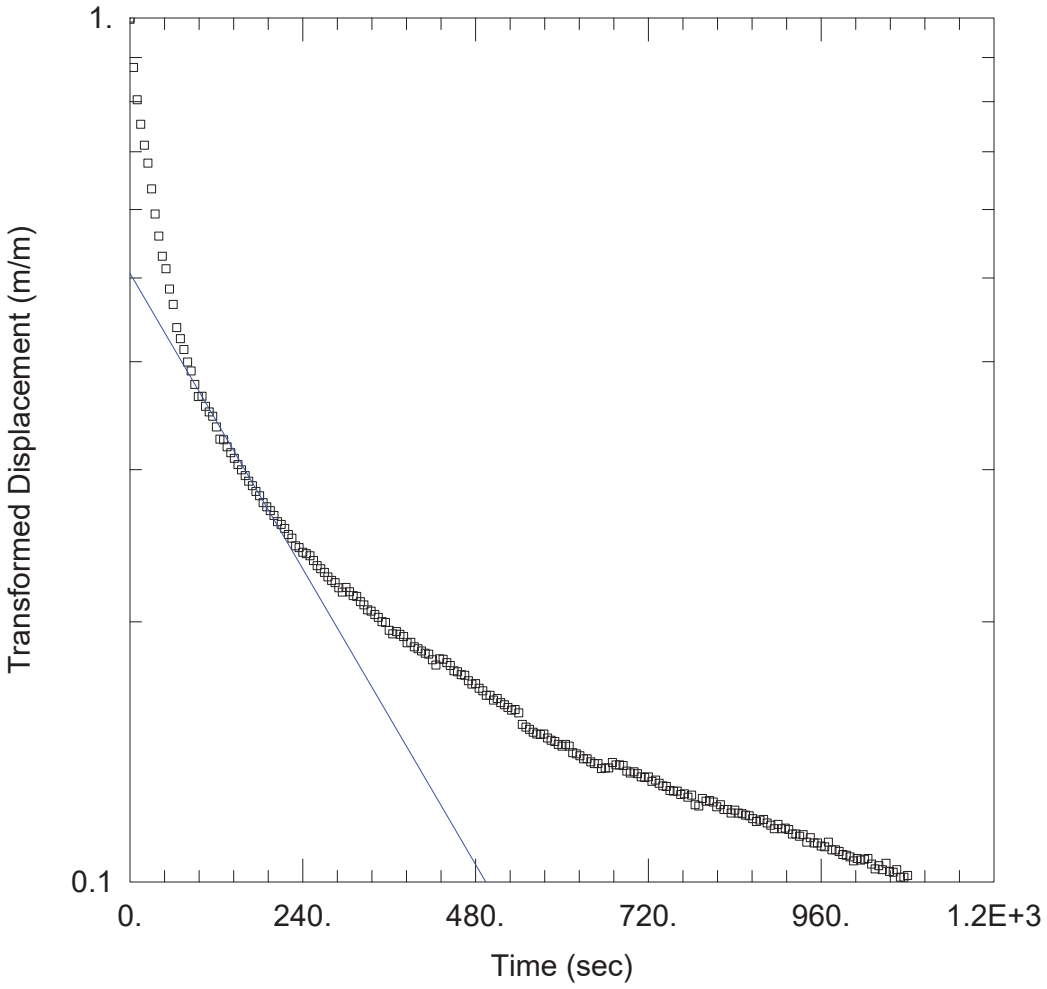
WELL DATA (MW01-24)

Initial Displacement: 0.42 m
Total Well Penetration Depth: 2.9 m
Casing Radius: 0.0255 m
Static Water Column Height: 2.9 m
Screen Length: 2.9 m
Well Radius: 0.1015 m
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.0003764 cm/sec y0 = 0.1933 m



MW01-24 RISING HEAD TEST

Data Set: \...\MW1-23 RH DG.aqt
Date: 04/17/24 Time: 11:11:50

PROJECT INFORMATION

Company: GHD
Client: Highside Companies
Project: 12636323
Location: 10533 Keele Street, Vaughan,
Test Well: MW01-24
Test Date: 04/02/24

AQUIFER DATA

Saturated Thickness: 2.9 m Anisotropy Ratio (Kz/Kr): 1.

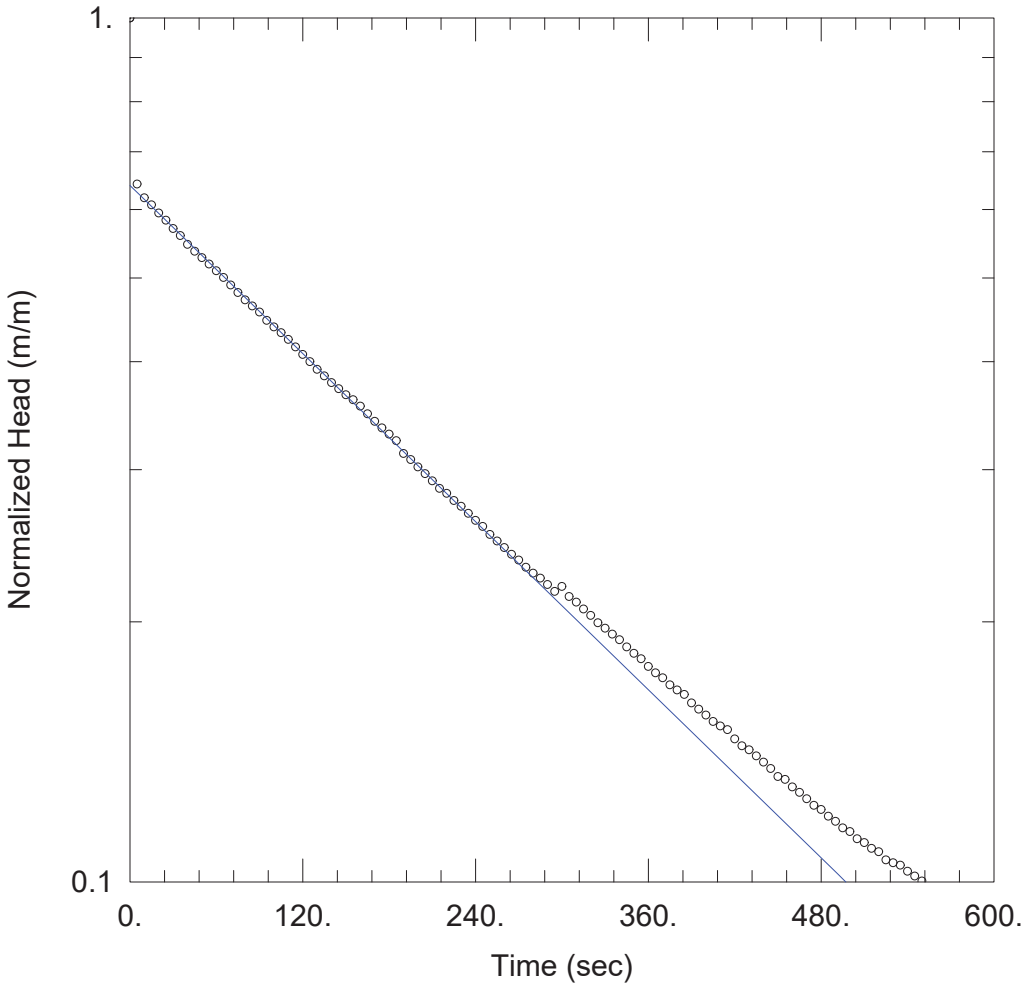
WELL DATA (MW01-24)

Initial Displacement: 0.42 m
Total Well Penetration Depth: 2.9 m
Casing Radius: 0.0255 m
Static Water Column Height: 2.9 m
Screen Length: 2.9 m
Well Radius: 0.1015 m

SOLUTION

Aquifer Model: Unconfined Solution Method: Dagan

K = 0.0001087 cm/sec y0 = 0.2205 m



MW02-24 FALLING HEAD TEST

Data Set: \...\MW2-23 FH BR.aqt
Date: 04/17/24 Time: 11:14:26

PROJECT INFORMATION

Company: GHD
Client: Highside Companies
Project: 12636323
Location: 10533 Keele Street, Vaughan,
Test Well: MW02-24
Test Date: 04/02/24

AQUIFER DATA

Saturated Thickness: 0.665 m Anisotropy Ratio (Kz/Kr): 1.

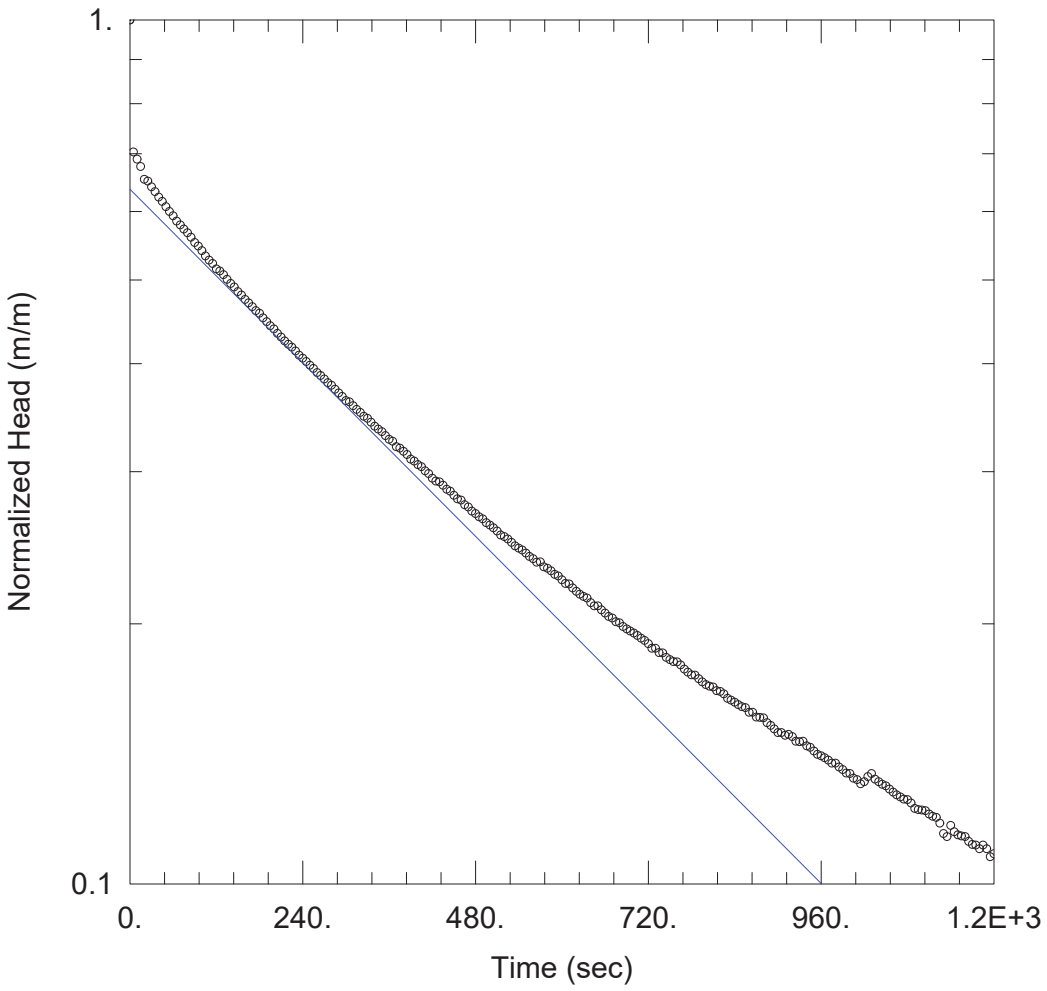
WELL DATA (MW02-24)

Initial Displacement: 0.6026 m Static Water Column Height: 3.715 m
Total Well Penetration Depth: 3.715 m Screen Length: 3.05 m
Casing Radius: 0.0255 m Well Radius: 0.1015 m

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.0003937 cm/sec y0 = 0.3856 m



MW02-24 RISING HEAD TEST

Data Set: \...\MW2-23 RH BR.aqt
Date: 04/17/24 Time: 11:15:34

PROJECT INFORMATION

Company: GHD
Client: Highside Companies
Project: 12636323
Location: 10533 Keele Street, Vaughan,
Test Well: MW02-24
Test Date: 04/02/24

AQUIFER DATA

Saturated Thickness: 0.665 m Anisotropy Ratio (Kz/Kr): 1.

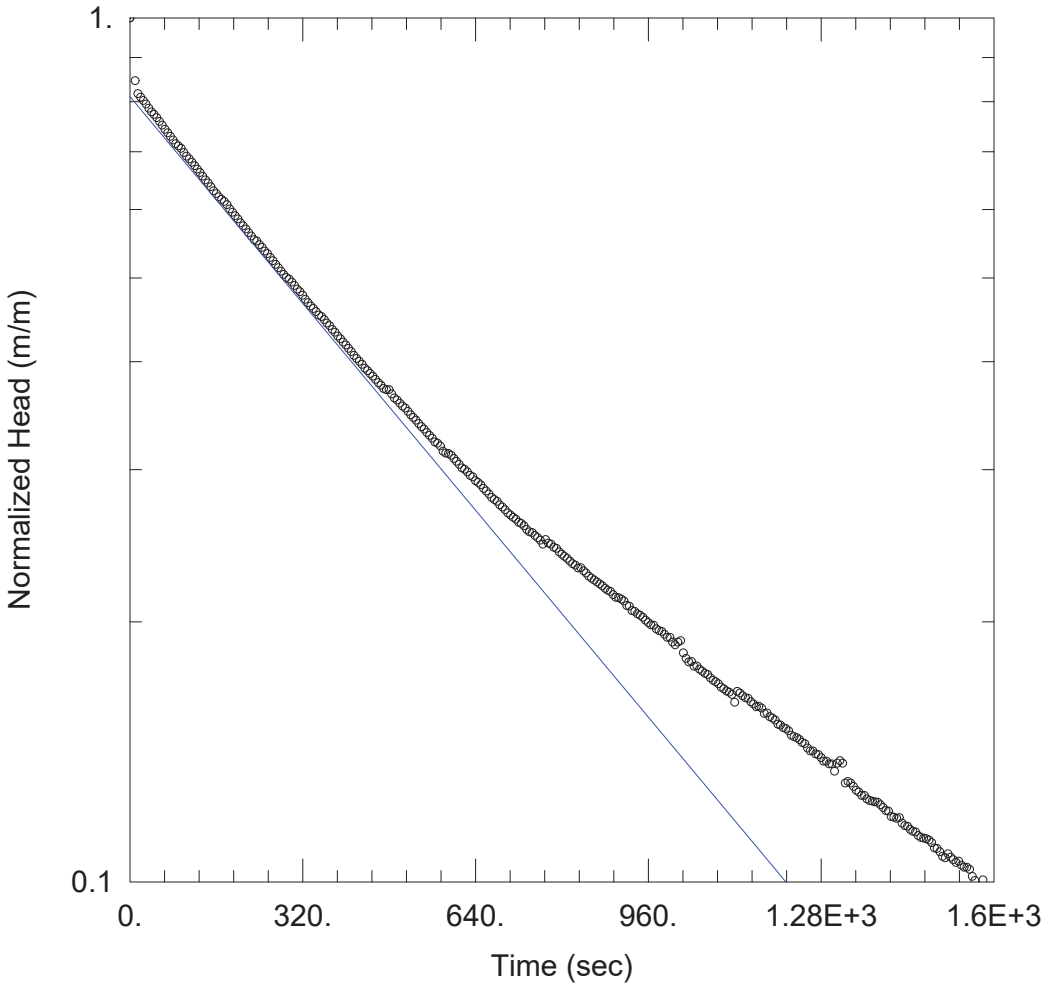
WELL DATA (MW02-24)

Initial Displacement: 0.5545 m Static Water Column Height: 3.715 m
Total Well Penetration Depth: 3.715 m Screen Length: 3.05 m
Casing Radius: 0.0255 m Well Radius: 0.1015 m

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.0002033 cm/sec y0 = 0.3531 m



MW03-24 FALLING HEAD TEST

Data Set: \...\MW3-23 FH BR.aqt
Date: 04/17/24 Time: 11:16:30

PROJECT INFORMATION

Company: GHD
Client: Highside Companies
Project: 12636323
Location: 10533 Keele Street, Vaughan,
Test Well: MW03-24
Test Date: 04/03/24

AQUIFER DATA

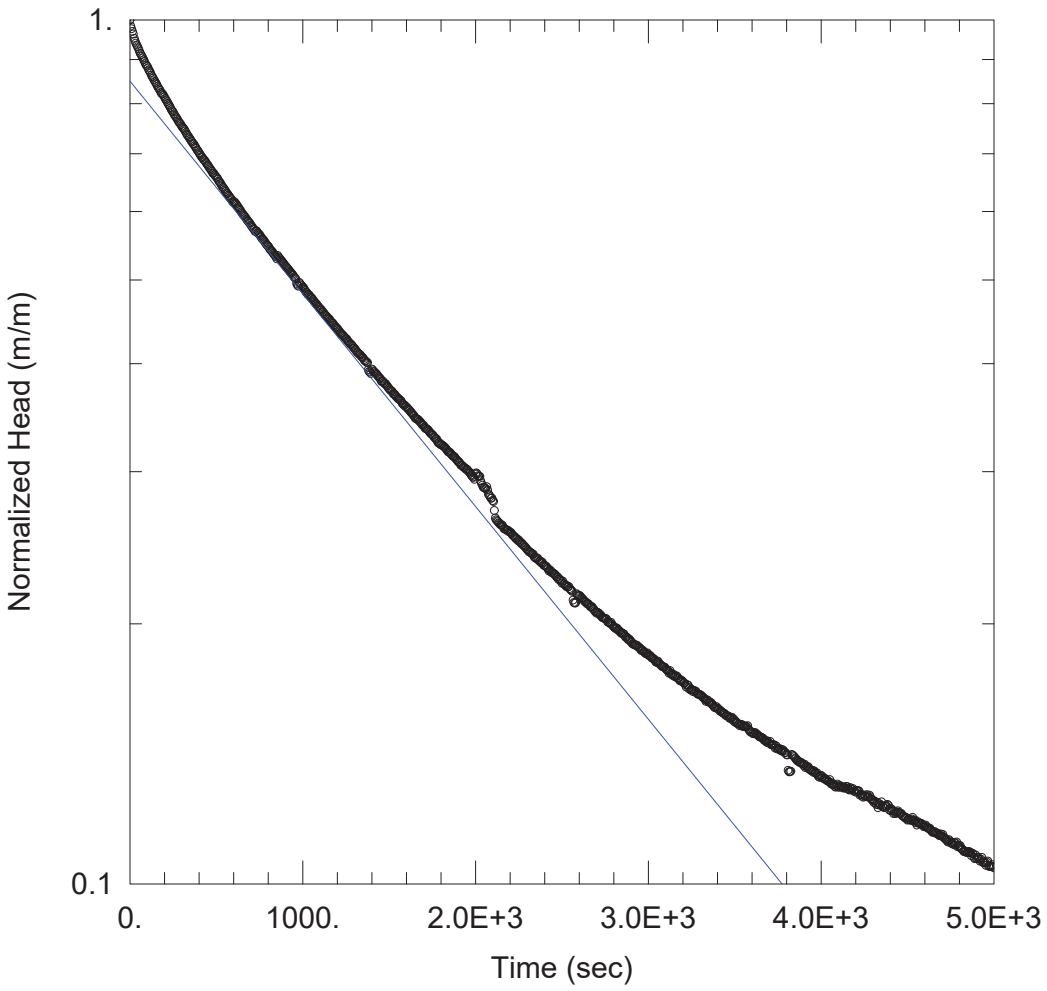
Saturated Thickness: 4.41 m Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW03-24)

Initial Displacement: 0.5242 m
Total Well Penetration Depth: 4.41 m
Casing Radius: 0.0255 m
Static Water Column Height: 4.41 m
Screen Length: 3.05 m
Well Radius: 0.1015 m

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 5.141E-5 cm/sec
y0 = 0.4251 m



MW03-24 RISING HEAD TEST

Data Set: \...\MW3-23 RH BR.aqt
Date: 04/17/24 Time: 11:16:46

PROJECT INFORMATION

Company: GHD
Client: Highside Companies
Project: 12636323
Location: 10533 Keele Street, Vaughan,
Test Well: MW03-24
Test Date: 04/03/24

AQUIFER DATA

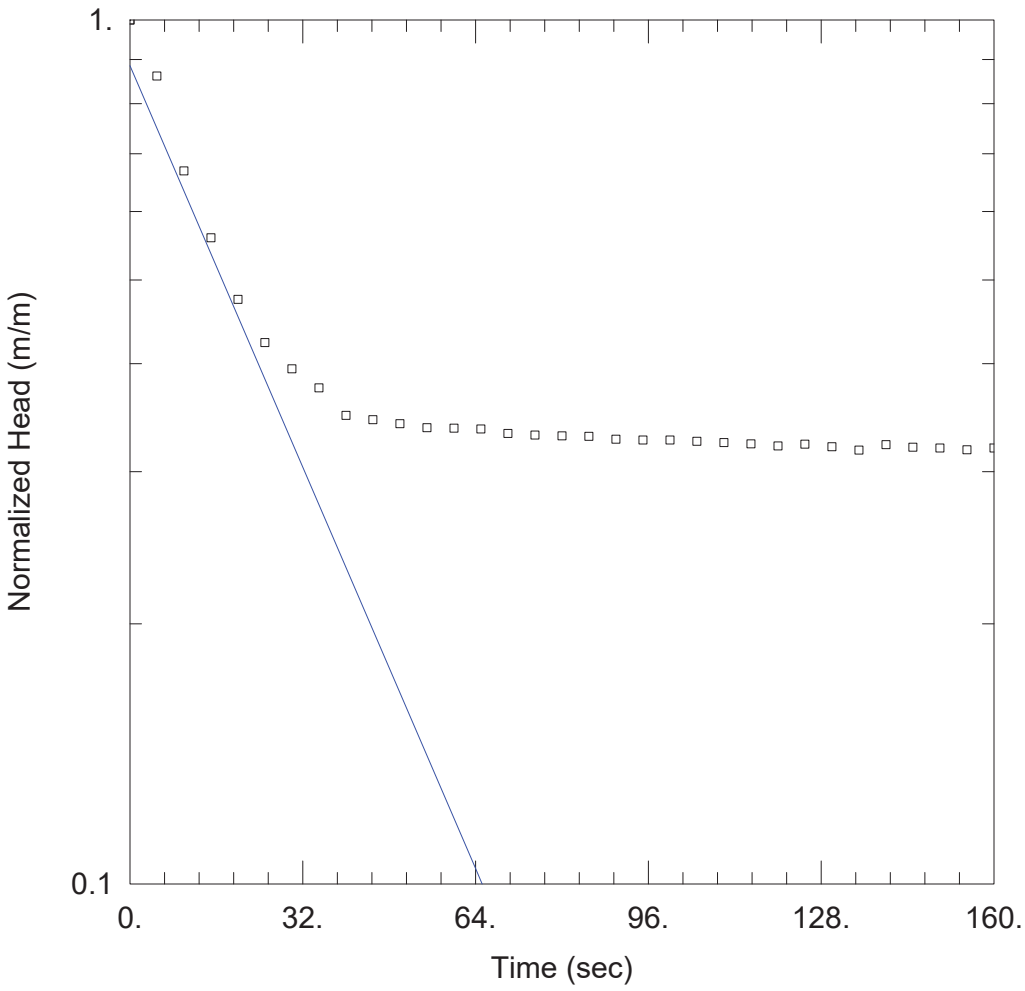
Saturated Thickness: 4.41 m Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW03-24)

Initial Displacement: 0.5787 m
Total Well Penetration Depth: 4.41 m
Casing Radius: 0.0255 m
Static Water Column Height: 4.41 m
Screen Length: 3.05 m
Well Radius: 0.1015 m

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 1.692E-5 cm/sec
y0 = 0.4916 m



MW04-24 FALLING HEAD TEST

Data Set: \...\MW4-23 FH BR.aqt
Date: 04/17/24 Time: 11:19:07

PROJECT INFORMATION

Company: GHD
Client: Highside Companies
Project: 12636323
Location: 10533 Keele Street, Vaughan,
Test Well: MW04-24
Test Date: 04/03/24

AQUIFER DATA

Saturated Thickness: 3.31 m Anisotropy Ratio (Kz/Kr): 1.

