Hydrogeological Assessment

Flato Southeast (Eco Park), Dundalk, Ontario

Flato Eco Park Dundalk Inc.

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Prepared by:

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SLR Project No.: 209.30125.00002

October 11, 2024

Revision: 0

Revision Record

Revision	Date	Prepared By	Checked By	Authorized By
0	October 11, 2024	Allison Vucenovic	Amanda Malatesta	Jason Cole

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1.0 Introduction

SLR Consulting (Canada) Ltd. (SLR) was retained by Flato Eco Park Dundalk Inc. to conduct a Hydrogeological Assessment as part of a Draft Plan of Subdivision and future Site Plan for the proposed Flato Southeast Eco Park residential subdivision located in Dundalk, Ontario (referred to as the "Study Area" or "the Site") (**Figure 1**).

The Site includes the properties located on lands legally identified as Part of lots 238, 239 and 240 Concession 1, Southwest of Toronto and Sydenham Road (SWTSR) and part of lots 238 and 239 Concession 2, SWTSR located in Dundalk, Ontario in support of proposals for residential development within these properties ("Site", **Figure 2**).

The Site is bounded by Highway 10 to the northeast, and Grey County Trail to the southeast. These lands fall within a larger area currently subject to an approved Ministerial Zoning Order (MZO), whereby the development of these subject lands will be phased.

1.1 Study Objectives

The objective of the Hydrogeological Assessment is to characterize the hydrogeological conditions across the Site, identify hydrogeological constraints to development and potential impacts of development on natural heritage features, and provide guidance on how to mitigate these impacts. This is completed through a review of relevant geologic and hydrogeologic information available through public records for the area or collected through borehole drilling and groundwater monitoring and sampling efforts. This report has been prepared for submission to the Township of Southgate, Bruce County, and Grand River Conservation Authority (GRCA) as part of the Draft Plan of Subdivision and future Site Plan Application for the proposed development.

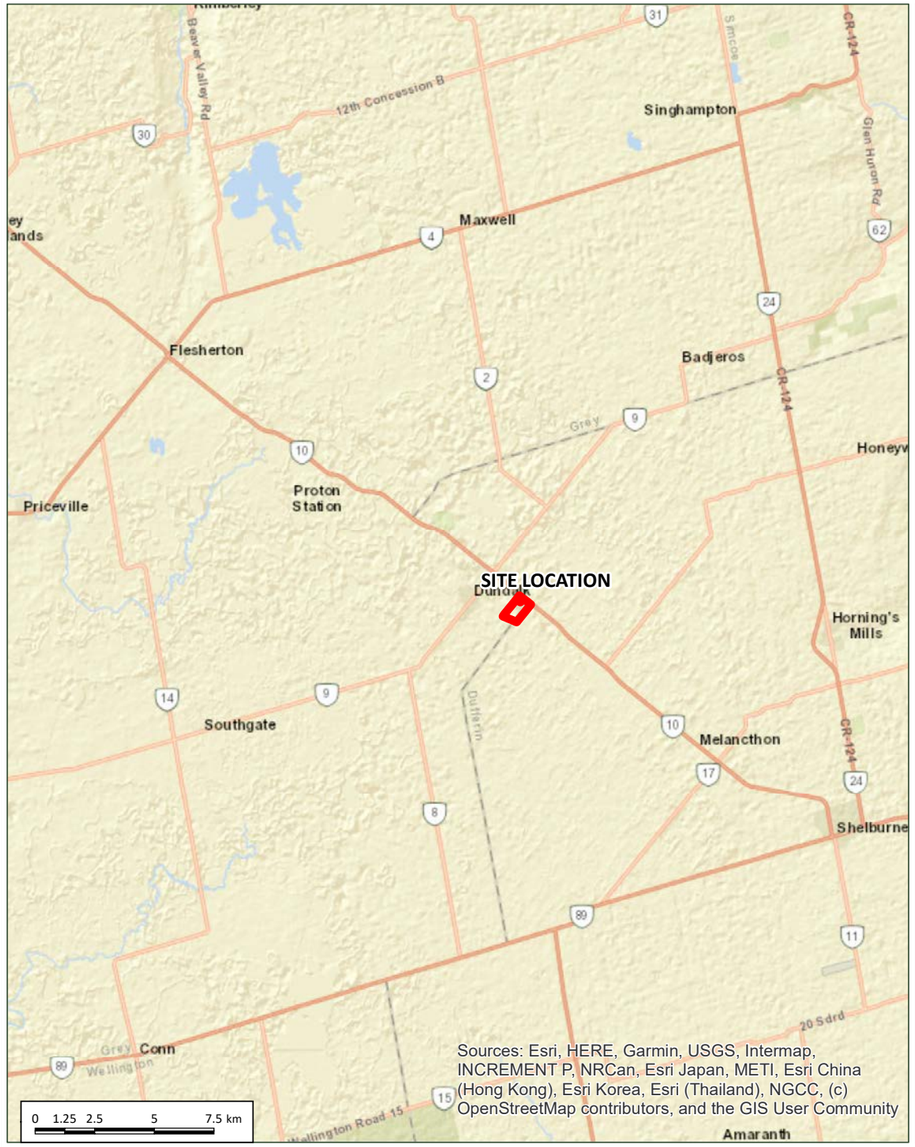
The specific objectives are summarized below:

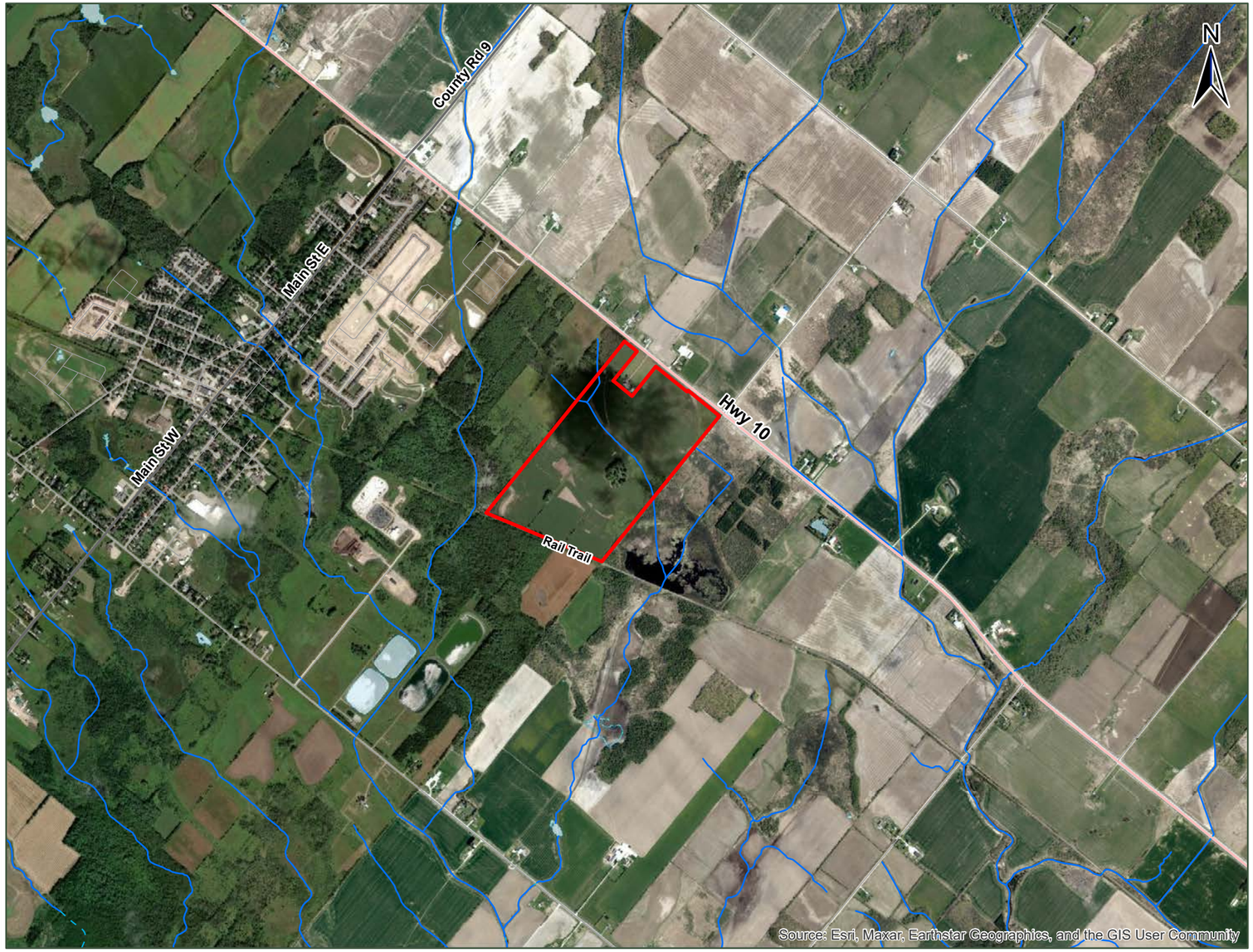
- Document the geology, hydrostratigraphy, groundwater flow, and groundwater quality across the Study Area.
- Evaluate potential impacts with respect to Source Protection Plans.
- Assess overall potential impacts of the proposed development on the groundwater flow system.

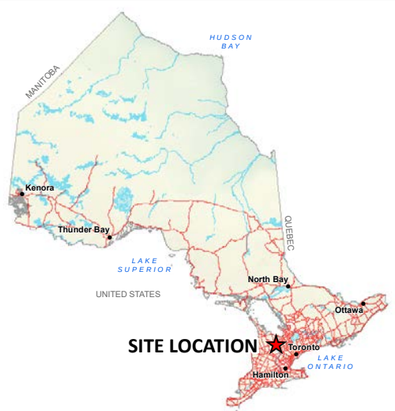
1.2 Report Organization

This Hydrogeology Assessment report has been organized into eight sections following this introduction. Section 2 provides an overview of background information related to the development, previous investigations, and regional geology and hydrogeology. Section 3 provides the field methodologies utilized during the assessment. Section 4 presents a review of the Site geological and hydrogeological conditions. Section 5 provides an assessment of the potential impacts of development on shallow groundwater features, potable wells, and surface water features. Section 6 presents the conclusions and recommendations, Section 7 provides closing comments, and Section 8 presents the report references.

All Figures referenced throughout the report are presented within the text. Appendices A through E present the: Development Plan; Borehole Logs; Groundwater Data; Hydraulic Conductivity Analyses; and MECP Water Well Records.







NOTES:
BASEDATA:
ONTARIO MINISTRY OF NATURAL RESOURCES, LAND INFORMATION ONTARIO (LIO)

LEGEND
SITE BOUNDARY

0 250 500 1,000 1,500 m

SCALE 1:25,000
PAGE SIZE 11 x 17
NAD 1983 UTM Zone 17N
THIS MAP IS FOR CONCEPTUAL PURPOSES ONLY AND SHOULD NOT BE USED FOR NAVIGATION

FLATO ECO PARK DUNDALK INC.
FLATO SOUTHEAST (ECO PARK)
DUNDALK, ONTARIO, CANADA

HYDROGEOLOGICAL ASSESSMENT

SITE LOCATION

SLR

FIGURE NO:
1

DATE: September 11, 2024

PROJECT NO: 209.30125.00002

LEGEND

- SITE BOUNDARY
- MONITORING WELL
- MINI-PIEZOMETER
- INTERMITTENT WATERCOURSE
- PERMANENT WATERCOURSE

NOTES:
BASEDATA:
ONTARIO MINISTRY OF NATURAL RESOURCES, LAND INFORMATION ONTARIO (LIO)

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SCALE 1:6,000
PAGE SIZE 11 x 17
NAD 1983 UTM Zone 17N

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FLATO ECO PARK DUNDALK INC.
FLATO SOUTHEAST (ECO PARK)
DUNDALK, ONTARIO, CANADA

HYDROGEOLOGICAL ASSESSMENT

SITE PLAN

SLR

FIGURE NO:
2

DATE: September 11, 2024

PROJECT NO: 209.30125.00002

2.0 Background

2.1 Proposed Development

The proposed Site is generally rectangular in shape and measures approximately 60.4 ha in size. It is understood that the proposed Flato Southeast Eco Park residential subdivision will contain single detached lots, townhouses, an apartment complex, commercial and industrial lots, a stormwater management (SWM) pond, parks, and areas of environmental protection. The overall development is expected to have completed municipal servicing, and paved access / site roadways. A copy of the proposed development plan is provided in **Appendix A**.

2.2 Site Description

The Site lies on lands legally identified as Part of lots 238, 239 and 240 Concession 1, Southwest of Toronto and Sydenham Road (SWTSR) and part of lots 238 and 239 Concession 2, SWTSR located in Dundalk, Ontario. The Site is used primarily for agricultural purposes. The area surrounding the Site is also primarily used for agricultural purposes, with scattered rural residences. The property is bounded by Highway 10 to the northeast, and Grey County Trail to the southeast (**Figure 2**).

2.3 Regional setting

2.3.1 Topography and Drainage

The Study Area is gently undulating with a gentle decrease in ground surface elevation from northwest to southeast. A topographic high of 515 metres above sea level (masl) is located near the northwestern portion of the Site, with a topographic low of 508 masl along the eastern portion of the Site. It is noted that the portion of the Site located on Part of Lot 242 Concession 1 is primarily dominated by the Melancthon Wetland Complex #1 (**Figure 3**). Ground surface within the Melancthon Wetland Complex #1 ranges from 508 masl to 510 masl.

The Site is located within the Upper Grand River Watershed, which is under the jurisdiction of the GRCA. There is an unnamed drainage feature present across the Site. The drainage feature generally extends across the property in a northwest to southeast alignment and is mapped to connect within the Melancthon Wetland Complex #1 along the southeast corner of the Site. Surface water within the drainage feature flows across the Site in a south to southeasterly direction.

2.3.2 Physiography

The Study Area lies within the Dundalk Till Plain physiographic region of Southern Ontario (Chapman and Putnam, 1984). The Dundalk Till Plain is a gently undulating, partially drumlinized and fluted surface, where the long axis of the drumlins are oriented in a southeastward direction. The Dundalk Till Plain supports extensive wetland complexes due to the presence of poorly drained depressions.

2.3.3 Regional Hydrostratigraphy

Surficial geology in the Dundalk area mainly consists of drumlinized till plains (Chapman and Putnam, 1984) comprised of the Elma Till (stony sandy silt to silt) and Catfish Creek Till (clayey silt and gravel, **Figure 4**). There are isolated deposits of glaciolacustrine, glaciofluvial ice-contact and glaciofluvial outwash materials at surface and interbedded within the till plain.

These sand and gravel deposits form the Dundalk Aquifer (Saugeen Valley Source Protection Area, 2015). The extent and thickness of the Dundalk Aquifer is unknown due to a lack of reliable well records for the area. It is noted that static water levels within the Dundalk Aquifer are close to ground surface.

The overburden material is underlain by bedrock aquifer units comprised of the Guelph, Eramosa, Goat Island and Gasport Formations (Golder, 2018).

2.3.4 Source Protection

Source Protection Plans (SPPs) have been implemented throughout the region to protect drinking water resources, as mandated by the Ontario Clean Water Act (OCWA), 2006. The susceptibility of an aquifer to contamination is evaluated to identify the most vulnerable areas surrounding a drinking water source. There are four (4) types of vulnerable areas as defined by the Clean Water Act, 2006:

- Highly vulnerable aquifer (HVA): aquifers in which an external source is likely to have a significant adverse effect, this includes the land above the aquifer;
- Significant groundwater recharge area (SGRA): an area in which it is necessary to regulate or monitor drinking water threats that could affect the recharge of an aquifer;
- Surface water intake protection zone (IPZ): an area related to a surface water intake area in which it is necessary to regulate or monitor drinking water threats; and
- Wellhead protection area (WHPA): an area related to a wellhead, within which it is necessary to regulate or monitor drinking water threats.

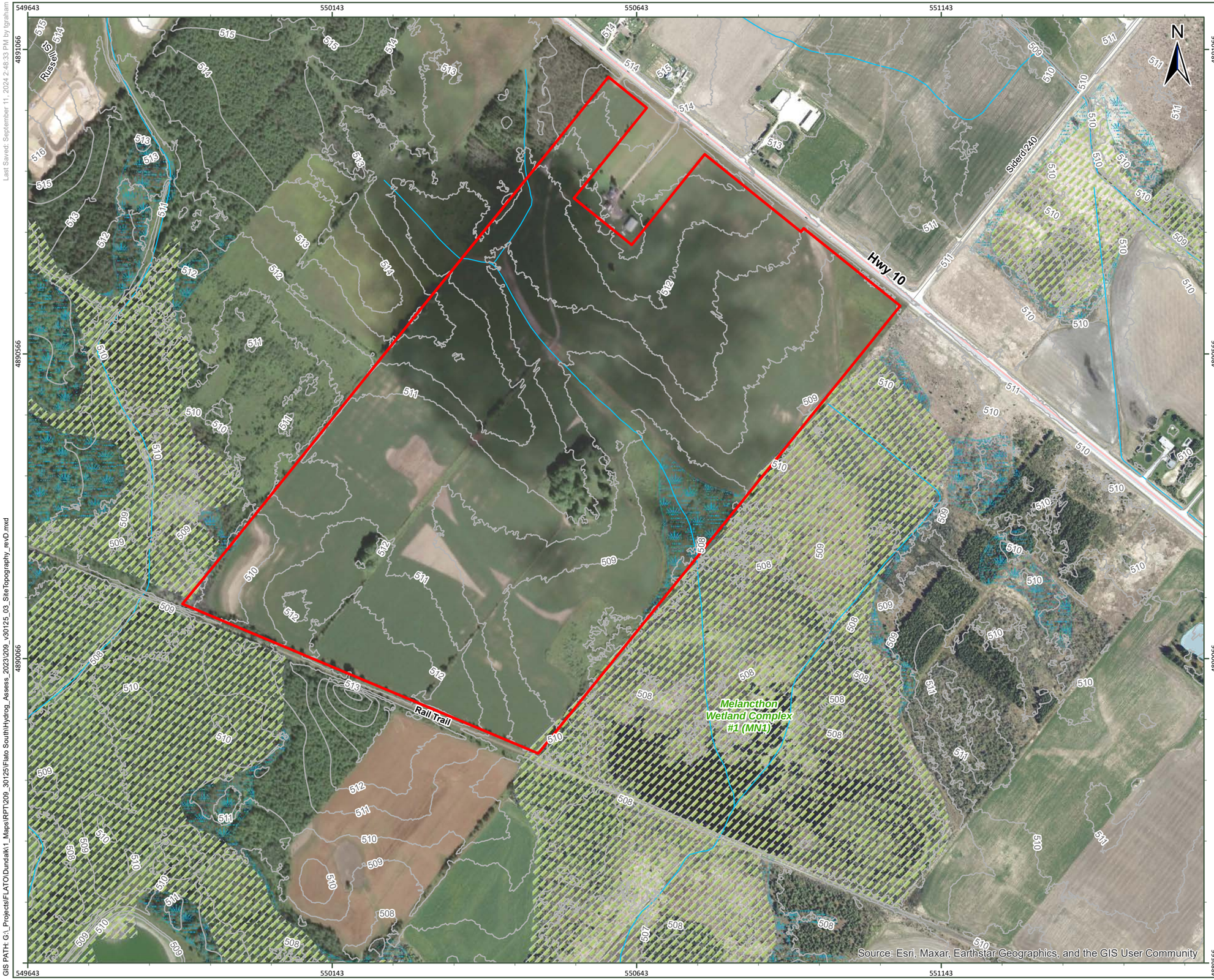
The Site is within the Grand River Source Protection Region. The Approved Source Protection Plan (GRCA, 2022) have identified the Site to be located immediately east of a WHPA-D, representing a capture zone time frame of 25 years (**Figure 5**). It is noted that a small sliver of the southwest corner of the property lies within the WHPA-D. The property is also located within a SGRA, IPZ, and HVA (**Figure 6**).

Groundwater and surface water resources within a WHPA, SGRA, IPZ, and HVA are relatively sensitive to chemical or pathogen contamination and / or changes in groundwater recharge. It is important to note that delineation of the vulnerable areas based on regional mapping and do not consider site-specific conditions (i.e., type and thickness of the overlying material). The results of the drilling program indicates that the subsurface soils across the Study Area consists of mainly silty sand till. The material was determined to have low hydraulic conductivity and therefore, the potential to impact deeper aquifers is limited.

Although precautionary measures to protect groundwater and surface water must be applied on all projects, additional protection measures and related documentation may be required where study areas fall within these zones. These include maintenance of the Site-wide water balance and limitations on the presence of potential contamination sources such as gas stations and dry cleaner facilities. Based on the current development plan, the east portion of the Site includes industrial development. The Township of Southgate Official Plan (2022) encourages industrial land uses to be located in a designated industrial area (ie. Eco Park Business Park). It is further stated in the official plan that separation distances shall be provided between incompatible land uses in accordance with the D-6 guidelines of the Ministry of the Environment, Conservation and Parks. A D-6 Study is being completed for the Flato Eco Park development and will be submitted under separate cover.

A site-specific water balance has been completed by Crozier & Associates Consulting Engineers (Crozier) to document pre-development recharge rates, and to look for opportunities to promote the recharge of clean water to meet or exceed pre-development recharge rates. The site-specific water balance is presented under separate cover.

Although precautionary measures to protect groundwater and surface water resources must be applied on all projects, additional protection measures (i.e., best management plans) and related documentation may be required where subject properties fall within these zones. These include limitations on the presence of potential contamination sources such as bulk fuel or bulk chemicals. Although not anticipated to be part of the proposed development, should a bulk fuel (≥ 2,500 L) facility be included as part of the development, a Risk Management Plan (RMP) and/or Contaminant Management Plan (CMP) will be prepared, as required under the GRCA SPP (2022) Policy GC-S-CW-7.2.



