



**CHUNG & VANDER DOELEN**  
ENGINEERING LTD.

**PRELIMINARY HYDROGEOLOGICAL INVESTIGATION  
POLOCORP FERGUS SUBDIVISION – PHASE 1**

**968 St. David Street North  
Fergus, Ontario**

**SUBMITTED TO:**

Mr. Mike Puopolo  
Polocorp Inc.  
379 Queen Street South  
Kitchener, ON  
N2G 1W6



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January 31, 2025  
**FILE NO.: 1495**

Mr. Mike Puopolo  
Polocorp Inc.  
379 Queen Street South  
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N2G 1W6

Dear Mr. Puopolo:

**RE: Preliminary Hydrogeological Investigation**  
**Polocorp Fergus Subdivision – Phase 1**  
**968 St. David Street North, Fergus, Ontario**

This report summarizes the preliminary results of a hydrogeological investigation completed in support of a proposed subdivision containing a combination of residential single units, stacked townhouses, mixed-use units, roadways, a stormwater management facility, parkland, and other environmental features located at 968 St. David Street North in Fergus, Ontario.

If you have any questions or concerns regarding the report, please contact the undersigned.

Yours truly,  
**CHUNG & VANDER DOELEN ENGINEERING LTD.**

Peter Dao, M.Sc., P.Geo.  
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## 1.0 INTRODUCTION

Chung & Vander Doelen Engineering Ltd. (CVD) has been retained by the 'Client', Polocorp Inc., to complete a hydrogeological investigation for the property located at 968 St. David Street North in Fergus, Ontario ("Site"), as part of the Phase 1 development of the Polocorp Fergus Subdivision. The currently planned development comprises of Lot 18, Concession 16 of the Subject Lands.

The purpose of the investigation is to evaluate existing hydrogeological conditions at the Site in support of a proposal for a residential subdivision and subsequent development, comprised of a combination of residential single units, stacked townhouses, mixed-use units, roadways, a stormwater management facility, and park.

This report presents the preliminary findings of the ongoing hydrogeological investigation, conducted between February and September 2024 for the proposed subdivision. At the time of the writing of this report, only a Draft Plan of Subdivision (Polocorp Inc., December 10, 2024), as provided in Appendix A, was available for our review.

The 19.39±-hectare (ha) Site is currently comprised of a cultivated agricultural field, a residential dwelling fronting St. David Street North and its related structures, and a small wetland in the southeast corner of the Site. The Site is bound by St. David Street North to the west and predominantly by agricultural lands to the north, east, and south. An existing residential subdivision is situated directly southeast of the southeastern corner of the Site. Figure 1 shows the location of the subject Site in the Town of Fergus.

It is understood that the Site is to be fully municipally serviced with the water and wastewater services and will include the construction of a 2.41± ha sized stormwater management (SWM) facility within the southwest corner of the Site, and a roadway network throughout the subdivision, connecting it to St. David Street North, within the west portion of the site. This investigation characterizes the hydrogeological setting and assesses potential impacts from future servicing. Other characteristics of the future development are to include a 0.81± ha sized park (Block 25) and a 3.34± ha sized environmental feature and buffer. The existing wetland will be maintained as part of this environmental feature post-development.

The overall objectives of the hydrogeological investigation are as follows:

1. To characterize the hydrogeologic setting, using data from the current and previous investigations, with primary emphasis on the near surface hydrogeologic setting.
2. To assess the roles (or functions) that groundwater and surface water have with respect to the wetland and other environmental features at or adjacent to the property.
3. To identify and evaluate potential impacts and opportunities to enhance groundwater and surface water contribution to receptors from the proposed development, and to make recommendations to safeguard these features from the potential impacts associated with the development.



As this is a preliminary report, early in the investigation process, the objectives above cannot be fully addressed at this time. An updated report will be provided after the completion of the investigative scope of work.

## **2.0 INVESTIGATION SCOPE**

### **2.1 BACKGROUND DATA REVIEW**

The following background information (Section 8.0 lists the specific information), which has been considered and reviewed as part of this investigation:

- CVD Engineering Ltd.; Preliminary Geotechnical Investigation (May 28, 2024)
- Golder; Hydrogeological Investigation, 8243 and 8282 Wellington Road 19, Ontario (February 2022)
- Grounded Engineering; Hydrogeological Assessment, 350 Wellington Road 7, Elora, Ontario (October 2022)
- Government of Canada Environment and Natural Resources; Historical Data; Fergus Shand Dam Weather Station; 2024 Daily Data Reports
- Grand River Conservation Authority; ESRI; ArcGIS; Map Your Property Tool (2024)
- Karrow, P.F.; Pleistocene Geology of the Guelph Area, Southern Ontario; Geological Report 61; Map 22153, scale 1:63,360 (1968) (Figure 2)
- Matrix Solutions Inc.; Centre Wellington Scoped Tier Three Water Budget Assessment (December 2017)
- Polocorp; Draft Plan of Subdivision (December 10, 2024) (Appendix A)
- MECP Water Well Records near Site (Appendix G)
- Toporama Topographical Map (Ministry of Natural Resources, Retrieved June 11, 2024) (Figure 1)
- WSP Canada Inc.; Hydrogeological Investigation - Updated, 8243 and 8282 Wellington Road 19, Ontario (April 2023)

### **2.2 BOREHOLE DRILLING & MONITORING WELL INSTALLATION**

As part of both the initial hydrogeological and preliminary geotechnical investigations completed between January 15 and 17, 2024, five (5) boreholes were advanced to depths of between 5.20 and 8.25 m below existing grade, and monitoring wells were installed at each borehole location (labelled BH 4 to 8). A supplemental investigation was completed, between September 9 and 12, 2024, in which eight (8) additional boreholes/monitoring wells (labelled BH 106 to 113) were drilled and installed to a depth of 6.55 m below grade. These boreholes/wells were drilled/installed to investigate the shallow subsoil and shallow groundwater table conditions at the property.

The investigation was completed using a track-mounted CME-55 drill rig, equipped with standard 83 mm inner diameter hollow stem augers (HSA) operated by Davis Drilling Ltd. of Milton, Ontario. Soil samples collected during the borehole investigation program were examined in the field and subsequently



brought to CVD's laboratory for tactile and textural examination. Moisture content determinations were performed on all retrieved soil samples from the drilling program.

The ground surface elevation of the boreholes, monitoring wells, and geomorphological features of the site were surveyed by CVD for the purpose of this report using a Network RTK Global Navigation Satellite System (GNSS) Receiver. The survey data was collected using the UTM Zone 17N Projection, NAD83(CSRS)v7-2010 datum and Canada Geoid Model HT2\_2010v70 (CGVD28).

## 2.3 DRIVE-POINT PIEZOMETER INSTALLATION

Shallow drive-point piezometers (DP) were installed at three (3) wetland/water course locations (DP1 to DP 3D, Figure 4) on November 10, 2023, and an additional (1) shallow piezometer (DP 3S) was installed on March 11, 2024, beside DP 3D. Furthermore, four (4) additional piezometers (DP 4S/4D and DP 5S/5D) were installed in other areas of the wetland as part of the September 2024 supplemental investigation. The piezometers were installed to investigate both groundwater and surface water levels (i.e., both inside and outside the piezometers) to characterize the groundwater-dependent features for the Grand River Conservation Authority (GRCA) regulated wetland, located within the southeast section of the Site. DP 1 was installed in the southern corner of the wetland at the edge of a pond connected to a stream travelling in a southern direction. DP 2 was installed roughly in the western central edge of the wetland, amongst cattails and other marsh-related vegetation, in what is likely an intermittent stream. DP 3S/3D were installed near the northwest edge of the wetland, in an area with no standing water. DP 4S/4D and DP 5S/5D were installed in the central area of the wetland – DP 4S/4D was installed in standing water (September) while the area surrounding DP 5S/D contained marsh-like vegetation but no standing water. According to the Grand River Conservation Authority (GRCA), the wetland in which DP 1, 2, 4S/D, and 5S/D are located is what is considered as a marsh, while the wetland beside DP 3S/3D is classified as a swamp. Figure 4 shows the locations of the drive-point piezometers within the wetlands and water courses.

The procedure for installing each drive-point piezometer was as follows: 1) auger a 0.85 m hole through the upper soil layers to observe the stratigraphy and groundwater conditions of the location 2) attach a 0.30-m long, 1.9-cm diameter stainless steel piezometer tip (or screen) to a length of 1.9-cm threaded steel riser pipe, 3) drive the assembled piezometer from ground surface to the depth desired using a post hammer, and 4) fill any annular space around the pipe with bentonite to prevent surface water from moving directly along the annulus to the piezometer screen.

## 2.3 WELL DEVELOPMENT, WATER LEVEL MONITORING, & RESPONSE TESTS

Each monitoring well was developed using Waterra™ polyethylene tubing and foot-valve hand pumps. As of the writing of this report, groundwater level monitoring was performed on five (5) occasions: on February 6, March 11, July 22, September 12, and September 18, 2024. Groundwater levels were obtained at all of the monitoring wells and piezometer locations during each occasion. Table 1 provides a summary of the groundwater levels and calculated elevations for the five monitoring events. Four (4) water level measurements were recorded from the drive point mini piezometers; DP 1 to DP 3D starting



in November 2023; however, the results have not yet been completed and will be included in future revisions of the report once more data is collected.

Well response tests (slug/bail tests) were completed at three (3) of the monitoring well locations (Boreholes 5 to 7) on March 11, 2024, to provide a more accurate estimate of the hydraulic conductivity (K) (or permeability) of the saturated aquifer subsoil strata, to assist in providing more accurate infiltration rates. The hydraulic conductivities were calculated through the Aquifer Test software utilizing the Bouwer and Rice method. The results of the tests are graphically presented in Appendix C, and a summary of the data is also included in Table 1.

Furthermore, five (5) grain size distribution analyses were carried out on representative subsoil samples to help identify and assist in providing estimates of hydraulic conductivities for the encountered groundwater-bearing subsoil deposits. The results of these tests are presented in Enclosures 22 and 28.

Additionally, to provide a more comprehensive summary of groundwater conditions at the Site, six (6) Van Essen DI801 10 m TD-Diver automated data loggers and one (1) Baro-Diver were installed in wells BH 5, 7, 101, 106, 111, and 113. Furthermore, two (2) DI601 10 m Micro-Divers were installed in DP 1 and DP 3D. The automated monitoring at these wells/piezometers using the dataloggers is currently ongoing.

### **3.0 SITE CHARACTERIZATION**

#### **3.1 TOPOGRAPHY, DRAINAGE & WETLAND FEATURES**

The Site is within the Upper Grand River watershed and is fully encompassed within the West Montrose – Grand River subwatershed. Locally, the groundwater table and any surface water runoff traverses across the site in a generally north to south orientation, towards the southwestern corner of the property and towards the wetland, located within the southeastern corner/side of the Site.

According to the Grand River Conservation Authority (GRCA), the wetland within the southeastern corner of the Site is GRCA regulated and is split into two categories: marsh and swamp. Roughly the northern third of the wetland and a small section of the southeastern side of the area are designated as a swamp wetland, while the remainder of the wetland is designated as a marsh. The wetland extends past the southern confines of the Site and includes multiple ponds connected by perennial streams. Occasional intermittent streams can be observed travelling along the north-south axis across the wetland, towards the southern streams/ponds. Various trees, frequent cattails, and other marsh-related vegetation are present throughout most of the wetland. The GRCA mapping for the regulated lands abreast of the wetlands and water courses are shown on Figure 3.

Regionally, the surface topography decreases significantly towards Guelph and Kitchener/Waterloo, and generally increases north, towards The Grand Valley and Arthur. Elevations also decrease westward, towards Listowel, and significantly decrease eastward, towards Brampton. Currently, the topography in the area is formed from the most recent glacial activity (Wisconsin). The area around Fergus is full of



kames associated with the Orangeville Moraine (Karrow, 1968). Figure 1 shows the topographic contours across the site.

Local Site topography is considered 'rolling land', with ground elevations from north to south across the site ranging from 427± to 420± mASL. There is also generally a slight increase in surface elevation from east to west, across the Site. The current terrain on-Site is relatively even, with no major undulations, or topographical features. In general, runoff will mimic topography flowing to low elevations where water courses and wetlands are present. As a result, surface runoff from the farm fields is anticipated to be primarily controlled by topography and to drain towards the relatively lower lying south/wetland portion the property.

Excluding the wetland, most of the Site consists of a farm field with occasional minor residential/grassy areas fronting St. David Street North.

### 3.2 GEOLOGIC SETTING

Surface geological mapping for the area (by Karrow P.F., 1968) is presented in the Quaternary Geology map of Figure 2. According to Karrow (1968), the the Site is primarily underlain by lacustrine, kame deposits, comprising mainly outwash sands, with an underlying Wentworth till unit. Both deposits were laid down during the late Wisconsinan stage of the Pleistocene period. The local topography of the area has been largely influenced by the presence of The Wentworth Till. The entire area is underlain by dolostone bedrock of the Guelph Formation. This is confirmed through the MECP well record data for drinking water wells in the area surrounding the property, as included in Appendix G. According to the records, bedrock was encountered at depths between 24± and 32± m below existing grade (mbeg). Bedrock outcrops can be found in certain areas around Fergus and are notably present towards the southwest within the Elora Gorge.

The monitoring well-recorded data and borehole log data (Enclosures 4 to 8 and 14 to 21) collected during the Site investigation are generally consistent with Quaternary geological mapping. Based on the drilled boreholes, the surficial and subsoils encountered generally consisted of topsoil underlain by a 0.5 to 1.5 m thick layer of sandy silt to silty sand, in turn underlain by a major layer of fine sand with trace to some silt. North of the Site, fine sand deposits can extend deeper than 9.60 mbeg but only extend to 1.85 mbeg beneath the south portion (BH 7). Boreholes 109 to 113 contained only minor sand seams. The subsoil here is predominantly composed of sandy silt to silty sand and/or silt, underlain by a clayey silt till/sandy silt till deposit. Similarly, a clayey silt till with some sand content, ranging from trace sand to sandy was encountered in Boreholes 6 to 8, underlying the sand deposit. Based on the findings from the subsurface investigation, it appears that the contact depth of the clayey silt till/sandy silt till layer increases in elevation towards the south part of the property. This geological unit is probably the Wentworth Till deposit, referred to in Karrow (1968); however, it should be noted that the deposit was not encountered during this investigation anywhere in the north portion of the Site as was depicted in the geological maps. Occasional silt layers were also encountered interlayered with the clayey silt till.



### 3.3 HYDROGEOLOGIC SETTING

#### 3.3.1 Water Table Depth and Configuration

The water table exists predominantly within the shallow fine to granular deposits (fine sand, sandy silt to silty sand, and silt subsoils) encountered beneath the entire Site. The encountered depth of the groundwater table greatly reduces from north to south across the property. Table 1 summarizes the groundwater level measurements collected thus far during this investigation from the period extending from February 2024 to September 2024 at all of monitoring well locations.

Figure 5 presents an interpretation of the water table configuration and shallow groundwater flow directions across the property using the groundwater elevation measurements gathered on September 18, 2024. As expected, the water table mimics the topography with shallow groundwater flowing southerly towards the southeastern portion of the Site in the direction of the wetland. Additionally, groundwater appears to also flow into the existing drainage feature located within the southwestern corner of the Site.

During the monitoring period, according to the gathered data, groundwater levels were encountered at depths ranging between 2.02 (BH 5) and 0.52 mbeg (BH 8), corresponding to elevations ranging between 423.59 and 420.50 masl according to the July 22, 2024, water levels measurements. It should be noted that these high-water levels documented during the summer season are likely caused by the abnormally high amount of precipitation experienced throughout the first half of 2024. Furthermore, groundwater level monitoring is required to understand the seasonal and yearly variability in groundwater elevations across the Site. Ongoing groundwater monitoring is being conducted on a seasonal basis to provide an evaluation of the seasonal variability of the groundwater table and its fluctuations. Appendix D includes a summary table of measured groundwater levels (Table 1) and interpreted hydrographs collected during the monitoring period. The hydrographs were plotted against monthly precipitation data sourced from the Government of Canada Environment and Natural Resources Daily Data Reports for the Fergus Shand Dam weather station, the nearest active weather station to the Site.

#### 3.3.2 Groundwater Infiltration and Recharge

Groundwater infiltration rates are expected to vary across the Site; however, due to the general predominance of shallow fine grained sand deposits throughout the entire Site, infiltration rates are expected to be generally fast. Infiltration and recharge areas are also heavily influenced by the topographical features of the land, which in this case promotes shallow groundwater to flow towards the south.

Based on the single well response tests and physical examination of the soil deposits, the correlating estimated infiltration rates for the various surficial soils at the property range as follows:

- Fine to Medium Sand: 75 to 150 mm/hr
- Silty Sand: 15 to 30 mm/hr



- Sandy Silt to Sand and Silt: 10 to 20 mm/hr
- Silt: 3 to 5 mm/hr
- Clayey Silt Till: <1 mm/hr

According to data layers provided from the GRCA-Web GIS application, the property has a recharge rate of  $320\pm$  to  $370\pm$  mm/year. Recharge/infiltration should be high due to the ubiquitous presence of the fine sand deposit and its overall 'dry' condition, especially within the northern section of the Site where the water table during the peak groundwater elevation period (February to March 2024) was encountered at depths of between  $2\pm$  to  $3\pm$  mbeg.

During the period of higher groundwater elevations, expected during the spring and fall, infiltration is expected to be reduced in the wetland; however, considering the intermittent nature of the streams and surface water features in the marsh section of the wetland, infiltration will likely increase during the summer and fall seasons as the water table lowers. A large portion of the wetland is interpreted to promote groundwater recharge, as will be further discussed in the next section.

### 3.3.3 Groundwater / Surface Water / Wetland Interaction

The interactions occurring in the wetland area were examined based on both field observations and surface water/groundwater level data gathered at the five (5) mini-piezometer locations: DP1, DP2, DP3S/3D, DP 4S/4D, and DP 5S/5D (Figure 4). It is interpreted that a large portion of the wetland located on the estate is largely intermittent in nature, with more perennial surface water features located south of the property.

DP 1, which is located within a pond on the southwestern edge of the wetland, has continually exhibited a noticeable positive vertical hydraulic gradient (VHG) since installation, evidence that this is primarily a groundwater discharge area. Based on the current collected data and field observations, the surface water features in this area are some of the only perennial groundwater features found on the property and they are connected to the larger streams and ponds found south of the Site. Aside from groundwater discharge to maintain the wetland, surface water runoff also aids in maintaining these features since they are located in the relatively lowest section of the property in an area where there are fewer sand deposits, and higher amounts of clayey silt/sandy silt till deposits, and an overall higher groundwater table, all of which reduces potential infiltration of surface water and helps drive runoff towards the wetland.

The data collected at DP 2 shows a variable nature, switching from a clearly negative VHG from November to December 2023, indicating groundwater recharge, to a neutral VHG from February to July 2024. This is likely symptomatic of the conjectured intermittent nature of the marsh surface water features.

The preliminary groundwater data collected during September 2024 from both DP 4S/4D and DP 5S/5D show a clearly negative (recharging) VHG; however, it is predicted that the groundwater within these piezometers will also show intermittent behavior. More data is required to provide firm conclusions.





So far, not enough data has been collected at DP 3S/3D to provide an adequate evaluation of the conditions existing in that section of the eastern wetland. An initial comparison of the groundwater elevations (September 2024) with the mini piezometers to the groundwater elevations collected in the nearby well BH 107, potentially suggests a neutral VGH at the time of measurement. More data is required to provide firm conclusions.

### 3.4 SOURCE WATER PROTECTION AND GROUNDWATER USE

The entire Site is located within the Fergus Wellhead Protection Area (WHPA). Fergus currently has six (6) municipal supply wells (wells F1, F2, F4, F5, F6, F7), with the Site located in between three of these wells (F4, F6, F7). According to data provided on the GRCA-Web GIS application, most of the property is classified as WHPA-C, denoting an area in which travel time is between 2 to 5 years, and with a vulnerability score of 6. The entire eastern boundary of the Site falls within WHPA-B for the municipal well, F6, denoting an area in which the groundwater travel time to the well is 2 years or less, and having a vulnerability score of 8. Both sections are considered to have a medium vulnerability. It should also be noted that the Belwood Reservoir, where the lake levels are controlled by the Fergus Shand Dam, is located along the Grand River, upstream of Fergus.

All six (6) of the existing municipal supply wells pump groundwater from the dolostone bedrock aquifers of the Guelph, Gasport, and Goat Island Formations. They are both primarily cased and open in the Guelph Formation dolostone. One of these six wells (F2), which is now inactive, is a well with groundwater under the direct influence of surface water (GUDI). Transmissivity values of the Fergus wells range between 52 to 395 m<sup>2</sup>/day (Matrix Solutions Inc., 2017). The wells were drilled to depths of between 76.5 mbeg (F2) and 138.7 mbeg (F7).

Regarding the water quality at the Site, three (3) groundwater samples were submitted from monitoring wells at BH 5, 6, and 7 for analysis of general chemistry, nutrients, and metals. These samples were submitted to the AGAT Laboratories of Mississauga for testing/analysis, with results being provided in Appendix F. No major concerns were identified. Elevated levels of iron were present which exceed the aesthetic drinking water objectives; however, this is naturally occurring within the shallow groundwater of the area. Minor amounts of cadmium, cobalt, copper, vanadium, and zinc were also detected. Slightly elevated amounts of sulphate were also detected in the monitoring wells BH 5 and 7, and slightly higher amounts of nitrate were detected in BH 6, likely caused by on-going agricultural activity. Nitrate and nitrite levels measured at BH 7, in the proposed area for the SWM facility, met Ontario Drinking Water Standard criteria. No chemical threats to groundwater at the Site were detected.

## 4.0 WATER BUDGET ASSESSMENT

### Pre-Development Water Balance

Precipitation ultimately becomes split into three 'water budget' components: evapotranspiration, runoff, and recharge, with the latter two often referred to together as 'the water balance' (i.e., the remainder after evapotranspiration is removed). Groundwater recharge rates will vary at a given site





based on the permeability of the surficial deposits but will also depend on topography and type of vegetative cover. Most of the subject property has been historically agricultural and has had different types of crops depending on the year, with no crop planted at all during certain portions of the year. During fall to summer 2024, winter wheat was being grown.

A pre-development water balance for the property has been estimated using the Water Balance Method (WBM) of Thornthwaite and Mather (1957), a method cited in the MECP document “Stormwater Management Planning and Design Manual” (March 2003) to estimate evapotranspiration. The calculations utilize the 1981-2010 ‘Climate Normals’ from the closest weather station located at the Fergus Shand Dam (gives an annual precipitation rate of 946 mm/yr) and considers a combination of cultivated land use with moderately deep-rooted crops (e.g. wheat), pasture & lawns, wetland, and impervious surfaces. Using these conditions, the subject site has an average evapotranspiration rate of about 56.5% (or 536 mm/yr) and remaining ‘water balance’ of about 43.5% (410 mm/yr) is estimated. The 2003 MECP document also provides a methodology for estimating the proportions of the water balance that ultimately become runoff vs. recharge, based on applicable infiltration factors for soil, vegetative cover, and topography.

The overall water balance and water budget calculations are included in Appendix E. In summary, the pre-development average annual water budget for the 19.39± ha property is as follows:

A) Pervious Cultivated Land of 14.35 ha

|                    |                  |                                |
|--------------------|------------------|--------------------------------|
| Precipitation      | 946 mm/yr        | 135,737 m <sup>3</sup> /yr     |
| Evapotranspiration | 536 mm/yr        | 76,876 m <sup>3</sup> /yr      |
| Water Balance      | 410 mm/yr        | 58,861 m <sup>3</sup> /yr      |
| <b>Recharge</b>    | <b>287 mm/yr</b> | <b>41,202 m<sup>3</sup>/yr</b> |
| Runoff             | 123 mm/yr        | 17,658 m <sup>3</sup> /yr      |

B) Pervious Pasture & Lawns of 1.50 ha

|                    |                  |                               |
|--------------------|------------------|-------------------------------|
| Precipitation      | 946 mm/yr        | 14,189 m <sup>3</sup> /yr     |
| Evapotranspiration | 536 mm/yr        | 8,036 m <sup>3</sup> /yr      |
| Water Balance      | 410 mm/yr        | 6,153 m <sup>3</sup> /yr      |
| <b>Recharge</b>    | <b>308 mm/yr</b> | <b>4,615 m<sup>3</sup>/yr</b> |
| Runoff             | 103 mm/yr        | 1,538 m <sup>3</sup> /yr      |

C) Pervious Woodland & Wetland of 3.34 ha

|                    |                  |                                |
|--------------------|------------------|--------------------------------|
| Precipitation      | 946 mm/yr        | 31,593 m <sup>3</sup> /yr      |
| Evapotranspiration | 536 mm/yr        | 17,893 m <sup>3</sup> /yr      |
| Water Balance      | 410 mm/yr        | 13,700 m <sup>3</sup> /yr      |
| <b>Recharge</b>    | <b>328 mm/yr</b> | <b>10,960 m<sup>3</sup>/yr</b> |
| Runoff             | 82 mm/yr         | 2,740 m <sup>3</sup> /yr       |



D) Impervious Rooftops to Pervious Areas of 0.20 ha

|                    |                  |                             |
|--------------------|------------------|-----------------------------|
| Precipitation      | 946 mm/yr        | 1,892 m <sup>3</sup> /yr    |
| Evapotranspiration | 95 mm/yr         | 189 m <sup>3</sup> /yr      |
| Water Balance      | 851 mm/yr        | 1,703 m <sup>3</sup> /yr    |
| <b>Recharge</b>    | <b>213 mm/yr</b> | <b>426 m<sup>3</sup>/yr</b> |
| Runoff             | 638 mm/yr        | 1,277 m <sup>3</sup> /yr    |

Assuming that the wetland area is to remain undeveloped, the target recharge quantity for matching in post-development is 46,243 m<sup>3</sup>/yr. Recharge can likely be met through a stormwater management design utilizing enhanced infiltration facilities as Low Impact Development (LID) infrastructure for the developed site.

## 5.0 SITE SERVICING REQUIREMENTS & IMPACT ASSESSMENT

### 5.1 WASTEWATER SYSTEMS & POTENTIAL IMPACT OF EFFLUENT

The proposed subdivision will be connected to municipal sanitary sewers. No private wastewater treatment system requirements are anticipated for the proposed subdivision.

### 5.2 WATER SUPPLY & POTENTIAL IMPACT OF WATER TAKING

The proposed subdivision will be serviced by municipal water services. No private water supply service requirements are anticipated.

### 5.3 STORMWATER MANAGEMENT & POTENTIAL IMPACT TO GROUNDWATER RECHARGE

The proposed subdivision will be serviced by municipal stormwater management works; however, at the time of the writing of this report, aside from an overall concept, no specific design drawings/plans were available. As the realization of the project proceeds, addendums addressing stormwater management and any theoretical impacts to groundwater recharge including proposed LID infrastructure at the Site may be provided during the detailed design stage.

It is understood that a 2.41± ha SWM facility is to be constructed in the southwestern area of the Site. The general shallow groundwater gradient travels towards the proposed location of the SWM facility. The fine sand deposits generally thin out while simultaneously, the clayey silt till deposits rise in elevation towards the south of the property. Groundwater levels in the area ranged from the depths of 0.2± to 0.5± mbeg (elevations 420.6± to 421.4± mASL) during the winter to spring 2023-2024, corresponding to the high-water table. Since it is recommended that the base of any infiltration facilities be situated no less than 1 m above the seasonally high-water table to ensure reliable infiltration functionality, the SWM facility will likely have to be raised or redesigned in a way to avoid the



near-surface shallow groundwater table.

Further groundwater monitoring is being performed to better understand the water table and its seasonal variations to support development design.

Due to the abundance of ‘dry’ and highly permeable sands throughout much of the Site, infiltration galleries, open ditches and/or swales, and or soak away pits can be constructed into the sandy soils to maintain pre-development recharge rates. Further recommendations may be provided once a more detailed plan is available.

It is important to ensure that the adjacent regulated wetland east of the proposed SWM facility is not negatively impacted following development. The current conceptual plan (July 2024) proposes a 10 m buffer zone between the wetland and the remainder of the Site. During the design of the stormwater facilities, it is critical that water balance and quality of water are maintained throughout the property, and any potential effects associated with erosion and sedimentation control to the topographical /environmental features are properly designed and controlled.

The Stormwater Management Planning and Design Manual (March 2003) provided by the Ministry of Environment may be used as a reference to the planning of the stormwater systems. Additionally, the Township of Centre Wellington Sewer Use By-Law No. 2022-66 should be consulted.

## 6.0 CONCLUSIONS & RECOMMENDATIONS

Based on the results of the hydrogeological investigation described in this report, the following conclusions and recommendations are provided.

1. The subject property is predominantly underlain by fine sand deposits of the late Wisconsin stage of the Pleistocene period, which reduces in thickness from north to south across the property. A clayey silt till/sandy silt till deposit, likely the Wentworth Till, underlies the fine granular deposits and generally increases in contact elevation to the south. During the spring to early summer 2024 period, the groundwater table depth depths ranged between 0.25 (BH 8) and 2.10 mbeg (BH 5) across the property, corresponding to elevations between 423.62 (BH 5) and 420.76 (BH 8) masl.
2. Topography decreases in elevation from north to south with ground surface elevations approximately ranging from between 427± to 420± mASL. Shallow groundwater generally mimics the topography of the Site and flows towards the southwestern corner of the property and towards the southeastern wetland.
3. Due to the predominance of the underlying fine sand deposits with a high infiltration rate (100 mm/hr), and the relatively deeper lying groundwater table beneath the north section of the site (2± to 3± mbeg, March 2024), infiltration/recharge opportunities throughout the Site should be abundant. Based on the calculated pre-development water balance, the Site has an average evapotranspiration rate of about 56.5% (or 536 mm/yr) and a remaining ‘water balance’ of about



43.5% (410 mm/yr) is estimated. Assuming that the wetland area is to remain undeveloped, the target recharge quantity for matching in post-development is 46,243 m<sup>3</sup>/yr.

4. The wetland area is split into two categories: swamp and marsh. Currently, the available data suggests that much of the wetland area is considered to have intermittent surface water features which are primary involved in groundwater recharge and infiltration. However, perennial swamps and streams do exist within the southern portion of the wetland at the southwestern edge of the Site, where an upward vertical hydraulic gradient and an overall groundwater discharge condition has been observed.
5. The property falls within the Fergus Wellhead Protection Area (WHPA) and is currently classified as WHPA-C and WHPA-B with an overall medium vulnerability rating between 6 and 8. The property is located between three (3) of the six (6) Fergus municipal supply wells. No chemical threats or concerns were identified within the property bounds.
6. Site servicing (wastewater, water supply, stormwater management) for the development is to be fully municipally supplied. At the time of the writing of this report, aside from a general concept plan showing the location of the proposed SWM facility, no specific design drawings / plans were available. It is also recommended that as design plans are updated and information becomes available, addendums be added to address the specific site servicing issues. Furthermore, groundwater monitoring should be completed to aid in the design and location of the proposed SWM facility and any proposed LID, infiltration infrastructure.
7. Seasonal groundwater monitoring is incomplete and is ongoing at the Site to better characterize the hydrogeological setting and groundwater/surface water interactions.
8. It is recommended that once finished floor elevations and a site grading plan are available, that CVD be retained to review the final design and provide updates to the recommendations and conclusions provided in this report. Based on the final design, additional boreholes/monitoring wells might be required to delineate the extent of the water table and provide additional information.



## 7.0 CLOSING

This hydrogeological investigation report has been prepared for the exclusive use of the Client and their assigns for specific application to this project property.

The assessment was conducted in accordance with the verbal and written requests from the Client, and generally accepted assessment practices. Performance of this assessment is intended to reduce, but not eliminate, uncertainty regarding the hydrogeological conditions encountered at the project site, given reasonable limits of time and cost. No other warranty, expressed or implied, is made.

We trust this report is sufficient for your immediate requirements. If you have any questions, please do not hesitate to contact the undersigned.

Respectfully submitted,  
**CHUNG & VANDER DOELEN ENGINEERING LTD.**



Yaroslav Chudin, EIT  
Geotechnical Engineering Intern



Gavin R. O'Brien M.Sc., P.Ge.  
Senior Hydrogeologist



Peter Dao, M.Sc., P.Ge.  
Manager, Environmental & Hydrogeology



## 8.0 REFERENCES

The following documents, maps, or other publications have been used in the preparation of this report.

- “Centre Wellington Scoped Tier Three Water Budget Assessment”, Matrix Solutions Inc. (December 2017).
- “Draft Plan of Subdivision”, Polocorp (December 10, 2024).
- “Historical Data; Fergus Shand Dam Weather Station; 2024 Daily Data Reports” Government of Canada Environment and Natural Resources; Retrieved October 1, 202
- “Preliminary Geotechnical Investigation: Proposed Residential Subdivision”, Project No.: 1495, CVD Engineering Ltd. (May 28, 2024)
- “Hydrogeological Assessment, 350 Wellington Road 7, Elora, Ontario”, Grounded Engineering (October 2022)
- “Hydrogeological Investigation, 8243 and 8282 Wellington Road 19, Ontario”, Golder (February 2022)
- “Hydrogeological Investigation - Updated, 8243 and 8282 Wellington Road 19, Ontario”, WSP Canada Inc. (April 2023)
- “Map Your Property Tool”, Grand River Conservation Authority; ESRI; ArcGIS (2024)
- “Pleistocene Geology of the Guelph Area, Southern Ontario; Geological Report 61”, Map 22153, scale 1:63,360, Karrow, P. F. (1968).
- Toporama Topographical Map, Ministry of Natural Resources (Retrieved June 11, 2024)



## **APPENDIX A**

### **Conceptual Subdivision Plan (Polocorp, December 10, 2024)**







KEY MAP - N.T.S.