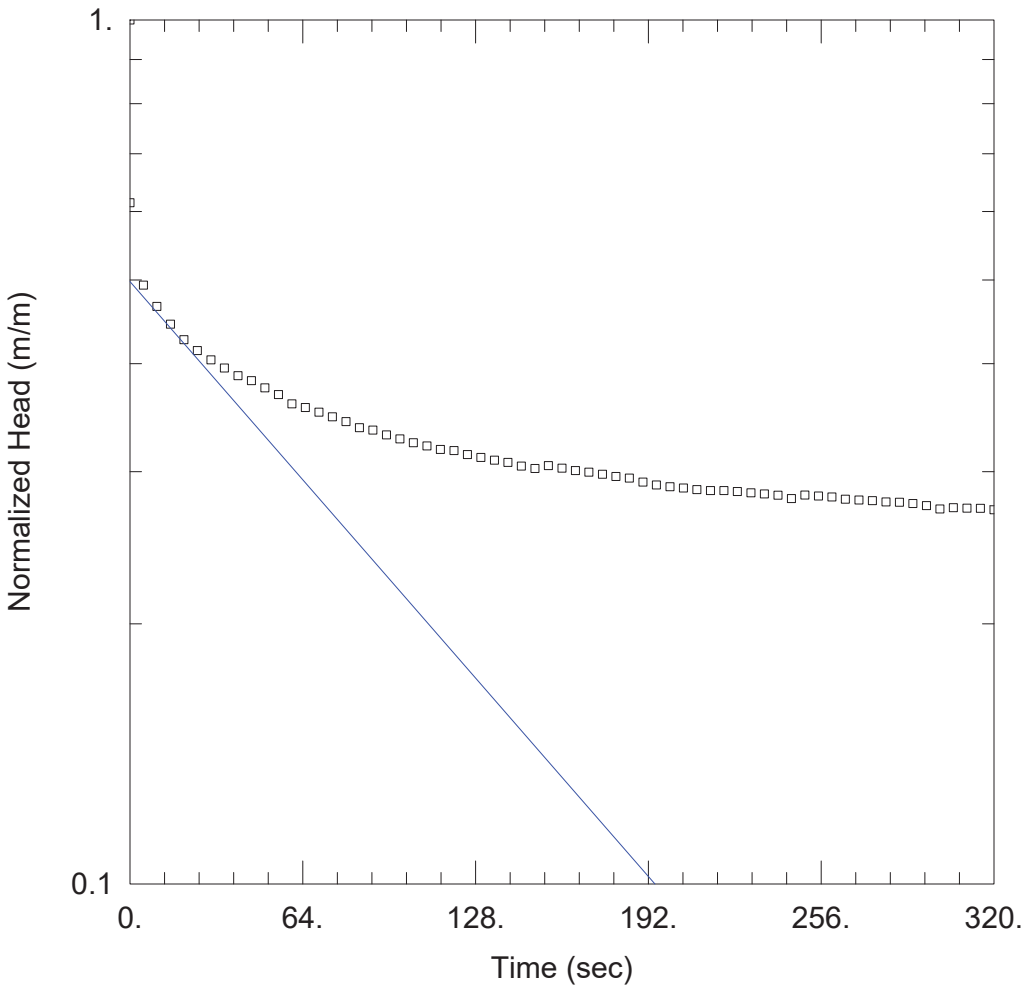
WELL DATA (MW04-24)

Initial Displacement: 0.2757 m
Total Well Penetration Depth: 3.31 m
Casing Radius: 0.0255 m
Static Water Column Height: 3.31 m
Screen Length: 3.05 m
Well Radius: 0.1015 m

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

K = 0.0009347 cm/sec
y0 = 0.244 m



MW04-24 RISING HEAD TEST

Data Set: \...\MW4-23 RH BR.aqt
Date: 04/17/24 Time: 11:20:12

PROJECT INFORMATION

Company: GHD
Client: Highside Companies
Project: 12636323
Location: 10533 Keele Street, Vaughan,
Test Well: MW04-24
Test Date: 04/03/24

AQUIFER DATA

Saturated Thickness: 3.42 m Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW04-24)

Initial Displacement: 0.746 m Static Water Column Height: 3.42 m
Total Well Penetration Depth: 3.42 m Screen Length: 3.05 m
Casing Radius: 0.0255 m Well Radius: 0.1015 m

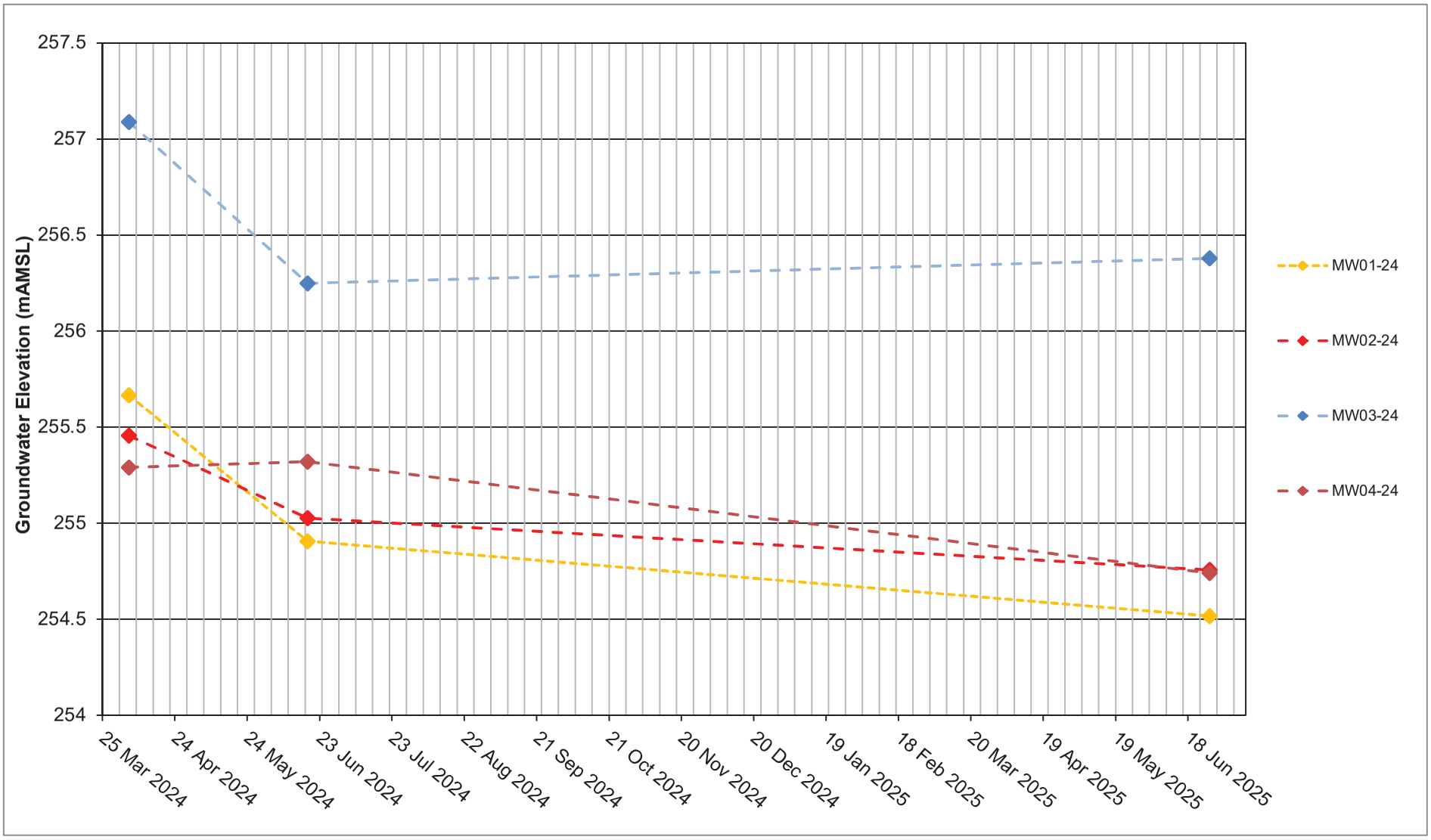
SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.0002326 cm/sec y0 = 0.3715 m

Appendix D

Groundwater Level Hydrographs



KEELE STREET (10533) LTD
10533 KEELE STREET, VAUGHAN, ONTARIO
HYDROGEOLOGICAL ASSESSMENT

GROUNDWATER ELEVATION HYDROGRAPHS

Project No. **12636323**
Date **July 2025**

Appendix D

Filename: N:\CA\Mississauga\Projects\662\12636323\Workshare\RPT\12636323-RPT-4-Hydrogeology-10533 Keele St, Vaughan\Tables\12636323-RPT-T3.3&3.4-GW Levels.xlsx

Data Source

Plot Date: 14 Jul 2025 02:23 PM

Appendix E

Laboratory Certificates of Analysis

CERTIFICATE OF ANALYSIS

Work Order	: **WT2407720**	Page	: 1 of 5
Client	: **GHD Limited**	Laboratory	: ALS Environmental - Waterloo
Contact	: Jennifer Balkwill	Account Manager	: Rick Hawthorne
Address	: 455 Phillip Street Waterloo ON Canada N2L 3X2	Address	: 60 Northland Road, Unit 1 Waterloo ON Canada N2V 2B8
Telephone	: 604 748 3661	Telephone	: +1 519 886 6910
Project	: 12636323-A1	Date Samples Received	: 04-Apr-2024 13:22
PO	: 735-009822	Date Analysis Commenced	: 05-Apr-2024
C-O-C number	: ----	Issue Date	: 12-Apr-2024 19:08
Sampler	: SH		
Site	: ----		
Quote number	: 12636323-A1 735-009822		
No. of samples received	: 1		
No. of samples analysed	: 1		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QC Interpretive report to assist with Quality Review and Sample Receipt Notification (SRN).

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Brooke Miller	Laboratory Analyst	Inorganics, Edmonton, Alberta
Hannah Lewis	Inorganics Analyst	Inorganics, Waterloo, Ontario
Jeremy Gingras	Supervisor - Semi-Volatile Instrumentation	Organics, Waterloo, Ontario
Nik Perkio	Inorganics Analyst	Inorganics, Waterloo, Ontario
Nik Perkio	Inorganics Analyst	Metals, Waterloo, Ontario
Niki Goebel	Inorganics Analyst	Metals, Waterloo, Ontario
Rachel Cameron	Supervisor - Semi-Volatile Extractions	Organics, Waterloo, Ontario
Sanja Risticevic	Department Manager - LCMS	LCMS, Waterloo, Ontario
Sarah Birch	VOC Section Supervisor	VOC, Waterloo, Ontario

General Comments

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Refer to the ALS Quality Control Interpretive report (QCI) for applicable references and methodology summaries. Reference methods may incorporate modifications to improve performance.
Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Please refer to Quality Control Interpretive report (QCI) for information regarding Holding Time compliance.

Key : CAS Number: Chemical Abstracts Services number is a unique identifier assigned to discrete substances
LOR: Limit of Reporting (detection limit).
Measurement Uncertainty: The reported uncertainties in this report are expanded uncertainties calculated using a coverage factor of 2, which gives a level of confidence of approximately 95%.
Surrogate: An analyte that is similar in behavior to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.

Unit	*Description*
µg/L	micrograms per litre
mg/L	milligrams per litre
pH units	pH units

>: greater than.
<: less than.

Test results reported relate only to the samples as received by the laboratory.

UNLESS OTHERWISE STATED on SRN or QCI Report, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Qualifiers

Qualifier	*Description*
BODL	*Limit of Reporting for BOD was increased to account for the largest volume of sample tested.*
DLUI	*Detection Limit Raised: Unknown interference generated an apparent false positive test result.*
PEHR	*Parameter exceeded recommended holding time on receipt: Proceeded with analysis as requested.*

Analytical Results

WT2407720-001

Sub-Matrix:**Water**
(Matrix: **Water**)

Client sample ID: GW-12636323-040424-SH-001
Client sampling date / time: 04-Apr-2024 12:00

Analyte	CAS Number	Result	LOR	Unit	Method/Lab	Prep Date	Analysis Date	QCLot
Physical Tests								
pH	----	8.18	0.10	pH units	E108/WT	05-Apr-2024	06-Apr-2024	1392526
Solids, total suspended [TSS]	----	3.4	3.0	mg/L	E160/WT	-	05-Apr-2024	1391807
Anions and Nutrients								
Chloride	16887-00-6	67.5	0.50	mg/L	E235.Cl/WT	05-Apr-2024	08-Apr-2024	1392356
Fluoride	16984-48-8	0.095	0.020	mg/L	E235.F/WT	05-Apr-2024	08-Apr-2024	1392357
Kjeldahl nitrogen, total [TKN]	----	0.382	0.050	mg/L	E318/WT	08-Apr-2024	09-Apr-2024	1391835
Phosphorus, total	7723-14-0	0.0039	0.0020	mg/L	E372-U/WT	05-Apr-2024	05-Apr-2024	1391836
Sulfate (as SO4)	14808-79-8	74.3	0.30	mg/L	E235.SO4/WT	05-Apr-2024	08-Apr-2024	1392355
Cyanides								
Cyanide, strong acid dissociable (Total)	----	<0.0020	0.0020	mg/L	E333/WT	05-Apr-2024	05-Apr-2024	1391954
Inorganics								
Chlorine, total	7782-50-5	<0.050 PEHR,	0.050	mg/L	E326/WT	-	05-Apr-2024	1391791
Total Metals								
Aluminum, total	7429-90-5	0.0431	0.0030	mg/L	E420/WT	05-Apr-2024	05-Apr-2024	1391524
Antimony, total	7440-36-0	0.00010	0.00010	mg/L	E420/WT	05-Apr-2024	05-Apr-2024	1391524
Arsenic, total	7440-38-2	0.00032	0.00010	mg/L	E420/WT	05-Apr-2024	05-Apr-2024	1391524
Cadmium, total	7440-43-9	0.0000637	0.0000050	mg/L	E420/WT	05-Apr-2024	05-Apr-2024	1391524
Chromium, total	7440-47-3	<0.00050	0.00050	mg/L	E420/WT	05-Apr-2024	05-Apr-2024	1391524
Cobalt, total	7440-48-4	0.00428	0.00010	mg/L	E420/WT	05-Apr-2024	05-Apr-2024	1391524
Copper, total	7440-50-8	0.00062	0.00050	mg/L	E420/WT	05-Apr-2024	05-Apr-2024	1391524
Iron, total	7439-89-6	0.062	0.010	mg/L	E420/WT	05-Apr-2024	05-Apr-2024	1391524
Lead, total	7439-92-1	0.000061	0.000050	mg/L	E420/WT	05-Apr-2024	05-Apr-2024	1391524
Manganese, total	7439-96-5	0.0412	0.00010	mg/L	E420/WT	05-Apr-2024	05-Apr-2024	1391524
Mercury, total	7439-97-6	<0.0000050	0.0000050	mg/L	E508/WT	05-Apr-2024	05-Apr-2024	1391853
Molybdenum, total	7439-98-7	0.000870	0.000050	mg/L	E420/WT	05-Apr-2024	05-Apr-2024	1391524
Nickel, total	7440-02-0	0.00396	0.00050	mg/L	E420/WT	05-Apr-2024	05-Apr-2024	1391524
Selenium, total	7782-49-2	0.000800	0.000050	mg/L	E420/WT	05-Apr-2024	05-Apr-2024	1391524
Silver, total	7440-22-4	<0.000010	0.000010	mg/L	E420/WT	05-Apr-2024	05-Apr-2024	1391524
Tin, total	7440-31-5	<0.00010	0.00010	mg/L	E420/WT	05-Apr-2024	05-Apr-2024	1391524
Titanium, total	7440-32-6	<0.00200 DLUI,	0.00200	mg/L	E420/WT	05-Apr-2024	05-Apr-2024	1391524
Zinc, total	7440-66-6	<0.0030	0.0030	mg/L	E420/WT	05-Apr-2024	05-Apr-2024	1391524
Aggregate Organics								
Biochemical oxygen demand [BOD]	----	<3.0 BODL,	3.0	mg/L	E550/WT	-	06-Apr-2024	1393549
Carbonaceous biochemical oxygen demand [CBOD]	----	<3.0 BODL,	3.0	mg/L	E555/WT	-	06-Apr-2024	1393540
Oil & grease (gravimetric)	----	<5.0	5.0	mg/L	E567/WT	10-Apr-2024	10-Apr-2024	1395308
Oil & grease, animal/vegetable (gravimetric)	----	<5.0	5	mg/L	EC567A.SG/WT	-	10-Apr-2024	-
Oil & grease, mineral (gravimetric)	----	<5.0	5.0	mg/L	E567SG/WT	10-Apr-2024	10-Apr-2024	1395309
Phenols, total (4AAP)	----	<0.0010	0.0010	mg/L	E562/EO	12-Apr-2024	12-Apr-2024	1400757
Volatile Organic Compounds								
Benzene	71-43-2	<0.50	0.50	µg/L	E611D/WT	05-Apr-2024	05-Apr-2024	1391738
Chloroform	67-66-3	<0.50	0.50	µg/L	E611D/WT	05-Apr-2024	05-Apr-2024	1391738
Dichlorobenzene, 1,2-	95-50-1	<0.50	0.50	µg/L	E611D/WT	05-Apr-2024	05-Apr-2024	1391738
Dichlorobenzene, 1,4-	106-46-7	<0.50	0.50	µg/L	E611D/WT	05-Apr-2024	05-Apr-2024	1391738
Dichloroethylene, cis-1,2-	156-59-2	<0.50	0.50	µg/L	E611D/WT	05-Apr-2024	05-Apr-2024	1391738

Analytical Results

WT2407720-001

Sub-Matrix:**Water** (Matrix: **Water**)

Client sample ID: GW-12636323-040424-SH-001

Client sampling date / time: 04-Apr-2024 12:00

Analyte	CAS Number	Result	LOR	Unit	Method/Lab	Prep Date	Analysis Date	QCLot
Volatile Organic Compounds								
Dichloromethane	75-09-2	<1.0	1.0	µg/L	E611D/WT	05-Apr-2024	05-Apr-2024	1391738
Dichloropropylene, trans-1,3-	10061-02-6	<0.30	0.30	µg/L	E611D/WT	05-Apr-2024	05-Apr-2024	1391738
Ethylbenzene	100-41-4	<0.50	0.50	µg/L	E611D/WT	05-Apr-2024	05-Apr-2024	1391738
Methyl ethyl ketone [MEK]	78-93-3	<20	20	µg/L	E611D/WT	05-Apr-2024	05-Apr-2024	1391738
Styrene	100-42-5	<0.50	0.50	µg/L	E611D/WT	05-Apr-2024	05-Apr-2024	1391738
Tetrachloroethane, 1,1,2,2-	79-34-5	<0.50	0.50	µg/L	E611D/WT	05-Apr-2024	05-Apr-2024	1391738
Tetrachloroethylene	127-18-4	<0.50	0.50	µg/L	E611D/WT	05-Apr-2024	05-Apr-2024	1391738
Toluene	108-88-3	<0.50	0.50	µg/L	E611D/WT	05-Apr-2024	05-Apr-2024	1391738
Trichloroethylene	79-01-6	<0.50	0.50	µg/L	E611D/WT	05-Apr-2024	05-Apr-2024	1391738
Xylene, m+p-	179601-23-1	<0.40	0.40	µg/L	E611D/WT	05-Apr-2024	05-Apr-2024	1391738
Xylene, o-	95-47-6	<0.30	0.30	µg/L	E611D/WT	05-Apr-2024	05-Apr-2024	1391738
Xylenes, total	1330-20-7	<0.50	0.50	µg/L	E611D/WT	05-Apr-2024	05-Apr-2024	1391738
Volatile Organic Compounds Surrogates								
Bromofluorobenzene, 4-	460-00-4	102	1.0	%	E611D/WT	05-Apr-2024	05-Apr-2024	1391738
Difluorobenzene, 1,4-	540-36-3	94.7	1.0	%	E611D/WT	05-Apr-2024	05-Apr-2024	1391738
Polycyclic Aromatic Hydrocarbons								
Anthracene	120-12-7	<0.000010	0.000010	mg/L	E641A-L/WT	08-Apr-2024	09-Apr-2024	1394619
Benz(a)anthracene	56-55-3	<0.000010	0.000010	mg/L	E641A-L/WT	08-Apr-2024	09-Apr-2024	1394619
Benzo(a)pyrene	50-32-8	<0.0000050	0.0000050	mg/L	E641A-L/WT	08-Apr-2024	09-Apr-2024	1394619
Benzo(b+j)fluoranthene	n/a	<0.000010	0.000010	mg/L	E641A-L/WT	08-Apr-2024	09-Apr-2024	1394619
Benzo(e)pyrene	192-97-2	<0.000010	0.000010	mg/L	E641A-L/WT	08-Apr-2024	09-Apr-2024	1394619
Benzo(g,h,i)perylene	191-24-2	<0.000010	0.000010	mg/L	E641A-L/WT	08-Apr-2024	09-Apr-2024	1394619
Benzo(k)fluoranthene	207-08-9	<0.000010	0.000010	mg/L	E641A-L/WT	08-Apr-2024	09-Apr-2024	1394619
Chrysene	218-01-9	<0.000010	0.000010	mg/L	E641A-L/WT	08-Apr-2024	09-Apr-2024	1394619
Dibenz(a,h)acridine	226-36-8	<0.000050	0.000050	mg/L	E642D/WT	05-Apr-2024	08-Apr-2024	1391795
Dibenz(a,h)anthracene	53-70-3	<0.0000050	0.0000050	mg/L	E641A-L/WT	08-Apr-2024	09-Apr-2024	1394619
Dibenz(a,j)acridine	224-42-0	<0.000050	0.000050	mg/L	E642D/WT	05-Apr-2024	08-Apr-2024	1391795
Dibenzo(a,i)pyrene	189-55-9	<0.000050	0.000050	mg/L	E642D/WT	05-Apr-2024	08-Apr-2024	1391795
Dibenzo(c,g)carbazole, 7H-	194-59-2	<0.000050	0.000050	mg/L	E642D/WT	05-Apr-2024	08-Apr-2024	1391795
Dinitropyrene, 1,3-	75321-20-9	<0.0010	0.0010	mg/L	E642D/WT	05-Apr-2024	08-Apr-2024	1391795
Dinitropyrene, 1,6-	42397-64-8	<0.0010	0.0010	mg/L	E642D/WT	05-Apr-2024	08-Apr-2024	1391795
Dinitropyrene, 1,8-	42397-65-9	<0.0010	0.0010	mg/L	E642D/WT	05-Apr-2024	08-Apr-2024	1391795
Fluoranthene	206-44-0	<0.000010	0.000010	mg/L	E641A-L/WT	08-Apr-2024	09-Apr-2024	1394619
Indeno(1,2,3-c,d)pyrene	193-39-5	<0.000010	0.000010	mg/L	E641A-L/WT	08-Apr-2024	09-Apr-2024	1394619
Methylcholanthrene, 3-	56-49-5	<0.000050	0.000050	mg/L	E642D/WT	05-Apr-2024	08-Apr-2024	1391795
Perylene	198-55-0	<0.000010	0.000010	mg/L	E641A-L/WT	08-Apr-2024	09-Apr-2024	1394619
Phenanthrene	85-01-8	<0.000010	0.000010	mg/L	E641A-L/WT	08-Apr-2024	09-Apr-2024	1394619
Pyrene	129-00-0	<0.000010	0.000010	mg/L	E641A-L/WT	08-Apr-2024	09-Apr-2024	1394619
PAHs, total (ON Sewer Use)	n/a	<0.00175	0.00175	mg/L	EC640A/WT	-	09-Apr-2024	-
Polycyclic Aromatic Hydrocarbons Surrogates								
Chrysene-d12	1719-03-5	94.5	0.1	%	E641A-L/WT	08-Apr-2024	09-Apr-2024	1394619
Naphthalene-d8	1146-65-2	109	0.1	%	E641A-L/WT	08-Apr-2024	09-Apr-2024	1394619
Phenanthrene-d10	1517-22-2	108	0.1	%	E641A-L/WT	08-Apr-2024	09-Apr-2024	1394619
Terphenyl-d14, p-	1718-51-0	88.9	0.1	%	E642D/WT	05-Apr-2024	08-Apr-2024	1391795
Phthalate Esters								

Analytical Results

WT2407720-001

Sub-Matrix:**Water** (Matrix: **Water**)

Client sample ID: GW-12636323-040424-SH-001

Client sampling date / time: 04-Apr-2024 12:00

Analyte	CAS Number	Result	LOR	Unit	Method/Lab	Prep Date	Analysis Date	QCLot
Phthalate Esters								
bis(2-Ethylhexyl) phthalate [DEHP]	117-81-7	<0.60	0.60	µg/L	E625A/WT	05-Apr-2024	05-Apr-2024	1391787
Di-n-butyl phthalate	84-74-2	<1.0	1.0	µg/L	E625A/WT	05-Apr-2024	05-Apr-2024	1391787
Semi-Volatile Organics Surrogates								
Fluorobiphenyl, 2-	321-60-8	72.9	1.0	%	E625A/WT	05-Apr-2024	05-Apr-2024	1391787
Nitrobenzene-d5	4165-60-0	68.7	1.0	%	E625A/WT	05-Apr-2024	05-Apr-2024	1391787
Terphenyl-d14, p-	1718-51-0	76.7	1.0	%	E625A/WT	05-Apr-2024	05-Apr-2024	1391787
Phenolics Surrogates								
Tribromophenol, 2,4,6-	118-79-6	83.4	0.50	%	E625A/WT	05-Apr-2024	05-Apr-2024	1391787
Nonylphenols								
Nonylphenol diethoxylates [NP2EO]	n/a	<0.10	0.10	µg/L	E749B/WT	08-Apr-2024	08-Apr-2024	1394197
Nonylphenol ethoxylates, total	n/a	<2.0	2.0	µg/L	E749B/WT	08-Apr-2024	08-Apr-2024	1394197
Nonylphenol monoethoxylates [NP1EO]	n/a	<2.0	2.0	µg/L	E749B/WT	08-Apr-2024	08-Apr-2024	1394197
Nonylphenols [NP]	84852-15-3	<1.0	1.0	µg/L	E749A/WT	08-Apr-2024	08-Apr-2024	1394196
Polychlorinated Biphenyls								
Aroclor 1016	12674-11-2	<0.020	0.020	µg/L	E687/WT	05-Apr-2024	05-Apr-2024	1392810
Aroclor 1221	11104-28-2	<0.020	0.020	µg/L	E687/WT	05-Apr-2024	05-Apr-2024	1392810
Aroclor 1232	11141-16-5	<0.020	0.020	µg/L	E687/WT	05-Apr-2024	05-Apr-2024	1392810
Aroclor 1242	53469-21-9	<0.020	0.020	µg/L	E687/WT	05-Apr-2024	05-Apr-2024	1392810
Aroclor 1248	12672-29-6	<0.020	0.020	µg/L	E687/WT	05-Apr-2024	05-Apr-2024	1392810
Aroclor 1254	11097-69-1	<0.020	0.020	µg/L	E687/WT	05-Apr-2024	05-Apr-2024	1392810
Aroclor 1260	11096-82-5	<0.020	0.020	µg/L	E687/WT	05-Apr-2024	05-Apr-2024	1392810
Aroclor 1262	37324-23-5	<0.020	0.020	µg/L	E687/WT	05-Apr-2024	05-Apr-2024	1392810
Aroclor 1268	11100-14-4	<0.020	0.020	µg/L	E687/WT	05-Apr-2024	05-Apr-2024	1392810
Polychlorinated biphenyls [PCBs], total	----	<0.060	0.060	µg/L	E687/WT	05-Apr-2024	05-Apr-2024	1392810
Polychlorinated Biphenyls Surrogates								
Decachlorobiphenyl	2051-24-3	106	0.1	%	E687/WT	05-Apr-2024	05-Apr-2024	1392810
Tetrachloro-m-xylene	877-09-8	109	0.1	%	E687/WT	05-Apr-2024	05-Apr-2024	1392810

Please refer to the General Comments section for an explanation of any result qualifiers detected.

Please refer to the Accreditation section for an explanation of analyte accreditations.

ALS Canada Ltd.

right solutions. right partner.

QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: **WT2407720**	Page	: 1 of 12
Client	: **GHD Limited**	Laboratory	: ALS Environmental - Waterloo
Contact	: Jennifer Balkwill	Account Manager	: Rick Hawthorne
Address	: 455 Phillip Street Waterloo ON Canada N2L 3X2	Address	: 60 Northland Road, Unit 1 Waterloo, Ontario Canada N2V 2B8
Telephone	: 604 748 3661	Telephone	: +1 519 886 6910
Project	: 12636323-A1	Date Samples Received	: 04-Apr-2024 13:22
PO	: 735-009822	Issue Date	: 12-Apr-2024 19:09
C-O-C number	: ----		
Sampler	: SH		
Site	: ----		
Quote number	: 12636323-A1 735-009822		
No. of samples received	: 1		
No. of samples analysed	: 1		

This report is automatically generated by the ALS LIMS (Laboratory Information Management System) through evaluation of Quality Control (QC) results and other QA parameters associated with this submission, and is intended to facilitate rapid data validation by auditors or reviewers. The report highlights any exceptions and outliers to ALS Data Quality Objectives, provides holding time details and exceptions, summarizes QC sample frequencies, and lists applicable methodology references and summaries.

Key

Anonymous: Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number: Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO: Data Quality Objective.
LOR: Limit of Reporting (detection limit).
RPD: Relative Percent Difference.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Summary of Outliers

Outliers : Quality Control Samples

- No Method Blank value outliers occur.
- No Duplicate outliers occur.
- No Laboratory Control Sample (LCS) outliers occur
- No Matrix Spike outliers occur.
- No Test sample Surrogate recovery outliers exist.

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

- Analysis Holding Time Outliers exist - please see following pages for full details.

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.

Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times, which are selected to meet known provincial and /or federal requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by organizations such as CCME, US EPA, APHA Standard Methods, ASTM, or Environment Canada (where available). Dates and holding times reported below represent the first dates of extraction or analysis. If subsequent tests or dilutions exceeded holding times, qualifiers are added (refer to COA).

If samples are identified below as having been analyzed or extracted outside of recommended holding times, measurement uncertainties may be increased, and this should be taken into consideration when interpreting results.