LEGEND

- SITE BOUNDARY
- INTERMITTENT WATERCOURSE
- PERMANENT WATERCOURSE
- SURFACE CONTOUR (1M)
- UNEVALUATED WETLAND
- PROVINCIALLY SIGNIFICANT WETLAND

NOTES:
BASEDATA:
ONTARIO MINISTRY OF NATURAL RESOURCES, LAND INFORMATION ONTARIO (LIO)
CONTOURS:
SWOOP 2015

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PAGE SIZE 11 x 17
NAD 1983 UTM Zone 17N

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FLATO ECO PARK DUNDALK INC.
FLATO SOUTHEAST (ECO PARK)
DUNDALK, ONTARIO, CANADA

HYDROGEOLOGICAL ASSESSMENT

SITE TOPOGRAPHY

SLR

FIGURE NO:
3

DATE: September 11, 2024
PROJECT NO: 209.30125.00002

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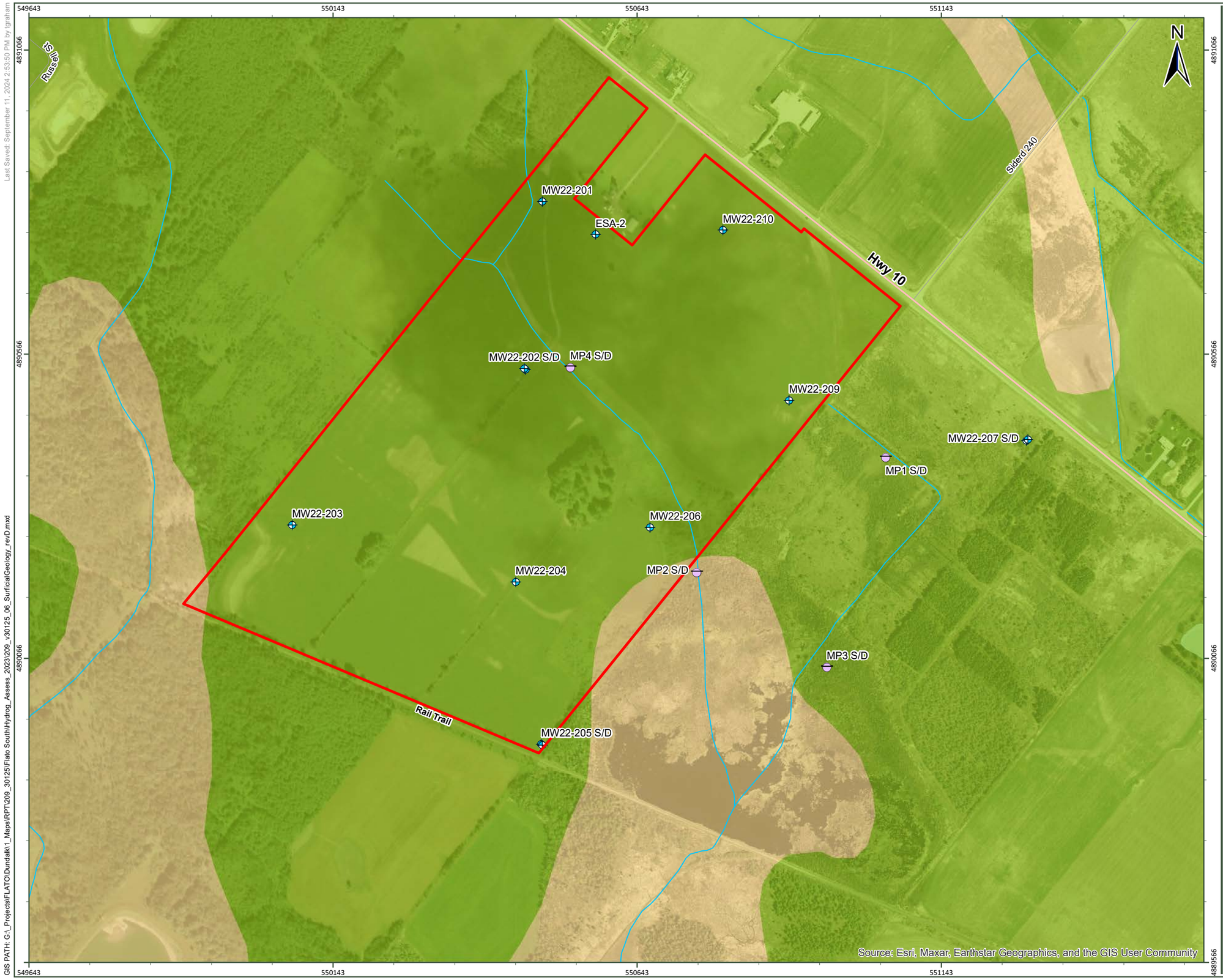

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LEGEND

- SITE BOUNDARY
- MONITORING WELL
- MINI-PIEZOMETER
- INTERMITTENT WATERCOURSE
- PERMANENT WATERCOURSE
- 5B: STONE-POOR, SILTY TO SANDY TILL
- 7A: SANDY DEPOSITS

NOTES:
BASEDATA:
ONTARIO MINISTRY OF NATURAL RESOURCES, LAND INFORMATION ONTARIO (LIO)
SURFICIAL GEOLOGY OF SOUTHERN ONTARIO:
ONTARIO GEOLOGICAL SURVEY

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PAGE SIZE 11 x 17
NAD 1983 UTM Zone 17N

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FLATO ECO PARK DUNDALK INC.
FLATO SOUTHEAST (ECO PARK)
DUNDALK, ONTARIO, CANADA

HYDROGEOLOGICAL ASSESSMENT

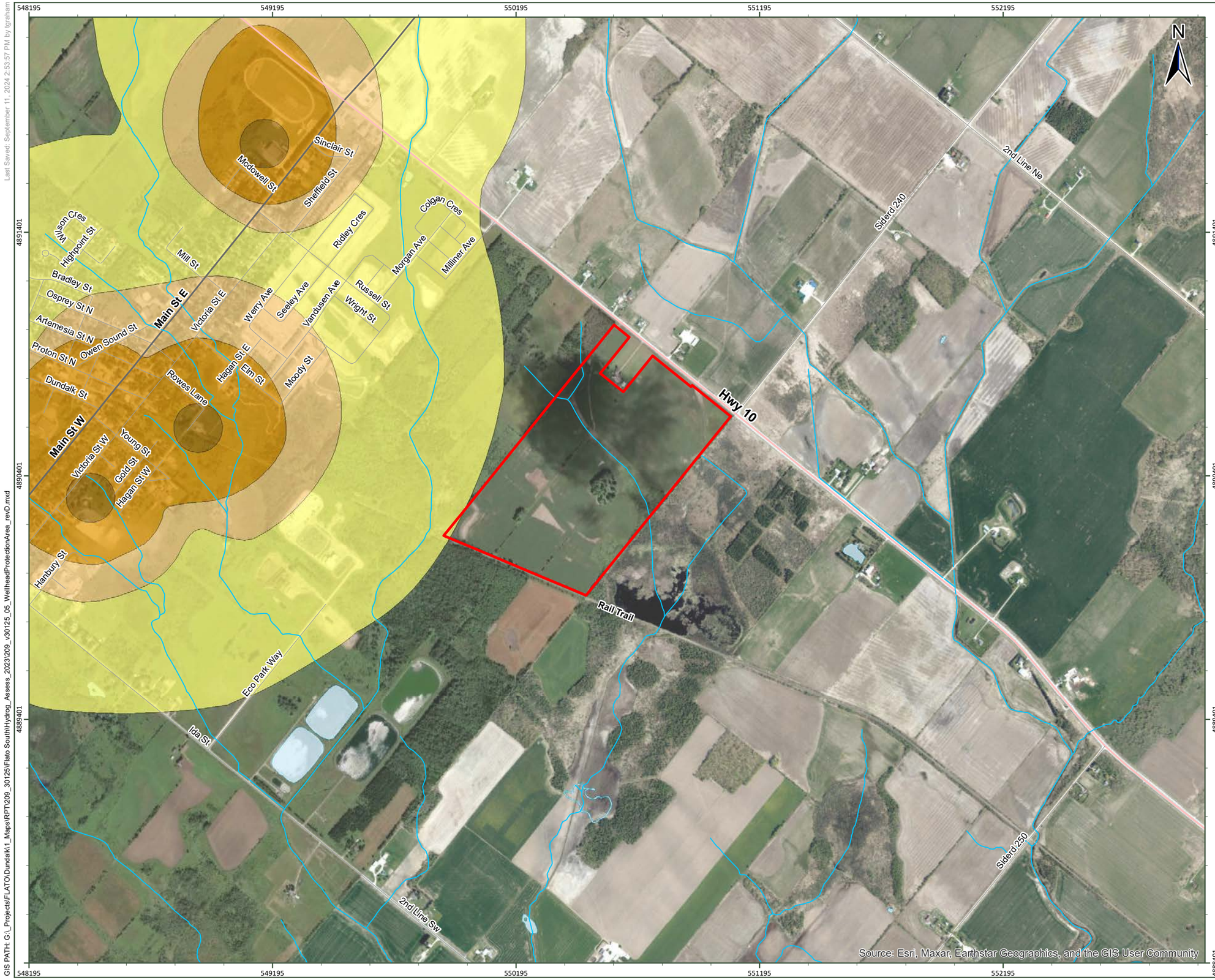
SURFICIAL GEOLOGY

SLR

FIGURE NO:
4

DATE: September 11, 2024

PROJECT NO: 209.30125.00002



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LEGEND

- SITE BOUNDARY
- INTERMITTENT WATERCOURSE
- PERMANENT WATERCOURSE

WELLHEAD PROTECTION AREA

- A
- B
- C
- D

NOTES:

BASEDATA:
ONTARIO MINISTRY OF NATURAL RESOURCES, LAND INFORMATION ONTARIO (LIO)
WELLHEAD PROTECTION AREA:
CONTAINS INFORMATION MADE AVAILABLE UNDER GRAND RIVER CONSERVATION AUTHORITY'S OPEN DATA LICENCE V2.0

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FLATO SOUTHEAST (ECO PARK)
DUNDALK, ONTARIO, CANADA

HYDROGEOLOGICAL ASSESSMENT

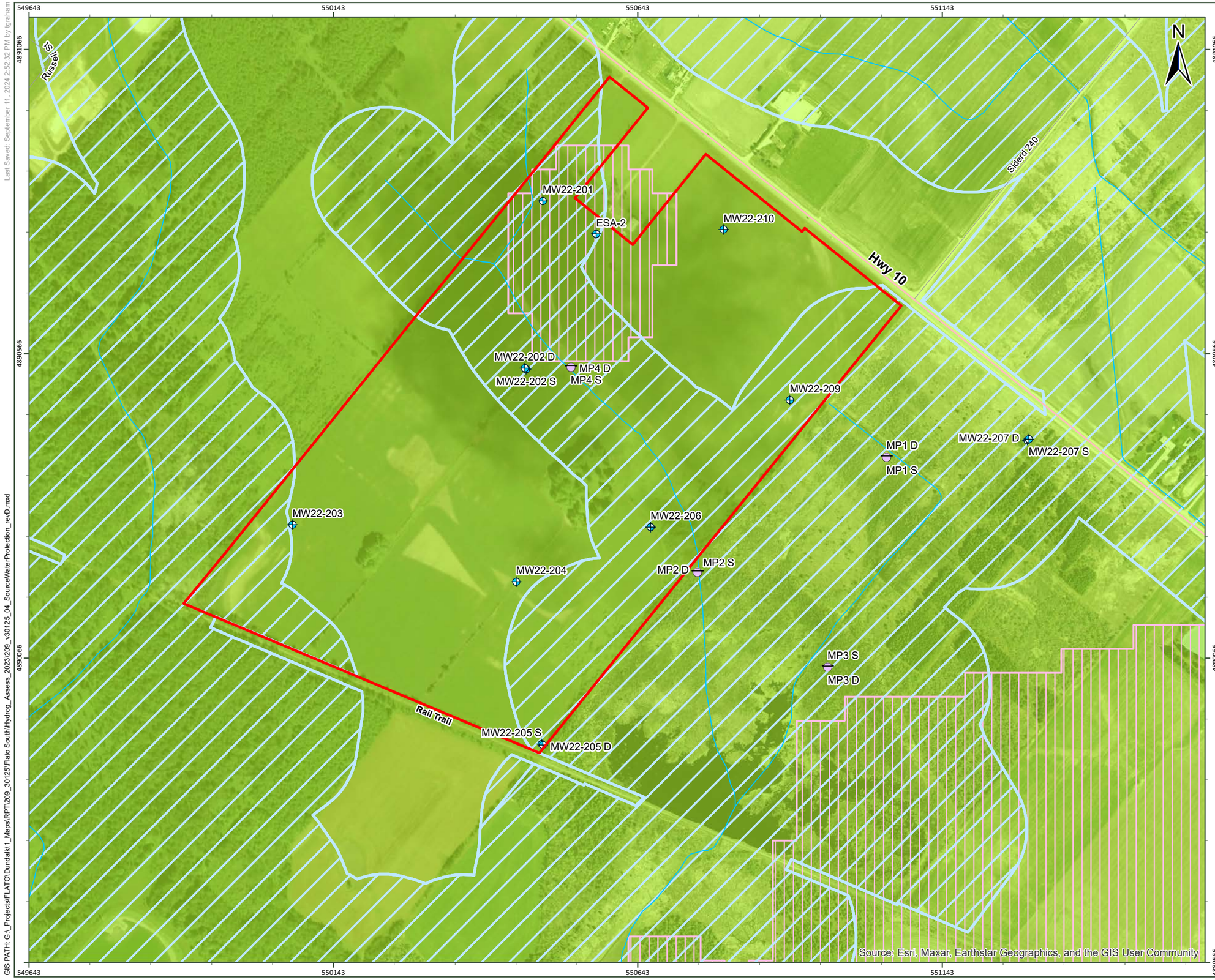
WELLHEAD PROTECTION AREA

SLR

FIGURE NO:
5

DATE: September 11, 2024

PROJECT NO: 209.30125.00002



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LEGEND

- SITE BOUNDARY
- MONITORING WELL
- MINI-PIEZOMETER
- INTERMITTENT WATERCOURSE
- PERMANENT WATERCOURSE
- INTAKE PROTECTION ZONE 3
- HIGHLY VULNERABLE AQUIFERS
- SIGNIFICANT GROUNDWATER RECHARGE AREA

NOTES:

BASEDATA:
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WELLHEAD PROTECTION AREA:
CONTAINS INFORMATION MADE AVAILABLE UNDER GRAND RIVER CONSERVATION AUTHORITY'S OPEN DATA LICENCE V2.0

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PAGE SIZE 11 x 17
NAD 1983 UTM Zone 17N

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FLATO ECO PARK DUNDALK INC.
FLATO SOUTHEAST (ECO PARK)
DUNDALK, ONTARIO, CANADA

HYDROGEOLOGICAL ASSESSMENT

SOURCE WATER PROTECTION

SLR

FIGURE NO :
6

DATE: September 11, 2024

PROJECT NO: 209.30125.00002

3.0 Methodology

3.1 Installation of New Monitors

Nine (9) boreholes were advanced at select locations across the Site in April 2022. The boreholes were drilled using a track-mounted drill rig with 9” outer diameter hollow stem auger. A record of geological and hydrogeological conditions was logged during drilling using a split spoon sampler at approximately 0.76 m intervals down to the targeted depth of the monitoring well. At each borehole location, the soil stratigraphy and classification, moisture content, colour, appearance, soil structure (presence of laminations, heterogeneity, soil weathering, etc.), and odour was noted in general accordance with the Unified Soil Classification System. It is noted that a monitoring well (MW22-208) was proposed for the wetland area, however, was terminated due to accessibility issues.

All borehole locations were completed as monitoring wells. At three (3) of these locations nested monitoring wells, consisting of a shallow and deep counterpart, were installed. The monitoring wells were constructed with a 50-millimetre (mm) diameter polyvinyl chloride (PVC) well pipe. In general, the monitoring wells were constructed with No. 10 slotted PVC screen approximately 1.5 m long. Monitor ESA-2 was installed near a potential tank in the vicinity of the residential property as part of a Phase 2 Environmental Site Assessment completed coincident with the additional drilling program in 2022. A longer screen (3.0 m) was installed at this location to allow for an assessment of potential petroleum impacts.

A sand pack was placed around and slightly above the well screen, and the remaining upper portion of the borehole was sealed with bentonite. Monitor MW22-205D was sealed with grout as flowing sands were encountered during drilling. A steel monument casing was installed over the well at each monitoring location. Upon completion of the monitoring wells, the monitors were tagged registered with the MECP as required by Ontario Regulation (O. Reg.) 903, as amended. Details of the monitoring well construction are summarized in **Table 3-1**. The location of the monitoring wells are depicted in **Figure 7**, and borehole logs are provided in **Appendix B**.

Four (4) nested pairs of piezometers, for a total of eight (8) mini-piezometers (MP1-S/D through MP4-S/D) were installed within the tributaries and Melancthon Wetland Complex #1 in May 2022. These mini-piezometers were installed to assess groundwater-surface water interactions within the natural heritage features. The mini-piezometers were constructed with a 19 mm diameter steel pipe threaded onto an approximately 0.33 m long screened drive point piezometer Solinst tip, and were installed to the targeted depth through direct push. A pilot hole was not advanced prior to the installation; as such, the screened material at each mini-piezometer location is unknown. The construction details of the mini-piezometers are provided in **Table 3-1**, and the location of the mini-piezometers are shown on **Figure 7**.

Table 3-1: Monitoring Well Details

Monitor	Ground Surface Elevation (masl)	Top of Pipe Elevation (masl)	Screen Interval (masl)	Screened Material
MW22-201	511.6	512.4	507.0 – 505.5	Silty sand till
MW22-202 S	510.9	511.9	506.6 – 505.1	Silty sand, Silty sand till
MW22-202 D	511.0	511.8	501.8 – 500.3	Silty sand till
MW22-203	510.4	511.3	505.8 – 504.3	Silty sand till
MW22-204	508.7	509.6	504.3 – 502.8	Silty sand till
MW22-205 S	509.4	510.3	505.0 – 503.5	Silty sand, sand and gravel
MW22-205 D	509.3	510.3	500.2 – 498.7	Sandy silt till
MW22-206	508.5	509.4	507.1 – 505.6	Silty sand till
MW22-207 S	510.1	510.9	508.6 – 507.1	Silty sand till
MW22-207 D	510.1	511.0	506.1 – 504.6	Silty sand till
MW22-209	509.1	510.0	505.5 – 503.9	Silty sand till
MW22-210	511.9	513.0	507.5 – 506.0	Silty sand till
ESA-2	512.4	513.3	511.1 – 508.0	Silty sand till
MP1-S	508.9	509.4	508.2 – 507.9	–
MP1-D	508.8	509.7	507.3 – 506.9	–
MP2-S	507.5	508.2	507.0 – 506.7	–
MP2-D	507.5	508.3	506.0 – 505.7	–
MP3-S	507.4	508.1	506.8 – 506.5	–
MP3-D	507.4	508.3	506.0 – 505.6	–
MP4-S	509.6	510.2	508.4 – 508.1	–
MP4-D	509.6	510.4	508.0 – 507.7	–

3.2 Monitoring Well Development

Following installation, the monitoring wells were developed using dedicated tubing with a submersible pump. The monitoring wells were developed to remove any soil fines that may have infiltrated into the monitoring well and its surrounding sand pack during the installation process, and to improve the hydraulic connection between the well and geologic materials. Due to slow recovery, each well was purged dry and allowed to recover. Water was subsequently removed from the monitoring well until discontinuous flow was produced for a second time.

3.3 Water Level Monitoring

Groundwater levels were manually collected in each accessible monitor using a water level meter to collect baseline data prior to Site development. Water levels were collected on a quarterly basis commencing on May 13, 2022, with the most recent event occurring on

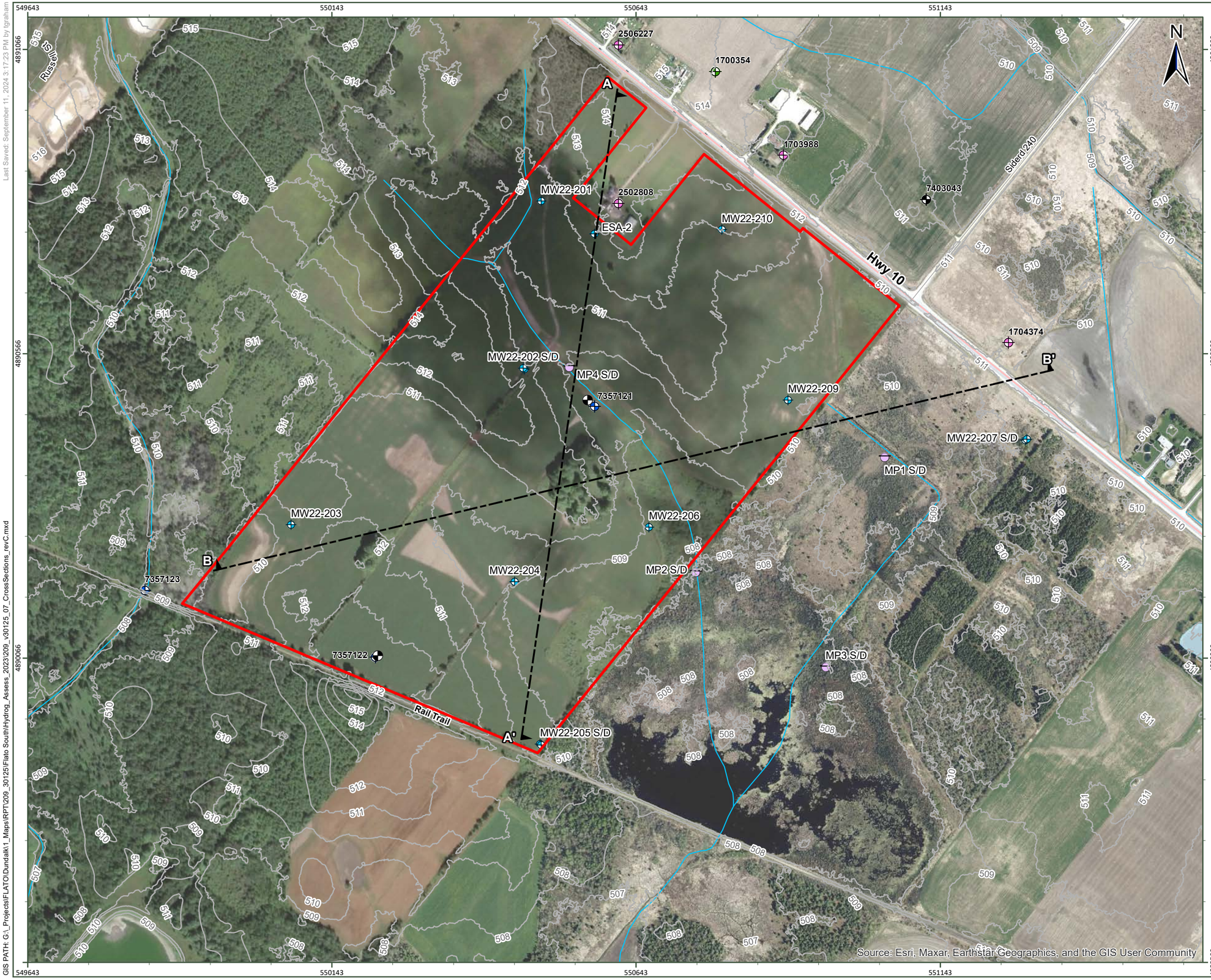
June 12, 2024. The surface water level and groundwater elevation were measured at the mini-piezometer locations to assess groundwater-surface water interactions within the natural heritage features.

To support a more comprehensive understanding of the Site, select monitoring wells and mini-piezometers were instrumented with automated dataloggers in order to obtain continuous groundwater level readings. A barologger was also deployed coincident with the datalogger to measure changes in atmospheric pressure. Continuous water level measurements provide additional insight into the groundwater regime, particularly in response to precipitation events, as well as high-water level conditions. The dataloggers are downloaded every four (4) months while completing manual water level measurements on-Site. The dataloggers were removed from the mini-piezometers during the winter period to avoid minimize potential damage due to freeze-thaw events. The dataloggers were re-deployed in the mini-piezometers in spring. All dataloggers were removed from groundwater wells and mini-piezometers on November 1, 2023, and reinstalled on March 7, 2024.

3.4 In-Situ Hydraulic Conductivity and Analysis

In-situ hydraulic conductivity tests were completed in select monitoring wells to establish the permeability (hydraulic conductivity) of the formation in which the wells are screened. Hydraulic conductivity is a parameter that describes the ability of soil to allow water to move through it. The lower the hydraulic conductivity, the less water will be able to move through. Aquifers, such as sandy or gravelly soils, typically have a hydraulic conductivity of 10^{-6} metres per second (m/s) or greater, whereas aquitards (clay or dense silt) have a hydraulic conductivity of 10^{-8} m/s or less.

The testing involved the slug test method, whereby a slug of known volume was removed (rising head test) from each well. The water levels were recorded during the addition, removal, and recovery stages of the slug test using a Diver datalogger temporarily installed in the monitor. The in-situ hydraulic conductivity test was completed once the water level recovered to 90% of static conditions. The slug tests were analyzed in AQTESOLV using the Hvorslev method (1951) for confined aquifers.



LEGEND

- SITE BOUNDARY
- MONITORING WELL
- MINI-PIEZOMETER
- BOREHOLE
- INTERMITTENT WATERCOURSE
- PERMANENT WATERCOURSE
- SURFACE CONTOUR (1M)
- CROSS SECTION

MECP WELL LOCATION (WWIS, 2024)

- LIVESTOCK
- MONITORING
- DOMESTIC
- UNCLASSIFIED

NOTES:
BASEDATA:
ONTARIO MINISTRY OF NATURAL RESOURCES, LAND INFORMATION ONTARIO (LIO)

0 50 100 200 300 m

SCALE 1:6,000
PAGE SIZE 11 x 17
NAD 1983 UTM Zone 17N

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FLATO ECO PARK DUNDALK INC.
FLATO SOUTHEAST (ECO PARK)
DUNDALK, ONTARIO, CANADA

HYDROGEOLOGICAL ASSESSMENT

CROSS SECTION LOCATIONS

SLR

FIGURE NO: **7**

DATE: September 11, 2024

PROJECT NO: 209.30125.00002

4.0 Site Geology and Hydrogeology

4.1 Geology and Hydrostratigraphy

4.1.1 Surficial Geology

Based on a review of the Ontario Geological Survey mapping (OGS, 2010), the surficial geology of the Site is primarily Elma Till, which is characterized as a stone-poor sandy silt to silty sand till. The wetland found along the western portion of the Site is mapped to consist of sandy glaciofluvial sandy deposits, with minor organic deposits located within wetland areas.

Surficial geology of the Site was also characterized by advancing boreholes at select locations across the property. Borehole logs are provided in **Appendix B**. Geological cross-sections of the Site, as indicated in **Figure 7**, are presented in **Figure 8** and **Figure 9**.

Based on the results of the drilling program, the Site was comprised of a till unit underlying the surficial, overturned topsoil. The till unit is composed of sandy silt to silty sand with gravel material. At select locations across the Site, thin (<1 m thick) surficial deposits comprised of silty sand as well as discontinuous sand/gravel interbeds was encountered. Interbedded sand to sandy gravel material were located at approximately 503.9 to 504.5 masl, and 506.9 to 508.09 masl. The glacial till material serves as an aquitard protecting the underlying bedrock aquifer due to its low permeability and substantial thickness.

4.1.2 Bedrock Geology

Boreholes advanced across the Site were terminated once the targeted depth of the shallow monitoring wells were reached. As such, bedrock was not encountered during drilling. However, a review of the MECP WWR database indicates that the bedrock in the vicinity of the Site lies between 20 mbgs (MECP well ID 2502808) to 46 mbgs (MECP well ID 1703988). The bedrock consists mostly of dolostone/limestone, likely from the Guelph Formation.

