Hydrogeological Assessment Report, 12489 and 12861 Dixie Road, Caledon, Ontario

Final Report

December 5, 2024

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Table of Contents

List of Appendices

Abbreviations

AMSL	above mean sea level
AO	Aesthetic Objectives
BGS	below ground surface
BV	Bureau Veratis
CEISMP	Comprehensive Environmental Impact Study and Management Plan
CTCSPA	CTC Source Protection Committee
EASR	Environmental Activity and Sector Registry
ECA	Environmental Compliance Approval
ECCC	Environment and Climate Change Canada
ET	evapotranspiration
FSSMR	Functional Servicing and Stormwater Management Report
HDPE	high density polyethylene
HR	Hydrogeological Assessment Report
HVA	Highly Vulnerable Aquifer
IMAC	Interim Maximum Acceptable Criteria
IPZ	Intake Protection Zone
Levelogger	Solinst Edge Levelogger®
LID	Low Impact Development
MAC	Maximum Acceptable Criteria
MECP	Ontario Ministry of the Environment, Conservation and Parks
NTU	Nephelometric Turbidity Units
ODWS	Ontario Drinking Water Quality Standards
OG	Operational Guidelines
OGS	Ontario Geological Survey
OP	Official Plan

OPA	Official Plan Amendment
O. Reg.	Ontario Regulation
PPS	Provincial Policy Statement
PWQO	Provincial Water Quality Objectives
QuadReal	QuadReal Properties Group
SGRA	Significant Groundwater Recharge Area
Site	12489 & 12861 Dixie Road, Caledon, Ontario
Stantec	Stantec Consulting Ltd.
TRCA	Toronto and Region Conservation Authority
WHPA	Wellhead Protection Area
WWR	Water Well Record
ZBLA	Zoning By-Law Amendment
ZOI	zone of influence
WWR	water well record

1 Introduction

Stantec Consulting Ltd. (Stantec) was retained by QuadReal Property Group (QuadReal) to prepare a Hydrogeological Assessment Report (HR) in support of an Official Plan Amendment (OPA) Application, and Zoning By-law Amendment (ZBLA) for the properties with municipal addresses 12489 & 12861 Dixie Road in the Town of Caledon, herein referred to as the "Primary Subject Area (PSA)".

The PSA is generally located west of Bramalea Road, north of Mayfield Road, east of Dixie Road and south of Old School Road, in the Town of Caledon as shown on Figure 1 (Appendix A). The PSA is bound by Old School Road to the north, Dixie Road to the west, a golf course to the east, and agricultural lands to the south. The PSA includes two connected parcels of land, which encompass a total area of approximately 116.4 ha. The PSA is currently used for agricultural purposes and are established with two residential dwellings, several barns, and outbuildings. The majority of undeveloped lands are under active management including an active cattle range and approximately eight crop fields planted with Soybean or Corn.

There are two permanent watercourses on the PSA: (1) a tributary of the West Humber River, which is located in the central portion of the PSA and (2) Kilmanagh Creek located at the southwest corner of the PSA. Valleylands surround both watercourses. The core valleyland features are designated provincially as Natural Heritage System (NHS) within the Greenbelt Protected Countryside and regionally as part of the Region of Peel's Core Areas of the Greenlands System.

The proposed developments include the erection of five industrial warehouse buildings and the development of associated parking areas and private roads. To service the development, two stormwater ponds and associated subsurface infrastructure are also proposed.

Given this geographical setting, development applications concerning the PSA are subject to policies including, but not limited to, those outlined in: the Provincial Policy Statement (PPS) (Ministry of Municipal Affairs and Housing [MMAH], 2020), the Growth Plan (MMAH, 2020), the Region of Peel Official Plan (OP) (Peel Region, 2024), the Town of Caledon OP (Town of Caledon, 2024), and the Endangered Species Act (2007) (ESA).

This HR should be read in conjunction with the Functional Servicing and Stormwater Management Report (FSSMR), dated December 5, 2024 and the Comprehensive Environmental Impact Study and Management Plan (CEISMP), dated December 4, 2024 both prepared by Stantec Consulting. These reports will describe the location, extent, sensitivity and significance of natural features and functions within the PSA, evaluate the factors and influences important to their sustainability, establish goals and objectives for terrestrial and aquatic systems (i.e., natural heritage) and water resource systems in accordance with the PPS, the Region's OP, Caledon's OP, and the applicable Watershed Plans and Subwatershed Studies, and the SABE SWS.

The purpose of this hydrogeological study is to document baseline groundwater conditions throughout the PSA and evaluate how the form and/or function of the groundwater system could potentially be impacted by future development. Specifically, the objectives of the hydrogeological assessment are to:

1. Characterize the geological and hydrogeological conditions throughout the PSA, including identifying the hydrostratigraphic/aquifer units, hydraulic conductivity of the subsurface deposits, groundwater depths and flow regimes, groundwater recharge and discharge zones/features, and groundwater quality.

2. Complete a pre- and post-development water balance for the PSA and evaluate the potential effects that land use changes could have on the groundwater recharge function of the PSA, including a preliminary evaluation of potential measures that could be employed throughout the Site under the post-development condition to mitigate these impacts (i.e., maintain pre-development infiltration targets).

3. Assess whether proposed site servicing will intercept the groundwater table and evaluate what mitigation measures could be employed to the PSA to minimize any potential disturbances to groundwater levels and pre-development flow patterns.

4. Evaluate whether proposed land use activities conform to Source Water Protection requirements as stipulated in the *Clean Water Act, S.O. 2006, Chapter 22.*

5. Propose other strategies that could be used at the PSA to mitigate any of the potential impacts mentioned above.

This report is arranged into eight sections, including this introduction (Section 1). Section 2 presents the physical setting of the PSA at a broad scale. Section 3 outlines the methods utilized to evaluate the Site-specific hydrogeological conditions. Section 4 presents the results of the Site-specific investigations. Section 5 presents a water balance analysis for the PSA. Section 6 discusses the potential impacts of future development on the hydrogeological form and function on the PSA and potential mitigation measures for identified impacts. Report conclusions and references are listed in Sections 7 and 8, respectively.

All figures and tables referenced in this report are presented in Appendices A and B, respectively. Appendices C to G present the Borehole Logs, Hydraulic Conductivity Test Results, Groundwater Quality Laboratory Certificates of Analysis, and Source Protection Information and Site Design Plan, respectively.

2 Physical Setting

2.1 Topography and Drainage

Topography and drainage in proximity to the PSA is shown on Figure 2. Total relief is approximately 12 m at the 12861 Dixie Road parcel, with terrain sloping in a southeastern direction from approximately 270 m above mean sea level (AMSL) on the north side of the property towards a topographic low of approximately 258 m AMSL associated with the existing watercourse in the south side of the property. Total relief is approximately 13 m at the 12489 Dixie Road parcel, with local terrain sloping from a high of approximately 267 m AMSL along a ridge extending in an easterly direction across the central portion of the property, towards valley lands situated at approximately 254 m AMSL along the northern and southern limits of the property.

The surface watercourses at the PSA reflect the western-most tributaries of the West Humber River Subwatershed. The watercourses flow in a southeasterly to easterly direction across the PSA and confluence in the Claireville Conservation Area approximately 10 km southeast of the Site. The West Humber River ultimately drains southeasterly to the Lower Humber River and into Lake Ontario. Stantec has been advised by QuadReal that a previous landowner installed tile drains throughout the PSA, to mitigate ponding of water in localized depressions. Infiltrated water, captured by these tile drains, outflow into the onsite watercourses. The location and extent of tile drainage across the PSA has not been confirmed by Stantec.

2.2 Local Geology

Geological and hydrogeological conditions throughout the region have been mapped and described by the Oak Ridges Moraine Groundwater Program (ORMGO, 2018), the CTC Source Protection Committee (CTCSPC, 2022a), and the Ontario Geological Survey (2010). Near surface overburden soils, as mapped by the Ontario Geological Survey (OGS, 2010), are shown on Figure 3. The hydrostratigraphic significance of these soils are listed below from youngest to oldest:

Alluvial Deposits: Shown as brown (Unit 19) on Figure 3, these soils reflect modern deposits of loose, unconsolidated sand, gravel, silt and clay associated with the West Humber River flood plain.

Halton Till (Aquitard): Shown as green (Unit 5d) on Figure 3, this soil reflects a dense sandy silt to clayey silt till interbedded with silt, clay, sand and gravel. The Halton Till is thought to originate from ice-marginal sediments from the late glacial advance of the Laurentide Ice Sheet in the Lake Ontario basin, resulting in a dense till with a drumlinized surface (Sharpe and Russel 2007). The Halton Till is typically 10 m to 45 m in thickness locally (ORMGP, 2018). The horizontal and vertical hydraulic conductivity of the Halton Till is reported to be in the range of 10^{-6} m/s to 10^{-7} m/s (Kassenaar and Wexler, 2006). The Halton Till is considered an aquitard; however, there are lenses of sand and gravel that occur within the till that provide adequate yield for local domestic supplies.

Mackinaw Interstadial Deposits (Aquifer): an aquifer unit consisting of discontinuous thin layers of glaciofluvial sands and gravels believed to have been deposited in outwash channels and lakes around the same time as the Oak Ridges Moraine deposits formed. Regional mapping indicates this unit is discontinuous and may range from 0 m to 20 m in thickness near the PSA (ORMGP, 2018).

Queenston Formation (Aquitard): Dense, thinly bedded reddish-brown shale of Upper Ordovician age, containing frequent layers of hard, grey limestone and occasional clay and siltstone layers. Often highly weathered in the upper five meters of the formation leading to blending with the overburden deposits above. Below this weathered layer, the shale is not highly fractured and, as a result, is not considered to be a high yielding aquifer system. According to Ontario Ministry of Environment, Conservation and Parks (MECP) Water Well Records (WWR) and ORMGP (2018) mapping within 500 m of the PSA (Figure 3), the shale bedrock surface is generally encountered from 220 m AMSL to 245 m AMSL, which corresponding to depths between 20 m to 45 m below ground surface (BGS) near the PSA.

2.3 Local Hydrogeology

Regional mapping (ORMGP, 2018) indicates the shallow water table in proximity to the PSA is generally encountered from 250 m AMSL to 260 m AMSL (5 m to 15 m BGS) with groundwater flow direction to the southeast. The groundwater recharge rate in the West Humber River Watershed is estimated at 125 mm/year (TRCA, 2023).

Most municipal wells and private domestic wells located within the Toronto and Region Source Protection Area obtain their potable water supply from the Oak Ridges Aquifer Complex (or Equivalent) or the Thorncliffe Aquifer (TRSPA, 2022a).

2.4 Source Water Protection

As established under the *Ontario Clean Water Act*, 2006, S.O., 2006, c. 22, source protection areas and associated land use restrictions exist for all municipal drinking water sources in the Toronto and Region Source Protection Area (CTCSPC, 2022a). Within the Source Protection Area, the MECP has designated four areas that warrant a higher level of protection from potential threats to the quality and/or quantity of drinking water sources and include:

- Intake Protection Zones (IPZ)
- Highly Vulnerable Aquifers (HVA)
- Significant Groundwater Recharge Areas (SGRA)
- Wellhead Protection Areas (WHPA)

Source Protection Mapping, as provided by the MECP (2024), is provided in Appendix F.

According to information available from the Region of Peel (2023) website, the South Peel Drinking Water System supplies drinking water sourced from Lake Ontario to Brampton, Mississauga, and the southern parts of Caledon. There are also four well-based municipal drinking water systems in Caledon sourced from groundwater: Palgrave-Caledon East, Caledon Village – Alton, Cheltenham, and Inglewood Drinking Water Systems. Review of available mapping (Region of Peel, 2023) indicated the PSA is located within the South Peel Drinking Water System area.

An Intake Protection Zones (IPZ) is a zone established around surface water intake where it takes surface water two hours or less to flow to these intakes. These zones also include land adjacent to streams and storm sewers where runoff can quickly reach the intake. The area considered most vulnerable to contamination is delineated as a 120 m diameter circle around the intake and is referred to as Intake Protection Zone One (IPZ-1). Intake Protection Zone 2 (IPZ-2) represents the two hour time-of-travel that surface water moving through inland pathways such as creeks and storm sewers will take to discharge near the lake intakes. According to regional mapping available from the MECP Source Water Protection Information Atlas (MECP, 2024), the PSA does not intercept any IPZ (Appendix F).

Highly vulnerable aquifers (HVA) are defined as subsurface, geologic formations that are sources of drinking water, which could relatively easily be affected by the release of pollutants on the ground surface. The factors considered in assessing the vulnerability of an aquifer include the depth to the aquifer and water table, the physical properties of the overlying soil and/or rock, and the aquifer composition. According to MECP (2024) mapping (Appendix F), there are no HVA present beneath the PSA.

Groundwater recharge represents the proportion of precipitation and/or surface water run-off that infiltrates to the subsurface and reaches the groundwater table. The volume of water that infiltrates to the subsurface is largely influenced by site topography, the physical properties of the soil and land cover characteristics. The CTCSPC (2022a) defines a significant groundwater recharge area (SGRA) to be an area where the annual recharge rate is greater than the average plus 15% or more across the source protection region. According to the TRCA (2023), the average groundwater recharge rate within the West Humber River Watershed is estimated at 125 mm/year. According to MECP (2024) mapping (Appendix F), the lands within the PSA are not classified as SGRA. As discussed in Section 4, onsite borehole data indicate that the PSA is predominantly covered by sandy lean clay deposits that extend to depths of at least 9.8 m BGS, having a horizontal hydraulic conductivity on the order of 10^{-7} m/s or lower. Consequently, these surficial sandy lean clay deposits act as an aquitard and limit the downward movement of infiltrating water to underlying aquifer systems.

A wellhead protection area (WHPA) is an area delineated on the ground surface of zones within an aquifer that specifies the amount of time it would take groundwater to flow from the water table to the intake of a given municipal well. The PSA does not intercept any WHPA (MECP, 2024).

3 Methodology

Section 3 provides the methodology used to obtain the data required to complete the hydrogeological investigation. The major components of the hydrogeological investigation included the following:

- borehole drilling / monitoring well installation and development
- groundwater level monitoring
- groundwater sampling and testing
- hydraulic response testing

The methodology for these tasks is described in Sections 3.1 to 3.4 below.

3.1 Site Instrumentation

As part of a geotechnical investigation by Stantec (2024), a total of 69 boreholes (BH01-23 to BH69-23) were advanced on the PSA between January 23 and March 3, 2023 to depths ranging from approximately 3.55 m BGS to 9.75 m BGS. The boreholes were strategically located to obtain spatially representative soil and groundwater samples beneath the site. Borehole locations are shown on Figure 4.

The boreholes were advanced using a track-mounted drill rig equipped with hollow-stem augers operated by a specialist drilling subcontractor. Stantec personnel recorded the subsoil and groundwater conditions encountered in the boreholes. The soil samples were recovered at regular 0.76 m and 1.52 m intervals using a 51 mm (outside diameter) split-tube sampler by conducting Standard Penetration Tests (SPTs) in accordance with the procedures outlined in ASTM specification D1586. All soil samples recovered from the boreholes were placed in moisture-proof bags and returned to our laboratory for detailed geotechnical classification and testing, as required. Copies of the borehole logs are provided in Appendix C.

Figures 5 (Section A-A'), 6 (Section B-B'), and 7 (Section C-C') present stratigraphic profiles that traverses the PSA from the northwest to southeast and east to west. These profiles show the interpreted subsurface stratigraphy based on the previously mentioned borehole data and nearby MECP WWR data (Figure 3).

A single monitoring well was installed in the following 16 boreholes across the PSA in accordance with Ontario Regulation 903 (O. Reg. 903) as recently amended: BH04-23, BH09-23, BH13-23, BH15-23, BH19-23, BH25-23, BH31-23, BH33-23, BH38-23, BH46-23, BH48-23, BH49-23, BH51-23, BH55-23, BH61-23, and BH64-23. Each monitoring well consists of 50 mm inside diameter, Schedule 40 PVC pipe, with a No. 10 slot screen (0.01-inch slot) having a minimum screen length of 3.0 m. The annular space between the monitoring well pipe and surrounding geological formation was backfilled with well sand to the top of screen, with the remainder of the annular space being filled with a granular bentonite to prevent a hydraulic connection from occurring between the soil layers along the length of the casing. The monitoring wells were completed with above ground lockable protective steel casings that were cemented into place to 0.3 m BGS. The elevation of the existing grade and top-of-pipe at each monitoring well was

surveyed to a geodetic benchmark by the Geomatics division of Stantec. The boreholes without monitoring wells were backfilled with a low-permeability mixture of granular bentonite and auger spoils in accordance with the requirements of O. Reg. 903.

Following installation, Stantec personnel developed the monitoring wells to remove drilling fluids, solids or other particulates that may have been introduced during drilling/installation. Stantec personnel purged each monitoring well on using dedicated 16 mm inside diameter high density polyethylene (HDPE) tubing connected to a D-25 Waterra™ foot valve. Using the dedicated tubing, Stantec personnel purged a minimum of 10 standing column volumes from wells/piezometers to clear out any fine-grained sediments and, subsequently, establish a proper hydraulic connection with the native aquifer material. Only one to three standing columns of water were purged from those monitoring wells having poor water level recovery. Well construction details and survey data are summarized in Table 1, Appendix B.

Staff gauges were installed along watercourses in the PSA to measure surface water levels. One staff gauge (SW1-23; Figure 4) was installed in the south watercourse at the 12489 Dixie Road parcel, near the southern boundary. Three staff gauges (SW2-23, SW3-23, and SW4-23; Figure 4) were installed in the watercourses near the Dixie Road and Old School Road property boundary and in the southern area of the 12861 Dixie Road parcel.

3.2 Water Level Monitoring

Groundwater levels were recorded at the monitoring wells using a combination of automated and manual measurement methods. Stantec personnel manually measured water levels at the monitoring wells during several site visits between February 17 and April 9, 2024. To provide a continuous record of water level monitoring, Stantec personnel installed a Solinst Edge Levelogger® (Levelogger) into the water column of each monitoring well. A Levelogger was also installed at staff gauge SW01-23, SW2-23, SW3-23, and SW4-23 to monitor the surface water levels. The Leveloggers collected water level measurements at one-hour intervals from February 22, 2023 through April 9, 2024 to capture seasonal surface water and groundwater fluctuations across the PSA.

A summary of the manual groundwater level measurements is provided in Table 2. Hydrographs presenting both the automatic and manually collected groundwater data are provided on Figures 8.1 and 8.2, with the surface water data provided on Figure 9. The precipitation and temperature data provided on the hydrographs were obtained from the Environment Canada website for the Toronto International Airport Climate Station (ID 6158731), located approximately 18 km southeast of the PSA. Groundwater elevations and interpreted flow direction based on May 2023 data are shown on Figure 10.

3.3 Hydraulic Response Testing

Stantec performed in-situ hydraulic response testing at 11 monitoring wells (MW04-23, MW13-23, MW15-23, MW19-23, MW31-23, MW33-23, MW46-23, MW48-23, MW51-23, MW55-23, and MW64-23) on February 17 and March 21 and 22, 2023 to estimate the horizontal hydraulic conductivity of the overburden soils at the PSA. The testing consisted of creating an instantaneous change in the well water level by removing a known volume of water followed by recording the time taken for the water level to

return to static conditions (i.e., a rising head or bail test). Data were analyzed using the Hvorslev (1951) solution. Testing provided an estimate of the horizontal hydraulic conductivity of the sediments within the screened interval for each monitoring well. Table 2 provides a summary of the calculated horizontal hydraulic conductivities, with the test results and analytical solutions presented on Figures D-1 through D-11 in Appendix D.

The infiltration potential of the glacial till soils has been inferred from an established relationship between vertical hydraulic conductivity and infiltration rate presented in the Credit Valley Conservation and Toronto and Region Conservation Authority (CVC-TRCA, 2010) Low Impact Stormwater Management Planning and Design Guideline - Version 1.0. Table 3 provides a summary of the calculated vertical hydraulic conductivities and infiltration rates estimated for the glacial till soils encountered onsite. Since hydraulic conductivity in the horizontal direction is generally an order (potentially two orders for clay-based deposits) of magnitude higher than hydraulic conductivity in the vertical direction (Todd 1980; Freeze and Cherry 1979), the vertical hydraulic conductivities for deep overburden deposits were assumed to be one order of magnitude lower than in-situ measured horizontal hydraulic conductivities calculated at the monitoring wells.

3.4 Groundwater Sampling and Testing

Groundwater quality samples were collected from five monitoring wells (MW15-23, MW31-23, and MW33-23 at 12861 Dixie Road and MW46-23 and MW55-23) on February 23 and March 22, 2023. The samples were collected to help establish pre-development groundwater quality conditions at the PSA. Groundwater sampling involved using the same tubing that was used to develop the monitoring wells. Prior to collecting the sample, Stantec personnel purged each well until the field parameters of pH, temperature, and conductivity stabilized, indicating that the sample would be reflective of groundwater drawn from the aquifer system (and not stagnant water residing in the well casing).

Following purging, sampled groundwater was poured directly from the HDPE tubing into lab supplied sample bottles. Groundwater samples collected for metals analysis were field filtered using disposable in-line 0.45 µm (micron) filters attached to the HDPE tubing. The groundwater samples were carefully packed into coolers with ice, which was added to maintain sample temperatures below 10°C during transit to the analytical laboratory. Samples were delivered to Bureau Veritas (BV) for analysis of general inorganic parameters and dissolved metals. Chain of custody forms were completed and included with the samples.

The results of the groundwater quality testing are summarized in Table 4. Copies of the laboratory certificate of analysis are presented in Appendix E.

4 Local Geology and Hydrogeology

4.1 Local Geology

Figure 4 shows the location of Cross-Sections A-A' (Figure 5), B-B' (Figure 6), and C-C' (Figure 7), which profile the borehole drilling logs (Appendix C) and nearby MECP WWR subsurface conditions. Borehole drilling results indicate uniform soil conditions beneath the PSA, reflecting a massive deposit of sandy clay glacial till (Halton Till) from near ground surface to a depth of at least 9.8 m BGS. The glacial till soils reflect a surface aquitard across the PSA, limiting the vertical seepage of water (i.e., groundwater recharge).

Bedrock was not encountered during the onsite drilling by Stantec. A review of MECP WWRs (Figure 3) was completed to estimate depth to bedrock beneath the PSA. One WWR mapped as occurring within the northwest area of the PSA (Well ID 4901406) reported top bedrock at approximately 27 m BGS. The closest off-site WWR that extends into bedrock is mapped along the east side of Dixie Road (Well ID 4904249), approximately 5 m west of the PSA, and encountered shale at approximately 30 m BGS.

4.2 Local Hydrogeology

4.2.1 Groundwater Levels and Flow

Figures 8.1 and 8.2 and Table 2 present the continuous and manual groundwater level data measured within onsite monitoring wells from February 2023 through April 2024. Figure 9 presents the continuous and manual surface water level data measured at staff gauges SW1-23 to SW4-23 during the monitoring period. It is noted that monitoring wells MW15-23 and MW51-23 and staff gauge SW1-23 were damaged, and therefore reflect incomplete records.

Based on the data collected during the monitoring period, the groundwater table across the Site ranged from approximately 252 m AMSL to 267.8 m AMSL. Monitoring wells MW9-23, MW25-23, MW38-23 and MW49-23 were generally dry during the monitoring period.

A cyclical pattern of groundwater fluctuations is common within shallow groundwater systems in southern Ontario. High water table conditions occur in the winter and spring (i.e., January to May) due to lower evapotranspiration losses and/or a melting snowpack, which provide a greater volume of water for recharge. Low water table conditions occur in the late summer to early fall as more water is drawn from the subsurface over this period to meet evapotranspiration demands. Groundwater hydrographs shown on Figures 8.1 and 8.2 show seasonal fluctuations, with a range of approximately 1 m to 6 m. Hydrographs with a low range (e.g., less than 2 m) are located within low lying areas (i.e., near watercourses), while those with greater range are located within tablelands. The broad range of seasonal water table fluctuations is characteristic of the low soil hydraulic conductivity, as described in Section 4.2.2. Monitoring well MW13-23 showed sharp responses to precipitation / snow melt events in the spring of 2024. These sharp responses reflect ponding of water at the wellhead and are not reflective of

actual water table elevation. Overall, the cyclical pattern of water table fluctuations is shown in the 1-year continuous monitoring record from February 2023 to April 2024. Seasonal high water table elevations observed in the spring of 2023 were repeated in the spring of 2024.

As shown in Figure 9, surface water levels fluctuated up to approximately 0.6 m at SW1-23 and SW2-23, 0.3 m at SW3-23, and 0.4 m at SW4-13 during the monitoring period. These fluctuations were typically in response to wet weather flow events (i.e., snow melt or storm events).

Figure 10 presents the groundwater elevation contours and the interpreted direction of horizontal flow through the overburden deposits beneath the Site using manual water level measurements collected from the onsite monitoring wells in May 2023. The groundwater elevation contours are approximate as the location and extent of tile drainage across the Site is expected to control the groundwater flow pattern locally. Overall, groundwater contours tend to follow the prevailing topography of the Site, with flow moving in southeastern and northwestern directions across the Site towards the watercourses. The water table ranges from approximately 267 m AMSL in the north to approximately 258 m AMSL in the south, with flow moving in a direction towards the two watercourses crossing the Site. The water table ranges from approximately 267 m AMSL in the north to approximately 252 m AMSL in the southeast.

4.2.2 Hydraulic Conductivity and Infiltration Rates

Horizontal hydraulic conductivity estimates calculated from onsite hydraulic response testing of monitoring wells screened within sandy clay till (Halton Till) are on the order of 10^{-7} m/s to 10^{-9} m/s (Table 2). These calculated values are consistent with the literature values of hydraulic conductivity provided for these deposits (Fetter, 1994).

Overall, the estimated bulk (i.e., geometric mean) horizontal hydraulic conductivity calculated for the overburden deposits is 5×10^{-8} m/s (Table 3). Assuming an effective soil porosity of 0.1 (for glacial till; Fetter, 1994) and taking the geometric mean hydraulic conductivity (5×10^{-8} m/s) and average horizontal gradient of 0.046 m/m, the average horizontal groundwater flow velocity within the shallow overburden beneath the Site is estimated at 2.3×10^{-8} m/s, or 0.73 m/year.

Soil infiltration rates have been estimated based on an established relationship between vertical hydraulic conductivity and infiltration rate presented in CVC-TRCA (2010). The results, as summarized in Table 3, indicate typical infiltration rates of 22 mm/hour or less in the glacial till soil. Overall, the recharge function of the PSA is expected to be low, given that infiltration will be limited by the low permeability silty clay till that covers the site.

4.2.3 Groundwater Quality

Table 4 provides baseline groundwater quality data for the onsite monitoring wells sampled within the Site, with results compared against the Provincial Water Quality Objectives (PWQO; MOEE, 1999) and the Ontario Drinking Water Quality Standards (O. Reg. 169/03) (ODWS) for health-related (i.e., Maximum Acceptable Criteria (MAC) and Interim Maximum Acceptable Criteria (IMAC)) and non-health related (i.e., Aesthetic Objectives (AO) and Operational Guidelines (OG)) parameters. Technical documentation of the ODWS is provided in Ministry of the Environment (MOE), 2006.

Figures 11.1 and 11.2 provide a comparison of the groundwater quality analyses at onsite monitoring well locations. Groundwater within the shallow overburden at the PSA is generally characterized by calcium-bicarbonate and/or magnesium-bicarbonate type water. Groundwater quality type at MW33-23 (near Old School Road) reflects a calcium-chloride type. The difference in groundwater quality is expected to reflect the greater contribution of salt-laden runoff from Old School Road, with the infiltration of this water resulting in greater concentrations of sodium and chloride being recharged to the groundwater system.

As shown in Table 4, none of the tested parameters were detected above applicable ODWS health-related criteria except for nitrate. The concentrations of nitrate at MW46-23 (37.7 mg/L) and MW55-23 (78.3 mg/L) exceeded the ODWS MAC (10 mg/L) and reflects the agricultural property use. Relative to the ODWS, the groundwater quality results indicate elevated concentrations of manganese, hardness, dissolved organic carbon and/or total dissolved solids. Sodium concentrations were elevated above the ODWS Health Reporting Limit and/or OG at MW15-23 MW33-23, MW46-23, and MW55-23, with chloride also elevated above OG at MW33-23. These exceedances are common in the overburden of southern Ontario.

Groundwater quality results exceeded PWQO guidelines for cobalt, copper, and zinc (Table 4), which is also common. Additionally, uranium exceeded the PWQO (0.005 mg/L) at MW31-23 (0.0068 mg/L).

5 Water Balance

Water balance calculations have been completed to approximate onsite infiltration volumes. A comparison of water balance data under pre- and post-development conditions has been completed to determine the potential impacts of development on the PSA's infiltration function. The methodology for the water balance calculations is provided in Section 5.1. Results of the pre-development water balance analysis are presented in Section 5.2. The comparison of pre- and post-development conditions is presented in Section 6.1.

5.1 Methodology

A water balance is an accounting of the distribution of components of the hydrologic cycle and can be simplified in the following equation:

$$P = ET + S + R + I$$

where:

P = precipitation; ET = evapotranspiration; S = change in groundwater storage;

R = runoff; and I = infiltration

The water balance is used to compare pre- and post-development conditions and to determine what mitigation methods may be required. The key component of the water balance is evapotranspiration (ET), which is calculated using the soil moisture balance model developed by Thornthwaite and Mather (1957). The Thornthwaite and Mather model assumes that different soil textures have a characteristic capacity to hold water. Any deficit to the soil holding capacity must be met before water can infiltrate.

Monthly values of precipitation (rainfall plus snowmelt) and potential evapotranspiration rates are input to the model. Potential evapotranspiration is calculated based on temperature, heat index, and an adjusting factor for latitude. The actual evapotranspiration is calculated using the input precipitation, calculated potential evapotranspiration, and change in soil moisture storage.

Infiltration and runoff are calculated using the water surplus, ground slope, soil type, and ground cover. Values for infiltration and runoff are generated as a depth and are reported in millimetres (mm). These depth values can generate annual volumetric values by inputting known areas for land use under pre- and post-development conditions. An infiltration deficit is calculated as the difference between pre-development infiltration and post-development infiltration.

Temperature and precipitation averages for the region from 1981-2010 climate normals were obtained from the Environment and Climate Change Canada (ECCC) website for the Toronto Lester B. Peason International Airport Climate Station (Climate ID 6158733) climate station, located approximately 18 km to the southeast of the PSA. Stantec has assumed that the monthly average temperature and precipitation collected at the Toronto Lester B. Peason International Airport Climate Station are reflective of the temperature and precipitation trends that have historically occurred at the PSA.

For pre-development condition, soil moisture capacity was set at 250 mm corresponding to predominantly clay loam with pasture / shrubs landscape according to the MECP *SWM Planning Design Manual* (MECP, 2003). Site lands planned for commercial/industrial use under the post-development condition are expected to have approximately 51% of its area converted to impervious surfaces at 12489 Dixie Road and 73% at 12861 Dixie Road. Similarly, the land area being used for stormwater management purposes (i.e., pond) or roadways will have an impervious cover of 100% (i.e., no pervious area). Stantec is assuming that the PSA topography and soils will remain relatively unchanged between the pre- and post-development condition, and the overall imperviousness of the PSA will reflect 51% at 12489 Dixie Road and 73% at 12861 Dixie Road.

Water balance calculations completed for the 12489 Dixie Road parcel are shown in Tables 5.1 and 5.2, and in Tables 6.1 and 6.2 for the 12861 Dixie Road parcel.

A feature-based water balance using the Thornthwaite and Mather (1957) methodology outlined in Section 5.1 was completed with detailed analysis presented in the Functional Servicing and Stormwater Management Report.

5.2 Pre-Development Water Balance

The water balance calculations generated unique values of actual evapotranspiration, water surplus, infiltration, and runoff for each characteristic soil. As shown in Tables 5.1 and 6.1, the average annual precipitation in the PSA is estimated at 987 mm based on data obtained from the Toronto Lester B. Peason International Airport Climate Station (Environment Canada, 2023). Annual actual evapotranspiration is estimated at 572 mm, equating to 415 mm of surplus water that is available for runoff and infiltration within the PSA.

The average annual volume of infiltration to 12489 Dixie Road under pre-development conditions is estimated at approximately 84,306 m^3/year or unit rate of approximately 145 mm/year (Table 5.1). The infiltration rate is slightly above the average groundwater recharge rate of 125 mm/year estimated by TRCA (2023) for the West Humber River Watershed. The average annual volume of runoff under pre-development conditions is estimated to be 156,569 m^3/year or 269 mm/year (Table 5.1).

Similarly, at 12861 Dixie Road, the average annual volume of infiltration to the property under pre-development conditions is estimated at approximately 84,451 m^3/year or 145 mm/year (Table 6.1). As shown in Table 6.1, the average annual volume of runoff under pre-development conditions is estimated at 156,838 m^3/year or 269 mm/year (Tabe 6.1).

Overall, the total average annual volume of infiltration occurring at the PSA under pre-development conditions is estimated at approximately 168,757 m^3/year, with the average annual volume of runoff estimated at 313,407 m^3/year.

6 Impact Assessment and Mitigation Measures

6.1 Groundwater Recharge

The proposed development includes three industrial buildings within 12489 Dixie Road and two industrial buildings within 12861 Dixie Road, a SMW pond on each parcel, and parking spaces surrounding the industrial facilities. The remaining areas to the north and south of the industrial facilities will be landscaped / natural heritage areas. Portions of the properties will be converted to impervious surfaces as a part of proposed development and, subsequently, a reduction in the volume of water infiltrating to the subsurface is anticipated. The potential impacts of redevelopment on the recharge function of the PSA are discussed below.

Based on the proposed Site Plan (shown in Appendix G), under post-development conditions it is expected that pervious surfaces will decrease to approximately 49% and 27% at the 12489 Dixie Road and 12861 Dixie Road parcels, respectively. The detailed water balance for post-development conditions are provided in Tables 5.2 and 6.2 for 12489 and 12681 Dixie Road, respectively. As shown in Table 5.2, the unmitigated post-development infiltration rate for 12489 Dixie Road is estimated to be approximately 41,355 m^3/year (71 mm/year), representing a deficit of approximately 42,951 m^3/year (74 mm/year). At 12681 Dixie Road (Table 6.2), the unmitigated post-development infiltration rate is estimated to be approximately 22,782 m^3/year (39 mm/year), representing a deficit of approximately 61,670 m^3/year (106 mm/year). Overall, the total unmitigated post-development infiltration rate for the PSA is estimated at approximately 64,137 m^3/year, representing a deficit of approximately 104,620 m^3/year.

Given the projected post-development infiltration deficit, Stantec is recommending that groundwater recharge mitigation measures be adopted, as part of the Functional Servicing Plan. Low Impact Development (LID) is a stormwater management strategy that seeks to mitigate the impacts of increased runoff by managing runoff as close to source as possible, with the implementation of such strategies also providing the residual benefit of offsetting potential infiltration losses associated with the increase in impervious surfaces associated with a given development. Traditional post-development infiltration measures such as infiltration trenches / basins, soakaway pits, and pervious pipes may not be suitable for the Site due to the silty clay soils that cover these lands, given that these soils are characterized by low infiltration potential. However, the infiltration augmentation options as described in CVC-TRCA (2010) could be potentially available for use across the Site to assist in maximizing infiltration under the post-development condition are as follows:

- Roof downspout disconnection
- Vegetated filter strips
- Grass swales or enhanced grassed swales

The suitability of using the previously mentioned infiltration augmentation options within the PSA should be evaluated at the detailed design stage of proposed developments. Overall, it is reasonable to conclude that the application of some or all the previously mentioned infiltration augmentation measures will assist in achieving the maximum groundwater recharge possible throughout the PSA under the post-development condition.

6.2 Groundwater Discharge

As shown in the groundwater flow presented in Figure 10, groundwater outflows at surface watercourses locally. These surface water features reflect the groundwater discharge areas. As shown in the hydrographs, the water table elevation is sensitive to weather and seasonal precipitation (Section 4.2.1). Local land use changes should not affect the local water table. As such, groundwater flow patterns and outflow to discharge areas should remain unaffected by the proposed development. Long term monitoring can be undertaken to confirm the local water table is being maintained post-development. The long term monitoring plan should be developed during the detailed design stage of the proposed development.

6.3 Construction Dewatering

Developments within the PSA will be connected to underground utility infrastructure (e.g., storm and sanitary sewers). Preliminary grading plans indicate that the deepest utility to be constructed will be the SWM ponds. The proposed SWM pond at 12489 Dixie Road will have a base elevation ranging from approximately 255.5 m AMSL to 256.5 m AMSL, reflecting a depth of approximately 9 m to 10 m BGS. The proposed SWM pond at 12861 Dixie Road will have a base elevation ranging from approximately 256.5 m AMSL to 257.5 m AMSL, reflecting a depth of approximately 8 m to 9 m BGS. The Site servicing excavations will therefore intercept the water table elevation, which was encountered at elevations ranging from approximately 252 m AMSL to 267.8 m AMSL across the Site (Figures 8.1 and 8.2).

Construction dewatering activities are expected to be completed on an as-required basis, with the rate of this dewatering dictated by the amount of construction occurring within the PSA at a given time and the elevation to which the groundwater table must be lowered to install infrastructure. Groundwater seepage into the excavation areas should be limited recognizing the low horizontal hydraulic conductivity soils (10^{-7} m/s to 10^{-9} m/s, as discussed in Section 4.2.2). Estimates of the dewatering zone of influence (ZOI) and pumping rates are provided below based on the following conservative assumptions and available information at the time of report preparation:

- The area of dewatering for the SWM pond at 12489 Dixie Road is assumed at approximately 1.8 ha (18,000 m^2) with an equivalent radius of circular excavation of approximately 76 m. The proposed bottom elevation of the SWM pond will be at 255.5 m AMSL. The maximum depth of dewatering is assumed to be approximately 255 m AMSL.
- The area of dewatering for the SWM pond at 12681 Dixie Road is assumed at approximately 1.0 ha (10,000 m^2) with an equivalent radius of circular excavation of approximately 56.4 m. The proposed bottom elevation of the SWM pond will be at 256.5 m AMSL. The maximum depth of dewatering is assumed to be approximately 256 m AMSL.

- Static groundwater elevations of approximately 265 m AMSL and 263 m AMSL (Figure 9) were assumed in the calculations for the 12489 and 12861 Dixie Road excavations, respectively.
- The base of the active groundwater flow system is assumed to be the shale bedrock surface, interpreted to be approximately 235 m AMSL locally, reflecting saturated overburden thicknesses of 28 m and 30 m for 12489 and 12861 Dixie Road, respectively.
- The geometric mean horizontal hydraulic conductivity calculated at 5 x 10^{-8} m/s (Table 3 and Section 4.2.2) was assumed in the dewatering calculations.

6.3.1 Dewatering Zone of Influence

Applying the Theis analytical solution, the dewatering zone of influence (i.e., lateral extent of groundwater level drawdown) can be estimated as follows:

$$s(r,t) = \frac{Q}{4\pi T} W\left(\frac{r^2 S}{4Tt}\right)$$

where $s(r,t)$ = drawdown at distance (r) and time (t) after the start of pumping
Q = pumping rate required to achieve the required drawdown at a single source (approx. 3 m^3/day at 12489 Dixie Road and 2.4 m^3/day at 12861 Dixie Road)
T = aquifer transmissivity (m^2/day; K = 5 x10^{-8} m/s x aquifer thickness)
S = overburden storativity (1% is typical for unconfined fine grained soil)
W = Theis well function

Presuming that steady-state pumping conditions will be reached within approximately 3 days of pumping, the dewatering zone of influence (ZOI) is interpreted to be approximately 30 m and 20 m from the edge of the dewatering areas for the 12489 and 12861 Dixie Road SWM pond excavations, respectively. Profiles of the interpreted drawdown versus distance for the 12489 and 12861 Dixie Road excavations, are shown on Figures 11 and 12, respectively.

6.3.2 Average Daily Dewatering Rate

For a point source excavation (i.e., SWM pond), the steady state groundwater pumping rate (Q_T) required to maintain a depressed water table elevation at the required dewatering depth, over the excavation area footprint, can be estimated by applying the following equilibrium equation (Powers et al., 2007) for unconfined aquifer conditions:

$$Q_T = \frac{\pi \mathrm{K}(H^2 - h^2)}{\ln R_o / r_w}$$

where K = hydraulic conductivity of the overburden soil (5 x10^{-8} m/s);
H = height of water level within the aquifer (30 m and 28 m for 12489 and 12861 Dixie Road);
h = desired water height within the aquifer (20 m and 21 m for 12489 and 12861 Dixie Road);
R_o = radius of influence (106 m and 76 m; representing a ZOI, beyond radius of dewatering area);
r_w = radius of dewatering area (76 m and 56 m at 12489 and 12861 Dixie Road);

Based on these equations, the typical steady-state pumping rates required to maintain a depressed water table over the proposed excavation dewatering area footprints are calculated to be approximately 20 m^3/day at 12489 Dixie Road and 15 m^3/day at 12861 Dixie Road.

6.3.3 Peak Dewatering Rate

During construction, higher dewatering rates will be required on occasions, following precipitation events. A normal precipitation event, considered as 25 mm falling within a 24-hour storm event, was used to calculate stormwater inflow into the excavations. Such precipitation would result in approximately 450 m^3 and 250 m^3 of stormwater loading on the excavation footprints at 12489 and 12861 Dixie Road, respectively. To address removal of stormwater, additional dewatering rates of 450 m^3/day and 250 m^3 should be considered for the respective excavations.

The peak dewatering rate required in support of the proposed construction should reflect the sum total of the interpreted stormwater removal rate and steady state inflow rate, which is approximately 470 m^3/day at 12489 Dixie Road and 265 m^3/day at 12861 Dixie Road. It is therefore expected that temporary construction dewatering can be accommodated with the registration of an Environmental Activity Sector Registry (EASR), which allows construction dewatering up to 400 m^3/day. Under an EASR, multiple excavations with non-overlapping areas of influence can be simultaneously dewatered, up to 400 m^3/day per excavation. This flow rate should be capable of removing stormwater inflow into temporary excavation areas in a timely manner, as summarized below.

Dewatering Condition	Steady-State Groundwater Inflow (m^3/day)	Stormwater Removal (m^3/day)	Peak Dewatering Rate (m^3/day)
Temporary Construction – 12489 Dixie Road	20	450	470
Temporary Construction – 12861 Dixie Road	15	250	265

6.3.4 Recommended Groundwater Control Measures

In general, groundwater control measures to support onsite construction is expected to reflect conventional pumping from filtered sumps within excavations. This groundwater control measure will lower the groundwater table to the base of a given excavation for a short duration. The effects of local dewatering are calculated to be limited in lateral extent from the excavation area (i.e., 20 m to 30 m from the excavation face), due to the hydraulic conductivity of the soil (on the order of 10^{-8} m/s or lower). Steady state groundwater flow into the proposed excavation areas is low (i.e., less than 50 m^3/day). These groundwater pumping rates will not adversely affect surface water flow conditions in the nearby surface watercourses.

In response to the limited dewatering rates and ZOI, impacts to local private wells or the nearby surface watercourses are not anticipated. Overall, the residual effects of dewatering will be reversible once pumping ceases as groundwater levels will recover as local groundwater levels re-equilibrate with the local water table.

If site servicing infrastructure, once installed, occurs below the groundwater table, mitigation measures may be required to minimize the disturbance that site servicing could have on pre-development groundwater flow patterns. Typically, the most common mitigation measure is the installation of anti-seepage (cut-off) collars to prevent the preferential movement of groundwater along the servicing alignments. The use of anti-seepage collars will likely be required given that the subsurface of the PSA is characterized by deposits where groundwater movement is more restricted (e.g., sandy clay soils). An assessment for the need, total number and exact placements of anti-seepage collars along the servicing alignments can be explored in more detail during the detailed design phase.

6.3.5 Disposal of Pumped Groundwater

The analytical results of the groundwater samples (refer to Section 4.2.3 above) indicated groundwater quality results exceeded PWQO guidelines for cobalt, copper, and zinc. Additionally, uranium exceeded the PWQO at one location (i.e., MW31-23); however, localized dewatering is not expected within this area of the PSA.

Based on the available groundwater quality results, it is expected that treatment of groundwater will be required to reduce concentrations of metals and total suspended solids to discharge to the environment during construction dewatering. Water quality monitoring of construction dewatering (frequency, parameters, and criteria) will need to be conducted in accordance with any regulatory discharge agreements and/or requirements, as required, to ensure applicable criteria are met prior to discharge. A qualified person (QP) should review with respect to the applicable criteria to determine if discharge to the environment is appropriate. Additional groundwater quality monitoring measures are detailed below.

If discharge to the environment is recommended, the discharge point will be to a low lying, well-vegetated area promoting infiltration and located to maximize the distance to the nearest surface waterbody or wetland (greater than 30 m where possible). The Contractor shall complete the following mitigation measures and monitoring:

- The inlet pump head is to be surrounded with clear stone, filter fabric or equivalent, if applicable.
- All water will be discharged through a geotextile filter bag or equivalent, which will act as an energy dissipation and erosion control measure. In the event that the filter bag is overwhelmed by sediment or the quantity of water, a sediment removal basin will be constructed, which may consist of a temporary enclosure constructed with straw bales, silt fence, or both. It is the Contractor’s responsibility to provide additional treatment as required.
- Discharge may be directed to the ground surface provided there is no visible sheen or olfactory indicators of possible contamination, and onsite mitigation measures are taken. Visual and olfactory inspections of the discharge location shall be completed daily.
- Discharge of water to the natural environment shall not be directed across pavement, sidewalks, or any other impervious surfaces.

- The sediment control is to be located within a vegetated area surrounded with silt fence or approved equal and located downstream of the construction activity within the proposed construction area, on the property, or where landowner agreements are in place. The exact location of discharge will be determined by the Contractor during construction. When selecting a discharge location, the slopes surrounding the discharge location will be limited where possible to reduce the potential for erosion and scouring. The discharge location shall be inspected daily to verify that no significant erosion or sedimentation is occurring.
- No equipment or materials are to be stored in vegetated discharge areas.
- The Contractor is to ensure that the sediment control is located such that flows are dispensed/directed through a vegetated area down gradient of the work area and are not directed toward watercourses.
- Direct discharge to watercourses is not permitted.

If dewatering discharge to land occurs within 30 m of a surface waterbody (watercourse) or wetland with standing water, the following criteria must be met:

- The turbidity of the discharge shall not exceed 8 Nephelometric Turbidity Units (NTU) above the background level of the nearest waterbody or wetland.
- Background turbidity levels in the waterbody or wetland must be measured outside of the influence of the discharge location and measured on the same day of discharge.
- If turbidity of the discharge exceeds 8 NTU above the background levels of the waterbody or wetland, the dewatering activities must be adjusted with the implementation of additional mitigation measures to reduce discharge turbidity to within 8 NTU of the waterbody or wetland.
- If turbidity monitoring is not feasible due to minimal to no surface water present at the waterbody or wetland, turbidity monitoring will not be required.

The Contractor may also consider using an appropriate water treatment system with a mobile Environmental Compliance Approval (ECA) for sewage works that governs for the collection, transmission, treatment, and disposal of groundwater with allowance for treated water to be discharged to the environment. The Contractor would be required to complete all testing, monitoring and mitigation measures as required by the mobile ECA.

If a visual sheen or olfactory indicators are noted, discharge water will be contained within holding tanks and removed off-site to a licensed facility with an MECP ECA permitted to receive this wastewater. Analysis and testing of the water would be completed in accordance with the receiving facility. A water treatment specialist may also be consulted to determine appropriate additional mitigation measures.

6.4 Municipal and Private Well Supply Interference

As noted in Section 2.4, the Site is located within the South Peel Drinking Water System area, which obtains its drinking water supplies from Lake Ontario (Region of Peel, 2023). Based on review of available source water protection mapping (Appendix F), the Site does not intercept any WHPA, HVA, SGRA, or IPZ. As such, no interfere to the municipal water supply is expected.

A review of MECP WWRs identified 57 WWR within 500 m of the PSA (Figure 3), with 27 potential wells reported for domestic / livestock, one industrial, and one water supply use. Details of these wells are summarized in Table 7 (Appendix B). The remaining 28 WWRs were reported as observation, monitoring or test wells, abandoned, or provided no information on use. As shown in Table 7, local private water wells were installed between 1954 and 2005, with eight off-site wells completed within bedrock to depths from approximately 20 m BGS to 69 m BGS, two shallow overburden wells completed to depths of approximately 11 m BGS and 14.3 m BGS, and 18 intermediate/deep overburden wells completed to depths from approximately 18 m BGS to 44 m BGS. Static water levels in the shallow overburden wells ranged from 6.1 m BGS to 11.3 m BGS and ranged from 1.5 m BGS to 17.1 m BGS in intermediate/deep overburden wells. The static water levels in the bedrock wells ranged from 6.1 m to 18.3 m BGS.

The nearest mapped supply well (Well ID 4904249) is located approximately 5 m west of the PSA (associated with the adjacent residence at 12707 Dixie Road) for domestic use (Figure 3 and Table 7). This well was installed in 1973 to a depth of 39 m BGS within bedrock, with overburden reported to consist of approximately 30 m of clay before encountering bedrock. The static water level was reported at 15.2 m BGS. The nearest mapped shallow overburden supply well (Well ID 4901408) is located approximately 18 m west of the PSA (associated with the adjacent residence at 12891 Dixie Road) for domestic use (Figure 3 and Table 7). This well was installed in 1967 to a depth of 11 m BGS within overburden consisting of a 10.7 m thick layer of clay underlain by sand to the end of hole. The static water level was reported at 6.1 m BGS in the well. The other reported shallow overburden well (Well ID 4901407) is mapped greater than 350 m to the north of the PSA (Figure 3).

The above review indicates the presence of private wells on nearby properties. Shallow water supply wells are more susceptible to well interference; however, the private supply wells within 500 m of the PSA are predominantly intermediate/deep installations. The nearest mapped private supply wells include one shallow overburden well constructed to a depth of 11 m BGS and one deep bedrock well constructed to a depth of 39 m BGS (Table 7), associated with adjacent residences along Dixie Road. Given the thick overburden clay material present across the PSA, the anticipated below ground construction activity, the distance to the nearest private supply wells and the limited predicted ZOI, no private well interference is expected.

In the event of a well interference during construction, a private water well complaint contingency plan will be implemented by QuadReal or its Contactor, which will include an offer to arrange immediate provision of temporary potable or non-potable water, depending on the resident’s needs, until the matter is resolved.

6.5 Surface Water Impacts

With respect to the proposed groundwater dewatering, surface water interference is not expected based on the low steady-state pumping rates and limited extent of drawdown predicted (Section 6.3.1 and 6.3.2). Dewatering and surface water management measures will be implemented during construction to direct surface water away from the open excavation areas. Furthermore, groundwater quality monitoring will need to be conducted to ensure the dewatering effluent meets applicable criteria. Mitigation and contingency measures will also be in place, as detailed in Section 6.3.5, to reduce the potential for impact to surface water systems due to groundwater dewatering.

6.6 Spill Containment and Response

The potential exists for spills during any construction activity, with the most probable type of spill occurring being attributable to the refuelling of major construction equipment that cannot readily leave the site (e.g., earth movers). The potential impacts of a spill could be the contamination of soils, groundwater and/or surface water. By implementing proper protocols for the handling of fuels and lubricants during construction, the risk of a spill occurring will be greatly reduced. The procedures to be implemented to prevent onsite spills are as follows:

- all trucks or other road vehicles would be refuelled and maintained offsite, where practicable
- refuelling and lubrication of other construction equipment would not be allowed within 30 m of a drainage system or dewatering excavation
- regular inspections of hydraulic and fuel systems on machinery, with leaks being repaired immediately upon detection or the equipment being removed from site
- spill kits containing absorbent materials would be kept on hand
- implement best management practices and develop an emergency spill response plan

Standard containment facilities and emergency response materials are to be maintained onsite as required, with refuelling, equipment maintenance, and other potentially contaminating activities being confined to designated areas. As appropriate, spills are to be reported immediately to the MECP Spills Action Centre.

7 Conclusions

For the hydrogeological assessment provided above, which has considered field studies undertaken between January 2023 and April 2024, the following conclusions are respectfully submitted:

1. The PSA is covered by a vertically and horizontally continuous unit of sandy clay till (i.e., the Halton Till), which forms an aquitard across the Site surface and, subsequently, limits groundwater recharge. Underlying bedrock at the PSA is mapped as Queenston Formation shale, which reflects the base of the overburden groundwater flow system.

2. Groundwater is encountered within the sandy clay till at the PSA. Groundwater elevations ranged from approximately 252 m AMSL to 267.8 m AMSL across the PSA during the monitoring period (February 2023 to April 2024). Overall, the cyclical pattern of water table fluctuations is shown in the 1-year continuous monitoring record from February 2023 to April 2024. The consistency of the monitoring data indicates no unusual trends that need to be addressed and that there is sufficient monitoring data to inform the stormwater strategy at the site.

3. Groundwater flow tends to follow the prevailing topography, with flow moving in southeastern and northwestern directions across the PSA towards the surface watercourses, at an average horizontal hydraulic gradient of 0.046 m/m. These surface water features reflect the groundwater discharge areas. Groundwater flow patterns and outflow to discharge areas should remain unaffected by the proposed development. Long term monitoring can be undertaken to confirm the local water table is being maintained post-development. The long term monitoring plan should be developed during the detailed design stage of the proposed development.

4. In-situ well testing indicates the horizontal hydraulic conductivity of the glacial till soil is on the order of 10^{-7} m/s to 10^{-9} m/s across the PSA. Overall, the estimated bulk (i.e., geometric mean) horizontal hydraulic conductivity calculated for the overburden deposits is 5×10^{-8} m/s. The average horizontal groundwater flow velocity within the shallow overburden beneath the PSA is estimated at 0.73 m/year.

5. Estimates of vertical hydraulic conductivity of the shallow overburden deposits are on the order of 10^{-8} m/s to 10^{-10} m/s. Overall, the PSA is characterized by low groundwater recharge potential (i.e., generally 22 mm/hour or less), given that infiltration is limited by the low permeability surficial sandy clay till deposits that cover the PSA.

6. Groundwater in the shallow groundwater system is generally characterized by magnesium-bicarbonate and calcium-bicarbonate type water. Groundwater quality near Old School Road reflects a calcium-chloride type, reflecting the greater contribution of salt-laden runoff from infiltrating to the groundwater system. No tested parameters having health-related Ontario Drinking Water Standards (ODWS) were detected above their applicable standards, except for nitrate, which reflects the agricultural property use. Groundwater quality exceeded Provincial Water Quality Objectives (PWQO) for selected metals (cobalt, copper, and zinc), which is typical in southern Ontario. Uranium also exceeded the PWQO at one location (MW31-23).

7. The PSA does not intersect any source water protection policy areas, Wellhead Protection Areas (WHPA), Significant Groundwater Recharge Areas (SGRA) or highly vulnerable aquifers (HVAs).

8. At 12489 Dixie Road, a calculated 84,306 m^3 of annual infiltration occurs under the pre-development condition. Under the post-development condition, Stantec estimates that 51% of the land surface will be converted to impervious cover, reducing annual infiltration to 41,355 m^3 and resulting in an annual infiltration deficit of approximately 42,951 m^3.

9. At 12861 Dixie Road, a calculated 84,451 m^3 of annual infiltration occurs under the pre-development condition. Under the post-development condition, Stantec estimates that 73% of the land surface will be converted to impervious cover, reducing annual infiltration to 22,782 m^3 and resulting in an annual infiltration deficit of approximately 61,670 m^3.

10. Overall, the total average annual volume of infiltration occurring at the PSA under pre-development is estimated at approximately 168,757 m^3/year. The total unmitigated post-development infiltration rate for the PSA is estimated at approximately 64,137 m^3/year, representing a deficit of approximately 104,620 m^3/year.