## DRAFT PLAN OF SUBDIVISION

PT OF LOT 17, CONCESSION 16  
IN THE FORMER GEOGRAPHIC TWP OF NICHOL  
CENTRE WELLINGTON

POLOCORP INC.

SCALE = 1:1400 (metric)

| DESCRIPTION                    | LOTS/BLKS. | UNITS   | AREA (ha.)   |
|--------------------------------|------------|---------|--------------|
| Single Detached                | 1-10       | 62-88   | 8.006        |
| Street Townhouses              | 11-18      | 80-118  | 6.185        |
| Medium Density                 | 19, 20     | 71-102  | 1.617        |
| Mixed Use                      | 21         | 8-14    | 0.338        |
| Existing House                 | 22         | -       | 0.330        |
| Stormwater Management Facility | 23         | -       | 2.412        |
| Trail                          | 24         | -       | 0.417        |
| Parkland                       | 25         | -       | 0.806 (5.2%) |
| Pedestrian Walkway             | 26, 27     | -       | 0.077        |
| Environmental Feature & Buffer | 28         | -       | 3.340        |
| MTO Allowance                  | 29, 30     | -       | 0.527        |
| Roads                          | -          | -       | 3.502        |
| TOTAL                          | -          | 221-323 | 19.389       |

| SALEABLE FRONTAGE | LENGTH   | UNIT SMALL  | UNIT LARGE  |
|-------------------|----------|-------------|-------------|
| Single Detached   | 1,014.5m | 36' (11.0m) | 50' (15.2m) |
| Street Townhouses | 530.0m   | 18' (5.5m)  | 27' (8.3m)  |
| TOTAL             | 1,844.5m | -           | -           |

DENSITY

|                                 |                      |
|---------------------------------|----------------------|
| Gross Area (ha)                 | 19.389 ha (47.91 ac) |
| Developable Area (ha)           | 15.477 ha (38.25 ac) |
| Net Density (upha)              | 14.3 - 20.9 upha     |
| Net People-Jobs (3.05 per unit) | 43.6 - 63.8 PU pha   |

LEGEND

- Wetland Limit
- Wetland 30m Buffer

INFORMATION REQUIRED

UNDER SECTION 51 (17) OF THE PLANNING ACT, R.S.O. 1990, c.P.13 AS AMENDED

INFORMATION REQUIRED BY CLAUSES a,b,c,d,e,f,g,j AND I ARE AS SHOWN ON THE DRAFT PLAN.

(h) Municipal Water Supply

(i) Sandy Loam

(k) Municipal Sanitary and Storm Sewers

SURVEYOR'S CERTIFICATE

I HEREBY CERTIFY THAT THE BOUNDARIES OF THE LANDS TO BE SUBDIVIDED ON THIS PLAN AND THEIR RELATIONSHIP TO THE ADJACENT LANDS ARE ACCURATELY AND CORRECTLY SHOWN.

O.L.S. Surveying Inc. XX XX, 2024 DATE

OWNER'S CERTIFICATE

I HEREBY CONSENT TO THE FILING OF THIS PLAN BY POLOCORP INC., IN DRAFT FORM

MIKE PUOPOLO Polocorp Inc. DATE

APPROVALS

REGIONAL MUNICIPALITY OF WATERLOO APPROVAL BLOCK

# DRAFT

FOR DISCUSSION PURPOSES ONLY

APPROVED: DATE:

| DATE | BY | REVISIONS | DESCRIPTION |
|------|----|-----------|-------------|
|      |    |           |             |
|      |    |           |             |
|      |    |           |             |
|      |    |           |             |
|      |    |           |             |
|      |    |           |             |
|      |    |           |             |
|      |    |           |             |
|      |    |           |             |
|      |    |           |             |

POLOCORP

379 Queen Street South, Kitchener | N2T 1W6 | 519-745-3249 | polocorpinc.com

DATE: December 10, 2024 SCALE 1:4000 (metric)

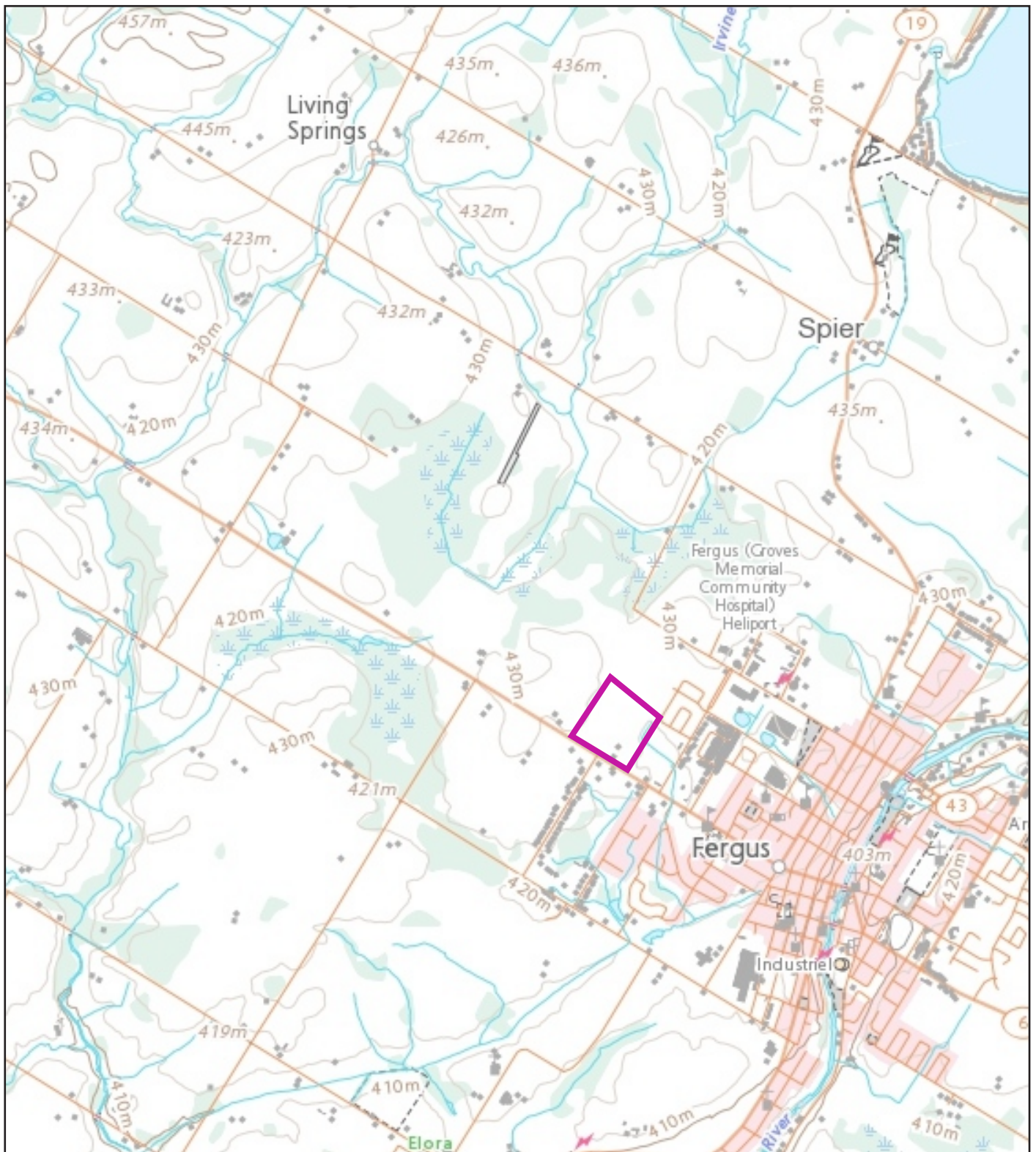
PROJECT: 1012 (Fergus) DRAWN BY: GFE



## **APPENDIX B**

**Figures 1 to 5**





## LEGEND



Subject Development Property



0 m 500 1000

Scale 1:40,000

Map Ref.: Toporama; Natural Resources Canada; GeoGratis;  
Retrieved June 6, 2024

## Figure 1 - Site Location

Hydrogeological Assessment

968 St. David Street North  
Fergus, ON

Drawn By: YC

Date: Jan. 30/24

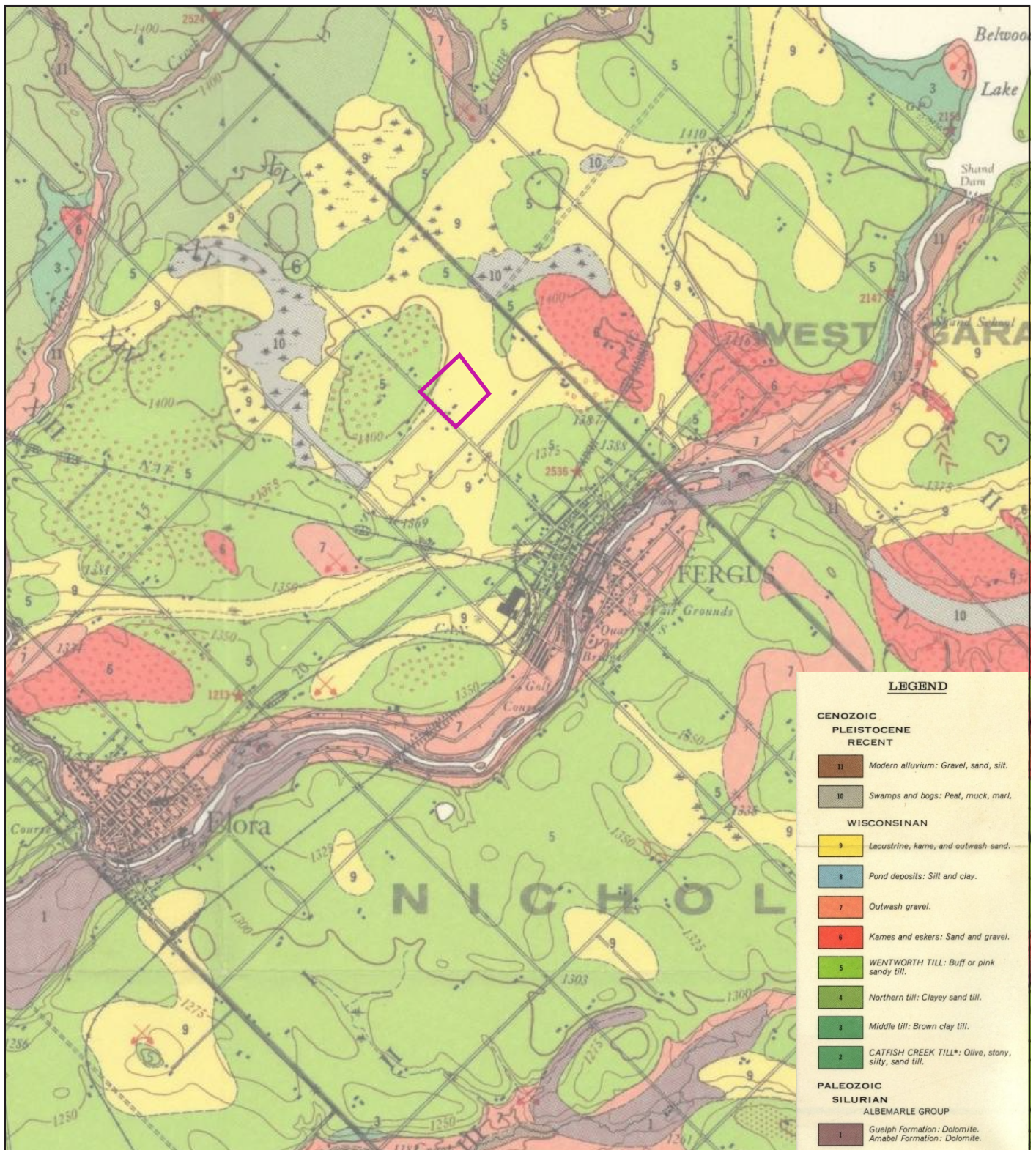
File No. 1495



**CHUNG & VANDER DOELEN**  
ENGINEERING LTD.

311 VICTORIA STREET NORTH  
KITCHENER / ONTARIO / N2H 2E1 / 519-742-8979





## LEGEND



Subject Development Property



0 m 1000 2000  
 Scale 1:50,000

Map Ref.: Karrow, P.F.; Pleistocene Geology of the Guelph Area, Southern Ontario (Map 2153); 1968.

## Figure 2 - Quaternary Geology

Hydrogeological Assessment

968 St. David Street North  
 Fergus, ON

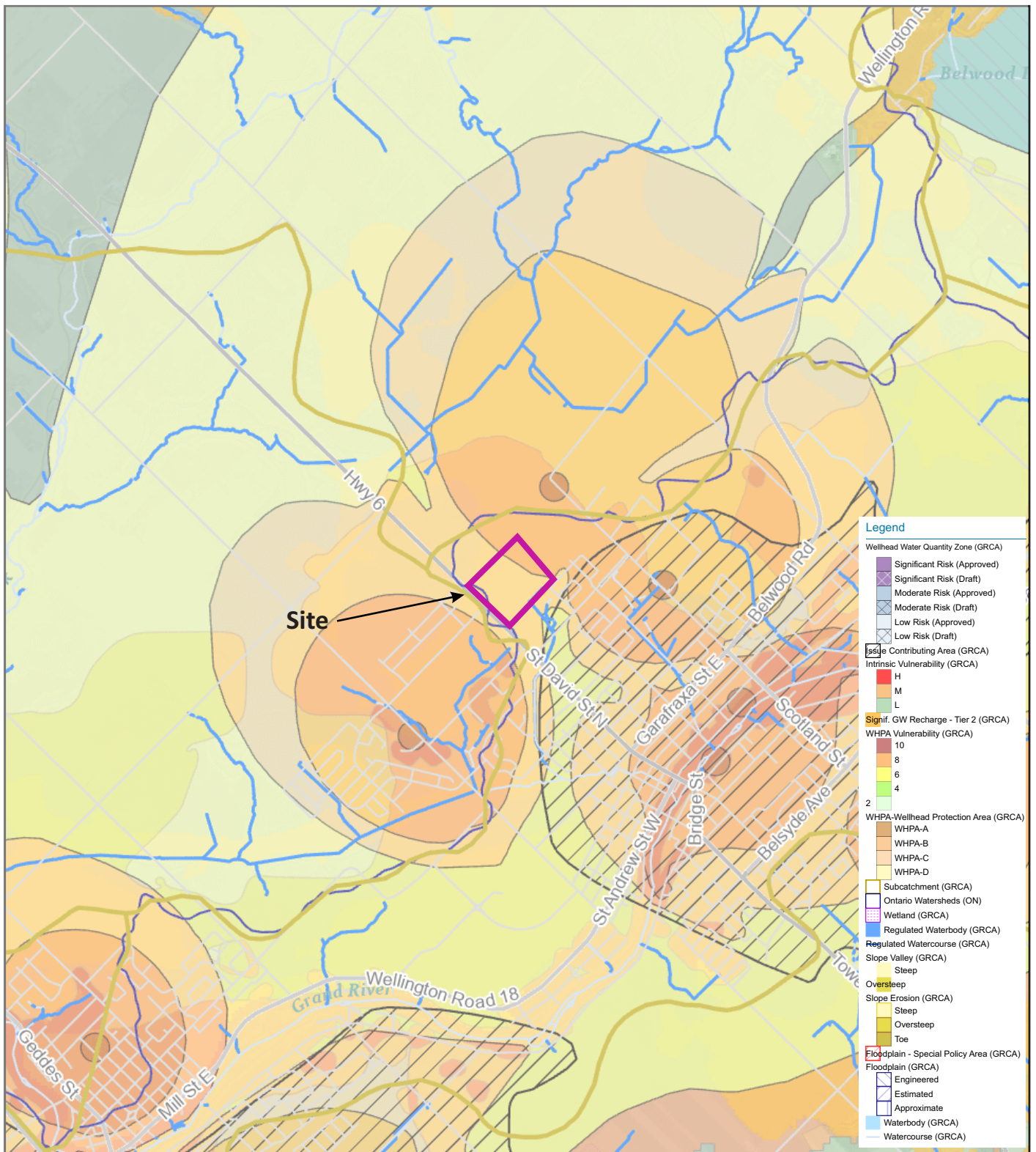
Drawn By: YC Date: Sept. 30/24 File No. 1495



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## LEGEND



Subject Development Property



0 m 500 1000

Scale 1:40,000

Map Ref.: Grand River Conservation Authority; GRCA Web-GIS; Retrieved September 30, 2024

## Figure 3 - Watershed Mapping

Hydrogeological Assessment

968 St. David Street North  
Fergus, ON

Drawn By: YC

Date: January 30/24

File No. 1495



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**LEGEND**

- Property Boundary
- CVD Monitoring Well Location
- CVD Drive-Point Piezometer Location
- (422.93, 423.89)

 Ground Surface, Top of Well/Piezometer Pipe Elevation (m)

N

0 50 100 m  
Scale 1:4000

Image Reference: Google Earth; Retrieved: May 1, 2024

**Figure 4:**  
**Monitoring Well and Piezometer Locations**

Hydrogeological Assessment  
Polocorp Fergus Subdivision - Phase 1

968 St. David Street North & 6581 Highway 6  
Fergus, ON

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KITCHENER / ONTARIO / N2H 2E1 / 519-742-8979





**LEGEND**

- Property Boundary
- CVD Monitoring Well Location
- CVD Drive-Point Piezometer Location
- Water Table Elevation (mASL) - September 18, 2024
- Interpreted Groundwater Contour (mASL)
- Interpreted Shallow Groundwater Flow Direction

Scale 1:4000

Image Reference: Google Earth; Retrieved: May 1, 2024

**Figure 5:**  
**Water Table Interpretation (September 18, 2024)**

Hydrogeological Assessment  
Polocorp Fergus Subdivision - Phase 1

968 St. David Street North & 6581 Highway 6  
Fergus, ON

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ENGINEERING LTD.

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## **APPENDIX C**

### **Well Response Test Analysis Charts**







**CHUNG & VANDER DOELEN**  
**ENGINEERING LTD.**

311 Victoria Street North  
Kitchener / Ontario / N2H 5E1  
519-742-8979

**Response Test - Water Level Data and Analysis**

Page 2 of 4

Project: Polocorp Fergus Subdivision

Number: 1495

Client: Polocorp Inc.

Location: 968 St. David Street North & 6581 Highway 6, Fergus, ON

Response Test: BH 5

Test Conducted by: Y.C.

Test Date: 2024-03-11

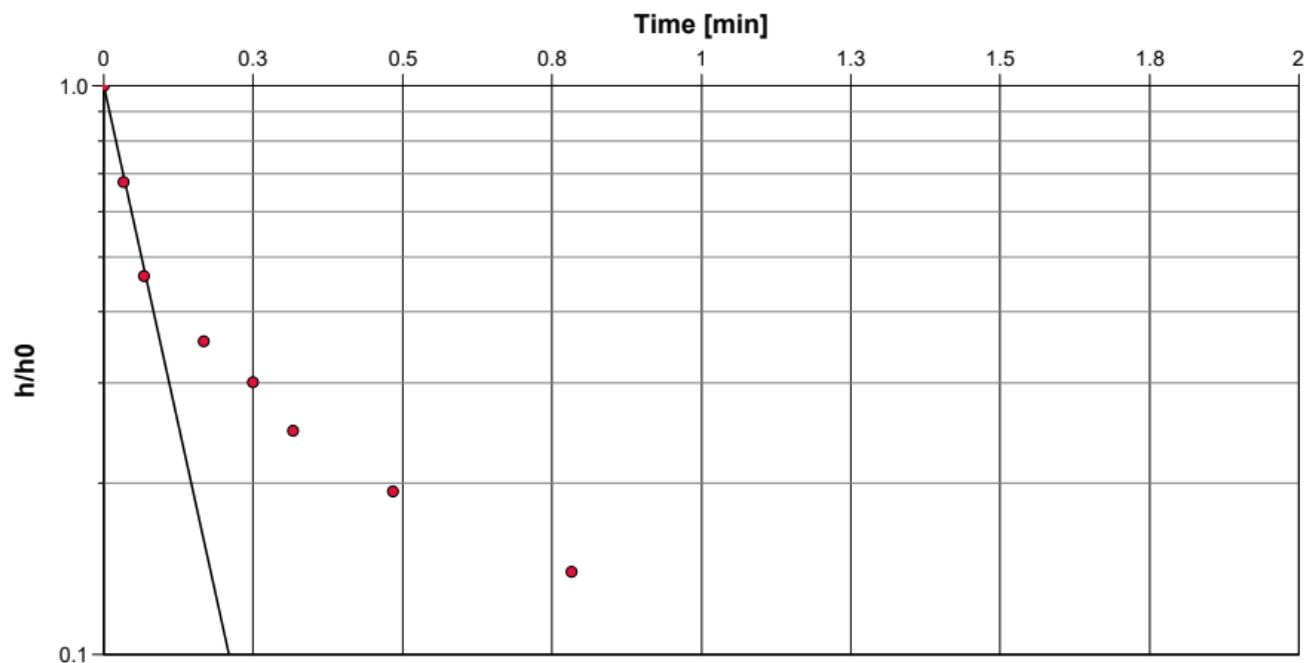
Aquifer Thickness: 6.20 m

Water level at t=0 [m]: 2.09

Static Water Level [m]: 1.99

Water level change at t=0 [m]: 0.09

|    | Time<br>[min] | Water Level<br>[m] | WL Change<br>[m] |
|----|---------------|--------------------|------------------|
| 1  | 0             | 2.087              | 0.093            |
| 2  | 0.0333        | 2.057              | 0.063            |
| 3  | 0.0667        | 2.037              | 0.043            |
| 4  | 0.1667        | 2.027              | 0.033            |
| 5  | 0.25          | 2.022              | 0.028            |
| 6  | 0.3167        | 2.017              | 0.023            |
| 7  | 0.4833        | 2.012              | 0.018            |
| 8  | 0.7833        | 2.007              | 0.013            |
| 9  | 1.1167        | 2.002              | 0.008            |
| 10 | 1.55          | 2.00               | 0.006            |



Calculation using Bouwer & Rice

| Observation Well | Hydraulic Conductivity<br>[m/s] |
|------------------|---------------------------------|
| BH 5             | $8.69 \times 10^{-5}$           |



**CHUNG & VANDER DOELEN**  
**ENGINEERING LTD.**

311 Victoria Street North  
Kitchener / Ontario / N2H 5E1  
519-742-8979

**Response Test - Water Level Data and Analysis**

Page 3 of 4

Project: Polocorp Fergus Subdivision

Number: 1495

Client: Polocorp Inc.

Location: 968 St. David Street North & 6581 Highway 6, Fergus, ON

Response Test: BH 6

Test Conducted by: Y.C.

Test Date: 2024-03-11

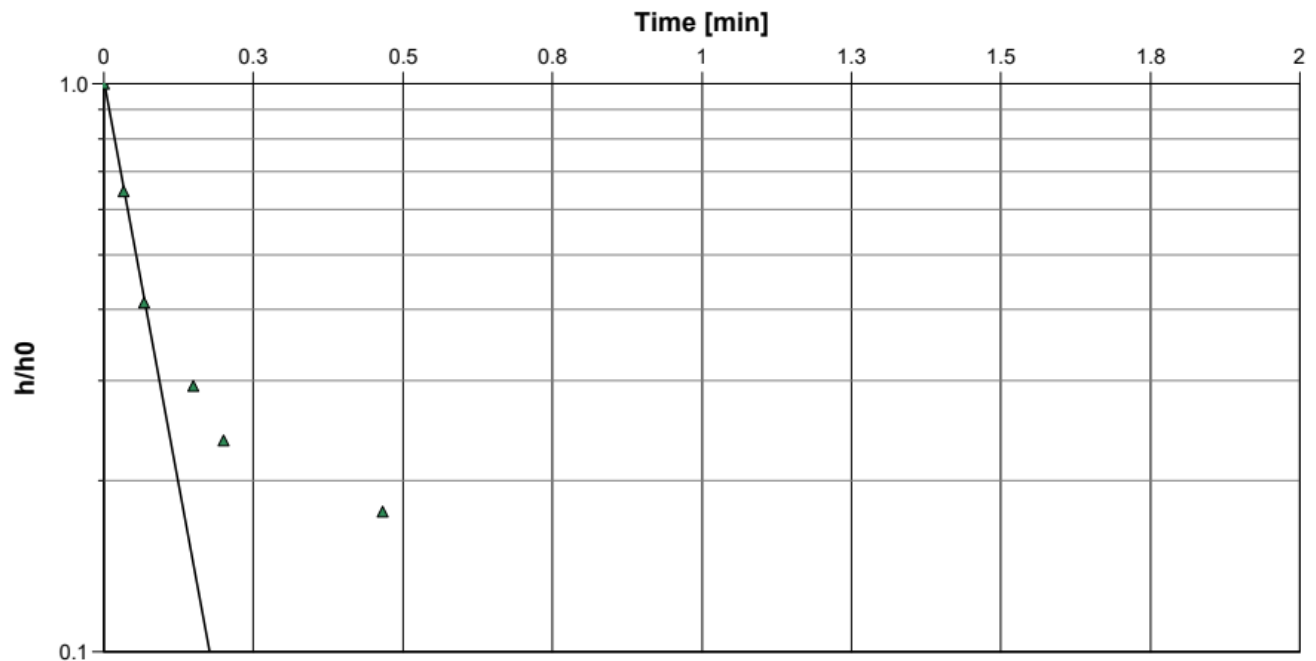
Aquifer Thickness: 3.10 m

Water level at t=0 [m]: 1.65

Static Water Level [m]: 1.56

Water level change at t=0 [m]: 0.08

|   | Time<br>[min] | Water Level<br>[m] | WL Change<br>[m] |
|---|---------------|--------------------|------------------|
| 1 | 0             | 1.646              | 0.085            |
| 2 | 0.0333        | 1.616              | 0.055            |
| 3 | 0.0667        | 1.596              | 0.035            |
| 4 | 0.15          | 1.586              | 0.025            |
| 5 | 0.2           | 1.581              | 0.02             |
| 6 | 0.4667        | 1.576              | 0.015            |



Calculation using Bouwer & Rice

| Observation Well | Hydraulic Conductivity<br>[m/s] |
|------------------|---------------------------------|
| BH 6             | $8.91 \times 10^{-5}$           |



# CHUNG & VANDER DOELEN ENGINEERING LTD.

311 Victoria Street North  
Kitchener / Ontario / N2H 5E1  
519-742-8979

## Response Test - Water Level Data and Analysis

Page 4 of 4

Project: Polocorp Fergus Subdivision

Number: 1495

Client: Polocorp Inc.

Location: 968 St. David Street North & 6581 Highway 6, Fergus, ON

Response Test: BH 7

Test Conducted by: Y.C.

Test Date: 2024-03-11

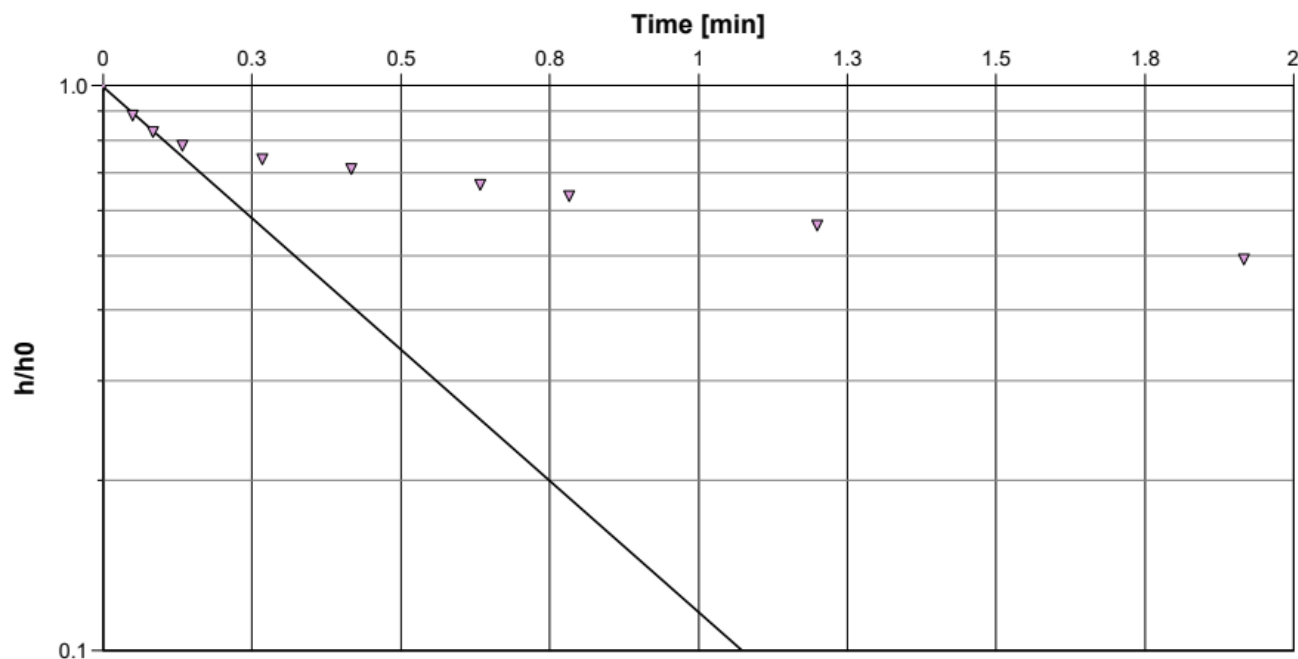
Aquifer Thickness: 1.50 m

Water level at t=0 [m]: 1.20

Static Water Level [m]: 0.51

Water level change at t=0 [m]: 0.69

|    | Time<br>[min] | Water Level<br>[m] | WL Change<br>[m] |
|----|---------------|--------------------|------------------|
| 1  | 0             | 1.199              | 0.69             |
| 2  | 0.05          | 1.119              | 0.61             |
| 3  | 0.0833        | 1.079              | 0.57             |
| 4  | 0.1333        | 1.049              | 0.54             |
| 5  | 0.2667        | 1.019              | 0.51             |
| 6  | 0.4167        | 0.999              | 0.49             |
| 7  | 0.6333        | 0.969              | 0.46             |
| 8  | 0.7833        | 0.949              | 0.44             |
| 9  | 1.2           | 0.899              | 0.39             |
| 10 | 1.9167        | 0.849              | 0.34             |
| 11 | 2.6333        | 0.819              | 0.31             |
| 12 | 3.3833        | 0.799              | 0.29             |
| 13 | 3.9667        | 0.789              | 0.28             |
| 14 | 4.5167        | 0.779              | 0.27             |
| 15 | 5.1333        | 0.769              | 0.26             |



Calculation using Bouwer & Rice

| Observation Well | Hydraulic Conductivity<br>[m/s] |
|------------------|---------------------------------|
| BH 7             | $2.81 \times 10^{-5}$           |

## **APPENDIX D**

### **Table 1 – Water Level Measurements & Hydrograph (February 2024 to September 2024)**





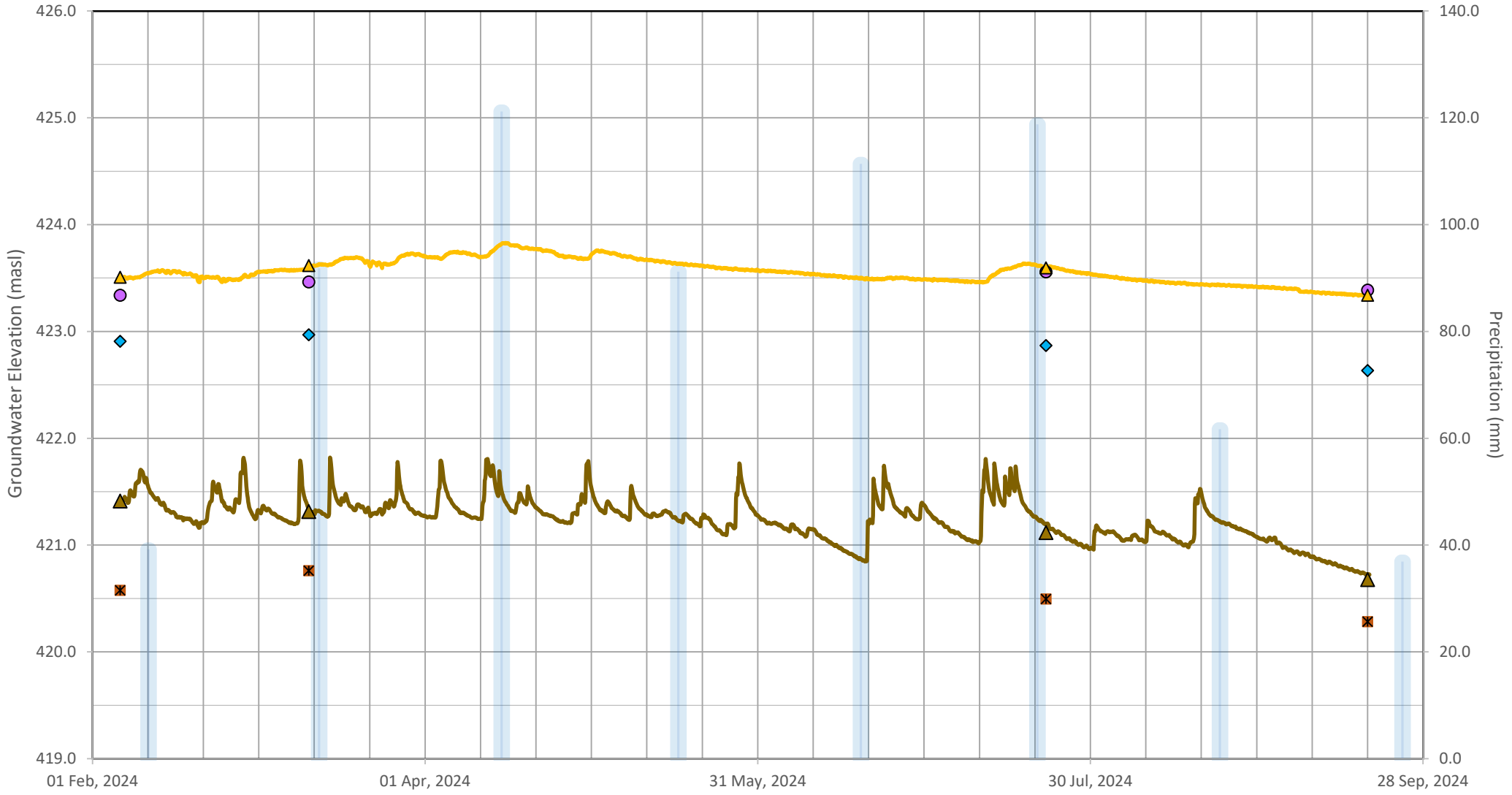
Table 1 - Summary of Water Levels, Elevations &amp; Fluctuations