Source Protection documents from the Grand River Conservation Authority indicates that the bedrock is composed of 88 m of both the Guelph Formation and the Gasport Formation (Lake Erie Region Source Protection Committee, 2021). The Guelph Formation consists of porous, fine to medium crystalline, medium to massive irregularly bedded dolostone (Armstrong, 2010). The underlying Gasport Formation consists of thick- to massive-bedded, fine to coarse-grained dolostone and dolomitic limestone (Armstrong, 2010).

4.2 Groundwater Monitoring

4.2.1 Groundwater Monitoring

Groundwater level measurements were recorded at each accessible monitoring well and mini-piezometer location commencing in May 2022 with the most recent event occurring in June 2024. Monitors MW22-202 S/D, MW22-203, MW22-204, and MW22-209, as well as mini-piezometers MP1 S/D, MP2 S/D, and MP4 S/D were instrumented with dataloggers to collect continuous water level measurements. It was noted that MP4D became damaged (bent) during the monitoring program and therefore manual water level measurements are presented, but not used in vertical gradient calculations. MP3, located off site, was removed from the monitoring program due to accessibility issues. Groundwater elevations and hydrographs are provided in **Appendix C**.

Groundwater elevations across the Site fluctuated seasonally between May 2022 and June 2024. During the May 2022, March 2023, and March 2024 (spring) monitoring events, water levels in the monitoring wells ranged between 506.44 masl (MW22-209) and 512.29 masl (ESA-2). In comparison, water levels during the July 2022 (summer) event ranged between 506.82 masl (MW22-206) and 511.14 masl (MW22-210). During the November 2022 and 2023 (fall) monitoring events, groundwater levels ranged between 506.26 masl (MW22-204) and 510.72 masl (ESA-2). Groundwater elevations subtly followed surface topography, where the highest and lowest water levels were often observed at ESA-2 (northern portion of the Site) and MW22-206 (southern portion of the Site), respectively.

Groundwater elevations between the shallow and deep monitors at the nested monitoring well locations are comparable, although consistently slightly higher in the shallow monitors.

Noted periods of drawdown in all monitoring wells with dataloggers occurred between May and October of the 2022 and 2023 monitoring seasons. Water levels increased slightly during the later half of July 2023 then resumed drawdown patterns observed previously in 2022 until October 2023. Water level gradually increased from October to peak levels in March during both the 2023 and 2024 monitoring seasons.

Groundwater elevations in mini-piezometers demonstrate a similar response to seasonal fluctuations as the groundwater monitors. Groundwater elevations were high in late spring, gradually decreasing into the drier summer months. Groundwater elevations were lowest at the end of September in MP2-S and MP2-D, at 507.46 and 507.48 masl, respectively. It should be noted that continuous groundwater elevations are unavailable for MP1-D, MP2-D, and MP4-S between September 20, 2022, and November 25, 2022, as the shallow groundwater levels fell below the depth of the logger. Manual measurements during this time period were used to assess groundwater elevation. Manual measurements collected in March 2023 demonstrate high groundwater elevations, typical of the spring freshet.

4.2.2 Horizontal Groundwater Flow

The interpreted groundwater contours for May 2023, representing a generally high-water table position, are presented in **Figure 10**. Water levels from May 2023 contains the most complete dataset (i.e., wells were not frozen) during spring conditions, which are of particular interest as it typically represents the highest groundwater elevations and will therefore inform the engineering design of residential development. The interpreted groundwater flow direction is generally in a south to southeasterly direction along the west portion of the Site. Along the East portion of the site, the groundwater flow direction south to southwesterly, towards the wetland. Shallow groundwater contours at the Site have generally mimicked surface topography with the horizontal component of groundwater flow travelling in the weathered upper till.

4.2.3 Vertical Groundwater Flow

Vertical hydraulic gradients were calculated between the shallow and deep monitors at the nested monitoring well locations to assess groundwater discharge/recharge conditions across the Site. Vertical hydraulic gradients were also calculated at the mini-piezometer location to assess groundwater-surface water interactions within the natural heritage features located east of the Site. MP4D became damaged (bent) during the monitoring program and therefore vertical gradients were assessed using the shallow MP4S and surface water elevations. The vertical hydraulic gradients are provided in **Table C-3a and C3b, Appendix C**.

Groundwater elevations were higher in the shallow monitor compared to its deeper counterpart at all nested monitoring locations. Measured hydraulic gradients ranged between -0.39 m/m to

0.37 m/m with the maximum and minimum occurring at nested wells MW22-207. Vertical hydraulic gradients were predominantly downward groundwater movement across the Site and were generally minimal in magnitude (0.01 m/m to 0.19 m/m, excluding MW22-207). An upward hydraulic gradient was noted at location MW22-207 (-0.39 m/m) however, this nested location has not historically trended with an upward gradient in any season. It is interpreted that groundwater recharge conditions are present within the silty sand till.

Groundwater elevations at MP1 were also consistently higher in the shallow monitor, indicating groundwater recharge conditions at this location. In the spring of 2023, there is some evidence of groundwater discharge from the logger data at MP1. MP1 is located upgradient of the Melancthon Wetland Complex #1 southeast of the Site. This indicates that this portion of the natural heritage feature is primarily fed by precipitation events and surface water runoff.

At MP4 (which is located in the drainage feature), groundwater recharge conditions were generally observed during the summer months/early fall. It is interpreted that there is more consistent groundwater recharge occurring surrounding this feature, albeit limited by the low permeability surficial soils. The drainage feature flows into the Melancthon Wetland Complex #1. Measured hydraulic gradients within the wetland ranged from -0.11 m/m to 0.10 m/m, as recorded at MP2 and MP3. This indicates that there are minimal groundwater contributions to the wetland and that it is primarily surface water supported. It should be noted that surface water was generally not present at MP2 and MP3 throughout the monitoring period, suggesting limited to no interactions with the groundwater in this wetland.

4.3 Hydraulic Conductivity

In-situ hydraulic conductivity tests were completed at four (4) groundwater monitoring wells at the Site. The results of the hydraulic conductivity tests are provided in **Table 4-1**, and the AQTESOLV analyses are provided in **Appendix D**.

Table 4-1: Hydraulic Conductivity

Monitor	Hydraulic Conductivity (m/s)	Screened Strata
MW22-202 S	2.8×10^{-7}	Silty sand, silty sand till
MW22-202 D	1.1×10^{-8}	Silty sand till
MW22-203	1.2×10^{-8}	Silty sand till
MW22-209	3.6×10^{-7}	Silty sand till

The geometric mean hydraulic conductivity for the four (4) tested monitors is 6.0×10^{-8} m/s, with a measured range of 1.1×10^{-8} to 3.6×10^{-8} m/s. The monitoring wells were screened within the silty sand till (with gravel) unit. Although no deeper groundwater monitors were screened in the unweathered glacial till aquitard, experience has shown that the hydraulic conductivity can be as low as 10^{-9} m/s and is typically 10 to 20 times lower than weathered till (Freeze and Cherry, 1979). The results are consistent with those reported by Freeze and Cherry (1979) for similar soils.

4.4 MECP Water Well Record Database

Well records from the MECP WWR database were reviewed to assess the stratigraphy and water use of wells located within a 500 m radius of the Site. The locations of the wells are

shown in **Figure 11**, and a summary is provided in **Appendix E**. Copies of the well records are provided in **Appendix E**.

Ten (10) MECP wells were identified within 500 m of the property. Five (5) of those wells were for water supply purposes, four (4) were observation/monitoring wells, and one (1) well without a noted water use. The water supply wells were all completed within the bedrock.

A
NORTHEAST

A'
SOUTHWEST

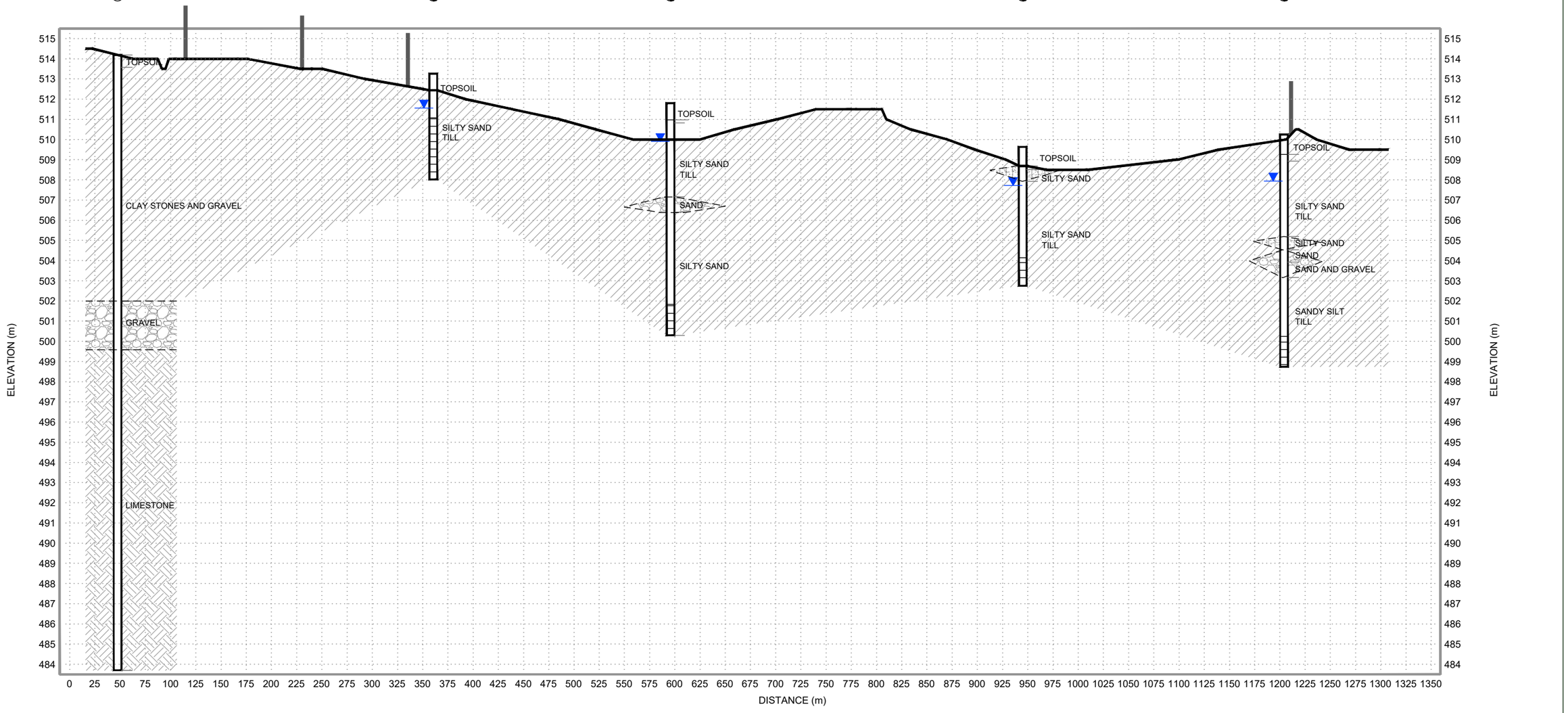
2506227

ESA-2
512.44 m
OFFSET 2.69 m W

MW22-202D
510.97 m
OFFSET 86.40 m W

MW22-204
508.69 m
OFFSET 49.20 m W

MW22-205D
509.26 m
OFFSET 33.44 m E



LEGEND:

- SITE BOUNDARY
- MONITORING WELL
- MECP WATER WELL
- WATER LEVEL (MARCH 7, 2024)
- SILTY SAND
- SAND AND GRAVEL
- SILTY SAND TO SANDY SILT TILL
- LIMESTONE (BEDROCK)
- WELL
- SCREENED INTERVAL
- BOREHOLE OR TESTPIT
- END OF HOLE

NOTES:

NOT A LEGAL SURVEY. DO NOT USE FOR CONSTRUCTION.

CROSS SECTION WAS CREATED BASED ON BOREHOLES ADVANCED AT THE SITE. STRATIGRAPHY HAS BEEN INTERPRETED AND EXTRAPOLATED BETWEEN LOCATIONS AND MAY VARY FROM THOSE SHOWN.

0 2 4 8 12 m
VERTICAL SCALE 1:200

0 25 50 100 150 200 250 m
HORIZONTAL SCALE 1:4,000

FLATO ECO PARK DUNDALK INC.
FLATO SOUTHEAST (ECO PARK)
DUNDALK, ONTARIO

HYDROGEOLOGICAL ASSESSMENT

CROSS SECTION A - A'

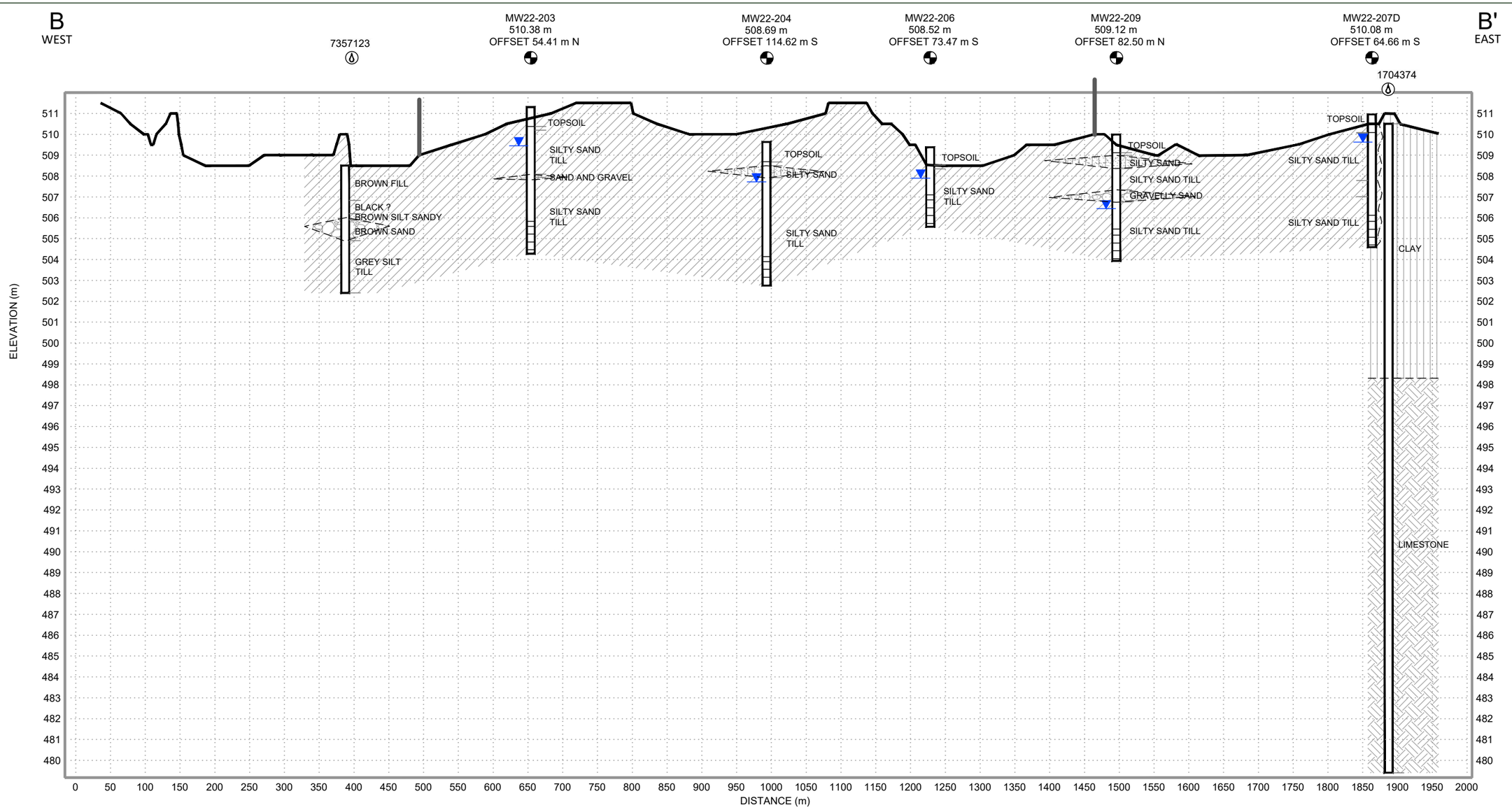
SLR

FIGURE NO:
8

DATE: September 12, 2024

PROJECT NO: 209.30125.00002

Cadfile name: S_209-30125-00002-A2.dwg



LEGEND:

- SITE BOUNDARY
- MONITORING WELL
- MECP WATER WELL
- WATER LEVEL (MARCH 7, 2024)
- SILTY SAND
- SAND AND GRAVEL
- SILTY SAND TO SANDY SILT TILL
- LIMESTONE (BEDROCK)
- CLAY
- WELL
- SCREENED INTERVAL
- BOREHOLE OR TESTPIT
- END OF HOLE

NOTES:

NOT A LEGAL SURVEY. DO NOT USE FOR CONSTRUCTION.

CROSS SECTION WAS CREATED BASED ON BOREHOLES ADVANCED AT THE SITE. STRATIGRAPHY HAS BEEN INTERPRETED AND EXTRAPOLATED BETWEEN LOCATIONS AND MAY VARY FROM THOSE SHOWN.

0 2 4 8 12 m
VERTICAL SCALE 1:200
0 50 100 200 300 m
HORIZONTAL SCALE 1:6,000

FLATO ECO PARK DUNDALK INC.
FLATO SOUTHEAST (ECO PARK)
DUNDALK, ONTARIO

HYDROGEOLOGICAL ASSESSMENT

CROSS SECTION B - B'

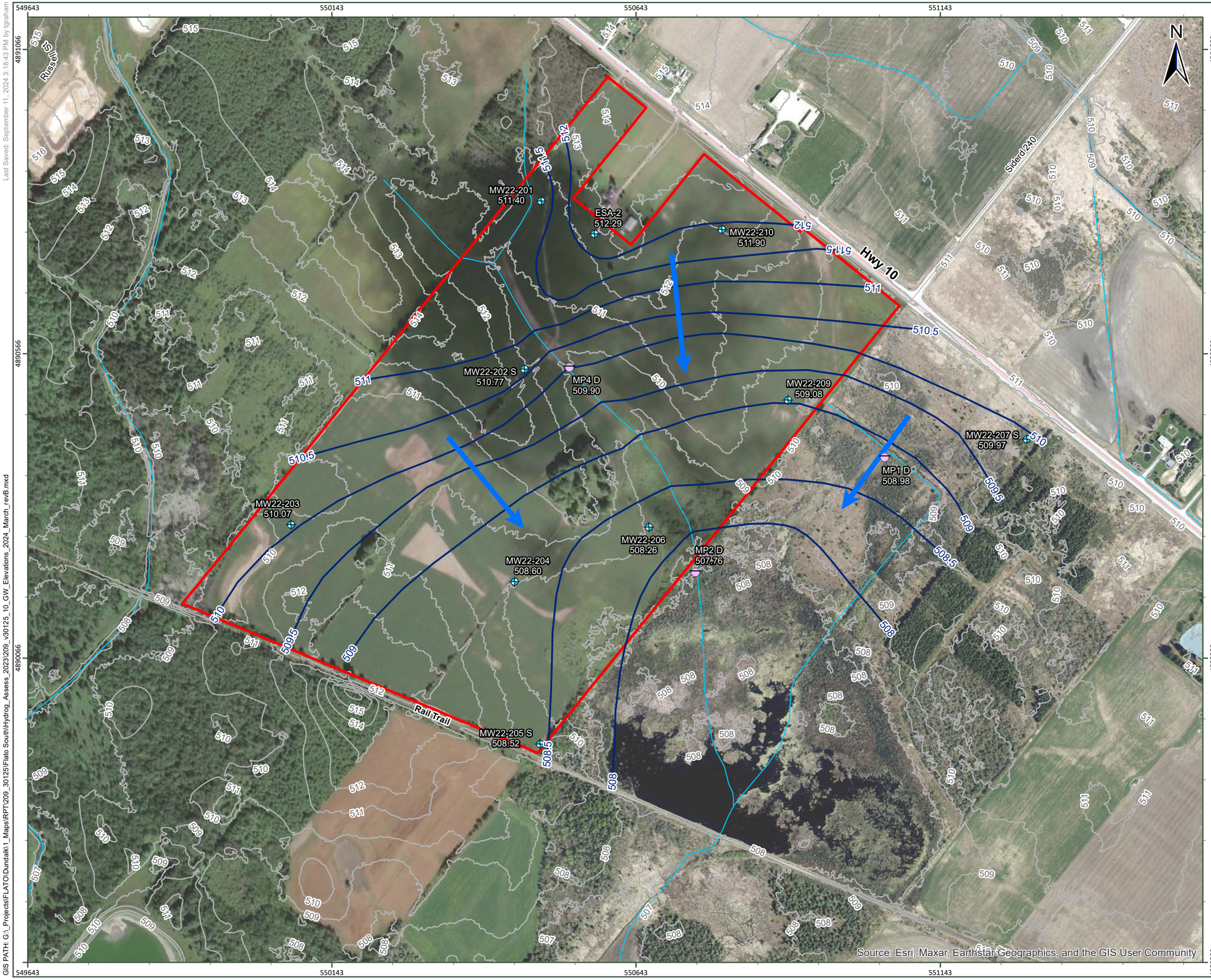
SLR

FIGURE NO:
9

DATE: September 12, 2024

PROJECT NO: 209.30125.00002

Cadfile name: S_209-30125-00002-A2.dwg



LEGEND

- SITE BOUNDARY
- MONITORING WELL
- MINI-PIEZOMETER
- INFERRED GROUNDWATER ELEVATION CONTOUR
- INFERRED GROUNDWATER FLOW DIRECTION
- 508.26 GROUNDWATER ELEVATION (MARCH 7, 2024)
- INTERMITTENT WATERCOURSE
- PERMANENT WATERCOURSE
- SURFACE CONTOUR (1M)

NOTES:

BASEDATA:
ONTARIO MINISTRY OF NATURAL RESOURCES, LAND INFORMATION ONTARIO (LIO)

0 50 100 200 300 m

SCALE 1:6,000
PAGE SIZE 11 x 17
NAD 1983 UTM Zone 17N

THIS MAP IS FOR CONCEPTUAL PURPOSES ONLY AND SHOULD NOT BE USED FOR NAVIGATION

FLATO ECO PARK DUNDALK INC.
FLATO SOUTHEAST (ECO PARK)
DUNDALK, ONTARIO, CANADA

HYDROGEOLOGICAL ASSESSMENT

INTERPRETED GROUNDWATER FLOW DIRECTION - MARCH 7, 2024

SLR

FIGURE NO:
10

DATE: September 11, 2024

PROJECT NO: 209.30125.00002

Last Saved: September 11, 2024 3:18:43 PM by tgraham

GIS PATH: G:_Projects\FLATO\Dundalk\1_Maps\RPT\209_30125\Flato South\Hydrog_Assess_20231209_v30125_10_GW_Elevations_2024_March_revB.mxd

548999 549499 549999 550499 550999 551499 551999

4891548 4891048 4890548 4890048 4889548 4889048

Main St E
Sheffield St
Ridley Cres
Colgan Cres
Symington St
Mcalister St
Millner Ave
Morgan Ave
Stocks Ave
Russell St
Wright St
Vandusen Ave
Seeley Ave
Werry Ave
Victoria St E
Hagan St E
Elm St
Moody St
Sideroad 240
Hwy 10
Rail Trail
Eco Park Way
Ida St

2506227
1700354
1703988
2502808
7403043
1704374
7357121
7241221
7357123
7357122

N

Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

LEGEND

- SITE BOUNDARY
- SITE BOUNDARY (500M BUFFER)
- INTERMITTENT WATERCOURSE
- PERMANENT WATERCOURSE

MECP WELL LOCATION (WWIS, 2024)

- LIVESTOCK
- MONITORING
- DOMESTIC
- UNCLASSIFIED

NOTES:
BASEDATA:
ONTARIO MINISTRY OF NATURAL RESOURCES, LAND INFORMATION ONTARIO (LIO)

0 50 100 200 300 m

SCALE 1:10,000
PAGE SIZE 11 x 17
NAD 1983 UTM Zone 17N
THIS MAP IS FOR CONCEPTUAL PURPOSES ONLY AND SHOULD NOT BE USED FOR NAVIGATION

FLATO ECO PARK DUNDALK INC.
FLATO SOUTHEAST (ECO PARK)
DUNDALK, ONTARIO, CANADA

HYDROGEOLOGICAL ASSESSMENT

MECP WELL LOCATIONS

SLR

FIGURE NO:
11

DATE: September 11, 2024

PROJECT NO: 209.30125.00002

5.0 Impact Assessment for Potential Receptors

5.1 Shallow Groundwater Features

Groundwater elevations across the Site are relatively shallow (generally less than 2 m) in the spring and fluctuate on a seasonal basis. Higher water levels were observed in late winter into spring following precipitation events and spring melt. Water levels decreased into the drier summer months. Water levels generally follow ground surface elevations, where higher groundwater elevations occur at the north edge of site, and lower groundwater elevations occur to the south.