11. Future development of the PSA will increase the overall imperviousness of these lands, resulting in an overall reduction in infiltration under the post-development condition. Although the pre-development infiltration potential of the PSA is low based on existing soil conditions, the development should include strategies that attempt to infiltrate as much stormwater as possible post-development to mimic the existing recharge function provided by these lands. Potential Low Impact Development (LID) infiltration augmentation options available to the site are likely to include roof downspout disconnection, vegetated filter strips and/or grassed swale or enhanced grassed swales. The suitability of using these infiltration augmentation options should be evaluated at the detailed design stage of proposed developments. Applying these measures, the proposed development should not affect the quality or quantity of local surface water features.

12. Groundwater control measures will be required to manage minor groundwater seepage into temporary excavation areas. Due to the low hydraulic conductivity of the glacial till soils, dewatering rates and zones of influence are expected to be minor for temporary excavations (i.e., less than 50 m^3/day and 30 m distance from the open excavations, respectively). Water management within the excavation areas will predominantly reflect capture of stormwater inflow. The total dewatering rate required to support site servicing is interpreted to be approximately 470 m^3/day at 12489 Dixie Road and 265 m^3/day at 12861 Dixie Road. It is therefore expected that construction dewatering can be accommodated with the registration of an Environmental Activity Sector Registry (EASR), which allows construction dewatering up to 400 m^3/day. Under an EASR, multiple excavations with non-overlapping areas of influence can be simultaneously dewatered up to 400 m^3/day per excavation.

13. Given the steady-state dewatering rates and zones of influence are expected to be minor for temporary excavations (i.e., less than 50 m^3/day and 30 m distance from the open excavations, respectively), the proposed temporary construction dewatering measures should not affect local private wells and should have no discernible effect on the normal flow conditions within local surface water features.

14. Based on the available groundwater quality results, it is expected that treatment of groundwater will be required to reduce concentrations of metals and total suspended solids to discharge to the environment during construction dewatering. Dewatering and surface water management measures will be implemented during construction to direct surface water away from the open excavation areas. Mitigation and contingency measures will be in place to reduce the potential for impact to surface water systems due to groundwater dewatering.

15. Servicing may occur below the groundwater table in some areas of the PSA. Efforts may be required to minimize the disturbance that this servicing could have on pre-development groundwater flow patterns. Typically, the most common mitigation measure is the installation of anti-seepage (cut-off) collars to prevent the preferential movement of groundwater along the servicing alignments. An assessment for the need, total number and exact placements of anti-seepage collars along the servicing alignments should be explored in more detail during the detailed design phase.

16. Review of MECP well records within 500 m of the PSA indicates the presence of potential private wells on nearby properties. Given the thick overburden clay material present across the PSA, the anticipated below ground construction activity, the distance to the nearest private wells, and the limited dewatering rates and predicted zone of influence, no private well interference is expected.

8 References

American Society for Testing and Materials International. 2000. ASTM D2488 00. Standard Practice for Description and Identification of Soils.

CTC Source Protection Committee (CTCSPC), 2022a. Approved Updated Assessment Report: Toronto and Region Source Protection Area. Version 5.0. Approved February 23, 2022.

CTC Source Protection Committee (CTCSPC), 2022b. Approved Source Protection Plan: CTC Source Protection Region. Version 5.0. Approved February 23, 2022.

Credit Valley Conservation - Toronto and Region Conservation Authority. 2010. Low Impact Development Stormwater Management Planning and Design Guide – Version 1.0.

Environment Canada, 2023. Canadian Climate Normals 1981-2010, Toronto Lester B. Pearson Int'l A, Climate ID 6158733 Accessed November 2023. (http://climate.weather.gc.ca/climate_normals/index_e.html)

Fetter, C.W. 1994. Applied Hydrogeology. 3d ed. New Jersey: Prentice-Hall, Inc.

Hvorslev, M. (1951) Time Lag and Soil Permeability in Ground-Water Observations, Waterways Exper. Sta. Corps of Engrs, U.S. Army, Vicksburg.

Ministry of the Environment (MOE). 1990. Wells. Regulation under the Ontario Water Resources Act. Regulation 903 of the Revised Regulations of Ontario, 1990.

Ministry of the Environment. 2003. Stormwater Management Planning and Design Manual. March 2003.

Ministry of the Environment. 2006. Technical Support Document for Ontario Drinking Water Standards, Objectives and Guidelines. Original publication June 2003. Revised June 2006.

Ministry of Environment and Energy. 1995. MOEE Hydrogeological Technical Information Requirements for Land Development Applications. April 1995.

Ministry of the Environment, Conservation and Parks (MECP). 2024. Source Water Protection Information Atlas. Accessed November 2024. (https://www.gisapplication.lrc.gov.on.ca/SourceWaterProtection/Index.html?viewer=SourceWaterProtection.SWPViewer&locale=en-US)

Oak Ridges Moraine Groundwater Program Website (ORMGP), 2018. Accessed November 24, 2023 (https://www.oakridgeswater.ca/).

Ontario Geological Survey (OGS). 2010. Surficial Geology of Southern Ontario; Ontario Geological Survey, Miscellaneous Release -- Data 128 – Revised.

Region of Peel Website (Region of Peel), 2023. Accessed November 2023. (https://www.peelregion.ca/drinking-water/).

Sharpe, D.R. and H.A.J. Russel. 2007. A new depositional model for Halton Till sediment, Greater Toronto Area. *CANQUA Ottawa 2007*. Canadian Quaternary Association Conference, June 4-8, 1007. Carleton University, Ottawa, Ontario, Canada.

Stantec Consulting Ltd. (Stantec), 2024. Geotechnical Investigation and Design Report, 12489 and 12861 Dixie Road, Caledon, ON. November 29, 2024.

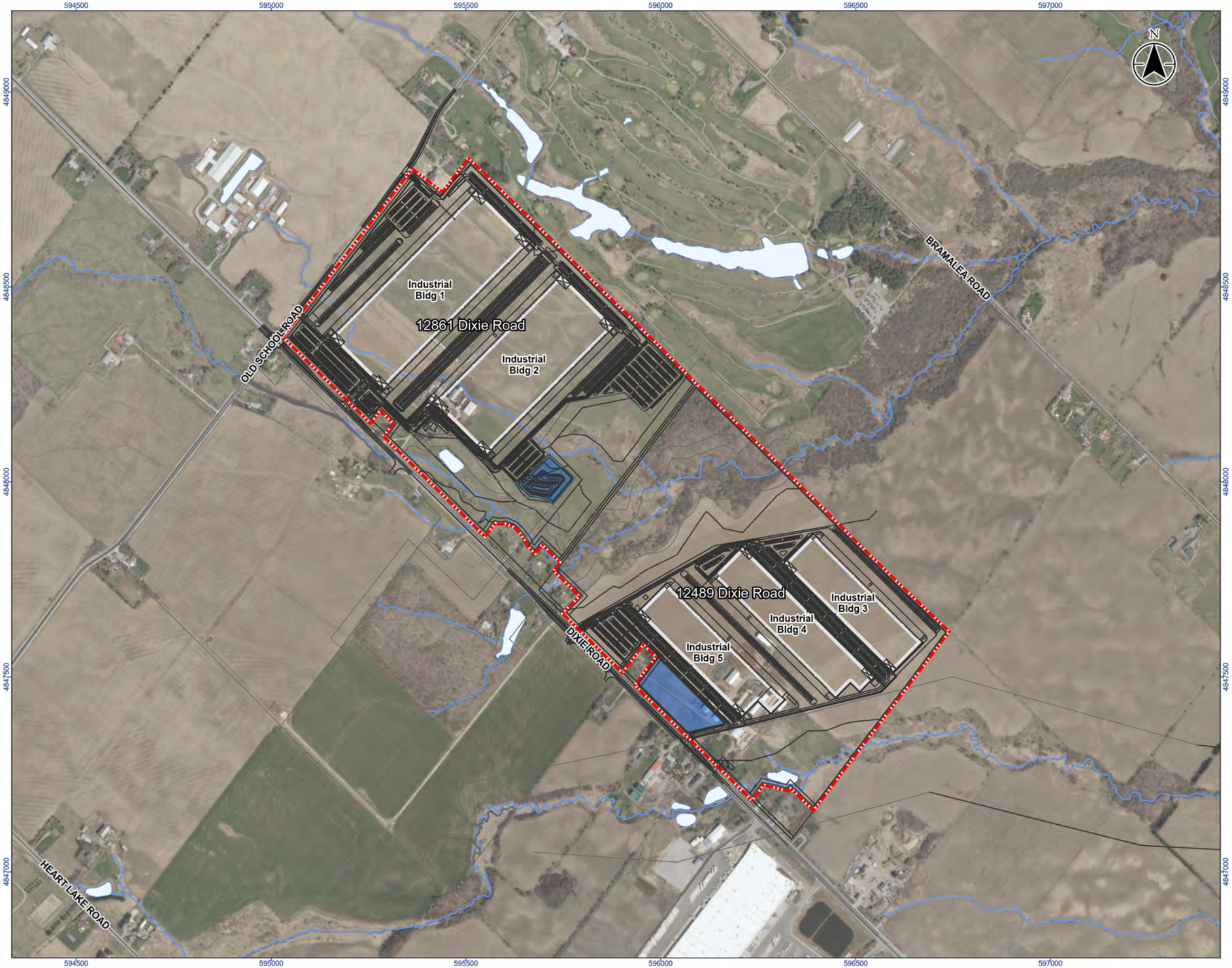
Thornthwaite, C.W. and Mather, J.W. 1955. The water balance. Philadelphia, PA: Drexel Institute of Technology, Climatological Laboratory Publication No.8.

Thornthwaite, C.W., and Mather J.W., 1957. Instructions and Tables for Computing Potential Evapotranspiration and the water balance. Drexel Institute of Technology, Laboratory of Climatology, Publications in Climatology, Volume X, No. 3. Centerton, New Jersey.

Toronto and Region Conservation Authority (TRCA), 2023. Humber River Watershed Characterization Report. October 2023.

Appendices

Appendix A Figures



Stantec

Legend

- Property Boundary

Proposed Development

- Proposed Development Plan
- Adjacent Lands
- Proposed Industrial Building
- Proposed Pond

Base Features

- Road
- Watercourse (Permanent)
- Waterbody

0 250 500 m

1:10,000 (At original document size of 11x17)

Notes

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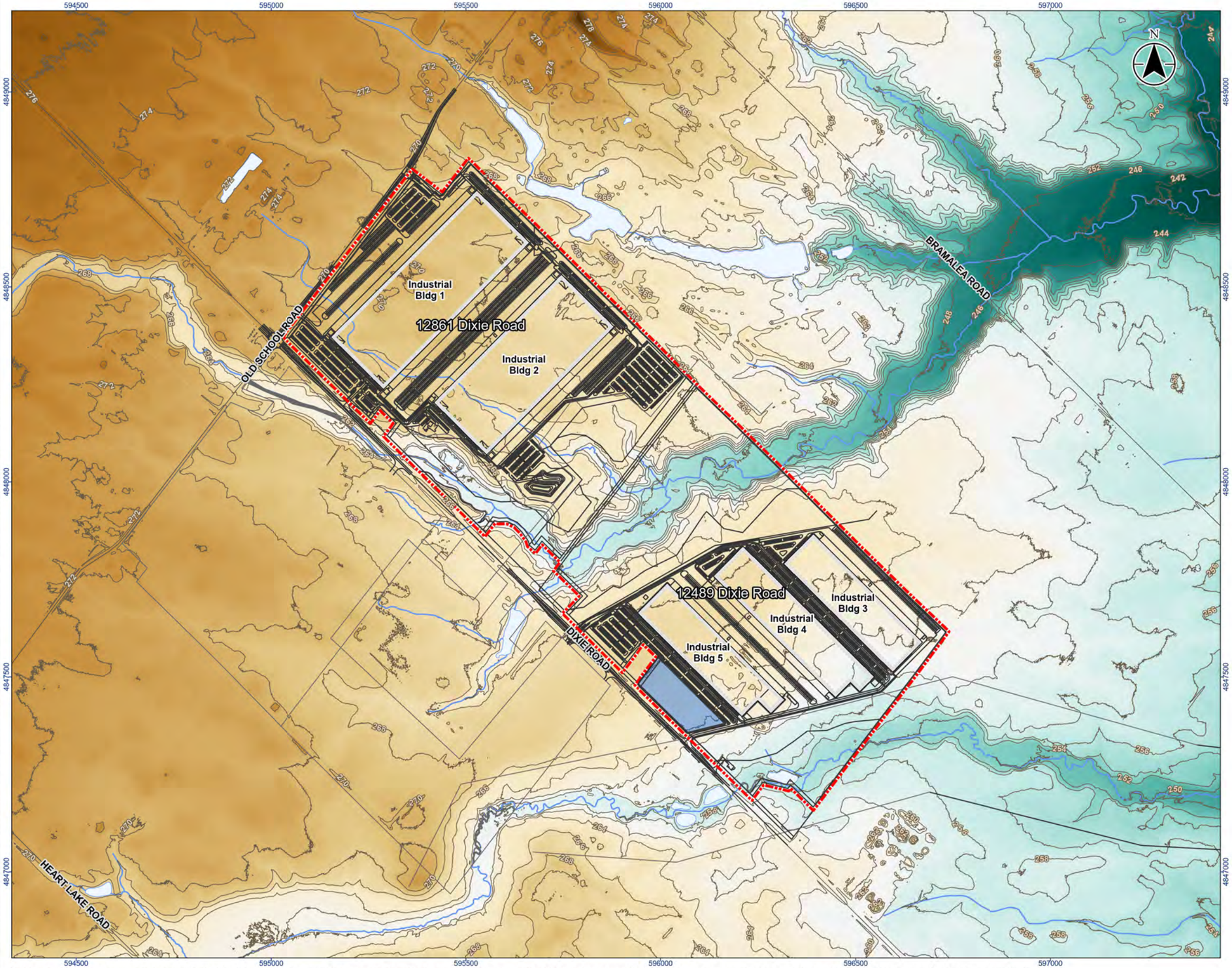
Project Location
Caledon, ON

121624777 REVA
Prepared by PMoser on 2024-12-03
Technical Review by NS on 2024-12-02

Client/Project
QuadReal Properties Group
12489 and 12861 Dixie Road, Caledon, ON
Hydrogeological Investigation

Figure No.
1

Title
Site Location



Stantec

Legend

- Property Boundary

Proposed Development

- Proposed Development Plan
- Adjacent Lands
- Proposed Industrial Building
- Proposed Pond

Base Features

- Road
- Topographic Contour (mASL)
- Watercourse (Permanent)
- Waterbody
- Municipal Boundary - Lower Tier

Ground Surface Elevation

282.246

234.34

0 250 500 m

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Notes

1. Coordinate System:NAD 1983 UTM Zone 17N
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Project Location
Caledon, ON

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Technical Review by NS on 2024-12-02

Client/Project
QuadReal Properties Group
12489 and 12861 Dixie Road, Caledon, ON
Hydrogeological Investigation

Figure No.
2

Title
Topography and Drainage

Stantec

Legend

- Property Boundary
- Water Well Record (MECP)

Proposed Development

- Proposed Development Plan
- Adjacent Lands
- Proposed Industrial Building
- Proposed Pond

Base Features

- Road
- Watercourse (Permanent)
- Wetland, Provincially Significant
- Waterbody
- Municipal Boundary - Lower Tier
- Property Boundary Buffer (500m)

Surficial Geology

- 19: Modern alluvial deposits
- 6: Ice-contact stratified deposits
- 5d: Glaciolacustrine-derived silty to clayey till

0 250 500 m

1:12,500 (At original document size of 11x17)

Notes

1. Coordinate System:NAD 1983 UTM Zone 17N
2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © King's Printer for Ontario, 2023.
3. Ontario Geological Survey 2010. Surficial geology of Southern Ontario; Ontario Geological Survey, Miscellaneous Release--Data 128-REV ISBN 978-1-4435-2483-4

Project Location
Caledon, ON

121624777 REVA
Prepared by PMoser on 2024-12-03
Technical Review by ABC on yyyy-mm-dd

Client/Project
QuadReal Properties Group
12489 and 12861 Dixie Road, Caledon, ON
Hydrogeological Investigation

Figure No.
3

Title
Surficial Geology

Stantec

Legend

- Property Boundary
- Monitoring Well
- Borehole
- Staff Gauge

Proposed Development

- Proposed Development Plan
- Adjacent Lands
- Proposed Industrial Building
- Proposed Pond

Base Features

- Road
- Watercourse (Permanent)
- Waterbody

0 100 200 m

1:7,500 (At original document size of 11x17)

Notes

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Technical Review by NS on 2024-12-02

Client/Project
QuadReal Properties Group
12489 and 12861 Dixie Road, Caledon, ON
Hydrogeological Investigation

Figure No.
4

Title
Site Instrumentation

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A
NORTHWEST

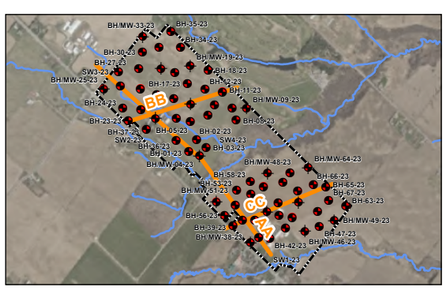
A'
SOUTHEAST

BH-27-23
BH/MW-25-23
BH-26-23
BH-24-23
BH-28-23
4901406
BH-22-23
BH/MW-15-23
BH-37-23
BH-14-23
BH-36-23
BH-02-23
BH-01-23
BH-03-23
BH/MW-04-23
4904249
BH/MW51-23
BH53-23
BH57-23
BH56-23
BH39-23
BH40-23
BH52-23
BH/MW38-23
BH41-23
BH42-23

Elevation (mASL)

280
275
270
265
260
255
250
245
240

SANDY LEAN CLAY
SANDY LEAN CLAY
SANDY LEAN CLAY
CLAY
MEDIUM SAND
CLAY, BOULDERS
MEDIUM SAND, GRAVEL
SHALE
TOPSOIL
SANDY LEAN CLAY
SANDY LEAN CLAY
SANDY LEAN CLAY
SANDY LEAN CLAY
SANDY LEAN CLAY
SANDY LEAN CLAY
SANDY LEAN CLAY
SANDY LEAN CLAY
SANDY LEAN CLAY
CLAY, STONES
CLAY, GRAVEL
CLAY
CLAY
GRAVEL, SHALE
SANDY LEAN CLAY
SANDY LEAN CLAY
SANDY LEAN CLAY
SANDY SILTY CLAY w GRAVEL
SANDY LEAN CLAY
SANDY SILTY CLAY w GRAVEL
SANDY LEAN CLAY
SANDY LEAN CLAY
SANDY SILTY CLAY w GRAVEL
SANDY LEAN CLAY
LEAN CLAY
LEAN CLAY
SANDY LEAN CLAY



MW1-15 (OS m)
Sand
Stratigraphy
Water Level
Well Screen

Well ID (Offset)

- 19: Modern alluvial deposits
- 5d: Glaciolacustrine-derived silty to clayey till
- Topsoil/Fill
- Sandy Silty Clay
- Sandy Lean Clay
- Bedrock (Shale)

10x Vertical Exaggeration

0 110 220 m

1:5,000 (At original document size of 11x17)

Notes
1. Coordinate System:NAD 1983 UTM Zone 17N

Stantec

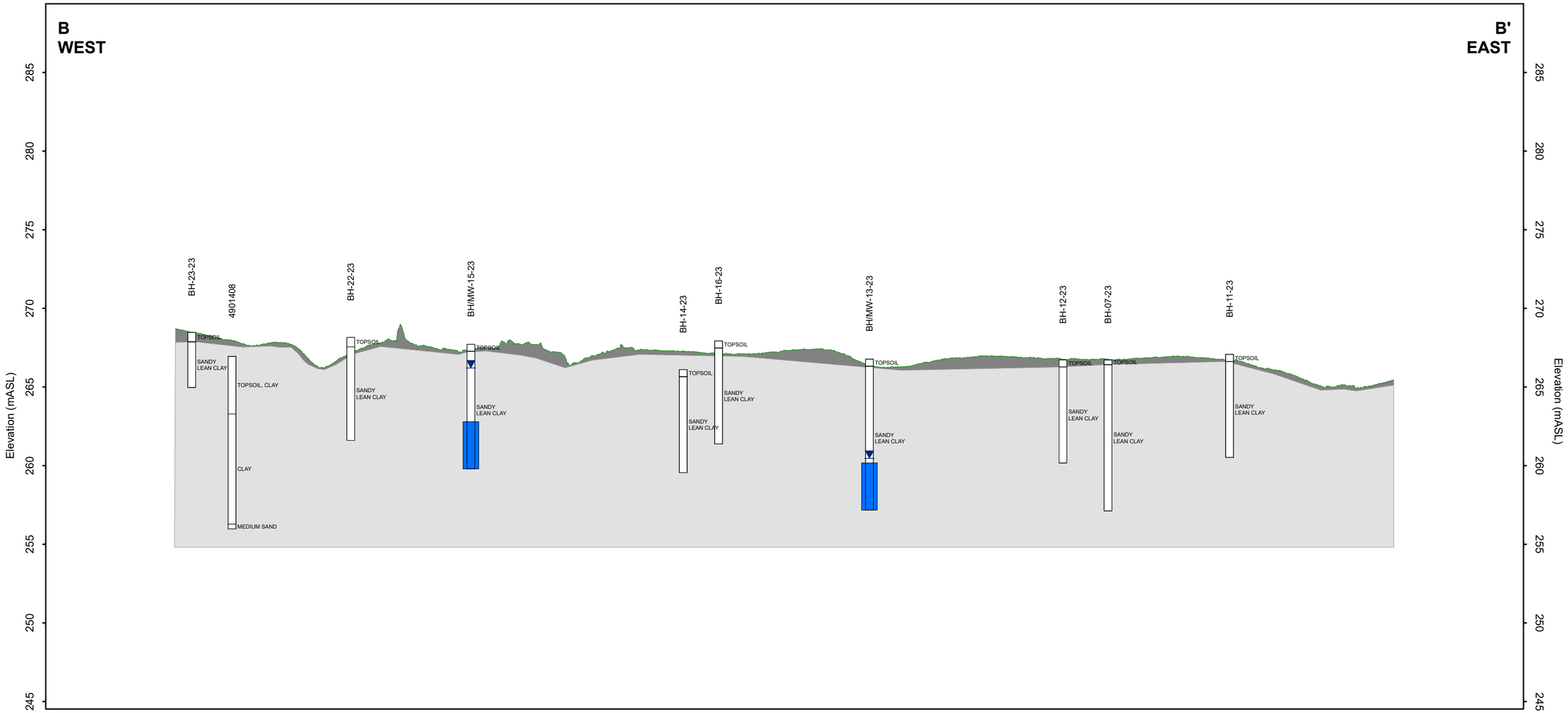
Project Location
Caledon, ON

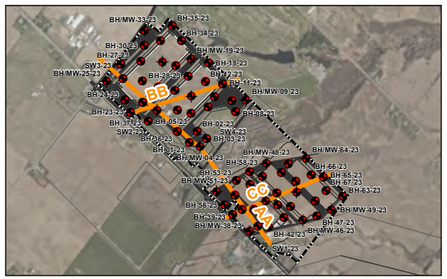
121624777 REVA
Prepared by PMoser on 2024-12-05
Technical Review by NS on 2024-12-05

Client/Project
QuadReal Properties Group
12489 and 12861 Dixie Road, Caledon, ON
Hydrogeological Investigation

Figure No.
5

Title
Cross-Section A-A'





MW1-15 (OS m)

Sand

Well ID (Offset)

Stratigraphy

Water Level

Well Screen

- 5d: Glaciolacustrine-derived silty to clayey till
- Topsoil/Fill
- Sandy Silty Clay
- Sandy Lean Clay

10x Vertical Exaggeration

0 50 100 m

1:2,500 (At original document size of 11x17)

Notes
1. Coordinate System:NAD 1983 UTM Zone 17N

Stantec

Project Location
Caledon, ON

121624778 REVA
Prepared by pmoser on 2024-12-04
Technical Review by xxx on xxxx-xx-xx

Client/Project
QuadReal Properties Group
12489 and 12861 Dixie Road, Caledon, ON
Hydrogeological Investigation

Figure No.
6

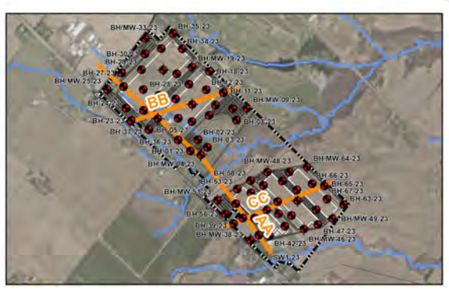
Title
Cross-Section B-B'

C
WEST

C'
EAST

Elevation (mASL)

280
275
270
265
260
255
250
245
240



MW1-15 (OS m)

Sand

Well ID (Offset)

Stratigraphy

Water Level

Well Screen

5d: Glaciolacustrine-derived silty to clayey till

Topsoil/Fill

Sandy Silty Clay

Sandy Lean Clay

10x Vertical Exaggeration

0 50 100 m

1:2,500 (At original document size of 11x17)

Notes
1. Coordinate System:NAD 1983 UTM Zone 17N

Stantec

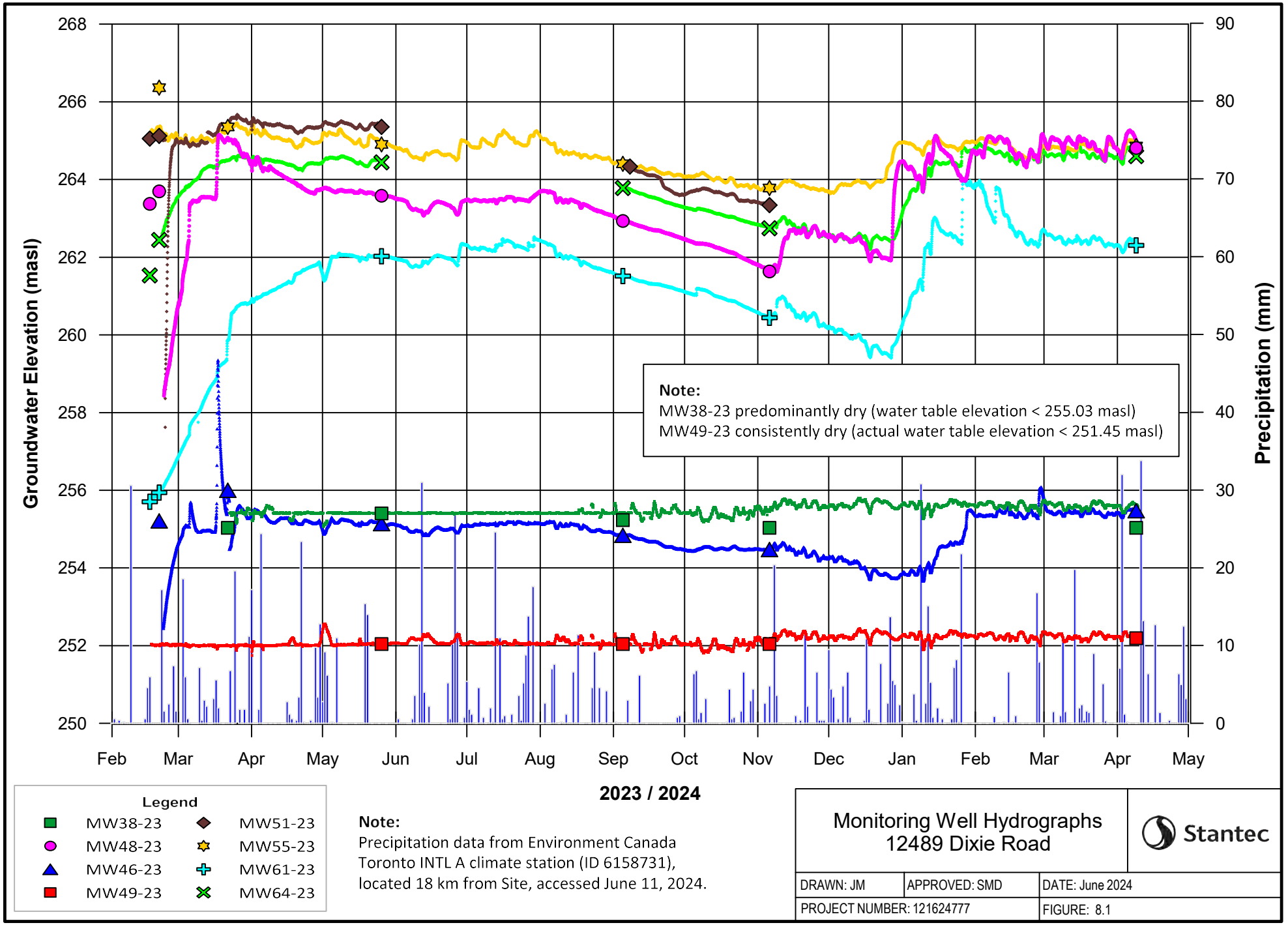
Project Location
Caledon, ON

121624777 REVA
Prepared by PMoser on 2024-12-03
Technical Review by xxx on xxxx-xx-xx

Client/Project
QuadReal Properties Group
12489 and 12861 Dixie Road, Caledon, ON
Hydrogeological Investigation

Figure No.
7

Title
Cross-Section C-C'

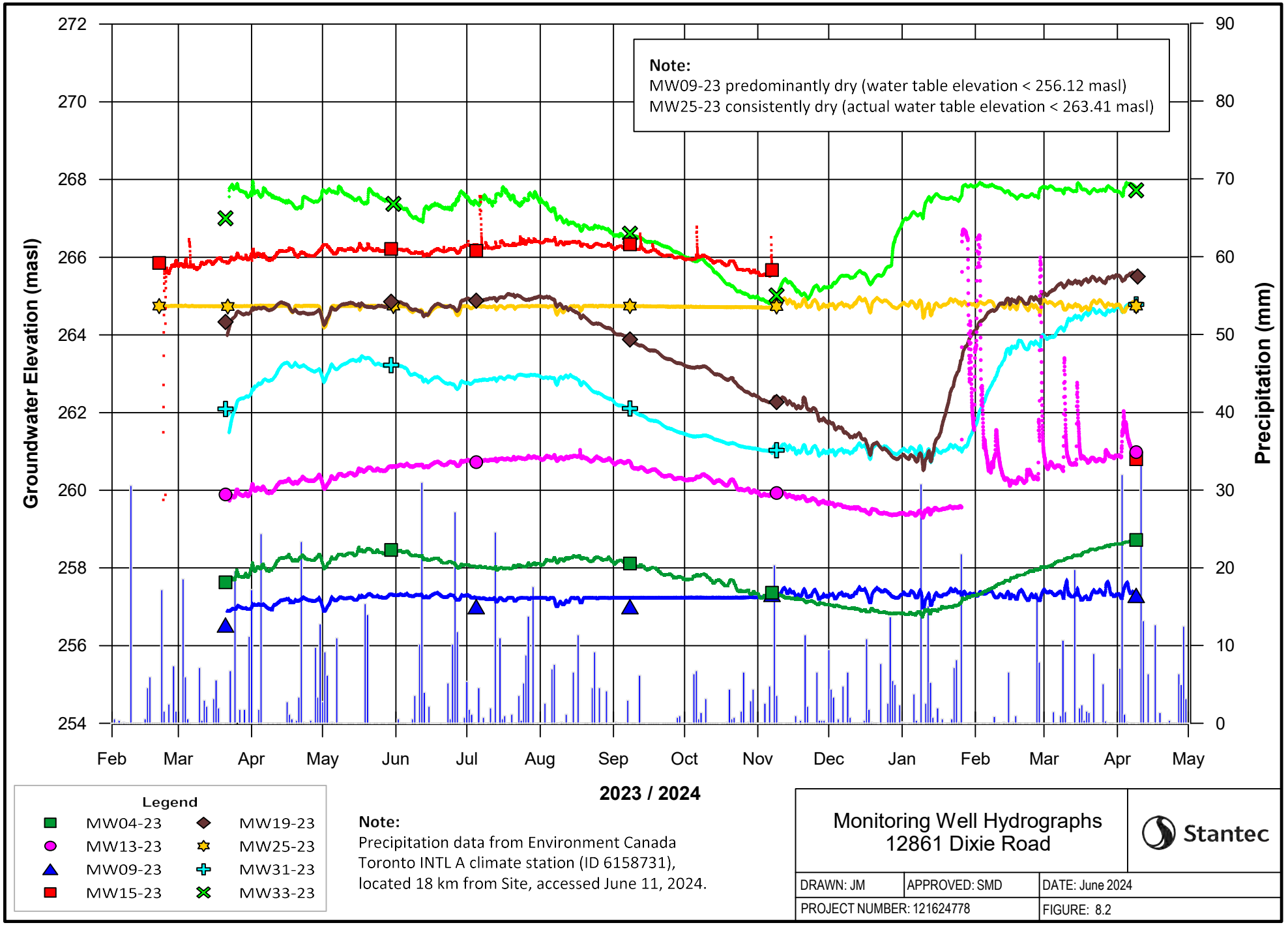


Note:
Precipitation data from Environment Canada Toronto INTL A climate station (ID 6158731), located 18 km from Site, accessed June 11, 2024.

Monitoring Well Hydrographs
12489 Dixie Road

Stantec

DRAWN: JM	APPROVED: SMD	DATE: June 2024
PROJECT NUMBER: 121624777		FIGURE: 8.1



Note:
Precipitation data from Environment Canada Toronto INTL A climate station (ID 6158731), located 18 km from Site, accessed June 11, 2024.

Monitoring Well Hydrographs
12861 Dixie Road

Stantec

DRAWN: JM	APPROVED: SMD	DATE: June 2024
PROJECT NUMBER: 121624778		FIGURE: 8.2

SW1-23

SW2-23

SW3-23

SW4-23

Height of Surface Water Above Grade (m)

Precipitation (mm)

Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr

2023 / 2024

Legend

Manual Reading

Datalogger Reading

Total Precip (mm)

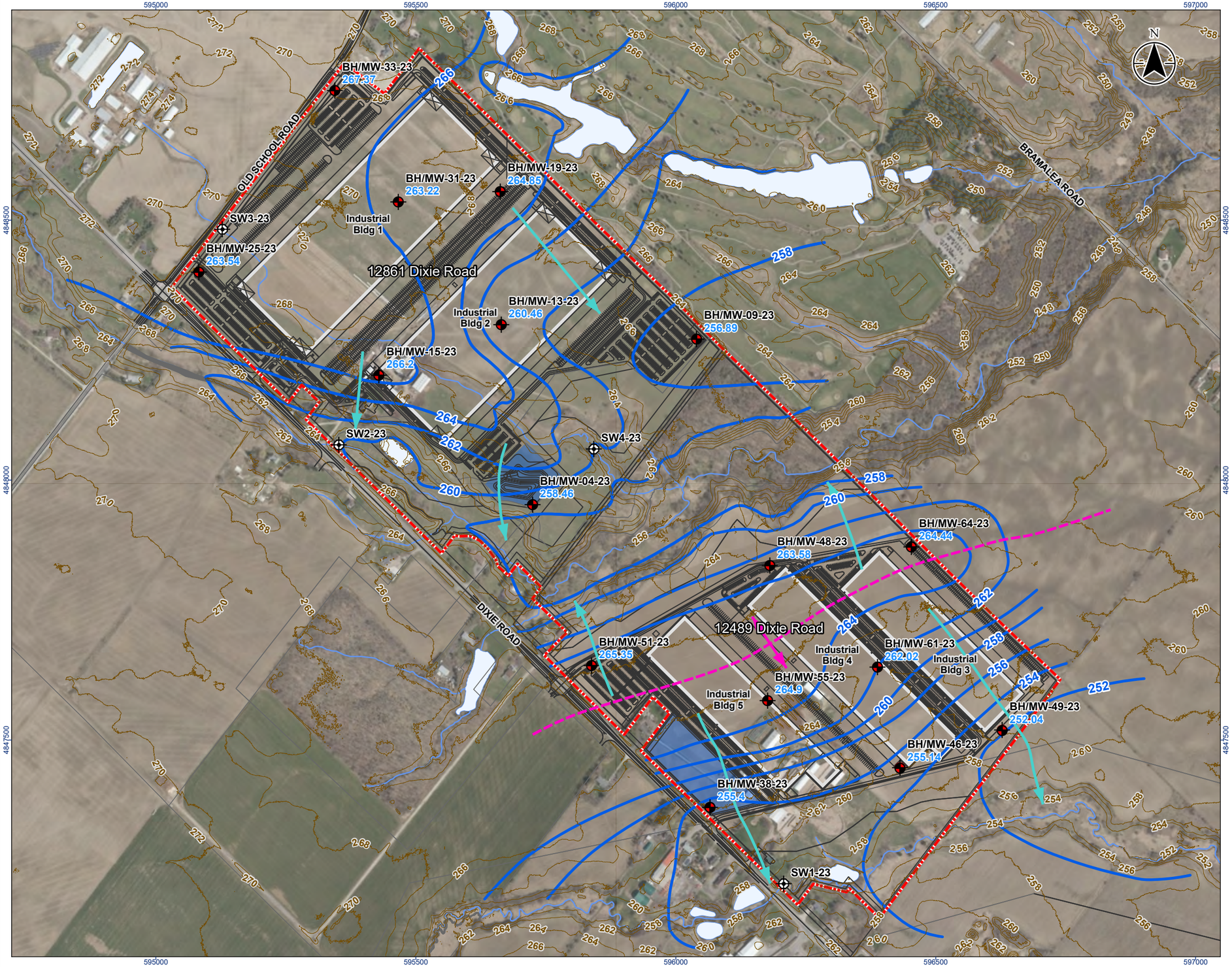
Note:

Precipitation data from Environment Canada Toronto INTL A climate station (ID 6158731), located 18 km from Site, accessed June 11, 2024.

Staff Gauge Hydrographs
12489 and 12861 Dixie Road

Stantec

DRAWN: JM	APPROVED: SMD	DATE: June 2024
PROJECT NUMBER: 121624777/8		FIGURE: 9



Stantec

Legend

- Property Boundary
- Monitoring Well
- Staff Gauge
- Groundwater Contour (mASL)
- Inferred Groundwater Flow Direction
- Inferred Groundwater Divide

Proposed Development

- Proposed Development Plan
- Adjacent Lands
- Proposed Industrial Building
- Proposed Pond

Base Features

- Road
- Topographic Contour (mASL)
- Watercourse (Permanent)
- Waterbody

0 100 200 m

1:7,500 (At original document size of 11x17)

Notes

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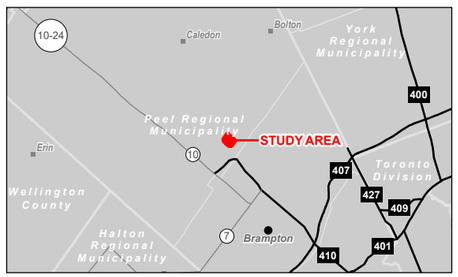


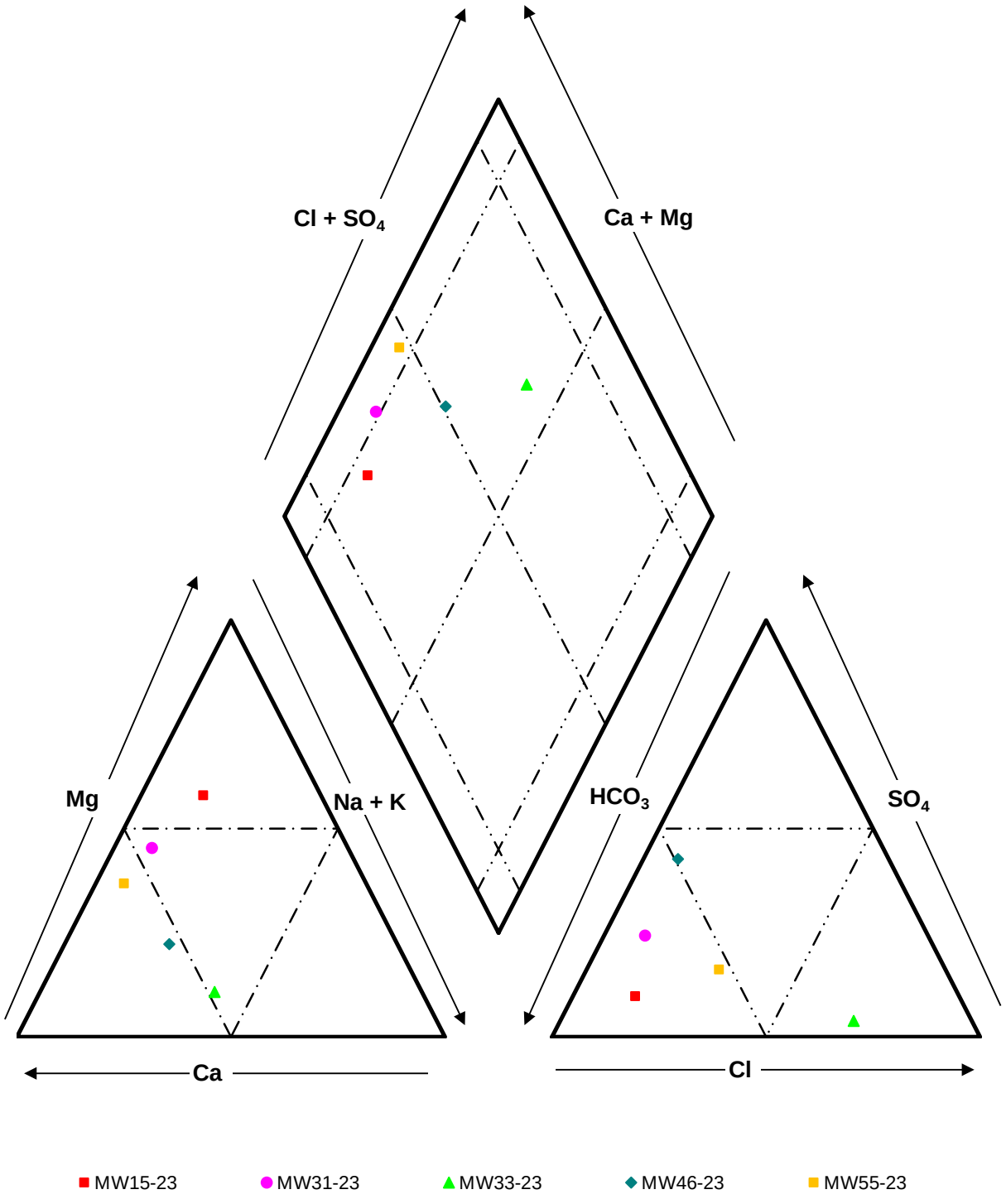
Project Location
Caledon, ON

121624777 REVA
Prepared by pmoser on 2024-12-05
Technical Review by NS on 2024-12-02

Client/Project
QuadReal Properties Group
12489 and 12861 Dixie Road, Caledon, ON
Hydrogeological Investigation

Figure No.
10

Title
Groundwater Flow (May 2023)



Stantec

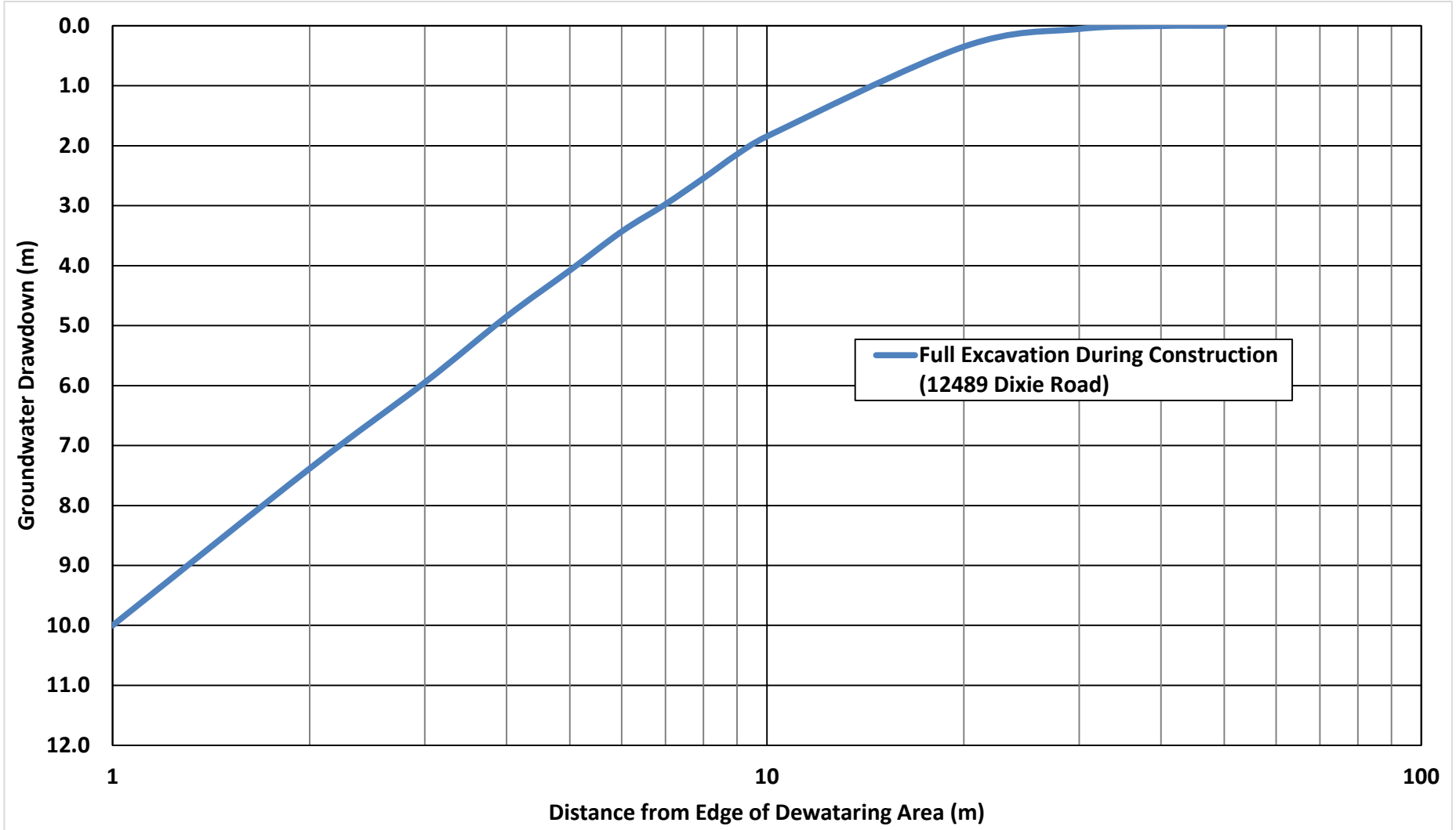
12489 AND 12861 DIXIE ROAD, CALEDON, ON
HYDROGEOLOGICAL ASSESSMENT

PIPER DIAGRAM

DATE:	SCALE:	PROJECT No.	FIGURE No.
28-Nov-23		121624777	**11**

Predicted Water Table Drawdown vs. Distance (based on Theis Equation)

Figure 12



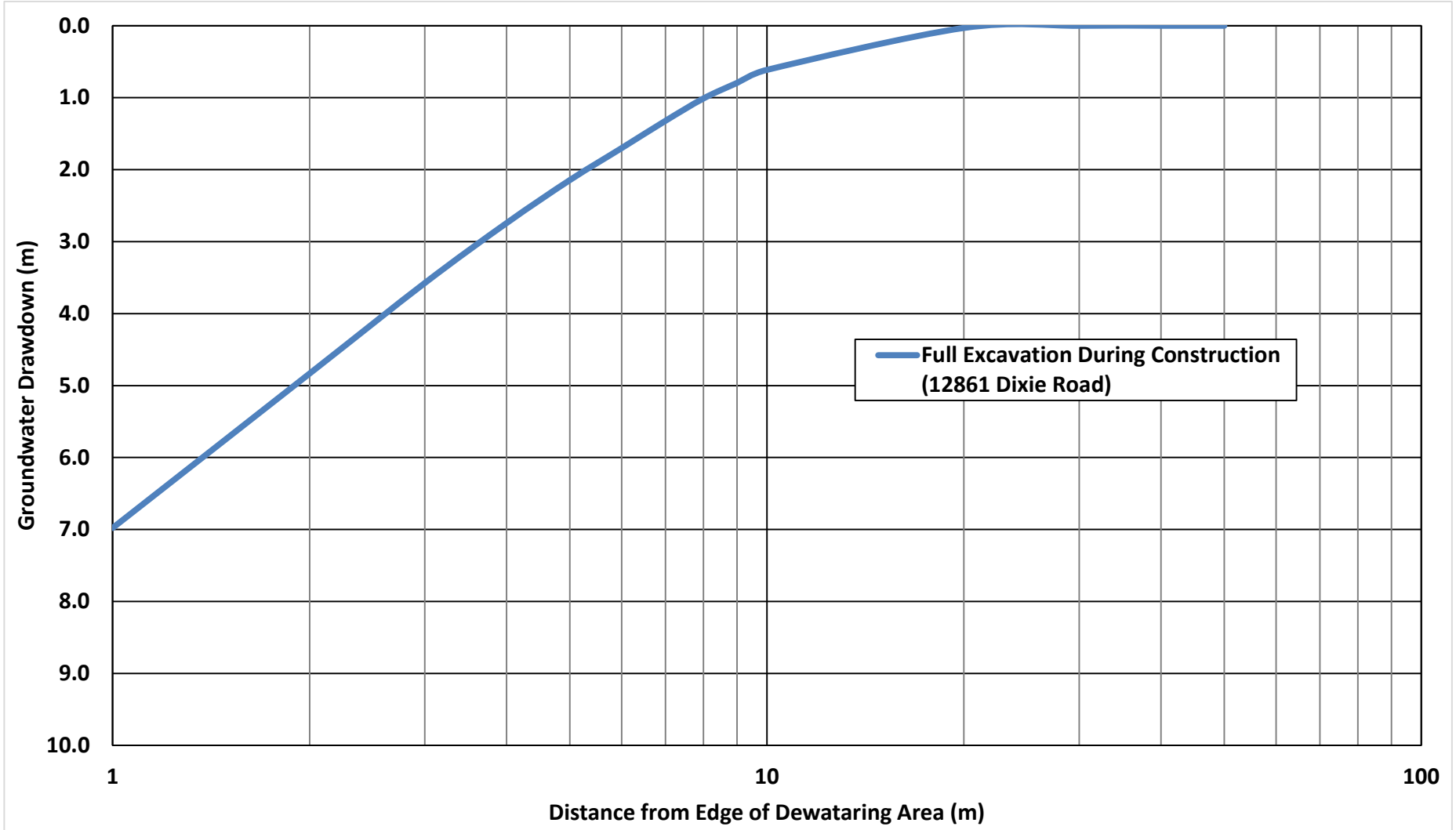
DATE: November 2023

PROJECT: 121624777

Stantec

Predicted Water Table Drawdown vs. Distance (based on Theis Equation)

Figure 13



DATE: November 2023

PROJECT: 121624778

Stantec

Appendix B Tables

Table 1
Monitoring Well Construction Details
Dixie Road Development
QuadReal Properties Group

Well ID	UTM Coordinates		Elevations		Well	Well Screen		Screened
	Northing	Easting	Top of Casing (m AMSL)	Ground Surface (m AMSL)	Base Elevation (m AMSL)	Top (m AMSL)	Bottom (m AMSL)	Material Description
12861 Dixie Road								
BH/MW04-23	4847953	595724	266.53	265.68	256.54	259.59	256.54	SANDY LEAN CLAY
BH/MW09-23	4848272	596040	266.24	265.26	256.12	259.17	256.12	SANDY LEAN CLAY
BH/MW13-23	4848298	595666	267.76	266.77	257.63	260.68	257.63	SANDY LEAN CLAY
BH/MW15-23	4848202	595429	267.58	267.72	258.58	261.62	258.58	SANDY LEAN CLAY
BH/MW19-23	4848555	595663	268.32	267.74	258.59	261.64	258.59	LEAN CLAY WITH SAND TO SANDY LEAN CLAY
BH/MW25-23	4848400	595082	271.13	269.93	263.22	266.27	263.22	SANDY LEAN CLAY
BH/MW31-23	4848534	595466	270.30	269.42	259.82	263.18	259.82	SANDY LEAN CLAY
BH/MW33-23	4848750	595344	269.15	268.26	258.66	262.01	258.66	SANDY LEAN CLAY
12489 Dixie Road								
BH/MW38-23	4847389	596080	265.13	264.94	255.80	258.84	255.80	SANDY LEAN CLAY
BH/MW46-23	4847444	596433	261.73	260.71	251.56	254.61	251.56	SANDY LEAN CLAY
BH/MW48-23	4847842	596180	266.45	265.43	256.28	259.33	256.28	SANDY LEAN CLAY
BH/MW49-23	4847513	596626	261.69	260.58	251.43	254.48	251.43	SANDY LEAN CLAY
BH/MW51-23	4847620	595839	267.89	266.59	257.45	260.50	257.45	SANDY LEAN CLAY
BH/MW55-23	4847566	596186	266.83	265.78	256.63	259.68	256.63	LEAN CLAY
BH/MW61-23	4847639	596359	264.98	263.90	254.76	257.80	254.76	SANDY LEAN CLAY
BH/MW64-23	4847867	596468	266.26	265.23	256.09	259.13	256.09	SANDY LEAN CLAY

Notes:
m AMSL = meters above mean sea level
m BGS = meters below ground surface
m BTOC = meters below top of well casing
- = data not available

Table 2
Water Level Monitoring Data
Dixie Road Development
QuadReal Properties Group

Well ID	Date	Well Depth		Top of Casing Elevation	Pipe Stick-up	Groundwater Level			Inferred Hydraulic Conductivity
		(m BTOC)	(m AMSL)	(m AMSL)	(m)	(m BTOC)	(m BGS)	(m AMSL)	(m/s)
12861 Dixie Road									
BH/MW04-23	21-Mar-23	9.80	256.72	266.53	0.66	8.90	8.24	257.63	5.5E-07
	30-May-23					8.07	7.41	258.46	
	8-Sep-23					8.42	7.76	258.11	
	7-Nov-23					9.17	8.51	257.36	
	9-Apr-24					7.81	7.15	258.72	
BH/MW09-23	21-Mar-23	10.12	256.12	266.24	0.60	9.71	9.11	256.53	
	26-May-23					9.35	8.75	256.89	
	5-Jul-23			266.62	0.98	Dry	Dry	-	
	8-Sep-23					Dry	Dry	-	
	7-Nov-23					8.92	8.32	257.70	
	9-Apr-24					Dry	Dry	-	
BH/MW13-23	21-Mar-23	10.13	257.63	267.76	0.61	7.87	7.26	259.89	1.5E-07
	26-May-23					7.30	6.69	260.46	
	5-Jul-23			268.14	0.99	NM	-	-	
	8-Sep-23					NM	-	-	
	9-Nov-23					7.83	6.84	260.31	
	9-Apr-24					6.79	5.80	261.36	
BH/MW15-23	21-Feb-23	9.00	258.58	267.58	-0.14	1.73	1.87	265.85	4.4E-08
	30-May-23					1.38	1.52	266.20	
	5-Jul-23					1.42	1.56	266.16	
	8-Sep-23					1.25	1.39	266.33	
	7-Nov-23					NM	-	-	
	9-Apr-24					NM	-	-	
BH/MW19-23	21-Mar-23	9.72	258.59	268.32	0.58	4.00	3.42	264.32	4.2E-09
	30-May-23					3.47	2.89	264.85	
	5-Jul-23			268.73	0.99	3.45	2.46	265.28	
	8-Sep-23					4.45	3.46	264.28	
	9-Nov-23					6.06	5.07	262.67	
	9-Apr-24					2.83	1.84	265.90	
BH/MW25-23	21-Feb-23	7.72	263.41	271.13	1.01	Dry	Dry	-	
	22-Mar-23					Dry	Dry	-	
	31-May-23					Dry	Dry	-	
	8-Sep-23					Dry	Dry	-	
	9-Nov-23					6.40	5.39	264.73	
	9-Apr-24					6.39	5.38	264.74	
BH/MW31-23	21-Mar-23	10.26	260.04	270.30	0.66	8.21	7.55	262.09	1.9E-08
	30-May-23					7.08	6.42	263.22	
	8-Sep-23					8.20	7.54	262.10	
	9-Nov-23					9.28	8.62	261.03	
	9-Apr-24					5.53	4.87	264.78	
BH/MW33-23	21-Mar-23	10.15	259.00	269.15	0.55	2.16	1.61	267.00	7.1E-08
	31-May-23					1.78	1.23	267.37	
	8-Sep-23					2.55	2.00	266.60	
	9-Nov-23					4.15	3.60	265.01	
	9-Apr-24					1.40	0.85	267.75	
12489 Dixie Road									
BH/MW38-23	22-Mar-23	10.10	255.03	265.13	0.96	Dry	Dry	-	
	25-May-23					9.73	8.77	255.40	
	5-Sep-23					9.91	8.95	255.23	
	6-Nov-23					Dry	Dry	-	
	9-Apr-24					Dry	Dry	-	

Table 2
Water Level Monitoring Data
Dixie Road Development
QuadReal Properties Group

Well ID	Date	Well Depth		Top of Casing Elevation	Pipe Stick-up	Groundwater Level			Inferred Hydraulic Conductivity
		(m BTOC)	(m AMSL)	(m AMSL)	(m)	(m BTOC)	(m BGS)	(m AMSL)	(m/s)
BH/MW46-23	21-Feb-23	10.18	251.54	261.73	1.04	6.52	5.48	255.21	1.9E-08
	22-Mar-23					5.73	4.69	256.00	
	26-May-23					6.59	5.55	255.14	
	5-Sep-23					6.89	5.85	254.84	
	6-Nov-23					7.23	6.19	254.50	
	9-Apr-24					6.29	5.25	255.44	
BH/MW48-23	17-Feb-23	10.14	256.31	266.45	1.00	3.08	2.08	263.37	4.3E-08
	21-Feb-23					2.76	1.76	263.69	
	26-May-23					2.87	1.87	263.58	
	5-Sep-23					3.52	2.52	262.93	
	6-Nov-23					4.82	3.82	261.63	
	9-Apr-24					1.64	0.64	264.81	
BH/MW49-23	21-Feb-23	10.24	251.45	261.69	1.10	Dry	Dry	-	
	26-May-23					Dry	Dry	-	
	5-Sep-23					Dry	Dry	-	
	6-Nov-23					Dry	Dry	-	
	9-Apr-24					9.60	8.51	252.09	
BH/MW51-23	17-Feb-23	10.74	257.15	267.89	1.60	2.84	1.24	265.05	8.5E-09
	21-Feb-23			267.59	1.30	2.78	1.48	264.82	
	26-May-23					2.55	1.25	265.05	
	8-Sep-23					3.57	2.27	264.03	
	6-Nov-23					4.55	3.25	263.04	
	9-Apr-24					NM	NM	-	
BH/MW55-23	21-Feb-23	10.20	256.63	266.83	1.06	0.47	-0.59	266.36	1.1E-07
	22-Mar-23					1.48	0.42	265.35	
	26-May-23					1.93	0.87	264.90	
	5-Sep-23					2.43	1.37	264.40	
	6-Nov-23					3.05	1.99	263.78	
	9-Apr-24					2.04	0.98	264.79	
BH/MW61-23	17-Feb-23	10.15	254.82	264.98	1.01	9.28	8.27	255.70	
	21-Feb-23					9.04	8.03	255.94	
	26-May-23					2.96	1.95	262.02	
	5-Sep-23					3.47	2.46	261.51	
	6-Nov-23					4.54	3.53	260.44	
	9-Apr-24					2.68	1.67	262.30	
BH/MW64-23	17-Feb-23	10.17	256.09	266.26	1.03	4.73	3.70	261.53	2.0E-07
	21-Feb-23					3.82	2.79	262.44	
	26-May-23					1.82	0.79	264.44	
	5-Sep-23					2.48	1.45	263.78	
	6-Nov-23					3.53	2.50	262.74	
	9-Apr-24					1.73	0.70	264.54	

Notes:

m AMSL = meters above mean sea level
m BGS = meters below ground surface
m BTOC = meters below top of well casing
- = data not available
NM = not measured

Table 3
Infiltration Testing Assessment
Dixie Road Development
QuadReal Properties Group

Testing Location ID	Horizontal Hydraulic Conductivity (m/s)	Vertical Hydraulic Conductivity (cm/s)	Vertical Hydraulic Conductivity (m/s)	Infiltration Rate (mm/hr)	Pit Depth (m BGS)	Screened Interval (m BGS)	Soil Substrate Tested
In-situ Hydraulic Response Testing - 12861 Dixie Road							
BH/MW04-23	5.5E-07	-	5.5E-08	22	-	6.1 - 9.1	SANDY LEAN CLAY
BH/MW13-23	1.5E-07	-	1.5E-08	15	-	6.1 - 9.1	SANDY LEAN CLAY
BH/MW15-23	4.4E-08	-	4.4E-09	11	-	6.1 - 9.1	SANDY LEAN CLAY
BH/MW19-23	4.2E-09	-	4.2E-10	6	-	6.1 - 9.1	LEAN CLAY WITH SAND TO SANDY LEAN CLAY
BH/MW31-23	1.9E-08	-	1.9E-09	8	-	6.2 - 9.6	SANDY LEAN CLAY
BH/MW33-23	7.1E-08	-	7.1E-09	13	-	6.2 - 9.6	SANDY LEAN CLAY
In-situ Hydraulic Response Testing - 12489 Dixie Road							
BH/MW46-23	1.9E-08	-	1.9E-09	8	-	6.1 - 9.1	SANDY LEAN CLAY
BH/MW48-23	4.3E-08	-	4.3E-09	6	-	6.1 - 9.1	SANDY LEAN CLAY
BH/MW51-23	8.5E-09	-	8.5E-10	7	-	6.1 - 9.1	SANDY LEAN CLAY
BH/MW55-23	1.1E-07	-	1.1E-08	14	-	6.1 - 9.1	LEAN CLAY
BH/MW64-23	2.0E-07	-	2.0E-08	17	-	6.1 - 9.1	SANDY LEAN CLAY
GEOMEAN =	**5E-08**	-	**5E-09**	**10**			

Notes:

(1) Infiltration rate calculated based on established relationship between vertical hydraulic conductivity and infiltration rate presented in *Credit Valley Conservation and Toronto and Region Conservation (2010) Low Impact Stormwater Management Planning and Design Guideline - Version 1.0.*

(2) Vertical hydraulic conductivities for deeper overburden deposits assumed to be one order of magnitude lower than in-situ measured horizontal hydraulic conductivities.

