September 19, 2025

PATERSON GROUP

PH4650-LET.01-REV.03

Brofort Investments Inc. 2161 Thurston Drive Ottawa, Ontario K1G 6C9

Attention: Phil Klugman

Subject: Septic Impact Assessment (Terrain Analysis)

Proposed Commercial Development 6165 Thunder Road, Ottawa, Ontario

#### **Consulting Engineers**

9 Auriga Drive Ottawa, Ontario K2E 7T9 Tel: (613) 226-7381

Geotechnical Engineering
Environmental Engineering
Hydrogeology
Materials Testing
Building Science
Rural Development Design
Retaining Wall Design
Noise and Vibration Studies

patersongroup.ca

Dear Phil Klugman,

Further to your request, Paterson Group (Paterson) has conducted a review of the area to determine the extent of system isolation based on geological conditions for the proposed development at the aforementioned site. The argument of reasonable use in this case is based on system isolation due to municipal water servicing and aquifer isolation of possible nearby potable supply wells.

#### Introduction

Paterson was retained by Brofort Investments Inc. to conduct a site-specific reasonable use assessment in support of a proposed commercial development to be located at 6165 Thunder Road in Ottawa. Please refer to the Key Plan attached for the approximate Site location. Paterson determined that an acceptable approach for the Terrain Analysis would be using the basis of system isolation, as the area surrounding the subject site is serviced by municipal water supply (Carlsbad Trickle Feed System), private septic systems, is underlain by a large clay deposit and any potentially impacted nearby potable supply wells are either upgradient or cross-gradient. Subject Site refers to the parcel at 6165 Thunder Road.

#### Hydrogeological Pre-consultation

A Hydrogeological Pre-consultation was completed with a City of Ottawa Hydrogeologist on December 2, 2022. Additional discussions were completed up to the time of writing this report. As per the discussions, the bedrock groundwater aquifer in the area is known for its poor quality, which is why the Carlsbad Trickle System was installed. As per the



results of a door-to-door survey, two dug wells were identified across a mapped watercourse from the subject site. As a massive clay layer is noted to extend from approximately 1.5 m below ground surface (bgs) to greater than 10 m bgs, any drilled wells are considered to be hydrogeologically isolated from a surficial receiving aquifer. Dug wells are required by O.Reg 903 to be constructed with a suitable sealant from 2.5 m bgs to the ground surface. The two existing nearby dug wells are on the opposite side of a mapped watercourse from the subject site, which was observed to flow southwest. As the surficial drainage direction of the properties with the dug wells and the subject site is towards the mapped watercourse, but on opposite sides of the watercourse, septic impacts due to an onsite sewage system are not anticipated to affect the dug wells.

#### **Site Conditions**

#### **Property Description**

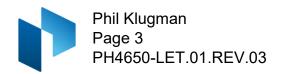
The subject site is situated between Boundary Road and Thunder Road, with the highway 417 on/off-ramp to the north. It is proposed that a commercial development consisting of one warehouse building with two units, each with two loading bays and associated parking lot be constructed on the existing parcel. The municipal address is 6165 Thunder Road, and the lot is approximately 1.65 hectares (ha) in area. Currently, the property is undeveloped.

#### **Surface Conditions**

Based on Paterson's review of the available topographic survey information, ground surface at the subject site is generally flat and is at grade with the surrounding roadways and properties. On-site drainage is gravity controlled and will be designed to be directed toward the municipal right-of-way through surficial swales. Onsite overburden flows are anticipated to be in the northwestern direction towards a mapped watercourse which then travels southwest offsite. The subject site is surrounded by ditches which are all mapped to drain into the mapped watercourse. Groundwater flow direction in the mapped watercourse was observed to flow southwest. General groundwater flow direction is anticipated to be west towards the various unnamed tributaries of the Bear Brook Municipal Drain.

#### **Surrounding Land Uses**

The subject site is situated in a rural area which is serviced by a municipal water supply or private water supplies and private on-site septic. The Site is bordered to the north by the Highway 417, to the east by Boundary Road followed a commercial warehouse, to the south by Thunder Road followed by a gas station and residential and commercial buildings, and to the west by Thunder Road followed by undeveloped and forested lands with residential dwellings to the north-west.