Where actual sampling date is not provided on the chain of custody, the date of receipt with time at 00:00 is used for calculation purposes.

Where only the sample date without time is provided on the chain of custody, the sampling date at 00:00 is used for calculation purposes.

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / **Container / Client Sample ID(s)**	*Method*	*Sampling Date*	*Extraction / Preparation*				*Analysis*			
			Preparation Date	*Holding Times*		*Eval*	*Analysis Date*	*Holding Times*		*Eval*
				Rec	*Actual*			*Rec*	*Actual*	
Aggregate Organics : Biochemical Oxygen Demand - 5 day										
HDPE [BOD HT 3d] GW-12636323-040424-SH-001	E550	04-Apr-2024	----	----	----		06-Apr-2024	3 days	2 days	✓
Aggregate Organics : Biochemical Oxygen Demand (Carbonaceous) - 5 day										
HDPE [BOD HT 3d] GW-12636323-040424-SH-001	E555	04-Apr-2024	----	----	----		06-Apr-2024	3 days	2 days	✓
Aggregate Organics : Mineral Oil & Grease by Gravimetry										
Amber glass (hydrochloric acid) GW-12636323-040424-SH-001	E567SG	04-Apr-2024	10-Apr-2024	28 days	6 days	✓	10-Apr-2024	28 days	6 days	✓
Aggregate Organics : Oil & Grease by Gravimetry										
Amber glass (hydrochloric acid) GW-12636323-040424-SH-001	E567	04-Apr-2024	10-Apr-2024	28 days	6 days	✓	10-Apr-2024	28 days	6 days	✓
Aggregate Organics : Phenols (4AAP) in Water by Colorimetry										
Amber glass total (sulfuric acid) GW-12636323-040424-SH-001	E562	04-Apr-2024	12-Apr-2024	28 days	8 days	✓	12-Apr-2024	28 days	8 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE GW-12636323-040424-SH-001	E235.Cl	04-Apr-2024	05-Apr-2024	28 days	1 days	✓	08-Apr-2024	28 days	4 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE GW-12636323-040424-SH-001	E235.F	04-Apr-2024	05-Apr-2024	28 days	1 days	✓	08-Apr-2024	28 days	4 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
GW-12636323-040424-SH-001	E235.SO4	04-Apr-2024	05-Apr-2024	28 days	1 days	✓	08-Apr-2024	28 days	4 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid)										
GW-12636323-040424-SH-001	E318	04-Apr-2024	08-Apr-2024	28 days	4 days	✓	09-Apr-2024	28 days	5 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass total (sulfuric acid)										
GW-12636323-040424-SH-001	E372-U	04-Apr-2024	05-Apr-2024	28 days	1 days	✓	05-Apr-2024	28 days	1 days	✓
Cyanides : Total Cyanide										
UV-inhibited HDPE - total (sodium hydroxide)										
GW-12636323-040424-SH-001	E333	04-Apr-2024	05-Apr-2024	14 days	1 days	✓	05-Apr-2024	14 days	1 days	✓
Inorganics : Total Chlorine (Residual) by DPD Colourimetry										
Amber glass										
GW-12636323-040424-SH-001	E326	04-Apr-2024	----	----	----		05-Apr-2024	0.25 hrs	19 hrs	× EHTR-FM
Nonylphenols : Nonylphenol Ethoxylates in Water by LC-MS-MS Positive Mode										
Amber glass/Teflon lined cap - LCMS										
GW-12636323-040424-SH-001	E749B	04-Apr-2024	08-Apr-2024	7 days	4 days	✓	08-Apr-2024	7 days	0 days	✓
Nonylphenols : Nonylphenol, Octylphenol and BPA in Water by LC-MS-MS Negative Mode										
Amber glass/Teflon lined cap - LCMS										
GW-12636323-040424-SH-001	E749A	04-Apr-2024	08-Apr-2024	7 days	4 days	✓	08-Apr-2024	7 days	0 days	✓
Phthalate Esters : BNA (Routine List) by GC-MS/MS										
Amber glass/Teflon lined septa cap - SVOCs (sodium thiosulfate) [ON MECP]										
GW-12636323-040424-SH-001	E625A	04-Apr-2024	05-Apr-2024	14 days	1 days	✓	05-Apr-2024	40 days	0 days	✓
Physical Tests : pH by Meter										
HDPE										
GW-12636323-040424-SH-001	E108	04-Apr-2024	05-Apr-2024	0.25 hrs	27 hrs	× EHTR-FM	06-Apr-2024	0.25 hrs	47 hrs	× EHTR-FM

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	*Method*	*Sampling Date*	*Extraction / Preparation*				*Analysis*			
			Preparation Date	*Holding Times*		*Eval*	*Analysis Date*	*Holding Times*		*Eval*
				Rec	*Actual*			*Rec*	*Actual*	
Physical Tests : TSS by Gravimetry										
HDPE										
GW-12636323-040424-SH-001	E160	04-Apr-2024	----	----	----		05-Apr-2024	7 days	1 days	✓
Polychlorinated Biphenyls : PCB Aroclors by GC-MS										
Amber glass/Teflon lined cap										
GW-12636323-040424-SH-001	E687	04-Apr-2024	05-Apr-2024	365 days	1 days	✓	05-Apr-2024	40 days	0 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs (ON Special List) by GC-MS										
Amber glass/Teflon lined cap [ON PAH Extra]										
GW-12636323-040424-SH-001	E642D	04-Apr-2024	05-Apr-2024	14 days	1 days	✓	08-Apr-2024	40 days	4 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hexane LVI GC-MS (Low Level)										
Amber glass/Teflon lined cap (sodium bisulfate)										
GW-12636323-040424-SH-001	E641A-L	04-Apr-2024	08-Apr-2024	14 days	4 days	✓	09-Apr-2024	40 days	1 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid)										
GW-12636323-040424-SH-001	E508	04-Apr-2024	05-Apr-2024	28 days	1 days	✓	05-Apr-2024	28 days	1 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE total (nitric acid)										
GW-12636323-040424-SH-001	E420	04-Apr-2024	05-Apr-2024	180 days	1 days	✓	05-Apr-2024	180 days	1 days	✓
Volatile Organic Compounds : VOCs (Eastern Canada List) by Headspace GC-MS										
Glass vial (sodium bisulfate)										
GW-12636323-040424-SH-001	E611D	04-Apr-2024	05-Apr-2024	14 days	1 days	✓	05-Apr-2024	14 days	1 days	✓

Legend & Qualifier Definitions

EHTR-FM: Exceeded ALS recommended hold time prior to sample receipt. Field Measurement recommended

Rec. HT: ALS recommended hold time (see units).

Quality Control Parameter Frequency Compliance

The following report summarizes the frequency of laboratory QC samples analyzed within the analytical batches (QC lots) in which the submitted samples were processed. The actual frequency should be greater than or equal to the expected frequency.

Matrix: **Water**

Evaluation: × = *QC frequency outside specification*; ✓ = *QC frequency within specification.*

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Duplicates (DUP)							
Biochemical Oxygen Demand - 5 day	E550	1393549	1	20	5.0	5.0	✓
Biochemical Oxygen Demand (Carbonaceous) - 5 day	E555	1393540	1	20	5.0	5.0	✓
Chloride in Water by IC	E235.Cl	1392356	1	18	5.5	5.0	✓
Fluoride in Water by IC	E235.F	1392357	1	4	25.0	5.0	✓
Nonylphenol Ethoxylates in Water by LC-MS-MS Positive Mode	E749B	1394197	1	12	8.3	5.0	✓
Nonylphenol, Octylphenol and BPA in Water by LC-MS-MS Negative Mode	E749A	1394196	1	12	8.3	5.0	✓
pH by Meter	E108	1392526	1	4	25.0	5.0	✓
Phenols (4AAP) in Water by Colorimetry	E562	1400757	1	20	5.0	5.0	✓
Sulfate in Water by IC	E235.SO4	1392355	1	18	5.5	5.0	✓
Total Chlorine (Residual) by DPD Colourimetry	E326	1391791	1	4	25.0	5.0	✓
Total Cyanide	E333	1391954	1	19	5.2	5.0	✓
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	1391835	1	20	5.0	5.0	✓
Total Mercury in Water by CVAAS	E508	1391853	1	10	10.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1391524	1	12	8.3	5.0	✓
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	1391836	1	18	5.5	5.0	✓
TSS by Gravimetry	E160	1391807	1	19	5.2	4.7	✓
VOCs (Eastern Canada List) by Headspace GC-MS	E611D	1391738	1	20	5.0	5.0	✓
Laboratory Control Samples (LCS)							
Biochemical Oxygen Demand - 5 day	E550	1393549	1	20	5.0	5.0	✓
Biochemical Oxygen Demand (Carbonaceous) - 5 day	E555	1393540	1	20	5.0	5.0	✓
BNA (Routine List) by GC-MS/MS	E625A	1391787	1	20	5.0	5.0	✓
Chloride in Water by IC	E235.Cl	1392356	1	18	5.5	5.0	✓
Fluoride in Water by IC	E235.F	1392357	1	4	25.0	5.0	✓
Mineral Oil & Grease by Gravimetry	E567SG	1395309	1	14	7.1	5.0	✓
Nonylphenol Ethoxylates in Water by LC-MS-MS Positive Mode	E749B	1394197	1	12	8.3	5.0	✓
Nonylphenol, Octylphenol and BPA in Water by LC-MS-MS Negative Mode	E749A	1394196	1	12	8.3	5.0	✓
Oil & Grease by Gravimetry	E567	1395308	1	20	5.0	5.0	✓
PAHs (ON Special List) by GC-MS	E642D	1391795	1	6	16.6	5.0	✓
PAHs by Hexane LVI GC-MS (Low Level)	E641A-L	1394619	1	4	25.0	5.0	✓
PCB Aroclors by GC-MS	E687	1392810	1	1	100.0	4.7	✓
pH by Meter	E108	1392526	1	4	25.0	5.0	✓
Phenols (4AAP) in Water by Colorimetry	E562	1400757	1	20	5.0	5.0	✓
Sulfate in Water by IC	E235.SO4	1392355	1	18	5.5	5.0	✓
Total Chlorine (Residual) by DPD Colourimetry	E326	1391791	1	4	25.0	5.0	✓
Total Cyanide	E333	1391954	1	19	5.2	5.0	✓
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	1391835	1	20	5.0	5.0	✓

Matrix: **Water**

Evaluation: × = QC frequency outside specification; ✓ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Control Samples (LCS) - Continued							
Total Mercury in Water by CVAAS	E508	1391853	1	10	10.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1391524	1	12	8.3	5.0	✓
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	1391836	1	18	5.5	5.0	✓
TSS by Gravimetry	E160	1391807	1	19	5.2	4.7	✓
VOCs (Eastern Canada List) by Headspace GC-MS	E611D	1391738	1	20	5.0	5.0	✓
Method Blanks (MB)							
Biochemical Oxygen Demand - 5 day	E550	1393549	1	20	5.0	5.0	✓
Biochemical Oxygen Demand (Carbonaceous) - 5 day	E555	1393540	1	20	5.0	5.0	✓
BNA (Routine List) by GC-MS/MS	E625A	1391787	1	20	5.0	5.0	✓
Chloride in Water by IC	E235.Cl	1392356	1	18	5.5	5.0	✓
Fluoride in Water by IC	E235.F	1392357	1	4	25.0	5.0	✓
Mineral Oil & Grease by Gravimetry	E567SG	1395309	1	14	7.1	5.0	✓
Nonylphenol Ethoxylates in Water by LC-MS-MS Positive Mode	E749B	1394197	1	12	8.3	5.0	✓
Nonylphenol, Octylphenol and BPA in Water by LC-MS-MS Negative Mode	E749A	1394196	1	12	8.3	5.0	✓
Oil & Grease by Gravimetry	E567	1395308	1	20	5.0	5.0	✓
PAHs (ON Special List) by GC-MS	E642D	1391795	1	6	16.6	5.0	✓
PAHs by Hexane LVI GC-MS (Low Level)	E641A-L	1394619	1	4	25.0	5.0	✓
PCB Aroclors by GC-MS	E687	1392810	1	1	100.0	4.7	✓
Phenols (4AAP) in Water by Colorimetry	E562	1400757	1	20	5.0	5.0	✓
Sulfate in Water by IC	E235.SO4	1392355	1	18	5.5	5.0	✓
Total Chlorine (Residual) by DPD Colourimetry	E326	1391791	1	4	25.0	5.0	✓
Total Cyanide	E333	1391954	1	19	5.2	5.0	✓
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	1391835	1	20	5.0	5.0	✓
Total Mercury in Water by CVAAS	E508	1391853	1	10	10.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1391524	1	12	8.3	5.0	✓
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	1391836	1	18	5.5	5.0	✓
TSS by Gravimetry	E160	1391807	1	19	5.2	4.7	✓
VOCs (Eastern Canada List) by Headspace GC-MS	E611D	1391738	1	20	5.0	5.0	✓
Matrix Spikes (MS)							
Chloride in Water by IC	E235.Cl	1392356	1	18	5.5	5.0	✓
Fluoride in Water by IC	E235.F	1392357	1	4	25.0	5.0	✓
Nonylphenol Ethoxylates in Water by LC-MS-MS Positive Mode	E749B	1394197	1	12	8.3	5.0	✓
Nonylphenol, Octylphenol and BPA in Water by LC-MS-MS Negative Mode	E749A	1394196	1	12	8.3	5.0	✓
Phenols (4AAP) in Water by Colorimetry	E562	1400757	1	20	5.0	5.0	✓
Sulfate in Water by IC	E235.SO4	1392355	1	18	5.5	5.0	✓
Total Chlorine (Residual) by DPD Colourimetry	E326	1391791	1	4	25.0	5.0	✓
Total Cyanide	E333	1391954	1	19	5.2	5.0	✓
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	1391835	1	20	5.0	5.0	✓
Total Mercury in Water by CVAAS	E508	1391853	1	10	10.0	5.0	✓

Matrix: **Water**

Evaluation: × = *QC frequency outside specification*; ✓ = *QC frequency within specification.*

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Matrix Spikes (MS) - Continued							
Total Metals in Water by CRC ICPMS	E420	1391524	1	12	8.3	5.0	✓
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	1391836	1	18	5.5	5.0	✓
VOCs (Eastern Canada List) by Headspace GC-MS	E611D	1391738	1	20	5.0	5.0	✓

Methodology References and Summaries

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Reference methods may incorporate modifications to improve performance (indicated by "mod").

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
pH by Meter	E108 ALS Environmental - Waterloo	Water	APHA 4500-H (mod)	pH is determined by potentiometric measurement with a pH electrode, and is conducted at ambient laboratory temperature (normally 20 ± 5°C). For high accuracy test results, pH should be measured in the field within the recommended 15 minute hold time.
TSS by Gravimetry	E160 ALS Environmental - Waterloo	Water	APHA 2540 D (mod)	Total Suspended Solids (TSS) are determined by filtering a sample through a glass fibre filter, following by drying of the filter at 104 ± 1°C, with gravimetric measurement of the filtered solids. Samples containing very high dissolved solid content (i.e. seawaters, brackish waters) may produce a positive bias by this method. Alternate analysis methods are available for these types of samples.
Chloride in Water by IC	E235.Cl ALS Environmental - Waterloo	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Fluoride in Water by IC	E235.F ALS Environmental - Waterloo	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Sulfate in Water by IC	E235.SO4 ALS Environmental - Waterloo	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318 ALS Environmental - Waterloo	Water	Method Fialab 100, 2018	TKN in water is determined by automated continuous flow analysis with membrane diffusion and fluorescence detection, after reaction with OPA (ortho-phthalaldehyde). This method is approved under US EPA 40 CFR Part 136 (May 2021).
Total Chlorine (Residual) by DPD Colourimetry	E326 ALS Environmental - Waterloo	Water	APHA 4500-Cl G (mod)	Chlorine (residual), as free or total, is analyzed using the DPD colourimetric method. The recommended hold time for this test is 15 minutes and field testing is recommended when determining Chlorine concentrations at the time of sampling. Chlorine if present in a sample container after sampling can be rapidly consumed by any inorganic or organic matter in the sample and dissipates rapidly into headspace. Laboratory results may be requested when chlorine concentrations that may be present at the time of laboratory analysis are required for the interpretation of other laboratory analysis where the presence of Chlorine may affect results. e.g. laboratory toxicity testing

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Total Cyanide	E333 ALS Environmental - Waterloo	Water	ISO 14403 (mod)	Total or Strong Acid Dissociable (SAD) Cyanide is determined by Continuous Flow Analyzer (CFA) with in-line UV digestion followed by colourmetric analysis. Method Limitation: High levels of thiocyanate (SCN) may cause positive interference (up to 0.5% of SCN concentration).
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U ALS Environmental - Waterloo	Water	APHA 4500-P E (mod).	Total Phosphorus is determined colourimetrically using a discrete analyzer after heated persulfate digestion of the sample.
Total Metals in Water by CRC ICPMS	E420 ALS Environmental - Waterloo	Water	EPA 200.2/6020B (mod)	Water samples are digested with nitric and hydrochloric acids, and analyzed by Collision/Reaction Cell ICPMS. Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.
Total Mercury in Water by CVAAS	E508 ALS Environmental - Waterloo	Water	EPA 1631E (mod)	Water samples undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS
Biochemical Oxygen Demand - 5 day	E550 ALS Environmental - Waterloo	Water	APHA 5210 B (mod)	Samples are diluted and incubated for a specified time period, after which the oxygen depletion is measured using a dissolved oxygen meter. Free chlorine is a negative interference in the BOD method; please advise ALS when free chlorine is present in samples.
Biochemical Oxygen Demand (Carbonaceous) - 5 day	E555 ALS Environmental - Waterloo	Water	APHA 5210 B (mod)	Samples are diluted and incubated for a specified time period, after which the oxygen depletion is measured using a dissolved oxygen meter. Nitrification inhibitor is added to samples to prevent nitrogenous compounds from consuming oxygen resulting in only carbonaceous oxygen demand being reported by this method. Free chlorine is a negative interference in the BOD method; please advise ALS when free chlorine is present in samples.
Phenols (4AAP) in Water by Colorimetry	E562 ALS Environmental - Edmonton	Water	EPA 9066	This automated method is based on the distillation of phenol and subsequent reaction of the distillate with alkaline ferricyanide (K3Fe(CN)6) and 4-amino-antipyrine (4-AAP) to form a red complex which is measured colorimetrically.
Oil & Grease by Gravimetry	E567 ALS Environmental - Waterloo	Water	BC MOE Lab Manual (Oil & Grease) (mod)	The entire water sample is extracted with hexane and the extract is evaporated to dryness. The residue is then weighed to determine Oil and Grease.
Mineral Oil & Grease by Gravimetry	E567SG ALS Environmental - Waterloo	Water	BC MOE Lab Manual (Oil & Grease) (mod)	The entire water sample is extracted with hexane, followed by silica gel treatment after which the extract is evaporated to dryness. The residue is then weighed to determine Mineral Oil and Grease.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
VOCs (Eastern Canada List) by Headspace GC-MS	E611D ALS Environmental - Waterloo	Water	EPA 8260D (mod)	Volatile Organic Compounds (VOCs) are analyzed by static headspace GC-MS. Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law.
BNA (Routine List) by GC-MS/MS	E625A ALS Environmental - Waterloo	Water	EPA 8270E (mod)	BNA are analyzed by GC-MS/MS.
PAHs by Hexane LVI GC-MS (Low Level)	E641A-L ALS Environmental - Waterloo	Water	EPA 8270E (mod)	Polycyclic Aromatic Hydrocarbons (PAHs) are analyzed by large volume injection (LVI) GC-MS.
PAHs (ON Special List) by GC-MS	E642D ALS Environmental - Waterloo	Water	EPA 8270E (mod)	Polycyclic Aromatic Hydrocarbons (PAHs) are analyzed by GC-MS.
PCB Aroclors by GC-MS	E687 ALS Environmental - Waterloo	Water	EPA 8270E (mod)	PCB Aroclors are analyzed by GC-MS
Nonylphenol, Octylphenol and BPA in Water by LC-MS-MS Negative Mode	E749A ALS Environmental - Waterloo	Water	J. Chrom A849 (1999) p.467-482	An aliquot of 5.0 ± 0.10 mL of filtered sample is spiked with Nonylphenol-D4, Nonylphenol Diethoxylate 13C6, and Bisphenol A 13C12 internal standards and analyzed by LC-MS/MS.
Nonylphenol Ethoxylates in Water by LC-MS-MS Positive Mode	E749B ALS Environmental - Waterloo	Water	J. Chrom A849 (1999) p.467-482	Water samples are filtered and analyzed on LCMS/MS by direct injection.
Animal & Vegetable Oil & Grease by Gravimetry	EC567A.SG ALS Environmental - Waterloo	Water	APHA 5520 (mod)	Animal & vegetable oil and grease is calculated as follows: Oil & Grease (gravimetric) minus Mineral Oil & Grease (gravimetric)
Total PAH (Ontario Sewer Use Extended List)	EC640A ALS Environmental - Waterloo	Water	Calculation (Sum of the Squares)	Total PAH (Ontario Sewer Use) is the sum of the following PAHs: anthracene, benz(a)anthracene, benzo(a)pyrene, benzo(b+j)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, dibenz(a,h)anthracene, fluoranthene, indeno(1,2,3-c,d)pyrene, phenanthrene, pyrene, benzo(e)pyrene, perylene, 3-methylcholanthrene, 1,3-dinitropyrene, 1,6-dinitropyrene, 1,8-dinitropyrene, 7H-dibenzo(c,g)carbazole, dibenzo(a,i)pyrene, dibenz(a,j)acridine, and dibenz(a,h)acridine. When the PAH is less than LOR, zero is used for calculation.

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Digestion for TKN in water	EP318 ALS Environmental - Waterloo	Water	APHA 4500-Norg D (mod)	Samples are digested at high temperature using Sulfuric Acid with Copper catalyst, which converts organic nitrogen sources to Ammonia, which is then quantified by the analytical method as TKN. This method is unsuitable for samples containing high levels of nitrate. If nitrate exceeds TKN concentration by ten times or more, results may be biased low.
Digestion for Total Phosphorus in water	EP372 ALS Environmental - Waterloo	Water	APHA 4500-P E (mod).	Samples are heated with a persulfate digestion reagent.
Oil & Grease Extraction for Gravimetry	EP567 ALS Environmental - Waterloo	Water	BC MOE Lab Manual (Oil & Grease) (mod)	The entire water sample is extracted with hexane by liquid-liquid extraction.
VOCs Preparation for Headspace Analysis	EP581 ALS Environmental - Waterloo	Water	EPA 5021A (mod)	Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler. An aliquot of the headspace is then injected into the GC/MS-FID system.
PHCs and PAHs Hexane Extraction	EP601 ALS Environmental - Waterloo	Water	EPA 3511 (mod)	Petroleum Hydrocarbons (PHCs) and Polycyclic Aromatic Hydrocarbons (PAHs) are extracted using a hexane liquid-liquid extraction.
BNA Extraction	EP625 ALS Environmental - Waterloo	Water	EPA 3510C (mod)	SVOCs are extracted from aqueous sample using DCM liquid-liquid extraction.
PAHs DCM Extraction	EP642 ALS Environmental - Waterloo	Water	EPA 3510C (mod)	PAH are extracted from aqueous sample using DCM liquid-liquid extraction.
Pesticides, PCB, and Neutral Extractable Chlorinated Hydrocarbons Extraction	EP660 ALS Environmental - Waterloo	Water	EPA 3511 (mod)	Samples are extracted from aqueous sample using an organic solvent liquid-liquid extraction.
Preparation of Nonylphenol and Nonylphenol Ethoxylates	EP749 ALS Environmental - Waterloo	Water	J. Chrom A849 (1999) p.467-482	An aliquot of 5.0 ± 0.10 mL of filtered sample is spiked with Nonylphenol-D4, Nonylphenol Diethoxylate 13C6, and Bisphenol A 13C12 internal standards and analyzed by LC-MS/MS.

QUALITY CONTROL REPORT

Work Order	: **WT2407720**	Page	: 1 of 15
Client	: GHD Limited	Laboratory	: ALS Environmental - Waterloo
Contact	: Jennifer Balkwill	Account Manager	: Rick Hawthorne
Address	: 455 Phillip Street Waterloo ON Canada N2L 3X2	Address	: 60 Northland Road, Unit 1 Waterloo, Ontario Canada N2V 2B8
Telephone	: 604 748 3661	Telephone	: +1 519 886 6910
Project	: 12636323-A1	Date Samples Received	: 04-Apr-2024 13:22
PO	: 735-009822	Date Analysis Commenced	: 05-Apr-2024
C-O-C number	: ----	Issue Date	: 12-Apr-2024 19:08
Sampler	: SH		
Site	: ----		
Quote number	: 12636323-A1 735-009822		
No. of samples received	: 1		
No. of samples analysed	: 1		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percent Difference (RPD) and Data Quality Objectives
- Matrix Spike (MS) Report; Recovery and Data Quality Objectives
- Method Blank (MB) Report; Recovery and Data Quality Objectives
- Laboratory Control Sample (LCS) Report; Recovery and Data Quality Objectives

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Brooke Miller	Laboratory Analyst	Edmonton Inorganics, Edmonton, Alberta
Hannah Lewis	Inorganics Analyst	Waterloo Inorganics, Waterloo, Ontario
Jeremy Gingras	Supervisor - Semi-Volatile Instrumentation	Waterloo Organics, Waterloo, Ontario
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Nik Perkio	Inorganics Analyst	Waterloo Metals, Waterloo, Ontario
Niki Goebel	Inorganics Analyst	Waterloo Metals, Waterloo, Ontario
Rachel Cameron	Supervisor - Semi-Volatile Extractions	Waterloo Organics, Waterloo, Ontario
Sanja Risticevic	Department Manager - LCMS	Waterloo LCMS, Waterloo, Ontario
Sarah Birch	VOC Section Supervisor	Waterloo VOC, Waterloo, Ontario

General Comments

The ALS Quality Control (QC) report is optionally provided to ALS clients upon request. ALS test methods include comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against predetermined Data Quality Objectives (DQOs) to provide confidence in the accuracy of associated test results. This report contains detailed results for all QC results applicable to this sample submission. Please refer to the ALS Quality Control Interpretation report (QCI) for applicable method references and methodology summaries.

Key :

Anonymous = Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number = Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO = Data Quality Objective.
LOR = Limit of Reporting (detection limit).
RPD = Relative Percent Difference
# = Indicates a QC result that did not meet the ALS DQO.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Laboratory Duplicate (DUP) Report

A Laboratory Duplicate (DUP) is a randomly selected intralaboratory replicate sample. Laboratory Duplicates provide information regarding method precision and sample heterogeneity. ALS DQOs for Laboratory Duplicates are expressed as test-specific limits for Relative Percent Difference (RPD), or as an absolute difference limit of 2 times the LOR for low concentration duplicates within ~ 4-10 times the LOR (cut-off is test-specific).