During the spring season, the water table is situated within the surficial silty sand, and sand/gravel pockets that is noted to be discontinuous across the property. Water levels in these monitors drop into the underlying weathered till unit in the drier summer months, and subsequently into the unweathered till. The weathered till unit has an estimated hydraulic conductivity of 2×10^{-7} m/s. Based on a review of the MECP WWR records, the till unit extends to approximately 15 mbgs. Although no deeper groundwater monitors were screened in the unweathered glacial till aquitard, experience has shown that the hydraulic conductivity can be as low as 10^{-9} m/s and is typically 10 to 20 times lower than weathered till (Freeze and Cherry, 1979).

5.2 Aquifers and Potable Water Wells

The Village of Dundalk relies on groundwater supply from wells screened within the dolostone bedrock that extends under the Site. The well capture zones have been documented by the Lake Erie Region Source Protection Committee and extend under the eastern portion of the Site within the bedrock. The upper bedrock is inferred to be of low permeability, and the municipal production zone lies in the middle of the sequence. There are three (3) municipal wells (D3, D4, D5) that service the Village of Dundalk; all wells are located west of the Site, whereby the WHPA-D encroaches along the southwest corner of the Site (**Figure 5**). Rurally there are several surrounding individual residential private wells that tap into the bedrock and have been drilled to depths of approximately 20 to 46 m.

The industrial use for the eastern portion of the Site is currently unspecified. An evaluation of potential impacts and the determination for the need for a RMP or CMP will be evaluated as Site details become available. In addition, the nearby residential water wells are a relatively low draw on the groundwater and given the thickness of the overlying clay aquitard, are not expected to be affected by the proposed development.

Monitoring wells have been installed at the property as part of the Site-specific investigations to document stabilized groundwater conditions. Monitoring is on-going and is planned to continue through construction. When the monitoring wells are determined to be no longer required, or if they are determined to be at risk of damage from Site grading and construction, the wells should be properly decommissioned in accordance with O. Reg. 903. Decommissioning a well which is no longer in use helps ensure the safety of those in the vicinity of the well, prevents surface water infiltration into an aquifer via the well, prevents the vertical movement of water within a well, conserves aquifer yield and hydraulic head, and can potentially remove a physical hazard.

5.3 Natural Environmental Features

There is one drainage feature present within the Site boundary, which flows generally in a south to southeasterly direction into the Melancthon Wetland Complex #1. Groundwater monitoring

completed on Site indicates that there are predominantly downward hydraulic gradient conditions across the site. It has been determined that the drainage feature and Melancthon Wetland Complex #1 are primarily fed by precipitation and surface water-runoff, with limited to no groundwater inputs. As further detailed in the Environmental Impact Study conducted by SLR (2024), removal of the northern portion of the drainage feature during development is not expected to have an impact to the wetland. The southern portion of the drainage feature which will be retained during development and be maintained through mitigation measures as necessary through the established stormwater management plan to be developed by Crozier.

Two (2) stormwater management (SWM) blocks are anticipated to be required to support the proposed development. The SWM ponds will discharge from the east and west to the central environmental protection lands and then to the drainage feature discharging into the wetland south of the proposed development (Crozier Consulting Engineers, 2024). Both SWM blocks will help mitigate the risks from flooding and reduce the chances of sediments and pollutants entering the drainage features and wetland.

5.4 Construction Dewatering

It is expected that temporary excavations for basements will remain dry from a groundwater inflow perspective, due to the low permeability soils and relatively shallow depth of excavation. In the wet season, there may be some temporary groundwater discharge that can be handled by sump and pump techniques. Due to the expected low volumes, it is not expected that Permit to Take Water (PTTW) or Environmental Activity and Sector Registry (EASR) approvals will be required for basement foundations which are anticipated to be fairly shallow.

Additionally, in the event of short-term dewatering, the radius of influence resultant from these temporary excavations is expected to be small, not extending off-Site, therefore, there no impact to the surrounding water supply wells or potable water wells would be anticipated.

Additional evaluations of dewatering requirements, such as the stormwater management block, will be completed during Detailed Design.

6.0 Conclusions

The following presents the conclusions of the Hydrogeological Assessment for the Site.

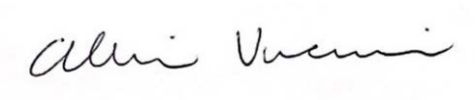
- The Site is predominantly underlain by surficial silty sand till deposits up to 4.4 m thick. The upper weathered portion of the till unit has an estimated average hydraulic conductivity of 5.7×10^{-8} m/s.
- Groundwater elevations across the Site fluctuated seasonally between May 2022 and June 2024. Groundwater elevations were highest during the spring monitoring events (506.44 masl to 512.29 masl). Groundwater levels were generally lower during the fall season (506.26 masl to 510.72 masl).
- Groundwater is interpreted to flow primarily in a south to southeasterly direction along the western portion of the Site and is south to southwesterly, towards the wetland, along the eastern portion of the Site.
- Groundwater recharge conditions were observed within the silty sand till, albeit limited by the low permeability of these soils.
- Natural environmental features on-Site were found to be predominantly recharge features supported by precipitation and surface water runoff with little to no groundwater contributions. Groundwater discharge conditions were not observed in the upper reaches of the drainage feature that is planned for removal.
- It is recognized that a small sliver of the southwest corner of the Site is located in a WHPA-D. The property is also located within a SGRA, IPZ, and HVA. Site specific conditions indicated that the subsurface soils across the Site consists of mainly silty sand till. The material was determined to have low hydraulic conductivity and therefore, will act as an aquitard protecting deeper bedrock aquifers.
- Municipal well D4 is located approximately 1.4 km northeast of the Site. In addition, municipal wells D3 and D5 are located approximately 1.5 km and 1.2 km, respectively, east of the Site. No impacts to these wells are anticipated due to the proximal distance of the municipal wells to the Site and low permeability surficial aquitard present at the Site.
- Private wells in close proximity to the Site are primarily completed within the dolostone bedrock and with some in the overburden. The residential water wells are a relatively low draw on the groundwater and given the thickness and low permeability of the overlying till unit, are not expected to be affected by the proposed development.

7.0 Closure

We trust that this report satisfies your requirements at this time.

Regards,

SLR Consulting (Canada) Ltd.



Allison Vucenovic, M.Sc.
Environmental Scientist

Amanda Malatesta, M.Sc., P.Geo.
Hydrogeologist

Jason Cole, M.Sc., P.Geo.
Principal Hydrogeologist

8.0 References

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Township of Southgate (2022). Township of Southgate Official Plan. Adopted by Township of Southgate Council: May 4, 2022.

Appendix A Development Plan

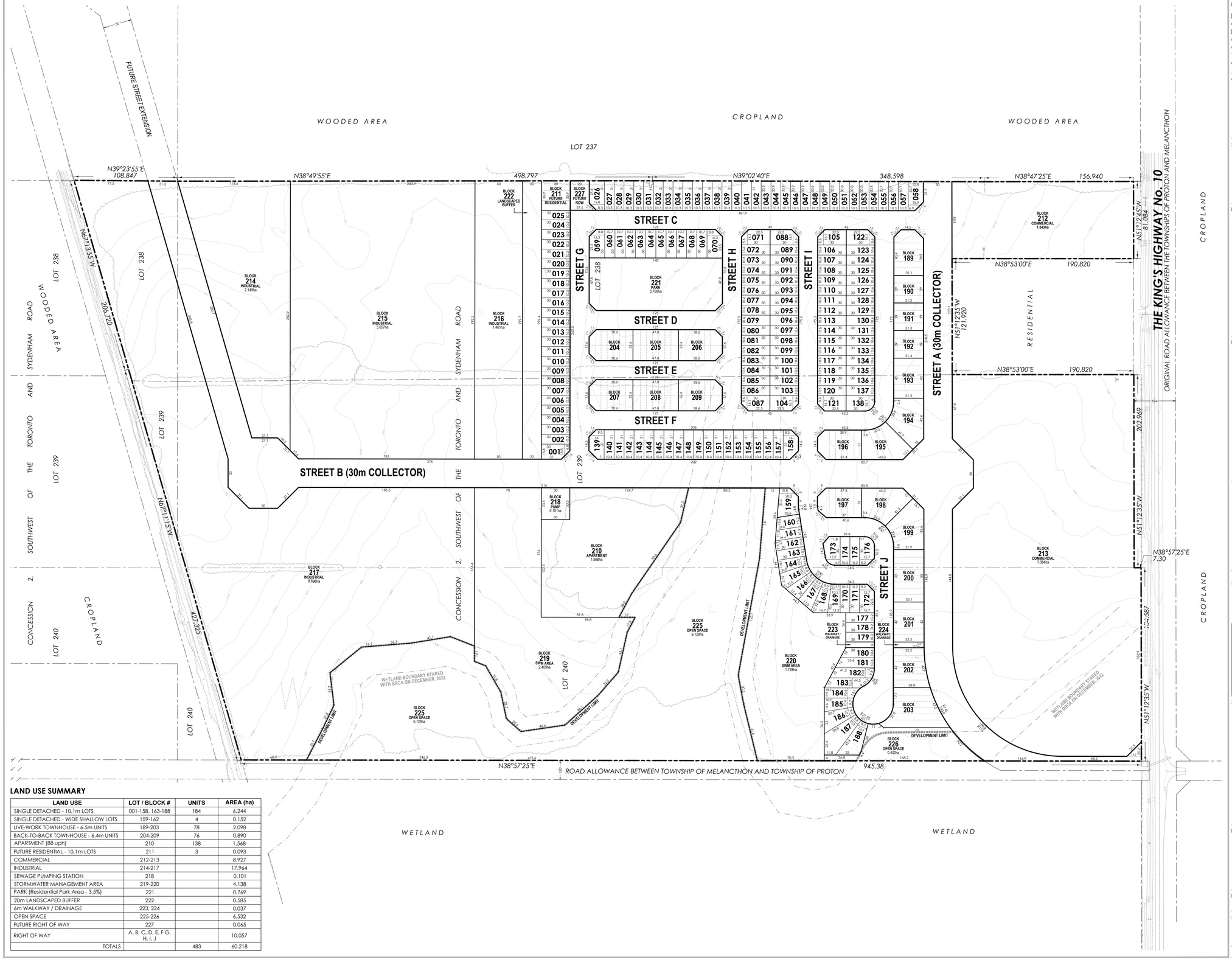
Hydrogeological Assessment

Flato Southeast (Eco Park), Dundalk, Ontario

Flato Eco Park Dundalk Inc.

SLR Project No.: 209.30125.00002

October 11, 2024



LAND USE SUMMARY

LAND USE	LOT / BLOCK #	UNITS	AREA (ha)
SINGLE DETACHED - 10.1m LOTS	001-158, 163-188	184	6.244
SINGLE DETACHED - WIDE SHALLOW LOTS	159-162	4	0.152
LIVE-WORK TOWNHOUSE - 6.5m UNITS	189-203	78	2.098
BACK-TO-BACK TOWNHOUSE - 6.4m UNITS	204-209	76	0.890
APARTMENT (88 uph)	210	138	1.568
FUTURE RESIDENTIAL - 10.1m LOTS	211	3	0.093
COMMERCIAL	212-213		8.927
INDUSTRIAL	214-217		17.964
SEWAGE PUMPING STATION	218		0.101
STORMWATER MANAGEMENT AREA	219-220		4.138
PARK (Residential Park Area - 3.5%)	221		0.769
20m LANDSCAPED BUFFER	222		0.585
6m WALKWAY / DRAINAGE	223, 224		0.037
OPEN SPACE	225-226		6.532
FUTURE RIGHT OF WAY	227		0.065
RIGHT OF WAY	A, B, C, D, E, F G, H, I, J		10.057
TOTALS		483	60.218

LEGAL DESCRIPTION

PART OF LOTS 238, 239 AND 240
CONCESSION 1, SWTSR AND
PART OF LOTS 238 AND 239
CONCESSION 2, SWTSR
GEOGRAPHIC TOWNSHIP OF PROTON
TOWNSHIP OF SOUTHGATE
COUNTY OF GREY

OWNER'S CERTIFICATE

I HEREBY AUTHORIZE MACNAUGHTON HERMSEN BRITTON CLARKSON PLANNING LIMITED TO SUBMIT THIS PLAN FOR APPROVAL.

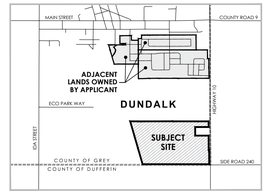
DATE: _____ _____

SURVEYOR'S CERTIFICATE

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

DATE: _____ _____

KEY PLAN



LEGEND

- PROJECT BOUNDARY LINE
- RIGHT OF WAY LINE
- BLOCK LINE
- LOT LINE
- PARCEL FABRIC

REVISION No.	DATE	ISSUED / REVISION	BY

ADDITIONAL INFORMATION REQUIRED UNDER SECTION 51(17) OF THE PLANNING ACT R.S.O. 1990 C.P.13 AS AMENDED

- **A.** AS SHOWN
- **B.** AS SHOWN
- **C.** AS SHOWN
- **D.** AS SHOWN
- **E.** AS SHOWN
- **F.** AS SHOWN
- **G.** AS SHOWN
- **H.** MUNICIPAL WATER SUPPLY
- **I.** SILT LOAM
- **J.** AS SHOWN
- **K.** ALL SERVICES AS REQUIRED (WATER, SANITARY, STORMWATER, HYDRO)
- **L.** AS SHOWN

MHBC PLANNING URBAN DESIGN & LANDSCAPE ARCHITECTURE
113 COLLIER STREET, BARRIE, ON, L4M 1H2 | P: 705.728.0045 | WWW.MHBCPLAN.COM

STAMP

DATE	OCT. 9, 2024
FILE No.	15184AS
SCALE	1:1,800 (ARCH D)
DRAWN BY	M.M.
CHECKED BY	K.C.
OTHER	

PROJECT

FLATO SOUTHEAST (ECO PARK)

FLATO ECO PARK DUNDALK INC.
3621 HIGHWAY 7 EAST, SUITE 503
MARKHAM, ON L3R 0G6
P:(905) 479-9292 P:(905) 429-9165
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NORTH

FILE NAME DRAFT PLAN OF SUBDIVISION

DWG No. 1 of 1

SCALE BAR

0 9 18 27 36 45 37.5 90 135 180m

MEASUREMENTS SHOWN ON THIS PLAN ARE IN METRES AND CAN BE CONVERTED TO FEET BY DIVIDING BY 0.3048

N:\Southgate\Flato - Eco Park - 15184AS\Drawings\Draft Plan\CAD\15184AS - Draft Plan - 2024-10-09.dwg

Appendix B Borehole Logs

Hydrogeological Assessment

Flato Southeast (Eco Park), Dundalk, Ontario

Flato Eco Park Dundalk Inc.

SLR Project No.: 209.30125.00002

October 11, 2024

SLR CONSULTING (CANADA) LTD.

CLIENT: **Flato South Dundalk Inc.**
PROJECT: **Flato South**
ADDRESS: **Dundalk, ON**
SLR JOB NO: **209.30125.00002**

Monitoring Well LOG

BOREHOLE NO: **ESA-2**
SURFACE ELEVATION: 512.44 m

DEPTH (m)	ELEVATION (m)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE ID	% Recovery	SOIL TYPE	TEST DATA: SPT Count / % Moisture	WELL COMPLETION	WATER LEVEL	WELL COMPLETION NOTES	ELEVATION (m)
0	512.44	**TOPSOIL**									512
	512.36	Fine sand, silty, trace clay (low plasticity), soft, wet, dark brown		*0.25-1.58 / DUP-2C	50.0		8			bentonite seal	
		Silty SAND TILL									
1		Silty, gravel (angular/sub-angular) and cobbles, trace clay, brown, wet, loose, higher medium-coarse sand content with depth		*2.5-4.5	62.5		6				
	510.92	Orange mottling, saturated, compact									511
				5-7	25.0		41				
2											
	510.15	Brown-grey									510
				7.5-9.5	50.0		>50			silica sand 50 mm 010 slot PVC pipe	
3	509.39	Grey, very dense to EOH									
				10-12	16.7		>50				509
4											
				12.5-14.5	12.5		>50				
										end cap	

End of monitoring well at 508.02 m

Well Completion Details:
Screened interval from 511.07 m to 508.02 m
Elevation at top of pipe (TOP) = 513.26 m

* denotes soil sample taken for lab analysis

DRILLING METHOD: Hollow Stem Auger Drilling
BOREHOLE DIAMETER: 0.2 m (OD)

DRILL DATE: April 20, 2022
LOGGED BY: AW
DRILLED BY: Orbit Garant

Notes: SPLIT SPOON

SLR CONSULTING (CANADA) LTD.

CLIENT: **Flato South Dundalk Inc.**
PROJECT: **Flato South**
ADDRESS: **Dundalk, ON**
SLR JOB NO: **209.30125.00002**

Monitoring Well LOG

BOREHOLE NO: **MW22-201**
SURFACE ELEVATION: 511.60 m

DEPTH (m)	ELEVATION (m)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE ID	% Recovery	SOIL TYPE	TEST DATA: SPT Count (■) / % Moisture (◆)	WELL COMPLETION	WATER LEVEL	WELL COMPLETION NOTES	ELEVATION (m)
0	511.60	**TOPSOIL**									511
	511.47	Fine sand, silty, soft, moist, dark brown, organics		0-0.83	41.7		11				
		Silty SAND									
	510.84	Silty fine sand, trace organics, firm, moist, light brown-grey		*2.5-3.0	29.2		40				
1		**Silty SAND TILL**									
	510.08	Silty fine sand with gravel, light brown, firm, moist, trace organics, gravel (angular/sub-angular) and pulverized rock		*5.0-5.75	37.5		36				510
		Lots of gravel and pulverized rock from 0.89-6.1 m									
2										bentonite seal	
	509.31	Firm, moist-dry, medium brown		7.5-8.5	58.3		>50				509
3				10.0-10.75	37.5		>50				
	507.79				0.0		>50				508
4		No recovery from 3.81-3.96 m due to augers sitting on boulder, but lithology inferred from spoons above and below		13.0-15.0	50.0		>50				
				15.5-15.75	20.8		>50				507
5										silica sand 50 mm 010 slot PVC pipe	
				18.0-18.5	25.0		>50				506
6										end cap	

End of monitoring well at 505.50 m

Well Completion Details:
Screened interval from 507.03 m to 505.50 m
Elevation at top of pipe (TOP) = 512.41 m

Groundwater Information:
Depth to groundwater from TOP = 2.68 m (July 13, 2022)

* denotes soil sample taken for lab analysis

DRILLING METHOD: Hollow Stem Auger Drilling
BOREHOLE DIAMETER: 0.2 m (OD)

DRILL DATE: April 12, 2022
LOGGED BY: JH
DRILLED BY: Orbit Garant

Notes: SPLIT SPOON
NO RECOVERY

SLR CONSULTING (CANADA) LTD.

CLIENT: **Flato South Dundalk Inc.**
PROJECT: **Flato South**
ADDRESS: **Dundalk, ON**
SLR JOB NO: **209.30125.00002**

Monitoring Well LOG

BOREHOLE NO: **MW22-202D**
SURFACE ELEVATION: 510.97 m

DEPTH (m)	ELEVATION (m)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE ID	% Recovery	SOIL TYPE	TEST DATA: SPT Count / % Moisture	WELL COMPLETION	WATER LEVEL	WELL COMPLETION NOTES	ELEVATION (m)
0	510.97	**TOPSOIL**									
	510.82	Fine sand, silty, dark brown, moist. soft-firm, organics									
		Silty SAND TILL								bentonite seal	
	510.21	Silty fine sand, some gravel (angular/sub-angular), light brown, moist, soft		0-0.75	45.8		11				
1		Saturated		2.5-3.5	75.0		6				510
				5.0-6.0	91.7		14				
2											509
				7.5-8.5	62.5		42				
3				10.0-11.0	58.3		50				508
	507.16			12.5-13.0	108.3		48				
4	506.98	**SAND**									507
		Coarse-medium, light brown, saturated, soft		13.0-14.0							
	506.65	**Silty SAND**									
	506.40	Silty fine sand, some gravel (angular/sub-angular), saturated, firm, light brown									
5		Moist			0.0		>50			grout	506
		No recovery									
	505.64			17.5-18.0	25.0		>50				
		Silty SAND TILL									
6		Silty fine sand with gravel (angular/sub-angular), medium brown, moist, firm									505
				20.0-20.5	33.3		>50				
	504.11										
7		dry from 6.86 to EOH		22.5-23.0	41.7		>50				504
				25.0-25.5	33.3		>50				
8											503
				27.5-28.0	25.0		>50				
										bentonite seal	
9	501.83										502
		No recovery from 9.14-9.91 m due to augers sitting on boulder, but lithology inferred from spoons above and below			0.0		>50				
										silica sand	
10				32.5-33.0	33.3		>50			50 mm 010 slot PVC pipe	501
										end cap	

End of monitoring well at 500.30 m

Well Completion Details:
Screened interval from 501.83 m to 500.31 m
Elevation at top of pipe (TOP) = 511.80 m

Groundwater Information:
Depth to groundwater from TOP = 2.93 m (July 13, 2022)

* denotes soil sample taken for lab analysis

DRILLING METHOD: Hollow Stem Auger Drilling
BOREHOLE DIAMETER: 0.2 m (OD)

DRILL DATE: April 13, 2022
LOGGED BY: JH
DRILLED BY: Orbit Garant

Notes: SPLIT SPOON
NO RECOVERY

SLR CONSULTING (CANADA) LTD.

CLIENT: **Flato South Dundalk Inc.**
PROJECT: **Flato South**
ADDRESS: **Dundalk, ON**
SLR JOB NO: **209.30125.00002**

Monitoring Well LOG

BOREHOLE NO: MW22-202S
SURFACE ELEVATION: 510.93 m

DEPTH (m)	ELEVATION (m)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE ID	% Recovery	SOIL TYPE	TEST DATA: ■SPT Count (10 20 30 40 50) ◆ % Moisture (20 40 60 80 100)	WELL COMPLETION	WATER LEVEL	WELL COMPLETION NOTES	ELEVATION (m)
0	510.93	**TOPSOIL**									
	510.78	Fine sand, silty, dark brown, moist. soft-firm, organics									
		Silty SAND TILL									
	510.17	Silty fine sand, some gravel (angular/sub-angular), light brown, moist, soft									
1		Saturated									510
2										bentonite seal	509
3											508
	507.12										
4	506.94	**SAND**									507
		Coarse-medium, light brown, saturated, soft									
	506.61	**Silty SAND**									
	506.36	Silty fine sand, some gravel (angular/sub-angular), saturated, firm, light brown									
5		Moist								silica sand	506
		No recovery								50 mm 010 slot PVC pipe	
	505.60										
		Silty SAND TILL									
6		Silty fine sand with gravel (angular/sub-angular), medium brown, moist, firm								end cap	505

End of monitoring well at 504.83 m

Well Completion Details:
Screened interval from 506.59 m to 505.06 m
Elevation at top of pipe (TOP) = 511.86 m

Groundwater Information:
Depth to groundwater from TOP = 2.63 m (July 13, 2022)

* denotes soil sample taken for lab analysis

MW22-202S was straight drilled directly adjacent to MW-202D

DRILLING METHOD: Hollow Stem Auger Drilling
BOREHOLE DIAMETER: 0.2 m (OD)

DRILL DATE: April 14, 2022
LOGGED BY: JH
DRILLED BY: Orbit Garant

Notes:

SLR CONSULTING (CANADA) LTD.

CLIENT: **Flato South Dundalk Inc.**
PROJECT: **Flato South**
ADDRESS: **Dundalk, ON**
SLR JOB NO: **209.30125.00002**

Monitoring Well LOG

BOREHOLE NO: **MW22-203**
SURFACE ELEVATION: 510.38 m

DEPTH (m)	ELEVATION (m)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE ID	% Recovery	SOIL TYPE	TEST DATA: SPT Count (■) / % Moisture (◆)	WELL COMPLETION	WATER LEVEL	WELL COMPLETION NOTES	ELEVATION (m)
0	510.38	**TOPSOIL**									
	510.20	Fine sand, silty, soft, moist, dark brown, organics		0-1.0	58.3		12				
		Silty SAND TILL									
	509.62	Silty fine sand with gravel (angular/sub-angular, grey), light brown, soft, moist		*2.5-3.0 / DUP-2A	33.3		23				510
1		Loose, saturated									
	508.86	Soft (not lose) from 1.52 m - 2.29 m		*5.0-6.5	75.0		15				509
2										bentonite seal	
	508.09			7.5-8.0	83.3		>50				
	507.94	**SAND and GRAVEL**									508
		Coarse sand and gravel (angular-subangular), pea sized gravel, loose, saturated, light brown		8.0-9.0							
3		**Silty SAND TILL**									
	507.17	Silty fine sand with gravel (angular-subangular), pea sized gravel, loose, saturated, light brown		10.0-11.0	70.8		>50				507
		3 cm Silty FINE SAND pocket @ 3.21 m									
	506.57										
4		Hard from 3.81 m to EOH		12.5-13.5	79.2		>50				
				15.0-15.5	45.8		>50				506
5										silica sand 50 mm 010 slot PVC pipe	
				17.5-18.0	29.2		>50				505
6										end cap	

End of monitoring well at 504.28 m

Well Completion Details:
Screened interval from 505.81 m to 504.28 m
Elevation at top of pipe (TOP) = 511.30 m

Groundwater Information:
Depth to groundwater from TOP = 2.77 m (July 13, 2022)

* denotes soil sample taken for lab analysis

DRILLING METHOD: Hollow Stem Auger Drilling
BOREHOLE DIAMETER: 0.2 m (OD)

DRILL DATE: April 13, 2022
LOGGED BY: JH
DRILLED BY: Orbit Garant

Notes: SPLIT SPOON

SLR CONSULTING (CANADA) LTD.