#### **Carlsbad Trickle System**

The Carlsbad Trickle system is a network of small diameter pipes which supplies drinking water from the City of Ottawa's central distribution system. It was needed to address widespread well-water quality and quantity problems in a specific area. As the Carlsbad Trickle System supplies water to this area, it is a strong indicator that there is poor well water quality and/or quantity. As such, there is a reduced potential that dwellings are supplied by a private water supply. Based on the City of Ottawa Water Service Locations Plan (attached), most of the properties in the area are serviced by the Carlsbad Trickle System.

#### **Door-to-Door Survey**

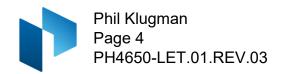
A door-to-door survey was completed in an attempt to determine the nature of the private water servicing of the properties mapped to be on private services. The door-to-door survey was completed on December 9, 2022 where it was observed that 6120 and 6130 Thunder Road are privately serviced by surficial (dug) wells. 5336 Boundary Road is occupied by a gas station and was observed to be privately serviced by a drilled well with significant treatment requirements. 5348 Boundary Road was an unoccupied lot with no visible private servicing, and 6000 Thunder Road did not have any visible wells nor did they respond to outreach.

#### **Geology**

#### **Surficial and Bedrock Geology**

Paterson reviewed the available geological mapping provided by the Ontario Geological Survey (OGS MRD128) and found it to be generally consistent with the available historical surrounding Water Well Records (WWR). The mapping indicates that a coarse-textured glaciomarine deposit consisting of a sand, gravel, minor silt and clay occupies the entirety of the subject site. The surrounding WWR's indicate a deep clay deposit underlies the shallow coarse-grained layer.

Paterson drilled four (4) boreholes at 6165 Thunder Road on October 25, 2022, spaced in such a way as to provide general coverage, as part of a Geotechnical field program. The boreholes were extended to depths between 5.9 and 7.6 m below ground surface (bgs). The subsurface profile was consistent across all of the boreholes and consisted of a fill layer, underlain by a silty sand layer, and further underlain by a thick clay layer. The fill layer was observed in all boreholes and extended to depths between 0.8 and 1.2 m bgs. The underlying sand layer was observed to extend to a depth of 1.2 to 1.5 m bgs. The clay layer onsite extended from 1.2 m bgs to more than 7.6 m bgs. The results from the boreholes are consistent with the information available from surrounding WWR's. Please refer to the attached Paterson borehole logs and Paterson's Drawing PG6430-1-Test Hole Location Plan attached to this report for additional details.



A drilled water supply well was installed onsite on March 2, 2023. The drilled water supply well with WWR ID A342424 was recorded to encounter water at a depth of 53 m bgs, with the clay extending to a depth of 23.2 m bgs. The onsite WWR demonstrates a sufficient thickness (>10 m) to be used in support of system isolation in accordance with the City of Ottawa Hydrogeological Assessment and Terrain Analysis Guidelines (HTAG).

A cross section of the available WWR's was completed to demonstrate the continuity of the underlying deep clay deposit. Paterson drawing PH4650-2-Cross Section A-B-C and PH4650-3 Cross Section C-D can be found attached to this report. Clay thicknesses on available WWR's have been identified where able and presented on Paterson drawing PH4650-1- Site Plan, attached. The cross-sections show that the clay layer is 21 to 29 m thick across an approximately 1,825 m wide cross-section, which demonstrates sufficient clay thickness and lateral extent for isolation purposes.

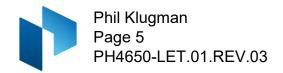
Available bedrock geological mapping provided by the Ontario Geological Survey (MRD 219) indicates that the bedrock underlying the subject site consists of shale and limestone of the Carlsbad Formation. Available overburden thickness mapping shows a drift thickness of 25 to 50 m across the subject site.

#### Hydrogeology

Based on the topographic relief of the area and available groundwater flow direction mapping, the onsite overburden groundwater flow direction is expected to trend towards the northwest of the property. The general overburden flow direction is anticipated to be towards the west towards the various unnamed tributaries of the Bear Brook Municipal Drain. As the overburden deposit is mapped to consist of a thin layer of sand underlain by a thick layer of clay, the surficial overburden aquifer is anticipated to be shallow. The underlying thick clay layer is anticipated to isolate the shallow receiving layer from the aquifers accessed by local wells.