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Physical Tests (QC Lot: 1391807)											
WT2407715-001	Anonymous	Solids, total suspended [TSS]	----	E160	3.0	mg/L	<3.0	<3.0	0	Diff <2x LOR	----
Physical Tests (QC Lot: 1392526)											
WT2407773-002	Anonymous	pH	----	E108	0.10	pH units	9.55	9.73	1.87%	4%	----
Anions and Nutrients (QC Lot: 1391835)											
WT2407391-001	Anonymous	Kjeldahl nitrogen, total [TKN]	----	E318	0.050	mg/L	0.265	0.252	0.012	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1391836)											
WT2407432-001	Anonymous	Phosphorus, total	7723-14-0	E372-U	0.0020	mg/L	0.0132	0.0127	0.0006	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1392355)											
WT2407720-001	GW-12636323-040424-SH-001	Sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L	74.3	73.9	0.557%	20%	----
Anions and Nutrients (QC Lot: 1392356)											
WT2407720-001	GW-12636323-040424-SH-001	Chloride	16887-00-6	E235.Cl	0.50	mg/L	67.5	67.0	0.822%	20%	----
Anions and Nutrients (QC Lot: 1392357)											
WT2407720-001	GW-12636323-040424-SH-001	Fluoride	16984-48-8	E235.F	0.020	mg/L	0.095	0.085	0.010	Diff <2x LOR	----
Cyanides (QC Lot: 1391954)											
FC2400764-002	Anonymous	Cyanide, strong acid dissociable (Total)	----	E333	0.0020	mg/L	<0.0020	<0.0020	0	Diff <2x LOR	----
Inorganics (QC Lot: 1391791)											
FC2400764-002	Anonymous	Chlorine, total	7782-50-5	E326	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
Total Metals (QC Lot: 1391524)											
WT2407780-001	Anonymous	Aluminum, total	7429-90-5	E420	0.0030	mg/L	0.0308	0.0256	0.0053	Diff <2x LOR	----
		Antimony, total	7440-36-0	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Arsenic, total	7440-38-2	E420	0.00010	mg/L	0.00999	0.0102	1.62%	20%	----
		Cadmium, total	7440-43-9	E420	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
		Chromium, total	7440-47-3	E420	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Cobalt, total	7440-48-4	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Copper, total	7440-50-8	E420	0.00050	mg/L	0.00178	0.00186	0.00008	Diff <2x LOR	----
		Iron, total	7439-89-6	E420	0.010	mg/L	1.34	1.32	2.09%	20%	----
		Lead, total	7439-92-1	E420	0.000050	mg/L	0.000060	0.000068	0.000008	Diff <2x LOR	----
		Manganese, total	7439-96-5	E420	0.00010	mg/L	0.0444	0.0436	1.59%	20%	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Total Metals (QC Lot: 1391524) - continued											
WT2407780-001	Anonymous	Molybdenum, total	7439-98-7	E420	0.000050	mg/L	0.00219	0.00221	0.941%	20%	----
		Nickel, total	7440-02-0	E420	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Selenium, total	7782-49-2	E420	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Silver, total	7440-22-4	E420	0.000010	mg/L	<0.000010	0.000011	0.0000008	Diff <2x LOR	----
		Tin, total	7440-31-5	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Titanium, total	7440-32-6	E420	0.00200	mg/L	<0.00100	<0.00200	0	Diff <2x LOR	----
		Zinc, total	7440-66-6	E420	0.0030	mg/L	<0.0030	<0.0030	0	Diff <2x LOR	----
Total Metals (QC Lot: 1391853)											
WT2407679-001	Anonymous	Mercury, total	7439-97-6	E508	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
Aggregate Organics (QC Lot: 1393540)											
WT2407882-001	Anonymous	Carbonaceous biochemical oxygen demand [CBOD]	----	E555	2.0	mg/L	<2.0	<2.0	0.0%	30%	----
Aggregate Organics (QC Lot: 1393549)											
WT2407619-003	Anonymous	Biochemical oxygen demand [BOD]	----	E550	2.0	mg/L	<2.0	2.3	14.0%	30%	----
Aggregate Organics (QC Lot: 1400757)											
WT2408210-001	Anonymous	Phenols, total (4AAP)	----	E562	0.0010	mg/L	0.0039	0.0032	0.0007	Diff <2x LOR	----
Volatile Organic Compounds (QC Lot: 1391738)											
WT2407649-001	Anonymous	Benzene	71-43-2	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Chloroform	67-66-3	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichlorobenzene, 1,2-	95-50-1	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichlorobenzene, 1,4-	106-46-7	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloroethylene, cis-1,2-	156-59-2	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloromethane	75-09-2	E611D	1.0	µg/L	<1.0	<1.0	0	Diff <2x LOR	----
		Dichloropropylene, trans-1,3-	10061-02-6	E611D	0.30	µg/L	<0.30	<0.30	0	Diff <2x LOR	----
		Ethylbenzene	100-41-4	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Methyl ethyl ketone [MEK]	78-93-3	E611D	20	µg/L	<20	<20	0	Diff <2x LOR	----
		Styrene	100-42-5	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Tetrachloroethane, 1,1,2,2-	79-34-5	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Tetrachloroethylene	127-18-4	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Toluene	108-88-3	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Trichloroethylene	79-01-6	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Xylene, m+p-	179601-23-1	E611D	0.40	µg/L	<0.40	<0.40	0	Diff <2x LOR	----
		Xylene, o-	95-47-6	E611D	0.30	µg/L	<0.30	<0.30	0	Diff <2x LOR	----
Nonylphenols (QC Lot: 1394196)											

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Nonylphenols (QC Lot: 1394196) - continued											
WT2407720-001	GW-12636323-040424-SH-001	Nonylphenols [NP]	84852-15-3	E749A	1.0	µg/L	<1.0	<1.0	0	Diff <2x LOR	----
Nonylphenols (QC Lot: 1394197)											
WT2407720-001	GW-12636323-040424-SH-001	Nonylphenol diethoxylates [NP2EO]	n/a	E749B	0.10	µg/L	<0.10	<0.10	0	Diff <2x LOR	----
		Nonylphenol monoethoxylates [NP1EO]	n/a	E749B	2.0	µg/L	<2.0	<2.0	0	Diff <2x LOR	----

Method Blank (MB) Report

A Method Blank is an analyte-free matrix that undergoes sample processing identical to that carried out for test samples. Method Blank results are used to monitor and control for potential contamination from the laboratory environment and reagents. For most tests, the DQO for Method Blanks is for the result to be < LOR.

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 1391807)						
Solids, total suspended [TSS]	----	E160	3	mg/L	<3.0	----
Anions and Nutrients (QCLot: 1391835)						
Kjeldahl nitrogen, total [TKN]	----	E318	0.05	mg/L	<0.050	----
Anions and Nutrients (QCLot: 1391836)						
Phosphorus, total	7723-14-0	E372-U	0.002	mg/L	<0.0020	----
Anions and Nutrients (QCLot: 1392355)						
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	<0.30	----
Anions and Nutrients (QCLot: 1392356)						
Chloride	16887-00-6	E235.Cl	0.5	mg/L	<0.50	----
Anions and Nutrients (QCLot: 1392357)						
Fluoride	16984-48-8	E235.F	0.02	mg/L	<0.020	----
Cyanides (QCLot: 1391954)						
Cyanide, strong acid dissociable (Total)	----	E333	0.002	mg/L	<0.0020	----
Inorganics (QCLot: 1391791)						
Chlorine, total	7782-50-5	E326	0.05	mg/L	<0.050	----
Total Metals (QCLot: 1391524)						
Aluminum, total	7429-90-5	E420	0.003	mg/L	<0.0030	----
Antimony, total	7440-36-0	E420	0.0001	mg/L	<0.00010	----
Arsenic, total	7440-38-2	E420	0.0001	mg/L	<0.00010	----
Cadmium, total	7440-43-9	E420	0.000005	mg/L	<0.0000050	----
Chromium, total	7440-47-3	E420	0.0005	mg/L	<0.00050	----
Cobalt, total	7440-48-4	E420	0.0001	mg/L	<0.00010	----
Copper, total	7440-50-8	E420	0.0005	mg/L	<0.00050	----
Iron, total	7439-89-6	E420	0.01	mg/L	<0.010	----
Lead, total	7439-92-1	E420	0.00005	mg/L	<0.000050	----
Manganese, total	7439-96-5	E420	0.0001	mg/L	<0.00010	----
Molybdenum, total	7439-98-7	E420	0.00005	mg/L	<0.000050	----
Nickel, total	7440-02-0	E420	0.0005	mg/L	<0.00050	----
Selenium, total	7782-49-2	E420	0.00005	mg/L	<0.000050	----
Silver, total	7440-22-4	E420	0.00001	mg/L	<0.000010	----
Tin, total	7440-31-5	E420	0.0001	mg/L	<0.00010	----
Titanium, total	7440-32-6	E420	0.0003	mg/L	<0.00030	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Total Metals (QCLot: 1391524) - continued						
Zinc, total	7440-66-6	E420	0.003	mg/L	<0.0030	----
Total Metals (QCLot: 1391853)						
Mercury, total	7439-97-6	E508	0.000005	mg/L	<0.0000050	----
Aggregate Organics (QCLot: 1393540)						
Carbonaceous biochemical oxygen demand [CBOD]	----	E555	2	mg/L	<2.0	----
Aggregate Organics (QCLot: 1393549)						
Biochemical oxygen demand [BOD]	----	E550	2	mg/L	<2.0	----
Aggregate Organics (QCLot: 1395308)						
Oil & grease (gravimetric)	----	E567	5	mg/L	<5.0	----
Aggregate Organics (QCLot: 1395309)						
Oil & grease, mineral (gravimetric)	----	E567SG	5	mg/L	<5.0	----
Aggregate Organics (QCLot: 1400757)						
Phenols, total (4AAP)	----	E562	0.001	mg/L	<0.0010	----
Volatile Organic Compounds (QCLot: 1391738)						
Benzene	71-43-2	E611D	0.5	µg/L	<0.50	----
Chloroform	67-66-3	E611D	0.5	µg/L	<0.50	----
Dichlorobenzene, 1,2-	95-50-1	E611D	0.5	µg/L	<0.50	----
Dichlorobenzene, 1,4-	106-46-7	E611D	0.5	µg/L	<0.50	----
Dichloroethylene, cis-1,2-	156-59-2	E611D	0.5	µg/L	<0.50	----
Dichloromethane	75-09-2	E611D	1	µg/L	<1.0	----
Dichloropropylene, trans-1,3-	10061-02-6	E611D	0.3	µg/L	<0.30	----
Ethylbenzene	100-41-4	E611D	0.5	µg/L	<0.50	----
Methyl ethyl ketone [MEK]	78-93-3	E611D	20	µg/L	<20	----
Styrene	100-42-5	E611D	0.5	µg/L	<0.50	----
Tetrachloroethane, 1,1,2,2-	79-34-5	E611D	0.5	µg/L	<0.50	----
Tetrachloroethylene	127-18-4	E611D	0.5	µg/L	<0.50	----
Toluene	108-88-3	E611D	0.5	µg/L	<0.50	----
Trichloroethylene	79-01-6	E611D	0.5	µg/L	<0.50	----
Xylene, m+p-	179601-23-1	E611D	0.4	µg/L	<0.40	----
Xylene, o-	95-47-6	E611D	0.3	µg/L	<0.30	----
Polycyclic Aromatic Hydrocarbons (QCLot: 1391795)						
Dibenz(a,h)acridine	226-36-8	E642D	0.05	µg/L	<0.050	----
Dibenz(a,j)acridine	224-42-0	E642D	0.05	µg/L	<0.050	----
Dibenzo(a,i)pyrene	189-55-9	E642D	0.05	µg/L	<0.050	----
Dibenzo(c,g)carbazole, 7H-	194-59-2	E642D	0.05	µg/L	<0.050	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Polycyclic Aromatic Hydrocarbons (QCLot: 1391795) - continued						
Dinitropyrene, 1,3-	75321-20-9	E642D	1	µg/L	<1.0	----
Dinitropyrene, 1,6-	42397-64-8	E642D	1	µg/L	<1.0	----
Dinitropyrene, 1,8-	42397-65-9	E642D	1	µg/L	<1.0	----
Methylcholanthrene, 3-	56-49-5	E642D	0.05	µg/L	<0.050	----
Polycyclic Aromatic Hydrocarbons (QCLot: 1394619)						
Anthracene	120-12-7	E641A-L	0.01	µg/L	<0.010	----
Benz(a)anthracene	56-55-3	E641A-L	0.01	µg/L	<0.010	----
Benzo(a)pyrene	50-32-8	E641A-L	0.005	µg/L	<0.0050	----
Benzo(b+j)fluoranthene	n/a	E641A-L	0.01	µg/L	<0.010	----
Benzo(e)pyrene	192-97-2	E641A-L	0.01	µg/L	<0.010	----
Benzo(g,h,i)perylene	191-24-2	E641A-L	0.01	µg/L	<0.010	----
Benzo(k)fluoranthene	207-08-9	E641A-L	0.01	µg/L	<0.010	----
Chrysene	218-01-9	E641A-L	0.01	µg/L	<0.010	----
Dibenz(a,h)anthracene	53-70-3	E641A-L	0.005	µg/L	<0.0050	----
Fluoranthene	206-44-0	E641A-L	0.01	µg/L	<0.010	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A-L	0.01	µg/L	<0.010	----
Perylene	198-55-0	E641A-L	0.01	µg/L	<0.010	----
Phenanthrene	85-01-8	E641A-L	0.01	µg/L	<0.010	----
Pyrene	129-00-0	E641A-L	0.01	µg/L	<0.010	----
Phthalate Esters (QCLot: 1391787)						
bis(2-Ethylhexyl) phthalate [DEHP]	117-81-7	E625A	0.6	µg/L	<0.60	----
Di-n-butyl phthalate	84-74-2	E625A	1	µg/L	<1.0	----
Nonylphenols (QCLot: 1394196)						
Nonylphenols [NP]	84852-15-3	E749A	1	µg/L	<1.0	----
Nonylphenols (QCLot: 1394197)						
Nonylphenol diethoxylates [NP2EO]	n/a	E749B	0.1	µg/L	<0.10	----
Nonylphenol monoethoxylates [NP1EO]	n/a	E749B	2	µg/L	<2.0	----
Polychlorinated Biphenyls (QCLot: 1392810)						
Aroclor 1016	12674-11-2	E687	0.02	µg/L	<0.020	----
Aroclor 1221	11104-28-2	E687	0.02	µg/L	<0.020	----
Aroclor 1232	11141-16-5	E687	0.02	µg/L	<0.020	----
Aroclor 1242	53469-21-9	E687	0.02	µg/L	<0.020	----
Aroclor 1248	12672-29-6	E687	0.02	µg/L	<0.020	----
Aroclor 1254	11097-69-1	E687	0.02	µg/L	<0.020	----
Aroclor 1260	11096-82-5	E687	0.02	µg/L	<0.020	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Polychlorinated Biphenyls (QCLot: 1392810) - continued						
Aroclor 1262	37324-23-5	E687	0.02	µg/L	<0.020	---
Aroclor 1268	11100-14-4	E687	0.02	µg/L	<0.020	---

Laboratory Control Sample (LCS) Report

A Laboratory Control Sample (LCS) is an analyte-free matrix that has been fortified (spiked) with test analytes at known concentration and processed in an identical manner to test samples. LCS results are expressed as percent recovery, and are used to monitor and control test method accuracy and precision, independent of test sample matrix.

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 1391807)									
Solids, total suspended [TSS]	----	E160	3	mg/L	150 mg/L	99.3	85.0	115	----
Physical Tests (QCLot: 1392526)									
pH	----	E108	----	pH units	7 pH units	101	98.0	102	----
Anions and Nutrients (QCLot: 1391835)									
Kjeldahl nitrogen, total [TKN]	----	E318	0.05	mg/L	4 mg/L	105	75.0	125	----
Anions and Nutrients (QCLot: 1391836)									
Phosphorus, total	7723-14-0	E372-U	0.002	mg/L	0.434 mg/L	103	80.0	120	----
Anions and Nutrients (QCLot: 1392355)									
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	100 mg/L	101	90.0	110	----
Anions and Nutrients (QCLot: 1392356)									
Chloride	16887-00-6	E235.Cl	0.5	mg/L	100 mg/L	100	90.0	110	----
Anions and Nutrients (QCLot: 1392357)									
Fluoride	16984-48-8	E235.F	0.02	mg/L	1 mg/L	102	90.0	110	----
Cyanides (QCLot: 1391954)									
Cyanide, strong acid dissociable (Total)	----	E333	0.002	mg/L	0.25 mg/L	82.0	80.0	120	----
Inorganics (QCLot: 1391791)									
Chlorine, total	7782-50-5	E326	0.05	mg/L	0.276 mg/L	98.0	75.0	125	----
Total Metals (QCLot: 1391524)									
Aluminum, total	7429-90-5	E420	0.003	mg/L	0.1 mg/L	104	80.0	120	----
Antimony, total	7440-36-0	E420	0.0001	mg/L	0.05 mg/L	105	80.0	120	----
Arsenic, total	7440-38-2	E420	0.0001	mg/L	0.05 mg/L	105	80.0	120	----
Cadmium, total	7440-43-9	E420	0.000005	mg/L	0.005 mg/L	102	80.0	120	----
Chromium, total	7440-47-3	E420	0.0005	mg/L	0.012 mg/L	104	80.0	120	----
Cobalt, total	7440-48-4	E420	0.0001	mg/L	0.012 mg/L	102	80.0	120	----
Copper, total	7440-50-8	E420	0.0005	mg/L	0.012 mg/L	101	80.0	120	----
Iron, total	7439-89-6	E420	0.01	mg/L	0.05 mg/L	104	80.0	120	----
Lead, total	7439-92-1	E420	0.00005	mg/L	0.025 mg/L	100.0	80.0	120	----
Manganese, total	7439-96-5	E420	0.0001	mg/L	0.012 mg/L	101	80.0	120	----
Molybdenum, total	7439-98-7	E420	0.00005	mg/L	0.012 mg/L	97.4	80.0	120	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
					Target Concentration	LCS	Low	High	Qualifier
Total Metals (QCLot: 1391524) - continued									
Nickel, total	7440-02-0	E420	0.0005	mg/L	0.025 mg/L	100	80.0	120	----
Selenium, total	7782-49-2	E420	0.00005	mg/L	0.05 mg/L	103	80.0	120	----
Silver, total	7440-22-4	E420	0.00001	mg/L	0.005 mg/L	88.1	80.0	120	----
Tin, total	7440-31-5	E420	0.0001	mg/L	0.025 mg/L	95.7	80.0	120	----
Titanium, total	7440-32-6	E420	0.0003	mg/L	0.012 mg/L	99.0	80.0	120	----
Zinc, total	7440-66-6	E420	0.003	mg/L	0.025 mg/L	100	80.0	120	----
Total Metals (QCLot: 1391853)									
Mercury, total	7439-97-6	E508	0.000005	mg/L	0 mg/L	103	80.0	120	----
Aggregate Organics (QCLot: 1393540)									
Carbonaceous biochemical oxygen demand [CBOD]	----	E555	2	mg/L	198 mg/L	90.9	85.0	115	----
Aggregate Organics (QCLot: 1393549)									
Biochemical oxygen demand [BOD]	----	E550	2	mg/L	198 mg/L	99.7	85.0	115	----
Aggregate Organics (QCLot: 1395308)									
Oil & grease (gravimetric)	----	E567	5	mg/L	200 mg/L	94.1	70.0	130	----
Aggregate Organics (QCLot: 1395309)									
Oil & grease, mineral (gravimetric)	----	E567SG	5	mg/L	100 mg/L	85.1	70.0	130	----
Aggregate Organics (QCLot: 1400757)									
Phenols, total (4AAP)	----	E562	0.001	mg/L	0.02 mg/L	91.1	85.0	115	----
Volatile Organic Compounds (QCLot: 1391738)									
Benzene	71-43-2	E611D	0.5	µg/L	100 µg/L	96.9	70.0	130	----
Chloroform	67-66-3	E611D	0.5	µg/L	100 µg/L	118	70.0	130	----
Dichlorobenzene, 1,2-	95-50-1	E611D	0.5	µg/L	100 µg/L	99.2	70.0	130	----
Dichlorobenzene, 1,4-	106-46-7	E611D	0.5	µg/L	100 µg/L	100	70.0	130	----
Dichloroethylene, cis-1,2-	156-59-2	E611D	0.5	µg/L	100 µg/L	109	70.0	130	----
Dichloromethane	75-09-2	E611D	1	µg/L	100 µg/L	101	70.0	130	----
Dichloropropylene, trans-1,3-	10061-02-6	E611D	0.3	µg/L	100 µg/L	93.7	70.0	130	----
Ethylbenzene	100-41-4	E611D	0.5	µg/L	100 µg/L	96.4	70.0	130	----
Methyl ethyl ketone [MEK]	78-93-3	E611D	20	µg/L	100 µg/L	96.4	70.0	130	----
Styrene	100-42-5	E611D	0.5	µg/L	100 µg/L	94.8	70.0	130	----
Tetrachloroethane, 1,1,2,2-	79-34-5	E611D	0.5	µg/L	100 µg/L	114	70.0	130	----
Tetrachloroethylene	127-18-4	E611D	0.5	µg/L	100 µg/L	89.4	70.0	130	----
Toluene	108-88-3	E611D	0.5	µg/L	100 µg/L	107	70.0	130	----
Trichloroethylene	79-01-6	E611D	0.5	µg/L	100 µg/L	104	70.0	130	----
Xylene, m+p-	179601-23-1	E611D	0.4	µg/L	200 µg/L	102	70.0	130	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Laboratory Control Sample (LCS) Report: Spike: Target Concentration	Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High	Qualifier
Volatile Organic Compounds (QCLot: 1391738) - continued									
Xylene, o-	95-47-6	E611D	0.3	µg/L	100 µg/L	99.1	70.0	130	----
Polycyclic Aromatic Hydrocarbons (QCLot: 1391795)									
Dibenz(a,h)acridine	226-36-8	E642D	0.05	µg/L	1.6 µg/L	110	60.0	130	----
Dibenz(a,j)acridine	224-42-0	E642D	0.05	µg/L	1.6 µg/L	108	60.0	130	----
Dibenzo(a,i)pyrene	189-55-9	E642D	0.05	µg/L	1.6 µg/L	96.8	60.0	130	----
Dibenzo(c,g)carbazole, 7H-	194-59-2	E642D	0.05	µg/L	1.6 µg/L	117	60.0	130	----
Dinitropyrene, 1,3-	75321-20-9	E642D	1	µg/L	1.6 µg/L	116	60.0	130	----
Dinitropyrene, 1,6-	42397-64-8	E642D	1	µg/L	1.6 µg/L	74.1	60.0	130	----
Dinitropyrene, 1,8-	42397-65-9	E642D	1	µg/L	1.6 µg/L	102	60.0	130	----
Methylcholanthrene, 3-	56-49-5	E642D	0.05	µg/L	1.6 µg/L	107	60.0	130	----
Polycyclic Aromatic Hydrocarbons (QCLot: 1394619)									
Anthracene	120-12-7	E641A-L	0.01	µg/L	0.526 µg/L	104	50.0	140	----
Benz(a)anthracene	56-55-3	E641A-L	0.01	µg/L	0.526 µg/L	112	50.0	140	----
Benzo(a)pyrene	50-32-8	E641A-L	0.005	µg/L	0.526 µg/L	102	50.0	140	----
Benzo(b+j)fluoranthene	n/a	E641A-L	0.01	µg/L	0.526 µg/L	93.3	50.0	140	----
Benzo(e)pyrene	192-97-2	E641A-L	0.01	µg/L	0.526 µg/L	105	50.0	140	----
Benzo(g,h,i)perylene	191-24-2	E641A-L	0.01	µg/L	0.526 µg/L	115	50.0	140	----
Benzo(k)fluoranthene	207-08-9	E641A-L	0.01	µg/L	0.526 µg/L	119	50.0	140	----
Chrysene	218-01-9	E641A-L	0.01	µg/L	0.526 µg/L	111	50.0	140	----
Dibenz(a,h)anthracene	53-70-3	E641A-L	0.005	µg/L	0.526 µg/L	115	50.0	140	----
Fluoranthene	206-44-0	E641A-L	0.01	µg/L	0.526 µg/L	115	50.0	140	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A-L	0.01	µg/L	0.526 µg/L	119	50.0	140	----
Perylene	198-55-0	E641A-L	0.01	µg/L	0.526 µg/L	99.7	50.0	140	----
Phenanthrene	85-01-8	E641A-L	0.01	µg/L	0.526 µg/L	103	50.0	140	----
Pyrene	129-00-0	E641A-L	0.01	µg/L	0.526 µg/L	122	50.0	140	----
Phthalate Esters (QCLot: 1391787)									
bis(2-Ethylhexyl) phthalate [DEHP]	117-81-7	E625A	0.6	µg/L	33.7 µg/L	81.2	50.0	140	----
Di-n-butyl phthalate	84-74-2	E625A	1	µg/L	33.7 µg/L	84.0	50.0	140	----
Nonylphenols (QCLot: 1394196)									
Nonylphenols [NP]	84852-15-3	E749A	1	µg/L	10 µg/L	97.1	75.0	125	----
Nonylphenols (QCLot: 1394197)									
Nonylphenol diethoxylates [NP2EO]	n/a	E749B	0.1	µg/L	1 µg/L	114	75.0	125	----
Nonylphenol monoethoxylates [NP1EO]	n/a	E749B	2	µg/L	20 µg/L	112	75.0	125	----

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Polychlorinated Biphenyls (QCLot: 1392810)									
Aroclor 1016	12674-11-2	E687	0.02	µg/L	0.2 µg/L	112	60.0	140	----
Aroclor 1221	11104-28-2	E687	0.02	µg/L	0.2 µg/L	112	60.0	140	----
Aroclor 1232	11141-16-5	E687	0.02	µg/L	0.2 µg/L	112	60.0	140	----
Aroclor 1242	53469-21-9	E687	0.02	µg/L	0.2 µg/L	112	60.0	140	----
Aroclor 1248	12672-29-6	E687	0.02	µg/L	0.2 µg/L	102	60.0	140	----
Aroclor 1254	11097-69-1	E687	0.02	µg/L	0.2 µg/L	104	60.0	140	----
Aroclor 1260	11096-82-5	E687	0.02	µg/L	0.2 µg/L	107	60.0	140	----
Aroclor 1262	37324-23-5	E687	0.02	µg/L	0.2 µg/L	107	60.0	140	----
Aroclor 1268	11100-14-4	E687	0.02	µg/L	0.2 µg/L	107	60.0	140	----

Matrix Spike (MS) Report

A Matrix Spike (MS) is a randomly selected intra-laboratory replicate sample that has been fortified (spiked) with test analytes at known concentration, and processed in an identical manner to test samples. Matrix Spikes provide information regarding analyte recovery and potential matrix effects. MS DQO exceedances due to sample matrix may sometimes be unavoidable; in such cases, test results for the associated sample (or similar samples) may be subject to bias. ND – Recovery not determined, background level >= 1x spike level.

