Guelph Innovation District (GID) Lands, Blocks 1 & 2

Hydrogeological Assessment

Project Location:
328 Victoria Road South and 588 Stone Road East
Guelph, ON

Prepared for:
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Contents

1.0 INTRODUCTION 1
1.1 Proposed Development 1
1.2 Previous Investigations 2
1.2.1 Turfgrass Institute Lands 2
1.2.2 Former Wellington Detention Centre Lands 3
2.0 SITE DESCRIPTION 5
2.1 Topography and Surface Water 5
2.2 Adjacent Land Use 6
2.3 Physiography 6
2.4 Quaternary Geology 6
2.5 Paleozoic Geology 7
2.6 Water Well Record Search 7
2.7 Geological Cross-Sections 7
3.0 SOURCE WATER PROTECTION 10
3.1 Municipal Wells and Well Head Protection Areas 10
3.2 Well Head Protection Area Vulnerability 10
3.3 Significant Groundwater Recharge Areas (SGRAs) 10
3.4 Source Protection Policies 10
4.0 FIELD PROGRAM 11
4.1 Borehole Advancement and Monitoring Well Installation 11
4.2 Monitoring Well Development and Sampling 11
4.3 In-Situ Hydraulic Conductivity Testing 12
4.3.1 Recovery Tests 12
4.3.2 Slug Tests 13
4.3.3 Analysis 13
4.3.4 Results Summary 14
4.4 Groundwater Levels and Elevations 14
4.5 Groundwater Flow 17
5.0 PRELIMINARY IMPACT ASSESSMENT 18
5.1 Groundwater Elevations 18
5.2 Waterproofing Measures 18
5.3 Water Balance 19
5.4 Groundwater Mounding 19

5.5 Thermal Mitigation 19
5.6 Construction Dewatering 20
5.7 Private Water Supply Wells 20
5.7.1 On-Site Water Supply Wells 20
5.7.2 Off-Site Water Supply Wells 20
5.8 Wetlands 21
5.8.1 On-Site Wetland 21
5.8.2 Off-Site Wetlands 21
5.9 Source Protection 21
6.0 SUMMARY AND CONCLUSIONS 23
7.0 RECOMMENDATIONS 24
8.0 LIMITATIONS 25
9.0 REFERENCES 26

Figures

Figure 1	Key Map
Figure 2	Site Layout and Features
Figure 3a	Past Land Uses
Figure 3b	Concept Plan
Figure 4a	Physiographic Regions
Figure 4b	Physiographic Landforms
Figure 5	Quaternary Geology
Figure 6	Paleozoic Geology
Figure 7	MECP Water Well Records
Figure 8a	Geological Cross-Section A-A’
Figure 8b	Geological Cross-Section B-B’
Figure 8c	Geological Cross-Section C-C’
Figure 8d	Geological Cross-Section D-D’
Figure 8e	Geological Cross-Section E-E’
Figure 9	Well Head Protection Area (WHPA)
Figure 10	Well Head Protection Area Vulnerability
Figure 11	Significant Groundwater Recharge Areas (SGRAs)
Figure 12a	Groundwater Elevations and Inferred Groundwater Flow Direction – April 24, 2023
Figure 12b	Groundwater Elevations and Inferred Groundwater Flow Direction – April 22, 2024

Tables

Table 1	MECP Well Record Summary
Table 2	General Lithological Summary – 2022 Drilling Program
Table 3	Groundwater Quality Results – 2022-2024
Table 4	Horizontal Hydraulic Conductivity (m/sec) Summary
Table 5a	Manual Groundwater Levels (mBTOC) – 2022-2025
Table 5b	Manual Groundwater Depths (mBGS) – 2022-2025
Table 5c	Manual Groundwater Elevations (mAMSL) – 2022-2025

Appendices

Appendix A	Borehole Logs
Appendix B	Aquifer Test Data Sheets
Appendix C	Hydrographs

1.0 INTRODUCTION

Fusion Homes (Fusion) retained MTE Consultants Inc. (MTE) to conduct a Hydrogeological Assessment to support Draft Plan Approval of the Guelph Innovation District (GID) Lands, Blocks 1 and 2 (hereby referred to as the 'Site'). The Site is formed from two contiguous properties located at 328 Victoria Road South and 588 Stone Road East in Guelph, ON. The Site location and Study Area are illustrated on **Figure 1**. The Study Area is defined as lands within 500 m of the overall Site boundary.

The Site is an irregular shaped parcel of land that covers an area of ~ 118 hectares (Ha) and is comprised of two legal properties:

- Former Wellington Detention Centre Lands (Detention Centre Lands):
  - 588 Stone Road East.
- Turfgrass Institute Lands (Turfgrass):
  - 328 Victoria Road South.

The Site identification information is presented below:

	328 Victoria Road South	588 Stone Road East
Property Identification Number (PIN)	712360125	712360118
Legal Description*	Pt Broken Front Lts 10, 11 & 12, Con 1 Division G Guelph Township Pts 1 To 13 And 16 To 19 Incl. 61r10430 Except Pts 1, 2, 4 & 7, 61r11036; Guelph; T/w Ros651254, S/t Easement Over Pts 3 & 4, 61r10430 As In Ros390891; S/t Easement Over Pts 9, 10 & 11, 61r10430 As In Wc166385; T/w Over Pt 20, 61r10430 As In Wc166386	Pt Broken Front Lts 10 & 11, Con 1 Division G Guelph Township, Pts 14,15, 20 & 21, 61r10430; Guelph; T/w Ros651254; S/t Easement Over Pt 15,61r10430 As In Wc81211; S/t Easement Over Pt 20, 61r10430 As In Wc166386
Property Area	108.33 hectares	9.76 hectares
Universal Transverse Mercator (UTM) coordinates of approximate centroid of property	563,837 m east and 4,821,911 m north (zone 17T)	564,149 m east and 4,821,299 m north (zone 17T)
Property Owner	Fusion Homes	Fusion Homes

1.1 Proposed Development

The GID Lands are part of a Secondary Plan (OPA 54) as identified in the City of Guelph's Official Plan (March 2018 Office Consolidation). The blocks owned by Fusion homes and part of this development project are Block Plan Area 1 and 2 as shown on Map Schedule D (City of Guelph Official Plan, 2015).

MTE understands the development goal is to establish residential, mixed-use, commercial, and employment blocks. Park space and trails are also to be developed. Three stormwater management facilities are also proposed (MTE 2025). MTE understands that the Site will be serviced by municipal water and sanitary sewers.

1.2 Previous Investigations

MTE reviewed the following reports as part of this hydrogeological assessment:

1.2.1 Turfgrass Institute Lands

- Phase II Environmental Site Assessment, Franz Environmental Inc. (May 2007);
- Phase Two Environmental Site Assessment, GHD (November 2017);
- Geotechnical Investigation and Slope Stability Assessment, DS Consultants Ltd. (January 2020); and
- Supplemental Soil Sampling and Analysis Program, MTE (July 2020).

A brief description of each of the above referenced studies is provided below for reference purposes.

Phase II Environmental Site Assessment, Final Report, Guelph Turfgrass Institute, 328 Victoria Road South, Guelph, Ontario; by Franz Environmental Inc.; dated March 27, 2007, for Ontario Realty Corporation.

- Franz Environmental Inc. (Franz) was retained by the Ontario Realty Corporation to conduct a Phase II ESA to address the APEC's identified in a previously completed Phase I ESA conducted by URS in 2006.
- As part of the Phase II Environmental Site Assessment, Franz advanced:
    - Three Pits (GTP1-06 through GTP3-06) to depths ranging from ~1.5 to 2.2 metres below ground surface (mBGS).
    - Three boreholes (BH/MW1-06 through BH3-03) to depths ranging from 5.5 to 7.6 mBGS. BH/MW1-06 was instrumented as a groundwater monitoring well.

Phase Two Environmental Site Assessment, Guelph Turfgrass Institute and Environmental Research Centre, 328 Victoria Road South, Guelph, Ontario; by GHD Limited; dated November 24, 2017; for Infrastructure Ontario.

- GHD was retained by Infrastructure Ontario to conduct a Phase Two ESA to document environmental conditions at the Turfgrass Lands prior to the potential disposition of the Site.
- GHD advanced 25 boreholes across the Turfgrass Lands to depths ranging from ~0.9 to 6.1 mBGS. Boreholes were advanced to allow for the collection and screening of subsurface soil samples and to document geological conditions at the Site.
- 10 boreholes were converted to overburden monitoring wells to depths ranging from ~4.0 to 5.5 mBGS. Monitoring wells were constructed to allow for the collection and screening of groundwater samples and to document hydrogeological conditions.
- GHD advanced 58 test pits across the Turfgrass Lands to depths ranging from ~0.5 to 3.0 mBGS. Test pits were advanced to allow for the collection of subsurface soil samples and to document geological conditions at the Site.
- GHD described the general stratigraphy of the Turfgrass Lands as topsoil (0.06-0.45 mBGS) underlain by silty sand fill (0.18-2.07 mBGS) and native silty sand/sandy silt (0.15-5.79 mBGS) and/or a native clayey silt/silty clay (0.12-4.81). Bedrock was encountered between 0.46 to 2.44 mBGS within some boreholes and was observed at ground surface in some areas along the northeastern portion of the Turfgrass Lands.

- GHD encountered the following material and geologic deposits at the Site. GHD notes that the deposits were encountered at various areas of the Site and not at all investigative locations:
    - Topsoil was encountered at all locations except for MW4 and MW5. Topsoil thicknesses ranged from 0.06 m to 0.45 m.
    - Silty Sand Fill was encountered at limited locations across the Site at depths ranging from 0.18 mBGS to 2.1 mBGS. GHD notes very limited fill was encountered across the Site.
    - Silty Sand and Sandy Silt was encountered at numerous locations across the Site at depths from ground surface to 5.8 mBGS.
    - Clayey Silt and Silty Clay was encountered at numerous locations across the Site at depths ranging from 0.12 mBGS to 4.81 mBGS.
    - Bedrock was generally encountered at shallow depths along the eastern portion of the Site.
- Groundwater was encountered in eight of the GHD installed monitoring wells and one existing groundwater monitoring well at depths ranging from ~1.7 to 4.9 mBGS.

Geotechnical Investigation and Slope Stability Assessment, Guelph Innovation District Lands, Victoria Road S, Guelph, ON; by DS Consultants Ltd., dated January, 2020; for Mattamy Homes Canada.

- DS Consultants Ltd. (DS) was retained by Mattamy Homes Limited (Mattamy) to perform subsurface investigation work within the Turfgrass and Detention Lands in January of 2020, however, no formal report of these activities was provided to MTE;
- Based on borehole logs and Site figures provided to MTE, DS advanced seven boreholes across the Turfgrass Lands (BH301-20 to BH307-20); and
- Two boreholes, MW304-20 and MW306-20 were converted to groundwater monitoring wells.

Supplemental Soil Sampling and Analysis Program, Guelph Innovation District (GID) Lands, Guelph, Ontario; by MTE Consultants Inc.; dated July 16, 2020; for Mattamy Homes Limited.

- MTE was retained by Mattamy to conduct a supplemental soil sampling program to delineate the extent of impacts previously identified at the Turfgrass Lands and to develop cost estimates for remediation of these areas; and
- MTE advanced 62 boreholes across the Turfgrass Lands to depths ranging from 1.5 mBGS to 3.7 mBGS to facilitate the collection of soil samples and determine shallow geological conditions.

1.2.2 Former Wellington Detention Centre Lands

- Phase II Environmental Site Assessment, Franz Environmental Inc. (2007);
- Soil and Groundwater Delineation, MTE Consultants Inc. (2010);
- Phase Two Environmental Site Assessment, WESA (2012);
- Undocumented Supplemental Soil Sampling and Analysis Program, MTE (2019); and
- Geotechnical Investigation and Slope Stability Assessment, DS Consultants Ltd. (2020).

A brief description of each of the above referenced studies is provided below for reference purposes.

Phase II Environmental Site Assessment, Wellington Detention Centre, 588 Stone Road East, Guelph, Ontario; by Franz Environmental Inc.; dated March 26, 2007; for Ontario Realty Corporation.

- Franz was retained by the Ontario Realty Corporation to conduct a Phase II ESA for the Detention Lands to address the four APECs identified in a Phase I ESA previously conducted by URS in 2006.
- Franz constructed 13 test pits and three boreholes across the Detention Centre Lands to allow for the collection of soil samples and determine geological conditions across the Site.
- One borehole was completed as a monitoring well to allow for the collection of groundwater samples and hydrogeological properties.
- Franz noted that the general soil stratigraphy within the Detention Lands consisted of a thin layer of topsoil underlain by native silt till formation. However, a layer of fill material was encountered within the Detention Centre compound consisting of sand and gravel mixed with some cobbles and/or pebbles to depths up to 4.5 mBGS.

Final Soil and Groundwater Delineation, 588 Stone Road East, Guelph, Ontario; by MTE Consultants Inc.; dated October 4, 2010; for Ontario Realty Corporation.

- MTE was retained by the Ontario Realty Corporation to delineate the soil and groundwater quality in the vicinity of the former fuel oil USTs based on findings in the 2007 Franz Phase II ESA report.
- MTE advanced seven boreholes in the vicinity of the former USTs to a maximum depth of 10 mBGS. Three boreholes were completed as monitoring wells.
- MTE noted that the soil stratigraphy consisted of sand and gravel fill material with asphalt or brick fragments to a maximum depth of 2.13 mBGS, underlain by a native sands and gravel layer, with a slity sand layer encountered between 5.5 and 7.3 mBGS. Groundwater was observed at 9.32 mBGS and 10.52 mBGS.

Phase Two Environmental Site Assessment, 588 Stone Road East, Guelph, Ontario; by WESA Inc.; dated December, 2012; for Infrastructure Ontario.

- WESA was retained by Infrastructure Ontario to conduct a Phase Two ESA to assess the three APECs identified in their Phase One ESA in preparation for the future sale of the Site; and
- WESA advanced four boreholes and 14 test pits across the Detention Centre Lands. Each borehole was completed as a groundwater monitoring well.

Undocumented Supplemental Soil Sampling and Analysis Program, Former Detention Centre Land, performed by MTE, 2019-2020, for Mattamy Homes Canada.

During the 2019-2020 subsurface investigation program conducted in the Turfgrass Lands on behalf of Mattamy (as documented in the Section above), MTE also conducted a subsurface investigation that was within the Detention Lands; however, this work was not documented in a formal report. A summary of the available information regarding the work performed in the Detentions Lands is provided below.

- MTE conducted 15 boreholes across the Detention Lands, one of which was instrumented as a permanent monitoring well (MW217-19).

Geotechnical Investigation and Slope Stability Assessment, Guelph Innovation District Lands, Victoria Road S, Guelph, ON; by DS Consultants Ltd., dated January, 2020; for Mattamy Homes Canada.

DS was retained by Mattamy to perform subsurface investigation work within the Turfgrass and Detention Lands in January of 2020, however, no formal report of these activities was provided to MTE. A summary of the available information regarding the work performed within the Detention Lands is provided below.

- Based on DS borehole logs and Site figures obtained by MTE, DS advanced two boreholes within the Detention Lands.

The location of the historical monitoring wells, boreholes, and test pits described above are illustrated on **Figure 2.**

MTE notes that at the time of writing this report there are no Certificates of Property Use on title.

2.0 SITE DESCRIPTION

The Site is developed with three buildings (Frost Building, maintenance workshop, pump house), a gravel parking lot, and an irrigation pond/lagoon within the west central portion of the Site. The remainder of the Site consists of gravel laneways, natural heritage areas, former agricultural, agroforestry, and turfgrass research lands. The former land uses are presented on **Figure 3a**.

Figure 3b shows the current concept plan for the Site (MHBC, 2025 dated: 2025-12-10). The proposed development will consist of a mix of low and medium density residential, employment, mixed use, open space, a school, and three stormwater management blocks.

2.1 Topography and Surface Water

MTE completed at detailed topographical survey of the Site in 2022. A northwest to southeast running topographical ridge bisects the Site. Topography slopes away from this ridge towards Victoria Road to the southwest; Stone Road to the southeast; and the Eramosa River valley to the northwest and northeast. Topographic slopes towards the Site boundaries are between 2 – 5% with steeper slopes, up to 13 % along the northeast Site boundary.

The Site is located in the Lower Eramosa Subwatershed. The Eramosa River is located along the northern and eastern Site boundary. The Eramosa generally flows from east to west towards its confluence with the Speed River, located approximately 1.9 kilometers west of the Site.

There is an irrigation pond\lagoon located in the west central portion of the Site.

There are no Provincially mapped surface watercourses or wetlands on the Site. The Torrence Creek Swamp and Eramosa River Blue Springs Creek Wetland Complex are located to the south and east of the Site and are mapped as Provincially Significant Wetlands. Other unevaluated wetlands are located northeast of the Site in the Eramosa floodplain and surrounding small surface waterbodies located southwest of the Site.

On July 14, 2022, a small on-Site wetland feature was surveyed by Natural Resource Solutions Inc. (NRSI) and confirmed with City of Guelph and Grand River Conservation Area staff.

Topography and surface water features surrounding the Site are illustrated on **Figure 2.**

2.2 Adjacent Land Use

The Site is bounded by:

- Institutional lands and parklands to the southwest;
- A mix of residential and extractive lands to the southeast; and
- Floodplain to the northwest and northeast between the Site and the Eramosa River.

2.3 Physiography

Figure 4a shows the Site lies within the Guelph Drumlin Field which is bordered by the Horseshoe Moraines to the southeast. The Guelph Drumlin field covers ~ 830 square kilometers lying northwest or in front of the Paris Moraine. Within the Guelph Drumlin field, the dominant soil types are stony tills of the drumlins and deep gravel terraces of old meltwater spillways (Chapman and Putnam, 1984).

Figure 4b shows physiographic features at the Site include drumlins, old meltwater spillways and drumlinized till plains.

2.4 Quaternary Geology

Figure 5 shows, from oldest to youngest, the Site has the following:

- Paleozoic bedrock (Map Unit 3). Details regarding the Paleozoic bedrock underlying the Site are discussed in **Section 2.6** (below);
- Sandy silt to silty sand textured till (Map Unit 5b);
- Ice-Contact sand and gravel (Map Unit 6); and
- Glaciofluvial sand deposits (Map Unit 7b).

As shown on **Figure 5**, exposed Paleozoic bedrock is mapped along the eastern and northern Site boundary between the Site and the Eramosa River.

At the Site, Map Unit 5b is identified as the Wentworth Till. Karrow (1968) describes the Wentworth Till as the youngest till sheet in the Guelph area and is a sandy to silty sand till that is usually buff in colour. The Wentworth Till is the surface till sheet over most of the Guelph area forming the streamlined hills of the Guelph Drumlin Field. Karrow (1968) describes the thickness of the Wentworth till as variable and that generally the thickness of this till sheet is related to its surface topography. Generally, the till thickness can be up to ~30 metres in the Drumlins but much less in the low areas between the Drumlins (Karrow, 1968).

Map Unit 6 covers the southern portion of the Site and is described as Ice-Contact Stratified Drift consisting mainly of sand and gravel with minor clay, silt and till components. Karrow (1968) generally identifies these hummocky sand and gravel accumulations as kames that were formed when sediment laden meltwaters poured off glacial ice. These deposits sometimes grade into outwash plains in directions away from the ice-front into outwash plains.

Map Unit 7b is described as glaciofluvial outwash deposits that are comprised primarily of gravelly deposits. Karrow (1968) associates this deposit with a major outwash plain that formed in front of the Paris Moraine. This outwash plain extends southward towards Galt as an enlarged spillway along the Speed River (Karrow, 1968).

2.5 Paleozoic Geology

Figure 6 shows bedrock beneath the Site mapped as the Silurian aged dolostone of the Guelph Formation (Map Unit 20) and what is interpreted as the Eramosa Formation (formerly part of the Amabel Formation) (Map Unit 19).

The Guelph Formation is generally characterized by tan- to brown-coloured fine- to medium-crystalline, moderately to very fossiliferous dolostone (Armstrong and Carter, 2010). The Guelph Formation can form an unconfined bedrock aquifer within the Study area and forms the Guelph Hydrogeological Unit (HGU) (Brunton, 2008).

The Eramosa Formation is generally characterized by tan to black, thin- to thickly-bedded fine- to medium-crystalline variable fossiliferous, bituminous dolostone (Armstrong and Carter, 2010). Under the revisions to Silurian stratigraphy of the Niagara Escarpment (Brunton, 2008; Brunton, 2009; Brunton et. al, 2010; and Brunton and Brintnell, 2011), the Eramosa Formation is a regional aquitard with the basal Vinemount member containing the main aquitard lithofacies.

Under the revised OGS model of the Silurian aged stratigraphy in the Guelph area, the Eramosa Formation separates the two major bedrock aquifers of the area; the upper unconfined Guelph HGU and lower confined Gasport HGU (Brunton, 2008). The Gasport HGU represents the main confined bedrock aquifer in the area.

2.6 Water Well Record Search

Hydrogeological data relate to private water supply wells within 500 m of the Site were obtained from water well records on-file with the Ministry of the Environment, Conservation, and Parks (MECP). A total of 117 water well records were located within 500 m of the Site **(Figure 7)**. Of the 117 water well records, the following primary use was listed on the water well record:

- Two dewatering wells;
- 19 abandonment records;
- 19 records with no use specified;
- 19 test holes;
- 21 water supply wells or recharge wells; and
- 37 monitoring/observation wells.

MECP water well records are summarized in **Table 1**. **Table 1** contains a hyperlink to the MECP water well record, should a digital well record exist. Based on the available water well records, there are private water supply wells within the Study Area that are used for Public and Domestic water supply. According to the water well records, these wells are completed into the underlying bedrock.

Water well records that identify wells as abandonment, dewatering, monitoring/observation wells, test holes, or no specified use have been excluded from further discussion as these are not considered to be water users.

2.7 Geological Cross-Sections

Hydrogeological data related to private water supply wells on-Site were obtained from water well records on-file with the MECP **(Section 2.7)** and from boreholes and monitoring wells constructed on-Site **(Section 1.2** and **Section 4.1)**. These resources were used to construct five geological cross-sections (A-A' through E-E') through the Site. The location of the geological cross-sections is shown on **Figure 2**.

The well/borehole name or MECP water well number are presented above the cross-section followed by the off-set distance from the cross-section line and well location. Wells/boreholes further from the cross-section line may, in paces, be displayed as having the borehole above or below ground surface. Similarly, static water levels at individual wells may be situated above or below the interpreted water-table surface presented on the individual cross-section. As such, elevation variability of overburden units may occur along the cross-section line at individual well/boreholes and may differ from the professional geological interpretation presented on the cross-section. MTE notes that the water table surface along each section is a projection of the water table surface as depicted on Figure 11.

Geological Cross-Section A-A' (Figure 8a)

Geological cross-section A-A' runs ~1,365 metres northwest to southeast through the eastern portion of the Site and shows the spatial distribution of the various geological units. Geological cross-section A-A' shows topography rises from ~310 mAMSL at the start (NW end) of the cross-section to 341 mAMSL at ~ 600 metres from the start of the cross-section. From ~ 600 m from the start of the cross-section the topography is generally hummocky and falls to ~325 mAMSL at the southeast end of the cross-section.

The interpreted geology along geological cross-section A-A' is consistent with Quaternary geology mapping presented on **Figure 5**. Bedrock **(Figure 5** – Map Unit 3**)** that is exposed or covered in thin drift (<0.9 m) is interpreted along the first ~110 metres of geological cross-section A-A'. Exposed bedrock gives way to a sandy silt till **(Figure 5** – Map Unit 5b) that is interpreted at ground surface along the entire geological cross-section except for a sand deposit interpreted between ~600 m and 1,150 m.

The sandy silt till unit is interpreted to be the Wentworth Till and overlies bedrock across the entire geological cross-section.

Geological cross-section A-A' shows an interpreted water-table surface for the April 24, 2023 monitoring event **(Section 4.4)**. The water-table surface falls radially from a peak elevation of ~337 mAMSL at ~760 m from the start of the geological cross-section. The water-table is interpreted to flow to the northwest towards the Eramosa River and to the southeast towards Stone Road.

Geological Cross-Section B-B' (Figure 8b)

Geological cross-section B-B' runs ~1,477 metres northwest to southeast through the central portion of the Site and shows the spatial distribution of the various geological units. Geological cross-section B-B' shows topography rises steeply from ~ 305 mAMSL at the start (NW end) of the geological cross-section to ~341 mAMSL at ~340 metres from the start of the geological cross-section. From this point to the end of the geological cross-section, topography undulates gently around ~340 mAMSL.

The interpreted geology along geological cross-section B-B' is consistent with Quaternary geology mapping presented on **Figure 5**. Sand **(Figure 5** – Map Unit 7b**)** overlies bedrock for the first ~150 m from the start of the geological cross-section. From ~150 metres from the northwestern start of the geological cross-section to the end of the geological cross-section, a sandy silt till **(Figure 5** – Map Unit 5b) is interpreted to overlay the bedrock. The sandy silt till is overlain by intermittent sand **(Figure 5** – Map Units 6 and 7b) and fill deposits associated with historical on-Site operations.

Geological cross-section B-B' shows an interpreted water-table surface for the April 24, 2023 monitoring event **(Section 4.4)**. The water-table surface is generally flat through the central portion of the geological cross-section (~320 m to 1,200m). As with geological cross-section A-A', the average water-table is interpreted to flow radially to the northwest towards the Eramosa River and southeast towards Stone Road.

Geological Cross-Section C-C' (Figure 8c)

Geological cross-section C-C' runs ~ 1,460 metres northwest to southeast through western portion of the Site and shows the spatial distribution of the various geological units. Geological cross-section C-C' shows topography rises steeply from ~305 mAML at the northwestern start of the geological cross-section to ~330 metres at ~100 m from the start of the geological cross-section. From this point to the southeastern end of the geological cross-section, topography undulates gently between ~330 and ~335 mAMSL.

The interpreted geology along the geological cross-section C-C' is consistent with Quaternary geology mapping presented on **Figure 5**. Sand **(Figure 5** – Map Units 6 and 7b) is the predominate overburden material encountered at ground surface. The sand deposits overlay bedrock at the start of the geological cross-section to ~300 meters from the start of the geological cross-section. From this point to the end of the geological cross-section, sand overlies a sandy silt till (Wentworth Till).

The sandy silt till is interpreted to be exposed at ground surface from ~750 m to 900 m from the start of the geological cross-section.

Geological cross-section C-C' shows an interpreted water-table surface for the April 24, 2023 monitoring event **(Section 4.4)**. The interpreted water table surface is interpreted to flow radially from a high of ~334 mAMSL northwest towards the Eramosa River and southeast towards Stone Road.

Geological Cross-Section D-D' (Figure 8d)

Geological cross-section D-D' runs ~650 metres southwest to northeast through the northern portion of the Site and shows the spatial distribution of the various geological units. Geological cross-section D-D' shows topography is relatively flat at ~330 mAMSL from the southwestern start of the geological cross-section to ~410 metres. At ~410 metres from the start (SW end) of the geological cross-section topography falls sharply from ~330 mAMSL to ~310 mAMSL towards the Eramosa River valley at the northeastern end of the geological cross-section.

The interpreted geology along geological cross-section D-D' is consistent with Quaternary geology presented on **Figure 5**. Sand **(Figure 5** – Map Unit 7b) is interpreted to overlie bedrock from the start of the geological cross-section to ~ 600 m from the start of the geological cross-section at which point bedrock is interpreted to be exposed at ground surface.

Geological cross-section D-D' shows an interpreted water-table surface for the April 24, 2023 monitoring event **(Section 4.4)**.

The interpreted water-table flows radially to the:

- Southwest generally flowing the flow of the Eramosa River; and
- Northwest towards the Eramosa River.

Geological Cross-Section E-E' (Figure 8e)

Geological cross-section E-E' runs ~850 from southwest to northeast through the southern portion of the Site and shows the spatial distribution of the various geological units. Geological cross-section shows topography rises gently from ~335 mAMSL at the southwestern start of the geological cross-section to ~340 mAMSL at ~450 metres from the start of the geological cross-section. From ~450 m to the northeastern end of the geological cross-section, the topography falls moderately to ~315 mAMSL towards the Eramosa River Valley at the end of the geological cross-section.

The interpreted geology along geological cross-section E-E' is generally consistent with Quaternary geology presented on **Figure 5**. Sand **(Figure 5** – Map Unit 6**)** is the surficial unit

across the first ~500 metres from the start of the geological cross-section and is interpreted to overlie a sandy silt till. The sand unit gives way to a silty sand till as the predominant surficial unit from ~500 m to the end of the geological cross-section. The silty sand till is interpreted to overlie bedrock across the entire length of the geological cross-section.

Geological cross-section E-E' shows an interpreted water-table surface for the April 24, 2023 monitoring event **(Section 4.4)**. Groundwater flow is interpreted to flow radially from a high of ~335 mAMSL towards the Eramosa River valley to the northeast and towards Victoria Road to the southwest.

3.0 SOURCE WATER PROTECTION

3.1 Municipal Wells and Well Head Protection Areas

Figure 9 shows the location of municipal wells and Well Head Protection Areas (WHPA) near the Site. The nearest municipal wells are the two wells associated with the Carter Well Field. These wells are located ~ 800 m southeast of the Site. The Carter well system consists of two bedrock wells located ~ 3 m apart. These wells obtain their water from the shallow bedrock of the Guelph Formation which at this location is hydraulically connected to the water table. Additionally, some of the water pumped from these wells is reportedly derived from the adjacent Torrance Creek (LERSPC, 2022). The Carter Wells are considered groundwater under the direct influence (GUDI) of surface water.

The Site is located in WHPA-B for the Guelph Wells which represents a two-year time-of-travel to the municipal wells. The Site is not located in WHPA-E (GUDI) for the Carter Well Field nor is the Site mapped as a highly vulnerable aquifer.

Figure 9 also shows portions of the Site lies within an Issue Contributing Area for the Membro Well. The Grand River Source Protection Area Approved Assessment Report identified Trichloroethylene (TCE) as an issue for the Membro Well.

3.2 Well Head Protection Area Vulnerability

WHPA vulnerability is used to assess the intrinsic susceptibility of municipal aquifers to contamination. Vulnerability scores are then used to further delineate the relative ease of contaminant migration into the water source (Lake Erie Region Source Protection Committee, 2025). A review of source water protection mapping indicates that the Site is associated with WHPA vulnerability scores of eight and ten which indicates a high vulnerability of the municipal water supply, to contamination (**Figure 10**).

3.3 Significant Groundwater Recharge Areas (SGRAs)

Groundwater recharge occurs where precipitation and snowmelt infiltrate into the ground to feed aquifers, watercourses, and wetland. Significant Groundwater Recharge Areas (SGRAs) are typically associated with coarse grained soils. **Figure 11** shows portions of the Site have been mapped as being a SGRA and generally correspond to those areas mapped as sand and gravel on surface towards the perimeter of the Site as shown on **Figure 5.**

3.4 Source Protection Policies

As the Site lies within a WHPA-B with an issue contributing area, source water protection policies may apply to future development activities. MTE recommends an additional source water protection policy assessment during the development of the detailed design process.

4.0 FIELD PROGRAM

4.1 Borehole Advancement and Monitoring Well Installation

Between February 28 and March 7, 2022, a total of 20 boreholes (MW501-22 through MW520-22) where advanced as part of a concurrent geotechnical investigation completed by MTE. The results of the geotechnical investigation are provided under a separate report. Boreholes were advanced to depths ranging from 2.1 to 11.1 m.

Upon completion of drilling, monitoring wells were constructed in seven boreholes (MW501-22, MW507A-22, MW507B-22, MW512A-22, MW512B-22, MW514-22, and MW520-22) to allow for the collection of stabilized groundwater levels, groundwater sampling, single well hydraulic conductivity testing.

The groundwater monitoring wells at MW507A-22, MW507B-22, MW512A-22, and MW512B-22 consists of two monitoring wells installed at different depths in the underlying overburden. The 'B' well was constructed first to a target depth. The 'A' well was installed in a separate borehole off-set from the 'B' well at a shallower depth. The purpose of this installation was to allow for the assessment of vertical hydraulic gradients within underlying overburden materials.

Between October 20, 2022 and December 12, 2022, an additional 53 boreholes (MW601-22 through BH651-22, BH654-22, BH655-22 were advanced across the Site to depths ranging from ~0.9 mBGS to 12.2 mBGS. The purpose of these boreholes was to support this hydrogeological assessment and the concurrent geotechnical and Phase Two ESA investigations. Boreholes were advanced to allow for the collection and screening of subsurface soil samples and to document geological conditions at the Site.

Seven boreholes (MW601-22 through MW607-22) were instrumented with groundwater monitoring wells to allow for the collection of stabilized groundwater levels, groundwater quality samples and to determine hydrogeological properties of the underlying geological materials.

A minipiezometer (MP101-23) was installed in the on-Site wetland on April 24, 2023 to allow for the collect of stabilized groundwater levels and to determine any potential groundwater/surface water connection.

Based on the drilling results soils at the Site generally consist of topsoil and/or fill overlying till and sand and gravel deposits which in turn overlie bedrock. **Table 2** provides a summary of the generalized stratigraphy encountered at each borehole during the 2022 drilling programs.

Borehole, monitoring well, and minipiezometer locations are illustrated on **Figure 2**. Borehole logs from the 2022 drilling programs are provided in **Appendix A.** Borehole logs from previous studies are available upon request.

Data from the borehole logs was incorporated into a relational database (HydroGeo Analyst – HGA). HGA is an environmental data management system that integrates customizable database structures to allow for the effective and efficient management of environmental data thus allowing MTE to make informed decisions regarding the environment and water resources. HGA was used to assist in the development of the Site Conceptual Geological Model.

4.2 Monitoring Well Development and Sampling

Following installation, monitoring wells were developed with the Waterra™ inertial pump to purge remaining fine-grained sediments in the well caused by drilling and to create a hydraulic connection to the surrounding native geologic formation.

On November 29, 2022, groundwater samples were obtained from MW512B-22, MW514-22, MW604-22, and MW606-22 to establish existing groundwater quality conditions at the Site. The remaining groundwater monitoring wells from the 2022 drilling program (MW501-22, MW507A-22, MW507B-22, MW512A-22, MW520-22, MW512A-22, MW601-22, MW602-22, MW603-22, MW605-22, and MW607-22) were dry or had insufficient volumes of water for sample collection.

Between May 9, 2023 and May 12, 2023, groundwater samples were obtained from BH/MW10-06, MW1-17, MW204-19, MW209-19, MW210-19, MW507A-22, MW507B-22m MW512A-22, MW512B-22, MW514-22, MW520-22, MW601-22, MW603-22, MW604-22, MW605-22, MW606-22, MW607-22, and MP101-23 to further establish existing groundwater quality samples.

On April 22, 2024, groundwater samples were obtained from MW204-19, MW210-19, MW512A-22, MW512B-22, MW520-22, MW606-22, and MP101-23 to track on-going water quality.

Prior to sample collection, each monitoring well was purged to remove stagnant water from the monitoring and surrounding sand pack to allow for a representative sample to be collected from the groundwater system. Each well was purged a minimum of three standing well volumes or until three times 'dry'.

The sample was collected using a dedicated Waterra™ foot valve and tubing; placed into laboratory supplied jars and transported in ice-packed coolers under chain-of-custody to ALS Laboratories - Environmental Division (ALS) in Waterloo, ON. The groundwater samples were analyzed for select dissolved metals, anions, and general chemistry parameters. Analytical results are summarized in **Table 3.** Unabbreviated laboratory certificates of analysis are maintained on file at MTE and are available upon request.

4.3 In-Situ Hydraulic Conductivity Testing

On October 6, 2022, single well hydraulic responses tests were carried out on BH/MW1-06, MW2-11, MW217-19, MW512b-22, and MW514-22. An additional single well response test was carried on MW209-19 on October 24, 2022.

Between May 4, 2023 and May 16, 2023, additional single well hydraulic response tests were carried out on BH/MW1-06, MW1-17, MW204-19, MW209-19, MW210-19, MW217-19, MW507A-22, MW507B-22, MW512A-22, MW512B-22, MW514-22, MW520-22, MW601-22, MW603-22, MW604-22, MW605-22, MW606-22, and MW607-22,

4.3.1 Recovery Tests

For the October 2022 single well hydraulic response testing program, recovery or bail tests were completed for BH/MW1-06, MW2-11, MW217-19, and MW514-22.

Each tested well was purged dry and the rate of recovery recorded using a data logger programmed to collect a water level every second. Where possible the recovery tests were repeated to assess the validity of the assumptions underlying the slug test analysis methods. Repeat recovery tests were completed at MW2-11 and MW514-22. Due to the slow response, repeat recovery tests were not completed at BH/MW1-06, MW209-19, and MW217-19.

For the May 2023 single well hydraulic response testing program, recovery or bail tests were completed for BH/MW1-06, MW1-17, MW209-19, MW217-19, MW507A-22, MW507B-22, MW512A-22, MW514-22, MW520-22, MW601-22, MW603-22, MW604-22, MW605-22, MW606-22.

Each tested well was purged dry and the rate of recovery recorded using a data logger programmed to collect a water level 0.5 secs to 5 seconds. Where possible, the recovery tests were repeated to assess the validity of the assumptions underlying the slug test analysis methods. Repeat recovery tests were completed at all tested wells with the exception of MW507A-22.

4.3.2 Slug Tests

At MW210-19, MW512B-22, and MW607-22, falling and rising head response test were performed.

The response test was initiated by rapidly inserting (falling head) or removing (rising head) a solid slug of a predetermined displacement to cause a near instantaneous change in the water level in the well. The rate of recovery back to static conditions was recorded using a data logger programmed to collect a water level every second. The response tests were carried out a minimum of three times using solid slugs of different known displacements to assess the validity of the assumptions underlying the slug test analysis methods.

4.3.3 Analysis

Prior to analysis, recovery data was normalized by dividing the observed head change (H_o) by the expected head change (H_o*). Normalized data plots from repeat tests (at the same well) were compared to determine coincidence between tests. Coincidence between tests suggests assumptions underlying conventional analysis methods can be considered valid at that well (Butler et. al., 1996; Butler et. al., 2003).

October 2022

The normalized head plots for MW2-11 and MW512b-22 show an acceptable coincidence. The normalized head plot for MW514-22 does not show an acceptable coincidence suggesting that further development at this well may be required. As only a single response test was completed at BH/MW1-06, MW209-19, and MW217-19, no comment on coincidence can be made.

For tested wells showing an acceptable coincidence, a representative test from each well was analyzed using the Bouwer and Rice (1976) model in the AquiferTest© Pro software package Version 10 (Waterloo Hydrogeologic, 2020) to estimate the horizontal hydraulic conductivity of the saturated materials adjacent to the well screen.

The single well response tests at BH/MW1-06, MW209-19, and MW217-19 were also analyzed using the Bouwer and Rice (1976) model in the AquiferTest© Pro software package Version 10 (Waterloo Hydrogeologic, 2020) to estimate the horizontal hydraulic conductivity of the saturated materials adjacent to the well screen.

A single response test from MW514-22 was analyzed using the Bouwer and Rice (1976) model in the AquiferTest© Pro software package Version 10 (Waterloo Hydrogeologic, 2020) to estimate the horizontal hydraulic conductivity of the saturated materials adjacent to the well screen.

The estimated horizontal hydraulic conductivity from October 2022 tests at BH/MW1-06, MW209-19, MW217-19, and MW514-22 are considered preliminary.

The estimated horizontal hydraulic conductivities from the 2022 single well hydraulic response tests are summarized in **Table 4**. Aquifer Test data sheets are provided in **Appendix B**.

May 2023

The normalized head plots for MW512B-22, MW514-22, MW604-22, MW605-22 show and acceptable coincidence. The remaining well tested in May 2023 do not show an acceptable coincidence suggesting that further well development may be required. As only a single response test was completed at MW507A-22, no comment on coincidence can be made.

For tested well showing and acceptable coincidence, a representative test from each well was analyzed using the Bouwer and Rice (1976) model in AquiferTest© Pro software package Version 10 (Waterloo Hydrogeologic, 2020) to estimate the horizontal hydraulic conductivity of the saturated materials adjacent to the well screen.

For tested wells that did not show an acceptable coincidence, the normalized head plots generally showed the rate of response increased from the first test to the second test. This suggests that some well development was taking place during the first test and/or sampling events (if any) thus improving the connection between the well screen and adjacent formation.

To provide a preliminary estimate of the horizontal hydraulic conductivity at wells that did not show an acceptable coincidence, the test that had the fastest rate of recovery was analyzed using the Bouwer and Rice (1976) model in AquiferTest© Pro software package Version 10 (Waterloo Hydrogeologic, 2020). MTE cautions that the estimated horizontal hydraulic conductivity obtained from these tests may be biased low and that if a more refined estimate is required then additional well development and single well response testing be undertaken.

4.3.4 Results Summary

The estimated hydraulic conductivities ranged from $1.0x10^{-5}$ to $7.2x10^{-7}$ m/sec for wells screened across coarse grained sand and gravel/silty sand with a geometric mean of $1.9x10^{-6}$ m/sec.

The estimated hydraulic conductivities ranged from $7.2x10^{-6}$ to $6.3x10^{-9}$ m/sec for wells screened across fine grained silty clay to silty sand till with a geometric mean of $1.7x10^{-7}$ m/sec.

Despite the above noted limitations in testing, these results are consistent with published values soils encountered across the Site (Freeze and Cherry, 1979).

4.4 Groundwater Levels and Elevations

MTE completed a relative elevation survey of the top of the casing and ground surface at all active monitoring wells in 2022 relative to mean sea level utilizing a local benchmark. The relative elevation survey allows for groundwater levels collected from each monitoring well to be compared to each other and allow for the determination of the groundwater flow direction.

At the time of this report, MTE collected manual groundwater level measurements from select groundwater monitoring wells on seven occasions in 2022, 15 occasions in 2023, five occasions in 2024 and one occasion in 2025. Manually measured groundwater levels, groundwater depths below ground surface, and groundwater elevations are presented in **Table 5a** through **Table 5c**, respectively.

Table 5a shows the shallow groundwater table was encountered between ~0.6 mBGS and 12 mBGS. Several monitoring wells have been reported dry throughout the monitoring period. These monitoring wells may only have groundwater present during periods when the water-table is elevated. Elevated water-table conditions generally occur following the spring melt or following periods of prolonged or large precipitation events such as July 2024 in which 139 mm of precipitation fell within a six day period.

In addition to the manually collected groundwater levels, dedicated pressure transducers (data loggers) were installed in the following wells across the Site: MW204-19, MW210-19, MW507a-22, MW507b-22, MW512a-22, MW512b-22, MW514-22, MW520-22, MW601-22, MW601-22, MW604-22, MW605-22, MW606-22, and MW607-22. The data loggers were programmed to collect a water level every hour to establish seasonal trends and to determine the maximum groundwater elevation at the Site.

The data loggers measure total pressure above the pressure sensor. Prior to calculating groundwater levels, the raw pressure data was compensated for changes in atmospheric pressure using atmospheric pressure data collected by a dedicated on-Site barometric pressure transducer.

Calculated groundwater elevations as collected by the on-Site data loggers are illustrated on **Hydrograph C1** through **Hydrograph C11**. Hydrographs are provided in **Appendix C**. In addition to the calculated groundwater level, daily precipitation was plotted on the hydrographs to determine how the water table responds to precipitation events. Precipitation data was obtained from Environment Canada as reported by the Guelph Turfgrass Institute weather station.

MW204-19

Hydrograph C1 shows continuous groundwater elevations for MW204-19 which is located in the northern portion of the Site and completed in fine grained materials. The hydrograph shows that during the monitoring period, groundwater elevations as collected by the data logger fell from a peak of ~340.9 mAMSL to a low of ~337.1 mAMSL. Over the Monitoring period water levels peaked in the spring, then generally declined throughout the summer before going dry in late summer (2022) or fall (2023 & 2024).

MW210-19

Hydrograph C2 shows continuous groundwater elevations for MW210-19 which is located in the eastern portion of the Site and completed in fine grained materials. The hydrograph shows that the well follows a seasonal water level pattern of highs during the spring followed by a gradual decrease for the remainder of the year. During the monitoring period, groundwater elevations as collected by the data logger peaked at ~336.9 mAMSL and had a low of ~331.5 mAMSL.

MW507A-22 and MW507B-22

Hydrograph C3 shows continuous groundwater elevations for MW507A-22 and MW507B-22 which are located in the eastern portion of the Site and completed in fine grained materials. These two wells are a set of nested wells located approximately 1.4 m apart from each other. The screened interval of MW507A-22 is from ~2.3 to 3.8 mBGS while the screened interval of MW507B-22 is from ~4.6 to 6.0 mBGS. Both wells are screened in a silty till unit, interpreted to be the Wentworth Till **(Section 2.5)**.

As shown on **Hydrograph C3** the groundwater elevation at these locations appear to stabilize at different elevations. The groundwater elevation in the deeper well (MW507B-22) is lower than the groundwater elevation of the shallower well (MW507A-22). This is interpreted to indicate a downward vertical hydraulic gradient within the till unit and is characteristic of these types of fine-grained materials. Groundwater levels measured at MW507B-22 are considered to represent the water-table. Groundwater levels measured at MW507A-22 are influenced by the shallower depth of the screened interval in the till unit and effected in part by flow in the unsaturated (vadose) zone.

Hydrograph C3 shows that during the monitoring period groundwater elevations at MW507A-22 and MW507B followed a seasonal water level pattern of highs during the spring followed by a gradual decrease for the remainder of the year. Based on data logger data groundwater elevations in MW507A were noted to peak at ~330.5 mAMSL. MW507A was noted to go dry in late spring/early summer during each year of monitoring. Water levels were briefly recorded in July 2024 as a result of the significant rain events which occurred. **Hydrograph C3** shows groundwater elevations at MW507B-22 peaked at ~328.1 mAMSL. MW507B-22 was noted to go dry on two occasions throughout the monitoring period; late summer 2022 to mid-winter 2023 and late fall to early winter 2024. As with MW507A-22, MW507B was also noted to experience elevated groundwater levels as a result of the rain events in July 2024.

MW512A-22 and MW512B-22

Hydrograph C4 shows continuous groundwater elevations for MW512A-22 and MW512B-22 which are located in the north-central portion of the Site. These two wells are a set of nested wells located approximately 2.1 m apart from each other. The screened interval of MW512A-22 is from ~1.5 mBGS to 3.1 mBGS while the screen interval of MW512B-22 is from ~6.9 to 7.6 mBGS. MW512A-22 is screened in a sandy silt till interpreted to be the Wentworth Till **(Section 2.5)**. MW512B-22 is screened in a silty sand seam in the till.

As shown on **Table 5**, groundwater has been intermittently measured at MW512A-22. **Hydrograph C4** shows that groundwater was recorded by the data logger between February and June 2023 and January to August 2024 before the well went dry. **Hydrograph C4** shows groundwater elevations at MW512B-during the monitoring period peaked at ~334.4 mAMSL.

As with MW507A-22 and MW507B-22, **Hydrograph C4** shows groundwater elevations at MW512A-22 and MW512B-22 appear to stabilize at different elevations when groundwater is recorded at MW512A-22. The groundwater elevation in the deeper (MW512B-22) well is lower than the groundwater elevation in the shallower well (MW512A-22). This is interpreted to indicate a downward vertical hydraulic gradient within till unit and is characteristic of these types of fine-grained materials. Groundwater levels measured at MW512B-22 are considered to represent the water-table. Groundwater levels measured at MW512A-22 are influenced by the shallower depth of the screened interval in the till unit and effected in part by flow in the unsaturated (vadose) zone, capturing a portion of water migrating to the water-table. Over the monitoring period groundwater elevations in MW507B-22 were found to follow a seasonal pattern and fluctuate between ~334.4 mAMSL and ~329.8 mAMSL.

MW514-22

Hydrograph C5 shows continuous groundwater elevations for MW514-22 which is located in the south-central portion of the Site. The data logger at this location was not installed until October 2022 and as such only collected continuous groundwater elevation from the latter half of 2022 through the end of the monitoring period. **Hydrograph C5** show groundwater elevations (as recorded by the data logger) range from ~344.0 mAMSL to ~338.1 mAMSL during the monitoring period.

MW520-22

Hydrograph C6 shows continuous groundwater elevations for MW520-22 which is located in the southern portion of the Site. **Hydrograph C6** shows that during the monitoring period groundwater elevations peaked at ~326.5 mAMSL. The well was dry between September 2022 to March 2023, November 2023 to January 2024, and November 2023 to the end of the monitoring period.

MW601-22

Hydrograph C7 shows continuous groundwater elevations for MW601-22 which located in the northwestern portion of the Site and is screened into the underlying bedock. The data logger at this location was installed in October 2022 and as such only had the potential to record water levels during the last two months of 2022 through the end of the monitoring period. **Hydrograph C7** shows that groundwater levels were recorded by the data logger from February 2023 to September 2023 February 2024 to November 2024. During this period, groundwater elevations peaked at an elevation of ~318.4 mAMSL.

MW604-22

Hydrograph C8 shows continuous groundwater elevations for MW604-22 which is located in central portion of the Site. The data logger at this location was installed in November 2022 and as such only shows groundwater elevations from the last two months of 2022 through then end of the monitoring period. **Hydrograph C8** shows that during the monitoring period groundwater elevations ranged from ~341.6 mAMSL to ~336.8 mAMSL.

MW605-22

Hydrograph C9 shows continuous groundwater elevations for MW605-22 which is located in the southwestern portion of the Site. The data logger at this location was installed in November 2022; as such, **Hydrograph C9** only shows groundwater levels from the last two months of 2022 through to the end of the monitoring period. **Hydrograph C9** shows that during the monitoring period groundwater elevations ranged from ~328.6 mAMSL to ~326.7 mAMSL.

MW606-22

Hydrograph C10 shows continuous groundwater elevations for MW606-22 which is located in western portion of the Site. The data logger at this location was not installed until November 2022; as such, **Hydrograph C10** only shows groundwater elevations for the last two months of 2022 through the end of the monitoring period. **Hydrograph C10** shows that during the monitoring period groundwater elevations ranged from ~327.9 mAMSL to a low of ~323.7 mAMSL. MW606-22 is screened in silty sand and was observed to respond rapidly to precipitation events.

MW607-22

Hydrograph C11 shows continuous groundwater elevations for MW607-22 which is located in southeastern portion of the Site. The data logger at this location was not installed until November 2022 and as such only shows groundwater elevations from last two months of 2022 through the end of the monitoring period. **Hydrograph C11** shows that during the monitoring period groundwater elevations ranged from ~333.3 mAMSL to a low of ~329.8 mAMSL.

4.5 Groundwater Flow

Groundwater elevations and local shallow groundwater flow direction were plotted for two monitoring events April 24, 2023 and April 22, 2024 **Figure 12a** and **Figure 12b**. For the purposes of this Assessment, these dates are considered to be representative of a spring high groundwater condition.

MW507A-22 and MW512A-22 have been excluded from flow mapping as MTE does not consider water levels obtained from these wells to be representative of the water-table at the Site **(Section 4.4)** at these locations.

Groundwater flow was found to be similar between the spring of 2023 and 2024. Groundwater elevations on average were found to be slightly higher in the spring of 2023 than 2024. **Figure 12** and **Figure 12b** indicate groundwater flow generally mimics topography flowing radially from two groundwater mounds located in the central portion of the Site.

The first groundwater mound is generally centered around the topographic high in the northern portion of the Site near the main irrigation pond. The irrigation pond may be connected to the shallow water-table and serving in part to recharge the water-table. Groundwater flows from this mound towards the Eramosa River to the north and east. Groundwater also flows westerly from this mound generally following the westerly flow direction of the Eramosa River.

The second groundwater mound is generally centered on a topographic high in the southern portion of the Site and suggests that this topographic high may be serving as a localized groundwater recharge area. Groundwater from this mound generally flows in an easterly direction towards Torrence Creek and westerly towards Victoria Road.

Horizontal hydraulic gradients were calculated around each mound based on the contours presented in **Figure 11a**. The horizontal hydraulic gradients around the northern mound are steep in the direction of the Eramosa River and are on the order of 0.1 m/m. Horizontal hydraulic gradients west of this mound are flatter relative to those discussed above and are on the order of 0.05 m/m. Horizontal hydraulic gradients around the southern mound were found to be similar in both directions (~0.05 m/m).

5.0 PRELIMINARY IMPACT ASSESSMENT

The following is a preliminary groundwater impact assessment related to the proposed Concept Plan ((MHBC, 2025 dated: 2025-12-10) **(Figure 3b)** and Engineering Master Servicing Plan (MSP) (MTE, 2025) in particular the proposed Preliminary Grading Plan (MTE Drawing 46927-104-AG1.1) and Stormwater Management Facilities.

5.1 Groundwater Elevations

MTE compared the April 24, 2023 (Spring high) groundwater elevations to the proposed preliminary grading plan to determine preliminary groundwater separation distances. The April 24, 2023 groundwater elevations were chosen as they are interpreted to represent the maximum seasonal groundwater elevation over the monitoring period. This analysis shows two areas (Area 1 and Area 2) of the Site where the Spring groundwater elevations have the potential to be at or near the preliminary finished grade. These locations are illustrated on **Figure 3b**, **Figure 11a and Figure 11b.**

Area 1 is located in the northern portion of the Site and is roughly centred on the on-Site irrigation pond/lagoon. Area 1 covers mostly proposed residential and park blocks and intersects one mixed use block.

Area 2 is located in the southern portion of the Site and is roughly centered on the western slope of the southern topographic high. Area 2 covers a mix of proposed residential and school blocks and intersects a park and some mixed use blocks.

Where Area 1 and Area 2 intersect proposed residential blocks, waterproofing with sump pumps may be considered to ensure that spring high groundwater conditions do not adversely affect residential basements.

MTE understands that proposed non-residential blocks (e.g. employment) and/or residential that will be multi-storey (e.g. condominium) will either be constructed as slab on grade or be designed with dedicated groundwater control measures (e.g. waterproofing and/or sump pumps, etc).

5.2 Waterproofing Measures

As discussed in Section 5.1, high groundwater levels near the southwestern and northeastern quadrants of the subject lands have been measured above the proposed preliminary finished

grades in those locations. As such, appropriate waterproofing measures shall be implemented for structures in these areas. Where adequate 0.5m separation between proposed below-grade living areas (finished or unfinished) and the anticipated seasonal high groundwater cannot be achieved, OBC compliant waterproofing shall be installed.

To establish the extent of the anticipated waterproofing requirements, a surface comparison was done between the proposed finished grade surface (less 3.0m) and the anticipated seasonal groundwater high. The 3.0m depth ensures that groundwater levels are maintained at a minimum separation of 0.5m below basement floors, per the City's DEM. The extent of the zone of influence is highlighted in Error! Reference source not found. of MTE's 2025 SWM Report and denotes where waterproofing measures are anticipated to be implemented. For further details regarding the waterproofing measures please refer to MTE's 2025 SWM Report.

5.3 Water Balance

With typical urban developments, the conversion of previous vegetated areas to impervious surfaces leads to a decrease in evapotranspiration and infiltration volumes and an increase in runoff volumes. As stated in the City's *SWM Master Plan*, inputs to key natural features, e.g. groundwater resources and the Eramosa River, are to be maintained in post-development conditions. Therefore, a number of storm water management practices are proposed within the development lands to achieve infiltration and water balance targets.

Further analyses will be required at future final design stages, once more specific lot and building details become available, so that final infiltration volumes and proposed implementation measures can be confirmed. For further details related to the water balance please see MTE's 2025 MSP report.

5.4 Groundwater Mounding

As infiltration is part of the proposed storm water management strategy, during final design a groundwater mounding assessment should be completed to determine the potential rise in groundwater levels beneath the proposed infiltration galleries. The predicted rise in groundwater levels can be used to validate the proposed design.

5.5 Thermal Mitigation

Thermal preventative and mitigation measures are important components of water quality treatment. During future detailed design stages of the subject lands, the development plans and studies will include details of the proposed thermal mitigation measures to be put in place to ensure the existing cool water regime present in the Eramosa River is not negatively impacted by the development. As identified in the SWM Master Plan, examples of such measures include, but are not limited to:

- Bottom draw outlets from SWMFs;
- Diverting SWMF outlets to cooling trenches;
- Enhanced SWMF landscaping to increase permanent pool shading;
- Improved SWMF design (which includes location and orientation to minimize sun exposure, increasing length-to-width ratios, and selective planting species); and
- Consideration for infiltration and dry pond facilities (i.e. eliminating the permanent pool).

5.6 Construction Dewatering

During the installation of on-Site services and excavations below grade for basements and or subgrade parking, there is a high probably that excavations will encounter groundwater, depending on the time of year construction of the services takes place. Following initial Site grading groundwater elevations should be measured and reviewed to determine permitting requirements for dewatering during installation of on-Site services.

5.7 Private Water Supply Wells

Based on water wells records on file with the Ministry of the Environment, there are 20 private water supply wells and one recharge well located within 500 m of the Site **(Figure 7)**. Water well records that identify wells as abandonment, dewatering, monitoring/observation wells, test holes, or no specified use have been excluded from further discussion as these are not considered to be water users.

5.7.1 On-Site Water Supply Wells

The MECP well records indicate four water supply wells (6701021, 6711142, 6707181, and 6701014) and one recharge well (6711143) are located within the Site boundary. Well 6711142 and 671143 served to heat and cool the existing on-Site building.

While MTE has not been able to locate a well abandonment record for well 6711143, MTE has visually confirmed that this well not longer exists on-Site and has presumed that that well has been abandoned. Well 6711143 is still present on-Site.

The MECP well record shows well 6701021 is located on the northern portion of the Site in proximity to a former on-Site building. MTE has been unable to visually locate this well or find a well abandonment record associated with this well. Should this well be located in the future, MTE recommends that the well be abandoned in accordance with *O.Reg. 903 (as amended).*

Well 6701014 is located in the Detention Centre lands. MTE has located a well abandonment record (7050663) that can be associated with this well.

Well 6707181 is located in the Detention Centre lands. MTE has not been able to locate this well or find an abandonment record associated with this well. Should this well be located in the future, MTE recommends that the well be abandoned in accordance with *O.Reg. 903 (as amended).*

5.7.2 Off-Site Water Supply Wells

Four water supply wells (6701057, 6701022, 6708591, and 6704301) are located north of the Eramosa River and are not anticipated to be affected by the proposed development.

There are 10 off-Site wells south of the Eramosa River that are mapped as being south of Stone Road East and one well east of Victoria Road South. According the MECP well records, these wells are completed into the underlying bedrock to depths ranging from 12 mBGS to >60 mBGS.

MTE does not anticipate that the proposed development will affect the ability of these wells to meet their water supply needs. However, MTE recommends a private water supply inventory be conducted during the detailed design process to further evaluate private water supplies within 500m of the Site.

5.8 Wetlands

5.8.1 On-Site Wetland

There is one on-Site wetland located in Open Space Block (Block 59) east of Residential Block 29 (**Figure 3b**). MTE established a minipiezometer (MP101-23) in this wetland in April 2023. In April 2024 MTE installed a data logger within MP101-23 to continually measure groundwater levels and installed a staff gauge to house a data logger outside of MP101-23 to measure surface water levels if present. MTE notes since monitoring began no standing water was observed in the wetland (**Table 5**). **Hydrograph C12** shows continuous groundwater elevations for MP101-23 and indicates that during the monitoring period groundwater elevations peaked at ~327.1 mAMSL. Based on data logger data the minipiezometer was noted to be dry beginning in September 2024, which was confirmed during the November 2024 field visit. Unfortunately, due to snow conditions MP101-23 could not be accessed in the winter of 2025.

As only one year of continuous data has been collected at this wetland feature there is currently insufficient data to characterize the hydroperiod of this feature.

5.8.2 Off-Site Wetlands

The Torrence Creek Swamp and Eramosa River Blue Springs Creek Wetland Complex are located to the south and east of the Site and are mapped as Provincially Significant Wetlands. Other unevaluated wetlands are located northeast of the Site in the Eramosa floodplain and surrounding small surface waterbodies located southwest of the Site (**Section 2.1**).

The proposed development may affect groundwater recharge to some degree that in turn supports, in part, these wetland features. MTE recommends Low Impact Development Measures (LID) are investigated to minimize stormwater runoff and increase infiltration and that on-Site infiltration or water-reuse strategies be designed to maintain pre-development infiltration rates post-development and reduce potential groundwater impacts to these off-Site wetland features.

5.9 Source Protection

MTE notes that part of the proposed storm solution on-Site involves infiltrating storm water at the lot level as well as at the proposed Stormwater Management Facilities on-Site. When evaluating future infiltration of storm water on-Site, MTE considered Volume II of the Grand River Source Protection Plan. The Grand River Protection Plan identifies risks to municipal water quality and water supplies, and outlines policies and programs in order to reduce risk.

Specific source water protection policies relating to existing or future Stormwater Management with the City of Guelph can be found in policy CG-MC-15.

CG-MC-15: For the existing or *future* discharge from a stormwater management facility within vulnerable areas where this activity is or would be a significant drinking water threat, the Ministry of the Environment, Conservation and Parks shall ensure that the Environmental Compliance Approval that governs the stormwater management facility includes appropriate terms and conditions to ensure that the activity ceases to be and/or never becomes a significant drinking water threat in the following vulnerable areas:

- In Wellhead Protection Areas A and B where the vulnerability is equal to 10.
- In Wellhead Protection Areas in an Issue Contributing Area (ICA).

Currently MTE is proposing three Stormwater Management Facilities on-Site, SWMF1, SWMF2 & SWMF3. SWMF1 and SWMF2 are located largely in areas identified as WHPA-B with a vulnerability score of 10, while SWMF3 is located within WHPA-B with a vulnerability score of 8.

In order to determine if chloride is a significant threat for SWMF1 & SWMF2 MTE reviewed the Drinking Water Threats Table produced by the MECP (2018/2021). SWMF1 & SWMF2 are considered to have the following characteristics:

- SWMF1 Total Capture Area is 57.55ha, SWMF2 Total Capture Area is 10.16ha;
- The predominant land use is medium density residential, employment lands and park;
- Storm water management facility is a wet cell with a forebay designed to water to an infiltration cell (discharge storm water to groundwater); and
- Located within a WHPA-B, vulnerability of 10.

Based on the above characteristics the risk associated with the circumstances is considered moderate. However, based on a review of on-Site water levels groundwater beneath SWMF1 and SWMF2 is noted to flow off-Site towards the Eramosa River. As such, infiltrating water will not impact groundwater source water supplies significantly as it will ultimately discharge to the adjacent surface water feature, which is not located within an Intake Protection Zone (IPZ) or within a GUDI vulnerability area. As such, MTE is of the opinion that infiltration of storm water does not represent a significant drinking water threat.

In order to determine if chloride is a significant threat for SWMF3 MTE reviewed the Drinking Water Threats Table produced by the MECP (2018/2021). SWMF3 is considered to have the following characteristics:

- Total Capture Area is 24.10ha;
- The predominant land use is medium density residential, employment lands and park;
- Storm water management facility is a wet cell with a forebay designed to discharge water to an infiltration cell (discharge storm water to groundwater); and
- Located within a WHPA-B, vulnerability of 8.

Based on the above characteristics the risk associated with the circumstances is considered low. As such, MTE is of the opinion that infiltration of storm water at SWMF3 does not represent a significant drinking water threat.

In conclusion, chloride is not considered a significant drinking water threat in the areas of the proposed SWMFs. MTE's opinion is that the proposed infiltration galleries on-Site do not pose a significant drinking water threat. Additionally, a salt management plan will be developed during the detailed design phase.