A mapped watercourse runs along the northernmost portion of the subject site. Paterson completed site visits to observe the watercourse, which was confirmed to be flowing towards the southwest. A mapped ditch along the northern part of thunder road, which is located in front of the residences on dugs wells (6140 and 6130 Thunder Road), was observed to flow from the northwest towards the southeast along Thunder Road, where it joins the mapped watercourse heading southwest. Any local surficial flows are anticipated to flow into the mapped watercourse which travels southwest from the subject site.

With respect to existing aquifers in the area, as the shallow overburden aquifer (receiving aquifer) was identified to be very shallow (in the sand layer above the clay, with a maximum depth of 1.5 m bgs according to onsite boreholes). The overburden, consisting of sand, gravel, and silt acts as the receiving aquifer, and is hydrologically isolated from the clay and bedrock aquifers due to the low permeability of the clay layer.



#### **Hydrogeological Sensitivity**

As the proposed site does not have bedrock within 2 m of the ground surface, the site is not considered hydrogeologically sensitive. Any new sewage systems shall be designed in accordance with Part 8 of the Ontario Building Code.

#### **Surrounding Water Well Records**

A search of the Ministry of the Environment, Conservation and Parks water well records (WWR) resulted in 2 WWR's within a 500 m radius of the subject site. Both WWR's are for drilled potable supply wells. The most recent WWR for a potable supply well was completed in 2018. The historical well depths for the domestic wells ranged from 30.5 m bgs to 61 m bgs. All WWR's can be found attached to this report. Only one of the available WWR's is currently believed to be in use in the area due to municipal water servicing and potential water quality issues within the underlying bedrock aquifer. Two properties approximately 350 m to the northwest of the subject site are not serviced by municipal supply, according to water service location mapping supplied by the City of Ottawa. As per Paterson's door-to-door survey, those two properties use shallow dug wells as supply wells.

Based on the measurements on the drawing on the WWR, it is believed that the WWR with WWR ID 1525164 is associated with the well located on 5336 Boundary Road, which is a gas station. The soil descriptions on the WWR shows that the top 21.3 m of overburden consists of silty clay, which is impermeable compared to other materials. Furthermore, the well casing goes down to 23.5 m bgs, which extends to the bedrock. The thick layer of clay and long well casing suggest that, even though the property is not municipally serviced, it can be considered an isolated system.

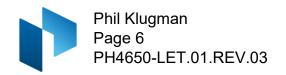
#### **Karst Features**

The term "karst" refers to a geologic formation characterized by the dissolution of carbonate bedrock, such as limestone or dolostone. In order for karstification to occur, precipitation must be allowed to infiltrate the top of the bedrock to dissolutionally enlarge previously existing joints and bedding planes. Based on available mapping by the Ontario Geological Survey, there is no inferred, potential or known karstification in the subject area.

#### **System Isolation**

A review of available information was undertaken to assess if there were any sensitive receptors in proximity to the subject site and if there were the appropriate geological conditions in the area to meet isolation of the proposed sewage system from the underlying water supply aquifer.

Based on the topographic relief of the area and available groundwater flow direction mapping, the general onsite overburden groundwater flow direction is expected to trend



in a northwesterly direction towards the mapped watercourse, which then flows west towards the various unnamed tributaries of the Bear Brook Municipal Drain. As the overburden deposit is recorded to consist of sand, silt, and gravel overlying clay, the overburden (receiving) aquifer is anticipated to be shallow while the overburden supply aquifer in the clay layer is not anticipated to be shallow.

Paterson completed a site visit to determine the subsoil within the mapped watercourse to confirm hydrogeological isolation of the adjacent residential properties to the north. The base of the watercourse contained a thin layer of silty sand overlying a deep deposit of silty clay. A test hole was completed on the north side of the watercourse which noted 0.45 m of silty sand overlying 0.32 m of silty clay where the hole was terminated. The clay layer in the test hole was encountered at 76.02 m above sea level. Another test hole was completed in the watercourse. A small layer of organics mixed with sediments directly overlaid a silty clay layer at the base of the watercourse. The clay layer underlying the watercourse was encountered at 76.04 m asl. The thick silty clay layer is noted to extend at a consistent elevation beneath the watercourse and the surrounding silty sand layer, and the sand layer was noted to be absent in the watercourse. The information indicates the overburden groundwater at the subject site is hydrogeologically separated from the residential lots to the northwest.