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Anions and Nutrients (QCLot: 1391835)										
WT2407391-001	Anonymous	Kjeldahl nitrogen, total [TKN]	----	E318	2.87 mg/L	2.5 mg/L	115	70.0	130	----
Anions and Nutrients (QCLot: 1391836)										
WT2407432-001	Anonymous	Phosphorus, total	7723-14-0	E372-U	0.0914 mg/L	0.1 mg/L	91.4	70.0	130	----
Anions and Nutrients (QCLot: 1392355)										
WT2407720-001	GW-12636323-040424-SH-001	Sulfate (as SO4)	14808-79-8	E235.SO4	95.2 mg/L	100 mg/L	95.2	75.0	125	----
Anions and Nutrients (QCLot: 1392356)										
WT2407720-001	GW-12636323-040424-SH-001	Chloride	16887-00-6	E235.Cl	98.7 mg/L	100 mg/L	98.7	75.0	125	----
Anions and Nutrients (QCLot: 1392357)										
WT2407720-001	GW-12636323-040424-SH-001	Fluoride	16984-48-8	E235.F	0.912 mg/L	1 mg/L	91.2	75.0	125	----
Cyanides (QCLot: 1391954)										
FC2400764-002	Anonymous	Cyanide, strong acid dissociable (Total)	----	E333	0.216 mg/L	0.25 mg/L	86.4	75.0	125	----
Inorganics (QCLot: 1391791)										
FC2400764-002	Anonymous	Chlorine, total	7782-50-5	E326	0.280 mg/L	0.276 mg/L	102	70.0	130	----
Total Metals (QCLot: 1391524)										
WT2407780-002	Anonymous	Aluminum, total	7429-90-5	E420	0.106 mg/L	0.1 mg/L	106	70.0	130	----
		Antimony, total	7440-36-0	E420	0.0519 mg/L	0.05 mg/L	104	70.0	130	----
		Arsenic, total	7440-38-2	E420	0.0514 mg/L	0.05 mg/L	103	70.0	130	----
		Cadmium, total	7440-43-9	E420	0.00494 mg/L	0.005 mg/L	98.8	70.0	130	----
		Chromium, total	7440-47-3	E420	0.0127 mg/L	0.012 mg/L	101	70.0	130	----
		Cobalt, total	7440-48-4	E420	0.0120 mg/L	0.012 mg/L	96.4	70.0	130	----
		Copper, total	7440-50-8	E420	0.0116 mg/L	0.012 mg/L	92.7	70.0	130	----
		Iron, total	7439-89-6	E420	ND mg/L	----	ND	70.0	130	----
		Lead, total	7439-92-1	E420	0.0235 mg/L	0.025 mg/L	94.1	70.0	130	----
		Manganese, total	7439-96-5	E420	ND mg/L	----	ND	70.0	130	----
		Molybdenum, total	7439-98-7	E420	0.0123 mg/L	0.012 mg/L	98.2	70.0	130	----
		Nickel, total	7440-02-0	E420	0.0235 mg/L	0.025 mg/L	94.0	70.0	130	----
		Selenium, total	7782-49-2	E420	0.0481 mg/L	0.05 mg/L	96.2	70.0	130	----
		Silver, total	7440-22-4	E420	0.00422 mg/L	0.005 mg/L	84.3	70.0	130	----
		Tin, total	7440-31-5	E420	0.0238 mg/L	0.025 mg/L	95.4	70.0	130	----
		Titanium, total	7440-32-6	E420	0.0130 mg/L	0.012 mg/L	104	70.0	130	----
		Zinc, total	7440-66-6	E420	0.0233 mg/L	0.025 mg/L	93.0	70.0	130	----
Total Metals (QCLot: 1391853)										

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Total Metals (QCLot: 1391853) - continued										
WT2407718-001	Anonymous	Mercury, total	7439-97-6	E508	0.000112 mg/L	0 mg/L	112	70.0	130	----
Aggregate Organics (QCLot: 1400757)										
WT2408210-001	Anonymous	Phenols, total (4AAP)	----	E562	0.0164 mg/L	0.02 mg/L	81.8	75.0	125	----
Volatile Organic Compounds (QCLot: 1391738)										
WT2407649-001	Anonymous	Benzene	71-43-2	E611D	107 µg/L	100 µg/L	107	60.0	140	----
		Chloroform	67-66-3	E611D	129 µg/L	100 µg/L	129	60.0	140	----
		Dichlorobenzene, 1,2-	95-50-1	E611D	98.6 µg/L	100 µg/L	98.6	60.0	140	----
		Dichlorobenzene, 1,4-	106-46-7	E611D	100 µg/L	100 µg/L	100	60.0	140	----
		Dichloroethylene, cis-1,2-	156-59-2	E611D	119 µg/L	100 µg/L	119	60.0	140	----
		Dichloromethane	75-09-2	E611D	109 µg/L	100 µg/L	109	60.0	140	----
		Dichloropropylene, trans-1,3-	10061-02-6	E611D	90.8 µg/L	100 µg/L	90.8	60.0	140	----
		Ethylbenzene	100-41-4	E611D	96.3 µg/L	100 µg/L	96.3	60.0	140	----
		Methyl ethyl ketone [MEK]	78-93-3	E611D	101 µg/L	100 µg/L	101	60.0	140	----
		Styrene	100-42-5	E611D	93.7 µg/L	100 µg/L	93.7	60.0	140	----
		Tetrachloroethane, 1,1,2,2-	79-34-5	E611D	111 µg/L	100 µg/L	111	60.0	140	----
		Tetrachloroethylene	127-18-4	E611D	89.1 µg/L	100 µg/L	89.1	60.0	140	----
		Toluene	108-88-3	E611D	97.1 µg/L	100 µg/L	97.1	60.0	140	----
		Trichloroethylene	79-01-6	E611D	99.6 µg/L	100 µg/L	99.6	60.0	140	----
		Xylene, m+p-	179601-23-1	E611D	205 µg/L	200 µg/L	102	60.0	140	----
		Xylene, o-	95-47-6	E611D	98.8 µg/L	100 µg/L	98.8	60.0	140	----
Nonylphenols (QCLot: 1394196)										
WT2407720-001	GW-12636323-040424-SH-001	Nonylphenols [NP]	84852-15-3	E749A	8.6 µg/L	10 µg/L	85.8	60.0	140	----
Nonylphenols (QCLot: 1394197)										
WT2407720-001	GW-12636323-040424-SH-001	Nonylphenol diethoxylates [NP2EO]	n/a	E749B	1.07 µg/L	1 µg/L	107	60.0	140	----
		Nonylphenol monoethoxylates [NP1EO]	n/a	E749B	22.9 µg/L	20 µg/L	115	60.0	140	----

Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 9878

Page

Environmental Division Waterloo

Work Order Reference

WT2407720

Telephone : +1 519 886 6910

www.alsglobal.com

Report To	Contact and company name below will appear on the final report
Company:	GHD Ltd. (Acct GHDL100)
Contact:	Jennifer Balkwill
Phone:	519-884-0510
Street:	Company address below will appear on the final report
City/Province:	455 Phillip St.
Postal Code:	Waterloo, ON
Invoice To	N2L 3X2
Company:	Same as Report To ☑ YES ☐ NO
Contact:	Copy of Invoice with Report ☐ YES ☑ NO
	GHD Ltd. (GHDL100)

Project Information

ALS Account # / Quote #:	WT2024GHDL1000049
Job #:	12636323-A1
PO / AFE:	735-009822
LSD:	

Reports / Recipients

Select Report Format: ☑ PDF ☑ EXCEL ☑ EDD (DIGITAL)

Merge QC/QCI Reports with COA ☑ YES ☐ NO ☐ N/A

☐ Compare Results to Criteria on Report - provide details below if box checked

Select Distribution: ☑ EMAIL ☐ MAIL ☐ FAX

Email 1 or Fax: jennifer.balkwill@ghd.com

Email 2: See SSOW/PO

Email 3:

Invoice Recipients

Select Invoice Distribution: ☑ EMAIL ☐ MAIL ☐ FAX

Email 1 or Fax: accountspayableCDN@ghd.com

Email 2:

Oil and Gas Required Fields (client use)

AFE/Cost Center:	PO#
Major/Minor Code:	Routing Code:
Requisitioner:	
Location:	

Turnaround Time (TAT) Requested

☑ Routine [R] if received by 3pm M-F - no surcharges apply

☐ 4 day [P4] if received by 3pm M-F - 20% rush surcharge minimum

☐ 3 day [P3] if received by 3pm M-F - 25% rush surcharge minimum

☐ 2 day [P2] if received by 3pm M-F - 50% rush surcharge minimum

☐ 1 day [E] if received by 3pm M-F - 100% rush surcharge minimum

☐ Same day [E2] if received by 10am M-S - 200% rush surcharge. Additional fees may apply to rush resuests on weekends, statutory holidays and non routine tests

Date and Time Required for all E&P TATs:

For tests that can not be performed according to the

Analysis Request

ALS Lab Work Order # (lab use only):

ALS Contact: Rick H

Sampler: SIMON HOWELL

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	NUMBER OF CONTAINERS: York/Vaughan Combo (San/Storm)	Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below: FIELD TEMP (°C)	FIELD pH	SAMPLES ON HOLD	EXTENDED STORAGE REQUIRED	SUSPECTED HAZARD (see notes)
	GW-12636323-04APR24-SH-001	04-APR-24	12:00	Water	19 ✓	7.11	7.75			
				Water						
				Water						
				Water						
				Water						
				Water						
				Water						
				Water						
				Water						
				Water						
				Water						
				Water						

Drinking Water (DW) Samples[1] (client use)

Are samples taken from a Regulated DW System? ☐ YES ☑ NO

Are samples for human consumption/ use? ☐ YES ☑ NO

Notes / Specify Limits for result evaluation by selecting from drop-down below (Excel COC only)

SAMPLE RECEIPT DETAILS (lab use only)

Cooling Method: ☐ NONE ☒ ICE ☒ ICE PACKS ☐ FROZEN ☐ COOLING INITIATED

Submission Comments identified on Sample Receipt Notification: ☐ YES ☐ NO

Cooler Custody Seals Intact: ☐ YES ☐ N/A Sample Custody Seals Intact: ☐ YES ☐ N/A

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
3.3				4.2			

SHIPMENT RELEASE (client use)

HOWELL Date: APR.4.2024 Time: 13:20

INITIAL SHIPMENT RECEPTION (lab use only)

Received by: Karan Date: 4/4/2024 Time: 13:22

FINAL SHIPMENT RECEPTION (lab use only)

Received by: CN Date: Apr 4/24 Time: 18:00

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

AUG 2020 FRONT

CK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

e all portions of this form may delay analysis. Please fill in this form LEGIBLY.

taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

AS-446 OC-368 OR-904 MM-462 L-298 CN-724 GC-706 B-556 TL

Appendix F

Construction Water Taking Estimates

TABLE F.4

ESTIMATED WATER TAKINGS AND AREA OF INFLUENCE (STEADY STATE)
HYDROGEOLOGICAL ASSESSMENT
PROPOSED DEVELOPMENT
KEELE STREET (10533) LTD

Flow to a Trench for a *Unconfined Aquifer*

Information

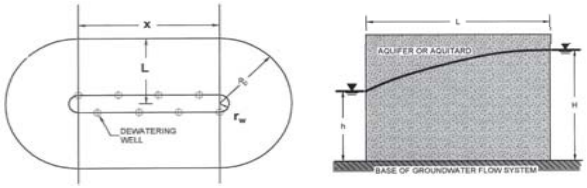
Steady State flow to a trench for an unconfined aquifer.
Use this equation when a/b > 1.5.
Equation 4.0

$$Q = \frac{\pi K\left(H^2 - h^2\right)}{\ln R_0 / r_w} + 2\left[\frac{xK\left(H^2 - h^2\right)}{2L}\right]$$

Equation 4.1

$$r_w = \frac{a+b}{\pi}$$

Ro is determined by the Siechardt Equation: Ro = 3000(H-hw)K^0.5 when K is in m/s



Enter Parameters

Shaft or Trench Eq'n Check: 5.0 This number **must be greater than 1.5**; if not, then use a Shaft equation.

K=	1.00E-03	cm/s	Input Hydraulic Conductivity in cm/s
=>	0.864	m/day	Hydraulic Conductivity converted to m/day
H=	2.77	m	Input height of groundwater pressure
h=	0	m	Input dewatering height
x=	15	m	Input length of trench
a=	15	m	Input length of excavation
b=	3	m	Input width of excavation
rw=	5.73	m	Input/calculate radius of trench
π=	3.141592654		Pi

Note: L and Ro are the same distance
*Note: Height measurements are relative to base of active groundwater

Calculating L and Ro using: $R_0 = 1.5(Tt/S)^{0.5}$

T=	2.39328	m^2/day	Input transmissivity in m^2/day
t=	30	days	Input pumping duration in days
S=	0.3		Input storage coefficient
L=Ro=	23.21 m		Line source distance; distance of influence

Alternative equation by Bear (Bear, J., 1979. **Hydraulics of Groundwater**, McGraw-Hill, New York, 569p) $R_0 = 1.5(Tt/S)^{0.5}$ where **T** is transmissivity in **m^2/day**, **t** is pumping duration in **days.** R_0 will be in **metres.**

*Note: The above Ro is for comparison. It is not the Ro used to calculate Q below.

Enter additional K values (optional)

K=	**1.00E-03**	**cm/s**	**K=**	**0.864**	**m/day**
K2=	1.00E-06	cm/s	K2=	0.000864	m/day
K3=	1.00E-05	cm/s	K3=	0.00864	m/day
K4=	1.00E-04	cm/s	K4=	0.0864	m/day
K5=	1.00E-03	cm/s	K5=	0.864	m/day
K6=	1.00E-02	cm/s	K6=	8.64	m/day
K7=	1.00E-01	cm/s	K7=	86.4	m/day
K8=	1.00E+00	cm/s	K8=	864	m/day
K9=	1.00E+01	cm/s	K9=	8640	m/day
K10=	1.00E+02	cm/s	K10=	86400	m/day

Calculated flow rate using Equation 4.0

Results for Ro (radius of influence)				Flow Results in m^3/day			Flow Results in L/min			Flow Results in gal/min		
L=	**Ro=**	**32.01**	**m**	**Q=**	**15.22**	**m^3/day**	**Q=**	**10.57**	**L/min**	**Q=**	**2.32**	**gal/min**
L2=	Ro2=	6.56	m	Q2=	0.17	m^3/day	Q2=	0.12	L/min	Q2=	0.03	gal/min
L3=	Ro3=	8.36	m	Q3=	0.67	m^3/day	Q3=	0.47	L/min	Q3=	0.10	gal/min
L4=	Ro4=	14.04	m	Q4=	3.03	m^3/day	Q4=	2.11	L/min	Q4=	0.46	gal/min
L5=	Ro5=	26.28	m	Q5=	17.46	m^3/day	Q5=	12.13	L/min	Q5=	2.67	gal/min
L6=	Ro6=	88.83	m	Q6=	87.19	m^3/day	Q6=	60.54	L/min	Q6=	13.32	gal/min
L7=	Ro7=	268.52	m	Q7=	578.44	m^3/day	Q7=	401.67	L/min	Q7=	88.36	gal/min
L8=	Ro8=	836.73	m	Q8=	4,298.12	m^3/day	Q8=	2,984.62	L/min	Q8=	656.52	gal/min
L9=	Ro9=	2633.59	m	Q9=	34,353.10	m^3/day	Q9=	23,854.79	L/min	Q9=	5,247.32	gal/min
L10=	R10=	8315.73	m	Q10=	287,288.24	m^3/day	Q10=	199,492.95	L/min	Q10=	43,882.27	gal/min

Appendix G

MECP Well Records

MECP WELL RECORD LISTINGS

Ministry of the Environment, Conservation & Parks (MECP)

© Water Well Information System (WWIS). Ministry of the Environment, Conservation, and Parks. 2021.
Powered by Location Intelligence

DISCLAIMER: All effort has been taken to ensure the accuracy of the data is the same as the source. There are instances where the original PDF document is different and in those cases, the PDF should be used instead.

17

Easting:	621510.40
Northing:	4899957.00
Elev (masl):	256.63

Latitude: 43.866345
Longitude: -79.514307

Well ID: 6906474

LOCATION

Lot:	023	**Tag:**	
Con:	03	**Audit No:**	
Municipality:	YORK	**Contractor License:**	1622
Township:	VAUGHAN TOWN (VAUGHAN TWP)	**Well Completion Date:**	08-09-1954
Street:		**Received Date:**	09-03-1954
City:	n/a		

WELL

Well Status:	Water Supply	**Well Depth (m):**	15.8496
Prim. Use:	n/a	**Depth to Bedrock (m):**	n/a
Sec. Use:	n/a	**Depth to Water:**	ft
Boring Method:	Jetting	**Water Kind:**	FRESH

PUMP TEST

Test Method:	CLEAR	**Pipe ID:**	11045743
Pump Set (m):	n/a	**Pump Test ID**	996906474
SWL (ft)	20	**Flowing:**	N
Final Level:	n/a ft	**Pump Duration (hr):**	7
Pump Rate:	3 GPM	**Pump Duration (m):**	0
Recom. Rate:	n/a GPM		

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diamter	Diamter Units	Material	Top Depth	Bottom Depth
1	930809541	2	inch	STEEL	n/a	47 ft

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	CLAY	STONES	n/a	YELLOW	0	45 ft
2	MEDIUM SAND	n/a	n/a	YELLOW	45	52 ft

End of Record

17

Easting:	621443.40
Northing:	4900068.00
Elev (masl):	252.11

Latitude: 43.864156
Longitude: -79.514225

Well ID: 6906475

LOCATION

Lot:	023	**Tag:**	
Con:	03	**Audit No:**	
Municipality:	YORK	**Contractor License:**	1622
Township:	VAUGHAN TOWN (VAUGHAN TWP)	**Well Completion Date:**	09-10-1954
Street:		**Received Date:**	02-10-1955
City:	n/a		

WELL

Well Status:	Water Supply	**Well Depth (m):**	26.5176
Prim. Use:	n/a	**Depth to Bedrock (m):**	n/a
Sec. Use:	n/a	**Depth to Water:**	ft
Boring Method:	Cable Tool	**Water Kind:**	FRESH

PUMP TEST

Test Method:	CLEAR	**Pipe ID:**	11045744
Pump Set (m):	n/a	**Pump Test ID**	996906475
SWL (ft)	14	**Flowing:**	N
Final Level:	18 ft	**Pump Duration (hr):**	7
Pump Rate:	10 GPM	**Pump Duration (m):**	0
Recom. Rate:	n/a GPM		

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CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diamter	Diamter Units	Material	Top Depth	Bottom Depth
1	930809542	4	inch	STEEL	n/a	82 ft

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	TOPSOIL	n/a	n/a	n/a	0	1 ft
2	FINE SAND	n/a	n/a	n/a	1	11 ft
3	CLAY	GRAVEL	n/a	BLUE	11	81 ft
4	COARSE SAND	n/a	n/a	n/a	81	87 ft

End of Record

17

Easting:	621259.40
Northing:	4900033.00
Elev (masl):	257.90

Latitude: 43.866684
Longitude: -79.513341

Well ID: 6906476

LOCATION

Lot: 023
Con: 03
Municipality: YORK
Township: VAUGHAN TOWN (VAUGHAN TWP)
Street:
City: n/a

Tag:
Audit No:
Contractor License: 2314
Well Completion Date: 10-08-1957
Received Date: 02-11-1958

WELL

Well Status: Water Supply
Prim. Use: n/a
Sec. Use: n/a
Boring Method: Cable Tool

Well Depth (m): 32.3088
Depth to Bedrock (m): n/a
Depth to Water: ft
Water Kind: FRESH

PUMP TEST

Test Method: CLEAR
Pump Set (m): n/a
SWL (ft) 10
Final Level: 100 ft
Pump Rate: 8 GPM
Recom. Rate: n/a GPM

Pipe ID: 11045745
Pump Test ID 996906476
Flowing: N
Pump Duration (hr): 6
Pump Duration (m): 0

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diamter	Diamter Units	Material	Top Depth	Bottom Depth
1	930809543	4	inch	STEEL	n/a	99 ft

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	CLAY	n/a	n/a	n/a	0	70 ft
2	COARSE SAND	n/a	n/a	n/a	70	106 ft

End of Record

17

Easting:	621362.40
Northing:	4900247.00
Elev (masl):	262.14

Latitude: 43.868601
Longitude: -79.512633

Well ID: 6906480

LOCATION

Lot: 024
Con: 03
Municipality: YORK
Township: VAUGHAN TOWN (VAUGHAN TWP)
Street:
City: n/a

Tag:
Audit No:
Contractor License: 3108
Well Completion Date: 07-02-1959
Received Date: 07-20-1959

WELL

Well Status: Water Supply
Prim. Use: n/a
Sec. Use: n/a
Boring Method: Cable Tool

Well Depth (m): 32.9184
Depth to Bedrock (m): n/a
Depth to Water: ft
Water Kind: FRESH

TEST

Test Method: CLEAR
Pump Set (m): n/a
SWL (ft)

Pipe ID: 11045749
Pump Test ID 996906480
Flowing: N

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PUMP

Final Level: 240 ft
Pump Rate: 22 GPM
Recom. Rate: 4 GPM

Pump Duration (hr): 3
Pump Duration (m): 0

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diamter	Diamter Units	Material	Top Depth	Bottom Depth
1	930809547	4	inch	STEEL	n/a	102 ft

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	TOPSOIL	n/a	n/a	n/a	0	2 ft
2	CLAY	n/a	n/a	BLUE	2	100 ft
3	COARSE SAND	n/a	n/a	n/a	100	108 ft

End of Record

17

Easting:	620716.40
Northing:	4901638.00
Elev (masl):	257.56

Latitude: 43.868224
Longitude: -79.517521

Well ID: 6906596

LOCATION

Lot: 024
Con: 04
Municipality: YORK
Township: VAUGHAN TOWN (VAUGHAN TWP)
Street:
City: n/a

Tag:
Audit No:
Contractor License: 1622
Well Completion Date: 11-19-1965
Received Date: 04-21-1966

WELL

Well Status: Water Supply
Prim. Use: n/a
Sec. Use: Domestic
Boring Method: Cable Tool

Well Depth (m): 87.1728
Depth to Bedrock (m): n/a
Depth to Water: ft
Water Kind: FRESH

PUMP TEST

Test Method: CLEAR
Pump Set (m): n/a
SWL (ft) 28
Final Level: 240 ft
Pump Rate: 8 GPM
Recom. Rate: 8 GPM

Pipe ID: 11045865
Pump Test ID 996906596
Flowing: N
Pump Duration (hr): n/a
Pump Duration (m): n/a

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diamter	Diamter Units	Material	Top Depth	Bottom Depth
1	930809666	4	inch	STEEL	n/a	278 ft

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	CLAY	MEDIUM SAND	n/a	BROWN	0	60 ft
2	HARDPAN	MEDIUM SAND	GRAVEL	n/a	60	286 ft

End of Record

17

Easting:	620857.40
Northing:	4901791.00
Elev (masl):	255.75

Latitude: 43.867025
Longitude: -79.518111

Well ID: 6906597

LOCATION

Lot: 024
Con: 04
Municipality: YORK
Township: VAUGHAN TOWN (VAUGHAN TWP)
Street:
City: n/a

Tag:
Audit No:
Contractor License: 1622
Well Completion Date: 05-13-1966
Received Date: 08-03-1966

WELL

Well Status: Abandoned-Supply
Prim. Use: n/a
Sec. Use: n/a
Boring Method: Cable Tool

Well Depth (m): 41.148
Depth to Bedrock (m): n/a
Depth to Water:
Water Kind:

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PUMP TEST

Test Method:
Pump Set (m):
SWL (ft)
Final Level:
Pump Rate:
Recom. Rate:

Pipe ID:
Pump Test ID
Flowing:
Pump Duration (hr):
Pump Duration (m):

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diamter	Diamter Units	Material	Top Depth	Bottom Depth
1	930809667	4	inch	STEEL	n/a	135 ft

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	TOPSOIL	n/a	n/a	n/a	0	1 ft
2	CLAY	n/a	n/a	BROWN	1	20 ft
3	CLAY	GRAVEL	n/a	BLUE	20	135 ft

End of Record

17

Easting:	624117.40
Northing:	4907215.00
Elev (masl):	270.74

Latitude: 43.872475
Longitude: -79.513495

Well ID: 6914110

LOCATION

Lot: 025
Con: 03
Municipality: YORK
Township: VAUGHAN TOWN (VAUGHAN TWP)
Street:
City: n/a

Tag:
Audit No:
Contractor License: 3108
Well Completion Date: 07-20-1977
Received Date: 09-14-1977

WELL

Well Status: Water Supply
Prim. Use: n/a
Sec. Use: n/a
Boring Method: Rotary (Convent.)

Well Depth (m): 54.2544
Depth to Bedrock (m): n/a
Depth to Water: ft
Water Kind: FRESH

PUMP TEST

Test Method: CLEAR
Pump Set (m): n/a
SWL (ft) 57
Final Level: 170 ft
Pump Rate: 30 GPM
Recom. Rate: 30 GPM

Pipe ID: 11053257
Pump Test ID 996914110
Flowing: N
Pump Duration (hr): 5
Pump Duration (m): 0

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diamter	Diamter Units	Material	Top Depth	Bottom Depth
1	930817725	6	inch	STEEL	n/a	170 ft

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	CLAY	n/a	n/a	BROWN	0	3 ft
2	CLAY	SANDY	n/a	BROWN	3	17 ft
3	CLAY	GRAVELLY	SANDY	BROWN	17	85 ft
4	CLAY	SANDY	n/a	BLUE	85	101 ft
5	SAND	CLAY	LAYERED	BROWN	101	145 ft
6	COARSE SAND	n/a	n/a	BROWN	145	178 ft

End of Record

17

Easting:	625214.60
Northing:	4869723.00
Elev (masl):	266.56

Latitude: 43.872778
Longitude: -79.515977

Well ID: 6914766

LOCATION

Lot: 025
Con: 03
Municipality: YORK
Township: VAUGHAN TOWN (VAUGHAN TWP)
Street:
City: n/a

Tag:
Audit No:
Contractor License: 3108
Well Completion Date: 11-02-1978
Received Date: 11-21-1978

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WELL

Well Status: Water Supply
Prim. Use: n/a
Sec. Use: n/a
Boring Method: Rotary (Convent.)

Well Depth (m): 42.672
Depth to Bedrock (m): n/a
Depth to Water: ft
Water Kind: Not stated

PUMP TEST

Test Method: CLEAR
Pump Set (m): n/a
SWL (ft) 35
Final Level: 132 ft
Pump Rate: 10 GPM
Recom. Rate: 7 GPM

Pipe ID: 11053907
Pump Test ID 996914766
Flowing: N
Pump Duration (hr): 2
Pump Duration (m): 0

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diamter	Diamter Units	Material	Top Depth	Bottom Depth
1	930818438	6	inch	STEEL	n/a	135 ft

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	CLAY	FILL	n/a	BLUE	0	7 ft
2	CLAY	n/a	n/a	YELLOW	7	22 ft
3	CLAY	SANDY	n/a	YELLOW	22	55 ft
4	SAND	n/a	n/a	YELLOW	55	60 ft
5	GRAVEL	CLAY	SANDY	YELLOW	60	92 ft
6	SAND	n/a	n/a	BROWN	92	105 ft
7	SAND	n/a	n/a	BROWN	105	140 ft

End of Record

17

Easting:	612927.60
Northing:	4873386.00
Elev (masl):	276.47

Latitude: 43.871898
Longitude: -79.510647

Well ID: 6915150

LOCATION

Lot: 025
Con: 03
Municipality: YORK
Township: VAUGHAN TOWN (VAUGHAN TWP)
Street:
City: n/a

Tag:
Audit No:
Contractor License: 3108
Well Completion Date: 07-12-1979
Received Date: 09-10-1979

WELL

Well Status: Water Supply
Prim. Use: n/a
Sec. Use: n/a
Boring Method: Rotary (Convent.)