968 St. David Street North, Fergus  
CVD Engineering Ltd.  
Project: 1495

| Well      | Ground Elevation (mASL) | Top Pipe Elevation (mASL) | Pipe Length (m) | Hydraulic Conductivity (m/s) | Water Level (m Below Ground) |           |           |           |           |           |           | Water Elevation (m Above Sea Level) |           |               |               |               |               |               | Fluctuation Relative to February 6, 2024 (m) |           |           |           |
|-----------|-------------------------|---------------------------|-----------------|------------------------------|------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-------------------------------------|-----------|---------------|---------------|---------------|---------------|---------------|----------------------------------------------|-----------|-----------|-----------|
|           |                         |                           |                 |                              | 10-Nov-23                    | 12-Dec-23 | 06-Feb-24 | 11-Mar-24 | 22-Jul-24 | 12-Sep-24 | 18-Sep-24 | 10-Nov-23                           | 12-Dec-23 | 06-Feb-24     | 11-Mar-24     | 22-Jul-24     | 12-Sep-24     | 18-Sep-24     | 11-Mar-24                                    | 22-Jul-24 | 12-Sep-24 | 18-Sep-24 |
| BH 4      | 426.94                  | 428.13                    | 1.18            | -                            |                              |           | 3.61      | 3.48      | 3.39      |           | 3.56      |                                     |           | 423.34        | 423.46        | <b>423.56</b> |               | 423.39        | 0.13                                         | 0.22      |           | 0.05      |
| BH 5      | 425.61                  | 426.87                    | 1.26            | $9 \times 10^{-5}$           |                              |           | 2.10      | 1.99      | 2.02      |           | 2.27      |                                     |           | 423.51        | <b>423.62</b> | 423.59        |               | 423.34        | 0.11                                         | 0.09      |           | -0.17     |
| BH 6      | 424.53                  | 425.53                    | 1.00            | $9 \times 10^{-5}$           |                              |           | 1.62      | 1.56      | 1.66      |           | 1.90      |                                     |           | 422.91        | <b>422.97</b> | 422.87        |               | 422.63        | 0.06                                         | -0.04     |           | -0.27     |
| BH 7      | 421.82                  | 422.97                    | 1.15            | $3 \times 10^{-5}$           |                              |           | 0.41      | 0.51      | 0.71      |           | 1.14      |                                     |           | <b>421.41</b> | 421.31        | 421.12        |               | 420.68        | -0.10                                        | -0.30     |           | -0.74     |
| BH 8      | 421.01                  | 422.12                    | 1.11            | -                            |                              |           | 0.44      | 0.25      | 0.52      |           | 0.73      |                                     |           | 420.58        | <b>420.76</b> | 420.50        |               | 420.28        | 0.18                                         | -0.08     |           | -0.29     |
| BH 106    | 424.80                  | 425.74                    | 0.94            | -                            |                              |           |           |           |           | 2.07      | 2.08      |                                     |           |               |               |               | <b>422.73</b> | 422.72        |                                              |           |           |           |
| BH 107    | 422.93                  | 423.89                    | 0.96            | -                            |                              |           |           |           |           | 0.40      | 0.41      |                                     |           |               |               |               | <b>422.53</b> | 422.52        |                                              |           |           |           |
| BH 108    | 424.74                  | 425.68                    | 0.94            | -                            |                              |           |           |           |           | 1.82      | 1.83      |                                     |           |               |               |               | <b>422.92</b> | 422.91        |                                              |           |           |           |
| BH 109    | 422.66                  | 423.64                    | 0.98            | -                            |                              |           |           |           |           | 0.40      | 0.41      |                                     |           |               |               |               | <b>422.26</b> | 422.25        |                                              |           |           |           |
| BH 110    | 422.92                  | 423.97                    | 1.05            | -                            |                              |           |           |           |           | 0.57      | 0.58      |                                     |           |               |               |               | <b>422.35</b> | 422.34        |                                              |           |           |           |
| BH 111    | 421.24                  | 422.19                    | 0.95            | -                            |                              |           |           |           |           | 0.60      | 0.67      |                                     |           |               |               |               | <b>420.64</b> | 420.57        |                                              |           |           |           |
| BH 112    | 422.30                  | 423.29                    | 0.99            | -                            |                              |           |           |           |           | 0.74      | 0.83      |                                     |           |               |               |               | <b>421.56</b> | 421.46        |                                              |           |           |           |
| BH 113    | 422.02                  | 422.87                    | 0.85            | -                            |                              |           |           |           |           | 1.53      | 1.60      |                                     |           |               |               |               | <b>420.49</b> | 420.42        |                                              |           |           |           |
| DP 1 In   | 420.06                  | 421.62                    | 1.56            | -                            | -0.33                        | -0.38     | -0.34     | -0.39     | -0.36     |           | -0.20     | 420.39                              | 420.44    | 420.40        | <b>420.45</b> | 420.42        |               | 420.26        |                                              |           |           |           |
| DP 1 Out  | 420.06                  | 421.62                    | 1.56            | -                            | -0.23                        | -0.20     |           | -0.27     | -0.23     |           | -0.17     | 420.28                              | 420.26    |               | <b>420.32</b> | 420.29        |               | 420.22        |                                              |           |           |           |
| DP 2 In   | 421.71                  | 423.09                    | 1.37            | -                            | 1.69                         | 0.45      | -0.01     | -0.06     | -0.06     |           | 0.10      | 420.02                              | 421.26    | 421.73        | 421.77        | <b>421.78</b> |               | 421.61        |                                              |           |           |           |
| DP 2 Out  | 421.71                  | 423.09                    | 1.37            | -                            | -0.08                        | -0.06     |           | -0.08     | -0.06     |           |           | 421.79                              | 421.77    |               | <b>421.79</b> | 421.78        |               |               |                                              |           |           |           |
| DP 3S In  | 422.86                  | 424.48                    | 1.62            | -                            |                              |           |           |           | 0.27      |           | 0.36      |                                     |           |               |               | <b>422.59</b> |               | 422.50        |                                              |           |           |           |
| DP 3S Out | 422.86                  | 424.48                    | 1.62            | -                            |                              |           |           |           |           |           |           |                                     |           |               |               |               |               |               |                                              |           |           |           |
| DP 3D In  | 422.88                  | 424.42                    | 1.54            | -                            | 0.57                         | 0.29      | 0.26      | 1.23      | 0.27      |           | 0.36      | 422.31                              | 422.59    | <b>422.62</b> |               | 422.61        |               | 422.52        |                                              |           |           |           |
| DP 3D Out | 422.88                  | 424.42                    | 1.54            | -                            |                              |           |           |           | -1.54     |           |           |                                     |           |               |               | <b>424.42</b> |               |               |                                              |           |           |           |
| DP 4S In  | 421.27                  | 422.54                    | 1.28            | -                            |                              |           |           |           |           | -0.15     | -0.14     |                                     |           |               |               |               | <b>421.42</b> | 421.41        |                                              |           |           |           |
| DP 4S Out | 421.27                  | 422.54                    | 1.28            | -                            |                              |           |           |           |           | -0.16     | -0.16     |                                     |           |               |               |               | <b>421.43</b> | 421.43        |                                              |           |           |           |
| DP 4D In  | 421.29                  | 422.71                    | 1.42            | -                            |                              |           |           |           |           | 1.28      | 1.05      |                                     |           |               |               |               | 420.01        | <b>420.24</b> |                                              |           |           |           |
| DP 4D Out | 421.29                  | 422.71                    | 1.42            | -                            |                              |           |           |           |           | -0.11     | -0.11     |                                     |           |               |               |               | <b>421.41</b> | 421.41        |                                              |           |           |           |
| DP 5S In  | 421.64                  | 422.77                    | 1.13            | -                            |                              |           |           |           |           | 0.39      |           |                                     |           |               |               |               | <b>421.25</b> |               |                                              |           |           |           |
| DP 5S Out | 421.64                  | 422.77                    | 1.13            | -                            |                              |           |           |           |           |           |           |                                     |           |               |               |               |               |               |                                              |           |           |           |
| DP 5D In  | 421.60                  | 423.00                    | 1.39            | -                            |                              |           |           |           |           | 0.48      | 0.51      |                                     |           |               |               |               | <b>421.13</b> | 421.09        |                                              |           |           |           |
| DP 5D Out | 421.60                  | 423.00                    | 1.39            | -                            |                              |           |           |           |           |           |           |                                     |           |               |               |               |               |               |                                              |           |           |           |

- Notes:
- 1) All Elevations Referenced to Geodetic Survey by CVD.
  - 2) Bolded elevations represent the maximum water table aquifer elevation measured at each monitoring well throughout all seasons.
  - 3) Negative water level indicates that water level is above ground.
  - 4) : Monitoring well/piezometer dry
  - 5) Negative fluctuation indicates drop in water level relative to baseline.

1495 Hydrograph - 968 St. David Street North, Fergus (Phase 1) (February 2024 to September 2024)



Precipitation BH 4 BH 5 BH 6 BH 7 BH 8 BH 7 (Logger) BH 5 (Logger)

## **APPENDIX E**

### **Water Balance Calculation**



**Pre-Development Water Budget Calculations - 968 St. David Street North, Fergus**  
**Pervious Areas (Cultivated Land and Grassed Pasture, with Trees and Shubs)**

January 2025

| <b>Determination of Evapotranspiration and Water Balance Components - by Water Balance Method (Thornthwaite &amp; Mather, 1957)</b>       |        |        |         |       |      |      |       |       |       |       |       |      |      |       |       |
|-------------------------------------------------------------------------------------------------------------------------------------------|--------|--------|---------|-------|------|------|-------|-------|-------|-------|-------|------|------|-------|-------|
| Precipitation: Fergus Shand Dam (1981-2010), Vegetation: Moderately-Deep Crops, Mature Grasses with Trees/Shubs, Soil: Fine Sand and Clay |        |        |         |       |      |      |       |       |       |       |       |      |      |       |       |
|                                                                                                                                           | Units  | Annual | % Total | JAN   | FEB  | MAR  | APR   | MAY   | JUN   | JUL   | AUG   | SEP  | OCT  | NOV   | DEC   |
| Temperature                                                                                                                               | deg C  | 6.68   |         | -7.4  | -6.3 | -1.9 | 5.7   | 12.2  | 17.5  | 20.0  | 19.0  | 14.9 | 8.3  | 2.1   | -3.9  |
| Heat Index (i)                                                                                                                            | -      | 35.09  |         | 0.00  | 0.00 | 0.00 | 1.22  | 3.86  | 6.66  | 8.16  | 7.55  | 5.22 | 2.15 | 0.27  | 0.00  |
| Unadjusted PET (UPET)                                                                                                                     | mm/day | 1.038  |         | 0.00  | 0.00 | 0.00 | 0.87  | 1.91  | 2.78  | 3.20  | 3.03  | 2.35 | 1.28 | 0.31  | 0.00  |
| latitude correction (r)                                                                                                                   | -      |        |         | 24.3  | 24.5 | 30.6 | 33.6  | 37.9  | 38.5  | 38.8  | 36    | 31.2 | 28.5 | 24.2  | 23    |
| Potential Evapotranspiration (PET)                                                                                                        | mm     | 559.3  |         | 0.0   | 0.0  | 0.0  | 29.2  | 72.5  | 107.1 | 124.0 | 109.1 | 73.5 | 36.5 | 7.4   | 0.0   |
| Precipitation (P)                                                                                                                         | mm     | 945.9  | 100.0   | 67.9  | 55.9 | 59.6 | 74.1  | 86.9  | 83.8  | 89.2  | 96.6  | 93.1 | 77.2 | 93    | 68.6  |
| P - PET                                                                                                                                   | mm     |        |         | 67.9  | 55.9 | 59.6 | 44.9  | 14.4  | -23.3 | -34.8 | -12.5 | 19.6 | 40.7 | 85.6  | 68.6  |
| Accum. Water Loss                                                                                                                         | mm     |        |         |       |      |      |       | 0.0   | -23.3 | -58.1 | -70.6 |      |      |       |       |
| Soil Moisture Retention (Storage - ST)                                                                                                    | mm     |        |         | 75.0  | 75.0 | 75.0 | 75.0  | 75.0  | 54.0  | 34.0  | 28.0  | 47.6 | 75.0 | 75.0  | 75.0  |
| Storage Change (ΔST)                                                                                                                      | mm     |        |         | 75.0  | 0.0  | 0.0  | 0.0   | 0.0   | -21.0 | -20.0 | -6.0  | 19.6 | 27.4 | 0.0   | 0.0   |
| Actual Evapotranspiration (AE)                                                                                                            | mm     | 535.7  | 56.6    | 0.0   | 0.0  | 0.0  | 29.2  | 72.5  | 104.8 | 109.2 | 102.6 | 73.5 | 36.5 | 7.4   | 0.0   |
| Water Balance as Surplus/Deficit                                                                                                          | mm     | 410.2  | 43.4    | 67.9  | 55.9 | 59.6 | 44.9  | 14.4  | -21.0 | -20.0 | -6.0  | 19.6 | 40.7 | 85.6  | 68.6  |
| <b>Determination of Water Balance as 'Combined-Runoff' (Recharge + Direct Runoff) - (using WBM Assumptions)</b>                           |        |        |         |       |      |      |       |       |       |       |       |      |      |       |       |
| Soil Moisture Surplus (SMS)                                                                                                               | mm     | 158.2  |         | 0.0   | 0.0  | 0.0  | 44.9  | 14.4  | 0.0   | 0.0   | 0.0   | 0.0  | 13.3 | 85.6  | 0.0   |
| Water Balance from SMS (Assumption 1)                                                                                                     | mm     | 144.8  |         | 10.8  | 5.4  | 2.7  | 23.8  | 19.1  | 9.6   | 4.8   | 2.4   | 1.2  | 0.6  | 43.1  | 21.5  |
|                                                                                                                                           |        |        |         | 0.03  | 0.01 | 0.00 | 0.00  | 7.20  | 3.60  | 1.80  | 0.90  | 0.45 | 0.22 | 0.11  | 0.06  |
|                                                                                                                                           |        |        |         | 0.04  | 0.02 | 0.01 | 22.47 | 11.23 | 5.62  | 2.81  | 1.40  | 0.70 | 0.35 | 0.18  | 0.09  |
|                                                                                                                                           |        |        |         | 10.69 | 5.35 | 2.67 | 1.34  | 0.67  | 0.33  | 0.17  | 0.08  | 0.04 | 0.02 | 42.78 | 21.39 |
| Accumulated Snow (Assumption 2)                                                                                                           | mm     | 252.0  |         | 0.0   | 0.0  | 0.0  | 252.0 | 0.0   | 0.0   | 0.0   | 0.0   | 0.0  | 0.0  | 0.0   | 0.0   |
| Water Balance from Snow (Assumption 3)                                                                                                    | mm     | 252.0  |         | 0.5   | 0.3  | 0.1  | 25.2  | 113.4 | 56.7  | 28.4  | 14.2  | 7.1  | 3.5  | 1.8   | 0.9   |
| Water Balance as 'Combined-Runoff'                                                                                                        | mm     | 396.8  | 42.0    | 11.3  | 5.7  | 2.8  | 49.0  | 132.5 | 66.3  | 33.1  | 16.6  | 8.3  | 4.1  | 44.8  | 22.4  |

Assumptions for Monthly 'Combined-Runoff' Estimations (from WBM):

- 1 - Combined 'Runoff' from the Soil Moisture Surplus is assumed to be 50% in the first month and then 50% of the remaining soil surplus each following month.
- 2 - All Snow is Accumulated and Stored throughout Winter Sub-Zero Months (i.e. No melt until first above-zero month)
- 3 - Combined 'Runoff' from Snowmelt is assumed to be 10% of the Accumulated Snow in the first month and then 50% of the remaining snowmelt in each following month.

| Determination of Recharge + Direct Runoff Components - using MOE Infiltration Factor Method (MOE 1995, 2003) |                                      |     |      |     |                    |              |             |                |                |                |                             |                              |                               |                             |                 |
|--------------------------------------------------------------------------------------------------------------|--------------------------------------|-----|------|-----|--------------------|--------------|-------------|----------------|----------------|----------------|-----------------------------|------------------------------|-------------------------------|-----------------------------|-----------------|
| Catchment Area (m <sup>2</sup> )                                                                             | MOE Infiltration Factors (0 to 1.00) |     |      |     |                    | Annual Rates |             |                |                | Annual Rates   |                             |                              |                               |                             |                 |
|                                                                                                              | Topography                           |     | Soil |     | Cover              | Sum          | EvapoT (mm) | Balance (mm)   | Recharge (mm)  | Runoff (mm)    | EvapoT (m <sup>3</sup> /yr) | Balance (m <sup>3</sup> /yr) | Recharge (m <sup>3</sup> /yr) | Runoff (m <sup>3</sup> /yr) |                 |
| Pervious, Cultivated Land<br>143,500 m2                                                                      | Rolling                              | 0.2 | Sand | 0.4 | Cultivated         | 0.1          | 0.7         | 535.7<br>56.6% | 410.2<br>43.4% | 287.1<br>30.4% | 123.1<br>13.0%              | 76,876<br>56.6%              | 58,861<br>43.4%               | 41,202<br>30.4%             | 17,658<br>13.0% |
| Pervious, Pasture & Lawns<br>15,000 m2                                                                       | Rolling                              | 0.2 | Sand | 0.4 | Pasture & Lawns    | 0.15         | 0.75        | 535.7<br>56.6% | 410.2<br>43.4% | 307.6<br>32.5% | 102.5<br>10.8%              | 8,036<br>56.6%               | 6,153<br>43.4%                | 4,615<br>32.5%              | 1,538<br>10.8%  |
| Pervious, Woodland/Wetland<br>33,400 m2                                                                      | Rolling                              | 0.2 | Sand | 0.4 | Woodland & Wetland | 0.2          | 0.8         | 535.7<br>56.6% | 410.2<br>43.4% | 328.1<br>34.7% | 82.0<br>8.7%                | 17,893<br>56.6%              | 13,700<br>43.4%               | 10,960<br>34.7%             | 2,740<br>8.7%   |
| Impervious Rooftops to Pervious Areas<br>2,000 m2                                                            |                                      |     |      |     |                    |              | 0.25        | 94.6<br>10.0%  | 851.3<br>90.0% | 212.8<br>22.5% | 638.5<br>67.5%              | 189<br>10.0%                 | 1,703<br>90.0%                | 426<br>22.5%                | 1,277<br>67.5%  |
| Total Site<br>193,900 m2                                                                                     |                                      |     |      |     |                    |              |             |                |                |                |                             | 102,994<br>56.2%             | 80,416<br>43.8%               | 57,203<br>31.2%             | 23,213<br>12.7% |

Assumptions for Evapotranspiration/Recharge/Runoff Proportioning

- 1 - Pervious Areas - by MOE Infiltration Factor Method (MOE 1995, 2003)
- 2 - Impervious Areas Shed to Pervious Areas - Assume 10% Lost to Evapotranspiration and Balance Split 25/75% to Recharge/Runoff



## **APPENDIX F**

### **Water Chemistry Results (AGAT Laboratories of Mississauga, Ontario)**



**CLIENT NAME: CHUNG AND VANDER DOELEN**  
**311 VICTORIA STREET NORTH**  
**KITCHENER, ON N2H5E1**  
**(519) 742-8979**

**ATTENTION TO: Yaroslav Chudin**

**PROJECT: 1495**

**AGAT WORK ORDER: 24T129206**

**WATER ANALYSIS REVIEWED BY: Yris Verastegui, Inorganic Team Lead**

**DATE REPORTED: Mar 22, 2024**

**PAGES (INCLUDING COVER): 10**

**VERSION\*: 1**

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

\*Notes

**Disclaimer:**

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- The test results reported herewith relate only to the samples as received by the laboratory.
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- All reportable information as specified by ISO/IEC 17025:2017 is available from AGAT Laboratories upon request.
- For environmental samples in the Province of Quebec: The analysis is performed on and results apply to samples as received. A temperature above 6°C upon receipt, as indicated in the Sample Reception Notification (SRN), could indicate the integrity of the samples has been compromised if the delay between sampling and submission to the laboratory could not be minimized.



## Certificate of Analysis

AGAT WORK ORDER: 24T129206

PROJECT: 1495

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CLIENT NAME: CHUNG AND VANDER DOELEN

SAMPLING SITE: 968 ST. DAVID ST. N. FERGUS

ATTENTION TO: Yaroslav Chudin

SAMPLED BY: Y.C.

### Water Quality Assessment - PWQO (mg/L)

DATE RECEIVED: 2024-03-13

DATE REPORTED: 2024-03-22

| SAMPLE DESCRIPTION:                           |          |         |          | BH1                 | BH5                 | BH6                 | BH7                 |          |
|-----------------------------------------------|----------|---------|----------|---------------------|---------------------|---------------------|---------------------|----------|
| SAMPLE TYPE:                                  |          |         |          | Water               | Water               | Water               | Water               |          |
| DATE SAMPLED:                                 |          |         |          | 2024-03-11<br>11:30 | 2024-03-11<br>11:30 | 2024-03-11<br>11:30 | 2024-03-11<br>11:30 |          |
| Parameter                                     | Unit     | G / S   | RDL      | 5722603             | 5722663             | 5722665             | RDL                 | 5722666  |
| Electrical Conductivity                       | µS/cm    |         | 2        | 480                 | 497                 | 596                 | 2                   | 1620     |
| pH                                            | pH Units | 6.5-8.5 | NA       | 7.43                | 7.64                | 7.62                | NA                  | 7.41     |
| Saturation pH (Calculated)                    |          |         |          | 6.53                | 6.62                | 6.72                |                     | 6.36     |
| Langelier Index (Calculated)                  |          |         |          | 0.896               | 1.02                | 0.896               |                     | 1.05     |
| Hardness (as CaCO <sub>3</sub> ) (Calculated) | mg/L     |         | 0.5      | 679                 | 688                 | 664                 | 0.5                 | 1260     |
| Total Dissolved Solids                        | mg/L     |         | 10       | 224                 | 338                 | 412                 | 10                  | 706      |
| Alkalinity (as CaCO <sub>3</sub> )            | mg/L     |         | 5        | 291                 | 255                 | 206                 | 5                   | 271      |
| Bicarbonate (as CaCO <sub>3</sub> )           | mg/L     |         | 5        | 291                 | 255                 | 206                 | 5                   | 271      |
| Carbonate (as CaCO <sub>3</sub> )             | mg/L     |         | 5        | <5                  | <5                  | <5                  | 5                   | <5       |
| Hydroxide (as CaCO <sub>3</sub> )             | mg/L     |         | 5        | <5                  | <5                  | <5                  | 5                   | <5       |
| Fluoride                                      | mg/L     |         | 0.05     | <0.05               | <0.05               | <0.05               | 0.05                | <0.05    |
| Chloride                                      | mg/L     |         | 0.10     | 9.18                | 2.04                | 27.3                | 0.12                | 269      |
| Nitrate as N                                  | mg/L     |         | 0.05     | 1.48                | 12.8                | 24.9                | 0.05                | <0.05    |
| Nitrite as N                                  | mg/L     |         | 0.05     | <0.05               | <0.05               | <0.05               | 0.05                | <0.05    |
| Bromide                                       | mg/L     |         | 0.05     | <0.05               | <0.05               | <0.05               | 0.05                | <0.05    |
| Sulphate                                      | mg/L     |         | 0.10     | 1.62                | 30.1                | 6.71                | 0.10                | 31.5     |
| Ortho Phosphate as P                          | mg/L     |         | 0.10     | <0.10               | <0.10               | <0.10               | 0.10                | <0.10    |
| Ammonia as N                                  | mg/L     |         | 0.02     | 0.05                | 0.06                | <0.02               | 0.02                | 0.03     |
| Ammonia-Un-ionized (Calculated)               | mg/L     | 0.02    | 0.000002 | 0.000774            | 0.00151             | <0.000002           | 0.000002            | 0.000453 |
| Total Phosphorus                              | mg/L     | *       | 0.02     | 0.73                | 0.74                | 1.22                | 0.06                | 2.03     |
| Total Organic Carbon                          | mg/L     |         | 0.5      | 7.6                 | 9.2                 | 8.4                 | 0.5                 | 14.4     |
| True Colour                                   | TCU      |         | 2.50     | <2.50               | <2.50               | <2.50               | 2.50                | 4.55     |
| Turbidity                                     | NTU      |         | 0.5      | 92.5                | 192                 | 60.3                | 0.5                 | 97.6     |
| Total Calcium                                 | mg/L     |         | 0.20     | 204                 | 209                 | 192                 | 0.20                | 394      |
| Total Magnesium                               | mg/L     |         | 0.10     | 41.1                | 40.4                | 44.9                | 0.10                | 65.9     |
| Total Potassium                               | mg/L     |         | 0.50     | 3.04                | 3.57                | 3.32                | 0.50                | 6.64     |
| Total Sodium                                  | mg/L     |         | 0.10     | 3.94                | 4.32                | 3.03                | 0.10                | 98.5     |
| Aluminum-dissolved                            | mg/L     | *       | 0.004    | 0.004               | 0.008               | <0.004              | 0.004               | <0.004   |
| Total Antimony                                | mg/L     | 0.020   | 0.003    | <0.003              | <0.003              | <0.003              | 0.003               | <0.003   |

Certified By:

*Yris Veraestegui*



## Certificate of Analysis

AGAT WORK ORDER: 24T129206

PROJECT: 1495

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DATE RECEIVED: 2024-03-13

DATE REPORTED: 2024-03-22

| SAMPLE DESCRIPTION:               |      |        |        | BH1                 | BH5                 | BH6                 | BH7                 |               |
|-----------------------------------|------|--------|--------|---------------------|---------------------|---------------------|---------------------|---------------|
| SAMPLE TYPE:                      |      |        |        | Water               | Water               | Water               | Water               |               |
| DATE SAMPLED:                     |      |        |        | 2024-03-11<br>11:30 | 2024-03-11<br>11:30 | 2024-03-11<br>11:30 | 2024-03-11<br>11:30 |               |
| Parameter                         | Unit | G / S  | RDL    | 5722603             | 5722663             | 5722665             | RDL                 | 5722666       |
| Total Arsenic                     | mg/L | 0.1    | 0.003  | 0.006               | 0.008               | 0.007               | 0.003               | 0.007         |
| Total Barium                      | mg/L |        | 0.002  | 0.043               | 0.059               | 0.050               | 0.002               | 0.203         |
| Total Beryllium                   | mg/L | *      | 0.001  | <0.001              | <0.001              | <0.001              | 0.001               | <0.001        |
| Total Boron                       | mg/L | 0.2    | 0.010  | 0.026               | 0.031               | 0.017               | 0.010               | 0.031         |
| Total Cadmium                     | mg/L | 0.0002 | 0.0001 | <b>0.0003</b>       | <b>0.0003</b>       | <b>0.0003</b>       | 0.0001              | <b>0.0004</b> |
| Total Chromium                    | mg/L |        | 0.003  | 0.011               | 0.018               | 0.011               | 0.003               | 0.042         |
| Total Cobalt                      | mg/L | 0.0009 | 0.0005 | <b>0.0066</b>       | <b>0.0096</b>       | <b>0.0084</b>       | 0.0005              | <b>0.0137</b> |
| Total Copper                      | mg/L | 0.005  | 0.002  | <b>0.021</b>        | <b>0.029</b>        | <b>0.030</b>        | 0.002               | <b>0.037</b>  |
| Total Iron                        | mg/L | 0.3    | 0.050  | <b>12.2</b>         | <b>18.0</b>         | <b>15.2</b>         | 0.050               | <b>31.5</b>   |
| Total Lead                        | mg/L | *      | 0.0005 | 0.0224              | 0.0322              | 0.0318              | 0.0005              | 0.0249        |
| Total Manganese                   | mg/L |        | 0.002  | 0.651               | 0.860               | 0.991               | 0.002               | 1.03          |
| Total Mercury                     | mg/L |        | 0.0001 | <0.0001             | <0.0001             | <0.0001             | 0.0001              | <0.0001       |
| Total Molybdenum                  | mg/L | 0.040  | 0.002  | <0.002              | <0.002              | <0.002              | 0.002               | <0.002        |
| Total Nickel                      | mg/L | 0.025  | 0.003  | 0.012               | 0.019               | 0.018               | 0.003               | <b>0.032</b>  |
| Total Selenium                    | mg/L | 0.1    | 0.002  | <0.002              | 0.004               | <0.002              | 0.002               | 0.004         |
| Total Silver                      | mg/L | 0.0001 | 0.0001 | <0.0001             | <0.0001             | <0.0001             | 0.0001              | <0.0001       |
| Total Strontium                   | mg/L |        | 0.005  | 0.298               | 0.281               | 0.304               | 0.005               | 0.670         |
| Total Thallium                    | mg/L | 0.0003 | 0.0003 | <0.0003             | <0.0003             | <0.0003             | 0.0003              | <0.0003       |
| Total Tin                         | mg/L |        | 0.002  | 0.002               | 0.002               | 0.002               | 0.002               | <0.002        |
| Total Titanium                    | mg/L |        | 0.010  | 0.199               | 0.325               | 0.302               | 0.010               | 0.832         |
| Total Tungsten                    | mg/L | 0.030  | 0.010  | <0.010              | <0.010              | <0.010              | 0.010               | <0.010        |
| Total Uranium                     | mg/L | 0.005  | 0.0005 | <0.0005             | 0.0006              | <0.0005             | 0.0005              | 0.0023        |
| Total Vanadium                    | mg/L | 0.006  | 0.002  | <b>0.017</b>        | <b>0.022</b>        | <b>0.017</b>        | 0.002               | <b>0.052</b>  |
| Total Zinc                        | mg/L | 0.030  | 0.020  | <b>0.153</b>        | <b>0.185</b>        | <b>0.136</b>        | 0.020               | <b>0.498</b>  |
| Total Zirconium                   | mg/L | 0.004  | 0.004  | <0.004              | <0.004              | <0.004              | 0.004               | 0.004         |
| Lab Filtration Aluminum Dissolved |      |        |        | Y                   | Y                   | Y                   |                     | Y             |

Certified By:

*Yris Veraestegui*



**AGAT** Laboratories

## Certificate of Analysis

AGAT WORK ORDER: 24T129206

PROJECT: 1495

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

CLIENT NAME: CHUNG AND VANDER DOELEN

SAMPLING SITE: 968 ST. DAVID ST. N. FERGUS

ATTENTION TO: Yaroslav Chudin

SAMPLED BY: Y.C.

### Water Quality Assessment - PWQO (mg/L)

DATE RECEIVED: 2024-03-13

DATE REPORTED: 2024-03-22

**Comments:** RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to PWQO \* Variable - refer to guideline reference document  
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.  
**5722603-5722666** Dilution required, RDL has been increased accordingly.  
Un-ionized Ammonia detection limit is a calculated RDL. The calculation of Un-ionized Ammonia is based on lab measured parameters (ammonia as N, pH and temperature). Values are reported as calculated.