CLIENT: **Flato South Dundalk Inc.**
PROJECT: **Flato South**
ADDRESS: **Dundalk, ON**
SLR JOB NO: **209.30125.00002**

Monitoring Well LOG

BOREHOLE NO: **MW22-204**
SURFACE ELEVATION: 508.69 m

DEPTH (m)	ELEVATION (m)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE ID	% Recovery	SOIL TYPE	TEST DATA: SPT Count / % Moisture	WELL COMPLETION	WATER LEVEL	WELL COMPLETION NOTES	ELEVATION (m)
0	508.69	**TOPSOIL**									508
	508.51	Fine sand, silty, trace clay, roots, dark brown, soft, moist		*0-1'3"	62.5		12				
	507.93	**Silty SAND**									
1		Trace clay, brown/orange, dark brown mottling, soft, moist, cobble at 0.36 m		*2.5-4.5	37.5		14				507
		Silty SAND TILL									
		Fine-coarse sand, trace clay, some gravel (sub-angular/sub-rounded), cobbles, brown-grey, moist, dense		5-7	70.8		21				
2	506.56									bentonite seal	506
		Silty SAND TILL									
		Silty fine sand, gravel (sub-angular/angular), cobbles, brown-grey, moist, dense		7.5-9.5	54.2		>50				
3				10-12	25.0		>50				505
4				12.5-14.5	41.7		>50				
				15-17	25.0		>50				504
5										silica sand 50 mm 010 slot PVC pipe	
				17.5-19.5	12.5		25				503
										end cap	

End of monitoring well at 502.75 m

Well Completion Details:
Screened interval from 504.27 m to 502.75 m
Elevation at top of pipe (TOP) = 509.63 m

Groundwater Information:
Depth to groundwater from TOP = 2.53 m (July 13, 2022)

* denotes soil sample taken for lab analysis

DRILLING METHOD: Hollow Stem Auger Drilling
BOREHOLE DIAMETER: 0.2 m (OD)

DRILL DATE: April 18, 2022
LOGGED BY: AW
DRILLED BY: Orbit Garant

Notes: SPLIT SPOON

SLR CONSULTING (CANADA) LTD.

CLIENT: **Flato South Dundalk Inc.**
PROJECT: **Flato South**
ADDRESS: **Dundalk, ON**
SLR JOB NO: **209.30125.00002**

Monitoring Well LOG

BOREHOLE NO: **MW22-205D**
SURFACE ELEVATION: 509.26 m

DEPTH (m)	ELEVATION (m)	SOIL DESCRIPTION	SAMPLE ID	% Recovery	TEST DATA (SPT Count / % Moisture)	WELL COMPLETION NOTES	ELEVATION (m)
0	509.26	**TOPSOIL**					509
	508.93	Fine sand, silty, trace gravel, trace clay, organics	*0-2 / DUP-2B	54.2	10	bentonite seal	
		Sandy SILT TILL Clayey silt, some fine-coarse sand, trace gravel (sub-angular/sub-rounded), cobbles, soft, wet, brown, orange mottling					
1			*2.5-4.5	33.3	6		508
	507.74	**Silty SAND TILL** Fine-coarse sand, gravel (sub-angular/sub-rounded), some clay, cobble, brown, wet, compact	5-7	37.5	18		
2							507
			7.5-9.5	54.2	15		
3	506.21	Decreasing clay content, increased medium-coarse sand content from 3.05-3.81 m	10-12	41.7	18		506
	505.45	Medium-coarse sand, saturated, loose	12.5-13'4"	100.0	22		
4	505.20	**SILTY SAND** Fine-coarse sand, brown, saturated, loose	13'4"-14.5				505
	504.54	**SAND** Medium-coarse sand, trace gravel, trace cobble, brown, saturated, compact, 3 cm pocket of coarse sand at 5.13 m	15-17	100.0	>50	grout	
5	503.93	**SAND and GRAVEL** Fine-coarse sand, gravel (sub-angular/sub-rounded), brown, saturated, compact	17.5-19.5	75.0	>50		504
6	503.16	**Sandy SILT TILL** Trace silt, trace cobbles, brown-grey, saturated, loose-compact	20-20'9"	50.0	>50		503
			20'9"-21				
7	502.40	Gravel (sub-angular/sub-rounded), trace medium-coarse sand, trace clay, cobble, grey, saturated, dense	22.5-24.5	25.0	>50		502
8			25-27	25.0	>50		501
				0.0	>50	bentonite seal	
9							500
			30-32	25.0	>50	silica sand 50 mm 010 slot PVC pipe	
10			32.5-34.5	20.8	>50		499
						end cap	

End of monitoring well at 498.72 m

Well Completion Details:
Screened interval from 500.24 m to 498.72 m
Elevation at top of pipe (TOP) = 510.25 m

Groundwater Information:
Depth to groundwater from TOP = 2.91 m (July 13, 2022)

* denotes soil sample taken for lab analysis

DRILLING METHOD: Hollow Stem Auger Drilling
BOREHOLE DIAMETER: 0.2 m (OD)

DRILL DATE: April 19, 2022
LOGGED BY: AW
DRILLED BY: Orbit Garant

Notes: SPLIT SPOON
NO RECOVERY

SLR CONSULTING (CANADA) LTD.

CLIENT: **Flato South Dundalk Inc.**
PROJECT: **Flato South**
ADDRESS: **Dundalk, ON**
SLR JOB NO: **209.30125.00002**

Monitoring Well LOG

BOREHOLE NO: MW22-205S
SURFACE ELEVATION: 509.36 m

DEPTH (m)	ELEVATION (m)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE ID	% Recovery	SOIL TYPE	TEST DATA: ■SPT Count (10 20 30 40 50) ◆ % Moisture (20 40 60 80100)	WELL COMPLETION	WATER LEVEL	WELL COMPLETION NOTES	ELEVATION (m)
	509.36	**TOPSOIL**									
	509.03	Fine sand, silty, trace gravel, trace clay, organics									
		Sandy SILT TILL Clayey silt, some fine-coarse sand, trace gravel (sub-angular/sub-rounded), cobbles, soft, wet, brown, orange mottling									
1											509
	507.84	**Silty SAND TILL** Fine-coarse sand, gravel (sub-angular/sub-rounded), some clay, cobble, brown, wet, compact									
2									▼	bentonite seal	508
											507
3	506.31	Decreasing clay content, increased medium-coarse sand content from 3.05-3.81 m									
	505.55	Medium-coarse sand, saturated, loose									506
4	505.30	**SILTY SAND** Fine-coarse sand, brown, saturated, loose									505
	504.64	**SAND** Medium-coarse sand, trace gravel, trace cobble, brown, saturated, compact, 3 cm pocket of coarse sand at 5.13 m								silica sand 50 mm 010 slot PVC pipe	
5	504.03	**SAND and GRAVEL** Fine-coarse sand, gravel (sub-angular/sub-rounded), brown, saturated, compact								end cap	504
		End of monitoring well at 503.47 m									

Well Completion Details:
Screened interval from 504.99 m to 503.47 m
Elevation at top of pipe (TOP) = 510.29 m

Groundwater Information:
Depth to groundwater from TOP = 2.87 m (July 13, 2022)

* denotes soil sample taken for lab analysis

MW22-205S was straight drilled directly adjacent to MW22-205D

DRILLING METHOD: Hollow Stem Auger Drilling
BOREHOLE DIAMETER: 0.2 m (OD)

DRILL DATE: April 19, 2022
LOGGED BY: AW
DRILLED BY: Orbit Garant

Notes:

SLR CONSULTING (CANADA) LTD.

CLIENT: **Flato South Dundalk Inc.**
PROJECT: **Flato South**
ADDRESS: **Dundalk, ON**
SLR JOB NO: **209.30125.00002**

Monitoring Well LOG

BOREHOLE NO: MW22-206
SURFACE ELEVATION: 508.52 m

DEPTH (m)	ELEVATION (m)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE ID	% Recovery	SOIL TYPE	TEST DATA: SPT Count / % Moisture	WELL COMPLETION	WATER LEVEL	WELL COMPLETION NOTES	ELEVATION (m)
	508.52	**TOPSOIL**		0-7"	58.3		9				
	508.34	Fine sand, silty, some clay, organics, dark brown, soft, moist, brown-orange mottling		7"-14"							
	507.76	**Silty SAND TILL**								bentonite seal	508
1		Trace medium-coarse sand, orange-brown, gravel (sub-angular/sub-rounded), cobbles, moist, compact		2.5-4.5	12.5		>50				
		Crumbly, loose									
	507.00	Fine-coarse sand, dense, wet									507
				5-7	29.2		11				
2										silica sand 50 mm 010 slot PVC pipe	
				7.5-9.5	50.0		43				506
										end cap	

End of monitoring well at 505.57 m

Well Completion Details:
Screened interval from 507.10 m to 505.57 m
Elevation at top of pipe (TOP) = 509.38 m

Groundwater Information:
Depth to groundwater from TOP = 2.57 m (July 13, 2022)

* denotes soil sample taken for lab analysis

DRILLING METHOD: Hollow Stem Auger Drilling
BOREHOLE DIAMETER: 0.2 m (OD)

DRILL DATE: April 20, 2022
LOGGED BY: AW
DRILLED BY: Orbit Garant

Notes: SPLIT SPOON

SLR CONSULTING (CANADA) LTD.

CLIENT: **Flato South Dundalk Inc.**
PROJECT: **Flato South**
ADDRESS: **Dundalk, ON**
SLR JOB NO: **209.30125.00002**

Monitoring Well LOG

BOREHOLE NO: MW22-207D
SURFACE ELEVATION: 510.08 m

DEPTH (m)	ELEVATION (m)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE ID	% Recovery	SOIL TYPE	TEST DATA: SPT Count / % Moisture	WELL COMPLETION	WATER LEVEL	WELL COMPLETION NOTES	ELEVATION (m)
0	510.08	**TOPSOIL** Silty fine sand, trace clay, organics, dark brown, soft, wet, loose		6"-1'3"	62.5		3				510
	510.06										
	509.32	**Silty SAND TILL** Silty fine sand, gravel (sub-angular/sub-rounded), brown-orange, dark mottling rootlets, saturated, compact									
1	509.11			2.5-4.5	45.8		33				509
				5-7	66.7		17			bentonite seal	
2											508
	507.79	No recovery			0.0		>50				
3	507.03	**Silty SAND TILL** Silty fine sand, trace medium-coarse sand, gravel (sub-angular/sub-rounded), some clay, brown-grey, very dense, moist, crumbly		10-12	54.2		>50				507
4				12.5-14.5	33.3		>50				506
										silica sand 50 mm 010 slot PVC pipe	
5				15-17	25.0		>50				505
										end cap	

End of monitoring well at 504.59 m

Well Completion Details:
Screened interval from 506.12 m to 504.59 m
Elevation at top of pipe (TOP) = 510.95 m

Groundwater Information:
Depth to groundwater from TOP = 2.91 m (July 13, 2022)

* denotes soil sample taken for lab analysis

DRILLING METHOD: Hollow Stem Auger Drilling
BOREHOLE DIAMETER: 0.2 m (OD)

DRILL DATE: April 21, 2022
LOGGED BY: AW
DRILLED BY: Orbit Garant

Notes: SPLIT SPOON
NO RECOVERY

SLR CONSULTING (CANADA) LTD.

CLIENT: **Flato South Dundalk Inc.**
PROJECT: **Flato South**
ADDRESS: **Dundalk, ON**
SLR JOB NO: **209.30125.00002**

Monitoring Well LOG

BOREHOLE NO: MW22-207S
SURFACE ELEVATION: 510.10 m

DEPTH (m)	ELEVATION (m)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE ID	% Recovery	SOIL TYPE	TEST DATA: ■SPT Count (10 20 30 40 50) ◆ % Moisture (20 40 60 80100)	WELL COMPLETION	WATER LEVEL	WELL COMPLETION NOTES	ELEVATION (m)
	510.10	**TOPSOIL**									510
	510.08	Silty fine sand, trace clay, organics, dark brown, soft, wet, loose								bentonite seal	
	509.34	**Silty SAND TILL**									
1	509.13	Silty fine sand, gravel (sub-angular/sub-rounded), brown-orange, dark mottling, rootlets, saturated, compact									509
2									▼		508
	507.81	No recovery								silica sand 50 mm 010 slot PVC pipe	
3	507.05	**Silty SAND TILL**									507
		Silty fine sand, trace medium-coarse sand, gravel (sub-angular/sub-rounded), some clay, brown-grey, very dense, moist, crumbly								bentonite seal	

End of monitoring well at 506.14 m

Well Completion Details:
Screened interval from 508.58 m to 507.05 m
Elevation at top of pipe (TOP) = 510.93 m

Groundwater Information:
Depth to groundwater from TOP = 2.82 m (July 13, 2022)

* denotes soil sample taken for lab analysis

DRILLING METHOD: Hollow Stem Auger Drilling
BOREHOLE DIAMETER: 0.2 m (OD)
DRILL DATE: April 22, 2022
LOGGED BY: AW
DRILLED BY: Orbit Garant

Notes:

SLR CONSULTING (CANADA) LTD.

CLIENT: **Flato South Dundalk Inc.**
PROJECT: **Flato South**
ADDRESS: **Dundalk, ON**
SLR JOB NO: **209.30125.00002**

Monitoring Well LOG

BOREHOLE NO: **MW22-209**
SURFACE ELEVATION: 509.12 m

DEPTH (m)	ELEVATION (m)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE ID	% Recovery	SOIL TYPE	TEST DATA: SPT Count / % Moisture	WELL COMPLETION	WATER LEVEL	WELL COMPLETION NOTES	ELEVATION (m)
0	509.12	**TOPSOIL** Fine sand, silty, soft-firm, moist, dark brown, trace organics									509
	508.99			0-0.83	41.7		10				
	508.36	**Silty SAND** Silty fine sand, soft, moist, light brown-grey, orange mottling									
1				2.5-3.5	62.5		21				508
		Silty SAND TILL Silty fine sand, some gravel (angular/sub-angular), soft, moist, light brown, saturated @ 1.78 m									
				5.0-6.0	66.7		33		▼	bentonite seal	
2	507.34	**Gravelly SAND** Gravel (angular/sub-angular), medium-coarse, loose, saturated, light brown									507
	506.76	**Silty SAND TILL** Silty fine sand, some gravel (angular/sub-angular), occasional rocks and pulverized rock, medium brown, firm, moist		7.5-8.5	50.0		>50				
3				10.0-10.5	25.0		>50				506
				12.5-12.83	30.8		>50				
4										silica sand 50 mm 010 slot PVC pipe	505
				15.0-15.33	16.7		>50				
5										end cap	504

End of monitoring well at 503.94 m

Well Completion Details:
Screened interval from 505.46 m to 503.94 m
Elevation at top of pipe (TOP) = 509.99 m

Groundwater Information:
Depth to groundwater from TOP = 2.62 m (July 13, 2022)

* denotes soil sample taken for lab analysis

DRILLING METHOD: Hollow Stem Auger Drilling
BOREHOLE DIAMETER: 0.2 m (OD)
DRILL DATE: April 12, 2022
LOGGED BY: JH
DRILLED BY: Orbit Garant

Notes: SPLIT SPOON

SLR CONSULTING (CANADA) LTD.

CLIENT: **Flato South Dundalk Inc.**
PROJECT: **Flato South**
ADDRESS: **Dundalk, ON**
SLR JOB NO: **209.30125.00002**

Monitoring Well LOG

BOREHOLE NO: **MW22-210**
SURFACE ELEVATION: 511.93 m

DEPTH (m)	ELEVATION (m)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE ID	% Recovery	SOIL TYPE	TEST DATA: SPT Count (■) / % Moisture (◆)	WELL COMPLETION	WATER LEVEL	WELL COMPLETION NOTES	ELEVATION (m)
0	511.93	**TOPSOIL**									
	511.78	Fine sand, silty, soft, moist, dark brown, trace organics		0-1.0	54.2		8				
		Silty SAND TILL									
	511.17	Silty fine sand, some gravel (angular/sub-angular), trace organics, soft-firm, moist, light brown		2.5-3.5	37.5		15				
1		Softer and more rocks from 0.76-1.37 m									511
				5.0-5.5	33.3		21		▼		
2										bentonite seal	510
	509.64										
	509.48	Firm, saturated @ 2.37 m		7.5-8.5	54.2		>50				
	509.36	**SAND and GRAVEL**									
		Fine-medium sand and gravel and pulverized rocks (angular-sub-angular), light brown, loose, saturated		10.0-10.5	33.3		>50				
3		**Silty SAND TILL**									509
		Silty fine sand, gravel and pulverized rocks (angular-sub-angular), light brown, moist, firm									
	508.12										
		Increased frequency of pulverized rock from 3.81-4.42 m		12.5-13.28	31.7		>50				
4											508
				15.0-15.5	33.3		>50				
5										silica sand 50 mm 010 slot PVC pipe	507
				17.5-17.92	20.8		>50				
										end cap	506

End of monitoring well at 505.96 m

Well Completion Details:
Screened interval from 507.48 m to 505.96 m
Elevation at top of pipe (TOP) = 512.98 m

Groundwater Information:
Depth to groundwater from TOP = 2.72 m (July 13, 2022)

* denotes soil sample taken for lab analysis

DRILLING METHOD: Hollow Stem Auger Drilling
BOREHOLE DIAMETER: 0.2 m (OD)

DRILL DATE: April 12, 2022
LOGGED BY: JH
DRILLED BY: Orbit Garant

Notes: SPLIT SPOON

Appendix C Groundwater Data

Hydrogeological Assessment

Flato Southeast (Eco Park), Dundalk, Ontario

Flato Eco Park Dundalk Inc.

SLR Project No.: 209.30125.00002

October 11, 2024

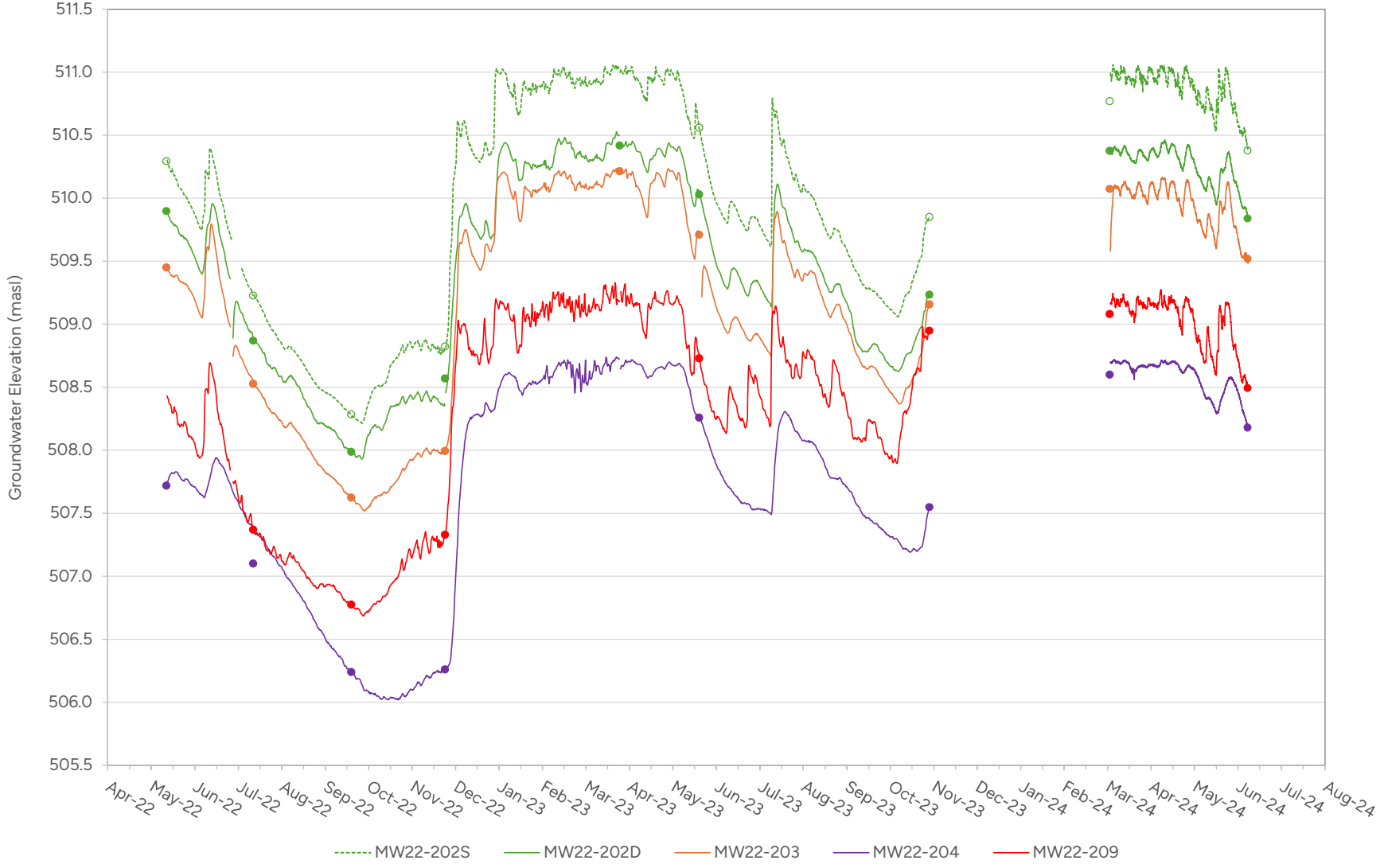


Figure C-1

Hydrograph - Continuous Groundwater Elevations in Monitoring Wells

Flato Eco Park Dundalk Inc.