Well Depth (m): 57.3024
Depth to Bedrock (m): n/a
Depth to Water: ft
Water Kind: Not stated

PUMP TEST

Test Method: CLEAR
Pump Set (m): n/a
SWL (ft) n/a
Final Level: 185 ft
Pump Rate: 15 GPM
Recom. Rate: 7 GPM

Pipe ID: 11054289
Pump Test ID 996915150
Flowing: N
Pump Duration (hr): 2
Pump Duration (m): 0

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diamter	Diamter Units	Material	Top Depth	Bottom Depth
1	930818832	6	inch	STEEL	n/a	149 ft

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	FILL	n/a	n/a	n/a	0	6 ft
2	CLAY	SANDY	n/a	BROWN	6	25 ft
3	FINE SAND	n/a	n/a	BROWN	25	82 ft
4	CLAY	SANDY	n/a	BLUE	82	151 ft
5	QUICKSAND	n/a	n/a	n/a	151	179 ft
6	FINE SAND	n/a	n/a	GREY	179	188 ft

End of Record

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17

Easting:	625214.60
Northing:	4869643.00
Elev (masl):	264.70

Latitude: 43.870138
Longitude: -79.513802

Well ID: 6915790

LOCATION

Lot: 024
Con: 03
Municipality: YORK
Township: VAUGHAN TOWN (VAUGHAN TWP)
Street:
City: n/a

Tag:
Audit No:
Contractor License: 1663
Well Completion Date: 04-23-1980
Received Date: 05-04-1981

WELL

Well Status: Water Supply
Prim. Use: n/a
Sec. Use: n/a
Boring Method: Rotary (Convent.)

Well Depth (m): 56.9976
Depth to Bedrock (m): n/a
Depth to Water: ft
Water Kind: FRESH

PUMP TEST

Test Method: CLEAR
Pump Set (m): n/a
SWL (ft) 31
Final Level: 165 ft
Pump Rate: 50 GPM
Recom. Rate: 25 GPM

Pipe ID: 11054915
Pump Test ID 996915790
Flowing: N
Pump Duration (hr): 0
Pump Duration (m): 45

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diamter	Diamter Units	Material	Top Depth	Bottom Depth
1	930819553	5	inch	STEEL	n/a	174 ft

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	CLAY	SAND	GRAVEL	BROWN	0	47 ft
2	CLAY	n/a	n/a	BLUE	47	58 ft
3	FINE SAND	CLAY	n/a	GREY	58	120 ft
4	CLAY	n/a	n/a	BLUE	120	131 ft
5	FINE SAND	SILT	n/a	GREY	131	162 ft
6	COARSE SAND	MEDIUM-GRAINED	n/a	GREY	162	182 ft
7	FINE SAND	n/a	n/a	GREY	182	187 ft

End of Record

---

n/a

Easting:	<null>
Northing:	<null>
Elev (masl):	270.31

Latitude: 43.869043
Longitude: -79.509221

Well ID: 6919978

LOCATION

Lot: 024
Con: 03
Municipality: YORK
Township: VAUGHAN TOWN (VAUGHAN TWP)
Street:
City: n/a

Tag:
Audit No: NA
Contractor License: 4006
Well Completion Date: 01-30-1984
Received Date: 11-28-1988

WELL

Well Status: <null>
Prim. Use: n/a
Sec. Use: n/a
Boring Method: Not Known

Well Depth (m): 0
Depth to Bedrock (m): n/a
Depth to Water:
Water Kind:

PUMP TEST

Test Method: n/a
Pump Set (m): n/a
SWL (ft) 54
Final Level: n/a ft
Pump Rate: n/a GPM
Recom. Rate: n/a GPM

Pipe ID: 11058871
Pump Test ID 996919978
Flowing: N
Pump Duration (hr): n/a
Pump Duration (m): n/a

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diamter	Diamter Units	Material	Top Depth	Bottom Depth
1	930824128	10	inch	STEEL	n/a	30 ft
2	930824129	2	inch	PLASTIC	n/a	175 ft

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FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth

End of Record

---

n/a

Easting:	<null>
Northing:	<null>
Elev (masl):	270.31

Latitude: 43.869043
Longitude: -79.509221

Well ID: 6919979

LOCATION

Lot: 024
Con: 03
Municipality: YORK
Township: VAUGHAN TOWN (VAUGHAN TWP)
Street:
City: n/a

Tag:
Audit No: NA
Contractor License: 4006
Well Completion Date: 01-03-1984
Received Date: 11-28-1988

WELL

Well Status: <null>
Prim. Use: n/a
Sec. Use: n/a
Boring Method: Not Known

Well Depth (m): 0
Depth to Bedrock (m): n/a
Depth to Water:
Water Kind:

PUMP TEST

Test Method: n/a
Pump Set (m): n/a
SWL (ft) 59
Final Level: n/a ft
Pump Rate: n/a GPM
Recom. Rate: n/a GPM

Pipe ID: 11058872
Pump Test ID 996919979
Flowing: N
Pump Duration (hr): n/a
Pump Duration (m): n/a

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diamter	Diamter Units	Material	Top Depth	Bottom Depth
1	930824130	10	inch	STEEL	n/a	30 ft
2	930824131	2	inch	<null>	n/a	128 ft

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth

End of Record

---

n/a

Easting:	<null>
Northing:	<null>
Elev (masl):	270.31

Latitude: 43.869043
Longitude: -79.509221

Well ID: 6919980

LOCATION

Lot: 024
Con: 03
Municipality: YORK
Township: VAUGHAN TOWN (VAUGHAN TWP)
Street:
City: n/a

Tag:
Audit No: NA
Contractor License: 4006
Well Completion Date: 01-03-1984
Received Date: 11-28-1988

WELL

Well Status: Observation Wells
Prim. Use: n/a
Sec. Use: n/a
Boring Method: Rotary (Convent.)

Well Depth (m): 73.152
Depth to Bedrock (m): n/a
Depth to Water:
Water Kind:

PUMP TEST

Test Method: n/a
Pump Set (m): n/a
SWL (ft) 58
Final Level: n/a ft
Pump Rate: n/a GPM
Recom. Rate: n/a GPM

Pipe ID: 11058873
Pump Test ID 996919980
Flowing: N
Pump Duration (hr): n/a
Pump Duration (m): n/a

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

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Layer	Case ID	Casing Diamter	Diamter Units	Material	Top Depth	Bottom Depth
1	930824132	10	inch	STEEL	n/a	30 ft
2	930824133	2	inch	PLASTIC	n/a	55 ft
3	930824134	n/a	inch	<null>	n/a	128 ft
4	930824135	n/a	inch	<null>	n/a	175 ft

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	SILT	VERY	FINE SAND	BROWN	0	50 ft
2	CLAY	SILT	FINE SAND	BROWN	50	70 ft
3	SAND	SILTY	FINE SAND	BROWN	70	80 ft
4	SILT	VERY	FINE SAND	GREY	80	100 ft
5	CLAY	SILTY	FINE SAND	GREY	100	132 ft
6	MEDIUM SAND	FINE SAND	COARSE SAND	GREY	132	139 ft
7	FINE SAND	VERY	FINE SAND	n/a	139	175 ft
8	CLAY	SILTY	FINE SAND	n/a	175	190 ft
9	FINE SAND	VERY	SILTY	GREY	190	205 ft
10	SILT	CLAYEY	FINE SAND	n/a	205	240 ft

End of Record

---

n/a

Easting:	<null>
Northing:	<null>
Elev (masl):	275.26

Latitude: 43.869205
Longitude: -79.50852

Well ID: 6919981

LOCATION

Lot: 024
Con: 03
Municipality: YORK
Township: VAUGHAN TOWN (VAUGHAN TWP)
Street:
City: n/a

Tag:
Audit No: NA
Contractor License: 4006
Well Completion Date: 12-19-1983
Received Date: 11-28-1988

WELL

Well Status: <null>
Prim. Use: n/a
Sec. Use: n/a
Boring Method: Not Known

Well Depth (m): 0
Depth to Bedrock (m): n/a
Depth to Water:
Water Kind:

PUMP TEST

Test Method: n/a
Pump Set (m): n/a
SWL (ft) 82
Final Level: n/a ft
Pump Rate: n/a GPM
Recom. Rate: n/a GPM

Pipe ID: 11058874
Pump Test ID 996919981
Flowing: N
Pump Duration (hr): n/a
Pump Duration (m): n/a

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diamter	Diamter Units	Material	Top Depth	Bottom Depth
1	930824136	10	inch	<null>	n/a	30 ft
2	930824137	2	inch	PLASTIC	n/a	276 ft

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth

End of Record

---

n/a

Easting:	<null>
Northing:	<null>
Elev (masl):	275.26

Latitude: 43.869205
Longitude: -79.50852

Well ID: 6919982

LOCATION

Lot: 024
Con: 03
Municipality: YORK
Township: VAUGHAN TOWN (VAUGHAN TWP)
Street:
City: n/a

Tag:
Audit No: NA
Contractor License: 4006
Well Completion Date: 12-19-1983
Received Date: 11-28-1988

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WELL

Well Status: <null>
Prim. Use: n/a
Sec. Use: n/a
Boring Method: Not Known

Well Depth (m): 0
Depth to Bedrock (m): n/a
Depth to Water:
Water Kind:

PUMP TEST

Test Method: n/a
Pump Set (m): n/a
SWL (ft) 79
Final Level: n/a ft
Pump Rate: n/a GPM
Recom. Rate: n/a GPM

Pipe ID: 11058875
Pump Test ID 996919982
Flowing: N
Pump Duration (hr): n/a
Pump Duration (m): n/a

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diamter	Diamter Units	Material	Top Depth	Bottom Depth
1	930824138	10	inch	<null>	n/a	30 ft
2	930824139	2	inch	<null>	n/a	149 ft

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth

End of Record

---

n/a

Easting:	<null>
Northing:	<null>
Elev (masl):	275.26

Latitude: 43.869205
Longitude: -79.50852

Well ID: 6919983

LOCATION

Lot: 024
Con: 03
Municipality: YORK
Township: VAUGHAN TOWN (VAUGHAN TWP)
Street:
City: n/a

Tag:
Audit No: NA
Contractor License: 4006
Well Completion Date: 12-19-1983
Received Date: 11-28-1988

WELL

Well Status: <null>
Prim. Use: n/a
Sec. Use: n/a
Boring Method: Not Known

Well Depth (m): 0
Depth to Bedrock (m): n/a
Depth to Water:
Water Kind:

PUMP TEST

Test Method: n/a
Pump Set (m): n/a
SWL (ft) 75
Final Level: n/a ft
Pump Rate: n/a GPM
Recom. Rate: n/a GPM

Pipe ID: 11058876
Pump Test ID 996919983
Flowing: N
Pump Duration (hr): n/a
Pump Duration (m): n/a

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diamter	Diamter Units	Material	Top Depth	Bottom Depth
1	930824140	10	inch	STEEL	n/a	30 ft
2	930824141	2	inch	PLASTIC	n/a	105 ft

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth

End of Record

---

n/a

Easting:	<null>
Northing:	<null>
Elev (masl):	275.26

Latitude: 43.869205
Longitude: -79.50852

Well ID: 6919984

CATION

Lot: 024
Con: 03
Municipality: YORK
Township:

Tag:
Audit No: NA
Contractor License: 4006
Well Completion Date:

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LOC

Street: VAUGHAN TOWN (VAUGHAN TWP)
City: n/a

Received Date: 12-28-1988

WELL

Well Status: <null>
Prim. Use: n/a
Sec. Use: n/a
Boring Method: Not Known

Well Depth (m): 97.536
Depth to Bedrock (m): n/a
Depth to Water:
Water Kind:

PUMP TEST

Test Method: n/a
Pump Set (m): n/a
SWL (ft) 74
Final Level: n/a ft
Pump Rate: n/a GPM
Recom. Rate: n/a GPM

Pipe ID: 11058877
Pump Test ID 996919984
Flowing: N
Pump Duration (hr): n/a
Pump Duration (m): n/a

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diamter	Diamter Units	Material	Top Depth	Bottom Depth

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	SILT	CLAY	FINE SAND	GREY	0	250 ft
2	SILT	CLAY	FINE SAND	GREY	250	260 ft
3	SILT	VERY	FINE SAND	GREY	260	270 ft
4	FINE SAND	FINE GRAVEL	n/a	GREY	270	280 ft
5	SILT	VERY	FINE SAND	GREY	280	297 ft
6	SILT	CLAY	FINE SAND	GREY	297	320 ft

End of Record

---

n/a

Easting:	<null>
Northing:	<null>
Elev (masl):	275.26

Latitude: 43.869205
Longitude: -79.50852

Well ID: 6919985

LOCATION

Lot: 024
Con: 03
Municipality: YORK
Township: VAUGHAN TOWN (VAUGHAN TWP)
Street:
City: n/a

Tag:
Audit No: NA
Contractor License: 4006
Well Completion Date: 12-19-1983
Received Date: 11-28-1988

WELL

Well Status: Observation Wells
Prim. Use: n/a
Sec. Use: n/a
Boring Method: Rotary (Convent.)

Well Depth (m): 73.152
Depth to Bedrock (m): n/a
Depth to Water:
Water Kind:

PUMP TEST

Test Method: n/a
Pump Set (m): n/a
SWL (ft) 74
Final Level: n/a ft
Pump Rate: n/a GPM
Recom. Rate: n/a GPM

Pipe ID: 11058878
Pump Test ID 996919985
Flowing: N
Pump Duration (hr): n/a
Pump Duration (m): n/a

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diamter	Diamter Units	Material	Top Depth	Bottom Depth
1	930824142	10	inch	STEEL	n/a	30 ft
2	930824143	2	inch	PLASTIC	n/a	68 ft
3	930824144	n/a	inch	<null>	n/a	105 ft
4	930824145	n/a	inch	<null>	n/a	149 ft
5	930824146	n/a	inch	<null>	n/a	276 ft

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	FINE SAND	SILTY	HARD	BROWN	0	55 ft
2	FINE SAND	MEDIUM SAND	n/a	BROWN	55	60 ft
3	MEDIUM SAND	CLAYEY	SILT	BROWN	60	73 ft
4	SILT	CLAYEY	SAND	GREY	73	100 ft

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5	FINE SAND	SILT	SAND	GREY	100	110	ft
6	SILT	VERY	FINE SAND	GREY	110	152	ft
7	MEDIUM SAND	COARSE SAND	SILT	GREY	152	165	ft
8	SILT	VERY	FINE SAND	GREY	165	175	ft
9	GRAVEL	FINE SAND	MEDIUM SAND	n/a	175	182	ft
10	SILT	VERY	FINE SAND	GREY	182	220	ft
11	FINE SAND	SILT	CLAY	GREY	220	230	ft
12	SILT	VERY	FINE SAND	n/a	230	240	ft

End of Record

17

Easting:	642800.00
Northing:	4911613.00
Elev (masl):	263.14

Latitude: 43.868396
Longitude: -79.511344

Well ID: 6921718

LOCATION

Lot: 025
Con: 03
Municipality: YORK
Township: VAUGHAN TOWN (VAUGHAN TWP)
Street:
City: n/a

Tag:
Audit No: 116554
Contractor License: 6518
Well Completion Date: 11-24-1991
Received Date: 12-11-1991

WELL

Well Status: Observation Wells
Prim. Use: n/a
Sec. Use: n/a
Boring Method: Other Method

Well Depth (m): 67.056
Depth to Bedrock (m): n/a
Depth to Water: ft
Water Kind: FRESH

PUMP TEST

Test Method:
Pump Set (m):
SWL (ft)
Final Level:
Pump Rate:
Recom. Rate:

Pipe ID:
Pump Test ID
Flowing:
Pump Duration (hr):
Pump Duration (m):

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diamter	Diamter Units	Material	Top Depth	Bottom Depth	
1	930826131	2	inch	PLASTIC	n/a	0	ft

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth	
1	CLAY	SILT	n/a	BROWN	0	12	ft
2	FINE SAND	MEDIUM SAND	n/a	BROWN	12	75	ft
3	SILT	FINE GRAVEL	CLAY	BROWN	75	108	ft
4	MEDIUM SAND	n/a	n/a	BROWN	108	117	ft
5	CLAY	SILT	n/a	GREY	117	128	ft
6	MEDIUM SAND	COARSE SAND	n/a	BROWN	128	187	ft
7	SILT	n/a	n/a	GREY	187	220	ft

End of Record

17

Easting:	630549.50
Northing:	4909048.00
Elev (masl):	274.95

Latitude: 43.869741
Longitude: -79.508859

Well ID: 6921721

LOCATION

Lot: 024
Con: 03
Municipality: YORK
Township: VAUGHAN TOWN (VAUGHAN TWP)
Street:
City: n/a

Tag:
Audit No: 116559
Contractor License: 6518
Well Completion Date: 11-13-1991
Received Date: 12-11-1991

WELL

Well Status: Observation Wells
Prim. Use: n/a
Sec. Use: n/a
Boring Method: Other Method

Well Depth (m): 25.908
Depth to Bedrock (m): n/a
Depth to Water: ft
Water Kind: FRESH

TEST

Test Method:
Pump Set (m):
SWL (ft)

Pipe ID:
Pump Test ID
Flowing:

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PUMP

Final Level: **Pump Duration (hr):**
Pump Rate: **Pump Duration (m):**
Recom. Rate:

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diamter	Diamter Units	Material	Top Depth	Bottom Depth
1	930826134	2	inch	PLASTIC	n/a	0 ft

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	FILL	n/a	n/a	BROWN	0	3 ft
2	FINE SAND	CLAY	GRAVEL	BROWN	3	14 ft
3	FINE SAND	SILT	CLAY	BROWN	14	14 ft
4	FINE SAND	SILT	DENSE	BROWN	14	55 ft
5	FINE SAND	SILT	n/a	BROWN	55	80 ft
6	FINE SAND	SILT	n/a	GREY	80	85 ft

End of Record

17

Easting:	636177.60
Northing:	4879632.00
Elev (masl):	263.33

Latitude: 43.86845
Longitude: -79.511343

Well ID: 6921732

LOCATION

Lot: 025 **Tag:**
Con: 03 **Audit No:** 116553
Municipality: YORK **Contractor License:** 6518
Township: VAUGHAN TOWN (VAUGHAN TWP) **Well Completion Date:** 11-25-1991
Street: **Received Date:** 12-11-1991
City: n/a

WELL

Well Status: Observation Wells **Well Depth (m):** 43.5864
Prim. Use: n/a **Depth to Bedrock (m):** n/a
Sec. Use: n/a **Depth to Water:** ft
Boring Method: Other Method **Water Kind:** FRESH

PUMP TEST

Test Method: **Pipe ID:**
Pump Set (m): **Pump Test ID**
SWL (ft) **Flowing:**
Final Level: **Pump Duration (hr):**
Pump Rate: **Pump Duration (m):**
Recom. Rate:

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diamter	Diamter Units	Material	Top Depth	Bottom Depth
1	930826147	2	inch	PLASTIC	n/a	0 ft

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	CLAY	SILT	n/a	BROWN	0	12 ft
2	FINE SAND	MEDIUM SAND	n/a	BROWN	12	75 ft
3	SILT	FINE GRAVEL	CLAY	GREY	75	108 ft
4	MEDIUM SAND	n/a	n/a	BROWN	108	117 ft
5	CLAY	SILT	n/a	GREY	117	128 ft
6	MEDIUM SAND	COARSE SAND	n/a	BROWN	128	143 ft

End of Record

17

Easting:	632542.60
Northing:	4897709.00
Elev (masl):	255.28

Latitude: 43.866032
Longitude: -79.515112

Well ID: 6921851

LOCATION

Lot: 023 **Tag:**
Con: 04 **Audit No:** 116586
Municipality: YORK **Contractor License:** 6518
Township: VAUGHAN TOWN (VAUGHAN TWP) **Well Completion Date:** 02-03-1992
Street: **Received Date:** 03-26-1992
City: n/a

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WELL

Well Status: Observation Wells
Prim. Use: n/a
Sec. Use: n/a
Boring Method: Other Method

Well Depth (m): 0
Depth to Bedrock (m): n/a
Depth to Water: ft
Water Kind: FRESH

PUMP TEST

Test Method:
Pump Set (m):
SWL (ft)
Final Level:
Pump Rate:
Recom. Rate:

Pipe ID:
Pump Test ID
Flowing:
Pump Duration (hr):
Pump Duration (m):

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diamter	Diamter Units	Material	Top Depth	Bottom Depth
1	930826288	2	inch	PLASTIC	n/a	0 ft

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth

End of Record

17

Easting:	628812.50
Northing:	4893401.00
Elev (masl):	258.80

Latitude: 43.869315
Longitude: -79.517681

Well ID: 6921852

LOCATION

Lot: 024
Con: 04
Municipality: YORK
Township: VAUGHAN TOWN (VAUGHAN TWP)
Street:
City: n/a

Tag:
Audit No: 116585
Contractor License: 6518
Well Completion Date: 02-02-1992
Received Date: 03-26-1992

WELL

Well Status: Observation Wells
Prim. Use: n/a
Sec. Use: n/a
Boring Method: Other Method

Well Depth (m): 0
Depth to Bedrock (m): n/a
Depth to Water: ft
Water Kind: FRESH

PUMP TEST

Test Method:
Pump Set (m):
SWL (ft)
Final Level:
Pump Rate:
Recom. Rate:

Pipe ID:
Pump Test ID
Flowing:
Pump Duration (hr):
Pump Duration (m):

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diamter	Diamter Units	Material	Top Depth	Bottom Depth
1	930826289	2	inch	PLASTIC	n/a	n/a ft

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth

End of Record

17

Easting:	642919.90
Northing:	4859547.00
Elev (masl):	255.27

Latitude: 43.865432
Longitude: -79.5147

Well ID: 6928509

CATION

Lot: 023
Con: 03
Municipality: YORK
Township:

Tag: A020810
Audit No: Z19750
Contractor License: 7238
Well Completion Date:

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LOC

Street: 10525 KEELE ST (VAUGHAN TWP)
City: MAPLE

Received Date: 12-05-2004

WELL

Well Status: Observation Wells
Prim. Use: n/a
Sec. Use: n/a
Boring Method: Rotary (Convent.)

Well Depth (m): 11
Depth to Bedrock (m): n/a
Depth to Water: m
Water Kind: FRESH

PUMP TEST

Test Method:
Pump Set (m):
SWL (ft)
Final Level:
Pump Rate:
Recom. Rate:

Pipe ID:
Pump Test ID
Flowing:
Pump Duration (hr):
Pump Duration (m):

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diamter	Diamter Units	Material	Top Depth	Bottom Depth
1	930853943	4	cm	PLASTIC	0	8 m

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	SILT	CLAY	SAND	BROWN	0	6 m
2	SILT	TILL	SAND	BROWN	6	9 m
3	SAND	SILT	WATER-BEARING	GREY	9	11 m

End of Record

17

Easting:	605285.60
Northing:	4871801.00
Elev (masl):	260.30

Latitude: 43.870992
Longitude: -79.517822

Well ID: 6928724

LOCATION

Lot: 025
Con: 04
Municipality: YORK
Township: VAUGHAN TOWN (VAUGHAN TWP)
Street:
City: n/a

Tag: A022555
Audit No: Z22816
Contractor License: 6875
Well Completion Date: 12-20-2004
Received Date: 02-08-2005

WELL

Well Status: Observation Wells
Prim. Use: n/a
Sec. Use: n/a
Boring Method: Rotary (Convent.)

Well Depth (m): 9.1
Depth to Bedrock (m): n/a
Depth to Water: m
Water Kind: FRESH

PUMP TEST

Test Method: CLEAR
Pump Set (m): n/a
SWL (ft) n/a
Final Level: n/a ft
Pump Rate: n/a GPM
Recom. Rate: n/a GPM

Pipe ID: 11342548
Pump Test ID 996928724
Flowing: N
Pump Duration (hr): n/a
Pump Duration (m): n/a

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diamter	Diamter Units	Material	Top Depth	Bottom Depth
1	930872664	3.2	cm	PLASTIC	0	16.7 m

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	SILT	GRAVEL	SAND	BROWN	0	4.6 m
2	TILL	CLAY	GRAVEL	GREY	4.6	9.1 m

End of Record

17

Easting:	627961.80
Northing:	4883964.00
Elev (masl):	260.28

Latitude: 43.87091
Longitude: -79.517787

Well ID: 6928725

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LOCATION

Lot:		**Tag:**	A022554
Con:	04	**Audit No:**	Z16928
Municipality:	YORK	**Contractor License:**	6875
Township:	VAUGHAN TOWN (VAUGHAN TWP)	**Well Completion Date:**	12-17-2004
Street:		**Received Date:**	02-08-2005
City:	n/a		

WELL

Well Status:	Observation Wells	**Well Depth (m):**	18.2
Prim. Use:	n/a	**Depth to Bedrock (m):**	n/a
Sec. Use:	n/a	**Depth to Water:**	m
Boring Method:	Rotary (Convent.)	**Water Kind:**	FRESH

PUMP TEST

Test Method:	CLEAR	**Pipe ID:**	11342549
Pump Set (m):	n/a	**Pump Test ID**	996928725
SWL (ft)	n/a	**Flowing:**	N
Final Level:	n/a ft	**Pump Duration (hr):**	n/a
Pump Rate:	n/a GPM	**Pump Duration (m):**	n/a
Recom. Rate:	n/a GPM		

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diamter	Diamter Units	Material	Top Depth	Bottom Depth
1	930872665	3.2	cm	PLASTIC	0	16.7 m
2	930872666	n/a	cm	<null>	7.6	9.1 m

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	SILT	GRAVEL	SAND	BROWN	0	4.6 m
2	TILL	n/a	n/a	GREY	4.6	15.2 m
3	SAND	SILT	n/a	GREY	15.2	18.2 m

End of Record

17

Easting:	637267.60
Northing:	4909115.00
Elev (masl):	260.27

Latitude: 43.870883
Longitude: -79.517775

Well ID: 6928726

LOCATION

Lot:	025	**Tag:**	A022556
Con:	04	**Audit No:**	Z22815
Municipality:	YORK	**Contractor License:**	6875
Township:	VAUGHAN TOWN (VAUGHAN TWP)	**Well Completion Date:**	01-03-2005
Street:		**Received Date:**	02-08-2005
City:	n/a		

WELL

Well Status:	Dewatering	**Well Depth (m):**	18.2
Prim. Use:	n/a	**Depth to Bedrock (m):**	n/a
Sec. Use:	n/a	**Depth to Water:**	m
Boring Method:	Rotary (Convent.)	**Water Kind:**	FRESH

PUMP TEST

Test Method:	CLEAR	**Pipe ID:**	11342550
Pump Set (m):	17	**Pump Test ID**	11353223
SWL (ft)	7	**Flowing:**	n/a
Final Level:	13.2m	**Pump Duration (hr):**	24
Pump Rate:	3.5 LPM	**Pump Duration (m):**	0
Recom. Rate:	n/a LPM		

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diamter	Diamter Units	Material	Top Depth	Bottom Depth
1	930872667	10	cm	PLASTIC	0	12.2 m

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	SILT	GRAVEL	SAND	BROWN	0	4.6 m
2	TILL	CLAY	n/a	GREY	4.6	15.2 m
3	SAND	SILT	n/a	GREY	15.2	18.2 m

End of Record

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17

Easting:	639965.00
Northing:	4878801.00
Elev (masl):	263.27

Latitude: 43.871523
Longitude: -79.516403

Well ID: 6930162

LOCATION

Lot: 025
Con: 04
Municipality: YORK
Township: VAUGHAN TOWN (VAUGHAN TWP)
Street: KEELE AND TESTON
City: VAUGHAN

Tag: A035733
Audit No: Z39597
Contractor License: 6926
Well Completion Date: 04-04-2006
Received Date: 05-12-2006

WELL

Well Status: Observation Wells
Prim. Use: n/a
Sec. Use: n/a
Boring Method: Rotary (Convent.)