Analysis performed at AGAT Toronto (unless marked by \*)

Certified By:

*Iris Veraistegui*





## Exceedance Summary

AGAT WORK ORDER: 24T129206

PROJECT: 1495

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

CLIENT NAME: CHUNG AND VANDER DOELEN

ATTENTION TO: Yaroslav Chudin

| SAMPLEID | SAMPLE TITLE | GUIDELINE | ANALYSIS PACKAGE                       | PARAMETER      | UNIT | GUIDEVALUE | RESULT |
|----------|--------------|-----------|----------------------------------------|----------------|------|------------|--------|
| 5722603  | BH1          | ON PWQO   | Water Quality Assessment - PWQO (mg/L) | Total Cadmium  | mg/L | 0.0002     | 0.0003 |
| 5722603  | BH1          | ON PWQO   | Water Quality Assessment - PWQO (mg/L) | Total Cobalt   | mg/L | 0.0009     | 0.0066 |
| 5722603  | BH1          | ON PWQO   | Water Quality Assessment - PWQO (mg/L) | Total Copper   | mg/L | 0.005      | 0.021  |
| 5722603  | BH1          | ON PWQO   | Water Quality Assessment - PWQO (mg/L) | Total Iron     | mg/L | 0.3        | 12.2   |
| 5722603  | BH1          | ON PWQO   | Water Quality Assessment - PWQO (mg/L) | Total Vanadium | mg/L | 0.006      | 0.017  |
| 5722603  | BH1          | ON PWQO   | Water Quality Assessment - PWQO (mg/L) | Total Zinc     | mg/L | 0.030      | 0.153  |
| 5722663  | BH5          | ON PWQO   | Water Quality Assessment - PWQO (mg/L) | Total Cadmium  | mg/L | 0.0002     | 0.0003 |
| 5722663  | BH5          | ON PWQO   | Water Quality Assessment - PWQO (mg/L) | Total Cobalt   | mg/L | 0.0009     | 0.0096 |
| 5722663  | BH5          | ON PWQO   | Water Quality Assessment - PWQO (mg/L) | Total Copper   | mg/L | 0.005      | 0.029  |
| 5722663  | BH5          | ON PWQO   | Water Quality Assessment - PWQO (mg/L) | Total Iron     | mg/L | 0.3        | 18.0   |
| 5722663  | BH5          | ON PWQO   | Water Quality Assessment - PWQO (mg/L) | Total Vanadium | mg/L | 0.006      | 0.022  |
| 5722663  | BH5          | ON PWQO   | Water Quality Assessment - PWQO (mg/L) | Total Zinc     | mg/L | 0.030      | 0.185  |
| 5722665  | BH6          | ON PWQO   | Water Quality Assessment - PWQO (mg/L) | Total Cadmium  | mg/L | 0.0002     | 0.0003 |
| 5722665  | BH6          | ON PWQO   | Water Quality Assessment - PWQO (mg/L) | Total Cobalt   | mg/L | 0.0009     | 0.0084 |
| 5722665  | BH6          | ON PWQO   | Water Quality Assessment - PWQO (mg/L) | Total Copper   | mg/L | 0.005      | 0.030  |
| 5722665  | BH6          | ON PWQO   | Water Quality Assessment - PWQO (mg/L) | Total Iron     | mg/L | 0.3        | 15.2   |
| 5722665  | BH6          | ON PWQO   | Water Quality Assessment - PWQO (mg/L) | Total Vanadium | mg/L | 0.006      | 0.017  |
| 5722665  | BH6          | ON PWQO   | Water Quality Assessment - PWQO (mg/L) | Total Zinc     | mg/L | 0.030      | 0.136  |
| 5722666  | BH7          | ON PWQO   | Water Quality Assessment - PWQO (mg/L) | Total Cadmium  | mg/L | 0.0002     | 0.0004 |
| 5722666  | BH7          | ON PWQO   | Water Quality Assessment - PWQO (mg/L) | Total Cobalt   | mg/L | 0.0009     | 0.0137 |
| 5722666  | BH7          | ON PWQO   | Water Quality Assessment - PWQO (mg/L) | Total Copper   | mg/L | 0.005      | 0.037  |
| 5722666  | BH7          | ON PWQO   | Water Quality Assessment - PWQO (mg/L) | Total Iron     | mg/L | 0.3        | 31.5   |
| 5722666  | BH7          | ON PWQO   | Water Quality Assessment - PWQO (mg/L) | Total Nickel   | mg/L | 0.025      | 0.032  |
| 5722666  | BH7          | ON PWQO   | Water Quality Assessment - PWQO (mg/L) | Total Vanadium | mg/L | 0.006      | 0.052  |
| 5722666  | BH7          | ON PWQO   | Water Quality Assessment - PWQO (mg/L) | Total Zinc     | mg/L | 0.030      | 0.498  |

## Quality Assurance

CLIENT NAME: CHUNG AND VANDER DOELEN

PROJECT: 1495

SAMPLING SITE: 968 ST. DAVID ST. N. FERGUS

AGAT WORK ORDER: 24T129206

ATTENTION TO: Yaroslav Chudin

SAMPLED BY: Y.C.

| Water Analysis         |       |           |           |        |     |              |                    |                   |       |                    |                   |       |              |                   |       |
|------------------------|-------|-----------|-----------|--------|-----|--------------|--------------------|-------------------|-------|--------------------|-------------------|-------|--------------|-------------------|-------|
| RPT Date: Mar 22, 2024 |       |           | DUPLICATE |        |     | Method Blank | REFERENCE MATERIAL |                   |       | METHOD BLANK SPIKE |                   |       | MATRIX SPIKE |                   |       |
| PARAMETER              | Batch | Sample Id | Dup #1    | Dup #2 | RPD |              | Measured Value     | Acceptable Limits |       | Recovery           | Acceptable Limits |       | Recovery     | Acceptable Limits |       |
|                        |       |           |           |        |     |              |                    | Lower             | Upper |                    | Lower             | Upper |              | Lower             | Upper |

### Water Quality Assessment - PWQO (mg/L)

|                                     |         |         |         |         |       |          |      |     |      |      |     |      |      |     |      |
|-------------------------------------|---------|---------|---------|---------|-------|----------|------|-----|------|------|-----|------|------|-----|------|
| Electrical Conductivity             | 5722603 | 5722603 | 480     | 477     | 0.6%  | < 2      | 104% | 90% | 110% |      |     |      |      |     |      |
| pH                                  | 5722603 | 5722603 | 7.43    | 7.55    | 1.6%  | NA       | 99%  | 90% | 110% |      |     |      |      |     |      |
| Total Dissolved Solids              | 5720157 |         | 190     | 168     | 12.3% | < 10     | 92%  | 80% | 120% |      |     |      |      |     |      |
| Alkalinity (as CaCO <sub>3</sub> )  | 5722603 | 5722603 | 291     | 306     | 5.0%  | < 5      | 95%  | 80% | 120% |      |     |      |      |     |      |
| Bicarbonate (as CaCO <sub>3</sub> ) | 5722603 | 5722603 | 291     | 306     | 5.0%  | < 5      | NA   |     |      |      |     |      |      |     |      |
| Carbonate (as CaCO <sub>3</sub> )   | 5722603 | 5722603 | <5      | <5      | NA    | < 5      | NA   |     |      |      |     |      |      |     |      |
| Hydroxide (as CaCO <sub>3</sub> )   | 5722603 | 5722603 | <5      | <5      | NA    | < 5      | NA   |     |      |      |     |      |      |     |      |
| Fluoride                            | 5718363 |         | <0.05   | <0.05   | NA    | < 0.05   | 105% | 70% | 130% | 91%  | 80% | 120% | 98%  | 70% | 130% |
| Chloride                            | 5718363 |         | 153     | 152     | 0.7%  | < 0.10   | 96%  | 70% | 130% | 91%  | 80% | 120% | NA   | 70% | 130% |
| Nitrate as N                        | 5718363 |         | <0.05   | <0.05   | NA    | < 0.05   | 100% | 70% | 130% | 98%  | 80% | 120% | 100% | 70% | 130% |
| Nitrite as N                        | 5718363 |         | <0.05   | <0.05   | NA    | < 0.05   | 101% | 70% | 130% | 101% | 80% | 120% | 109% | 70% | 130% |
| Bromide                             | 5718363 |         | <0.05   | <0.05   | NA    | < 0.05   | 105% | 70% | 130% | 96%  | 80% | 120% | 95%  | 70% | 130% |
| Sulphate                            | 5718363 |         | <0.10   | <0.10   | NA    | < 0.10   | 94%  | 70% | 130% | 94%  | 80% | 120% | 94%  | 70% | 130% |
| Ortho Phosphate as P                | 5718363 |         | <0.10   | <0.10   | NA    | < 0.10   | 101% | 70% | 130% | 104% | 80% | 120% | 105% | 70% | 130% |
| Ammonia as N                        | 5724966 |         | <0.02   | <0.02   | NA    | < 0.02   | 108% | 70% | 130% | 105% | 80% | 120% | 103% | 70% | 130% |
| Total Phosphorus                    | 5737950 |         | 0.05    | 0.05    | NA    | < 0.02   | 99%  | 70% | 130% | 99%  | 80% | 120% | 105% | 70% | 130% |
| Total Organic Carbon                | 5720157 |         | 1.8     | 1.7     | NA    | < 0.5    | 98%  | 90% | 110% | 98%  | 90% | 110% | 99%  | 80% | 120% |
| True Colour                         | 5720157 |         | <2.50   | <2.50   | NA    | < 2.5    | 100% | 90% | 110% |      |     |      |      |     |      |
| Turbidity                           | 5722603 | 5722603 | 92.5    | 144     | 43.6% | < 0.5    | 90%  | 80% | 120% |      |     |      |      |     |      |
| Total Calcium                       | 5724836 |         | 80.1    | 80.4    | 0.4%  | < 0.20   | 113% | 70% | 130% | 107% | 80% | 120% | 108% | 70% | 130% |
| Total Magnesium                     | 5724836 |         | 6.75    | 6.85    | 1.5%  | < 0.10   | 118% | 70% | 130% | 111% | 80% | 120% | 94%  | 70% | 130% |
| Total Potassium                     | 5724836 |         | 5.43    | 5.50    | 1.3%  | < 0.50   | 113% | 70% | 130% | 106% | 80% | 120% | 97%  | 70% | 130% |
| Total Sodium                        | 5724836 |         | 858     | 817     | 4.9%  | < 0.10   | 114% | 70% | 130% | 108% | 80% | 120% | NA   | 70% | 130% |
| Aluminum-dissolved                  | 5722603 | 5722603 | 0.004   | 0.005   | NA    | < 0.004  | 104% | 70% | 130% | 110% | 80% | 120% | 104% | 70% | 130% |
| Total Antimony                      | 5724836 |         | <0.003  | <0.003  | NA    | < 0.003  | 105% | 70% | 130% | 105% | 80% | 120% | 100% | 70% | 130% |
| Total Arsenic                       | 5724836 |         | <0.003  | <0.003  | NA    | < 0.003  | 99%  | 70% | 130% | 105% | 80% | 120% | 102% | 70% | 130% |
| Total Barium                        | 5724836 |         | 0.009   | 0.010   | NA    | < 0.002  | 100% | 70% | 130% | 105% | 80% | 120% | 97%  | 70% | 130% |
| Total Beryllium                     | 5724836 |         | <0.001  | <0.001  | NA    | < 0.001  | 104% | 70% | 130% | 115% | 80% | 120% | 94%  | 70% | 130% |
| Total Boron                         | 5724836 |         | 0.072   | 0.076   | 5.4%  | < 0.010  | 101% | 70% | 130% | 112% | 80% | 120% | 93%  | 70% | 130% |
| Total Cadmium                       | 5724836 |         | 0.0002  | 0.0002  | NA    | < 0.0001 | 102% | 70% | 130% | 106% | 80% | 120% | 98%  | 70% | 130% |
| Total Chromium                      | 5724836 |         | 0.005   | 0.005   | NA    | < 0.003  | 100% | 70% | 130% | 106% | 80% | 120% | 105% | 70% | 130% |
| Total Cobalt                        | 5724836 |         | 0.0013  | 0.0015  | NA    | < 0.0005 | 101% | 70% | 130% | 104% | 80% | 120% | 103% | 70% | 130% |
| Total Copper                        | 5724836 |         | 0.026   | 0.026   | 0.0%  | < 0.002  | 99%  | 70% | 130% | 106% | 80% | 120% | 98%  | 70% | 130% |
| Total Iron                          | 5724836 |         | 1.68    | 1.67    | 0.6%  | < 0.050  | 102% | 70% | 130% | 112% | 80% | 120% | 108% | 70% | 130% |
| Total Lead                          | 5724836 |         | 0.0079  | 0.0081  | 2.5%  | < 0.0005 | 101% | 70% | 130% | 98%  | 80% | 120% | 89%  | 70% | 130% |
| Total Manganese                     | 5724836 |         | 0.383   | 0.389   | 1.6%  | < 0.002  | 103% | 70% | 130% | 109% | 80% | 120% | 105% | 70% | 130% |
| Total Mercury                       | 5722014 |         | <0.0001 | <0.0001 | NA    | < 0.0001 | 100% | 70% | 130% | 97%  | 80% | 120% | 98%  | 70% | 130% |
| Total Molybdenum                    | 5724836 |         | 0.009   | 0.010   | NA    | < 0.002  | 106% | 70% | 130% | 91%  | 80% | 120% | 116% | 70% | 130% |
| Total Nickel                        | 5724836 |         | 0.030   | 0.028   | 6.9%  | < 0.003  | 102% | 70% | 130% | 105% | 80% | 120% | 101% | 70% | 130% |



## Quality Assurance

CLIENT NAME: CHUNG AND VANDER DOELEN

PROJECT: 1495

SAMPLING SITE: 968 ST. DAVID ST. N. FERGUS

AGAT WORK ORDER: 24T129206

ATTENTION TO: Yaroslav Chudin

SAMPLED BY: Y.C.

### Water Analysis (Continued)

| RPT Date: Mar 22, 2024 |         |           | DUPLICATE |         |      | Method Blank | REFERENCE MATERIAL |                   |       | METHOD BLANK SPIKE |                   |       | MATRIX SPIKE |                   |       |
|------------------------|---------|-----------|-----------|---------|------|--------------|--------------------|-------------------|-------|--------------------|-------------------|-------|--------------|-------------------|-------|
| PARAMETER              | Batch   | Sample Id | Dup #1    | Dup #2  | RPD  |              | Measured Value     | Acceptable Limits |       | Recovery           | Acceptable Limits |       | Recovery     | Acceptable Limits |       |
|                        |         |           |           |         |      |              |                    | Lower             | Upper |                    | Lower             | Upper |              | Lower             | Upper |
| Total Selenium         | 5724836 |           | 0.004     | 0.006   | NA   | < 0.002      | 101%               | 70%               | 130%  | 108%               | 80%               | 120%  | 101%         | 70%               | 130%  |
| Total Silver           | 5724836 |           | 0.0001    | <0.0001 | NA   | < 0.0001     | 103%               | 70%               | 130%  | 110%               | 80%               | 120%  | 96%          | 70%               | 130%  |
| Total Strontium        | 5724836 |           | 1.15      | 1.14    | 0.9% | < 0.005      | 104%               | 70%               | 130%  | 109%               | 80%               | 120%  | 99%          | 70%               | 130%  |
| Total Thallium         | 5724836 |           | <0.0003   | <0.0003 | NA   | < 0.0003     | 92%                | 70%               | 130%  | 105%               | 80%               | 120%  | 94%          | 70%               | 130%  |
| Total Tin              | 5724836 |           | <0.002    | <0.002  | NA   | < 0.002      | 100%               | 70%               | 130%  | 109%               | 80%               | 120%  | 105%         | 70%               | 130%  |
| Total Titanium         | 5724836 |           | <0.010    | <0.010  | NA   | < 0.010      | 102%               | 70%               | 130%  | 110%               | 80%               | 120%  | 106%         | 70%               | 130%  |
| Total Tungsten         | 5724836 |           | <0.010    | <0.010  | NA   | < 0.010      | 94%                | 70%               | 130%  | 100%               | 80%               | 120%  | 97%          | 70%               | 130%  |
| Total Uranium          | 5724836 |           | <0.0005   | <0.0005 | NA   | < 0.0005     | 92%                | 70%               | 130%  | 109%               | 80%               | 120%  | 106%         | 70%               | 130%  |
| Total Vanadium         | 5724836 |           | 0.003     | 0.002   | NA   | < 0.002      | 103%               | 70%               | 130%  | 110%               | 80%               | 120%  | 111%         | 70%               | 130%  |
| Total Zinc             | 5724836 |           | 0.119     | 0.125   | 4.9% | < 0.020      | 100%               | 70%               | 130%  | 105%               | 80%               | 120%  | 93%          | 70%               | 130%  |
| Total Zirconium        | 5724836 |           | <0.004    | <0.004  | NA   | < 0.004      | 101%               | 70%               | 130%  | 106%               | 80%               | 120%  | 109%         | 70%               | 130%  |

Comments: NA signifies Not Applicable.

Duplicate NA: results are under 5X the RDL and will not be calculated.

Matrix spike NA: Spike level < native concentration. Matrix spike acceptance limits do not apply and are not calculated.

Certified By:

*Yris Veraestegui*

## Method Summary

**CLIENT NAME: CHUNG AND VANDER DOELEN**
**PROJECT: 1495**
**SAMPLING SITE: 968 ST. DAVID ST. N. FERGUS**
**AGAT WORK ORDER: 24T129206**
**ATTENTION TO: Yaroslav Chudin**
**SAMPLED BY: Y.C.**

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

## Method Summary

**CLIENT NAME: CHUNG AND VANDER DOELEN**
**AGAT WORK ORDER: 24T129206**
**PROJECT: 1495**
**ATTENTION TO: Yaroslav Chudin**
**SAMPLING SITE: 968 ST. DAVID ST. N. FERGUS**
**SAMPLED BY: Y.C.**

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





## **APPENDIX G**

### **MECP Well Records**





Ministry  
of the  
Environment  
Ontario

The Ontario Water Resources Act

# WATER WELL RECORD

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

11

6709834

67009

CON

16

|                                            |                                                         |                                                          |                  |
|--------------------------------------------|---------------------------------------------------------|----------------------------------------------------------|------------------|
| COUNTY OR DISTRICT<br><b>Wellington</b>    | TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE<br><b>Nichol</b> | CON. BLOCK, TRACT, SURVEY ETC.<br><b>XVI</b>             | LOT<br><b>17</b> |
| OWNER (SURNAME FIRST)<br><b>Fergus PUC</b> | ADDRESS<br><b>P.O. Box 10, Fergus, Ont. N1M 2W7</b>     | DATE COMPLETED<br>DAY <b>15</b> MO <b>5</b> YR <b>89</b> |                  |

|    |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
|----|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| 21 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 |
|----|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|

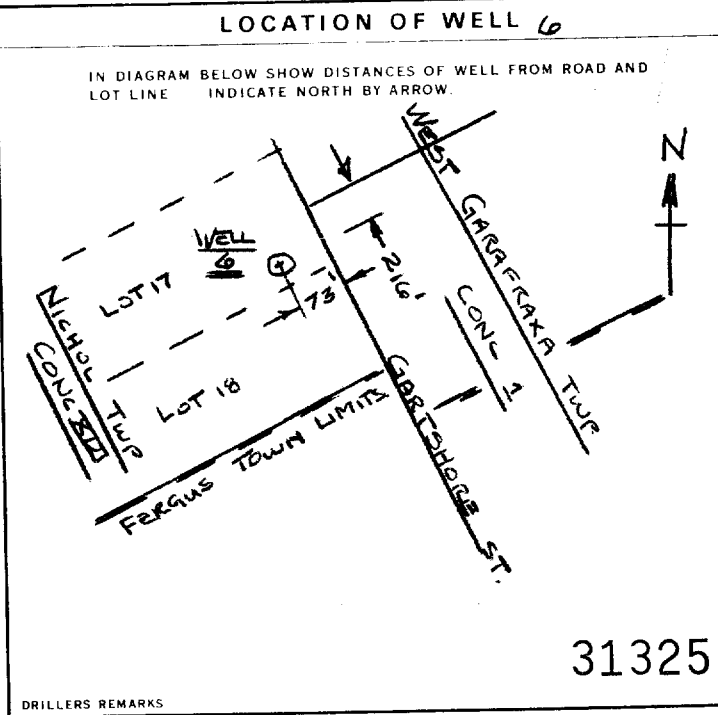
## LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

| GENERAL COLOUR | MOST COMMON MATERIAL | OTHER MATERIALS   | GENERAL DESCRIPTION | DEPTH - FEET |     |
|----------------|----------------------|-------------------|---------------------|--------------|-----|
|                |                      |                   |                     | FROM         | TO  |
| Brown          | Clay                 | Fill, Gravel Silt |                     | 0            | 18  |
| Brown          | Clay                 | Gravel            |                     | 18           | 24  |
| Grey           | Clay                 | Gravel            |                     | 24           | 84  |
| Grey           | Limestone            |                   |                     | 84           | 165 |
| Brown          | Limestone            |                   |                     | 165          | 213 |
| Grey           | Limestone            |                   |                     | 213          | 225 |
| Brown          | Limestone            |                   |                     | 225          | 232 |
| Lt. Grey       | Limestone            |                   |                     | 232          | 315 |
| Brown          | Limestone            |                   |                     | 315          | 378 |
| Grey           | Limestone            |                   |                     | 378          | 400 |
| White          | Limestone            |                   |                     | 400          | 402 |

|    |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
|----|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| 31 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 |
|----|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|

|                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                               |                                         |              |                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                     |          |                       |              |    |                                                                                                                                                                                               |      |       |    |                                                                                                                                                                                               |       |           |                                                                                                                                                                                           |                     |                                                   |         |                                           |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------|--------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|----------|-----------------------|--------------|----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|-------|----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|---------------------------------------------------|---------|-------------------------------------------|
| <b>41 WATER RECORD</b>                                                                                                                                                                                                                                                                                       | <b>51 CASING &amp; OPEN HOLE RECORD</b>                                                                                                                                                       | <b>61 PLUGGING &amp; SEALING RECORD</b> |              |                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                     |          |                       |              |    |                                                                                                                                                                                               |      |       |    |                                                                                                                                                                                               |       |           |                                                                                                                                                                                           |                     |                                                   |         |                                           |
| <table><tr><td>WATER FOUND AT - FEET</td><td>KIND OF WATER</td></tr><tr><td>128' - 402'</td><td>1 <input checked="" type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR<br/>2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERALS<br/>6 <input type="checkbox"/> GAS</td></tr></table> | WATER FOUND AT - FEET                                                                                                                                                                         | KIND OF WATER                           | 128' - 402'  | 1 <input checked="" type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR<br>2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERALS<br>6 <input type="checkbox"/> GAS | <table><tr><td>INSIDE DIAM. INCHES</td><td>MATERIAL</td><td>WALL THICKNESS INCHES</td><td>DEPTH - FEET</td></tr><tr><td>12</td><td>1 <input checked="" type="checkbox"/> STEEL 2 <input type="checkbox"/> GALVANIZED 3 <input type="checkbox"/> CONCRETE 4 <input type="checkbox"/> OPEN HOLE 5 <input type="checkbox"/> PLASTIC</td><td>.375</td><td>109.5</td></tr><tr><td>11</td><td>1 <input checked="" type="checkbox"/> STEEL 2 <input type="checkbox"/> GALVANIZED 3 <input type="checkbox"/> CONCRETE 4 <input type="checkbox"/> OPEN HOLE 5 <input type="checkbox"/> PLASTIC</td><td>109.5</td><td>109.5 402</td></tr></table> | INSIDE DIAM. INCHES | MATERIAL | WALL THICKNESS INCHES | DEPTH - FEET | 12 | 1 <input checked="" type="checkbox"/> STEEL 2 <input type="checkbox"/> GALVANIZED 3 <input type="checkbox"/> CONCRETE 4 <input type="checkbox"/> OPEN HOLE 5 <input type="checkbox"/> PLASTIC | .375 | 109.5 | 11 | 1 <input checked="" type="checkbox"/> STEEL 2 <input type="checkbox"/> GALVANIZED 3 <input type="checkbox"/> CONCRETE 4 <input type="checkbox"/> OPEN HOLE 5 <input type="checkbox"/> PLASTIC | 109.5 | 109.5 402 | <table><tr><td>DEPTH SET AT - FEET</td><td>MATERIAL AND TYPE (CEMENT GROUT LEAD PACKER ETC.)</td></tr><tr><td>0 109.5</td><td>12" casing cemented in 18" dia. open hole</td></tr></table> | DEPTH SET AT - FEET | MATERIAL AND TYPE (CEMENT GROUT LEAD PACKER ETC.) | 0 109.5 | 12" casing cemented in 18" dia. open hole |
| WATER FOUND AT - FEET                                                                                                                                                                                                                                                                                        | KIND OF WATER                                                                                                                                                                                 |                                         |              |                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                     |          |                       |              |    |                                                                                                                                                                                               |      |       |    |                                                                                                                                                                                               |       |           |                                                                                                                                                                                           |                     |                                                   |         |                                           |
| 128' - 402'                                                                                                                                                                                                                                                                                                  | 1 <input checked="" type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR<br>2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERALS<br>6 <input type="checkbox"/> GAS      |                                         |              |                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                     |          |                       |              |    |                                                                                                                                                                                               |      |       |    |                                                                                                                                                                                               |       |           |                                                                                                                                                                                           |                     |                                                   |         |                                           |
| INSIDE DIAM. INCHES                                                                                                                                                                                                                                                                                          | MATERIAL                                                                                                                                                                                      | WALL THICKNESS INCHES                   | DEPTH - FEET |                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                     |          |                       |              |    |                                                                                                                                                                                               |      |       |    |                                                                                                                                                                                               |       |           |                                                                                                                                                                                           |                     |                                                   |         |                                           |
| 12                                                                                                                                                                                                                                                                                                           | 1 <input checked="" type="checkbox"/> STEEL 2 <input type="checkbox"/> GALVANIZED 3 <input type="checkbox"/> CONCRETE 4 <input type="checkbox"/> OPEN HOLE 5 <input type="checkbox"/> PLASTIC | .375                                    | 109.5        |                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                     |          |                       |              |    |                                                                                                                                                                                               |      |       |    |                                                                                                                                                                                               |       |           |                                                                                                                                                                                           |                     |                                                   |         |                                           |
| 11                                                                                                                                                                                                                                                                                                           | 1 <input checked="" type="checkbox"/> STEEL 2 <input type="checkbox"/> GALVANIZED 3 <input type="checkbox"/> CONCRETE 4 <input type="checkbox"/> OPEN HOLE 5 <input type="checkbox"/> PLASTIC | 109.5                                   | 109.5 402    |                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                     |          |                       |              |    |                                                                                                                                                                                               |      |       |    |                                                                                                                                                                                               |       |           |                                                                                                                                                                                           |                     |                                                   |         |                                           |
| DEPTH SET AT - FEET                                                                                                                                                                                                                                                                                          | MATERIAL AND TYPE (CEMENT GROUT LEAD PACKER ETC.)                                                                                                                                             |                                         |              |                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                     |          |                       |              |    |                                                                                                                                                                                               |      |       |    |                                                                                                                                                                                               |       |           |                                                                                                                                                                                           |                     |                                                   |         |                                           |
| 0 109.5                                                                                                                                                                                                                                                                                                      | 12" casing cemented in 18" dia. open hole                                                                                                                                                     |                                         |              |                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                     |          |                       |              |    |                                                                                                                                                                                               |      |       |    |                                                                                                                                                                                               |       |           |                                                                                                                                                                                           |                     |                                                   |         |                                           |

|                                                                               |                            |                                             |
|-------------------------------------------------------------------------------|----------------------------|---------------------------------------------|
| <b>71 PUMPING TEST</b>                                                        | <b>10 PUMPING RATE</b>     | <b>11-14 DURATION OF PUMPING</b>            |
| 1 <input checked="" type="checkbox"/> PUMP 2 <input type="checkbox"/> BAILER  | 350 GPM                    | 15-16 HOURS 17-18 MINS                      |
| STATIC LEVEL                                                                  | WATER LEVEL END OF PUMPING | WATER LEVELS DURING                         |
| 57.51                                                                         | 153.29                     | 15 MINUTES 30 MINUTES 45 MINUTES 60 MINUTES |
| 20-24                                                                         | 25-29                      | 20-24 25-29 30-34 35-39                     |
| 109.52                                                                        | 112.41                     | 115.75                                      |
| IF FLOWING, GIVE RATE                                                         | PUMP INTAKE SET AT         | WATER AT END OF TEST                        |
| 30-41                                                                         | 42-45                      | 46-49                                       |
| RECOMMENDED PUMP TYPE                                                         | RECOMMENDED PUMP SETTING   | RECOMMENDED PUMPING RATE                    |
| 1 <input type="checkbox"/> SHALLOW 2 <input checked="" type="checkbox"/> DEEP | 250                        | 300                                         |



|                               |                                                                                                                                                                                                                                            |                                                                                                                                                                                                                           |
|-------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>FINAL STATUS OF WELL</b>   | 1 <input checked="" type="checkbox"/> WATER SUPPLY 2 <input type="checkbox"/> OBSERVATION WELL 3 <input type="checkbox"/> TEST HOLE 4 <input type="checkbox"/> RECHARGE WELL                                                               | 5 <input type="checkbox"/> ABANDONED, INSUFFICIENT SUPPLY 6 <input type="checkbox"/> ABANDONED, POOR QUALITY 7 <input type="checkbox"/> UNFINISHED 9 <input type="checkbox"/> DEWATERING                                  |
| <b>WATER USE</b>              | 1 <input type="checkbox"/> DOMESTIC 2 <input type="checkbox"/> STOCK 3 <input type="checkbox"/> IRRIGATION 4 <input type="checkbox"/> INDUSTRIAL                                                                                           | 5 <input type="checkbox"/> COMMERCIAL 6 <input type="checkbox"/> MUNICIPAL 7 <input checked="" type="checkbox"/> PUBLIC SUPPLY 8 <input type="checkbox"/> COOLING OR AIR CONDITIONING 9 <input type="checkbox"/> NOT USED |
| <b>METHOD OF CONSTRUCTION</b> | 1 <input type="checkbox"/> CABLE TOOL 2 <input checked="" type="checkbox"/> ROTARY (CONVENTIONAL) 3 <input type="checkbox"/> ROTARY (REVERSE) 4 <input checked="" type="checkbox"/> ROTARY (AIR) 5 <input type="checkbox"/> AIR PERCUSSION | 6 <input type="checkbox"/> BORING 7 <input type="checkbox"/> DIAMOND 8 <input type="checkbox"/> JETTING 9 <input type="checkbox"/> DRIVING 10 <input type="checkbox"/> DIGGING 11 <input type="checkbox"/> OTHER          |

|                   |                                                                    |                                                            |
|-------------------|--------------------------------------------------------------------|------------------------------------------------------------|
| <b>CONTRACTOR</b> | NAME OF WELL CONTRACTOR<br><b>International Water Supply, Ltd.</b> | WELL CONTRACTOR'S LICENCE NUMBER<br><b>2801</b>            |
|                   | ADDRESS<br><b>342 Bayview Dr., Barrie, Ont. L4M 4T5</b>            |                                                            |
|                   | NAME OF WELL TECHNICIAN<br><b>R.C. Magee</b>                       | WELL TECHNICIAN'S LICENCE NUMBER<br><b>T0117</b>           |
|                   | SIGNATURE OF TECHNICIAN/CONTRACTOR<br><i>[Signature]</i>           | SUBMISSION DATE<br>DAY <b>14</b> MO <b>07</b> YR <b>89</b> |

|                        |                                          |                    |
|------------------------|------------------------------------------|--------------------|
| <b>OFFICE USE ONLY</b> | DATE RECEIVED<br><b>2801 JUL 20 1989</b> | DATE OF INSPECTION |
|                        | INSPECTOR                                | REMARKS            |
|                        |                                          |                    |

# WATER WELL RECORD

6710068

MUNICIPALITY 67009

CON. 15

1. PRINT ONLY IN SPACES PROVIDED

2. CHECK ☒ CORRECT BOX WHERE APPLICABLE

11

|                                                          |                                                                  |                                                           |                  |
|----------------------------------------------------------|------------------------------------------------------------------|-----------------------------------------------------------|------------------|
| COUNTY OR DISTRICT<br><b>Wellington</b>                  | TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE<br><b>Nichol</b>          | CON. BLOCK, TRACT, SURVEY, ETC.<br><b>XV</b>              | LOT<br><b>20</b> |
| OWNER (SURNAME FIRST)<br><b>W. Dixon &amp; Sons Ltd.</b> | ADDRESS<br><b>745 St. David St. N.,<br/>FERGUS, ONT. N1M 2L1</b> | DATE COMPLETED<br>DAY <b>29</b> MO <b>03</b> YR <b>89</b> |                  |
| 21                                                       | 2                                                                | 3                                                         | 4                |

## LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

| GENERAL COLOUR | MOST COMMON MATERIAL | OTHER MATERIALS | GENERAL DESCRIPTION | DEPTH - FEET |     |
|----------------|----------------------|-----------------|---------------------|--------------|-----|
|                |                      |                 |                     | FROM         | TO  |
|                | Gravel               | Fill            |                     | 0            | 3   |
| Br.            | Clay                 | Stones          |                     | 3            | 20  |
| Gr.            | Clay                 |                 |                     | 20           | 30  |
| Gr.            | Clay                 | Stones          |                     | 30           | 77  |
| Br./Gr.        | Limestone            |                 |                     | 77           | 96  |
| Gr.            | Limestone            |                 |                     | 96           | 125 |
| Br.            | Limestone            |                 |                     | 125          | 265 |