Table 4
Summary of Groundwater Analytical Results
Dixie Road Development
QuadReal Properties Group

Sample Location				12861 Dixie Raod			12489 Dixie Raod			
				MW15-23	MW31-23	MW33-23	MW46-23		MW55-23	
Sample Date				23-Feb-23	22-Mar-23	22-Mar-23	22-Mar-23	22-Mar-23	22-Mar-23	22-Mar-23
Sample ID				MW15-23	MW31-23	MW33-23	MW9-23	MW9-23 Lab-Dup	MW18-23	MW18-23 Lab-Dup
Sampling Company				STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC
Laboratory				BV	BV	BV	BV	BV	BV	BV
Laboratory Work Order				C353332	C382753	C382753	C382753	C382753	C382753	C382753
Laboratory Sample ID				VDE257	VJG667	VJG666	VJG668	VJG668	VJG669	VJG669
Sample Type	Units	PWQO	O. Reg. 169/03					Lab Replicate		Lab Replicate
General Chemistry										
Alkalinity, Carbonate (as CaCO3)	mg/L	n/v	n/v	2.6	2.0	<1.0	<1.0	-	1.2	-
Alkalinity, Total (as CaCO3)	mg/L	$_{s16}$[A]	30-500[G]	300	340	330	120	110	290	-
Ammonia (as N)	mg/L	n/v	n/v	0.10	0.30	0.39	0.51	-	<0.050	<0.050
Anion Sum	me/L	n/v	n/v	7.97	10.6	24.3	7.51	-	16.8	-
Bicarbonate(as CaCO3, Calculated)	mg/L	n/v	n/v	300	330	320	110	-	290	-
Cation Sum	me/L	n/v	n/v	7.80	11.3	27.1	7.82	-	17.9	-
Chloride	mg/L	n/v	250[E]	41	35	**580[E]**	14	14	120	-
Dissolved Organic Carbon (DOC)	mg/L	n/v	5[E]	2.1	2.5	1.5	**7.8[E]**	-	2.4	-
Electrical Conductivity, Lab	µmhos/cm	n/v	n/v	740	950	2,600	740	740	1,600	-
Hardness (as CaCO3)	mg/L	n/v	80-100[G]	**330[G]**	**500[G]**	**800[G]**	**300[G]**	-	**840[G]**	-
Ion Balance	%	n/v	n/v	1.07	3.28	5.54	2.02	-	3.38	-
Langelier Index (at 20 C)	none	n/v	n/v	0.633	0.857	0.833	0.0440	-	0.856	-
Langelier Index (at 4 C)	none	n/v	n/v	0.385	0.609	0.589	-0.203	-	0.611	-
Nitrate (as N)	mg/L	n/v	10.0$_d$[D]	<0.10	6.34	5.70	**37.7[D]**	-	**78.3[D]**	-
Nitrate + Nitrite (as N)	mg/L	n/v	10.0$_d$[D]	<0.10	6.49	6.08	**38.0[D]**	-	**78.4[D]**	-
Nitrite (as N)	mg/L	n/v	1.0$_d$[D]	<0.010	0.156	0.383	0.362	-	0.034	-
Orthophosphate (as P)	mg/L	n/v	n/v	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	-
pH, lab	S.U.	6.5-8.5[A]	6.5-8.5[G]	7.96	7.80	7.50	7.53	7.60	7.63	-
Saturation pH (at 20 C)	none	n/v	n/v	7.33	6.94	6.67	7.49	-	6.78	-
Saturation pH (at 4 C)	none	n/v	n/v	7.58	7.19	6.91	7.74	-	7.02	-
Sulfate	mg/L	n/v	500$_h$[E]	37	120	44	100	100	85	-
Total Dissolved Solids (Calculated)	mg/L	n/v	500[E]	410	**590[E]**	**1,400[E]**	**510[E]**	-	**1,100[E]**	-
Metals										
Aluminum	mg/L	n/v	0.1[G]	0.0079	0.0067	<0.0049	0.0064	-	<0.0049	-
Antimony	mg/L	0.020[C]	0.006[D]	<0.00050	0.00058	<0.00050	<0.00050	-	<0.00050	-
Arsenic	mg/L	0.10[A] 0.0050[C]	0.01[D]	0.0026	<0.0010	<0.0010	<0.0010	-	<0.0010	-
Barium	mg/L	n/v	1[D]	0.094	0.099	0.12	0.038	-	0.075	-
Beryllium	mg/L	1.1$_{s3}$[A]	n/v	<0.00040	<0.00040	<0.00040	<0.00040	-	<0.00040	-
Boron	mg/L	0.20$_a$[C]	5[D]	0.070	0.074	0.020	0.039	-	0.013	-
Cadmium	mg/L	0.00020[A] 0.00050$_{s12}$[C]	0.005[D]	<0.000090	<0.000090	<0.000090	<0.000090	-	<0.000090	-
Calcium	mg/L	n/v	n/v	43	100	260	83	-	200	-
Chromium	mg/L	n/v	0.05[D]	<0.0050	<0.0050	<0.0050	0.0051	-	<0.0050	-
Cobalt	mg/L	0.00090[C]	n/v	<0.00050	0.00053	<0.00050	0.00079	-	**0.0014[C]**	-
Copper	mg/L	0.0050[A] 0.0050$_{s13}$[C]	1[E]	<0.00090	**0.0057[AC]**	0.0010	**0.0057[AC]**	-	<0.00090	-
Iron	mg/L	0.30[A]	0.3[E]	<0.10	<0.10	<0.10	<0.10	-	<0.10	-
Lead	mg/L	0.025$_{s14}$[A] 0.0050$_{s15}$[C]	0.01[D]	<0.00050	<0.00050	<0.00050	<0.00050	-	<0.00050	-
Magnesium	mg/L	n/v	n/v	55	60	35	21	-	79	-
Manganese	mg/L	n/v	0.05[E]	0.044	**0.11[E]**	**0.11[E]**	**0.10[E]**	-	**0.12[E]**	-
Molybdenum	mg/L	0.040[C]	n/v	0.017	0.0072	0.0017	0.019	-	0.0011	-
Nickel	mg/L	0.025[A]	n/v	<0.0010	0.0027	0.0019	0.0026	-	0.0072	-
Phosphorus	mg/L	0.030$_{s4}$[C]	n/v	***<0.10***	***<0.10***	***<0.10***	***<0.10***	-	***<0.10***	-
Potassium	mg/L	n/v	n/v	8.8	18	2.1	9.8	-	3.2	-
Selenium	mg/L	0.10[A]	0.05[D]	<0.0020	0.0039	<0.0020	<0.0020	-	<0.0020	-
Silicon	mg/L	n/v	n/v	8.4	6.1	8.4	4.0	-	6.0	-
Silver	mg/L	0.00010[A]	n/v	<0.000090	<0.000090	<0.000090	<0.000090	-	<0.000090	-
Sodium	mg/L	n/v	200$_g$[E] 20$_g$[F]	**21[F]**	17	**250[EF]**	**38[F]**	-	**25[F]**	-
Strontium	mg/L	n/v	n/v	0.57	0.43	0.58	0.17	-	0.62	-
Thallium	mg/L	0.00030$_b$[C]	n/v	<0.000050	<0.000050	<0.000050	<0.000050	-	<0.000050	-
Titanium	mg/L	n/v	n/v	<0.0050	<0.0050	<0.0050	<0.0050	-	<0.0050	-
Uranium	mg/L	0.0050$_a$[C]	0.02[D]	0.00049	**0.0068[C]**	0.0036	0.0044	-	0.0034	-
Vanadium	mg/L	0.0060[C]	n/v	<0.00050	<0.00050	<0.00050	<0.00050	-	<0.00050	-
Zinc	mg/L	0.030[A] 0.020[C]	5[E]	**0.17[AC]**	**0.31[AC]**	**1.2[AC]**	**0.40[AC]**	-	<0.0050	-

Notes:

PWQO	Provincial Water Quality Objectives of the Ministry of Environment and Energy (MOEE, 1999)
[A]	PWQO Table 2
[B]	PWQO Table 2 - Calculated
[C]	PWQO Table 2 - Interim
O. Reg. 169/03	Ontario Drinking Water Quality Standards (January 1, 2018)
[D]	Schedule 2 - Chemical Standards (expressed as a maximum acceptable concentration)
[E]	ODWS Table 4 - Chemical/Physical Objectives and Guidelines, Aesthetic Objectives
[F]	ODWS Table 4 - Medical Officer of Health Reporting Limit
[G]	ODWS Table 4 - Chemical/Physical Objectives and Guidelines, Operational Guidelines
6.5[A]	Concentration exceeds the indicated standard.
15.2	Measured concentration did not exceed the indicated standard.
<0.50	Laboratory reporting limit was greater than the applicable standard.
<0.03	Analyte was not detected at a concentration greater than the laboratory reporting limit.
n/v	No standard/guideline value.
-	Parameter not analyzed / not available.
a	This Interim PWQO was set for emergency purposes based on the best information readily available. Employ due caution when applying this value.
b	This Interim PWQO is currently under development. The value is subject to change upon publication by MOE.
d	Where both nitrate and nitrite are present, the total of the two should not exceed 10 mg/L (as nitrogen).
g[EF]	The aesthetic objective for sodium in drinking water is 200 mg/L. The local Medical Officer of Health should be notified when the sodium concentration exceeds 20 mg/L so that this information may be communicated to local physicians for their use with patients on sodium restricted diets.
h	When sulfate levels exceed 500 mg/L, water may have a laxative effect on some people.
s3	The PWQO for beryllium is hardness dependent. If hardness <75 mg/L than PWQO is 0.011 mg/L. For hardness > 75 mg/L, PWQO is 1.1 mg/L.
s4	Applies to Phosphorus, total. PWQO is 0.03 mg/L for rivers and streams, 0.02 mg/L for lakes, and 0.01 mg/L for lakes naturally below this value.
s12	The interim PWQO for cadmium is hardness dependent. If hardness <100 mg/L than PWQO is 0.0001 mg/L. For hardness >100 mg/L, PWQO is 0.0005 mg/L.
s13	The interim PWQO for copper is hardness dependent. If hardness <20 mg/L than PWQO is 0.001 mg/L. For hardness >20 mg/L, PWQO is 0.005 mg/L.
s14	PWQO for lead is alkalinity dependent. For alkalinity <20 mg/L, PWQO is 0.005 mg/L. For alkalinity between 20-40 mg/L, PWQO is 0.01 mg/L. For alkalinity between 40-80 mg/L, PWQO is 0.02 mg/L. For alkalinity >80 mg/L, PWQO is 0.025 mg/L.
s15	Interim PWQO for lead is hardness dependent. For hardness <30 mg/L, interim PWQO is 0.001 mg/L. For hardness between 30-80 mg/L, interim PWQO is 0.003 mg/L. For hardness >80 mg/L, interim PWQO is 0.005 mg/L.
s16	Alkalinity should not be decreased by more than 25% of the natural concentration.

Table 5.1
Pre-Development Monthly Water Balance - 12489 Dixie Road

Monthly Water Balance Analysis - Thornthwaite and Mather model
PRE-DEVELOPMENT
12489 Dixie Road, Caledon - QuadReal Properties Group

Total Site Area (ha) 58.10

Land Description Factors	Existing Site Conditions								
Topography	0.10								
Soils	0.10								
Cover	0.15								
Sum (Infiltration Factor)	0.35								
Soil Moisture Capacity (mm)	250								
Site area (ha)	58.10								
Impervious Coefficient	0.00								
Impervious Area (ha)	0.00								0.00
Remaining Pervious Area (ha)	58.10								
Total Pervious Site Area (ha)	58.10								58.10
Percentage of Total Site Area	100%								100%

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Climate Data (Toronto Lester B. Pearson Int'l A Climate Station - 6158733, Ontario via Environment Canada Website - Climate Normals from 1981-2010)													
Average Daily Temperature (°C)	-7.8	-6.0	-1.0	6.7	13.1	18.2	21.2	20.3	16.0	9.4	3.4	-3.4	**7.5**
Precipitation (mm)	78	64	63	77	84	93	86	82	98	89	92	80	**987**
Evapotranspiration Analysis (Sub-Area A)													
Heat Index	0.0	0.0	0.0	1.6	4.3	7.1	8.9	8.3	5.8	2.6	0.6	0.0	**39**
Unadjusted Potential Evapotranspiration (mm)	0.0	0.0	0.0	29.1	61.3	88.5	104.8	99.9	76.6	42.4	13.7	0.0	**516**
Potential Evapotranspiration Adjusting Factor for Latitude	0.81	0.92	1.06	1.18	1.27	1.29	1.22	1.11	0.98	0.86	0.76	0.74	
Adjusted Potential Evapotranspiration (mm)	0	0	0	34	78	114	128	111	75	36	10	0	**587**
PET (Malstrom, 1969) (mm/month)	0	0	0	34	78	114	128	111	75	36	10	0	**587**
Precipitation - PET (mm)	78	64	63	43	6	-21	-42	-29	23	53	82	80	**400**
Accumulated Potential Water Loss (APWL)	0	0	0	0	0	-21	-63	-91	-61	-1	0	0	
Storage (S)	250	250	250	250	250	230	194	173	196	249	250	250	
Change in Storage	0	0	0	0	0	-20	-35	-21	23	53	1	0	
Actual Evapotranspiration (mm)	**0**	**0**	**0**	**34**	**78**	**113**	**121**	**103**	**75**	**36**	**10**	**0**	**572**
Recharge/Runoff Analysis													
Water Surplus (mm)	78	64	63	43	6	0	0	0	0	0	80	80	**415**
Potential Infiltration (I)	27	22	22	15	2	0	0	0	0	0	28	28	**145**
Potential Direct Surface Water Runoff (R)	**51**	**42**	**41**	**28**	**4**	**0**	**0**	**0**	**0**	**0**	**52**	**52**	**269**
Infiltration (mm)	**0**	**0**	**0**	**115**	**2**	**0**	**0**	**0**	**0**	**0**	**28**	**0**	**145**
Pervious Evapotranspiration (m^3)	0	0	0	19943	45268	65789	70578	60015	43638	21187	6038	0	332456
Pervious Runoff (m^3)	29608	24245	23792	16154	2336	0	0	0	0	0	30297	30136	156569
Pervious Infiltration (m^3)	0	0	0	66734	1258	0	0	0	0	0	16314	0	84306
Impervious Evapotranspiration (mm)	8	6	6	8	8	9	9	8	10	9	9	8	99
Impervious Runoff (mm)	71	58	57	69	76	84	78	74	88	80	83	72	888
Volumetric Impervious Runoff (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0

Pre-Development Infiltration	**84,306**	**(m^3/yr)**	**145**	**mm/yr**	**2.7**	**L/s**
Pre-Development Runoff	**156,569**	**(m^3/yr)**	**269**	**mm/yr**	**5.0**	**L/s**

Table 5.2
Post-Development Monthly Water Balance - 12489 Dixie Road

Monthly Water Balance Analysis - Thornthwaite and Mather model
POST-DEVELOPMENT
12489 Dixie Road, Caledon - QuadReal Properties Group

Total Site Area (ha) 58.10

Land Description Factors	Site								
Topography	0.10								
Soils	0.10								
Cover	0.15								
Sum (Infiltration Factor)	0.35								
Soil Moisture Capacity (mm)	250								
Site area (ha)	58.10								
Impervious Coefficient	1.00								
Impervious Area (ha)	29.60								29.60
Remaining Pervious Area (ha)	28.50								
Total Pervious Site Area (ha)	28.50								28.50
Percentage of Total Site Area	49%								49%

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Climate Data (Toronto Lester B. Pearson Int'l A Climate Station - 6158733, Ontario via Environment Canada Website - Climate Normals from 1981-2010)													
Average Daily Temperature (°C)	-7.8	-6.0	-1.0	6.7	13.1	18.2	21.2	20.3	16.0	9.4	3.4	-3.4	**7.5**
Precipitation (mm)	78	64	63	77	84	93	86	82	98	89	92	80	**987**
Evapotranspiration Analysis (Sub-Area A)													
Heat Index	0.0	0.0	0.0	1.6	4.3	7.1	8.9	8.3	5.8	2.6	0.6	0.0	**39**
Unadjusted Potential Evapotranspiration (mm)	0.0	0.0	0.0	29.1	61.3	88.5	104.8	99.9	76.6	42.4	13.7	0.0	**516**
Potential Evapotranspiration Adjusting Factor for Latitude	0.81	0.92	1.06	1.18	1.27	1.29	1.22	1.11	0.98	0.86	0.76	0.74	
Adjusted Potential Evapotranspiration (mm)	0	0	0	34	78	114	128	111	75	36	10	0	**587**
PET (Malstrom, 1969) (mm/month)	0	0	0	34	78	114	128	111	75	36	10	0	**587**
Precipitation - PET (mm)	78	64	63	43	6	-21	-42	-29	23	53	82	80	**400**
Accumulated Potential Water Loss (APWL)	0	0	0	0	0	-21	-63	-91	-61	-1	0	0	
Storage (S)	250	250	250	250	250	230	194	173	196	249	250	250	
Change in Storage	0	0	0	0	0	-20	-35	-21	23	53	1	0	
Actual Evapotranspiration (mm)	**0**	**0**	**0**	**34**	**78**	**113**	**121**	**103**	**75**	**36**	**10**	**0**	**572**
Recharge/Runoff Analysis													
Water Surplus (mm)	78	64	63	43	6	0	0	0	0	0	80	80	**415**
Potential Infiltration (I)	27	22	22	15	2	0	0	0	0	0	28	28	**145**
Potential Direct Surface Water Runoff (R)	**51**	**42**	**41**	**28**	**4**	**0**	**0**	**0**	**0**	**0**	**52**	**52**	**269**
Infiltration (mm)	**0**	**0**	**0**	**115**	**2**	**0**	**0**	**0**	**0**	**0**	**28**	**0**	**145**
Pervious Evapotranspiration (m^3)	0	0	0	9783	22205	32272	34621	29439	21406	10393	2962	0	163081
Pervious Runoff (m^3)	14524	11893	11671	7924	1146	0	0	0	0	0	14862	14783	76802
Pervious Infiltration (m^3)	0	0	0	32735	617	0	0	0	0	0	8003	0	41355
Impervious Evapotranspiration (mm)	8	6	6	8	8	9	9	8	10	9	9	8	99
Impervious Runoff (mm)	71	58	57	69	76	84	78	74	88	80	83	72	888
Volumetric Impervious Runoff (m^3)	20886	17103	16783	20539	22404	24749	22964	21925	26027	23710	24535	21259	262884

Pre-Development Infiltration	**84,306**	**(m^3/yr)**	**145**	**mm/yr**	**231**	**m^3/day**
Post-Development Infiltration	**41,355**	**(m^3/yr)**	**71**	**mm/yr**	**113**	**m^3/day**
Infiltration Deficit	**42,951**	**(m^3/yr)**	**74**	**mm/yr**	**118**	**m^3/day**

Table 6.1
Pre-Development Monthly Water Balance - 12861 Dixie Road

Monthly Water Balance Analysis - Thornthwaite and Mather model
PRE-DEVELOPMENT
12861 Dixie Road, Caledon - QuadReal Properties Group

Total Site Area (ha) 58.20

Land Description Factors	Existing Site Conditions								
Topography	0.10								
Soils	0.10								
Cover	0.15								
Sum (Infiltration Factor)	0.35								
Soil Moisture Capacity (mm)	250								
Site area (ha)	58.20								
Impervious Coefficient	0.00								
Impervious Area (ha)	0.00								0.00
Remaining Pervious Area (ha)	58.20								
Total Pervious Site Area (ha)	58.20								58.20
Percentage of Total Site Area	100%								100%

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Climate Data (Toronto Lester B. Pearson Int'l A Climate Station - 6158733, Ontario via Environment Canada Website - Climate Normals from 1981-2010)													
Average Daily Temperature (°C)	-7.8	-6.0	-1.0	6.7	13.1	18.2	21.2	20.3	16.0	9.4	3.4	-3.4	**7.5**
Precipitation (mm)	78	64	63	77	84	93	86	82	98	89	92	80	**987**
Evapotranspiration Analysis (Sub-Area A)													
Heat Index	0.0	0.0	0.0	1.6	4.3	7.1	8.9	8.3	5.8	2.6	0.6	0.0	**39**
Unadjusted Potential Evapotranspiration (mm)	0.0	0.0	0.0	29.1	61.3	88.5	104.8	99.9	76.6	42.4	13.7	0.0	**516**
Potential Evapotranspiration Adjusting Factor for Latitude	0.81	0.92	1.06	1.18	1.27	1.29	1.22	1.11	0.98	0.86	0.76	0.74	
Adjusted Potential Evapotranspiration (mm)	0	0	0	34	78	114	128	111	75	36	10	0	**587**
PET (Malstrom, 1969) (mm/month)	0	0	0	34	78	114	128	111	75	36	10	0	**587**
Precipitation - PET (mm)	78	64	63	43	6	-21	-42	-29	23	53	82	80	**400**
Accumulated Potential Water Loss (APWL)	0	0	0	0	0	-21	-63	-91	-61	-1	0	0	
Storage (S)	250	250	250	250	250	230	194	173	196	249	250	250	
Change in Storage	0	0	0	0	0	-20	-35	-21	23	53	1	0	
Actual Evapotranspiration (mm)	**0**	**0**	**0**	**34**	**78**	**113**	**121**	**103**	**75**	**36**	**10**	**0**	**572**
Recharge/Runoff Analysis													
Water Surplus (mm)	78	64	63	43	6	0	0	0	0	0	80	80	**415**
Potential Infiltration (I)	27	22	22	15	2	0	0	0	0	0	28	28	**145**
Potential Direct Surface Water Runoff (R)	**51**	**42**	**41**	**28**	**4**	**0**	**0**	**0**	**0**	**0**	**52**	**52**	**269**
Infiltration (mm)	**0**	**0**	**0**	**115**	**2**	**0**	**0**	**0**	**0**	**0**	**28**	**0**	**145**
Pervious Evapotranspiration (m^3)	0	0	0	19978	45346	65903	70699	60118	43713	21223	6048	0	333028
Pervious Runoff (m^3)	29659	24287	23833	16182	2340	0	0	0	0	0	30350	30188	156838
Pervious Infiltration (m^3)	0	0	0	66849	1260	0	0	0	0	0	16342	0	84451
Impervious Evapotranspiration (mm)	8	6	6	8	8	9	9	8	10	9	9	8	99
Impervious Runoff (mm)	71	58	57	69	76	84	78	74	88	80	83	72	888
Volumetric Impervious Runoff (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0

Pre-Development Infiltration	**84,451**	**(m^3/yr)**	**145**	**mm/yr**	**2.7**	**L/s**
Pre-Development Runoff	**156,838**	**(m^3/yr)**	**269**	**mm/yr**	**5.0**	**L/s**

Table 6.2
Post-Development Monthly Water Balance - 12861 Dixie Road

Monthly Water Balance Analysis - Thornthwaite and Mather model
POST-DEVELOPMENT
12861 Dixie Road, Caledon - QuadReal Properties Group

Total Site Area (ha) 58.20

Land Description Factors	Site								
Topography	0.10								
Soils	0.10								
Cover	0.15								
Sum (Infiltration Factor)	0.35								
Soil Moisture Capacity (mm)	250								
Site area (ha)	58.20								
Impervious Coefficient	1.00								
Impervious Area (ha)	42.50								42.50
Remaining Pervious Area (ha)	15.70								
Total Pervious Site Area (ha)	15.70								15.70
Percentage of Total Site Area	27%								27%

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Climate Data (Toronto Lester B. Pearson Int'l A Climate Station - 6158733, Ontario via Environment Canada Website - Climate Normals from 1981-2010)													
Average Daily Temperature (°C)	-7.8	-6.0	-1.0	6.7	13.1	18.2	21.2	20.3	16.0	9.4	3.4	-3.4	**7.5**
Precipitation (mm)	78	64	63	77	84	93	86	82	98	89	92	80	**987**
Evapotranspiration Analysis (Sub-Area A)													
Heat Index	0.0	0.0	0.0	1.6	4.3	7.1	8.9	8.3	5.8	2.6	0.6	0.0	**39**
Unadjusted Potential Evapotranspiration (mm)	0.0	0.0	0.0	29.1	61.3	88.5	104.8	99.9	76.6	42.4	13.7	0.0	**516**
Potential Evapotranspiration Adjusting Factor for Latitude	0.81	0.92	1.06	1.18	1.27	1.29	1.22	1.11	0.98	0.86	0.76	0.74	
Adjusted Potential Evapotranspiration (mm)	0	0	0	34	78	114	128	111	75	36	10	0	**587**
PET (Malstrom, 1969) (mm/month)	0	0	0	34	78	114	128	111	75	36	10	0	**587**
Precipitation - PET (mm)	78	64	63	43	6	-21	-42	-29	23	53	82	80	**400**
Accumulated Potential Water Loss (APWL)	0	0	0	0	0	-21	-63	-91	-61	-1	0	0	
Storage (S)	250	250	250	250	250	230	194	173	196	249	250	250	
Change in Storage	0	0	0	0	0	-20	-35	-21	23	53	1	0	
Actual Evapotranspiration (mm)	**0**	**0**	**0**	**34**	**78**	**113**	**121**	**103**	**75**	**36**	**10**	**0**	**572**
Recharge/Runoff Analysis													
Water Surplus (mm)	78	64	63	43	6	0	0	0	0	0	80	80	**415**
Potential Infiltration (I)	27	22	22	15	2	0	0	0	0	0	28	28	**145**
Potential Direct Surface Water Runoff (R)	**51**	**42**	**41**	**28**	**4**	**0**	**0**	**0**	**0**	**0**	**52**	**52**	**269**
Infiltration (mm)	**0**	**0**	**0**	**115**	**2**	**0**	**0**	**0**	**0**	**0**	**28**	**0**	**145**
Pervious Evapotranspiration (m^3)	0	0	0	5389	12232	17778	19072	16217	11792	5725	1632	0	89837
Pervious Runoff (m^3)	8001	6552	6429	4365	631	0	0	0	0	0	8187	8144	42309
Pervious Infiltration (m^3)	0	0	0	18033	340	0	0	0	0	0	4408	0	22782
Impervious Evapotranspiration (mm)	8	6	6	8	8	9	9	8	10	9	9	8	99
Impervious Runoff (mm)	71	58	57	69	76	84	78	74	88	80	83	72	888
Volumetric Impervious Runoff (m^3)	29988	24557	24098	29491	32168	35534	32972	31480	37370	34043	35228	30524	377451

Pre-Development Infiltration	**84,451**	**(m^3/yr)**	**145**	**mm/yr**	**231**	**m^3/day**
Post-Development Infiltration	**22,782**	**(m^3/yr)**	**39**	**mm/yr**	**62**	**m^3/day**
Infiltration Deficit	**61,670**	**(m^3/yr)**	**106**	**mm/yr**	**169**	**m^3/day**

Table 7
Summary of MECP Water Well Record Data
Dixie Road Development
QuadReal Properties Group

MECP Well ID	Easting	Northing	Date Completed	Approx. Distance to Site (m)	Well Depth (m BGS)	Well Type	Depth to Bedrock (m BGS)	Static Water Level (m BGS)	Well Use
4901348	596054	4847242	11-Jul-59	85	18.3	Overburden	-	12.2	Domestic
4901349	596271	4847023	15-Sep-60	164	17.7	Overburden	-	13.1	Domestic
4901353	595088	4847973	1-Oct-55	244	68.9	Bedrock	20.7	18.3	Livestock / Domestic
4901354	594759	4848537	14-Mar-66	318	19.5	Overburden	-	9.1	Domestic
4901355	594961	4848333	14-Oct-67	80	25.0	Overburden	-	9.1	Domestic
4901396	596517	4846984	19-Nov-62	214	21.3	Overburden	-	9.4	Livestock / Domestic
4901397	596602	4846915	9-Oct-64	321	34.1	Bedrock	29.6	14.6	Domestic
4901406	595247	4848265	29-Sep-55	0	36.3	Bedrock	27.1	15.2	Domestic
4901407	595778	4849059	10-Jan-59	353	14.3	Overburden	-	11.3	Domestic
4901408	595288	4848145	8-Jul-67	18	11.0	Overburden	-	6.1	Domestic
4901409	594915	4848513	25-Jun-54	178	33.5	Bedrock	27.4	9.1	Domestic
4901410	594968	4848739	23-Mar-64	274	34.1	Bedrock	29.3	15.2	Livestock / Domestic
4903209	596285	4846993	21-Apr-69	196	43.3	Bedrock	32.9	16.5	Livestock / Domestic
4903372	596065	4847233	8-Dec-69	83	37.2	Overburden	-	17.1	Domestic
4903798	596215	4847003	18-Jul-71	181	18.3	Overburden	-	14.6	Industrial
4903799	595245	4847973	30-Sep-71	133	20.7	Overburden	-	1.5	Livestock / Domestic
4903976	594965	4848273	29-Jun-72	117	28.3	Bedrock	21.3	15.2	Domestic
4903980	594865	4848123	31-Aug-72	293	19.8	Bedrock	17.7	7.6	Domestic
4904249	595730	4847787	18-Aug-73	5	39.0	Bedrock	29.9	15.2	Domestic
4904366	596197	4846996	18-Jun-74	191	26.2	Overburden	-	15.2	Livestock / Domestic
4904995	595215	4848873	17-Jul-76	160	22.3	Bedrock	20.7	15.2	Domestic
4907459	595319	4848769	28-Sep-90	14	20.4	Overburden	-	9.4	Domestic
4907460	596583	4848459	5-Oct-90	491	47.2	Bedrock	46.6	10.1	Water Supply
4907591	595319	4848769	14-Mar-91	14	18.9	Overburden	-	12.8	Domestic
4908188	595428	4848822	19-Nov-96	55	21.6	Overburden	-	10.7	Domestic
4908417	595384	4848981	14-Jul-98	179	20.7	Overburden	-	13.4	Domestic
4908549	595478	4849116	19-Jan-00	287	22.9	Overburden	-	15.5	Domestic
4909808	596254	4848672	1-Jun-05	411	43.9	Overburden	-	14.3	Domestic
7210172	595739	4849120	13-Sep-13	371	32.9	Overburden	-	15.5	Domestic

Notes:

m AMSL = meters above mean sea level
m BGS = meters below ground surface
- = data not available

Appendix C Borehole Record

Stantec

BOREHOLE RECORD

N: 4 847 981 E: 595 653

BH01-23

CLIENT QuadReal Properties — PROJECT No. 121624778

LOCATION 12861 Dixie Road, Caledon — DATUM NAD83

DATES: BORING 03/02/2023 — WATER LEVEL — TPC ELEVATION

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	DEPTH (ft)	SAMPLES TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)
0	266.2		0				
	265.8	**TOPSOIL** Clayey silt, Trace gravels Brown, loose, moist	1	SS	1	300/460	5
1		**SANDY LEAN CLAY (CL)** Silty sand seams, traces of gravel Brown, hard, moist	3	SS	2	460/460	25
			6	SS	3	460/460	32
2	263.8		8	SS	4	460/460	29
		Hard to very stiff, brown, moist	11	SS	5	460/460	34
3							
4							
	261.4		16	SS	6	460/460	24
5		Traces of gravel, some silt seams Very stiff to stiff, grey, moist					
6			21	SS	7	180/460	15
7							
	258.3		26	SS	8	380/460	14
8		Stiff to very stiff, grey, moist					
9							
	256.6		31	SS	9	460/460	25
		Borehole terminated at 9.60m BGS	32				
10							
11			36				
			39				
12							

UNDRAINED SHEAR STRENGTH (kPa)

50 100 150 200

WATER CONTENT & ATTERBERG LIMITS W_P W W_L

DYNAMIC CONE PENETRATION TEST, BLOWS/0.3m ▼

STANDARD PENETRATION TEST, BLOWS/0.3m ●

REMARKS & GRAIN SIZE DISTRIBUTION (%)

10 20 30 40 50 60 70 80 90 100

GR SA SI CL

Hard Augering

□ Field Vane Test, kPa

■ Remoulded Vane Test, kPa

△ Pocket Penetrometer Test, kPa

Stantec

BOREHOLE RECORD

N: 4 848 058 E: 595 705

BH02-23

CLIENT QuadReal Properties — PROJECT No. 121624778

LOCATION 12861 Dixie Road, Caledon — DATUM NAD83

DATES: BORING 03/02/2023 — WATER LEVEL — TPC ELEVATION

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	DEPTH (ft)	SAMPLES TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)
	265.5		0				
0	265.1	**TOPSOIL** Clayey silt, Trace gravels Brown, loose, moist	1	SS	1	280/460	7
		SANDY LEAN CLAY (CL) Silty sand seams, traces of gravel Brown, very stiff, moist	2				
1			3	SS	2	460/460	22
			4				
			5				
2			6	SS	3	460/460	24
			7				
			8	SS	4	460/460	22
			9				
3	262.2		10				
		Hard, brown, moist	11	SS	5	460/460	30
			12				
4			13				
			14				
	260.7		15				
5		Traces of gravel, some silt seams Very stiff to stiff, grey, wet	16	SS	6	460/460	34
			17				
			18				
			19				
6			20				
			21	SS	7	410/460	39
			22				
			23				
7			24				
	257.9		25				
		very stiff, grey, moist	26	SS	8	430/460	27
			27				
8			28				
			29				
			30				
9	255.9		31	SS	9	460/460	18
		Borehole terminated at 9.60m BGS	32				
10			33				
			34				
			35				
11			36				
			37				
			38				
12			39				

UNDRAINED SHEAR STRENGTH (kPa)

50 100 150 200

WATER CONTENT & ATTERBERG LIMITS W_P W W_L

DYNAMIC CONE PENETRATION TEST, BLOWS/0.3m ▼

STANDARD PENETRATION TEST, BLOWS/0.3m ●

REMARKS & GRAIN SIZE DISTRIBUTION (%)

10 20 30 40 50 60 70 80 90 100

GR SA SI CL

Hard Augering

□ Field Vane Test, kPa

■ Remoulded Vane Test, kPa

△ Pocket Penetrometer Test, kPa

Stantec

BOREHOLE RECORD

N: 4 848 006 E: 595 769

BH03-23

CLIENT QuadReal Properties — PROJECT No. 121624778

LOCATION 12861 Dixie Road, Caledon — DATUM NAD83

DATES: BORING 03/02/2023 — WATER LEVEL — TPC ELEVATION

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	DEPTH (ft)	SAMPLES TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)
0	265.0		0				
	264.5	**TOPSOIL** Clayey silt, Trace gravels Brown, loose, moist	1	SS	1	380/460	6
1		**SANDY LEAN CLAY (CL)** Silty sand seams, traces of gravel Brown, very stiff to hard, moist	3	SS	2	460/460	28
2			6	SS	3	460/460	33
			8	SS	4	460/460	35
3	261.6		11	SS	5	430/460	45
		Hard, brown, moist					
4	260.1		16	SS	6	460/460	31
5		Traces of gravel, some silt seams Very stiff to hard , grey, moist					
6			21	SS	7	460/460	25
7	257.4		26	SS	8	300/460	31
		Hard, grey, moist					
8							
9	255.4		31	SS	9	410/460	50
		Borehole terminated at 9.60m BGS					
10							
11							
12							

UNDRAINED SHEAR STRENGTH (kPa)

50 100 150 200

WATER CONTENT & ATTERBERG LIMITS W_P W W_L

DYNAMIC CONE PENETRATION TEST, BLOWS/0.3m ▼

STANDARD PENETRATION TEST, BLOWS/0.3m ●

REMARKS & GRAIN SIZE DISTRIBUTION (%)

10 20 30 40 50 60 70 80 90 100

GR SA SI CL

Hard Augering

□ Field Vane Test, kPa

■ Remoulded Vane Test, kPa

△ Pocket Penetrometer Test, kPa

Stantec

BOREHOLE RECORD

N: 4 847 952 E: 595 725

BH/MW04-23

CLIENT QuadReal Properties — PROJECT No. 121624778

LOCATION 12861 Dixie Road, Caledon — DATUM NAD83

DATES: BORING 03/02/2023 — WATER LEVEL — TPC ELEVATION

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	DEPTH (ft)	SAMPLES TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)
0	265.7		0				
	265.2	**TOPSOIL** Clayey silt, Trace gravels Brown, loose, moist	1	SS	1	330/460	5
1		**SANDY LEAN CLAY (CL)** sand seams, Brown, Very stiff, moist	3	SS	2	460/460	25
			6	SS	3	460/460	29
2	262.9		8	SS	4	410/460	25
3		Hard, brown, moist	11	SS	5	460/460	33
	262.0						
4		Traces of gravel Hard, grey, moist	16	SS	6	410/460	35
5							
6	259.1		21	SS	7	460/460	31
		Very stiff, grey, moist					
7							
8	257.1		26	SS	8	460/460	21
		Very stiff, wet, moist					
9	256.1		31	SS	9	410/460	25
10		Borehole terminated at 9.60m BGS. Monitoring well installed to 9.6 m BGS.	32				
11			36				
12			39				

UNDRAINED SHEAR STRENGTH (kPa)

50 100 150 200

WATER CONTENT & ATTERBERG LIMITS W_P W W_L

DYNAMIC CONE PENETRATION TEST, BLOWS/0.3m ▼

STANDARD PENETRATION TEST, BLOWS/0.3m ●

10 20 30 40 50 60 70 80 90 100

REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL

Hard Augering

□ Field Vane Test, kPa

■ Remoulded Vane Test, kPa

△ Pocket Penetrometer Test, kPa

Stantec

MONITORING WELL RECORD

N: 4 847 952 E: 595 725

BH/MW04-23

CLIENT QuadReal Properties — PROJECT No. 121624778

LOCATION 12861 Dixie Road, Caledon — DATUM NAD83

DATES: BORING 03/02/2023 — WATER LEVEL — TPC ELEVATION

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	SAMPLES TYPE	SAMPLES NUMBER	SAMPLES N-VALUE
0	265.7				
	265.2	**TOPSOIL** Clayey silt, Trace gravels Brown, loose, moist	SS	1	5
1		**SANDY LEAN CLAY (CL)** sand seams, Brown, Very stiff, moist	SS	2	25
2			SS	3	29
	262.9		SS	4	25
3		Hard, brown, moist	SS	5	33
	262.0				
4		Traces of gravel Hard, grey, moist	SS	6	35
5					
6			SS	7	31
	259.1				
7		Very stiff, grey, moist	SS	8	21
8					
	257.1				
9		Very stiff, wet, moist	SS	9	25
	256.1				
10		Borehole terminated at 9.60m BGS. Monitoring well installed to 9.6 m BGS.			
11					
12					

VAPOUR CONCENTRATIONS ● %LEL ▲ ppm — ● 20 40 60 80 ▲ 100 200 300 400

DEPTH (ft): 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39

WELL CONSTRUCTION

LABORATORY ANALYSES:

Stantec

BOREHOLE RECORD

N: 4 848 182 E: 595 664

BH05-23

CLIENT QuadReal Properties — PROJECT No. 121624778

LOCATION 12861 Dixie Road, Caledon — DATUM NAD83

DATES: BORING 03/01/2023 — WATER LEVEL — TPC ELEVATION

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	DEPTH (ft)	SAMPLES TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)
0	266.2		0				
	265.8	**TOPSOIL** Clayey silt, Trace gravels Brown, loose, moist	1	SS	1	330/460	6
1		**SANDY LEAN CLAY (CL)** Silty sand seams, traces of gravel Brown, very stiff to hard, moist	3	SS	2	460/460	18
2			6	SS	3	460/460	29
	263.5		8	SS	4	460/460	24
3		Hard, brown, moist	11	SS	5	460/460	50
4							
	261.4		16	SS	6	460/460	35
5		Traces of gravel, some silt seams Very stiff , grey, moist					
6			21	SS	7	460/460	47
7							
8	258.2		26	SS	8	460/460	48
		Hard to very stiff, grey, moist					
9			31	SS	9	460/460	26
	256.6						
10		Borehole terminated at 9.60m BGS					
11							
12							

UNDRAINED SHEAR STRENGTH (kPa)

50 100 150 200

WATER CONTENT & ATTERBERG LIMITS W_P W W_L

DYNAMIC CONE PENETRATION TEST, BLOWS/0.3m ▼

STANDARD PENETRATION TEST, BLOWS/0.3m ●

REMARKS & GRAIN SIZE DISTRIBUTION (%)

10 20 30 40 50 60 70 80 90 100

GR SA SI CL

Hard Augering

□ Field Vane Test, kPa

■ Remoulded Vane Test, kPa

△ Pocket Penetrometer Test, kPa

Stantec

BOREHOLE RECORD

N: 4 848 224 E: 595 781

BH06-23

CLIENT QuadReal Properties — PROJECT No. 121624778

LOCATION 12861 Dixie Road, Caledon — DATUM NAD83

DATES: BORING 03/01/2023 — WATER LEVEL — TPC ELEVATION

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	DEPTH (ft)	SAMPLES TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)
0	265.8		0				
		TOPSOIL Clayey silt, Trace gravels Brown, loose, moist	1	SS	1	230/460	5
	265.4	**SANDY LEAN CLAY (CL)** Silty sand seams, traces of gravel Brown, very stiff to hard, moist	2				
1			3	SS	2	460/460	25
	264.3	Hard, brown, moist	4				
			5				
			6	SS	3	460/460	37
2			7				
			8	SS	4	460/460	50
			9				
			10				
			11	SS	5	460/460	39
3			12				
			13				
			14				
4	261.3		15				
		Traces of gravel, some silt seams Hard, grey, moist	16	SS	6	460/460	41
			17				
5			18				
			19				
			20				
6	259.4		21	SS	7	460/460	50
		Borehole terminated at 6.55 m BGS	22				
			23				
7			24				
			25				
8			26				

UNDRAINED SHEAR STRENGTH (kPa)

50 100 150 200

WATER CONTENT & ATTERBERG LIMITS W_P W W_L

DYNAMIC CONE PENETRATION TEST, BLOWS/0.3m ▼

STANDARD PENETRATION TEST, BLOWS/0.3m ●

REMARKS & GRAIN SIZE DISTRIBUTION (%)

10 20 30 40 50 60 70 80 90 100

GR SA SI CL

Hard Augering

□ Field Vane Test, kPa

■ Remoulded Vane Test, kPa

△ Pocket Penetrometer Test, kPa

Stantec

BOREHOLE RECORD

N: 4 848 295 E: 595 825

BH07-23

CLIENT QuadReal Properties — PROJECT No. 121624778

LOCATION 12861 Dixie Road, Caledon — DATUM NAD83

DATES: BORING 03/01/2023 — WATER LEVEL — TPC ELEVATION

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	DEPTH (ft)	SAMPLES TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)
0	266.7		0				
	266.4	**TOPSOIL** Clayey silt, Trace gravels Brown, loose, moist	1	SS	1	250/460	4
1		**SANDY LEAN CLAY (CL)** Silty sand seams, traces of gravel	3	SS	2	460/460	22
	265.2	Brown, very stiff to hard, moist	5				
2		Hard, brown, moist	6	SS	3	460/460	33
			8	SS	4	460/460	50
3			10				
			11	SS	5	280/460	48
4			12–14				
	261.8		15				
5		Traces of gravel, some silt seams Hard , grey, moist	16	SS	6	460/460	50
			17–19				
6			20				
			21	SS	7	380/460	42
7			22–24				
			25				
8	258.6		26	SS	8	410/460	44
		Hard to very stiff, grey, moist	27–29				
9			30				
	257.1		31	SS	9	460/460	42
		Borehole terminated at 9.60m BGS	32–39				
10							
11							
12							

UNDRAINED SHEAR STRENGTH (kPa)

50 100 150 200

WATER CONTENT & ATTERBERG LIMITS W_P W W_L

DYNAMIC CONE PENETRATION TEST, BLOWS/0.3m ▼

STANDARD PENETRATION TEST, BLOWS/0.3m ●

REMARKS & GRAIN SIZE DISTRIBUTION (%)

10 20 30 40 50 60 70 80 90 100

GR SA SI CL

Hard Augering

□ Field Vane Test, kPa

■ Remoulded Vane Test, kPa

△ Pocket Penetrometer Test, kPa

Stantec

BOREHOLE RECORD

N: 4 848 191 E: 595 969

BH08-23

CLIENT QuadReal Properties — PROJECT No. 121624778

LOCATION 12861 Dixie Road, Caledon — DATUM NAD83

DATES: BORING 03/01/2023 — WATER LEVEL — TPC ELEVATION

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	DEPTH (ft)	SAMPLES TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)
0	266.1		0				
		TOPSOIL Clayey silt, Trace gravels Brown, loose, moist	1	SS	1	280/460	5
	265.6	**SANDY LEAN CLAY (CL)** Silty sand seams, traces of gravel Brown, very stiff to hard, moist	2				
1			3	SS	2	410/460	17
			4				
			5				
			6	SS	3	460/460	30
2			7				
			8	SS	4	460/460	24
			9				
3	263.0	Hard, brown, moist	10				
			11	SS	5	460/460	39
			12				
4			13				
			14				
			15				
	261.2	Traces of gravel, some silt seams Hard, grey, wet	16	SS	6	460/460	49
5			17				
			18				
			19				
6			20				
			21	SS	7	460/460	47
	259.5	Borehole terminated at 6.55 m BGS	22				
7			23				
			24				
			25				
8			26				

UNDRAINED SHEAR STRENGTH (kPa)

50 100 150 200

WATER CONTENT & ATTERBERG LIMITS W_P W W_L

DYNAMIC CONE PENETRATION TEST, BLOWS/0.3m ▼

STANDARD PENETRATION TEST, BLOWS/0.3m ●

REMARKS & GRAIN SIZE DISTRIBUTION (%)

10 20 30 40 50 60 70 80 90 100

GR SA SI CL

Hard Augering

□ Field Vane Test, kPa

■ Remoulded Vane Test, kPa

△ Pocket Penetrometer Test, kPa

Stantec

BOREHOLE RECORD

N: 4 848 271 E: 596 040

BH/MW09-23

CLIENT QuadReal Properties — PROJECT No. 121624778

LOCATION 12861 Dixie Road, Caledon — DATUM NAD83

DATES: BORING 03/01/2023 — WATER LEVEL — TPC ELEVATION

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	DEPTH (ft)	SAMPLES TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)
0	265.3		0				
	264.8	**TOPSOIL** Clayey silt, Trace gravels Brown, loose, moist	1	SS	1	360/460	5
1		**SANDY LEAN CLAY (CL)** sand seams, Brown, Very stiff, moist	3	SS	2	460/460	24
			6	SS	3	460/460	24
2			8	SS	4	460/460	28
	262.5		9				
3		Hard, brown, moist	11	SS	5	460/460	43
4			14				
	260.7		15				
		Traces of gravel Hard, grey, moist	16	SS	6	460/460	35
5			18				
6			20				
	258.7		21	SS	7	460/460	36
		Silt seams Hard, grey, moist	22				
7			24				
			25				
8			26	SS	8	460/460	43
	256.7		27				
		Traces of gravel Hard, wet, moist	28				
9			30				
	255.7		31	SS	9	460/460	39
		Borehole terminated at 9.60m BGS. Monitoring well installed to 9.6 m BGS.	32				
10			33				
			34				
11			36				
			37				
12			39				

UNDRAINED SHEAR STRENGTH (kPa)

50 100 150 200

WATER CONTENT & ATTERBERG LIMITS W_P W W_L

DYNAMIC CONE PENETRATION TEST, BLOWS/0.3m ▼

STANDARD PENETRATION TEST, BLOWS/0.3m ●

REMARKS & GRAIN SIZE DISTRIBUTION (%)

10 20 30 40 50 60 70 80 90 100

GR SA SI CL

Hard Augering

□ Field Vane Test, kPa

■ Remoulded Vane Test, kPa

△ Pocket Penetrometer Test, kPa

Stantec

MONITORING WELL RECORD

N: 4 848 271 E: 596 040

BH/MW09-23

CLIENT QuadReal Properties — PROJECT No. 121624778

LOCATION 12861 Dixie Road, Caledon — DATUM NAD83

DATES: BORING 03/01/2023 — WATER LEVEL — TPC ELEVATION

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	DEPTH (ft)	SAMPLES TYPE	SAMPLES NUMBER	SAMPLES N-VALUE
0	265.3		0			
	264.8	**TOPSOIL** Clayey silt, Trace gravels Brown, loose, moist	1	SS	1	5
1		**SANDY LEAN CLAY (CL)** sand seams, Brown, Very stiff, moist	3	SS	2	24
2			6	SS	3	24
	262.5		8	SS	4	28
3		Hard, brown, moist	10	SS	5	43
4			13			
	260.7		15	SS	6	35
5		Traces of gravel Hard, grey, moist	16			
6			19			
	258.7		20	SS	7	36
7		Silt seams Hard, grey, moist	23			
8			25	SS	8	43
	256.7		26			
		Traces of gravel Hard, wet, moist	29			
9			30			
	255.7		31	SS	9	39
10		Borehole terminated at 9.60m BGS. Monitoring well installed to 9.6 m BGS.	32			
11			36			
12			39			

VAPOUR CONCENTRATIONS — ● %LEL ▲ ppm — ● 20 40 60 80 — ▲ 100 200 300 400

WELL CONSTRUCTION

LABORATORY ANALYSES:

Stantec

BOREHOLE RECORD

N: 4 848 270 E: 595 944

BH10-23

CLIENT QuadReal Properties PROJECT No. 121624778

LOCATION 12861 Dixie Road, Caledon DATUM NAD83

DATES: BORING 03/01/2023 WATER LEVEL TPC ELEVATION

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WATER LEVEL	DEPTH (ft)	SAMPLES TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)
0	265.9				0				
		TOPSOIL Clayey silt, Trace gravels Brown, loose, moist			1	SS	1	330/460	6
	265.4	**SANDY LEAN CLAY (CL)** Silty sand seams, traces of gravel Brown, very stiff to hard, moist			2				
1					3	SS	2	460/460	29
					4				
					5				
					6	SS	3	460/460	38
2					7				
					8	SS	4	460/460	46
					9				
3					10				
					11	SS	5	460/460	50
	262.4								
		Borehole terminated at 3.55 m BGS			12				
4					13				
					14				
					15				
5					16				