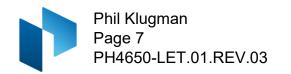
The only adjacent or downgradient residential properties within 500 m of the subject site are 6116, 6120, 6130, and 6140 Thunder Road to the northwest, and 5368 and 5376 Boundary Road to the south. Commercial properties in the surrounding area include 6150 Thunder Road, and 5336 Boundary Road, and a number of upgradient / cross gradient commercial buildings located to the south. Of the aforementioned residential properties, 6116 and 6140 Thunder Road are mapped to be on municipal services.

It is known that many of the surrounding properties have been serviced by municipal water connections, and those that are not municipally serviced, should have access to a municipal water connection. The onsite overburden flow direction is expected in a northwesterly direction towards the mapped watercourse, and the general overburden flow direction is anticipated be west towards the various unnamed tributaries of the Bear Brook Municipal Drain. The only potential downgradient receptor from the subject site is 6150 Thunder Road, which is anticipated to be municipally serviced.

The residences located at 6116, 6120, 6130, and 6140 Thunder Road are all considered cross gradient as both the residences and the subject site have an overburden flow direction towards the mapped watercourse, but on opposite sides from each other.

All properties to the south and east are anticipated to be upgradient or cross gradient of the subject site and, therefore, potential septic impacts from the subject site are expected to be negligible.

A door-to-door survey was performed on December 9, 2022 to attempt to identify dug wells on properties that were not municipally serviced. Based on available aerial imaging, google street view, and a door-to-door survey, two dug wells and a drilled well exists in



the vicinity of the subject site. The dug wells were located at 6120, and 6130 Thunder Road, and the drilled well is located at 5336 Boundary Road. The two dug wells and the drilled well are considered either upgradient or cross gradient from the subject site.

#### 5336 Boundary Road

A WWR (No. 1525164) for 5336 Boundary Road was found using the MECP WWR mapping tool. 5336 Boundary Road is occupied by a gas station and is located across Thunder Road from the subject site. According to available mapping and field observations, 5336 Boundary Road is anticipated to be upgradient from the subject site. From on-site investigations, a drilled well casing was found which matched the location on the WWR. According to the WWR, a thick layer of clay extends to 21.3 m bgs followed by a 2.2 m layer of packed gravel, and effectively isolates the supply aquifer from the receiving aquifer. From the WWR, the drilled well has a depth of 30.5 m bgs with a 23.5 m steel casing which further isolates the well from the overburden receiving aquifer.

#### 6120 and 6130 Thunder Road

WWRs for 6120 and 6130 were not available on the MECP online WWR mapping tool. The properties are located approximately 300-350 m to the northwest of the subject site. According to the door-to-door survey results, the properties are serviced by shallow or dug wells. There is a mapped water course that flows northeast to southwest located between 6120 and 6130 Thunder Road and the subject site. The ditches located in front of 6120 and 6130 Thunder Road were observed to flow from northwest to southeast towards the mapped watercourse. Therefore, 6120 and 6130 Thunder Road are considered cross-gradient from the subject site rather than downgradient.

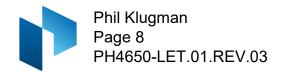
As there is a thick clay layer underlying the shallow sand layer on the subject site, it is anticipated that the surficial receiving aquifer is isolated from the supply aquifer. Therefore, due to the distance from the subject site, the surficial geology, the O.Reg 903 dug well requirements, and the watercourse between the aforementioned properties and the subject site, the aforementioned properties can be considered as isolated systems from the subject site.

#### **City of Ottawa Three-Step Assessment Process**

The City of Ottawa stipulates the use of a three-step assessment process which is outlined in the Hydrogeological and Terrain Analysis Guidelines (HTAG) dated March 2021. The three-step assessment process looks at Lot Size Considerations, System Isolation Characteristics, and Contaminant Attenuation Considerations.

#### Lot Size Considerations

As the subject site is approximately 1.65 ha in size, it is greater than the minimum lot size of 1 ha. However, as the subject site will be used for commercial purposes rather than residential, the lot size consideration is not applicable.



#### System Isolation Characteristics

Should a System Isolation approach be considered, the City asks that the consultant demonstrate system isolation using multiple lines of evidence.

In the case of the proposed commercial development, potential septic impacts would occur downgradient from the subject site. The onsite overburden flow direction is expected to trend in a northwesterly direction towards a mapped watercourse which then flows from the northeast to the southwest. General groundwater flow direction is anticipated to be west towards the various unnamed tributaries of the Bear Brook Municipal Drain.