6.0 SUMMARY AND CONCLUSIONS

Based on the above hydrogeological assessment, MTE offers the following:

- Geology at the Site consists of the following:
  - The central portion of the Site consists of a sandy silt till that is interpreted to be Wentworth Till and generally overlies bedrock across most the Site.
    - Where the Wentworth Till overlies bedrock, the till will act as an aquitard, limiting recharge and offering protection to the underlying bedrock aquifer.
  - Sand, sand and gravel overlie the central till mound along its southeastern and northwestern flanks. Sand and gravel can overlie bedrock in these portions of the Site where the Wentworth Till is not present.
  - Bedrock is exposed or covered with thin drift along the northeastern portion of the Site along the Eramosa River valley.
- Since the Site lies within a WHPA-B and an issue contributing area, Source Water Protection Polices may apply to any future development.
- The shallow groundwater table was encountered between ~0.6 mBGS and 12 mBGS based on topography and groundwater levels collected to date.
- Horizontal hydraulic conductivity values for saturated soils on Site ranged from 7.2×10^{-6} to 6.3×10^{-9} m/sec for wells screened across fine grained till materials. These values are consistent with published values for these types of materials are representative of the till encountered across the Site.
- Horizontal hydraulic conductivity values for saturated soils on Site ranged from 1.0×10^{-5} to 7.2×10^{-7} m/sec for wells screened across coarse grained materials at the Site. These values are consistent with published values for these types of materials and are representative of the sand encountered across the Site.
- Local groundwater flow in the shallow water table is radial from two topographic highs located in the central portion of the Site. Groundwater flow generally mimics topography.
- In areas where proposed development may intersect the water table waterproofing with sump pumps should be considered to ensure that spring high groundwater conditions do not adversely affect below grade structures (e.g. basements, parking garages etc.).

7.0 RECOMMENDATIONS

MTE recommends the following:

- Monthly Site visits are recommended during spring months to ensure the spring high groundwater level is captured.
- Conduct quarterly site visits from June onwards to collect manual groundwater levels and download data loggers.
- Collect annual groundwater samples from select monitoring wells to be analyzed for general chemistry parameters. Sampling during Spring ensures the best opportunity to have sufficient volumes of groundwater in each well.
- A private well inventory be completed to identify private water well users within 500 m of the Site.
- Additional assessment and reporting to take place during the detailed design process to assess:
    - Source water protection policies;
    - Potential hydrogeological impacts that may result from the development design;
    - Groundwater Mounding; and
    - Construction dewatering requirements and associated permits (if required).
- In-Situ infiltration testing be conducted at the locations of the proposed infiltration galleries.
- Groundwater wells not in use be decommissioned in accordance with *Ontario Regulation 903* (as amended).

8.0 LIMITATIONS

Services performed by **MTE Consultants Inc.** (MTE) were conducted in a manner consistent with the level of care and skill ordinarily exercised by members of the Environmental Engineering & Consulting profession. No other warranty or representation expressed or implied as to the accuracy of the information, conclusions or recommendations is included or intended in this report.

This report was completed for the sole use of MTE and Fusion Homes. It was completed in accordance with the Scope of Work. As such, this report may not deal with all issues potentially applicable to the Site and may omit issues, which are or may be of interest to the reader. MTE makes no representation that the present report has dealt with any and all of the important features, including any or all important environmental features, except as provided in the Scope of Work. All findings and conclusions presented in this report are based on Site conditions as they existed during the time period of the investigation. This report is not intended to be exhaustive in scope or to imply a risk-free facility.

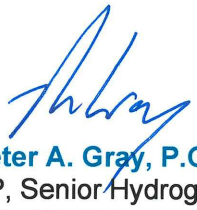
Any use which a third party makes of this report, or any reliance on, or decisions to be made based upon it, are the responsibility of such third parties. MTE accepts no responsibility for liabilities incurred by or damages, if any, suffered by any third party as a result of decisions made or actions taken, based upon this report. Others with interest in the Site should undertake their own investigations and studies to determine how or if the condition affects them or their plans.

It should be recognized that the passage of time may affect the views, conclusions and recommendations (if any) provided in this report because environmental conditions of a property can change. Should additional or new information become available, MTE recommends that it be brought to our attention in order that we may re-assess the contents of this report.

All of which is respectfully submitted,

MTE Consultants Inc.

Mike Ellenor, B.E.S.
Environmental Scientist
519-743-6500
mellenor@mte85.com



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2025-12-12

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https://mte85.sharepoint.com/sites/46927-104/Shared Documents/Environmental/04. Deliverables/Hydrogeology/Draft Plan Submission/46927-104_2025-12-12_rpt_Hydrogeological Assessment.docx

9.0 REFERENCES

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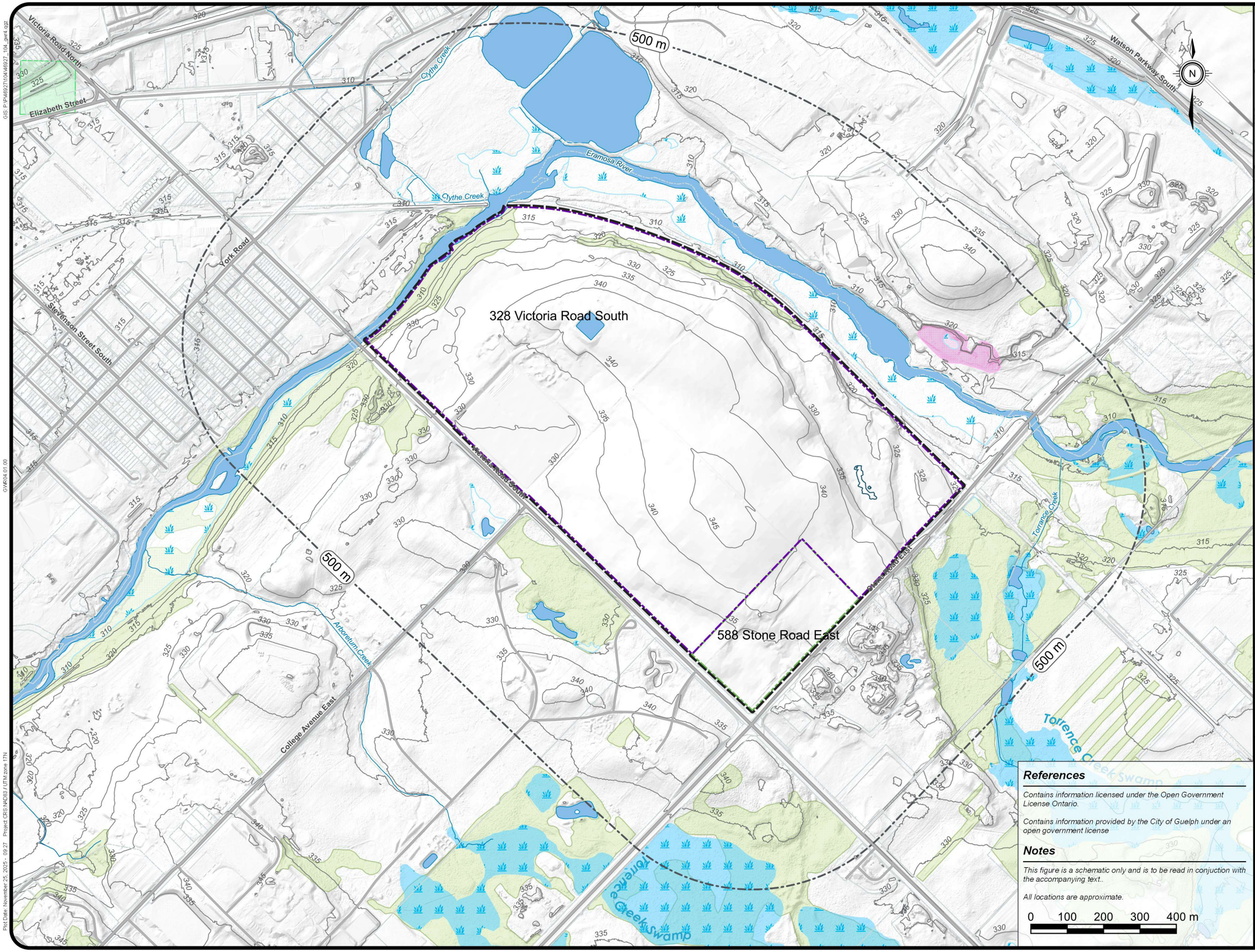
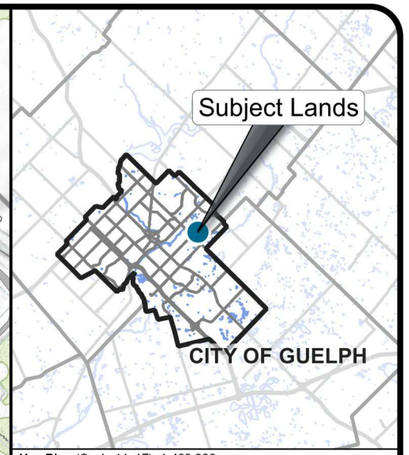
Figures





Key Plan (Scale 11x17): 1:400,000

Legend

Site Data
- Boundaries
  - Subject Lands
  - Former Wellington Detention Centre Lands
  - Turfgrass Lands
  - Study Area

Base Map
- Boundaries
  - Municipal Boundary (Lower Tier)
  - Parcel Fabric (City of Guelph)
- Buildings
  - Existing Building Foorprint
  - Former Building Footprint
- Transportation
  - Roads
  - Railway
- Groundsurface
  - Groundsurface Contour (5m Interval)
- Surface Water
  - Surface Waterbody
  - Surface Watercourse
  - Provincally Significant Wetland
  - Non-Provincially Significant Wetland (Evaluated)
  - Unevaluated Wetland
  - Wetland - Other (NRSI)
- Landuse
- ANSI
  - Provincial - Eath Science
  - Regional - Earth Science
  - Wooded Area

References

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Notes

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All locations are approximate.

0 100 200 300 400 m

MTE
Engineers,Scientists, Surveyors

Project
Guelph Innovation District Lands - Hydrogeological Assessment
328 Victoria Road S. and 588 Stone Road East, Guelph, ON

Title
Key Map

Drawn	Scale (11x17)	Figure
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Date (yyyy-mm-dd): 2025-11-25	Rev No.: 0	

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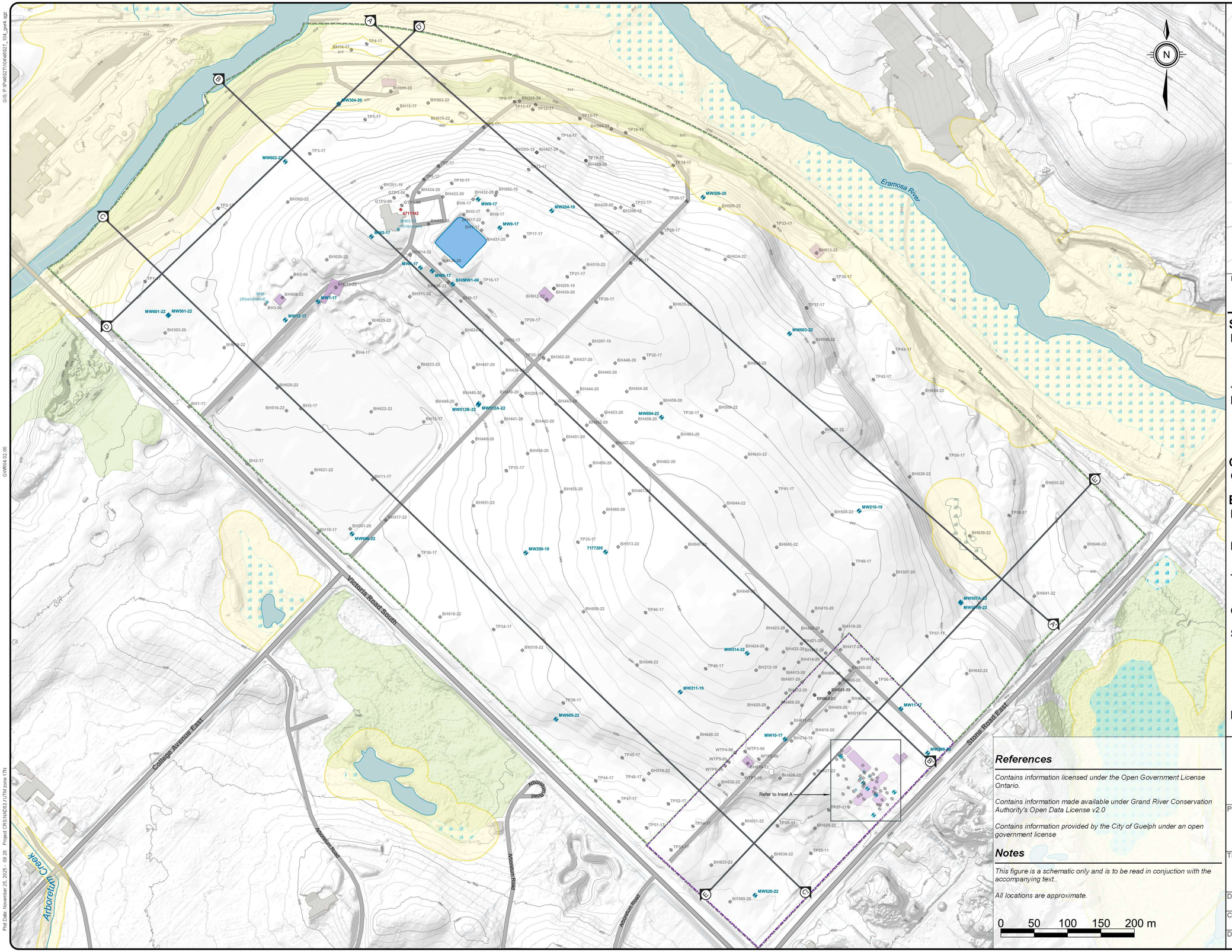

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Legend

Site Data

Boundaries
- Subject Lands
- Former Wellington Detention Centre Lands
- Turfgrass Lands
- Geological Cross Section Location

Monitoring Locations
- Borehole
- Minipiezometer
- Monitoring Well
- Private Well
- Test Pit

GRCA Data

GRCA Boundaries
- Regulation Limit (GRCA)

Base Map

Boundaries
- Municipal Boundary (Lower Tier)
- Parcel Fabric (City of Guelph)

Buildings
- Existing Building Foorprint
- Former Building Footprint

Transportation
- Roads
- Railway

Groundsurface
- Groundsurface Contour (1m Interval)

Surface Water
- Surface Waterbody
- Surface Watercourse
- Provincally Significant Wetland
- Non-Provincially Significant Wetland (Evaluated)
- Unevaluated Wetland
- Wetland - Other (NRSI)

Landuse
- Wooded Area

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Project **Guelph Innovation District Lands - Hydrogeological Assessment**

328 Victoria Road S. and 588 Stone Road East, Guelph, ON

Title **Site Layout and Features**

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Date (yyyy-mm-dd)	Rev No.	
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Eramosa River

Victoria Road South

College Avenue East

Stone Road East

Arboretum Road

Arboretum Road

Arboretum Road

Arboretum Pond

Arboretum Creek

N

Legend

Site Data

Boundaries
- Subject Lands
- Former Wellington Detention Centre Lands
- Turfgrass Lands

Past Land Use
- Conservation Lands
- Former Agricultural Lands
- Former Agroforestry Lands
- Former Detention Centre Buildings Compound Area
- Former Orchard/Environemental Toxicology Research area
- Former Putting Greens\Research Turf Ranges

Base Map

Boundaries
- Municipal Boundary (Lower Tier)
- Parcel Fabric (City of Guelph)

Buildings
- Existing Building Foorprint
- Former Building Footprint

Transportation
- Roads
- Railway

Groundsurface
- Groundsurface Contour (1m Interval)

Surface Water
- Surface Waterbody
- Surface Watercourse
- Provincally Significant Wetland
- Non-Provincially Significant Wetland (Evaluated)
- Unevaluated Wetland
- Wetland - Other (NRSI)

Landuse
- Wooded Area

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Project **Guelph Innovation District Lands - Hydrogeological Assessment**

328 Victoria Road S. and 588 Stone Road East, Guelph, ON

Title **Past Land Uses**

Drawn: MDE	Scale (24x36): 1:2,500	Figure: **3a**
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Date (yyyy-mm-dd): 2025-11-25	Rev No.: 0	

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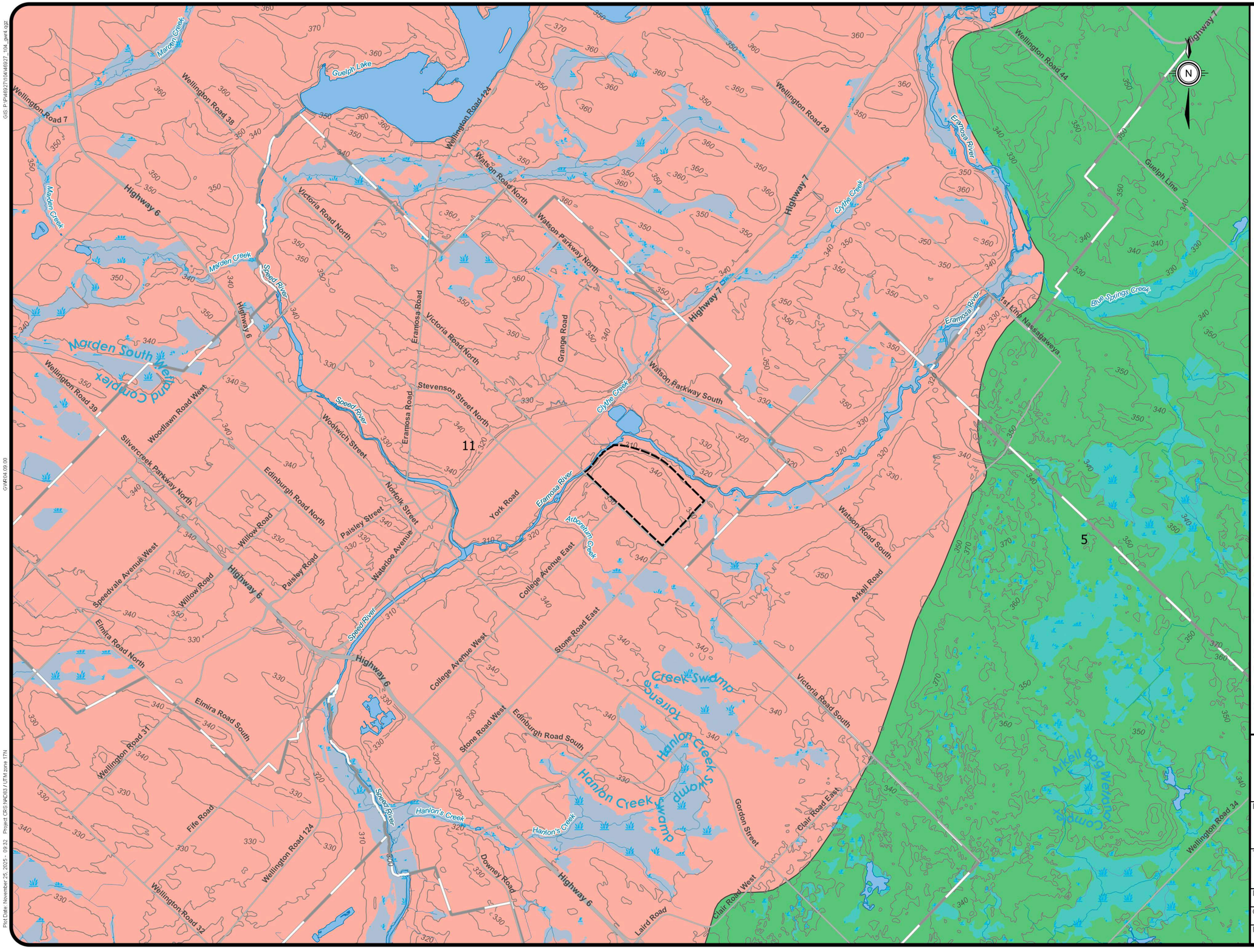

Legend

Site Data

Boundaries

- Subject Lands

Physiography

Physiographic Regions

- 5. Horseshoe Moraines
- 11. Guelph Drumlin Field

Base Map

Boundaries

- Municipal Boundary (Lower Tier)

Transportation

- Roads
- Railway

Surface Water

- Surface Waterbody
- Provincally Significant Wetland
- Surface Watercourse

Groundsurface

- Groundsurface Contour (10m Interval)

References

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

Notes

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Project

Guelph Innovation District Lands - Hydrogeological Assessment

328 Victoria Road S. and 588 Stone Road East, Guelph, ON

Title

Physiographic Regions

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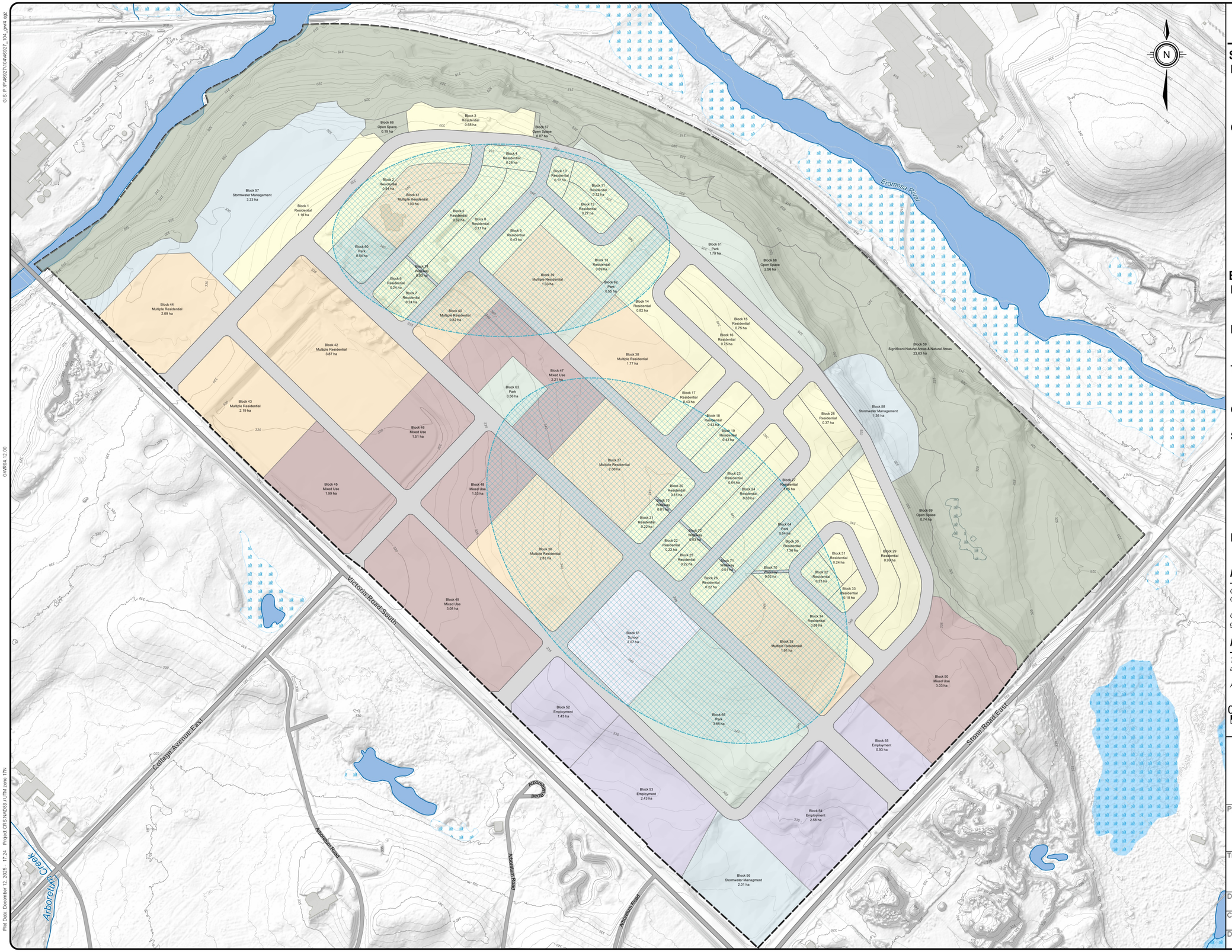
Date (yyyy-mm-dd): 2025- 11-25	Rev No.: 0	



Legend

Site Data

Boundaries
- Subject Lands
- Areas Where Groundwater Elevations Are Above Proposed Finsihed Grade (Approximate)

Concept Plan
- Subject Lands
- Low Density Residential
- Medium Density Residential
- Mixed Use
- School
- Employment
- Stormwater Management
- Parks
- Open Space (Natural Area)
- Streets

Base Map

Boundaries
- Municipal Boundary (Lower Tier)
- Parcel Fabric (City of Guelph)

Buildings
- Existing Building Foorprint
- Former Building Footprint

Transportation
- Roads
- Railway

Groundsurface
- Groundsurface Contour (1m Interval)

Surface Water
- Surface Waterbody
- Surface Watercourse
- Provincally Significant Wetland
- Non-Provincially Significant Wetland (Evaluated)
- Unevaluated Wetland
- Wetland - Other (NRSI)

Landuse
- Wooded Area

References

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0 50 100 150 200 m

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328 Victoria Road S. and 588 Stone Road East, Guelph, ON

Title **Concept Plan**

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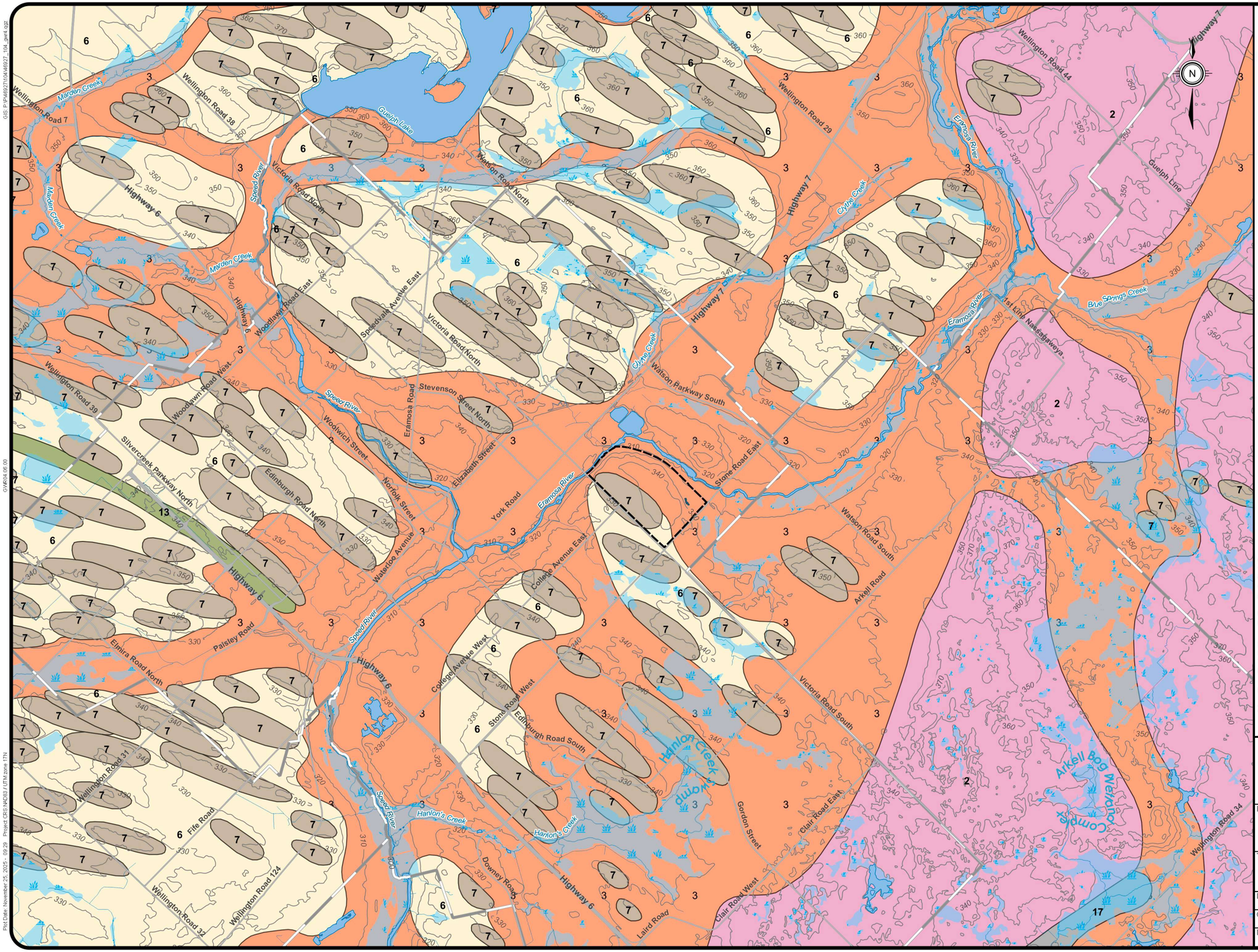

Legend

Site Data

Boundaries

- Subject Lands

Physiography

Physiographic Landforms

- 2. Till Moraines
- 3. Spillways
- 6. Till Plains (Drumlinized)
- 7. Drumlins
- 13. Eskers

Base Map

Boundaries

- Municipal Boundary (Lower Tier)

Transportation

- Roads
- Railway

Surface Water

- Surface Waterbody
- Provincally Significant Wetland
- Surface Watercourse

Groundsurface

- Groundsurface Contour (10m Interval)

References

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0 500 1,000 1,500 2,000 m

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Project
Guelph Innovation District Lands - Hydrogeological Assessment
328 Victoria Road S. and 588 Stone Road East, Guelph, ON

Title
Physiographic Landforms

Drawn	Scale (11x17)	Figure
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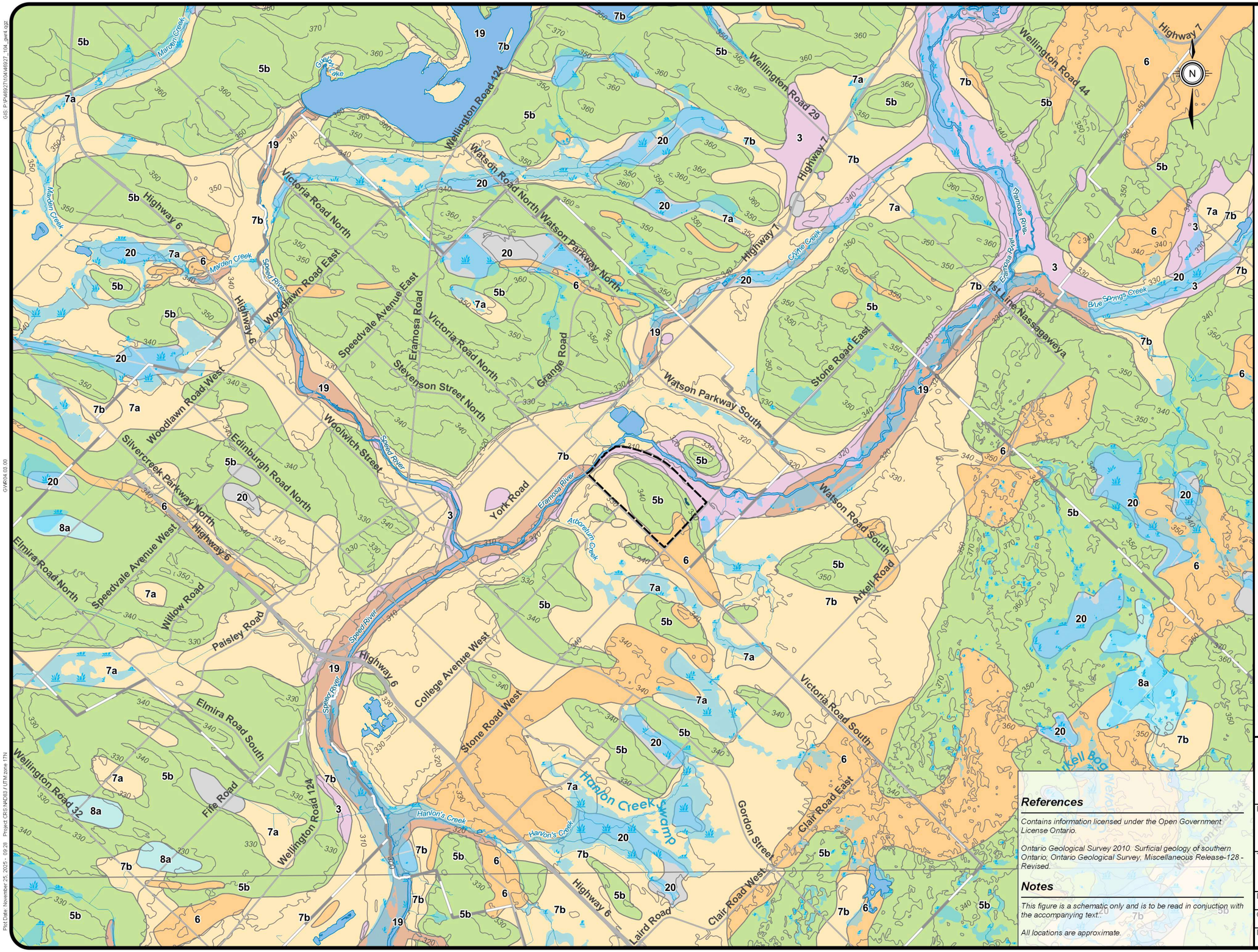

Legend

Site Data

Boundaries

- Subject Lands

Quaternary Geology

Quaternary

- 20. Organic Deposits: peat, muck, marl
- 19. Modern alluvial deposits: clay, silt, sand, gravel, may contain organic remains
- 8. Fine-textured glaciolacustrine deposits: silt and clay, minor sand and gravel
- 8a. Massive to well laminated
- 7. Glaciofluvial deposits: river deposits and delta topset facies
- 7a. Sandy deposits
- 7b. Gravelly deposits
- 6. Ice-contact stratified deposit: sand and gravel, minor silt, clay and till
- 5b. Stone-poor, sandy silt to silty sand-textured till on Paleozoic terrain

Paleozoic

- 3. Paleozoic bedrock

Base Map

Boundaries

- Municipal Boundary (Lower Tier)

Transportation

- Roads
- Railway

Surface Water

- Surface Waterbody
- Provincially Significant Wetland
- Surface Watercourse

Groundsurface

- Groundsurface Contour (10m Interval)

0 500 1,000 1,500 2,000 m

References

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Ontario Geological Survey 2010. Surficial geology of southern Ontario; Ontario Geological Survey, Miscellaneous Release-128 - Revised.

Notes

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Engineers,Scientists, Surveyors

Project
Guelph Innovation District Lands - Hydrogeological Assessment
328 Victoria Road S. and 588 Stone Road East, Guelph, ON

Title
Quaternary Geology

Drawn	Scale (11x17)	Figure
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Plot Date: November 25, 2025 - 09:28 Project CRS: NAD83 / UTM zone 17N

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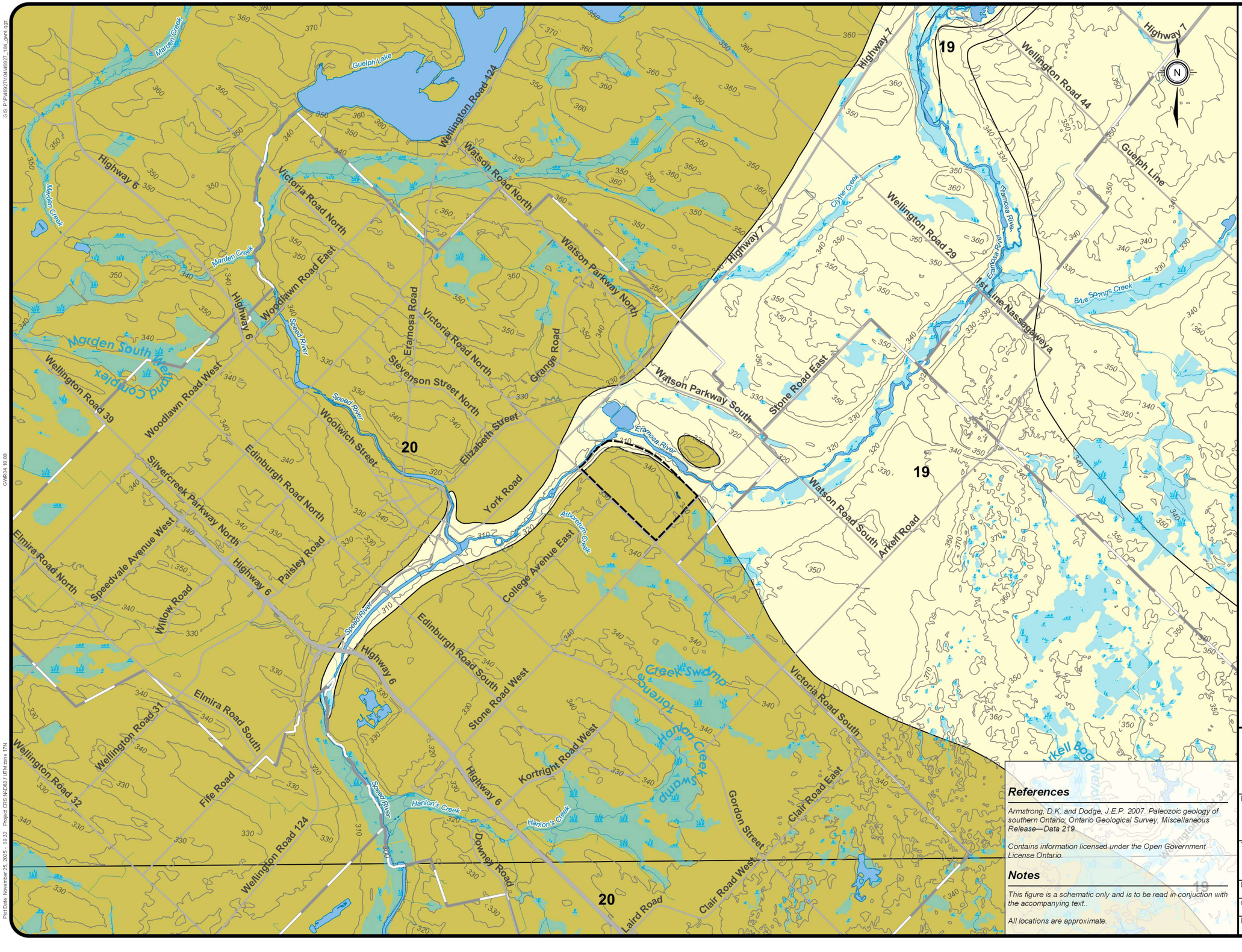
GWR104 10 00

Plot Date: November 25, 2025 - 09:32 Project CRS: NAD83 / UTM zone 17N



References

Armstrong, D.K. and Dodge, J.E.P. 2007. Paleozoic geology of southern Ontario; Ontario Geological Survey, Miscellaneous Release—Data 219.

Notes

This figure is a schematic only and is to be read in conjuction with the accompanying text..

All locations are approximate.

Legend

Site Data

Boundaries

- Subject Lands

Paleozoic Geology

Upper Silurian

- 20. Guelph Formation: dolostone: sucrosic, fossiliferous, locally biohermal; includes bituminous dolostone on Bruce Peninsula (=Eramosa Member)

Lower Silurian

- 19. Amabel Formation: dolostone; thick-bedded, crinoidal, locally biohermal; includes bituminous dolostone in Guelph to Burlington area (=Eramosa Member)

Base Map

Boundaries

- Municipal Boundary (Lower Tier)

Transportation

- Roads
- Railway

Surface Water

- Surface Waterbody
- Provincally Significant Wetland
- Surface Watercourse

Groundsurface

- Groundsurface Contour (10m Interval)

0 500 1,000 1,500 2,000 m

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Project

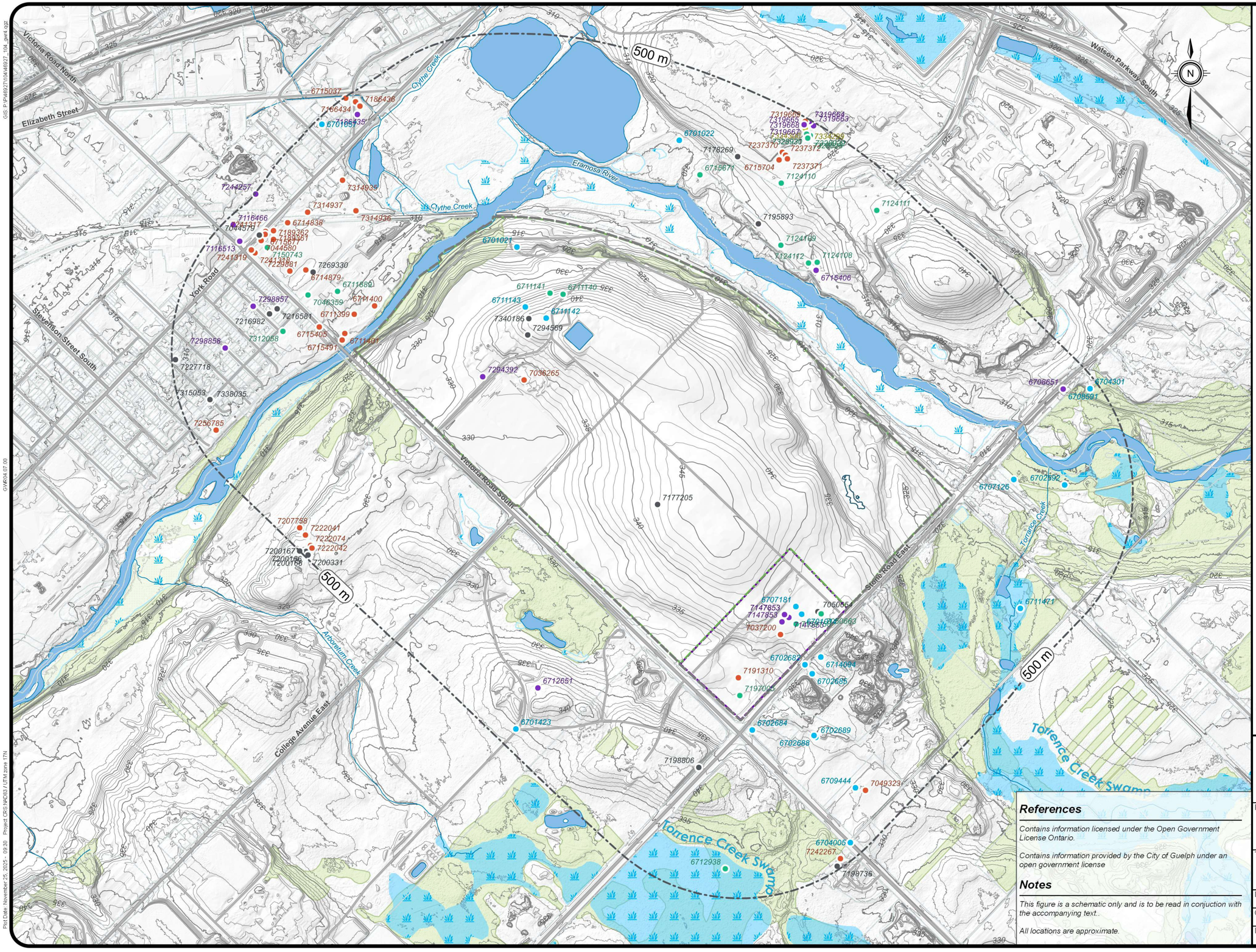
Guelph Innovation District Lands - Hydrogeological Assessment

328 Victoria Road S. and 588 Stone Road East, Guelph, ON

Title

Paleozoic Geology

Drawn: MDE	Scale (11x17): 1:50,000	Figure: 6
Checked: PAG	Project No.: 46927-104	
Date (yyyy-mm-dd): 2025- 11-25	Rev No.: 0	



Legend

Site Data

Boundaries

- Subject Lands
- Former Wellington Detention Centre Lands
- Turfgrass Lands
- Study Area

MECP Well Locations and MECP Well Number

- Abandoned
- Dewatering
- Monitoring
- Test Hole
- Water Supply
- No Use Specified

Base Map

Boundaries

- Municipal Boundary (Lower Tier)
- Parcel Fabric (City of Guelph)

Transportation

- Roads
- Railway

Buildings

- Existing Building Foorprint
- Former Building Footprint

Surface Water

- Surface Waterbody
- Provincally Significant Wetland
- Wetland - Other (NRSI)
- Surface Watercourse

Groundsurface

- Groundsurface Contour (1m Interval)

Landuse

- Wooded Area

0 100 200 300 400 500 m

References

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Notes

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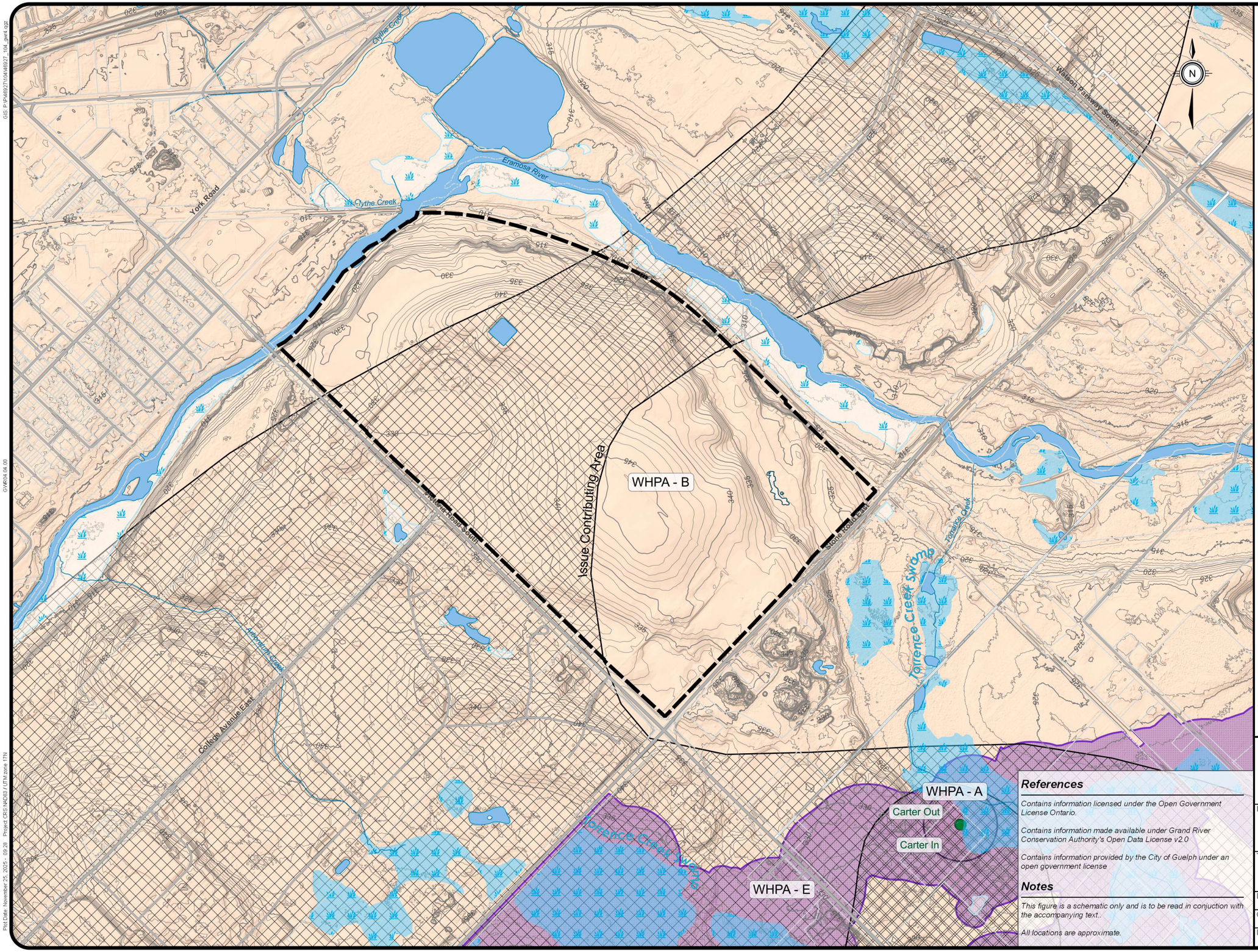
Project
Guelph Innovation District Lands - Hydrogeological Assessment
328 Victoria Road S. and 588 Stone Road East, Guelph, ON

Title
MECP Water Well Reocrds

Drawn: MDE	Scale (11x17): 1:10,000	Figure: 7
Checked: PAG	Project No.: 46927-104	
Date (yyyy-mm-dd): 2025- 11-25	Rev No.: 0	



Legend

Site Data
- Boundaries
  - Subject Lands

Source Water Protection
- Wells
  - SWP Wells
- Boundaries
  - SWP Issue Contributing Area (GRCA)
- WHPA
  - A - 100 m Exclusion Zone
  - B - 0 to 2 Year Time of Travel
  - C - 2 to 5 Year Time of Travel
  - D - 5 to 25 Year Time of Travel
  - E - Groundwater Under Direct Influence

Base Map
- Boundaries
  - Municipal Boundary (Lower Tier)
  - Parcel Fabric (City of Guelph)
- Transportation
  - Roads
  - Railway
- Buildings
  - Existing Building Foorprint
  - Former Building Footprint
- Surface Water
  - Surface Waterbody
  - Provincally Significant Wetland
  - Wetland - Other (NRSI)
  - Surface Watercourse

Groundsurface
- Groundsurface Contour (1m Interval)

0 100 200 300 400 500 m

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Project
Guelph Innovation District Lands - Hydrogeological Assessment
328 Victoria Road S. and 588 Stone Road East, Guelph, ON

Title
Well Head Protection Area (WHPA)

Drawn	Scale (11x17)	Figure
MDE	1:10,000	9
Checked: PAG	Project No.: 46927-104	
Date (yyyy-mm-dd): 2025- 11-25	Rev No.: 0	

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Plot Date: November 25, 2025 - 09:28 Project CRS: NAD83 / UTM zone 17N

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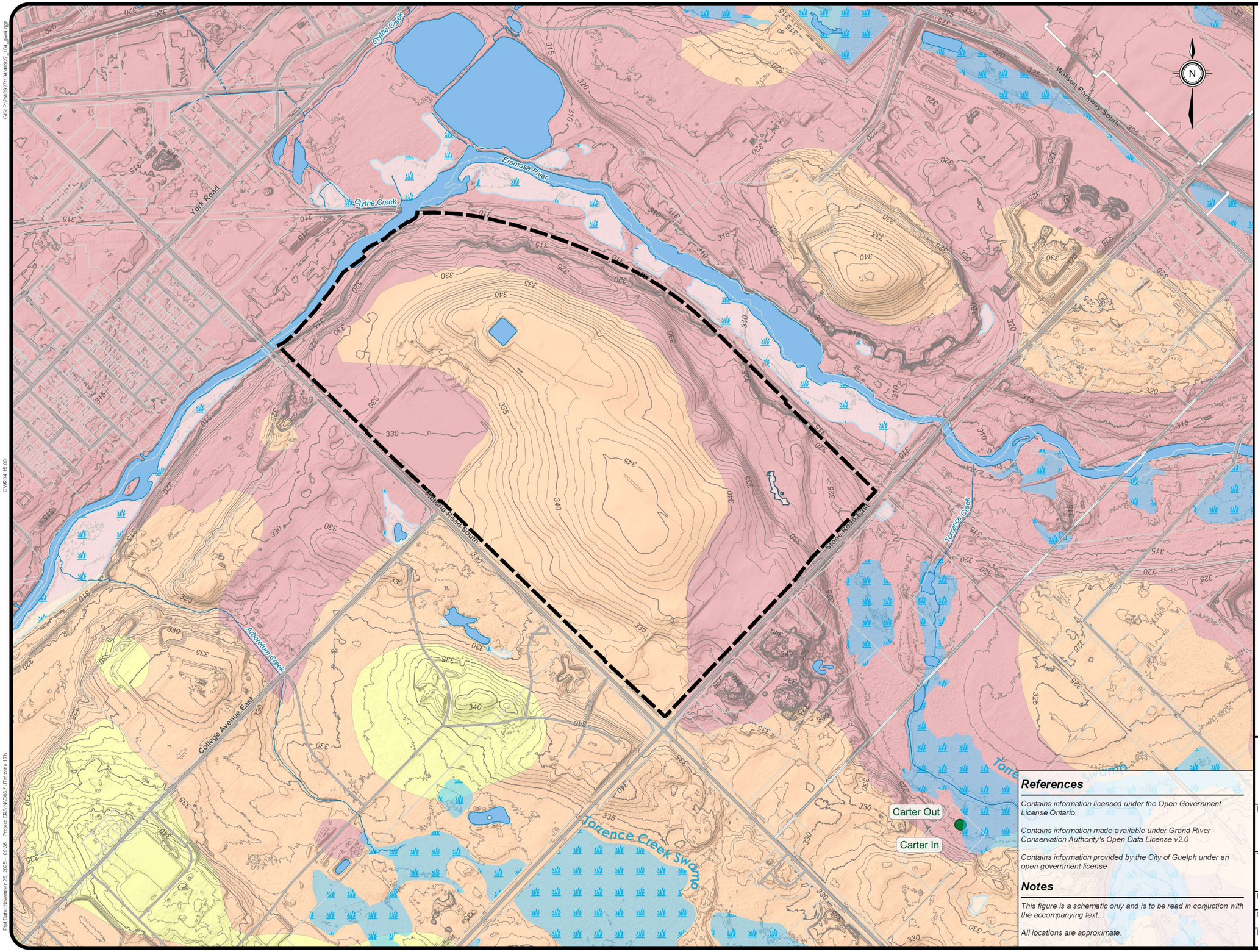
GWR104 15:00

Plot Date: November 25, 2025 - 09:36 Project CRS: NAD83 / UTM zone 17N



Legend

Site Data

Boundaries

- Subject Lands

Source Water Protection

Wells

- SWP Wells

WHPA Vulenrability

- 10
- 8
- 6
- 4
- 2

Base Map

Boundaries

- Municipal Boundary (Lower Tier)
- Parcel Fabric (City of Guelph)

Transportation

- Roads
- Railway

Buildings

- Existing Building Foorprint
- Former Building Footprint

Surface Water

- Surface Waterbody
- Provincally Significant Wetland
- Wetland - Other (NRSI)
- Surface Watercourse

Groundsurface

- Groundsurface Contour (1m Interval)

0 100 200 300 400 500 m

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Project

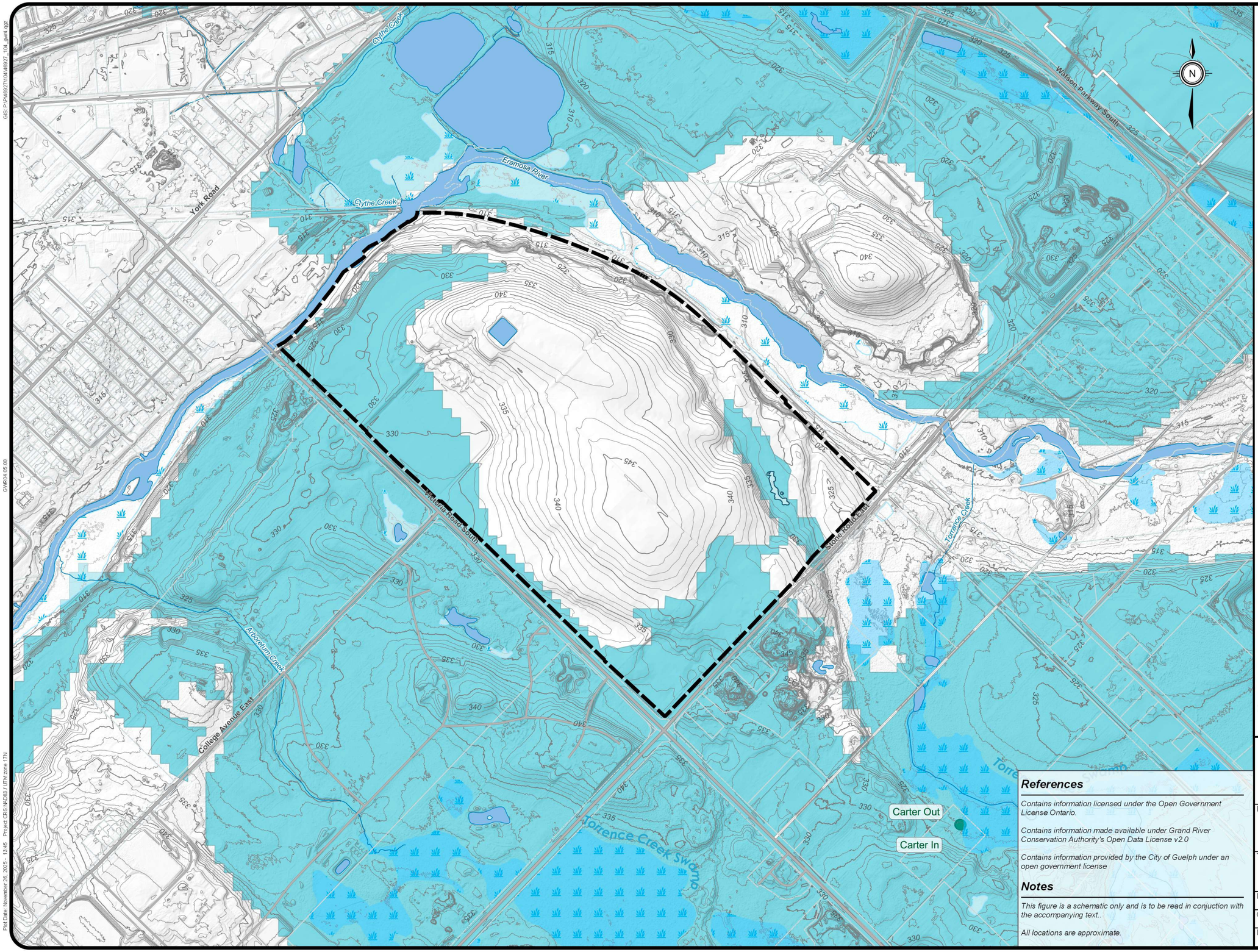
Guelph Innovation District Lands - Hydrogeological Assessment

328 Victoria Road S. and 588 Stone Road East, Guelph, ON

Title

WHPA Vulnerability

Drawn: MDE	Scale (11x17): 1:10,000	Figure: **10**
Checked: PAG	Project No.: 46927-104	
Date (yyyy-mm-dd): 2025- 11-25	Rev No.: 0	



Legend

Site Data
- Boundaries
  - Subject Lands

Source Water Protection
- Wells
  - SWP Wells
- Boundaries
  - SWP Issue Contributing Area (GRCA)
  - SWP SGRA (GRCA)

Base Map
- Boundaries
  - Municipal Boundary (Lower Tier)
  - Parcel Fabric (City of Guelph)
- Transportation
  - Roads
  - Railway
- Buildings
  - Existing Building Foorprint
  - Former Building Footprint
- Surface Water
  - Surface Waterbody
  - Provincally Significant Wetland
  - Wetland - Other (NRSI)
  - Surface Watercourse

Groundsurface
- Groundsurface Contour (1m Interval)

0 100 200 300 400 500 m

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Project
Guelph Innovation District Lands - Hydrogeological Assessment
328 Victoria Road S. and 588 Stone Road East, Guelph, ON

Title
Significant Groundwater Recharge Areas (SGRAs)

Drawn MDE	Scale (11x17) 1:10,000	Figure 11
Checked PAG	Project No. 46927-104	
Date (yyyy-mm-dd) 2025- 11-26	Rev No. 0	

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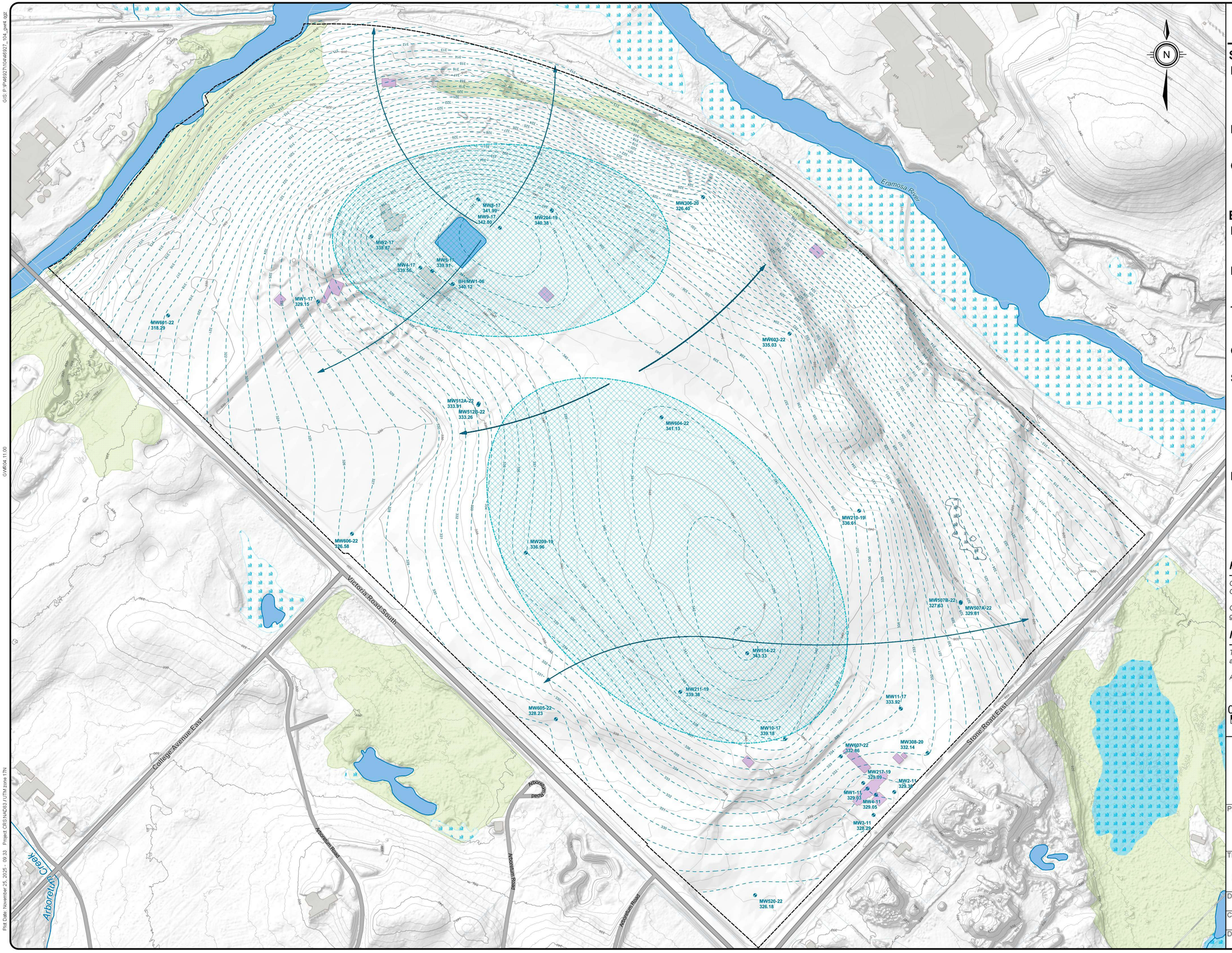
Plot Date: November 26, 2025 - 13:45 Project CRS: NAD83 / UTM zone 17N



Legend

Site Data

Boundaries
- Subject Lands
- Areas Where GRoundwater Elevations Are Above Proposed Finsihed Grade (Approximate)

Monitoring Locations
- Monitoring Well
- 342.81 Groundwater Elevation mAMSL

Groundwater Flow
- Groundwater Elevation Contour (1m Interval)
- Groundwater Flow Direction (Inferred)

Base Map

Boundaries
- Municipal Boundary (Lower Tier)
- Parcel Fabric (City of Guelph)

Buildings
- Existing Building Foorprint
- Former Building Footprint

Transportation
- Roads
- Railway

Groundsurface
- Groundsurface Contour (1m Interval)

Surface Water
- Surface Waterbody
- Surface Watercourse
- Provincally Significant Wetland
- Non-Provincially Significant Wetland (Evaluated)
- Unevaluated Wetland
- Wetland - Other (NRSI)

Landuse
- Wooded Area

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Notes

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0 50 100 150 200 m

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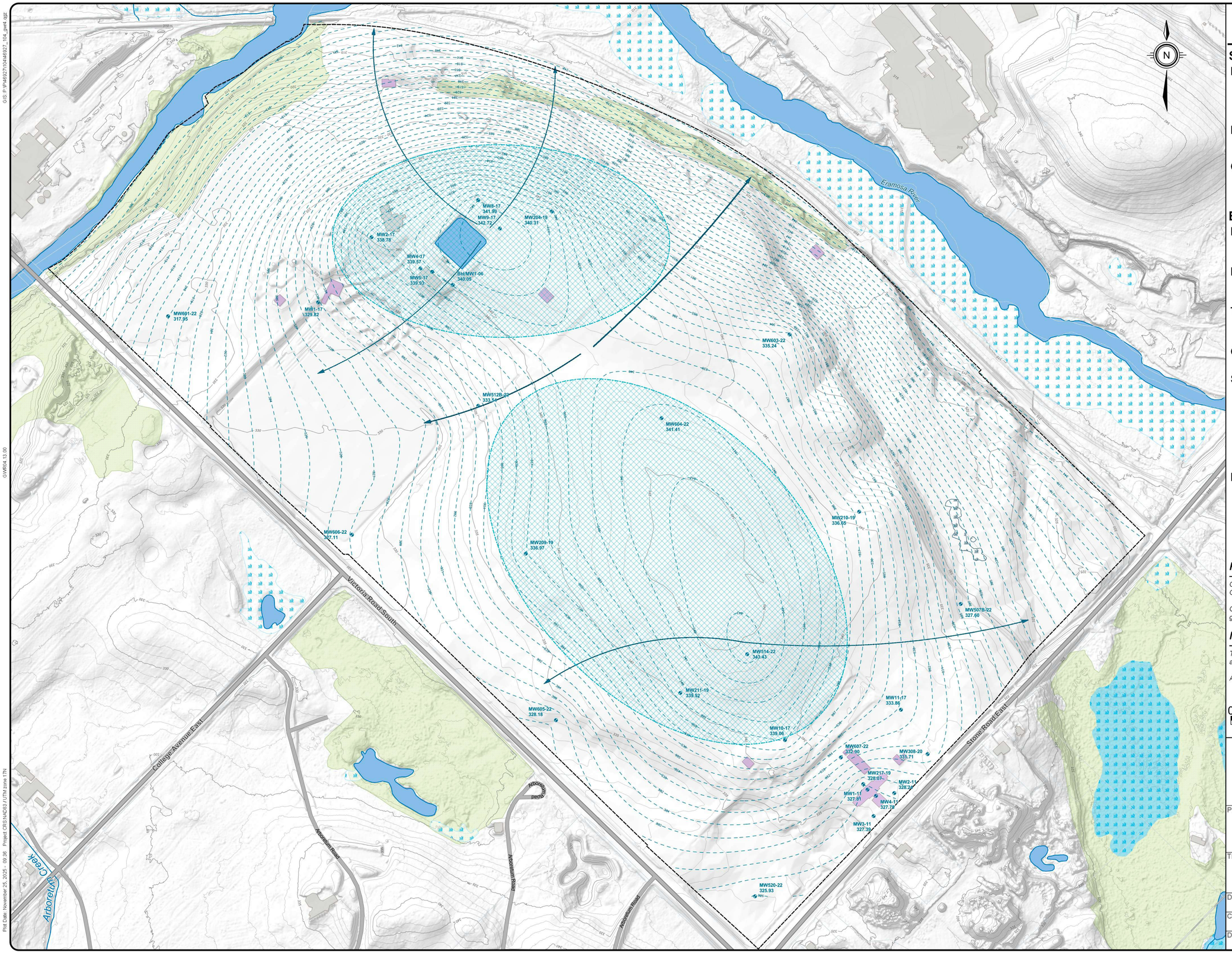
Project **Guelph Innovation District Lands - Hydrogeological Assessment**

328 Victoria Road S. and 588 Stone Road East, Guelph, ON

Title **Groundwater Elevations and Inferred Groundwater Flow Direction - April 24, 2023**

Drawn: MDE	Scale (24x36): 1:2,500	Figure: **12a**
Checked: PAG	Project No.: 46927-104	
Date (yyyy-mm-dd): 2025-11-25	Rev No.: 0	



Legend

Site Data

Boundaries
- Subject Lands
- Areas Where Groundwater Elevations Are Above Proposed Finsihed Grade (Approximate)

Monitoring Locations
- Monitoring Well
- 342.81 Groundwater Elevation mAMSL

Groundwater Flow
- Groundwater Elevation Contour (1m Interval)
- Groundwater Flow Direction (Inferred)

Base Map

Boundaries
- Municipal Boundary (Lower Tier)
- Parcel Fabric (City of Guelph)

Buildings
- Existing Building Foorprint
- Former Building Footprint

Transportation
- Roads
- Railway

Groundsurface
- Groundsurface Contour (1m Interval)

Surface Water
- Surface Waterbody
- Surface Watercourse
- Provincally Significant Wetland
- Non-Provincially Significant Wetland (Evaluated)
- Unevaluated Wetland
- Wetland - Other (NRSI)

Landuse
- Wooded Area

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All locations are approximate.