SLR

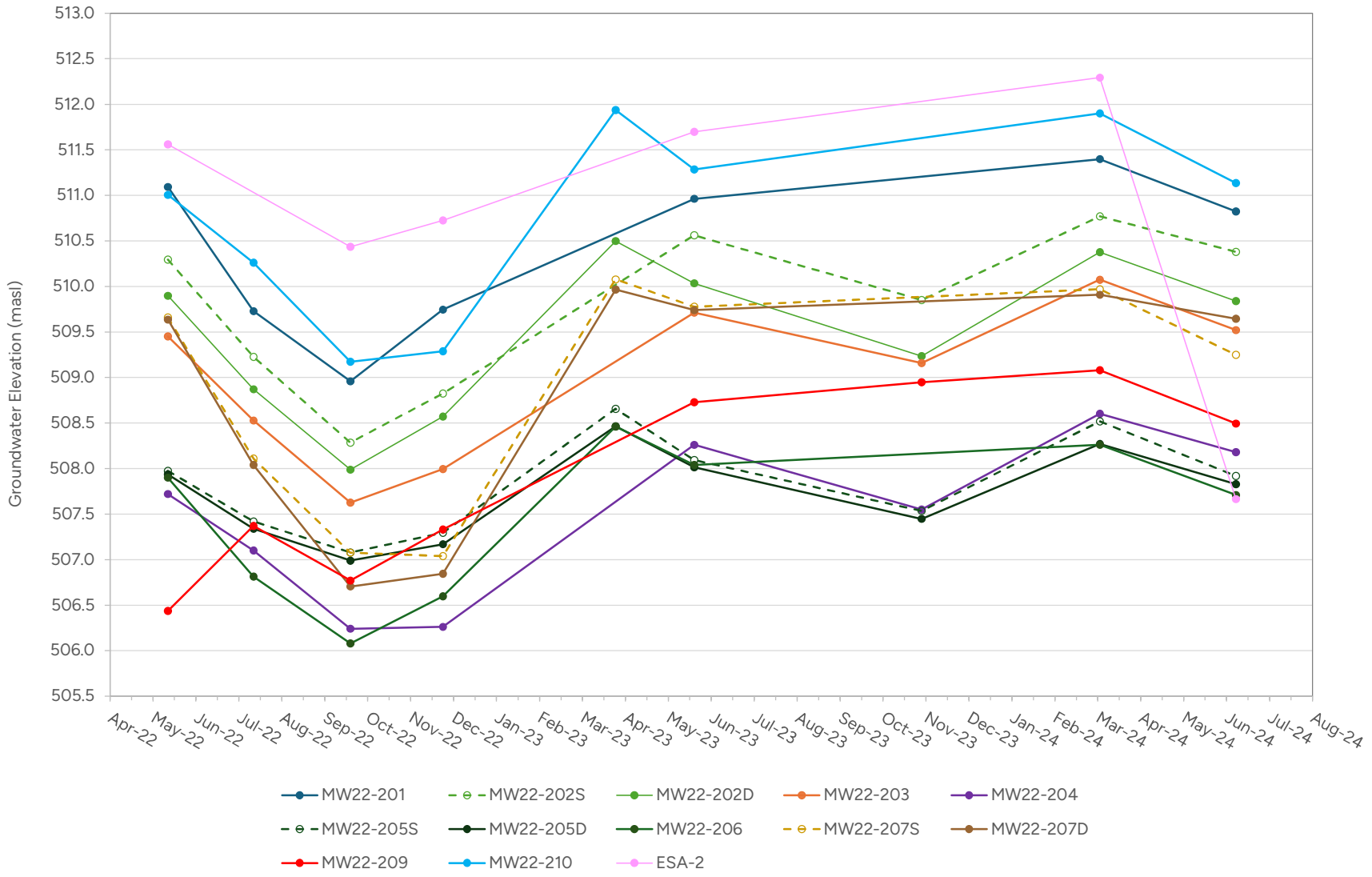


Figure C-2	Hydrograph - Manual Groundwater Elevations in Monitoring Wells **Flato Eco Park Dundalk Inc.**	SLR

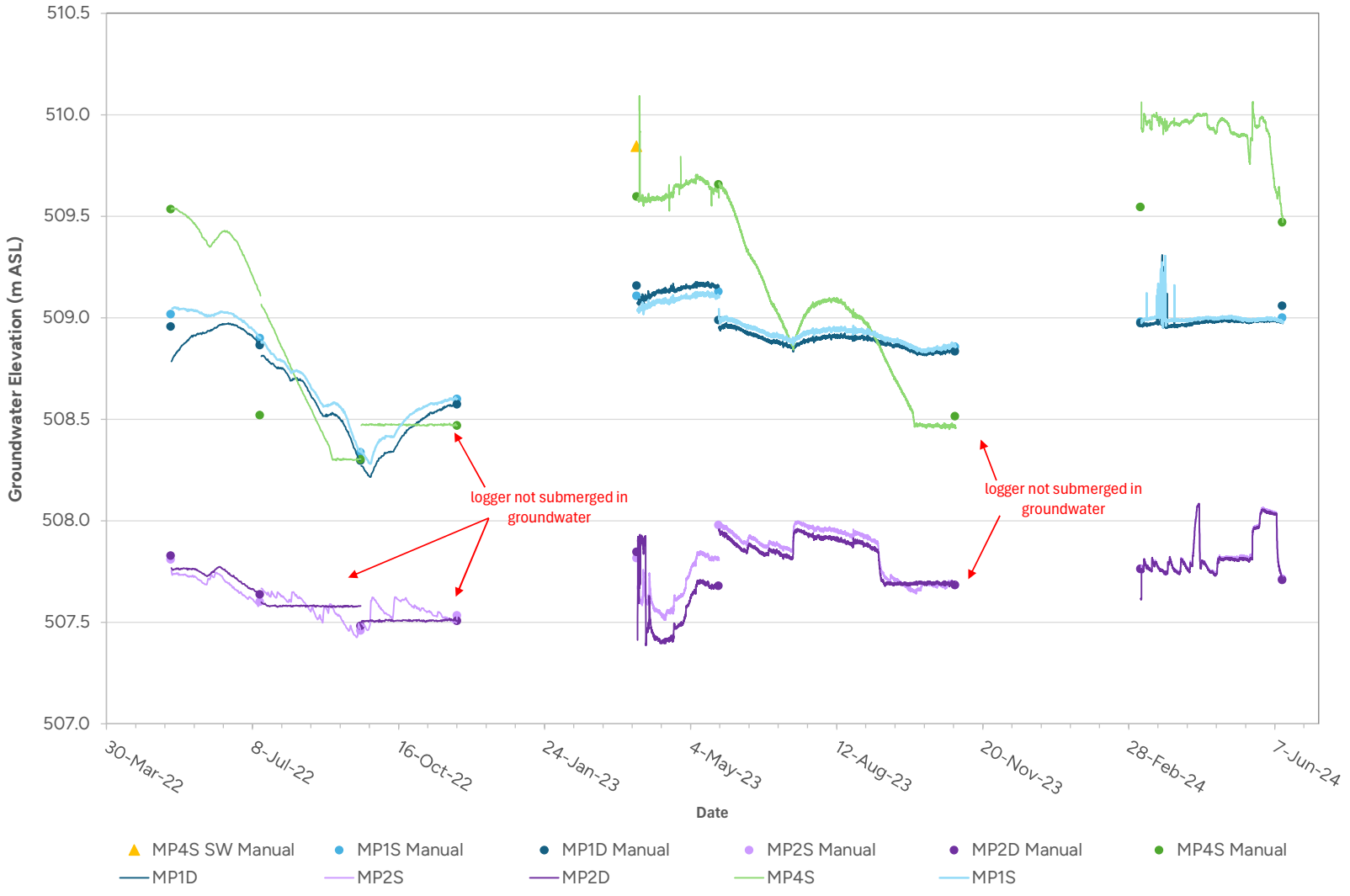


Figure C-3

Hydrograph - Continuous Groundwater Elevations in Mini-Piezometers

Flato Eco Park Dundalk Inc.

SLR

Table C-1: Monitoring Well Groundwater Elevations

Monitor ID	Units	13-May-22	13-Jul-22	20-Sep-22	25-Nov-22	28-Mar-23	23-May-23	1-Nov-23	7-Mar-24	12-Jun-24
ESA-2	mbgs	0.88	-	2.01	1.72	-	0.74	-	0.15	4.78
	masl	511.56	-	510.44	510.72	-	511.70	-	512.29	507.66
MW22-201	mbgs	0.51	1.87	2.64	1.86	-	0.64	-	0.20	0.78
	masl	511.09	509.73	508.96	509.75	-	510.96	-	511.40	510.82
MW22-202 S	mbgs	0.63	1.70	2.64	2.11	-	0.37	1.08	0.16	0.55
	masl	510.30	509.23	508.29	508.82	-	510.56	509.85	510.77	510.38
MW22-202 D	mbgs	1.07	2.10	2.98	2.40	0.47	0.94	1.74	0.59	1.13
	masl	509.90	508.87	507.99	508.57	510.50	510.04	509.24	510.38	509.84
MW22-203	mbgs	0.93	1.85	2.75	2.38	0.17	0.67	1.22	0.31	0.86
	masl	509.45	508.53	507.63	508.00	510.21	509.71	509.16	510.07	509.52
MW22-204	mbgs	0.97	1.59	2.45	2.43	-	0.43	1.14	0.09	0.51
	masl	507.72	507.10	506.24	506.26	-	508.26	507.55	508.60	508.18
MW22-205 S	mbgs	1.39	1.94	2.28	2.06	0.70	1.27	1.82	0.84	1.44
	masl	507.97	507.42	507.08	507.30	508.66	508.09	507.54	508.52	507.92
MW22-205 D	mbgs	1.32	1.92	2.27	2.09	0.80	1.25	1.81	0.99	1.43
	masl	507.94	507.34	506.99	507.17	508.46	508.01	507.45	508.27	507.83
MW22-206	mbgs	0.62	1.70	2.44	1.92	0.06	0.48	-	0.26	0.81
	masl	507.90	506.82	506.08	506.60	508.46	508.04	-	508.26	507.71
MW22-207 S	mbgs	0.44	1.99	3.02	3.06	0.02	0.32	-	0.13	0.85
	masl	509.66	508.11	507.08	507.04	510.08	509.78	-	509.97	509.25
MW22-207 D	mbgs	0.44	2.04	3.38	3.24	0.11	0.34	-	0.17	0.43
	masl	509.64	508.04	506.71	506.84	509.97	509.74	-	509.91	509.65
MW22-209	mbgs	2.68	1.75	2.35	1.79	-	0.39	0.17	0.04	0.62
	masl	506.44	507.37	506.77	507.33	-	508.73	508.95	509.08	508.50
MW22-210	mbgs	0.92	1.67	2.76	2.64	-0.01	0.64	-	0.03	0.79
	masl	511.01	510.26	509.17	509.29	511.94	511.29	-	511.90	511.14

Notes:

mbgs metres below ground surface

masl metres below sea level

Table C-2: Mini-Piezometer Groundwater Elevations

Monitor ID	Units	13-May-22	13-Jul-22	20-Sep-22	25-Nov-23	28-Mar-23	23-May-23	1-Nov-23	7-Mar-24	12-Jun-24
MP1S	mbgs	-0.17	-0.05	0.51	0.25	-0.26	-0.28	-0.01	-0.13	-0.15
	masl	509.02	508.90	508.34	508.60	509.11	509.13	508.86	508.98	509.00
MP1D	mbgs	-0.12	-0.03	0.54	0.26	-0.32	-0.15	0.005	-0.14	-0.22
	masl	508.96	508.87	508.30	508.58	509.16	508.99	508.84	508.98	509.06
MP2S	mbgs	-0.29	-0.08	0.06	-0.02	-0.30	-0.46	-0.21	-0.24	-0.20
	masl	507.81	507.60	507.46	507.54	507.82	507.98	507.73	507.76	507.72
MP2D	mbgs	-0.31	-0.12	0.04	0.01	-0.33	-0.46	-0.17	-0.24	5.39
	masl	507.83	507.64	507.48	507.51	507.85	507.98	507.69	507.76	502.13
MP3S	mbgs	-	-0.33	-0.19	-	-	-0.62	-	-	-
	masl	-	507.72	507.58	-	-	508.01	-	-	-
MP3D	mbgs	-	-0.35	-0.25	-	-	-0.57	-	-	-
	masl	-	507.74	507.64	-	-	507.96	-	-	-
MP4S	mbgs	0.06	1.08	1.30	1.13	0.002	-0.06	1.09	0.05	0.13
	masl	509.54	508.52	508.30	508.47	509.60	509.66	508.52	509.55	509.47
MP4D	mbgs	-0.09	1.11	1.62	1.51	-0.42	-0.17	0.76	-0.28	0.21
	masl	509.71	508.51	508.01	508.11	510.04	509.79	508.86	509.90	509.42

Notes:

mbgs	metres below ground surface
masl	metres below sea level
	MP4D piezometer was noted damaged (bent) from March 2023 onward

Table C-3a: Vertical Hydraulic Gradients - Monitoring Wells

Monitor ID	13-May-22	13-Jul-22	20-Sep-22	25-Nov-22	28-Mar-23	23-May-23	7-Mar-24	12-Jun-24
MW22-202								
Shallow groundwater elevations (masl)	510.30	509.23	508.29	508.82	Frozen	510.56	510.77	510.38
Deep groundwater elevations (masl)	509.90	508.87	507.99	508.57	510.50	510.04	510.38	509.84
Hydraulic gradient (m/m)	0.12	0.11	0.09	0.08	-	0.16	0.12	0.16
MW22-205								
Shallow groundwater elevations (masl)	507.97	507.42	507.08	507.30	508.66	508.09	508.52	507.92
Deep groundwater elevations (masl)	507.94	507.34	506.99	507.17	508.46	508.01	508.27	507.83
Hydraulic gradient (m/m)	0.01	0.02	0.03	0.04	0.06	0.02	0.08	0.03
MW22-207								
Shallow groundwater elevations (masl)	509.66	508.11	507.08	507.04	510.08	509.78	509.97	509.25
Deep groundwater elevations (masl)	509.64	508.04	506.71	506.84	509.97	509.74	509.91	509.65
Hydraulic gradient (m/m)	0.02	0.07	0.37	0.19	0.11	0.04	0.06	-0.39

Notes:

masl denotes metres above sea level
Positive value denotes downward hydraulic gradients (i.e., groundwater recharge conditions)
Negative value denotes upward hydraulic gradients (i.e., groundwater discharge conditions)
N.R. denotes not representative as water levels did not fully recover following installation

Table C-3b: Vertical Hydraulic Gradients - Mini-Piezometers

Monitor ID	13-May-22	13-Jul-22	20-Sep-22	25-Nov-22	28-Mar-23	23-May-23	7-Mar-24	12-Jun-24
MP1								
Shallow groundwater elevations (masl)	509.02	508.90	508.34	508.60	509.11	509.13	508.98	509.00
Deep groundwater elevations (masl)	508.96	508.87	508.30	508.58	509.16	508.99	508.98	509.06
Hydraulic gradient (m/m)	0.10	0.06	0.07	0.04	-0.08	0.23	0.01	-0.10
MP2								
Shallow groundwater elevations (masl)	507.81	507.60	507.46	507.54	507.82	507.98	507.76	507.72
Deep groundwater elevations (masl)	507.83	507.64	507.48	507.51	507.85	507.98	507.76	507.71
Hydraulic gradient (m/m)	-0.03	-0.05	-0.03	0.04	-0.04	0.00	0.00	0.01
MP3								
Shallow groundwater elevations (masl)	-	507.72	507.58	-	-	508.01	-	
Deep groundwater elevations (masl)	-	507.74	507.64	-	-	507.96	-	
Hydraulic gradient (m/m)	-	-0.05	-0.11	-	-	0.10	-	
MP4								
Shallow groundwater elevations (masl)	-	-	-	-	509.85	-	-	-
Deep groundwater elevations (masl)	509.54	508.52	508.30	508.52	509.60	509.66	509.55	509.47
Hydraulic gradients (m/m)[1]					0.21			

Notes:

masl denotes metres above sea level

Positive value denotes downward hydraulic gradients (i.e., groundwater recharge conditions)

Negative value denotes upward hydraulic gradients (i.e., groundwater discharge conditions)

[1] - Hydraulic gradient calculated between shallow MP and surface water when present

Appendix D Hydraulic Conductivity Analyses

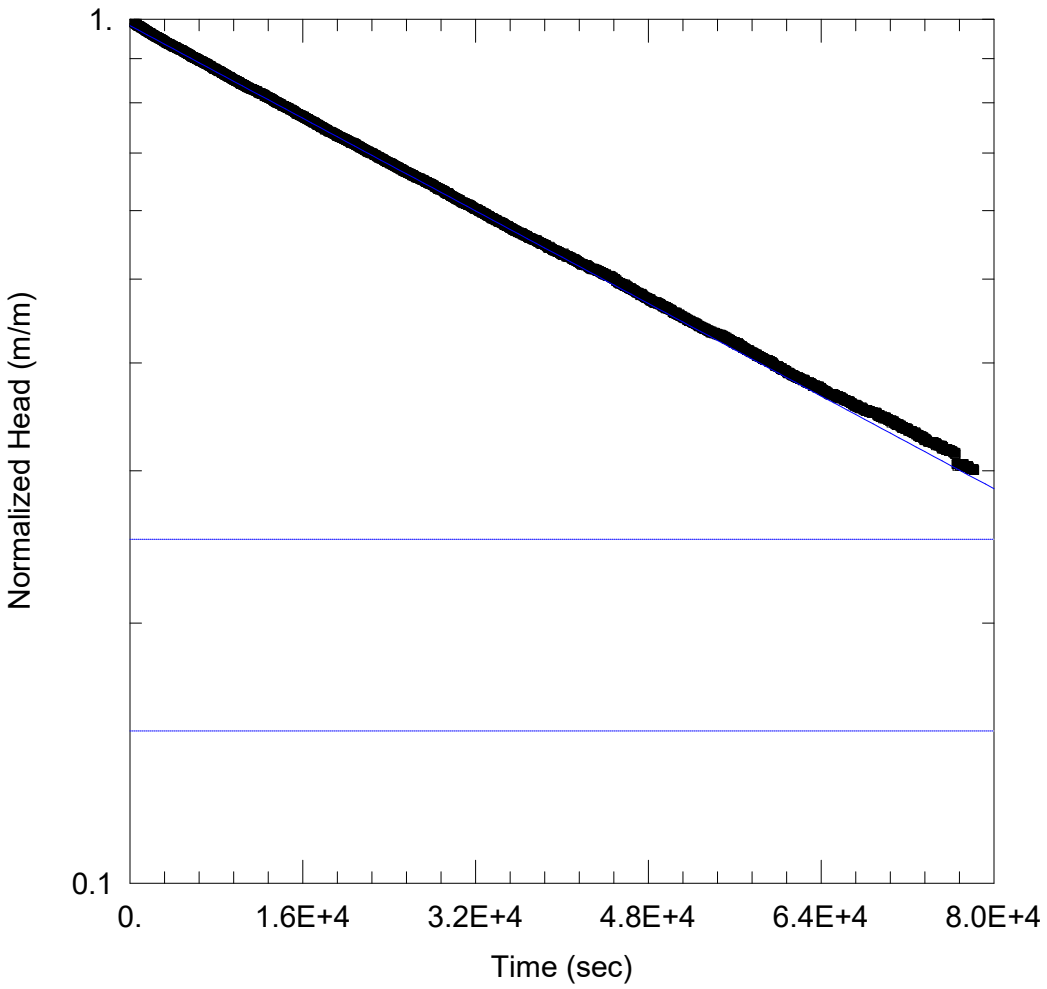
Hydrogeological Assessment

Flato Southeast (Eco Park), Dundalk, Ontario

Flato Eco Park Dundalk Inc.

SLR Project No.: 209.30125.00002

October 11, 2024



WELL TEST ANALYSIS

Data Set: N:\...\MW22-202D_JH_JV hvorslev.aqt
Date: 09/09/24 Time: 17:14:46

PROJECT INFORMATION

Company: SLR
Client: Flato
Project: 209.30125.00002
Location: Dundalk South
Test Well: MW22-202D

AQUIFER DATA

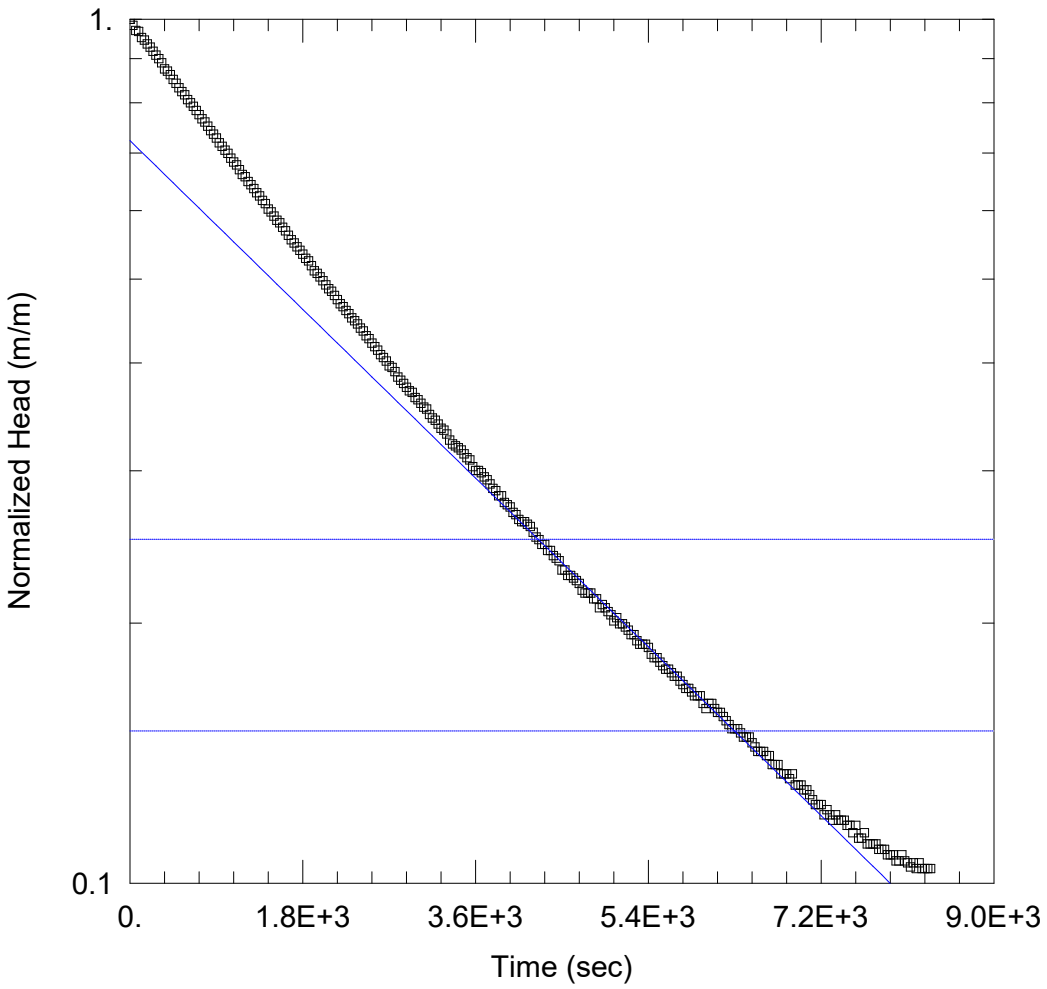
Saturated Thickness: 8.924 m Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW22-202D)

Initial Displacement: 1.541 m
Total Well Penetration Depth: 8.924 m
Casing Radius: 0.0254 m
Static Water Column Height: 8.924 m
Screen Length: 1.524 m
Well Radius: 0.1016 m

SOLUTION

Aquifer Model: Confined
Solution Method: Hvorslev
K = 1.111E-8 m/sec
y0 = 1.515 m



WELL TEST ANALYSIS

Data Set: N:\...\MW22-202S_JH_JV hvorslev.aqt
Date: 09/12/24 Time: 11:06:19

PROJECT INFORMATION

Company: SLR
Client: Flato
Project: 209.30125.00002
Location: Dundalk South
Test Well: MW22-202S

AQUIFER DATA

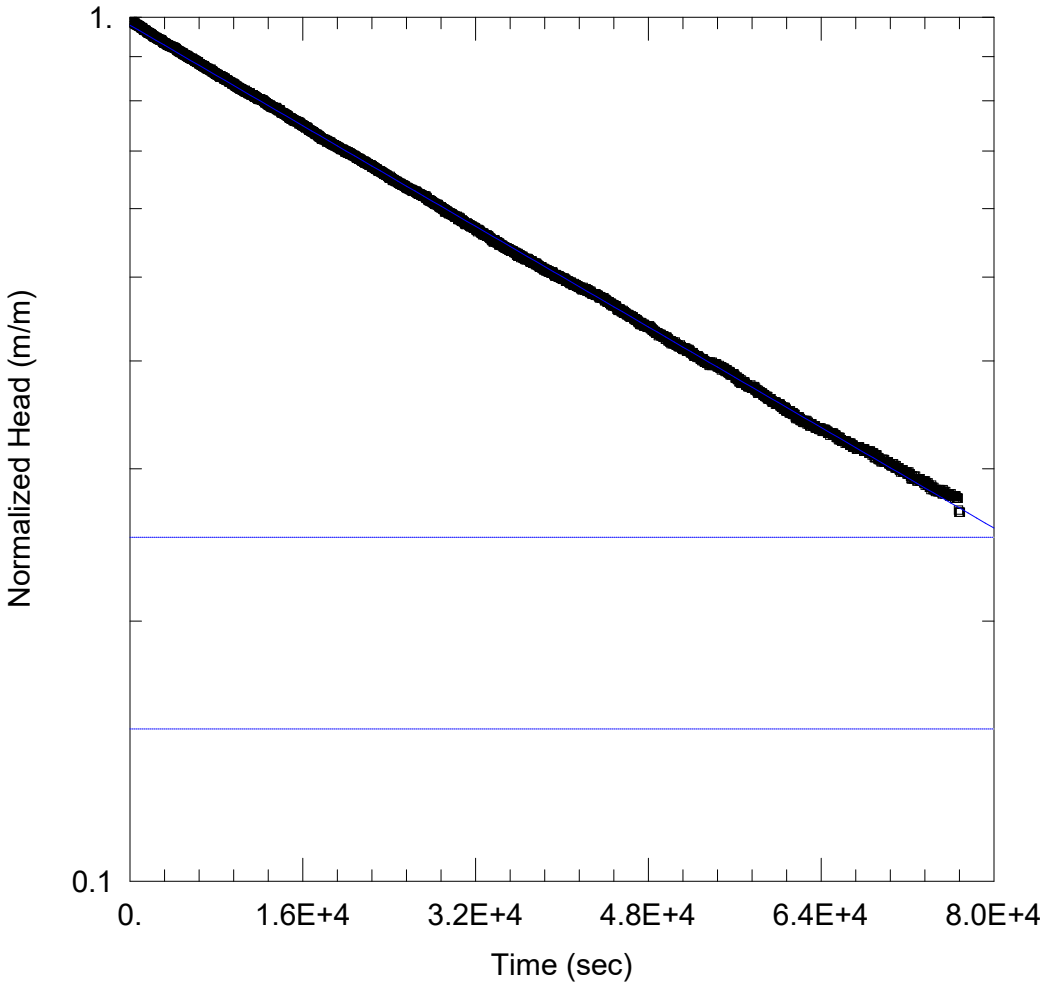
Saturated Thickness: 1.52 m Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (New Well)