31

32

41

### WATER RECORD

| WATER FOUND AT - FEET | KIND OF WATER                                                                                                                                                                            |
|-----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 235-265               | 1 <input checked="" type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR<br>2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERALS<br>6 <input type="checkbox"/> GAS |
| 15-18                 | 1 <input type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR<br>2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERALS<br>6 <input type="checkbox"/> GAS            |
| 20-23                 | 1 <input type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR<br>2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERALS<br>6 <input type="checkbox"/> GAS            |
| 25-28                 | 1 <input type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR<br>2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERALS<br>6 <input type="checkbox"/> GAS            |
| 30-33                 | 1 <input type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR<br>2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERALS<br>6 <input type="checkbox"/> GAS            |

### CASING & OPEN HOLE RECORD

| INSIDE DIAM. INCHES | MATERIAL                                                                                                                                                                                                  | WALL THICKNESS INCHES | DEPTH - FEET |
|---------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|--------------|
| 10-11               | 1 <input checked="" type="checkbox"/> STEEL<br>2 <input type="checkbox"/> GALVANIZED<br>3 <input type="checkbox"/> CONCRETE<br>4 <input type="checkbox"/> OPEN HOLE<br>5 <input type="checkbox"/> PLASTIC | 1.188                 | 0 85         |
| 17-18               | 1 <input type="checkbox"/> STEEL<br>2 <input type="checkbox"/> GALVANIZED<br>3 <input type="checkbox"/> CONCRETE<br>4 <input type="checkbox"/> OPEN HOLE<br>5 <input type="checkbox"/> PLASTIC            |                       | 85 265       |
| 24-25               | 1 <input type="checkbox"/> STEEL<br>2 <input type="checkbox"/> GALVANIZED<br>3 <input type="checkbox"/> CONCRETE<br>4 <input type="checkbox"/> OPEN HOLE<br>5 <input type="checkbox"/> PLASTIC            |                       |              |

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

### PLUGGING & SEALING RECORD

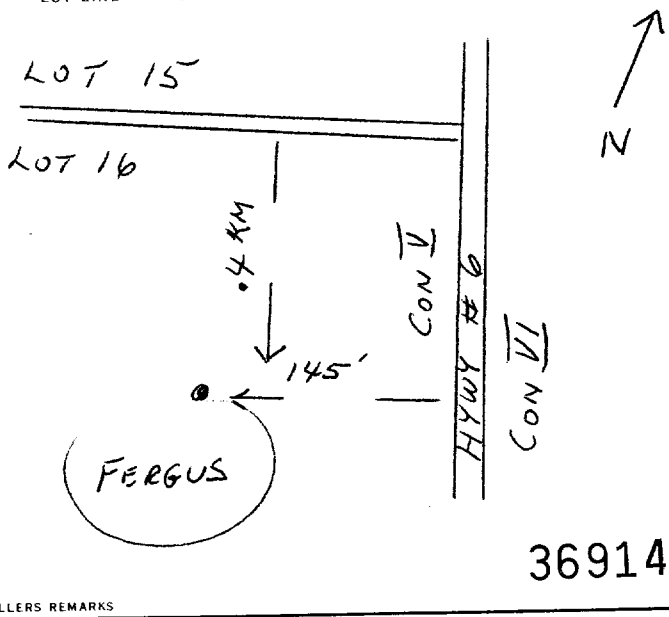
| DEPTH SET AT - FEET | MATERIAL AND TYPE (CEMENT GROUT, LEAD PACKER, ETC.) |
|---------------------|-----------------------------------------------------|
| 10-13               | 14-17                                               |
| 18-21               | 22-25                                     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

71

|                                                                                                     |                                        |                                                                                                                 |
|-----------------------------------------------------------------------------------------------------|----------------------------------------|-----------------------------------------------------------------------------------------------------------------|
| PUMPING TEST METHOD<br>1 <input type="checkbox"/> PUMP 2 <input checked="" type="checkbox"/> BAILEY | PUMPING RATE<br>20 GPM                 | DURATION OF PUMPING<br>15-16 HOURS 15 MINS                                                                      |
| STATIC LEVEL<br>97 FEET                                                                             | WATER LEVEL END OF PUMPING<br>140 FEET | WATER LEVELS DURING<br>15 MINUTES 140 FEET<br>30 MINUTES 140 FEET<br>45 MINUTES 140 FEET<br>60 MINUTES 140 FEET |
| IF FLOWING, GIVE RATE                                                                               | PUMP INTAKE SET AT<br>160 GPM          | WATER AT END OF TEST<br>18 FEET                                                                                 |
| RECOMMENDED PUMP TYPE<br><input type="checkbox"/> SHALLOW <input checked="" type="checkbox"/> DEEP  | RECOMMENDED PUMP SETTING               | RECOMMENDED PUMPING RATE<br>18 GPM                                                                              |

### LOCATION OF WELL

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



36914

DRILLERS REMARKS

|                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                       |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| FINAL STATUS OF WELL<br>1 <input checked="" type="checkbox"/> WATER SUPPLY<br>2 <input type="checkbox"/> OBSERVATION WELL<br>3 <input type="checkbox"/> TEST HOLE<br>4 <input type="checkbox"/> RECHARGE WELL                                                         | 5 <input type="checkbox"/> ABANDONED, INSUFFICIENT SUPPLY<br>6 <input type="checkbox"/> ABANDONED, POOR QUALITY<br>7 <input type="checkbox"/> UNFINISHED<br>9 <input type="checkbox"/> DEWATERING                                     |
| WATER USE<br>1 <input type="checkbox"/> DOMESTIC<br>2 <input type="checkbox"/> STOCK<br>3 <input type="checkbox"/> IRRIGATION<br>4 <input type="checkbox"/> INDUSTRIAL<br>5 <input type="checkbox"/> OTHER                                                            | 5 <input type="checkbox"/> COMMERCIAL<br>6 <input type="checkbox"/> MUNICIPAL<br>7 <input type="checkbox"/> PUBLIC SUPPLY<br>8 <input checked="" type="checkbox"/> COOLING OR AIR CONDITIONING<br>9 <input type="checkbox"/> NOT USED |
| METHOD OF CONSTRUCTION<br>1 <input type="checkbox"/> CABLE TOOL<br>2 <input checked="" type="checkbox"/> ROTARY (CONVENTIONAL)<br>3 <input type="checkbox"/> ROTARY (REVERSE)<br>4 <input type="checkbox"/> ROTARY (AIR)<br>5 <input type="checkbox"/> AIR PERCUSSION | 6 <input type="checkbox"/> BORING<br>7 <input type="checkbox"/> DIAMOND<br>8 <input type="checkbox"/> JETTING<br>9 <input type="checkbox"/> DRIVING<br>10 <input type="checkbox"/> DIGGING<br>11 <input type="checkbox"/> OTHER       |

|                                                           |                                                            |
|-----------------------------------------------------------|------------------------------------------------------------|
| NAME OF WELL CONTRACTOR<br><b>Langhorne Drilling Ltd.</b> | WELL CONTRACTOR'S LICENCE NUMBER<br><b>3317</b>            |
| ADDRESS<br><b>R.R. 1, Hillsburgh Ont.</b>                 |                                                            |
| NAME OF WELL TECHNICIAN<br><b>ROY LANG</b>                | WELL TECHNICIAN'S LICENCE NUMBER<br><b>T-0158</b>          |
| SIGNATURE OF TECHNICIAN/CONTRACTOR<br><b>R. Lang</b>      | SUBMISSION DATE<br>DAY <b>31</b> MO <b>10</b> YR <b>89</b> |

|                            |                                     |
|----------------------------|-------------------------------------|
| DATA SOURCE<br><b>3317</b> | DATE RECEIVED<br><b>NOV 15 1989</b> |
| DATE OF INSPECTION         | INSPECTOR                           |
| REMARKS                    |                                     |

CSS.ES



# The Ontario Water Resources Act

## WATER WELL RECORD

Mark correct box with a checkmark, where applicable.

15

County or District

Township/Borough/City/Town/Village

Con block tract survey, etc.

|     |       |
|-----|-------|
| Lot | 25-27 |
|-----|-------|

**Address**

P.O. Box 6 FERGUS, NT NIM-247

Date 48-53

Date completed **21** **05** **97**  
day month year

Nothing



RC

Basin Code

ii

---

iv

## LOG OF OVERBURDEN AND BEDROCK MATERIALS (see instructions)

| General colour | Most common material | Other materials | General description | Depth - feet |     |
|----------------|----------------------|-----------------|---------------------|--------------|-----|
|                |                      |                 |                     | From         | To  |
| BROWN          | SAND                 |                 |                     | 0            | 30  |
| GREY           | CLAY                 | SAND            |                     | 30           | 50  |
| GREY           | CLAY                 | GRAVEL          |                     | 50           | 94  |
| BROWN          | ROCK                 |                 |                     | 94           | 115 |
| GREY           | ROCK                 |                 |                     | 115          | 140 |
|                |                      |                 |                     |              |     |
|                |                      |                 |                     |              |     |
|                |                      |                 | TOTAL DEPTH         | 140'         |     |
|                |                      |                 |                     |              |     |
|                |                      | 6" DRIVE SHOE.  |                     |              |     |

31

32

## WATER RECORD

| 41                    |   | WATER RECORD                   |   |                                   |    | 42 |  |
|-----------------------|---|--------------------------------|---|-----------------------------------|----|----|--|
| Water found at – feet |   | Kind of water                  |   |                                   |    |    |  |
| 16-13                 | 1 | <input type="checkbox"/> Fresh | 3 | <input type="checkbox"/> Sulphur  | 14 |    |  |
|                       | 2 | <input type="checkbox"/> Salty | 4 | <input type="checkbox"/> Minerals |    |    |  |
|                       |   |                                | 6 | <input type="checkbox"/> Gas      |    |    |  |
| 15-18                 | 1 | <input type="checkbox"/> Fresh | 3 | <input type="checkbox"/> Sulphur  | 19 |    |  |
|                       | 2 | <input type="checkbox"/> Salty | 4 | <input type="checkbox"/> Minerals |    |    |  |
|                       |   |                                | 6 | <input type="checkbox"/> Gas      |    |    |  |
| 20-23                 | 1 | <input type="checkbox"/> Fresh | 3 | <input type="checkbox"/> Sulphur  | 24 |    |  |
|                       | 2 | <input type="checkbox"/> Salty | 4 | <input type="checkbox"/> Minerals |    |    |  |
|                       |   |                                | 6 | <input type="checkbox"/> Gas      |    |    |  |
| 25-28                 | 1 | <input type="checkbox"/> Fresh | 3 | <input type="checkbox"/> Sulphur  | 29 |    |  |
|                       | 2 | <input type="checkbox"/> Salty | 4 | <input type="checkbox"/> Minerals |    |    |  |
|                       |   |                                | 6 | <input type="checkbox"/> Gas      |    |    |  |
| 30-33                 | 1 | <input type="checkbox"/> Fresh | 3 | <input type="checkbox"/> Sulphur  | 34 |    |  |
|                       | 2 | <input type="checkbox"/> Salty | 4 | <input type="checkbox"/> Minerals |    |    |  |
|                       |   |                                | 6 | <input type="checkbox"/> Gas      |    |    |  |

## CASING & OPEN HOLE RECORD

| 51 CASING & OPEN HOLE RECORD |                                                                                                                                                                                                           |                       |              |              |
|------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|--------------|--------------|
| Inside diam inches           | Material                                                                                                                                                                                                  | Wall thickness inches | Depth - feet |              |
|                              |                                                                                                                                                                                                           |                       | From         | To           |
| 10-11<br>6"                  | <input checked="" type="checkbox"/> 1 Steel<br><input type="checkbox"/> 2 Galvanized<br><input type="checkbox"/> 3 Concrete<br><input type="checkbox"/> 4 Open hole<br><input type="checkbox"/> 5 Plastic | 12<br>.188            | 95           | 13-16<br>95  |
| 17-18<br>6"                  | <input type="checkbox"/> 1 Steel<br><input type="checkbox"/> 2 Galvanized<br><input type="checkbox"/> 3 Concrete<br><input checked="" type="checkbox"/> 4 Open hole<br><input type="checkbox"/> 5 Plastic | 19                    | 95           | 20-23<br>140 |
| 24-25                        | <input type="checkbox"/> 1 Steel<br><input type="checkbox"/> 2 Galvanized<br><input type="checkbox"/> 3 Concrete<br><input type="checkbox"/> 4 Open hole<br><input type="checkbox"/> 5 Plastic            | 26                    |              | 27-30        |

|         |       |          |       |        |
|---------|-------|----------|-------|--------|
| Opening | 31-33 | Diameter | 34-38 | Length |
|---------|-------|----------|-------|--------|

|               |                                |                        |          |       |        |       |
|---------------|--------------------------------|------------------------|----------|-------|--------|-------|
| <b>SCREEN</b> | Sizes of opening<br>(Slot No.) | 31-33                  | Diameter | 34-38 | Length | 39-40 |
|               |                                |                        | Inches   |       | feet   |       |
|               | Material and type              | Depth at top of screen |          |       | 30     |       |
|               |                                |                        |          |       | feet   |       |

### PLUGGING & SEALING RECORD

|                                                   |                  |                                                    |  |
|---------------------------------------------------|------------------|----------------------------------------------------|--|
| 61                                                |                  | <b>PLUGGING &amp; SEALING RECORD</b>               |  |
| <input checked="" type="checkbox"/> Annular space |                  | <input type="checkbox"/> Abandonment               |  |
| Depth set at - feet                               |                  | Material and type (Cement grout, bentonite, etc.). |  |
| From                                              | To               |                                                    |  |
| 10-13                                             | 25 <sup>17</sup> | <b>BENTONITE</b>                                   |  |
| 0                                                 | 22-25            |                                                    |  |
| 18-21                                             |                  |                                                    |  |
| 26-29                                             | 30-33            | 80                                                 |  |

|              |                                                                                                                   |                                          |                                                                                                       |                              |                                                                                                                 |                              |
|--------------|-------------------------------------------------------------------------------------------------------------------|------------------------------------------|-------------------------------------------------------------------------------------------------------|------------------------------|-----------------------------------------------------------------------------------------------------------------|------------------------------|
| PUMPING TEST | Pumping test method <sup>10</sup><br>1 <input checked="" type="checkbox"/> Pump 2 <input type="checkbox"/> Bailer |                                          | Pumping rate <sup>11-14</sup><br>3 GPM                                                                |                              | Duration of pumping <sup>17-18</sup><br>1... Hours 0... Mins                                                    |                              |
|              | Static level                                                                                                      | Water level end of pumping <sup>25</sup> | Water levels during 1 <input checked="" type="checkbox"/> Pumping 2 <input type="checkbox"/> Recovery |                              |                                                                                                                 |                              |
|              | <sup>19-21</sup><br>44 feet                                                                                       | <sup>22-24</sup><br>125 feet             | <sup>26-28</sup><br>105 feet                                                                          | <sup>29-31</sup><br>125 feet | <sup>32-34</sup><br>125 feet                                                                                    | <sup>35-37</sup><br>125 feet |
|              | If flowing give rate <sup>38-41</sup><br>GPM                                                                      |                                          | Pump intake set at<br>feet                                                                            |                              | Water at end of test <sup>42</sup><br><input checked="" type="checkbox"/> Clear <input type="checkbox"/> Cloudy |                              |
|              | Recommended pump type<br><input type="checkbox"/> Shallow <input checked="" type="checkbox"/> Deep                |                                          | Recommended pump setting <sup>46-49</sup><br>135 feet                                                 |                              | Recommended pump rate<br>3 GPM                                                                                  |                              |

**FINAL STATUS OF WELL**

1 ☒ Water supply      5 ☐ Abandoned, insufficient supply      9 ☐ Unfinished  
2 ☐ Observation well      6 ☐ Abandoned, poor quality      10 ☐ Replacement well  
3 ☐ Test hole      7 ☐ Abandoned (Other)  
4 ☐ Recharge well      8 ☐ Dewatering

## WATER USE

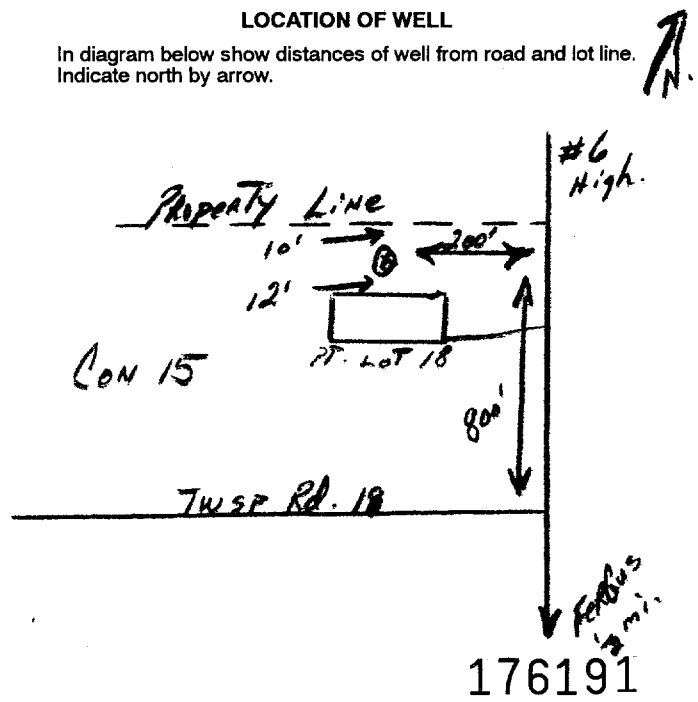
|                                                |                                                       |                                         |
|------------------------------------------------|-------------------------------------------------------|-----------------------------------------|
| 1 <input checked="" type="checkbox"/> Domestic | 5 <input type="checkbox"/> Commercial                 | 9 <input type="checkbox"/> Not used     |
| 2 <input type="checkbox"/> Stock               | 6 <input type="checkbox"/> Municipal                  | 10 <input type="checkbox"/> Other ..... |
| 3 <input type="checkbox"/> Irrigation          | 7 <input type="checkbox"/> Public supply              |                                         |
| 4 <input type="checkbox"/> Industrial          | 8 <input type="checkbox"/> Cooling & air conditioning |                                         |

## METHOD OF CONSTRUCTION

|                                                    |                                           |                                         |
|----------------------------------------------------|-------------------------------------------|-----------------------------------------|
| 1 <input type="checkbox"/> Cable tool              | 5 <input type="checkbox"/> Air percussion | 9 <input type="checkbox"/> Driving      |
| 2 <input type="checkbox"/> Rotary (conventional)   | 6 <input type="checkbox"/> Boring         | 10 <input type="checkbox"/> Digging     |
| 3 <input type="checkbox"/> Rotary (reverse)        | 7 <input type="checkbox"/> Diamond        | 11 <input type="checkbox"/> Other ..... |
| 4 <input checked="" type="checkbox"/> Rotary (air) | 8 <input type="checkbox"/> Jetting        |                                         |

### LOCATION OF WELL

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



|                                    |                               |
|------------------------------------|-------------------------------|
| Name of Well Contractor            | Well Contractor's Licence No. |
| GRAHAM WELL DRILLING LTD 2336      |                               |
| Address                            |                               |
| RR#5 ROCKWOOD, ONT. NOB-2K0        |                               |
| Name of Well Technician            | Well Technician's Licence No. |
| Jim Wilson                         | T-1924                        |
| Signature of Technician/Contractor | Submission date               |
| Robert W. Graham                   | 030 05 97<br>day mo yr        |

**MINISTRY USE ONLY**

|                                                                                                                                                             |    |            |       |               |       |   |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------|----|------------|-------|---------------|-------|---|
| Data source                                                                                                                                                 | 58 | Contractor | 59-62 | Date received | 63-68 | 8 |
|                                                                                                                                                             |    | 2336       |       | JUN 27 1997   |       |   |
| Date of inspection                                                                                                                                          |    | Inspector  |       |               |       |   |
| Remarks                                                                                                                                                     |    |            |       |               |       |   |
| <div style="text-align: right;"> <br/>           CSS. S         </div> |    |            |       |               |       |   |



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

11

6713078

Municipality  
67009

Con.  
CON 16

64-99

|                                               |                          |                                                         |                 |                                           |                         |
|-----------------------------------------------|--------------------------|---------------------------------------------------------|-----------------|-------------------------------------------|-------------------------|
| County or District<br><b>WELLINGTON</b>       |                          | Township/Borough/City/Town/Village<br><b>NICHOL TWP</b> |                 | Con block tract survey, etc.<br><b>16</b> | Lot<br><b>16</b>        |
| Owner's surname<br><b>1188521 ONTARIO LTD</b> | First name<br><b>LTD</b> | Address<br><b>142 SOUTH RIVER RD. ELORA, ONT.</b>       |                 | Date completed<br><b>26 08 99</b>         |                         |
| Zone<br><b>21</b>                             | Easting<br><b>10</b>     | Northings<br><b>12</b>                                  | RC<br><b>17</b> | Elevation<br><b>24</b>                    | Basin Code<br><b>25</b> |

LOG OF OVERBURDEN AND BEDROCK MATERIALS (see instructions)

| General colour | Most common material | Other materials | General description | Depth - feet |      |
|----------------|----------------------|-----------------|---------------------|--------------|------|
|                |                      |                 |                     | From         | To   |
| BROWN          | SAND                 |                 |                     | 0            | 25   |
| GREY           | CLAY                 | STONES          |                     | 25           | 70   |
| GREY           | CLAY                 | GRAVEL          |                     | 70           | 83   |
| BROWN          | ROCK                 |                 |                     | 83           | 115  |
| GREY-BROWN     | ROCK                 |                 |                     | 115          | 190  |
|                |                      |                 | TOTAL DEPTH         |              | 190' |
|                |                      |                 | 6" DRIVE SHOE       |              |      |

|    |    |
|----|----|
| 31 | 32 |
|----|----|

| WATER RECORD          |                                                                                                                                                                                      |
|-----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Water found at - feet | Kind of water                                                                                                                                                                        |
| 190                   | <input checked="" type="checkbox"/> Fresh<br><input type="checkbox"/> Salty<br><input type="checkbox"/> Sulphur<br><input type="checkbox"/> Minerals<br><input type="checkbox"/> Gas |

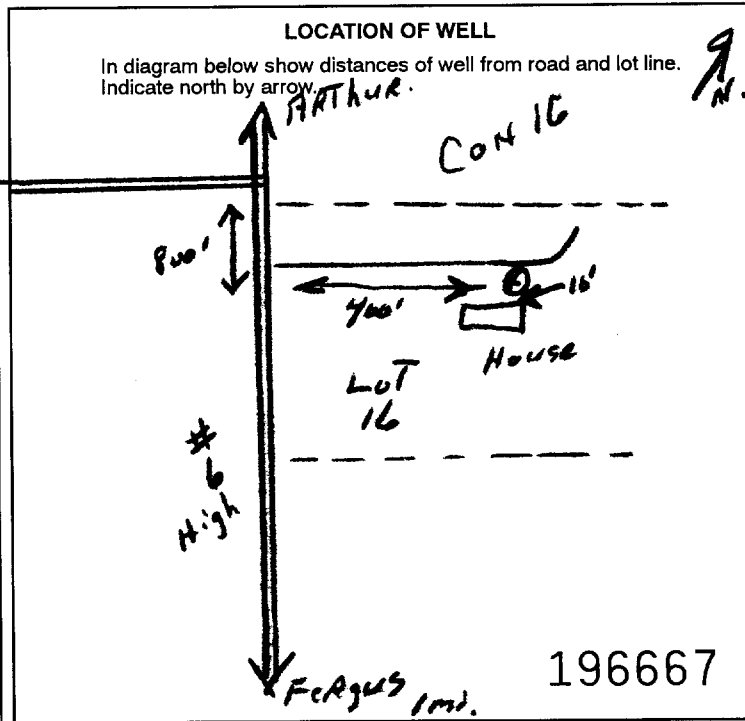
| CASING & OPEN HOLE RECORD |            |
|---------------------------|------------|
| Inside diam inches        | Material   |
| 6"                        | Steel      |
| 6"                        | Galvanized |
| 6"                        | Concrete   |
| 6"                        | Open hole  |
| 6"                        | Plastic    |

| Sizes of opening (Slot No.) | Diameter inches | Length feet |
|-----------------------------|-----------------|-------------|
|                             |                 |             |

| PLUGGING & SEALING RECORD |                                                   |
|---------------------------|---------------------------------------------------|
| Annular space             | Abandonment                                       |
| Depth set at - feet       | Material and type (Cement grout, bentonite, etc.) |
| 0 25                      | BENTONITE                                         |

| PUMPING TEST                                                                                       |                                        |
|----------------------------------------------------------------------------------------------------|----------------------------------------|
| Pumping test method<br><input checked="" type="checkbox"/> Pump <input type="checkbox"/> Bailer    | Pumping rate<br>7 GPM                  |
| Static level<br>80 feet                                                                            | Water level end of pumping<br>120 feet |
| Water levels during pumping                                                                        | Water at end of test                   |
| 15 minutes<br>93 feet                                                                              | 30 minutes<br>104 feet                 |
| 45 minutes<br>115 feet                                                                             | 60 minutes<br>120 feet                 |
| Recommended pump type<br><input type="checkbox"/> Shallow <input checked="" type="checkbox"/> Deep | Recommended pump setting<br>130 feet   |
|                                                                                                    | Recommended pump rate<br>7 GPM         |

| FINAL STATUS OF WELL                                                                                                                                                                   |                                                                                                                                                                                                  |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <input checked="" type="checkbox"/> Water supply<br><input type="checkbox"/> Observation well<br><input type="checkbox"/> Test hole<br><input type="checkbox"/> Recharge well          | <input type="checkbox"/> Abandoned, insufficient supply<br><input type="checkbox"/> Abandoned, poor quality<br><input type="checkbox"/> Abandoned (Other)<br><input type="checkbox"/> Dewatering |
| WATER USE                                                                                                                                                                              |                                                                                                                                                                                                  |
| <input checked="" type="checkbox"/> Domestic<br><input type="checkbox"/> Stock<br><input type="checkbox"/> Irrigation<br><input type="checkbox"/> Industrial                           | <input type="checkbox"/> Commercial<br><input type="checkbox"/> Municipal<br><input type="checkbox"/> Public supply<br><input type="checkbox"/> Cooling & air conditioning                       |
| METHOD OF CONSTRUCTION                                                                                                                                                                 |                                                                                                                                                                                                  |
| <input type="checkbox"/> Cable tool<br><input type="checkbox"/> Rotary (conventional)<br><input type="checkbox"/> Rotary (reverse)<br><input checked="" type="checkbox"/> Rotary (air) | <input type="checkbox"/> Air percussion<br><input type="checkbox"/> Boring<br><input type="checkbox"/> Diamond<br><input type="checkbox"/> Jetting                                               |



|                                                            |                                                |
|------------------------------------------------------------|------------------------------------------------|
| Name of Well Contractor<br><b>GRAHAM WELL DRILLING LTD</b> | Well Contractor's Licence No.<br><b>2336</b>   |
| Address<br><b>RRA 5 ROCKWOOD, ONT. N0B-2K0</b>             |                                                |
| Name of Well Technician<br><b>Jim Wilson</b>               | Well Technician's Licence No.<br><b>T-1924</b> |
| Signature of Technician/Contractor<br><i>[Signature]</i>   | Submission date<br><b>031 08 99</b>            |

| MINISTRY USE ONLY | Data source        | Contractor  | Date received      |
|-------------------|--------------------|-------------|--------------------|
|                   |                    | <b>2336</b> | <b>SEP 08 1999</b> |
|                   | Date of inspection | Inspector   |                    |
|                   | Remarks            |             |                    |

Measurements recorded in: ☒ Metric ☐ Imperial

|                                                               |  |            |  |                             |  |                     |  |                                  |  |
|---------------------------------------------------------------|--|------------|--|-----------------------------|--|---------------------|--|----------------------------------|--|
| Address of Well Location (Street Number/Name)<br>6581 Hwy 6 N |  |            |  | Township<br>West Garafraxa  |  | Lot<br>12           |  | Concession<br>1                  |  |
| County/District/Municipality<br>Wellington                    |  |            |  | City/Town/Village<br>Fergus |  | Province<br>Ontario |  | Postal Code<br>N1M2W3            |  |
| UTM Coordinates<br>NAD 83                                     |  | Zone<br>17 |  | Easting<br>548508           |  | Northing<br>4840921 |  | Municipal Plan and Sublot Number |  |

Overburden and Bedrock Materials/Abandonment Sealing Record (see instructions on the back of this form)

| General Colour | Most Common Material | Other Materials | General Description | Depth (m/ft)<br>From | Depth (m/ft)<br>To |
|----------------|----------------------|-----------------|---------------------|----------------------|--------------------|
| Brown          | Sand                 |                 |                     | 0                    | 10.66              |
| Gray           | Clay & stones        |                 |                     | 10.66                | 29.87              |
| Gray           | Clay                 |                 |                     | 29.87                | 32.30              |
| Brown          | limestone            |                 |                     | 32.30                | 54.25              |
|                |                      |                 |                     |                      |                    |
|                |                      |                 |                     |                      |                    |
|                |                      |                 |                     |                      |                    |
|                |                      |                 |                     |                      |                    |
|                |                      |                 |                     |                      |                    |
|                |                      |                 |                     |                      |                    |

| Annular Space               |                           |                                             |                           |
|-----------------------------|---------------------------|---------------------------------------------|---------------------------|
| Depth Set at (m/ft)<br>From | Depth Set at (m/ft)<br>To | Type of Sealant Used<br>(Material and Type) | Volume Placed<br>(m³/ft³) |
| 0                           | 10 m                      | Bentonite Grout                             | .25                       |
|                             |                           |                                             |                           |
|                             |                           |                                             |                           |
|                             |                           |                                             |                           |

| Method of Construction                                                                                                                                                                                                                                                 | Well Use                                                                                                                                                                                                                                                                                  |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <input type="checkbox"/> Cable Tool<br><input checked="" type="checkbox"/> Rotary (Conventional)<br><input type="checkbox"/> Rotary (Reverse)<br><input type="checkbox"/> Boring<br><input type="checkbox"/> Air percussion<br><input type="checkbox"/> Other, specify | <input type="checkbox"/> Public<br><input checked="" type="checkbox"/> Domestic<br><input type="checkbox"/> Livestock<br><input type="checkbox"/> Irrigation<br><input type="checkbox"/> Industrial<br><input type="checkbox"/> Other, specify                                            |
| <input type="checkbox"/> Diamond<br><input type="checkbox"/> Jetting<br><input type="checkbox"/> Driving<br><input type="checkbox"/> Digging                                                                                                                           | <input type="checkbox"/> Commercial<br><input type="checkbox"/> Municipal<br><input type="checkbox"/> Test Hole<br><input type="checkbox"/> Cooling & Air Conditioning<br><input type="checkbox"/> Not used<br><input type="checkbox"/> Dewatering<br><input type="checkbox"/> Monitoring |

| Construction Record - Casing |                                                                          |                        |                      | Status of Well     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|------------------------------|--------------------------------------------------------------------------|------------------------|----------------------|--------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Inside Diameter (cm/in)      | Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel) | Wall Thickness (cm/in) | Depth (m/ft)<br>From | Depth (m/ft)<br>To |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| 15.9                         | steel                                                                    | 188                    | 1.50                 | 33.2               | <input checked="" type="checkbox"/> Water Supply<br><input type="checkbox"/> Replacement Well<br><input type="checkbox"/> Test Hole<br><input type="checkbox"/> Recharge Well<br><input type="checkbox"/> Dewatering Well<br><input type="checkbox"/> Observation and/or Monitoring Hole<br><input type="checkbox"/> Alteration (Construction)<br><input type="checkbox"/> Abandoned, Insufficient Supply<br><input type="checkbox"/> Abandoned, Poor Water Quality<br><input type="checkbox"/> Abandoned, other, specify<br><input type="checkbox"/> Other, specify |
|                              |                                                                          |                        |                      |                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|                              |                                                                          |                        |                      |                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |

| Construction Record - Screen |                                       |          |                      | Status of Well     |  |
|------------------------------|---------------------------------------|----------|----------------------|--------------------|--|
| Outside Diameter (cm/in)     | Material (Plastic, Galvanized, Steel) | Slot No. | Depth (m/ft)<br>From | Depth (m/ft)<br>To |  |
|                              |                                       |          |                      |                    |  |
|                              |                                       |          |                      |                    |  |
|                              |                                       |          |                      |                    |  |

| Water Details                                                                                                                                           | Hole Diameter                            |
|---------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|
| Water found at Depth<br>54.15(m/ft) <input type="checkbox"/> Gas <input checked="" type="checkbox"/> Fresh <input checked="" type="checkbox"/> Untested | Depth (m/ft)<br>From To Diameter (cm/in) |
| Water found at Depth<br>(m/ft) <input type="checkbox"/> Gas <input type="checkbox"/> Other, specify                                                     | 0 33.2 22.8                              |
| Water found at Depth<br>(m/ft) <input type="checkbox"/> Gas <input type="checkbox"/> Other, specify                                                     | 33.2 54.25 15.6                          |

|                                                       |                       |                                                              |  |                                          |  |
|-------------------------------------------------------|-----------------------|--------------------------------------------------------------|--|------------------------------------------|--|
| Business Name of Well Contractor<br>Well Initiatives  |                       |                                                              |  | Well Contractor's Licence No.<br>7 2 2 1 |  |
| Business Address (Street Number/Name)<br>15 Town line |                       |                                                              |  | Municipality<br>Orangeville              |  |
| Province<br>ON                                        | Postal Code<br>L9W3R4 | Business E-mail Address                                      |  |                                          |  |
| Bus. Telephone No. (inc. area code)<br>5198468289     |                       | Name of Well Technician (Last Name, First Name)<br>Losch Kim |  |                                          |  |
| Well Technician's Licence No.<br>T 9 2 7              |                       | Signature of Technician and/or Contractor<br>[Signature]     |  | Date Submitted<br>20130630               |  |

| Results of Well Yield Testing                                                                      |  |              |                    |            |                    |
|----------------------------------------------------------------------------------------------------|--|--------------|--------------------|------------|--------------------|
| After test of well yield, water was:                                                               |  | Draw Down    |                    | Recovery   |                    |
| <input checked="" type="checkbox"/> Clear and sand free<br><input type="checkbox"/> Other, specify |  | Time (min)   | Water Level (m/ft) | Time (min) | Water Level (m/ft) |
| If pumping discontinued, give reason:                                                              |  | Static Level | 30.08              |            | 33.38              |
| Pump intake set at (m/ft)<br>175                                                                   |  | 1            | 31.05              | 1          | 32.56              |
| Pumping rate (l/min / GPM)<br>5 IGPM                                                               |  | 2            | 31.22              | 2          | 32.03              |
| Duration of pumping<br>1 hrs + 0 min                                                               |  | 3            | 31.50              | 3          | 31.72              |
| Final water level end of pumping (m/ft)<br>33.28                                                   |  | 4            | 31.72              | 4          | 31.55              |
| If flowing give rate (l/min / GPM)<br>175                                                          |  | 5            | 31.86              | 5          | 31.36              |
| Recommended pump depth (m/ft)<br>175                                                               |  | 10           | 32.33              | 10         | 31.08              |
| Recommended pump rate (l/min / GPM)<br>5 IGPM                                                      |  | 15           | 32.60              | 15         | 30.95              |
| Well production (l/min / GPM)                                                                      |  | 20           | 32.76              | 20         | 30.85              |
| Disinfected?                                                                                       |  | 25           | 32.87              | 25         | 30.78              |
| <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No                                |  | 30           | 32.97              | 30         | 30.72              |
|                                                                                                    |  | 40           | 33.14              | 40         | 30.62              |
|                                                                                                    |  | 50           | 33.28              | 50         | 30.54              |
|                                                                                                    |  | 60           | 33.38              | 60         | 30.47              |

Map of Well Location

Please provide a map below following instructions on the back.