0 50 100 150 200 m

Engineers,Scientists, Surveyors

Project: **Guelph Innovation District Lands - Hydrogeological Assessment**

328 Victoria Road S. and 588 Stone Road East, Guelph, ON

Title: **Groundwater Elevations and Inferred Groundwater Flow Direction - April 22, 2024**

Drawn	Scale (24x36)	Figure
MDE	1:2,500	**12b**
Checked: PAG	Project No.: 46927-104	
Date (yyyy-mm-dd): 2025-11-25	Rev No.: 0	

Tables

Table 1: MECP Well Record Summary

MECP Well No.	MECP Well Tag No.	Easting	Northing	Year Drilled	Nominal Casing Diameter (mm)	Casing Start (mBGS)	Casing End (mBGS)	Drilling Method	Well Status	Well Use	Water Quality	First Water Found (mBGS)	Total Depth (mBGS)	Screen		Pumping Test				Depth to Unit Base (m)	Colour	Material 1	Material 2	Material 3	Well Record Link
														Top (mBGS)	Bottom (mBGS)	Static Level (mBGS)	Final Level (mBGS)	Rate (LPM)	Duration (Hours)						
6701014	-	564230.3	4821402	1957	203.2	-	39	Cable Tool	Water Supply	Public	Not Stated	18.3	61.26	-	-	10.7	51.8	109.1	18	0.6		Topsoil			mecp well record
																				0.6		Topsoil			
																				5.5		Medium Sand	Boulders		
																				5.5		Medium Sand	Boulders		
																				12.8		Medium Sand	Clay		
																				12.8		Medium Sand	Clay		
																				36.6		Limestone			
																				36.6		Limestone			
																				39		Shale			
																				39		Shale			
																				61.3		Limestone			
																				61.3		Limestone			
6701021	-	563446.3	4822413	1949	152.4	-	20.7	Cable Tool	Water Supply	Domestic	Fresh	20.1	20.73	-	-	12.8	15.2	45.5	2	1.8		Clay	Stones		mecp well record
																				4		Gravel			
																				12.8		Hardpan			
																				20.7	Brown	Limestone			
6701022	-	563893.3	4822707	1962	177.8	-	22.6	Cable Tool	Water Supply	Public	Sulphur	2.4	22.56	-	-	-0.6	4	181.8	4	1.2		Medium Sand			mecp well record
																				19.5		Limestone			
																				22.6	Grey	Limestone			
6701057	-	562909.3	4822751	1961	101.6	-	12.2	Cable Tool	Water Supply	Commerical	Fresh	12.2	12.19	-	-	1.8	10.7	22.7	1	0.9		Clay			mecp well record
																				4		Shale			
																				12.2	Black	Limestone			
6701423	-	563443.3	4821086	1953	254	-	63.4	Cable Tool	Water Supply	Irrigation	Sulphur	63.4	63.4	-	-	12.2	39	18.2	9	0.3	Black	Topsoil			mecp well record
																				3		Clay	Stones		
																				3.7		Gravel	Stones		
																				12.2		Hardpan	Stones		
																				12.5		Gravel			
																				12.8		Hardpan	Stones		
																				17.1		Medium Sand	Clay		
																				21		Gravel	Clay		
																				32.9	Grey	Limestone			
																				47.2	Black	Limestone			
																				63.4	Blue	Limestone			
6702682	-	564239.3	4821263	1955	101.6	-	34.4	Cable Tool	Water Supply	Domestic	Fresh	32	34.44	-	-	8.5	12.2	36.4	-	1.2		Topsoil			mecp well record
																				7.6		Gravel			
																				9.1	Grey	Clay			
																				10.7		Gravel			
																				11.3	Grey	Clay			
																				12.5		Gravel			
																				17.4	Grey	Stones	Clay		
																				23.8	Brown	Limestone			
																				32	Black	Limestone			
																				34.4	Grey	Limestone			
6702684	-	564094.3	4821083	1954	101.6	-	22.3	Cable Tool	Water Supply	Domestic	Fresh	-	22.56	-	-	9.1	-	27.3	3	19.8		Gravel	Stones		mecp well record
																				22.3		Clay			
																				22.6	Black	Rock			
6702685	-	564259.3	4821238	1955	101.6	-	30.5	Cable Tool	Water Supply	Domestic	Fresh	30.5	30.48	-	-	8.8	8.8	45.5	2	14.3		Gravel	Stones		mecp well record
																				28	Brown	Rock			
																				30.5	Black	Rock			
6702688	-	564264.3	4821068	1962	101.6	-	16.8	Cable Tool	Water Supply	Livestock	Fresh	16.8	16.76	-	-	9.8	10.7	45.5	1	5.5		Previously Dug			mecp well record
																				9.8	Brown	Clay	Coarse Sand		
																				16.8	Brown	Rock			
6702689	-	564269.3	4821063	1963	101.6	-	24.4	Cable Tool	Water Supply	Livestock	Fresh	24.4	24.38	-	-	13.7	15.2	45.5	3	16.8		Prev. Drilled			mecp well record
																				24.4	Black	Rock			
6702692	-	564954.3	4821758	1964	127	-	11.9	Cable Tool	Water Supply	Domestic	Fresh	10.7	11.89	-	-	1.5	6.1	68.2	4	4.3		Gravel	Boulders		mecp well record
																				7.9	Brown	Limestone			
																				11.9	Black	Rock			
6704005	-	564364.3	4820773	1971	101.6	-	33.5	Cable Tool	Water Supply	Domestic	Fresh	22.9	33.53	-	-	9.8	10.7	45.5	1	8.5		Clay	Medium Sand		mecp well record
																				10.4	Brown	Shale			
																				26.5	Brown	Rock			
																				33.5	Black	Rock			
6704301	-	565024.3	4822023	1972	127	-	15.5	Cable Tool	Water Supply	Domestic	Fresh	15.2	15.54	-	-	7.3	12.2	45.5	2	9.1		Clay	Stones		mecp well record
																				15.5	Brown	Rock			
6707126	-	564814.3	4821773	1979	127	-	26.5	Rotary (Air)	Water Supply	Domestic	Sulphur	26.2	26.52	-	-	7.9	14.6	54.6	1	6.7	Brown	Clay	Sand	Gravel	mecp well record
																				15.2	Brown	Stones			
																				26.5	Black	Stones			
6707181	-	564214.3	4821423	1979	152.4	-	62.5	Air Percussion	Water Supply	Public	Sulphur	46	62.48	-	-	21.3	39.6	318.2	24	8.5		Sand	Gravel		mecp well record
																				10.4		Clay			
																				62.5		Limestone			
6708591	-	564950.3	4822022	1986	127	-	1.2	Rotary (Convent.)	Water Supply	Domestic	Fresh	9.1	42.67	-	-	3	6.1	500.1	-	0.9		Shale			mecp well record
																				9.1	Black	Rock	Soft		
																				9.8	Blue	Rock			
																				14	Grey	Rock			
																				18.9		Limestone	Soft		
																				26.2	Grey	Limestone	Soft		
																				28.7	Brown	Limestone			
																				42.7	Grey	Limestone			

Table 1: MECP Well Record Summary

MECP Well No.	MECP Well Tag No.	Easting	Northing	Year Drilled	Nominal Casing Diameter (mm)	Casing Start (mBGS)	Casing End (mBGS)	Drilling Method	Well Status	Well Use	Water Quality	First Water Found (mBGS)	Total Depth (mBGS)	Screen		Pumping Test				Depth to Unit Base (m)	Colour	Material 1	Material 2	Material 3	Well Record Link
														Top (mBGS)	Bottom (mBGS)	Static Level (mBGS)	Final Level (mBGS)	Rate (LPM)	Duration (Hours)						
6708651	-	564950.3	4822022	1987	304.8	-	45.7	Cable Tool	Test Hole	Municipal	Fresh	9.1	45.72	-	-	2.1	-	-	-	0.9	Brown	Rock	Fractured		mecp well record
																				10.7	Brown	Rock			
																				24.4	Grey	Rock			
																				26.8	Brown	Rock			
																				42.1	Grey	Rock			
																				45.7	Grey	Rock			
6709444	-	564378.3	4820924	1988	152.4	-	25.6	Rotary (Air)	Water Supply	Domestic	Fresh	24.4	25.6	-	-	9.4	15.2	113.7	1	3	Brown	Clay	Stones		mecp well record
																				10.7	Brown	Clay	Sand	Gravel	
																				18.3	Brown	Rock			
																				25.6	Brown	Rock			
6711140	-	563573.3	4822283	1992	152.4	-	68	Rotary (Air)	Abandoned-Supply	Not Used	Fresh	43	67.97	-	-	32	36.6	113.7	2	3	Brown	Sand	Stones	Boulders	mecp well record
																				15.5	Brown	Clay	Stones	Boulders	
																				25	Brown	Dolomite	Hard		
																				43	Brown	Limestone	Hard		
																				68	Grey	Limestone	Hard	Porous	
6711141	-	563537.3	4822286	1992	152.4	-	63.7	Rotary (Air)	Abandoned-Supply	Not Used	Fresh	40.2	63.7	-	-	31.7	36.6	113.7	2	1.5	Brown	Sand	Stones	Boulders	mecp well record
																				14	Brown	Clay	Silt	Stones	
																				19.8	Brown	Dolomite	Hard		
																				40.2	Brown	Limestone	Hard		
																				63.7	Grey	Limestone	Hard	Porous	
6711142	-	563506.3	4822198	1992	254	-	68	Rotary (Air)	Water Supply	Commerical	Fresh	43	67.97	-	-	32	45.7	454.6	14	3	Brown	Sand	Stones	Boulders	mecp well record
																				15.5	Brown	Clay	Stones	Boulders	
																				25	Brown	Dolomite	Hard		
																				43	Brown	Limestone	Hard		
																				68	Grey	Limestone	Porous	Hard	
6711143	-	563469.3	4822248	1992	241.3	-	63.7	Rotary (Air)	Recharge Well	Cooling And A/C	Fresh	40.2	63.7	-	-	31.7	45.7	454.6	14	1.5	Brown	Sand	Stones	Boulders	mecp well record
																				14	Brown	Clay	Stones	Boulders	
																				19.8	Brown	Dolomite	Hard		
																				40.2	Brown	Limestone	Hard		
																				63.7	Grey	Limestone	Porous	Hard	
6711399	-	562998.3	4822228	1993	152.4	-	4	Rotary (Air)	Observation Wells	Industrial	-	-	6.71	4	5.5	-	-	9.1	5	3.4	Black	Fill	Sand	Gravel	mecp well record
																				5.5	Black	Coarse Sand	Sand	Stones	
																				6.7	Grey	Till	Stones		
6711400	-	563054.3	4822251	1993	152.4	-	4.6	Rotary (Air)	Observation Wells	Industrial	-	-	7.01	4.6	6.1	-	-	45.5	4	0.6	Black	Gravel	Sand	Stones	mecp well record
																				1.5	Black	Sand	Fill	Stones	
																				2.7	Brown	Coarse Sand	Stones		
																				6.1	Brown	Coarse Sand	Boulders	Stones	
																				7	Grey	Till	Silty	Stones	
6711401	-	562972.3	4822175	1993	152.4	-	5.5	Rotary (Air)	Observation Wells	Industrial	-	-	7.92	5.5	7	-	-	90.9	3	1.2	Black	Sand	Silty	Gravel	mecp well record
																				2.4	Black	Sand	Gravel	Stones	
																				4.3	Grey	Sand	Stones	Boulders	
																				6.7	Brown	Coarse Sand	Stones	Boulders	
6711471	-	564832.3	4821418	1994	152.4	-	38.1	Rotary (Air)	Water Supply	Domestic	Fresh	38.1	38.1	-	-	13.7	26.5	45.5	1	1.8	Brown	Clay	Stones		mecp well record
																				9.1	Brown	Rock			
																				21.3	Brown	Rock			
																				27.4	Grey	Rock			
																				38.1	Grey	Rock			
6711889	-	562952.3	4822291	1994	-	-	50	-	Abandoned-Supply	-	-	-	-	-	-	-0.3	-	227.3	-						mecp well record
6712651	-	563504	4821199	1998	304.8	-	67.1	Rotary (Convent.)	Test Hole	-	-	-	67.06	-	-	-	-	-	-	0.6	Brown	Clay	Sandy		mecp well record
																				1.8	Brown	Clay	Sandy	Stones	
																				3	Brown	Gravel	Sand		
																				9.8	Brown	Limestone			
																				22.6	Brown	Limestone	Shale		
																				27.1	Grey	Limestone			
																				28	Brown	Limestone			
																				42.4	Grey	Limestone			
																				42.7	Brown	Limestone			
																				47.2	Grey	Limestone			
																				51.5	Grey	Limestone	Light-Coloured		
																				52.4	Brown	Limestone	Hard		
																				60.7	Grey	Limestone	Dark-Coloured		
																				64.9	Green	Shale	Limestone	Sharp	
																				66.8	Green	Shale	Limestone	Sharp	
																				67.1	Green	Shale			
6712938	-	564020	4820701	1999	-	-	-	Cable Tool	Abandoned-Other	Irrigation	-	-	-	-	-	-	-	-	-						mecp well record
6714094	-	564283	4821284	2002	152.4	-	-	Rotary (Air)	Water Supply	Domestic	Fresh	61	60.96	-	-	17.1	25.3	31.8	1	7.6	Brown	Clay	Stones		mecp well record
																				13.4	Brown	Clay	Gravel		
																				15.2	Brown	Rock	Fractured		
																				27.4	Brown	Rock			
																				39.6	Black	Rock			
																				61	Grey	Rock			
6714838	A007462	562815	4822480	2004	50	0	9.5	Boring	Observation Wells	-	Fresh	9.5	10.7	3	6	-	-	-	-	7	Brown	Sand	Gravel	Rock	mecp well record
																				10.7	Brown	Clay	Silt		
6714879	A007462	562865	4822350	2004	50	0	1.5	Boring	Observation Wells	-	Fresh	-	4.5	1.5	4.5	-	-	-	-	4.5	Brown	Sand	Gravel	Rock	mecp well record
6715037	A007117	562975	4822823	2004	117.4	-0.6	9.1	Rotary (Air)	Observation Wells	Commerical	Fresh	7.6	9.14	-	-	-	-	-	-	1.2	Brown	Clay	Stones		mecp well record
																				9.1	Brown	Limestone			
6715405	A027610	562902	4822193	2005	51	0	3	Boring	Observation Wells	Not Used	-	4.6	6	3	6	-	-	-	-	0.2					mecp well record
																				2.2		Sand	Gravel		
																				6		Sand	Gravel		

Table 1: MECP Well Record Summary

MECP Well No.	MECP Well Tag No.	Easting	Northing	Year Drilled	Nominal Casing Diameter (mm)	Casing Start (mBGS)	Casing End (mBGS)	Drilling Method	Well Status	Well Use	Water Quality	First Water Found (mBGS)	Total Depth (mBGS)	Screen		Pumping Test				Depth to Unit Base (m)	Colour	Material 1	Material 2	Material 3	Well Record Link
														Top (mBGS)	Bottom (mBGS)	Static Level (mBGS)	Final Level (mBGS)	Rate (LPM)	Duration (Hours)						
6715406	A028074	564270	4822349	2005	50	0	1.5	Boring	Test Hole	Not Used	-	7	4.5	1.5	4.5	-	-	-	-	1.5		Fill	Sand	Gravel	mecp well record
																				4.5	Brown	Gravel	Sand	Loose	
																				4.5	Grey	Limestone			
6715491	A026520	562965	4822157	2005	51	-0.7	8.9	Boring	Observation Wells	-	-	1.3	11.9	8.9	11.9	-	-	-	-	4	Brown	Sand	Gravel		mecp well record
																				8.7					
																				11.9	Brown	Sand	Gravel		
6715671	A036531	563950.2	4822612	2006	50.8	0	2.1	Other Method	Abandoned-Other	-	-	-	3.66	2.1	3.7	-	-	-	-	1.2	Brown	Gravel	Sand		mecp well record
																				3.7	Brown	Fill	Gravel		
6715677	A005434	562753	4822448	2006	60	2.2	0	Boring	Observation Wells	Not Used	-	-	5.18	2.2	5.2	-	-	-	-	2	Brown	Fill	Gravel		mecp well record
																				5.2	Brown	Gravel	Sand		
6715704	A037833	564168	4822653	2006	50	0	9	Boring	Observation Wells	-	Fresh	5	12	9	12	-	-	-	-	5.5	Brown	Sand			mecp well record
																				12	Grey				
7036265	A035825	563466	4822047	2006	50	0	2.3	Boring	Observation Wells	Not Used	-	-	5.3	2.3	5.3	-	-	-	-	3	Brown	Silt	Stones		mecp well record
																				5.3	Brown	Silt	Stones		
7037200	A035857	564172	4821346	2006	50	0	4.8	Boring	Observation Wells	Not Used	-	-	10.6	4.5	10.6	-	-	-	-	4	Brown	Sand	Gravel		no digital well log
																				10.6	Brown	Sand	Gravel	Silt	
7044579	A005434	562737	4822446	2007	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						mecp well record
7044580	A005354	562742	4822431	2007	50	0	3.1	Boring	Observation Wells	Not Used	-	-	6.1	3.1	6.1	-	-	-	-	6.1	Brown	Sand	Gravel	Dense	mecp well record
7046359	-	562871	4822281	2007	-	-	-	-	Abandoned-Other	-	-	-	-	-	-	-	-	-	-						mecp well record
7049323	A058328	564406	4820917	2007	51	0	2.5	Rotary (Convent.)	Observation Wells	-	-	-	9	2.5	4	-	-	-	-	4.5	Brown	Sand	Gravel		mecp well record
																				9	Brown	Silt	Till		
7050654	-	564275	4821409	2007	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						mecp well record
7050663	-	564284	4821403	2007	-	-	-	-	Abandoned-Other	-	-	-	-	-	-	-	-	-	-						mecp well record
7116466	A067361	562665	4822474	2008	32	0	4.6	Diamond	Test Hole	Monitoring	Not Stated	2.4	4.6	-	-	-	-	-	-	1	Brown	Silt			mecp well record
																				2.4	Brown	Sand	Gravel		
																				4.6	Grey	Dolomite		Rock	
7116513	A067360	562683	4822429	2008	32	0	5.9	Diamond	Test Hole	Monitoring	Not Stated	4	5.9	-	-	-	-	-	-	0	Black	Other			mecp well record
																				0.1	Brown	Sand	Gravel		
																				1	Black	Silt	Gravel	Topsoil	
																				2.7	Brown	Sand	Gravel		
																				5.9		Rock		Dolomite	
7124108	-	564273	4822371	2009	-	-	-	-	Abandoned-Other	-	-	-	-	-	-	-	-	-	-						mecp well record
7124109	-	564173	4822418	2009	-	-	-	-	Abandoned-Other	-	-	-	-	-	-	-	-	-	-						mecp well record
7124110	-	564174	4822589	2009	-	-	-	-	Abandoned-Other	-	-	-	-	-	-	-	-	-	-						mecp well record
7124111	-	564437	4822514	2009	-	-	-	-	Abandoned-Other	-	-	-	-	-	-	-	-	-	-						mecp well record
7124112	-	564249	4822369	2009	-	-	-	-	Abandoned-Other	-	-	-	-	-	-	-	-	-	-						mecp well record
7147853	A099594	564183	4821401	2010	50	0	10.6	Auger	Test Hole	Monitoring	-	-	10.6	-	-	-	-	-	-	7.6	Brown	Gravel	Sand		no digital well log
																				10.6	Brown	Sand	Silt	Stones	
7147853	A099594	564183	4821401	2010	-	-	7.6	-	Test Hole	Monitoring	-	-	10.6	7.6	10.6	-	-	-	-						no digital well log
7147853	A099594	564195	4821393	2010	-	-	7.6	-	Test Hole	Monitoring	-	-	10.6	7.6	10.6	-	-	-	-						no digital well log
7147853	A099594	564176	4821381	2010	-	-	7.6	-	Test Hole	Monitoring	-	-	10.6	7.6	10.6	-	-	-	-						no digital well log
7150743	-	562759	4822412	2010	-	-	-	-	Abandoned-Other	-	-	-	7.62	-	-	-	-	-	-	7.6					mecp well record
7159158	A099594	564215	4821375	2011	-	-	-	-	Abandoned-Other	-	Fresh	8.7	-	-	-	-	-	-	-						mecp well record
7177205	A121106	563832	4821703	2011	6	0	36	Other Method	Observation Wells	Monitoring	-	-	23	-	-	-	-	-	-	1	Brown	Sand	Fine Sand	Topsoil	mecp well record
																				5.8	Brown				
																				7	Brown	Sand	Medium Sand		
																				7.4	Brown	Gravel			
																				7.6	Brown	Granite	Boulders		
																				13.5	Brown				
																				15	Brown	Sand	Fine Sand	Silt	
																				19	Brown				
																				23	Grey	Limestone	Rock		
7178269	A126027	564054	4822662	2012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						no digital well log
7186434	A109932	563002	4822813	2012	52	0	0.8	Other Method	Observation Wells	Monitoring	-	-	1.4	0.8	1.4	-	-	-	-	0.1	Black	Other		Soft	mecp well record
																				1	Brown	Sand	Gravel	Loose	
																				1.1	Black	Silt	Sand	Fill	
																				1.4	Brown	Silt	Limestone	Hard	
7186435	A109931	563007	4822778	2012	52	0	0.7	Other Method	Test Hole	Monitoring And Test Hole	-	-	1.6	0.7	1.6	-	-	-	-	0.1	Black	Other		Soft	mecp well record
																				1.6	Brown	Sand	Gravel	Loose	
7186436	A109750	563014	4822801	2012	52	0	0.7	Other Method	Observation Wells	Monitoring And Test Hole	-	-	1.6	0.7	1.6	-	-	-	-	0.1	Black	Other		Soft	mecp well record
																				1	Brown	Sand	Gravel	Loose	
																				1.3	Black	Sand	Other	Soft	
																				1.6	Brown	Silt	Limestone	Hard	
7189361	A093899	562776	4822458	2012	50.8	7.6	0.2	Diamond	Observation Wells	Monitoring	-	-	9.14	9.1	7.6	-	-	-	-	4.3	Grey	Fill	Sand	Hard	mecp well record
																				9.1	Grey	Limestone	Shale	Hard	
7189362	A093900	562776	4822434	2012	50.8	7.9	0.2	Diamond	Observation Wells	Monitoring	-	-	9.45	9.4	7.9	-	-	-	-	1.8	Black			Hard	mecp well record
																				6.1	Brown	Fill		Hard	
																				7.3	Grey	Silt	Clay	Dense	
																				9.4	Grey	Limestone	Shale	Hard	
7191310	A135582	564056	4821227	2012	50.8	0	6.1	Auger	Observation Wells	Monitoring	-	-	9.14	6.1	9.1	-	-	-	-	7	Brown	Sand	Silt	Gravel	mecp well record
																				9.1	Grey	Sand	Silty	Gravel	
7195893	A139709	564111	4822477	2012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						no digital well log
7197005	A135582	564060	4821178	-	-	-	-	-	Abandoned-Other	-	Untested	-	-	-	-	-	-	-	-						mecp well record
7198736	A134330	564328	4820708	2013	50.8	0	4.6	Rotary (Convent.)	-	-	-	3	6.1	4.6	6.1	-	-	-	-	3.7	Brown	Sand	Gravel		mecp well record
																				6.1	Brown	Sand	Silt	Gravel	
7198806	A139709	563947	4820980	2013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						mecp well record

Table 1: MECP Well Record Summary

MECP Well No.	MECP Well Tag No.	Easting	Northing	Year Drilled	Nominal Casing Diameter (mm)	Casing Start (mBGS)	Casing End (mBGS)	Drilling Method	Well Status	Well Use	Water Quality	First Water Found (mBGS)	Total Depth (mBGS)	Screen		Pumping Test				Depth to Unit Base (m)	Colour	Material 1	Material 2	Material 3	Well Record Link
														Top (mBGS)	Bottom (mBGS)	Static Level (mBGS)	Final Level (mBGS)	Rate (LPM)	Duration (Hours)						
7200166	A145175	562866	4821575	2013	2030	0	12.8	Diamond	-	Test Hole	-	-	73.7	-	-	-	-	-	-	9.8	Brown	Sand	Topsoil	Stones	mecp well record
																				11.9	Grey	Till	Stones		
																				25	Grey	Rock			
																				34.4	Grey	Rock			
																				46.3	Grey	Rock			
																				63.4	Grey	Rock			
																				71.2	Grey	Rock			
																				73.7	Grey	Rock			
7200167	A143080	562848	4821576	2013	203	0	13.7	Diamond	-	Test Hole	-	-	73.8	-	-	-	-	-	-	9.8	Brown	Sand	Topsoil	Stones	mecp well record
																				12.8	Grey	Till	Stones		
																				25.9	Grey	Rock			
																				36	Grey	Rock			
																				46.3	Grey	Rock			
																				64.9	Grey	Rock			
																				67.1	Grey	Rock			
																				71.3	Grey	Rock			
																				73.8	Grey	Rock			
7200168	A143083	562868	4821563	2013	203	0	13.4	Diamond	-	Monitoring	-	-	73.6	-	-	-	-	-	-	1	Brown	Sand	Topsoil		mecp well record
																				9.5	Brown	Sand	Stones		
																				12.6	Grey	Till	Stones		
																				22.5	Grey	Rock			
																				35	Grey	Rock			
																				44	Grey	Rock			
																				71.6	Grey	Rock			
																				73.6	Grey	Rock			
7200331	A145176	562871	4821565	2013	203	0	13.4	Diamond	-	Test Hole	-	-	73.2	-	-	-	-	-	-	9.8	Brown	Sand	Topsoil		mecp well record
																				12.5	Grey	Till	Stones		
																				19.8	Grey	Rock			
																				31.4	Grey	Rock			
																				34.8	Grey	Rock			
																				70.7	Grey	Rock			
																				73.2	Grey	Rock			
7207758	A142214	562848	4821640	2013	177.8	0	13.9	Sonic	Observation Wells	Monitoring	Untested	10.4	13.87	0	13.9	-	-	-	-	0.6	Brown	Sand	Topsoil		mecp well record
																				1.4	Brown	Clay	Silt	Sand	
																				2.6	Brown	Sand	Gravel		
																				4	Brown	Silt	Clay	Sand	
																				6.4	Brown	Sand	Silt		
																				10.4	Brown	Sand	Gravel		
																				13.9	Brown	Rock			
7216581	A093900	562786	4822243	2013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						no digital well log
7216982	-	562765	4822229	2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						no digital well log
7222041	A161895	562864	4821620	2014	101.6	0	15.2	Rotary (Convent.)	Observation Wells	Monitoring	-	-	90.83	-	-	-	-	-	-	12.2	Brown	Sand	Gravel	Sand	mecp well record
																				15.2	Brown	Silt	Gravel	Silt	
																				89.9	Grey	Limestone		Dolomite	
																				90.8	Green	Shale			
7222042	A155085	562882	4821584	2014	127	0	18.3	Rotary (Convent.)	Observation Wells	Monitoring	Untested	18.3	92.05	-	-	-	-	-	-	14	Brown	Sand	Sand	Stones	mecp well record
																				85.3	Grey	Limestone			
																				89.9	Grey	Shale			
																				92	Red	Shale			
7222074	A161817	562878	4821591	2014	48.7	0	11.8	Auger	Observation Wells	Monitoring And Test Hole	-	-	72.2	-	-	-	-	-	-	7	Brown	Sand	Silt	Gravel	mecp well record
																				11.8	Brown	Sand	Boulders	Silt	
																				18.2	Grey	Stones			
																				37	Grey	Stones			
																				38	Grey	Stones			
																				69	Grey	Stones			
																				72.2	Black	Shale			
7227718	A155068	562506	4822103	2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						no digital well log
7229881	A149671	562821	4822347	2014	32	0	1.5	-	Observation Wells	Monitoring	-	-	3.1	1.5	3.1	-	-	-	-	0.2	Black	Other			mecp well record
																				3.1	Brown	Sand			
7237370	A174392	564177	4822674	2015	50.8	0	11.9	Diamond	Observation Wells	Monitoring	-	-	14.94	11.9	14.9	-	-	-	-	4.6	Brown	Sand	Gravel	Loose	no digital well log
																				14.9	Grey	Rock			
7237371	A174394	564191	4822656	2015	50.8	0	12	Diamond	Observation Wells	Monitoring	-	-	15.29	12	15.1	-	-	-	-	4	Brown	Sand	Gravel	Loose	no digital well log
																				15.3	Grey	Rock			
7237372	A174393	564186	4822666	2015	50.8	0	12.3	Diamond	Observation Wells	Monitoring	-	-	15.39	12.3	15.4	-	-	-	-	4.3	Brown	Sand	Gravel	Loose	no digital well log
																				15.4	Grey	Rock			
7241317	A175392	562754	4822456	2015	51	0.1	3.3	Other Method	Observation Wells	Monitoring	Untested	3.9	4.8	3.3	4.8	-	-	-	-	4.8	Brown	Sand	Gravel	Loose	no digital well log
7241318	A175414	562725	4822397	2015	51	0.1	3.6	Boring	Observation Wells	Monitoring	Untested	3.9	5.1	3.6	5.1	-	-	-	-	5.1	Brown	Sand	Gravel	Loose	mecp well record
7241319	A175350	562715	4822405	2015	51	0	3.5	Boring	Observation Wells	Monitoring	Untested	3.9	5	3.5	5	-	-	-	-	5	Brown	Sand	Gravel	Loose	mecp well record
7242267	A174304	564337	4820729	2015	50.8	0	7	Auger	Observation Wells	Monitoring And Test Hole	Untested	8.2	9.14	7.6	9.1	-	-	-	-	3	Brown	Silt	Sand		mecp well record
																				8.5	Brown	Silt	Sand	Gravel	
																				9.1	Grey	Limestone			
7244257	A187811	562727	4822559	2015	51	0	1.8	Boring	Test Hole	Test Hole	Untested	2.9	3.3	1.8	3.3	-	-	-	-	2.7	Brown	Sand	Gravel	Packed	mecp well record
																				3.3	Grey	Limestone			
7256785	A191762	562618	4821909	2015	51	0	2.1	Boring	Monitoring And Test Hole	Monitoring And Test Hole	-	-	3.6	2.1	3.6	-	-	-	-	0.3	Black	Topsoil			no digital well log
																				1.5	Black	Gravel	Stones		
																				3.6	Black	Silt	Sand		
7269330	A190363	562885	4822344	2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						no digital well log
7294392	A218619	563352	4822056	2017	50.8	2.4	0	Rotary (Convent.)	Test Hole	Test Hole	Untested	3.7	5.49	5.5	2.4	-	-	-	-	0.3	Brown	Topsoil		Loose	no digital well log
																				0.3	Brown	Sand	Gravel	Loose	
																				5.5	Brown	Sand	Gravel	Packed	

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MECP Well No.	MECP Well Tag No.	Easting	Northing	Year Drilled	Nominal Casing Diameter (mm)	Casing Start (mBGS)	Casing End (mBGS)	Drilling Method	Well Status	Well Use	Water Quality	First Water Found (mBGS)	Total Depth (mBGS)	Screen		Pumping Test				Depth to Unit Base (m)	Colour	Material 1	Material 2	Material 3	Well Record Link
														Top (mBGS)	Bottom (mBGS)	Static Level (mBGS)	Final Level (mBGS)	Rate (LPM)	Duration (Hours)						
7294569	A218594	563476	4822171	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						no digital well log
7298857	A238260	562720	4822250	2017	50.8	3	0	Sonic	Test Hole	Test Hole	-	-	6.1	6.1	3	-	-	-	-	0.6	Brown	Fill	Loose		mecp well record
																				5.8	Brown	Sand	Dense		
																				6.1	Grey	Clay	Dense		
7298858	A238258	562643	4822135	2017	50.8	2.7	0	Sonic	Test Hole	Test Hole	-	-	5.79	5.8	2.7	-	-	-	-	0.3	Brown	Topsoil	Loose		mecp well record
																				4	Brown	Sand	Dense		
																				5.2	Brown	Sand	Gravel		
																				5.8	Grey	Clay	Dense		
7312058	-	562802	4822181	-	50	0	3.1	-	Abandoned-Other	-	Untested	2.9	-	3.1	6.1	-	-	-	-						mecp well record
7314935	A243810	562966	4822597	2018	50.8	0	3	Boring	Observation Wells	Monitoring	-	3.4	2.29	3	4.6	3.4	-	-	-	0.2	Black	Topsoil			no digital well log
																				2.3	Brown	Sand	Gravel	Fill	
																					Brown	Sand	Gravel	Boulders	
7314936	A243811	563003	4822513	2018	50.8	0	3	Boring	Observation Wells	Monitoring	-	3.7	4.57	3	4.6	3.7	-	-	-	0.1	Black	Topsoil	Loose		no digital well log
																				3	Brown	Sand	Gravel	Fill	
																				4.6	Brown	Sand	Gravel	Boulders	
7314937	A243812	562870	4822509	2018	50.8	0	3	Boring	Observation Wells	Monitoring	-	3.4	4.57	3	4.6	3.4	-	-	-	0.1	Black	Topsoil	Loose		no digital well log
																				1.5	Brown	Sand	Gravel	Fill	
																				4.6	Brown	Sand	Gravel	Boulders	
7315053	-	562601	4821993	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						no digital well log
7319663	A235050	564263	4822747	2018	101.6	0	4.6	Rotary (Convent.)	Test Hole	Test Hole	Untested	6.7	7.62	4.6	7.6	-	-	-	-	6.7	Brown	Sand	Gravel		mecp well record
																				7.6	Grey	Rock			
7319664	A235051	564252	4822759	2018	101.6	0	11.6	Rotary (Convent.)	Test Hole	Test Hole	Untested	6.7	14.63	-	-	-	-	-	-	6.7	Brown	Gravel	Sand		mecp well record
																				14.6	Grey	Rock			
7319665	A235052	564235	4822745	2018	101.6	0	4.9	Rotary (Convent.)	Test Hole	Test Hole	Untested	6.1	7.92	4.9	7.9	-	-	-	-	6.1	Brown	Gravel	Sand		mecp well record
																				7.9	Grey	Rock			
7319667	A235054	564237	4822750	2018	50.8	0	5.8	Rotary (Convent.)	Test Hole	Test Hole	Untested	5.8	8.84	5.8	8.8	-	-	-	-	5.8	Brown	Gravel	Sand		mecp well record
																				8.8	Grey	Rock			
7319668	A235056	564236	4822749	2018	101.6	0	4.3	Rotary (Convent.)	Test Hole	Test Hole	Untested	4.3	7.62	4.6	7.6	-	-	-	-	4.3	Brown	Sand	Gravel		mecp well record
																				7.6	Grey	Rock			
7319669	A235055	564240	4822759	2018	50.8	0	7.2	Boring	Observation Wells	Test Hole	Untested	6.7	10.21	7.2	10.2	-	-	-	-	6.7	Brown	Gravel	Sand		mecp well record
																				10.2	Grey	Rock			
7328928	-	564247	4822713	2019	-	-	-	-	Abandoned-Supply	-	-	-	-	-	-	-	-	-	-						mecp well record
7328929	-	564254	4822720	2019	-	-	-	-	Abandoned-Supply	-	-	-	-	-	-	-	-	-	-						mecp well record
7328930	-	564244	4822724	2019	-	-	-	-	Abandoned-Supply	-	-	-	-	-	-	-	-	-	-						mecp well record
7328931	-	564244	4822724	2019	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						mecp well record
7334299	A269962	564251	4822718	2019	327.7	0	4	Digging	Dewatering	Dewatering	-	-	5	4	5	-	-	-	-	0.1		Gravel			mecp well record
																				4		Sand	Fill		
																				5		Gravel			
7334300	A269963	564240	4822740	2019	327.7	0	4.6	Digging	Dewatering	Dewatering	-	-	6.1	4.6	6.1	-	-	-	-	0.1		Gravel			mecp well record
																				4.5		Sand	Fill		
																				6.1		Gravel			
7338035	A265019	562605	4821989	2019	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						no digital well log
7340186	-	563479	4822216	2019	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						no digital well log

Table 2: General Lithological Summary - 2022 Drilling Program

Location	Soil Type Simple	Soil Type	Shallowest Depth First Encountered (mBGS)	Deepest Depth First Encountered (mBGS)
BH616-22	Asphalt	Asphalt	0	0
BH502-22, BH503-22, BH504-22, BH505-22, BH506-22, BH508-22, BH509-22, BH510-22, BH511-22, BH513-22, BH515-22, BH516-22, BH517-22, BH518-22, BH519-22, BH608-22, BH612-22, BH613-22, BH615-22, BH617-22, BH618-22, BH619-22, BH620-22, BH621-22, BH622-22, BH623-22, BH624-22, BH627-22, BH628-22, BH629-22, BH630-22, BH631-22, BH632-22, BH633-22, BH634-22, BH635-22, BH636-22, BH637-22, BH638-22, BH639-22, BH640-22, BH641-22, BH642-22, BH643-22, BH644-22, BH645-22, BH646-22, BH647-22, BH648-22, BH649-22, BH650-22, BH651-22, BH654-22, BH655-22, MW501-22, MW507A-22, MW507B-22, MW512A-22, MW512B-22, MW514-22, MW520-22, MW601-22, MW602-22, MW603-22, MW604-22, MW605-22, MW606-22, MW607-22	Topsoil	Topsoil	0	0
BH504-22, BH511-22, BH515-22, BH519-22, BH608-22, BH609-22, BH610-22, BH611-22, BH613-22, BH614-22, BH616-22, BH617-22, BH620-22, BH621-22, BH622-22, BH623-22, BH624-22, BH625-22, BH626-22, MW606-22, MW607-22	Fill	Fill	0	0.76
BH515-22, BH516-22, BH608-22, BH608-22, BH610-22, BH611-22, BH612-22, BH615-22, BH619-22, BH620-22, BH631-22, BH647-22, MW501-22, MW512B-22, MW520-22, MW520-22, MW601-22, MW603-22, MW604-22, MW604-22, MW605-22, MW606-22, MW607-22	Sand	Sand, Silty Sand	0.15	6.71
BH502-22, BH503-22, BH509-22, BH515-22, BH515-22, BH519-22, BH609-22, BH610-22, BH618-22, BH621-22, BH625-22, BH627-22, BH628-22, BH629-22, BH630-22, BH632-22, BH633-22, BH634-22, BH635-22, BH636-22, BH637-22, BH638-22, BH640-22, BH642-22, BH643-22, BH645-22, BH646-22, BH649-22, BH650-22, BH651-22, BH654-22, BH655-22, MW501-22, MW501-22, MW520-22, MW601-22, MW601-22, MW602-22, MW602-22, MW605-22, MW606-22, MW607-22	Sand and Gravel	Sand and Gravel, Gravelly Sand, Gravel	0.15	9.14
BH502-22, BH502-22, BH504-22, BH505-22, BH506-22, BH508-22, BH508-22, BH509-22, BH510-22, BH511-22, BH511-22, BH513-22, BH515-22, BH517-22, BH517-22, BH518-22, BH611-22, BH614-22, BH616-22, BH617-22, BH622-22, BH639-22, BH641-22, BH644-22, BH648-22, MW507A-22, MW507B-22, MW507B-22, MW512A-22, MW512A-22, MW512B-22, MW512B-22, MW514-22, MW514-22, MW520-22, MW602-22, MW603-22, MW606-22, MW607-22	Till	Silt Till, Sandy Silt Till, Clayey Silt Till, Silty Sand Till	0.25	6.3
BH513-22	Silt and Sand	Silt and Sand	0.33	0.33
BH505-22	Sandy Silt	Sandy Silt	0.38	0.38
BH504-22, BH505-22, BH506-22, MW601-22, MW602-22	Limestone	Bedrock, Limestone	1.73	7.32

Table 3: Groundwater Quality Results - 2022 - 2024

Chemicals	Units	Name	BH/MW1-06	MW1-17	MW204-19	MW204-19	MW209-19	MW210-19	MW210-19	MW507A-22	MW507B-22	MW512A-22
		Lab Sample ID	WT2312336-002	WT2312336-001	WT2312895-005	WT2409585-001	WT2312895-004	WT2312895-001	WT2409585-002	WT2312465-005	WT2312465-006	WT2312336-003
		Sample Reason	Original	Original	Original	Original	Original	Original	Original	Original	Original	Original
		Sample Date	2023/05/09 15:40	2023/05/09 10:10	2023/05/12 10:50	2024/04/22 11:10	2023/05/12 10:15	2023/05/12 08:35	2024/04/22 12:45	2023/05/10 12:20	2023/05/10 12:35	2023/05/09 13:05
		Sample ID	BH/MW1-06	MW1-17	MW204-19	MW204-19	MW209-19	MW210-19	MW210-19	MW507A-22	MW507B-22	MW512A-22
		Reporting Detection Limit	-	-	-	-	-	-	-	-	-	-
							Anions and Nutrients					
Ammonia	mg/L	0.005	<0.005	0.0057	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chloride	mg/L	0.5 - 2.5	47.6	*351 DLDS*	3.98	2.39	15.7	1.29	1.06	2.96	7.49	5.65
Fluoride	mg/L	0.02 - 0.1	0.049	*<0.1 DLDS*	0.038	0.038	0.05	0.038	0.032	0.043	0.04	0.054
Nitrate	mg/L	0.02 - 0.1	0.562	*5.78 DLDS*	0.027	0.053	4.06	0.053	0.058	0.397	0.94	5.16
Nitrite	mg/L	0.01 - 0.05	<0.01	*<0.05 DLDS*	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Orthophosphate	mg/L	0.001	0.002	0.0358	0.0011	0.0012	0.0037	0.0011	0.0015	0.0029	<0.001	0.0055
Sulfate	mg/L	0.3 - 1.5	45.6	*22.1 DLDS*	3.63	2.29	54.5	2.18	2.07	9.4	7.24	2.09
							Metals					
Aluminum	mg/L	0.001 - 0.01	<0.001	0.0018	0.002	0.0019	0.0573	1.2	0.0028	0.0024	0.0517	0.0032
Antimony	mg/L	0.0001 - 0.001	<0.0001	0.00026	<0.0001	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Arsenic	mg/L	0.0001 - 0.001	0.00014	0.00219	0.0002	0.00019	0.00022	0.00061	0.00012	0.00015	0.00014	0.00017
Barium	mg/L	0.0001 - 0.001	0.0617	0.0685	0.00708	0.00726	0.0479	0.0226	0.0119	0.00876	0.0121	0.0161
Beryllium	mg/L	0.00002 - 0.0002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	0.000056	<0.00002	<0.00002	<0.00002	<0.00002
Bismuth	mg/L	0.00005 - 0.0005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Boron	mg/L	0.01 - 0.1	0.034	0.057	0.012	0.012	0.011	0.011	<0.01	<0.01	0.01	<0.01
Cadmium	mg/L	0.000005 - 0.00005	0.0000246	0.000094	0.0000137	0.000013	0.0000067	0.0003	0.0000174	0.0000191	0.0000165	0.0000115
Calcium	mg/L	0.05 - 0.5	137	167	73.4	81.2	89.7	110	77.2	82.4	89.2	91.2
Cesium	mg/L	0.00001 - 0.0001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.000078	<0.00001	<0.00001	<0.00001	<0.00001
Chromium	mg/L	0.0005 - 0.005	<0.0005	0.00056	0.00057	0.00064	0.0007	0.00184	0.0006	0.00055	0.00056	0.00082
Cobalt	mg/L	0.0001 - 0.001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0008	<0.0001	<0.0001	<0.0001	<0.0001
Copper	mg/L	0.0002 - 0.002	0.00062	0.0037	0.00144	0.00171	0.00074	0.00434	0.00428	0.00148	0.00128	0.0168
Iron	mg/L	0.01 - 0.1	<0.01	<0.01	<0.01	<0.01	0.051	1.95	<0.01	<0.01	0.037	<0.01
Lead	mg/L	0.00005 - 0.0005	<0.00005	<0.00005	<0.00005	<0.00005	0.000415	0.00948	0.000063	<0.00005	0.000282	0.000093
Lithium	mg/L	0.001 - 0.01	0.0011	0.0038	<0.001	<0.001	0.0047	0.0018	<0.001	<0.001	<0.001	<0.001
Magnesium	mg/L	0.005 - 0.05	50.7	62.1	23.3	27.8	38.1	35.2	29.8	14.5	24.2	27.1
Manganese	mg/L	0.0001 - 0.001	0.0017	0.00024	0.00012	<0.0001	0.0188	0.115	0.00022	0.00013	0.00286	0.00126
Molybdenum	mg/L	0.00005 - 0.0005	0.000181	0.000728	0.000339	0.000071	0.00082	0.000332	0.000285	0.000121	0.000177	0.000248
Nickel	mg/L	0.0005 - 0.005	<0.0005	0.0005	<0.0005	<0.0005	0.00177	0.00127	0.00059	<0.0005	<0.0005	<0.0005
Phosphorus	mg/L	0.05 - 0.5	<0.05	<0.05	<0.05	<0.05	<0.05	0.134	<0.05	<0.05	<0.05	<0.05
Potassium	mg/L	0.05 - 0.5	1.26	15.1	0.158	0.192	1.18	1.08	0.661	0.362	0.581	0.357
Rubidium	mg/L	0.0002 - 0.002	0.00049	0.00217	<0.0002	<0.0002	0.00055	0.00194	0.0003	<0.0002	0.00045	0.00022
Selenium	mg/L	0.00005 - 0.0005	*<0.0005 DLM*	*0.000526 DLM*	0.000109	0.000135	0.00148	0.000125	0.000115	0.000422	0.00028	*<0.0005 DLM*
Silicon	mg/L	0.05 - 0.5	6.54	4.97	3.43	3.7	7.29	11.4	4.83	3.36	4.78	4.38
Silver	mg/L	0.00001 - 0.0001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Sodium	mg/L	0.05 - 0.5	33.5	159	3.87	1.73	9.54	3.67	4.22	2.58	3.18	3.05
Strontium	mg/L	0.0002 - 0.002	*7.81 DLHC*	0.932	0.0785	0.084	0.182	0.125	0.083	0.0845	0.125	0.116
Sulfur	mg/L	0.5 - 5	18	9.49	1.73	0.93	22.8	0.95	0.85	4.16	3.07	0.82
Tellurium	mg/L	0.0002 - 0.002	0.00034	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Thallium	mg/L	0.00001 - 0.0001	<0.00001	0.000013	<0.00001	<0.00001	<0.00001	0.000019	<0.00001	<0.00001	<0.00001	<0.00001
Thorium	mg/L	0.0001 - 0.001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.00055	<0.0001	<0.0001	<0.0001	<0.0001
Tin	mg/L	0.0001 - 0.001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Titanium	mg/L	0.0003 - 0.003	<0.0003	<0.0003	<0.0003	<0.0003	0.00211	0.127	<0.0003	<0.0003	0.00203	<0.0003
Tungsten	mg/L	0.0001 - 0.001	<0.0001	<0.0001	0.00022	0.00046	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Uranium	mg/L	0.00001 - 0.0001	0.000437	0.00123	0.000428	0.000175	0.00152	0.000426	0.000208	0.00021	0.000274	0.00031
Vanadium	mg/L	0.0005 - 0.005	<0.0005	0.00079	<0.0005	<0.0005	<0.0005	0.00252	<0.0005	<0.0005	<0.0005	<0.0005
Zinc	mg/L	0.001 - 0.01	0.0046	0.0091	0.0016	0.0022	0.0029	0.0649	0.0063	0.0016	0.0066	0.0022
Zirconium	mg/L	0.0002 - 0.002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.00218	<0.0002	<0.0002	<0.0002	<0.0002
							Physical					
Alkalinity	mg/L	1	522	549	296	358	316	362	332	287	327	349
Colour	CU	2 - 200	*388 DLHC*	*2,470 DLHC, DLM*	16.9	*741 DLHC*	27.9	*484 DLHC*	67.6	*579 DLHC*	*342 DLHC*	*442 DLHC*
Electrical Conductivity	µS/cm	1	1,090	2,030	495	573	679	532	579	475	531	621
Hardness	mg/L	0.5	551	673	279	317	381	420	315	265	322	339
pH	pH units	0.1	7.59	7.61	7.97	7.95	8.01	7.8	7.99	7.98	7.79	7.84
Total Dissolved Solids	mg/L	20 - 40	*624 DLDS*	*1,110 DLDS*	*272 DLDS*	*336 DLDS*	*362 DLDS*	*258 DLDS*	*340 DLDS*	*251 DLDS*	*284 DLDS*	*340 DLDS*
Turbidity	NTU	0.1	69.6	1,100	3.44	224	7	228	18.9	201	79.6	108
							Total Metals					
Phosphorus-Total	mg/L	0.002 - 0.02	-	-	-	0.11	-	-	0.0149	-	-	-

Notes: DLDS - Detection Limit Raised: Dilution required due to high Dissolved Solids / Electrical
DLHC - Detection Limit Raised: Dilution required due to high concentration of test analyte(s).
DLIS - Detection Limit Adjusted due to insufficient sample.
DLM - Detection Limit Adjusted due to sample matric effects.
DLUI - Detection Limit Raised: Unknown interference generated an apparent false positive
TMV - Turbidity exceeded upper limit of nephelometric method. Minimum value reported.

Table 3: Groundwater Quality Results - 2022 - 2024

Chemicals	Units	Name	MW512A-22	MW512B-22	MW512B-22	MW512B-22	MW514-22	MW514-22	MW520-22	MW520-22	MW601-22	MW603-22
		Lab Sample ID	*WT2409585-003*	*WT2223649-003*	*WT2312336-004*	*WT2409585-004*	*WT2223649-004*	*WT2312465-004*	*WT2312465-002*	*WT2409585-005*	*WT2312895-006*	*WT2312895-003*
		Sample Reason	*Original*	*Original*	*Original*	*Original*	*Original*	*Original*	*Original*	*Original*	*Original*	*Original*
		Sample Date	*2024/04/22 13:45*	*2022/11/29 10:25*	*2023/05/09 11:35*	*2024/04/22 14:20*	*2022/11/29 11:05*	*2023/05/10 11:30*	*2023/05/10 10:30*	*2024/04/22 10:45*	*2023/05/12 11:20*	*2023/05/12 09:40*
		Sample ID	*MW512A-22*	*MW512B-22*	*MW512B-22*	*MW512B-22*	*MW514-22*	*MW514-22*	*MW520-22*	*MW520-22*	*MW601-22*	*MW603-22*
		Reporting Detection Limit	-	-	-	-	-	-	-	-	-	-
								Anions and Nutrients				
Ammonia	mg/L	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chloride	mg/L	0.5 - 2.5	16	47.2	127	92.8	13	8.64	8.04	6.69	*33.2 DLDS*	3.62
Fluoride	mg/L	0.02 - 0.1	0.035	0.077	0.062	0.047	0.108	0.063	0.138	0.098	*<0.1 DLDS*	0.043
Nitrate	mg/L	0.02 - 0.1	0.814	0.619	1.87	2.41	1.36	1.83	3.28	3.63	*6.12 DLDS*	<0.02
Nitrite	mg/L	0.01 - 0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	*<0.05 DLDS*	<0.01
Orthophosphate	mg/L	0.001	0.0078	0.0024	<0.001	0.0011	0.0081	0.0015	0.0029	0.0027	0.0039	0.0026
Sulfate	mg/L	0.3 - 1.5	8.58	88.3	61.1	40	28.2	40.3	10.3	10.1	*151 DLDS*	7.88
								Metals				
Aluminum	mg/L	0.001 - 0.01	0.0031	0.0049	0.0012	0.0044	0.0024	0.0014	0.002	0.0032	0.0155	0.0033
Antimony	mg/L	0.0001 - 0.001	<0.0001	<0.0001	0.00014	0.00016	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Arsenic	mg/L	0.0001 - 0.001	0.00018	0.00174	0.0005	0.00052	0.0003	0.00022	0.00017	0.00018	0.00017	0.00018
Barium	mg/L	0.0001 - 0.001	0.0183	0.0544	0.0446	0.0401	0.0454	0.0326	0.0185	0.0163	0.0322	0.017
Beryllium	mg/L	0.00002 - 0.0002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002
Bismuth	mg/L	0.00005 - 0.0005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Boron	mg/L	0.01 - 0.1	0.011	0.012	0.017	0.018	0.018	0.018	0.012	0.011	0.026	<0.01
Cadmium	mg/L	0.000005 - 0.00005	0.0000135	0.000008	0.000005	0.000011	0.0000158	0.000015	0.0000396	0.0000489	0.0000285	0.0000122
Calcium	mg/L	0.05 - 0.5	105	94.9	111	106	99.9	97.6	78.1	72	106	74.9
Cesium	mg/L	0.00001 - 0.0001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Chromium	mg/L	0.0005 - 0.005	0.00092	<0.0005	<0.0005	0.00106	0.00054	0.0005	<0.0005	0.0005	0.00078	<0.0005
Cobalt	mg/L	0.0001 - 0.001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.00011
Copper	mg/L	0.0002 - 0.002	0.00942	0.00879	0.0021	0.0139	0.0159	0.0136	0.00287	0.00748	0.00104	0.00082
Iron	mg/L	0.01 - 0.1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.036	<0.01
Lead	mg/L	0.00005 - 0.0005	0.000075	<0.00005	<0.00005	0.000051	<0.00005	<0.00005	0.000056	0.000128	0.00077	<0.00005
Lithium	mg/L	0.001 - 0.01	<0.001	0.0057	0.0041	0.0029	0.0034	0.0018	<0.001	<0.001	0.0016	0.0013
Magnesium	mg/L	0.005 - 0.05	32.1	44.1	44.4	42.8	50.7	42.3	24.2	24.5	31.6	27
Manganese	mg/L	0.0001 - 0.001	0.00031	0.00041	0.00062	0.00064	0.0151	0.0118	0.0002	0.00034	0.0075	0.0111
Molybdenum	mg/L	0.00005 - 0.0005	0.000267	0.000553	0.000603	0.000336	0.00129	0.00127	0.000443	0.000417	0.000612	0.000711
Nickel	mg/L	0.0005 - 0.005	0.00056	<0.0005	<0.0005	0.00085	0.00123	0.001	<0.0005	0.00074	<0.0005	<0.0005
Phosphorus	mg/L	0.05 - 0.5	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Potassium	mg/L	0.05 - 0.5	0.276	0.996	0.896	0.731	2.27	1.25	1.47	1.28	1.12	0.779
Rubidium	mg/L	0.0002 - 0.002	<0.0002	0.00045	0.00075	0.00056	0.00074	0.00059	0.00032	0.00031	0.00064	0.00024
Selenium	mg/L	0.00005 - 0.0005	0.000126	0.000166	*<0.0005 DLM*	0.00052	0.000255	0.000389	0.00045	0.000419	0.000661	0.000291
Silicon	mg/L	0.05 - 0.5	4.75	8.71	8.74	7.9	8.35	7.15	4.09	3.77	5.3	4.48
Silver	mg/L	0.00001 - 0.0001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Sodium	mg/L	0.05 - 0.5	8.46	7.28	25.3	8.96	10.4	25	5.93	5.01	19.5	4.81
Strontium	mg/L	0.0002 - 0.002	0.141	0.199	0.207	0.192	0.186	0.151	0.174	0.156	0.198	0.0954
Sulfur	mg/L	0.5 - 5	3.37	32.8	24.8	15.9	10.7	15.7	4.4	3.91	11.7	3.31
Tellurium	mg/L	0.0002 - 0.002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Thallium	mg/L	0.00001 - 0.0001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Thorium	mg/L	0.0001 - 0.001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Tin	mg/L	0.0001 - 0.001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.00013	<0.0001	<0.0001	<0.0001	<0.0001
Titanium	mg/L	0.0003 - 0.003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	*<0.0006 DLUI*	<0.0003
Tungsten	mg/L	0.0001 - 0.001	<0.0001	<0.0001	<0.0001	<0.0001	0.00054	0.00022	0.00024	0.00015	0.0002	<0.0001
Uranium	mg/L	0.00001 - 0.0001	0.000469	0.000562	0.00101	0.000666	0.000662	0.000372	0.000371	0.000397	0.000491	0.000405
Vanadium	mg/L	0.0005 - 0.005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Zinc	mg/L	0.001 - 0.01	0.0027	0.0048	0.0046	0.0062	0.0087	0.0127	0.0089	0.0129	0.017	<0.001
Zirconium	mg/L	0.0002 - 0.002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
								Physical				
Alkalinity	mg/L	1	400	261	299	347	407	418	288	283	*1,480 DLHC*	316
Colour	CU	2 - 200	*361 DLHC*	84.3	227	*712 DLHC*	53.4	97.2	132	86.5	*9,130 DLHC, DLM*	114
Electrical Conductivity	µS/cm	1	713	771	1,040	875	800	765	533	562	1,090	529
Hardness	mg/L	0.5	394	418	460	441	458	418	295	281	395	298
pH	pH units	0.1	7.72	7.9	7.73	7.67	7.84	7.73	7.98	8.07	7.72	7.97
Total Dissolved Solids	mg/L	20 - 40	*448 DLDS*	*467 DLDS*	*572 DLDS*	*600 DLDS*	*451 DLDS*	*421 DLDS*	*257 DLDS*	*333 DLDS*	*632 DLDS*	*258 DLDS*
Turbidity	NTU	0.1	77	105	56.8	279	39.3	46.8	65	49.6	*>4,000 TMV*	34.6
								Total Metals				
Phosphorus-Total	mg/L	0.002 - 0.02	0.0419	-	-	0.107	-	-	-	0.0265	-	-

Notes: DLDS - Detection Limit Raised: Dilution required due to high Dissolved Solids / Electrical
DLHC - Detection Limit Raised: Dilution required due to high concentration of test analyte(s).
DLIS - Detection Limit Adjusted due to insufficient sample.
DLM - Detection Limit Adjusted due to sample matric effects.
DLUI - Detection Limit Raised: Unknown interference generated an apparent false positive
TMV - Turbidity exceeded upper limit of nephelometric method. Minimum value reported.