Initial Displacement: 1.055 m
Total Well Penetration Depth: 4.512 m
Casing Radius: 0.0254 m
Static Water Column Height: 4.512 m
Screen Length: 1.524 m
Well Radius: 0.1016 m

SOLUTION

Aquifer Model: Confined
Solution Method: Hvorslev
K = 2.809E-7 m/sec
y0 = 0.7633 m



WELL TEST ANALYSIS

Data Set: N:\...\MW22-203_JH_JV hvorslev.aqt
Date: 09/09/24 Time: 17:16:44

PROJECT INFORMATION

Company: SLR
Client: Flato
Project: 209.30125.00002
Location: Dundalk South
Test Well: MW22-203

AQUIFER DATA

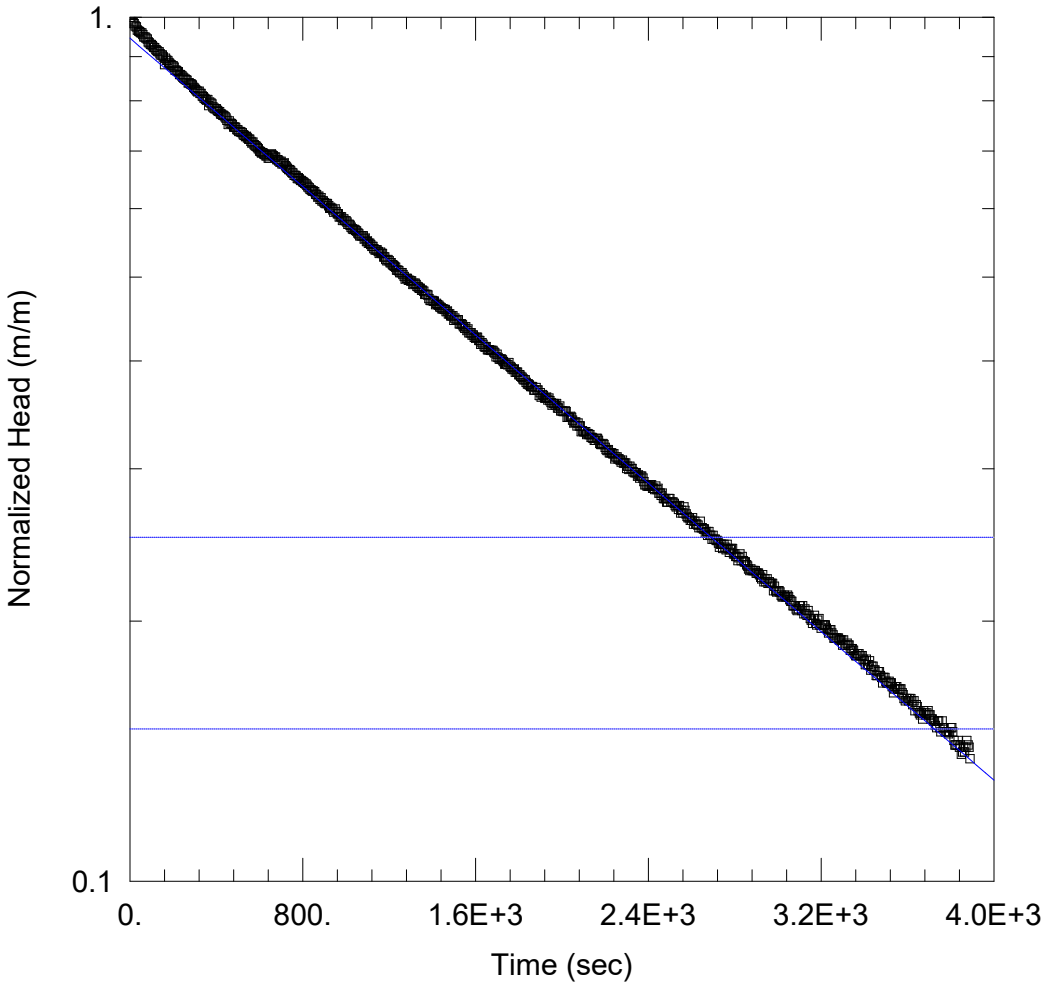
Saturated Thickness: 4.685 m Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW22-203)

Initial Displacement: 1.068 m
Total Well Penetration Depth: 4.685 m
Casing Radius: 0.0254 m
Static Water Column Height: 4.685 m
Screen Length: 1.524 m
Well Radius: 0.1016 m

SOLUTION

Aquifer Model: Confined
Solution Method: Hvorslev
K = 1.207E-8 m/sec
y0 = 1.046 m



WELL TEST ANALYSIS

Data Set: N:\...\MW22-209_JH_JV hvorslev.aqt
Date: 09/09/24 Time: 17:17:17

PROJECT INFORMATION

Company: SLR
Client: Flato
Project: 209.30125.00002
Location: Dundalk South
Test Well: MW22-209

AQUIFER DATA

Saturated Thickness: 3.854 m Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW22-209)

Initial Displacement: 1.065 m
Total Well Penetration Depth: 3.854 m
Casing Radius: 0.0254 m
Static Water Column Height: 3.854 m
Screen Length: 1.524 m
Well Radius: 0.1016 m

SOLUTION

Aquifer Model: Confined
Solution Method: Hvorslev
K = 3.56E-7 m/sec
y0 = 1.007 m

Appendix E MECP Water Well Records

Hydrogeological Assessment

Flato Southeast (Eco Park), Dundalk, Ontario

Flato Eco Park Dundalk Inc.

SLR Project No.: 209.30125.00002

October 11, 2024

Table E-1: MECP Water Well Record Summary

WELL ID	TAG	DATE COMPLETED	DEPTH (M)	BOTTOM LITHOLOGY	STRATIGRAPHY LAYER	FORMATION	FORMATION END DEPTH (M)	STATUS	WATER USE	DEPTH WATER FOUND (M)	STATIC LEVEL (M)	PUMPING RATE (LPS)
1700354		7/2/1954	29	SHALE	1	TOPSOIL	0.61	Water Supply	Livestock	28.0	2.7	0.758
					2	HARDPAN	16.15					
					3	ROCK	28.04					
					4	SHALE	28.96					
1703988		8/17/1989	45.7	LIMESTONE	1	CLAY	15.54	Water Supply	Domestic	45.7	6.7	0.531
					2	LIMESTONE	45.72					
1704374		10/9/1991	31.1	LIMESTONE	1	CLAY	5.79	Water Supply	Domestic	25.9	3.7	0.91
					2	CLAY	12.19					
					3	LIMESTONE	31.09					
2502808		4/10/1969	20.1	ROCK	1	TOPSOIL	0.30	Water Supply	Domestic	18.3	3	1.137
					2	MEDIUM SAND	4.57					
					3	GRAVEL	12.19					
					4	ROCK	20.12					
2506227		5/19/1976	30.5	LIMESTONE	1	TOPSOIL	0.61	Water Supply	Domestic	30.5	2.4	0.758
					2	CLAY	12.19					
					3	GRAVEL	14.63					
					4	LIMESTONE	30.48					
7241221	A176434	4/29/2015	4.5	SAND	1	SAND	4.50	Observation Wells	Monitoring			
7357121	A282537	1/16/2020	5.1	SILT	1	TOPSOIL	0.60	Observation Wells	Monitoring			
					2	SAND	3.60					
					3	SILT	5.10					
7357122	A282216	1/14/2020	4.5	SILT	1	TOPSOIL	0.60	Observation Wells	Monitoring			
					2	SAND	3.60					
					3	SILT	4.50					
7357123	A282615	1/14/2020	6.1	SILT	1		1.67	Observation Wells	Monitoring			
					2		2.30					
					3	SILT	2.60					
					4	SAND	3.60					
					5	SILT	6.10					
7403043		4/27/2021										

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ONTARIO

RECEIVED
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GEOLOGICAL BRANCH
DEPARTMENT of MINES

No 354

The Water-well Drillers Act, 1954
Department of Mines

Water-Well Record

County or Territorial District DUFFERIN GREY Township, Village, Town or City MELANCHTON

[redacted] Village, Town or City)

Address DUNDALK

(day) (month) (year)

Pipe and Casing Record

Casing diameter(s) 4"
Length(s) 53'
Type of screen
Length of screen

Pumping Test

Static level 9'
Pumping rate 10 gals. per minute
Pumping level 91'
Duration of test 5 hrs.

Well Log

Water Record

Overburden and Bedrock Record	From ft.	To ft.	Depth(s) at which water(s) found	No. of feet water rises	Kind of water (fresh, salty, or sulphur)
TOP SOIL	0'	2'	92'-95'	86'	fresh
HARD PAN	2	53'			
BLUE ROCK	53'	92'			
SHALE	92'	95'			

For what purpose(s) is the water to be used?
STOCK - DOMESTIC
Is water clear or cloudy? CLEAR
Is well on upland, in valley, or on hillside?
UPLAND
Drilling firm FRED. H. McLUHAN
Address MOUNT FOREST

Name of Driller FRED. H. McLUHAN
Address MOUNT FOREST

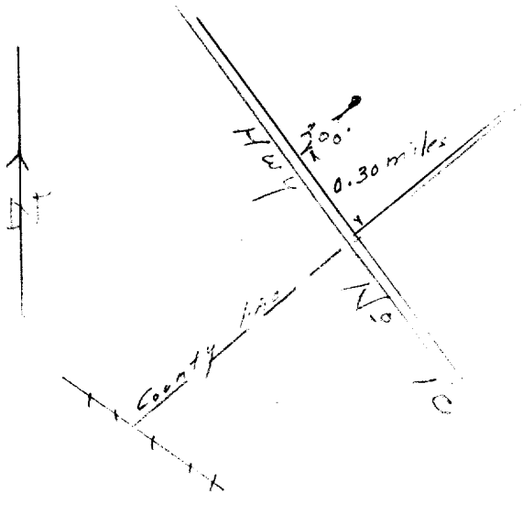
Licence Number 161

I certify that the foregoing statements of fact are true.

Date Jan. 3/55 Fred H. McLuhan
Signature of Licensee

Location of Well

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



CSS.S8

Form 5

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 | 1703988 | MUNICIP. 17004 | CON. SR E | 01

COUNTY OR DISTRICT: [redacted] | TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE: Euchon | CON. BLOCK, TRACT, SURVEY, ETC.: I. NE | LOT: 239 | DATE COMPLETED: DAY 17 MO 8 YR 89

21 | RC. | ELEVATION | RC. | BASIN CODE | II | III | IV

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET FROM	TO
	Clay & stones gravel			0	51
	~~Gravel~~			51	
	Limestone			51	150

31

32

41 WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER
150	1 ☒ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERALS 6 ☐ GAS
	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERALS 6 ☐ GAS
	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERALS 6 ☐ GAS
	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERALS 6 ☐ GAS
	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERALS 6 ☐ GAS

51 CASING & OPEN HOLE RECORD

INSIDE DIAM INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET FROM	TO
5-11	1 ☒ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☒ OPEN HOLE 5 ☐ PLASTIC	188	0	53
			43	150
	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE 5 ☐ PLASTIC			
	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE 5 ☐ PLASTIC			

SCREEN

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

61 PLUGGING & SEALING RECORD

DEPTH SET AT - FEET FROM	TO	MATERIAL AND TYPE (CEMENT GROUT LEAD PACKER, ETC.)

71 PUMPING TEST

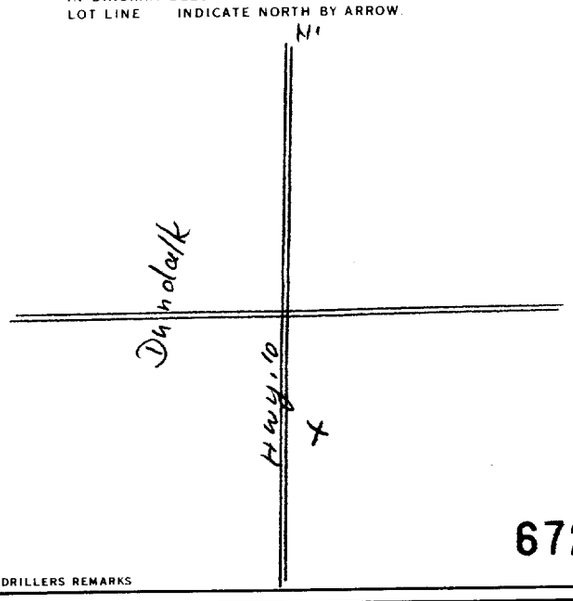
PUMPING TEST METHOD: 1 ☒ PUMP 2 ☐ BAILER — Comp.
PUMPING RATE: 7 GPM
DURATION OF PUMPING: 13 HOURS ____ MINS
WATER LEVELS DURING: 1 ☒ PUMPING 2 ☐ RECOVERY

STATIC LEVEL	WATER LEVEL END OF PUMPING	15 MINUTES	30 MINUTES	45 MINUTES	60 MINUTES
22 FEET	93 FEET	126 FEET	126 FEET	126 FEET	126 FEET

IF FLOWING, GIVE RATE: ____ GPM
PUMP INTAKE SET AT: 140 FEET
WATER AT END OF TEST: 1 ☒ CLEAR 2 ☐ CLOUDY
RECOMMENDED PUMP TYPE: ☐ SHALLOW ☒ DEEP
RECOMMENDED PUMP SETTING: 140 FEET
RECOMMENDED PUMPING RATE: 7 GPM

LOCATION OF WELL

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



67206

DRILLERS REMARKS

FINAL STATUS OF WELL: 1 ☒ WATER SUPPLY; 2 ☐ OBSERVATION WELL; 3 ☐ TEST HOLE; 4 ☐ RECHARGE WELL; 5 ☐ ABANDONED, INSUFFICIENT SUPPLY; 6 ☐ ABANDONED, POOR QUALITY; 7 ☐ UNFINISHED; ☐ DEWATERING

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

METHOD OF CONSTRUCTION: 1 ☐ CABLE TOOL; 2 ☒ ROTARY (CONVENTIONAL); 3 ☐ ROTARY (REVERSE); 4 ☐ ROTARY (AIR); 5 ☐ AIR PERCUSSION; 6 ☐ BORING; 7 ☐ DIAMOND; 8 ☐ JETTING; 9 ☐ DRIVING; ☐ DIGGING; ☐ OTHER

CONTRACTOR

NAME OF WELL CONTRACTOR: S. Neumann
WELL CONTRACTOR'S LICENCE NUMBER: 3813
ADDRESS: R.R.4. Dundalk Ont.
NAME OF WELL TECHNICIAN: S. Neumann
WELL TECHNICIAN'S LICENCE NUMBER: T-0214
SIGNATURE OF TECHNICIAN/CONTRACTOR: S. Neumann
SUBMISSION DATE: DAY ____ MO. ____ YR. ____

OFFICE USE ONLY

DATA SOURCE | CONTRACTOR 3813 | DATE RECEIVED SEP 07 1989
DATE OF INSPECTION | INSPECTOR
REMARKS

CSS.ES

MINISTRY OF THE ENVIRONMENT COPY

FORM NO. 0506 (11/86) FORM 9

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 (1 2) 1704374 MUNICIP 17004 (10 14) CON. SR E 101 (15 22 23 24)

COUNTY OR DISTRICT [redacted] | TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE MEAFORD (DUNDALK) | CON., BLOCK, TRACT, SURVEY, ETC CON. 1 EAST | LOT 241 (25-27)

DATE COMPLETED (48-53) DAY 9 MO 10 YR 91

21 (1 2) M (10) (12) (17) (18) (24) RC (25) ELEVATION (26) RC (30) BASIN CODE (31) II III IV (47)

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET FROM	DEPTH - FEET TO
	CLAY	GRAVEL STONES		0	19
	CLAY	GRAVEL		9	40
	LIMESTONE			40	102

31 (1 2) (10) (14 15) (21) (32) (43) (54) (65) (75) (80)

32

41 WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER
85	1 ☒ FRESH 2 ☐ SALTY; 3 ☐ SULPHUR 4 ☐ MINERALS 6 ☐ GAS
	1 ☐ FRESH 2 ☐ SALTY; 3 ☐ SULPHUR 4 ☐ MINERALS 6 ☐ GAS
	1 ☐ FRESH 2 ☐ SALTY; 3 ☐ SULPHUR 4 ☐ MINERALS 6 ☐ GAS
	1 ☐ FRESH 2 ☐ SALTY; 3 ☐ SULPHUR 4 ☐ MINERALS 6 ☐ GAS
	1 ☐ FRESH 2 ☐ SALTY; 3 ☐ SULPHUR 4 ☐ MINERALS 6 ☐ GAS

51 CASING & OPEN HOLE RECORD

INSIDE DIAM INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET FROM	DEPTH - FEET TO
6	1 ☒ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE 5 ☐ PLASTIC	.188	0	43
6	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☒ OPEN HOLE 5 ☐ PLASTIC		43	102
	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE 5 ☐ PLASTIC			

SCREEN

SIZE(S) OF OPENING (SLOT NO.)	DIAMETER (INCHES)	LENGTH (FEET)

MATERIAL AND TYPE | DEPTH TO TOP OF SCREEN (FEET)

61 PLUGGING & SEALING RECORD

DEPTH SET AT - FEET FROM	DEPTH SET AT - FEET TO	MATERIAL AND TYPE (CEMENT GROUT LEAD PACKER ETC.)

71 PUMPING TEST

PUMPING TEST METHOD: 1 ☐ PUMP 2 ☐ BAILER — HIR

PUMPING RATE: 12 GPM — DURATION OF PUMPING: 2 HOURS ____ MINS

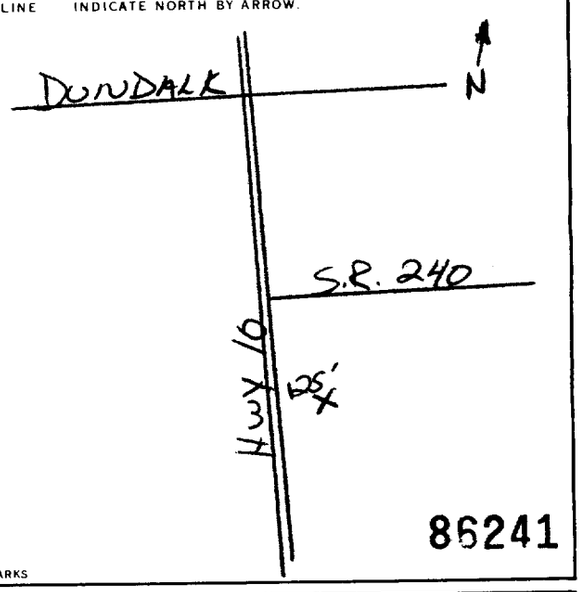
STATIC LEVEL	WATER LEVEL END OF PUMPING	WATER LEVELS DURING (1 ☐ PUMPING 2 ☐ RECOVERY) 15 MINUTES	30 MINUTES	45 MINUTES	60 MINUTES
12 FEET	65 FEET	65 FEET	65 FEET	65 FEET	FEET

IF FLOWING, GIVE RATE: GPM — PUMP INTAKE SET AT: FEET — WATER AT END OF TEST: 1 ☒ CLEAR 2 ☐ CLOUDY

RECOMMENDED PUMP TYPE: ☐ SHALLOW ☒ DEEP — RECOMMENDED PUMP SETTING: 85 FEET — RECOMMENDED PUMPING RATE: 10-12 GPM

LOCATION OF WELL

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



DRILLERS REMARKS

FINAL STATUS OF WELL

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

WATER USE

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

METHOD OF CONSTRUCTION

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

CONTRACTOR

NAME OF WELL CONTRACTOR: S. NEUMANN — WELL CONTRACTOR'S LICENCE NUMBER: 3813

ADDRESS: BR # 4 DUNDALK

NAME OF WELL TECHNICIAN: S. NEUMANN — WELL TECHNICIAN'S LICENCE NUMBER: 7-0214

SIGNATURE OF TECHNICIAN/CONTRACTOR: J. Neumann — SUBMISSION DATE: DAY ____ MO. ____ YR. ____

OFFICE USE ONLY

DATA SOURCE | CONTRACTOR 3813 | DATE RECEIVED OCT 21 1991

DATE OF INSPECTION | INSPECTOR

REMARKS

CSS.ES

MINISTRY OF THE ENVIRONMENT COPY

FORM NO. 0506 (11/86) FORM 9

TM 17Z 550600 41A/W

4R 489059 0 X

Rev. 5R 1685

Basin 23 Grey

2502808

3 9

7

Water management in Ontario

The Ontario Water Resources Commission Act

WATER WELL RECORD

County or District [redacted] Township, Village, Town or City Proton Station

Con. 1 S.W. T.S.R. 00 Lot 238-239-240 Date completed 10 (day) April (month) 1969 (year)

Address [redacted] Box 227, Dundalk.

Casing and Screen Record

Inside diameter of casing 4"

Total length of casing 40'

Type of screen —

Length of screen —

Depth to top of screen —

Diameter of finished hole 4"

Pumping Test

Static level 10

Test-pumping rate 15 G.P.M.

Pumping level 22

Duration of test pumping 2 hrs

Water clear or cloudy at end of test Cloudy

Recommended pumping rate 5'10 G.P.M.

with pump setting of 35' feet below ground surface

Well Log

Overburden and Bedrock Record	From ft.	To ft.	Water Record: Depth(s) at which water(s) found	Water Record: Kind of water (fresh, salty, sulphur)
Topsoil	0	1		
Sand & Clay	1	15		
Gravel & Boulders.	15	40	60	Freash
Hard Grey Rock.	40	66	to	
			66	

For what purpose(s) is the water to be used? Household & Stock

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

Drilling or Boring Firm Durham Drilling Enterprises Limited

Address Box 299. Durham Ont.

Licence Number 3263

Name of Driller or Borer Ed Hotchkiss

Address Durham Ont

Date April 10, 1969

P.E. Johnston

(Signature of Licensed Drilling or Boring Contractor)

Form 7

OWRC COPY

Location of Well

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

MINISTRY OF THE ENVIRONMENT

The Ontario Water Resources Act

WATER WELL RECORD

41 A/IW

Ontario

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

11 | 1250627 | MUNICIP 25012 | CON SR W | 01

COUNTY OR DISTRICT: ~~Dufferin~~ Grey

TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE: Melancthon

CON., BLOCK, TRACT, SURVEY, ETC.: I

LOT: 237

OWNER (SURNAME FIRST): [redacted]

ADDRESS: Dundalk Ont

DATE COMPLETED: DAY 19 MO 05 YR 76

TWNSHIP 890850 | RC 5 | ELEVATION 1685 | RC 5 | BASIN CODE 23

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET FROM	DEPTH - FEET TO
	Top soil				0 - 2
	Clay stones + gravel				2 - 40
	Gravel				40 - 48
	Limestone				48 - 100

31 0002 02 | 0040 05 1211 | 0048 11 | 0100 15

32

41 WATER RECORD

WATER FOUND AT FEET	KIND OF WATER
0100	1 ☑ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERAL
	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERAL
	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERAL
	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERAL
	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERAL

51 CASING & OPEN HOLE RECORD

INSIDE DIAM. INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET FROM	DEPTH - FEET TO
05	1 ☑ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE	188	0	0048
	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☑ OPEN HOLE		48	100
	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☑ OPEN HOLE			0100
	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE			

SCREEN

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

61 PLUGGING & SEALING RECORD

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

71 PUMPING TEST

PUMPING TEST METHOD: 1 ☐ PUMP 2 ☑ BAILER

PUMPING RATE: 0010 GPM

DURATION OF PUMPING: 06 HOURS 00 MINS

WATER LEVELS DURING: 1 ☑ PUMPING 2 ☐ RECOVERY

STATIC LEVEL	WATER LEVEL END OF PUMPING	15 MINUTES	30 MINUTES	45 MINUTES	60 MINUTES
008 FEET	065 FEET	028 FEET	065 FEET	065 FEET	065 FEET

IF FLOWING, GIVE RATE: GPM

PUMP INTAKE SET AT: 75 FEET

WATER AT END OF TEST: 1 ☑ CLEAR 2 ☐ CLOUDY

RECOMMENDED PUMP TYPE: ☐ SHALLOW ☑ DEEP

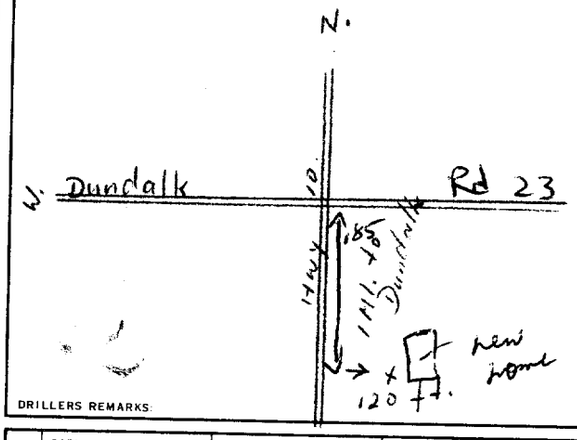
RECOMMENDED PUMP SETTING: 075 FEET

RECOMMENDED PUMPING RATE: 0010 GPM

GPM./FT. SPECIFIC CAPACITY

LOCATION OF WELL

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



DRILLERS REMARKS:

FINAL STATUS OF WELL 54: 1

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

WATER USE 55-56: 01

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

METHOD OF DRILLING 57: 1

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

CONTRACTOR

NAME OF WELL CONTRACTOR: S. Weidman | LICENCE NUMBER: 3813

ADDRESS: R.R. 4 Dundalk Ont.