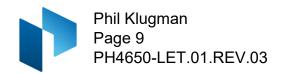
The only lot which is considered downgradient is 6150 Thunder Road. There are a number of cross gradient and upgradient lots from the subject site including: 6166, 6120, 6130, and 6140 Thunder Road. Of the cross gradient sites, 6166, 6140, and 6150 Thunder Road are mapped to be on municipal servicing from the Carlsbad Trickle System.

The onsite surficial flow from 6120 and 6130 Thunder Road is anticipated to be in a southeasterly direction towards the surficial water course, which then flows to the southwest. The general groundwater flow direction is anticipated to be west towards the various unnamed tributaries of the Bear Brook Municipal Drain.

The mapped watercourse which flows from the northeast to the southwest separates 6120 and 6130 Thunder Road from the subject site. The watercourse effectively makes the downgradient sites cross gradient from the subject site, therefore, making them isolated systems. Furthermore, due to the shallow silty sand layer underlain by the thick silty clay layer beneath the watercourse, it is not anticipated that any flows from the subject site would cross the watercourse, further supporting the cross gradient flows and system isolation.

Surficial geology mapping from the OGS notes that a coarse-textured glaciomarine deposit consisting of a sand, gravel, minor silt and clay occupies the entirety of the subject site. The surrounding WWR's indicate a deep clay deposit that underlies the shallow coarse-grained layer, which is corroborated by the onsite WWR. The deep clay deposit effectively separates the shallow receiving aquifer from the deeper supply aquifer, resulting in an isolated system. Due to the low hydraulic conductivity of clay, the outflow from the subject site is anticipated to remain in the sand and gravel receiving aquifer and is unlikely to pass through the clay layer. Therefore, the proposed site would act as an isolated system with respect to the neighbouring properties regardless of whether the neighbouring properties were supplied by municipal or private potable water sources as the receiving aquifer is isolated from the supply aquifer.

Furthermore, as the local water course runs southwest between the subject site and the residential properties to the northwest, the water course would intercept any surficial



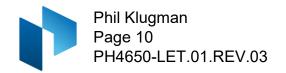
septic discharge moving downgradient. This would cause the north-western properties to effectively be cross gradient from the subject site, and, therefore, act as isolated systems.

As the Carlsbad Trickle System services the area, and the purpose of the Carlsbad trickle system is to provide potable water to areas which have known poor water quality, it is unlikely that any new wells will be installed in the future.

As the proposed commercial development meets the requirements for system isolation, the third step of the City of Ottawa's Reasonable Use Assessment (Contaminant Attenuation Considerations) was not completed.

#### **Development Considerations**

The onsite sewage disposal needs can be accommodated by a conventional Class 4 Sewage System or a sewage system utilizing tertiary treatment technologies, as per OBC criteria. Standard Class 4 systems with tertiary treatment typically include a treatment unit between the septic tank and the leaching bed. Tertiary sewage treatment technologies are accepted in the OBC. It should be noted that tertiary treatment systems require a contract to perform annual maintenance.



#### **Conclusions**

The following statements and conclusions are based upon a review of the available information and analysis contained within this letter report:

	The subject site is generally suitable for development based upon its location,
_	topography, and surrounding land uses from a system isolation perspective.
	The Carlsbad Trickle System provides a municipal water supply to the surrounding
	area due to the generally poor water quality encountered in the underlying bedrock aquifer. The surrounding lots in the area have the ability to be serviced by
	municipal water supply.
	A review of adjacent WWRs indicate that a thick clay layer underlies the subject
	site and surrounding lots.
	Two shallow potable water supply wells, 6120 and 6130 Thunder Road, were
	confirmed by a door-to-door survey in proximity to the site
	While 6120 and 6130 Thunder Road are serviced by dug wells, due to the
	watercourse between the subject site and the aforementioned properties resulting
	in the site's cross gradient location, the significant distance from the subject site,
	the requirements for the sealing of dug wells, and deep clay overburden with low
	hydraulic conductivity, 6120 and 6130 Thunder Road present a low potential for related impacts.
	Onsite sewage disposal needs can be accommodated with a Class 4 Sewer
	System utilizing tertiary treatment technologies or a conventional sewage system.
	The construction of an onsite sewage system is not anticipated to affect the
	performance or water quality associated with any nearby drilled or dug wells,
	contingent upon the onsite sewage system being designed in accordance with Part
	8 of the Ontario Building Code (i.e properly sized sewage system and conforming
	to all separation distances).
_	The subject site is sufficient in size to accommodate a new sewage system and meet all the regulatory separation criteria.
	A Sewage System permit and Building Permit need to be issued prior to the
	commencement of construction on any future building(s) or any new septic
	system(s).
	Based on the review of the system isolation of the adjacent properties, the only
	potential downgradient receptor (6150 Thunder Road) was determined to be in a
	municipally serviced by the Carlsbad Trickle System. As such, the subject site
	located at 6165 Thunder Road presents a low potential for related septic impacts.