Table 3: Groundwater Quality Results - 2022 - 2024

Chemicals	Units	Name	MW604-22	MW604-22	MW605-22	MW606-22	MW606-22	MW606-22	MW607-22	MP101-23	MP101-23
		Lab Sample ID	*WT2223649-001*	*WT2312895-002*	*WT2312465-003*	*WT2223649-002*	*WT2312336-005*	*WT2409585-006*	*WT2312465-001*	*WT2312465-007*	*WT2409585-007*
		Sample Reason	*Original*	*Original*	*Original*	*Original*	*Original*	*Original*	*Original*	*Original*	*Original*
		Sample Date	*2022/11/29 10:45*	*2023/05/12 09:10*	*2023/05/10 10:55*	*2022/11/29 10:10*	*2023/05/09 14:25*	*2024/04/22 12:40*	*2023/05/10 09:45*	*2023/05/10 12:50*	*2024/04/22 13:10*
		Sample ID	*MW604-22*	*MW604-22*	*MW605-22*	*MW606-22*	*MW606-22*	*MW60622*	*MW607-22*	*MP101-23*	*MP101-23*
		Reporting Detection Limit	-	-	-	-	-	-	-	-	-
							Anions and Nutrients				
Ammonia	mg/L	0.005	0.0791	0.0073	<0.005	<0.005	<0.005	<0.005	<0.005	0.0642	0.421
Chloride	mg/L	0.5 - 2.5	30.9	22.6	5.19	54.4	9.48	7.06	2.17	13.2	6.78
Fluoride	mg/L	0.02 - 0.1	0.162	0.176	0.133	0.044	0.067	0.052	0.052	0.173	0.05
Nitrate	mg/L	0.02 - 0.1	<0.02	0.025	5.5	0.859	3.35	1.31	4.21	<0.02	0.088
Nitrite	mg/L	0.01 - 0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.019
Orthophosphate	mg/L	0.001	<0.001	0.005	0.0048	0.0072	0.0021	0.0016	0.0038	<0.001	0.0011
Sulfate	mg/L	0.3 - 1.5	77.3	66.2	3.6	5.2	6.1	6.04	10.3	13.7	6.59
							Metals				
Aluminum	mg/L	0.001 - 0.01	0.0043	0.0019	0.0038	0.0043	0.0034	0.0041	0.0029	*<0.01 DLHC*	0.002
Antimony	mg/L	0.0001 - 0.001	0.00012	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	*0.00119 DLHC*	0.00038
Arsenic	mg/L	0.0001 - 0.001	0.00301	0.00362	0.00014	0.00015	0.00013	0.00011	0.00019	*<0.001 DLHC*	0.00064
Barium	mg/L	0.0001 - 0.001	0.0606	0.0534	0.0159	0.0242	0.0127	0.00899	0.0224	*0.0326 DLHC*	0.0197
Beryllium	mg/L	0.00002 - 0.0002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	*<0.0002 DLHC*	<0.00002
Bismuth	mg/L	0.00005 - 0.0005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	*<0.0005 DLHC*	<0.00005
Boron	mg/L	0.01 - 0.1	0.031	0.024	0.011	0.015	<0.01	0.012	0.015	*1.96 DLHC*	0.011
Cadmium	mg/L	0.000005 - 0.00005	<0.000005	0.000006	0.0000113	0.0000112	0.00001	0.0000152	0.0000091	*<0.00005 DLHC*	0.0000158
Calcium	mg/L	0.05 - 0.5	48.5	44.9	75.3	102	74.1	75.7	71.6	*88.8 DLHC*	67.1
Cesium	mg/L	0.00001 - 0.0001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	*<0.0001 DLHC*	<0.00001
Chromium	mg/L	0.0005 - 0.005	<0.0005	<0.0005	<0.0005	0.00063	<0.0005	<0.0005	0.00053	*<0.005 DLHC*	0.00124
Cobalt	mg/L	0.0001 - 0.001	<0.0001	<0.0001	0.00061	<0.0001	<0.0001	<0.0001	0.00012	*0.00285 DLHC*	0.0024
Copper	mg/L	0.0002 - 0.002	<0.0002	0.0387	0.0008	0.0008	0.00229	0.00419	0.00176	*<0.002 DLHC*	0.0005
Iron	mg/L	0.01 - 0.1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	*0.69 DLHC*	0.013
Lead	mg/L	0.00005 - 0.0005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	0.000052	<0.00005	*<0.0005 DLHC*	<0.00005
Lithium	mg/L	0.001 - 0.01	0.0096	0.0088	<0.001	<0.001	<0.001	<0.001	0.0013	*<0.01 DLHC*	<0.001
Magnesium	mg/L	0.005 - 0.05	52.3	44.8	26.9	33.1	23.1	21.9	31.6	*27.9 DLHC*	18.4
Manganese	mg/L	0.0001 - 0.001	0.0133	0.0124	0.0121	0.0192	0.00328	0.00056	0.0196	*2.96 DLHC*	1.07
Molybdenum	mg/L	0.00005 - 0.0005	0.0109	0.0107	0.000484	0.000608	0.00015	0.000142	0.000538	*0.00845 DLHC*	0.00282
Nickel	mg/L	0.0005 - 0.005	0.00059	<0.0005	<0.0005	<0.0005	<0.0005	0.00062	<0.0005	*0.0287 DLHC*	0.0205
Phosphorus	mg/L	0.05 - 0.5	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	*<0.5 DLHC*	0.062
Potassium	mg/L	0.05 - 0.5	5.32	3.56	2.13	0.576	0.902	0.75	1.04	*4.86 DLHC*	0.613
Rubidium	mg/L	0.0002 - 0.002	0.00125	0.00079	0.00043	0.00052	0.00041	0.00034	0.00043	*<0.002 DLHC*	0.00056
Selenium	mg/L	0.00005 - 0.0005	<0.00005	<0.00005	0.000283	0.000257	*<0.0005 DLM*	0.000226	0.000679	*<0.0005 DLHC*	0.000153
Silicon	mg/L	0.05 - 0.5	8.51	8.14	3.7	5.04	3.56	3.3	5.18	*2.94 DLHC*	2.22
Silver	mg/L	0.00001 - 0.0001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	*<0.0001 DLHC*	<0.00001
Sodium	mg/L	0.05 - 0.5	10.5	13.6	2.42	3.8	4.6	4.62	4.71	*5.17 DLHC*	2.38
Strontium	mg/L	0.0002 - 0.002	0.26	0.244	0.118	0.124	0.25	0.307	0.0972	*0.126 DLHC*	0.1
Sulfur	mg/L	0.5 - 5	28.5	25.9	1.81	2.03	2.42	2.36	4.38	*6.83 DLHC*	2.56
Tellurium	mg/L	0.0002 - 0.002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	*<0.002 DLHC*	<0.0002
Thallium	mg/L	0.00001 - 0.0001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	*<0.0001 DLHC*	<0.00001
Thorium	mg/L	0.0001 - 0.001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	*<0.001 DLHC*	<0.0001
Tin	mg/L	0.0001 - 0.001	0.00023	0.00013	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	*<0.001 DLHC*	<0.0001
Titanium	mg/L	0.0003 - 0.003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	*<0.003 DLHC*	<0.0003
Tungsten	mg/L	0.0001 - 0.001	0.00011	0.00011	0.00076	<0.0001	<0.0001	<0.0001	<0.0001	*<0.001 DLHC*	0.00016
Uranium	mg/L	0.00001 - 0.0001	0.000656	0.00078	0.000237	0.000528	0.00016	0.000161	0.000459	*0.00203 DLHC*	0.000674
Vanadium	mg/L	0.0005 - 0.005	<0.0005	0.00051	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	*<0.005 DLHC*	<0.0005
Zinc	mg/L	0.001 - 0.01	<0.001	0.0012	<0.001	<0.001	0.0014	0.004	0.0019	*<0.01 DLHC*	0.0026
Zirconium	mg/L	0.0002 - 0.002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	*<0.002 DLHC*	<0.0002
							Physical				
Alkalinity	mg/L	1	273	240	276	292	274	291	299	564	246
Colour	CU	2 - 200	201	109	181	9.2	*255 DLHC*	54.7	142	*12,200 DLM*	*416 DLM*
Electrical Conductivity	µS/cm	1	651	576	505	715	527	550	515	573	471
Hardness	mg/L	0.5	336	297	299	391	280	279	309	337	243
pH	pH units	0.1	8.21	8.27	7.95	7.96	7.93	8.09	7.91	8.15	7.97
Total Dissolved Solids	mg/L	20 - 40	*382 DLDS*	*290 DLDS*	*260 DLDS*	*402 DLDS*	*296 DLDS*	*332 DLDS*	*272 DLDS*	*222 DLIS*	*284 DLDS*
Turbidity	NTU	0.1	474	33.4	56.6	3.39	60.6	12.6	69.2	*>4,000 TMV*	126
							Total Metals				
Phosphorus-Total	mg/L	0.002 - 0.02	-	-	-	-	-	0.0074	-	-	*1.18 DLM*

Notes: DLDS - Detection Limit Raised: Dilution required due to high Dissolved Solids / Electrical
DLHC - Detection Limit Raised: Dilution required due to high concentration of test analyte(s).
DLIS - Detection Limit Adjusted due to insufficient sample.
DLM - Detection Limit Adjusted due to sample matric effects.
DLUI - Detection Limit Raised: Unknown interference generated an apparent false positive
TMV - Turbidity exceeded upper limit of nephelometric method. Minimum value reported.

Table 4: Horizontal Hydraulic Conductivity (m/sec) Summary

Location	2022	2023	Screened Material
	K_x (m/sec)	K_x (m/sec)	
BH/MW1-06	1.17E-08	9.95E-07	Silty Clay
MW2-11	1.22E-06	-	Sand and Gravel
MW1-17	-	2.70E-07	Sandy Silt
MW204-19	-	2.53E-07	Sandy Silt/ClayeySilt
MW209-19	3.16E-08	4.88E-08	Silty Sand
MW210-19	-	7.22E-06	Sandy Silt/SiltySand
MW217-19	6.74E-08	2.47E-07	Sandy Silt
MW507a-22	-	1.17E-07	Silt Till
MW507b-22	-	3.24E-06	Silt Till
MW512b-22	1.03E-06	2.74E-06	Silty Sand
MW514-22	6.27E-09	1.15E-07	Sandy Silt Till
MW515a-22	-	5.11E-07	Silt Till
MW520-22	-	1.00E-05	Sand/SiltySand
MW601-22	-	4.29E-05	Limestone
MW603-22	-	2.21E-08	Silt Till
MW604-22	-	7.64E-07	Silty Sand
MW605-22	-	2.07E-06	Sand and Gravel
MW606-22	-	3.61E-07	Silt Sand
MW607-22	-	7.15E-07	Sand and Gravel

Table 5a: Manual Groundwater Levels (mBTOC) - 2022 - 2025

Date	BH/MW1-06	MW1-11	MW2-11	MW3-11	MW4-11	MW1-17	MW2-17	MW3-17	MW4-17	MW5-17	MW8-17	MW9-17	MW10-17	MW11-17	MW12-17	MW204-19
2/15/2022	2.89	10.34	9.93	9.79	dry	-	-	-	-	-	nm	nm	3.33	5.95	not located. snow	3.37
3/8/2022	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.92
7/5/2022	3.12	10.29	9.85	9.72	dry	-	-	-	-	-	3.82	2.93	3.57	5.89	5.21	3.45
9/26/2022	4.17	10.62	10.22	10.12	dry	dry	-	-	dry	not found	dry	dry	dry	dry	5.31	dry
11/3/2022	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11/28/2022	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12/19/2022	4.11	10.98	10.52	10.49	dry	dry	-	-	dry	3.78	dry	dry	dry	dry	dry	dry
3/15/2023	1.79	10.83	10.42	10.37	10.67	dry	nm well under ice	-	nm well under ice	nm well under ice	2.37	1.65	3.18	6.01	nm well under ice	2.46
4/24/2023	1.55	8.72	8.49	8.64	8.55	3.56	1.50	-	1.57	1.38	2.14	1.52	2.32	4.38	dry	1.91
5/2/2023	1.47	-	-	-	-	3.67	-	-	-	-	-	-	-	-	-	-
5/4/2023	1.44	-	-	-	-	3.63	-	-	-	-	-	-	-	-	-	1.84
5/5/2023	-	9.13	-	8.89	8.99	-	-	-	-	-	-	-	-	4.69	-	-
5/8/2023	-	-	-	8.96	-	-	-	-	-	-	-	-	-	4.72	-	2.00
5/9/2023	1.60	-	-	-	-	3.39	-	-	-	-	-	-	-	-	-	-
5/10/2023	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5/12/2023	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.17
5/15/2023	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5/16/2023	1.94	-	-	-	-	3.64	-	-	-	-	-	-	-	-	-	2.35
5/17/2023	-	-	-	-	-	3.76	-	-	-	-	-	-	-	-	-	-
5/31/2023	2.40	9.64	9.24	9.23	9.50	4.32	1.96	-	2.08	1.89	2.88	2.33	3.12	5.07	dry	2.85
8/25/2023	2.34	10.39	9.96	9.89	10.25	4.90	2.81	-	2.36	2.18	3.74	3.46	3.14	5.95	dry	4.62
12/20/2023	2.99	10.69	10.30	10.22	10.54	dry	not located	-	2.96	2.64	dry	dry	3.74	dry	dry	dry
3/22/2024	1.75	10.16	9.85	9.70	10.02	4.04	1.73	-	1.79	1.56	2.17	1.64	2.61	4.71	dry	2.09
4/22/2024	1.62	9.94	9.63	9.54	9.82	2.89	1.59	-	1.56	1.36	2.14	1.60	2.44	4.44	dry	1.98
5/28/2024	2.08	9.76	9.37	9.36	9.63	4.12	2.03	-	2.11	1.90	2.65	1.79	3.04	4.41	5.33	2.90
8/19/2024	2.87	9.71	9.32	9.31	9.56	4.94	2.55	-	2.73	2.44	3.25	2.54	3.17	5.22	dry	3.45
11/14/2024	3.86	10.56	10.16	10.05	10.41	dry	dry	-	3.84	3.46	dry	dry	4.38	dry	dry	dry
2/6/2025	3.10	10.84	10.43	10.33	10.67	nm-buried in snow/ice	nm-buried in snow/ice	-	nm-buried in snow/ice	nm-buried in snow/ice	nm-no access, gate frozen	nm-no access, gate frozen	3.56	dry	nm-buried in snow/ice	3.48

Notes:
mBTOC = metres below top of casing
mBGS = metres below ground surface
mAMSL = metres above mean sea level
nm = not measured during monitoring event

Table 5a: Manual Groundwater Levels (mBTOC) - 2022 - 2025

Date	MW209-19	MW210-19	MW211-19	MW217-19	MW304-20	MW306-20	MW308-20	MW501-22	MW507A-22	MW507B-22	MW512A-22	MW512B-22	MW514-22	MW520-22	MW601-22	MW602-22
2/15/2022	2.57	5.29	2.83	10.15	dry	dry	8.07	-	-	-	-	-	-	-	-	-
3/8/2022	-	-	-	-	-	-	-	dry	3.43 - pre-development	5.19 - pre-development	1.63 - pre-development	2.19 - pre-development	1.57 - pre-development	7.09 - pre-development	-	-
7/5/2022	-	6.09	3.20	10.14	dry	dry	7.87	well damaged	dry	6.51	dry	4.02	3.29	7.43	-	-
9/26/2022	4.20	7.85	4.30	10.39	dry	dry	8.10	-	dry	dry	dry	5.78	4.94	dry	-	-
11/3/2022	-	dry	-	-	-	-	-	-	-	-	-	-	-	-	12.95	dry
11/28/2022	-	-	-	-	-	-	-	dry	dry	dry	dry	6.29	6.60	dry	dry	dry
12/19/2022	4.73	dry	dry	10.51	dry	dry	8.11	dry	dry	dry	dry	6.37	7.04	dry	dry	dry
3/15/2023	2.28	7.33	2.24	10.38	dry	5.35	8.11	dry	dry	6.33	2.98	3.43	2.48	8.07	12.80	dry
4/24/2023	2.16	3.16	2.18	8.69	dry	5.34	6.78	dry	3.32	5.52	2.44	2.99	2.11	6.81	12.10	dry
5/2/2023	-	-	-	-	-	-	-	-	-	-	2.44	2.97	-	-	12.10	-
5/4/2023	2.12	3.06	-	9.01	-	-	-	-	-	-	2.35	2.98	-	-	12.20	-
5/5/2023	-	3.06	2.08	9.01	-	5.36	-	-	3.29	5.51	-	-	-	-	-	-
5/8/2023	2.17	-	2.12	-	-	-	-	-	-	-	-	-		6.90	-	-
5/9/2023	-	-	-	-	-	-	-	-	-	-	2.34	2.97	-	-	-	-
5/10/2023	-	-	-	9.11	-	-	-	-	3.34	5.54	-	-	2.15	6.90	-	-
5/12/2023	nm tape broken, sampling event	3.17	-	-	-	-	-	-	-	-	-	-	-	-	nm - tape broken, sampling event	-
5/15/2023	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12.33	-
5/16/2023	2.28	3.33	-	9.21	-	-	-	-	3.48	5.63	2.59	3.13	2.25	6.97	12.26	-
5/17/2023	-	-	-	-	-	-	-	-	-	-	-	3.21	2.41	-	-	-
5/31/2023	2.63	4.08	2.77	9.49	dry	dry	7.15	dry	3.92	5.92	3.27	3.64	2.73	7.18	12.41	dry
8/25/2023	2.10	5.51	2.25	10.29	dry	dry	7.98	dry	dry	6.26	dry	4.12	2.38	7.72	12.74	dry
12/20/2023	2.28	7.45	2.92	10.38	dry	dry	dry	dry	dry	6.79	dry	4.46	2.98	8.13	12.95	dry
3/22/2024	2.19	3.62	2.10	9.96	dry	dry	7.68	dry	3.90	5.63	2.12	2.90	2.08	7.30	12.59	dry
4/22/2024	2.15	3.12	2.04	9.71	dry	dry	7.21	dry	3.40	5.55	2.15	2.71	2.01	7.06	12.44	dry
5/28/2024	2.11	-	2.29	9.58	dry	dry	7.16	dry	4.17	5.77	3.04	3.21	2.37	7.14	12.45	dry
8/19/2024	2.67	5.50	2.95	9.54	dry	dry	7.24	dry	4.49	6.09	3.35	3.54	2.88	7.18	12.45	dry
11/14/2024	2.99	7.31	3.61	10.40	dry	dry	8.10	dry	4.56	6.81	dry	5.32	4.42	8.01	12.81	dry
2/6/2025	2.44	7.16	2.70	10.42	dry	dry	8.10	dry	dry	6.84	dry	4.18	3.05	nm	12.93	dry

Notes: *Notes:*

mBTOC = metre *mBTOC = metres below top of casing*

mBGS = metres *mBGS = metres below ground surface*

mAMSL = metre *mAMSL = metres above mean sea level*

nm = not measu *nm = not measured during monitoring event*

Table 5a: Manual Groundwater Levels (mBTOC) - 2022 - 2025

Date	MW603-22	MW604-22	MW605-22	MW606-22	MW607-22	MP101-23 (out	MP101-23 (in)	MW701-24	MW702-24	MW703-24
2/15/2022	-	-	-	-	-	-	-	-	-	-
3/8/2022	-	-	-	-	-	-	-	-	-	-
7/5/2022	-	-	-	-	-	-	-	-	-	-
9/26/2022	-	-	-	-	-	-	-	-	-	-
11/3/2022	dry	6.27	dry	5.53	8.23	-	-	-	-	-
11/28/2022	dry	6.59	dry	5.62	-	-	-	-	-	-
12/19/2022	dry	6.90	dry	5.71	8.60	-	-	-	-	-
3/15/2023	3.19	3.19	6.20	4.39	7.45	-	-	-	-	-
4/24/2023	2.12	2.68	4.84	2.88	5.69	dry	dry	-	-	-
5/2/2023	-	-	-	-	-	-	-	-	-	-
5/4/2023	1.98	2.59	-	2.25	-	-	-	-	-	-
5/5/2023	-	-	-	-	5.80	dry	1.16	-	-	-
5/8/2023	-	-	4.93	-	5.72	-	-	-	-	-
5/9/2023	-	-	-	2.74	-	-	-	-	-	-
5/10/2023	-	-	4.97	-	5.75	dry	1.25	-	-	-
5/12/2023	2.26	2.66	-	-	-	-	-	-	-	-
5/15/2023	-	-	-	-	-	-	-	-	-	-
5/16/2023	2.32	2.75	4.99		5.76	-	-	-	-	-
5/17/2023	-	-	-	3.24	-	-	-	-	-	-
5/31/2023	2.73	3.15	5.20	3.54	6.09	dry	1.63	-	-	-
8/25/2023	2.82	2.90	5.72	3.88	7.03	dry	1.75	-	-	-
12/20/2023	3.72	3.55	6.35	5.30	7.92	dry	dry	-	-	-
3/22/2024	2.03	2.53	5.20	3.03	6.09	dry	1.29	-	-	-
4/22/2024	1.91	2.40	4.89	2.35	5.65	dry	1.23	-	-	-
5/28/2024	2.31	2.78	5.07	2.78	6.06	dry	1.31	-	-	-
8/19/2024	3.07	3.23	5.18	3.29	6.16	dry	1.77	9.51	8.85	-
11/14/2024	dry	4.73	6.15	4.95	7.62	dry	dry	9.99	9.21	9.98
2/6/2025	3.00	3.79	6.14	5.02	7.98	nm-snow too deep	nm-snow too deep	10.17	9.40	10.22

Notes: *Notes:*
mBTOC = metr *mBTOC = metres below top of casing*
mBGS = metres *mBGS = metres below ground surface*
mAMSL = metr *mAMSL = metres above mean sea level*
nm = not meas *nm = not measured during monitoring event*

Table 5b: Manual Groundwater Depths (mBGS) - 2022 - 2025

Date	BH/MW1-06	MW1-11	MW2-11	MW3-11	MW4-11	MW1-17	MW2-17	MW3-17	MW4-17	MW5-17	MW8-17	MW9-17	MW10-17	MW11-17	MW12-17	MW204-19
2/15/2022	2.07	9.36	8.96	8.88	dry	-	-	-	-	-	nm	nm	2.43	5.06	not located. snow	2.50
3/8/2022	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.05
7/5/2022	2.30	9.31	8.88	8.81	dry	-	-	-	-	-	2.97	2.01	2.67	5.00	5.31	2.58
9/26/2022	3.35	9.64	9.25	9.21	dry	dry	-	-	dry	not found	dry	dry	dry	dry	5.41	dry
11/3/2022	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11/28/2022	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12/19/2022	3.29	10.00	9.55	9.58	dry	dry	-	-	dry	3.88	dry	dry	dry	dry	dry	dry
3/15/2023	0.97	9.85	9.45	9.46	9.78	dry	nm well under ice	-	nm well under ice	nm well under ice	1.52	0.73	2.28	5.12	nm well under ice	1.59
4/24/2023	0.73	7.74	7.52	7.73	7.66	3.62	1.57	-	1.71	1.48	1.29	0.60	1.42	3.49	dry	1.04
5/2/2023	0.65	-	-	-	-	3.74	-	-	-	-	-	-	-	-	-	-
5/4/2023	0.62	-	-	-	-	3.70	-	-	-	-	-	-	-	-	-	0.97
5/5/2023	-	8.15	-	7.98	8.10	-	-	-	-	-	-	-	-	3.80	-	-
5/8/2023	-	-	-	8.05	-	-	-	-	-	-	-	-	-	3.83	-	1.13
5/9/2023	0.78	-	-	-	-	3.46	-	-	-	-	-	-	-	-	-	-
5/10/2023	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5/12/2023	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.30
5/15/2023	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5/16/2023	1.12	-	-	-	-	3.70	-	-	-	-	-	-	-	-	-	1.48
5/17/2023	-	-	-	-	-	3.82	-	-	-	-	-	-	-	-	-	-
5/31/2023	1.58	8.66	8.27	8.32	8.61	4.38	2.03	-	2.22	1.99	2.03	1.41	2.22	4.18	dry	1.98
8/25/2023	1.52	9.41	8.99	8.98	9.36	4.96	2.88	-	2.50	2.28	2.89	2.54	2.24	5.06	dry	3.75
12/20/2023	2.17	9.71	9.33	9.31	9.65	dry	not located	-	3.10	2.74	dry	dry	2.84	dry	dry	dry
3/22/2024	0.93	9.18	8.88	8.79	9.13	4.10	1.80	-	1.93	1.66	1.32	0.72	1.71	3.82	dry	1.22
4/22/2024	0.80	8.96	8.66	8.63	8.93	2.96	1.66	-	1.70	1.46	1.29	0.68	1.54	3.55	dry	1.11
5/28/2024	1.26	8.78	8.40	8.45	8.74	4.18	2.10	-	2.25	2.00	1.80	0.87	2.14	3.52	5.43	2.03
8/19/2024	2.05	8.73	8.35	8.40	8.67	5.00	2.62	-	2.87	2.54	2.40	1.62	2.27	4.33	dry	2.58
11/14/2024	3.04	9.58	9.19	9.14	9.52	dry	dry	-	3.98	3.56	dry	dry	3.48	dry	dry	dry
2/6/2025	2.28	9.86	9.46	9.42	9.78	nm-buried in snow/ice	nm-buried in snow/ice	-	nm-buried in snow/ice	nm-buried in snow/ice	nm-no access, gate frozen	nm-no access, gate frozen	2.66	dry	nm-buried in snow/ice	2.61

Notes:
mBTOC = metres below top of casing
mBGS = metres below ground surface
mAMSL = metres above mean sea level
nm = not measured during monitoring event

Table 5b: Manual Groundwater Depths (mBGS) - 2022 - 2025

Date	MW209-19	MW210-19	MW211-19	MW217-19	MW304-20	MW306-20	MW308-20	MW501-22	MW507A-22	MW507B-22	MW512A-22	MW512B-22	MW514-22	MW520-22	MW601-22	MW602-22
2/15/2022	1.72	4.37	1.92	9.22	dry	dry	7.20	-	-	-	-	-	-	-	-	-
3/8/2022	-	-	-	-	-	-	-	dry	n/a - pre-development water level	n/a - pre-development water level	n/a - pre-development water level	n/a - pre-development water level	n/a - pre-development water level	n/a - pre-development water level	-	-
7/5/2022	-	5.17	2.29	9.21	dry	dry	7.00	well damaged	dry	5.57	dry	3.25	2.46	6.47	-	-
9/26/2022	3.35	6.93	3.39	9.46	dry	dry	7.23	-	dry	dry	dry	5.01	4.11	dry	-	-
11/3/2022	-	dry	-	-	-	-	-	-	-	-	-	-	-	-	12.05	dry
11/28/2022	-	-	-	-	-	-	-	dry	dry	dry	dry	5.52	5.77	dry	dry	dry
12/19/2022	3.88	dry	dry	9.58	dry	dry	7.24	dry	dry	dry	dry	5.60	6.21	dry	dry	dry
3/15/2023	1.43	6.41	1.33	9.45	dry	4.41	7.24	dry	dry	5.39	2.16	2.66	1.65	7.11	11.90	dry
4/24/2023	1.31	2.24	1.27	7.76	dry	4.40	5.91	dry	2.30	4.58	1.62	2.22	1.28	5.85	11.20	dry
5/2/2023	-	-	-	-	-	-	-	-	-	-	1.62	2.20	-	-	11.20	-
5/4/2023	1.27	2.14	-	8.08	-	-	-	-	-	-	1.53	2.21	-	-	11.30	-
5/5/2023	-	2.14	1.17	8.08	-	4.42	-	-	2.27	4.57	-	-	-	-	-	-
5/8/2023	1.32	-	1.21	-	-	-	-	-	-	-	-	-		5.94	-	-
5/9/2023	-	-	-	-	-	-	-	-	-	-	1.52	2.20	-	-	-	-
5/10/2023	-	-	-	8.18	-	-	-	-	2.32	4.60	-	-	1.32	5.94	-	-
5/12/2023	nm tape broken, sampling event	2.25	-	-	-	-	-	-	-	-	-	-	-	-	nm - tape broken, sampling event	-
5/15/2023	-	-	-	-	-	-	-	-	-	-	-	-	-	-	11.43	-
5/16/2023	1.43	2.41	-	8.28	-	-	-	-	2.46	4.69	1.77	2.36	1.42	6.01	11.36	-
5/17/2023	-	-	-	-	-	-	-	-	-	-	-	2.44	1.58	-	-	-
5/31/2023	1.78	3.16	1.86	8.56	dry	dry	6.28	dry	2.90	4.98	2.45	2.87	1.90	6.22	11.51	dry
8/25/2023	1.25	4.59	1.34	9.36	dry	dry	7.11	dry	dry	5.32	dry	3.35	1.55	6.76	11.84	dry
12/20/2023	1.43	6.53	2.01	9.45	dry	dry	dry	dry	dry	5.85	dry	3.69	2.15	7.17	12.05	dry
3/22/2024	1.34	2.70	1.19	9.03	dry	dry	6.81	dry	2.88	4.69	1.30	2.13	1.25	6.34	11.69	dry
4/22/2024	1.30	2.20	1.13	8.78	dry	dry	6.34	dry	2.38	4.61	1.33	1.94	1.18	6.10	11.54	dry
5/28/2024	1.26	-	1.38	8.65	dry	dry	6.29	dry	3.15	4.83	2.22	2.44	1.54	6.18	11.55	dry
8/19/2024	1.82	4.58	2.04	8.61	dry	dry	6.37	dry	3.47	5.15	2.53	2.77	2.05	6.22	11.55	dry
11/14/2024	2.14	6.39	2.70	9.47	dry	dry	7.23	dry	3.54	5.87	dry	4.55	3.59	7.05	11.91	dry
2/6/2025	1.59	6.24	1.79	9.49	dry	dry	7.23	dry	dry	5.90	dry	3.41	2.22	nm	12.03	dry

Notes: *Notes:*

mBTOC = metre *mBTOC = metres below top of casing*

mBGS = metres *mBGS = metres below ground surface*

mAMSL = metre *mAMSL = metres above mean sea level*

nm = not measu *nm = not measured during monitoring event*

Table 5b: Manual Groundwater Depths (mBGS) - 2022 - 2025

Date	MW603-22	MW604-22	MW605-22	MW606-22	MW607-22	MP101-23 (out	MP101-23 (in)	MW701-24	MW702-24	MW703-24
2/15/2022	-	-	-	-	-	-	-	-	-	-
3/8/2022	-	-	-	-	-	-	-	-	-	-
7/5/2022	-	-	-	-	-	-	-	-	-	-
9/26/2022	-	-	-	-	-	-	-	-	-	-
11/3/2022	dry	5.46	dry	4.79	7.45	-	-	-	-	-
11/28/2022	dry	5.78	dry	4.88	-	-	-	-	-	-
12/19/2022	dry	6.09	dry	4.97	7.82	-	-	-	-	-
3/15/2023	2.39	2.38	5.35	3.65	6.67	-	-	-	-	-
4/24/2023	1.32	1.87	3.99	2.14	4.91	dry	dry	-	-	-
5/2/2023	-	-	-	-	-	-	-	-	-	-
5/4/2023	1.18	1.78	-	1.51	-	-	-	-	-	-
5/5/2023	-	-	-	-	5.02	dry	0.01	-	-	-
5/8/2023	-	-	4.08	-	4.94	-	-	-	-	-
5/9/2023	-	-	-	2.00	-	-	-	-	-	-
5/10/2023	-	-	4.12	-	4.97	dry	0.10	-	-	-
5/12/2023	1.46	1.85	-	-	-	-	-	-	-	-
5/15/2023	-	-	-	-	-	-	-	-	-	-
5/16/2023	1.52	1.94	4.14		4.98	-	-	-	-	-
5/17/2023	-	-	-	2.50	-	-	-	-	-	-
5/31/2023	1.93	2.34	4.35	2.80	5.31	dry	0.48	-	-	-
8/25/2023	2.02	2.09	4.87	3.14	6.25	dry	0.60	-	-	-
12/20/2023	2.92	2.74	5.50	4.56	7.14	dry	dry	-	-	-
3/22/2024	1.23	1.72	4.35	2.29	5.31	dry	0.14	-	-	-
4/22/2024	1.11	1.59	4.04	1.61	4.87	dry	0.08	-	-	-
5/28/2024	1.51	1.97	4.22	2.04	5.28	dry	0.16	-	-	-
8/19/2024	2.27	2.42	4.33	2.55	5.38	dry	0.62	8.74	8.11	-
11/14/2024	dry	3.92	5.30	4.21	6.84	dry	dry	9.22	8.47	9.24
2/6/2025	2.20	2.98	5.29	4.28	7.20	nm-snow too deep	nm-snow too deep	9.40	8.66	9.48

Notes: *Notes:*
mBTOC = metr *mBTOC = metres below top of casing*
mBGS = metres *mBGS = metres below ground surface*
mAMSL = metr *mAMSL = metres above mean sea level*
nm = not meas *nm = not measured during monitoring event*

Table 5c: Manual Groundwater Elevations (mAMSL) - 2022 - 2025

Date	BH/MW1-06	MW1-11	MW2-11	MW3-11	MW4-11	MW1-17	MW2-17	MW3-17	MW4-17	MW5-17	MW8-17	MW9-17	MW10-17	MW11-17	MW12-17	MW204-19
2/15/2022	338.78	327.41	327.94	327.14	dry	-	-	-	-	-	nm	nm	338.17	332.35	not located. snow	338.92
3/8/2022	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	340.37
7/5/2022	338.55	327.46	328.02	327.21	dry	-	-	-	-	-	340.31	341.40	337.93	332.41	326.94	338.84
9/26/2022	337.50	327.13	327.65	326.81	dry	dry	-	-	dry	not found	dry	dry	dry	dry	326.84	dry
11/3/2022	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11/28/2022	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12/19/2022	337.56	326.77	327.35	326.44	dry	dry	-	-	dry	337.51	dry	dry	dry	dry	dry	dry
3/15/2023	339.88	326.92	327.45	326.56	326.93	dry	nm well under ice	-	nm well under ice	nm well under ice	341.76	342.68	338.32	332.29	nm well under ice	339.83
4/24/2023	340.12	329.03	329.38	328.29	329.05	329.15	338.87	-	339.56	339.91	341.99	342.81	339.18	333.92	dry	340.38
5/2/2023	340.20	-	-	-	-	329.04	-	-	-	-	-	-	-	-	-	-
5/4/2023	340.23	-	-	-	-	329.08	-	-	-	-	-	-	-	-	-	340.45
5/5/2023	-	328.62	-	328.04	328.61	-	-	-	-	-	-	-	-	333.61	-	-
5/8/2023	-	-	-	327.97	-	-	-	-	-	-	-	-	-	333.58	-	340.29
5/9/2023	340.07	-	-	-	-	329.32	-	-	-	-	-	-	-	-	-	-
5/10/2023	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5/12/2023	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	340.12
5/15/2023	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5/16/2023	339.73	-	-	-	-	329.07	-	-	-	-	-	-	-	-	-	339.94
5/17/2023	-	-	-	-	-	328.95	-	-	-	-	-	-	-	-	-	-
5/31/2023	339.27	328.11	328.63	327.70	328.10	328.39	338.41	-	339.05	339.40	341.25	342.00	338.38	333.23	dry	339.44
8/25/2023	339.33	327.36	327.91	327.04	327.35	327.81	337.56	-	338.77	339.11	340.39	340.87	338.36	332.35	dry	337.67
12/20/2023	338.68	327.06	327.57	326.71	327.06	dry	not located	-	338.17	338.65	dry	dry	337.76	dry	dry	dry
3/22/2024	339.92	327.59	328.02	327.23	327.58	328.67	338.64	-	339.34	339.73	341.96	342.69	338.89	333.59	dry	340.20
4/22/2024	340.05	327.81	328.24	327.39	327.78	329.82	338.78	-	339.57	339.93	341.99	342.73	339.06	333.86	dry	340.31
5/28/2024	339.59	327.99	328.50	327.57	327.97	328.59	338.34	-	339.02	339.39	341.48	342.54	338.46	333.89	326.82	339.39
8/19/2024	338.80	328.04	328.55	327.62	328.04	327.77	337.82	-	338.40	338.85	340.88	341.79	338.33	333.08	dry	338.84
11/14/2024	337.81	327.19	327.71	326.88	327.19	dry	dry	-	337.29	337.83	dry	dry	337.12	dry	dry	dry
2/6/2025	338.57	326.91	327.44	326.60	326.93	nm-buried in snow/ice	nm-buried in snow/ice	-	nm-buried in snow/ice	nm-buried in snow/ice	nm-no access, gate frozen	nm-no access, gate frozen	337.94	dry	nm-buried in snow/ice	338.81

Notes:
mBTOC = metres below top of casing
mBGS = metres below ground surface
mAMSL = metres above mean sea level
nm = not measured during monitoring event

Table 5c: Manual Groundwater Elevations (mAMSL) - 2022 - 2025

Date	MW209-19	MW210-19	MW211-19	MW217-19	MW304-20	MW306-20	MW308-20	MW501-22	MW507A-22	MW507B-22	MW512A-22	MW512B-22	MW514-22	MW520-22	MW601-22	MW602-22
2/15/2022	336.55	334.48	338.73	327.63	dry	dry	330.85	-	-	-	-	-	-	-	-	-
3/8/2022	-	-	-	-	-	-	-	dry	n/a - pre-development water level	n/a - pre-development water level	n/a - pre-development water level	n/a - pre-development water level	n/a - pre-development water level	n/a - pre-development water level	-	-
7/5/2022	-	333.68	338.36	327.64	dry	dry	331.05	well damaged	dry	326.64	dry	332.23	342.15	325.56	-	-
9/26/2022	334.92	331.92	337.26	327.39	dry	dry	330.82	-	dry	dry	dry	330.47	340.50	dry	-	-
11/3/2022	-	dry	-	-	-	-	-	-	-	-	-	-	-	-	317.44	dry
11/28/2022	-	-	-	-	-	-	-	dry	dry	dry	dry	329.96	338.84	dry	dry	dry
12/19/2022	334.39	dry	dry	327.27	dry	dry	330.81	dry	dry	dry	dry	329.88	338.40	dry	dry	dry
3/15/2023	336.84	332.44	339.32	327.40	dry	326.39	330.81	dry	dry	326.82	333.37	332.82	342.96	324.92	317.59	dry
4/24/2023	336.96	336.61	339.38	329.09	dry	326.40	332.14	dry	329.81	327.63	333.91	333.26	343.33	326.18	318.29	dry
5/2/2023	-	-	-	-	-	-	-	-	-	-	333.91	333.28	-	-	318.29	-
5/4/2023	337.00	336.71	-	328.77	-	-	-	-	-	-	334.00	333.27	-	-	318.19	-
5/5/2023	-	336.71	339.48	328.77	-	326.38	-	-	329.84	327.64	-	-	-	-	-	-
5/8/2023	336.95	-	339.44	-	-	-	-	-	-	-	-	-		326.09	-	-
5/9/2023	-	-	-	-	-	-	-	-	-	-	334.01	333.28	-	-	-	-
5/10/2023	-	-	-	328.67	-	-	-	-	329.79	327.61	-	-	343.29	326.09	-	-
5/12/2023	nm tape broken, sampling event	336.60	-	-	-	-	-	-	-	-	-	-	-	-	nm - tape broken, sampling event	-
5/15/2023	-	-	-	-	-	-	-	-	-	-	-	-	-	-	318.06	-
5/16/2023	336.84	336.44	-	328.57	-	-	-	-	329.65	327.52	333.76	333.12	343.19	326.02	318.13	-
5/17/2023	-	-	-	-	-	-	-	-	-	-	-	333.04	343.03	-	-	-
5/31/2023	336.49	335.69	338.79	328.29	dry	dry	331.77	dry	329.21	327.23	333.08	332.61	342.71	325.81	317.98	dry
8/25/2023	337.02	334.26	339.31	327.49	dry	dry	330.94	dry	dry	326.89	dry	332.13	343.06	325.27	317.65	dry
12/20/2023	336.84	332.32	338.64	327.40	dry	dry	dry	dry	dry	326.36	dry	331.79	342.46	324.86	317.44	dry
3/22/2024	336.93	336.15	339.46	327.82	dry	dry	331.24	dry	329.23	327.52	334.23	333.35	343.36	325.69	317.80	dry
4/22/2024	336.97	336.65	339.52	328.07	dry	dry	331.71	dry	329.73	327.60	334.20	333.54	343.43	325.93	317.95	dry
5/28/2024	337.01	-	339.27	328.20	dry	dry	331.76	dry	328.96	327.38	333.31	333.04	343.07	325.85	317.94	dry
8/19/2024	336.45	334.27	338.61	328.24	dry	dry	331.68	dry	328.64	327.06	333.00	332.71	342.56	325.81	317.94	dry
11/14/2024	336.13	332.46	337.95	327.38	dry	dry	330.82	dry	328.57	326.34	dry	330.93	341.02	324.98	317.58	dry
2/6/2025	336.68	332.61	338.86	327.36	dry	dry	330.82	dry	dry	326.31	dry	332.07	342.39	nm	317.46	dry

Notes: *Notes:*

mBTOC = metre *mBTOC = metres below top of casing*

mBGS = metres *mBGS = metres below ground surface*

mAMSL = metre *mAMSL = metres above mean sea level*

nm = not measu *nm = not measured during monitoring event*

Table 5c: Manual Groundwater Elevations (mAMSL) - 2022 - 2025

Date	MW603-22	MW604-22	MW605-22	MW606-22	MW607-22	MP101-23 (in)	MP101-23 (out	MW701-24	MW702-24	MW703-24
2/15/2022	-	-	-	-	-	-	-	-	-	-
3/8/2022	-	-	-	-	-	-	-	-	-	-
7/5/2022	-	-	-	-	-	-	-	-	-	-
9/26/2022	-	-	-	-	-	-	-	-	-	-
11/3/2022	dry	337.54	dry	323.93	330.32	-	-	-	-	-
11/28/2022	dry	337.22	dry	323.84	-	-	-	-	-	-
12/19/2022	dry	336.91	dry	323.75	329.95	-	-	-	-	-
3/15/2023	333.96	340.62	326.87	325.07	331.10	-	-	-	-	-
4/24/2023	335.03	341.13	328.23	326.58	332.86	dry	dry	-	-	-
5/2/2023	-	-	-	-	-	-	-	-	-	-
5/4/2023	335.17	341.22	-	327.21	-	-	-	-	-	-
5/5/2023	-	-	-	-	332.75	327.09	dry	-	-	-
5/8/2023	-	-	328.14	-	332.83	-	-	-	-	-
5/9/2023	-	-	-	326.72	-	-	-	-	-	-
5/10/2023	-	-	328.10	-	332.80	327.00	dry	-	-	-
5/12/2023	334.89	341.15	-	-	-	-	-	-	-	-
5/15/2023	-	-	-	-	-	-	-	-	-	-
5/16/2023	334.83	341.06	328.08		332.79	-	-	-	-	-
5/17/2023	-	-	-	326.22	-	-	-	-	-	-
5/31/2023	334.42	340.66	327.87	325.92	332.46	326.62	dry	-	-	-
8/25/2023	334.33	340.91	327.35	325.58	331.52	326.50	dry	-	-	-
12/20/2023	333.43	340.26	326.72	324.16	330.63	dry	dry	-	-	-
3/22/2024	335.12	341.28	327.87	326.43	332.46	326.96	dry	-	-	-
4/22/2024	335.24	341.41	328.18	327.11	332.90	327.02	dry	-	-	-
5/28/2024	334.84	341.03	328.00	326.68	332.49	326.94	dry	-	-	-
8/19/2024	334.08	340.58	327.89	326.17	332.39	326.48	dry	327.99	329.13	-
11/14/2024	dry	339.08	326.92	324.51	330.93	dry	dry	327.51	328.77	327.38
2/6/2025	334.15	340.02	326.93	324.44	330.57	nm-snow too deep	nm-snow too deep	327.33	328.58	327.14

Notes: *Notes:*
mBTOC = metr *mBTOC = metres below top of casing*
mBGS = metres *mBGS = metres below ground surface*
mAMSL = metr *mAMSL = metres above mean sea level*
nm = not meas *nm = not measured during monitoring event*

Appendix A

Borehole Logs

ID No.: MW501-22

Project Name: Guelph Innovation District Lands

MTE File No.: 46927-104

Client: Fusion Homes

Site Location: 588 Stone Road East, Guelph, ON

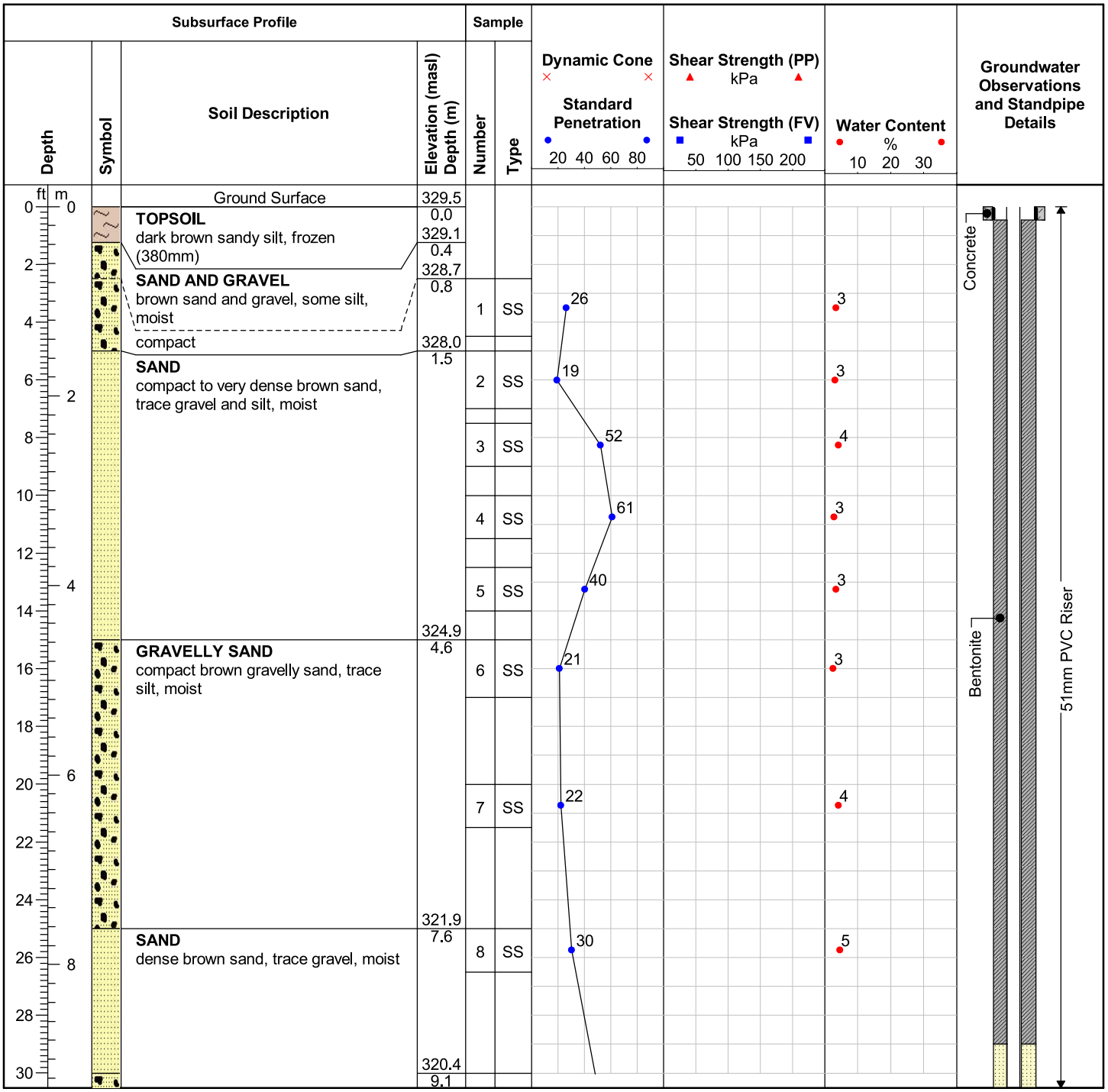
Date Completed: 2/28/2022

Drilling Contractor: Envirocore

Drill Rig: D50T Track Mounted

Drill Method: Hollow Stem Augers

Protective Cover: Monument Casing



Field Technician: M. Dalgliesh

Drafted by: A. Challis

Reviewed by: D. Gonser

Sheet: 1 of 2

Notes:
Auger refusal at 11.1mbgs on suspected bedrock.
Borehole dry upon drilling completion.
Well dry on March 8, 2022.

ID No.: MW501-22

Project Name: Guelph Innovation District Lands

MTE File No.: 46927-104

Client: Fusion Homes

Site Location: 588 Stone Road East, Guelph, ON

Date Completed: 2/28/2022

Drilling Contractor: Envirocore

Drill Rig: D50T Track Mounted

Drill Method: Hollow Stem Augers

Protective Cover: Monument Casing

Depth	Symbol	Soil Description	Elevation (masl) / Depth (m)	Sample Number	Sample Type	Dynamic Cone / Standard Penetration (20 40 60 80)	Shear Strength (PP) kPa / Shear Strength (FV) kPa (50 100 150 200)	Water Content % (10 20 30)	Groundwater Observations and Standpipe Details
32 – 10		**SAND AND GRAVEL** very dense brown sand and gravel, trace silt, occasional cobbles, moist		9	SS	51		5	Sand Pack
34									
36				10	SS	50/80mm		8	51mm Slotted Screen
			318.4						
		Drilling Terminated	11.1						
38 – 12									
40									
42									
44									
46 – 14									
48									
50									
52 – 16									
54									
56									
58									
60 – 18									

Field Technician: M. Dalgliesh

Drafted by: A. Challis

Reviewed by: D. Gonser

Sheet: 2 of 2

Notes:
Auger refusal at 11.1mbgs on suspected bedrock.
Borehole dry upon drilling completion.
Well dry on March 8, 2022.

ID No.: BH502-22

Project Name: Guelph Innovation District Lands

MTE File No.: 46927-104

Client: Fusion Homes

Site Location: 588 Stone Road East, Guelph, ON

Date Completed: 2/28/2022

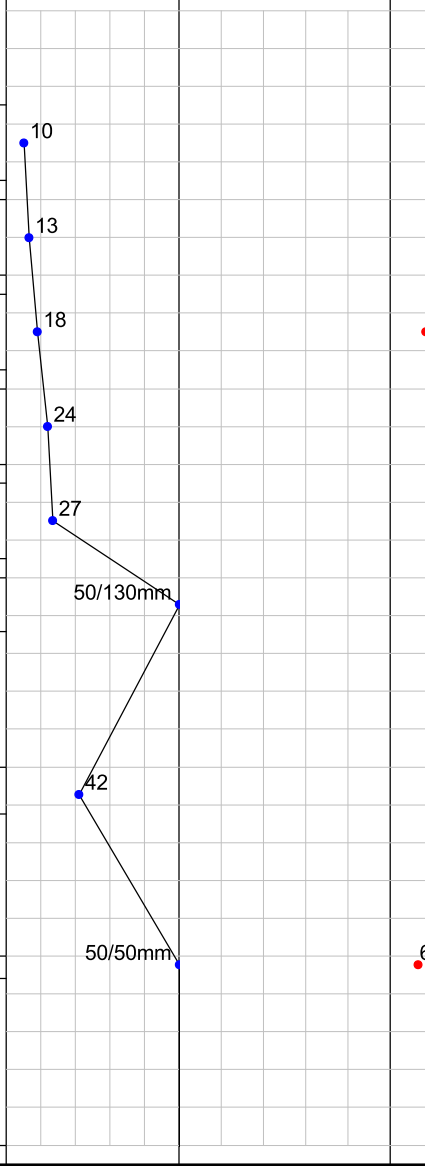
Drilling Contractor: Envirocore

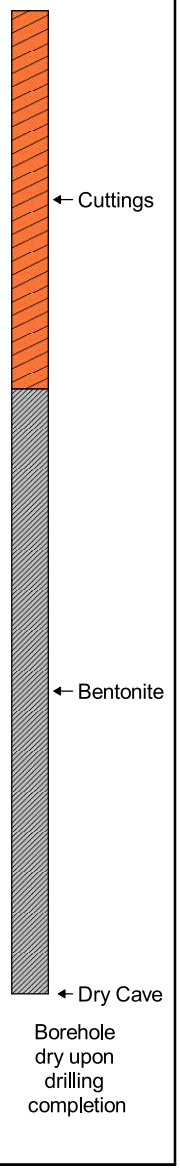
Drill Rig: D50T Track Mount

Drill Method: Hollow Stem Augers

Protective Cover: N/A

Depth (ft / m)	Soil Description	Elevation (masl) / Depth (m)	Sample Number	Sample Type
0 / 0	Ground Surface	332.0		
	TOPSOIL dark brown sandy silt, frozen (360mm)	0.0 / 331.6		
		0.4 / 331.2		
2 / 0.5	**SILT TILL** light brown sandy silt, some gravel, trace clay, frozen/wet	0.8	1	SS
4 / 1	compact		2	SS
6 / 2		329.7		
8 / 2.5	**GRAVELLY SILT TILL** compact light brown gravelly silt, some sand, trace clay, very moist	2.3	3	SS
10 / 3			4	SS
12 / 3.5		328.2		
14 / 4	**SANDY SILT TILL** compact to very dense brown sandy silt, some gravel, trace clay, very moist with occasional wet seams	3.8	5	SS
16 / 5			6	SS
18 / 5.5				
20 / 6		325.9		
20 / 6	**SILT TILL** dense to very dense brown silt, some gravel and clay, trace sand, very moist to moist	6.1	7	SS
22 / 6.5				
24 / 7		324.4		
24 / 7	occasional cobbles and boulders	7.6	8	SS
26 / 8				
28 / 8.5		322.9		
30 / 9		9.1	9	





Field Technician: M. Dalgliesh

Drafted by: A. Challis

Reviewed by: D. Gonser

Notes:
Auger refusal at 10.1mbgs on suspected bedrock

ID No.: BH502-22

Project Name: Guelph Innovation District Lands

MTE File No.: 46927-104

Client: Fusion Homes

Site Location: 588 Stone Road East, Guelph, ON

Date Completed: 2/28/2022

Drilling Contractor: Envirocore

Drill Rig: D50T Track Mount

Drill Method: Hollow Stem Augers

Protective Cover: N/A

Depth	Symbol	Soil Description	Elevation (masl) / Depth (m)	Sample Number	Sample Type	Dynamic Cone / Standard Penetration (20 40 60 80)	Shear Strength (PP) kPa / Shear Strength (FV) kPa (50 100 150 200)	Water Content % (10 20 30)	Groundwater Observations and Standpipe Details
32		**SAND AND GRAVEL** very dense brown sand and gravel, trace silt, occasional cobbles, damp to moist		9	SS	50/100mm		4	
10			321.9	10	SS	50/50mm		8	
34		Drilling Terminated	10.1						
36									
38									
12 40									
42									
44									
14 46									
48									
50									
16 52									
54									
56									
58									
18 60									

Field Technician: M. Dalgliesh

Drafted by: A. Challis

Reviewed by: D. Gonser

Notes:
Auger refusal at 10.1mbgs on suspected bedrock

ID No.: BH503-22

Project Name: Guelph Innovation District Lands

MTE File No.: 46927-104

Client: Fusion Homes

Site Location: 588 Stone Road East, Guelph, ON

Date Completed: 2/28/2022

Drilling Contractor: Envirocore

Drill Rig: D50T Track Mounted

Drill Method: Hollow Stem Augers

Protective Cover: N/A

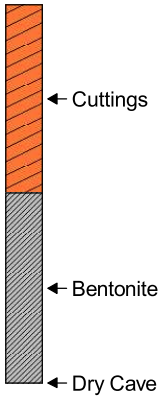
Depth (ft / m)	Soil Description	Elevation (masl) / Depth (m)	Sample Number	Sample Type	Standard Penetration (Dynamic Cone)	Shear Strength (PP) kPa / Shear Strength (FV) kPa	Water Content %
0 / 0	Ground Surface	328.6					
	TOPSOIL dark brown sandy silt, frozen (380mm)	0.0 / 328.2 / 0.4					
2 /	**SAND AND GRAVEL** brown sand and gravel, some silt, occasional cobbles, moist	327.8 / 0.8	1	SS	22		3
4 /	compact to very dense	327.1					
6 / 2	numerous cobbles	1.5	2	SS	62		5
8 /			3	SS	50/50mm		4
10 /		325.6			50/0mm		5
	Drilling Terminated	3.0					
12 / 4							
14 /							
16 /							
18 /							
20 / 6							
22 /							
24 /							
26 / 8							
28 /							
30 /							

Standard Penetration: 20 40 60 80

Shear Strength kPa: 50 100 150 200

Water Content %: 10 20 30

Groundwater Observations and Standpipe Details



Borehole dry upon drilling completion

Field Technician: M. Dalgliesh

Drafted by: A. Challis

Reviewed by: D. Gonser

Notes:
Auger refusal at 3.0mbgs on suspected bedrock

ID No.: BH504-22

Project Name: Guelph Innovation District Lands

MTE File No.: 46927-104

Client: Fusion Homes

Site Location: 588 Stone Road East, Guelph, ON

Date Completed: 3/1/2022

Drilling Contractor: Envirocore

Drill Rig: D50T Track Mount

Drill Method: Hollow Stem Augers

Protective Cover: N/A

Depth (ft / m)	Symbol	Soil Description	Elevation (masl) / Depth (m)	Sample Number	Sample Type	Dynamic Cone / Standard Penetration (20 40 60 80)	Shear Strength (PP) kPa / Shear Strength (FV) kPa (50 100 150 200)	Water Content % (10 20 30)	Groundwater Observations and Standpipe Details
0 / 0		Ground Surface	323.4						
0 / 0		**FILL (TOPSOIL)** dark brown sandy silt, frozen (760mm)	0.0	1	GS			4	
			322.6						
2		**FILL** loose dark brown gravelly silt, some sand and organics, wet	0.8 / 322.2	2	SS	8		32	
4			1.2			82/100mm			
		GRAVELLY SILT TILL compact to very dense brown gravelly silt, some sand, trace clay, moist	321.7	3	SS			5	
6 / 2			1.7						
		BEDROCK limestone	321.3 / 2.1						
8		Drilling Terminated							
10									
12 / 4									
14									
16									
18									
20 / 6									
22									
24									
26 / 8									
28									
30									

Cuttings

Bentonite

Dry Cave

Borehole dry upon drilling completion

Field Technician: M. Dalgliesh

Drafted by: H. Sandhu

Reviewed by: D. Gonser

Sheet: 1 of 1

Notes:
Bedrock outcrops visible on slope near borehole.

ID No.: BH505-22

Project Name: Guelph Innovation District Lands

MTE File No.: 46927-104

Client: Fusion Homes

Site Location: 588 Stone Road East, Guelph, ON

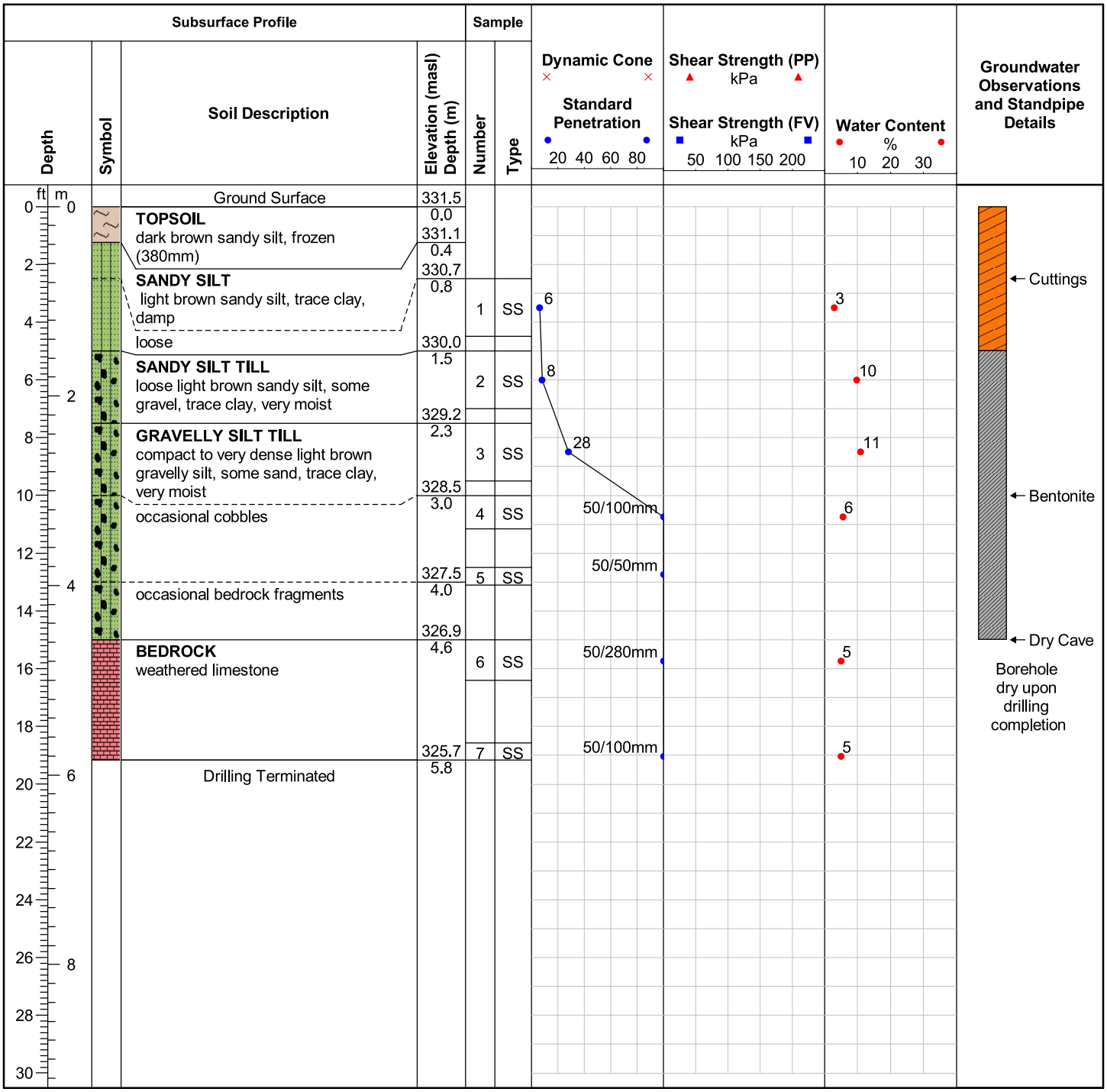
Date Completed: 3/1/2022

Drilling Contractor: Envirocore

Drill Rig: D50T Track Mount

Drill Method: Hollow Stem Augers

Protective Cover: N/A



Field Technician: M. Dalgliesh

Drafted by: H. Sandhu

Reviewed by: D. Gonser

Sheet: 1 of 1

Notes:
Auger refusal at 5.8mbgs on suspected bedrock

ID No.: BH506-22

Project Name: Guelph Innovation District Lands

MTE File No.: 46927-104

Client: Fusion Homes

Site Location: 588 Stone Road East, Guelph, ON

Date Completed: 3/1/2022

Drilling Contractor: Envirocore

Drill Rig: D50T Track Mount

Drill Method: Hollow Stem Augers

Protective Cover: N/A

Depth (ft / m)	Soil Description	Elevation (masl) / Depth (m)	Sample Number	Sample Type	Standard Penetration (Dynamic Cone)	Shear Strength (PP) kPa / Shear Strength (FV) kPa	Water Content %
0 / 0	Ground Surface	334.3					
	TOPSOIL dark brown sandy silt, frozen (380mm)	0.0					
2 /	**GRAVELLY SILT TILL** loose light brown gravelly silt, some sand, trace clay, very moist to moist		1	SS	9		10
4 /		332.8					
	compact to very dense	1.5	2	SS	19		6
6 / 2		332.0					
8 /	occasional cobbles	2.3	3	SS	60		8
10 /			4	SS	50/130mm		6
12 /			5	SS	50/130mm		9
14 / 4							
16 /			6	SS	78		4
18 /		328.8					
	BEDROCK weathered limestone	5.5					
20 / 6		328.2	7	SS	50/50mm		9
	Drilling Terminated	6.1					
22 /							
24 /							
26 / 8							
28 /							
30 /							

Groundwater Observations and Standpipe Details

- Cuttings
- Bentonite
- Dry Cave

Borehole dry upon drilling completion

Field Technician: M. Dalgliesh

Drafted by: H. Sandhu

Reviewed by: D. Gonser

Sheet: 1 of 1

Notes:
Auger refusal at 6.1mbgs on suspected limestone bedrock

ID No.: MW507A-22

Project Name: Guelph Innovation District Lands

MTE File No.: 46927-104

Client: Fusion Homes

Site Location: 588 Stone Road East, Guelph, ON

Date Completed: 3/2/2022

Drilling Contractor: Envirocore

Drill Rig: D50T Track

Drill Method: Hollow Stem Augers

Protective Cover: Monument Casing

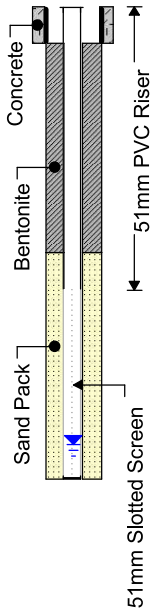
Depth (ft / m)	Symbol	Soil Description	Elevation (masl) / Depth (m)	Sample Number	Sample Type
0 / 0		Ground Surface	332.1		
0 / 0		**TOPSOIL** dark brown sandy silt, frozen (360mm)	0.0 / 331.7		
0 / 0			0.4		
2 / 0.6 – 6 / 2		**SILT TILL** brown silt, some sand and gravel, trace clay, wet to very moist			
6 / 2			329.8		
8 / 2.4 – 12 / 4		**GRAVELLY SILT TILL** brown gravelly silt, some sand, trace clay, wet	2.3		
12 / 4			328.3		
12 / 4		Drilling Terminated	3.8		

Dynamic Cone / Standard Penetration: 20 40 60 80

Shear Strength (PP) kPa / Shear Strength (FV) kPa: 50 100 150 200

Water Content %: 10 20 30

Groundwater Observations and Standpipe Details



Field Technician: M. Dalgliesh

Drafted by: H. Sandhu

Reviewed by: D. Gonser

Sheet: 1 of 1

Notes:
Stratigraphy inferred from Borehole MW507B-22.
Water measured at 3.5mbgs (Elevation 328.6masl) on July 5, 2022.