UNDRAINED SHEAR STRENGTH (kPa)

50 100 150 200

WATER CONTENT & ATTERBERG LIMITS W_P W W_L

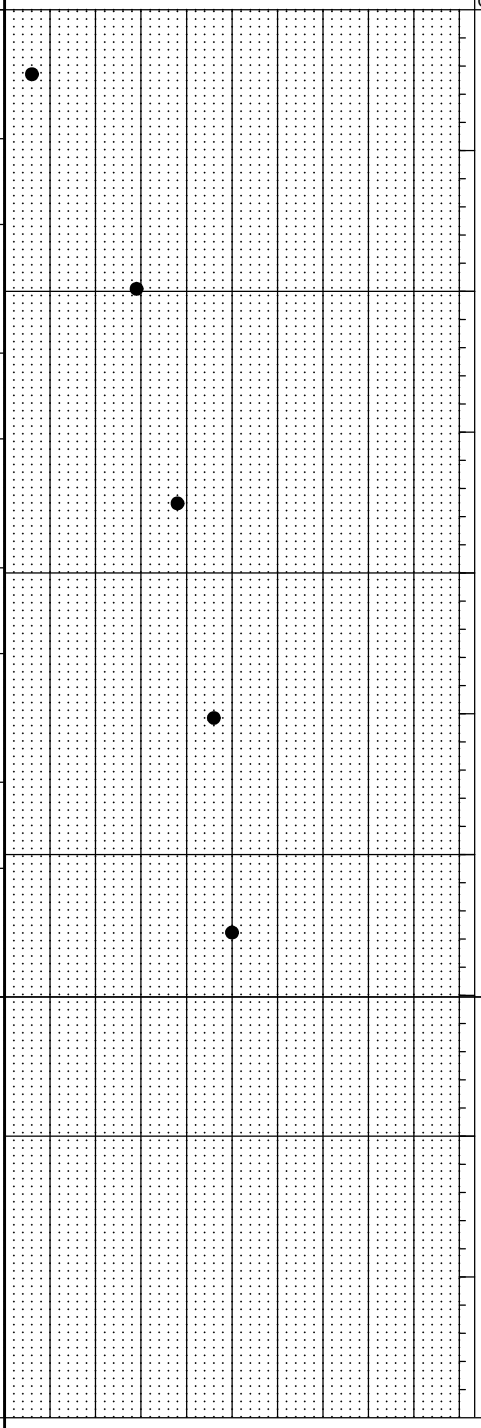
DYNAMIC CONE PENETRATION TEST, BLOWS/0.3m ▼

STANDARD PENETRATION TEST, BLOWS/0.3m ●

REMARKS & GRAIN SIZE DISTRIBUTION (%)

10 20 30 40 50 60 70 80 90 100

GR SA SI CL



□ Field Vane Test, kPa

■ Remoulded Vane Test, kPa

△ Pocket Penetrometer Test, kPa

Stantec

BOREHOLE RECORD

N: 4 848 380 E: 595 879

BH11-23

CLIENT QuadReal Properties — PROJECT No. 121624778

LOCATION 12861 Dixie Road, Caledon — DATUM NAD83

DATES: BORING 03/03/2023 — WATER LEVEL — TPC ELEVATION

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	DEPTH (ft)	SAMPLES TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)
0	267.1		0				
		TOPSOIL Clayey silt, Trace gravels Brown, loose, moist	1	SS	1	380/460	5
	266.6	**SANDY LEAN CLAY (CL)** Silty sand seams, traces of gravel Brown, very stiff to hard, moist	2				
1			3	SS	2	430/460	30
			4				
			5				
			6	SS	3	460/460	29
2			7				
			8	SS	4	410/460	24
	264.3		9				
		Hard, brown, moist	10				
3			11	SS	5	460/460	40
			12				
			13				
4			14				
			15				
	262.2		16	SS	6	430/460	50
5		Traces of gravel, some silt seams Very stiff , grey, moist	17				
			18				
			19				
6			20				
			21	SS	7	460/460	50
	260.5						
		Borehole terminated at 6.55 m BGS	22				
7			23				
			24				
			25				
8			26				

UNDRAINED SHEAR STRENGTH (kPa)

50 100 150 200

WATER CONTENT & ATTERBERG LIMITS W_P W W_L

DYNAMIC CONE PENETRATION TEST, BLOWS/0.3m ▼

STANDARD PENETRATION TEST, BLOWS/0.3m ●

REMARKS & GRAIN SIZE DISTRIBUTION (%)

10 20 30 40 50 60 70 80 90 100

GR SA SI CL

Hard Augering

□ Field Vane Test, kPa

■ Remoulded Vane Test, kPa

△ Pocket Penetrometer Test, kPa

Stantec

BOREHOLE RECORD

N: 4 848 400 E: 595 762

BH12-23

CLIENT QuadReal Properties — PROJECT No. 121624778

LOCATION 12861 Dixie Road, Caledon — DATUM NAD83

DATES: BORING 03/03/2023 — WATER LEVEL — TPC ELEVATION

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	DEPTH (ft)	SAMPLES TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)	REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
0	266.7		0					
		TOPSOIL Clayey silt, Trace gravels Brown, loose, moist	1	SS	1	230/460	4	
	266.3	**SANDY LEAN CLAY (CL)** Silty sand seams, traces of gravel Brown, very stiff to hard, moist	2					
1			3	SS	2	410/460	25	
			4					
	264.9		5					
		Hard, brown, moist	6	SS	3	460/460	25	
2			7					
			8	SS	4	460/460	38	
			9					
			10					
3			11	SS	5	430/460	43	
			12					
			13					
4			14					
	262.2		15					
		Traces of gravel, some silt seams Hard, grey, moist	16	SS	6	380/460	50	50 For 4" Refusal
5			17					
			18					
			19					
6			20					
	260.2		21	SS	7	360/460	50	
		Borehole terminated at 6.55 m BGS	22					
7			23					
			24					
			25					
8			26					

UNDRAINED SHEAR STRENGTH (kPa)

50 100 150 200

WATER CONTENT & ATTERBERG LIMITS W_P W W_L

DYNAMIC CONE PENETRATION TEST, BLOWS/0.3m ▼

STANDARD PENETRATION TEST, BLOWS/0.3m ●

10 20 30 40 50 60 70 80 90 100

□ Field Vane Test, kPa

■ Remoulded Vane Test, kPa

△ Pocket Penetrometer Test, kPa

Stantec

BOREHOLE RECORD

N: 4 848 299 E: 595 665

BH/MW13-23

CLIENT QuadReal Properties

PROJECT No. 121624778

LOCATION 12861 Dixie Road, Caledon

DATUM NAD83

DATES: BORING 03/03/2023

WATER LEVEL

TPC ELEVATION

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	DEPTH (ft)	SAMPLES TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)
0	266.8		0				
	266.3	**TOPSOIL** Clayey silt, Trace gravels Brown, loose, moist	1	SS	1	200/460	4
1		**SANDY LEAN CLAY (CL)** Sand seams, traces of gravel Brown, Very stiff to hard, moist	3	SS	2	430/460	24
2			6	SS	3	460/460	41
			8	SS	4	150/460	23
3	263.7	Hard, brown, moist	11	SS	5	460/460	50
4							
	261.9		16	SS	6	410/460	50
5		Traces of gravel Hard, grey, moist					
6	260.2		21	SS	7	430/460	49
		Silty sand seams Hard, grey, moist					
7							
8	258.2		26	SS	8	130/460	50
		Traces of gravel Hard, wet, moist					
9	257.2		31	SS	9	230/460	50
		Borehole terminated at 9.60m BGS. Monitoring well installed to 9.6 m BGS.					
10							
11							
12							

UNDRAINED SHEAR STRENGTH (kPa)

50 100 150 200

WATER CONTENT & ATTERBERG LIMITS W_P W W_L

DYNAMIC CONE PENETRATION TEST, BLOWS/0.3m

STANDARD PENETRATION TEST, BLOWS/0.3m

REMARKS & GRAIN SIZE DISTRIBUTION (%)

10 20 30 40 50 60 70 80 90 100

GR SA SI CL

□ Field Vane Test, kPa

■ Remoulded Vane Test, kPa

△ Pocket Penetrometer Test, kPa

Stantec

MONITORING WELL RECORD

N: 4 848 299 E: 595 665

BH/MW13-23

CLIENT QuadReal Properties — PROJECT No. 121624778

LOCATION 12861 Dixie Road, Caledon — DATUM NAD83

DATES: BORING 03/03/2023 — WATER LEVEL — TPC ELEVATION

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	SAMPLES TYPE	SAMPLES NUMBER	SAMPLES N-VALUE
0	266.8				
	266.3	**TOPSOIL** Clayey silt, Trace gravels Brown, loose, moist	SS	1	4
1		**SANDY LEAN CLAY (CL)** Sand seams, traces of gravel Brown, Very stiff to hard, moist	SS	2	24
			SS	3	41
2			SS	4	23
	263.7				
3		Hard, brown, moist	SS	5	50
4					
	261.9		SS	6	50
5		Traces of gravel Hard, grey, moist			
6			SS	7	49
	260.2				
7		Silty sand seams Hard, grey, moist			
8			SS	8	50
	258.2				
9		Traces of gravel Hard, wet, moist			
	257.2		SS	9	50
10		Borehole terminated at 9.60m BGS. Monitoring well installed to 9.6 m BGS.			
11					
12					

VAPOUR CONCENTRATIONS ● %LEL ▲ ppm — ● 20 40 60 80 ▲ 100 200 300 400

DEPTH (ft): 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39

WELL CONSTRUCTION

LABORATORY ANALYSES:

Stantec

BOREHOLE RECORD

N: 4 848 205 E: 595 570

BH14-23

CLIENT QuadReal Properties — PROJECT No. 121624778

LOCATION 12861 Dixie Road, Caledon — DATUM NAD83

DATES: BORING 03/02/2023 — WATER LEVEL — TPC ELEVATION

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	DEPTH (ft)	SAMPLES TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)
0	266.1		0				
		TOPSOIL Clayey silt, Trace gravels Brown, loose, moist	1	SS	1	380/460	7
	265.6		2				
		SANDY LEAN CLAY (CL) Silty sand seams, traces of gravel Brown, very stiff to hard, moist	3	SS	2	460/460	28
1	264.9		4				
		Hard, brown, moist	5				
			6	SS	3	460/460	42
2			7				
			8	SS	4	460/460	36
			9				
3			10				
			11	SS	5	330/460	50
			12				
4			13				
			14				
			15				
	261.2		16	SS	6	460/460	37
5		Traces of gravel, some silt seams Very stiff , grey, moist	17				
			18				
			19				
6			20				
			21	SS	7	460/460	50
	259.6						
		Borehole terminated at 6.55 m BGS	22				
7			23				
			24				
			25				
8			26				

UNDRAINED SHEAR STRENGTH (kPa)

50 100 150 200

WATER CONTENT & ATTERBERG LIMITS W_P W W_L

DYNAMIC CONE PENETRATION TEST, BLOWS/0.3m ▼

STANDARD PENETRATION TEST, BLOWS/0.3m ●

REMARKS & GRAIN SIZE DISTRIBUTION (%)

10 20 30 40 50 60 70 80 90 100

GR SA SI CL

50 For 5" Refusal

□ Field Vane Test, kPa

■ Remoulded Vane Test, kPa

△ Pocket Penetrometer Test, kPa

Stantec

BOREHOLE RECORD

N: 4 848 202 E: 595 429

BH/MW15-23

CLIENT QuadReal Properties — PROJECT No. 121624778

LOCATION 12861 Dixie Road, Caledon — DATUM NAD83

DATES: BORING 02/14/2023 — WATER LEVEL — TPC ELEVATION

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	DEPTH (ft)	SAMPLES TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)
0	267.7		0				
	267.3	**TOPSOIL** Clayey silt, Trace gravels Brown, loose, moist	1	SS	1	460/460	3
1		**SANDY LEAN CLAY (CL)** Sand seams, traces of gravel Brown, Very stiff to hard, moist	3	SS	2	360/460	23
			6	SS	3	460/460	26
2	265.0		8	SS	4	460/460	29
3		Hard to very stiff, brown, moist	11	SS	5	460/460	38
4	263.1						
		Traces of gravel very stiff, grey, moist	16	SS	6	460/460	25
5							
6	261.2		21	SS	7	410/460	28
		Silty sand seams Hard, grey, moist					
7							
8			26	SS	8	330/460	50
9	258.1		31	SS	9	460/460	50
		Borehole terminated at 9.6 m BGS. Monitoring well installed to 9.6 m BGS.					
10							
11							
12							

UNDRAINED SHEAR STRENGTH (kPa)

50 100 150 200

WATER CONTENT & ATTERBERG LIMITS W_P W W_L

DYNAMIC CONE PENETRATION TEST, BLOWS/0.3m

STANDARD PENETRATION TEST, BLOWS/0.3m

10 20 30 40 50 60 70 80 90 100

REMARKS & GRAIN SIZE DISTRIBUTION (%)

GR	SA	SI	CL
5	32	27	36

□ Field Vane Test, kPa

■ Remoulded Vane Test, kPa

△ Pocket Penetrometer Test, kPa

Stantec

MONITORING WELL RECORD

N: 4 848 202 E: 595 429

BH/MW15-23

CLIENT QuadReal Properties — PROJECT No. 121624778

LOCATION 12861 Dixie Road, Caledon — DATUM NAD83

DATES: BORING 02/14/2023 — WATER LEVEL — TPC ELEVATION

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WATER LEVEL	DEPTH (ft)	VAPOUR CONCENTRATIONS ● %LEL ▲ ppm (● 20 40 60 80 / ▲ 100 200 300 400)	SAMPLES TYPE	SAMPLES NUMBER	SAMPLES N-VALUE	WELL CONSTRUCTION
0	267.7				0					
	267.3	**TOPSOIL** Clayey silt, Trace gravels Brown, loose, moist			1		SS	1	3	
1		**SANDY LEAN CLAY (CL)** Sand seams, traces of gravel Brown, Very stiff to hard, moist			3		SS	2	23	
2				▼	6		SS	3	26	
	265.0				8		SS	4	29	
3		Hard to very stiff, brown, moist			10		SS	5	38	
4	263.1				13					
		Traces of gravel very stiff, grey, moist			15		SS	6	25	
5					18					
6	261.2				20		SS	7	28	
		Silty sand seams Hard, grey, moist			23					
7					25		SS	8	50	
8					28					
9					30					
	258.1				31		SS	9	50	
		Borehole terminated at 9.6 m BGS. Monitoring well installed to 9.6 m BGS.			32					
10					33					
					34					
11					36					
					37					
					38					
12					39					

LABORATORY ANALYSES:

Stantec

BOREHOLE RECORD

N: 4 848 337 E: 595 552

BH16-23

CLIENT QuadReal Properties — PROJECT No. 121624778

LOCATION 12861 Dixie Road, Caledon — DATUM NAD83

DATES: BORING 02/16/2023 — WATER LEVEL — TPC ELEVATION

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	DEPTH (ft)	SAMPLES TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)
0	267.9		0				
		TOPSOIL Clayey silt, Trace gravels Brown, loose, moist	1	SS	1	460/460	3
	267.5	**SANDY LEAN CLAY (CL)** Silty sand seams, traces of gravel Brown, very stiff to hard, moist	2				
1			3	SS	2	410/460	24
			4				
			5				
			6	SS	3	460/460	28
2			7				
	265.6		8	SS	4	460/460	33
		Hard, brown, moist	9				
			10				
3			11	SS	5	410/460	50
			12				
			13				
4			14				
	263.4		15				
		Traces of gravel, some silt seams Very stiff , grey, moist	16	SS	6	460/460	50
5			17				
			18				
			19				
6			20				
	261.4		21	SS	7	410/460	50
		Borehole terminated at 6.55 m BGS	22				
7			23				
			24				
			25				
8			26				

UNDRAINED SHEAR STRENGTH (kPa)

50 100 150 200

WATER CONTENT & ATTERBERG LIMITS W_P W W_L

DYNAMIC CONE PENETRATION TEST, BLOWS/0.3m ▼

STANDARD PENETRATION TEST, BLOWS/0.3m ●

REMARKS & GRAIN SIZE DISTRIBUTION (%)

10 20 30 40 50 60 70 80 90 100

GR SA SI CL

□ Field Vane Test, kPa

■ Remoulded Vane Test, kPa

△ Pocket Penetrometer Test, kPa

Stantec

BOREHOLE RECORD

N: 4 848 438 E: 595 643

BH17-23

CLIENT QuadReal Properties — PROJECT No. 121624778

LOCATION 12861 Dixie Road, Caledon — DATUM NAD83

DATES: BORING 03/03/2023 — WATER LEVEL — TPC ELEVATION

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	DEPTH (ft)	SAMPLES TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)	REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
0	267.0		0					
		TOPSOIL Clayey silt, Trace gravels Brown, loose, moist	1	SS	1	380/460	5	
	266.4		2					
1		**SANDY LEAN CLAY (CL)** Silty sand seams, traces of gravel Brown, hard, moist	3	SS	2	430/460	45	
			4					
			5	SS	3	460/460	41	
2			6					
	264.7		7					
		Hard, brown, moist	8	SS	4	460/460	37	
			9					
3			10	SS	5	230/460	50	50 For 3" Refusal (Rock in Way)
			11					
			12					
4			13					
			14					
	262.5		15					
		Traces of gravel, some silt seams Hard , grey, moist	16	SS	6	360/460	50	50 For 4" Refusal (Hard Augering)
5			17					
			18					
			19					
6			20					
			21	SS	7	410/460	48	
	260.5							
		Borehole terminated at 6.55 m BGS	22					
7			23					
			24					
			25					
8			26					

UNDRAINED SHEAR STRENGTH (kPa)

50 100 150 200

WATER CONTENT & ATTERBERG LIMITS W_P W W_L

DYNAMIC CONE PENETRATION TEST, BLOWS/0.3m ▼

STANDARD PENETRATION TEST, BLOWS/0.3m ●

10 20 30 40 50 60 70 80 90 100

□ Field Vane Test, kPa

■ Remoulded Vane Test, kPa

△ Pocket Penetrometer Test, kPa

Stantec

BOREHOLE RECORD

N: 4 848 526 E: 595 783

BH18-23

CLIENT QuadReal Properties — PROJECT No. 121624778

LOCATION 12861 Dixie Road, Caledon — DATUM NAD83

DATES: BORING 02/28/2023 — WATER LEVEL — TPC ELEVATION

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	DEPTH (ft)	SAMPLES TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)	REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
0	266.7		0					
		TOPSOIL Clayey silt, Trace gravels Brown, loose, moist	1	SS	1	460/460	3	
	266.1		2					
1		**SANDY LEAN CLAY (CL)** Silty sand seams, traces of gravel Brown, hard, moist	3	SS	2	360/460	29	
			4					
			5					
			6	SS	3	76/460	30	Rock in the way of auger
2			7					
	264.5		8	SS	4	460/460	39	
		Hard, brown, moist	9					
3			10					
			11	SS	5	460/460	38	6 27 34 33
			12					
4			13					
			14					
	262.2		15					
		Traces of gravel, some silt seams Hard, grey, moist	16	SS	6	460/460	46	
5			17					
			18					
			19					
6			20					
			21	SS	7	460/460	50	
	260.2		22					
		Borehole terminated at 6.55 m BGS	23					
7			24					
			25					
8			26					

UNDRAINED SHEAR STRENGTH (kPa)

50 100 150 200

WATER CONTENT & ATTERBERG LIMITS W_P W W_L

DYNAMIC CONE PENETRATION TEST, BLOWS/0.3m ▼

STANDARD PENETRATION TEST, BLOWS/0.3m ●

10 20 30 40 50 60 70 80 90 100

□ Field Vane Test, kPa

■ Remoulded Vane Test, kPa

△ Pocket Penetrometer Test, kPa

Stantec

BOREHOLE RECORD

N: 4 848 555 E: 595 662

BH/MW19-23

CLIENT QuadReal Properties — PROJECT No. 121624778

LOCATION 12861 Dixie Road, Caledon — DATUM NAD83

DATES: BORING 02/28/2023 — WATER LEVEL — TPC ELEVATION

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	DEPTH (ft)	SAMPLES TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)
0	267.7		0				
	267.3	**TOPSOIL** Clayey silt, Trace gravels Brown, loose, moist	1	SS	1	330/460	7
1		**LEAN CLAY WITH SAND TO SANDY LEAN CLAY (CL)** Silty sand seams, traces of gravel Brown, hard, moist	3	SS	2	460/460	33
			6	SS	3	460/460	37
2			8	SS	4	460/460	47
	265.0		9				
3		Hard, brown, moist	11	SS	5	460/460	50
	263.8		12				
4		Hard, grey, wet	13				
			16	SS	6	460/460	50
5			18				
			21	SS	7	460/460	50
6			22				
			26	SS	8	250/460	50
7			27				
	259.2		29				
8		Traces of gravel Hard, grey, wet	30				
	258.1		31	SS	9	460/460	50
9		Borehole terminated at 9.60m BGS Monitoring well installed to 9.6 m BGS.	32				
10			33				
			34				
11			36				
			37				
12			38				
			39				

UNDRAINED SHEAR STRENGTH (kPa)

50 100 150 200

WATER CONTENT & ATTERBERG LIMITS W_P W W_L

DYNAMIC CONE PENETRATION TEST, BLOWS/0.3m ▼

STANDARD PENETRATION TEST, BLOWS/0.3m ●

REMARKS & GRAIN SIZE DISTRIBUTION (%)

10 20 30 40 50 60 70 80 90 100

GR SA SI CL

Hard Augering

5 22 36 37

□ Field Vane Test, kPa

■ Remoulded Vane Test, kPa

△ Pocket Penetrometer Test, kPa

Stantec

MONITORING WELL RECORD

N: 4 848 555 E: 595 662

BH/MW19-23

CLIENT QuadReal Properties — PROJECT No. 121624778

LOCATION 12861 Dixie Road, Caledon — DATUM NAD83

DATES: BORING 02/28/2023 — WATER LEVEL — TPC ELEVATION

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	SAMPLES TYPE	SAMPLES NUMBER	SAMPLES N-VALUE
0	267.7				
	267.3	**TOPSOIL** Clayey silt, Trace gravels Brown, loose, moist	SS	1	7
1		**LEAN CLAY WITH SAND TO SANDY LEAN CLAY (CL)** Silty sand seams, traces of gravel Brown, hard, moist	SS	2	33
2			SS	3	37
	265.0		SS	4	47
3		Hard, brown, moist	SS	5	50
	263.8	▼			
4		Hard, grey, wet			
5			SS	6	50
6			SS	7	50
7					
8			SS	8	50
	259.2				
9		Traces of gravel Hard, grey, wet	SS	9	50
	258.1				
10		Borehole terminated at 9.60m BGS Monitoring well installed to 9.6 m BGS.			
11					
12					

DEPTH (ft): 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39

VAPOUR CONCENTRATIONS ● %LEL ▲ ppm — ● 20 40 60 80 ▲ 100 200 300 400

WELL CONSTRUCTION

LABORATORY ANALYSES:

Stantec

BOREHOLE RECORD

N: 4 848 509 E: 595 559

BH20-23

CLIENT QuadReal Properties — PROJECT No. 121624778

LOCATION 12861 Dixie Road, Caledon — DATUM NAD83

DATES: BORING 02/28/2023 — WATER LEVEL — TPC ELEVATION

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	DEPTH (ft)	SAMPLES TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)	REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
0	268.0		0					
		TOPSOIL Clayey silt, Trace gravels Brown, loose, moist	1	SS	1	300/460	7	
	267.4		2					
1		**SANDY LEAN CLAY (CL)** Silty sand seams, traces of gravel Brown, hard, moist	3	SS	2	460/460	31	
			4					
			5	SS	3	460/460	36	
2			6					
	265.8		7					
		Hard, brown, moist	8	SS	4	460/460	40	
			9					
3			10					
			11	SS	5	460/460	50	10 28 37 25
			12					
4			13					
			14					
	263.5		15					
		Traces of gravel, some silt seams Hard, grey, moist	16	SS	6	300/460	50	50 For 4" Refusal
5			17					
			18					
			19					
6			20					
			21	SS	7	360/460	50	50 For 4" Refusal
	261.5							
		Borehole terminated at 6.55 m BGS	22					
7			23					
			24					
			25					
8			26					

UNDRAINED SHEAR STRENGTH (kPa)

50 100 150 200

WATER CONTENT & ATTERBERG LIMITS W_P W W_L

DYNAMIC CONE PENETRATION TEST, BLOWS/0.3m ▼

STANDARD PENETRATION TEST, BLOWS/0.3m ●

10 20 30 40 50 60 70 80 90 100

□ Field Vane Test, kPa

■ Remoulded Vane Test, kPa

△ Pocket Penetrometer Test, kPa

Stantec

BOREHOLE RECORD

N: 4 848 363 E: 595 438

BH21-23

CLIENT QuadReal Properties — PROJECT No. 121624778

LOCATION 12861 Dixie Road, Caledon — DATUM NAD83

DATES: BORING 02/16/2023 — WATER LEVEL — TPC ELEVATION

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	DEPTH (ft)	SAMPLES TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)	REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
0	269.5		0					
		TOPSOIL Clayey silt, Trace gravels Brown, loose, moist	1					
	268.9		2					
1		**SANDY LEAN CLAY (CL)** Silty sand seams, traces of gravel Brown, very stiff, moist	3	SS	1	360/460	21	
			4					
			5					
2			6	SS	2	460/460	22	
	267.2		7					
		Hard, brown, moist	8	SS	3	460/460	37	
			9					
3			10					
			11	SS	4	460/460	33	
			12					
			13					
4			14					
	264.9		15					
		Traces of gravel, some silt seams Hard, grey, moist	16	SS	5	460/460	42	
5			17					
			18					
			19					
6			20					
			21	SS	6	460/460	50	5 38 35 22
			22					
7			23					
			24					
			25					
8			26	SS	7	460/460	50	50 For 3" Refusal
			27					
			28					
9			29					
			30					
	259.9		31	SS	8	360/460	50	50 For 2" Refusal
		Borehole terminated at 9.6 m BGS	32					
10			33					
			34					
			35					
11			36					
			37					
			38					
12			39					

UNDRAINED SHEAR STRENGTH (kPa)

50 100 150 200

WATER CONTENT & ATTERBERG LIMITS W_P W W_L

DYNAMIC CONE PENETRATION TEST, BLOWS/0.3m ▼

STANDARD PENETRATION TEST, BLOWS/0.3m ●

10 20 30 40 50 60 70 80 90 100

□ Field Vane Test, kPa

■ Remoulded Vane Test, kPa

△ Pocket Penetrometer Test, kPa

Stantec

BOREHOLE RECORD

N: 4 848 259 E: 595 331

BH22-23

CLIENT QuadReal Properties — PROJECT No. 121624778

LOCATION 12861 Dixie Road, Caledon — DATUM NAD83

DATES: BORING 02/15/2023 — WATER LEVEL — TPC ELEVATION

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	DEPTH (ft)	TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)	REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
0	268.2		0					
		TOPSOIL Clayey silt, Trace gravels Brown, loose, moist	1	SS	1	460/460	4	
	267.5		2					
		SANDY LEAN CLAY (CL) Silty sand seams, traces of gravel Brown, very stiff, moist	3	SS	2	380/460	24	
1			4					
			5					
			6	SS	3	460/460	31	
2	265.9		7					
		Hard, brown, moist	8	SS	4	360/460	48	
			9					
			10					
3			11	SS	5	460/460	47	7 40 17 36
			12					
			13					
4	263.6		14					
		Traces of gravel, some silt seams Hard, grey, moist	15					Hard Augering
			16	SS	6	360/460	47	
5			17					
			18					
			19					
6			20					
	261.6		21	SS	7	300/460	50	
		Borehole terminated at 6.55 m BGS	22					
7			23					
			24					
			25					
8			26					

UNDRAINED SHEAR STRENGTH (kPa)

50 100 150 200

WATER CONTENT & ATTERBERG LIMITS W_P W W_L

DYNAMIC CONE PENETRATION TEST, BLOWS/0.3m ▼

STANDARD PENETRATION TEST, BLOWS/0.3m ●

10 20 30 40 50 60 70 80 90 100

□ Field Vane Test, kPa

■ Remoulded Vane Test, kPa

△ Pocket Penetrometer Test, kPa

Stantec

BOREHOLE RECORD

N: 4 848 188 E: 595 247

BH23-23

CLIENT QuadReal Properties — PROJECT No. 121624778

LOCATION 12861 Dixie Road, Caledon — DATUM NAD83

DATES: BORING 02/15/2023 — WATER LEVEL — TPC ELEVATION

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	DEPTH (ft)	SAMPLES TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)
0	**268.5**		0				
		TOPSOIL Clayey silt, Trace gravels Brown, loose, moist	1	SS	1	460/460	5
	267.9		2				
1		**SANDY LEAN CLAY (CL)** Silty sand seams, traces of gravel Brown, very stiff, moist	3	SS	2	410/460	23
	266.9		4				
		Brown, very stiff to hard, moist	5	SS	3	460/460	27
2			6				
			7				
			8	SS	4	460/460	36
			9				
3			10	SS	5	460/460	41
	265.0		11				
		Borehole terminated at 3.55 m BGS	12				
4			13				
			14				
			15				
5			16				

UNDRAINED SHEAR STRENGTH (kPa)

50 100 150 200

WATER CONTENT & ATTERBERG LIMITS W_P W W_L

DYNAMIC CONE PENETRATION TEST, BLOWS/0.3m ▼

STANDARD PENETRATION TEST, BLOWS/0.3m ●

REMARKS & GRAIN SIZE DISTRIBUTION (%)

10 20 30 40 50 60 70 80 90 100

GR SA SI CL

□ Field Vane Test, kPa

■ Remoulded Vane Test, kPa

△ Pocket Penetrometer Test, kPa

Stantec

BOREHOLE RECORD

N: 4 848 274 E: 595 210

BH24-23

CLIENT QuadReal Properties — PROJECT No. 121624778

LOCATION 12861 Dixie Road, Caledon — DATUM NAD83

DATES: BORING 02/15/2023 — WATER LEVEL — TPC ELEVATION

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	DEPTH (ft)	SAMPLES TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)
0	268.1		0				
	267.8	**TOPSOIL** Clayey silt, Trace gravels Brown, loose, moist	1				
		SANDY LEAN CLAY (CL) Silty sand seams, traces of gravel Brown, very stiff to hard, moist	2				
1			3	SS	1	360/460	22
	266.6		4				
		Hard, brown, moist	5				
			6	SS	2	410/460	36
2			7				
			8	SS	3	460/460	41
			9				
3			10				
			11	SS	4	460/460	50
			12				
4			13				
			14				
			15				
	263.3		16	SS	5	410/460	50
5		Traces of gravel, some silt seams Hard , grey, moist	17				
			18				
			19				
6			20				
			21	SS	6	410/460	50
	261.6						
		Borehole terminated at 6.55 m BGS	22				
7			23				
			24				
			25				
8			26				

UNDRAINED SHEAR STRENGTH (kPa)

50 100 150 200

WATER CONTENT & ATTERBERG LIMITS W_P W W_L

DYNAMIC CONE PENETRATION TEST, BLOWS/0.3m ▼

STANDARD PENETRATION TEST, BLOWS/0.3m ●

REMARKS & GRAIN SIZE DISTRIBUTION (%)

10 20 30 40 50 60 70 80 90 100

GR SA SI CL

Hard Augering

50 For 1" (Hard ground)

□ Field Vane Test, kPa

■ Remoulded Vane Test, kPa

△ Pocket Penetrometer Test, kPa

Stantec

BOREHOLE RECORD

N: 4 848 400 E: 595 083

BH/MW25-23

CLIENT QuadReal Properties — PROJECT No. 121624778

LOCATION 12861 Dixie Road, Caledon — DATUM NAD83

DATES: BORING 02/15/2023 — WATER LEVEL — TPC ELEVATION

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	DEPTH (ft)	SAMPLES TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)	REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
0	269.9		0					
	269.5	**TOPSOIL** Clayey silt, Trace gravels Brown, loose, moist	1	SS	1	460/460	6	
1		**SANDY LEAN CLAY (CL)** Sand seams, traces of gravel Brown, Very stiff hard, moist	3	SS	2	360/460	26	
2	267.2		6	SS	3	460/460	36	
			8	SS	4	460/460	50	
3		Hard, brown, moist	11	SS	5	460/460	50	
4	265.1		15	SS	6	460/460	50	Hard Augering
5		Traces to some of gravel Hard, grey, moist						
6	263.4		21	SS	7	360/460	50	50 For 3" Refusal, Bad Rock
		Borehole terminated at 6.5 m BGS due to Auger Refusal Monitoring well installed to 6.5 m BGS						
7								
8								
9								
10								
11								
12								

UNDRAINED SHEAR STRENGTH (kPa)

50 100 150 200

WATER CONTENT & ATTERBERG LIMITS W_P W W_L

DYNAMIC CONE PENETRATION TEST, BLOWS/0.3m ▼

STANDARD PENETRATION TEST, BLOWS/0.3m ●

10 20 30 40 50 60 70 80 90 100

□ Field Vane Test, kPa

■ Remoulded Vane Test, kPa

△ Pocket Penetrometer Test, kPa

Stantec

MONITORING WELL RECORD

N: 4 848 400 E: 595 083

BH/MW25-23

CLIENT QuadReal Properties — PROJECT No. 121624778

LOCATION 12861 Dixie Road, Caledon — DATUM NAD83

DATES: BORING 02/15/2023 — WATER LEVEL — TPC ELEVATION

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	SAMPLES TYPE	SAMPLES NUMBER	SAMPLES N-VALUE
0	269.9				
	269.5	**TOPSOIL** Clayey silt, Trace gravels Brown, loose, moist	SS	1	6
1		**SANDY LEAN CLAY (CL)** Sand seams, traces of gravel Brown, Very stiff hard, moist	SS	2	26
2			SS	3	36
	267.2		SS	4	50
3		Hard, brown, moist	SS	5	50
4					
	265.1		SS	6	50
5		Traces to some of gravel Hard, grey, moist			
6			SS	7	50
	263.4				
7		Borehole terminated at 6.5 m BGS due to Auger Refusal Monitoring well installed to 6.5 m BGS			
8					
9					
10					
11					
12					

VAPOUR CONCENTRATIONS — ● %LEL ▲ ppm — ● 20 40 60 80 — ▲ 100 200 300 400

DEPTH (ft): 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39

WELL CONSTRUCTION

LABORATORY ANALYSES:

Stantec

BOREHOLE RECORD

N: 4 848 421 E: 595 194

BH26-23

CLIENT QuadReal Properties — PROJECT No. 121624778

LOCATION 12861 Dixie Road, Caledon — DATUM NAD83

DATES: BORING 02/16/2023 — WATER LEVEL — TPC ELEVATION

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	DEPTH (ft)	TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)	REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
0	269.1		0					
		TOPSOIL Clayey silt, Trace gravels Brown, loose, moist	1	SS	1	460/460	3	
	268.5		2					
1		**SANDY LEAN CLAY (CL)** Silty sand seams, traces of gravel Brown, very stiff, moist	3	SS	2	460/460	28	
	267.6		4					
		Hard, grey, moist	5					
2			6	SS	3	460/460	34	
			7					
			8	SS	4	460/460	40	6 21 36 37
3			9					
			10					50 For 2" Refusal
			11	SS	5	100/460	50	
4			12					
			13					
			14					
	264.5		15					Hard Augering
		Traces of gravel, some silt seams Hard, grey, moist	16	SS	6	330/460	50	
5			17					
			18					
			19					
6			20					50 For 3" Refusal
			21	SS	7	250/460	50	
			22					
7			23					
			24					
			25					50 For 5" Refusal
8			26	SS	8	460/460	50	
			27					
			28					
			29					
9			30					50 For 4" Refusal
	259.5		31	SS	9	410/460	50	
		Borehole terminated at 9.6 m BGS	32					
10			33					
			34					
			35					
11			36					
			37					
			38					
12			39					

UNDRAINED SHEAR STRENGTH (kPa)

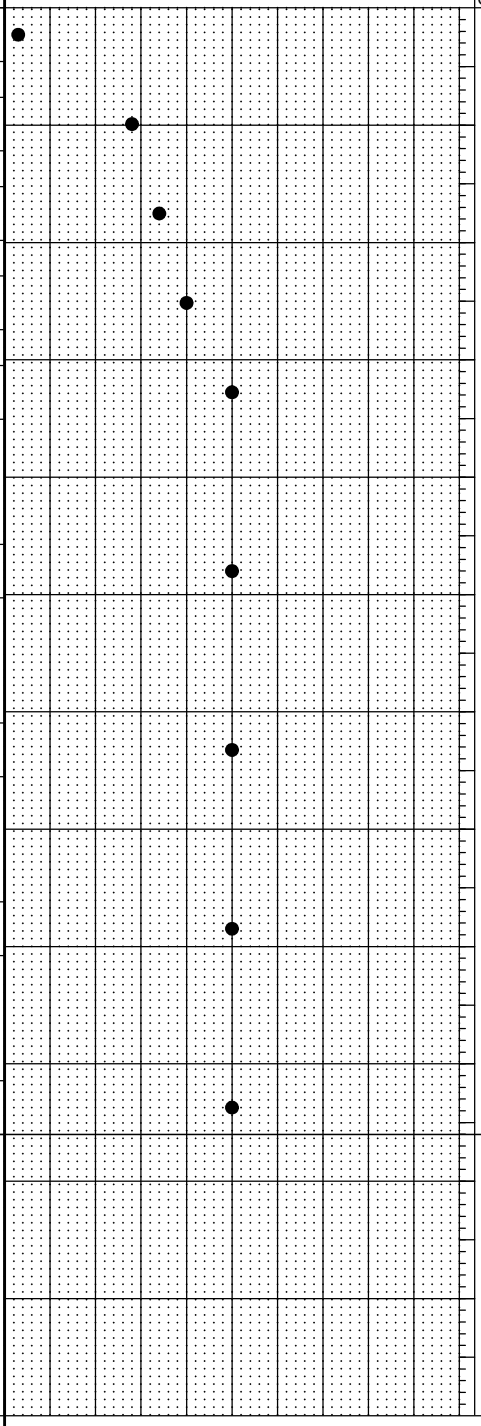
50 100 150 200

WATER CONTENT & ATTERBERG LIMITS W_P W W_L

DYNAMIC CONE PENETRATION TEST, BLOWS/0.3m ▼

STANDARD PENETRATION TEST, BLOWS/0.3m ●

10 20 30 40 50 60 70 80 90 100



□ Field Vane Test, kPa

■ Remoulded Vane Test, kPa

△ Pocket Penetrometer Test, kPa

Stantec

BOREHOLE RECORD

N: 4 848 515 E: 595 181

BH27-23

CLIENT QuadReal Properties — PROJECT No. 121624778

LOCATION 12861 Dixie Road, Caledon — DATUM NAD83

DATES: BORING 02/27/2023 — WATER LEVEL — TPC ELEVATION

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WATER LEVEL	DEPTH (ft)	SAMPLES TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)	REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
0	269.6				0					
		TOPSOIL Clayey silt, Trace gravels Brown, loose, moist			1	SS	1	200/460	3	
	269.2	**SANDY LEAN CLAY (CL)** Silty sand seams, traces of gravel Brown, very stiff to hard, moist			2					
1					3	SS	2	410/460	37	
	268.1				4					
		Hard, grey, moist			5					
					6	SS	3	460/460	42	
2					7					
					8	SS	4	300/460	50	50 For 5" Refusal (Hard ground)
					9					
3					10					
					11	SS	5	280/460	50	50 For 4" Refusal
	266.1									
		Borehole terminated at 3.55 m BGS			12					
4					13					
					14					
					15					
5					16					

UNDRAINED SHEAR STRENGTH (kPa)

50 100 150 200

WATER CONTENT & ATTERBERG LIMITS W_P W W_L

DYNAMIC CONE PENETRATION TEST, BLOWS/0.3m ▼

STANDARD PENETRATION TEST, BLOWS/0.3m ●

10 20 30 40 50 60 70 80 90 100

□ Field Vane Test, kPa

■ Remoulded Vane Test, kPa

△ Pocket Penetrometer Test, kPa

Stantec

BOREHOLE RECORD

N: 4 848 401 E: 595 329

BH28-23

CLIENT QuadReal Properties — PROJECT No. 121624778

LOCATION 12861 Dixie Road, Caledon — DATUM NAD83

DATES: BORING 02/16/2023 — WATER LEVEL — TPC ELEVATION

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	DEPTH (ft)	SAMPLES TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)
0	269.5		0				
	269.2	**TOPSOIL** Clayey silt, Trace gravels Brown, loose, moist	1	SS	1	460/460	3
		SANDY LEAN CLAY (CL) Silty sand seams, traces of gravel Brown, very stiff to hard, moist	2				
1			3	SS	2	460/460	21
	267.9		4				
		Hard, brown, moist	5				
			6	SS	3	460/460	27
2			7				
			8	SS	4	460/460	29
			9				
3			10				
			11	SS	5	460/460	43
			12				
4			13				
			14				
			15				
	264.6		16	SS	6	330/460	50
5		Traces of gravel, some silt seams Hard, grey, moist	17				
			18				
			19				
6			20				
			21	SS	7	410/460	50
	262.9						
		Borehole terminated at 6.55 m BGS	22				
7			23				
			24				
			25				
8			26				

UNDRAINED SHEAR STRENGTH (kPa)

50 100 150 200

WATER CONTENT & ATTERBERG LIMITS W_P W W_L

DYNAMIC CONE PENETRATION TEST, BLOWS/0.3m ▼

STANDARD PENETRATION TEST, BLOWS/0.3m ●

REMARKS & GRAIN SIZE DISTRIBUTION (%)

10 20 30 40 50 60 70 80 90 100

GR SA SI CL

□ Field Vane Test, kPa

■ Remoulded Vane Test, kPa

△ Pocket Penetrometer Test, kPa

Stantec

BOREHOLE RECORD

N: 4 848 537 E: 595 317

BH29-23

CLIENT QuadReal Properties — PROJECT No. 121624778

LOCATION 12861 Dixie Road, Caledon — DATUM NAD83

DATES: BORING 02/27/2023 — WATER LEVEL — TPC ELEVATION

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	DEPTH (ft)	SAMPLES TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)	REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
0	270.3		0					
	270.0	**TOPSOIL** Clayey silt, Trace gravels Brown, loose, moist	1	SS	1	300/460	3	
		SANDY LEAN CLAY (CL) Silty sand seams, traces of gravel Brown, very stiff to hard, moist	2					
1			3	SS	2	460/460	22	
	268.8		4					
		Hard, brown, moist	5					
			6	SS	3	180/460	36	
2			7					
			8	SS	4	460/460	50	
			9					
3			10					
			11	SS	5	460/460	50	
			12					
4			13					
			14					
			15					
	265.5		16	SS	6	460/460	50	50 For 5" (Hard Augering)
5		Traces of gravel, some silt seams Very stiff , grey, moist	17					
			18					
			19					
6			20					
			21	SS	7	410/460	50	50 For 5" Refusal
	263.8		22					
		Borehole terminated at 6.55 m BGS	23					
7			24					
			25					
8			26					

UNDRAINED SHEAR STRENGTH (kPa)

50 100 150 200

WATER CONTENT & ATTERBERG LIMITS W_P W W_L

DYNAMIC CONE PENETRATION TEST, BLOWS/0.3m ▼

STANDARD PENETRATION TEST, BLOWS/0.3m ●

10 20 30 40 50 60 70 80 90 100

□ Field Vane Test, kPa

■ Remoulded Vane Test, kPa

△ Pocket Penetrometer Test, kPa

Stantec

BOREHOLE RECORD

N: 4 848 646 E: 595 342

BH30-23

CLIENT QuadReal Properties — PROJECT No. 121624778

LOCATION 12861 Dixie Road, Caledon — DATUM NAD83

DATES: BORING 02/27/2023 — WATER LEVEL — TPC ELEVATION

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WATER LEVEL	DEPTH (ft)	SAMPLES TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)	REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
0	269.9				0					
		TOPSOIL Clayey silt, Trace gravels Brown, loose, moist			1	SS	1	300/460	6	
	269.5	**SANDY LEAN CLAY (CL)** sand seams, Brown, Very stiff, moist			2					
1					3	SS	2	460/460	29	
	268.7				4					
		Crushed gravels with sand , hard, brown			5					
					6	SS	3	460/460	50	
2					7					
					8	SS	4	460/460	50	50 For 5" Refusal
					9					
3					10					
					11	SS	5	150/460	50	50 For 5" Refusal
	266.4									
		Borehole terminated at 3.55 m BDS Borehole is open and dry			12					
4					13					
					14					
					15					
5					16					

UNDRAINED SHEAR STRENGTH (kPa)

50 100 150 200

WATER CONTENT & ATTERBERG LIMITS W_P W W_L

DYNAMIC CONE PENETRATION TEST, BLOWS/0.3m ▼

STANDARD PENETRATION TEST, BLOWS/0.3m ●

10 20 30 40 50 60 70 80 90 100

□ Field Vane Test, kPa

■ Remoulded Vane Test, kPa

△ Pocket Penetrometer Test, kPa

Stantec

BOREHOLE RECORD

N: 4 848 535 E: 595 466

BH/MW31-23

CLIENT QuadReal Properties — PROJECT No. 121624778

LOCATION 12861 Dixie Road, Caledon — DATUM NAD83

DATES: BORING 02/27/2023 — WATER LEVEL — TPC ELEVATION

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	DEPTH (ft)	SAMPLES TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)
0	269.4		0				
	269.0	**TOPSOIL** Clayey silt, Trace gravels Brown, loose, moist	1	SS	1	360/460	3
1		**SANDY LEAN CLAY (CL)** Silty sand seams, traces of gravel Brown, very stiff to hard, moist	3	SS	2	460/460	29
			6	SS	3	460/460	42
2	266.7		8	SS	4	460/460	38
		Hard, brown, moist	11	SS	5	460/460	50
3	265.5						
		Hard, grey, wet	16	SS	6	200/460	50
4							
5							
6			21	SS	7	180/460	50
7							
8			26	SS	8	180/460	50
	260.9						
		Traces of gravel Hard, grey, wet					
9	259.8		31	SS	9	250/460	50
		Borehole terminated at 9.60m BGS. Monitoring well installed to 9.6 m BGS.					
10							
11							
12							

UNDRAINED SHEAR STRENGTH (kPa)

50 100 150 200

WATER CONTENT & ATTERBERG LIMITS W_P W W_L

DYNAMIC CONE PENETRATION TEST, BLOWS/0.3m ▼

STANDARD PENETRATION TEST, BLOWS/0.3m ●

REMARKS & GRAIN SIZE DISTRIBUTION (%)

10 20 30 40 50 60 70 80 90 100

GR SA SI CL

5 26 31 38

□ Field Vane Test, kPa

■ Remoulded Vane Test, kPa

△ Pocket Penetrometer Test, kPa

Stantec

MONITORING WELL RECORD

N: 4 848 535 E: 595 466

BH/MW31-23

CLIENT QuadReal Properties — PROJECT No. 121624778

LOCATION 12861 Dixie Road, Caledon — DATUM NAD83

DATES: BORING 02/27/2023 — WATER LEVEL — TPC ELEVATION

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	SAMPLES TYPE	SAMPLES NUMBER	SAMPLES N-VALUE
0	269.4				
	269.0	**TOPSOIL** Clayey silt, Trace gravels Brown, loose, moist	SS	1	3
1		**SANDY LEAN CLAY (CL)** Silty sand seams, traces of gravel Brown, very stiff to hard, moist	SS	2	29
			SS	3	42
2	266.7		SS	4	38
		Hard, brown, moist			
3			SS	5	50
	265.5				
4		Hard, grey, wet			
			SS	6	50
5					
			SS	7	50
6					
7					
			SS	8	50
8	260.9				
		Traces of gravel Hard, grey, wet			
9					
	259.8		SS	9	50
		Borehole terminated at 9.60m BGS. Monitoring well installed to 9.6 m BGS.			
10					
11					
12					

VAPOUR CONCENTRATIONS — ● %LEL ▲ ppm — ● 20 40 60 80 — ▲ 100 200 300 400

DEPTH (ft): 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39

WELL CONSTRUCTION

LABORATORY ANALYSES:

Stantec

BOREHOLE RECORD

N: 4 848 681 E: 595 453

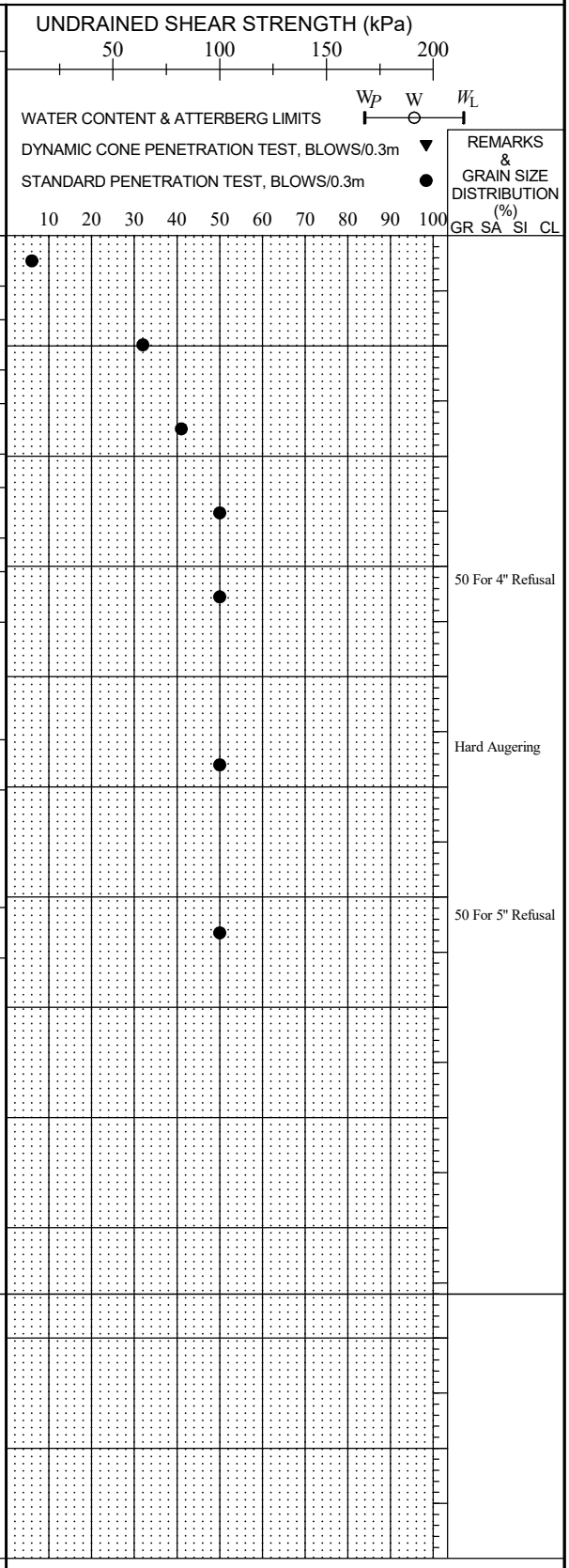
BH32-23

CLIENT QuadReal Properties — PROJECT No. 121624778

LOCATION 12861 Dixie Road, Caledon — DATUM NAD83

DATES: BORING 02/27/2023 — WATER LEVEL — TPC ELEVATION

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	DEPTH (ft)	SAMPLES TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)	REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
0	269.6		0					
	269.3	**TOPSOIL** Clayey silt, Trace gravels Brown, loose, moist	1	SS	1	410/460	6	
1		**SANDY LEAN CLAY (CL)** Silty sand seams, traces of gravel	3	SS	2	460/460	32	
	268.1	Brown, very stiff to hard, moist	5					
2		Hard, brown, moist	6	SS	3	460/460	41	
			8	SS	4	460/460	50	
3			10					
			11	SS	5	460/460	50	50 For 4" Refusal
4			12					
			13					
			14					
	264.7		15					
5		Traces of gravel, some silt seams Hard , grey, moist	16	SS	6	460/460	50	Hard Augering
			17					
			18					
6			19					
			20					
	263.0		21	SS	7	430/460	50	50 For 5" Refusal
		Borehole terminated at 6.55 m BGS	22					
7			23					
			24					
			25					
8			26					
			27					
			28					
9			29					
			30					
			31					
			32					
10			33					
			34					
			35					
11			36					
			37					
			38					
12			39					



- □ Field Vane Test, kPa
- ■ Remoulded Vane Test, kPa
- △ Pocket Penetrometer Test, kPa

Stantec

BOREHOLE RECORD

N: 4 848 749 E: 595 344

BH/MW33-23

CLIENT QuadReal Properties — PROJECT No. 121624778

LOCATION 12861 Dixie Road, Caledon — DATUM NAD83

DATES: BORING 02/27/2023 — WATER LEVEL — TPC ELEVATION

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	DEPTH (ft)	SAMPLES TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)	REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
0	268.3		0					
		TOPSOIL Clayey silt, Trace gravels Brown, loose, moist	1	SS	1	460/460	9	
	267.5		2					
1		**SANDY LEAN CLAY (CL)** Silty sand seams, traces of gravel Brown, stiff to hard, moist	3	SS	2	460/460	11	
			4					
			5	SS	3	460/460	50	
2			6					
			7	SS	4	460/460	40	
	265.5		8					
		Hard, brown, moist	9					
3			10	SS	5	460/460	50	Wet Spoon
			11					
			12					
4			13					
			14					
	263.4		15	SS	6	460/460	50	
5		Traces of gravel Hard, grey, wet	16					
			17					
			18					
			19					
6			20	SS	7	460/460	50	
			21					
			22					
			23					
7			24					
			25	SS	8	460/460	50	
			26					
8	259.7		27					
		Hard, grey, wet	28					
			29					
			30					
9			31	SS	9	460/460	36	Water In Spoon
	258.7							
		Borehole terminated at 9.60m BGS. Monitoring well installed to 9.6 m BGS.	32					
10			33					
			34					
			35					
11			36					
			37					
			38					
12			39					

UNDRAINED SHEAR STRENGTH (kPa)

50 100 150 200

WATER CONTENT & ATTERBERG LIMITS W_P W W_L

DYNAMIC CONE PENETRATION TEST, BLOWS/0.3m ▼

STANDARD PENETRATION TEST, BLOWS/0.3m ●

10 20 30 40 50 60 70 80 90 100

□ Field Vane Test, kPa

■ Remoulded Vane Test, kPa

△ Pocket Penetrometer Test, kPa

Stantec

MONITORING WELL RECORD

N: 4 848 749 E: 595 344

BH/MW33-23

CLIENT QuadReal Properties — PROJECT No. 121624778

LOCATION 12861 Dixie Road, Caledon — DATUM NAD83

DATES: BORING 02/27/2023 — WATER LEVEL — TPC ELEVATION

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WATER LEVEL	DEPTH (ft)	VAPOUR CONCENTRATIONS ● %LEL ▲ ppm (● 20 40 60 80 / ▲ 100 200 300 400)	SAMPLES TYPE	SAMPLES NUMBER	SAMPLES N-VALUE	WELL CONSTRUCTION
0	268.3				0					
		TOPSOIL Clayey silt, Trace gravels Brown, loose, moist			1		SS	1	9	
	267.5				2					
1		**SANDY LEAN CLAY (CL)** Silty sand seams, traces of gravel Brown, stiff to hard, moist			3		SS	2	11	
					4					
				▼	5		SS	3	50	
2					6					
					7		SS	4	40	
	265.5				8					
		Hard, brown, moist			9					
3					10		SS	5	50	
					11					
					12					
4					13					
					14					
					15		SS	6	50	
	263.4				16					
5		Traces of gravel Hard, grey, wet			17					
					18					
					19					
					20					
6					21		SS	7	50	
					22					
					23					
					24					
7					25					
					26		SS	8	50	
					27					
	259.7				28					
		Hard, grey, wet			29					
8					30					
					31		SS	9	36	
	258.7				32					
		Borehole terminated at 9.60m BGS. Monitoring well installed to 9.6 m BGS.			33					
9					34					
					35					
					36					
10					37					
					38					
					39					
11										
12										