NAME OF WELL TECHNICIAN OR BORER: | LICENCE NUMBER:

SIGNATURE OF CONTRACTOR: S. Weidman | SUBMISSION DATE: DAY ____ MO. ____ YR. ____

Jan 0 6.9

MINISTRY OF THE ENVIRONMENT COPY

OFFICE USE ONLY

DATA SOURCE 58: 1 | CONTRACTOR 59-62: 3813 | DATE RECEIVED 63-68: 150776 | 80

DATE OF INSPECTION: June 15/77 | INSPECTOR: ES

REMARKS: Changed From 1702122

P

WI

FORM 7 MOE 07-091

Ontario

Ministry of the Environment and Climate Change

Measurements recorded in: ☑ Metric ☐ Imperial

Well Tag No. *(Place Sticker and/or Print Below)* A176434

Well Record

Regulation 903 Ontario Water Resources Act

Page 1 of 1

Well Owner's Information

First Name	Last Name / Organization	E-mail Address	☐ Well Constructed by Well Owner
	LYSTEK		

Mailing Address (Street Number/Name)	Municipality	Province	Postal Code	Telephone No. *(inc. area code)*
191 ECO-PARKWAY	DUNDALK	ON	N0C1B0	5199233539

Well Location

Address of Well Location (Street Number/Name)	Township	Lot	Concession
191 ECO-PARKWAY			

County/District/Municipality	City/Town/Village	Province	Postal Code
	DUNDALK	Ontario	N0C1B0

UTM Coordinates	Zone	Easting	Northing	Municipal Plan and Sublot Number	Other
NAD 83	17	549472	4890169		

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) From	Depth (m/ft) To
BROWN	SAND	GRAVEL	LOOSE	0	4.5

Annular Space

Depth Set at (m/ft) From	To	Type of Sealant Used *(Material and Type)*	Volume Placed (m^3/ft^3)
0	0.9	3/8 HOLE PLUG	<1
0.9	4.5	#2 SAND	<1

Method of Construction

☐ Cable Tool ☐ Diamond
☑ Rotary (Conventional) ☐ Jetting
☐ Rotary (Reverse) ☐ Driving
☐ Boring ☐ Digging
☐ Air percussion
☐ Other, *specify*

Well Use

☐ Public ☐ Commercial ☐ Not used
☐ Domestic ☐ Municipal ☐ Dewatering
☐ Livestock ☐ Test Hole ☑ Monitoring
☐ Irrigation ☐ Cooling & Air Conditioning
☐ Industrial
☐ Other, *specify*

Construction Record - Casing

Inside Diameter (cm/in)	Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness (cm/in)	Depth (m/ft) From	Depth (m/ft) To
5.7	PLASTIC		0	1.5

Construction Record - Screen

Outside Diameter (cm/in)	Material (Plastic, Galvanized, Steel)	Slot No.	Depth (m/ft) From	Depth (m/ft) To
6	PLASTIC	10	1.5	4.5

Status of Well

☐ Water Supply
☐ Replacement Well
☐ Test Hole
☐ Recharge Well
☐ Dewatering Well
☑ Observation and/or Monitoring Hole
☐ Alteration (Construction)
☐ Abandoned, Insufficient Supply
☐ Abandoned, Poor Water Quality
☐ Abandoned, other, *specify*
☐ Other, *specify*

Water Details

Water found at Depth (m/ft)	Kind of Water: ☐ Fresh ☐ Untested ☐ Gas ☐ Other, *specify*

Hole Diameter

Depth (m/ft) From	To	Diameter (cm/in)
0	4.5	15

Results of Well Yield Testing

After test of well yield, water was:
☐ Clear and sand free
☐ Other, *specify*

If pumping discontinued, give reason:

Pump intake set at *(m/ft)*

Pumping rate *(l/min / GPM)*

Duration of pumping ____ hrs + ____ min

Final water level end of pumping *(m/ft)*

If flowing give rate *(l/min / GPM)*

Recommended pump depth *(m/ft)*

Recommended pump rate *(l/min / GPM)*

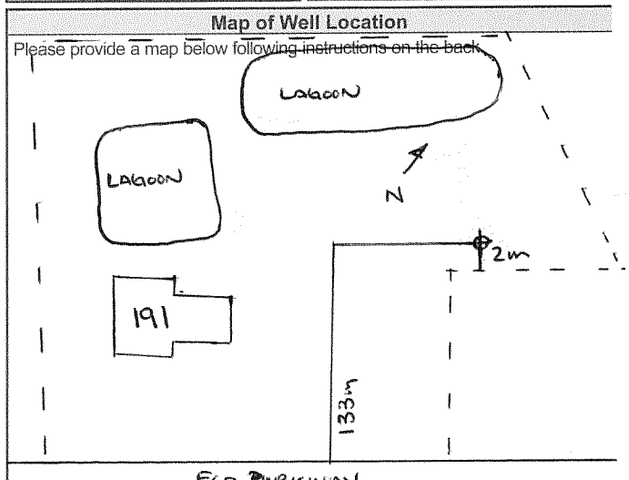
Well production *(l/min / GPM)*

Disinfected? ☐ Yes ☐ No

	Draw Down Time (min)	Draw Down Water Level (m/ft)	Recovery Time (min)	Recovery Water Level (m/ft)
Static Level				
1			1	
2			2	
3			3	
4			4	
5			5	
10			10	
15			15	
20			20	
25			25	
30			30	
40			40	
50			50	
60			60	

Map of Well Location

Please provide a map below following ~~instructions on the back~~.



Comments:

Well Contractor and Well Technician Information

Business Name of Well Contractor	Well Contractor's Licence No.
CMT DRILLING INC.	7366

Business Address (Street Number/Name)	Municipality
1011 INDUSTRIAL CRES	WATERLOO

Province	Postal Code	Business E-mail Address
ON	N0B2H0	CMTINC.NET

Bus. Telephone No. *(inc. area code)*	Name of Well Technician (Last Name, First Name)
5196995775	BLACK, CHRIS

Well Technician's Licence No.	Signature of Technician and/or Contractor	Date Submitted
3711	CB	2015/05/05

Well owner's information package delivered	Date Package Delivered	Date Work Completed
☐ Yes ☐ No		2015/04/29

Ministry Use Only

Audit No Z 207158

Received MAY 11 2015

Ministry's Copy

Ontario

Ministry of the Environment, Conservation and Parks

Measurements recorded in: ☑ Metric ☐ Imperial

Well Tag No. *(Place Sticker and/or Print Below)* A282537

Well Record

Regulation 903 Ontario Water Resources Act

Page 1 of 1

Well Owner's Information

First Name	Last Name / Organization	E-mail Address	☐ Well Constructed by Well Owner
	Township of Southgate		

Mailing Address (Street Number/Name)	Municipality	Province	Postal Code	Telephone No. *(inc. area code)*
157667 Grey County Road 9	Dundalk	ON	N0C 1B0	5199431110

Well Location

Address of Well Location (Street Number/Name)	Township	Lot	Concession
1530 m SE OF ROWES LN 590 m NE OF GREY COUNTY CP RAIL TRAIL			

County/District/Municipality	City/Town/Village	Province	Postal Code
	DUNDALK.	Ontario	

UTM Coordinates	Zone	Easting	Northing	Municipal Plan and Sublot Number	Other
NAD 83	17	550575	4891047		

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) From	To
BLACK	TOPSOIL			0	0.6
BROWN	SAND	SILT / GRAVEL		0.6	3.6
GREY	SILT TILL		DENSE	3.6	5.1

Annular Space

Depth Set at (m/ft) From	To	Type of Sealant Used *(Material and Type)*	Volume Placed (m^3/ft^3)
0	1.8	3/8 HOLEPLUG	L1
1.8	5.1	#2 SAND	L1

Method of Construction

☐ Cable Tool ☐ Diamond
☐ Rotary (Conventional) ☐ Jetting
☐ Rotary (Reverse) ☑ Driving
☐ Boring ☐ Digging
☐ Air percussion
☐ Other, *specify*

Well Use

☐ Public ☐ Commercial ☐ Not used
☐ Domestic ☐ Municipal ☐ Dewatering
☐ Livestock ☐ Test Hole ☑ Monitoring
☐ Irrigation ☐ Cooling & Air Conditioning
☐ Industrial
☐ Other, *specify*

Construction Record - Casing

Inside Diameter *(cm/in)*	Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness *(cm/in)*	Depth (m/ft) From	To
2.54	PLASTIC		0	2.1

Status of Well

☐ Water Supply
☐ Replacement Well
☐ Test Hole
☐ Recharge Well
☐ Dewatering Well
☑ Observation and/or Monitoring Hole
☐ Alteration (Construction)
☐ Abandoned, Insufficient Supply
☐ Abandoned, Poor Water Quality
☐ Abandoned, other, *specify*
☐ Other, *specify*

Construction Record - Screen

Outside Diameter *(cm/in)*	Material (Plastic, Galvanized, Steel)	Slot No.	Depth (m/ft) From	To
3.3	PLASTIC	10	2.1	5.1

Water Details

Water found at Depth (m/ft)	Kind of Water	
☐ Gas	☐ Fresh ☐ Untested	☐ Other, *specify*
☐ Gas	☐ Fresh ☐ Untested	☐ Other, *specify*
☐ Gas	☐ Fresh ☐ Untested	☐ Other, *specify*

Hole Diameter

Depth (m/ft) From	To	Diameter *(cm/in)*
0	5.1	10

Results of Well Yield Testing

After test of well yield, water was:
☐ Clear and sand free
☐ Other, *specify*

If pumping discontinued, give reason:

Pump intake set at *(m/ft)*

Pumping rate *(l/min / GPM)*

Duration of pumping ____ hrs + ____ min

Final water level end of pumping *(m/ft)*

If flowing give rate *(l/min / GPM)*

Recommended pump depth *(m/ft)*

Recommended pump rate *(l/min / GPM)*

Well production *(l/min / GPM)*

Disinfected? ☐ Yes ☐ No

	Draw Down Time *(min)*	Draw Down Water Level *(m/ft)*	Recovery Time *(min)*	Recovery Water Level *(m/ft)*
Static Level				
1			1	
2			2	
3			3	
4			4	
5			5	
10			10	
15			15	
20			20	
25			25	
30			30	
40			40	
50			50	
60			60	

Map of Well Location

Please provide a map below following instructions on the back.

SEE ATTACHED MAP

Comments:

CMT Drilling Inc. License No. 7366
1011 Industrial Cres, Unit 1, St. Clements
Ontario, N0B 2M0 cblack@cmtinc.net
519-699-5775 Black, Chris
3711 _____ 2020/01/22
Tech License No. Signature of Contractor Date Submitted

Licence No.

Well owner's information package delivered ☐ Yes ☐ No

Date Package Delivered Y Y Y Y M M D D

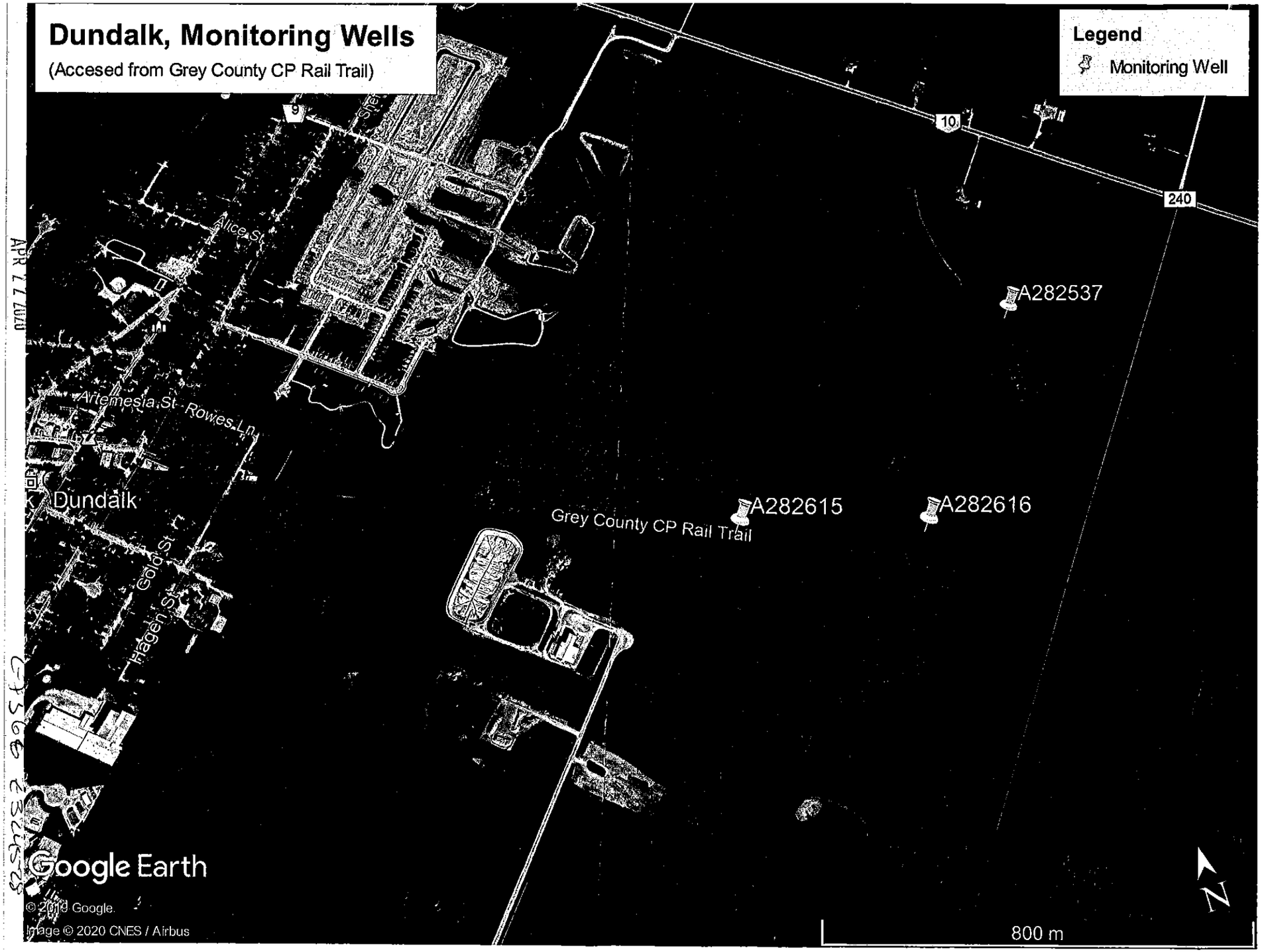
Date Work Completed 2020 06 06

Ministry Use Only

Audit No. Z324528

Received APR 22 2020

...y's Copy


Dundalk, Monitoring Wells
(Accesed from Grey County CP Rail Trail)
Legend
Monitoring Well
A282537
A282615
A282616
Grey County CP Rail Trail
Dundalk
Alice St
Artemesia St
Rowes Ln
Gold St
Hagen St
10
240
Google Earth
© 2019 Google
Image © 2020 CNES / Airbus
800 m
N

Ontario (https://www.ontario.ca/page/government-ontario)

Map: Well records

This map allows you to search and view well record information from reported wells in Ontario.

Full dataset is available in the Open Data catalogue (https://data.ontario.ca/dataset/well-records) .

Go Back to Map

Well ID

Well ID Number: 7357122
Well Audit Number: *Z324529*
Well Tag Number: *A282216*
This table contains information from the original well record and any subsequent updates.

Well Location

Address of Well Location	
Township	DUNDALK VILLAGE
Lot	
Concession	

County/District/Municipality	GREY
City/Town/Village	DUNDALK
Province	ON
Postal Code	n/a
UTM Coordinates	NAD83 — Zone 17 Easting: 550215.00 Northing: 4890067.00
Municipal Plan and Sublot Number	
Other	

Overburden and Bedrock Materials Interval

General Colour	Most Common Material	Other Materials	General Description	Depth From	Depth To
BLCK	LOAM			0 m	.6 m
BRWN	SAND	SILT	GRVL	.6 m	3.6 m
GREY	SILT	TILL		3.6 m	4.5 m

Annular Space/Abandonment Sealing Record

Depth From	Depth To	Type of Sealant Used (Material and Type)	Volume Placed
0 m	1.2 m	3/8 HOLEPLUG	
1.2 m	4.5 m	#2 SAND	

Method of Construction & Well Use

Method of Construction	Well Use
Driving	
	Monitoring

Status of Well

Observation Wells

Construction Record - Casing

Inside Diameter	Open Hole or material	Depth From	Depth To
2.54 cm	PLASTIC	0 m	1.5 m

Construction Record - Screen

Outside Diameter	Material	Depth From	Depth To
3.3 cm	PLASTIC	1.5 m	4.5 m

Well Contractor and Well Technician Information

Well Contractor's Licence Number: 7366

Results of Well Yield Testing

After test of well yield, water was	
If pumping discontinued, give reason	
Pump intake set at	
Pumping Rate	
Duration of Pumping	
Final water level	
If flowing give rate	
Recommended pump depth	
Recommended pump rate	

Well Production	
Disinfected?	

Draw Down & Recovery

Draw Down Time(min)	Draw Down Water level	Recovery Time(min)	Recovery Water level
SWL			
1		1	
2		2	
3		3	
4		4	
5		5	
10		10	
15		15	
20		20	
25		25	

30		30	
40		40	
45		45	
50		50	
60		60	

Water Details

Water Found at Depth	Kind

Hole Diameter

Depth From	Depth To	Diameter
0 m	4.5 m	10 cm

Audit Number: Z324529

Date Well Completed: January 14, 2020

Date Well Record Received by MOE: April 22, 2020

Related

How to use a Ministry of the Environment map (https://www.ontario.ca/page/how-use-ministry-environment-map#wells)

Technical documentation: Metadata record (https://data.ontario.ca/dataset/well-records/resource/3031344e-e3f2-48d5-888c-c1deadfd2f77)

Updated: October 18, 2021
Published: March 20, 2014

Ontario (https://www.ontario.ca/page/government-ontario)

Map: Well records

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Go Back to Map

Well ID

Well ID Number: 7357123
Well Audit Number: *Z324530*
Well Tag Number: *A282615*
This table contains information from the original well record and any subsequent updates.

Well Location

Address of Well Location	
Township	DUNDALK VILLAGE
Lot	
Concession	

County/District/Municipality	GREY
City/Town/Village	DUNDALK
Province	ON
Postal Code	n/a
UTM Coordinates	NAD83 — Zone 17 Easting: 549836.00 Northing: 4890177.00
Municipal Plan and Sublot Number	
Other	

Overburden and Bedrock Materials Interval

General Colour	Most Common Material	Other Materials	General Description	Depth From	Depth To
BRWN			FILL	0 m	1.67 m
BLCK				1.67 m	2.3 m
BRWN	SILT		SNDY	2.3 m	2.6 m

BRWN	SAND			2.6 m	3.6 m
GREY	SILT	TILL	DNSE	3.6 m	6.1 m

Annular Space/Abandonment Sealing Record

Depth From	Depth To	Type of Sealant Used (Material and Type)	Volume Placed
0 m	2.4 m	3/8 HOLEPLUG	
2.4 m	6.1 m	#2 SAND	

Method of Construction & Well Use

Method of Construction	Well Use
Driving	
	Monitoring

Status of Well

Observation Wells

Construction Record - Casing

Inside Diameter	Open Hole or material	Depth From	Depth To	

2.54 cm	PLASTIC	0 m	3 m

Construction Record - Screen

Outside Diameter	Material	Depth From	Depth To
3.3 cm	PLASTIC	3 m	6.1 m

Well Contractor and Well Technician Information

Well Contractor's Licence Number: 7366

Results of Well Yield Testing

After test of well yield, water was	
If pumping discontinued, give reason	
Pump intake set at	
Pumping Rate	
Duration of Pumping	
Final water level	

If flowing give rate	
Recommended pump depth	
Recommended pump rate	
Well Production	
Disinfected?	

Draw Down & Recovery

Draw Down Time(min)	Draw Down Water level	Recovery Time(min)	Recovery Water level
SWL			
1		1	
2		2	
3		3	
4		4	
5		5	
10		10	

15		15	
20		20	
25		25	
30		30	
40		40	
45		45	
50		50	
60		60	

Water Details

Water Found at Depth	Kind

Hole Diameter

Depth	Depth	Diameter

From	To	
0 m	6.1 m	10 cm

Audit Number: Z324530

Date Well Completed: January 14, 2020

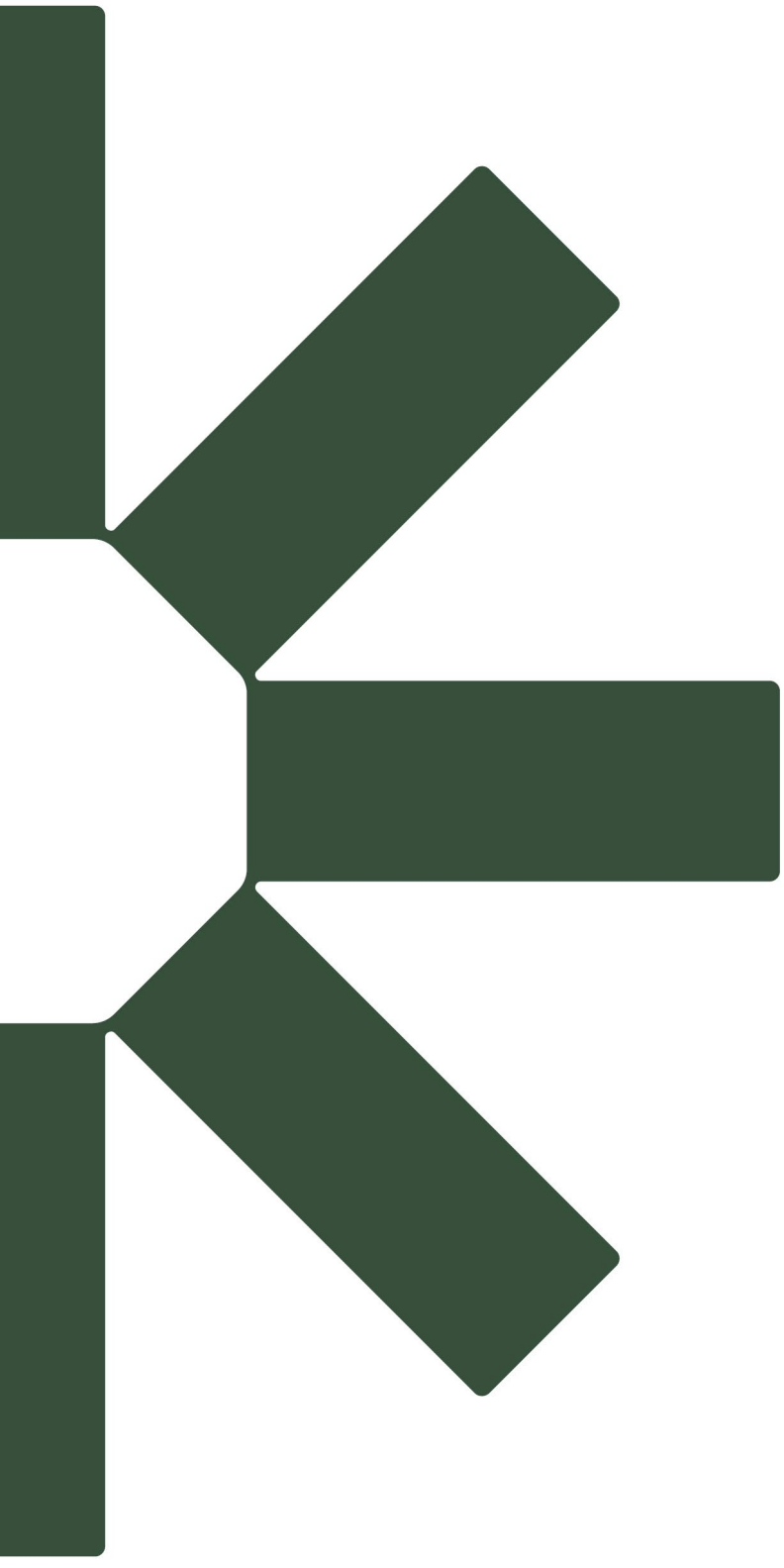
Date Well Record Received by MOE: April 22, 2020

Related

How to use a Ministry of the Environment map (https://www.ontario.ca/page/how-use-ministry-environment-map#wells)

Technical documentation: Metadata record (https://data.ontario.ca/dataset/well-records/resource/3031344e-e3f2-48d5-888c-c1deadfd2f77)

Updated: October 18, 2021
Published: March 20, 2014



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