ID No.: MW507B-22

Project Name: Guelph Innovation District Lands

MTE File No.: 46927-104

Client: Fusion Homes

Site Location: 588 Stone Road East, Guelph, ON

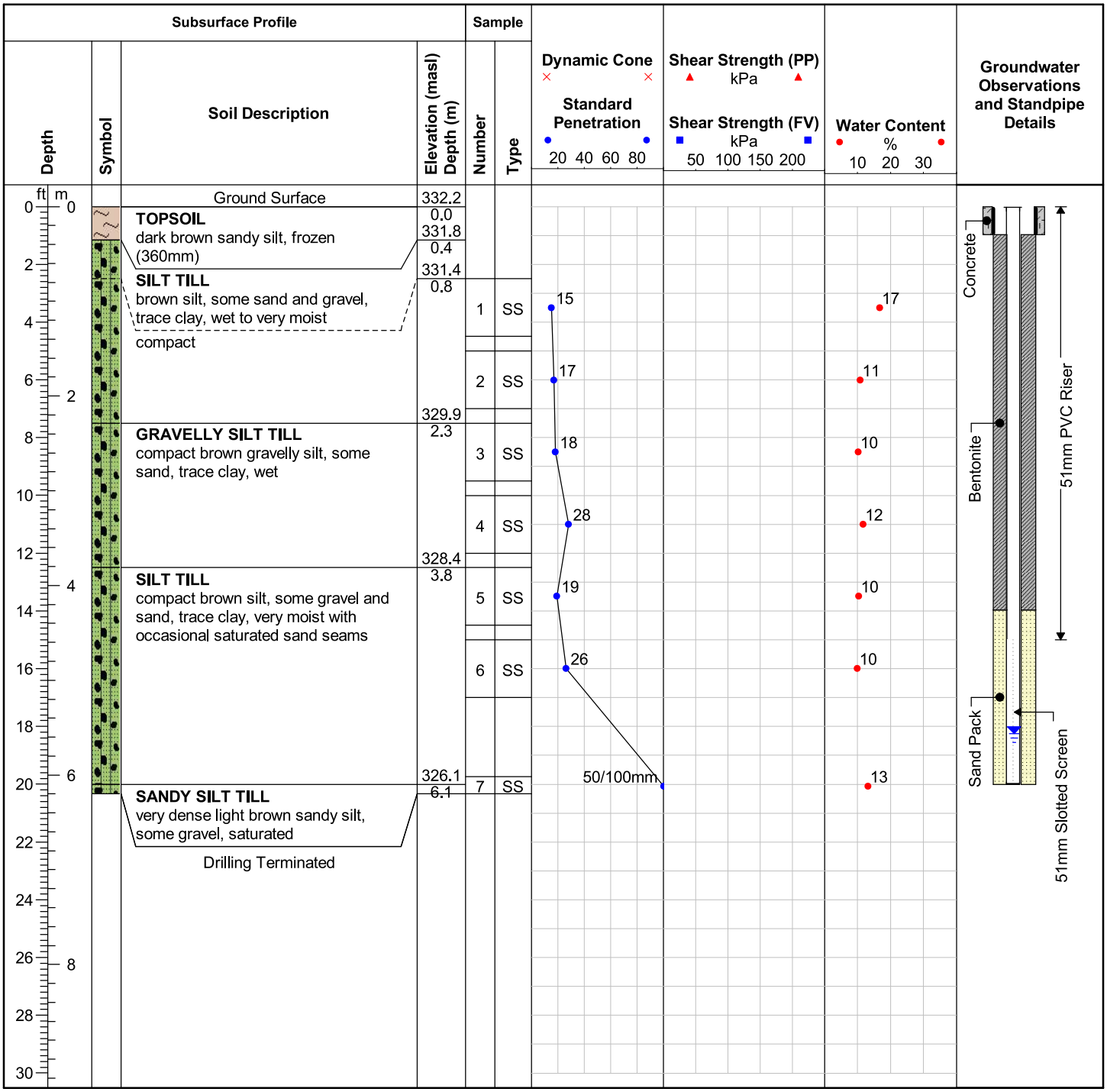
Date Completed: 3/2/2022

Drilling Contractor: Envirocore

Drill Rig: D50T Track

Drill Method: Hollow Stem Augers

Protective Cover: Monument Casing



Field Technician: M. Dalgliesh

Drafted by: H. Sandhu

Reviewed by: D. Gonser

Sheet: 1 of 1

Notes:
Auger refusal at 6.2mbgs on suspected bedrock.
Water encountered at 3.8mbgs during drilling.
Water measured at 5.6mbgs (Elevation 326.6masl) on July 5, 2022.

ID No.: BH508-22

Project Name: Guelph Innovation District Lands

MTE File No.: 46927-104

Client: Fusion Homes

Site Location: 588 Stone Road East, Guelph, ON

Date Completed: 3/3/2022

Drilling Contractor: Envirocore

Drill Rig: D50T Track Mount

Drill Method: Hollow Stem Augers

Protective Cover: N/A

Depth (ft / m)	Soil Description	Elevation (masl) / Depth (m)	Sample Number	Sample Type	Standard Penetration (Dynamic Cone)	Shear Strength (PP) kPa / Shear Strength (FV) kPa	Water Content %
0 / 0	Ground Surface	339.9					
	TOPSOIL dark brown sandy silt, frozen (330mm)	0.0 / 339.1					
2 /	**SANDY SILT TILL** brown sandy silt, some gravel,trace clay, very moist	0.8	1	SS	4		14
4 /	loose, saturated	338.4					
6 / 2	compact, occasional cobbles, very moist	1.5 / 337.6	2	SS	15		12
8 /	**SILT TILL** compact to very dense light brown silt, some sand and gravel, trace clay, very moist	2.3	3	SS	19		15
10 /			4	SS	50/100mm		10
12 / 4	occasional saturated sand seams	336.1 / 3.8	5	SS	50/130mm		8
14 /		335.3					
16 /	**SANDY SILT TILL** very dense brown sandy silt, some gravel, trace clay, moist to very moist	4.6	6	SS	50/100mm		8
18 /							
20 / 6			7	SS	50/100mm		11
22 /							
24 /							
26 / 8	Drilling Terminated	332.1 / 7.8	8	SS	50/25mm		6
28 /							
30 /							

Groundwater Observations and Standpipe Details: Cuttings; Bentonite; Wet Cave; Water encountered at 0.8 and 3.8mbgs during drilling

Field Technician: M. Dalgliesh

Drafted by: H. Sandhu

Reviewed by: A. Challis

Sheet: 1 of 1

ID No.: BH509-22

Project Name: Guelph Innovation District Lands

MTE File No.: 46927-104

Client: Fusion Homes

Site Location: 588 Stone Road East, Guelph, ON

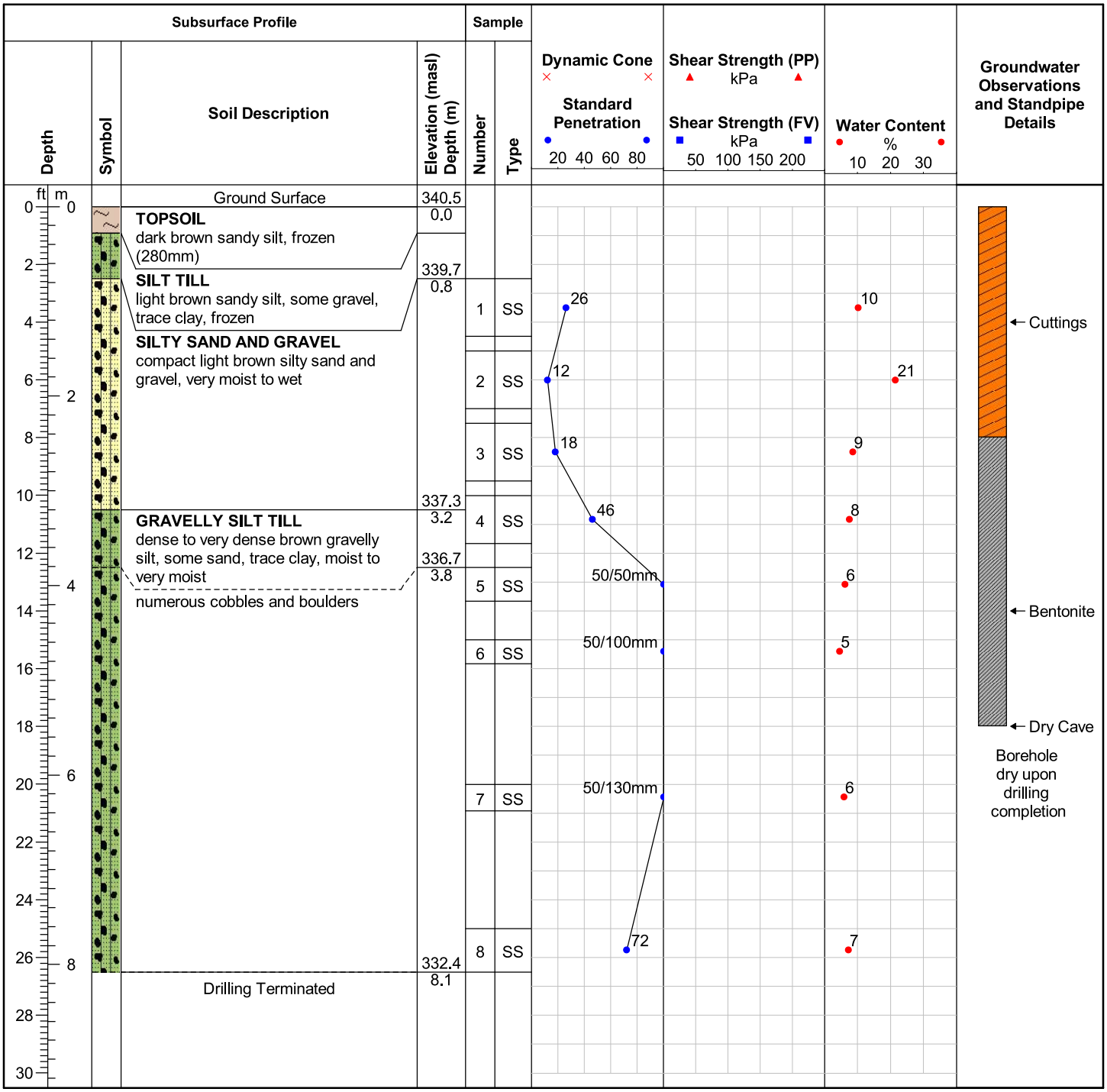
Date Completed: 3/3/2022

Drilling Contractor: Envirocore

Drill Rig: D50T Track Mount

Drill Method: Hollow Stem Augers

Protective Cover: N/A



Field Technician: M. Dalgliesh

Drafted by: H. Sandhu

Reviewed by: D. Gonser

MTE

Sheet: 1 of 1

ID No.: BH510-22

Project Name: Guelph Innovation District Lands

MTE File No.: 46927-104

Client: Fusion Homes

Site Location: 588 Stone Road East, Guelph, ON

Date Completed: 3/1/2022

Drilling Contractor: Envirocore

Drill Rig: D50T Track Mount

Drill Method: Hollow Stem Augers

Protective Cover: N/A

Depth (ft / m)	Soil Description	Elevation (masl) / Depth (m)	Sample Number	Sample Type	Dynamic Cone / Standard Penetration	Shear Strength (PP) kPa / Shear Strength (FV) kPa	Water Content %	Groundwater Observations and Standpipe Details
0 / 0	Ground Surface	343.4						
	TOPSOIL dark brown sandy silt, frozen (330mm)	0.0						
2		342.6						
	SANDY SILT TILL brown sandy silt, some gravel, trace clay, moist	0.8	1	SS	7		9	
4	loose	341.9						
	compact	1.5	2	SS	11		9	
6 / 2		341.1						
	SILT TILL very dense brown silt, some sand and gravel, trace clay, moist	2.3	3	SS	53		4	
8		340.4						
10	**GRAVELLY SILT TILL** very dense brown gravelly silt, some sand, trace clay, moist	3.0	4	SS	50/130mm		9	
12								
12 / 4			5	SS	50/100mm		9	
14								
16			6	SS	50/50mm		4	
18								
20 / 6		337.3						
	numerous cobbles	6.1	7	SS	50/75mm		7	
22								
24								
26 / 8		335.5	8	SS	50/100mm		4	
	Drilling Terminated	7.9						
28								
30								

Groundwater Observations and Standpipe Details: ← Cuttings; ← Bentonite; ← Dry Cave

Borehole dry upon drilling completion

Field Technician: M. Dalgliesh

Drafted by: H. Sandhu

Reviewed by: D. Gonser

MTE

Sheet: 1 of 1

ID No.: BH511-22

Project Name: Guelph Innovation District Lands

MTE File No.: 46927-104

Client: Fusion Homes

Site Location: 588 Stone Road East, Guelph, ON

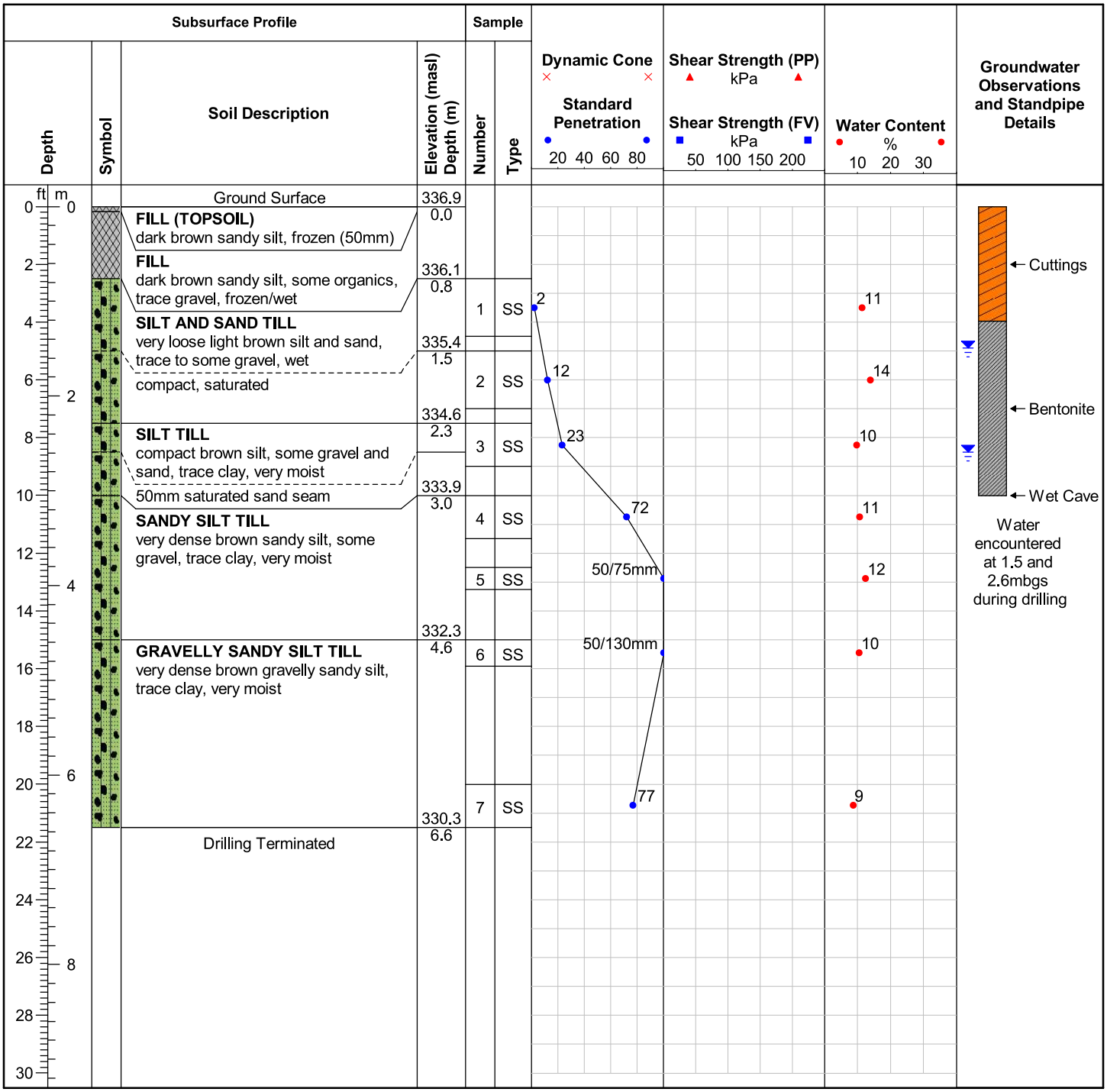
Date Completed: 3/2/2022

Drilling Contractor: Envirocore

Drill Rig: D50T Track Mount

Drill Method: Hollow Stem Augers

Protective Cover: N/A



Field Technician: M. Dalgliesh

Drafted by: H. Sandhu

Reviewed by: D. Gonser

Sheet: 1 of 1

ID No.: MW512A-22

Project Name: Guelph Innovation District Lands

MTE File No.: 46927-104

Client: Fusion Homes

Site Location: 588 Stone Road East, Guelph, ON

Date Completed: 3/1/2022

Drilling Contractor: Envirocore

Drill Rig: D50T Track Mounted

Drill Method: Hollow Stem Augers

Protective Cover: Monument Casing

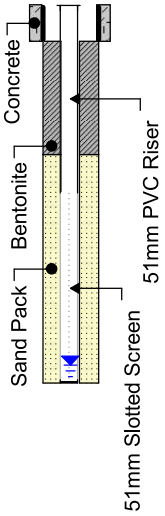
Depth (ft / m)	Symbol	Soil Description	Elevation (masl) / Depth (m)	Sample Number	Sample Type
0 / 0		Ground Surface	335.5		
0		**TOPSOIL** dark brown sandy silt, frozen (250mm)	0.0		
2		**SILT TILL** light brown silt, some sand and gravel, trace clay, wet	334.0		
6 / 2		occasional saturated sand seams	1.5		
8		**SANDY SILT TILL** brown sandy silt, some gravel, trace clay, saturated	333.2 2.3		
10			332.5		
12 / 4		Drilling Terminated	3.0		
14					
16					
18					
20 / 6					
22					
24					
26 / 8					
28					
30					

Dynamic Cone / Standard Penetration: 20 40 60 80

Shear Strength (PP) kPa / Shear Strength (FV) kPa: 50 100 150 200

Water Content %: 10 20 30

Groundwater Observations and Standpipe Details



Field Technician: M. Dalgliesh

Drafted by: H. Sandhu

Reviewed by: D. Gonser

Sheet: 1 of 1

Notes:
Stratigraphy inferred from Borehole MW512B-22.
Water measured at 2.9mbgs (Elevation 332.6masl) on July 5, 2022.

ID No.: MW512B-22

Project Name: Guelph Innovation District Lands

MTE File No.: 46927-104

Client: Fusion Homes

Site Location: 588 Stone Road East, Guelph, ON

Date Completed: 3/1/2022

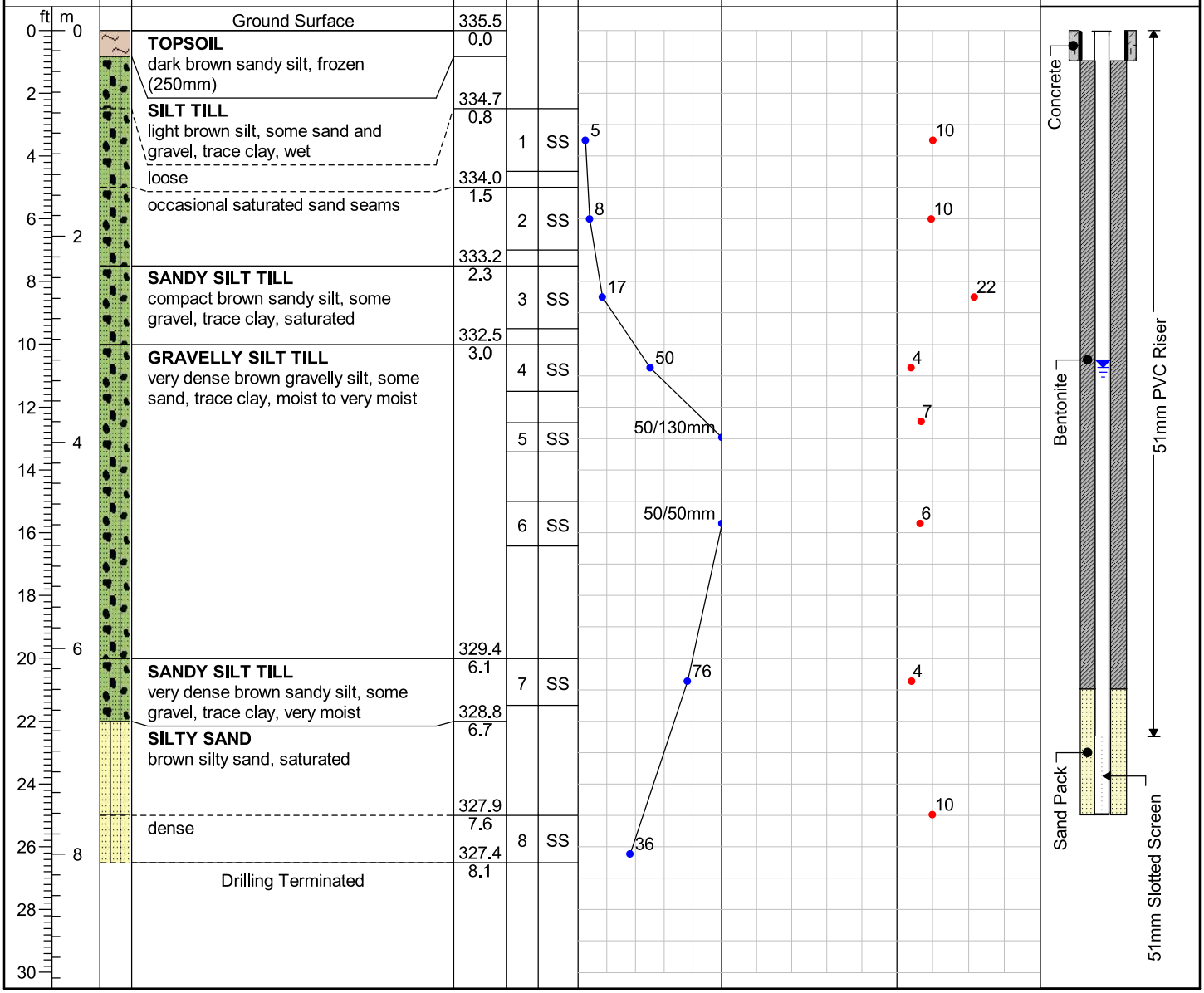
Drilling Contractor: Envirocore

Drill Rig: D50T Track Mounted

Drill Method: Hollow Stem Augers

Protective Cover: Monument Casing

Depth (ft)	Depth (m)	Soil Description	Elevation (masl)	Depth (m)	Sample Number	Sample Type
0	0	Ground Surface	335.5	0.0		
		TOPSOIL dark brown sandy silt, frozen (250mm)	334.7	0.8		
2		**SILT TILL** light brown silt, some sand and gravel, trace clay, wet			1	SS
4		loose	334.0	1.5		
6	2	occasional saturated sand seams	333.2	2.3	2	SS
8		**SANDY SILT TILL** compact brown sandy silt, some gravel, trace clay, saturated	332.5	3.0	3	SS
10		**GRAVELLY SILT TILL** very dense brown gravelly silt, some sand, trace clay, moist to very moist			4	SS
12	4				5	SS
14						
16					6	SS
18						
20	6		329.4	6.1	7	SS
22		**SANDY SILT TILL** very dense brown sandy silt, some gravel, trace clay, very moist	328.8	6.7		
24		**SILTY SAND** brown silty sand, saturated	327.9	7.6		
26	8	dense	327.4	8.1	8	SS
28		Drilling Terminated				
30						



Field Technician: M. Dalgliesh

Drafted by: H. Sandhu

Reviewed by: D. Gonser

Sheet: 1 of 1

Notes:
Water encountered at 1.5 and 6.7mbgs during drilling.
Water measured at 3.3mbgs (Elevation 332.2masl) on July 5, 2022.

ID No.: BH513-22

Project Name: Guelph Innovation District Lands

MTE File No.: 46927-104

Client: Fusion Homes

Site Location: 588 Stone Road East, Guelph, ON

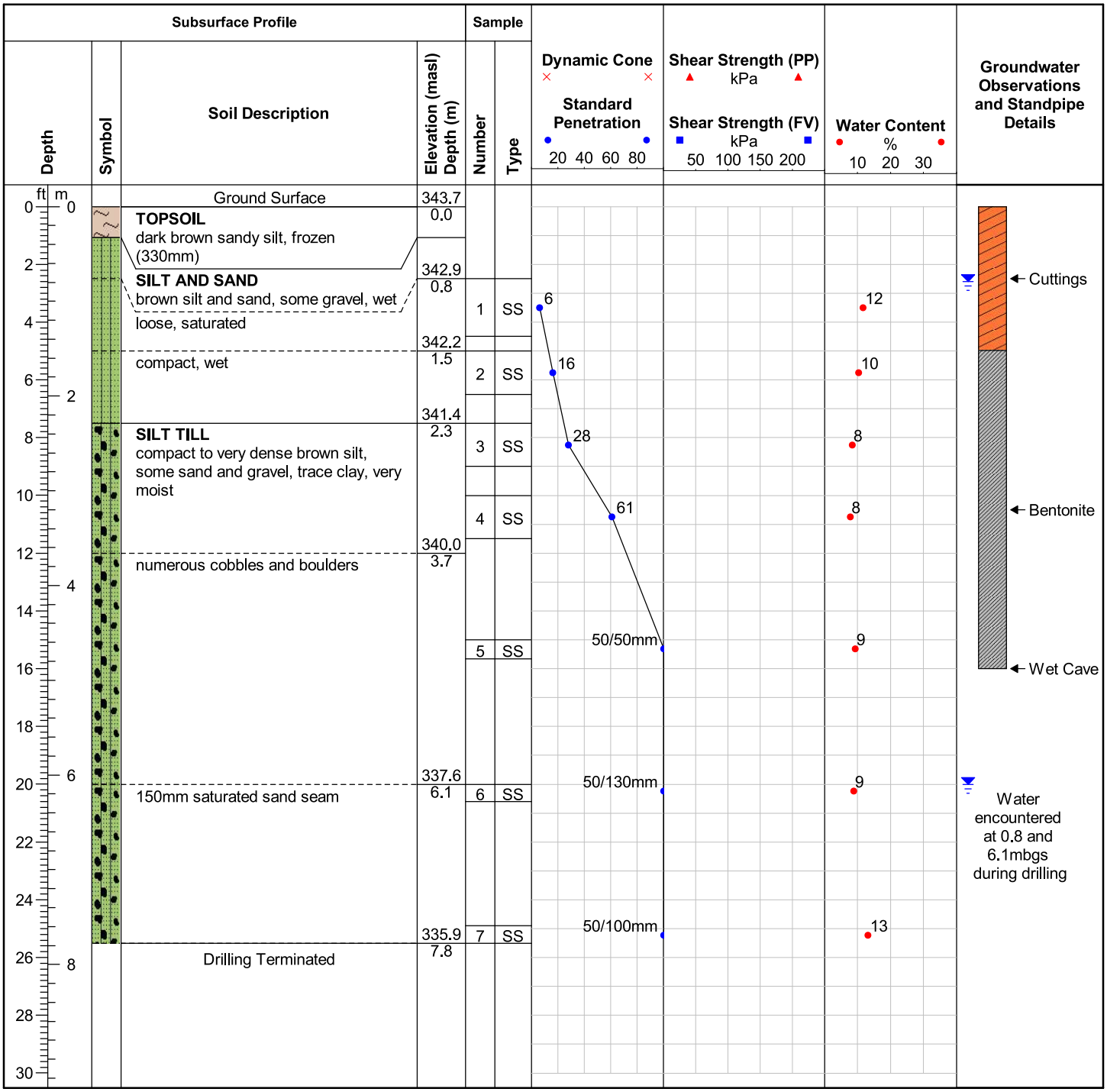
Date Completed: 3/7/2022

Drilling Contractor: Envirocore

Drill Rig: D50T Track Mount

Drill Method: Hollow Stem Augers

Protective Cover: N/A



Field Technician: M. Dalgliesh

Drafted by: A. Challis

Reviewed by: D. Gonser

Sheet: 1 of 1

ID No.: MW514-22

Project Name: Guelph Innovation District Lands

MTE File No.: 46927-104

Client: Fusion Homes

Site Location: 588 Stone Road East, Guelph, ON

Date Completed: 3/3/2022

Drilling Contractor: Envirocore

Drill Rig: D50T Track Mount

Drill Method: Hollow Stem Augers

Protective Cover: Monument Casing

Depth (ft)	Depth (m)	Soil Description	Elevation (masl) / Depth (m)	Sample Number	Sample Type	Standard Penetration (Dynamic Cone)	Shear Strength (PP) kPa / Shear Strength (FV) kPa	Water Content %
		Ground Surface	344.6					
0	0	**TOPSOIL** dark brown sandy silt, frozen (360mm)	0.0 / 344.2 / 0.4					
2		**SANDY SILT TILL** brown sandy silt, some gravel, trace clay, moist	343.8 / 0.8	1	SS	16		11
4		compact to dense	343.1					
6	2	occasional cobbles	1.5	2	SS	35		7
			342.3					
8		**GRAVELLY SILT TILL** dense to very dense brown gravelly silt, some sand, trace clay, moist	2.3	3	SS	46		5
10			341.6					
		numerous cobbles and boulders	3.0	4	SS	50/130mm		8
12			340.9					
	4	**SANDY GRAVELLY SILT TILL** very dense brown sandy gravelly silt, trace clay, numerous boulders, very moist	3.7	5	SS	50/100mm		6
14								
16				6	SS	50/130mm		6
18								
20	6		338.3	7	SS	50/130mm		7
		wet to saturated	6.3					
22				8	SS	50/50mm		13
24			337.0					
		GRAVELLY SILT TILL very dense brown gravelly silt, some sand, trace clay, very moist	7.6	9	SS	50/75mm		7
26	8							
28		Drilling Terminated						
30								

Groundwater Observations and Standpipe Details: Concrete; Bentonite; Sand Pack; 51mm PVC Riser; 51mm Slotted Screen

Field Technician: M. Dalgliesh

Drafted by: H. Sandhu

Reviewed by: A. Challis

Sheet: 1 of 1

Notes:
Water encountered at 6.3mbgs during drilling.
Water measured at 2.5mbgs (Elevation 342.1masl) on July 5, 2022.

ID No.: BH515-22

Project Name: Guelph Innovation District Lands

MTE File No.: 46927-104

Client: Fusion Homes

Site Location: 588 Stone Road East, Guelph, ON

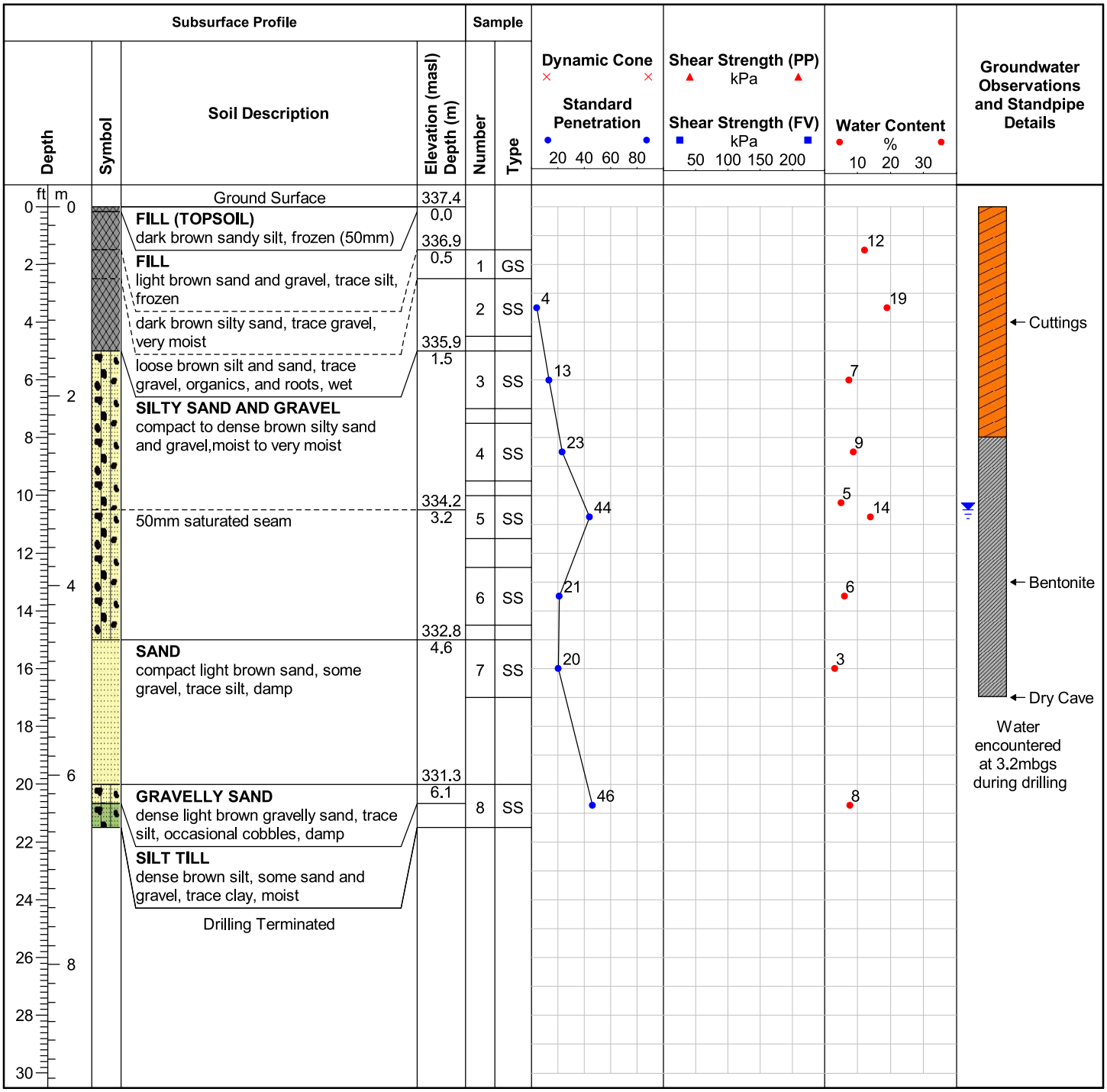
Date Completed: 3/2/2022

Drilling Contractor: Envirocore

Drill Rig: D50T Track Mount

Drill Method: Hollow Stem Augers

Protective Cover: N/A



Field Technician: M. Dalgliesh

Drafted by: H. Sandhu

Reviewed by: D. Gonser

Sheet: 1 of 1

ID No.: BH516-22

Project Name: Guelph Innovation District Lands

MTE File No.: 46927-104

Client: Fusion Homes

Site Location: 588 Stone Road East, Guelph, ON

Date Completed: 3/7/2022

Drilling Contractor: Envirocore

Drill Rig: D50T Track Mount

Drill Method: Hollow Stem Augers

Protective Cover: N/A

Depth (ft / m)	Symbol	Soil Description	Elevation (masl) / Depth (m)	Sample Number	Sample Type	Dynamic Cone / Standard Penetration (20 40 60 80)	Shear Strength (PP) kPa / Shear Strength (FV) kPa (50 100 150 200)	Water Content % (10 20 30)	Groundwater Observations and Standpipe Details
0 / 0		Ground Surface	330.1						
		TOPSOIL dark brown sandy silt, frozen (250mm)	0.0						
2		**SAND** loose light brown sand, trace to some gravel and silt, very moist to wet		1	SS	9		13	
			328.6						
4		compact	1.5	2	SS	10		12	
6 / 2				3	SS	11		12	
8			327.1						
10		loose	3.0	4	SS	7		10	
12			326.3						
		compact	3.8	5	SS	15		10	
14 / 4									
16			325.1	6	SS	16		10	
		Drilling Terminated	5.0						
18									
20 / 6									
22									
24									
26 / 8									
28									
30									

Groundwater Observations and Standpipe Details: Cuttings; Bentonite; Dry Cave

Borehole dry upon drilling completion

Field Technician: M. Dalgliesh

Drafted by: H. Sandhu

Reviewed by: D. Gonser

MTE

ID No.: BH517-22

Project Name: Guelph Innovation District Lands

MTE File No.: 46927-104

Client: Fusion Homes

Site Location: 588 Stone Road East, Guelph, ON

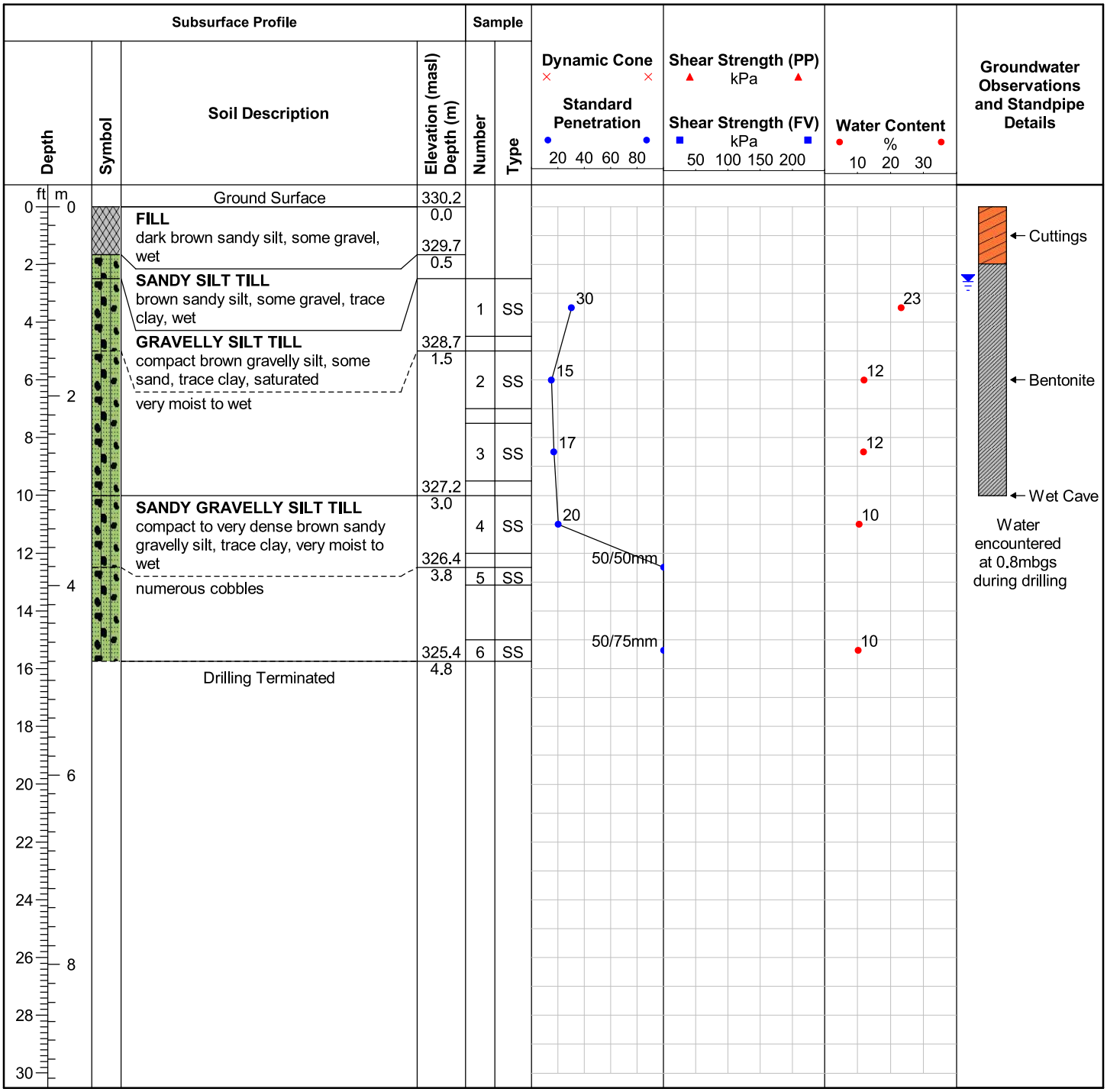
Date Completed: 3/7/2022

Drilling Contractor: Envirocore

Drill Rig: D50T Track

Drill Method: Hollow Stem Augers

Protective Cover: N/A



Field Technician: M. Dalgliesh

Drafted by: H. Sandhu

Reviewed by: D. Gonser

Sheet: 1 of 1

ID No.: BH518-22

Project Name: Guelph Innovation District Lands

MTE File No.: 46927-104

Client: Fusion Homes

Site Location: 588 Stone Road East, Guelph, ON

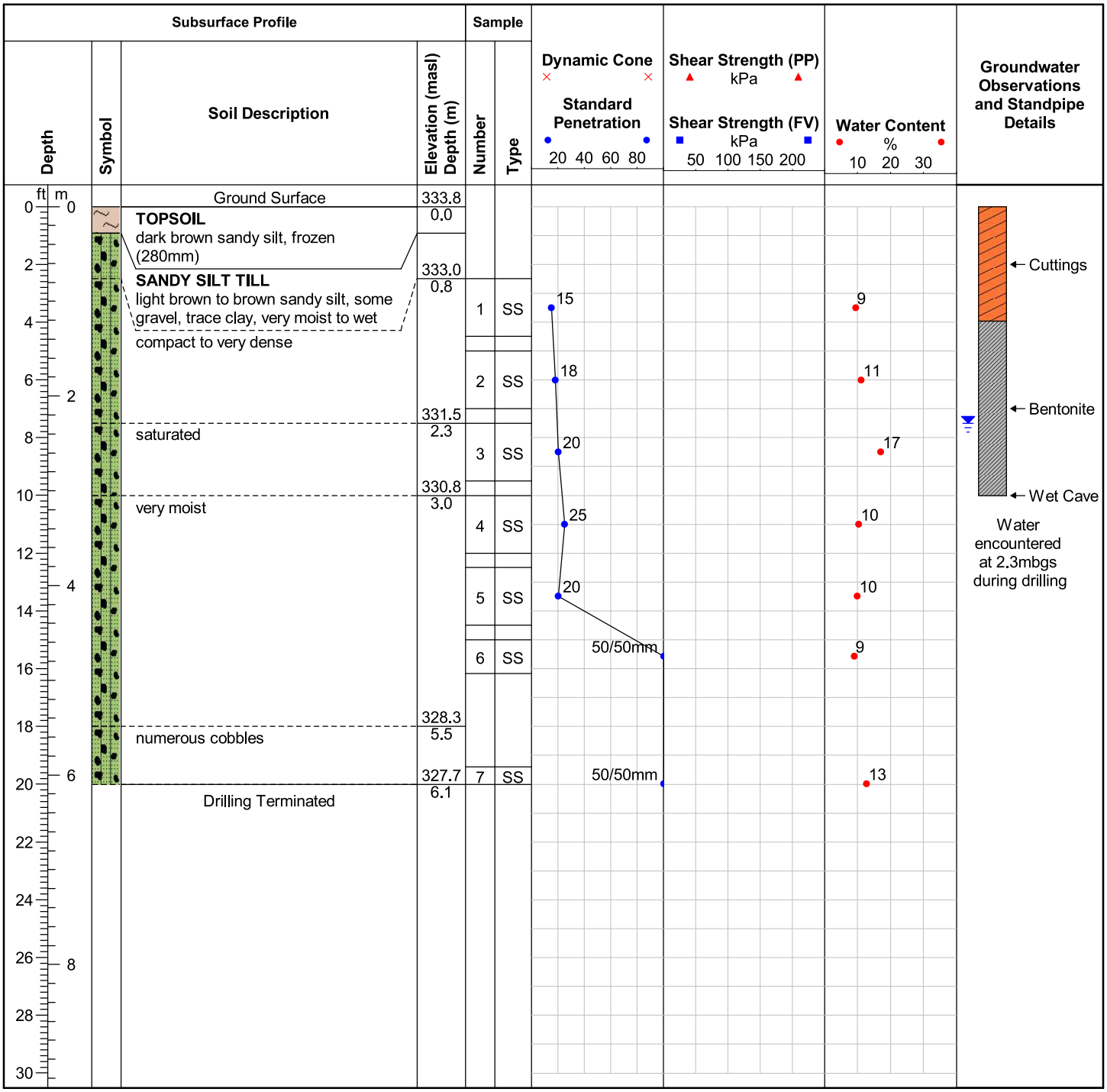
Date Completed: 3/7/2022

Drilling Contractor: Envirocore

Drill Rig: D50T Track Mount

Drill Method: Hollow Stem Augers

Protective Cover: N/A



Field Technician: M. Dalgliesh

Drafted by: H. Sandhu

Reviewed by: D. Gonser

Sheet: 1 of 1

ID No.: BH519-22

Project Name: Guelph Innovation District Lands

MTE File No.: 46927-104

Client: Fusion Homes

Site Location: 588 Stone Road East, Guelph, ON

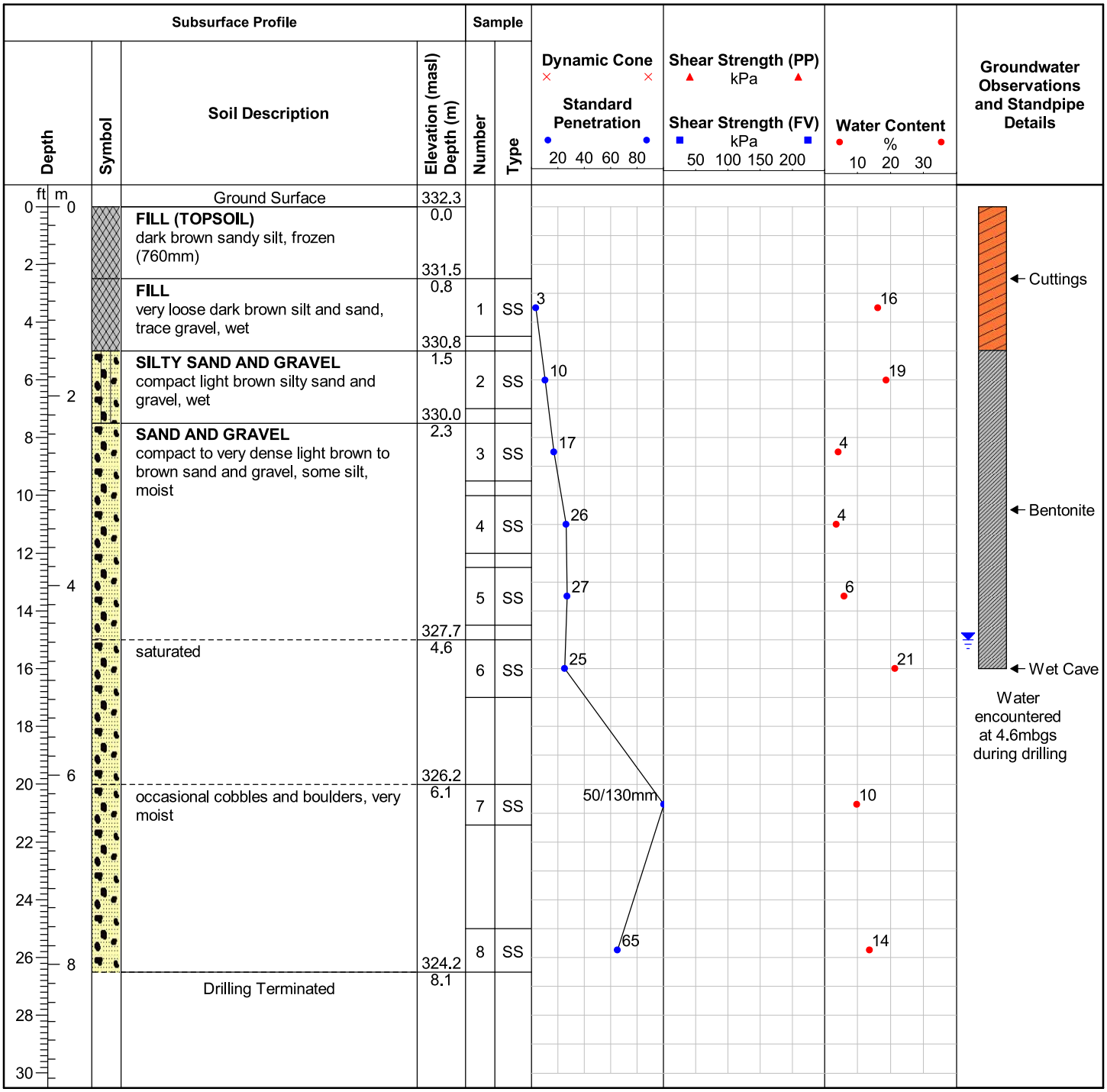
Date Completed: 3/7/2022

Drilling Contractor: Envirocore

Drill Rig: D50T Track Mount

Drill Method: Hollow Stem Augers

Protective Cover: N/A



Field Technician: M. Dalgliesh

Drafted by: A. Challis

Reviewed by: D. Gonser

Sheet: 1 of 1

ID No.: MW520-22

Project Name: Guelph Innovation District Lands

MTE File No.: 46927-104

Client: Fusion Homes

Site Location: 588 Stone Road East, Guelph, ON

Date Completed: 3/2/2022

Drilling Contractor: Envirocore

Drill Rig: D50T Track Mount

Drill Method: Hollow Stem Augers

Protective Cover: Monument Casing

Depth (ft / m)	Soil Description	Elevation (masl) / Depth (m)	Sample Number	Sample Type	Standard Penetration (Dynamic Cone)	Shear Strength (PP) kPa / Shear Strength (FV) kPa	Water Content %
	Ground Surface	332.0					
0	**TOPSOIL** dark brown sandy silt, some gravel (330mm)	0.0 / 331.2					
2	**GRAVELLY SILT TILL** light brown gravelly silt, some sand, trace clay, moist to very moist	0.8	1	SS	22		5
4	compact, occasional cobbles	330.5					
6	**SAND AND GRAVEL** compact to very dense brown sand and gravel, trace to some silt, very moist to moist	1.5	2	SS	25		14
8	numerous cobbles	329.7 / 2.3	3	SS	61		4
10			4	SS	50/130mm		7
12		328.2					
14	**SAND** compact light brown fine sand, some silt, very moist	3.8 / 327.4	5	SS	27		12
16	**SILTY SAND** dense to very dense light brown silty sand, trace to some gravel, wet	4.6	6	SS	32		20
18	saturated		7	SS	50/100mm		13
20			8	SS	50/75mm		15
22							
24		324.4					
26	**SAND** very dense light brown sand, some silt, trace gravel, occasional cobbles, saturated	7.6	9	SS	50/100mm		15
28	Drilling Terminated						
30							

Groundwater Observations and Standpipe Details: Concrete; Bentonite; 51mm PVC Riser; Sand Pack; 51mm Slotted Screen

Field Technician: M. Dalgliesh

Drafted by: H. Sandhu

Reviewed by: D. Gonser

Sheet: 1 of 1

Notes:
Water encountered at 4.9mbgs during drilling.
Water measured at 6.4mbgs (Elevation 325.6masl) on July 5, 2022.

ID No.: MW601-22

Project Name: Guelph Innovation District Lands

MTE File No.: 46927-104

Client: Fusion Homes

Site Location: 328 Victoria Road S., Guelph, ON

Date Completed: 10/24/2022

Drilling Contractor: Geo-Environmental Drilling Inc.

Drill Rig: CME 75 Track Mount

Drill Method: Hollow Stem Augers

Protective Cover: Monument Casing

Depth (ft / m)	Symbol	Soil Description	Elevation (masl) / Depth (m)	Sample Number	Sample Type	Standard Penetration (Dynamic Cone)	Shear Strength (PP) kPa / Shear Strength (FV) kPa	Water Content %	Groundwater Observations and Standpipe Details
0 / 0		Ground Surface	329.5						Concrete
		TOPSOIL dark brown sandy silt, frozen (380mm)	0.0 / 329.1						
			0.4 / 328.7						
2		**SAND AND GRAVEL** brown sand and gravel, some silt, moist	0.8	1	SS	26		3	
4		compact	328.0						
6 / 2		**SAND** compact to very dense brown sand, trace gravel and silt, moist	1.5	2	SS	19		3	
8				3	SS	52		4	
10				4	SS	61		3	
12 / 4				5	SS	40		3	Bentonite
14			324.9						
16		**GRAVELLY SAND** compact brown gravelly sand, trace silt, moist	4.6	6	SS	21		3	
18									
20 / 6				7	SS	22		4	
22									
24			321.9						
26 / 8		**SAND** dense brown sand, trace gravel, moist	7.6	8	SS	30		5	
28									
30			320.3 / 9.1						51mm PVC Riser

Dynamic Cone / Standard Penetration: 20 40 60 80

Shear Strength (PP) kPa / Shear Strength (FV) kPa: 50 100 150 200

Water Content %: 10 20 30

Field Technician: TXG

Drafted by: TXG

Reviewed by: D. Gonser

Notes:
Soil descriptions assumed from MW501-22

ID No.: MW601-22

Project Name: Guelph Innovation District Lands

MTE File No.: 46927-104

Client: Fusion Homes

Site Location: 328 Victoria Road S., Guelph, ON

Date Completed: 10/24/2022

Drilling Contractor: Geo-Environmental Drilling Inc.

Drill Rig: CME 75 Track Mount

Drill Method: Hollow Stem Augers

Protective Cover: Monument Casing

Depth	Symbol	Soil Description	Elevation (masl) / Depth (m)	Sample Number	Sample Type	Dynamic Cone / Standard Penetration (20 40 60 80)	Shear Strength (PP) kPa / Shear Strength (FV) kPa (50 100 150 200)	Water Content % (10 20 30)	Groundwater Observations and Standpipe Details
32		**SAND AND GRAVEL** very dense brown sand and gravel, trace silt, occasional cobbles, moist		9	SS	51		5	
34	10								
36			318.4	10	SS	50/80mm		8	
38		**LIMESTONE** Limestone Bedrock	11.1						
40	12		317.3						
42		Drilling Terminated	12.2						
44									
46	14								
48									
50									
52	16								
54									
56									
58									
60	18								

Sand Pack

51mm Slotted Screen

Field Technician: TXG

Drafted by: TXG

Reviewed by: D. Gonser

Notes:
Soil descriptions assumed from MW501-22

ID No.: MW602-22

Project Name: Guelph Innovation District Lands

MTE File No.: 46927-104

Client: Fusion Homes

Site Location: 328 Victoria Road S., Guelph, ON

Date Completed: 10/25/2022

Drilling Contractor: Geo-Environmental Drilling Inc.

Drill Rig: CME 75 Track Mount

Drill Method: Hollow Stem Augers

Protective Cover: Monument

Depth (ft / m)	Soil Description	Elevation (masl) / Depth (m)	Sample Number	Sample Type	Standard Penetration (Dynamic Cone)	Shear Strength (PP) kPa / Shear Strength (FV) kPa	Water Content %
0 / 0	Ground Surface	330.4					
0 / 0	**TOPSOIL** Brown topsoil, organic, trace gravel (250mm)	0.0	1	SS	11		13
2 /	**SAND AND GRAVEL** Dense to very dense brown sand and gravel, trace silt, very moist to damp.		2	SS	63		5
4 /			3	SS	78		
6 / 2			4	SS	53		3
8 /			5	SS	62		2
10 /			6	SS	50/130mm		4
12 /			7	SS	37		3
14 / 4							
16 /			8	SS	50/130mm		10
18 /							
20 / 6		324.3					
20 /	**SANDY SILT TILL** Hard, light brown sandy silt till, trace gravel, moist.	6.1					
22 /	**GRAVEL** Cobbles (no sample)	323.1					
24 /	**LIMESTONE** Assumed bedrock	7.3					
26 / 8							
28 /							
30 /	Drilling Terminated	321.2 / 9.1					
32 /							

Groundwater Observations and Standpipe Details: Concrete; Bentonite; 51mm PVC Riser; Sand Pack; 51mm Slotted Screen

Field Technician: TXG

Drafted by: TXG

Reviewed by: PAG

Notes:

ID No.: MW603-22

Project Name: Guelph Innovation District Lands

MTE File No.: 46927-104

Client: Fusion Homes

Site Location: 328 Victoria Road S., Guelph, ON

Date Completed: 10/25/2022

Drilling Contractor: Geo-Environmental Drilling Inc.

Drill Rig: CME 75 Track Mount

Drill Method: Hollow Stem Augers

Protective Cover: Monument

Depth (ft / m)	Symbol	Soil Description	Elevation (masl) / Depth (m)	Sample Number	Sample Type	Dynamic Cone / Standard Penetration (20 40 60 80)	Shear Strength (PP) kPa / Shear Strength (FV) kPa (50 100 150 200)	Water Content % (10 20 30)
		Ground Surface	336.4					
0		**TOPSOIL** Dark brown topsoil, trace organics, moist (150mm)	0.0	1	SS	16		4
2		**SILTY SAND** Compact to dense, light grey silty sand, trace gravel, damp		2	SS	29		4
6				3	SS	46		
			334.1					
8		**SANDY SILT TILL** Hard, greyish brown sandy silt till, trace gravel,very moist.	2.3	4	SS	38		
10				5	SS	50/130mm		9
14				6	SS	50/130mm		13
16				7	SS	50/140mm		12
18			330.9					
		Drilling Terminated	5.5					

Groundwater Observations and Standpipe Details: Concrete; Bentonite; Sand Pack; 51mm PVC Riser; 51mm Slotted Screen

Field Technician: TXG

Drafted by: TXG

Reviewed by: PAG

Notes: Auger refusal at 5.5 m, inferred bedrock

Sheet: 1 of 1

ID No.: MW604-22

Project Name: Guelph Innovation District Lands

MTE File No.: 46927-104

Client: Fusion Homes

Site Location: 328 Victoria Road S., Guelph, ON

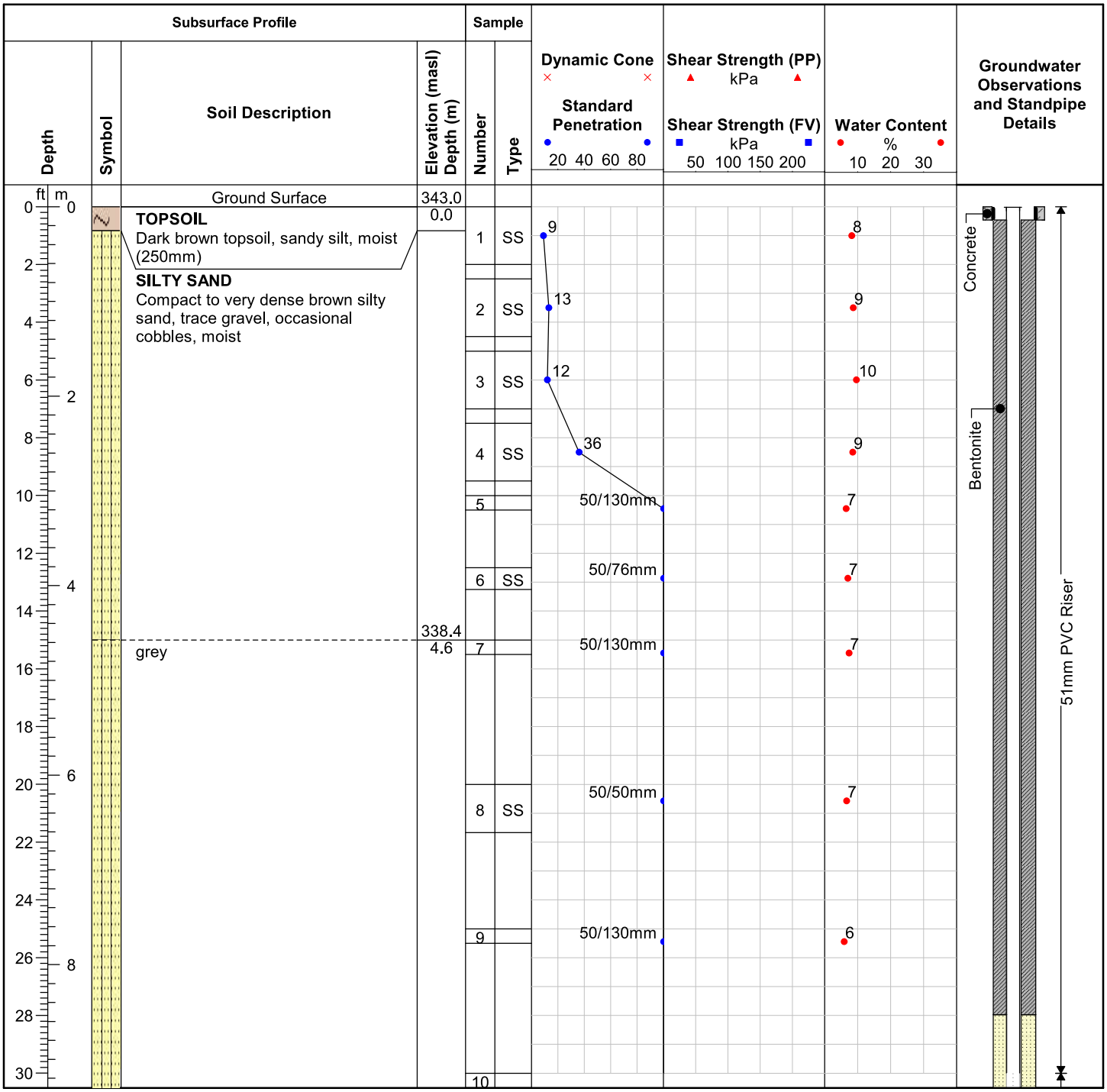
Date Completed: 10/21/2022

Drilling Contractor: Geo-Environmental Drilling Inc.