LABORATORY ANALYSES:

Stantec

BOREHOLE RECORD

N: 4 848 680 E: 595 597

BH34-23

CLIENT QuadReal Properties — PROJECT No. 121624778

LOCATION 12861 Dixie Road, Caledon — DATUM NAD83

DATES: BORING 02/27/2023 — WATER LEVEL — TPC ELEVATION

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	DEPTH (ft)	SAMPLES TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)	REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
0	268.7		0					
	268.4	**TOPSOIL** Clayey silt, Trace gravels Brown, loose, moist	1	SS	1	410/460	4	
		SANDY LEAN CLAY (CL) Silty sand seams, traces of gravel Brown, very stiff to hard, moist	2					
1			3	SS	2	460/460	19	
	267.2		4					
		Hard, brown, moist	5					
			6	SS	3	460/460	41	
2			7					
			8	SS	4	460/460	41	
			9					
3			10					
			11	SS	5	460/460	47	
			12					
4			13					
			14					
			15					Hard Augering
	263.8		16	SS	6	460/460	48	
5		Traces of gravel, some silt seams Hard , grey, moist	17					
			18					
			19					
6			20					
			21	SS	7	410/460	50	50 For 5" Refusal
	262.2							
		Borehole terminated at 6.55 m BGS	22					
7			23					
			24					
			25					
8			26					

UNDRAINED SHEAR STRENGTH (kPa)

50 100 150 200

WATER CONTENT & ATTERBERG LIMITS W_P W W_L

DYNAMIC CONE PENETRATION TEST, BLOWS/0.3m ▼

STANDARD PENETRATION TEST, BLOWS/0.3m ●

10 20 30 40 50 60 70 80 90 100

□ Field Vane Test, kPa

■ Remoulded Vane Test, kPa

△ Pocket Penetrometer Test, kPa

Stantec

BOREHOLE RECORD

N: 4 848 785 E: 595 533

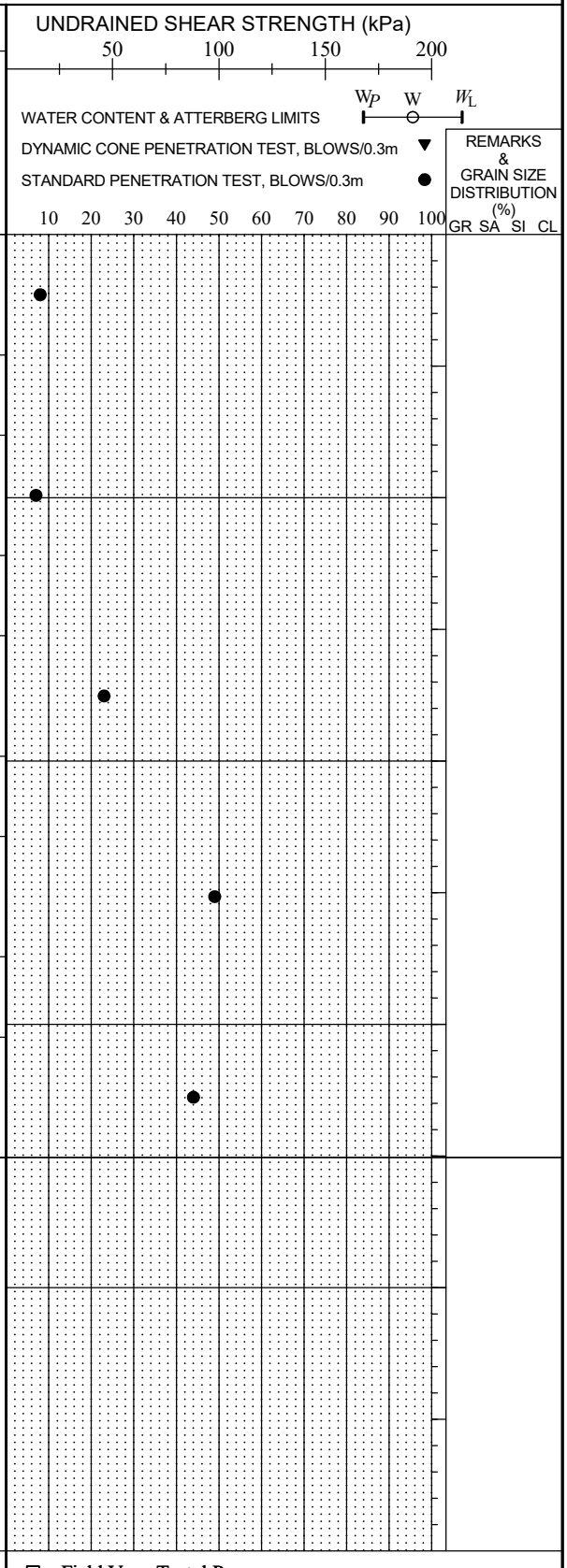
BH35-23

CLIENT QuadReal Properties PROJECT No. 121624778

LOCATION 12861 Dixie Road, Caledon DATUM NAD83

DATES: BORING 02/27/2023 WATER LEVEL TPC ELEVATION

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	DEPTH (ft)	TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)
0	266.8		0				
		TOPSOIL Clayey silt, Trace gravels Brown, loose, moist	1	SS	1	460/460	8
	266.0		2				
		SANDY LEAN CLAY (CL) Silty sand seams, traces of gravel Brown, firm , moist	3	SS	2	460/460	7
1	265.2		4				
		very stiff to hard, grey, moist	5				
			6	SS	3	410/460	23
			7				
2			8	SS	4	460/460	49
			9				
			10				
			11	SS	5	460/460	44
3	263.3						
		Borehole terminated at 3.55 m BGS	12				
			13				
4			14				
			15				
			16				
5							



Stantec

BOREHOLE RECORD

N: 4 848 056 E: 595 569

BH36-23

CLIENT QuadReal Properties — PROJECT No. 121624778

LOCATION 12861 Dixie Road, Caledon — DATUM NAD83

DATES: BORING 03/02/2023 — WATER LEVEL — TPC ELEVATION

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	DEPTH (ft)	SAMPLES TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)
0	265.7		0				
	265.4	**TOPSOIL** Clayey silt, Trace gravels Brown, loose, moist	1	SS	1	360/460	4
		SANDY LEAN CLAY (CL) Silty sand seams, traces of gravel Brown, very stiff to hard, moist	2				
1			3	SS	2	460/460	24
			4				
			5				
			6	SS	3	460/460	32
2			7				
			8	SS	4	460/460	26
			9				
3	262.6		10				
		Traces of gravel, some silt seams Very stiff , brown, moist	11	SS	5	460/460	50
			12				
4			13				
			14				
			15				
	260.8		16	SS	6	460/460	34
5		Hard, grey, moist	17				
			18				
			19				
6			20				
	259.1		21	SS	7	460/460	50
		Borehole terminated at 6.55 m BGS.	22				
7			23				
			24				
			25				
8			26				

UNDRAINED SHEAR STRENGTH (kPa)

50 100 150 200

WATER CONTENT & ATTERBERG LIMITS W_P W W_L

DYNAMIC CONE PENETRATION TEST, BLOWS/0.3m ▼

STANDARD PENETRATION TEST, BLOWS/0.3m ●

REMARKS & GRAIN SIZE DISTRIBUTION (%)

10 20 30 40 50 60 70 80 90 100

GR SA SI CL

Hard Augering

□ Field Vane Test, kPa

■ Remoulded Vane Test, kPa

△ Pocket Penetrometer Test, kPa

Stantec

BOREHOLE RECORD

N: 4 848 127 E: 595 368

BH37-23

CLIENT QuadReal Properties — PROJECT No. 121624778

LOCATION 12861 Dixie Road, Caledon — DATUM NAD83

DATES: BORING 02/17/2023 — WATER LEVEL — TPC ELEVATION

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WATER LEVEL	DEPTH (ft)	SAMPLES TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)
0	264.4				0				
		TOPSOIL Clayey silt, Trace gravels Brown, loose, moist			1	SS	1	460/460	6
	263.9	**SANDY LEAN CLAY (CL)** Silty sand seams, traces of gravel Brown, stiff, moist			2				
1					3	SS	2	130/460	9
					4				
	262.9				5				
		very stiff to hard, grey, moist			6	SS	3	250/460	8
2					7				
					8	SS	4	410/460	26
					9				
3					10				
	260.9				11	SS	5	460/460	37
		Borehole terminated at 3.55 m BGS			12				
4					13				
					14				
					15				
5					16				

UNDRAINED SHEAR STRENGTH (kPa)

50 100 150 200

WATER CONTENT & ATTERBERG LIMITS W_P W W_L

DYNAMIC CONE PENETRATION TEST, BLOWS/0.3m ▼

STANDARD PENETRATION TEST, BLOWS/0.3m ●

REMARKS & GRAIN SIZE DISTRIBUTION (%)

10 20 30 40 50 60 70 80 90 100

GR SA SI CL

□ Field Vane Test, kPa

■ Remoulded Vane Test, kPa

△ Pocket Penetrometer Test, kPa

Stantec

BOREHOLE RECORD

N: 4 847 389 E: 596 080

BH/MW38-23

CLIENT QuadReal Properties — PROJECT No. 121624777

LOCATION 12489 Dixie Road — DATUM NAD83

DATES: BORING 01/23/2023 — WATER LEVEL 03/10/2023 — TPC ELEVATION

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	DEPTH (ft)	TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)	REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
0	264.9		0					
	264.6	**TOPSOIL** silty clay, trace of gravel, organics Brown, loose, moist	1	SS	01	410/610	7	
1	263.7	**SANDY SILTY CLAY (CL-ML)** sandy silty clay Very stiff, brown, DTPL	3	SS	02	200/610	22	
		SANDY LEAN CLAY (CL) trace of gravel brown, very stiff, moist	6	SS	03	610/610	16	4 26 34 36
2	262.0		8	SS	04	610/610	17	
3		Some gravel, smooth gravel within sample brown, very stiff, moist	11	SS	05	610/610	21	
4	260.4		13	SS	06	510/610	17	10 26 33 31
		grey, stiff, very moist	16	SS	07	610/610	12	
5								
6			21	SS	08	300/610	27	
7	257.3							
		LEAN CLAY (CL) Trace of sand grey, very stiff, very moist	26	SS	09	610/610	17	0 4 45 51
8								
9	255.8							
	255.2	Shale fragaments grey, hard, very moist	31	SS	10	610/610	50	
10		Borehole terminated at 9.75 m BGS Borehole dry and open						
11								
12								

UNDRAINED SHEAR STRENGTH (kPa)

50 100 150 200

WATER CONTENT & ATTERBERG LIMITS W_P W W_L

DYNAMIC CONE PENETRATION TEST, BLOWS/0.3m ▼

STANDARD PENETRATION TEST, BLOWS/0.3m ●

10 20 30 40 50 60 70 80 90 100

□ Field Vane Test, kPa

■ Remoulded Vane Test, kPa

△ Pocket Penetrometer Test, kPa

Stantec

MONITORING WELL RECORD

N: 4 847 389 E: 596 080

BH/MW38-23

CLIENT QuadReal Properties — PROJECT No. 121624777

LOCATION 12489 Dixie Road — DATUM NAD83

DATES: BORING 01/23/2023 — WATER LEVEL 03/10/2023 — TPC ELEVATION

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	DEPTH (ft)	SAMPLES TYPE	SAMPLES NUMBER	SAMPLES N-VALUE
0	264.9		0			
	264.6	**TOPSOIL** silty clay, trace of gravel, organics Brown, loose, moist	1	SS	01	7
1	263.7	**SANDY SILTY CLAY (CL-ML)** sandy silty clay Very stiff, brown, DTPL	3	SS	02	22
2		**SANDY LEAN CLAY (CL)** trace of gravel brown, very stiff, moist	6	SS	03	16
	262.0		8	SS	04	17
3		Some gravel, smooth gravel within sample brown, very stiff, moist	10	SS	05	21
4	260.4		13	SS	06	17
		grey, stiff, very moist	15	SS	07	12
5			16			
6			20	SS	08	27
7	257.3		23			
		LEAN CLAY (CL) Trace of sand grey, very stiff, very moist	25	SS	09	17
8			28			
9	255.8		30			
	255.2	Shale fragaments grey, hard, very moist	31	SS	10	50
10		Borehole terminated at 9.75 m BGS Borehole dry and open	32			
11			36			
12			39			

VAPOUR CONCENTRATIONS

● %LEL ▲ ppm

● 20 40 60 80

▲ 100 200 300 400

WELL CONSTRUCTION

LABORATORY ANALYSES:

Stantec

BOREHOLE RECORD

N: 4 847 479 E: 595 968

BH39-23

CLIENT QuadReal Properties — PROJECT No. 121624777

LOCATION 12489 Dixie Road — DATUM NAD83

DATES: BORING 01/23/2023 — WATER LEVEL — TPC ELEVATION

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	DEPTH (ft)	TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)
0	265.6		0				
		TOPSOIL silty clay, trace of gravel, organics Brown, loose, moist	1	SS	01	410/610	3
1	264.4	**SANDY SILTY CLAY (CL-ML)** sandy silty clay stiff, brown, moist	3	SS	02	610/610	13
		SANDY SILTY CLAY WITH GRAVEL sandy silty clay with gravel brown, very stiff, moist	6	SS	03	610/610	20
2			8	SS	04	610/610	23
3	262.3		11	SS	05	610/610	36
		SANDY LEAN CLAY (CL) sandy lean clay hard, brown to grey, moist					
4	261.1		15				
		grey, stiff, moist	16	SS	06	610/610	20
5	260.4		17				
		very stiff to hard, grey, moist					
6			20				
	258.9		21	SS	07	610/610	32
7		Very stiff, grey, moist	22				
			25				
8			26	SS	08	610/610	26
9			30				
	255.9		31	SS	09	610/610	21
10		Borehole terminated at 9.7 m BGS Borehole dry and open	32				
			33				
11			36				
			37				
12			38				
			39				

UNDRAINED SHEAR STRENGTH (kPa)

50 100 150 200

WATER CONTENT & ATTERBERG LIMITS W_P W W_L

DYNAMIC CONE PENETRATION TEST, BLOWS/0.3m ▼

STANDARD PENETRATION TEST, BLOWS/0.3m ●

REMARKS & GRAIN SIZE DISTRIBUTION (%)

10 20 30 40 50 60 70 80 90 100

GR SA SI CL

16 32 29 23

□ Field Vane Test, kPa

■ Remoulded Vane Test, kPa

△ Pocket Penetrometer Test, kPa

Stantec

BOREHOLE RECORD

N: 4 847 522 E: 596 036

BH40-23

CLIENT QuadReal Properties — PROJECT No. 121624777

LOCATION 12489 Dixie Road — DATUM NAD83

DATES: BORING 01/24/2023 — WATER LEVEL — TPC ELEVATION

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	DEPTH (ft)	TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)	REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
0	265.8		0					
		TOPSOIL silty clay, trace of gravel, organics Brown, loose, moist	1	SS	01	610/610	6	
1	265.2	**SANDY SILTY CLAY (CL-ML)** sandy silty clay Very stiff, brown, DTPL	3	SS	02	610/610	22	
2	263.7	**SANDY SILTY CLAY WITH GRAVEL (CL-ML)** sandy silty clay with gravel Very stiff, brown, DTPL	6	SS	03	610/610	20	6 35 32 27
3			8	SS	04	610/610	21	
4	261.2		11	SS	05	610/610	23	
5		**SANDY LEAN CLAY (CL)** Very stiff, Brown to grey, some rusty vanes	16	SS	06	610/610	18	18 30 25 27
6	259.7	Shale fragaments, hard	21	SS	07	610/610	26	
7			26	SS	08	610/610	36	
8	257.6	Borehole terminated at 8.22 m BGS Borehole dry and open	31	SS	09	250/610	50	
9								
10								
11								
12								

UNDRAINED SHEAR STRENGTH (kPa)

50 100 150 200

WATER CONTENT & ATTERBERG LIMITS W_P W W_L

DYNAMIC CONE PENETRATION TEST, BLOWS/0.3m ▼

STANDARD PENETRATION TEST, BLOWS/0.3m ●

10 20 30 40 50 60 70 80 90 100

□ Field Vane Test, kPa

■ Remoulded Vane Test, kPa

△ Pocket Penetrometer Test, kPa

Stantec

BOREHOLE RECORD

N: 4 847 402 E: 596 117

BH41-23

CLIENT QuadReal Properties — PROJECT No. 121624777

LOCATION 12489 Dixie Road — DATUM NAD83

DATES: BORING 02/01/2023 — WATER LEVEL — TPC ELEVATION

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	DEPTH (ft)	TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)
0	264.6		0				
		FILL Sandy silt, with gravel Brown, moist	1	SS	01	300/460	3
	263.8		2				
1	263.4	**SANDY SILTY CLAY (CL-ML)** sandy silty clay Very stiff, brown, DTPL	3	SS	02	200/460	19
			4				
			5				
2		**SANDY SILTY CLAY WITH GRAVEL** sandy silty clay with gravel Hard, brown, moist	6	SS	03	300/460	32
			7				
			8	SS	04	360/460	33
			9				
3			10				
			11	SS	05	460/460	34
			12				
4			13				
			14				
	260.0		15				
		grey, hard, moist	16	SS	06	430/460	33
5			17				
			18				
			19				
6	258.5		20				
		LEAN CLAY (CL) Hard, grey, moist	21	SS	07	410/460	50
			22				
7			23				
			24				
			25				
8			26	SS	08	460/460	47
			27				
			28				
			29				
9			30				
	255.0		31	SS	09	460/460	52
		Borehole terminated at 9.6 m BGS Borehole dry and open	32				
10			33				
			34				
			35				
11			36				
			37				
			38				
12			39				

UNDRAINED SHEAR STRENGTH (kPa): 50, 100, 150, 200

WATER CONTENT & ATTERBERG LIMITS: W_P W W_L

DYNAMIC CONE PENETRATION TEST, BLOWS/0.3m

STANDARD PENETRATION TEST, BLOWS/0.3m

REMARKS & GRAIN SIZE DISTRIBUTION (%): 10 20 30 40 50 60 70 80 90 100 — GR SA SI CL

□ Field Vane Test, kPa

■ Remoulded Vane Test, kPa

△ Pocket Penetrometer Test, kPa

Stantec

BOREHOLE RECORD

N: 4 847 415 E: 596 196

BH42-23

CLIENT QuadReal Properties — PROJECT No. 121624777

LOCATION 12489 Dixie Road — DATUM NAD83

DATES: BORING 02/06/2023 — WATER LEVEL — TPC ELEVATION

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WATER LEVEL	DEPTH (ft)	SAMPLES TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)
0	262.5				0				
		FILL			1	SS	01	460/460	4
	261.9	Sandy silt, with gravel			2				
		Brown, moist			3	SS	02	250/460	17
1		**SANDY SILTY CLAY WITH GRAVEL (CL-ML)**			4				
		sandy silty clay with gravel			5				
	260.5	very stiff, brown, moist			6	SS	03	360/460	21
2		**SANDY LEAN CLAY (CL)**			7				
		sandy lean clay			8	SS	04	360/460	25
		very stiff, brown, moist			9				
3					10				
					11	SS	05	380/460	28
4					12				
					13				
					14				
	257.9				15				
		grey, very stiff, moist			16	SS	06	460/460	21
5					17				
					18				
					19				
6	256.4				20				
		grey, hard, moist			21	SS	07	130/460	50
	255.9				22				
		Very stiff to Hard			23				
7					24				
					25				
					26	SS	08	100/460	19
8					27				
					28				
					29				
9					30				
	252.9				31	SS	09	200/460	50
		Borehole terminated at 9.6 m BGS			32				
10		Borehole dry and open			33				
					34				
					35				
11					36				
					37				
					38				
12					39				

UNDRAINED SHEAR STRENGTH (kPa)

50 100 150 200

WATER CONTENT & ATTERBERG LIMITS W_P W W_L

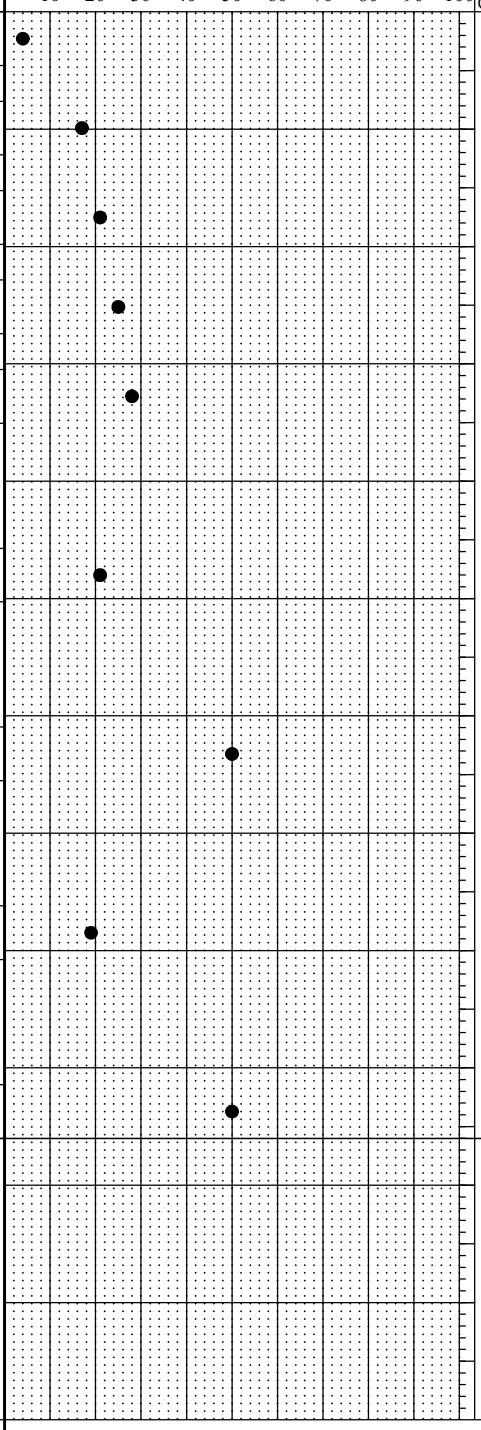
DYNAMIC CONE PENETRATION TEST, BLOWS/0.3m ▼

STANDARD PENETRATION TEST, BLOWS/0.3m ●

REMARKS & GRAIN SIZE DISTRIBUTION (%)

10 20 30 40 50 60 70 80 90 100

GR SA SI CL



□ Field Vane Test, kPa

■ Remoulded Vane Test, kPa

△ Pocket Penetrometer Test, kPa

Stantec

BOREHOLE RECORD

N: 4 847 473 E: 596 304

BH43-23

CLIENT QuadReal Properties — PROJECT No. 121624777

LOCATION 12489 Dixie Road — DATUM NAD83

DATES: BORING 01/27/2023 — WATER LEVEL — TPC ELEVATION

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	DEPTH (ft)	TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)
0	263.6		0				
		TOPSOIL Silty Clay, some sand, some gravel with rootlets Brown, moist	1	SS	01	460/460	3
	263.1		2				
1		**SANDY SILTY CLAY WITH GRAVEL (CL-ML)** sandy silty clay with gravel very stiff, brown, moist	3	SS	02	360/460	18
	262.0		4				
		SANDY LEAN CLAY (CL) sandy lean clay brown, stiff, moist	5				
2			6	SS	03	410/460	23
			7				
			8	SS	04	460/460	25
	260.8		9				
		brown , hard, moist	10				
3			11	SS	05	460/460	39
			12				
4			13				
			14				
			15				
	258.7		16	SS	06	460/460	33
5		grey, hard, moist	17				
			18				
			19				
6			20				
			21	SS	07	460/460	58
	257.0						
		Borehole terminated at 6.55 m BGS Borehole dry and open	22				
7			23				
			24				
			25				
8			26				

UNDRAINED SHEAR STRENGTH (kPa)

50 100 150 200

WATER CONTENT & ATTERBERG LIMITS W_P W W_L

DYNAMIC CONE PENETRATION TEST, BLOWS/0.3m ▼

STANDARD PENETRATION TEST, BLOWS/0.3m ●

REMARKS & GRAIN SIZE DISTRIBUTION (%)

10 20 30 40 50 60 70 80 90 100

GR SA SI CL

□ Field Vane Test, kPa

■ Remoulded Vane Test, kPa

△ Pocket Penetrometer Test, kPa

Stantec

BOREHOLE RECORD

N: 4 847 695 E: 596 068

BH44-23

CLIENT QuadReal Properties — PROJECT No. 121624777

LOCATION 12489 Dixie Road — DATUM NAD83

DATES: BORING 02/13/2023 — WATER LEVEL — TPC ELEVATION

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	DEPTH (ft)	SAMPLES TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)
0	266.5		0				
		TOPSOIL silty clay, some sand, some gravel with rootlets	1	SS	01	300/460	3
	265.9	Brown, loose, moist	2				
1		**SANDY SILTY CLAY WITH GRAVEL (CL-ML)** Brown, Very stiff, moist	3	SS	02	410/460	25
			4				
			5				
2			6	SS	03	460/460	24
			7				
			8	SS	04	360/460	21
	263.8		9				
3		**SANDY LEAN CLAY (CL)** Very stiff to Hard, brown to grey, moist	10				
			11	SS	05	460/460	27
			12				
4			13				
			14				
			15				
			16	SS	06	330/460	34
5			17				
			18				
			19				
6	260.4		20				
		Grey, very stiff, moist	21	SS	07	460/460	26
	260.0						
		Borehole terminated at 6.55 m BGS Borehole dry and open	22				
7			23				
			24				
			25				
8			26				

UNDRAINED SHEAR STRENGTH (kPa)
50 100 150 200

WATER CONTENT & ATTERBERG LIMITS W_P W W_L

DYNAMIC CONE PENETRATION TEST, BLOWS/0.3m ▼

STANDARD PENETRATION TEST, BLOWS/0.3m ●

REMARKS & GRAIN SIZE DISTRIBUTION (%)
10 20 30 40 50 60 70 80 90 100
GR SA SI CL

□ Field Vane Test, kPa

■ Remoulded Vane Test, kPa

△ Pocket Penetrometer Test, kPa

Stantec

BOREHOLE RECORD

N: 4 847 745 E: 596 154

BH45-23

CLIENT QuadReal Properties — PROJECT No. 121624777

LOCATION 12489 Dixie Road — DATUM NAD83

DATES: BORING 02/13/2023 — WATER LEVEL — TPC ELEVATION

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	DEPTH (ft)	SAMPLES TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)
0	266.2		0				
	265.9	**TOPSOIL** silty clay, some sand, some gravel with rootlets Brown, loose, moist	1	SS	01	230/460	4
1		**SANDY SILTY CLAY WITH GRAVEL (CL-ML)** brown, very stiff, moist	3	SS	02	410/460	18
	264.7		4				
		SANDY LEAN CLAY (CL) brown, very stiff, moist	5				
2			6	SS	03	430/460	28
			7				
			8	SS	04	460/460	25
3			9				
			10				
			11	SS	05	460/460	27
4			12				
			13				
			14				
			15				
	261.4		16	SS	06	330/460	30
5		grey, hard, moist	17				
			18				
			19				
6	260.2		20				
		grey, very stiff, moist	21	SS	07	460/460	19
	259.7						
		Borehole terminated at 6.55 m BGS Borehole dry and open	22				
7			23				
			24				
			25				
8			26				

UNDRAINED SHEAR STRENGTH (kPa)

50 100 150 200

WATER CONTENT & ATTERBERG LIMITS W_P W W_L

DYNAMIC CONE PENETRATION TEST, BLOWS/0.3m ▼

STANDARD PENETRATION TEST, BLOWS/0.3m ●

REMARKS & GRAIN SIZE DISTRIBUTION (%)

10 20 30 40 50 60 70 80 90 100

GR SA SI CL

□ Field Vane Test, kPa

■ Remoulded Vane Test, kPa

△ Pocket Penetrometer Test, kPa

Stantec

BOREHOLE RECORD

N: 4 847 444 E: 596 432

BH/MW46-23

CLIENT QuadReal Properties — PROJECT No. 121624777

LOCATION 12489 Dixie Road — DATUM NAD83

DATES: BORING 02/06/2023 — WATER LEVEL 03/10/2023 — TPC ELEVATION

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	DEPTH (ft)	TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)	REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
0	260.7		0					
	260.2	**TOPSOIL** Silty clay, trace of gravel Brown, firm, DTPL	1	SS	01	250/460	4	
	259.8	**SANDY SILTY CLAY (CL-ML)** Trace of gravel, some rootlets Brown, stiff, moist	2					
1			3	SS	02	300/460	7	
		SANDY LEAN CLAY (CL) trace of gravel Brown, very stiff, DTPL	4					
			5					
2			6	SS	03	360/460	21	
			7					
			8	SS	04	410/460	24	7 29 32 32
	257.8		9					
3		brown to grey, hard, moist	10					
			11	SS	05	460/460	38	7 29 32 32
			12					
4			13					
			14					
			15					
			16	SS	06	460/460	37	
5			17					
			18					
			19					
6	254.6		20					
		grey, stiff, moist	21	SS	07	360/460	10	
			22					
7			23					
	253.1		24					
		grey, hard, moist	25					
			26	SS	08	460/460	32	
8			27					
			28					
			29					
9			30					
	251.1		31	SS	09	410/460	31	
		Borehole terminated at 9.6 m BGS Borehole dry and open	32					
10			33					
			34					
			35					
11			36					
			37					
			38					
12			39					

UNDRAINED SHEAR STRENGTH (kPa)

50 100 150 200

WATER CONTENT & ATTERBERG LIMITS W_P W W_L

DYNAMIC CONE PENETRATION TEST, BLOWS/0.3m ▼

STANDARD PENETRATION TEST, BLOWS/0.3m ●

10 20 30 40 50 60 70 80 90 100

□ Field Vane Test, kPa

■ Remoulded Vane Test, kPa

△ Pocket Penetrometer Test, kPa

Stantec

MONITORING WELL RECORD

N: 4 847 444 E: 596 432

BH/MW46-23

CLIENT QuadReal Properties — PROJECT No. 121624777

LOCATION 12489 Dixie Road — DATUM NAD83

DATES: BORING 02/06/2023 — WATER LEVEL 03/10/2023 — TPC ELEVATION

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	DEPTH (ft)	SAMPLES TYPE	SAMPLES NUMBER	SAMPLES N-VALUE
0	260.7		0			
	260.2	**TOPSOIL** Silty clay, trace of gravel Brown, firm, DTPL	1	SS	01	4
	259.8	**SANDY SILTY CLAY (CL-ML)** Trace of gravel, some rootlets Brown, stiff, moist	3	SS	02	7
1			4			
			5	SS	03	21
		SANDY LEAN CLAY (CL) trace of gravel Brown, very stiff, DTPL	6			
			7			
2			8	SS	04	24
	257.8		9			
		brown to grey, hard, moist	10	SS	05	38
3			11			
			12			
			13			
4			14			
			15	SS	06	37
			16			
			17			
5			18			
			19			
	254.6		20	SS	07	10
		grey, stiff, moist	21			
6			22			
			23			
			24			
7			25	SS	08	32
	253.1		26			
		grey, hard, moist	27			
			28			
8			29			
			30			
			31	SS	09	31
9	251.1		32			
		Borehole terminated at 9.6 m BGS Borehole dry and open	33			
10			34			
			35			
			36			
11			37			
			38			
			39			
12						

VAPOUR CONCENTRATIONS ● %LEL ▲ ppm — ● 20 40 60 80 — ▲ 100 200 300 400

WELL CONSTRUCTION

LABORATORY ANALYSES:

Stantec

BOREHOLE RECORD

N: 4 847 474 E: 596 531

BH47-23

CLIENT QuadReal Properties — PROJECT No. 121624777

LOCATION 12489 Dixie Road — DATUM NAD83

DATES: BORING 02/06/2023 — WATER LEVEL — TPC ELEVATION

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WATER LEVEL	DEPTH (ft)	SAMPLES TYPE	SAMPLES NUMBER	SAMPLES RECOVERY (mm) TCR(%) / SCR(%)	SAMPLES N-VALUE OR RQD(%)
0	258.8				0				
	258.5	**TOPSOIL** Silty clay, trace of gravel Brown, firm, moist			1	SS	01	250/460	4
		SANDY SILTY CLAY (CL-ML) Trace of gravel, some rootlets Brown, hard, moist			2				
1	257.6				3	SS	02	300/460	43
		SANDY LEAN CLAY (CL) trace of gravel brown, very stiff, moist			4				
					5				
2					6	SS	03	410/460	22
	256.5				7				
		brown to grey, hard, moist			8	SS	04	460/460	39
					9				
3					10				
					11	SS	05	460/460	38
					12				
4					13				
					14				
	254.2				15				
		grey, stiff to very stiff, moist			16	SS	06	460/460	12
5					17				
					18				
					19				
6					20				
					21	SS	07	460/460	15
	252.2								
		Borehole terminated at 6.55 m BGS Borehole dry and open			22				
7					23				
					24				
					25				
8					26				

UNDRAINED SHEAR STRENGTH (kPa)

50 100 150 200

WATER CONTENT & ATTERBERG LIMITS W_P W W_L

DYNAMIC CONE PENETRATION TEST, BLOWS/0.3m ▼

STANDARD PENETRATION TEST, BLOWS/0.3m ●

REMARKS & GRAIN SIZE DISTRIBUTION (%)

10 20 30 40 50 60 70 80 90 100

GR SA SI CL

□ Field Vane Test, kPa

■ Remoulded Vane Test, kPa

△ Pocket Penetrometer Test, kPa

Stantec

BOREHOLE RECORD

N: 4 847 842 E: 596 181

BH/MW48-23

CLIENT QuadReal Properties — PROJECT No. 121624777

LOCATION 12489 Dixie Road — DATUM NAD83

DATES: BORING 02/13/2023 — WATER LEVEL 03/10/2023 — TPC ELEVATION

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	DEPTH (ft)	TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)
0	265.4		0				
	265.1	**TOPSOIL** Silty clay, trace of gravel Brown, soft, DTPL	1	SS	01	250/460	4
1	264.2	**SANDY SILTY CLAY (CL-ML)** Trace of gravel, some rootlets Brown, very stiff, moist	3	SS	02	360/460	19
		SANDY LEAN CLAY (CL)	6	SS	03	430/460	23
2	263.1	trace of gravel brown, very stiff, moist	8	SS	04	460/460	31
		hard to very stiff, brown, moist	11	SS	05	460/460	28
4	260.9		15				
		very stiff, grey, moist	16	SS	06	460/460	16
6			21	SS	07	410/460	27
7	257.8		25				
		Trace to some gravel	26	SS	08	460/460	21
9	255.8		31	SS	09	430/460	26
10		Borehole terminated at 9.6 m BGS Borehole dry and open	32				
11			36				
12			39				

SAMPLES

UNDRAINED SHEAR STRENGTH (kPa)

50 100 150 200

WATER CONTENT & ATTERBERG LIMITS W_P W W_L

DYNAMIC CONE PENETRATION TEST, BLOWS/0.3m ▼

STANDARD PENETRATION TEST, BLOWS/0.3m ●

REMARKS & GRAIN SIZE DISTRIBUTION (%)

10 20 30 40 50 60 70 80 90 100

GR SA SI CL

□ Field Vane Test, kPa

■ Remoulded Vane Test, kPa

△ Pocket Penetrometer Test, kPa

Stantec

MONITORING WELL RECORD

N: 4 847 842 E: 596 181

BH/MW48-23

CLIENT QuadReal Properties — PROJECT No. 121624777

LOCATION 12489 Dixie Road — DATUM NAD83

DATES: BORING 02/13/2023 — WATER LEVEL 03/10/2023 — TPC ELEVATION

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	DEPTH (ft)	SAMPLES TYPE	SAMPLES NUMBER	SAMPLES N-VALUE
0	265.4		0			
	265.1	**TOPSOIL** Silty clay, trace of gravel Brown, soft, DTPL	1	SS	01	4
1	264.2	**SANDY SILTY CLAY (CL-ML)** Trace of gravel, some rootlets Brown, very stiff, moist	3	SS	02	19
			5	SS	03	23
2	263.1	**SANDY LEAN CLAY (CL)** trace of gravel brown, very stiff, moist	8	SS	04	31
		hard to very stiff, brown, moist	10	SS	05	28
3						
4	260.9		15	SS	06	16
		very stiff, grey, moist				
5						
6			20	SS	07	27
7	257.8		25	SS	08	21
		Trace to some gravel				
8						
9			30	SS	09	26
	255.8					
10		Borehole terminated at 9.6 m BGS Borehole dry and open	32			
11			36			
12			39			

VAPOUR CONCENTRATIONS — ● %LEL ▲ ppm — ● 20 40 60 80 — ▲ 100 200 300 400

WELL CONSTRUCTION

LABORATORY ANALYSES:

Stantec

BOREHOLE RECORD

N: 4 847 513 E: 596 626

BH/MW49-23

CLIENT QuadReal Properties — PROJECT No. 121624777

LOCATION 12489 Dixie Road — DATUM NAD83

DATES: BORING 02/06/2023 — WATER LEVEL 03/10/2023 — TPC ELEVATION

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	DEPTH (ft)	SAMPLES TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)
0	260.6		0				
		TOPSOIL	1	SS	01	250/460	4
	260.0	Silty clay, trace of gravel	2				
		Brown, firm, DTPL	3	SS	02	410/460	19
1	259.4	**SANDY SILTY CLAY (CL-ML)**	4				
		Trace of gravel, some rootlets	5				
		Brown, very stiff, moist	6	SS	03	460/460	26
2		**SANDY LEAN CLAY (CL)**	7				
	258.3	trace of gravel	8	SS	04	360/460	36
		light brown, very stiff, moist	9				
		brown, hard, moist	10				
3			11	SS	05	410/460	45
			12				
4			13				
	256.0		14				
		very stiff, grey, moist	15				
			16	SS	06	380/460	19
5			17				
			18				
			19				
6	254.5		20				
		hard, trace to some gravel, moist	21	SS	07	430/460	40
			22				
7			23				
			24				
			25				
8			26	SS	08	300/460	50
			27				
			28				
9			29				
			30				
	251.0		31	SS	09	100/460	50
		Borehole terminated at 9.6 m BGS	32				
10		Borehole dry and open	33				
			34				
			35				
11			36				
			37				
			38				
12			39				

UNDRAINED SHEAR STRENGTH (kPa)

50 100 150 200

WATER CONTENT & ATTERBERG LIMITS W_P W W_L

DYNAMIC CONE PENETRATION TEST, BLOWS/0.3m ▼

STANDARD PENETRATION TEST, BLOWS/0.3m ●

REMARKS & GRAIN SIZE DISTRIBUTION (%)

10 20 30 40 50 60 70 80 90 100

GR SA SI CL

□ Field Vane Test, kPa

■ Remoulded Vane Test, kPa

△ Pocket Penetrometer Test, kPa

Stantec

MONITORING WELL RECORD

N: 4 847 513 E: 596 626

BH/MW49-23

CLIENT QuadReal Properties — PROJECT No. 121624777

LOCATION 12489 Dixie Road — DATUM NAD83

DATES: BORING 02/06/2023 — WATER LEVEL 03/10/2023 — TPC ELEVATION

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	SAMPLES TYPE	SAMPLES NUMBER	SAMPLES N-VALUE
0	260.6				
	260.0	**TOPSOIL** Silty clay, trace of gravel Brown, firm, DTPL	SS	01	4
1	259.4	**SANDY SILTY CLAY (CL-ML)** Trace of gravel, some rootlets Brown, very stiff, moist	SS	02	19
2	258.3	**SANDY LEAN CLAY (CL)** trace of gravel light brown, very stiff, moist	SS	03	26
		brown, hard, moist	SS	04	36
3			SS	05	45
4	256.0	very stiff, grey, moist	SS	06	19
5					
6	254.5	hard, trace to some gravel, moist	SS	07	40
7					
8			SS	08	50
9	251.0		SS	09	50
10		Borehole terminated at 9.6 m BGS Borehole dry and open			
11					
12					

VAPOUR CONCENTRATIONS ● %LEL ▲ ppm — ● 20 40 60 80 ▲ 100 200 300 400

DEPTH (ft): 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39

WELL CONSTRUCTION

LABORATORY ANALYSES:

Stantec

BOREHOLE RECORD

N: 4 847 844 E: 596 333

BH50-23

CLIENT QuadReal Properties — PROJECT No. 121624777

LOCATION 12489 Dixie Road — DATUM NAD83

DATES: BORING 02/10/2023 — WATER LEVEL — TPC ELEVATION

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	DEPTH (ft)	SAMPLES TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)
	265.8		0				
0	265.4	**TOPSOIL** Silty clay, trace of gravel Brown, firm, DTPL	0				
		SANDY SILTY CLAY (CL-ML) Trace of gravel, some rootlets	1	SS	01	200/460	3
1	264.2	Brown, very stiff, moist	2				
		SANDY LEAN CLAY (CL) trace of gravel brown, very stiff, moist	3	SS	02	300/460	20
			4				
2			5				
			6	SS	03	410/460	19
			7				
			8	SS	04	360/460	25
3			9				
			10				
			11	SS	05	410/460	27
4			12				
			13				
			14				
	261.2		15				
		very stiff, grey, moist	16	SS	06	380/460	21
5			17				
			18				
			19				
6			20				
			21	SS	07	460/460	15
			22				
			23				
7			24				
	258.1		25				
		hard, grey, moist	26	SS	08	460/460	32
8			27				
			28				
			29				
9			30				
	256.1		31	SS	09	460/460	40
		Borehole terminated at 9.6 m Borehole dry and open	32				
10			33				
			34				
			35				
11			36				
			37				
			38				
12			39				

UNDRAINED SHEAR STRENGTH (kPa)

50 100 150 200

WATER CONTENT & ATTERBERG LIMITS W_P W W_L

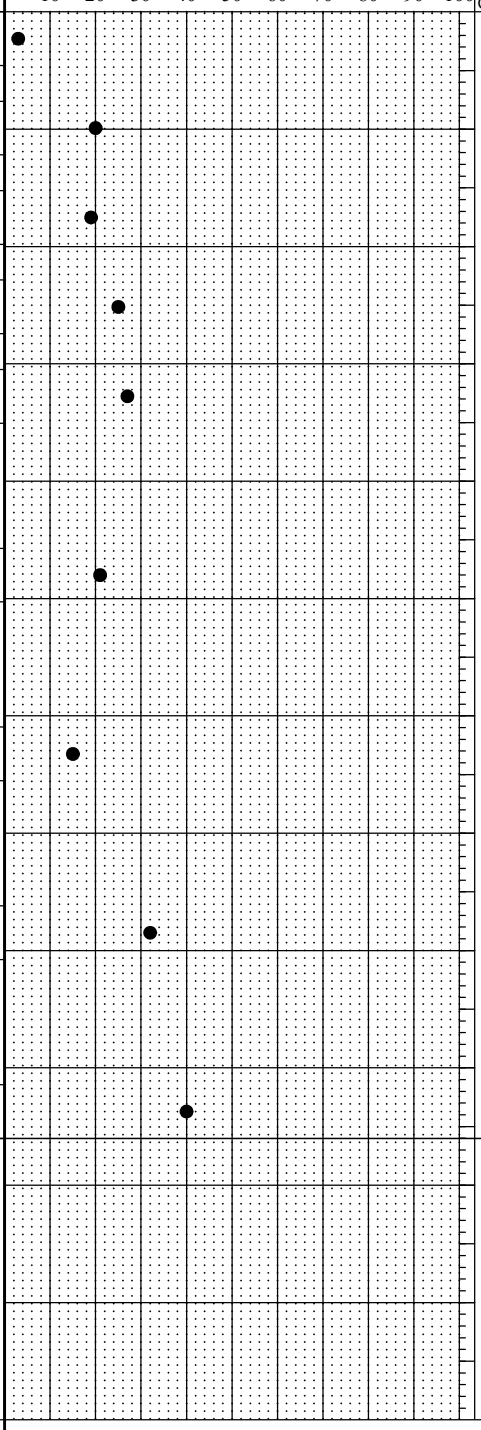
DYNAMIC CONE PENETRATION TEST, BLOWS/0.3m ▼

STANDARD PENETRATION TEST, BLOWS/0.3m ●

REMARKS & GRAIN SIZE DISTRIBUTION (%)

10 20 30 40 50 60 70 80 90 100

GR SA SI CL



□ Field Vane Test, kPa

■ Remoulded Vane Test, kPa

△ Pocket Penetrometer Test, kPa

Stantec

BOREHOLE RECORD

N: 4 847 620 E: 595 838

BH/MW51-23

CLIENT QuadReal Properties — PROJECT No. 121624777

LOCATION 12489 Dixie Road — DATUM NAD83

DATES: BORING 01/25/2023 — WATER LEVEL 03/10/2023 — TPC ELEVATION

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	DEPTH (ft)	TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)
0	266.6		0				
	266.1	**TOPSOIL** Silty clay, trace of gravel Brown, firm, DTPL	1	SS	01	200/610	3
1	265.4	**SANDY SILTY CLAY (CL-ML)** Trace of gravel, some rootlets Brown, stiff, moist	3	SS	02	150/610	9
2		**SANDY LEAN CLAY (CL)** some silt seams, some gravel Very stiff, brown, moist	6	SS	03	300/610	17
			8	SS	04	460/610	28
3	263.5		10				
		some to trace silt, brown to grey, very stiff moist	11	SS	05	460/610	22
4			13				
			15				
5	261.4		16	SS	06	460/610	28
		some gravel very stiff, grey, moist	17				
6			18				
			20				
			21	SS	07	51/610	17
7			22				
			23				
			25				
8			26	SS	08	410/610	16
			27				
			28				
9	257.4		29				
			30				
		Some silt pockets	31	SS	09	150/610	50
	256.8	hard, grey, moist	32				
10		Borehole terminated at 9.75 m Borehole dry and open	33				
			34				
			35				
11			36				
			37				
			38				
12			39				

SAMPLES

UNDRAINED SHEAR STRENGTH (kPa)

50 100 150 200

WATER CONTENT & ATTERBERG LIMITS W_P W W_L

DYNAMIC CONE PENETRATION TEST, BLOWS/0.3m ▼

STANDARD PENETRATION TEST, BLOWS/0.3m ●

REMARKS & GRAIN SIZE DISTRIBUTION (%)

10 20 30 40 50 60 70 80 90 100

GR SA SI CL

6 24 33 37

□ Field Vane Test, kPa

■ Remoulded Vane Test, kPa

△ Pocket Penetrometer Test, kPa

Stantec

MONITORING WELL RECORD

N: 4 847 620 E: 595 838

BH/MW51-23

CLIENT QuadReal Properties — PROJECT No. 121624777

LOCATION 12489 Dixie Road — DATUM NAD83

DATES: BORING 01/25/2023 — WATER LEVEL 03/10/2023 — TPC ELEVATION

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	SAMPLES TYPE	SAMPLES NUMBER	SAMPLES N-VALUE
0	266.6				
	266.1	**TOPSOIL** Silty clay, trace of gravel Brown, firm, DTPL	SS	01	3
1	265.4	**SANDY SILTY CLAY (CL-ML)** Trace of gravel, some rootlets Brown, stiff, moist	SS	02	9
2		**SANDY LEAN CLAY (CL)** some silt seams, some gravel Very stiff, brown, moist	SS	03	17
			SS	04	28
3	263.5	some to trace silt, brown to grey, very stiff moist	SS	05	22
4					
5	261.4	some gravel very stiff, grey, moist	SS	06	28
6					
			SS	07	17
7					
8			SS	08	16
9	257.4				
	256.8	Some silt pockets hard, grey, moist	SS	09	50
10		Borehole terminated at 9.75 m Borehole dry and open			
11					
12					

VAPOUR CONCENTRATIONS — ● %LEL ▲ ppm — ● 20 40 60 80 — ▲ 100 200 300 400

DEPTH (ft): 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39

WELL CONSTRUCTION

LABORATORY ANALYSES:

Stantec

BOREHOLE RECORD

N: 4 847 524 E: 596 099

BH52-23

CLIENT QuadReal Properties — PROJECT No. 121624777

LOCATION 12489 Dixie Road — DATUM NAD83

DATES: BORING 01/24/2023 — WATER LEVEL — TPC ELEVATION

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	DEPTH (ft)	SAMPLES TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)	REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
0	265.6		0					
		TOPSOIL Clayey silt, organics, loose, moist	1	SSSS	01	610/610	5	
	265.1	**SANDY SILTY CLAY (CL-ML)** Trace of gravel, some rootlets Brown, stiff, moist	2					
1			3	SSSS	02	610/610	13	
	264.0		4					
		SANDY LEAN CLAY (CL) Very stiff, brown, moist	5					3 36 34 27
2			6	SSSS	03	610/610	23	
			7					
			8	SSSS	04	410/610	25	
			9					
3			10					7 30 32 31
			11	SSSS	05	410/610	26	
			12					
4			13					
	261.0		14					
		Brown to grey, stiff to very stiff, moist	15					
			16	SSSS	06	410/610	13	
5	260.4		17					
		grey, very stiff, moist	18					
			19					
6			20					
			21	SSSS	07	410/610	16	
	258.9		22					
		Borehole terminated at 6.7 m Borehole dry and open	23					
7			24					
			25					
8			26					

UNDRAINED SHEAR STRENGTH (kPa)

50 100 150 200

WATER CONTENT & ATTERBERG LIMITS W_P W W_L

DYNAMIC CONE PENETRATION TEST, BLOWS/0.3m ▼

STANDARD PENETRATION TEST, BLOWS/0.3m ●

10 20 30 40 50 60 70 80 90 100

□ Field Vane Test, kPa

■ Remoulded Vane Test, kPa

△ Pocket Penetrometer Test, kPa

Stantec

BOREHOLE RECORD

N: 4 847 727 E: 595 974

BH53-23

CLIENT QuadReal Properties — PROJECT No. 121624777

LOCATION 12489 Dixie Road — DATUM NAD83

DATES: BORING 01/24/2023 — WATER LEVEL — TPC ELEVATION

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	DEPTH (ft)	SAMPLES TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)
0	265.8		0				
		TOPSOIL Clay, some to trace of silt Brown, loose, moist	1	SS	01	180/610	3
	265.2	**SANDY SILTY CLAY (CL-ML)** Trace of gravel, some rootlets Brown, very stiff, moist	2				
1			3	SS	02	460/610	17
	264.2	**SANDY LEAN CLAY (CL)** Trace of silt, some gravel brown, firm, moist	4				
			5				
2			6	SS	03	460/610	19
			7				
			8	SS	04	460/610	7
	263.0		9				
		Hard, brown	10				
3			11	SS	05	460/610	36
			12				
			13				
4			14				
	261.2		15				
		Very stiff	16	SS	06	460/610	33
5			17				
			18				
			19				
6			20				
			21	SS	07	460/610	25
	259.1		22				
		Borehole terminated at 6.7 m Borehole dry and open	23				
7			24				
			25				
8			26				

UNDRAINED SHEAR STRENGTH (kPa)

50 100 150 200

WATER CONTENT & ATTERBERG LIMITS W_P W W_L

DYNAMIC CONE PENETRATION TEST, BLOWS/0.3m ▼

STANDARD PENETRATION TEST, BLOWS/0.3m ●

REMARKS & GRAIN SIZE DISTRIBUTION (%)

10 20 30 40 50 60 70 80 90 100

GR SA SI CL

□ Field Vane Test, kPa

■ Remoulded Vane Test, kPa

△ Pocket Penetrometer Test, kPa

Stantec

BOREHOLE RECORD

N: 4 847 548 E: 596 261

BH54-23

CLIENT QuadReal Properties — PROJECT No. 121624777

LOCATION 12489 Dixie Road — DATUM NAD83

DATES: BORING 01/27/2023 — WATER LEVEL — TPC ELEVATION

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	DEPTH (ft)	SAMPLES TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)
0	264.8		0				
		TOPSOIL Silty Clay, brown, moist	1	SS	01	300/460	4
	264.2		2				
1		**SANDY SILTY CLAY (CL-ML)** Trace of gravel, some rootlets Brown, hard , moist	3	SS	02	360/460	33
	263.3		4				
		SANDY LEAN CLAY (CL) Some gravel Hard, brown, moist	5	SS	03	460/460	34
2	262.7		6				
		very stiff, brown, moisr	7				
	262.1		8	SS	04	460/460	27
		Hard, brown, moist	9				
3			10				
	261.3		11	SS	05	460/460	38
		Borehole terminated at 3.6 m Borehole dry and open	12				
4			13				
			14				
			15				
5			16				

UNDRAINED SHEAR STRENGTH (kPa)

50 100 150 200

WATER CONTENT & ATTERBERG LIMITS W_P W W_L

DYNAMIC CONE PENETRATION TEST, BLOWS/0.3m ▼

STANDARD PENETRATION TEST, BLOWS/0.3m ●

REMARKS & GRAIN SIZE DISTRIBUTION (%)

10 20 30 40 50 60 70 80 90 100

GR SA SI CL

□ Field Vane Test, kPa

■ Remoulded Vane Test, kPa

△ Pocket Penetrometer Test, kPa

Stantec

BOREHOLE RECORD

N: 4 847 566 E: 596 186

BH/MW55-23

CLIENT QuadReal Properties — PROJECT No. 121624777

LOCATION 12489 Dixie Road — DATUM NAD83

DATES: BORING 01/24/2023 — WATER LEVEL 03/10/2023 — TPC ELEVATION

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	DEPTH (ft)	TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)
0	265.8		0				
		TOPSOIL Silty clay Brown, loose, moist	1	SS	01	250/610	3
1	265.2	**SANDY SILTY CLAY (CL-ML)** Trace of gravel, some rootlets Brown, very stiff, moist	3	SS	02	300/610	26
	264.3	**SANDY LEAN CLAY (CL)** with silty sand Very stiff, brown, DTPL	6	SS	03	410/610	22
2	263.6	some gravel very stiff, DTPL	8	SS	04	460/610	29
3	262.7	Hard	11	SS	05	460/610	38
4	261.2	Brown to grey, Very stiff to hard	16	SS	06	460/610	29
5							
6	259.7	**LEAN CLAY (CL)** Some to trace of silt, some gravel Very stiff, grey, DTPL	21	SS	07	460/610	28
7	258.2	hard, grey, moist	26	SS	08	460/610	31
8							
9	256.0		31	SS	09	460/610	39
10		Borehole terminated at 9.75 m Borehole dry and open	32				
11			36				
12			39				

UNDRAINED SHEAR STRENGTH (kPa)

50 100 150 200

WATER CONTENT & ATTERBERG LIMITS W_P W W_L

DYNAMIC CONE PENETRATION TEST, BLOWS/0.3m ▼

STANDARD PENETRATION TEST, BLOWS/0.3m ●

REMARKS & GRAIN SIZE DISTRIBUTION (%)

10 20 30 40 50 60 70 80 90 100

GR SA SI CL

9 29 33 29

□ Field Vane Test, kPa

■ Remoulded Vane Test, kPa

△ Pocket Penetrometer Test, kPa

Stantec

MONITORING WELL RECORD

N: 4 847 566 E: 596 186

BH/MW55-23

CLIENT QuadReal Properties — PROJECT No. 121624777

LOCATION 12489 Dixie Road — DATUM NAD83

DATES: BORING 01/24/2023 — WATER LEVEL 03/10/2023 — TPC ELEVATION

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	SAMPLES TYPE	SAMPLES NUMBER	SAMPLES N-VALUE
0	265.8				
		TOPSOIL			
	265.2	Silty clay			
		Brown, loose, moist	SS	01	3
1		**SANDY SILTY CLAY (CL-ML)**			
		Trace of gravel, some rootlets	SS	02	26
	264.3	Brown, very stiff, moist			
2	263.6	**SANDY LEAN CLAY (CL)**	SS	03	22
		with silty sand			
		Very stiff, brown, DTPL	SS	04	29
		some gravel			
3	262.7	very stiff, DTPL	SS	05	38
		Hard			
4	261.2				
		Brown to grey, Very stiff to hard	SS	06	29
5					
6	259.7				
		LEAN CLAY (CL)			
		Some to trace of silt, some gravel	SS	07	28
		Very stiff, grey, DTPL			
7	258.2				
		hard, grey, moist	SS	08	31
8					
9					
	256.0		SS	09	39
10		Borehole terminated at 9.75 m			
		Borehole dry and open			
11					
12					