Comments:

|                                                                                                                   |                                                         |                                                                      |
|-------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------|----------------------------------------------------------------------|
| Well owner's information package delivered<br><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | Date Package Delivered<br>Y Y Y Y M M D D D<br>20130613 | Ministry Use Only<br>Audit No.<br>Z159276<br>Received<br>JUL 09 2013 |
|-------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------|----------------------------------------------------------------------|

## **APPENDIX H**

### **Limitations of Report**



## STATEMENT OF LIMITATIONS

1. The work performed in this report was carried out in accordance with the Standard Terms of Conditions made part of our contract. The conclusions presented herein are based solely upon the scope of services and time and budgetary limitations described in our contract.
2. The report has been prepared in accordance with generally accepted hydrogeological study and/or engineering practices. No other warranties, either expressed or implied, are made as to the professional services provided under the terms of our contract and included in this report.
3. The services performed and outlined in this report were based, in part, upon visual observations of the site and attendant structures. Our opinion cannot be extended to portions of the site which were unavailable for direct observation, reasonably beyond the control of CHUNG & VANDER DOELEN ENGINEERING LTD.
4. The objective of this report was to assess hydrogeological conditions at the site, within the context of our contract and hydrogeological assessment guidelines within the applicable jurisdiction. Evaluating compliance of past or future owners with applicable local, provincial and federal government laws and regulations was not included in our contract for services.
5. CHUNG & VANDER DOELEN ENGINEERING LTD. has relied in good faith on information and services provided by others while conducting the record search. We accept no responsibility for any deficiency, misstatements or inaccuracies contained in this report as a result of omission, misinterpretation or fraudulent acts of the services used.
6. It should be noted that the observations and recommendations presented in this report are limited to the actual locations explored. The information presented in terms of the thickness and types of the subsoils encountered, groundwater levels, and chemical testing results, etc., are only applicable to the actual locations explored. Variations may be present between these locations. Should significant variation become apparent during later investigations, it may be necessary to reevaluate the findings of this report.
7. The conclusions of this report are based in part, on the information provided by others. The possibility remains that unexpected environmental conditions may be encountered at the site in locations not specifically investigated. Should such an event occur, CHUNG & VANDER DOELEN ENGINEERING LTD. must be notified in order that we may determine if modifications to our conclusions are necessary.



**ENCLOSURES**





# Soil Abbreviations and Terms Used on Record of Borehole Sheets

## TERMINOLOGY DESCRIBING COMMON SOIL TYPES:

|                |                                                                        |
|----------------|------------------------------------------------------------------------|
| <b>Topsoil</b> | - mixture of soil and humus capable of supporting vegetation           |
| <b>Peat</b>    | - mixture of visible and invisible fragments of decayed organic matter |
| <b>Till</b>    | - unstratified glacial deposit which may range from clay to boulders   |
| <b>Fill</b>    | - soil materials identified as being placed anthropologically          |

## CLASSIFICATION (UNIFIED SYSTEM)

|          |                        |
|----------|------------------------|
| Clay     | <0.002mm               |
| Silt     | 0.002 to .075mm        |
| Sand     | 0.075 to 4.75mm        |
|          | Fine 0.075 to 0.425 mm |
|          | Medium 0.425 to 2.0 mm |
|          | Coarse 2.0 to 4.75 mm  |
| Gravel   | 4.75 to 75mm           |
|          | Fine 4.75 to 19 mm     |
|          | Coarse 19 to 75 mm     |
| Cobbles  | 75 to 300mm            |
| Boulders | >300mm                 |

## TERMINOLOGY

| Soil Composition           | % by Weight |
|----------------------------|-------------|
| "traces"                   | <10%        |
| "some"(eg. some silt)      | 10-20%      |
| Adjective (eg. sandy)      | 20-35%      |
| "and"(eg. sand and gravel) | 35-50%      |

**Standard Penetration Resistance (SPT):** Standard Penetration Resistance ('N' Values) refers to the number of blows required to advance a standard (ASTM D1586) 51 mm Ø (2 inch) split-spoon sampler by the use of a free falling, 63.5 Kg (140lbs) hammer. The number of blows from the drop weight is recorded for every 15 cm (6 inches). The hammer is dropped from a distance of 0.76m (30 inches) providing 474.5 Joules per blow. When the sampler is driven a total of 45 cm (18 inches) into the soil, the standard penetration index ('N' Value) is the total number of blows for the last 30 cm (12 inches).

**Dynamic Cone Penetration Resistance (DCPT):** Dynamic Cone Penetration Resistance is similar to a SPT with the 474.5 Joule/blow impulse provided by the free falling hammer where the split-spoon sampler is replaced by a 51 mm Ø, 60° conical point and the number of blows is recorded continuously for every 30 cm (12 inches).

## COHESIVE SOILS CONSISTENCY

|            | (kPa)   | (P.S.F.)  | Nominal 'N' Value |
|------------|---------|-----------|-------------------|
| Very Soft  | <12     | <250      | 0-2               |
| Soft       | 12-25   | 250-500   | 2-4               |
| Firm       | 25-50   | 500-1000  | 4-8               |
| Stiff      | 50-100  | 1000-2000 | 8-15              |
| Very Stiff | 100-200 | 2000-4000 | 15-30             |
| Hard       | >200    | >4000     | >30               |

## RELATIVE DENSITY OF COHESIONLESS SOIL

|            | 'N' Value |
|------------|-----------|
| Very Loose | 0-4       |
| Loose      | 4-10      |
| Compact    | 10-30     |
| Dense      | 30-50     |
| Very Dense | >50       |

## MOISTURE CONDITIONS:

| Cohesive Soil                         |
|---------------------------------------|
| DTPL- Drier than plastic limit        |
| APL- About plastic limit              |
| WTPL- Wetter than plastic limit       |
| MWTPL- Much wetter than plastic limit |

| Cohesionless Soil |
|-------------------|
| Damp              |
| Moist             |
| Wet               |
| Saturated         |

## SAMPLE TYPES AND ADDITIONAL FIELD TESTS

|           |                                           |           |                                 |             |                        |
|-----------|-------------------------------------------|-----------|---------------------------------|-------------|------------------------|
| <b>SS</b> | Split Spoon Sample<br>(obtained from SPT) | <b>GS</b> | Grab Sample                     | <b>PP</b>   | Pocket Penetrometer    |
| <b>AS</b> | Auger Sample                              | <b>BS</b> | Bulk Sample                     | <b>VANE</b> | Peak & Remolded shear  |
|           |                                           | <b>TW</b> | Thin Wall Sample or Shelby Tube | <b>DMT</b>  | Flat Plate Dilatometer |

## LABORATORY TESTS

|                      |                     |                      |                    |                      |                        |
|----------------------|---------------------|----------------------|--------------------|----------------------|------------------------|
| <b>SG</b>            | Specific Gravity    | <b>S</b>             | Sieve Analysis     | <b>W</b>             | Water Content          |
| <b>H</b>             | Hydrometer          | <b>P</b>             | Field Permeability | <b>K</b>             | Lab Permeability       |
| <b>W<sub>p</sub></b> | Plastic Limit       | <b>W<sub>l</sub></b> | Liquid Limit       | <b>I<sub>p</sub></b> | Plasticity Index       |
| <b>GSA</b>           | Grain Size Analysis | <b>C</b>             | Consolidation      | <b>UNC</b>           | Unconfined compression |



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**Enclosure A**

FILE No: 1495

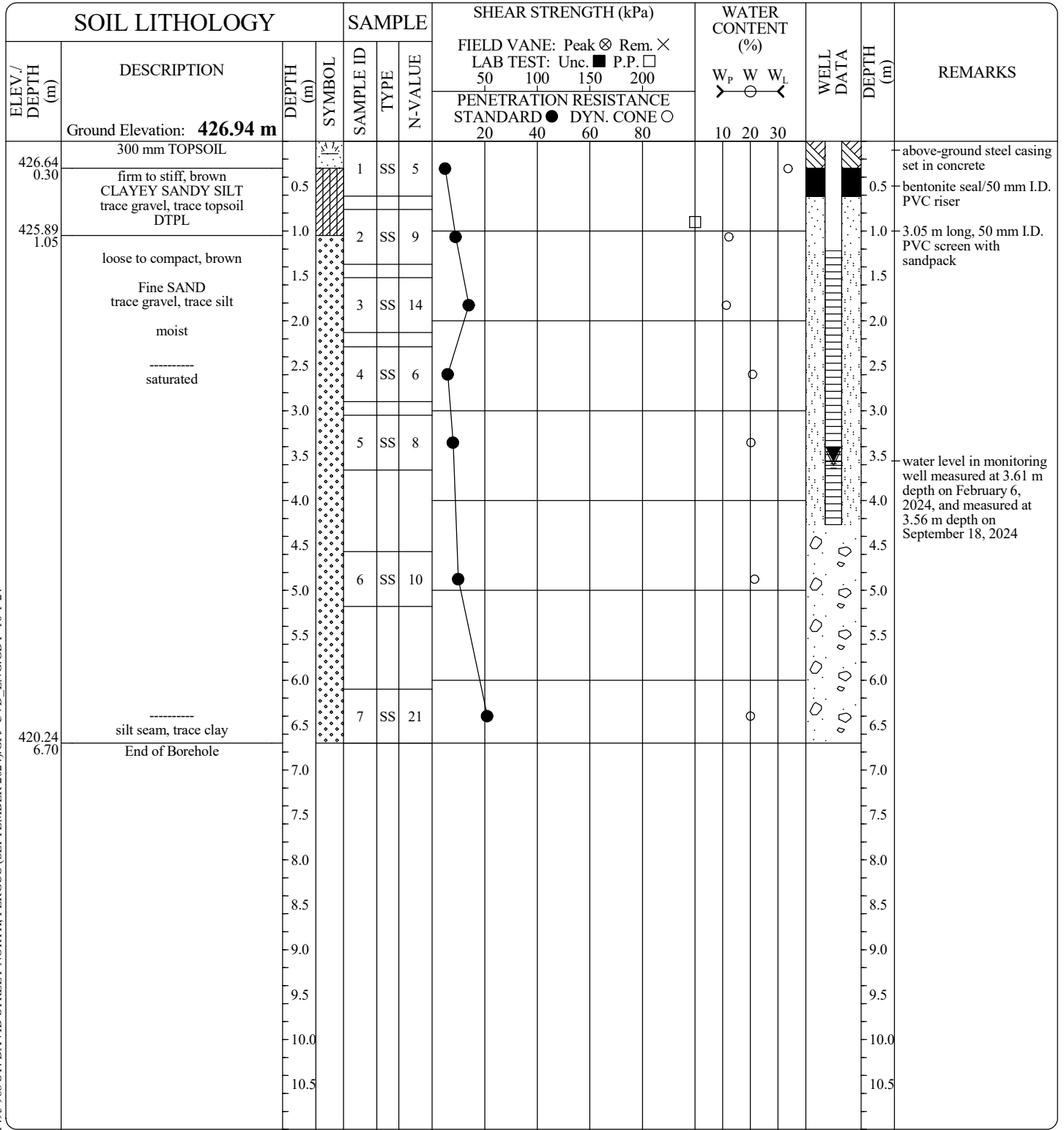
BOREHOLE No. 4

Enclosure No.: 4

Sheet 1 of 1

Client: **PoloCorp Inc.**Project: **Proposed Residential Subdivision**Location: **968 St. David Street North, Fergus,  
Ontario**

## EQUIPMENT DATA

Machine: **CME-55 Track**Method: **Solid Stem Auger**Size: **152 mm O.D.**Date: **Jan 16 - 24 TO Jan 16 - 24**PROJECT MANAGER: **EYC****CHUNG & VANDER DOELEN  
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Kitchener, Ontario N2H 5E1  
ph. (519) 742-8979, fx. (519) 742-7739

CVD BOREHOLE (2017) 1495 968 ST. DAVID STREET NORTH, FERGUS (SEPTEMBER 2024) GPJ CVD\_ENG.GDT 10-1-24

FILE No: 1495

BOREHOLE No. 5

Enclosure No.: 5

Sheet 1 of 1

Client: **PoloCorp Inc.**Project: **Proposed Residential Subdivision**Location: **968 St. David Street North, Fergus,  
Ontario**

## EQUIPMENT DATA

Machine: **CME-55 Track**Method: **Hollow Stem Auger**Size: **83 mm I.D.**Date: **Jan 16 - 24 TO Jan 16 - 24**

| SOIL LITHOLOGY      |                         |           |        | SAMPLE    |      |         | SHEAR STRENGTH (kPa)       |  |  |  | WATER CONTENT (%)       |  |                                 | WELL DATA | DEPTH (m) | REMARKS                                          |
|---------------------|-------------------------|-----------|--------|-----------|------|---------|----------------------------|--|--|--|-------------------------|--|---------------------------------|-----------|-----------|--------------------------------------------------|
| ELEV./<br>DEPTH (m) | DESCRIPTION             | DEPTH (m) | SYMBOL | SAMPLE ID | TYPE | N-VALUE | FIELD VANE: Peak ⊗ Rem. ×  |  |  |  | LAB TEST: Unc. ■ P.P. □ |  |                                 |           |           |                                                  |
|                     |                         |           |        |           |      |         | 50 100 150 200             |  |  |  | PENETRATION RESISTANCE  |  |                                 |           |           |                                                  |
|                     |                         |           |        |           |      |         | STANDARD ● DYN. CONE ○     |  |  |  | 20 40 60 80             |  |                                 |           |           |                                                  |
|                     |                         |           |        |           |      |         | Ground Elevation: 425.61 m |  |  |  |                         |  | W <sub>p</sub> W W <sub>L</sub> |           |           |                                                  |
| 425.43<br>0.18      | 180 mm TOPSOIL          |           |        | 1         | SS   | 5       | ●                          |  |  |  |                         |  | ○                               |           |           | above-ground steel casing set in concrete        |
|                     | loose, orangey brown    | 0.5       |        |           |      |         |                            |  |  |  |                         |  |                                 |           |           | bentonite seal/50 mm I.D. PVC riser              |
|                     | SANDY SILT              | 1.0       |        | 2         | SS   | 4       | ●                          |  |  |  |                         |  |                                 | ○         |           | 3.05 m long, 50 mm I.D. PVC screen with sandpack |
|                     | trace topsoil           | 1.5       |        |           |      |         |                            |  |  |  |                         |  |                                 |           |           |                                                  |
|                     | moist to wet            | 2.0       |        | 3         | SS   | 5       | ●                          |  |  |  |                         |  |                                 | ○         |           |                                                  |
| 423.76<br>1.85      | loose to compact, brown | 2.5       |        |           |      |         |                            |  |  |  |                         |  |                                 |           |           |                                                  |
|                     | Fine SAND               | 3.0       |        | 4         | SS   | 7       | ●                          |  |  |  |                         |  |                                 | ○         |           |                                                  |
|                     | trace silt              | 3.5       |        |           |      |         |                            |  |  |  |                         |  |                                 |           |           |                                                  |
|                     | wet to saturated        | 4.0       |        | 5         | SS   | 9       | ●                          |  |  |  |                         |  |                                 | ○         |           |                                                  |
|                     |                         | 4.5       |        |           |      |         |                            |  |  |  |                         |  |                                 |           |           |                                                  |
|                     |                         | 5.0       |        | 6         | SS   | 9       | ●                          |  |  |  |                         |  |                                 |           | ○         |                                                  |
|                     |                         | 5.5       |        |           |      |         |                            |  |  |  |                         |  |                                 |           |           |                                                  |
|                     |                         | 6.0       |        |           |      |         |                            |  |  |  |                         |  |                                 |           |           |                                                  |
|                     |                         | 6.5       |        | 7         | SS   | 12      | ●                          |  |  |  |                         |  |                                 |           | ○         |                                                  |
|                     |                         | 7.0       |        |           |      |         |                            |  |  |  |                         |  |                                 |           |           |                                                  |
|                     |                         | 7.5       |        |           |      |         |                            |  |  |  |                         |  |                                 |           |           |                                                  |
|                     |                         | 8.0       |        | 8         | SS   | 13      | ●                          |  |  |  |                         |  |                                 |           | ○         |                                                  |
| 417.36<br>8.25      | silt seam, trace clay   | 8.5       |        |           |      |         |                            |  |  |  |                         |  |                                 |           |           |                                                  |
|                     | End of Borehole         | 9.0       |        |           |      |         |                            |  |  |  |                         |  |                                 |           |           |                                                  |
|                     |                         | 9.5       |        |           |      |         |                            |  |  |  |                         |  |                                 |           |           |                                                  |
|                     |                         | 10.0      |        |           |      |         |                            |  |  |  |                         |  |                                 |           |           |                                                  |
|                     |                         | 10.5      |        |           |      |         |                            |  |  |  |                         |  |                                 |           |           |                                                  |

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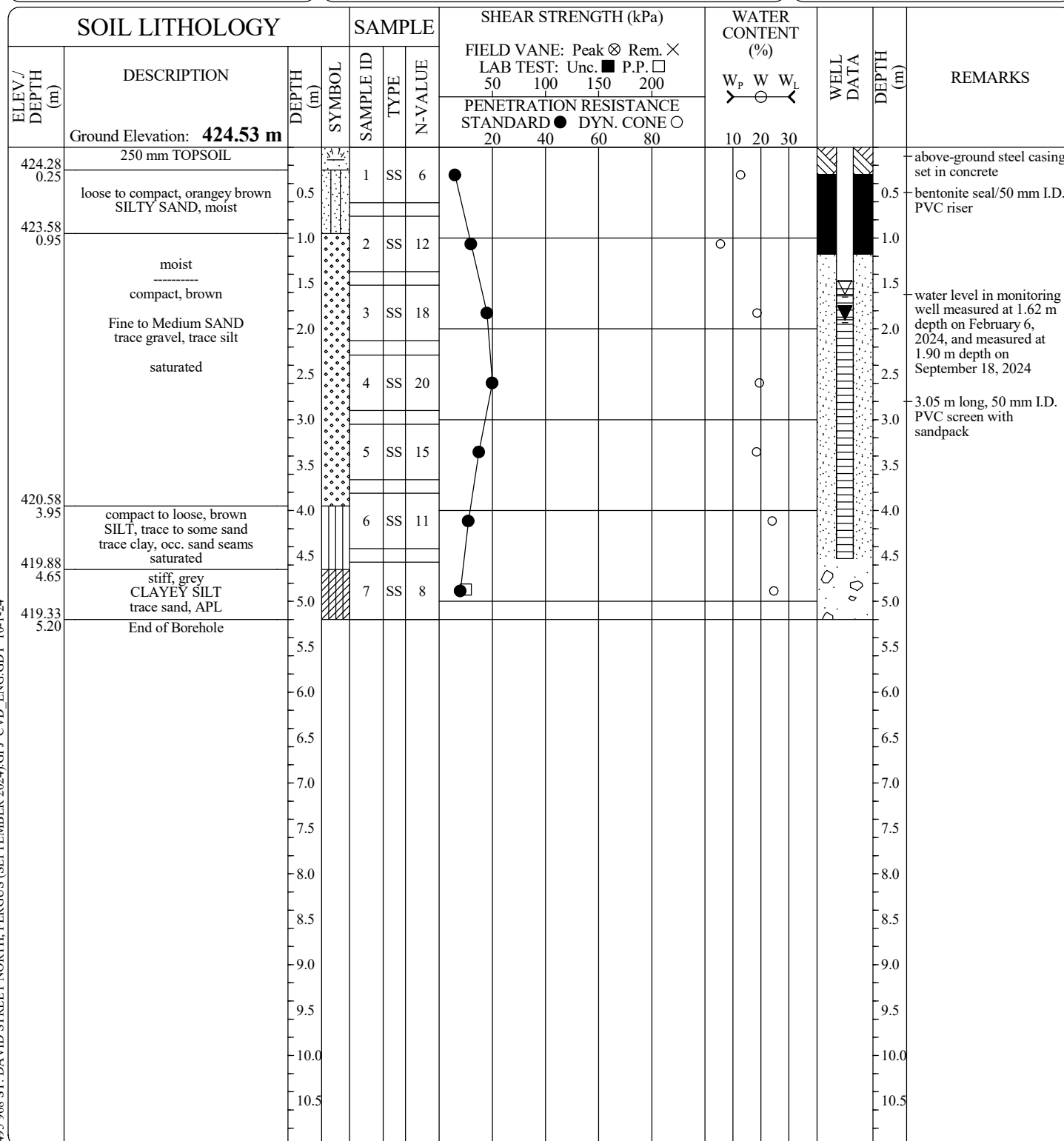
CVD BOREHOLE (2017) 1495 968 ST. DAVID STREET NORTH, FERGUS (SEPTEMBER 2024).GPJ CVD\_ENG.GDT 10-1-24

FILE No: 1495

BOREHOLE No. 6

Client: **PoloCorp Inc.**Project: **Proposed Residential Subdivision**Location: **968 St. David Street North, Fergus,  
Ontario**

## EQUIPMENT DATA

Machine: **CME-55 Track**Method: **Hollow Stem Auger**Size: **83 mm I.D.**Date: **Jan 15 - 24 TO Jan 15 - 24**PROJECT MANAGER: **EYC****CHUNG & VANDER DOELEN  
ENGINEERING LTD.**311 Victoria Street North  
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FILE No: 1495

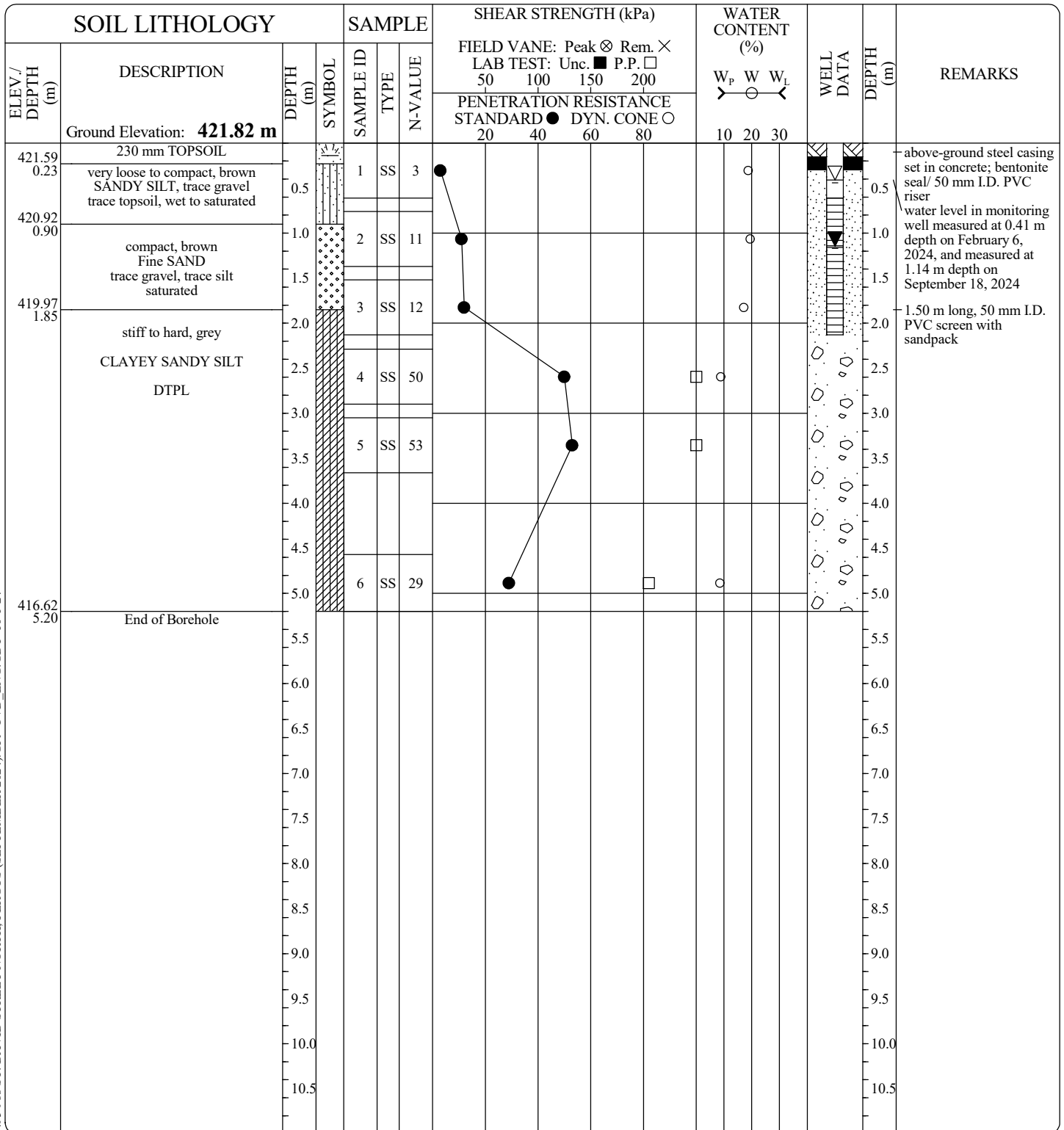
BOREHOLE No. 7

Enclosure No.: 7

Sheet 1 of 1

Client: **PoloCorp Inc.**Project: **Proposed Residential Subdivision**Location: **968 St. David Street North, Fergus,  
Ontario**

## EQUIPMENT DATA

Machine: **CME-55 Track**Method: **Hollow Stem Auger**Size: **83 mm I.D.**Date: **Jan 15 - 24 TO Jan 15 - 24**PROJECT MANAGER: **EYC****CHUNG & VANDER DOELEN  
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FILE No: 1495

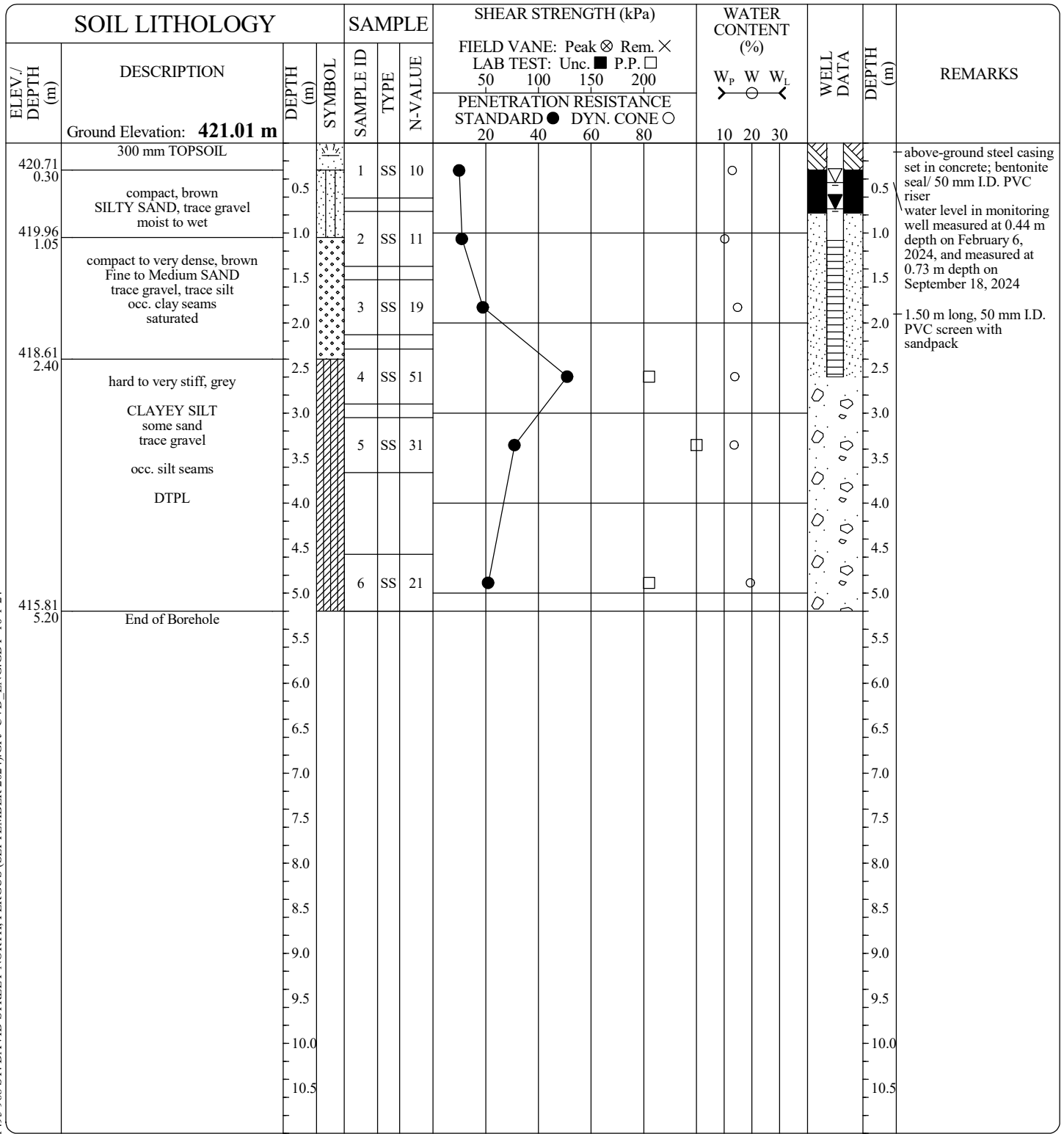
BOREHOLE No. 8

Enclosure No.: 8

Sheet 1 of 1

Client: **PoloCorp Inc.**Project: **Proposed Residential Subdivision**Location: **968 St. David Street North, Fergus,  
Ontario**

## EQUIPMENT DATA

Machine: **CME-55 Track**Method: **Hollow Stem Auger**Size: **83 mm I.D.**Date: **Jan 15 - 24 TO Jan 15 - 24**PROJECT MANAGER: **EYC****CHUNG & VANDER DOELEN  
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FILE No: 1495