Drill Rig: CME 75 Track Mount

Drill Method: Hollow Stem Augers

Protective Cover: Monument



Field Technician: TXG

Drafted by: TXG

Reviewed by: PAG

Notes:

ID No.: MW604-22

Project Name: Guelph Innovation District Lands

MTE File No.: 46927-104

Client: Fusion Homes

Site Location: 328 Victoria Road S., Guelph, ON

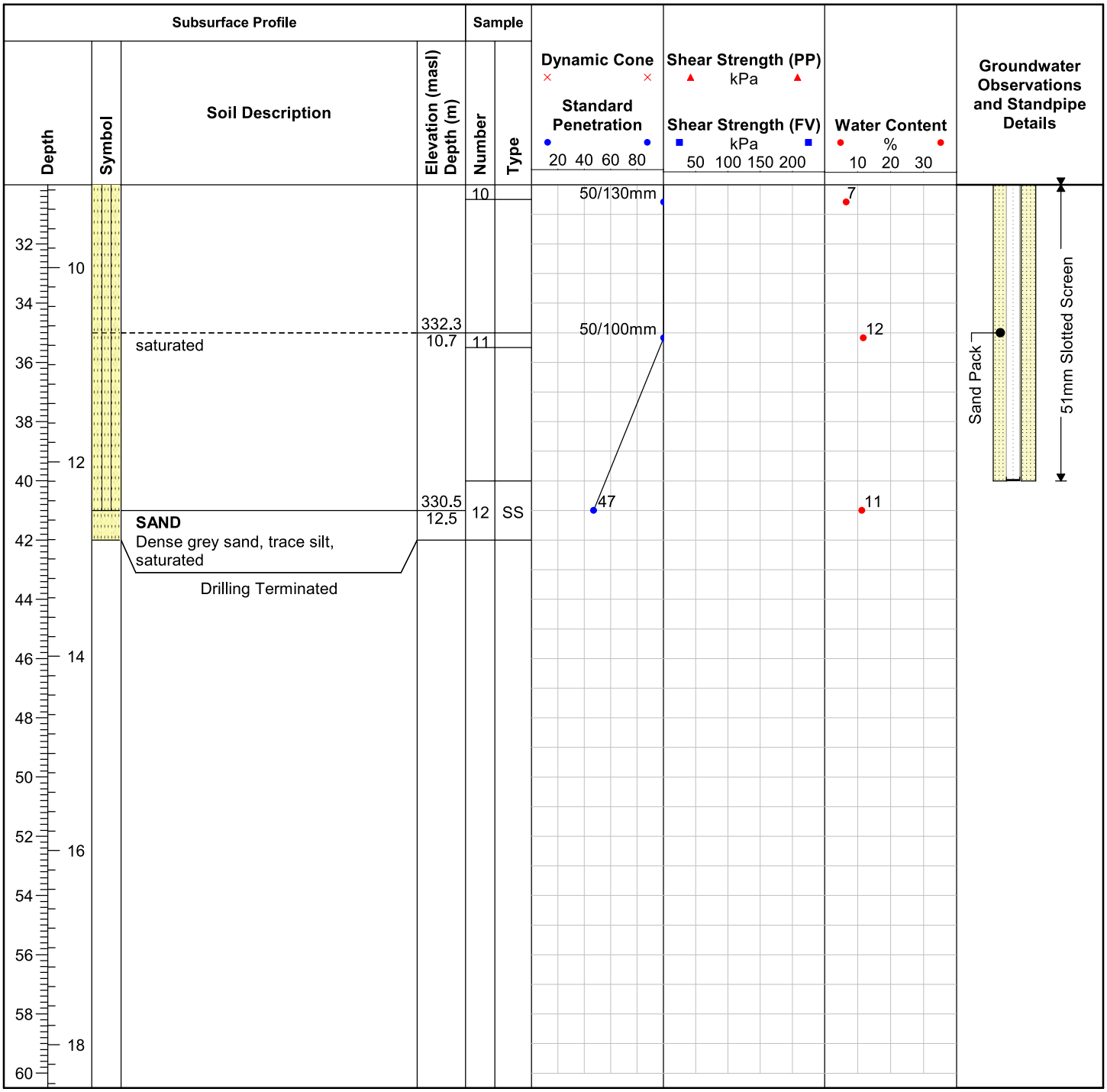
Date Completed: 10/21/2022

Drilling Contractor: Geo-Environmental Drilling Inc.

Drill Rig: CME 75 Track Mount

Drill Method: Hollow Stem Augers

Protective Cover: Monument



Field Technician: TXG

Drafted by: TXG

Reviewed by: PAG

Notes:

Sheet: 2 of 2

ID No.: MW605-22

Project Name: Guelph Innovation District Lands

MTE File No.: 46927-104

Client: Fusion Homes

Site Location: 328 Victoria Road S., Guelph, ON

Date Completed: 10/20/2022

Drilling Contractor: Geo-Environmental Drilling Inc.

Drill Rig: CME 75 Track Mount

Drill Method: Hollow Stem Augers

Protective Cover: Monument

Depth (ft / m)	Symbol	Soil Description	Elevation (masl) / Depth (m)	Sample Number	Sample Type	Dynamic Cone / Standard Penetration	Shear Strength (PP) kPa / Shear Strength (FV) kPa	Water Content %	Groundwater Observations and Standpipe Details
		Ground Surface	332.2						
0 / 0		**TOPSOIL** Dark brown topsoil, sandy silt (150mm)	0.0	1	SS	12		7	
2		**SAND** Loose to compact brown sand, some gravel, damp		2	SS	7		1	
6 / 2		**SAND AND GRAVEL** Compact to very dense brown sand, moist	330.3 / 1.9	3	SS	23			
8		large cobbles	329.8 / 2.4	4	SS	100		2	
10				5	SS	50/76mm		5	
12 / 4				6	SS	24		8	
14									
16		saturated	327.5 / 4.7	7	SS	50/76mm			
18			326.6 / 5.6						
20 / 6		Drilling Terminated							
22									
24									
26 / 8									
28									
30									

Dynamic Cone / Standard Penetration: 20 40 60 80

Shear Strength (PP) kPa / Shear Strength (FV) kPa: 50 100 150 200

Water Content %: 10 20 30

Groundwater Observations and Standpipe Details: Concrete; Bentonite; Sand Pack; 51mm PVC Riser; 51mm Slotted Screen

Field Technician: TXG

Drafted by: TXG

Reviewed by: PAG

Notes: Auger refusal at 5.6 m - inferred bedrock

ID No.: MW606-22

Project Name: Guelph Innovation District Lands

MTE File No.: 46927-104

Client: Fusion Homes

Site Location: 328 Victoria Road S., Guelph, ON

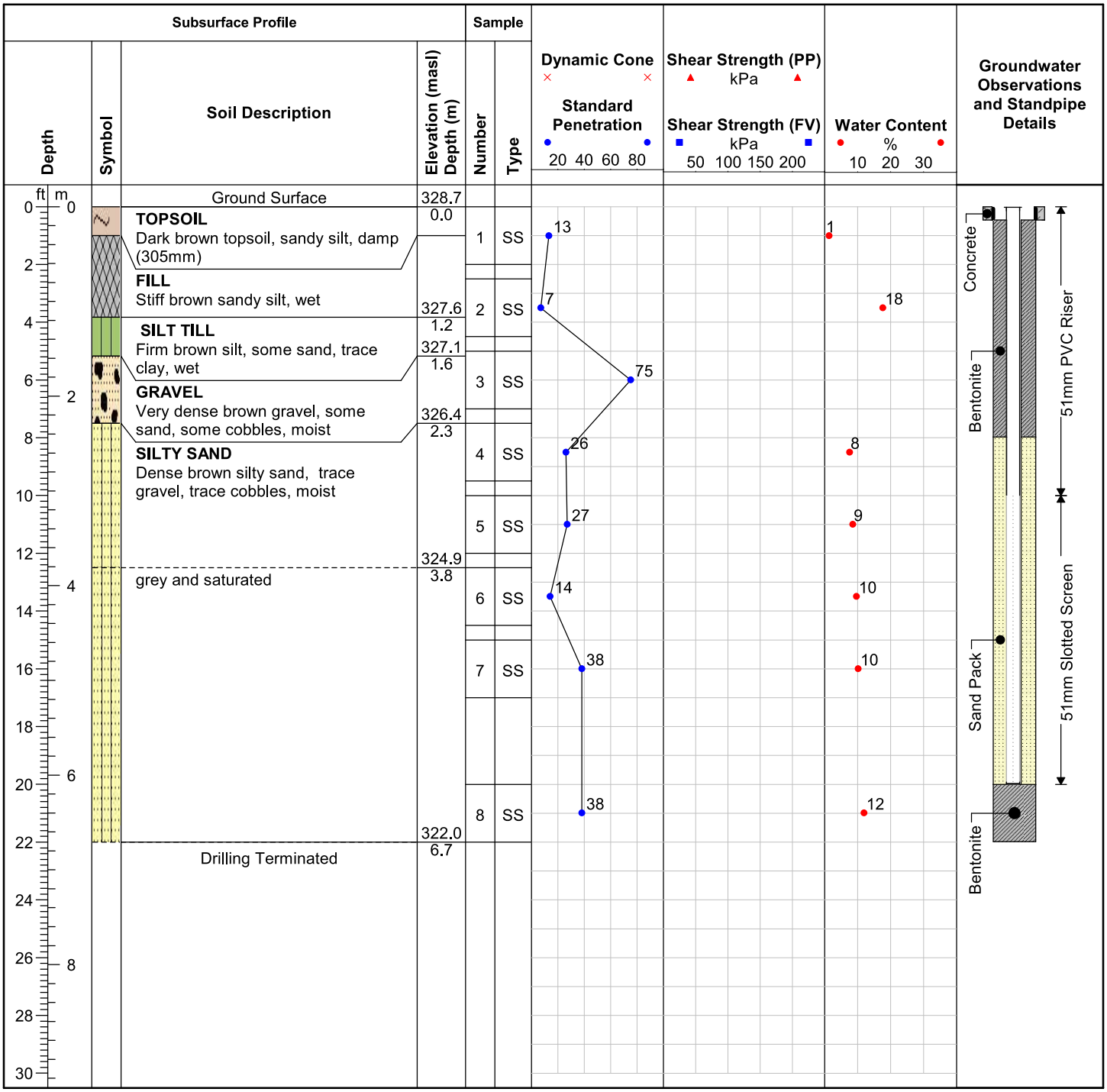
Date Completed: 10/21/2022

Drilling Contractor: Geo-Environmental Drilling Inc.

Drill Rig: CME 75 Track Mount

Drill Method: Hollow Stem Augers

Protective Cover: Monument



Field Technician: TXG

Drafted by: TXG

Reviewed by: PAG

Notes:

Sheet: 1 of 1

ID No.: MW607-22

Project Name: Guelph Innovation District Lands

MTE File No.: 46927-104

Client: Fusion Homes

Site Location: 588 Stone Road East, Guelph, ON

Date Completed: 10/20/2022

Drilling Contractor: Geo-Environmental Drilling Inc.

Drill Rig: CME 75 Track Mount

Drill Method: Hollow Stem Augers

Protective Cover: Monument

Subsurface Profile			Sample					Headspace	Well Completion Details
Depth (ft / m)	Symbol	Soil Description	Elevation (masl) / Depth (m)	Number	Type	Recovery (%)	Soil Sample Lab Analysis	PID ppm (20 40 60 80) / Hydrocarbon ppm (100 200 300 400)	
0 / 0		Ground Surface	337.8						
0		**TOPSOIL** Dark brown topsoil, silty sand, trace organics	0.0	1	SS	90	metals, PAH		
2		**FILL** Brown silty sand fill, trace gravel		2	SS	90			
4			336.1						
6 / 2		**SAND** Brown sand, trace to some gravel, trace silt	1.7	3	SS	75			
			335.5						
8		**SAND AND GRAVEL** Brown sand and gravel, trace silt	2.3	4	SS	50	PHC, BTEX, pH		
10				5	SS	50			
12 / 4									
14				6	SS	50			
16				7	SS	100			
18									
20 / 6			331.5	8	SS	100			
22		**SANDY SILT TIL** Brown sandy silt	6.3						
24			330.2						
26 / 8		**SAND AND GRAVEL** Brown sand and gravel	7.6	9	SS	100			
28									
30			328.6						
			9.1	10					

Concrete

Bentonite

51mm PVC Riser

Sand Pack

51mm Slotted Screen

Field Technician: TXG

Drafted by: TXG

Reviewed by:

Notes:

ID No.: MW607-22

Project Name: Guelph Innovation District Lands

MTE File No.: 46927-104

Client: Fusion Homes

Site Location: 588 Stone Road East, Guelph, ON

Date Completed: 10/20/2022

Drilling Contractor: Geo-Environmental Drilling Inc.

Drill Rig: CME 75 Track Mount

Drill Method: Hollow Stem Augers

Protective Cover: Monument

Subsurface Profile			Sample					Headspace	
Depth	Symbol	Soil Description	Elevation (masl) Depth (m)	Number	Type	Recovery (%)	Soil Sample Lab Analysis	PID ppm 20 40 60 80 / Hydrocarbon ppm 100 200 300 400	Well Completion Details
32		saturated		10	SS	100			
34			327.1 10.7						
36		**SANDY SILT TILL** Grey sandy silt, trace gravel		11	SS	100			
38		Drilling Terminated							
40									
42									
44									
46									
48									
50									
52									
54									
56									
58									
60									

10 12 14 16 18

Field Technician: TXG

Drafted by: TXG

Reviewed by:

Notes:

Sheet: 2 of 2

ID No.: BH608-22

Project Name: Guelph Innovation District Lands

MTE File No.: 46927-104

Client: Fusion Homes

Site Location: 328 Victoria Road S., Guelph, ON

Date Completed: 10/26/2022

Drilling Contractor: Geo-Environmental Drilling Inc.

Drill Rig: CME 75 Track Mount

Drill Method: Hollow Stem Augers

Protective Cover: N/A

Subsurface Profile				Sample					Headspace	Well Completion Details
Depth (ft / m)	Symbol	Soil Description	Elevation (masl) / Depth (m)	Number	Type	Recovery (%)	Soil Sample Lab Analysis		PID ppm (20 40 60 80) / Hydrocarbon ppm (100 200 300 400)	
0 / 0		Ground Surface	333.2							
		TOPSOIL Dark brown sandy topsoil, some silt	0.0 / 332.8	1	SS	100	metals, OCP, PAH, PHC, BTEX			
2		**FILL** Brown sand fill, trace to some silt	0.5 / 332.3							
		FILL Coarse sand and gravel fill	0.9	2	SS	75				
4		**FILL** Silty sand fill		3	SS	60				
6 / 2			331.1							
		SAND Brown, fine sand, trace silt	2.1	4	SS	100	PHC, BTEX			
8				5	SS	100				
10										
12				6	SS	NR				
14 / 4			328.7							
16		**SILTY SAND** Brown silty sand, trace gravel	4.6	7	SS	5				
18										
20 / 6			327.1							
		Drilling Terminated	6.1							
22										
24										
26 / 8										
28										
30										

Bentonite

Field Technician: TXG

Drafted by: TXG

Reviewed by: PAG

MTE

Sheet: 1 of 1

NOTES: Auger refusel at 6.1 m - inferred bedrock

ID No.: BH609-22

Project Name: Guelph Innovation District Lands

MTE File No.: 46927-104

Client: Fusion Homes

Site Location: 328 Victoria Road South, Guelph, ON

Date Completed: 12/9/2022

Drilling Contractor: Ground Force Environmental Inc

Drill Rig: Geoprobe 7822DT

Drill Method: Direct Push

Protective Cover: N/A

Depth (ft / m)	Symbol	Soil Description	Elevation (masl) / Depth (m)	Sample Number	Sample Type	Recovery (%)	Soil Sample Lab Analysis	Headspace: PID ppm (20 40 60 80) / Hydrocarbon ppm (100 200 300 400)	Well Completion Details
0 ft / 0 m		Ground Surface	325.4						
		FILL dark brown/black topsoil, some organics and gravel, trace glass and coal chunks, moist	0.0	1	DP	50	S1	0	Bentonite
2							S2	0	
		SAND AND GRAVEL brown sand and gravel, trace silt, moist	324.7 0.8 324.5						
		Drilling Terminated	0.9						
4									
6									

Field Technician: KJJ

Drafted by: KJJ

Reviewed by: JGH

Refusal at 0.91 mbgs, assumed bedrock

ID No.: BH610-22

Project Name: Guelph Innovation District Lands

MTE File No.: 46927-104

Client: Fusion Homes

Site Location: 588 Stone Road East, Guelph, ON

Date Completed: 10/20/2022

Drilling Contractor: Geo-Environmental Drilling Inc.

Drill Rig: CME 75 Track Mount

Drill Method: Hollow Stem Augers

Protective Cover: N/A

Depth (ft / m)	Symbol	Soil Description	Elevation (masl) / Depth (m)	Number	Type	Recovery (%)	Soil Sample Lab Analysis	Headspace: PID ppm (20 40 60 80) / Hydrocarbon ppm (100 200 300 400)	Well Completion Details
0 / 0		Ground Surface	339.4						Bentonite
0 / 0		**FILL** Brown sand and gravel fill, some silt	0.0	1	SS	50			
2							metals, PAH, OCP, PHC, BTEX		
4				2	SS	75			
			337.9						
6 / 2		**SAND AND GRAVEL** Brown sand and gravel, some silt	1.5	3	SS	75			
8				4	SS	100			
10			336.4						
10		**SAND** Brown sand, some silt, trace gravel	3.0	5	SS	100			
12									
14 / 4				6	SS	100			
16				7					
			334.1						
18		Grey and saturated	5.3	8	SS	100	PHC, BTEX		
			333.7						
20 / 6		Drilling Terminated	5.7						
22									
24									
26 / 8									
28									
30									

Field Technician: TXG

Drafted by: TXG

Reviewed by: PAG

MTE

Sheet: 1 of 1

ID No.: BW611-22

Project Name: Guelph Innovation District Lands

MTE File No.: 46927-104

Client: Fusion Homes

Site Location: 328 Victoria Road S., Guelph, ON

Date Completed: 10/26/2022

Drilling Contractor: Geo-Environmental Drilling Inc.

Drill Rig: CME 75 Track Mount

Drill Method: Hollow Stem Augers

Protective Cover: N/A

Depth (ft / m)	Symbol	Soil Description	Elevation (masl) / Depth (m)	Number	Type	Recovery (%)	Soil Sample Lab Analysis	Headspace: PID ppm (20 40 60 80) / Hydrocarbon ppm (100 200 300 400)	Well Completion Details
0 ft / 0 m		Ground Surface	334.3						
		FILL Brown sand and gravel fill; Sandy silt fill, trace to some clay, trace gravel	0.0	1	SS	75	metals, OCP, PAH, PHC, BTEX		
			333.4						
4 ft / 2 m		**CLAYEY SILT TILL** Brown clayey silt, some sand, trace gravel	0.9	2	SS	75			
6 ft				3	SS	100			
			332.0						
8 ft		**SILTY SAND** Brown silty sand, trace gravel	2.3	4	SS	100			
10 ft				5	SS	100			
12 ft				6	SS	100			
14 ft / 4 m				7	SS	100			
16 ft									
18 ft									
20 ft / 6 m				8	SS	100	PHC, BTEX		
22 ft									
24 ft			327.0						
		Drilling Terminated	7.3						
26 ft / 8 m									
28 ft									
30 ft									

Bentonite

Field Technician: TXG

Drafted by: TXG

Reviewed by: PAG

Notes: Auger refusal at 7.3 m - inferred bedrock

ID No.: BH612-22

Project Name: Guelph Innovation District Lands

MTE File No.: 46927-104

Client: Fusion Homes

Site Location: 328 Victoria Road S., Guelph, ON

Date Completed: 10/26/2022

Drilling Contractor: Geo-Environmental Drilling Inc.

Drill Rig: CME 75 Track Mount

Drill Method: Hollow Stem Augers

Protective Cover: N/A

Depth (ft / m)	Soil Description	Elevation (masl) / Depth (m)	Number	Type	Recovery (%)	Soil Sample Lab Analysis
0 / 0	Ground Surface	343.4				
0 / 0	**TOPSOIL** Dark brown sandy silt topsoil	0.0	1	SS	75	metals, OCP, PAH, PHC, BTEX
2	**SILTY SAND** Brown silty sand, trace to some gravel		2	SS	35	
4			3	SS	25	
6 / 2			4	SS	100	
8			5			
10			6	SS	100	
12 / 4			7	SS	100	
14			8			
16			9			
18			10			PHC, BTEX, pH
20 / 6	grey	335.8 / 7.6				
22						
24						
26 / 8						
28						
30	wet	334.2 / 9.1				
32	Drilling Terminated					

Headspace

PID ppm: 20 40 60 80

Hydrocarbon ppm: 100 200 300 400

Well Completion Details

Bentonite

Field Technician: TXG

Drafted by: TXG

Reviewed by: PAG

MTE

ID No.: BH613-22

Project Name: Guelph Innovation District Lands

MTE File No.: 46927-104

Client: Fusion Homes

Site Location: 328 Victoria Road S., Guelph, ON

Date Completed: 10/25/2022

Drilling Contractor: Geo-Environmental Drilling Inc.

Drill Rig: CME 75 Track Mount

Drill Method: Hollow Stem Augers

Protective Cover: N/A

Subsurface Profile			Sample					Headspace	Well Completion Details
Depth (ft / m)	Symbol	Soil Description	Elevation (masl) / Depth (m)	Number	Type	Recovery (%)	Soil Sample Lab Analysis	PID ppm (20 40 60 80) / Hydrocarbon ppm (100 200 300 400)	
0 / 0		Ground Surface	323.8						
		TOPSOIL Brown, silty topsoil, trace organics	0.0						
		FILL Brown sand fill		1	SS	50			
2									
				2	SS	50			
4			322.4	3	SS	NR			
		Drilling Terminated	1.4						
6 / 2									
8									
10									
12 / 4									
14									

Bentonite

Field Technician: TXG

Drafted by: TXG

Reviewed by: PAG

Notes: Auger refusal at 1.42 m - inferred bedrock

ID No.: BH614-22

Project Name: Guelph Innovation District Lands

MTE File No.: 46927-104

Client: Fusion Homes

Site Location: 328 Victoria Road South, Guelph, ON

Date Completed: 12/12/2022

Drilling Contractor: Ground Force Environmental Inc

Drill Rig: Hand Drill

Drill Method: Direct Push

Protective Cover: N/A

Subsurface Profile			Sample					Headspace	
Depth (ft / m)	Symbol	Soil Description	Elevation (masl) / Depth (m)	Number	Type	Recovery (%)	Soil Sample Lab Analysis	PID ppm (20 40 60 80) / Hydrocarbon ppm (100 200 300 400)	Well Completion Details
0 / 0		Ground Surface							
		FILL brown medium grained sand, some gravel, trace silt and organics, very moist	0.0				S1	0	
2		brown silty sand, some gravel, occasional cobbles, wet	0.6	1	DP	30			
4							S2	0	
		SANDY SILT TILL brown sandy silt, some gravel, occasional cobbles, very moist	1.5	2	DP	100	S3	20	
6 / 2									
8		very compact, saturated	2.4	3	DP	85	S4	25	
		Drilling Terminated	2.7						
10									Bentonite

Field Technician: KJJ

Drafted by: KJJ

Reviewed by: JGH

MTE

Sheet: 1 of 1

ID No.: BH615-22

Project Name: Guelph Innovation District Lands

MTE File No.: 46927-104

Client: Fusion Homes

Site Location: 328 Victoria Road South, Guelph, ON

Date Completed: 12/9/2022

Drilling Contractor: Ground Force Environmental Inc

Drill Rig: Geoprobe 7822DT

Drill Method: Direct Push

Protective Cover: N/A

Subsurface Profile			Sample					Headspace	Well Completion Details
Depth (ft / m)	Symbol	Soil Description	Elevation (masl) Depth (m)	Number	Type	Recovery (%)	Soil Sample Lab Analysis	PID ppm (20 40 60 80) / Hydrocarbon ppm (100 200 300 400)	
0 / 0		Ground Surface	329.9						
		TOPSOIL dark brown/black topsoil, some organics, trace gravel, moist	0.0				S1	0	
2 /			329.3						
		SAND brown medium grained sand, trace silt and gravel, very moist	0.6	1	DP	50			Bentonite
							S2	0	
4 /			328.4						
		Drilling Terminated	1.5						
6 / 2									

Field Technician: KJJ

Drafted by: KJJ

Reviewed by: JGH

MTE

Sheet: 1 of 1

ID No.: BH616-22

Project Name: Guelph Innovation District Lands

MTE File No.: 46927-104

Client: Fusion Homes

Site Location: 328 Victoria Road South, Guelph, ON

Date Completed: 12/12/2022

Drilling Contractor: Ground Force Environmental Inc

Drill Rig: Geoprobe 7822DT

Drill Method: Direct Push

Protective Cover: N/A

Depth (ft / m)	Symbol	Soil Description	Elevation (masl) / Depth (m)	Sample Number	Sample Type	Recovery (%)	Soil Sample Lab Analysis	Headspace PID (ppm)	Headspace Hydrocarbon (ppm)	Well Completion Details
0 / 0		Ground Surface								
		ASPHALT	0.0							
		FILL brown sand and gravel, trace silt and brick pieces, moist	0.2	1	DP	40	S1	0		
2										
		brown/grey silt, some sand, occasional cobbles, moist, dark staining and faint PHC odour	0.9				S2	0		
4										
6 / 2										
		SANDY SILT TILL brown sandy silt, some gravel, occasional cobbles, wet, no staining or odour	2.3	2	DP	50	S3	0		
8										
10		Drilling Terminated	3.0							
12										

Bentonite

Field Technician: KJJ

Drafted by: KJJ

Reviewed by: JGH

MTE

Sheet: 1 of 1

ID No.: BH617-22

Project Name: Guelph Innovation District Lands

MTE File No.: 46927-104

Client: Fusion Homes

Site Location: 328 Victoria Road South, Guelph, ON

Date Completed: 12/12/2022

Drilling Contractor: Ground Force Environmental Inc

Drill Rig: Geoprobe 7822DT

Drill Method: Direct Push

Protective Cover: N/A

Depth (ft / m)	Symbol	Soil Description	Elevation (masl) / Depth (m)	Sample Number	Sample Type	Recovery (%)	Soil Sample Lab Analysis	Headspace: PID ppm (20 40 60 80) / Hydrocarbon ppm (100 200 300 400)	Well Completion Details
0 ft / 0 m		Ground Surface	343.7						
		TOPSOIL dark brown/black topsoil, some organics, trace gravel, moist	0.0 – 343.4						
		FILL brown sand and gravel, some silt, occasional cobbles, moist	0.3 – 343.1				S1	0	
2		**SANDY SILT TILL** brown sandy silt, trace gravel, moist	0.6 – 342.2	1	DP	40	S2	0	Bentonite
4									
6		Drilling Terminated	1.5						
2 m									

Field Technician: KJJ

Drafted by: KJJ

Reviewed by: JGH

Sheet: 1 of 1

ID No.: BH618-22

Project Name: Guelph Innovation District Lands

MTE File No.: 46927-104

Client: Fusion Homes

Site Location: 328 Victoria Road South, Guelph, ON

Date Completed: 12/8/2022

Drilling Contractor: Ground Force Environmental Inc

Drill Rig: Geoprobe 7822DT

Drill Method: Direct Push

Protective Cover: N/A

Depth (ft / m)	Symbol	Soil Description	Elevation (masl) / Depth (m)	Number	Type	Recovery (%)	Soil Sample Lab Analysis	Headspace: PID ppm (20 40 60 80) / Hydrocarbon ppm (100 200 300 400)	Well Completion Details
0 / 0		Ground Surface	332.0						
		TOPSOIL dark brown/black topsoil, some organics, trace gravel, moist	0.0				S1	0	
2									
		SAND AND GRAVEL brown sand and gravel, trace silt, occasional cobbles, moist	331.2 / 0.8	1	DP	50			Bentonite
4							S2	0	
		Drilling Terminated	330.5 / 1.5						
6 / 2									

Field Technician: KJJ

Drafted by: KJJ

Reviewed by: JGH

Sheet: 1 of 1

ID No.: BH619-22

Project Name: Guelph Innovation District Lands

MTE File No.: 46927-104

Client: Fusion Homes

Site Location: 328 Victoria Road South, Guelph, ON

Date Completed: 12/8/2022

Drilling Contractor: Ground Force Environmental Inc

Drill Rig: Geoprobe 7822DT

Drill Method: Direct Push

Protective Cover: N/A

Subsurface Profile			Sample					Headspace	
Depth (ft / m)	Symbol	Soil Description	Elevation (masl) / Depth (m)	Number	Type	Recovery (%)	Soil Sample Lab Analysis	PID ppm (20 40 60 80) / Hydrocarbon ppm (100 200 300 400)	Well Completion Details
0 ft / 0 m		Ground Surface	329.5						
		TOPSOIL dark brown/black topsoil, some organics and cobbles, trace gravel, very moist	0.0 / 329.3						
		SAND light brown medium grained sand, some gravel, trace silt, very moist	0.2					0	
2				1	DP	50	S1		
								0	
4							S2		
			328.0						
		Drilling Terminated	1.5						
6									
2									

Bentonite

Field Technician: KJJ

Drafted by: KJJ

Reviewed by: JGH

MTE

Sheet: 1 of 1

ID No.: BH620-22

Project Name: Guelph Innovation District Lands

MTE File No.: 46927-104

Client: Fusion Homes

Site Location: 328 Victoria Road South, Guelph, ON

Date Completed: 12/8/2022

Drilling Contractor: Ground Force Environmental Inc

Drill Rig: Geoprobe 7822DT

Drill Method: Direct Push

Protective Cover: N/A

Subsurface Profile			Sample					Headspace	
Depth (ft / m)	Symbol	Soil Description	Elevation (masl) Depth (m)	Number	Type	Recovery (%)	Soil Sample Lab Analysis	PID ppm (20 40 60 80) / Hydrocarbon ppm (100 200 300 400)	Well Completion Details
0 ft / 0 m		Ground Surface	330.6						
		TOPSOIL dark brown/black topsoil, some organics, trace gravel, moist	0.0						
			330.3					0	
		FILL brown sandy silt, trace gravel, moist	0.3				S1		
2			329.8	1	DP	75			
		SAND light brown fine grained sand, trace silt and gravel, moist	0.8						
							S2	0	
4			329.1						
		Drilling Terminated	1.5						
6 / 2									Bentonite

Field Technician: KJJ

Drafted by: KJJ

Reviewed by: JGH

MTE

Sheet: 1 of 1

ID No.: BH621-22

Project Name: Guelph Innovation District Lands

MTE File No.: 46927-104

Client: Fusion Homes

Site Location: 328 Victoria Road South, Guelph, ON

Date Completed: 12/8/2022

Drilling Contractor: Ground Force Environmental Inc

Drill Rig: Geoprobe 7822DT

Drill Method: Direct Push

Protective Cover: N/A

Subsurface Profile			Sample					Headspace	Well Completion Details
Depth (ft / m)	Symbol	Soil Description	Elevation (masl) Depth (m)	Number	Type	Recovery (%)	Soil Sample Lab Analysis	PID ppm (20 40 60 80) / Hydrocarbon ppm (100 200 300 400)	
0 / 0		Ground Surface	329.5						
		TOPSOIL dark brown/black topsoil, some organics, trace gravel, moist	0.0				S1	0	
2			328.8						
		FILL brown fine grained sand, some silt, trace gravel, very moist	0.6						
			328.7	1	DP	60			
		SAND AND GRAVEL light brown sand and gravel, trace silt, occasional cobbles, moist	0.8						
4							S2	0	
			327.9						
		Drilling Terminated	1.5						
6 / 2									

Bentonite

Field Technician: KJJ

Drafted by: KJJ

Reviewed by: JGH

MTE

Sheet: 1 of 1

ID No.: BH622-22

Project Name: Guelph Innovation District Lands

MTE File No.: 46927-104

Client: Fusion Homes

Site Location: 328 Victoria Road South, Guelph, ON

Date Completed: 12/8/2022

Drilling Contractor: Ground Force Environmental Inc

Drill Rig: Geoprobe 7822DT

Drill Method: Direct Push

Protective Cover: N/A

Subsurface Profile			Sample					Headspace	
Depth (ft / m)	Symbol	Soil Description	Elevation (masl) / Depth (m)	Number	Type	Recovery (%)	Soil Sample Lab Analysis	PID ppm (20 40 60 80) / Hydrocarbon ppm (100 200 300 400)	Well Completion Details
0 ft / 0 m		Ground Surface	330.2						
		TOPSOIL dark brown/black topsoil, some organics, trace gravel, moist	0.0 – 329.8				S1	0	
2 ft		**FILL** brown sand and gravel, trace silt, occasional cobbles, moist	0.5 – 329.3	1	DP	70			Bentonite
		SILT TILL dark brown/grey silt, some sand, trace gravel, moist	0.9 – 328.7				S2	0	
4 ft		Drilling Terminated	1.5						
6 ft / 2 m									

Field Technician: KJJ

Drafted by: KJJ

Reviewed by: JGH

MTE

ID No.: BH623-22

Project Name: Guelph Innovation District Lands

MTE File No.: 46927-104

Client: Fusion Homes

Site Location: 328 Victoria Road South, Guelph, ON

Date Completed: 12/8/2022

Drilling Contractor: Ground Force Environmental Inc

Drill Rig: Geoprobe 7822DT

Drill Method: Direct Push

Protective Cover: N/A

Subsurface Profile			Sample					Headspace	Well Completion Details
Depth (ft / m)	Symbol	Soil Description	Elevation (masl) Depth (m)	Number	Type	Recovery (%)	Soil Sample Lab Analysis	PID ppm (20 40 60 80) / Hydrocarbon ppm (100 200 300 400)	
0 / 0		Ground Surface	332.7						
		TOPSOIL dark brown/black topsoil, some organics, trace gravel, moist	0.0				S1	0	
2			331.9	1	DP	75			
		FILL brown sand and gravel, trace silt, occasional cobbles, moist	0.8				S2	0	Bentonite
4			331.1						
		Drilling Terminated	1.5						
6 / 2									

Field Technician: KJJ

Drafted by: KJJ

Reviewed by: JGH

MTE

Sheet: 1 of 1

ID No.: BH624-22

Project Name: Guelph Innovation District Lands

MTE File No.: 46927-104

Client: Fusion Homes

Site Location: 328 Victoria Road South, Guelph, ON

Date Completed: 12/8/2022

Drilling Contractor: Ground Force Environmental Inc

Drill Rig: Geoprobe 7822DT

Drill Method: Direct Push

Protective Cover: N/A

Subsurface Profile			Sample					Headspace	Well Completion Details
Depth (ft / m)	Symbol	Soil Description	Elevation (masl) Depth (m)	Number	Type	Recovery (%)	Soil Sample Lab Analysis	PID ppm (20 40 60 80) / Hydrocarbon ppm (100 200 300 400)	
0 / 0		Ground Surface	336.9						
		TOPSOIL dark brown/black topsoil, some organics, trace gravel, moist	0.0				S1	0	
2			336.3						
		FILL brown sand and gravel, trace silt, occasional cobbles, moist	0.6	1	DP	70	S2	0	Bentonite
4			335.4						
		Drilling Terminated	1.5						
6 / 2									

Field Technician: KJJ

Drafted by: KJJ

Reviewed by: JGH

MTE

Sheet: 1 of 1

ID No.: BH625-22

Project Name: Guelph Innovation District Lands

MTE File No.: 46927-104

Client: Fusion Homes

Site Location: 328 Victoria Road South, Guelph, ON

Date Completed: 12/8/2022

Drilling Contractor: Ground Force Environmental Inc

Drill Rig: Geoprobe 7822DT

Drill Method: Direct Push

Protective Cover: N/A

Subsurface Profile			Sample					Headspace	Well Completion Details
Depth (ft / m)	Symbol	Soil Description	Elevation (masl) Depth (m)	Number	Type	Recovery (%)	Soil Sample Lab Analysis	PID ppm (20 40 60 80) / Hydrocarbon ppm (100 200 300 400)	
0 / 0		Ground Surface	332.9						
		FILL brown medium grained sand, some gravel, trace organics, very moist	0.0				S1	0	
2		brown sandy silt, trace gravel, moist	332.3 0.6	1	DP	60			
		SAND AND GRAVEL light brown sand and gravel, some silt, moist	332.0 0.9				S2	0	
4			331.4						
		Drilling Terminated	1.5						
6 / 2									

Bentonite

Field Technician: KJJ

Drafted by: KJJ

Reviewed by: JGH

MTE

Sheet: 1 of 1

ID No.: BH626-22

Project Name: Guelph Innovation District Lands

MTE File No.: 46927-104

Client: Fusion Homes

Site Location: 328 Victoria Road South, Guelph, ON

Date Completed: 12/8/2022

Drilling Contractor: Ground Force Environmental Inc

Drill Rig: Geoprobe 7822DT

Drill Method: Direct Push

Protective Cover: N/A

Subsurface Profile			Sample					Headspace	Well Completion Details
Depth (ft / m)	Symbol	Soil Description	Elevation (masl) / Depth (m)	Number	Type	Recovery (%)	Soil Sample Lab Analysis	PID ppm (20 40 60 80) / Hydrocarbon ppm (100 200 300 400)	
0 / 0		Ground Surface	336.7						
		FILL brown medium grained sand, trace silt and organics, moist	0.0					0	
			336.2				S1		
2		light brown fine grained sand, trace gravel and silt, wet	0.5	1	DP	60			Bentonite
			335.6					1	
4		dark brown/black silt, trace gravel, moist	1.1				S2		
			335.2						
		Drilling Terminated	1.5						
6 / 2									

Field Technician: KJJ

Drafted by: KJJ

Reviewed by: JGH

MTE

ID No.: BH627-22

Project Name: Guelph Innovation District Lands

MTE File No.: 46927-104

Client: Fusion Homes

Site Location: 588 Stone Road East, Guelph, ON

Date Completed: 12/9/2022

Drilling Contractor: Ground Force Environmental Inc

Drill Rig: Geoprobe 7822DT

Drill Method: Direct Push

Protective Cover: N/A

Subsurface Profile			Sample					Headspace	Well Completion Details
Depth (ft / m)	Symbol	Soil Description	Elevation (masl) Depth (m)	Number	Type	Recovery (%)	Soil Sample Lab Analysis	PID ppm (20 40 60 80) / Hydrocarbon ppm (100 200 300 400)	
0 / 0		Ground Surface	337.4						
		TOPSOIL dark brown/black topsoil, some organics, trace gravel, moist	0.0						
			336.9				S1	0	
		SAND AND GRAVEL brown sand and gravel, trace silt, occasional cobbles, moist	0.5						
2				1	DP	50			
							S2	0	
4			335.9						
		Drilling Terminated	1.5						
6 / 2									Bentonite

Field Technician: KJJ

Drafted by: KJJ

Reviewed by: JGH

MTE

Sheet: 1 of 1

ID No.: BH628-22

Project Name: Guelph Innovation District Lands

MTE File No.: 46927-104

Client: Fusion Homes

Site Location: 588 Stone Road East, Guelph, ON

Date Completed: 12/9/2022

Drilling Contractor: Ground Force Environmental Inc

Drill Rig: Geoprobe 7822DT

Drill Method: Direct Push

Protective Cover: N/A

Subsurface Profile			Sample					Headspace	Well Completion Details
Depth (ft / m)	Symbol	Soil Description	Elevation (masl) / Depth (m)	Number	Type	Recovery (%)	Soil Sample Lab Analysis	PID ppm (20 40 60 80) / Hydrocarbon ppm (100 200 300 400)	
0 / 0		Ground Surface	338.4						
		TOPSOIL dark brown/black topsoil, some organics, trace gravel, moist	0.0						
							S1	0	
2		black stained seam, hydrocarbon odour	337.8 / 0.6						
		SAND AND GRAVEL brown sand and gravel, trace silt and organics, occasional cobbles, moist, no odour or staining	337.6 / 0.8	1	DP	50			Bentonite
							S2	0	
4									
		Drilling Terminated	336.9 / 1.5						
6 / 2									

Field Technician: KJJ

Drafted by: KJJ

Reviewed by: JGH

MTE

Sheet: 1 of 1

ID No.: BH629-22

Project Name: Guelph Innovation District Lands

MTE File No.: 46927-104

Client: Fusion Homes

Site Location: 588 Stone Road East, Guelph, ON

Date Completed: 12/8/2022

Drilling Contractor: Ground Force Environmental Inc

Drill Rig: Geoprobe 7822DT

Drill Method: Direct Push

Protective Cover: N/A

Subsurface Profile			Sample					Headspace	Well Completion Details
Depth (ft / m)	Symbol	Soil Description	Elevation (masl) Depth (m)	Number	Type	Recovery (%)	Soil Sample Lab Analysis	PID ppm 20 40 60 80 / Hydrocarbon ppm 100 200 300 400	
0 / 0		Ground Surface	334.2						
		TOPSOIL dark brown/black topsoil, some organics, trace gravel, moist	0.0					0	
2				1	DP	30	S1		
4		**SAND AND GRAVEL** brown sand and gravel, trace silt, occasional cobbles, moist	333.0 1.2				S2	0	
			332.7						
		Drilling Terminated	1.5						
6 / 2									Bentonite

Field Technician: KJJ

Drafted by: KJJ

Reviewed by: JGH

MTE

Sheet: 1 of 1

ID No.: BH630-22

Project Name: Guelph Innovation District Lands

MTE File No.: 46927-104

Client: Fusion Homes

Site Location: 588 Stone Road East, Guelph, ON

Date Completed: 12/8/2022

Drilling Contractor: Ground Force Environmental Inc

Drill Rig: Geoprobe 7822DT

Drill Method: Direct Push

Protective Cover: N/A

Subsurface Profile			Sample					Headspace	Well Completion Details
Depth (ft / m)	Symbol	Soil Description	Elevation (masl) / Depth (m)	Number	Type	Recovery (%)	Soil Sample Lab Analysis	PID ppm (20 40 60 80) / Hydrocarbon ppm (100 200 300 400)	
0 ft / 0 m		Ground Surface	332.7						
		TOPSOIL dark brown/black topsoil, some organics, trace gravel, moist	0.0				S1	0	
2		**SAND AND GRAVEL** brown sand and gravel, trace silt, occasional cobbles, moist	332.1 0.6	1	DP	50			Bentonite
4							S2	0	
		Drilling Terminated	331.2 1.5						
6 / 2									

Field Technician: KJJ

Drafted by: KJJ

Reviewed by: JGH

MTE

ID No.: BH631-22

Project Name: Guelph Innovation District Lands

MTE File No.: 46927-104

Client: Fusion Homes

Site Location: 588 Stone Road East, Guelph, ON

Date Completed: 12/8/2022

Drilling Contractor: Ground Force Environmental Inc

Drill Rig: Geoprobe 7822DT

Drill Method: Direct Push

Protective Cover: N/A

Subsurface Profile			Sample					Headspace	Well Completion Details
Depth (ft / m)	Symbol	Soil Description	Elevation (masl) Depth (m)	Number	Type	Recovery (%)	Soil Sample Lab Analysis	PID ppm 20 40 60 80 / Hydrocarbon ppm 100 200 300 400	
0 / 0		Ground Surface	332.6						
		TOPSOIL dark brown/black topsoil, some organics, trace gravel, moist	0.0				S1	0	
2			331.8	1	DP	70			
		SAND brown fine sand, trace silt and gravel, moist	0.8				S2	0	
4			331.1						
		Drilling Terminated	1.5						
6 / 2									

Bentonite

Field Technician: KJJ

Drafted by: KJJ

Reviewed by: JGH

MTE

Sheet: 1 of 1

ID No.: BH632-22

Project Name: Guelph Innovation District Lands

MTE File No.: 46927-104

Client: Fusion Homes

Site Location: 588 Stone Road East, Guelph, ON

Date Completed: 12/8/2022

Drilling Contractor: Ground Force Environmental Inc

Drill Rig: Geoprobe 7822DT

Drill Method: Direct Push

Protective Cover: N/A

Subsurface Profile			Sample					Headspace	Well Completion Details
Depth (ft / m)	Symbol	Soil Description	Elevation (masl) Depth (m)	Number	Type	Recovery (%)	Soil Sample Lab Analysis	PID ppm (20 40 60 80) / Hydrocarbon ppm (100 200 300 400)	
0 / 0		Ground Surface	336.1						
		TOPSOIL dark brown/black topsoil, some organics, trace gravel, moist	0.0				S1	0	
2			335.3	1	DP	60			
		SAND AND GRAVEL brown sand and gravel, trace silt, occasional cobbles, moist	0.8				S2	0	Bentonite
4			334.6						
		Drilling Terminated	1.5						
6 / 2									

Field Technician: KJJ

Drafted by: KJJ

Reviewed by: JGH

MTE

Sheet: 1 of 1

ID No.: BH633-22

Project Name: Guelph Innovation District Lands

MTE File No.: 46927-104

Client: Fusion Homes

Site Location: 588 Stone Road East, Guelph, ON

Date Completed: 12/8/2022

Drilling Contractor: Ground Force Environmental Inc

Drill Rig: Geoprobe 7822DT

Drill Method: Direct Push

Protective Cover: N/A

Subsurface Profile			Sample					Headspace	Well Completion Details
Depth (ft / m)	Symbol	Soil Description	Elevation (masl) / Depth (m)	Number	Type	Recovery (%)	Soil Sample Lab Analysis	PID ppm (20 40 60 80) / Hydrocarbon ppm (100 200 300 400)	
0 / 0		Ground Surface	333.9						
		TOPSOIL dark brown/black topsoil, some organics, trace gravel, moist	0.0 / 333.7						
		SAND AND GRAVEL brown sand and gravel, trace silt, occasional cobbles, moist	0.2					0	
2							S1		
				1	DP	50			Bentonite
							S2	0	
4									
			332.4						
		Drilling Terminated	1.5						
6 / 2									

Field Technician: KJJ

Drafted by: KJJ

Reviewed by: JGH

MTE

Sheet: 1 of 1

ID No.: BH634-22

Project Name: Guelph Innovation District Lands

MTE File No.: 46927-104

Client: Fusion Homes

Site Location: 328 Victoria Road South, Guelph, ON

Date Completed: 12/9/2022

Drilling Contractor: Ground Force Environmental Inc

Drill Rig: Geoprobe 7822DT

Drill Method: Direct Push

Protective Cover: N/A

Subsurface Profile			Sample					Headspace	Well Completion Details
Depth (ft / m)	Symbol	Soil Description	Elevation (masl) / Depth (m)	Number	Type	Recovery (%)	Soil Sample Lab Analysis	PID ppm (20 40 60 80) / Hydrocarbon ppm (100 200 300 400)	
0 / 0		Ground Surface	335.2						
		TOPSOIL dark brown/black topsoil, some organics, trace gravel, moist	0.0				S1	0	
2			334.6						
		SAND AND GRAVEL brown sand and gravel, trace silt, occasional cobbles, moist	0.6	1	DP	75			Bentonite
							S2	0	
4			333.7						
		Drilling Terminated	1.5						
6 / 2									

Field Technician: KJJ

Drafted by: KJJ

Reviewed by: JGH

MTE

Sheet: 1 of 1

ID No.: BH635-22

Project Name: Guelph Innovation District Lands

MTE File No.: 46927-104

Client: Fusion Homes

Site Location: 328 Victoria Road South, Guelph, ON

Date Completed: 12/9/2022

Drilling Contractor: Ground Force Environmental Inc

Drill Rig: Geoprobe 7822DT

Drill Method: Direct Push

Protective Cover: N/A

Subsurface Profile			Sample					Headspace	Well Completion Details
Depth (ft / m)	Symbol	Soil Description	Elevation (masl) Depth (m)	Number	Type	Recovery (%)	Soil Sample Lab Analysis	PID ppm (20 40 60 80) / Hydrocarbon ppm (100 200 300 400)	
0 / 0		Ground Surface	342.2						
		TOPSOIL dark brown/black topsoil, some organics, trace gravel, moist	0.0				S1	0	
2			341.4	1	DP	60			
		SAND AND GRAVEL brown sand and gravel, some silt, moist	0.8				S2	0	Bentonite
4			340.7						
		Drilling Terminated	1.5						
6 / 2									

Field Technician: KJJ

Drafted by: KJJ

Reviewed by: JGH

MTE

Sheet: 1 of 1

ID No.: BH636-22

Project Name: Guelph Innovation District Lands

MTE File No.: 46927-104

Client: Fusion Homes

Site Location: 328 Victoria Road South, Guelph, ON

Date Completed: 12/9/2022

Drilling Contractor: Ground Force Environmental Inc

Drill Rig: Geoprobe 7822DT

Drill Method: Direct Push

Protective Cover: N/A

Subsurface Profile			Sample					Headspace	Well Completion Details
Depth (ft / m)	Symbol	Soil Description	Elevation (masl) Depth (m)	Number	Type	Recovery (%)	Soil Sample Lab Analysis	PID ppm (20 40 60 80) / Hydrocarbon ppm (100 200 300 400)	
0 / 0		Ground Surface	339.5						
		TOPSOIL dark brown/black topsoil, some organics, trace gravel, moist	0.0				S1	0	
2			338.7	1	DP	60			
		SAND AND GRAVEL brown sand and gravel, some silt, moist	0.8				S2	0	
4			338.0						
		Drilling Terminated	1.5						
6 / 2									

Bentonite

Field Technician: KJJ

Drafted by: KJJ

Reviewed by: JGH

MTE

Sheet: 1 of 1

ID No.: BH637-22

Project Name: Guelph Innovation District Lands

MTE File No.: 46927-104

Client: Fusion Homes

Site Location: 328 Victoria Road South, Guelph, ON

Date Completed: 12/9/2022

Drilling Contractor: Ground Force Environmental Inc

Drill Rig: Geoprobe 7822DT

Drill Method: Direct Push

Protective Cover: N/A

Depth (ft / m)	Symbol	Soil Description	Elevation (masl) / Depth (m)	Number	Type	Recovery (%)	Soil Sample Lab Analysis	Headspace: PID ppm (20 40 60 80) / Hydrocarbon ppm (100 200 300 400)	Well Completion Details
0 / 0		Ground Surface	337.1						
		TOPSOIL dark brown/black topsoil, some organics, trace gravel, moist	0.0				S1	0	
2									
			336.3	1	DP	70			
		SAND AND GRAVEL brown sand and gravel, trace silt, occasional cobbles, moist	0.8				S2	0	Bentonite
4									
			335.6						
		Drilling Terminated	1.5						
6									
2									

Field Technician: KJJ

Drafted by: KJJ

Reviewed by: JGH

Sheet: 1 of 1

ID No.: BH638-22

Project Name: Guelph Innovation District Lands

MTE File No.: 46927-104

Client: Fusion Homes

Site Location: 328 Victoria Road South, Guelph, ON

Date Completed: 12/9/2022

Drilling Contractor: Ground Force Environmental Inc

Drill Rig: Geoprobe 7822DT

Drill Method: Direct Push

Protective Cover: N/A

Subsurface Profile			Sample					Headspace	Well Completion Details
Depth (ft / m)	Symbol	Soil Description	Elevation (masl) Depth (m)	Number	Type	Recovery (%)	Soil Sample Lab Analysis	PID ppm (20 40 60 80) / Hydrocarbon ppm (100 200 300 400)	
0 / 0		Ground Surface	328.2						
		TOPSOIL dark brown/black topsoil, some organics, trace gravel, moist	0.0				S1	0	
2 /			327.4	1	DP	60			
		SAND AND GRAVEL brown sand and gravel, trace silt, moist	0.8				S2	0	Bentonite
4 /			326.7						
		Drilling Terminated	1.5						
6 / 2									

Field Technician: KJJ

Drafted by: KJJ

Reviewed by: JGH

MTE

Sheet: 1 of 1

ID No.: BH639-22

Project Name: Guelph Innovation District Lands

MTE File No.: 46927-104

Client: Fusion Homes

Site Location: 328 Victoria Road South, Guelph, ON

Date Completed: 12/9/2022

Drilling Contractor: Ground Force Environmental Inc

Drill Rig: Geoprobe 7822DT

Drill Method: Direct Push

Protective Cover: N/A

Depth (ft / m)	Symbol	Soil Description	Elevation (masl) / Depth (m)	Number	Type	Recovery (%)	Soil Sample Lab Analysis	Headspace: PID ppm (20 40 60 80) / Hydrocarbon ppm (100 200 300 400)	Well Completion Details
0 ft / 0 m		Ground Surface	327.0						
		TOPSOIL dark brown/black topsoil, some organics, trace gravel, moist	0.0				S1	0	
			326.5	1	DP	50			
2		**SILTY SAND TILL** brown silty sand, some gravel, trace organics, moist	0.5				S2	0	Bentonite
			326.1						
		Drilling Terminated	0.9						
4									
6									
2 m									

Field Technician: KJJ

Drafted by: KJJ

Reviewed by: JGH

Refusal at 0.91 mbgs, assumed bedrock

Sheet: 1 of 1

ID No.: BH640-22

Project Name: Guelph Innovation District Lands

MTE File No.: 46927-104

Client: Fusion Homes

Site Location: 328 Victoria Road South, Guelph, ON

Date Completed: 12/9/2022

Drilling Contractor: Ground Force Environmental Inc

Drill Rig: Geoprobe 7822DT

Drill Method: Direct Push

Protective Cover: N/A

Depth (ft / m)	Symbol	Soil Description	Elevation (masl) / Depth (m)	Number	Type	Recovery (%)	Soil Sample Lab Analysis	Headspace: PID ppm (20 40 60 80) / Hydrocarbon ppm (100 200 300 400)	Well Completion Details
0 / 0		Ground Surface	324.5						
		TOPSOIL dark brown/black topsoil, some organics, trace gravel, moist	0.0				S1	0	
2 /		**SAND AND GRAVEL** brown sand and gravel, trace silt, occasional cobbles, moist	323.9 0.6	1	DP	50	S2	0	Bentonite
4 /		Drilling Terminated	323.3 1.2						
6 / 2									

Field Technician: KJJ

Drafted by: KJJ

Reviewed by: JGH

Refusal at 1.22 mbgs, assumed bedrock

Sheet: 1 of 1

ID No.: BH641-22

Project Name: Guelph Innovation District Lands

MTE File No.: 46927-104

Client: Fusion Homes

Site Location: 328 Victoria Road South, Guelph, ON

Date Completed: 12/9/2022

Drilling Contractor: Ground Force Environmental Inc

Drill Rig: Geoprobe 7822DT

Drill Method: Direct Push

Protective Cover: N/A

Subsurface Profile			Sample					Headspace	
Depth (ft / m)	Symbol	Soil Description	Elevation (masl) Depth (m)	Number	Type	Recovery (%)	Soil Sample Lab Analysis	PID ppm 20 40 60 80 / Hydrocarbon ppm 100 200 300 400	Well Completion Details
0 / 0		Ground Surface	324.1						
		TOPSOIL dark brown/black topsoil, some organics, trace gravel, moist	0.0				S1	0	
			323.6	1	DP	50			
2		**SANDY SILT TILL** brown sandy silt, some organics, trace gravel, moist	0.5				S2	0	Bentonite
			323.2						
		Drilling Terminated	0.9						
4									
6									
2									

Field Technician: KJJ

Drafted by: KJJ

Reviewed by: JGH

Refusal at 0.91 mbgs, assumed bedrock

ID No.: BH642-22

Project Name: Guelph Innovation District Lands

MTE File No.: 46927-104

Client: Fusion Homes

Site Location: 328 Victoria Road South, Guelph, ON

Date Completed: 12/9/2022

Drilling Contractor: Ground Force Environmental Inc

Drill Rig: Geoprobe 7822DT

Drill Method: Direct Push

Protective Cover: N/A

Depth (ft / m)	Symbol	Soil Description	Elevation (masl) / Depth (m)	Number	Type	Recovery (%)	Soil Sample Lab Analysis	Headspace: PID ppm (20 40 60 80) / Hydrocarbon ppm (100 200 300 400)	Well Completion Details
0 / 0		Ground Surface	337.2						
		TOPSOIL dark brown/black topsoil, some organics, trace gravel, moist	0.0				S1	0	
2									
		SAND AND GRAVEL brown sand and gravel, trace silt, occasional cobbles, moist	336.4 / 0.8	1	DP	70			Bentonite
4							S2	0	
		Drilling Terminated	335.7 / 1.5						
6 / 2									

Field Technician: KJJ

Drafted by: KJJ

Reviewed by: JGH

Sheet: 1 of 1

ID No.: BH643-22

Project Name: Guelph Innovation District Lands

MTE File No.: 46927-104

Client: Fusion Homes

Site Location: 328 Victoria Road South, Guelph, ON

Date Completed: 12/12/2022

Drilling Contractor: Ground Force Environmental Inc

Drill Rig: Geoprobe 7822DT

Drill Method: Direct Push

Protective Cover: N/A

Subsurface Profile			Sample					Headspace	Well Completion Details
Depth (ft / m)	Symbol	Soil Description	Elevation (masl) Depth (m)	Number	Type	Recovery (%)	Soil Sample Lab Analysis	PID ppm (20 40 60 80) / Hydrocarbon ppm (100 200 300 400)	
0 / 0		Ground Surface	342.7						
		TOPSOIL dark brown/black topsoil, some organics, trace gravel, moist	0.0						
							S1	0	
			342.2						
		SAND AND GRAVEL brown sand and gravel, some silt, moist	0.5						
2				1	DP	60			
							S2	0	
4									
		Drilling Terminated	341.2						
			1.5						
6 / 2									

Bentonite

Field Technician: KJJ

Drafted by: KJJ

Reviewed by: JGH

MTE

Sheet: 1 of 1

ID No.: BH644-22

Project Name: Guelph Innovation District Lands

MTE File No.: 46927-104

Client: Fusion Homes

Site Location: 328 Victoria Road South, Guelph, ON

Date Completed: 12/12/2022

Drilling Contractor: Ground Force Environmental Inc

Drill Rig: Geoprobe 7822DT

Drill Method: Direct Push

Protective Cover: N/A

Depth (ft / m)	Symbol	Soil Description	Elevation (masl) / Depth (m)	Number	Type	Recovery (%)	Soil Sample Lab Analysis	Headspace: PID ppm (20 40 60 80) / Hydrocarbon ppm (100 200 300 400)	Well Completion Details
0 / 0		Ground Surface	345.0						
		TOPSOIL dark brown/black topsoil, some organics, trace gravel, moist	0.0				S1	0 5	
2									
			344.2	1	DP	60			
		SILTY SAND TILL brown silty sand, some gravel, moist	0.8				S2	0	
4									
			343.5						
		Drilling Terminated	1.5						
6									
2									

Bentonite

Field Technician: KJJ

Drafted by: KJJ

Reviewed by: JGH

MTE

Sheet: 1 of 1

ID No.: BH645-22

Project Name: Guelph Innovation District Lands

MTE File No.: 46927-104

Client: Fusion Homes

Site Location: 328 Victoria Road South, Guelph, ON

Date Completed: 12/12/2022

Drilling Contractor: Ground Force Environmental Inc

Drill Rig: Geoprobe 7822DT

Drill Method: Direct Push

Protective Cover: N/A

Subsurface Profile			Sample					Headspace	Well Completion Details
Depth (ft / m)	Symbol	Soil Description	Elevation (masl) Depth (m)	Number	Type	Recovery (%)	Soil Sample Lab Analysis	PID ppm (20 40 60 80) / Hydrocarbon ppm (100 200 300 400)	
0 / 0		Ground Surface	343.8						
		TOPSOIL dark brown/black topsoil, some organics, trace gravel, moist	0.0						
							S1	0	
2			343.2						
		SAND AND GRAVEL brown sand and gravel, some silt, occasional cobbles, moist	0.6	1	DP	60			
							S2	0	
4			342.3						
		Drilling Terminated	1.5						
6 / 2									

Bentonite

Field Technician: KJJ

Drafted by: KJJ

Reviewed by: JGH

MTE

Sheet: 1 of 1

ID No.: BH646-22

Project Name: Guelph Innovation District Lands

MTE File No.: 46927-104

Client: Fusion Homes

Site Location: 328 Victoria Road South, Guelph, ON

Date Completed: 12/12/2022

Drilling Contractor: Ground Force Environmental Inc

Drill Rig: Geoprobe 7822DT

Drill Method: Direct Push

Protective Cover: N/A

Depth (ft / m)	Symbol	Soil Description	Elevation (masl) / Depth (m)	Sample Number	Sample Type	Recovery (%)	Soil Sample Lab Analysis	Headspace: PID ppm (20 40 60 80) / Hydrocarbon ppm (100 200 300 400)	Well Completion Details
0 ft / 0 m		Ground Surface	345.7						
		TOPSOIL dark brown/black topsoil, some organics, trace gravel, moist	0.0				S1	0	
2			344.9	1	DP	50			
		SAND AND GRAVEL brown sand and gravel, some silt, occasional cobbles, moist	0.8				S2	0	
4			344.2						
		Drilling Terminated	1.5						
6 / 2									Bentonite

Field Technician: KJJ

Drafted by: KJJ

Reviewed by: JGH

MTE

Sheet: 1 of 1

ID No.: BH647-22

Project Name: Guelph Innovation District Lands

MTE File No.: 46927-104

Client: Fusion Homes

Site Location: 328 Victoria Road South, Guelph, ON

Date Completed: 12/12/2022

Drilling Contractor: Ground Force Environmental Inc

Drill Rig: Geoprobe 7822DT

Drill Method: Direct Push

Protective Cover: N/A

Depth (ft / m)	Symbol	Soil Description	Elevation (masl) / Depth (m)	Number	Type	Recovery (%)	Soil Sample Lab Analysis	Headspace: PID ppm (20 40 60 80) / Hydrocarbon ppm (100 200 300 400)	Well Completion Details
0 / 0		Ground Surface	345.8						
		TOPSOIL dark brown/black topsoil, some organics, trace gravel, moist	0.0				S1	0	
2			345.0	1	DP	50			
		SAND brown fine grained sand, some gravel, trace silt, occasional cobbles, moist	0.8				S2	0	
4			344.3						
		Drilling Terminated	1.5						
6 / 2									

Bentonite

Field Technician: KJJ

Drafted by: KJJ

Reviewed by: JGH

Sheet: 1 of 1

ID No.: BH648-22

Project Name: Guelph Innovation District Lands

MTE File No.: 46927-104

Client: Fusion Homes

Site Location: 328 Victoria Road South, Guelph, ON

Date Completed: 12/8/2022

Drilling Contractor: Ground Force Environmental Inc

Drill Rig: Geoprobe 7822DT

Drill Method: Direct Push

Protective Cover: N/A

Subsurface Profile			Sample					Headspace	Well Completion Details
Depth (ft / m)	Symbol	Soil Description	Elevation (masl) Depth (m)	Number	Type	Recovery (%)	Soil Sample Lab Analysis	PID ppm (20 40 60 80) / Hydrocarbon ppm (100 200 300 400)	
0 / 0		Ground Surface	338.7						
		TOPSOIL dark brown/black topsoil, some organics, trace gravel, moist	0.0				S1	0	
2			338.1						
		SANDY SILT TILL brown sandy silt, some gravel, occasional cobbles, moist	0.6	1	DP	50			
4							S2	0	
			337.2						
		Drilling Terminated	1.5						
6 / 2									

Bentonite

Field Technician: KJJ

Drafted by: KJJ

Reviewed by: JGH

MTE

Sheet: 1 of 1

ID No.: BH649-22

Project Name: Guelph Innovation District Lands

MTE File No.: 46927-104

Client: Fusion Homes

Site Location: 328 Victoria Road South, Guelph, ON

Date Completed: 12/8/2022

Drilling Contractor: Ground Force Environmental Inc

Drill Rig: Geoprobe 7822DT

Drill Method: Direct Push

Protective Cover: N/A

Subsurface Profile			Sample					Headspace	
Depth (ft / m)	Symbol	Soil Description	Elevation (masl) Depth (m)	Number	Type	Recovery (%)	Soil Sample Lab Analysis	PID ppm (20 40 60 80) / Hydrocarbon ppm (100 200 300 400)	Well Completion Details
0 ft / 0 m		Ground Surface	340.2						
		TOPSOIL dark brown/black topsoil, some organics, trace gravel, moist	0.0				S1	0	
2			339.6						
		SAND AND GRAVEL brown sand and gravel, some silt, occasional cobbles, trace organics, moist	0.6	1	DP	70			Bentonite
							S2	0	
4			338.7						
		Drilling Terminated	1.5						
6									
2 m									

Field Technician: KJJ

Drafted by: KJJ

Reviewed by: JGH

Sheet: 1 of 1

ID No.: BH650-22

Project Name: Guelph Innovation District Lands

MTE File No.: 46927-104

Client: Fusion Homes

Site Location: 328 Victoria Road South, Guelph, ON

Date Completed: 12/8/2022

Drilling Contractor: Ground Force Environmental Inc

Drill Rig: Geoprobe 7822DT

Drill Method: Direct Push

Protective Cover: N/A

Subsurface Profile			Sample					Headspace	Well Completion Details
Depth (ft / m)	Symbol	Soil Description	Elevation (masl) Depth (m)	Number	Type	Recovery (%)	Soil Sample Lab Analysis	PID ppm (20 40 60 80) / Hydrocarbon ppm (100 200 300 400)	
0 / 0		Ground Surface	339.8						
		TOPSOIL dark brown/black topsoil, some organics, trace gravel, moist	0.0				S1	0	
2			339.2						
		SAND AND GRAVEL brown sand and gravel, trace silt, occasional cobbles, trace organics, moist	0.6	1	DP	65			
4							S2	0	
			338.3						
		Drilling Terminated	1.5						
6 / 2									

Bentonite

Field Technician: KJJ

Drafted by: KJJ

Reviewed by: JGH

MTE

Sheet: 1 of 1

ID No.: BH651-22

Project Name: Guelph Innovation District Lands

MTE File No.: 46927-104

Client: Fusion Homes

Site Location: 328 Victoria Road South, Guelph, ON

Date Completed: 12/8/2022

Drilling Contractor: Ground Force Environmental Inc

Drill Rig: Geoprobe 7822DT

Drill Method: Direct Push

Protective Cover: N/A

Subsurface Profile			Sample					Headspace	
Depth (ft / m)	Symbol	Soil Description	Elevation (masl) Depth (m)	Number	Type	Recovery (%)	Soil Sample Lab Analysis	PID ppm (20 40 60 80) / Hydrocarbon ppm (100 200 300 400)	Well Completion Details
0 ft / 0 m		Ground Surface	335.3						
		TOPSOIL dark brown/black topsoil, some organics, trace gravel, moist	0.0						
			335.0						
		SAND AND GRAVEL brown sand and gravel, trace silt, occasional cobbles, moist	0.3				S1	0	
2				1	DP	50			Bentonite
							S2	0	
4			333.8						
		Drilling Terminated	1.5						
6 / 2									

Field Technician: KJJ

Drafted by: KJJ

Reviewed by: JGH

MTE

Sheet: 1 of 1

ID No.: BH654-22

Project Name: Guelph Innovation District Lands

MTE File No.: 46927-104

Client: Fusion Homes

Site Location: 328 Victoria Road S., Guelph, ON

Date Completed: 10/25/2022

Drilling Contractor: Geo-Environmental Drilling Inc.