VAPOUR CONCENTRATIONS — ● %LEL ▲ ppm — ● 20 40 60 80 — ▲ 100 200 300 400

DEPTH (ft): 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39

WELL CONSTRUCTION

LABORATORY ANALYSES:

Stantec

BOREHOLE RECORD

N: 4 847 552 E: 595 894

BH56-23

CLIENT QuadReal Properties PROJECT No. 121624777

LOCATION 12489 Dixie Road DATUM NAD83

DATES: BORING 01/24/2023 WATER LEVEL TPC ELEVATION

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	DEPTH (ft)	TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)
0	267.0		0				
		TOPSOIL Silty clay, with rootlets Brown, firm, moist	1	SS	01	460/460	7
	266.6						
		SANDY SILTY CLAY (CL-ML) Trace of gravel, some rootlets brown, very stiff, moist	2				
1			3	SS	02	460/460	22
			4				
	265.5		5				
		SANDY LEAN CLAY (CL) very stiff, brown, moist	6	SS	03	460/460	22
2			7				
	264.7						
		some gravel Very stiff to hard, brown, moist	8	SS	04	460/460	22
			9				
3			10				
			11	SS	05	460/460	30
	263.5						
		Borehole terminated at 3.6 m below ground surface Borehole dry and open	12				
			13				
4			14				
			15				
			16				
5							

SAMPLES

UNDRAINED SHEAR STRENGTH (kPa)

50 100 150 200

WATER CONTENT & ATTERBERG LIMITS W_P W W_L

DYNAMIC CONE PENETRATION TEST, BLOWS/0.3m ▼

STANDARD PENETRATION TEST, BLOWS/0.3m ●

REMARKS & GRAIN SIZE DISTRIBUTION (%)

10 20 30 40 50 60 70 80 90 100

GR SA SI CL

□ Field Vane Test, kPa

■ Remoulded Vane Test, kPa

△ Pocket Penetrometer Test, kPa

Stantec

BOREHOLE RECORD

N: 4 847 623 E: 595 968

BH57-23

CLIENT QuadReal Properties — PROJECT No. 121624777

LOCATION 12489 Dixie Road — DATUM NAD83

DATES: BORING 01/25/2023 — WATER LEVEL — TPC ELEVATION

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	DEPTH (ft)	TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)
	266.8		0				
0	266.3	**TOPSOIL** silty clay, with rootlets brown, soft, moist	0	SS	01	460/460	3
1	265.2	**SANDY SILTY CLAY (CL-ML)** brown, very stiff, moist	3	SS	02	460/460	20
2		**SANDY LEAN CLAY (CL)** some gravel brown, very stiff, moist	6	SS	03	460/460	23
			8	SS	04	460/460	24
3			11	SS	05	460/460	28
4	262.2						
		brown to grey, stiff, moist	16	SS	06	460/460	15
5							
6	260.7						
		very stiff to hard, grey, moist	21	SS	07	460/460	24
7							
			26	SS	08	460/460	29
8	258.5						
		with smooth gravel hard, grey, DTPL					
9			31	SS	09	460/460	50
	257.2						
10		Borehole terminated at 9.6 m below ground surface Borehole dry and open					
11							
12							

UNDRAINED SHEAR STRENGTH (kPa)

50 100 150 200

WATER CONTENT & ATTERBERG LIMITS W_P W W_L

DYNAMIC CONE PENETRATION TEST, BLOWS/0.3m ▼

STANDARD PENETRATION TEST, BLOWS/0.3m ●

REMARKS & GRAIN SIZE DISTRIBUTION (%)

10 20 30 40 50 60 70 80 90 100

GR SA SI CL

3 22 38 37

□ Field Vane Test, kPa

■ Remoulded Vane Test, kPa

△ Pocket Penetrometer Test, kPa

Stantec

BOREHOLE RECORD

N: 4 847 774 E: 596 066

BH58-23

CLIENT QuadReal Properties — PROJECT No. 121624777

LOCATION 12489 Dixie Road — DATUM NAD83

DATES: BORING 02/13/2023 — WATER LEVEL — TPC ELEVATION

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WATER LEVEL	DEPTH (ft)	SAMPLES TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)
0	264.8				0				
		TOPSOIL Silty Clay, with rootlets Brown, very stiff, DTPL			1	SS	01	200/460	3
	264.2				2				
		SANDY SILTY CLAY (CL-ML) brown, firm, moist			3	SS	02	250/460	9
1					4				
	263.2				5				
		SANDY LEAN CLAY (CL) Some gravel brown, very stiff, moist			6	SS	03	360/460	16
2					7				
	262.3				8	SS	04	460/460	28
		Very stiff to hard, brown, moist			9				
3					10				
	261.3				11	SS	05	460/460	30
		Borehole terminated at 3.6 m below ground surface Borehole dry and open			12				
4					13				
					14				
					15				
5					16				

UNDRAINED SHEAR STRENGTH (kPa)

50 100 150 200

WATER CONTENT & ATTERBERG LIMITS W_P W W_L

DYNAMIC CONE PENETRATION TEST, BLOWS/0.3m ▼

STANDARD PENETRATION TEST, BLOWS/0.3m ●

REMARKS & GRAIN SIZE DISTRIBUTION (%)

10 20 30 40 50 60 70 80 90 100

GR SA SI CL

□ Field Vane Test, kPa

■ Remoulded Vane Test, kPa

△ Pocket Penetrometer Test, kPa

Stantec

BOREHOLE RECORD

N: 4 847 633 E: 596 251

BH59-23

CLIENT QuadReal Properties — PROJECT No. 121624777

LOCATION 12489 Dixie Road — DATUM NAD83

DATES: BORING 02/01/2023 — WATER LEVEL — TPC ELEVATION

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	DEPTH (ft)	SAMPLES TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)
0	265.5		0				
		TOPSOIL Silty Clay Brown, moist	1	SS	01	250/610	5
	264.9		2				
		LEAN CLAY WITH SAND(CL) trace of gravel brown, very stiff, moist	3	SS	02	200/610	20
1	264.0		4				
		SANDY LEAN CLAY (CL) Brown, very stiff, DTPL	5				
			6	SS	03	300/610	26
			7				
2			8	SS	04	460/610	29
	262.8		9				
		Hard	10				
3			11	SS	05	300/610	53
	262.0		12				
		Very stiff	13				
4			14				
	261.0		15				
		Some silt, some sand Brown to grey	16	SS	06	460/610	25
5			17				
			18				
			19				
6			20				
	259.0		21	SS	07	460/610	22
		Borehole terminated at 6.7 m Borehole dry and open	22				
7			23				
			24				
			25				
8			26				

UNDRAINED SHEAR STRENGTH (kPa)

50 100 150 200

WATER CONTENT & ATTERBERG LIMITS W_P W W_L

DYNAMIC CONE PENETRATION TEST, BLOWS/0.3m ▼

STANDARD PENETRATION TEST, BLOWS/0.3m ●

10 20 30 40 50 60 70 80 90 100

REMARKS & GRAIN SIZE DISTRIBUTION (%)

GR SA SI CL

2 20 35 43

□ Field Vane Test, kPa

■ Remoulded Vane Test, kPa

△ Pocket Penetrometer Test, kPa

Stantec

BOREHOLE RECORD

N: 4 847 774 E: 596 288

BH60-23

CLIENT QuadReal Properties — PROJECT No. 121624777

LOCATION 12489 Dixie Road — DATUM NAD83

DATES: BORING 02/10/2023 — WATER LEVEL — TPC ELEVATION

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	DEPTH (ft)	SAMPLES TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)
0	266.2		0				
	265.9	**TOPSOIL** Silty Clay Brown, moist	1	SS	01	230/610	4
		SANDY SILTY CLAY (CL-ML) brown, , very stiff moist	2				
1			3	SS	02	360/610	23
	264.7		4				
		SANDY LEAN CLAY (CL) brown, very stiff to hard, moist	5				
2			6	SS	03	460/610	25
			7				
			8	SS	04	250/610	24
			9				
3			10				
	262.7		11	SS	05	460/610	39
		brown to grey, very stiff, moist	12				
			13				
4		transition to grey at 4.5 m	14				
			15				
			16	SS	06	360/610	16
5			17				
			18				
			19				
6	260.1		20				
		stiff, grey, moist	21	SS	07	460/610	11
	259.7		22				
		Borehole terminated at 6.7 m Borehole dry and open	23				
7			24				
			25				
8			26				

UNDRAINED SHEAR STRENGTH (kPa)

50 100 150 200

WATER CONTENT & ATTERBERG LIMITS W_P W W_L

DYNAMIC CONE PENETRATION TEST, BLOWS/0.3m ▼

STANDARD PENETRATION TEST, BLOWS/0.3m ●

REMARKS & GRAIN SIZE DISTRIBUTION (%)

10 20 30 40 50 60 70 80 90 100

GR SA SI CL

□ Field Vane Test, kPa

■ Remoulded Vane Test, kPa

△ Pocket Penetrometer Test, kPa

Stantec

BOREHOLE RECORD

N: 4 847 639 E: 596 359

BH/MW61-23

CLIENT QuadReal Properties — PROJECT No. 121624777

LOCATION 12489 Dixie Road — DATUM NAD83

DATES: BORING 02/10/2023 — WATER LEVEL 03/10/2023 — TPC ELEVATION

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	DEPTH (ft)	SAMPLES TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)
0	263.9		0				
		TOPSOIL	1	SS	01	150/460	3
	263.3	Silty clay, trace of gravel	2				
1		Brown, firm, DTPL	3	SS	02	360/460	28
		SANDY SILTY CLAY (CL-ML)	4				
	262.4	brown, very stiff, moist	5				
		SANDY LEAN CLAY (CL)	6	SS	03	460/460	22
2		trace of gravel	7				
		brown, very stiff, moist	8	SS	04	460/460	25
	260.9		9				
3		Some gravel	10				
		Hard, brown to grey, moist	11	SS	05	430/460	33
4			12				
	259.3		13				
		With silty sand seams	14				
5		Very stiff to stiff, grey, moist	15				
			16	SS	06	380/460	20
			17				
6			18				
			19				
			20				
			21	SS	07	430/460	13
7			22				
			23				
	256.3		24				
		Hard to very stiff, grey, moist	25				
8			26	SS	08	460/460	35
			27				
			28				
9			29				
			30				
	254.3		31	SS	09	460/460	27
		Borehole terminated at 9.6 m	32				
10		Borehole dry and open	33				
			34				
			35				
11			36				
			37				
			38				
12			39				

UNDRAINED SHEAR STRENGTH (kPa)

50 100 150 200

WATER CONTENT & ATTERBERG LIMITS W_P W W_L

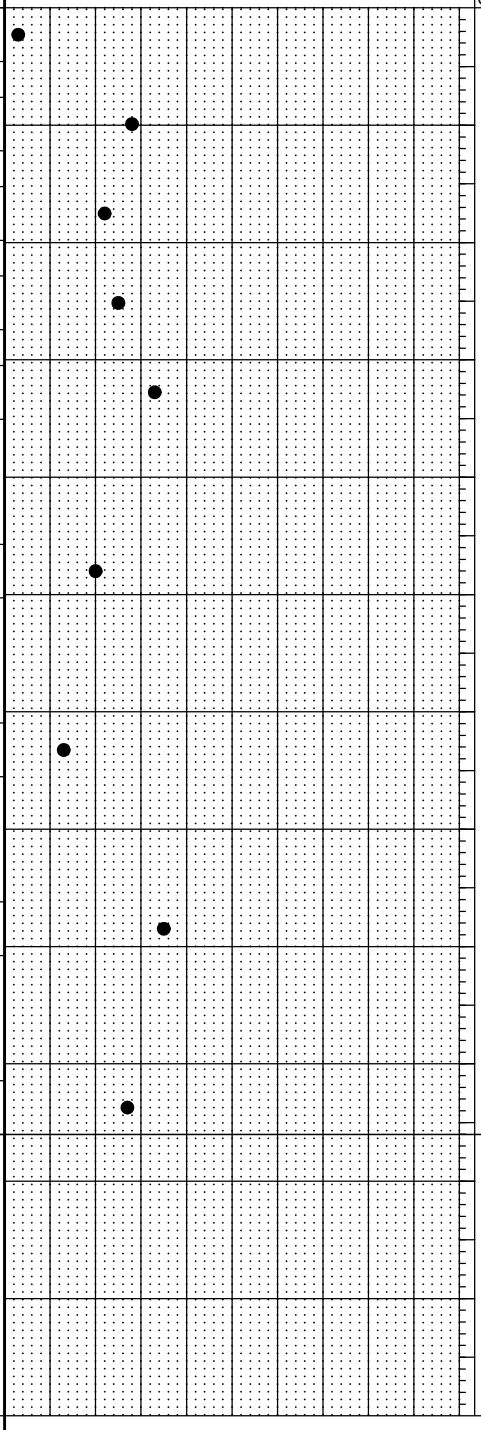
DYNAMIC CONE PENETRATION TEST, BLOWS/0.3m ▼

STANDARD PENETRATION TEST, BLOWS/0.3m ●

REMARKS & GRAIN SIZE DISTRIBUTION (%)

10 20 30 40 50 60 70 80 90 100

GR SA SI CL



□ Field Vane Test, kPa

■ Remoulded Vane Test, kPa

△ Pocket Penetrometer Test, kPa

Stantec

MONITORING WELL RECORD

N: 4 847 639 E: 596 359

BH/MW61-23

CLIENT QuadReal Properties — PROJECT No. 121624777

LOCATION 12489 Dixie Road — DATUM NAD83

DATES: BORING 02/10/2023 — WATER LEVEL 03/10/2023 — TPC ELEVATION

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WATER LEVEL	DEPTH (ft)	VAPOUR CONCENTRATIONS ● %LEL ▲ ppm (● 20 40 60 80 ▲ 100 200 300 400)	SAMPLES TYPE	SAMPLES NUMBER	SAMPLES N-VALUE	WELL CONSTRUCTION
0	263.9				0					
	263.3	**TOPSOIL** Silty clay, trace of gravel Brown, firm, DTPL			1		SS	01	3	
1		**SANDY SILTY CLAY (CL-ML)** brown, very stiff, moist			3		SS	02	28	
	262.4				4					
		SANDY LEAN CLAY (CL) trace of gravel brown, very stiff, moist			5		SS	03	22	
2					7					
					8		SS	04	25	
3	260.9				9					
		Some gravel Hard, brown to grey, moist			10		SS	05	33	
4					12					
	259.3				13					
		With silty sand seams Very stiff to stiff, grey, moist			14					
5					15		SS	06	20	
					16					
				▼	17					
6					18					
					19					
					20		SS	07	13	
7					21					
					22					
	256.3				23					
		Hard to very stiff, grey, moist			24					
8					25		SS	08	35	
					26					
					27					
9					28					
					29					
					30					
	254.3				31		SS	09	27	
		Borehole terminated at 9.6 m Borehole dry and open			32					
10					33					
					34					
					35					
11					36					
					37					
					38					
12					39					

LABORATORY ANALYSES:

Stantec

BOREHOLE RECORD

N: 4 847 574 E: 596 518

BH62-23

CLIENT QuadReal Properties — PROJECT No. 121624777

LOCATION 12489 Dixie Road — DATUM NAD83

DATES: BORING 02/07/2023 — WATER LEVEL — TPC ELEVATION

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	DEPTH (ft)	SAMPLES TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)
0	261.2		0				
	260.8	**TOPSOIL** Silty clay, trace of gravel Brown, firm, DTPL	1	SS	01	250/610	3
		SANDY SILTY CLAY (CL-ML) brown, very stiff, moist	2				
1			3	SS	02	360/610	19
	259.7		4				
		SANDY LEAN CLAY (CL) trace of gravel brown, very stiff, DTPL	5				
2			6	SS	03	460/610	23
	258.9		7				
		brown to grey, hard, moist	8	SS	04	460/610	31
			9				
3			10				
			11	SS	05	460/610	32
			12				
4			13				
			14				
	256.6		15				
		Hard augering grey, hard, moist	16	SS	06	410/610	50
5			17				
			18				
			19				
6			20				
	254.7		21	SS	07	410/610	45
		Borehole terminated at 6.55 m Borehole dry and open	22				
7			23				
			24				
			25				
8			26				

UNDRAINED SHEAR STRENGTH (kPa)

50 100 150 200

WATER CONTENT & ATTERBERG LIMITS W_P W W_L

DYNAMIC CONE PENETRATION TEST, BLOWS/0.3m ▼

STANDARD PENETRATION TEST, BLOWS/0.3m ●

REMARKS & GRAIN SIZE DISTRIBUTION (%)

10 20 30 40 50 60 70 80 90 100

GR SA SI CL

□ Field Vane Test, kPa

■ Remoulded Vane Test, kPa

△ Pocket Penetrometer Test, kPa

Stantec

BOREHOLE RECORD

N: 4 847 613 E: 596 708

BH63-23

CLIENT QuadReal Properties — PROJECT No. 121624777

LOCATION 12489 Dixie Road — DATUM NAD83

DATES: BORING 02/07/2023 — WATER LEVEL — TPC ELEVATION

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	DEPTH (ft)	SAMPLES TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)
0	262.1		0				
		TOPSOIL Silty Clay Brown, moist	1	SS	01	76/610	4
	261.8	**SANDY SILTY CLAY (CL-ML)** brown, very stiff, moist	2				
1			3	SS	02	200/610	21
			4				
	260.6		5				
		SANDY LEAN CLAY (CL) Some to trace gravel Hard, brown, moist	6	SS	03	200/610	34
2			7				
	259.9		8				
		With silty sand seams hard, brown, moist	9	SS	04	360/610	30
3			10				
	258.6		11	SS	05	380/610	41
		Borehole terminated at 3.6 m below ground surface Borehole dry and open	12				
4			13				
			14				
			15				
5			16				

UNDRAINED SHEAR STRENGTH (kPa)

50 100 150 200

WATER CONTENT & ATTERBERG LIMITS W_P W W_L

DYNAMIC CONE PENETRATION TEST, BLOWS/0.3m ▼

STANDARD PENETRATION TEST, BLOWS/0.3m ●

REMARKS & GRAIN SIZE DISTRIBUTION (%)

10 20 30 40 50 60 70 80 90 100

GR SA SI CL

□ Field Vane Test, kPa

■ Remoulded Vane Test, kPa

△ Pocket Penetrometer Test, kPa

Stantec

BOREHOLE RECORD

N: 4 847 868 E: 596 467

BH/MW64-23

CLIENT QuadReal Properties — PROJECT No. 121624777

LOCATION 12489 Dixie Road — DATUM NAD83

DATES: BORING 02/06/2023 — WATER LEVEL 03/10/2023 — TPC ELEVATION

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	DEPTH (ft)	SAMPLES TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)
0	265.2		0				
		TOPSOIL	1	SS	01	250/460	3
	264.6	Silty clay, some gravel	2				
		Brown	3	SS	02	360/460	21
1	264.0	**SANDY SILTY CLAY (CL-ML)**	4				
		brown, very stiff, moist	5				
		SANDY LEAN CLAY (CL)	6	SS	03	380/460	21
2	263.2	Some silty sand	7				
		very stiff, brown, moist	8	SS	04	330/460	24
		silt seams, some gravel	9				
		Very stiff, brown, moist	10				
3	262.2		11	SS	05	410/460	26
		Silty Sand Seams	12				
		very stiff, brown to grey, moist	13				
4			14				
	260.7		15				
		Some gravel	16	SS	06	460/460	22
5		grey, very stiff, moist	17				
			18				
			19				
6			20				
			21	SS	07	460/460	21
			22				
7			23				
			24				
	257.6		25				
		hard, grey, moist	26	SS	08	250/460	38
8			27				
			28				
			29				
9			30				
	255.6		31	SS	09	460/460	59
		Borehole terminated at 9.6 m	32				
10		Borehole dry and open	33				
			34				
			35				
11			36				
			37				
			38				
12			39				

UNDRAINED SHEAR STRENGTH (kPa)

50 100 150 200

WATER CONTENT & ATTERBERG LIMITS W_P W W_L

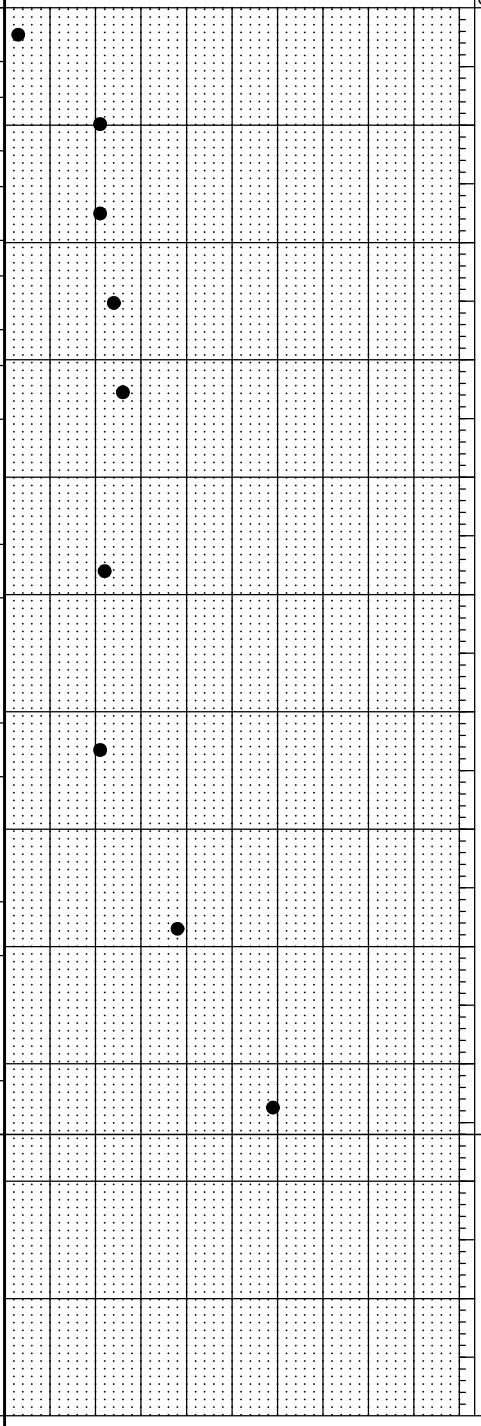
DYNAMIC CONE PENETRATION TEST, BLOWS/0.3m ▼

STANDARD PENETRATION TEST, BLOWS/0.3m ●

REMARKS & GRAIN SIZE DISTRIBUTION (%)

10 20 30 40 50 60 70 80 90 100

GR SA SI CL



□ Field Vane Test, kPa

■ Remoulded Vane Test, kPa

△ Pocket Penetrometer Test, kPa

Stantec

MONITORING WELL RECORD

N: 4 847 868 E: 596 467

BH/MW64-23

CLIENT QuadReal Properties — PROJECT No. 121624777

LOCATION 12489 Dixie Road — DATUM NAD83

DATES: BORING 02/06/2023 — WATER LEVEL 03/10/2023 — TPC ELEVATION

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	DEPTH (ft)	SAMPLES TYPE	SAMPLES NUMBER	SAMPLES N-VALUE
0	265.2		0			
		TOPSOIL				
	264.6	Silty clay, some gravel				
		Brown				
1	264.0	**SANDY SILTY CLAY (CL-ML)**	3	SS	01	3
		brown, very stiff, moist				
		SANDY LEAN CLAY (CL)				
2	263.2	Some silty sand	6	SS	02	21
		very stiff, brown, moist				
		silt seams, some gravel	8	SS	03	21
		Very stiff, brown, moist				
3	262.2		10	SS	04	24
		Silty Sand Seams				
		very stiff, brown to grey, moist	13	SS	05	26
4						
	260.7		15	SS	06	22
5		Some gravel				
		grey, very stiff, moist	18			
6			20	SS	07	21
			23			
7						
	257.6		25	SS	08	38
		hard, grey, moist				
8			28			
9			30	SS	09	59
	255.6					
		Borehole terminated at 9.6 m	32			
10		Borehole dry and open				
			35			
11						
			38			
12			39			

VAPOUR CONCENTRATIONS — ● %LEL ▲ ppm — ● 20 40 60 80 — ▲ 100 200 300 400

WELL CONSTRUCTION

LABORATORY ANALYSES:

Stantec

BOREHOLE RECORD

N: 4 847 743 E: 596 574

BH65-23

CLIENT QuadReal Properties — PROJECT No. 121624777

LOCATION 12489 Dixie Road — DATUM NAD83

DATES: BORING 02/06/2023 — WATER LEVEL — TPC ELEVATION

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	DEPTH (ft)	TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)
0	264.3		0				
		TOPSOIL Silty clay, trace of gravel Brown, firm, DTPL	1	SS	01	200/460	3
	263.8	**SANDY SILTY CLAY (CL-ML)** brown, very stiff, moist	2				
1			3	SS	02	430/460	19
	263.1	**SANDY LEAN CLAY (CL)** trace of gravel brown, very stiff, moist	4				
			5	SS	03	460/460	24
2			6				
			7				
			8	SS	04	460/460	24
	261.5		9				
		brown, hard, moist	10				
3			11	SS	05	460/460	34
	260.8						
		Borehole terminated at 3.5 m Borehole dry and open	12				
			13				
4			14				
			15				
			16				
5							

UNDRAINED SHEAR STRENGTH (kPa)

50 100 150 200

WATER CONTENT & ATTERBERG LIMITS W_P W W_L

DYNAMIC CONE PENETRATION TEST, BLOWS/0.3m ▼

STANDARD PENETRATION TEST, BLOWS/0.3m ●

REMARKS & GRAIN SIZE DISTRIBUTION (%)

10 20 30 40 50 60 70 80 90 100

GR SA SI CL

□ Field Vane Test, kPa

■ Remoulded Vane Test, kPa

△ Pocket Penetrometer Test, kPa

Stantec

BOREHOLE RECORD

N: 4 847 762 E: 596 496

BH66-23

CLIENT QuadReal Properties — PROJECT No. 121624777

LOCATION 12489 Dixie Road — DATUM NAD83

DATES: BORING 02/07/2023 — WATER LEVEL — TPC ELEVATION

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	DEPTH (ft)	SAMPLES TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)
0	264.2		0				
	263.9	**TOPSOIL**					
		Silty clay, trace of gravel	1	SS	01	300/460	5
		Brown, firm, DTPL	2				
1		**SANDY SILTY CLAY (CL-ML)**	3	SS	02	410/460	18
		brown, very stiff, moist	4				
	262.7		5				
		SANDY LEAN CLAY (CL)	6	SS	03	360/460	19
2		trace of gravel	7				
		brown, very stiff, DTPL	8	SS	04	460/460	29
			9				
3	261.2		10				
		brown, hard, moist	11	SS	05	410/460	39
			12				
4			13				
	259.7		14				
		Very stiff, grey, moist	15				
			16	SS	06	460/460	16
5			17				
			18				
			19				
6			20				
			21	SS	07	380/460	26
			22				
7			23				
			24				
	256.6		25				
		hard augering	26	SS	08	460/460	38
8			27				
		hard, grey, moist	28				
			29				
9			30				
	254.6		31	SS	09	460/460	52
		Borehole terminated at 9.6 m	32				
10		Borehole dry and open	33				
			34				
			35				
11			36				
			37				
			38				
12			39				

UNDRAINED SHEAR STRENGTH (kPa)

50 100 150 200

WATER CONTENT & ATTERBERG LIMITS W_P W W_L

DYNAMIC CONE PENETRATION TEST, BLOWS/0.3m ▼

STANDARD PENETRATION TEST, BLOWS/0.3m ●

REMARKS & GRAIN SIZE DISTRIBUTION (%)

10 20 30 40 50 60 70 80 90 100

GR SA SI CL

□ Field Vane Test, kPa

■ Remoulded Vane Test, kPa

△ Pocket Penetrometer Test, kPa

Stantec

BOREHOLE RECORD

N: 4 847 653 E: 596 595

BH67-23

CLIENT QuadReal Properties — PROJECT No. 121624777

LOCATION 12489 Dixie Road — DATUM NAD83

DATES: BORING 02/07/2023 — WATER LEVEL — TPC ELEVATION

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	DEPTH (ft)	SAMPLES TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)	REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
0	262.8		0					
		TOPSOIL Silty clay, trace of gravel Brown, loose, DTPL	1	SS	01	250/460	4	
	262.2	**SANDY SILTY CLAY (CL-ML)** brown, very stiff, moist	2					
1			3	SS	02	410/460	18	
	261.3		4					
		SANDY LEAN CLAY (CL) trace of gravel brown, very stiff, DTPL	5					
			6	SS	03	410/460	27	
2			7					
			8	SS	04	460/460	20	5 27 36 32
			9					
3			10					
			11	SS	05	460/460	27	
			12					
4			13					
			14					
	258.2		15					
		Stiff, brown to grey, moist	16	SS	06	360/460	14	
5	257.8		17					
		Very stiff, grey, moist	18					
			19					
6			20					
			21	SS	07	430/460	25	
	256.3		22					
		Borehole terminated at 6.5 m Borehole dry and open	23					
7			24					
			25					
8			26					

UNDRAINED SHEAR STRENGTH (kPa)
50 100 150 200

WATER CONTENT & ATTERBERG LIMITS W_P W W_L

DYNAMIC CONE PENETRATION TEST, BLOWS/0.3m ▼

STANDARD PENETRATION TEST, BLOWS/0.3m ●

10 20 30 40 50 60 70 80 90 100

□ Field Vane Test, kPa

■ Remoulded Vane Test, kPa

△ Pocket Penetrometer Test, kPa

Stantec

BOREHOLE RECORD

N: 4 847 717 E: 596 386

BH68-23

CLIENT QuadReal Properties — PROJECT No. 121624777

LOCATION 12489 Dixie Road — DATUM NAD83

DATES: BORING 02/10/2023 — WATER LEVEL — TPC ELEVATION

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	DEPTH (ft)	SAMPLES TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)
0	264.3		0				
		TOPSOIL Silty clay, trace of gravel Brown, firm, DTPL	1	SS	01	200/460	4
	263.9		2				
		SANDY SILTY CLAY (CL-ML) brown, very stiff, moist	3	SS	02	410/460	19
1			4				
	262.8		5				
		SANDY LEAN CLAY (CL) trace of gravel brown, very stiff, DTPL	6	SS	03	410/460	29
2			7				
			8	SS	04	460/460	22
			9				
3	261.3		10				
		brown to grey, hard, moist	11	SS	05	410/460	32
			12				
4			13				
			14				
	259.8		15				
		grey, hard, moist	16	SS	06	460/460	34
5			17				
			18				
			19				
6			20				
			21	SS	07	360/460	50
	257.8						
		Borehole terminated at 6.55	22				
7			23				
			24				
			25				
8			26				

UNDRAINED SHEAR STRENGTH (kPa)

50 100 150 200

WATER CONTENT & ATTERBERG LIMITS W_P W W_L

DYNAMIC CONE PENETRATION TEST, BLOWS/0.3m ▼

STANDARD PENETRATION TEST, BLOWS/0.3m ●

REMARKS & GRAIN SIZE DISTRIBUTION (%)

10 20 30 40 50 60 70 80 90 100

GR SA SI CL

□ Field Vane Test, kPa

■ Remoulded Vane Test, kPa

△ Pocket Penetrometer Test, kPa

Stantec

BOREHOLE RECORD

N: 4 847 530 E: 596 343

BH69-23

CLIENT QuadReal Properties — PROJECT No. 121624777

LOCATION 12489 Dixie Road — DATUM NAD83

DATES: BORING 02/06/2023 — WATER LEVEL — TPC ELEVATION

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	DEPTH (ft)	TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)
0	263.5		0				
		TOPSOIL Silty clay, trace of gravel brown, soft, moist	1	SS	01	250/460	3
	262.9	**SANDY SILTY CLAY (CL-ML)** brown, very stiff, moist	2				
1	262.3		3	SS	02	200/460	20
		SANDY LEAN CLAY (CL) trace of gravel brown, very stiff, moist	4				
			5				
			6	SS	03	300/460	26
2			7				
			8	SS	04	460/460	29
			9				
3	260.5		10				
		hard, brown to grey, moist	11	SS	05	300/460	53
	260.0		12				
		Hard to very stiff, grey, moist	13				
4			14				
			15				
			16	SS	06	460/460	25
5			17				
			18				
			19				
6			20				
			21	SS	07	460/460	22
	257.0						
		Borehole terminated at 6.55	22				
7			23				
			24				
			25				
8			26				

UNDRAINED SHEAR STRENGTH (kPa)

50 100 150 200

WATER CONTENT & ATTERBERG LIMITS W_P W W_L

DYNAMIC CONE PENETRATION TEST, BLOWS/0.3m ▼

STANDARD PENETRATION TEST, BLOWS/0.3m ●

REMARKS & GRAIN SIZE DISTRIBUTION (%)

10 20 30 40 50 60 70 80 90 100

GR SA SI CL

□ Field Vane Test, kPa

■ Remoulded Vane Test, kPa

△ Pocket Penetrometer Test, kPa

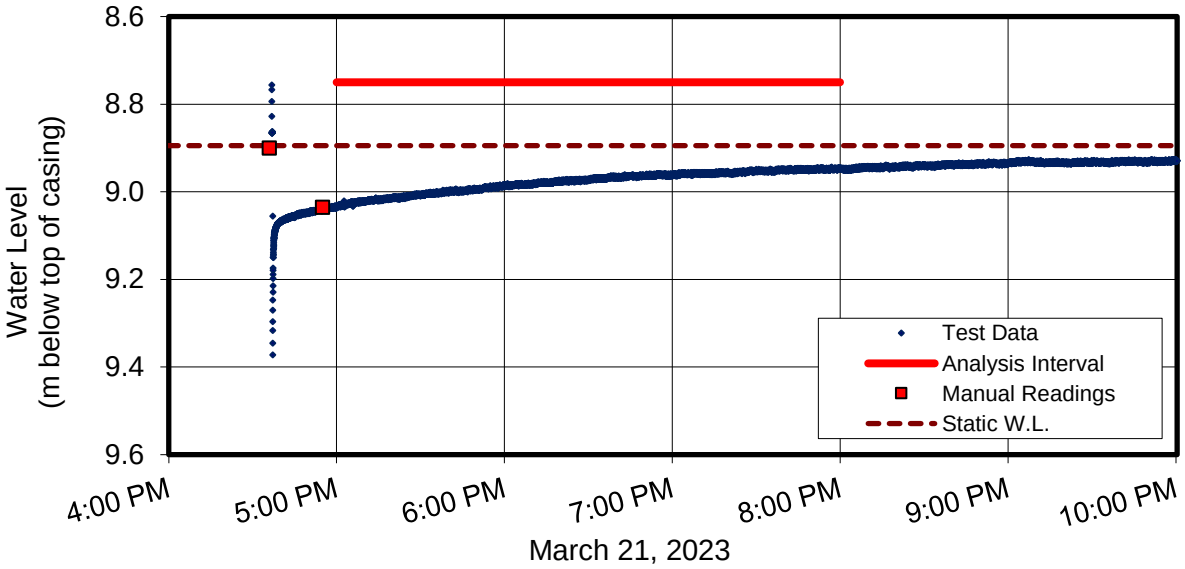
Appendix D Hydraulic Conductivity Testing Analytical Solutions

In-Situ Hydraulic Conductivity Test Report

MW04-23

FIGURE D-1

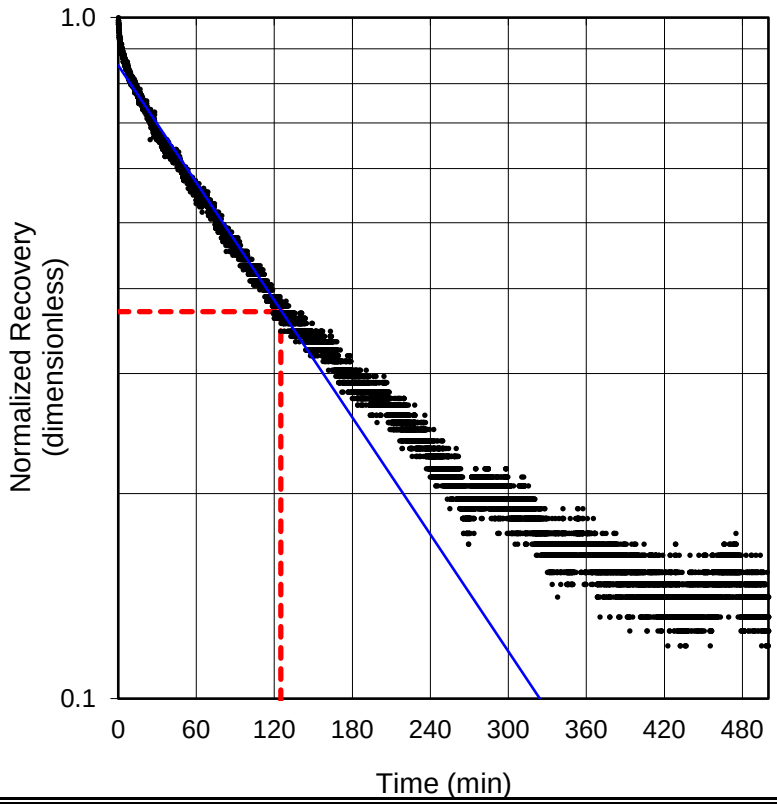
MW04-23
Groundwater Level vs. Time



Sand Pack Interval (below ground surface)

6.2 - 9.6 m

Normalized Recovery vs. Time



Time Lag (T_0) = 125 min

Sand Pack Length (L) = 1.035 m

Well Radius (r) = 0.061 m

Hole Radius (R) = 0.105 m

Hvorslev Analysis

$$K = \frac{(r^2)\ln(L/R)}{2T_0L} =$$ 5E-07 m/s

Soil Type

Silty Sand

DATE: March 29, 2023

PROJECT: 121624778

Stantec

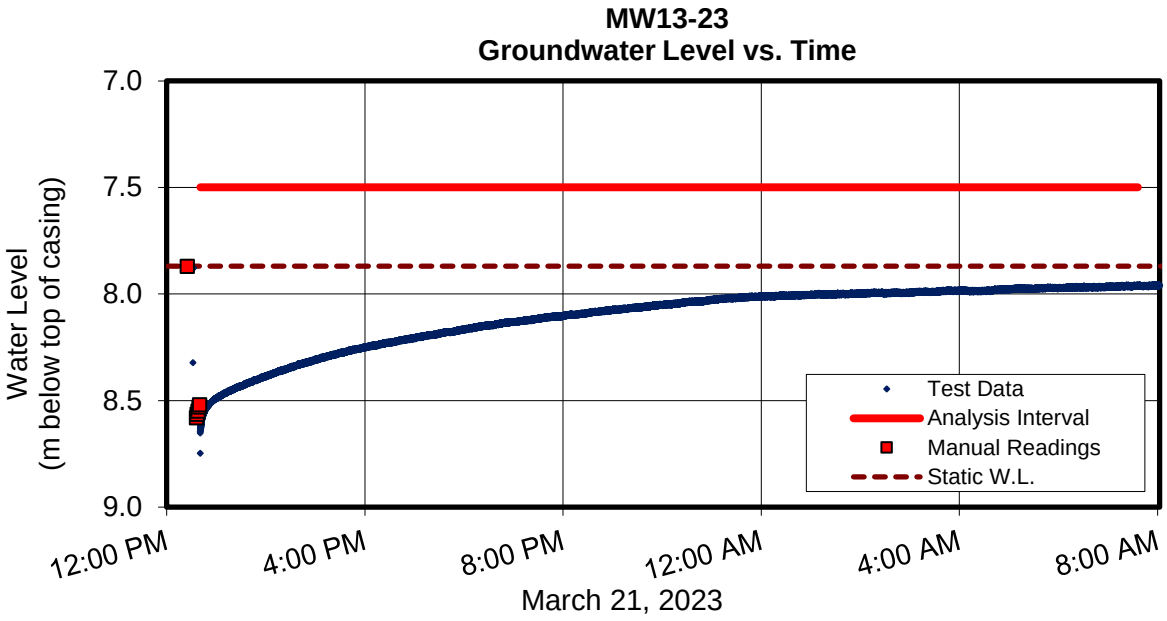
prepared by: SH

reviewed by: SDB

In-Situ Hydraulic Conductivity Test Report

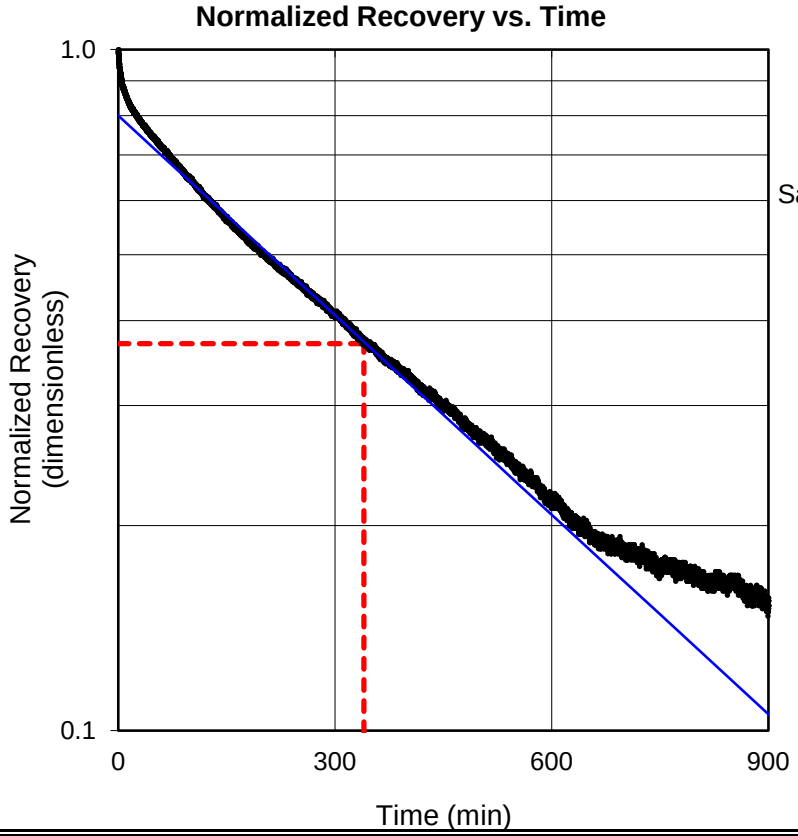
MW13-23

FIGURE D-2



Sand Pack Interval (below ground surface)

6.2 - 9.6 m



Time Lag (T_0) = 340 min

Sand Pack Length (L) = 1.77 m

Well Radius (r) = 0.061 m

Hole Radius (R) = 0.105 m

Hvorslev Analysis

$$K = \frac{(r^2)\ln(L/R)}{2T_0L} =$$ 1E-07 m/s

Soil Type

Silty Sand

DATE: March 29, 2023

PROJECT: 121624778

Stantec

prepared by: SH

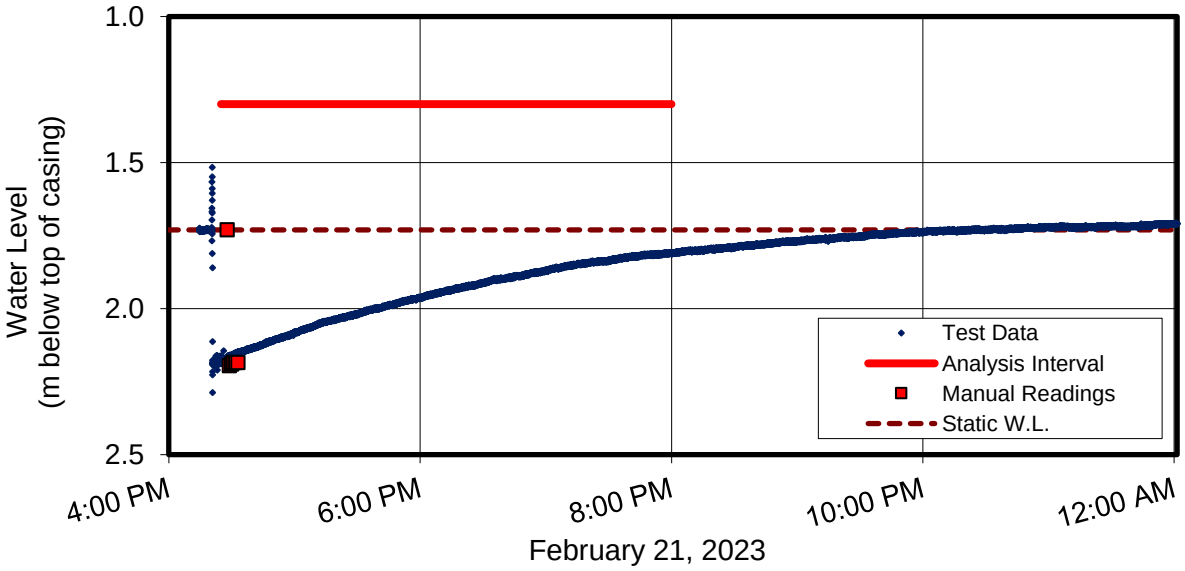
reviewed by: SDB

In-Situ Hydraulic Conductivity Test Report

MW15-23

FIGURE D-3

MW15-23
Groundwater Level vs. Time

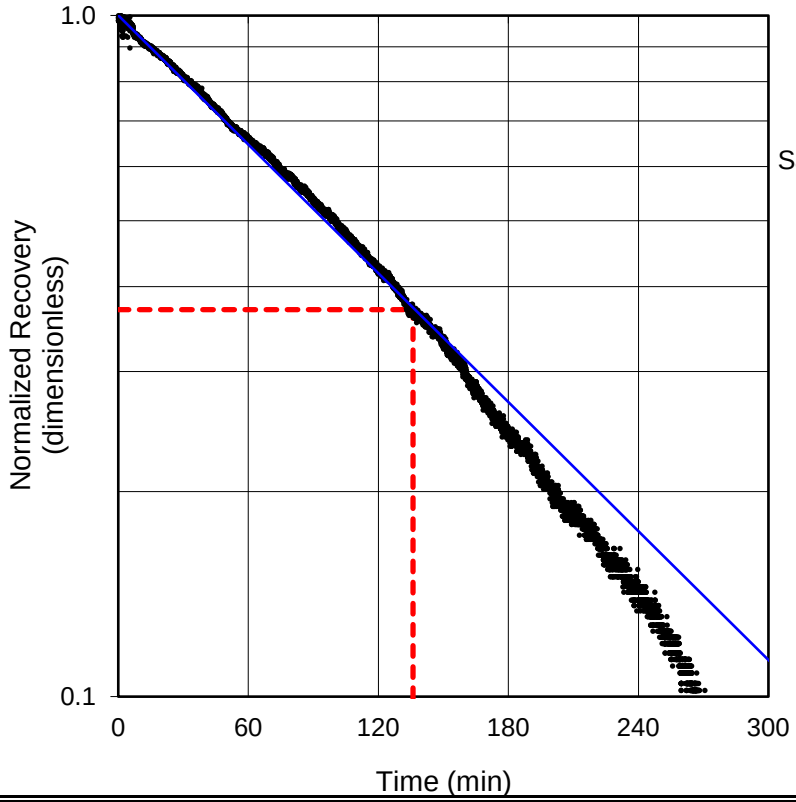


February 21, 2023

Sand Pack Interval (below ground surface)

6.2 - 9.6 m

Normalized Recovery vs. Time



Time Lag (T_0) = 136 min

Sand Pack Length (L) = 3.048 m

Well Radius (r) = 0.0254 m

Hole Radius (R) = 0.105 m

Hvorslev Analysis

$$K = \frac{(r^2)\ln(L/R) =}{2T_0L}$$ 4E-08 m/s

Soil Type

SANDY LEAN CLAY

DATE: March 29, 2023

PROJECT: 121624778

Stantec

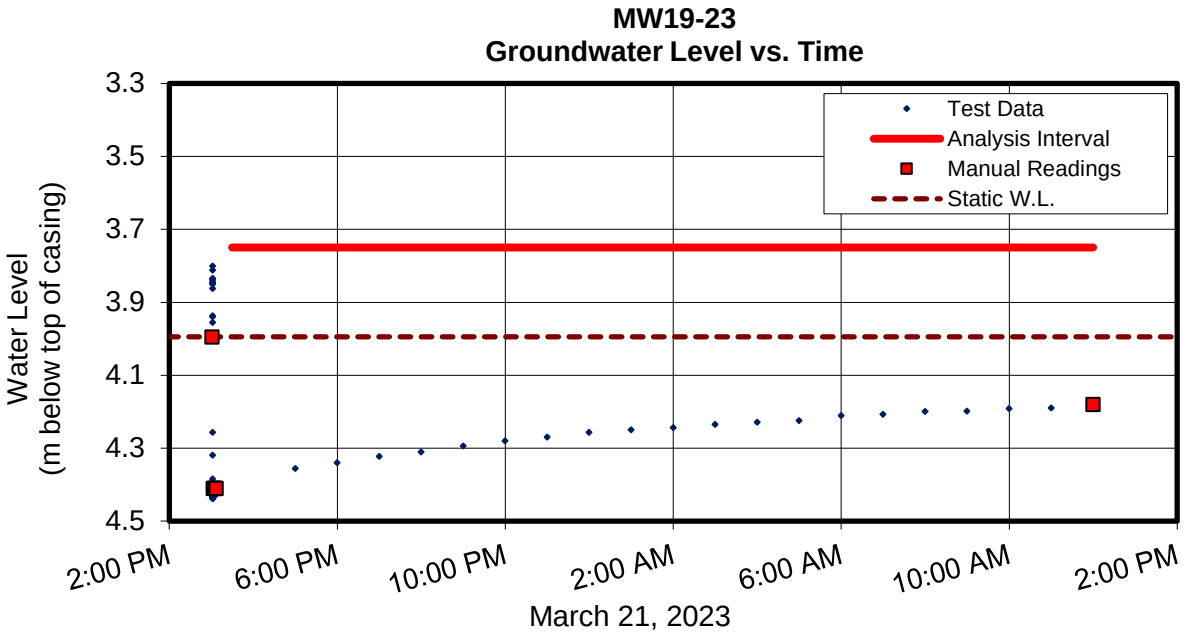
prepared by: SH

reviewed by: SDB

In-Situ Hydraulic Conductivity Test Report

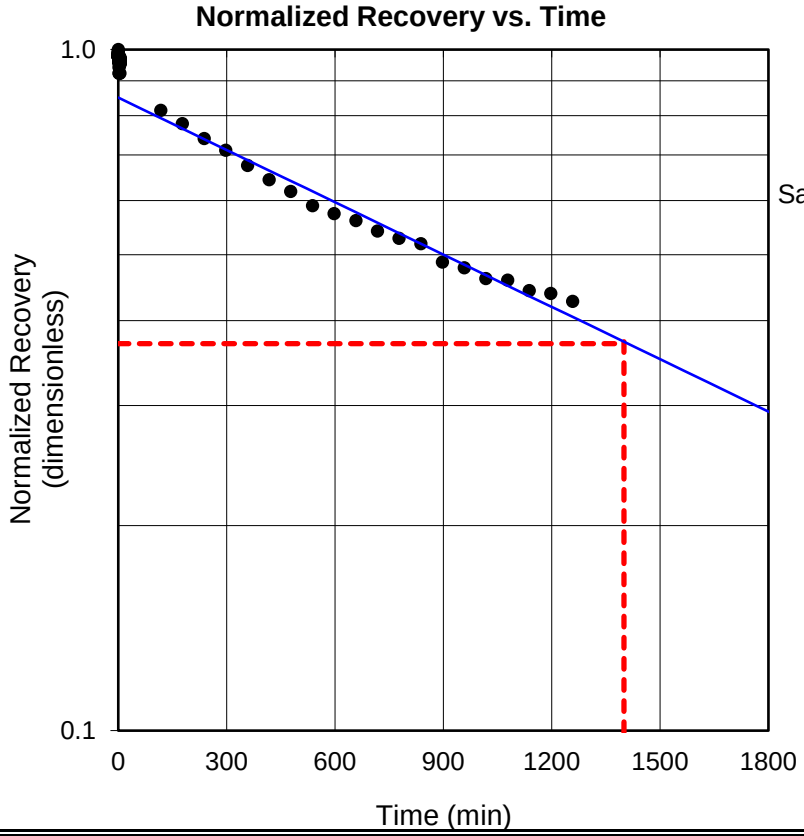
MW19-23

FIGURE D-4



Sand Pack Interval (below ground surface)

6.2 - 9.6 m



Time Lag (T_0) = 1400 min

Sand Pack Length (L) = 3.048 m

Well Radius (r) = 0.0254 m

Hole Radius (R) = 0.105 m

Hvorslev Analysis

$$K = \frac{(r^2)\ln(L/R)}{2T_0L} =$$ 4E-09 m/s

Soil Type

SANDY LEAN CLAY

DATE: March 29, 2023

PROJECT: 121624778

Stantec

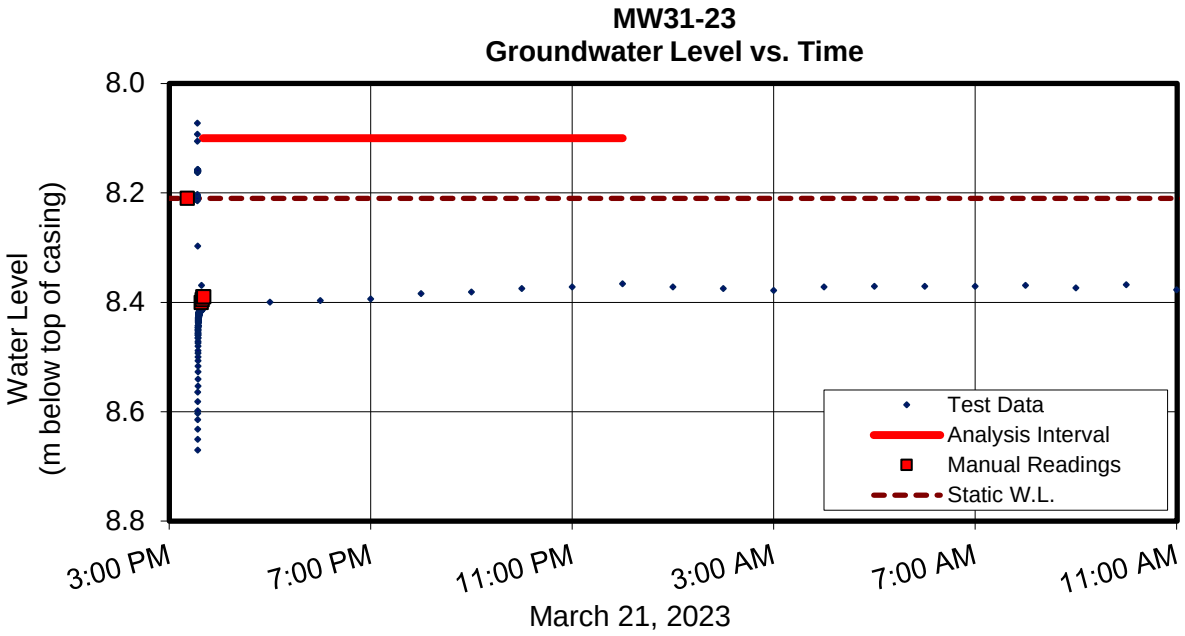
prepared by: SH

reviewed by: SDB

In-Situ Hydraulic Conductivity Test Report

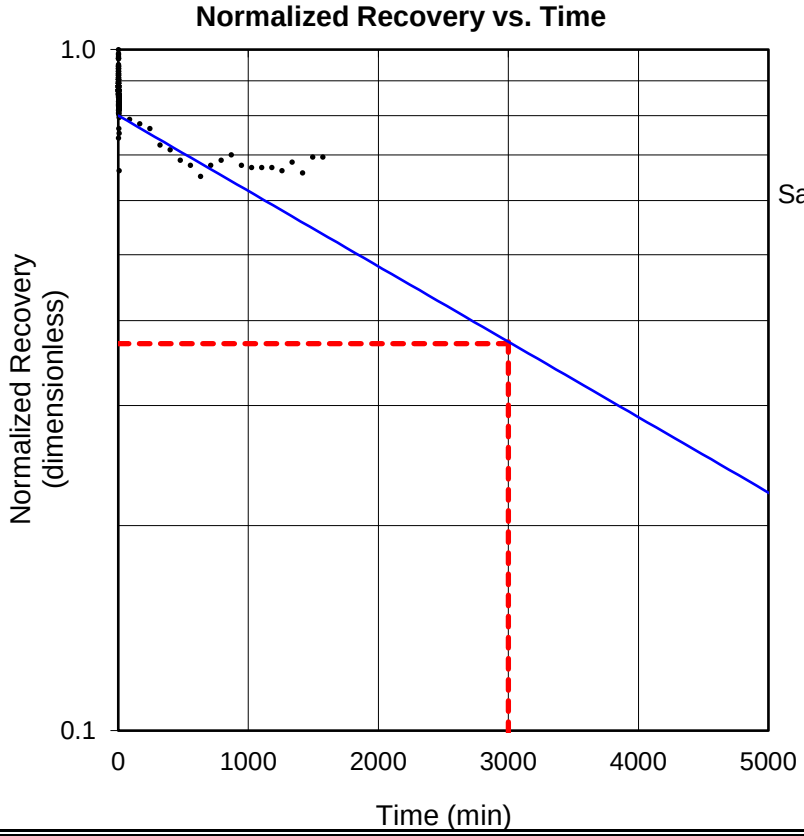
MW31-23

FIGURE D-5



Sand Pack Interval (below ground surface)