BOREHOLE No. 106



Client: **PoloCorp Inc.**

Project: **Proposed Residential Subdivision**

Location: **968 St. David Street North, Fergus, Ontario**

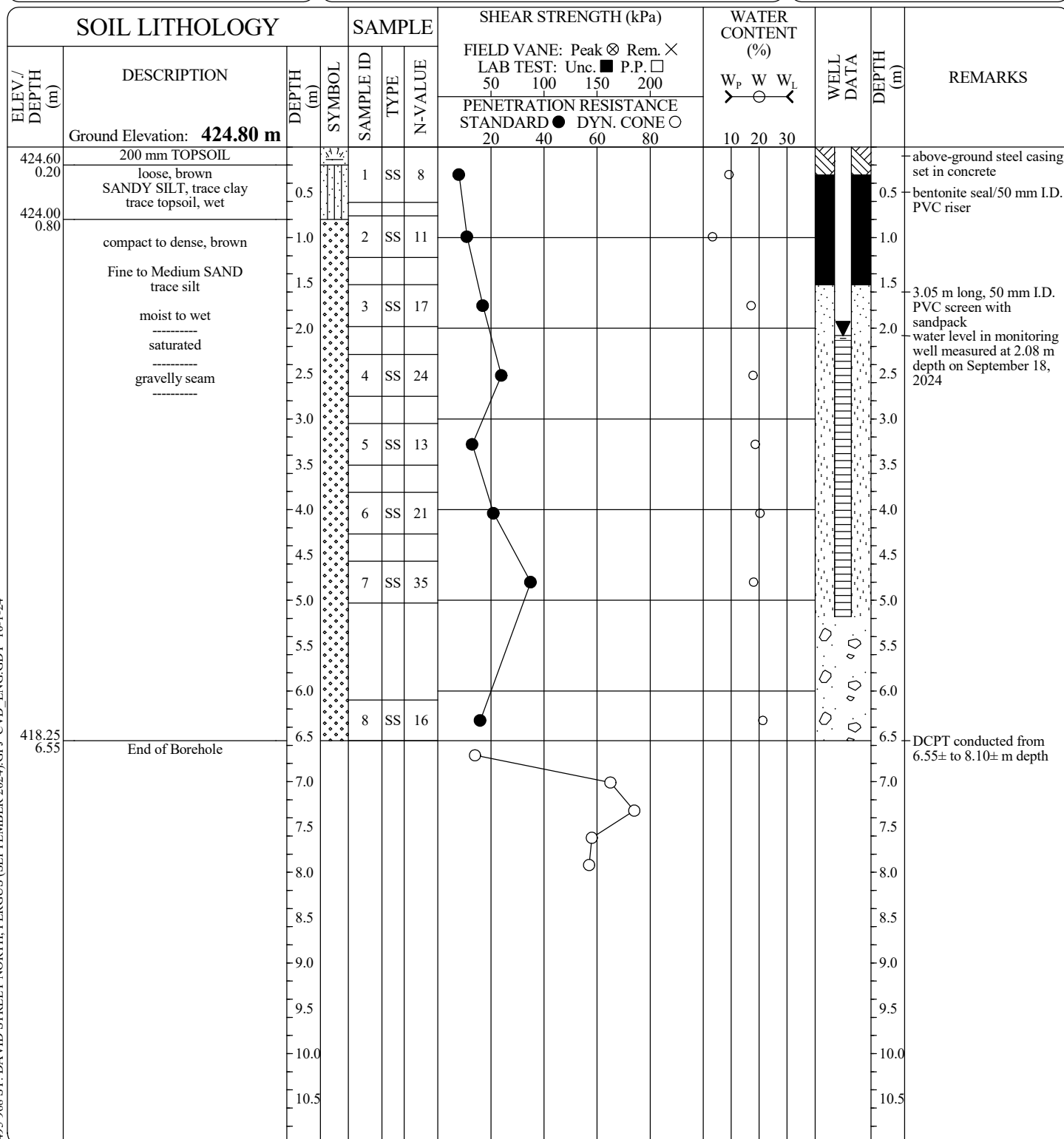
EQUIPMENT DATA

Machine: **CME-55 Track**

Method: **Hollow Stem Auger**

Size: **83 mm I.D.**

Date: **Sep 09 - 24 TO Sep 09 - 24**



PROJECT MANAGER: **EYC**

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FILE No: 1495

BOREHOLE No. 107



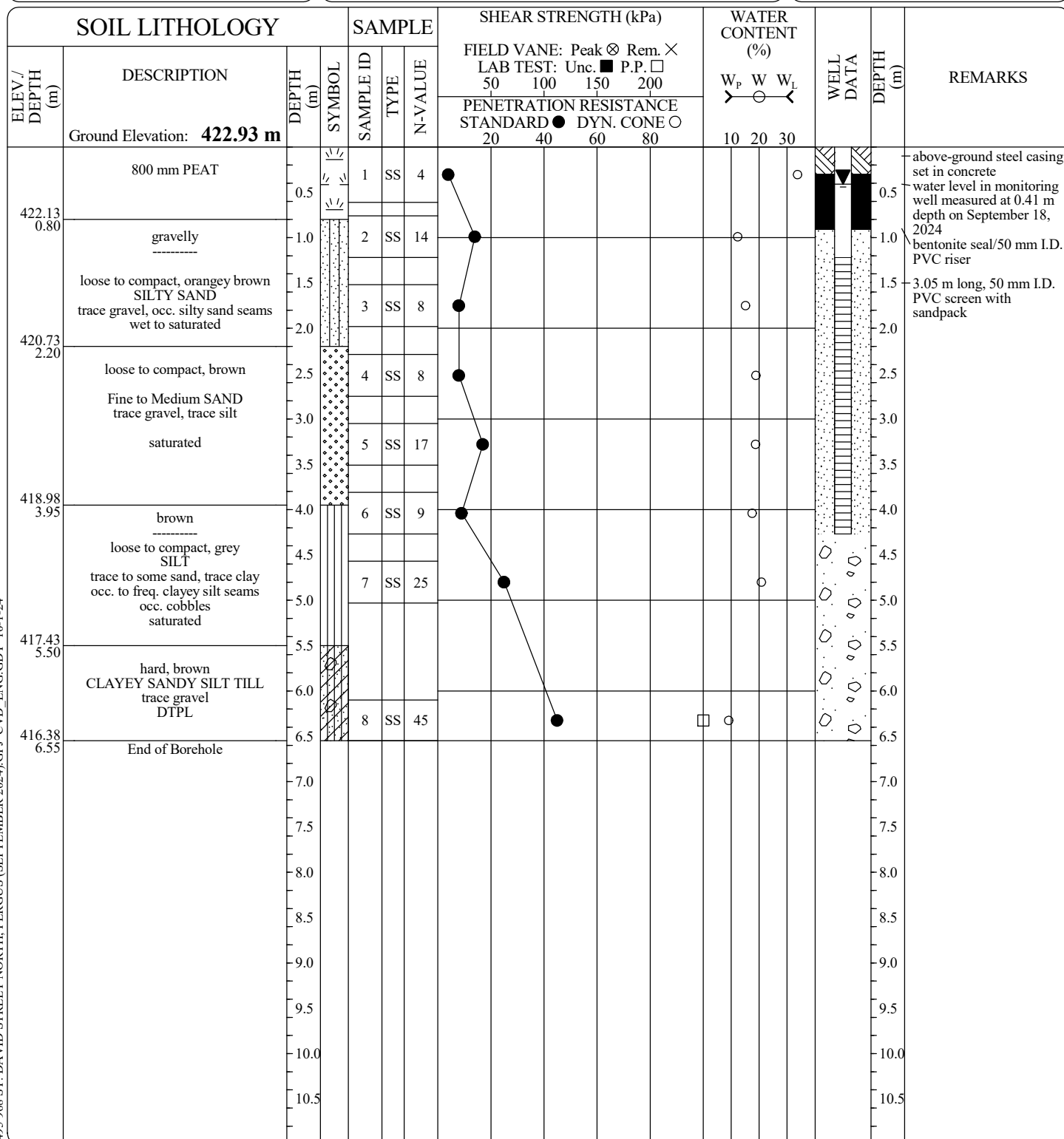
Client: **PoloCorp Inc.**

Project: **Proposed Residential Subdivision**

Location: **968 St. David Street North, Fergus, Ontario**

EQUIPMENT DATA

Machine: **CME-55 Track**  
Method: **Hollow Stem Auger**  
Size: **83 mm I.D.**  
Date: **Sep 09 - 24 TO Sep 09 - 24**



PROJECT MANAGER: **EYC**

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FILE No: 1495

BOREHOLE No. 108

Enclosure No.: 16

Sheet 1 of 1

Client: **PoloCorp Inc.**Project: **Proposed Residential Subdivision**Location: **968 St. David Street North, Fergus,  
Ontario**

## EQUIPMENT DATA

Machine: **CME-55 Track**Method: **Hollow Stem Auger**Size: **83 mm I.D.**Date: **Sep 09 - 24 TO Sep 09 - 24**

| SOIL LITHOLOGY      |                                                                                                                  |           | SAMPLE                                                                            |           |      | SHEAR STRENGTH (kPa) |                                                                                     |     |     | WATER CONTENT (%) |                         |                                                                                       | WELL DATA      | DEPTH (m) | REMARKS                                                                               |                                                                               |
|---------------------|------------------------------------------------------------------------------------------------------------------|-----------|-----------------------------------------------------------------------------------|-----------|------|----------------------|-------------------------------------------------------------------------------------|-----|-----|-------------------|-------------------------|---------------------------------------------------------------------------------------|----------------|-----------|---------------------------------------------------------------------------------------|-------------------------------------------------------------------------------|
| ELEV./<br>DEPTH (m) | DESCRIPTION                                                                                                      | DEPTH (m) | SYMBOL                                                                            | SAMPLE ID | TYPE | N-VALUE              | FIELD VANE: Peak ⊗ Rem. ×                                                           |     |     |                   | LAB TEST: Unc. ■ P.P. □ |                                                                                       |                |           |                                                                                       |                                                                               |
|                     |                                                                                                                  |           |                                                                                   |           |      |                      | PENETRATION RESISTANCE                                                              |     |     |                   | STANDARD ● DYN. CONE ○  |                                                                                       |                |           |                                                                                       |                                                                               |
|                     |                                                                                                                  |           |                                                                                   |           |      |                      | 50                                                                                  | 100 | 150 | 200               | W <sub>p</sub>          | W                                                                                     | W <sub>L</sub> |           |                                                                                       |                                                                               |
|                     | Ground Elevation: <b>424.74 m</b>                                                                                |           |                                                                                   |           |      |                      | 20                                                                                  | 40  | 60  | 80                |                         |                                                                                       |                |           |                                                                                       |                                                                               |
| 424.49<br>0.25      | 250 mm TOPSOIL                                                                                                   |           |  | 1         | SS   | 5                    |    |     |     |                   |                         |    |                |           |    | above-ground steel casing set in concrete                                     |
|                     | loose to compact, brown SANDY SILT<br>occ. clay silt seams moist                                                 | 0.5       |  |           |      |                      |                                                                                     |     |     |                   |                         |                                                                                       |                |           |    | bentonite seal/50 mm I.D. PVC riser                                           |
|                     |                                                                                                                  | 1.0       |  | 2         | SS   | 14                   |    |     |     |                   |                         |    |                |           |                                                                                       |                                                                               |
| 423.39<br>1.35      | loose to compact, brown<br><br>Fine to Medium SAND<br>trace gravel, trace silt<br><br>wet to saturated           | 1.5       |  |           |      |                      |                                                                                     |     |     |                   |                         |    |                |           |    | water level in monitoring well measured at 1.83 m depth on September 18, 2024 |
|                     |                                                                                                                  | 2.0       |  | 3         | SS   | 14                   |    |     |     |                   |                         |                                                                                       |                |           |                                                                                       |                                                                               |
|                     |                                                                                                                  | 2.5       |  | 4         | SS   | 12                   |    |     |     |                   |                         |    |                |           |    | 3.05 m long, 50 mm I.D. PVC screen with sandpack                              |
|                     |                                                                                                                  | 3.0       |  |           |      |                      |                                                                                     |     |     |                   |                         |                                                                                       |                |           |                                                                                       |                                                                               |
|                     |                                                                                                                  | 3.5       |  | 5         | SS   | 10                   |    |     |     |                   |                         |    |                |           |                                                                                       |                                                                               |
|                     |                                                                                                                  | 4.0       |  | 6         | SS   | 9                    |    |     |     |                   |                         |    |                |           |                                                                                       |                                                                               |
| 419.99<br>4.75      | loose to compact, brown<br><br>SILT<br>trace sand, trace clay<br>occ. clayey silt seams<br><br>saturated<br>grey | 4.5       |  |           |      |                      |                                                                                     |     |     |                   |                         |                                                                                       |                |           |                                                                                       |                                                                               |
|                     |                                                                                                                  | 5.0       |  | 7         | SS   | 14                   |  |     |     |                   |                         |  |                |           |                                                                                       |                                                                               |
|                     |                                                                                                                  | 5.5       |  |           |      |                      |                                                                                     |     |     |                   |                         |                                                                                       |                |           |  |                                                                               |
|                     |                                                                                                                  | 6.0       |  |           |      |                      |                                                                                     |     |     |                   |                         |                                                                                       |                |           |  |                                                                               |
| 418.19<br>6.55      | End of Borehole                                                                                                  | 6.5       |  | 8         | SS   | 8                    |  |     |     |                   |                         |  |                |           |  |                                                                               |
|                     |                                                                                                                  | 7.0       |                                                                                   |           |      |                      |                                                                                     |     |     |                   |                         |                                                                                       |                |           |                                                                                       |                                                                               |
|                     |                                                                                                                  | 7.5       |                                                                                   |           |      |                      |                                                                                     |     |     |                   |                         |                                                                                       |                |           |                                                                                       |                                                                               |
|                     |                                                                                                                  | 8.0       |                                                                                   |           |      |                      |                                                                                     |     |     |                   |                         |                                                                                       |                |           |                                                                                       |                                                                               |
|                     |                                                                                                                  | 8.5       |                                                                                   |           |      |                      |                                                                                     |     |     |                   |                         |                                                                                       |                |           |                                                                                       |                                                                               |
|                     |                                                                                                                  | 9.0       |                                                                                   |           |      |                      |                                                                                     |     |     |                   |                         |                                                                                       |                |           |                                                                                       |                                                                               |
|                     |                                                                                                                  | 9.5       |                                                                                   |           |      |                      |                                                                                     |     |     |                   |                         |                                                                                       |                |           |                                                                                       |                                                                               |
|                     |                                                                                                                  | 10.0      |                                                                                   |           |      |                      |                                                                                     |     |     |                   |                         |                                                                                       |                |           |                                                                                       |                                                                               |
|                     |                                                                                                                  | 10.5      |                                                                                   |           |      |                      |                                                                                     |     |     |                   |                         |                                                                                       |                |           |                                                                                       |                                                                               |

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FILE No: 1495

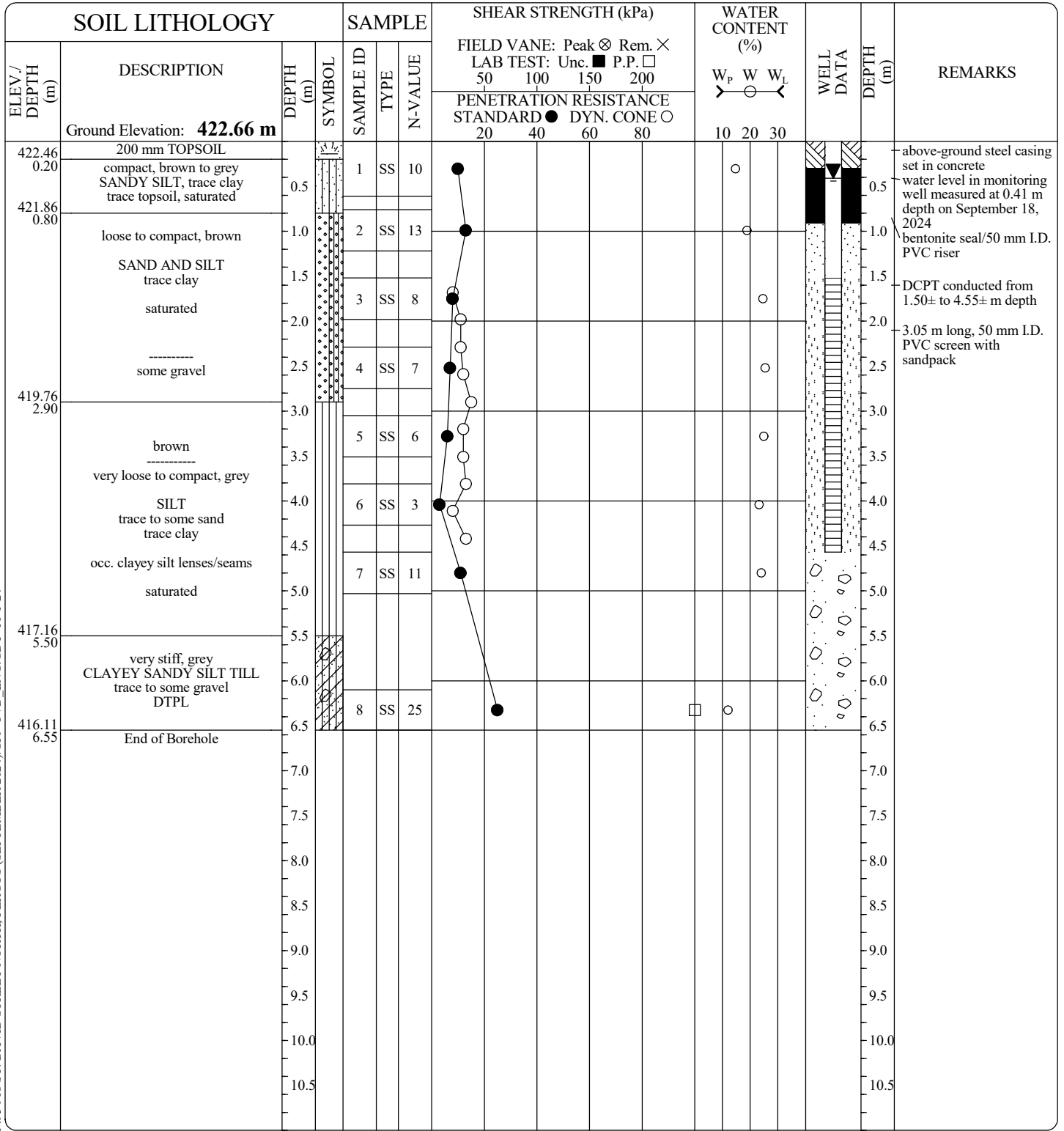
BOREHOLE No. 109

Enclosure No.: 17

Sheet 1 of 1

Client: **PoloCorp Inc.**Project: **Proposed Residential Subdivision**Location: **968 St. David Street North, Fergus,  
Ontario**

## EQUIPMENT DATA

Machine: **CME-55 Track**Method: **Hollow Stem Auger**Size: **83 mm I.D.**Date: **Sep 09 - 24 TO Sep 09 - 24**PROJECT MANAGER: **EYC****CHUNG & VANDER DOELEN  
ENGINEERING LTD.**311 Victoria Street North  
Kitchener, Ontario N2H 5E1  
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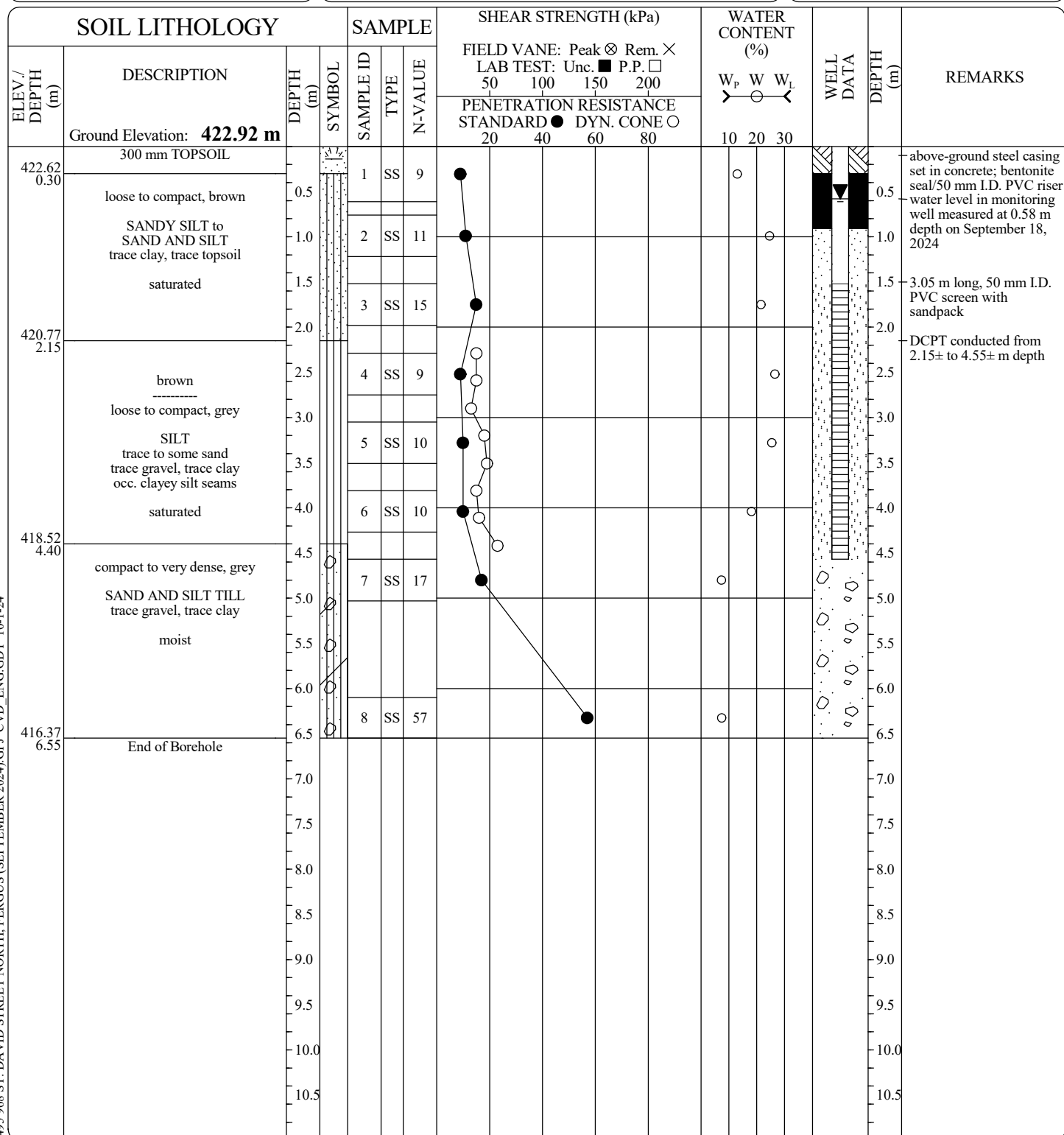
CVD BOREHOLE (2017) 1495 968 ST. DAVID STREET NORTH, FERGUS (SEPTEMBER 2024) GPJ\_CVD\_ENG.GDT 10-1-24

FILE No: 1495

BOREHOLE No. 110

Client: **PoloCorp Inc.**Project: **Proposed Residential Subdivision**Location: **968 St. David Street North, Fergus,  
Ontario**

## EQUIPMENT DATA

Machine: **CME-55 Track**Method: **Hollow Stem Auger**Size: **83 mm I.D.**Date: **Sep 10 - 24 TO Sep 10 - 24**PROJECT MANAGER: **EYC****CHUNG & VANDER DOELEN  
ENGINEERING LTD.**311 Victoria Street North  
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FILE No: 1495

BOREHOLE No. 111



Client: **PoloCorp Inc.**

Project: **Proposed Residential Subdivision**

Location: **968 St. David Street North, Fergus,  
Ontario**

EQUIPMENT DATA

Machine: **CME-55 Track**  
Method: **Hollow Stem Auger**  
Size: **83 mm I.D.**  
Date: **Sep 10 - 24 TO Sep 10 - 24**

| SOIL LITHOLOGY      |                                                                                 |           | SAMPLE |           |      | SHEAR STRENGTH (kPa) |                            |   |   | WATER CONTENT (%) |                         |   | WELL DATA | DEPTH (m) | REMARKS                                                                                                                                                                                                                     |                                 |
|---------------------|---------------------------------------------------------------------------------|-----------|--------|-----------|------|----------------------|----------------------------|---|---|-------------------|-------------------------|---|-----------|-----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|
| ELEV./<br>DEPTH (m) | DESCRIPTION                                                                     | DEPTH (m) | SYMBOL | SAMPLE ID | TYPE | N-VALUE              | FIELD VANE: Peak ⊗ Rem. ×  |   |   |                   | LAB TEST: Unc. ■ P.P. □ |   |           |           |                                                                                                                                                                                                                             |                                 |
|                     |                                                                                 |           |        |           |      |                      | 50 100 150 200             |   |   |                   | PENETRATION RESISTANCE  |   |           |           |                                                                                                                                                                                                                             |                                 |
|                     |                                                                                 |           |        |           |      |                      | STANDARD ● DYN. CONE ○     |   |   |                   | 20 40 60 80             |   |           |           |                                                                                                                                                                                                                             |                                 |
|                     |                                                                                 |           |        |           |      |                      | Ground Elevation: 421.24 m |   |   |                   |                         |   |           |           |                                                                                                                                                                                                                             | W <sub>p</sub> W W <sub>L</sub> |
| 420.94<br>0.30      | 300 mm TOPSOIL                                                                  |           |        | 1         | SS   | 10                   | ●                          |   |   |                   |                         | ○ |           |           | above-ground steel casing set in concrete; bentonite seal/50 mm I.D. PVC riser<br><br>water level in monitoring well measured at 0.67 m depth on September 18, 2024<br><br>3.05 m long, 50 mm I.D. PVC screen with sandpack |                                 |
|                     | compact, orangey brown SANDY SILT<br>trace gravel, trace clay moist             | 0.5       |        |           |      |                      | ●                          |   |   |                   |                         | ○ |           |           |                                                                                                                                                                                                                             |                                 |
| 419.89<br>1.35      | stiff, brown CLAYEY SILT, trace gravel<br>trace sand, occ. silt seams DTPL      | 1.0       |        | 2         | SS   | 15                   |                            | ● |   |                   |                         | ○ |           |           |                                                                                                                                                                                                                             |                                 |
|                     |                                                                                 | 1.5       |        |           |      |                      | ●                          |   |   |                   |                         | ○ |           |           |                                                                                                                                                                                                                             |                                 |
| 419.09<br>2.15      | compact, brown Fine to Medium SAND<br>trace to some gravel trace silt saturated | 2.0       |        | 3         | SS   | 12                   |                            |   |   | □                 |                         | ○ |           |           |                                                                                                                                                                                                                             |                                 |
|                     |                                                                                 | 2.5       |        |           |      |                      | ●                          |   |   |                   |                         | ○ |           |           |                                                                                                                                                                                                                             |                                 |
| 417.89<br>3.35      | brown silt seam<br>-----<br>stiff to hard, grey                                 | 3.0       |        | 4         | SS   | 14                   |                            |   |   |                   |                         | ○ |           |           |                                                                                                                                                                                                                             |                                 |
|                     |                                                                                 | 3.5       |        | 5         | SS   | 12                   | ●                          |   |   |                   |                         | ○ |           |           |                                                                                                                                                                                                                             |                                 |
|                     | CLAYEY SANDY SILT TILL<br>trace to some gravel trace sand                       | 4.0       |        | 6         | SS   | 23                   |                            | ● |   |                   | □                       | ○ |           |           |                                                                                                                                                                                                                             |                                 |
|                     | occ. silt lenses                                                                | 4.5       |        |           |      |                      |                            |   |   |                   |                         |   |           |           |                                                                                                                                                                                                                             |                                 |
|                     | DTPL                                                                            | 5.0       |        | 7         | SS   | 25                   |                            | ● |   |                   | □                       | ○ |           |           |                                                                                                                                                                                                                             |                                 |
| 414.69<br>6.55      | End of Borehole                                                                 | 6.5       |        | 8         | SS   | 35                   |                            |   | ● |                   |                         | □ | ○         |           |                                                                                                                                                                                                                             |                                 |
|                     |                                                                                 | 7.0       |        |           |      |                      |                            |   |   |                   |                         |   |           |           |                                                                                                                                                                                                                             |                                 |
|                     |                                                                                 | 7.5       |        |           |      |                      |                            |   |   |                   |                         |   |           |           |                                                                                                                                                                                                                             |                                 |
|                     |                                                                                 | 8.0       |        |           |      |                      |                            |   |   |                   |                         |   |           |           |                                                                                                                                                                                                                             |                                 |
|                     |                                                                                 | 8.5       |        |           |      |                      |                            |   |   |                   |                         |   |           |           |                                                                                                                                                                                                                             |                                 |
|                     |                                                                                 | 9.0       |        |           |      |                      |                            |   |   |                   |                         |   |           |           |                                                                                                                                                                                                                             |                                 |
|                     |                                                                                 | 9.5       |        |           |      |                      |                            |   |   |                   |                         |   |           |           |                                                                                                                                                                                                                             |                                 |
|                     |                                                                                 | 10.0      |        |           |      |                      |                            |   |   |                   |                         |   |           |           |                                                                                                                                                                                                                             |                                 |
|                     |                                                                                 | 10.5      |        |           |      |                      |                            |   |   |                   |                         |   |           |           |                                                                                                                                                                                                                             |                                 |

PROJECT MANAGER: **EYC**

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FILE No: 1495

BOREHOLE No. 112

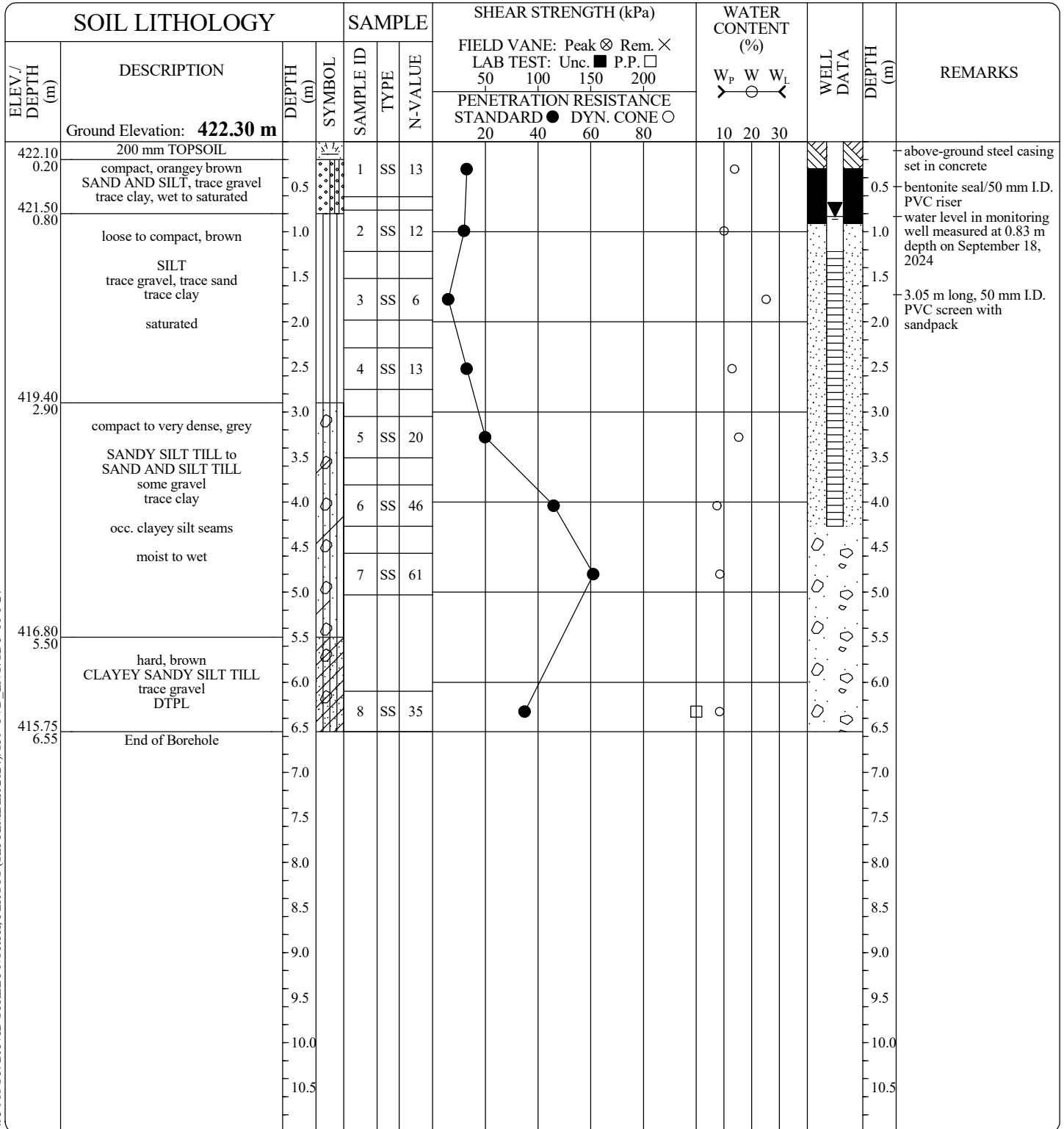
Enclosure No.: 20

Sheet 1 of 1

Client: **PoloCorp Inc.**Project: **Proposed Residential Subdivision**Location: **968 St. David Street North, Fergus,  
Ontario**

## EQUIPMENT DATA

Machine: **CME-55 Track**  
Method: **Hollow Stem Auger**  
Size: **83 mm I.D.**  
Date: **Sep 10 - 24 TO Sep 10 - 24**

PROJECT MANAGER: **EYC****CHUNG & VANDER DOELEN  
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CVD BOREHOLE (2017) 1495 968 ST. DAVID STREET NORTH, FERGUS (SEPTEMBER 2024).GPJ\_CVD\_ENG.GDT 10-1-24