Drill Rig: CME 75 Track Mount

Drill Method: Hollow Stem Augers

Protective Cover: N/A

Depth (ft / m)	Symbol	Soil Description	Elevation (masl) / Depth (m)	Sample Number	Sample Type	Dynamic Cone / Standard Penetration (20 40 60 80)	Shear Strength (PP) kPa / Shear Strength (FV) kPa (50 100 150 200)	Water Content % (10 20 30)	Groundwater Observations and Standpipe Details
0 / 0		Ground Surface	326.2						
0 / 0		**TOPSOIL** Compact dark brown silty sand topsoil	0.0	1	SS	10		3	
2 / 0		**SAND AND GRAVEL** Very dense brown sand and gravel, trace silt, moist		2	SS	50/100mm		6	
4 / 1			324.8	3		50/0mm			
6 / 2		Drilling Terminated	1.4						Bentonite
8 / 2									
10 / 3									
12 / 4									
14 / 4									
16 / 5									
18 / 5									
20 / 6									
22 / 7									
24 / 7									
26 / 8									
28 / 9									
30 / 9									

Field Technician: TXG

Drafted by: TXG

Reviewed by: D. Gonser

Notes: Auger refusal at 1.4m on suspected bedrock

ID No.: BH655-22

Project Name: Guelph Innovation District Lands

MTE File No.: 46927-104

Client: Fusion Homes

Site Location: 328 Victoria Road S., Guelph, ON

Date Completed: 10/25/2022

Drilling Contractor: Geo-Environmental Drilling Inc.

Drill Rig: CME 75 Track Mount

Drill Method: Hollow Stem Augers

Protective Cover: N/A

Depth (ft / m)	Symbol	Soil Description	Elevation (masl) / Depth (m)	Sample Number	Sample Type	Dynamic Cone / Standard Penetration (20 40 60 80)	Shear Strength (PP) kPa / Shear Strength (FV) kPa (50 100 150 200)	Water Content % (10 20 30)	Groundwater Observations and Standpipe Details
0 / 0		Ground Surface	323.3						
0 / 0		**TOPSOIL** Dark brown sandy silt, moist	0.0	1	SS	35		3	
2 /		**SAND AND GRAVEL** Very dense brown sand and gravel, trace silt, moist		2	SS	85/200mm		1	
4 /			321.9	3	SS	50/0mm			Bentonite
6 / 2		Drilling Terminated	1.4						
8 /									
10 /									
12 / 4									
14 /									
16 /									
18 /									
20 / 6									
22 /									
24 /									
26 / 8									
28 /									
30 /									

Field Technician: TXG

Drafted by: TXG

Reviewed by: D. Gonser

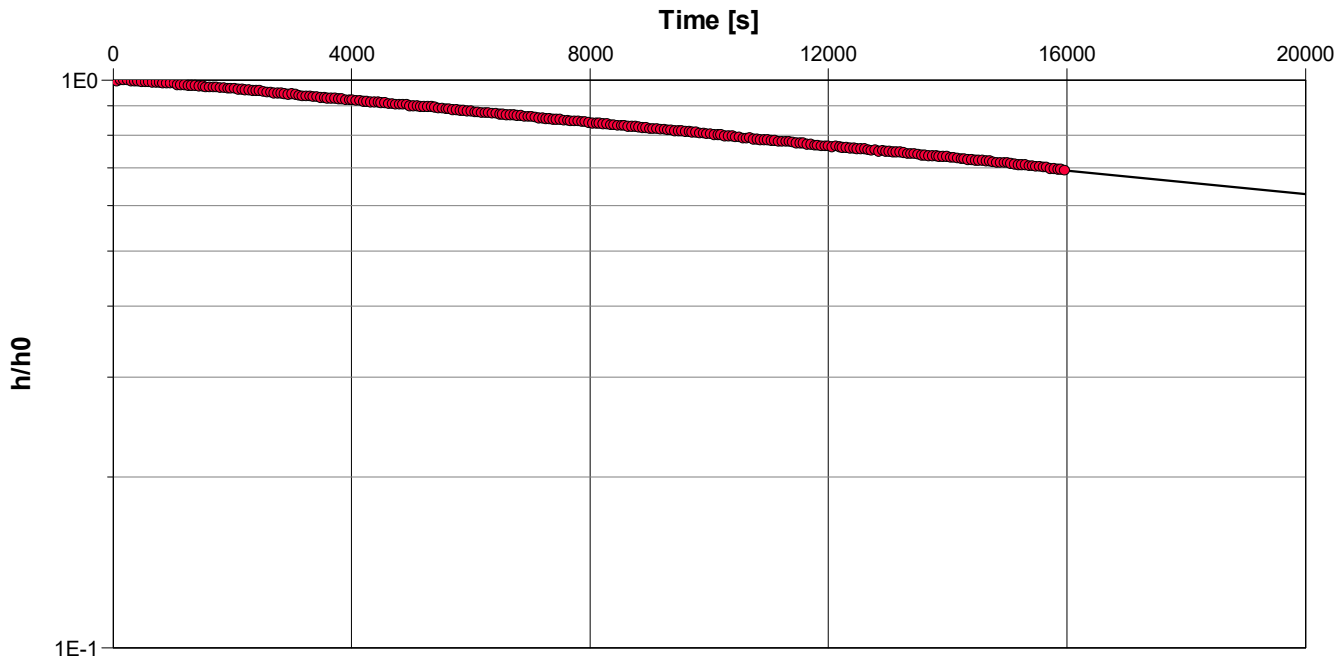
Notes: auger refusal at 1.4m on suspected bedrock

Appendix B

Aquifer Test Data Sheets

MTE Consultants Inc. 520 Bingemans Centre Dr. Kitchener, ON N2B 3X9	**Slug Test Analysis Report**
	Project: Guelph Innovation District Lands
	Number: 46927-104
	Client: Fusion Homes

Location: Guelph, ON	Slug Test: BH/MW1-06	Test Well: MW2-11
Test Conducted by: txg		Test Date: 10/6/2022
Analysis Performed by: mde	Bouwer and Rice	Analysis Date: 2/2/2023
Aquifer Thickness: 12.21 m		

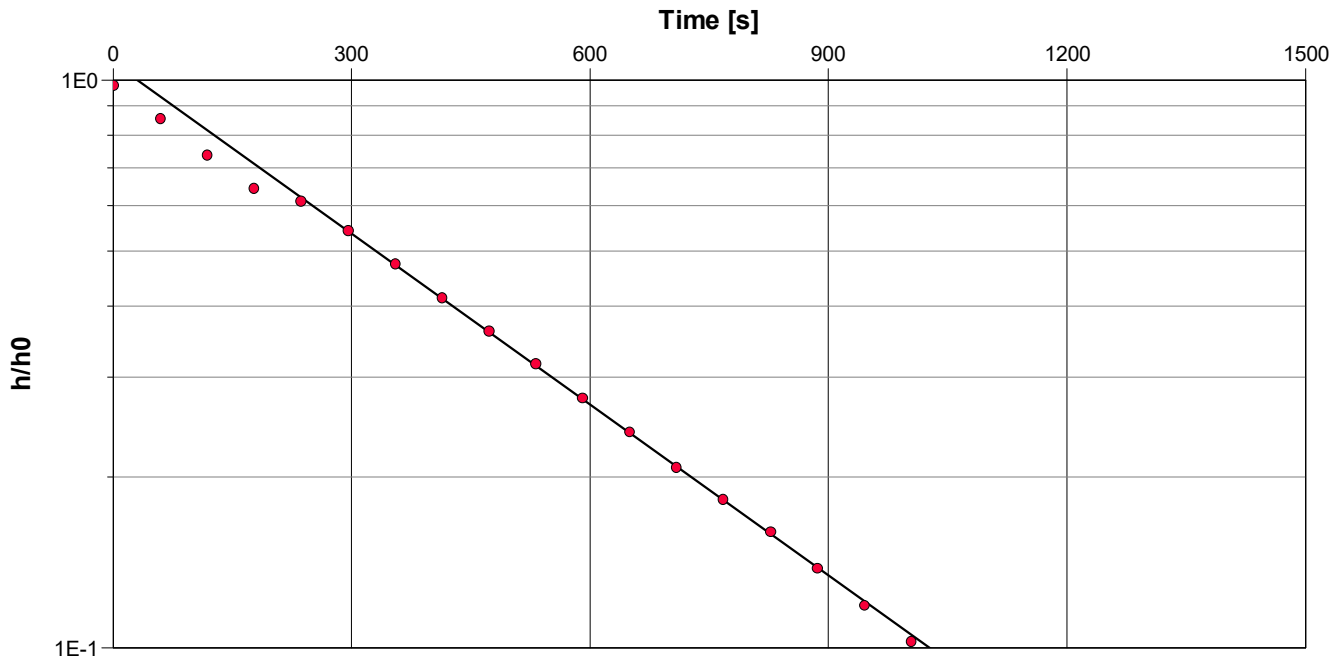


Calculation using Bouwer & Rice

Observation Well	Hydraulic Conductivity [m/s]	
MW2-11	1.17×10^{-8}	

MTE Consultants Inc. 520 Bingemans Centre Dr. Kitchener, ON N2B 3X9	**Slug Test Analysis Report**
	Project: Guelph Innovation District Lands
	Number: 46927-104
	Client: Fusion Homes

Location: Guelph, ON	Slug Test: MW2-11	Test Well: MW2-11
Test Conducted by: txg		Test Date: 10/6/2022
Analysis Performed by: mde	Bouwer and Rice	Analysis Date: 2/2/2023
Aquifer Thickness: 3.06 m		

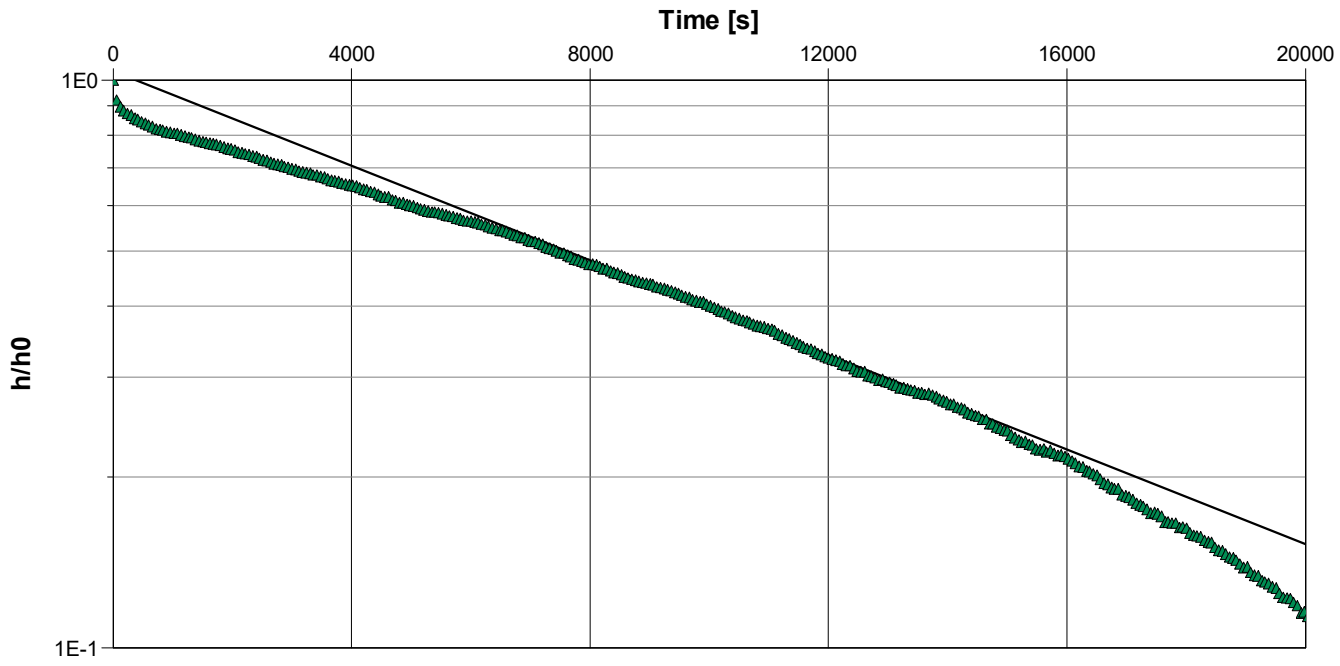


Calculation using Bouwer & Rice

Observation Well	Hydraulic Conductivity [m/s]	
MW2-11	1.22×10^{-6}	

MTE Consultants Inc. 520 Bingemans Centre Dr. Kitchener, ON N2B 3X9	**Slug Test Analysis Report**
	Project: Guelph Innovation District Lands
	Number: 46927-104
	Client: Fusion Homes

Location: Guelph, ON	Slug Test: MW209-19	Test Well: MW209-19
Test Conducted by: TXG		Test Date: 10/24/2022
Analysis Performed by: mde	Bouwer and Rice	Analysis Date: 2/2/2023
Aquifer Thickness: 13.07 m		

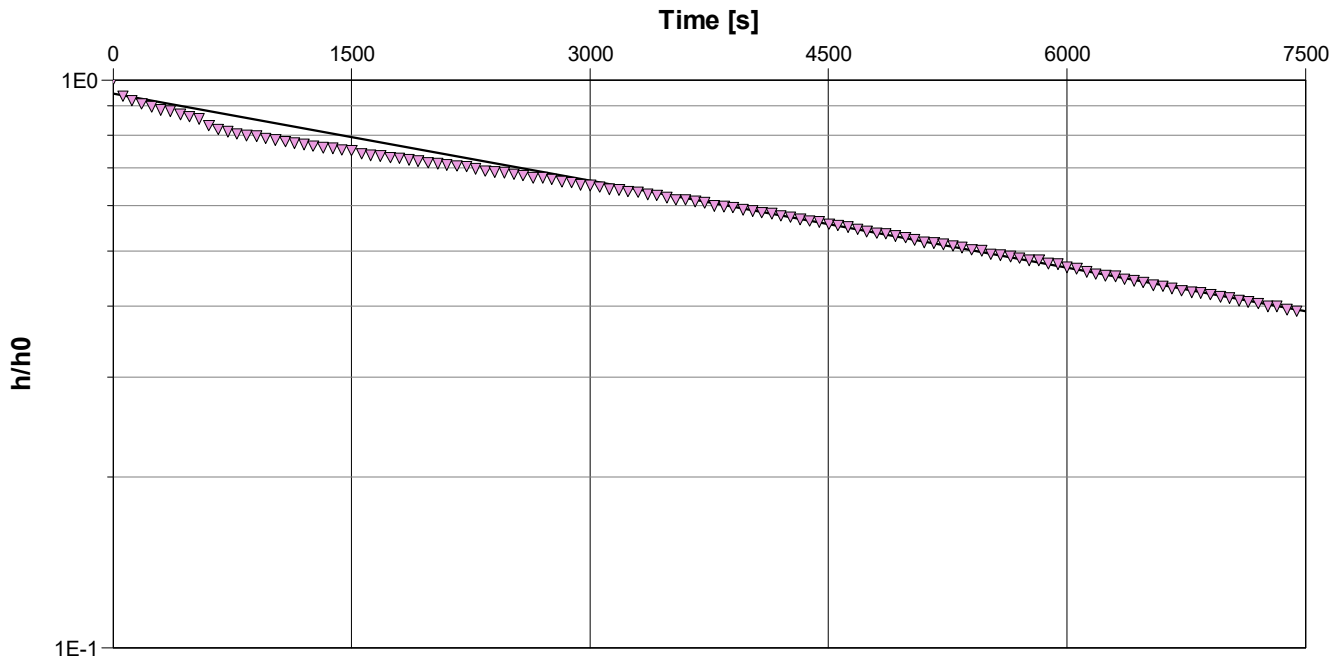


Calculation using Bouwer & Rice

Observation Well	Hydraulic Conductivity [m/s]	
MW209-19	3.16×10^{-8}	

MTE Consultants Inc. 520 Bingemans Centre Dr. Kitchener, ON N2B 3X9	**Slug Test Analysis Report**
	Project: Guelph Innovation District Lands
	Number: 46927-104
	Client: Fusion Homes

Location: Guelph, ON	Slug Test: MW217-19	Test Well: MW217-19
Test Conducted by: txg		Test Date: 10/6/2022
Analysis Performed by:	New analysis 1	Analysis Date: 2/2/2023
Aquifer Thickness: 1.81 m		

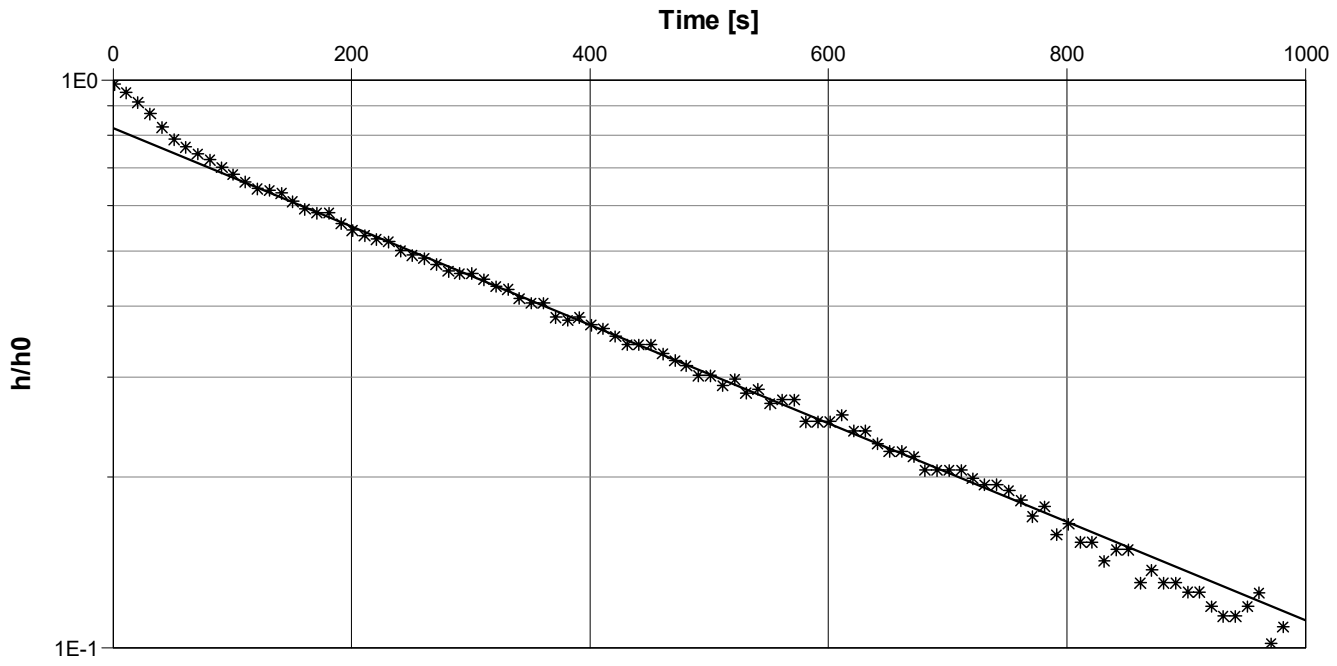


Calculation using Bouwer & Rice

Observation Well	Hydraulic Conductivity [m/s]	
MW217-19	6.74×10^{-8}	

MTE Consultants Inc. 520 Bingemans Centre Dr. Kitchener, ON N2B 3X9	**Slug Test Analysis Report**
	Project: Guelph Innovation District Lands
	Number: 46927-104
	Client: Fusion Homes

Location: Guelph, ON	Slug Test: MW512b-22	Test Well: MW512b-22
Test Conducted by: txg		Test Date: 10/6/2022
Analysis Performed by: mde	Bouwer and Rice	Analysis Date: 2/3/2023
Aquifer Thickness: 3.00 m		

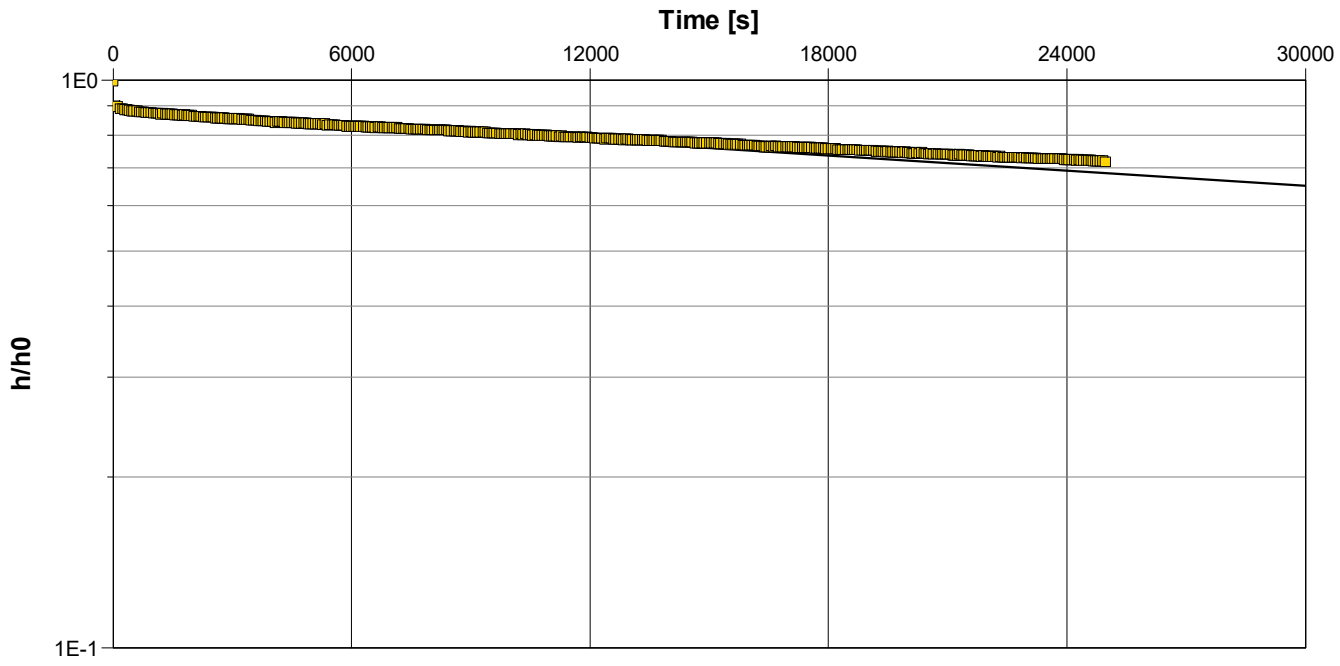


Calculation using Bouwer & Rice

Observation Well	Hydraulic Conductivity [m/s]	
MW512b-22	1.03×10^{-6}	

MTE Consultants Inc. 520 Bingemans Centre Dr. Kitchener, ON N2B 3X9	**Slug Test Analysis Report**
	Project: Guelph Innovation District Lands
	Number: 46927-104
	Client: Fusion Homes

Location: Guelph, ON	Slug Test: MW514-22	Test Well: MW514-22
Test Conducted by: txg		Test Date: 10/6/2022
Analysis Performed by: mde	bouwer and rice	Analysis Date: 2/3/2023
Aquifer Thickness: 12.20 m		

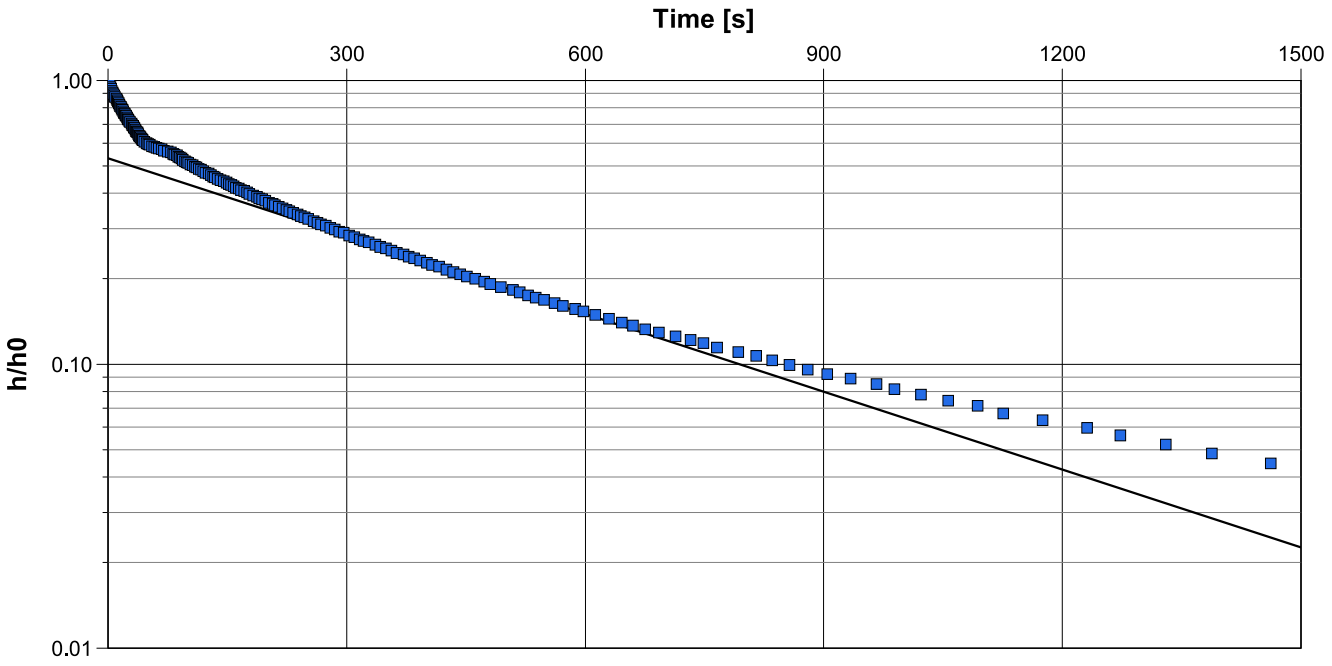


Calculation using Bouwer & Rice

Observation Well	Hydraulic Conductivity [m/s]	
MW514-22	6.27×10^{-9}	

MTE Consultants Inc. 520 Bingemans Centre Drive Kitchener, Ontario N2B 3X9	**Slug Test Analysis Report**
	Project: Guelph Innovation District Lands
	Number: 46927-104
	Client: Fusion Homes

Location: Guelph, ON	Slug Test: BH/MW1-06 2023	Test Well: BHMW1-06
Test Conducted by: TXG		Test Date: 5/4/2023
Analysis Performed by: JAK	Bouwer & Rice	Analysis Date: 4/11/2024
Aquifer Thickness: 4.88 m		

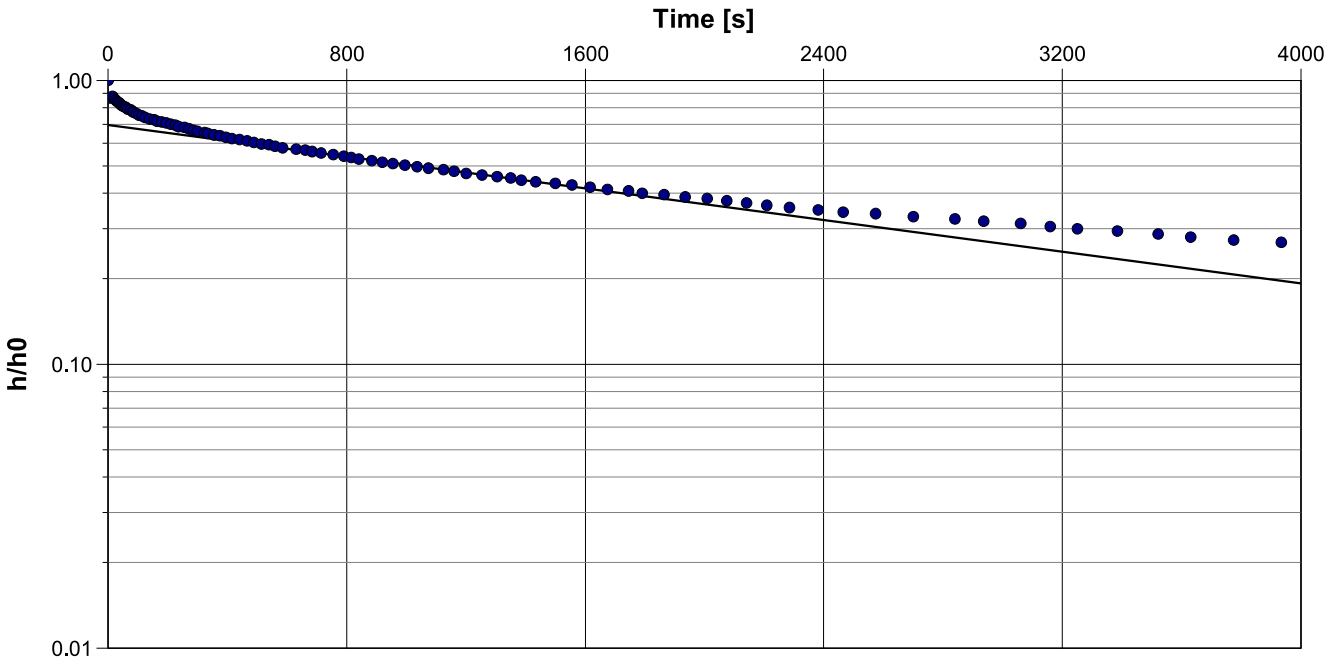


Calculation using Bouwer & Rice

Observation Well	Hydraulic Conductivity [m/s]	
BHMW1-06	9.95×10^{-7}	

MTE Consultants Inc. 520 Bingemans Centre Drive Kitchener, Ontario N2B 3X9	**Slug Test Analysis Report**
	Project: Guelph Innovation District Lands
	Number: 46927-104
	Client: Fusion Homes

Location: Guelph, ON	Slug Test: MW1-17 2023	Test Well: MW1-17
Test Conducted by: TXG		Test Date: 5/4/2023
Analysis Performed by: JAK	Bouwer & Rice	Analysis Date: 4/11/2024
Aquifer Thickness: 1.78 m		

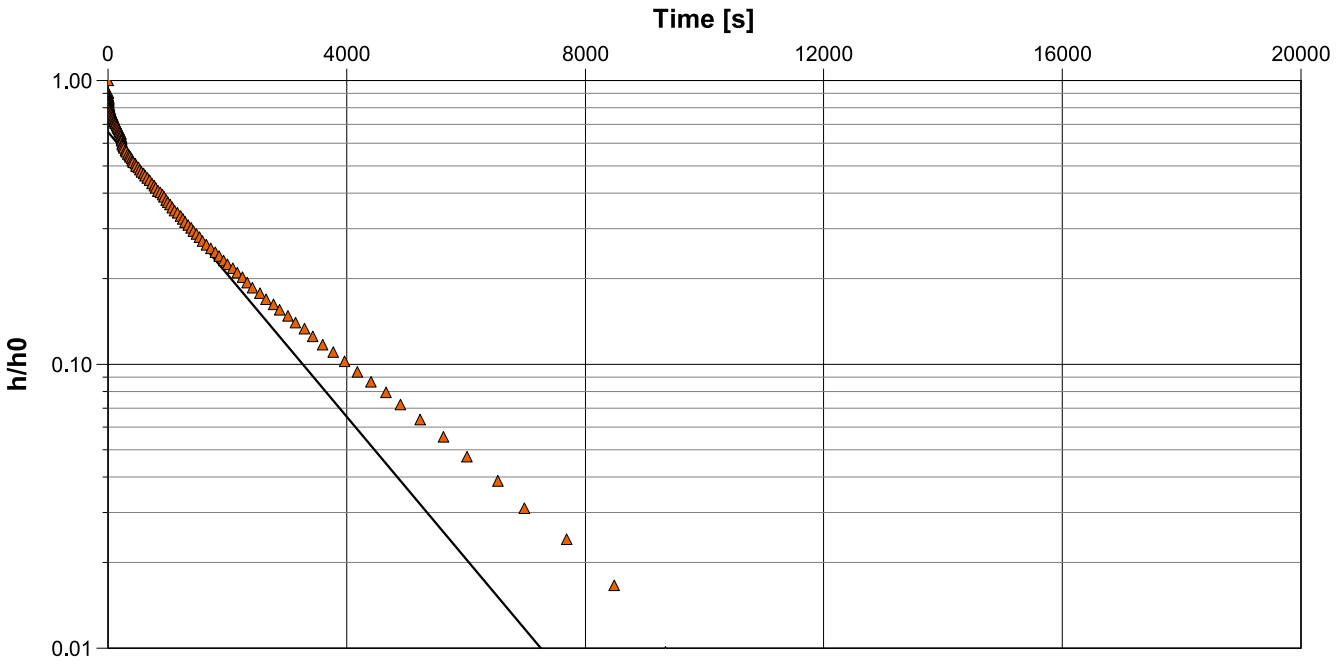


Calculation using Bouwer & Rice

Observation Well	Hydraulic Conductivity [m/s]	
MW1-17	2.70×10^{-7}	

MTE Consultants Inc. 520 Bingemans Centre Drive Kitchener, Ontario N2B 3X9	**Slug Test Analysis Report**
	Project: Guelph Innovation District Lands
	Number: 46927-104
	Client: Fusion Homes

Location: Guelph, ON	Slug Test: MW204-19 2023	Test Well: MW204-19
Test Conducted by: TXG		Test Date: 5/12/2023
Analysis Performed by: JAK	Bouwer & Rice	Analysis Date: 4/11/2024
Aquifer Thickness: 3.22 m		

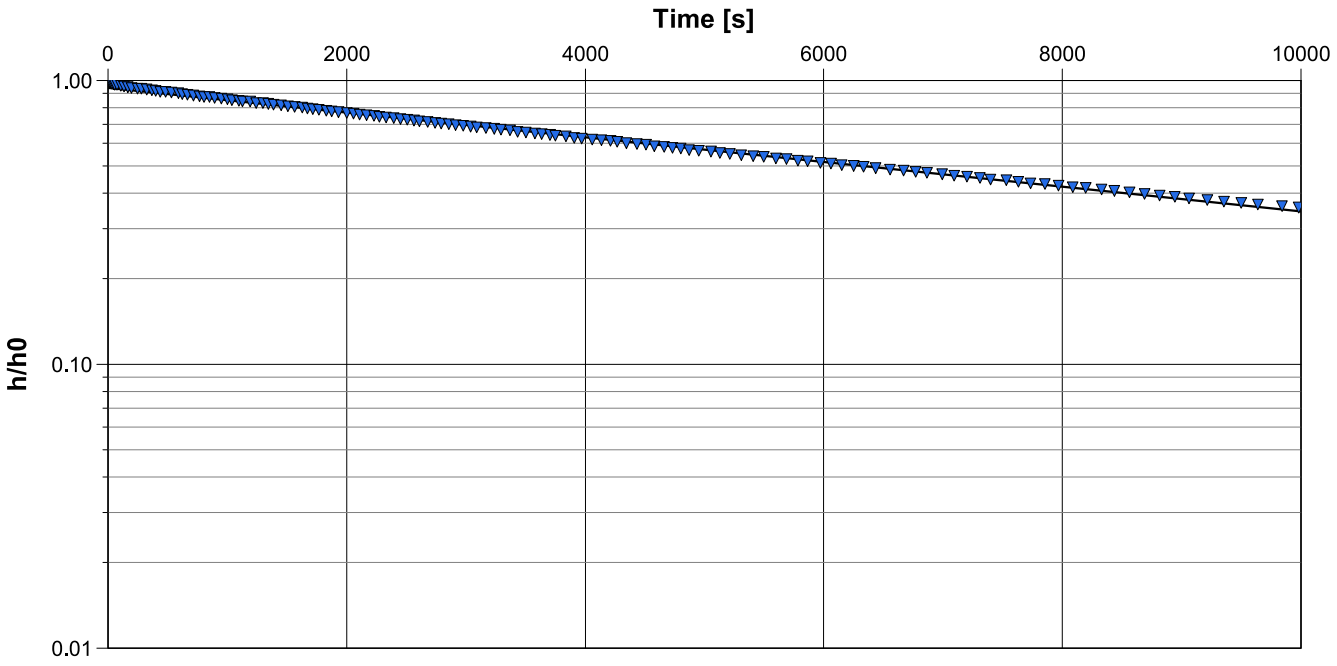


Calculation using Bouwer & Rice

Observation Well	Hydraulic Conductivity [m/s]	
MW204-19	2.53×10^{-7}	

MTE Consultants Inc. 520 Bingemans Centre Drive Kitchener, Ontario N2B 3X9	**Slug Test Analysis Report**
	Project: Guelph Innovation District Lands
	Number: 46927-104
	Client: Fusion Homes

Location: Guelph, ON	Slug Test: MW209-19 2023	Test Well: MW209-19
Test Conducted by: TXG		Test Date: 5/12/2023
Analysis Performed by: JAK	Bouwer & Rice	Analysis Date: 4/11/2024
Aquifer Thickness: 5.77 m		

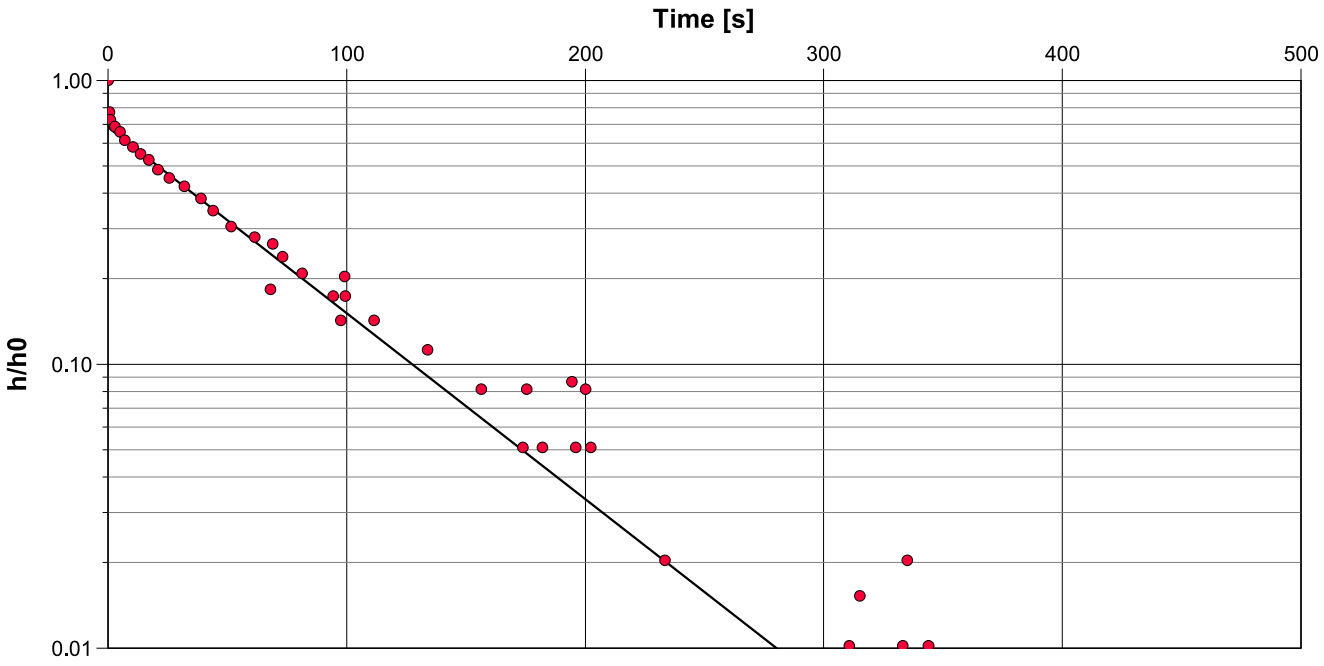


Calculation using Bouwer & Rice

Observation Well	Hydraulic Conductivity [m/s]	
MW209-19	4.88×10^{-8}	

MTE Consultants Inc. 520 Bingemans Centre Drive Kitchener, Ontario N2B 3X9	**Slug Test Analysis Report**
	Project: Guelph Innovation District Lands
	Number: 46927-104
	Client: Fusion Homes

Location: Guelph, ON	Slug Test: MW210-19 2023	Test Well: MW210-19
Test Conducted by: TXG		Test Date: 5/16/2023
Analysis Performed by: JAK	Bouwer & Rice	Analysis Date: 4/11/2024
Aquifer Thickness: 5.22 m		

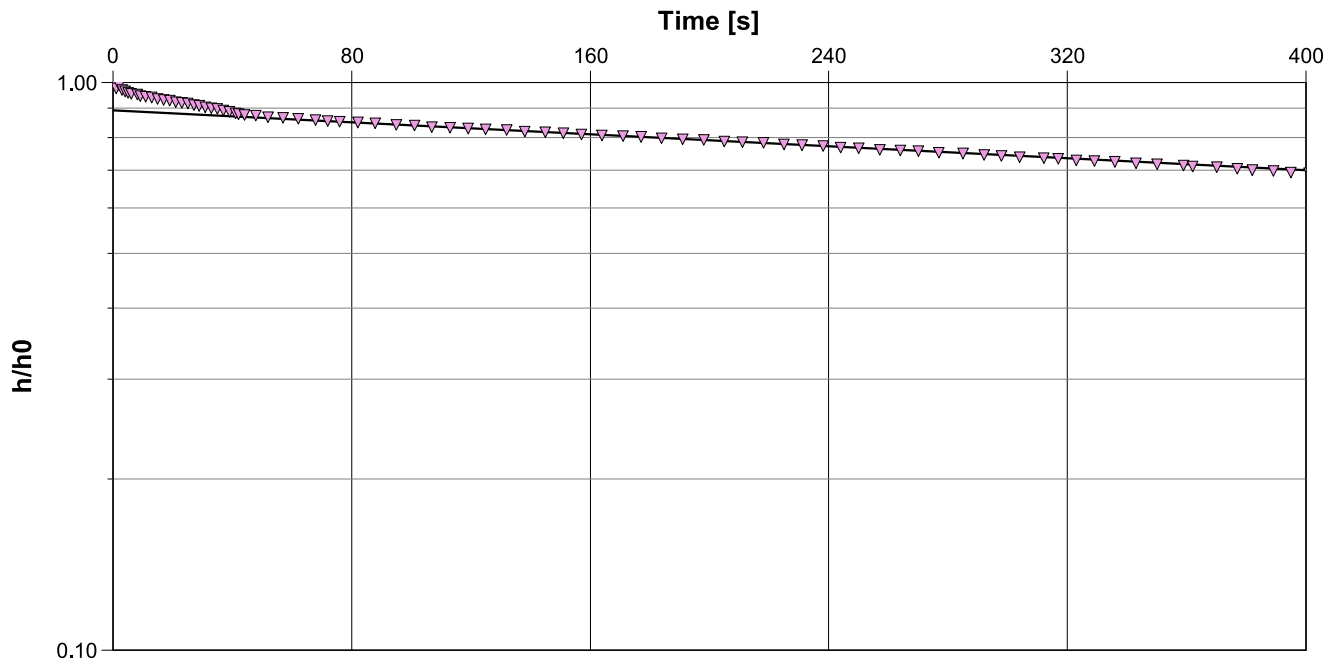


Calculation using Bouwer & Rice

Observation Well	Hydraulic Conductivity [m/s]	
MW210-19	7.22×10^{-6}	

MTE Consultants Inc. 520 Bingemans Centre Drive Kitchener, Ontario N2B 3X9	**Slug Test Analysis Report**
	Project: Guelph Innovation District Lands
	Number: 46927-104
	Client: Fusion Homes

Location: Guelph, ON	Slug Test: MW217-19 2023	Test Well: MW217-19
Test Conducted by: TXG		Test Date: 5/10/2023
Analysis Performed by: JAK	Bouwer & Rice	Analysis Date: 4/11/2024
Aquifer Thickness: 3.03 m		

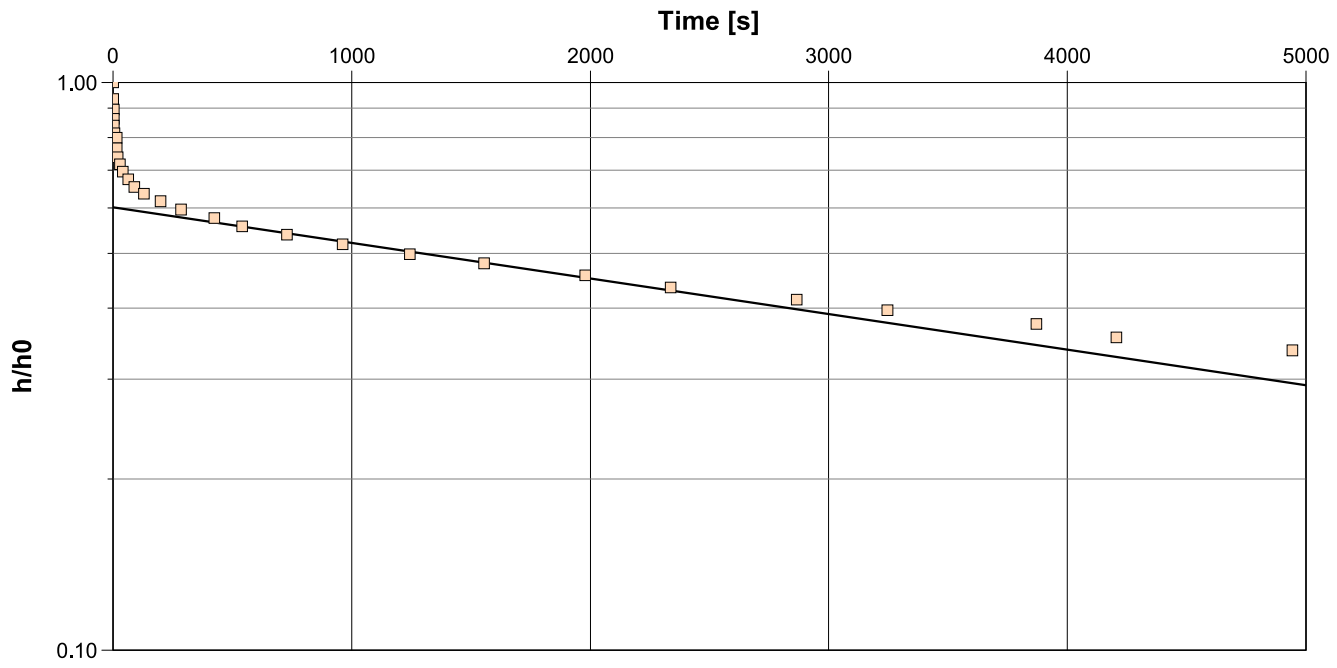


Calculation using Bouwer & Rice

Observation Well	Hydraulic Conductivity [m/s]	
MW217-19	2.47×10^{-7}	

MTE Consultants Inc. 520 Bingemans Centre Drive Kitchener, Ontario N2B 3X9	**Slug Test Analysis Report**
	Project: Guelph Innovation District Lands
	Number: 46927-104
	Client: Fusion Homes

Location: Guelph, ON	Slug Test: MW507A-22 2023	Test Well: MW507A-22
Test Conducted by: TXG		Test Date: 5/16/2023
Analysis Performed by: JAK	Bouwer & Rice	Analysis Date: 4/11/2024
Aquifer Thickness: 1.34 m		

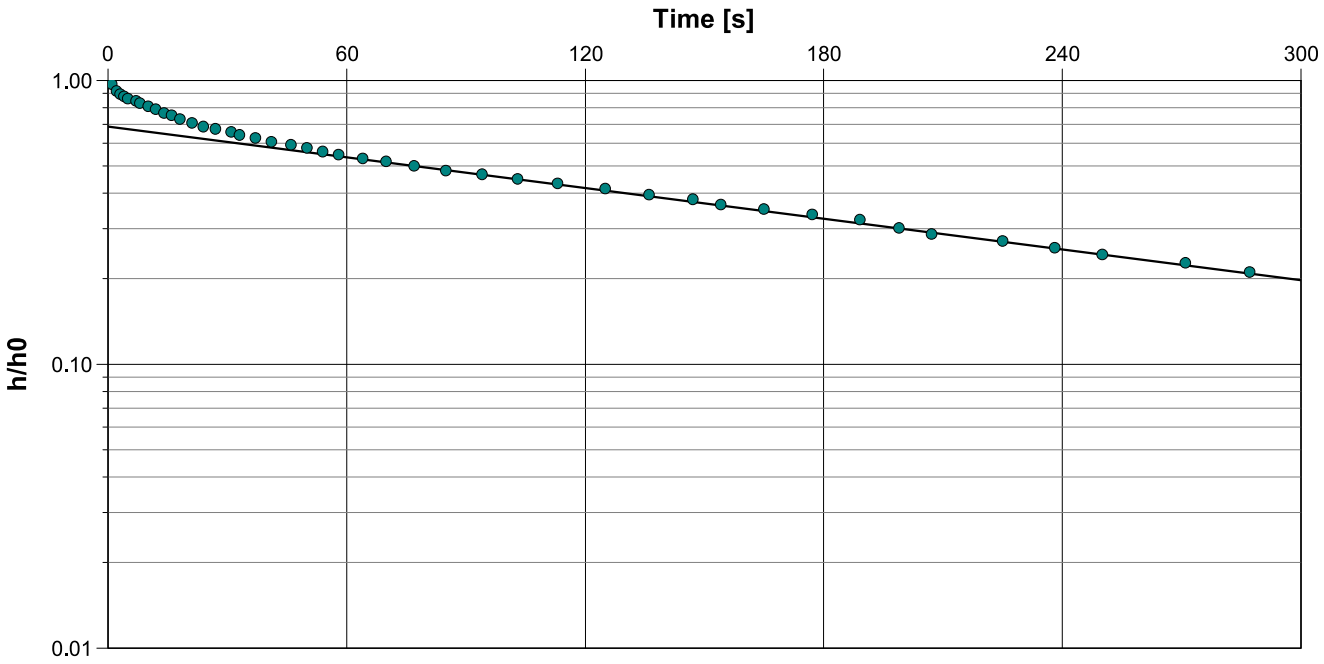


Calculation using Bouwer & Rice

Observation Well	Hydraulic Conductivity [m/s]	
MW507A-22	1.17×10^{-7}	

MTE Consultants Inc. 520 Bingemans Centre Drive Kitchener, Ontario N2B 3X9	**Slug Test Analysis Report**
	Project: Guelph Innovation District Lands
	Number: 46927-104
	Client: Fusion Homes

Location: Guelph, ON	Slug Test: MW507B-22 2023	Test Well: MW507B-22
Test Conducted by: TXG		Test Date: 5/16/2023
Analysis Performed by: JAK	Bouwer & Rice	Analysis Date: 4/11/2024
Aquifer Thickness: 1.41 m		

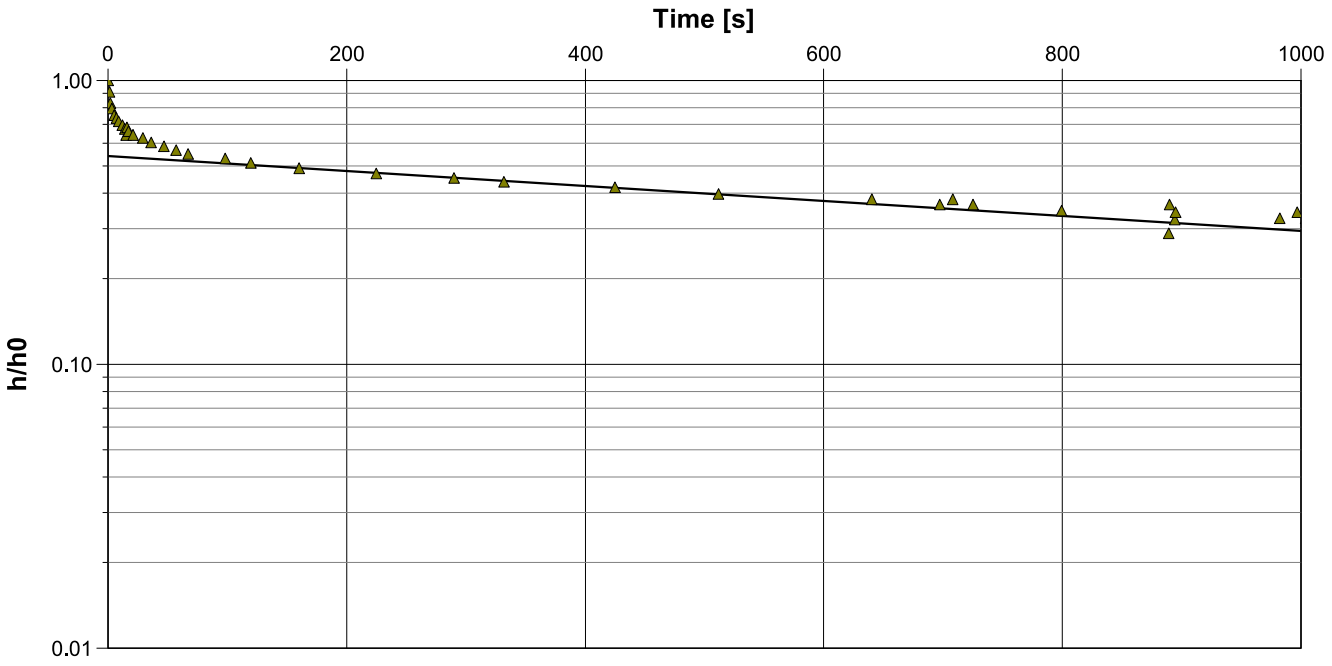


Calculation using Bouwer & Rice

Observation Well	Hydraulic Conductivity [m/s]	
MW507B-22	3.24×10^{-6}	

MTE Consultants Inc. 520 Bingemans Centre Drive Kitchener, Ontario N2B 3X9	**Slug Test Analysis Report**
	Project: Guelph Innovation District Lands
	Number: 46927-104
	Client: Fusion Homes

Location: Guelph, ON	Slug Test: MW512A-22 2023	Test Well: MW512A-22
Test Conducted by:		Test Date: 5/16/2023
Analysis Performed by: JAK	Bouwer & Rice	Analysis Date: 4/11/2024
Aquifer Thickness: 1.28 m		

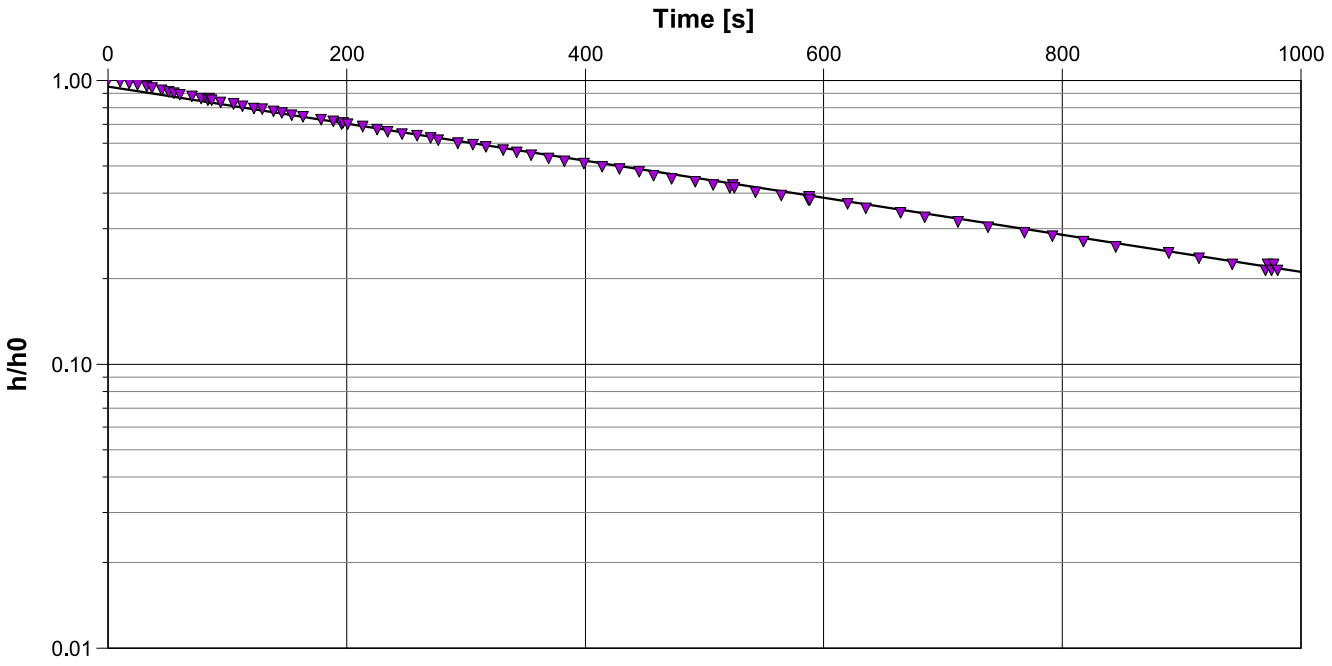


Calculation using Bouwer & Rice

Observation Well	Hydraulic Conductivity [m/s]	
MW512A-22	5.11×10^{-7}	

MTE Consultants Inc. 520 Bingemans Centre Drive Kitchener, Ontario N2B 3X9	**Slug Test Analysis Report**
	Project: Guelph Innovation District Lands
	Number: 46927-104
	Client: Fusion Homes

Location: Guelph, ON	Slug Test: MW512B-22 2023	Test Well: MW512B-22
Test Conducted by: TXG		Test Date: 5/16/2023
Analysis Performed by: JAK	Bouwer & Rice	Analysis Date: 4/11/2024
Aquifer Thickness: 5.23 m		

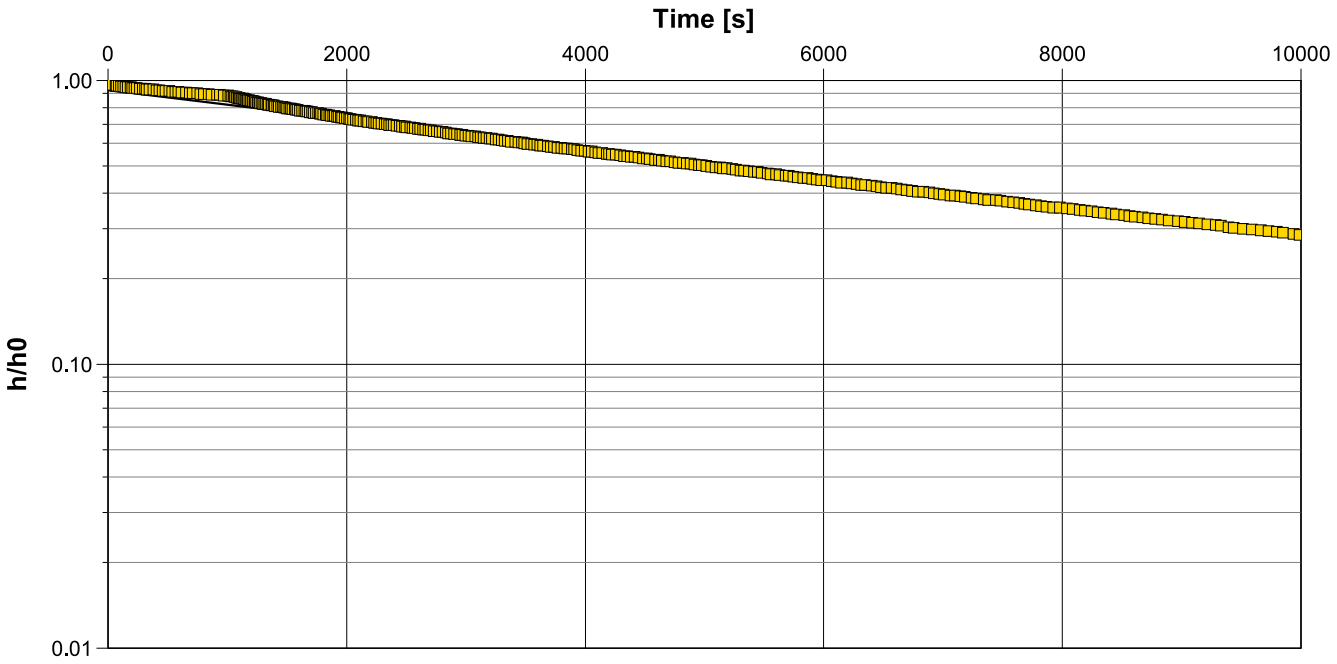


Calculation using Bouwer & Rice

Observation Well	Hydraulic Conductivity [m/s]	
MW512B-22	2.74×10^{-6}	

MTE Consultants Inc. 520 Bingemans Centre Drive Kitchener, Ontario N2B 3X9	**Slug Test Analysis Report**
	Project: Guelph Innovation District Lands
	Number: 46927-104
	Client: Fusion Homes

Location: Guelph, ON	Slug Test: MW514-22 2023	Test Well: MW514-22
Test Conducted by: TXG		Test Date: 5/16/2023
Analysis Performed by: JAK	Bouwer & Rice	Analysis Date: 4/11/2024
Aquifer Thickness: 6.19 m		

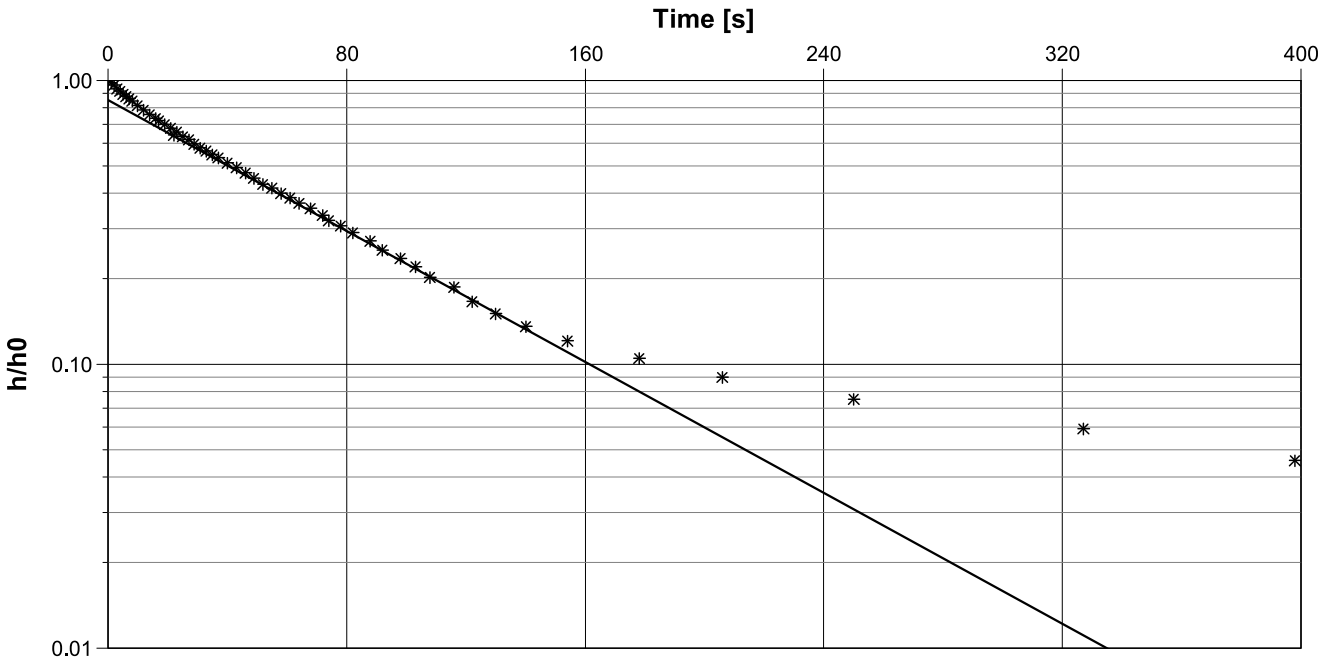


Calculation using Bouwer & Rice

Observation Well	Hydraulic Conductivity [m/s]	
MW514-22	1.15×10^{-7}	

MTE Consultants Inc. 520 Bingemans Centre Drive Kitchener, Ontario N2B 3X9	**Slug Test Analysis Report**
	Project: Guelph Innovation District Lands
	Number: 46927-104
	Client: Fusion Homes