Based on the results of the review, it is our opinion that the proposed property meets the standard from a site-specific system isolation assessment. There are no sensitive receptors nearby or in the downgradient direction within the same aquifer. The subject site can adequately support the proposed lot without having a negative impact on the groundwater supply aquifer with the use of a sewage system designed in accordance with OBC.

We trust that the current submission satisfies your immediate requirements.

Best Regards,

Paterson Group Inc.

Alexander Schopf, PhD, EIT

September 19, 2025 TERIK ARDLEY
PRACTISING MEMBER
3667

Erik Ardley, P.Geo

#### Attachments:

- □ Paterson Key Plan
- Paterson Test Hole Logs
- ☐ MECP Water Well Records (Surrounding 500 m radius)
- ☐ City of Ottawa Water Service Locations Plan
- ☐ PG6430-1-Test Hole Location Plan
- ☐ PH4650-1- Site Plan
- ☐ PH4650-2- Cross Section A-B-C
- ☐ PH4650-3- Cross Section C-D
- ☐ Stewart + Tsai Architects Inc Proposed Site Plan



### FIGURE 1

**KEY PLAN** 



Proposed Warehouse Complex - 6165 Thunder Road

9 Auriga Drive, Ottawa, Ontario K2E 7T9

**Geotechnical Investigation** Ottawa, Ontario

**SOIL PROFILE AND TEST DATA** 

**DATUM** Geodetic FILE NO. **PG6430 REMARKS** HOLE NO. **BH 1-22 BORINGS BY** Track-Mount Power Auger DATE October 25, 2022 **SAMPLE** Pen. Resist. Blows/0.3m Piezometer Construction STRATA PLOT DEPTH ELEV. **SOIL DESCRIPTION** 50 mm Dia. Cone (m) (m) N VALUE or RQD RECOVERY NUMBER Water Content % **GROUND SURFACE** 80 20 0 + 77.05FILL: Brown silty sand with gravel, 1 Ö cobbles, trace clay and organics 1+76.05SS 2 67 6 Loose, dark brown SILTY SAND, trace clay and gravel SS 3 83 3 0 2 + 75.05Firm, reddish brown SILTY CLAY SS 4 83 Ρ 3 + 74.05- grey by 3.0m depth SS 5 Ρ 75 Ò. 4+73.055 + 72.05SS 6 100 Ρ End of Borehole (GWL @ 0.89m - Nov. 2, 2022) 20 40 60 80 100 Shear Strength (kPa) ▲ Undisturbed △ Remoulded

**SOIL PROFILE AND TEST DATA** 

9 Auriga Drive, Ottawa, Ontario K2E 7T9

Geotechnical Investigation Proposed Warehouse Complex - 6165 Thunder Road Ottawa, Ontario

**DATUM** Geodetic FILE NO. **PG6430 REMARKS** HOLE NO. **BH 2-22 BORINGS BY** Track-Mount Power Auger DATE October 25, 2022 **SAMPLE** Pen. Resist. Blows/0.3m Piezometer Construction STRATA PLOT DEPTH ELEV. **SOIL DESCRIPTION** 50 mm Dia. Cone (m) (m) N VALUE or RQD RECOVERY NUMBER **Water Content % GROUND SURFACE** 80 20 0 + 77.01FILL: Brown silty sand with gravel, O 1 trace clay and organics 0.69 Compact, brown SILTY SAND, trace 1 + 76.01SS 2 clay, gravel, organics 50 12 1.45 SS 3 100 2 Ö 2 + 75.01SS Ρ Soft to firm, brown SILTY CLAY 4 100 0 3 + 74.01- grey by 3.0m depth 4 + 73.015 + 72.015 SS 100 Ρ Ò 6+71.01 $7 \pm 70.01$ 6 Р SS 100 End of Borehole (GWL @ 7.53m - Nov. 2, 2022) 20 40 60 100 Shear Strength (kPa) ▲ Undisturbed △ Remoulded