6.2 - 9.6 m



Time Lag (T_0) = 3000 min

Sand Pack Length (L) = 1.425 m

Well Radius (r) = 0.061 m

Hole Radius (R) = 0.105 m

Hvorslev Analysis

$$K = \frac{(r^2)\ln(L/R)}{2T_0L} =$$ 2E-08 m/s

Soil Type

SANDY LEAN CLAY

DATE: March 29, 2023

PROJECT: 121624778

Stantec

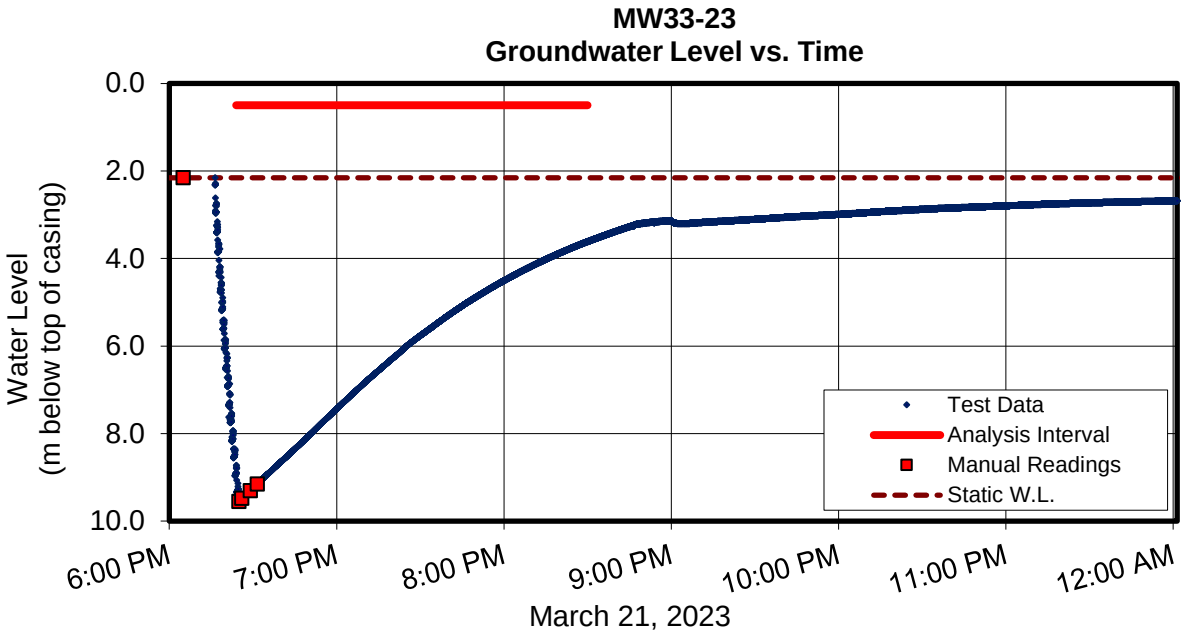
prepared by: SH

reviewed by: SDB

In-Situ Hydraulic Conductivity Test Report

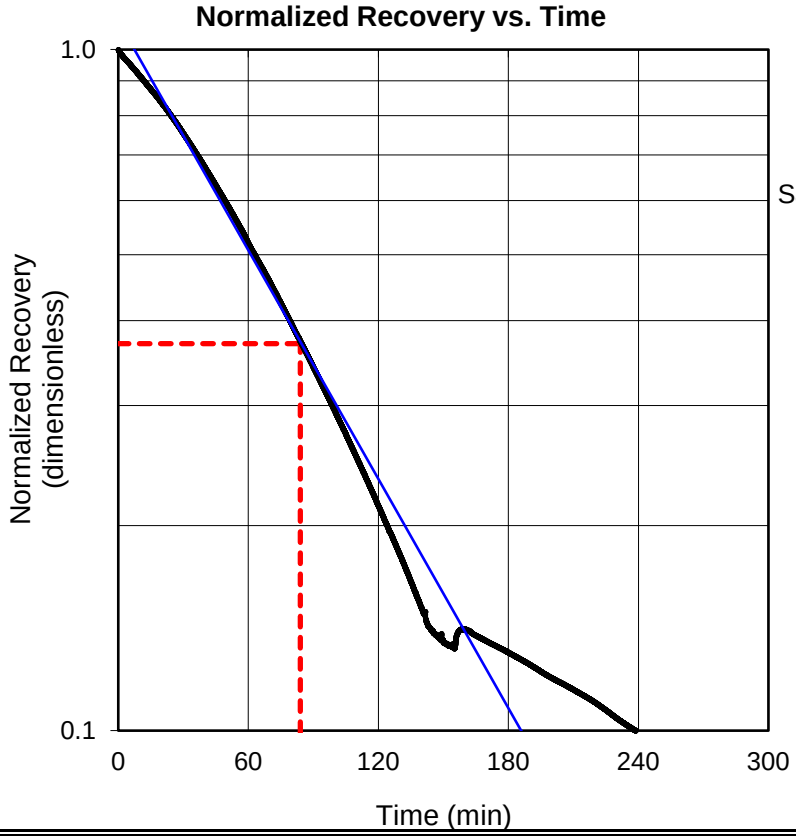
MW33-23

FIGURE D-6



Sand Pack Interval (below ground surface)

6.2 - 9.6 m



Time Lag (T_0) = 84 min

Sand Pack Length (L) = 3.048 m

Well Radius (r) = 0.0254 m

Hole Radius (R) = 0.105 m

Hvorslev Analysis

$$K = \frac{(r^2)\ln(L/R)}{2T_0L} =$$ 7E-08 m/s

Soil Type

SANDY LEAN CLAY

DATE: March 29, 2023

PROJECT: 121624778

Stantec

prepared by: SH

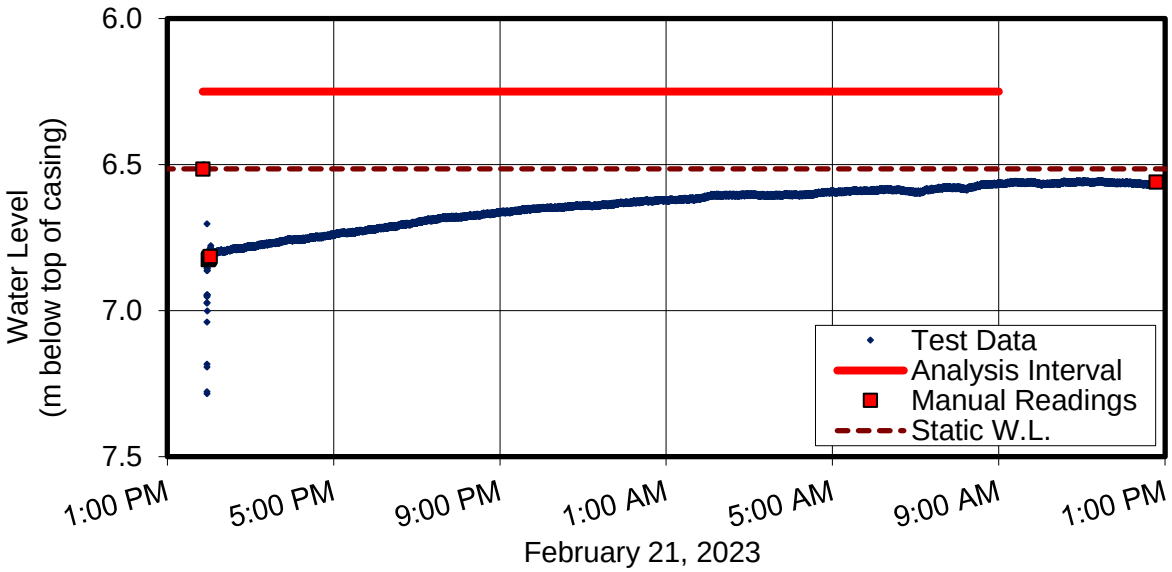
reviewed by: SDB

In-Situ Hydraulic Conductivity Test Report

MW46-23

FIGURE D-7

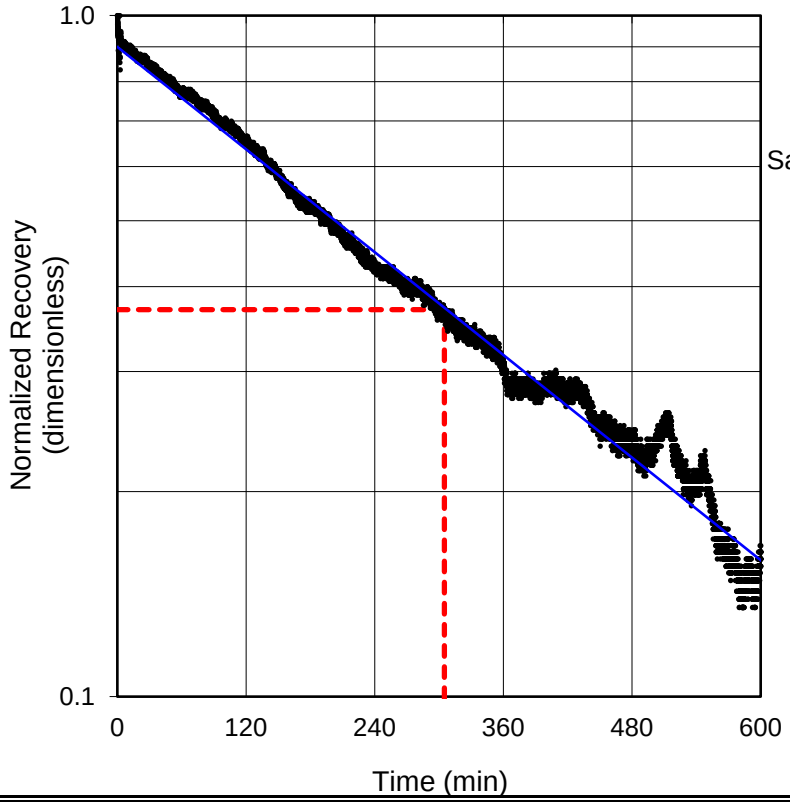
Groundwater Level vs. Time



Sand Pack Interval (below ground surface)

6.10 - 9.14 m

Normalized Recovery vs. Time



Time Lag (T_0) = 305 min

Sand Pack Length (L) = 3.048 m

Well Radius (r) = 0.0254 m

Hole Radius (R) = 0.105 m

Hvorslev Analysis

$$K = \frac{(r^2)\ln(L/R)}{2T_0L} =$$ 2E-08 m/s

Soil Type

sandy lean CLAY

DATE: April 4, 2023

PROJECT: 121624777

Stantec

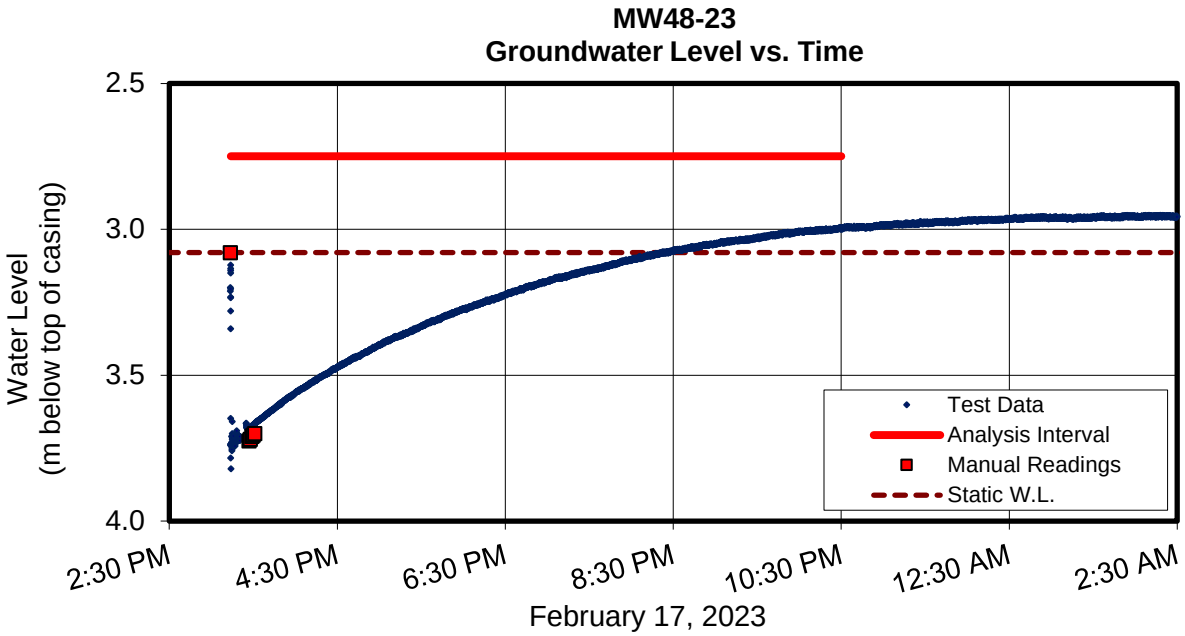
prepared by: SH

reviewed by: SMD

In-Situ Hydraulic Conductivity Test Report

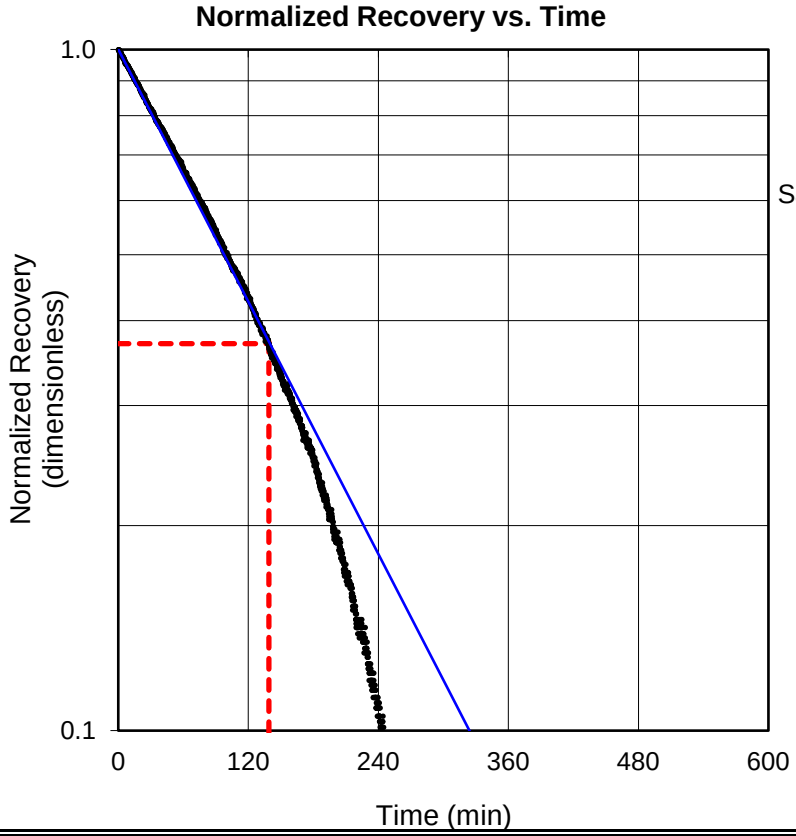
MW48-23

FIGURE D-8



Sand Pack Interval (below ground surface)

6.10 - 9.14 m



Time Lag (T_0) = 139 min

Sand Pack Length (L) = 3.048 m

Well Radius (r) = 0.0254 m

Hole Radius (R) = 0.105 m

Hvorslev Analysis

$$K = \frac{(r^2)\ln(L/R)}{2T_0L} =$$ 4E-08 m/s

Soil Type

SANDY LEAN CLAY

DATE: April 4, 2023

PROJECT: 121624777

Stantec

prepared by: SH

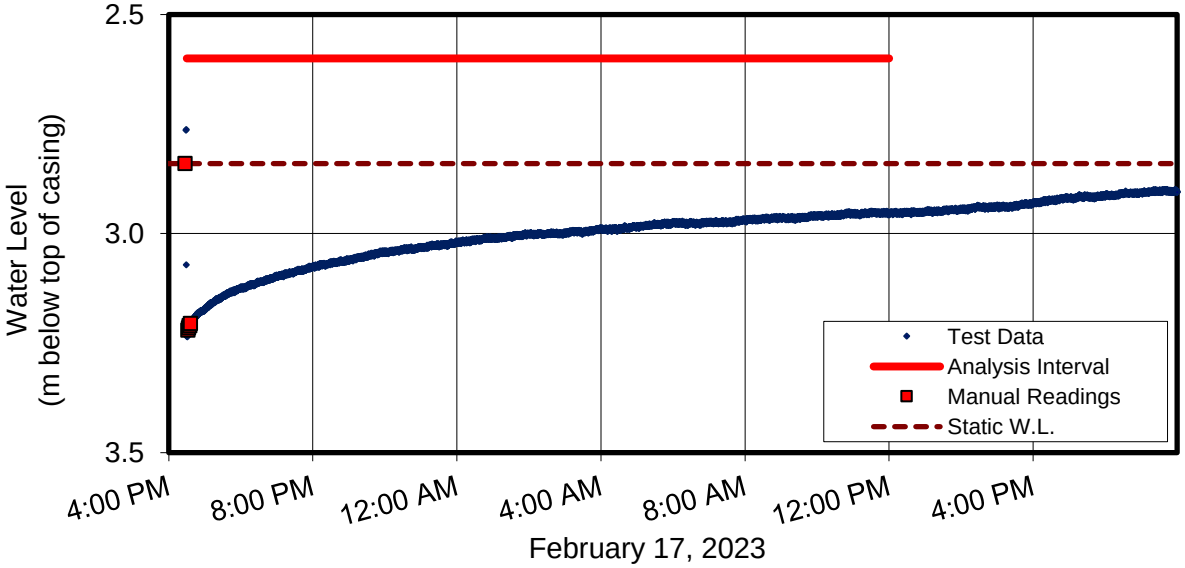
reviewed by: SMD

In-Situ Hydraulic Conductivity Test Report

MW51-23

FIGURE D-9

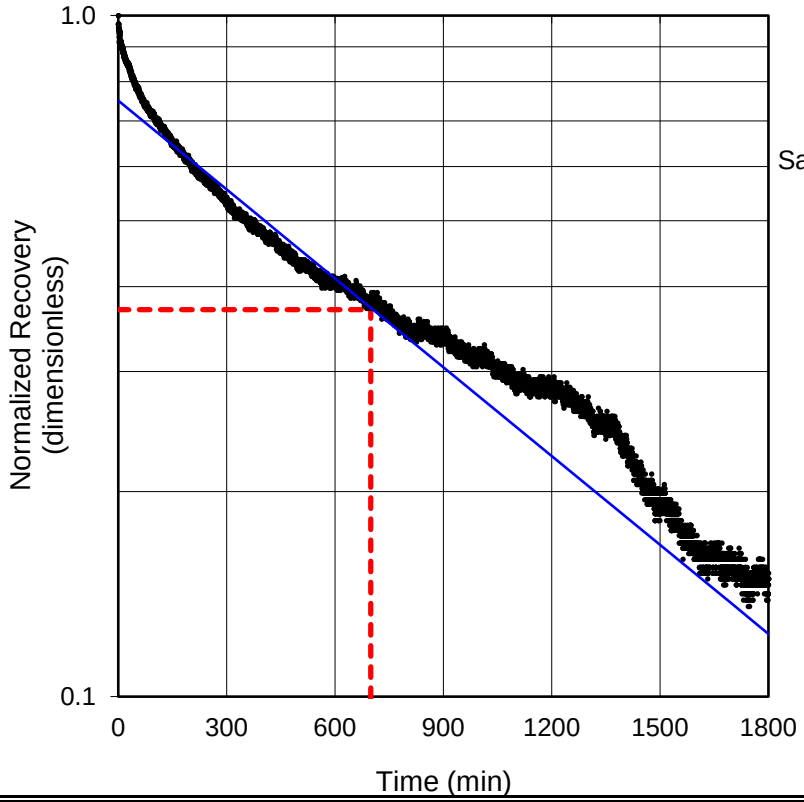
MW51-23
Groundwater Level vs. Time



Sand Pack Interval (below ground surface)

6.10 - 9.14 m

Normalized Recovery vs. Time



Time Lag (T_0) = 699 min

Sand Pack Length (L) = 3.048 m

Well Radius (r) = 0.0254 m

Hole Radius (R) = 0.105 m

Hvorslev Analysis

$$K = \frac{(r^2)\ln(L/R)}{2T_0L} = 8E\text{-}09 \text{ m/s}$$

Soil Type

SANDY LEAN CLAY

DATE: April 5, 2023

PROJECT: 121624777

Stantec

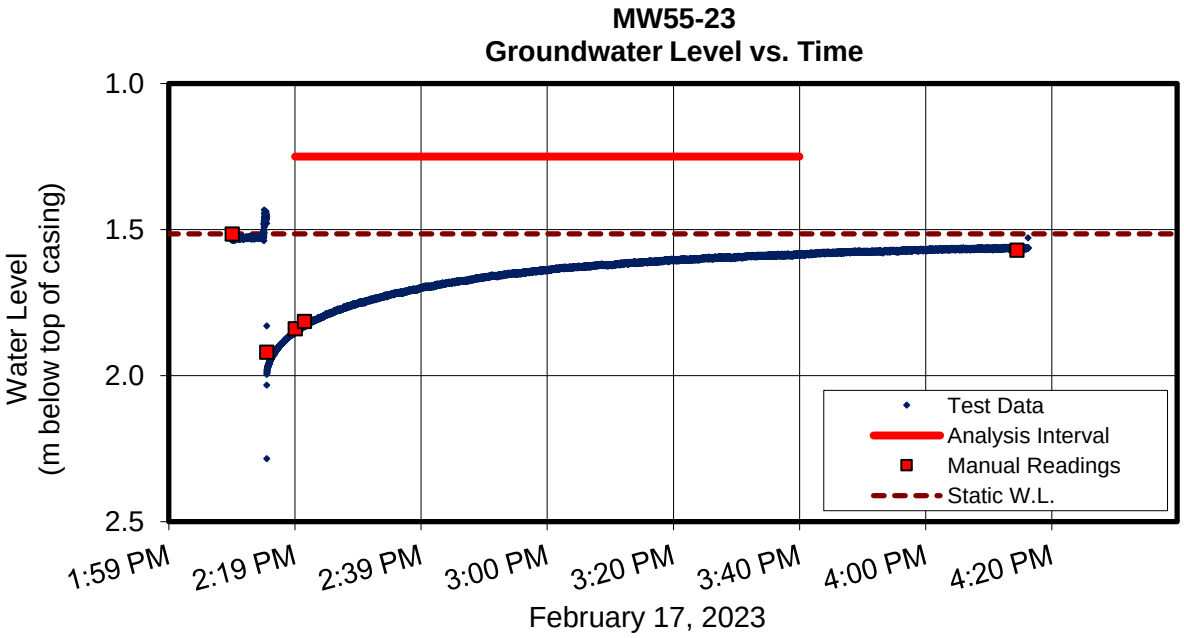
prepared by: SH

reviewed by: SMD

In-Situ Hydraulic Conductivity Test Report

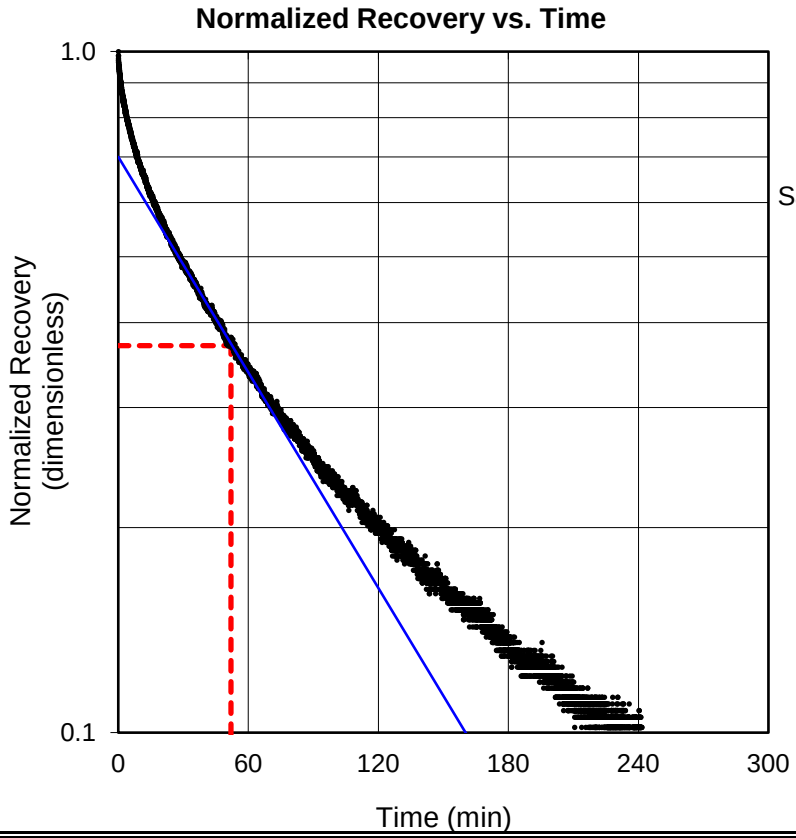
MW55-23

FIGURE D-10



Sand Pack Interval (below ground surface)

6.10 - 9.14 m



Time Lag (T_0) = 52 min

Sand Pack Length (L) = 3.048 m

Well Radius (r) = 0.0254 m

Hole Radius (R) = 0.105 m

Hvorslev Analysis

$$K = \frac{(r^2)\ln(L/R)}{2T_0L} =$$ 1E-07 m/s

Soil Type

LEAN CLAY

DATE: April 4, 2023

PROJECT: 121624777

Stantec

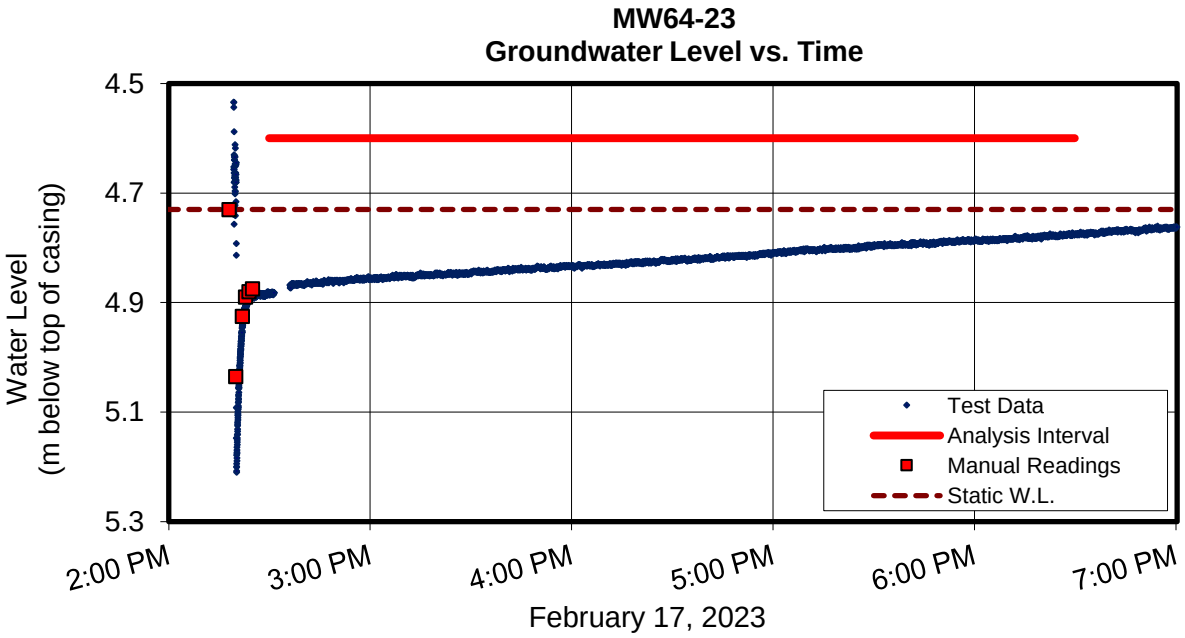
prepared by: SH

reviewed by: SMD

In-Situ Hydraulic Conductivity Test Report

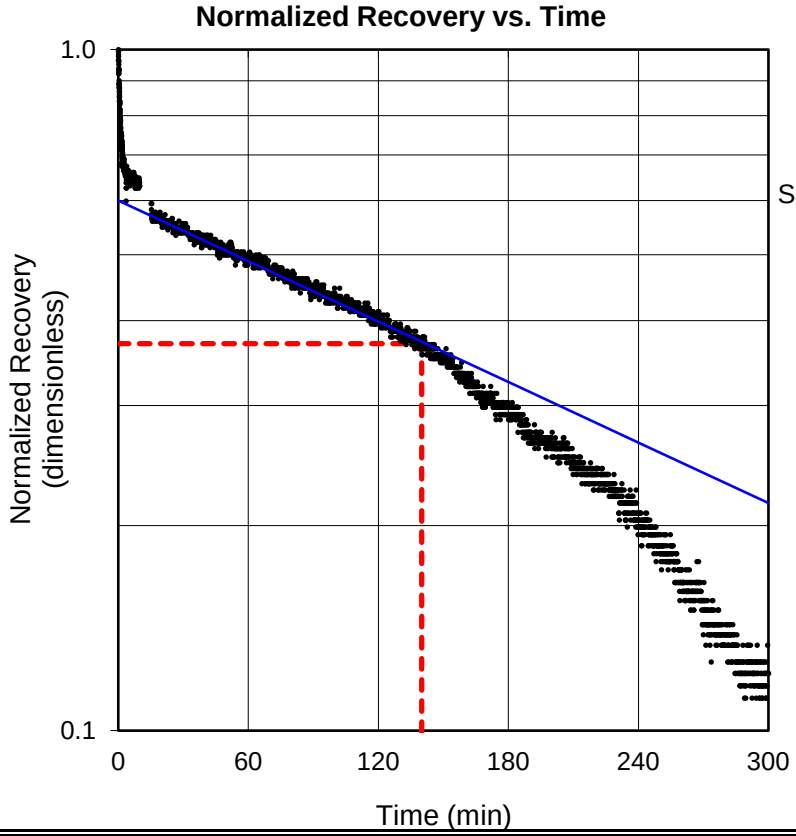
MW64-23

FIGURE D-11



Sand Pack Interval (below ground surface)

6.10 - 9.14 m



Time Lag (T_0) = 140 min

Sand Pack Length (L) = 3.048 m

Well Radius (r) = 0.0254 m

Hole Radius (R) = 0.105 m

Hvorslev Analysis

$$K = \frac{(r^2)\ln(L/R)}{2T_0L} =$$ 4E-08 m/s

Soil Type

SANDY LEAN CLAY

DATE: April 4, 2023

PROJECT: 121624777

Stantec

prepared by: SH

reviewed by: SMD

Appendix E Laboratory Certificates of Analysis

Your Project #: 121624777.200.1
Your C.O.C. #: 922413-01-01

Attention: Stephen DiBiase

Stantec Consulting Ltd
300 Hagey Blvd
Suite 100
Waterloo, ON
CANADA N2L 0A4

Report Date: 2023/03/01
Report #: R7528355
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C353332
Received: 2023/02/23, 17:00

Sample Matrix: Water
Samples Received: 1

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Alkalinity	1	N/A	2023/02/24	CAM SOP-00448	SM 23 2320 B m
Carbonate, Bicarbonate and Hydroxide	1	N/A	2023/02/27	CAM SOP-00102	APHA 4500-CO2 D
Chloride by Automated Colourimetry	1	N/A	2023/02/27	CAM SOP-00463	SM 23 4500-Cl E m
Conductivity	1	N/A	2023/02/24	CAM SOP-00414	SM 23 2510 m
Dissolved Organic Carbon (DOC) (1)	1	N/A	2023/02/24	CAM SOP-00446	SM 23 5310 B m
Hardness (calculated as CaCO3)	1	N/A	2023/02/27	CAM SOP 00102/00408/00447	SM 2340 B
Dissolved Metals by ICPMS	1	N/A	2023/02/24	CAM SOP-00447	EPA 6020B m
Ion Balance (% Difference)	1	N/A	2023/02/27		
Anion and Cation Sum	1	N/A	2023/02/27		
Total Ammonia-N	1	N/A	2023/02/27	CAM SOP-00441	USGS I-2522-90 m
Nitrate & Nitrite as Nitrogen in Water (2)	1	N/A	2023/02/28	CAM SOP-00440	SM 23 4500-NO3I/NO2B
pH	1	2023/02/24	2023/02/24	CAM SOP-00413	SM 4500H+ B m
Orthophosphate	1	N/A	2023/02/27	CAM SOP-00461	SM 23 4500-P E m
Sat. pH and Langelier Index (@ 20C)	1	N/A	2023/02/27		Auto Calc
Sat. pH and Langelier Index (@ 4C)	1	N/A	2023/02/27		Auto Calc
Sulphate by Automated Turbidimetry	1	N/A	2023/02/27	CAM SOP-00464	SM 23 4500-SO42- E m
Total Dissolved Solids (TDS calc)	1	N/A	2023/02/27		Auto Calc

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report.

Your Project #: 121624777.200.1
Your C.O.C. #: 922413-01-01

Attention: Stephen DiBiase

Stantec Consulting Ltd
300 Hagey Blvd
Suite 100
Waterloo, ON
CANADA N2L 0A4

Report Date: 2023/03/01
Report #: R7528355
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C353332

Received: 2023/02/23, 17:00

Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) Dissolved Organic Carbon (DOC) present in the sample should be considered as non-purgeable DOC.
(2) Values for calculated parameters may not appear to add up due to rounding of raw data and significant figures.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:
Julie Clement, Technical Account Manager
Email: Julie.CLEMENT@bureauveritas.com
Phone# (613)868-6079

==========

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Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Rodney Major, General Manager responsible for Ontario Environmental laboratory operations.

RCAP - COMPREHENSIVE (WATER)

Bureau Veritas ID		VDE257		
Sampling Date		2023/02/23 14:00		
COC Number		922413-01-01		
	UNITS	MW15-23	RDL	QC Batch
Calculated Parameters				
Anion Sum	me/L	7.97	N/A	8518891
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	300	1.0	8518893
Calculated TDS	mg/L	410	1.0	8518897
Carb. Alkalinity (calc. as CaCO3)	mg/L	2.6	1.0	8518893
Cation Sum	me/L	7.80	N/A	8518891
Hardness (CaCO3)	mg/L	330	1.0	8518180
Ion Balance (% Difference)	%	1.07	N/A	8518181
Langelier Index (@ 20C)	N/A	0.633		8518894
Langelier Index (@ 4C)	N/A	0.385		8518895
Saturation pH (@ 20C)	N/A	7.33		8518894
Saturation pH (@ 4C)	N/A	7.58		8518895
Inorganics				
Total Ammonia-N	mg/L	0.10	0.050	8520763
Conductivity	umho/cm	740	1.0	8520914
Dissolved Organic Carbon	mg/L	2.1	0.40	8520721
Orthophosphate (P)	mg/L	<0.010	0.010	8520923
pH	pH	7.96		8520915
Dissolved Sulphate (SO4)	mg/L	37	1.0	8520920
Alkalinity (Total as CaCO3)	mg/L	300	1.0	8520918
Dissolved Chloride (Cl-)	mg/L	41	1.0	8520926
Nitrite (N)	mg/L	<0.010	0.010	8521155
Nitrate (N)	mg/L	<0.10	0.10	8521155
Nitrate + Nitrite (N)	mg/L	<0.10	0.10	8521155
Metals				
Dissolved Aluminum (Al)	mg/L	0.0079	0.0049	8520728
Dissolved Antimony (Sb)	mg/L	<0.00050	0.00050	8520728
Dissolved Arsenic (As)	mg/L	0.0026	0.0010	8520728
Dissolved Barium (Ba)	mg/L	0.094	0.0020	8520728
Dissolved Beryllium (Be)	mg/L	<0.00040	0.00040	8520728
Dissolved Boron (B)	mg/L	0.070	0.010	8520728
Dissolved Cadmium (Cd)	mg/L	<0.000090	0.000090	8520728

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

RCAP - COMPREHENSIVE (WATER)

Bureau Veritas ID		VDE257		
Sampling Date		2023/02/23 14:00		
COC Number		922413-01-01		
	UNITS	**MW15-23**	**RDL**	**QC Batch**
Dissolved Calcium (Ca)	mg/L	43	0.20	8520728
Dissolved Chromium (Cr)	mg/L	<0.0050	0.0050	8520728
Dissolved Cobalt (Co)	mg/L	<0.00050	0.00050	8520728
Dissolved Copper (Cu)	mg/L	<0.00090	0.00090	8520728
Dissolved Iron (Fe)	mg/L	<0.10	0.10	8520728
Dissolved Lead (Pb)	mg/L	<0.00050	0.00050	8520728
Dissolved Magnesium (Mg)	mg/L	55	0.050	8520728
Dissolved Manganese (Mn)	mg/L	0.044	0.0020	8520728
Dissolved Molybdenum (Mo)	mg/L	0.017	0.00050	8520728
Dissolved Nickel (Ni)	mg/L	<0.0010	0.0010	8520728
Dissolved Phosphorus (P)	mg/L	<0.10	0.10	8520728
Dissolved Potassium (K)	mg/L	8.8	0.20	8520728
Dissolved Selenium (Se)	mg/L	<0.0020	0.0020	8520728
Dissolved Silicon (Si)	mg/L	8.4	0.050	8520728
Dissolved Silver (Ag)	mg/L	<0.000090	0.000090	8520728
Dissolved Sodium (Na)	mg/L	21	0.10	8520728
Dissolved Strontium (Sr)	mg/L	0.57	0.0010	8520728
Dissolved Thallium (Tl)	mg/L	<0.000050	0.000050	8520728
Dissolved Titanium (Ti)	mg/L	<0.0050	0.0050	8520728
Dissolved Uranium (U)	mg/L	0.00049	0.00010	8520728
Dissolved Vanadium (V)	mg/L	<0.00050	0.00050	8520728
Dissolved Zinc (Zn)	mg/L	0.17	0.0050	8520728

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Bureau Veritas Job #: C353332
Report Date: 2023/03/01

Stantec Consulting Ltd
Client Project #: 121624777.200.1
Sampler Initials: SH

TEST SUMMARY

Bureau Veritas ID: VDE257
Sample ID: MW15-23
Matrix: Water

Collected: 2023/02/23
Shipped:
Received: 2023/02/23

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	8520918	N/A	2023/02/24	Kien Tran
Carbonate, Bicarbonate and Hydroxide	CALC	8518893	N/A	2023/02/27	Automated Statchk
Chloride by Automated Colourimetry	KONE	8520926	N/A	2023/02/27	Samuel Law
Conductivity	AT	8520914	N/A	2023/02/24	Kien Tran
Dissolved Organic Carbon (DOC)	TOCV/NDIR	8520721	N/A	2023/02/24	Nimarta Singh
Hardness (calculated as CaCO3)		8518180	N/A	2023/02/27	Automated Statchk
Dissolved Metals by ICPMS	ICP/MS	8520728	N/A	2023/02/24	Prempal Bhatti
Ion Balance (% Difference)	CALC	8518181	N/A	2023/02/27	Automated Statchk
Anion and Cation Sum	CALC	8518891	N/A	2023/02/27	Automated Statchk
Total Ammonia-N	LACH/NH4	8520763	N/A	2023/02/27	Shivani Shivani
Nitrate & Nitrite as Nitrogen in Water	LACH	8521155	N/A	2023/02/28	Chandra Nandlal
pH	AT	8520915	2023/02/24	2023/02/24	Kien Tran
Orthophosphate	KONE	8520923	N/A	2023/02/27	Massarat Jan
Sat. pH and Langelier Index (@ 20C)	CALC	8518894	N/A	2023/02/27	Automated Statchk
Sat. pH and Langelier Index (@ 4C)	CALC	8518895	N/A	2023/02/27	Automated Statchk
Sulphate by Automated Turbidimetry	KONE	8520920	N/A	2023/02/27	Massarat Jan
Total Dissolved Solids (TDS calc)	CALC	8518897	N/A	2023/02/27	Automated Statchk

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GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	2.0°C

Results relate only to the items tested.

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QUALITY ASSURANCE REPORT

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8520721	Dissolved Organic Carbon	2023/02/24	95	80 - 120	98	80 - 120	<0.40	mg/L	2.3	20
8520728	Dissolved Aluminum (Al)	2023/02/24	109	80 - 120	104	80 - 120	<0.0049	mg/L		
8520728	Dissolved Antimony (Sb)	2023/02/24	113	80 - 120	105	80 - 120	<0.00050	mg/L	5.3	20
8520728	Dissolved Arsenic (As)	2023/02/24	104	80 - 120	99	80 - 120	<0.0010	mg/L	6.8	20
8520728	Dissolved Barium (Ba)	2023/02/24	106	80 - 120	99	80 - 120	<0.0020	mg/L	2.2	20
8520728	Dissolved Beryllium (Be)	2023/02/24	104	80 - 120	97	80 - 120	<0.00040	mg/L	NC	20
8520728	Dissolved Boron (B)	2023/02/24	102	80 - 120	97	80 - 120	<0.010	mg/L	0.64	20
8520728	Dissolved Cadmium (Cd)	2023/02/24	107	80 - 120	100	80 - 120	<0.000090	mg/L	NC	20
8520728	Dissolved Calcium (Ca)	2023/02/24	NC	80 - 120	103	80 - 120	<0.20	mg/L		
8520728	Dissolved Chromium (Cr)	2023/02/24	103	80 - 120	98	80 - 120	<0.0050	mg/L	NC	20
8520728	Dissolved Cobalt (Co)	2023/02/24	101	80 - 120	98	80 - 120	<0.00050	mg/L	NC	20
8520728	Dissolved Copper (Cu)	2023/02/24	105	80 - 120	100	80 - 120	<0.00090	mg/L	1.5	20
8520728	Dissolved Iron (Fe)	2023/02/24	106	80 - 120	101	80 - 120	<0.10	mg/L		
8520728	Dissolved Lead (Pb)	2023/02/24	103	80 - 120	98	80 - 120	<0.00050	mg/L	NC	20
8520728	Dissolved Magnesium (Mg)	2023/02/24	NC	80 - 120	103	80 - 120	<0.050	mg/L		
8520728	Dissolved Manganese (Mn)	2023/02/24	103	80 - 120	98	80 - 120	<0.0020	mg/L		
8520728	Dissolved Molybdenum (Mo)	2023/02/24	111	80 - 120	104	80 - 120	<0.00050	mg/L	1.4	20
8520728	Dissolved Nickel (Ni)	2023/02/24	100	80 - 120	97	80 - 120	<0.0010	mg/L	NC	20
8520728	Dissolved Phosphorus (P)	2023/02/24	109	80 - 120	110	80 - 120	<0.10	mg/L		
8520728	Dissolved Potassium (K)	2023/02/24	105	80 - 120	101	80 - 120	<0.20	mg/L		
8520728	Dissolved Selenium (Se)	2023/02/24	105	80 - 120	99	80 - 120	<0.0020	mg/L	NC	20
8520728	Dissolved Silicon (Si)	2023/02/24	108	80 - 120	104	80 - 120	<0.050	mg/L		
8520728	Dissolved Silver (Ag)	2023/02/24	104	80 - 120	101	80 - 120	<0.000090	mg/L	NC	20
8520728	Dissolved Sodium (Na)	2023/02/24	102	80 - 120	102	80 - 120	<0.10	mg/L	0.83	20
8520728	Dissolved Strontium (Sr)	2023/02/24	NC	80 - 120	98	80 - 120	<0.0010	mg/L		
8520728	Dissolved Thallium (Tl)	2023/02/24	104	80 - 120	99	80 - 120	<0.000050	mg/L	NC	20
8520728	Dissolved Titanium (Ti)	2023/02/24	107	80 - 120	100	80 - 120	<0.0050	mg/L		
8520728	Dissolved Uranium (U)	2023/02/24	106	80 - 120	99	80 - 120	<0.00010	mg/L	3.4	20
8520728	Dissolved Vanadium (V)	2023/02/24	105	80 - 120	100	80 - 120	<0.00050	mg/L	7.5	20
8520728	Dissolved Zinc (Zn)	2023/02/24	103	80 - 120	98	80 - 120	<0.0050	mg/L	NC	20
8520763	Total Ammonia-N	2023/02/27	87	75 - 125	98	80 - 120	<0.050	mg/L	0.38	20

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QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8520914	Conductivity	2023/02/24			100	85 - 115	<1.0	umho/cm	1.1	25
8520915	pH	2023/02/24			102	98 - 103			0.99	N/A
8520918	Alkalinity (Total as CaCO3)	2023/02/24			98	85 - 115	<1.0	mg/L	1.2	20
8520920	Dissolved Sulphate (SO4)	2023/02/27	NC	75 - 125	93	80 - 120	<1.0	mg/L	1.5	20
8520923	Orthophosphate (P)	2023/02/27	93	75 - 125	100	80 - 120	<0.010	mg/L	NC	20
8520926	Dissolved Chloride (Cl-)	2023/02/27	NC	80 - 120	105	80 - 120	<1.0	mg/L	1.7	20
8521155	Nitrate (N)	2023/02/28	89	80 - 120	104	80 - 120	<0.10	mg/L	1.5	20
8521155	Nitrite (N)	2023/02/28	NC	80 - 120	107	80 - 120	<0.010	mg/L	1.2	20

N/A = Not Applicable

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

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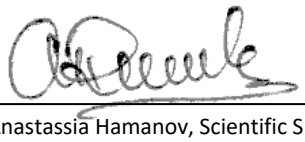
VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:



Anastassia Hamanov, Scientific Specialist

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Page of

STANTEC CHAIN OF CUSTODY RECORD

INVOICE INFORMATION:		REPORT INFORMATION(if differs from invoice):		PROJECT INFORMATION:		Laboratory Use Only:	
Company Name:	#9197 Stantec Consulting Ltd	Company Name:		Quotation #:	C15856	Bureau Veritas Job #:	Bottle Order #:
Contact Name:	Accounts Payable	Contact Name:	Stephen Dibiase	Task #:			922413
Address:	300 Hagey Blvd Suite 100	Address:		Project #:	121624777.200.1	COC #:	Project Manager:
	Waterloo ON N2L 0A4			Profit Centre:		C#922413-01-01	Julie Clement
Phone:	(519) 579-4410 Fax: (519) 579-6733	Phone:	Fax:	Site #:			
Email:	SAPinvoices@Stantec.com	Email:	Stephen.DiBiase@stantec.com	Sampled By:	SH		

MOE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE BUREAU VERITAS DRINKING WATER CHAIN OF CUSTODY

Regulation 153 (2011)
- ☐ Table 1 ☐ Res/Park ☐ Medium/Fine
- ☐ Table 2 ☐ Ind/Comm ☐ Coarse
- ☐ Table 3 ☐ Agri/Other ☐ For RSC
- ☐ Table ___

Other Regulations
- ☐ CCME ☐ Sanitary Sewer Bylaw
- ☐ Reg 558. ☐ Storm Sewer Bylaw
- ☐ MISA Municipality _____
- ☐ PWQO ☐ Reg 406 Table _____
- ☐ Other _____

Special Instructions

Include Criteria on Certificate of Analysis (Y/N)? _____

Field Filtered (please circle): Metals / Hg / Cr VI

ANALYSIS REQUESTED (PLEASE BE SPECIFIC)

Turnaround Time (TAT) Required:
Please provide advance notice for rush projects

Regular (Standard) TAT: 4
(will be applied if Rush TAT is not specified):
Standard TAT = 5-7 Working days for most tests.
Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

Job Specific Rush TAT (if applies to entire submission)
Date Required: _____ Time Required: _____ ☐
Rush Confirmation Number: _____ *(call lab for #)*

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	RCAp - Comprehensive	# of Bottles	Comments
1		MW15-23	2/23/2023	1400	GW	X	4	
2								
3								
4								
5								
6								
7								
8								
9								
10								

23-Feb-23 17:00
Julie Clement
C353332
AK0 ENV-813

* RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	# jars used and not submitted
Scott Hutchinson	23/02/23	1700				

Laboratory Use Only

Time Sensitive	Temperature (°C) on Recei	Custody Seal	Yes	No
		Present		
		Intact		

* UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO BUREAU VERITAS'S STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE AVAILABLE FOR VIEWING AT WWW.BVNA.COM/ENVIRONMENTAL-LABORATORIES/RESOURCES/COC-TERMS-AND-CONDITIONS.

* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

** SAMPLE CONTAINER, PRESERVATION, HOLD TIME AND PACKAGE INFORMATION CAN BE VIEWED AT WWW.BVNA.COM/ENVIRONMENTAL-LABORATORIES/RESOURCES/CHAIN-CUSTODY-FORMS-COCS.

SAMPLES MUST BE KEPT COOL (< 10° C) FROM TIME OF SAMPLING UNTIL DELIVERY TO BUREAU VERITAS

White: Bureau Veritas Yellow: Client

Bureau Veritas Canada (2019) Inc.

Your Project #: 121624777.200.1
Your C.O.C. #: 922413-01-01

Attention: Stephen DiBiase

Stantec Consulting Ltd
300 Hagey Blvd
Suite 100
Waterloo, ON
CANADA N2L 0A4

Report Date: 2023/03/29
Report #: R7566214
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C382753
Received: 2023/03/23, 16:46

Sample Matrix: Water
Samples Received: 4

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Alkalinity	4	N/A	2023/03/27	CAM SOP-00448	SM 23 2320 B m
Carbonate, Bicarbonate and Hydroxide	1	N/A	2023/03/27	CAM SOP-00102	APHA 4500-CO2 D
Carbonate, Bicarbonate and Hydroxide	3	N/A	2023/03/28	CAM SOP-00102	APHA 4500-CO2 D
Chloride by Automated Colourimetry	4	N/A	2023/03/27	CAM SOP-00463	SM 23 4500-Cl E m
Conductivity	4	N/A	2023/03/27	CAM SOP-00414	SM 23 2510 m
Dissolved Organic Carbon (DOC) (1)	4	N/A	2023/03/24	CAM SOP-00446	SM 23 5310 B m
Hardness (calculated as CaCO3)	4	N/A	2023/03/27	CAM SOP 00102/00408/00447	SM 2340 B
Dissolved Metals by ICPMS	4	N/A	2023/03/27	CAM SOP-00447	EPA 6020B m
Ion Balance (% Difference)	1	N/A	2023/03/27		
Ion Balance (% Difference)	3	N/A	2023/03/28		
Anion and Cation Sum	1	N/A	2023/03/27		
Anion and Cation Sum	3	N/A	2023/03/28		
Total Ammonia-N	4	N/A	2023/03/27	CAM SOP-00441	USGS I-2522-90 m
Nitrate & Nitrite as Nitrogen in Water (2)	4	N/A	2023/03/28	CAM SOP-00440	SM 23 4500-NO3I/NO2B
pH	4	2023/03/25	2023/03/27	CAM SOP-00413	SM 4500H+ B m
Orthophosphate	4	N/A	2023/03/27	CAM SOP-00461	SM 23 4500-P E m
Sat. pH and Langelier Index (@ 20C)	1	N/A	2023/03/27		Auto Calc
Sat. pH and Langelier Index (@ 20C)	3	N/A	2023/03/28		Auto Calc
Sat. pH and Langelier Index (@ 4C)	1	N/A	2023/03/27		Auto Calc
Sat. pH and Langelier Index (@ 4C)	3	N/A	2023/03/28		Auto Calc
Sulphate by Automated Turbidimetry	4	N/A	2023/03/27	CAM SOP-00464	SM 23 4500-SO42- E m
Total Dissolved Solids (TDS calc)	1	N/A	2023/03/27		Auto Calc
Total Dissolved Solids (TDS calc)	3	N/A	2023/03/28		Auto Calc

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in

Your Project #: 121624777.200.1
Your C.O.C. #: 922413-01-01

Attention: Stephen DiBiase

Stantec Consulting Ltd
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CANADA N2L 0A4

Report Date: 2023/03/29
Report #: R7566214
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C382753
Received: 2023/03/23, 16:46

writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.

Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) Dissolved Organic Carbon (DOC) present in the sample should be considered as non-purgeable DOC.
(2) Values for calculated parameters may not appear to add up due to rounding of raw data and significant figures.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:
Julie Clement, Technical Account Manager
Email: Julie.CLEMENT@bureauveritas.com
Phone# (613)868-6079

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This report has been generated and distributed using a secure automated process.
Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Rodney Major, General Manager responsible for Ontario Environmental laboratory operations.