Location: Guelph, ON	Slug Test: MW520-11 2023	Test Well: MW520-22
Test Conducted by: TXG		Test Date: 5/16/2023
Analysis Performed by: JAK	Bouwer & Rice	Analysis Date: 4/12/2024
Aquifer Thickness: 1.59 m		

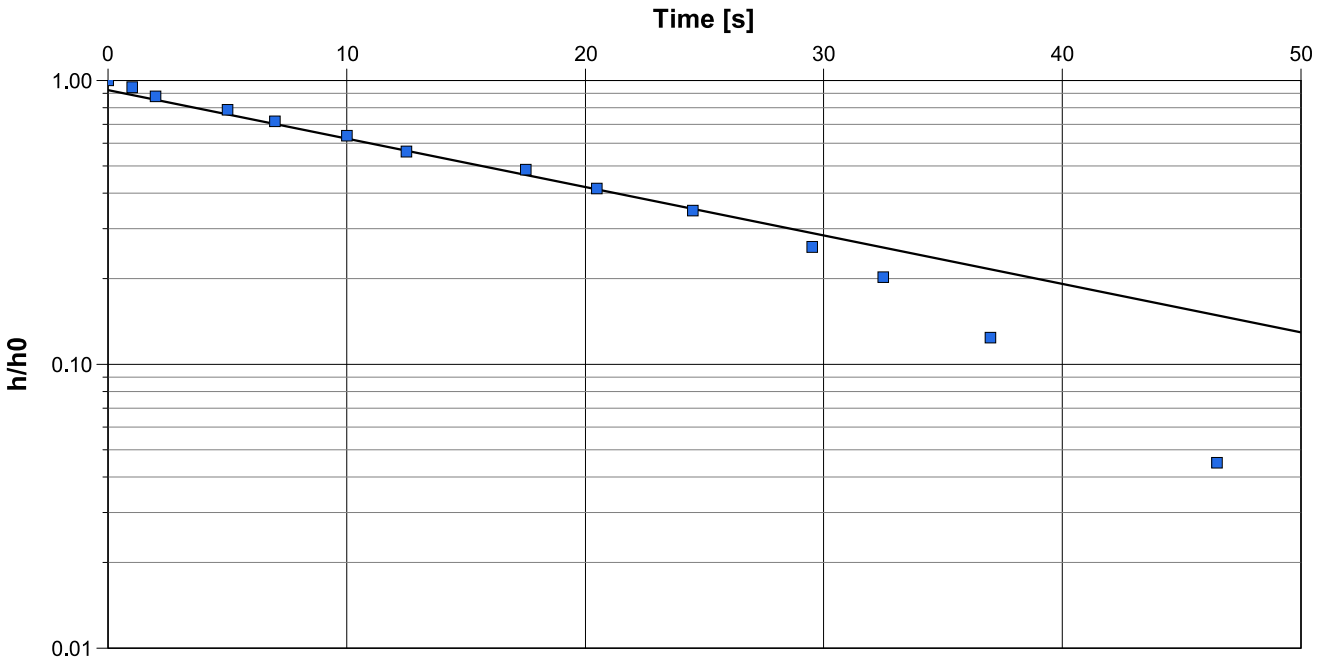


Calculation using Bouwer & Rice

Observation Well	Hydraulic Conductivity [m/s]	
MW520-22	1.00×10^{-5}	

MTE Consultants Inc. 520 Bingemans Centre Drive Kitchener, Ontario N2B 3X9	**Slug Test Analysis Report**
	Project: Guelph Innovation District Lands
	Number: 46927-104
	Client: Fusion Homes

Location: Guelph, ON	Slug Test: MW601-22 2023	Test Well: MW601-22
Test Conducted by: TXG		Test Date: 5/16/2022
Analysis Performed by: JAK	Bouwer & Rice	Analysis Date: 4/12/2024
Aquifer Thickness: 0.95 m		

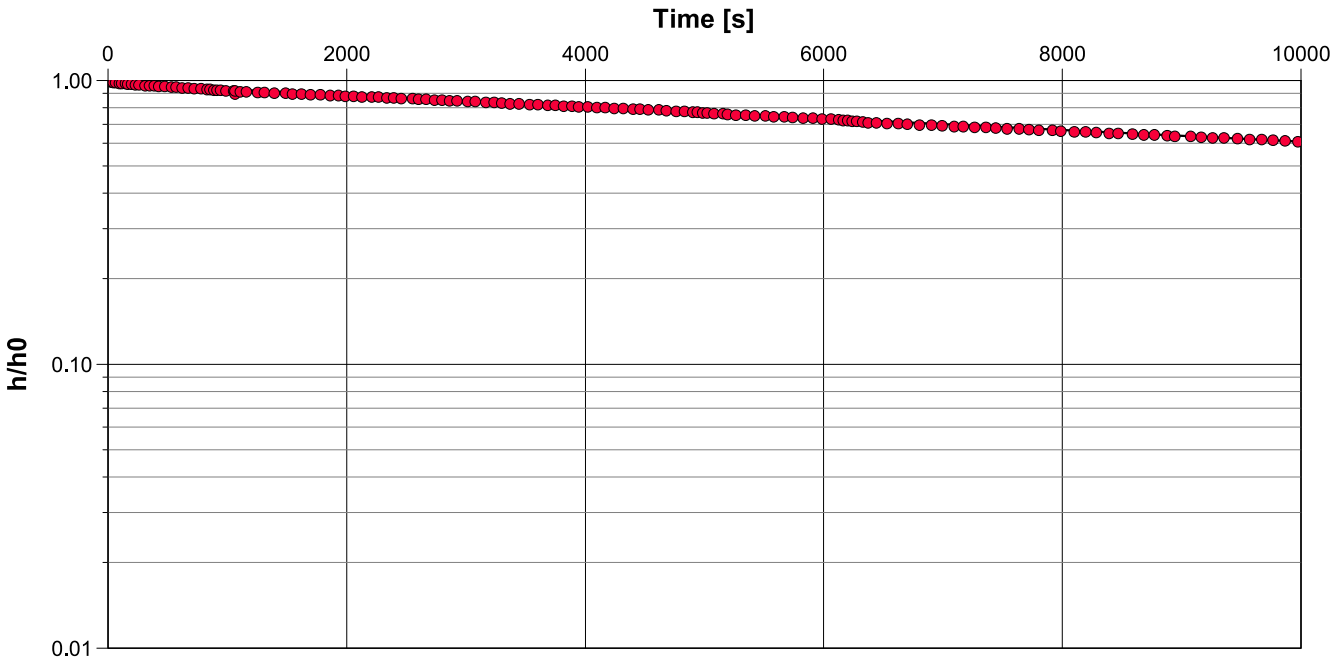


Calculation using Bouwer & Rice

Observation Well	Hydraulic Conductivity [m/s]	
MW601-22	4.29×10^{-5}	

MTE Consultants Inc. 520 Bingemans Centre Drive Kitchener, Ontario N2B 3X9	**Slug Test Analysis Report**
	Project: Guelph Innovation District Lands
	Number: 46927-104
	Client: Fusion Homes

Location: Guelph, ON	Slug Test: MW603-22 2023	Test Well: MW603-22
Test Conducted by: TXG		Test Date: 5/4/2024
Analysis Performed by: JAK	Bouwer & Rice	Analysis Date: 4/12/2024
Aquifer Thickness: 4.32 m		

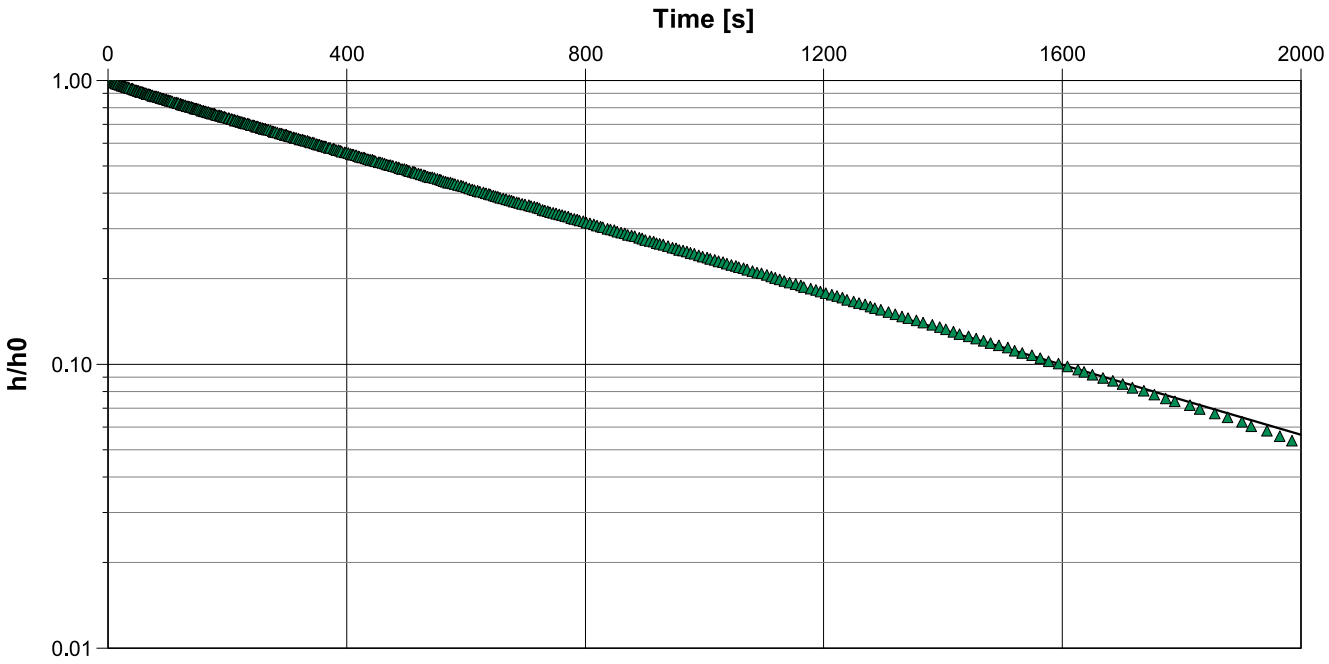


Calculation using Bouwer & Rice

Observation Well	Hydraulic Conductivity [m/s]	
MW603-22	2.21×10^{-8}	

MTE Consultants Inc. 520 Bingemans Centre Drive Kitchener, Ontario N2B 3X9	**Slug Test Analysis Report**
	Project: Guelph Innovation District Lands
	Number: 46927-104
	Client: Fusion Homes

Location: Guelph, ON	Slug Test: MW604-22 2023	Test Well: MW604-22
Test Conducted by: TXG		Test Date: 5/12/2023
Analysis Performed by: JAK	Bouwer & Rice	Analysis Date: 4/12/2024
Aquifer Thickness: 10.35 m		

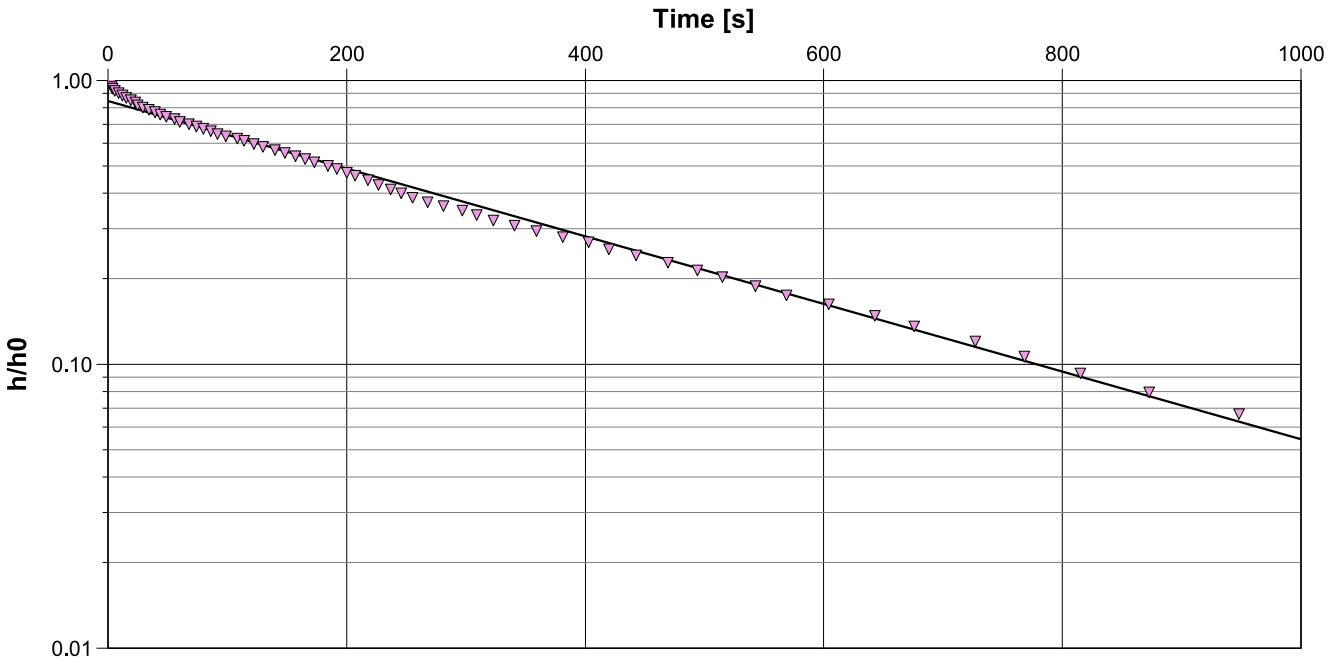


Calculation using Bouwer & Rice

Observation Well	Hydraulic Conductivity [m/s]	
MW604-22	7.64×10^{-7}	

MTE Consultants Inc. 520 Bingemans Centre Drive Kitchener, Ontario N2B 3X9	**Slug Test Analysis Report**
	Project: Guelph Innovation District Lands
	Number: 46927-104
	Client: Fusion Homes

Location: Guelph, ON	Slug Test: MW605-22 2023	Test Well: MW605-22
Test Conducted by: TXG		Test Date: 5/10/2023
Analysis Performed by: JAK	Bouwer & Rice	Analysis Date: 4/12/2024
Aquifer Thickness: 1.48 m		

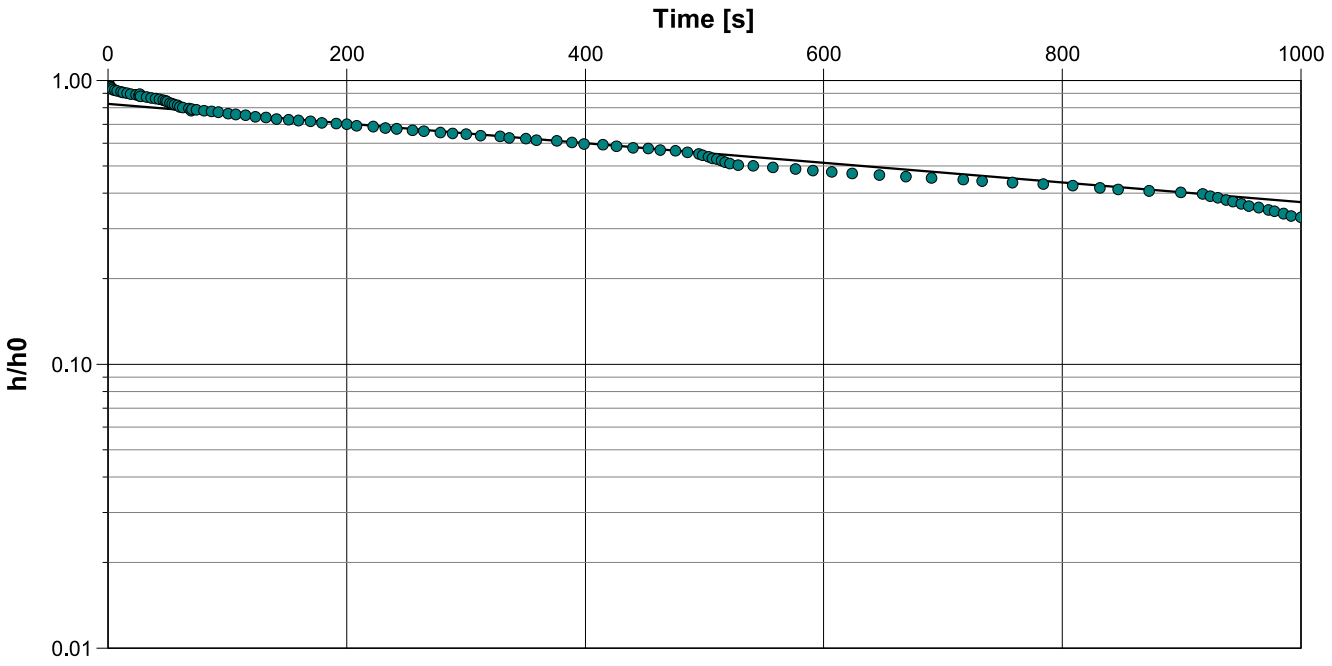


Calculation using Bouwer & Rice

Observation Well	Hydraulic Conductivity [m/s]	
MW605-22	2.07×10^{-6}	

MTE Consultants Inc. 520 Bingemans Centre Drive Kitchener, Ontario N2B 3X9	**Slug Test Analysis Report**
	Project: Guelph Innovation District Lands
	Number: 46927-104
	Client: Fusion Homes

Location: Guelph, ON	Slug Test: MW606-22 2023	Test Well: MW606-22
Test Conducted by: TXG		Test Date: 5/16/2023
Analysis Performed by: JAK	Bouwer & Rice	Analysis Date: 4/12/2024
Aquifer Thickness: 3.87 m		

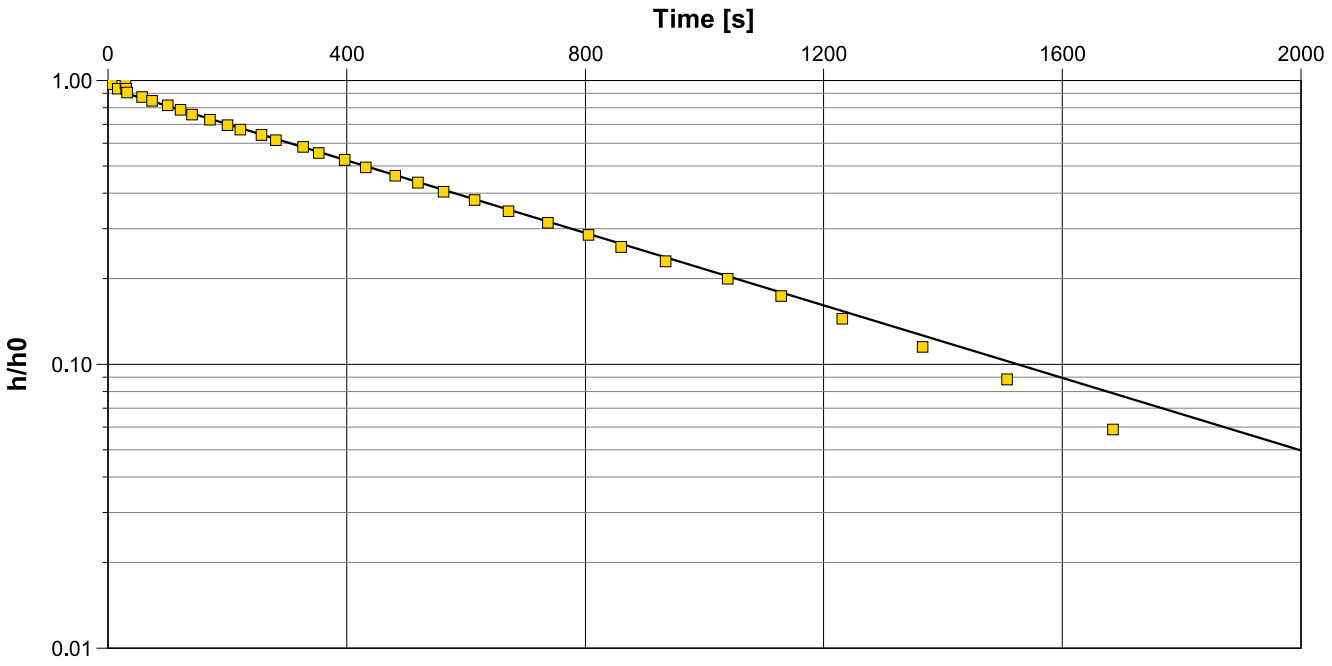


Calculation using Bouwer & Rice

Observation Well	Hydraulic Conductivity [m/s]	
MW606-22	3.61×10^{-7}	

MTE Consultants Inc. 520 Bingemans Centre Drive Kitchener, Ontario N2B 3X9	**Slug Test Analysis Report**
	Project: Guelph Innovation District Lands
	Number: 46927-104
	Client: Fusion Homes

Location: Guelph, ON	Slug Test: MW607-22 2023	Test Well: MW607-22
Test Conducted by: TXG		Test Date: 5/16/2023
Analysis Performed by: JAK	Bouwer & Rice	Analysis Date: 4/12/2024
Aquifer Thickness: 5.73 m		



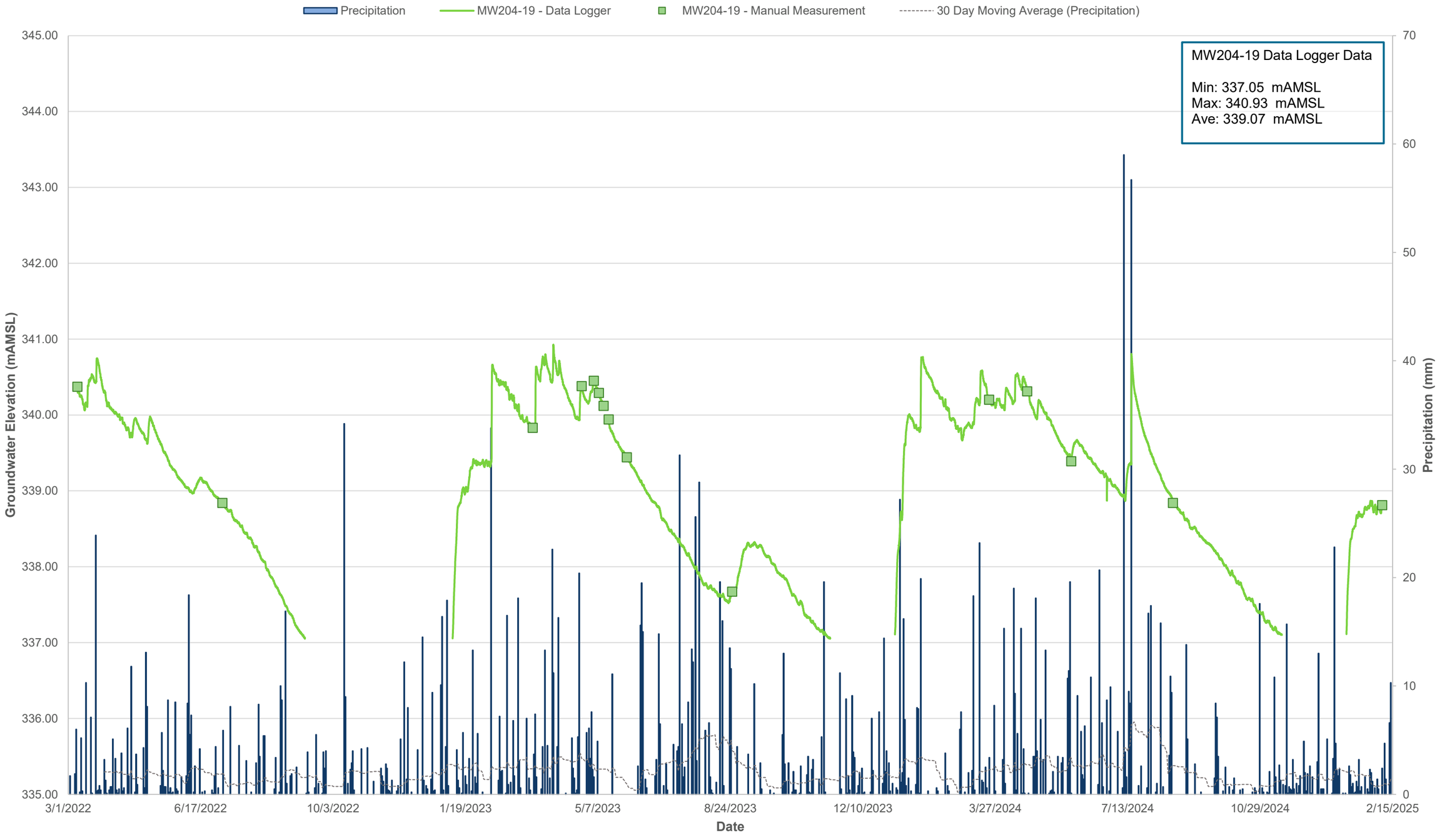
Calculation using Bouwer & Rice

Observation Well	Hydraulic Conductivity [m/s]	
MW607-22	7.15×10^{-7}	

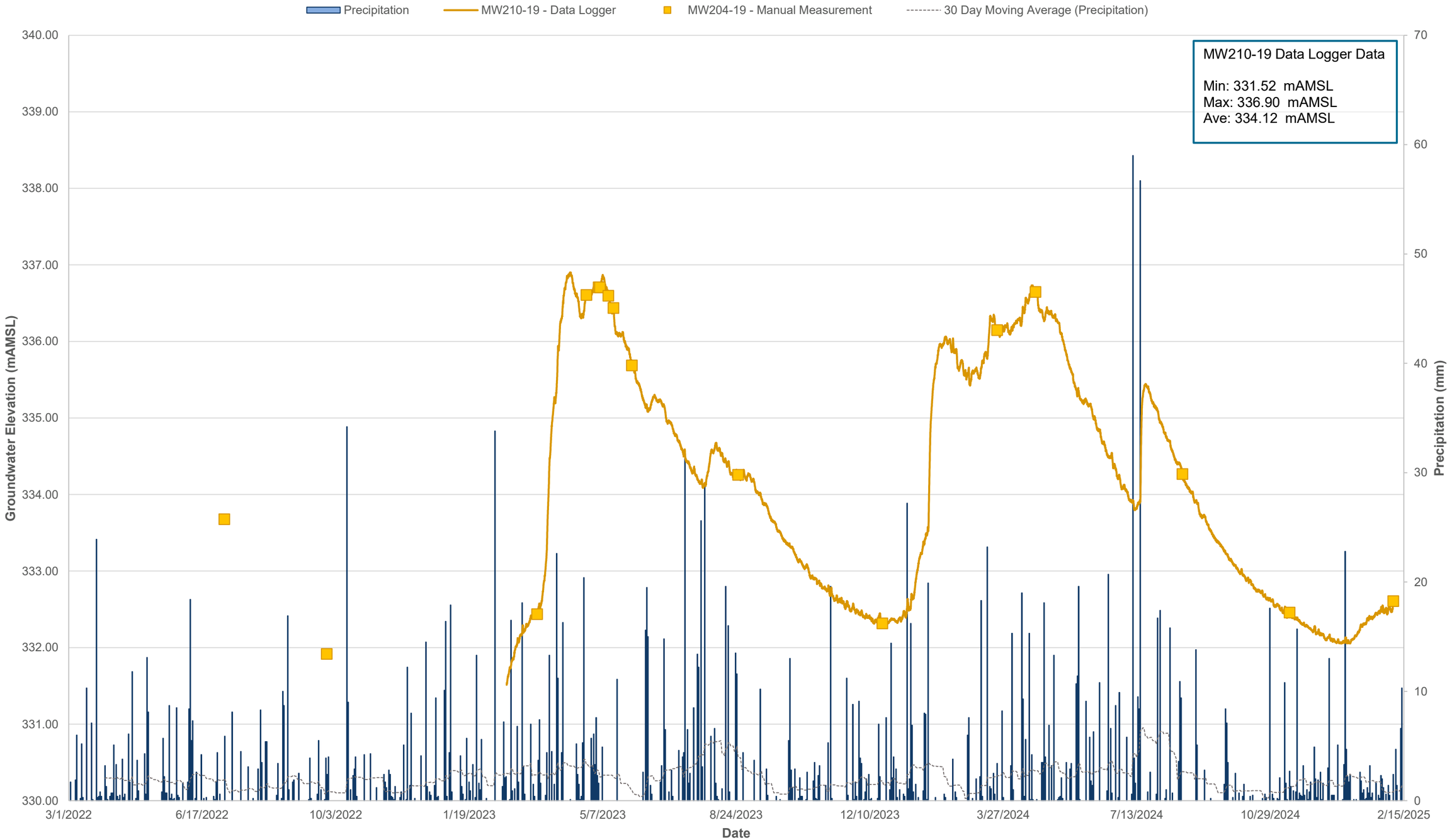
Appendix C

Hydrographs

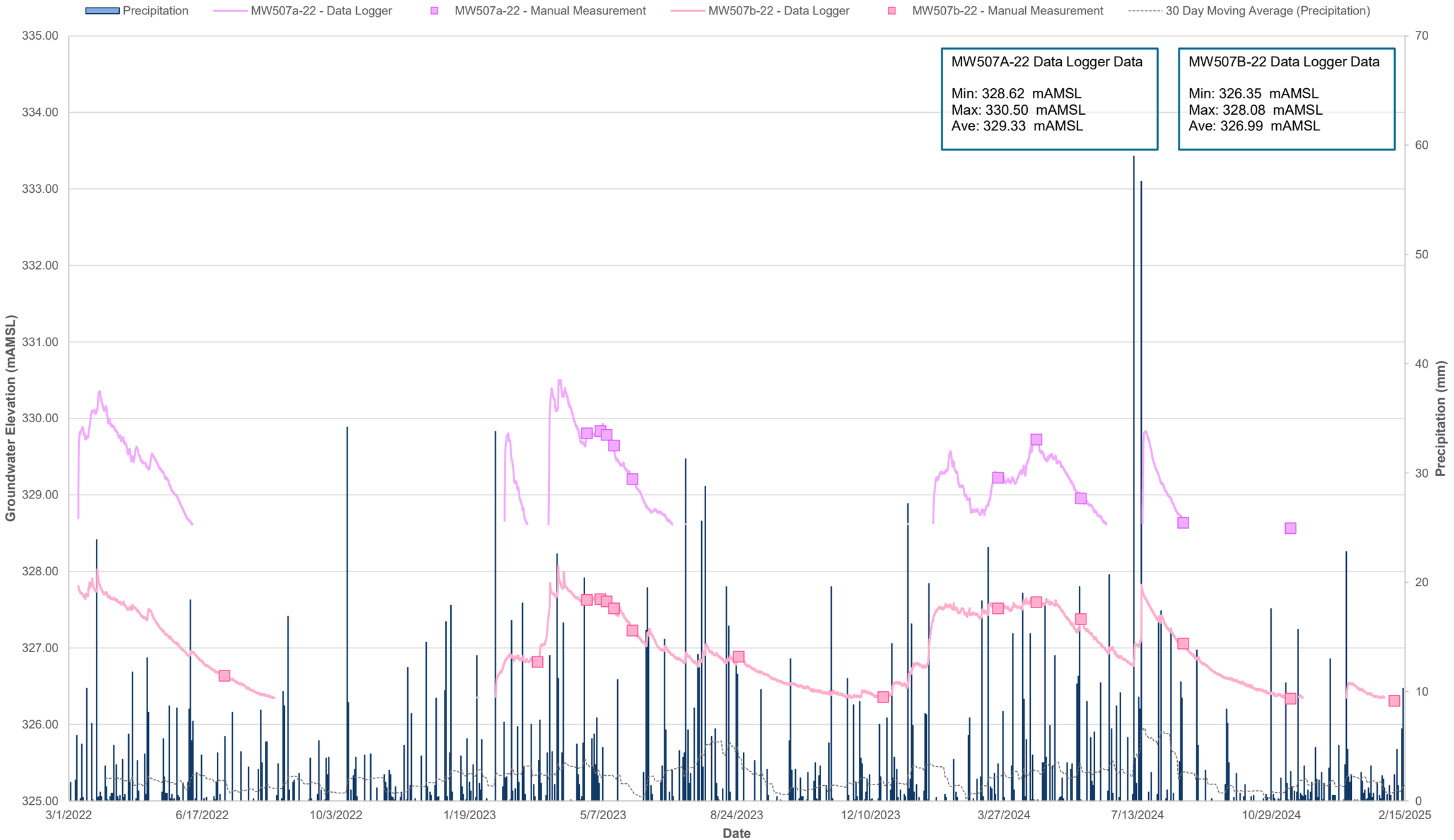
Hydrograph C1: Groundwater Elevations (mAMSL) - MW204-19



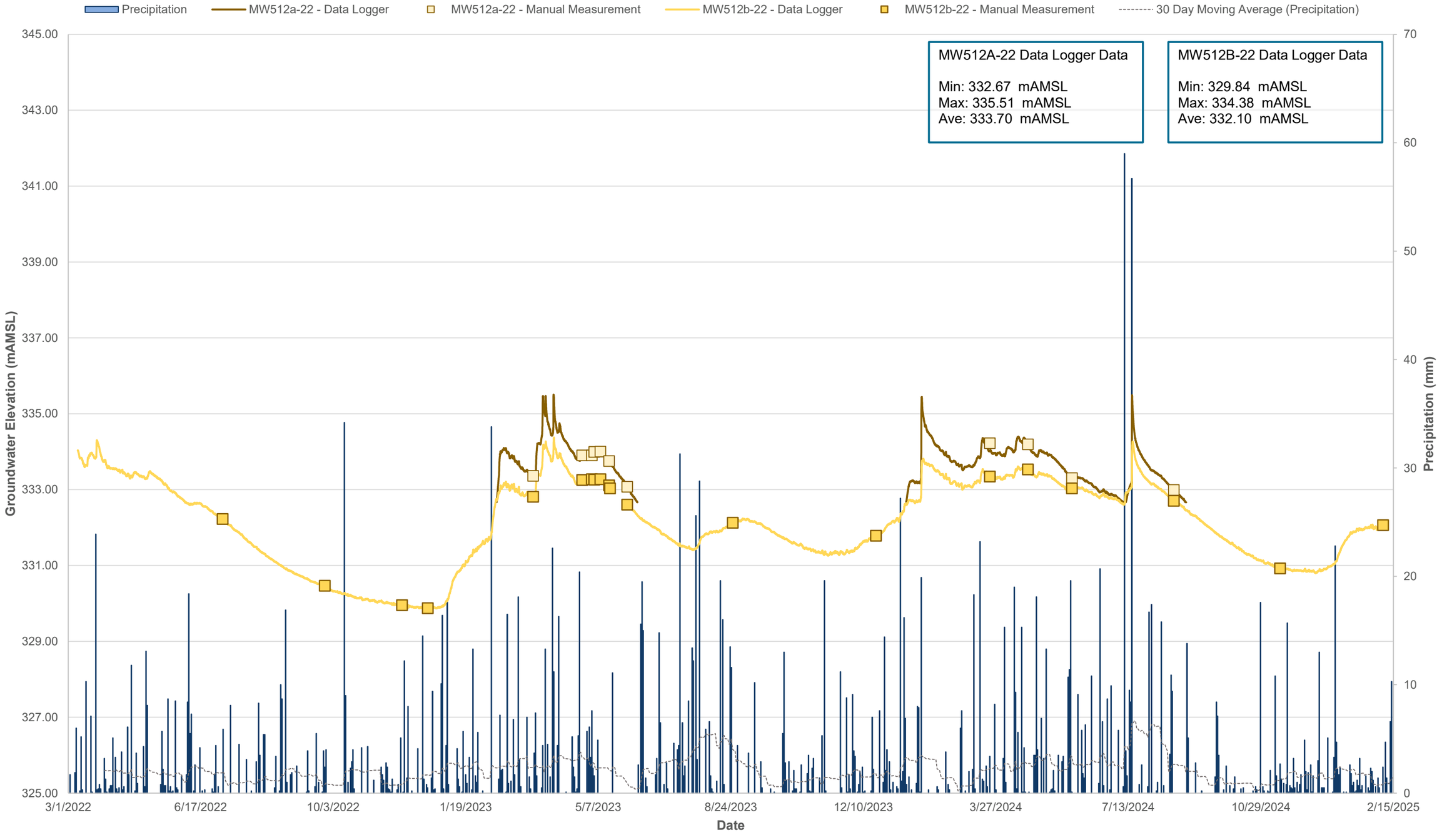
Hydrograph C2: Groundwater Elevations (mAMSL) - MW210-19



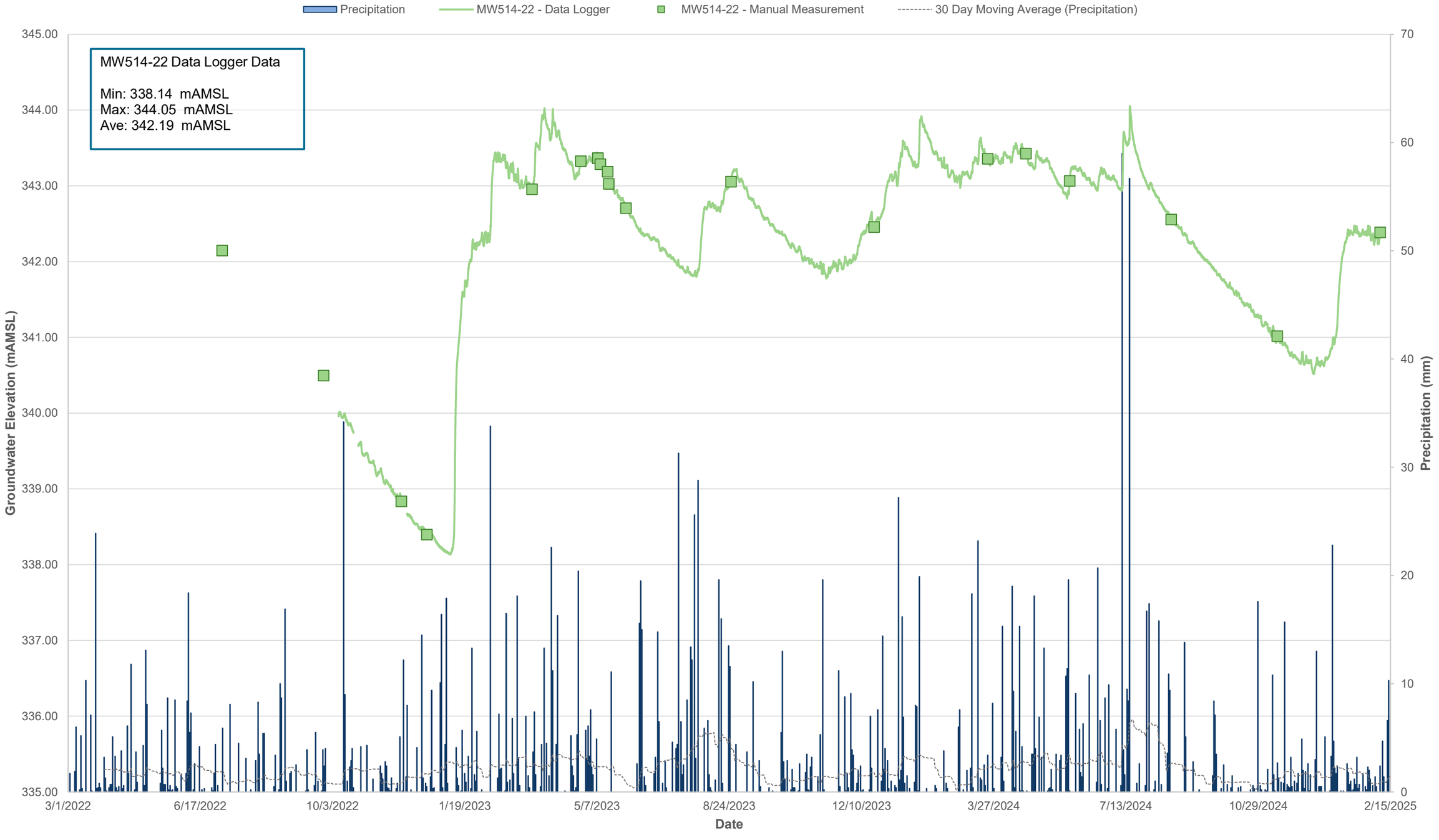
Hydrograph C3: Groundwater Elevations (mAMSL) - MW507-22



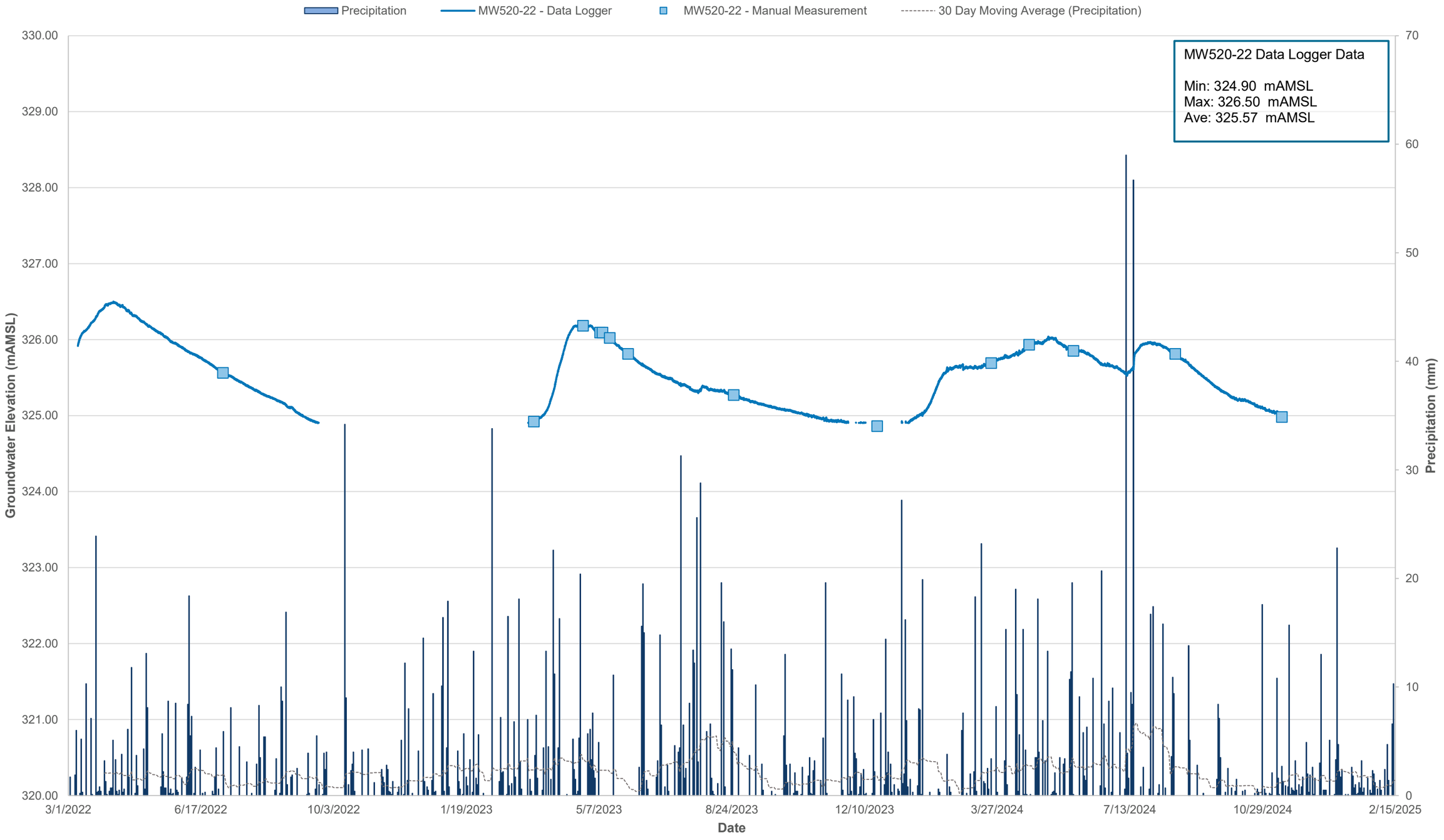
Hydrograph C4: Groundwater Elevations (mAMSL) - MW512-22



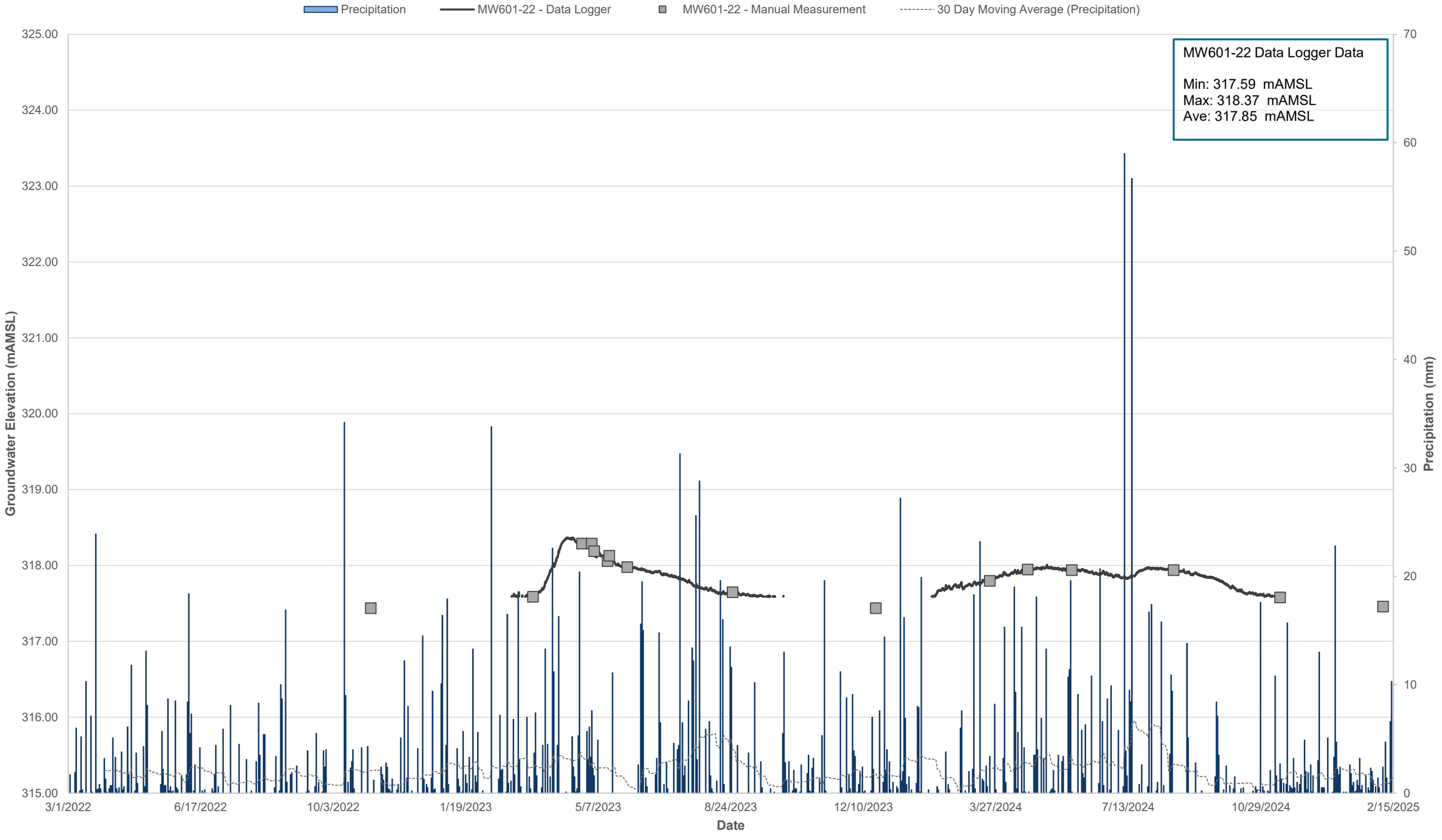
Hydrograph C5: Groundwater Elevations (mAMSL) - MW514-22



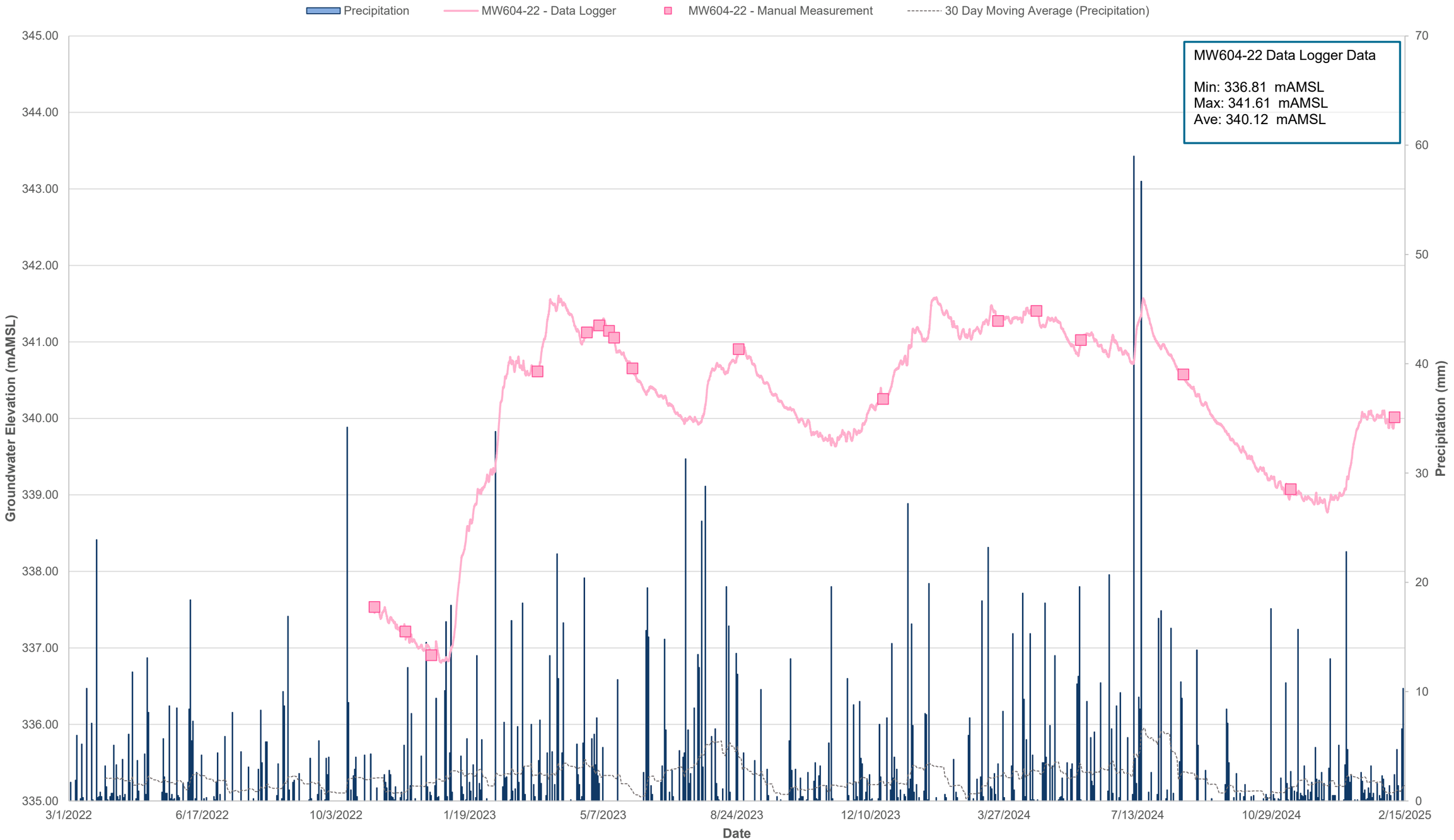
Hydrograph C6: Groundwater Elevations (mAMSL) - MW520-22



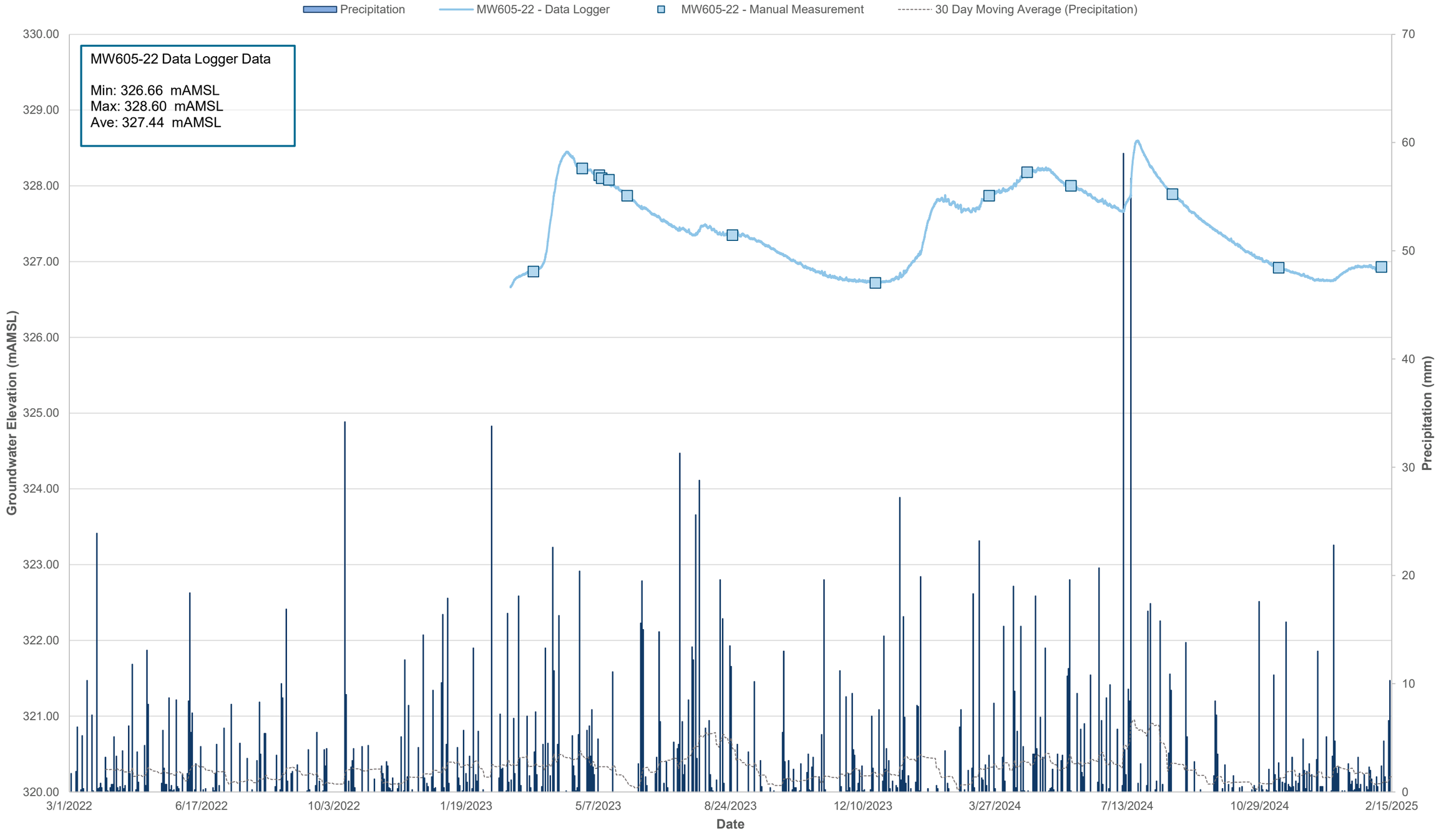
Hydrograph C7: Groundwater Elevations (mAMSL) - MW601-22



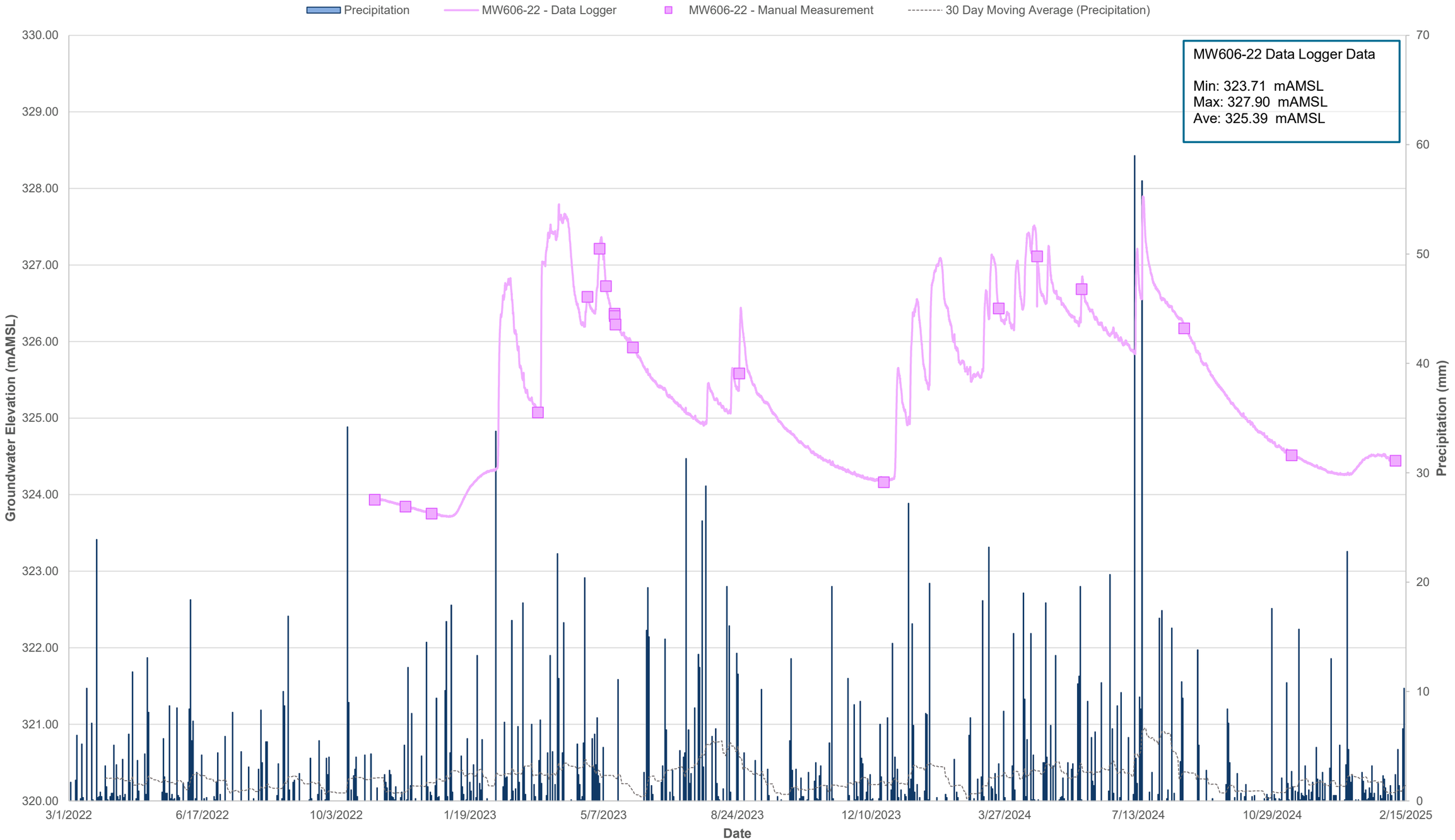
Hydrograph C8: Groundwater Elevations (mAMSL) - MW604-22



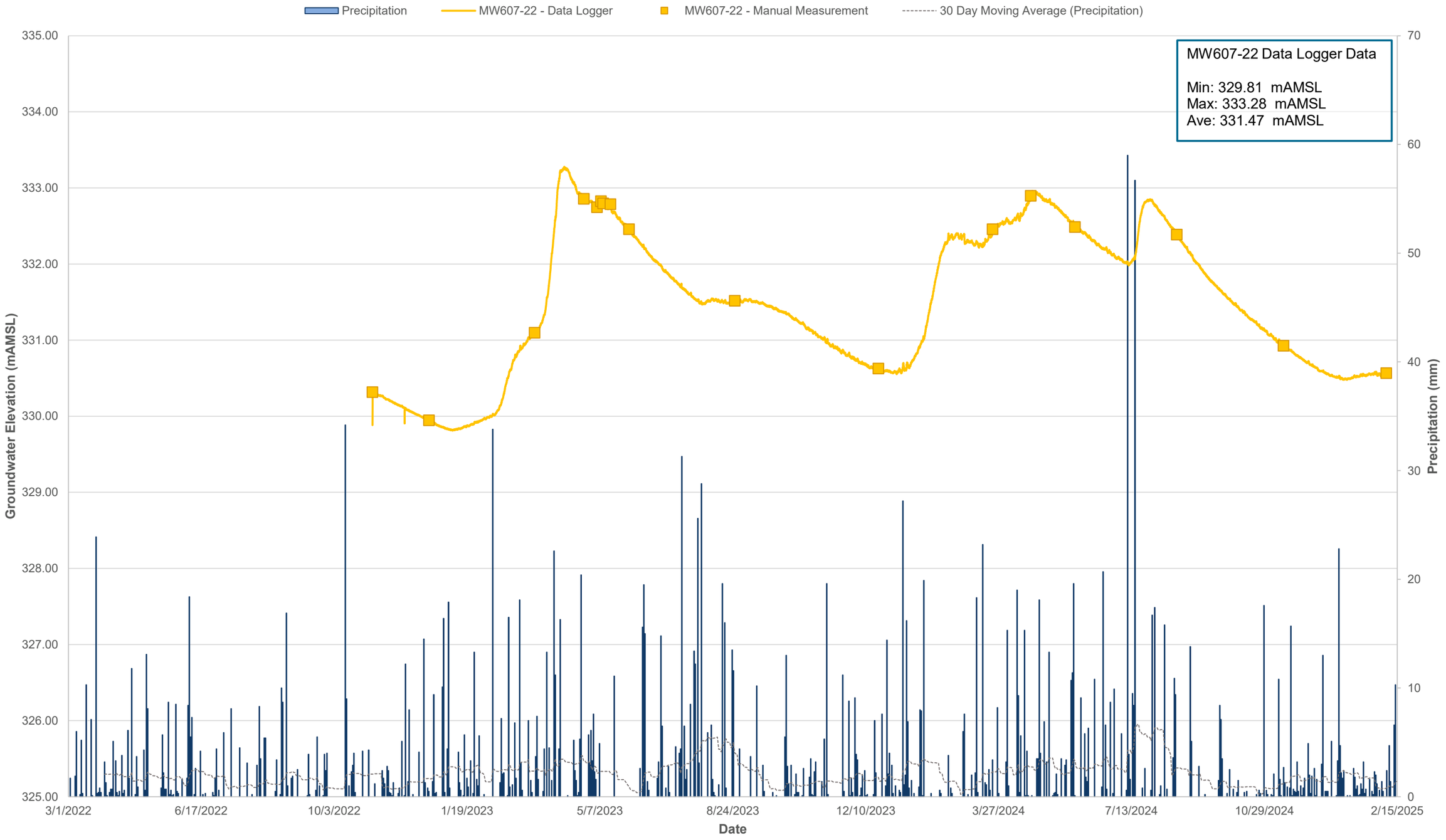
Hydrograph C9: Groundwater Elevations (mAMSL) - MW605-22



Hydrograph C10: Groundwater Elevations (mAMSL) - MW606-22



Hydrograph C11: Groundwater Elevations (mAMSL) - MW607-22



Hydrograph C12: Groundwater Elevations (mAMSL) - MP101-23