SOIL PROFILE AND TEST DATA

Proposed Warehouse Complex - 6165 Thunder Road

9 Auriga Drive, Ottawa, Ontario K2E 7T9

Geotechnical Investigation Ottawa, Ontario

**DATUM** Geodetic FILE NO. **PG6430 REMARKS** HOLE NO. **BH 3-22 BORINGS BY** Track-Mount Power Auger DATE October 25, 2022 **SAMPLE** Pen. Resist. Blows/0.3m Piezometer Construction STRATA PLOT DEPTH ELEV. **SOIL DESCRIPTION** 50 mm Dia. Cone (m) (m) RECOVERY N VALUE or RQD NUMBER **Water Content % GROUND SURFACE** 80 20 0+76.89Ö FILL: Brown silty sand with gravel, 1 some clay, organics and concrete 1.07 1+75.892 SS 75 14 Compact, brown SILTY SAND 1.27 SS 3 100 4 O 2 + 74.89SS 4 100 Ρ 3+73.89Firm, brown SILTY CLAY SS 5 Ρ 100 - grey by 3.7m depth 4+72.895 + 71.89- soft to firm by 5.3m depth 6+70.897 + 69.89SS 6 8 Ρ 0 End of Borehole (GWL @ 1.09m - Nov. 2, 2022) 20 40 60 80 100 Shear Strength (kPa) ▲ Undisturbed △ Remoulded

**SOIL PROFILE AND TEST DATA** 

**Geotechnical Investigation** 

Proposed Warehouse Complex - 6165 Thunder Road 9 Auriga Drive, Ottawa, Ontario K2E 7T9 Ottawa, Ontario

**DATUM** Geodetic FILE NO. **PG6430 REMARKS** HOLE NO. **BH 4-22 BORINGS BY** Track-Mount Power Auger DATE October 25, 2022 **SAMPLE** Pen. Resist. Blows/0.3m Piezometer Construction STRATA PLOT **DEPTH** ELEV. **SOIL DESCRIPTION** 50 mm Dia. Cone (m) (m) N VALUE or RQD RECOVERY NUMBER **Water Content % GROUND SURFACE** 80 20 0+76.71FILL: Brown silty sand with gravel, XXX AU 1 Ю some clay, organics, cobbles, trace concrete Loose, brown SILTY SAND to **SANDY SILT** 1+75.71SS 2 5 75 1.17 0 SS 3 Ρ 17 2 + 74.71Stiff to firm, brown SILTY CLAY SS 4 17 Ρ 0 3+73.71- soft and grey by 3.0m depth SS 5 Ρ 100 Ö. 4+72.715 + 71.716 + 70.71SS 6 100 Р <u>.</u> End of Borehole (GWL @ 5.07m - Nov. 2, 2022) 20 40 60 100 Shear Strength (kPa) ▲ Undisturbed △ Remoulded