RCAP - COMPREHENSIVE (WATER)

Bureau Veritas ID		VJG666		VJG667		VJG668		
Sampling Date		2023/03/22 11:45		2023/03/22 13:30		2023/03/22 17:06		
COC Number		922413-01-01		922413-01-01		922413-01-01		
	UNITS	MW33-23	RDL	MW31-23	RDL	MW9-23	RDL	QC Batch
Calculated Parameters								
Anion Sum	me/L	24.3	N/A	10.6	N/A	7.51	N/A	8570125
Bicarb. Alkalinity (calc. as CaCO3	mg/L	320	1.0	330	1.0	110	1.0	8568614
Calculated TDS	mg/L	1400	1.0	590	1.0	510	1.0	8569731
Carb. Alkalinity (calc. as CaCO3)	mg/L	<1.0	1.0	2.0	1.0	<1.0	1.0	8568614
Cation Sum	me/L	27.1	N/A	11.3	N/A	7.82	N/A	8570125
Hardness (CaCO3)	mg/L	800	1.0	500	1.0	300	1.0	8570323
Ion Balance (% Difference)	%	5.54	N/A	3.28	N/A	2.02	N/A	8570124
Langelier Index (@ 20C)	N/A	0.833		0.857		0.0440		8570127
Langelier Index (@ 4C)	N/A	0.589		0.609		-0.203		8570128
Saturation pH (@ 20C)	N/A	6.67		6.94		7.49		8570127
Saturation pH (@ 4C)	N/A	6.91		7.19		7.74		8570128
Inorganics								
Total Ammonia-N	mg/L	0.39	0.050	0.30	0.050	0.51	0.050	8572745
Conductivity	umho/cm	2600	1.0	950	1.0	740	1.0	8573597
Dissolved Organic Carbon	mg/L	1.5	0.40	2.5	0.40	7.8	0.40	8572021
Orthophosphate (P)	mg/L	<0.010	0.010	<0.010	0.010	<0.010	0.010	8572739
pH	pH	7.50		7.80		7.53		8573593
Dissolved Sulphate (SO4)	mg/L	44	1.0	120	1.0	100	1.0	8572710
Alkalinity (Total as CaCO3)	mg/L	330	1.0	340	1.0	120	1.0	8573584
Dissolved Chloride (Cl-)	mg/L	580	5.0	35	1.0	14	1.0	8572729
Nitrite (N)	mg/L	0.383	0.010	0.156	0.010	0.362	0.010	8572555
Nitrate (N)	mg/L	5.70	0.10	6.34	0.10	37.7	0.50	8572555
Nitrate + Nitrite (N)	mg/L	6.08	0.10	6.49	0.10	38.0	0.50	8572555
Metals								
Dissolved Aluminum (Al)	mg/L	<0.0049	0.0049	0.0067	0.0049	0.0064	0.0049	8574474
Dissolved Antimony (Sb)	mg/L	<0.00050	0.00050	0.00058	0.00050	<0.00050	0.00050	8574474
Dissolved Arsenic (As)	mg/L	<0.0010	0.0010	<0.0010	0.0010	<0.0010	0.0010	8574474
Dissolved Barium (Ba)	mg/L	0.12	0.0020	0.099	0.0020	0.038	0.0020	8574474
Dissolved Beryllium (Be)	mg/L	<0.00040	0.00040	<0.00040	0.00040	<0.00040	0.00040	8574474
Dissolved Boron (B)	mg/L	0.020	0.010	0.074	0.010	0.039	0.010	8574474
Dissolved Cadmium (Cd)	mg/L	<0.000090	0.000090	<0.000090	0.000090	<0.000090	0.000090	8574474

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

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RCAP - COMPREHENSIVE (WATER)

Bureau Veritas ID		VJG666		VJG667		VJG668		
Sampling Date		2023/03/22 11:45		2023/03/22 13:30		2023/03/22 17:06		
COC Number		922413-01-01		922413-01-01		922413-01-01		
	UNITS	MW33-23	RDL	MW31-23	RDL	MW9-23	RDL	QC Batch
Dissolved Calcium (Ca)	mg/L	260	0.20	100	0.20	83	0.20	8574474
Dissolved Chromium (Cr)	mg/L	<0.0050	0.0050	<0.0050	0.0050	0.0051	0.0050	8574474
Dissolved Cobalt (Co)	mg/L	<0.00050	0.00050	0.00053	0.00050	0.00079	0.00050	8574474
Dissolved Copper (Cu)	mg/L	0.0010	0.00090	0.0057	0.00090	0.0057	0.00090	8574474
Dissolved Iron (Fe)	mg/L	<0.10	0.10	<0.10	0.10	<0.10	0.10	8574474
Dissolved Lead (Pb)	mg/L	<0.00050	0.00050	<0.00050	0.00050	<0.00050	0.00050	8574474
Dissolved Magnesium (Mg)	mg/L	35	0.050	60	0.050	21	0.050	8574474
Dissolved Manganese (Mn)	mg/L	0.11	0.0020	0.11	0.0020	0.10	0.0020	8574474
Dissolved Molybdenum (Mo)	mg/L	0.0017	0.00050	0.0072	0.00050	0.019	0.00050	8574474
Dissolved Nickel (Ni)	mg/L	0.0019	0.0010	0.0027	0.0010	0.0026	0.0010	8574474
Dissolved Phosphorus (P)	mg/L	<0.10	0.10	<0.10	0.10	<0.10	0.10	8574474
Dissolved Potassium (K)	mg/L	2.1	0.20	18	0.20	9.8	0.20	8574474
Dissolved Selenium (Se)	mg/L	<0.0020	0.0020	0.0039	0.0020	<0.0020	0.0020	8574474
Dissolved Silicon (Si)	mg/L	8.4	0.050	6.1	0.050	4.0	0.050	8574474
Dissolved Silver (Ag)	mg/L	<0.000090	0.000090	<0.000090	0.000090	<0.000090	0.000090	8574474
Dissolved Sodium (Na)	mg/L	250	0.10	17	0.10	38	0.10	8574474
Dissolved Strontium (Sr)	mg/L	0.58	0.0010	0.43	0.0010	0.17	0.0010	8574474
Dissolved Thallium (Tl)	mg/L	<0.000050	0.000050	<0.000050	0.000050	<0.000050	0.000050	8574474
Dissolved Titanium (Ti)	mg/L	<0.0050	0.0050	<0.0050	0.0050	<0.0050	0.0050	8574474
Dissolved Uranium (U)	mg/L	0.0036	0.00010	0.0068	0.00010	0.0044	0.00010	8574474
Dissolved Vanadium (V)	mg/L	<0.00050	0.00050	<0.00050	0.00050	<0.00050	0.00050	8574474
Dissolved Zinc (Zn)	mg/L	1.2	0.0050	0.31	0.0050	0.40	0.0050	8574474

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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RCAP - COMPREHENSIVE (WATER)

Bureau Veritas ID		VJG668			VJG669			VJG669		
Sampling Date		2023/03/22 17:06			2023/03/22 18:15			2023/03/22 18:15		
COC Number		922413-01-01			922413-01-01			922413-01-01		
	UNITS	MW9-23 Lab-Dup	RDL	QC Batch	MW18-23	RDL	QC Batch	MW18-23 Lab-Dup	RDL	QC Batch
Calculated Parameters										
Anion Sum	me/L				16.8	N/A	8570125			
Bicarb. Alkalinity (calc. as CaCO3	mg/L				290	1.0	8568614			
Calculated TDS	mg/L				1100	1.0	8569731			
Carb. Alkalinity (calc. as CaCO3)	mg/L				1.2	1.0	8568614			
Cation Sum	me/L				17.9	N/A	8570125			
Hardness (CaCO3)	mg/L				840	1.0	8570323			
Ion Balance (% Difference)	%				3.38	N/A	8570124			
Langelier Index (@ 20C)	N/A				0.856		8570127			
Langelier Index (@ 4C)	N/A				0.611		8570128			
Saturation pH (@ 20C)	N/A				6.78		8570127			
Saturation pH (@ 4C)	N/A				7.02		8570128			
Inorganics										
Total Ammonia-N	mg/L				<0.050	0.050	8572745	<0.050	0.050	8572745
Conductivity	umho/cm	740	1.0	8573597	1600	1.0	8573597			
Dissolved Organic Carbon	mg/L				2.4	0.40	8572021			
Orthophosphate (P)	mg/L	<0.010	0.010	8572739	<0.010	0.010	8572739			
pH	pH	7.60		8573593	7.63		8573593			
Dissolved Sulphate (SO4)	mg/L	100	1.0	8572710	85	1.0	8572710			
Alkalinity (Total as CaCO3)	mg/L	110	1.0	8573584	290	1.0	8573584			
Dissolved Chloride (Cl-)	mg/L	14	1.0	8572729	120	1.0	8572729			
Nitrite (N)	mg/L				0.034	0.010	8572555			
Nitrate (N)	mg/L				78.3	1.0	8572555			
Nitrate + Nitrite (N)	mg/L				78.4	1.0	8572555			
Metals										
Dissolved Aluminum (Al)	mg/L				<0.0049	0.0049	8574474			
Dissolved Antimony (Sb)	mg/L				<0.00050	0.00050	8574474			
Dissolved Arsenic (As)	mg/L				<0.0010	0.0010	8574474			
Dissolved Barium (Ba)	mg/L				0.075	0.0020	8574474			
Dissolved Beryllium (Be)	mg/L				<0.00040	0.00040	8574474			
Dissolved Boron (B)	mg/L				0.013	0.010	8574474			

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate
N/A = Not Applicable

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RCAP - COMPREHENSIVE (WATER)

Bureau Veritas ID		VJG668			VJG669			VJG669		
Sampling Date		2023/03/22 17:06			2023/03/22 18:15			2023/03/22 18:15		
COC Number		922413-01-01			922413-01-01			922413-01-01		
	UNITS	MW9-23 Lab-Dup	RDL	QC Batch	MW18-23	RDL	QC Batch	MW18-23 Lab-Dup	RDL	QC Batch
Dissolved Cadmium (Cd)	mg/L				<0.000090	0.000090	8574474			
Dissolved Calcium (Ca)	mg/L				200	0.20	8574474			
Dissolved Chromium (Cr)	mg/L				<0.0050	0.0050	8574474			
Dissolved Cobalt (Co)	mg/L				0.0014	0.00050	8574474			
Dissolved Copper (Cu)	mg/L				<0.00090	0.00090	8574474			
Dissolved Iron (Fe)	mg/L				<0.10	0.10	8574474			
Dissolved Lead (Pb)	mg/L				<0.00050	0.00050	8574474			
Dissolved Magnesium (Mg)	mg/L				79	0.050	8574474			
Dissolved Manganese (Mn)	mg/L				0.12	0.0020	8574474			
Dissolved Molybdenum (Mo)	mg/L				0.0011	0.00050	8574474			
Dissolved Nickel (Ni)	mg/L				0.0072	0.0010	8574474			
Dissolved Phosphorus (P)	mg/L				<0.10	0.10	8574474			
Dissolved Potassium (K)	mg/L				3.2	0.20	8574474			
Dissolved Selenium (Se)	mg/L				<0.0020	0.0020	8574474			
Dissolved Silicon (Si)	mg/L				6.0	0.050	8574474			
Dissolved Silver (Ag)	mg/L				<0.000090	0.000090	8574474			
Dissolved Sodium (Na)	mg/L				25	0.10	8574474			
Dissolved Strontium (Sr)	mg/L				0.62	0.0010	8574474			
Dissolved Thallium (Tl)	mg/L				<0.000050	0.000050	8574474			
Dissolved Titanium (Ti)	mg/L				<0.0050	0.0050	8574474			
Dissolved Uranium (U)	mg/L				0.0034	0.00010	8574474			
Dissolved Vanadium (V)	mg/L				<0.00050	0.00050	8574474			
Dissolved Zinc (Zn)	mg/L				<0.0050	0.0050	8574474			

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate

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TEST SUMMARY

Bureau Veritas ID: VJG666
Sample ID: MW33-23
Matrix: Water

Collected: 2023/03/22
Shipped:
Received: 2023/03/23

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	8573584	N/A	2023/03/27	Kien Tran
Carbonate, Bicarbonate and Hydroxide	CALC	8568614	N/A	2023/03/28	Automated Statchk
Chloride by Automated Colourimetry	KONE	8572729	N/A	2023/03/27	Massarat Jan
Conductivity	AT	8573597	N/A	2023/03/27	Kien Tran
Dissolved Organic Carbon (DOC)	TOCV/NDIR	8572021	N/A	2023/03/24	Gyulshen Idriz
Hardness (calculated as CaCO3)		8570323	N/A	2023/03/27	Automated Statchk
Dissolved Metals by ICPMS	ICP/MS	8574474	N/A	2023/03/27	Nan Raykha
Ion Balance (% Difference)	CALC	8570124	N/A	2023/03/28	Automated Statchk
Anion and Cation Sum	CALC	8570125	N/A	2023/03/28	Automated Statchk
Total Ammonia-N	LACH/NH4	8572745	N/A	2023/03/27	Shivani Shivani
Nitrate & Nitrite as Nitrogen in Water	LACH	8572555	N/A	2023/03/28	Chandra Nandlal
pH	AT	8573593	2023/03/25	2023/03/27	Kien Tran
Orthophosphate	KONE	8572739	N/A	2023/03/27	Massarat Jan
Sat. pH and Langelier Index (@ 20C)	CALC	8570127	N/A	2023/03/28	Automated Statchk
Sat. pH and Langelier Index (@ 4C)	CALC	8570128	N/A	2023/03/28	Automated Statchk
Sulphate by Automated Turbidimetry	KONE	8572710	N/A	2023/03/27	Alina Dobreanu
Total Dissolved Solids (TDS calc)	CALC	8569731	N/A	2023/03/28	Automated Statchk

Bureau Veritas ID: VJG667
Sample ID: MW31-23
Matrix: Water

Collected: 2023/03/22
Shipped:
Received: 2023/03/23

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	8573584	N/A	2023/03/27	Kien Tran
Carbonate, Bicarbonate and Hydroxide	CALC	8568614	N/A	2023/03/28	Automated Statchk
Chloride by Automated Colourimetry	KONE	8572729	N/A	2023/03/27	Massarat Jan
Conductivity	AT	8573597	N/A	2023/03/27	Kien Tran
Dissolved Organic Carbon (DOC)	TOCV/NDIR	8572021	N/A	2023/03/24	Gyulshen Idriz
Hardness (calculated as CaCO3)		8570323	N/A	2023/03/27	Automated Statchk
Dissolved Metals by ICPMS	ICP/MS	8574474	N/A	2023/03/27	Nan Raykha
Ion Balance (% Difference)	CALC	8570124	N/A	2023/03/28	Automated Statchk
Anion and Cation Sum	CALC	8570125	N/A	2023/03/28	Automated Statchk
Total Ammonia-N	LACH/NH4	8572745	N/A	2023/03/27	Shivani Shivani
Nitrate & Nitrite as Nitrogen in Water	LACH	8572555	N/A	2023/03/28	Chandra Nandlal
pH	AT	8573593	2023/03/25	2023/03/27	Kien Tran
Orthophosphate	KONE	8572739	N/A	2023/03/27	Massarat Jan
Sat. pH and Langelier Index (@ 20C)	CALC	8570127	N/A	2023/03/28	Automated Statchk
Sat. pH and Langelier Index (@ 4C)	CALC	8570128	N/A	2023/03/28	Automated Statchk
Sulphate by Automated Turbidimetry	KONE	8572710	N/A	2023/03/27	Alina Dobreanu
Total Dissolved Solids (TDS calc)	CALC	8569731	N/A	2023/03/28	Automated Statchk

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Bureau Veritas Job #: C382753
Report Date: 2023/03/29

Stantec Consulting Ltd
Client Project #: 121624777.200.1
Sampler Initials: SH

TEST SUMMARY

Bureau Veritas ID: VJG668
Sample ID: MW9-23
Matrix: Water

Collected: 2023/03/22
Shipped:
Received: 2023/03/23

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	8573584	N/A	2023/03/27	Kien Tran
Carbonate, Bicarbonate and Hydroxide	CALC	8568614	N/A	2023/03/27	Automated Statchk
Chloride by Automated Colourimetry	KONE	8572729	N/A	2023/03/27	Massarat Jan
Conductivity	AT	8573597	N/A	2023/03/27	Kien Tran
Dissolved Organic Carbon (DOC)	TOCV/NDIR	8572021	N/A	2023/03/24	Gyulshen Idriz
Hardness (calculated as CaCO3)		8570323	N/A	2023/03/27	Automated Statchk
Dissolved Metals by ICPMS	ICP/MS	8574474	N/A	2023/03/27	Nan Raykha
Ion Balance (% Difference)	CALC	8570124	N/A	2023/03/27	Automated Statchk
Anion and Cation Sum	CALC	8570125	N/A	2023/03/27	Automated Statchk
Total Ammonia-N	LACH/NH4	8572745	N/A	2023/03/27	Shivani Shivani
Nitrate & Nitrite as Nitrogen in Water	LACH	8572555	N/A	2023/03/28	Chandra Nandlal
pH	AT	8573593	2023/03/25	2023/03/27	Kien Tran
Orthophosphate	KONE	8572739	N/A	2023/03/27	Massarat Jan
Sat. pH and Langelier Index (@ 20C)	CALC	8570127	N/A	2023/03/27	Automated Statchk
Sat. pH and Langelier Index (@ 4C)	CALC	8570128	N/A	2023/03/27	Automated Statchk
Sulphate by Automated Turbidimetry	KONE	8572710	N/A	2023/03/27	Alina Dobreanu
Total Dissolved Solids (TDS calc)	CALC	8569731	N/A	2023/03/27	Automated Statchk

Bureau Veritas ID: VJG668 Dup
Sample ID: MW9-23
Matrix: Water

Collected: 2023/03/22
Shipped:
Received: 2023/03/23

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	8573584	N/A	2023/03/27	Kien Tran
Chloride by Automated Colourimetry	KONE	8572729	N/A	2023/03/27	Massarat Jan
Conductivity	AT	8573597	N/A	2023/03/27	Kien Tran
pH	AT	8573593	2023/03/25	2023/03/27	Kien Tran
Orthophosphate	KONE	8572739	N/A	2023/03/27	Massarat Jan
Sulphate by Automated Turbidimetry	KONE	8572710	N/A	2023/03/27	Alina Dobreanu

Bureau Veritas ID: VJG669
Sample ID: MW18-23
Matrix: Water

Collected: 2023/03/22
Shipped:
Received: 2023/03/23

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	8573584	N/A	2023/03/27	Kien Tran
Carbonate, Bicarbonate and Hydroxide	CALC	8568614	N/A	2023/03/28	Automated Statchk
Chloride by Automated Colourimetry	KONE	8572729	N/A	2023/03/27	Massarat Jan
Conductivity	AT	8573597	N/A	2023/03/27	Kien Tran
Dissolved Organic Carbon (DOC)	TOCV/NDIR	8572021	N/A	2023/03/24	Gyulshen Idriz
Hardness (calculated as CaCO3)		8570323	N/A	2023/03/27	Automated Statchk
Dissolved Metals by ICPMS	ICP/MS	8574474	N/A	2023/03/27	Nan Raykha
Ion Balance (% Difference)	CALC	8570124	N/A	2023/03/28	Automated Statchk
Anion and Cation Sum	CALC	8570125	N/A	2023/03/28	Automated Statchk
Total Ammonia-N	LACH/NH4	8572745	N/A	2023/03/27	Shivani Shivani

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Bureau Veritas Job #: C382753
Report Date: 2023/03/29

Stantec Consulting Ltd
Client Project #: 121624777.200.1
Sampler Initials: SH

TEST SUMMARY

Bureau Veritas ID: VJG669
Sample ID: MW18-23
Matrix: Water

Collected: 2023/03/22
Shipped:
Received: 2023/03/23

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Nitrate & Nitrite as Nitrogen in Water	LACH	8572555	N/A	2023/03/28	Chandra Nandlal
pH	AT	8573593	2023/03/25	2023/03/27	Kien Tran
Orthophosphate	KONE	8572739	N/A	2023/03/27	Massarat Jan
Sat. pH and Langelier Index (@ 20C)	CALC	8570127	N/A	2023/03/28	Automated Statchk
Sat. pH and Langelier Index (@ 4C)	CALC	8570128	N/A	2023/03/28	Automated Statchk
Sulphate by Automated Turbidimetry	KONE	8572710	N/A	2023/03/27	Alina Dobreanu
Total Dissolved Solids (TDS calc)	CALC	8569731	N/A	2023/03/28	Automated Statchk

Bureau Veritas ID: VJG669 Dup
Sample ID: MW18-23
Matrix: Water

Collected: 2023/03/22
Shipped:
Received: 2023/03/23

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Total Ammonia-N	LACH/NH4	8572745	N/A	2023/03/27	Shivani Shivani

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GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	4.3°C

Results relate only to the items tested.

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Bureau Veritas Job #: C382753
Report Date: 2023/03/29

QUALITY ASSURANCE REPORT

Stantec Consulting Ltd
Client Project #: 121624777.200.1
Sampler Initials: SH

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8572021	Dissolved Organic Carbon	2023/03/24	95	80 - 120	97	80 - 120	<0.40	mg/L	9.8	20
8572555	Nitrate (N)	2023/03/28	96	80 - 120	100	80 - 120	<0.10	mg/L	NC	20
8572555	Nitrite (N)	2023/03/28	102	80 - 120	107	80 - 120	<0.010	mg/L	NC	20
8572710	Dissolved Sulphate (SO4)	2023/03/27	NC	75 - 125	93	80 - 120	<1.0	mg/L	0.52	20
8572729	Dissolved Chloride (Cl-)	2023/03/27	95	80 - 120	95	80 - 120	<1.0	mg/L	0.33	20
8572739	Orthophosphate (P)	2023/03/27	97	75 - 125	96	80 - 120	<0.010	mg/L	NC	20
8572745	Total Ammonia-N	2023/03/27	99	75 - 125	102	80 - 120	<0.050	mg/L	NC	20
8573584	Alkalinity (Total as CaCO3)	2023/03/27			98	85 - 115	<1.0	mg/L	3.4	20
8573593	pH	2023/03/27			102	98 - 103			0.92	N/A
8573597	Conductivity	2023/03/27			101	85 - 115	<1.0	umho/cm	0.67	25
8574474	Dissolved Aluminum (Al)	2023/03/27	111	80 - 120	99	80 - 120	<0.0049	mg/L	3.2	20
8574474	Dissolved Antimony (Sb)	2023/03/27	113	80 - 120	105	80 - 120	<0.00050	mg/L	NC	20
8574474	Dissolved Arsenic (As)	2023/03/27	109	80 - 120	101	80 - 120	<0.0010	mg/L	NC	20
8574474	Dissolved Barium (Ba)	2023/03/27	109	80 - 120	101	80 - 120	<0.0020	mg/L	3.3	20
8574474	Dissolved Beryllium (Be)	2023/03/27	106	80 - 120	103	80 - 120	<0.00040	mg/L	NC	20
8574474	Dissolved Boron (B)	2023/03/27	105	80 - 120	99	80 - 120	<0.010	mg/L	NC	20
8574474	Dissolved Cadmium (Cd)	2023/03/27	108	80 - 120	101	80 - 120	<0.000090	mg/L	NC	20
8574474	Dissolved Calcium (Ca)	2023/03/27	108	80 - 120	100	80 - 120	<0.20	mg/L	0.74	20
8574474	Dissolved Chromium (Cr)	2023/03/27	104	80 - 120	96	80 - 120	<0.0050	mg/L	NC	20
8574474	Dissolved Cobalt (Co)	2023/03/27	106	80 - 120	98	80 - 120	<0.00050	mg/L	0.97	20
8574474	Dissolved Copper (Cu)	2023/03/27	111	80 - 120	103	80 - 120	<0.00090	mg/L	3.6	20
8574474	Dissolved Iron (Fe)	2023/03/27	109	80 - 120	100	80 - 120	<0.10	mg/L	2.5	20
8574474	Dissolved Lead (Pb)	2023/03/27	106	80 - 120	100	80 - 120	<0.00050	mg/L	NC	20
8574474	Dissolved Magnesium (Mg)	2023/03/27	107	80 - 120	98	80 - 120	<0.050	mg/L	0.76	20
8574474	Dissolved Manganese (Mn)	2023/03/27	105	80 - 120	98	80 - 120	<0.0020	mg/L	2.8	20
8574474	Dissolved Molybdenum (Mo)	2023/03/27	114	80 - 120	105	80 - 120	<0.00050	mg/L	1.2	20
8574474	Dissolved Nickel (Ni)	2023/03/27	105	80 - 120	97	80 - 120	<0.0010	mg/L	0.46	20
8574474	Dissolved Phosphorus (P)	2023/03/27	113	80 - 120	108	80 - 120	<0.10	mg/L	NC	20
8574474	Dissolved Potassium (K)	2023/03/27	111	80 - 120	102	80 - 120	<0.20	mg/L	2.5	20
8574474	Dissolved Selenium (Se)	2023/03/27	112	80 - 120	101	80 - 120	<0.0020	mg/L	NC	20
8574474	Dissolved Silicon (Si)	2023/03/27	109	80 - 120	99	80 - 120	<0.050	mg/L	0.28	20

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QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8574474	Dissolved Silver (Ag)	2023/03/27	111	80 - 120	105	80 - 120	<0.000090	mg/L	NC	20
8574474	Dissolved Sodium (Na)	2023/03/27	107	80 - 120	99	80 - 120	<0.10	mg/L	0.28	20
8574474	Dissolved Strontium (Sr)	2023/03/27	105	80 - 120	99	80 - 120	<0.0010	mg/L	1.8	20
8574474	Dissolved Thallium (Tl)	2023/03/27	109	80 - 120	103	80 - 120	<0.000050	mg/L	NC	20
8574474	Dissolved Titanium (Ti)	2023/03/27	108	80 - 120	101	80 - 120	<0.0050	mg/L	NC	20
8574474	Dissolved Uranium (U)	2023/03/27	106	80 - 120	100	80 - 120	<0.00010	mg/L	2.1	20
8574474	Dissolved Vanadium (V)	2023/03/27	106	80 - 120	98	80 - 120	<0.00050	mg/L	NC	20
8574474	Dissolved Zinc (Zn)	2023/03/27	107	80 - 120	99	80 - 120	<0.0050	mg/L	5.2	20

N/A = Not Applicable

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

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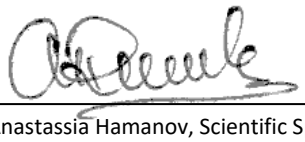
VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:



Anastassia Hamanov, Scientific Specialist

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by {0}, {1} responsible for {2} {3} laboratory operations.

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STAI 23-Mar-23 16:46

Julie Clement

C382753

Page of

Only:

Bottle Order #: 922413

COC #: C#922413-01-01

Project Manager: Julie Clement

INVOICE INFORMATION:		REPORT INFORMATION(if differs from invoice):		PROJECT INFORMATION:	
Company Name:	#9197 Stantec Consulting Ltd	Company Name:		Quotation #:	C15856
Contact Name:	Accounts Payable	Contact Name:	Stephen DiBiase	Task #:	
Address:	300 Hagey Blvd Suite 100	Address:		Project #:	121624777.200.1
	Waterloo ON N2L 0A4			Profit Centre:	
Phone:	(519) 579-4410 Fax: (519) 579-6733	Phone:	Fax:	Site #:	
Email:	SAPinvoices@Stantec.com	Email:	stephen.dibiase@stantec.com	Sampled By:	SH

MOE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE BUREAU VERITAS DRINKING WATER CHAIN OF CUSTODY

Regulation 153 (2011)
- ☐ Table 1 ☐ Res/Park ☐ Medium/Fine
- ☐ Table 2 ☐ Ind/Comm ☐ Coarse
- ☐ Table 3 ☐ Agri/Other ☐ For RSC
- ☐ Table ___

Other Regulations
- ☐ CCME ☐ Sanitary Sewer Bylaw
- ☐ Reg 558 ☐ Storm Sewer Bylaw
- ☐ MISA Municipality ___
- ☐ PWQO ☐ Reg 406 Table ___
- ☐ Other ___

Special Instructions

Include Criteria on Certificate of Analysis (Y/N)? ___

Field Filtered (please circle): Metals / Hg / Cr VI

ANALYSIS REQUESTED (PLEASE BE SPECIFIC)

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	RCAp - Comprehensive	# of Bottles	Comments
1		MW33-23	March 22/23	1145	GW	X	4	
2		MW31-23	"	1330	GW	X	4	
3		MW9-23	"	1705	GW	X	4	
4		MW18-23	"	1815	GW	X	4	
5								
6								
7								
8								
9								
10								

Turnaround Time (TAT) Required:
Please provide advance notice for rush projects

Regular (Standard) TAT: X
(will be applied if Rush TAT is not specified):
Standard TAT = 5-7 Working days for most tests.
Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

Job Specific Rush TAT (if applies to entire submission)
Date Required: ___ Time Required: ___ ☐
Rush Confirmation Number: ___ *(call lab for #)*

* RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	# jars used and not submitted
[illegible]/Scott Hutchison	23/03/23	1645	2 M TRINH	2023/03/23	16:46	

Laboratory Use Only

Time Sensitive	Temperature (°C) on Recei	Custody Seal	Yes	No
	5 / 4 / 4	Present		
		Intact	✓	

* UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO BUREAU VERITAS'S STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE AVAILABLE FOR VIEWING AT WWW.BVNA.COM/ENVIRONMENTAL-LABORATORIES/RESOURCES/COC-TERMS-AND-CONDITIONS.

* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

** SAMPLE CONTAINER, PRESERVATION, HOLD TIME AND PACKAGE INFORMATION CAN BE VIEWED AT WWW.BVNA.COM/ENVIRONMENTAL-LABORATORIES/RESOURCES/CHAIN-CUSTODY-FORMS-COCS.

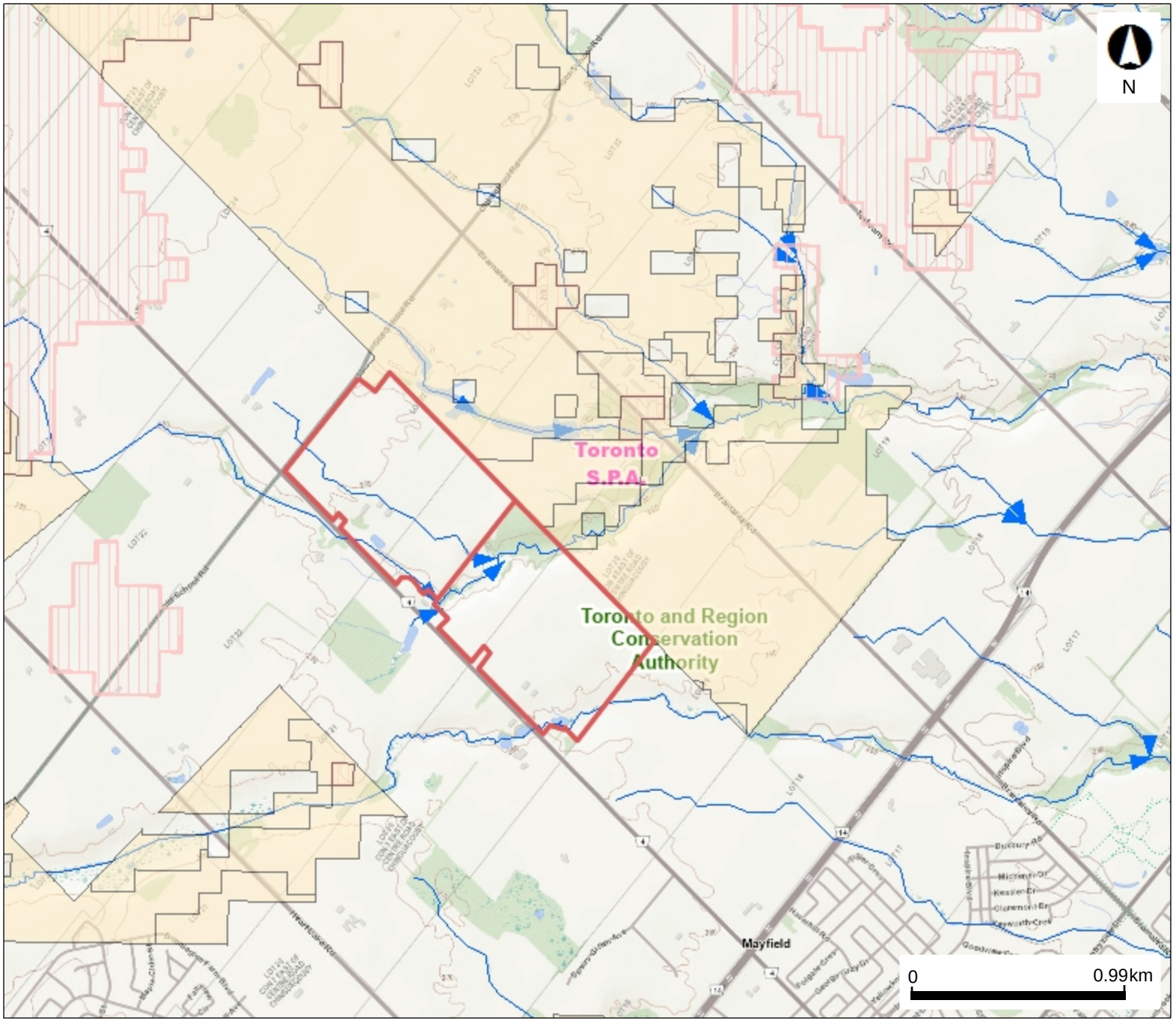
SAMPLES MUST BE KEPT COOL (< 10° C) FROM TIME OF SAMPLING UNTIL DELIVERY TO BUREAU VERITAS

White: Bureau Veritas Yellow: Client

Bureau Veritas Canada (2019) Inc.

Appendix F Source Protection Mapping

Hydrogeological Assessment - 12489 & 12861 Dixie Road



Legend

- Intake Protection Zone Q
- Wellhead Protection Area Q1
- Wellhead Protection Area Q2
- Significant Groundwater Recharge Area
  - N/A
  - 0
  - 2
  - 4
  - 6
- Issue Contributing Areas
- Highly Vulnerable Aquifers
- WHPA-E
- Wellhead Protection Area
  - A
  - B
  - C
  - C1
  - D
  - F
- Intake Protection Zone 1
- Event Based Areas
- Intake Protection Zone 2
- Intake Protection Zone 3
- Watercourse Direction
- Source Protection Areas
- Conservation Authority
- Assessment Parcel

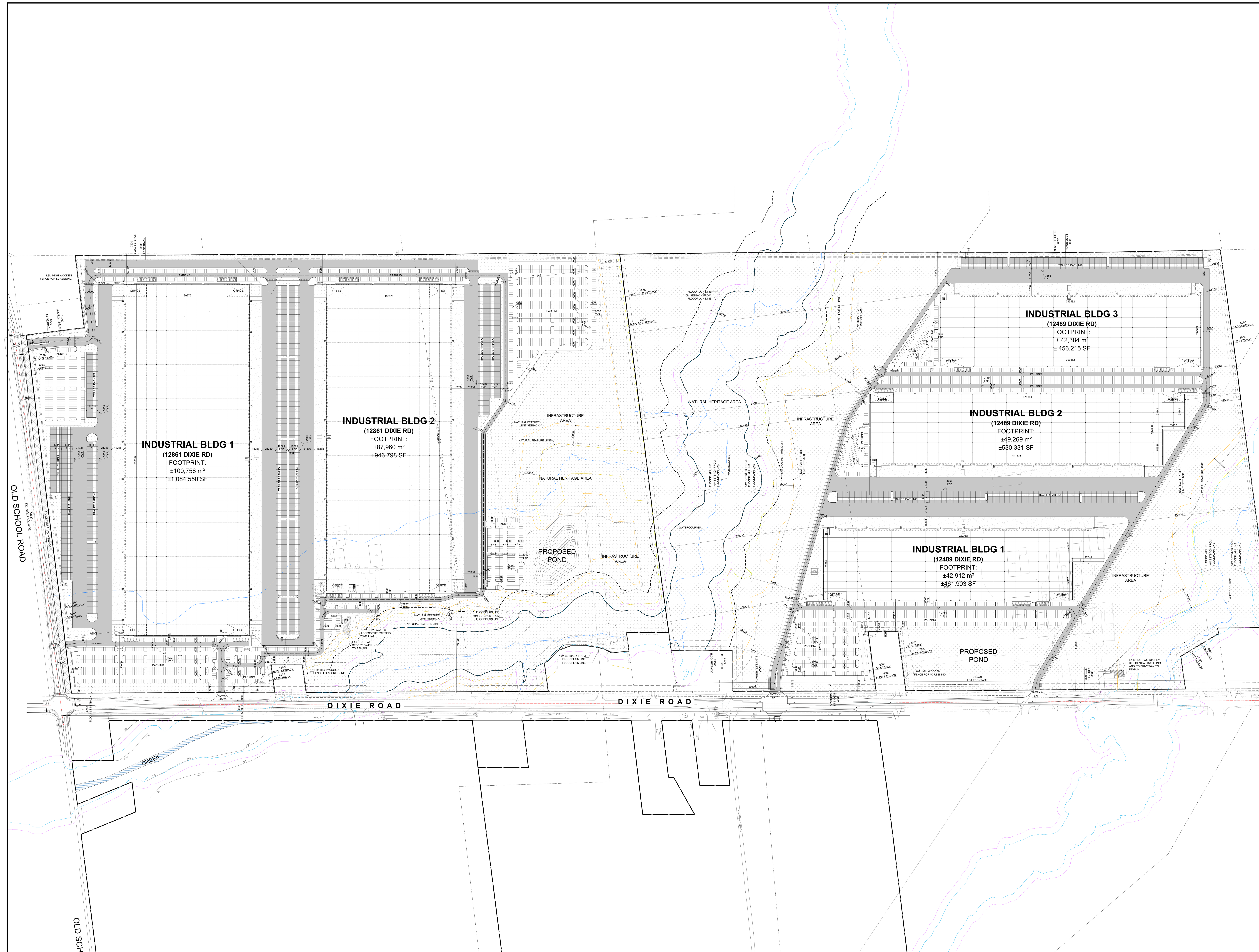
This map should not be relied on as a precise indicator of routes or locations, nor as a guide to navigation. The Ontario Ministry of Environment, Conservation and Parks (MECP) shall not be liable in any way for the use or any information on this map. of, or reliance upon, this map.

Ontario

Map Created: 11/27/2024
Map Center: 43.78066 N, -79.80174 W

Appendix G Site Design Plan

CAUTION: IF THIS SHEET IS NOT 36"x48" IT IS A REDUCED PRINT



OVERALL SITE PLAN

SITE STATISTICS - 12861 DIXIE ROAD		
Existing Zoning Category	*A1*	
Proposed Zoning Category	*MP*	
Building Classification	*Group F2 (O.B.C. A- 3.1.2.1.(1))*	
NET DEVELOPABLE AREA	4,899,303 SF	455,160.62m²
GROSS SITE AREA	6,271,978 SF	582,686.42m²
Zone Permitted Use *(Town of Caledon Zoning By-law 2006-50)*		
Proposed Use	*Industrial*	
Section 8.3 - Zoning Standards - MP Zone		
BUILDING AREA:		
BUILDING 1 (12861 DIXIE RD)	**1,084,549 SF**	**100,757.96 m²**
Warehouse Area	*1,058,648 SF*	*98,351.68 m²*
Office Area	*25,901 SF*	*2,406.27 m²*
BUILDING 2 (12861 DIXIE RD)	**946,797 SF**	**87,960.42 m²**
Warehouse Area	*920,229 SF*	*85,492.13 m²*
Office Area	*26,568 SF*	*2,468.29 m²*
TOTAL BUILDING AREA	**2,031,346 SF**	**188,718.37 m²**
NET FLOOR AREA:		
BUILDING 1 (12861 DIXIE RD)	**1,083,400 SF**	**100,651.28 m²**
Floor Area	*1,084,549 SF*	*100,757.96 m²*
Building Area under services, M&E rooms etc.	*1,148 SF*	*106.68 m²*
BUILDING 2 (12861 DIXIE RD)	**945,731 SF**	**87,861.36 m²**
Floor Area	*946,797 SF*	*87,960.42 m²*
Building Area under services, M&E rooms etc.	*1,066 SF*	*99.06 m²*
TOTAL NET AREA	**2,029,131 SF**	**188,512.63 m²**
Requirements	**Proposed**	**Required**
Min. Lot Area	582,686.42m²	925.00m²
Net Floor Area	188,512.63m²	-
Gross Floor Area	188,718.37m²	-
Building Area	32.39%	50.00%
Min. Lot Frontage (m)	91.81	30.00
Min. Front Yard Building Setback (m)	86.00	9.00
Min. Ext.Side Yard Building Set back (m)	89.38	7.50
Min. Int.Side Yard Building Set back (m)	257.24	6.00
Min. Int. Side Yard Building Set back (m) - Abutting Residential	54.99	15.00
Min. Rear Yard Building Setback (m)	44.11	7.50
Lot Coverage	32.39%	50.00%
Maximum Building Height (m) - BUILDING 1 (12861 DIXIE RD)	16.01	18.00
Maximum Building Height (m) - BUILDING 2 (12861 DIXIE RD)	16.01	18.00
Min. Landscape Area (% of Lot Area)	30.59%	10.00%
Min. Landscape Area (SM)	*178,257.16m²*	*58,268.64m²*
Min. Front Landscape Buffer (m)	14.16	9.00
Min. Ext. Side Landscape Buffer (m)	6.15	6.00
Min. Int. Side Landscape Buffer (m)	6.00	6.00
Min. Rear Landscape Buffer (m)	6.16	6.00
Min. Landscape Buffer (m) - Abutting EPA > 6m width	37.29	-
Parking Calculations	**Proposed**	**Required**
BUILDING 1 (12861 DIXIE RD)		
@139 + 1/170m² of Net Floor Area over 10,000 m²	910	672
BUILDING 2 (12861 DIXIE RD)		
@139 + 1/170m² of Net Floor Area over 10,000 m²	1062	597
Total no. of Parking Spaces	**1972**	**1269**
(Including Accessible Parking Spaces)		
Accessible Parking Spaces		
@201 to 1000 parking spaces is 2 plus 2% of total spaces *@More than 1000 parking spaces is 11 plus 1% of total spaces*		
BUILDING 1 (12861 DIXIE RD)		
	22	15
BUILDING 2 (12861 DIXIE RD)		
	22	14
Total no. of Accessible Parking Spaces	**44** *22 Type - A* *22 Type - B*	**29** *14 Type - A* *15 Type - B*
EV Parking Spaces	*24*	-
Parking Stall Dimensions	*Aisle* *ACCESSIBLE: TYPE A - 3.4m X 5.4m* *TYPE B - 2.75m X 5.4m* *w/ 1.5m access aisle on either side*	
Proposed Trailer Parking	**Proposed**	**Required**
BUILDING 1 (12861 DIXIE RD)	300	-
BUILDING 2 (12861 DIXIE RD)	241	-
Total no. of Trailer Parking Spaces	**541**	**-**
Loading Space Calculations	**Proposed**	**Required**
BUILDING 1 (12861 DIXIE RD)	211	13
BUILDING 2 (12861 DIXIE RD)	183	12
@3 + 1 per 9300 m² in excess of 7441 m² of Net Floor Area		
Total no. of Loading Spaces	**394**	**25**
Min. Loading Space Dimensions	*3.5m(W) X 14.0m(L) X 3.35m(H)*	

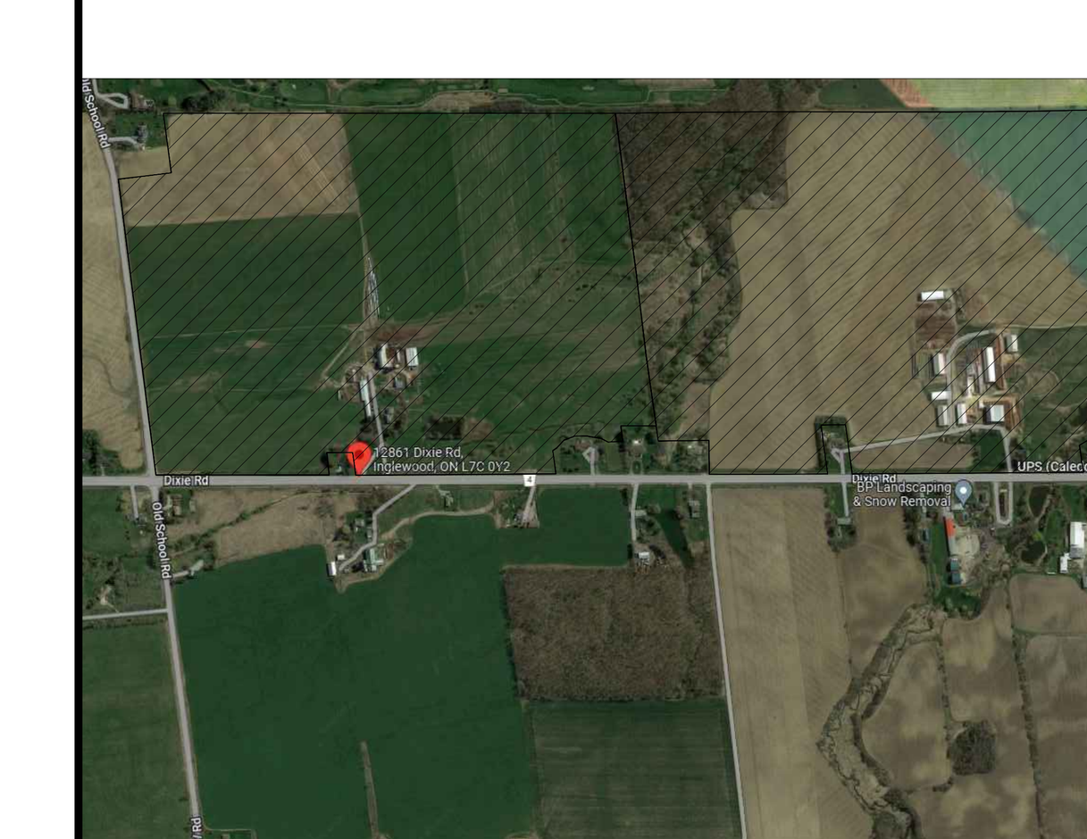
SITE STATISTICS - 12489 DIXIE ROAD		
Existing Zoning Category	*A1*	
Proposed Zoning Category	*MP*	
Building Classification	*Group F2 (O.B.C. A- 3.1.2.1.(1))*	
NET DEVELOPABLE AREA	3,445,017 SF	320,052.83m²
GROSS SITE AREA	6,257,235 SF	581,316.71m²
Zone Permitted Use *(Town of Caledon Zoning By-law 2006-50)*		
Proposed Use	*Industrial*	
Section 8.3 - Zoning Standards - MP Zone		
BUILDING AREA:		
BUILDING 1 (12489 DIXIE RD)	**461,902 SF**	**42,912.18 m²**
Warehouse Area	*452,438 SF*	*42,032.94 m²*
Office Area	*9,464 SF*	*879.24 m²*
BUILDING 2 (12489 DIXIE RD)	**530,331 SF**	**49,269.39 m²**
Warehouse Area	*520,992 SF*	*48,401.76 m²*
Office Area	*9,339 SF*	*867.64 m²*
BUILDING 3 (12489 DIXIE RD)	**456,214 SF**	**42,383.74 m²**
Warehouse Area	*446,750 SF*	*41,504.50 m²*
Office Area	*9,464 SF*	*879.24 m²*
TOTAL BUILDING AREA	**1,448,447.62 m²**	**134,565.32 m²**
NET FLOOR AREA:		
BUILDING 1 (12489 DIXIE RD)	**460,852 SF**	**42,814.63 m²**
Floor Area	*461,902 SF*	*42,912.18 m²*
Building Area under services, M&E rooms etc.	*1,050 SF*	*97.55 m²*
BUILDING 2 (12489 DIXIE RD)	**529,281 SF**	**49,171.85 m²**
Floor Area	*530,331 SF*	*49,269.39 m²*
Building Area under services, M&E rooms etc.	*1,050 SF*	*97.55 m²*
BUILDING 3 (12489 DIXIE RD)	**455,164 SF**	**42,286.19 m²**
Floor Area	*456,214 SF*	*42,383.74 m²*
Building Area under services, M&E rooms etc.	*1,050 SF*	*97.55 m²*
TOTAL NET AREA	**1,445,297.62 m²**	**134,272.67 m²**
Requirements	**Proposed**	**Required**
Min. Lot Area	581,316.71m²	925.00m²
Net Floor Area	134,272.67m²	-
Gross Floor Area	134,565.32m²	-
Building Area	23.15%	50.00%
Min. Lot Frontage (m)	910.58	30.00
Min. Front Yard Building Setback (m)	135.55	9.00
Min. Int.Side (N) Yard Building Set back (m)	238.30	6.00
Min. Int.Side (S) Yard Building Set back (m)	38.77	6.00
Min. Int. Side Yard Building Set back (m) - Abutting Residential	47.23	15.00
Min. Rear Yard Building Setback (m)	63.96	7.50
Lot Coverage	23.15%	50.00%
Maximum Building Height (m) - BUILDING 1 (12489 DIXIE RD)	14.50	18.00
Maximum Building Height (m) - BUILDING 2 (12489 DIXIE RD)	14.50	18.00
Min. Landscape Area (% of Lot Area)	54.57%	10.00%
Min. Landscape Area (SM)	*317,244.45m²*	*58,131.67m²*
Min. Front Landscape Buffer (m)	23.43	9.00
Min. Int. (N) Side Landscape Buffer (m)	64.55	6.00
Min. Int. (S) Side Landscape Buffer (m)	20.33	3.00
Min. Rear Landscape Buffer (m)	7.49	6.00
Min. Landscape Buffer (m) - Abutting EPA > 6m width	61.45	-
Parking Calculations	**Proposed**	**Required**
BUILDING 1 (12489 DIXIE RD)		
@139 + 1/170m² of Net Floor Area over 10,000 m²	795	333
BUILDING 2 (12489 DIXIE RD)		
@139 + 1/170m² of Net Floor Area over 10,000 m²	413	370
BUILDING 3 (12489 DIXIE RD)		
@139 + 1/170m² of Net Floor Area over 10,000 m²	398	329
Total no. of Parking Spaces	**1606**	**1032**
(Including Accessible Parking Spaces)		
Accessible Parking Spaces		
@201 to 1000 parking spaces is 2 plus 2% of total spaces *@More than 1000 parking spaces is 11 plus 1% of total spaces*		
BUILDING 1 (12489 DIXIE RD)		
	18	9
BUILDING 2 (12489 DIXIE RD)		
	12	9
BUILDING 3 (12489 DIXIE RD)		
	10	9
Total no. of Accessible Parking Spaces	**40** *20 Type - A* *20 Type - B*	**27** *13 Type - A* *14 Type - B*
EV Parking Spaces	*24*	-
Parking Stall Dimensions	*Aisle* *ACCESSIBLE: TYPE A - 3.4m X 5.4m* *TYPE B - 2.75m X 5.4m* *w/ 1.5m access aisle on either side*	
Proposed Trailer Parking	**Proposed**	**Required**
BUILDING 1 (12489 DIXIE RD)	60	-
BUILDING 2 (12489 DIXIE RD)	61	-
BUILDING 3 (12489 DIXIE RD)	98	-
Total no. of Trailer Parking Spaces	**219**	**-**
Loading Space Calculations	**Proposed**	**Required**
BUILDING 1 (12489 DIXIE RD)	85	7
BUILDING 2 (12489 DIXIE RD)	87	7
BUILDING 3 (12489 DIXIE RD)	77	7
@3 + 1 per 9300 m² in excess of 7441 m² of Net Floor Area		
Total no. of Loading Spaces	**249**	**21**
Min. Loading Space Dimensions	*3.5m(W) X 14.0m(L) X 3.35m(H)*	

GENERAL NOTES

1 PROPERTY LINE
2 2750x6000 PARKING STALL, PAINTED PARKING STRIPING PER CITY STANDARDS. WITH 6M WIDE DOUBLE LOADED AISLE.
3 PRINCIPLE ENTRY – TENANT FIT-UP SUBJECT TO INTERIOR ALTERATION PERMIT
4 TYPICAL SHARED ACCESSIBLE PARKING STALLS, PAINTED PARKING STRIPING PER CITY STANDARDS. TO HAVE (2) TYPE B (2750x6000),(2) TYPE A STALLS (3400X6000),OR ONE OF EACH WITH 1500mm PATH STRIP BETWEEN – REFER TO TOWN OF CALEDON'S ACCESSIBLE PARKING STANDARDS.
5 150mm WIDE CURB TYPICAL
6 MIN. 1500mm WIDE SIDEWALK TYPICAL U.N.O
7 TRAILER PARKING STALL – 12'-0" X 55'-0"
8 ACCESSIBLE CURB RAMP AS PER DETAIL
9 FIRE DEPARTMENT CONNECTION / SIAMESE
10 PROPOSED LOCATION OF TRANSFORMER C/W CONCRETE PAD
11 1.8m HIGH BLACK VINYL CHAIN LINK FENCING OR APPROVED EQUAL ALONG DEVELOPMENT LIMIT BOUNDARY
12 CONCRETE APRON
13 LANDSCAPE AREA – SEE LANDSCAPE DWGS.
14 PEDESTRIAN RAIL (1070mm HIGH) SET INTO RETAINING WALL WHERE GRADE CHANGE GREATER THAN 600mm. PROVIDE CONCRETE-FILLED STEEL BOLLARD AT END OF RETAINING WALL – SEE CIVIL DWGS.
15 EXTERIOR STEEL STAIRS W/ TUBE STEEL GUARDRAIL, TYP.
16 TRUCK LOADING DOCK (TYPICAL)
17 LOADING SPACE – L.S. (MIN. 3.5m x 14.0m)
18 FIRE ACCESS ROUTE W/ 12M TURNING RADIUS (———)
19 PROPOSED ELECTRICAL ROOM
20 PROPOSED MECHANICAL ROOM
21 CURB RADII AT ENTRANCES WITHIN MUNICIPAL SIDEWALK LIMITS TO CONFORM TO OPSD 350.010. – SEE CIVIL DWGS.
22 1.8M WIDE PAINTED PEDESTRIAN PATHWAY
23 HATCHED AREA DENOTES HEAVY DUTY ASHPHALT. TYPICAL FOR ALL AREAS REQUIRING FIRE TRUCK OR TRACTOR TRUCK ACCESS.
24 15.0m CENTERLINE RADIUS DISTANCE TO FIRE ACCESS ROAD
25 ROAD CURB AND SIDEWALK TO BE CONTINUOUS THROUGH THE DRIVEWAY. DRIVEWAY GRADE TO BE COMPATIBLE WITH EXIST. SIDEWALK AND A CURB DEPRESSION WILL BE PROVIDED FOR AT EACH ENTRANCE.
26 INVERTED U-SHAPE GALVANIZED BICYCLE RACKS MIN. 1.8Mx0.6M PER SPACE
27 PROPOSED STOP SIGN LOCATION
28 PRESSED PATTERNED ASPHALT PEDESTRIAN PATHWAY
29 YELLOW PAINTED LINES
30 RETAINING WALL
31 PRECAST SCREEN WALL TO BE INSTALLED ON TOP OF RETAINING WALL – REFER TO STRUC. DWGS
32 PROPOSED FIRE ROUTE SIGN LOCATION
33 RESERVED
34 PROPOSED AMENITY AREA
35 SNOW STORAGE ON SITE AT 2% TOTAL SITE AREA
36 PROPOSED CHAIN-LINK FENCE
37 CONCRETE/STEEL SAFETY BOLLARD
38 SCREEN WALL
39 PROPOSED PYLON SIGNAGE
40 DRIVE-IN RAMP WITH GALVANIZED GUARDRAIL ON EACH SIDE. SEE CIVIL DWGS FOR SLOPE %
41 RESERVED
42 DETECTIBLE TACTILE WARNING SURFACE, CONFORMING TO 2012 O.B.C.
43 MIN. 3m WIDE CONCRETE DOLLY PAD AT TRAILER STALLS
44 ACCESSIBLE PARKING GRADE SLOPING UP TO MEET PROPOSED CURB LEVEL

SITE LEGEND

NEW HEAVY DUTY PAVEMENT (HATCHED)
LANDSCAPE AREA
DETECTIBLE TACTILE WARNING SURFACE, CONFORMING TO 2012 O.B.C.
FIRE ACCESS ROUTE WITH 12.5M TURNING RADIUS
TRUCK LOADING DOCK DOOR
KNOCK OUT PANEL
MAN DOOR ENTRY
EXIT DOOR LOCATION
FIRE DEPT CONNECTION (VERIFY LOCATION WITH CIVIL DRAWINGS)
FH PROPOSED FIRE HYDRANT (VERIFY LOCATION WITH CIVIL DRAWINGS)
FH EXISTING FIRE HYDRANT (VERIFY LOCATION WITH CIVIL DRAWINGS)
D.C. 1500mm WIDE DEPRESSED CURB FOR ACCESSIBLE PARKING AND PEDESTRIAN ACCESS – REFER TO DETAIL 4/A1.2
PROPOSED CATCHBASIN
MH DENOTES MANHOLE
WHP/HP EXISTING HYDRO POLE
CP PAINTED CARPOOL PARKING SPACE SYMBOL
BFPS BARRIER FREE PARKING SIGN
BFPSV BARRIER FREE PARKING SIGN WITH VAN TAB
DRIVE-IN DOOR
STOP NEW STOP SIGN
F.R. NEW FIRE ROUTE SIGN
GM GAS METER & PRESSURE REGULATING STATION BY GAS COMPANY
LIGHT FIXTURES, REFER ELECTRICAL DWG FOR DETAILS
LIGHT POLES, REFER ELECTRICAL DWG FOR DETAILS



VICINITY MAP

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ARCHITECTURE CIVIL ENGINEERING
PLANNING BRANDING
INTERIORS BUILDING MEASUREMENT

QUADREAL PROPERTY GROUP
TOWN OF CALEDON DIXIE ROAD
12489 & 12861 DIXIE ROAD
CALEDON, ONTARIO CANADA

OVERALL SITE PLAN

	DATE	REMARKS
1	2023-12-12	ISSUED FOR OPA/ZBA
2	2024-10-16	REISSUED FOR OPA/ZBA
3	2024-10-31	ISSUED FOR REVIEW
4	2024-11-26	ISSUED FOR COORDINATION

PA / PM:	SK
DRAWN BY:	JS
JOB NO.:	TOR22-0060-01

SHEET
A100