FILE No: 1495

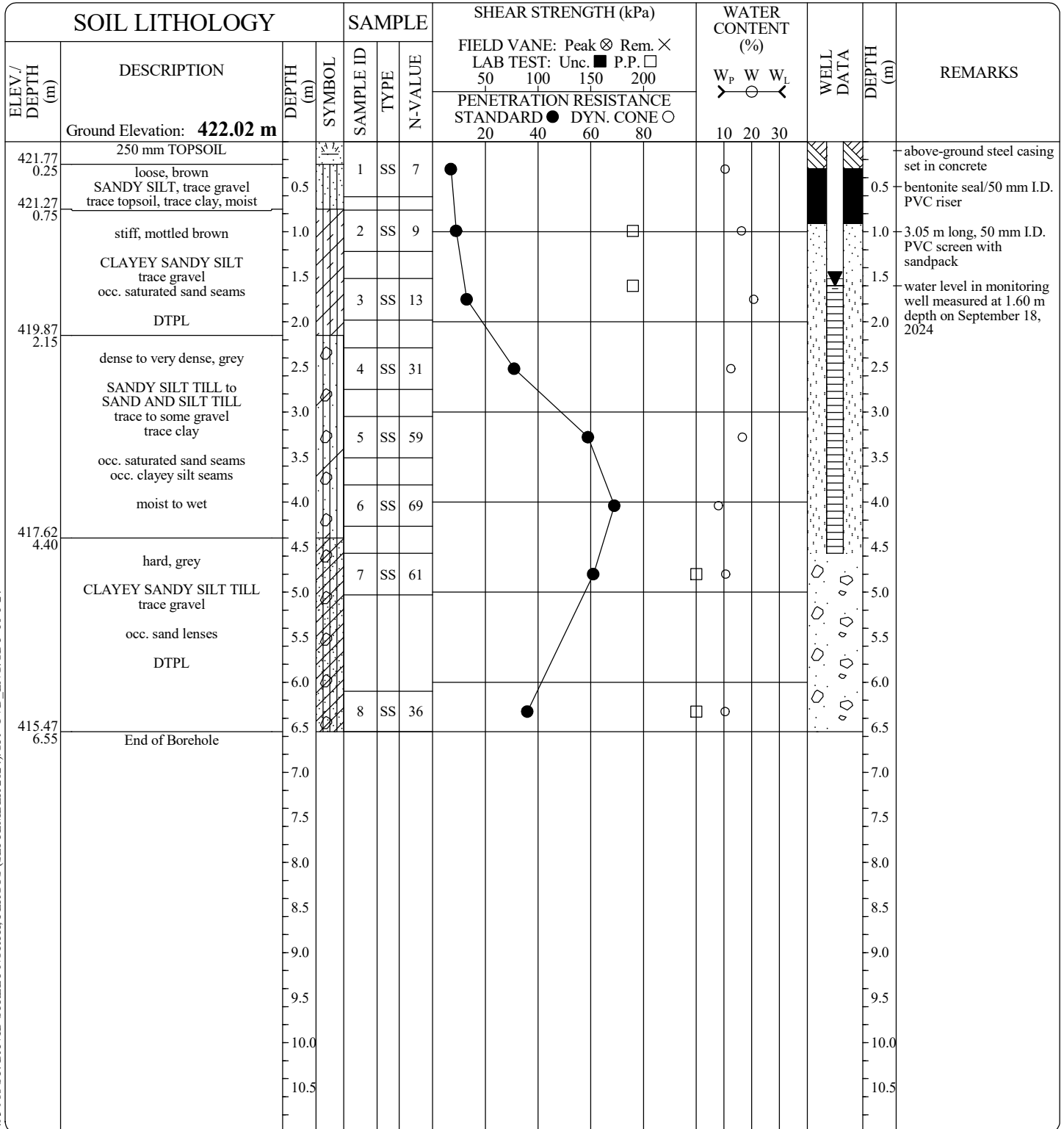
BOREHOLE No. 113

Enclosure No.: 21

Sheet 1 of 1

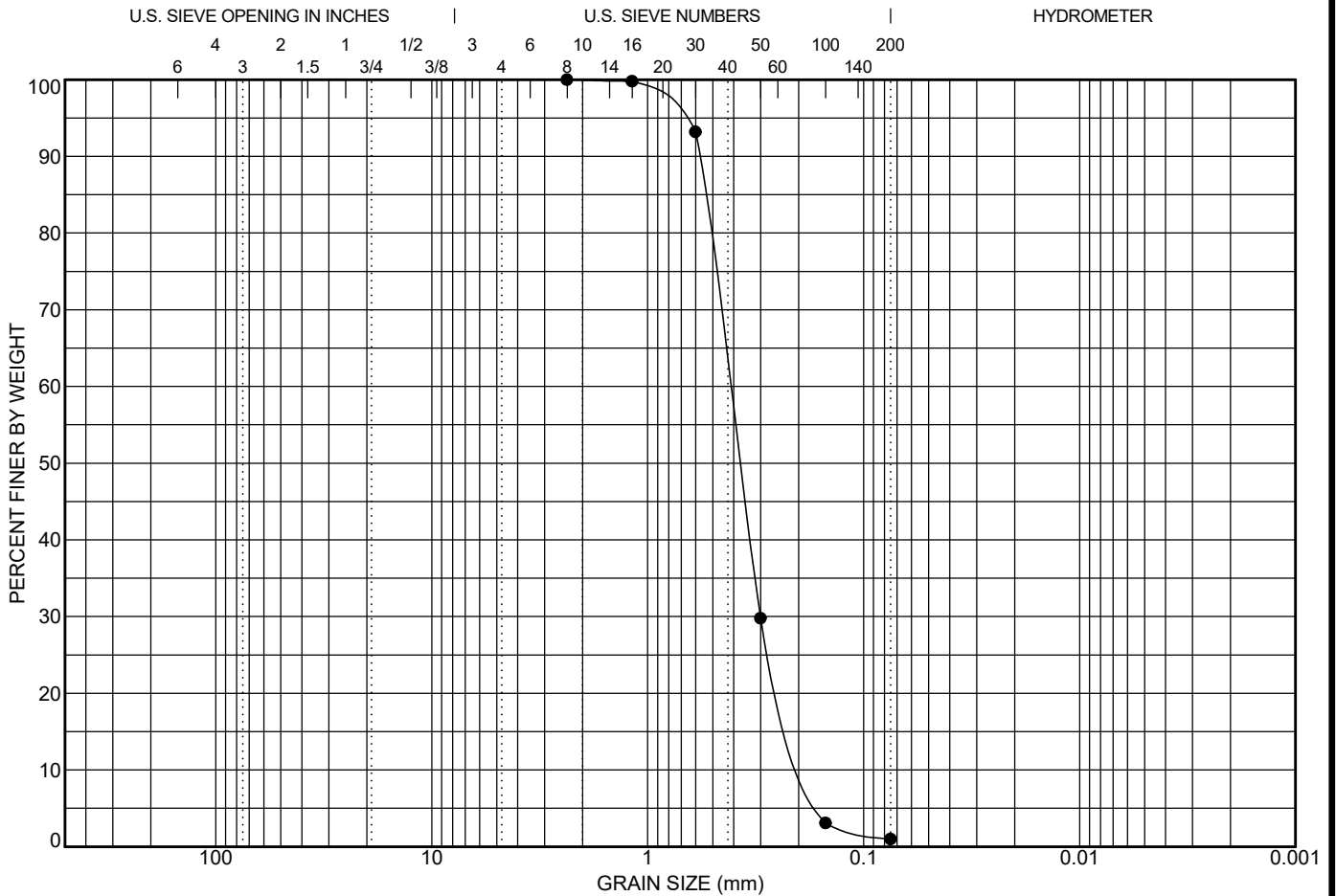
Client: **PoloCorp Inc.**Project: **Proposed Residential Subdivision**Location: **968 St. David Street North, Fergus,  
Ontario**

## EQUIPMENT DATA

Machine: **CME-55 Track**Method: **Hollow Stem Auger**Size: **83 mm I.D.**Date: **Sep 10 - 24 TO Sep 10 - 24**PROJECT MANAGER: **EYC****CHUNG & VANDER DOELEN  
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CVD BOREHOLE (2017) 1495 968 ST. DAVID STREET NORTH, FERGUS (SEPTEMBER 2024).GPJ\_CVD\_ENG.GDT 10-1-24

DM - NO SPECIFICATIONS 1495 968 ST. DAVID STREET NORTH, FERGUS (SEPTEMBER 2024), GPJ LAW LNDN.GDT 10-1-24



| COBBLES | GRAVEL |      | SAND   |        |      | SILT OR CLAY |
|---------|--------|------|--------|--------|------|--------------|
|         | coarse | fine | coarse | medium | fine |              |

| LL | PL | PI | Cc   | Cu   | D100 | D60   | D30   | D10   | %Gravel | %Sand | %Silt | %Clay |
|----|----|----|------|------|------|-------|-------|-------|---------|-------|-------|-------|
|    |    |    | 1.21 | 2.33 | 2.36 | 0.417 | 0.301 | 0.179 | 0.0     | 99.0  |       | 1.0   |

|                                                          |  |                        |                        |                          |
|----------------------------------------------------------|--|------------------------|------------------------|--------------------------|
| <b>Date:</b> Sep. 25 - 2024                              |  | <b>Sieve Size (mm)</b> | <b>Percent Passing</b> | <b>No Specifications</b> |
| <b>Client:</b> PoloCorp Inc.                             |  |                        |                        |                          |
| <b>Contractor:</b>                                       |  |                        |                        |                          |
| <b>Source:</b>                                           |  |                        |                        |                          |
| <b>Sampled From:</b> BH 106 - SA 5, 3.05 to 3.50 m depth |  |                        |                        |                          |
| <b>Sample No.:</b> 106-5                                 |  |                        |                        |                          |
| <b>Date Sampled:</b> Sep. 09 - 2024                      |  |                        |                        |                          |
| <b>Sampled By:</b> RS                                    |  |                        |                        |                          |
| <b>Lab No.:</b> 1035                                     |  |                        |                        |                          |
| <b>Date Tested:</b> Sep. 25 - 2024                       |  |                        |                        |                          |
| <b>Type of Material:</b> Fine to Medium Sand, trace silt |  |                        |                        |                          |



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### GRAIN SIZE DISTRIBUTION

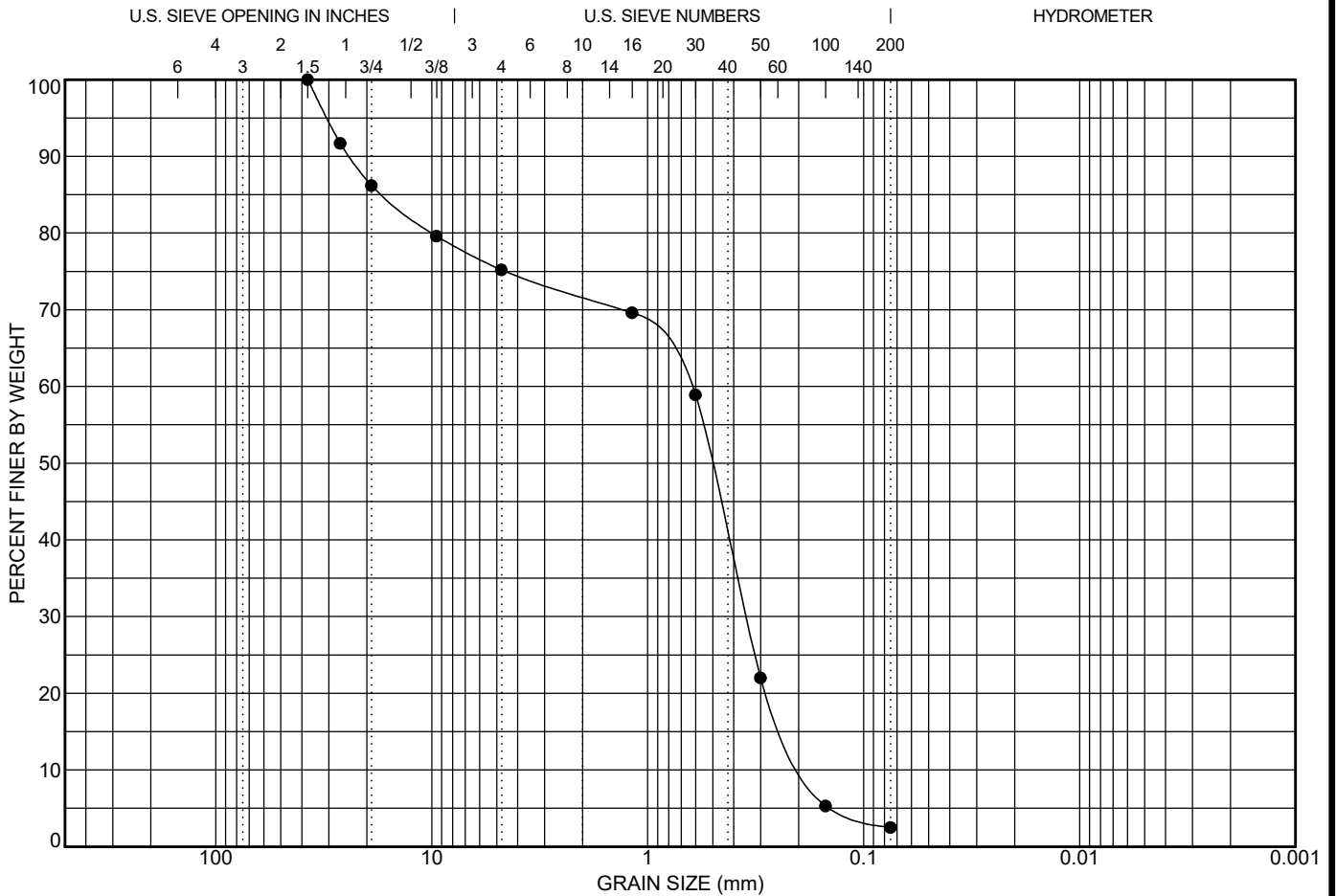
Project: Proposed Residential Subdivision

Location: 968 St. David Street North, Fergus, Ontario

File No.: 1495

Enclosure No.: 24

DM - NO SPECIFICATIONS 1495 968 ST. DAVID STREET NORTH, FERGUS (SEPTEMBER 2024), GPJ LAW LNDN.GDT 10-1-24



| COBBLES | GRAVEL |      | SAND   |        |      | SILT OR CLAY |
|---------|--------|------|--------|--------|------|--------------|
|         | coarse | fine | coarse | medium | fine |              |

| LL | PL | PI | Cc   | Cu   | D100 | D60   | D30   | D10   | %Gravel | %Sand | %Silt | %Clay |
|----|----|----|------|------|------|-------|-------|-------|---------|-------|-------|-------|
|    |    |    | 1.04 | 3.53 | 37.5 | 0.643 | 0.349 | 0.182 | 24.8    | 72.7  | 2.5   |       |

|                                                          |  |                        |                        |                          |
|----------------------------------------------------------|--|------------------------|------------------------|--------------------------|
| <b>Date:</b> Sep. 25 - 2024                              |  | <b>Sieve Size (mm)</b> | <b>Percent Passing</b> | <b>No Specifications</b> |
| <b>Client:</b> PoloCorp Inc.                             |  |                        |                        |                          |
| <b>Contractor:</b>                                       |  |                        |                        |                          |
| <b>Source:</b>                                           |  |                        |                        |                          |
| <b>Sampled From:</b> BH 108 - SA 4, 2.30 to 2.75 m depth |  |                        |                        |                          |
| <b>Sample No.:</b> 108-4                                 |  |                        |                        |                          |
| <b>Date Sampled:</b> Sep. 09 - 2024                      |  |                        |                        |                          |
| <b>Sampled By:</b> RS                                    |  |                        |                        |                          |
| <b>Lab No.:</b> 1038                                     |  |                        |                        |                          |
| <b>Date Tested:</b> Sep. 25 - 2024                       |  |                        |                        |                          |
| <b>Type of Material:</b> Gravelly Sand, trace silt       |  |                        |                        |                          |



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### GRAIN SIZE DISTRIBUTION

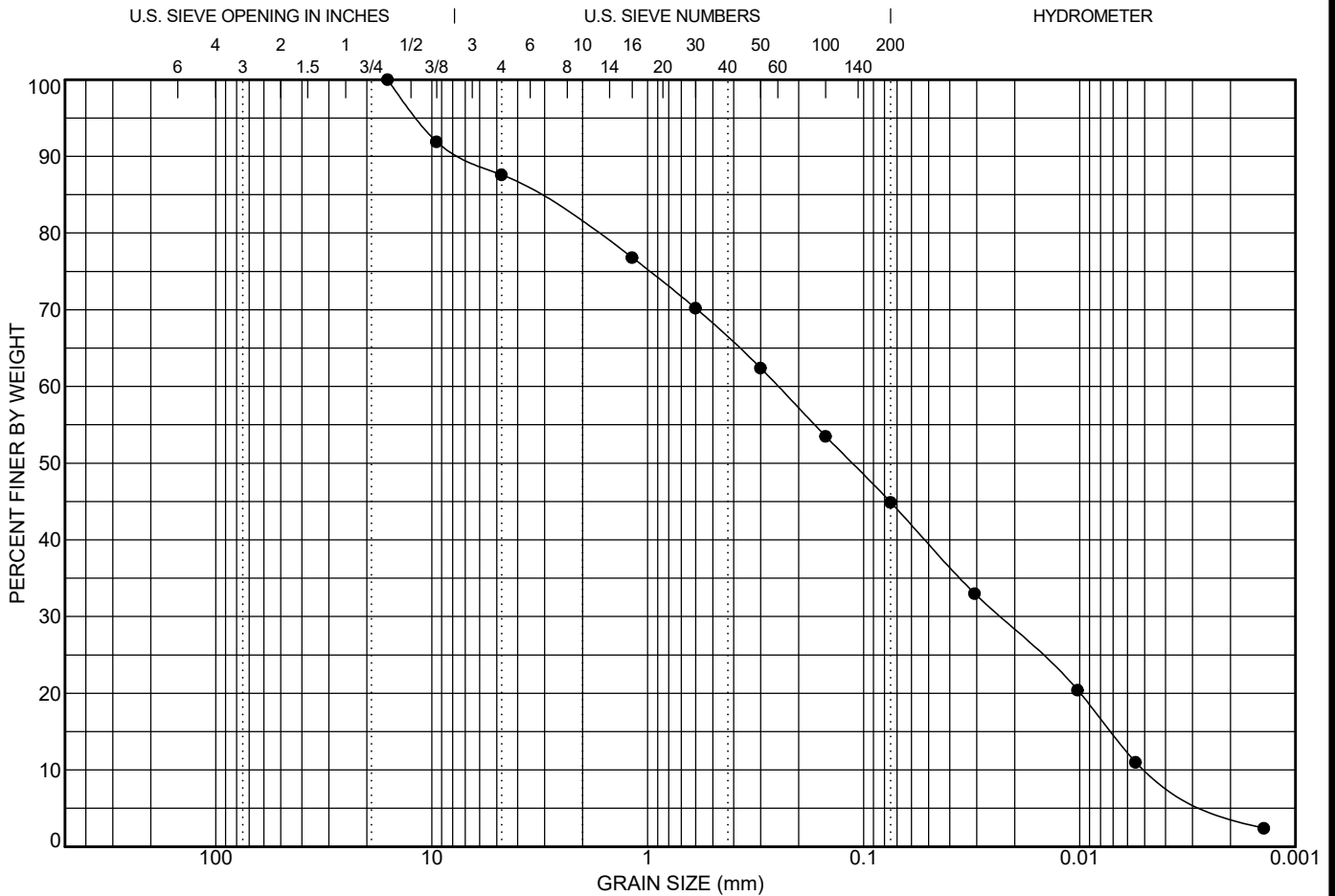
Project: Proposed Residential Subdivision

Location: 968 St. David Street North, Fergus, Ontario

File No.: 1495

Enclosure No.: 25

DM - NO SPECIFICATIONS 1495 968 ST. DAVID STREET NORTH, FERGUS (SEPTEMBER 2024), GPJ LAW LNDN.GDT 10-1-24



| COBBLES | GRAVEL |      | SAND   |        |      | SILT OR CLAY |
|---------|--------|------|--------|--------|------|--------------|
|         | coarse | fine | coarse | medium | fine |              |

| LL | PL | PI | Cc   | Cu    | D100 | D60   | D30   | D10   | %Gravel | %Sand | %Silt | %Clay |
|----|----|----|------|-------|------|-------|-------|-------|---------|-------|-------|-------|
|    |    |    | 0.48 | 53.05 | 16   | 0.249 | 0.024 | 0.005 | 12.4    | 42.7  | 44.9  |       |

|                                                                 |  |                        |                        |                          |
|-----------------------------------------------------------------|--|------------------------|------------------------|--------------------------|
| <b>Date:</b> Sep. 25 - 2024                                     |  | <b>Sieve Size (mm)</b> | <b>Percent Passing</b> | <b>No Specifications</b> |
| <b>Client:</b> PoloCorp Inc.                                    |  |                        |                        |                          |
| <b>Contractor:</b>                                              |  |                        |                        |                          |
| <b>Source:</b>                                                  |  |                        |                        |                          |
| <b>Sampled From:</b> BH 109 - SA 4, 2.30 to 2.75 m depth        |  |                        |                        |                          |
| <b>Sample No.:</b> 109-4                                        |  |                        |                        |                          |
| <b>Date Sampled:</b> Sep. 09 - 2024                             |  |                        |                        |                          |
| <b>Sampled By:</b> RS                                           |  |                        |                        |                          |
| <b>Lab No.:</b> 1037                                            |  |                        |                        |                          |
| <b>Date Tested:</b> Sep. 25 - 2024                              |  |                        |                        |                          |
| <b>Type of Material:</b> Sand and Silt, some gravel, trace clay |  |                        |                        |                          |

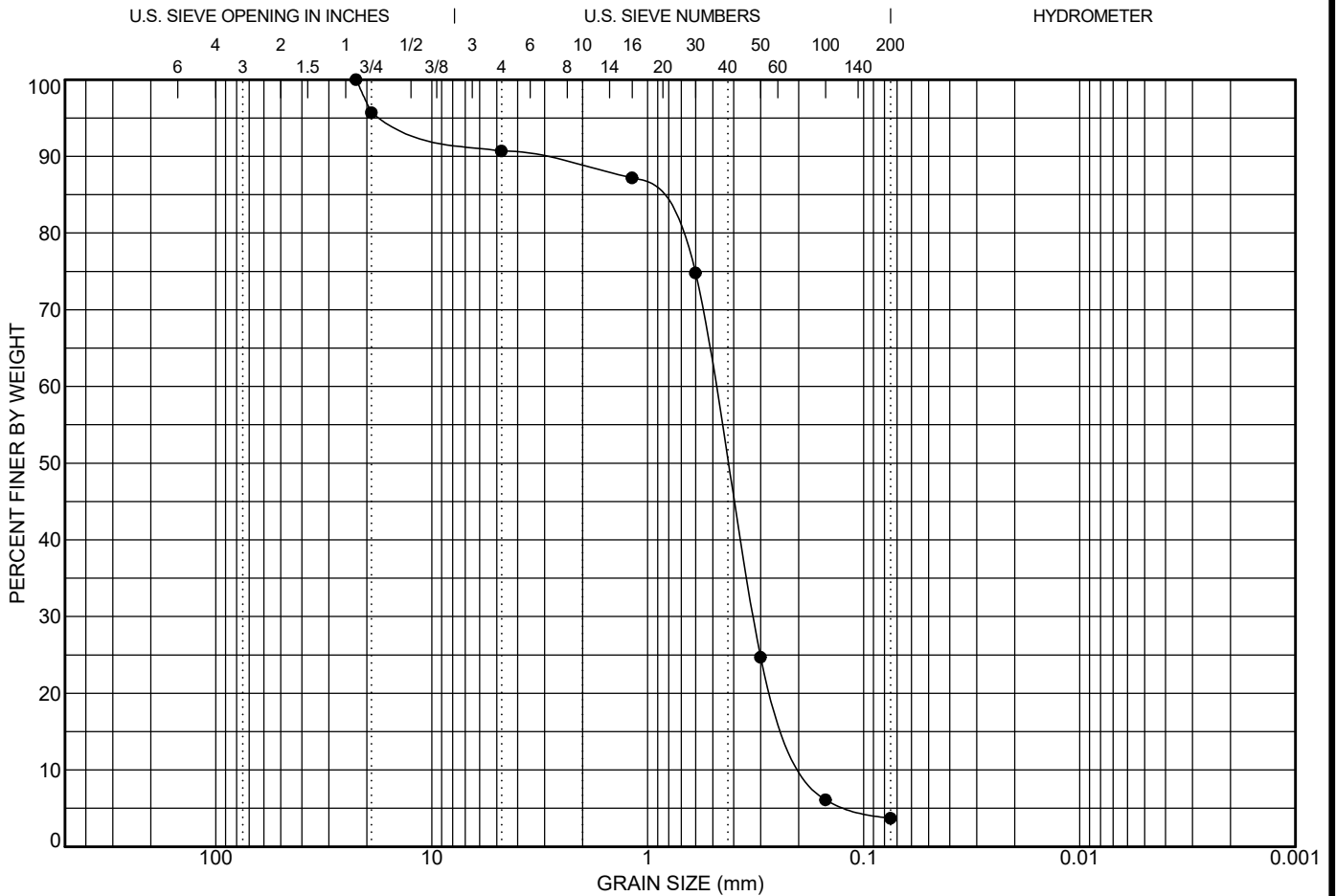


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e-mail: info@cvdengineering.com

### GRAIN SIZE DISTRIBUTION

Project: Proposed Residential Subdivision  
Location: 968 St. David Street North, Fergus, Ontario  
File No.: 1495  
Enclosure No.: 26

DM - NO SPECIFICATIONS 1495 968 ST. DAVID STREET NORTH, FERGUS (SEPTEMBER 2024), GPJ LAW LNDN.GDT 10-1-24



| COBBLES | GRAVEL |      | SAND   |        |      | SILT OR CLAY |
|---------|--------|------|--------|--------|------|--------------|
|         | coarse | fine | coarse | medium | fine |              |

| LL | PL | PI | Cc   | Cu   | D100 | D60   | D30   | D10   | %Gravel | %Sand | %Silt | %Clay |
|----|----|----|------|------|------|-------|-------|-------|---------|-------|-------|-------|
|    |    |    | 1.23 | 2.82 | 22.4 | 0.489 | 0.323 | 0.173 | 9.3     | 87.0  | 3.7   |       |

|                          |                                               |                        |                        |                          |
|--------------------------|-----------------------------------------------|------------------------|------------------------|--------------------------|
| <b>Date:</b>             | Sep. 25 - 2024                                | <b>Sieve Size (mm)</b> | <b>Percent Passing</b> | <b>No Specifications</b> |
| <b>Client:</b>           | PoloCorp Inc.                                 |                        |                        |                          |
| <b>Contractor:</b>       |                                               |                        |                        |                          |
| <b>Source:</b>           |                                               |                        |                        |                          |
| <b>Sampled From:</b>     | BH 111 - SA 4, 2.30 to 2.75 m depth           |                        |                        |                          |
| <b>Sample No.:</b>       | 111-4                                         |                        |                        |                          |
| <b>Date Sampled:</b>     | Sep. 10 - 2024                                |                        |                        |                          |
| <b>Sampled By:</b>       | RS                                            |                        |                        |                          |
| <b>Lab No.:</b>          | 1036                                          |                        |                        |                          |
| <b>Date Tested:</b>      | Sep. 25 - 2024                                |                        |                        |                          |
| <b>Type of Material:</b> | Fine to Medium Sand, trace gravel, trace silt |                        |                        |                          |



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### GRAIN SIZE DISTRIBUTION

Project: Proposed Residential Subdivision

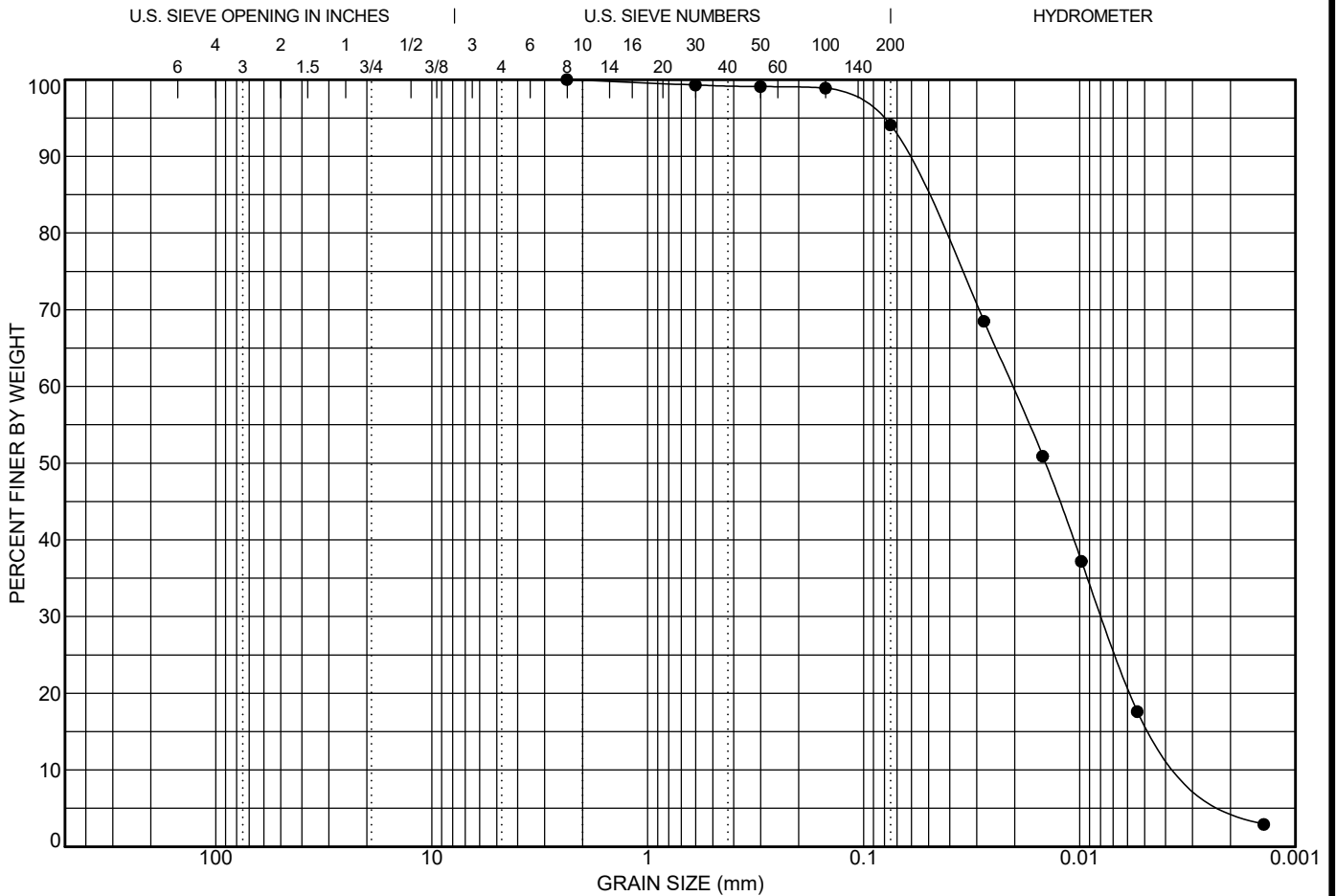
Location: 968 St. David Street North, Fergus, Ontario

File No.: 1495

Enclosure No.: 27



DM - NO SPECIFICATIONS 1495 968 ST. DAVID STREET NORTH, FERGUS (SEPTEMBER 2024), GPJ LAW LNDN.GDT 10-1-24



| COBBLES | GRAVEL |      | SAND   |        |      | SILT OR CLAY |
|---------|--------|------|--------|--------|------|--------------|
|         | coarse | fine | coarse | medium | fine |              |

| LL | PL | PI | Cc   | Cu   | D100 | D60  | D30   | D10   | %Gravel | %Sand | %Silt | %Clay |
|----|----|----|------|------|------|------|-------|-------|---------|-------|-------|-------|
|    |    |    | 1.13 | 7.62 | 2.36 | 0.02 | 0.008 | 0.003 | 0.0     | 5.9   | 94.1  |       |

|                                                          |  |                        |                        |                          |
|----------------------------------------------------------|--|------------------------|------------------------|--------------------------|
| <b>Date:</b> Sep. 25 - 2024                              |  | <b>Sieve Size (mm)</b> | <b>Percent Passing</b> | <b>No Specifications</b> |
| <b>Client:</b> PoloCorp Inc.                             |  |                        |                        |                          |
| <b>Contractor:</b>                                       |  |                        |                        |                          |
| <b>Source:</b>                                           |  |                        |                        |                          |
| <b>Sampled From:</b> BH 112 - SA 4, 2.30 to 2.75 m depth |  |                        |                        |                          |
| <b>Sample No.:</b> 112-4                                 |  |                        |                        |                          |
| <b>Date Sampled:</b> Sep. 10 - 2024                      |  |                        |                        |                          |
| <b>Sampled By:</b> RS                                    |  |                        |                        |                          |
| <b>Lab No.:</b> 1039                                     |  |                        |                        |                          |
| <b>Date Tested:</b> Sep. 25 - 2024                       |  |                        |                        |                          |
| <b>Type of Material:</b> Silt, trace sand, trace clay    |  |                        |                        |                          |



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### GRAIN SIZE DISTRIBUTION

Project: Proposed Residential Subdivision

Location: 968 St. David Street North, Fergus, Ontario

File No.: 1495

Enclosure No.: 28