Well Depth (m): 20
Depth to Bedrock (m): n/a
Depth to Water: m
Water Kind: FRESH

PUMP TEST

Test Method:
Pump Set (m):
SWL (ft)
Final Level:
Pump Rate:
Recom. Rate:

Pipe ID:
Pump Test ID
Flowing:
Pump Duration (hr):
Pump Duration (m):

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diamter	Diamter Units	Material	Top Depth	Bottom Depth	
1	930880943	4.83	cm	PLASTIC	0	7	m
2	930880944	4.83	cm	PLASTIC	0	20	m

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth	
1	TOPSOIL	FILL	n/a	BROWN	0	1.5	m
2	SAND	SILT	n/a	GREY	1.5	5.5	m
3	SAND	SILT	n/a	GREY	5.5	8.5	m
4	TILL	SAND	n/a	GREY	8.5	13	m
5	SILT	CLAY	n/a	GREY	13	15.5	m
6	SAND	SAND	n/a	GREY	15.5	20	m

End of Record

17

Easting:	615776.00
Northing:	4869019.00
Elev (masl):	261.49

Latitude: 43.870065
Longitude: -79.516439

Well ID: 6930164

LOCATION

Lot: n/a
Con:
Municipality: YORK
Township: VAUGHAN TOWN (VAUGHAN TWP)
Street: KEELE AND TESTON
City: MAPLE

Tag: A035732
Audit No: Z39596
Contractor License: 6926
Well Completion Date: 04-04-2006
Received Date: 05-12-2006

WELL

Well Status: Observation Wells
Prim. Use: n/a
Sec. Use: n/a
Boring Method: Rotary (Convent.)

Well Depth (m): 20
Depth to Bedrock (m): n/a
Depth to Water: m
Water Kind: FRESH

PUMP TEST

Test Method:
Pump Set (m):
SWL (ft)
Final Level:
Pump Rate:
Recom. Rate:

Pipe ID:
Pump Test ID
Flowing:
Pump Duration (hr):
Pump Duration (m):

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diamter	Diamter Units	Material	Top Depth	Bottom Depth	
1	930880955	4.83	cm	PLASTIC	0	7	m
2	930880956	4.83	cm	PLASTIC	0	20	m

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

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Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	TOPSOIL	FILL	n/a	BROWN	0	1.5 m
2	SAND	SILT	n/a	GREY	1.5	6 m
3	SAND	SILT	n/a	GREY	6	8 m
4	TILL	n/a	n/a	GREY	8	12.5 m
5	SAND	SILT	n/a	GREY	12.5	15 m
6	CLAY	n/a	n/a	GREY	15	20 m

End of Record

17

Easting:	566131.00
Northing:	4818506.00
Elev (masl):	261.49

Latitude: 43.870065
Longitude: -79.516439

Well ID: 7043459

LOCATION

Lot: n/a
Con: n/a
Municipality: YORK
Township: VAUGHAN TOWN (VAUGHAN TWP)
Street:
City: VAUGHAN

Tag: A035732
Audit No: Z70033
Contractor License: 6926
Well Completion Date: 04-30-2007
Received Date: 05-11-2007

WELL

Well Status: Abandoned-Other
Prim. Use: n/a
Sec. Use: n/a
Boring Method: n/a

Well Depth (m): 20
Depth to Bedrock (m): n/a
Depth to Water:
Water Kind:

PUMP TEST

Test Method:
Pump Set (m):
SWL (ft)
Final Level:
Pump Rate:
Recom. Rate:

Pipe ID:
Pump Test ID
Flowing:
Pump Duration (hr):
Pump Duration (m):

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diamter	Diamter Units	Material	Top Depth	Bottom Depth

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	TOPSOIL	FILL	n/a	GREY	0	1.5 m
2	SAND	SILTY	n/a	GREY	1.5	6 m
3	SAND	SILTY	TILL	GREY	6	8 m
4	TILL	n/a	n/a	GREY	8	12.5 m
5	SAND	SILTY	CLAY	GREY	12.5	15 m
6	SAND	CLAYEY	TILL	GREY	15	20 m

End of Record

17

Easting:	566131.00
Northing:	4818506.00
Elev (masl):	263.27

Latitude: 43.871523
Longitude: -79.516403

Well ID: 7043460

LOCATION

Lot: 025
Con: 04
Municipality: YORK
Township: VAUGHAN TOWN (VAUGHAN TWP)
Street:
City: VAUGHAN

Tag: A035733
Audit No: Z70034
Contractor License: 6926
Well Completion Date: 04-30-2007
Received Date: 05-11-2007

WELL

Well Status: Abandoned-Other
Prim. Use: n/a
Sec. Use: n/a
Boring Method: n/a

Well Depth (m): 20
Depth to Bedrock (m): n/a
Depth to Water:
Water Kind:

PUMP TEST

Test Method:
Pump Set (m):
SWL (ft)
Final Level:
Pump Rate:
Recom. Rate:

Pipe ID:
Pump Test ID
Flowing:
Pump Duration (hr):
Pump Duration (m):

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CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diamter	Diamter Units	Material	Top Depth	Bottom Depth

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth	
1	TOPSOIL	FILL	n/a	BROWN	0	1.5	m
2	SAND	SILTY	n/a	GREY	1.5	5.5	m
3	SAND	SILTY	n/a	GREY	5.5	8.5	m
4	TILL	SAND	n/a	GREY	8.5	13	m
5	SAND	SILTY	CLAY	GREY	13	15.5	m
6	TILL	SANDY	CLAY	GREY	15.5	20	m

End of Record

17

Easting:	642109.00
Northing:	4860607.00
Elev (masl):	257.78

Latitude: 43.866018
Longitude: -79.511972

Well ID: 7125802

LOCATION

Lot: n/a
Con: n/a
Municipality: YORK
Township: VAUGHAN TOWN (VAUGHAN TWP)
Street: 10475 KEELE ST.
City: MAPLE

Tag: A083926
Audit No: Z095845
Contractor License: 6032
Well Completion Date: 06-25-2009
Received Date: 07-17-2009

WELL

Well Status: Observation Wells
Prim. Use: n/a
Sec. Use: n/a
Boring Method: Boring

Well Depth (m): 9.144
Depth to Bedrock (m): n/a
Depth to Water: ft
Water Kind:

PUMP TEST

Test Method:
Pump Set (m):
SWL (ft)
Final Level:
Pump Rate:
Recom. Rate:

Pipe ID:
Pump Test ID
Flowing:
Pump Duration (hr):
Pump Duration (m):

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diamter	Diamter Units	Material	Top Depth	Bottom Depth	
1	1002618565	2	inch	PLASTIC	0.5	20	ft

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth	
1	TOPSOIL	SAND	GRAVEL	BROWN	0	10	ft
2	SILT	CLAY	DENSE	GREY	10	23	ft
3	SILT	CLAY	WATER-BEARING	GREY	23	30	ft

End of Record

---

n/a

Easting:	<null>
Northing:	<null>
Elev (masl):	260.95

Latitude: 43.868497
Longitude: -79.514325

Well ID: 7141656

LOCATION

Lot: n/a
Con: n/a
Municipality: YORK
Township: VAUGHAN TOWN (VAUGHAN TWP)
Street: 10525 KEELE ST.
City: Vaughan

Tag: A095333
Audit No: Z110045
Contractor License: 7215
Well Completion Date: 02-10-2010
Received Date: 03-19-2010

WELL

Well Status: Test Hole
Prim. Use: n/a
Sec. Use: n/a
Boring Method: Rotary (Convent.)

Well Depth (m): 6.7056
Depth to Bedrock (m): n/a
Depth to Water: ft
Water Kind:

EST

Test Method:
Pump Set (m):

Pipe ID:
Pump Test ID

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PUMP TI

SWL (ft): **Flowing:**
Final Level: **Pump Duration (hr):**
Pump Rate: **Pump Duration (m):**
Recom. Rate:

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diamter	Diamter Units	Material	Top Depth	Bottom Depth
0	1003142744	n/a	inch	<null>	n/a	n/a ft

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	FILL	n/a	n/a	BROWN	0	4 ft
2	TILL	n/a	SILTY	BROWN	4	12 ft
3	TILL	n/a	DRY	BROWN	12	19 ft
4	SAND	n/a	WATER-BEARING	BROWN	19	22 ft

End of Record

---

n/a

Easting:	<null>
Northing:	<null>
Elev (masl):	262.60

Latitude: 43.867709
Longitude: -79.510511

Well ID: 7237553

LOCATION

Lot: n/a **Tag:** A176579
Con: n/a **Audit No:** Z202049
Municipality: YORK **Contractor License:** 7241
Township: VAUGHAN TOWN (VAUGHAN TWP) **Well Completion Date:** 01-16-2015
Street: 310 RODINEA RD **Received Date:** 02-16-2015
City: Vaughan

WELL

Well Status: Test Hole **Well Depth (m):** 9.144
Prim. Use: n/a **Depth to Bedrock (m):** n/a
Sec. Use: n/a **Depth to Water:** ft
Boring Method: Direct Push **Water Kind:**

PUMP TEST

Test Method: **Pipe ID:**
Pump Set (m): **Pump Test ID**
SWL (ft): **Flowing:**
Final Level: **Pump Duration (hr):**
Pump Rate: **Pump Duration (m):**
Recom. Rate:

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diamter	Diamter Units	Material	Top Depth	Bottom Depth
1	1005529414	2	inch	PLASTIC	0	20 ft

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	GRAVEL	n/a	n/a	GREY	0	0.5 ft
2	SAND	SILT	n/a	BROWN	0.5	20 ft
3	SAND	SILT	n/a	GREY	20	30 ft

End of Record

---

n/a

Easting:	<null>
Northing:	<null>
Elev (masl):	262.13

Latitude: 43.867823
Longitude: -79.510944

Well ID: 7237554

LOCATION

Lot: n/a **Tag:** A176622
Con: n/a **Audit No:** Z202047
Municipality: YORK **Contractor License:** 7241
Township: VAUGHAN TOWN (VAUGHAN TWP) **Well Completion Date:** 01-16-2015
Street: 310 RODINEA RD **Received Date:** 02-16-2015
City: Vaughan

VELL

Well Status: Test Hole **Well Depth (m):** 9.144
Prim. Use: n/a **Depth to Bedrock (m):** n/a
Sec. Use: **Depth to Water:** ft

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Boring Method: Direct Push

Water Kind:

PUMP TEST

Test Method:
Pump Set (m):
SWL (ft)
Final Level:
Pump Rate:
Recom. Rate:

Pipe ID:
Pump Test ID
Flowing:
Pump Duration (hr):
Pump Duration (m):

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diamter	Diamter Units	Material	Top Depth	Bottom Depth	
1	1005529661	2	inch	PLASTIC	0	20	ft

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth	
1	SAND	SILT	n/a	BROWN	0	20	ft
2	SAND	SILT	n/a	GREY	20	30	ft

End of Record

---

n/a

Easting:	<null>
Northing:	<null>
Elev (masl):	260.90

Latitude: 43.867496
Longitude: -79.511375

Well ID: 7237555

LOCATION

Lot: n/a
Con: n/a
Municipality: YORK
Township: VAUGHAN TOWN (VAUGHAN TWP)
Street: 310 RODINEA RD
City: Vaughan

Tag: A176623
Audit No: Z202048
Contractor License: 7241
Well Completion Date: 01-16-2015
Received Date: 02-16-2015

WELL

Well Status: Test Hole
Prim. Use: n/a
Sec. Use: n/a
Boring Method: Direct Push

Well Depth (m): 9.144
Depth to Bedrock (m): n/a
Depth to Water: ft
Water Kind:

PUMP TEST

Test Method:
Pump Set (m):
SWL (ft)
Final Level:
Pump Rate:
Recom. Rate:

Pipe ID:
Pump Test ID
Flowing:
Pump Duration (hr):
Pump Duration (m):

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diamter	Diamter Units	Material	Top Depth	Bottom Depth	
1	1005529681	2	inch	PLASTIC	0	20	ft

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth	
1	SAND	SILT	n/a	BROWN	0	20	ft
2	SAND	SILT	n/a	GREY	20	30	ft

End of Record

---

n/a

Easting:	<null>
Northing:	<null>
Elev (masl):	275.37

Latitude: 43.872197
Longitude: -79.511507

Well ID: 7264566

LOCATION

Lot: n/a
Con: n/a
Municipality: YORK
Township: VAUGHAN TOWN (VAUGHAN TWP)
Street: 61 MALMO COURT
City: MAPLE

Tag: A203589
Audit No: Z231994
Contractor License: 7383
Well Completion Date: 05-24-2016
Received Date: 06-13-2016

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WELL

Well Status: Monitoring and Test Hole
Prim. Use: n/a
Sec. Use: n/a
Boring Method: Boring

Well Depth (m): 0
Depth to Bedrock (m): n/a
Depth to Water: ft
Water Kind:

PUMP TEST

Test Method:
Pump Set (m):
SWL (ft)
Final Level:
Pump Rate:
Recom. Rate:

Pipe ID:
Pump Test ID
Flowing:
Pump Duration (hr):
Pump Duration (m):

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diamter	Diamter Units	Material	Top Depth	Bottom Depth
1	1006098461	2	inch	PLASTIC	0	60 ft

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth

End of Record

---

n/a

Easting:	<null>
Northing:	<null>
Elev (masl):	274.82

Latitude: 43.871804
Longitude: -79.511754

Well ID: 7264567

LOCATION

Lot: n/a
Con: n/a
Municipality: YORK
Township: VAUGHAN TOWN (VAUGHAN TWP)
Street: 61 MALMO COURT
City: MAPLE

Tag: A203588
Audit No: Z231995
Contractor License: 7383
Well Completion Date: 05-25-2016
Received Date: 06-13-2016

WELL

Well Status: <null>
Prim. Use: n/a
Sec. Use: n/a
Boring Method: n/a

Well Depth (m): 0
Depth to Bedrock (m): n/a
Depth to Water: ft
Water Kind:

PUMP TEST

Test Method:
Pump Set (m):
SWL (ft)
Final Level:
Pump Rate:
Recom. Rate:

Pipe ID:
Pump Test ID
Flowing:
Pump Duration (hr):
Pump Duration (m):

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diamter	Diamter Units	Material	Top Depth	Bottom Depth
1	1006098473	2	inch	PLASTIC	0	60 ft

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth

End of Record

---

n/a

Easting:	<null>
Northing:	<null>
Elev (masl):	275.11

Latitude: 43.871725
Longitude: -79.511208

Well ID: 7264573

CATION

Lot: 025
Con: 03
Municipality: YORK
Township:

Tag: A203590
Audit No: Z231920
Contractor License: 7383
Well Completion Date:

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LOC

Street: 61 MAMLO COURT (VAUGHAN TWP)
City: MAPLE
Received Date: 06-20-2016

WELL

Well Status: Test Hole
Prim. Use: n/a
Sec. Use: n/a
Boring Method: Boring
Well Depth (m): 0
Depth to Bedrock (m): n/a
Depth to Water: ft
Water Kind:

PUMP TEST

Test Method:
Pump Set (m):
SWL (ft)
Final Level:
Pump Rate:
Recom. Rate:
Pipe ID:
Pump Test ID
Flowing:
Pump Duration (hr):
Pump Duration (m):

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diamter	Diamter Units	Material	Top Depth	Bottom Depth
1	1006098736	2	inch	PLASTIC	0	60 ft

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth

End of Record

---

n/a

Easting:	<null>
Northing:	<null>
Elev (masl):	275.41

Latitude: 43.872179
Longitude: -79.511495

Well ID: 7264574

LOCATION

Lot: n/a
Con: n/a
Municipality: YORK
Township: VAUGHAN TOWN (VAUGHAN TWP)
Street: 61 MAMLO COURT
City: MAPLE
Tag: A203593
Audit No: Z231932
Contractor License: 7383
Well Completion Date: 05-17-2016
Received Date: 06-13-2016

WELL

Well Status: Test Hole
Prim. Use: n/a
Sec. Use: n/a
Boring Method: Boring
Well Depth (m): 0
Depth to Bedrock (m): n/a
Depth to Water: ft
Water Kind:

PUMP TEST

Test Method:
Pump Set (m):
SWL (ft)
Final Level:
Pump Rate:
Recom. Rate:
Pipe ID:
Pump Test ID
Flowing:
Pump Duration (hr):
Pump Duration (m):

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diamter	Diamter Units	Material	Top Depth	Bottom Depth
1	1006098748	2	inch	PLASTIC	0	20 ft

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth

End of Record

---

n/a

Easting:	<null>
Northing:	<null>
Elev (masl):	275.17

Latitude: 43.871716
Longitude: -79.511183

Well ID: 7264575

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LOCATION

Lot:		**Tag:**	A203594
Con:	03	**Audit No:**	Z231933
Municipality:	YORK	**Contractor License:**	7383
Township:	VAUGHAN TOWN (VAUGHAN TWP)	**Well Completion Date:**	05-17-2016
Street:	61 MALMO COURT	**Received Date:**	06-13-2016
City:	MAPLE		

WELL

Well Status:	Test Hole	**Well Depth (m):**	0
Prim. Use:	n/a	**Depth to Bedrock (m):**	n/a
Sec. Use:	n/a	**Depth to Water:**	ft
Boring Method:	Boring	**Water Kind:**	

PUMP TEST

Test Method:		**Pipe ID:**	
Pump Set (m):		**Pump Test ID**	
SWL (ft)		**Flowing:**	
Final Level:		**Pump Duration (hr):**	
Pump Rate:		**Pump Duration (m):**	
Recom. Rate:			

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diamter	Diamter Units	Material	Top Depth	Bottom Depth
1	1006098759	2	inch	PLASTIC	0	20 ft

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	SAND	n/a	n/a	n/a	0	n/a ft

End of Record

---

n/a

Easting:	<null>
Northing:	<null>
Elev (masl):	274.77

Latitude: 43.871786
Longitude: -79.511754

Well ID: 7264576

LOCATION

Lot:	n/a	**Tag:**	A203595
Con:	n/a	**Audit No:**	Z231934
Municipality:	YORK	**Contractor License:**	7383
Township:	VAUGHAN TOWN (VAUGHAN TWP)	**Well Completion Date:**	05-17-2016
Street:	61 MALMO COURT	**Received Date:**	06-13-2016
City:	MAPLE		

WELL

Well Status:	Test Hole	**Well Depth (m):**	0
Prim. Use:	n/a	**Depth to Bedrock (m):**	n/a
Sec. Use:	n/a	**Depth to Water:**	ft
Boring Method:	Boring	**Water Kind:**	

PUMP TEST

Test Method:		**Pipe ID:**	
Pump Set (m):		**Pump Test ID**	
SWL (ft)		**Flowing:**	
Final Level:		**Pump Duration (hr):**	
Pump Rate:		**Pump Duration (m):**	
Recom. Rate:			

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diamter	Diamter Units	Material	Top Depth	Bottom Depth
1	1006098770	2	inch	PLASTIC	0	20 ft

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth

End of Record

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n/a		
	Easting:	<null>
	Northing:	<null>
	Elev (masl):	262.79

Latitude: 43.867909
Longitude: -79.510618

Well ID: 7281024

LOCATION

Lot:	023	**Tag:**	A176623
Con:	03	**Audit No:**	C28777
Municipality:	YORK	**Contractor License:**	7147
Township:	VAUGHAN TOWN (VAUGHAN TWP)	**Well Completion Date:**	
Street:		**Received Date:**	06-05-2016
City:	n/a		

WELL

Well Status:	<null>	**Well Depth (m):**	0
Prim. Use:	n/a	**Depth to Bedrock (m):**	n/a
Sec. Use:	n/a	**Depth to Water:**	
Boring Method:		**Water Kind:**	

PUMP TEST

Test Method:		**Pipe ID:**	
Pump Set (m):		**Pump Test ID**	
SWL (ft)		**Flowing:**	
Final Level:		**Pump Duration (hr):**	
Pump Rate:		**Pump Duration (m):**	
Recom. Rate:			

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diamter	Diamter Units	Material	Top Depth	Bottom Depth

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth

End of Record

---

n/a		
	Easting:	<null>
	Northing:	<null>
	Elev (masl):	

Latitude: 43.872742
Longitude: -79.514593

Well ID: 7329869

LOCATION

Lot:	025	**Tag:**	A265652
Con:	03	**Audit No:**	Z308138
Municipality:	YORK	**Contractor License:**	7241
Township:	VAUGHAN TOWN (VAUGHAN TWP)	**Well Completion Date:**	03-04-2019
Street:	2175 Teston Road	**Received Date:**	03-15-2019
City:	Vaughan		

WELL

Well Status:	Monitoring and Test Hole	**Well Depth (m):**	10.668
Prim. Use:	n/a	**Depth to Bedrock (m):**	n/a
Sec. Use:	n/a	**Depth to Water:**	
Boring Method:	Other Method	**Water Kind:**	

PUMP TEST

Test Method:	n/a	**Pipe ID:**	1007798778
Pump Set (m):	n/a	**Pump Test ID**	1007804516
SWL (ft)	n/a	**Flowing:**	n/a
Final Level:	n/a ft	**Pump Duration (hr):**	n/a
Pump Rate:	n/a GPM	**Pump Duration (m):**	n/a
Recom. Rate:	n/a GPM		

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diamter	Diamter Units	Material	Top Depth	Bottom Depth
1	1007803236	2	Inch	PLASTIC	0	25 ft

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	OTHER	n/a	n/a	BLACK	0	0.417 ft
2	SAND	n/a	n/a	BROWN	0.417	18 ft
3	SAND	n/a	n/a	BROWN	18	26 ft

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4	SAND	SILT	n/a	GREY	26	35	ft

End of Record

n/a

Easting:	<null>
Northing:	<null>
Elev (masl):	

Latitude: 43.871055
Longitude: -79.518493

Well ID: 7333536

LOCATION

Lot: 025
Con: 04
Municipality: YORK
Township: VAUGHAN TOWN (VAUGHAN TWP)
Street:
City: n/a

Tag: A269762
Audit No: C42923
Contractor License: 7147
Well Completion Date:
Received Date: 05-22-2019

WELL

Well Status: <null>
Prim. Use: n/a
Sec. Use: n/a
Boring Method:

Well Depth (m): 0
Depth to Bedrock (m): n/a
Depth to Water:
Water Kind:

PUMP TEST

Test Method:
Pump Set (m):
SWL (ft)
Final Level:
Pump Rate:
Recom. Rate:

Pipe ID:
Pump Test ID
Flowing:
Pump Duration (hr):
Pump Duration (m):

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diamter	Diamter Units	Material	Top Depth	Bottom Depth

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth

End of Record

n/a

Easting:	<null>
Northing:	<null>
Elev (masl):	

Latitude: 43.86886
Longitude: -79.513146

Well ID: 7339793

LOCATION

Lot: 024
Con: 03
Municipality: YORK
Township: VAUGHAN TOWN (VAUGHAN TWP)
Street:
City: n/a

Tag: A241893
Audit No: C40725
Contractor License: 6988
Well Completion Date: 05-14-2018
Received Date: 08-15-2019

WELL

Well Status: <null>
Prim. Use: n/a
Sec. Use: n/a
Boring Method:

Well Depth (m): 0
Depth to Bedrock (m): n/a
Depth to Water:
Water Kind:

PUMP TEST

Test Method:
Pump Set (m):
SWL (ft)
Final Level:
Pump Rate:
Recom. Rate:

Pipe ID:
Pump Test ID
Flowing:
Pump Duration (hr):
Pump Duration (m):

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diamter	Diamter Units	Material	Top Depth	Bottom Depth

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth

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n/a		
	Easting:	<null>
	Northing:	<null>
	Elev (masl):	

Latitude: 43.872751
Longitude: -79.514593

Well ID: 7341292

LOCATION

Lot:	n/a	**Tag:**	A265641
Con:	n/a	**Audit No:**	Z310369
Municipality:	YORK	**Contractor License:**	7241
Township:	VAUGHAN TOWN (VAUGHAN TWP)	**Well Completion Date:**	03-25-2019
Street:	2175 Teston Road	**Received Date:**	05-28-2019
City:	Vaughan		

WELL

Well Status:	Monitoring and Test Hole	**Well Depth (m):**	14.478
Prim. Use:	n/a	**Depth to Bedrock (m):**	n/a
Sec. Use:	n/a	**Depth to Water:**	
Boring Method:	Direct Push	**Water Kind:**	

PUMP TEST

Test Method:	n/a	**Pipe ID:**	1007888446
Pump Set (m):	n/a	**Pump Test ID**	1007893863
SWL (ft)	n/a	**Flowing:**	n/a
Final Level:	n/a ft	**Pump Duration (hr):**	n/a
Pump Rate:	n/a GPM	**Pump Duration (m):**	n/a
Recom. Rate:	n/a GPM		

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diamter	Diamter Units	Material	Top Depth	Bottom Depth	
1	1007892858	2	Inch	PLASTIC	0	37.5	ft

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth	
1	OTHER	n/a	n/a	BLACK	0	0.5	ft
2	SAND	n/a	n/a	BROWN	0.5	47.5	ft

End of Record

Contains information licensed under the Open Government Licence – Ontario (2021).

UTM 17 Z 619367 E
19 R 4857878 N
Elev. 19 R 0845
Basin 24

30 11 13a

ONTARIO

RECEIVED
SEP - 3 1954
GEOLOGICAL BRANCH
DEPARTMENT OF MINES

69 No 6474

23

The Well Drillers Act
Department of Mines, Province of Ontario

Water Well Record

County or Territorial District... York ... Township, ~~Village,~~ (Town) ~~or City~~: Vaughan
Con. Rear 3 ..Lot.. 23 ....Street and Number (if in Village, Town or City).... Maple
Owner... [redacted] ....Address... Maple R.R. 2
Date Completed... 9th (day) Aug. (month) 54 (year) ...Cost of Well (excluding pump)

Pipe and Casing Record

Casing diameter(s)... 2"
Length(s) of casing(s)... 48'
Type of screen... 8.0 ... Clayton ... gauge...
Length of screen... 5'
Distance from top of screen to ground level.. 47'
Is well a gravel-wall type?... No

Pumping Test

Date... Aug 10th
Static level... 20'
Pumping level... —
Pumping rate... 3 gall. min
Duration of test... 7... hrs
Distance from cylinder or bowls to ground level... 46'

Water Record

Kind (fresh or mineral)... Fresh
Quality (hard, soft, contains iron, sulphur, etc.).. Soft
Appearance (clear, cloudy, coloured)... Clear
For what purpose(s) is the water to be used?.. Domestic
How far is well from possible source of contamination?
What is the source of contamination?
Enclose a copy of any mineral analysis that has been made of water

Depth(s) to Water Horizon(s)	Kind of Water	No. of Feet Water Rises
45	Fresh	25'

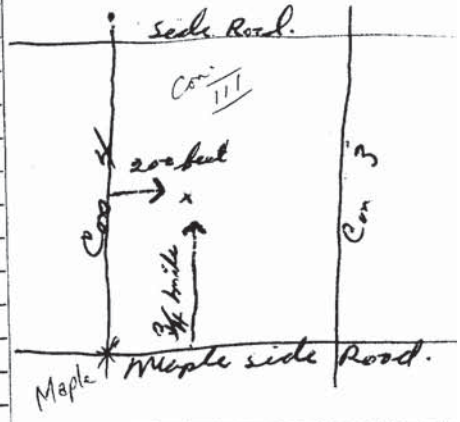
Well Log

Overburden and Bedrock Record	From	To
Yellow clay and stone	0 ft.	45ft.
Yellow sand	45	52

Location of Well

North.

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



Situation: Is well on upland, in valley, or on hillside?.. upland
Drilling Firm.. Local ... Constable
Address.... Woodbridge R.R. 2
Name of Driller Geo. Adams
Address.. Woodbridge R.R. 2
Date... Aug 10th ... 1954 ...Licence Number.. 641
Geo. Adams
Signature of Licensee

FORM 5

UTM 17 Z 619378 E 30 M 13a
19 R 4857635 N

Elev. 19 R 08310

Basin 124

ONTARIO

The Water-well Drillers Act, 1954
Department of Mines

RECEIVED 69 No. 6475
GEOLOGICAL BRANCH
DEPARTMENT of MINES

Water-Well Record

County or Territorial District YORK Township, ~~Village, Town or City~~ VAUGHAN

[redacted] Village, Town or City)

[redacted] ddress MAPLE

[redacted] (day) (month) (year)

Pipe and Casing Record

Casing diameter(s) 4 inch
Length(s) 83 ft
Type of screen 6 STRAINER
Length of screen 5 ft

Pumping Test

Static level 14 ft
Pumping rate 600 PER HR.
Pumping level 18 FT.
Duration of test 7 HRS

Well Log

Overburden and Bedrock Record	From ft.	To ft.
TOP SOIL	0	1
FINE SAND	1	11
BLUE CLAY AND GRAVEL	11	81
COURSE SAND	81	87

Water Record

Depth(s) at which water(s) found	No. of feet water rises	Kind of water (fresh, salty, or sulphur)
87	73 ft	FRESH

For what purpose(s) is the water to be used?
DOMESTIC
Is water clear or cloudy? CLEAR
Is well on upland, in valley, or on hillside?
UPLAND
Drilling firm F. CONSTABLE
Address WOODBRIDGE
RR. 1
Name of Driller D. CLUBINE
Address KING CITY

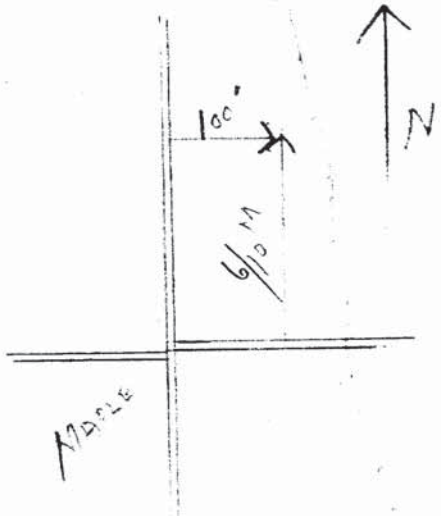
Licence Number 287

I certify that the foregoing statements of fact are true.

Date Sept 20 H. C Clubine
Signature of Licensee

Location of Well

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



Form 5

CSS.58

UTM 17 Z 619444 E
9 R 4857917 N

Elev. 9 R 0850

Basin 12 A

30113a

ONTARIO

69 No. 6476

The Water-well Drillers Act, 1954
Department of Mines

Water-Well Record

County or Territorial District YORK Township, Village, Town or City NAUGHAN

[redacted] Village, Town or City) MAPLE

[redacted] ddress MAPLE

Date completed ..... (day) ..... (month) ..... (year)

Pipe and Casing Record STANDARD PRESTRESSED STRUCTURES LTD. **Pumping Test**

Casing diameter(s) 4"
Length(s) 106
Type of screen 4"
Length of screen 7 foot

Static level 10 FEET
Pumping rate 8 g.p.m
Pumping level 100
Duration of test 6 HRS

Well Log **Water Record**

Overburden and Bedrock Record	From ft.	To ft.	Depth(s) at which water(s) found	No. of feet water rises	Kind of water (fresh, salty, or sulphur)
HARD CLAY	0	70			
COBBLE WATER SAND	70	106	70	60	FRESH

For what purpose(s) is the water to be used?
FACTORY
Is water clear or cloudy? CLEAR
Is well on upland, in valley, or on hillside? VALLEY

Drilling firm J. Cerutti
Address RR#2 Kleinburg

Name of Driller .....
Address Same

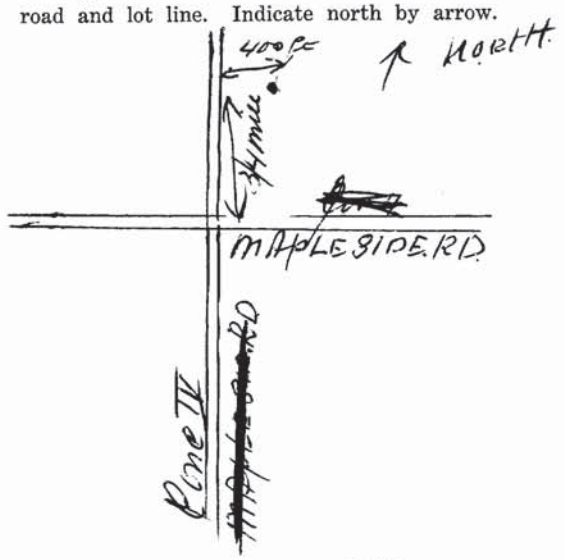
Licence Number 1146

I certify that the foregoing statements of fact are true.

Date Oct 8-57 J. Cerutti
Signature of Licensee

Location of Well

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



Form 5

CSS.58

UTM 17 Z 619497 E
5 R 4858131 N
Elev. 1A R 10858
Basin 2A24

30N13a

The Ontario Water Resources Commission Act, 1957

GROUND WATER BRANCH
69 No. 6480
JUL 29 1959
ONTARIO WATER RESOURCES COMMISSION

WATER WELL RECORD

County or District YORK
Township, Village, Town or City VAUGHAN
[redacted]
Date completed 2 (day) JULY (month) 1959 (year)
Address MAPLE.

Casing and Screen Record

Inside diameter of casing 4"
Total length of casing 102'
Type of screen 2 - 4" SLOT COOK
Length of screen 6'
Depth to top of screen 102'
Diameter of finished hole 4"

Pumping Test

Static level 20'
Test-pumping rate 22 G.P.M.
Pumping level 40'
Duration of test pumping 3 HRS
Water clear or cloudy at end of test CLEAR
Recommended pumping rate 4 G.P.M.
with pumping level of 22'

Well Log

Overburden and Bedrock Record	From ft.	To ft.	Depth(s) at which water(s) found	No. of feet water rises	Kind of water (fresh, salty, sulphur)
TOP SOIL	0	2			
HARD BLUE CLAY	2	100			
COARSE SAND	100	108	100'	80	FRESH

Water Record

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

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

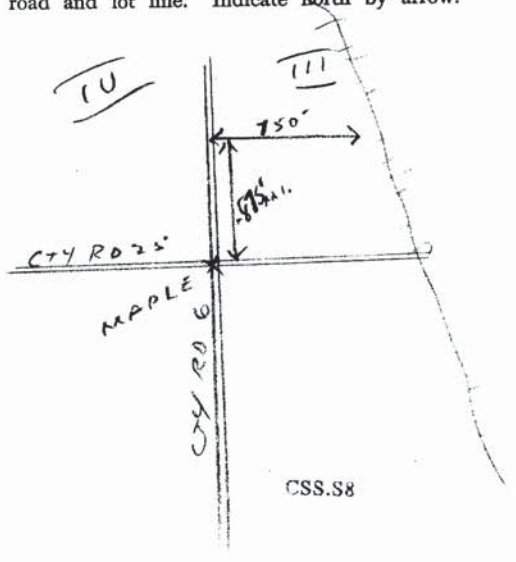
Drilling Firm KING CITY WELL DRILLING CO LTD
Address KING CITY

Licence Number 203
Name of Driller WM. BISHOP
Address CORNLEY
Date JULY 15/59

(Signature of Licensed Drilling Contractor)

Location of Well

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



CSS.S8

Form 5
15M-58-4149

UTM 17 | 619105 E
5 | 4858982 N

Elev. A | 0840

Basin 2A | York

County or District

Con. 4 Lot 24

[redacted]

The Ontario Water Resources Commission Act

WATER WELL RECORD

30M13a

WATER RESOURCES DIVISION No. 6596
APR 21 1966
ONTARIO WATER RESOURCES COMMISSION

Township, Village, Town or City VAUGHAN

Date completed 19 (day) NOV (month) 65 (year)

Address MAPLE ONT.

Casing and Screen Record

Inside diameter of casing 4"

Total length of casing 278 ~~286~~

Type of screen ~~GRAVEL~~ JOHNSON 20 SLOT ~~PACK~~

Length of screen 8'

Depth to top of screen 278'

Diameter of finished hole 4"

Pumping Test

Static level 28'

Test-pumping rate 8 G.P.M.

Pumping level 240

Duration of test pumping 1 week.

Water clear or cloudy at end of test CLEAR

Recommended pumping rate 8 G.P.M.

with pump setting of 240 feet below ground surface

Well Log

Overburden and Bedrock Record	From ft.	To ft.	Water Record: Depth(s) at which water(s) found	Water Record: Kind of water (fresh, salty, sulphur)
BROWN CLAY + SAND	0	60	~~286~~	FRESH
HARD PAN. SAND + GRAVEL	60	~~286~~ 286	286	

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

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

Drilling or Boring Firm J. CONSTABLE

Address R.R.2 WoodBridge

Licence Number

Name of Driller or Borer R. Challoner

Address H5 Johnson Cres Thornhill

Date 19 Nov 65

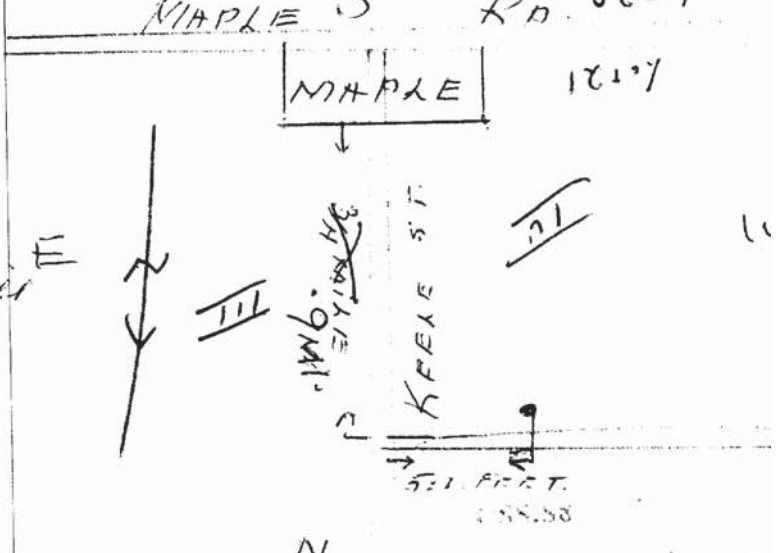
R. Challoner
(Signature of Licensed Drilling or Boring Contractor)

Form 7 15M-60-4138 for J. Constable.

OWRC COPY

Location of Well

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



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

11 — 6919978 — MUNICIP 6908 — CON.

COUNTY OR DISTRICT	TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE	CON. BLOCK, TRACT, SURVEY, ETC.	LOT
York	Vaughan	111	24

OWNER (SURNAME FIRST)	ADDRESS	DATE COMPLETED
Metro Toronto	Phoenix House Toronto	DAY 3 MO 1 YR 84

21 — UTM — ZONE — EASTING — NORTHING — RC — ELEVATION — RC — BASIN CODE — Page #3/3

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET FROM	DEPTH - FEET TO

31 —

32 — 1/84

41 WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER
	1 ☐ FRESH 3 ☐ SULPHUR 2 ☐ SALTY 4 ☐ MINERAL

51 CASING & OPEN HOLE RECORD

INSIDE DIAM INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET FROM	DEPTH - FEET TO
10	1 ☑ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE	.375	0	30
2	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE	Sch 80	0	175
	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE			

SCREEN

SIZE(S) OF OPENING (SLOT NO.)	DIAMETER	LENGTH
10 slot	2 INCHES	20 FEET

MATERIAL AND TYPE	DEPTH TO TOP OF SCREEN
PVC.	175 FEET

61 PLUGGING & SEALING RECORD

DEPTH SET AT - FEET FROM	DEPTH SET AT - FEET TO	MATERIAL AND TYPE (CEMENT GROUT, LEAD PACKER, ETC.)

PUMPING TEST

PUMPING TEST METHOD	PUMPING RATE	DURATION OF PUMPING
1 ☐ PUMP 2 ☐ BAILER	GPM	HOURS MINS

STATIC LEVEL	WATER LEVEL END OF PUMPING	WATER LEVELS DURING 1 ☐ PUMPING 2 ☐ RECOVERY			
		15 MINUTES	30 MINUTES	45 MINUTES	60 MINUTES
54 FEET	FEET	FEET	FEET	FEET	FEET

IF FLOWING, GIVE RATE	PUMP INTAKE SET AT	WATER AT END OF TEST
GPM	FEET	1 ☐ CLEAR 2 ☐ CLOUDY

RECOMMENDED PUMP TYPE	RECOMMENDED PUMP SETTING	RECOMMENDED PUMPING RATE
☐ SHALLOW ☐ DEEP	FEET	GPM

4305 LOCATION OF WELL

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

Screen #3

DRILLERS REMARKS

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
WATER USE	1 ☐ DOMESTIC 2 ☐ STOCK 3 ☐ IRRIGATION 4 ☐ INDUSTRIAL ☐ OTHER 5 ☐ COMMERCIAL 6 ☐ MUNICIPAL 7 ☐ PUBLIC SUPPLY 8 ☐ COOLING OR AIR CONDITIONING 9 ☐ NOT USED
METHOD OF DRILLING	1 ☐ CABLE TOOL 2 ☐ ROTARY (CONVENTIONAL) 3 ☐ ROTARY (REVERSE) 4 ☐ ROTARY (AIR) 5 ☐ AIR PERCUSSION 6 ☐ BORING 7 ☐ DIAMOND 8 ☐ JETTING 9 ☐ DRIVING

CONTRACTOR

NAME OF WELL CONTRACTOR	LICENCE NUMBER
OLYMPIC DRILLING CO. LTD.	4006

ADDRESS
Box 9180 OTTAWA, Ont. K1G3T9

NAME OF DRILLER OR BORER	LICENCE NUMBER
Jerry Renwick	

SIGNATURE OF CONTRACTOR	SUBMISSION DATE
G. D Renwick (Sec.)	DAY 10 MO. 09 YR. 84

OFFICE USE ONLY

DATA SOURCE	CONTRACTOR	DATE RECEIVED
	4006	NOV 28 1988

DATE OF INSPECTION	INSPECTOR

REMARKS

MINISTRY OF THE ENVIRONMENT COPY

FORM NO. 0506—4—77 FORM 7

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

11 6919979 MUNICIP. 69008 CON.

COUNTY OR DISTRICT: York
TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE: Vaughan
CON., BLOCK, TRACT, SURVEY, ETC.: 11
LOT: 24
[redacted]
Phoenix House Toronto
DATE COMPLETED: DAY 3 MO 1 YR 84
THING | RC | ELEVATION | RC | BASIN CODE | II | III | IV

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

Page #2/3

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET FROM	DEPTH - FEET TO

31
32
1984

41 WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER
10-13	1 ☐ FRESH 3 ☐ SULPHUR 2 ☐ SALTY 4 ☐ MINERAL
15-18	1 ☐ FRESH 3 ☐ SULPHUR 2 ☐ SALTY 4 ☐ MINERAL
20-23	1 ☐ FRESH 3 ☐ SULPHUR 2 ☐ SALTY 4 ☐ MINERAL
25-28	1 ☐ FRESH 3 ☐ SULPHUR 2 ☐ SALTY 4 ☐ MINERAL
30-33	1 ☐ FRESH 3 ☐ SULPHUR 2 ☐ SALTY 4 ☐ MINERAL

51 CASING & OPEN HOLE RECORD

INSIDE DIAM INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET FROM	DEPTH - FEET TO
10-11	1 ☒ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE	.375	0	30
17-18	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE	Sch 80	0	128
24-25	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE			

10" 13-16 | 20-23 | 27-30

SCREEN

SIZE (S) OF OPENING (SLOT NO.): 10 slot
DIAMETER: 2 INCHES
LENGTH: 24 FEET
MATERIAL AND TYPE: P.V.C.
DEPTH TO TOP OF SCREEN: 128 FEET

61 PLUGGING & SEALING RECORD

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

71 PUMPING TEST

PUMPING TEST METHOD: 1 ☐ PUMP 2 ☐ BAILER
PUMPING RATE: GPM
DURATION OF PUMPING: HOURS MINS

STATIC LEVEL	WATER LEVEL END OF PUMPING	WATER LEVELS DURING (1 ☐ PUMPING 2 ☐ RECOVERY) 15 MINUTES	30 MINUTES	45 MINUTES	60 MINUTES
58.6 FEET	FEET	FEET	FEET	FEET	FEET

IF FLOWING, GIVE RATE: GPM
PUMP INTAKE SET AT: FEET
WATER AT END OF TEST: 1 ☐ CLEAR 2 ☐ CLOUDY
RECOMMENDED PUMP TYPE: ☐ SHALLOW ☐ DEEP
RECOMMENDED PUMP SETTING: FEET
RECOMMENDED PUMPING RATE: GPM

4304 LOCATION OF WELL

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

Screen #2

DRILLERS REMARKS

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

WATER USE

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

METHOD OF DRILLING

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

CONTRACTOR

NAME OF WELL CONTRACTOR: OLYMPIC DRILLING CO.LTD.
LICENCE NUMBER: 4006
ADDRESS: Box 9180 OTTAWA, Ont. K1G3T9
NAME OF DRILLER OR BORER: Jerry Renwick
LICENCE NUMBER:
SIGNATURE OF CONTRACTOR: D. D. Renwick (SEC)
SUBMISSION DATE: DAY 10 MO 09 YR 84

OFFICE USE ONLY

DATA SOURCE:
CONTRACTOR: 4006
DATE RECEIVED: NOV 28 1988
DATE OF INSPECTION:
INSPECTOR:
REMARKS:

MINISTRY OF THE ENVIRONMENT COPY

FORM NO. 0506—4—77 FORM 7

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

11 — 6919980 — MUNICIP 69,08 — CON.

COUNTY OR DISTRICT	TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE	CON. BLOCK, TRACT, SURVEY, ETC.	LOT
York	Vaughan	(II	24

OWNER (SURNAME FIRST)	ADDRESS	DATE COMPLETED
Metro Toronto	Phoenix House Toronto	DAY 3 MO 1 YR 84

21 — UTM — ZONE — EASTING — NORTHING — RC — ELEVATION — RC — BASIN CODE

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS) 1/84

Page #1/3

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET FROM	DEPTH - FEET TO
brown	Sand vf	some silt & sand f		0	50
brown.	Sand f	some sand vf minor clay silt		50	70
brown	Sand vf	silty some sand f		70	80
grey	Silt	some sand vf, minor clay		80	100
grey.	Sand vf	silty some sand f-m minor clay		100	132
grey.	Sand m	some sand f-c		132	139
	Sand f	~~some~~ some sand vf minor silt		139	175
	Sand vf	minor sand f str. silty clay.		175	190
Grey	Sand f	some sand vf str sand vf silty + silt clayey		190	205
	Silt	clayey minor sand vf (layers)		205	240

31 — 55 - 24' = 31'
32 — 175 - 80' = 95'

41 WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER
10-13	1 ☐ FRESH 3 ☐ SULPHUR 2 ☐ SALTY 4 ☐ MINERAL
15-18	1 ☐ FRESH 3 ☐ SULPHUR 2 ☐ SALTY 4 ☐ MINERAL
20-23	1 ☐ FRESH 3 ☐ SULPHUR 2 ☐ SALTY 4 ☐ MINERAL
25-28	1 ☐ FRESH 3 ☐ SULPHUR 2 ☐ SALTY 4 ☐ MINERAL
30-33	1 ☐ FRESH 3 ☐ SULPHUR 2 ☐ SALTY 4 ☐ MINERAL

51 CASING & OPEN HOLE RECORD

INSIDE DIAM. INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET FROM	DEPTH - FEET TO
10-11	1 ☑ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE			13-16
10"	1	.375	0	30
17-18	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE		0	55 20-23
2"	PVC	Sch 80	0	128
			0	175
24-25	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE			27-30

SCREEN

SIZE-S OF OPENING (SLOT NO.)	DIAMETER	LENGTH
10 slot	2 INCHES	24 FEET

MATERIAL AND TYPE: PVC.
DEPTH TO TOP OF SCREEN: 55 FEET

61 PLUGGING & SEALING RECORD

DEPTH SET AT - FEET FROM	TO	MATERIAL AND TYPE (CEMENT GROUT, LEAD, PACKER, ETC.)
215	207	Cement seal
166	160	
122	115	
100	85	

71 PUMPING TEST

PUMPING TEST METHOD	PUMPING RATE	DURATION OF PUMPING
1 ☐ PUMP 2 ☐ BAILER	GPM	HOURS MINS

STATIC LEVEL	WATER LEVEL END OF PUMPING	WATER LEVELS DURING (1 ☐ PUMPING 2 ☐ RECOVERY)	15 MINUTES	30 MINUTES	45 MINUTES	60 MINUTES
58 FEET	FEET		FEET	FEET	FEET	FEET

IF FLOWING GIVE RATE	PUMP INTAKE SET AT	WATER AT END OF TEST
GPM	FEET	1 ☐ CLEAR 2 ☐ CLOUDY

RECOMMENDED PUMP TYPE	RECOMMENDED PUMP SETTING	RECOMMENDED PUMPING RATE
☐ SHALLOW ☐ DEEP	FEET	GPM

LOCATION OF WELL

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

Reference I.N.C. Dwg #84055

Screen #1

DRILLERS REMARKS

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

WATER USE

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

land fill monitoring

METHOD OF DRILLING

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

CONTRACTOR

NAME OF WELL CONTRACTOR	LICENCE NUMBER
OLYMOIC DRILLING CO. LTD.	4006

ADDRESS: Box 9180 OTTAWA, Ont. K1G3T9

NAME OF DRILLER OR BORER: Jerry Renwick — LICENCE NUMBER

SIGNATURE OF CONTRACTOR: D.D. Renwick (Sec.) — SUBMISSION DATE: DAY 10 MO 09 YR 84

OFFICE USE ONLY

DATA SOURCE	CONTRACTOR	DATE RECEIVED
	4006	NOV 2 8 1988

DATE OF INSPECTION — INSPECTOR

REMARKS

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FORM NO. 0506—4—77 FORM 7

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

11 — 6921718 — MUNICIP 6,9,0,0,8 — CON. CON 103

COUNTY OR DISTRICT: York
TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE: Vaughan
CON. BLOCK, TRACT, SURVEY, ETC: Con. #3
LOT: 25
OWNER (SURNAME FIRST): Metro Toronto
ADDRESS: Keele Valley Landfill
DATE COMPLETED: DAY 24 MO Nov. YR 91

21 — UTM ZONE 17 — EASTING 6,1,9,6,0,1 — NORTHING 4,8,5,8,1,1,6 — RC — ELEVATION 0,2,7,2 — RC — BASIN CODE

OW 7/91 #3

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET FROM	DEPTH - FEET TO
Brown	Clay	Silt		0	12
Brown	Fine-Med Sand			12	75
Grey Brown	Silt	fine gravel, Clay	hard packed	75	108
Brown	Sand Med			108	117
Grey	Clay	Silt		117	128
Brown	Med Sand.	Becomes coarse sand		128	187
Grey	Silt.			187	220

31
32

41 WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER
62	1 ☑ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERALS 6 ☐ GAS
	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERALS 6 ☐ GAS
	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERALS 6 ☐ GAS
	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERALS 6 ☐ GAS
	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERALS 6 ☐ GAS

51 CASING & OPEN HOLE RECORD

INSIDE DIAM INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET FROM	DEPTH - FEET TO
2	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE 5 ☑ PLASTIC	1/4	176	0
	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE 5 ☐ PLASTIC			
	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE 5 ☐ PLASTIC			

SCREEN

SIZE-SLOT OF OPENING (SLOT NO.)	DIAMETER	LENGTH
(0.010mm)	2 INCHES	10 FEET

MATERIAL AND TYPE: PVC. schedule 80
DEPTH TO TOP OF SCREEN: 176 FEET

61 PLUGGING & SEALING RECORD

DEPTH SET AT - FEET FROM	DEPTH SET AT - FEET TO	MATERIAL AND TYPE (CEMENT GROUT LEAD PACKER ETC.)
220	188	Holeplug
188	174	Sand
174	171	Holeplug
171	5'	Benseal Grout
5	2	Holeplug cement
2	0	

71 PUMPING TEST

PUMPING TEST METHOD: 1 ☐ PUMP 2 ☐ BAILER
PUMPING RATE: GPM
DURATION OF PUMPING: HOURS MINS

STATIC LEVEL	WATER LEVEL END OF PUMPING	WATER LEVELS DURING: 1 ☐ PUMPING 2 ☐ RECOVERY			
		15 MINUTES	30 MINUTES	45 MINUTES	60 MINUTES
FEET	FEET	FEET	FEET	FEET	FEET

IF FLOWING GIVE RATE: GPM
PUMP INTAKE SET AT: FEET
WATER AT END OF TEST: 1 ☐ CLEAR 2 ☐ CLOUDY
RECOMMENDED PUMP TYPE: ☐ SHALLOW ☐ DEEP
RECOMMENDED PUMP SETTING: FEET
RECOMMENDED PUMPING RATE: GPM

LOCATION OF WELL

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

DRILLERS REMARKS: 116554

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 ☐ DEWATERING

WATER USE

1 ☐ DOMESTIC 2 ☐ STOCK 3 ☐ IRRIGATION 4 ☐ INDUSTRIAL ☐ OTHER 5 ☐ COMMERCIAL 6 ☐ MUNICIPAL 7 ☐ PUBLIC SUPPLY 8 ☐ COOLING OR AIR CONDITIONING 9 ☑ 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 ☐ DIGGING ☑ OTHER Roto. Sonic

CONTRACTOR

NAME OF WELL CONTRACTOR: J R Drilling Ltd.
WELL CONTRACTOR'S LICENCE NUMBER: 6518
ADDRESS: Hadashville Man R0E0X0
NAME OF WELL TECHNICIAN: J.R. Squinkoff
WELL TECHNICIAN'S LICENCE NUMBER:
SIGNATURE OF TECHNICIAN/CONTRACTOR:
SUBMISSION DATE: DAY 11 MO 12 YR 91

OFFICE USE ONLY

DATA SOURCE
CONTRACTOR: 6518
DATE RECEIVED: DEC 11 1991
DATE OF INSPECTION
INSPECTOR
REMARKS: See map of 116553 for exact location
Dec 11/91
7 of 20

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FORM NO. 0506 (11/86) FORM 9



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The Power of Commitment