1512885 The Ontario Water Resources Commission Act

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31 0000000228	1 0035 28 1 1 010	16205 1 0255	2/5		
32	21 32	43	DRD Z SIZE(S) OF OPENING	65 31-33 DIAMETER 34-38	75 80 8 LENGTH 39-40
WATER RECO	INSIDE	WALL DEPTH - FEE	T MATERIAL AND TO	INCHE PE DEPTH TO TO OF SCREEN	ES FEET P 41-44 80
10-13 1 FRESH 3 [	SULPHUR INCHES	12 OG	S S S S S S S S S S S S S S S S S S S	OF SCREEN	FEET
15-18 1 FRESH 3	SULPHUR MINERAL  SULPHUR MINERAL  MINERAL	188 0 7	61 PLUGG DEPTH SET AT - FE	ING & SEALING	RECORD
20-23 1 FRESH 3 [	SULPHUR  AMINERAL  SULPHUR  CONCRETE	18861	OFFICIAL OF	MATERIAL AND TYPE	AD-PACKER, ETC.)
25-28 1 FRESH 3 [	SULPHUR 29 MINERAL 29 24-25 1 STEEL	26	100	AND ME	ン/ Wナ・
	SULPHUR 34 80 3 CONCRETE	127-	26-29	**************************************	
30-33 1 FRESH 3 2 SALTY 4	MINERAL 4	1	7 1 22023	JII DMY D	
2 SALTY 4 □	O PUMPING RATE 11-14 DURATION OF	1 1	LOCATI	ON OF WELL	
2 SALTY 4 7	O PUMPING RATE 11-14 DURATION OF GPM.	15-16 00 17-18 HOURS 00 MINS.	IN DIAGRAM BELOW SHOW	DISTANCES OF WELL FROM ROAD AI	
2 SALTY 4 TO THE PUMP TEST METHOD TO THE PUMP 2 BAILER	O PUMPING RATE 11-14 DURATION OF GPM. 25 WATER LEVELS DURING 1	15-16 OO MINS. PUMPING RECOVERY	IN DIAGRAM BELOW SHOW	DISTANCES OF WELL FROM ROAD AL	
2 SALTY 4 7 7 PUMPING TEST METHOD 1 1 PUMP 2 BAILER  STATIC END OF PUMPING 22-2  19-21 190-22-2  190-22-2	11-14   DURATION OF GPM.   25   WATER LEVELS DURING   1   15   MINUTES   29-21   29-	15-16	IN DIAGRAM BELOW SHOW LOT LINE. INDICATE NORTH	DISTANCES OF WELL FROM ROAD AI	Z .
2 SALTY 4 7 7 PUMPING TEST METHOD 1 1 PUMP 2 BAILER  STATIC END OF PUMPING 22-2  19-21 190-22-2  190-22-2	DEPTH OF THE PROPERTY OF THE P	15-16	IN DIAGRAM BELOW SHOW LOT LINE. INDICATE NORTH	DISTANCES OF WELL FROM ROAD AI	
2 SALTY 4	MINERAL  O PUMPING RATE	15-16	IN DIAGRAM BELOW SHOW LOT LINE. INDICATE NORTH	DISTANCES OF WELL FROM ROAD AI	20
PUMPING TEST METHOD  1 PUMP  STATIC LEVEL  9-21  PEET  FEET  FEET  FEET  SHALLOW  DEEP  50-53  GIVE RATE  GPN  SHALLOW  DEEP  54	PUMPING RATE  11-14 DURATION OF  GPM.  25 WATER LEVELS DURING  15 MINUTES 29 28 9 9 FEET  41 PUMP INTAKE SET AT  M. RECOMMENDED PUMP SETTING  RECOMMENDED PUMP INTAKE SET AT  RECOMMENDED PUMP INTAKE SET AT  RECOMMENDED PUMP INTAKE SET AT  RECOMMENDED PUMP INTAKE SETTING  FEET  RECOMMENDED PUMPING SETTING  FEET  RECOMMENDED PUMPING SETTING  FEET  RECOMMENDED SETTING  FEET  RECOMMEND  FEET  FE	15-16 HOURS	IN DIAGRAM BELOW SHOW LOT LINE. INDICATE NORTH	DISTANCES OF WELL FROM ROAD AI BY ARROW.  CUMBERLAN  TWP	Z .
PUMPING TEST METHOD  1 PUMP 2 BAILER  STATIC WATER LEVEL END OF PUMPING  19-21 22-2  19-21 22-2  19-21 22-2  19-21 22-2  19-21 22-2  19-21 22-2  STATIC END OF PUMPING  19-21 22-2  STATIC END OF PUMPING  GIVE RATE  GPN  RECOMMENDED PUMP TYPE  SHALLOW DEEP  50-53 G  FINAL  STATUS  3 TES	DEPUMPING RATE  O PUMPING RATE	15-16 HOURS	IN DIAGRAM BELOW SHOW LOT LINE. INDICATE NORTH	DISTANCES OF WELL FROM ROAD AI BY ARROW.  CUMBERLAN  TWP	20
PUMPING TEST METHOD  1 PUMP 2 BAILER  STATIC WATER LEVEL END OF PUMPING  22-2  WATER LEVEL END OF PUMPING 38-4  FEET SHALLOW DEEP  50-53  FINAL STATUS OF WELL  55-56  1 DO	PUMPING RATE  11-14 DURATION OF  GPM.  25 WATER LEVELS DURING  15 MINUTES 25-28 OP FEET  41 PUMP INTAKE SET AT WATER AT E  M. FEET WATER AT FEET  M. FEET WATER AT E  FEET RECOMMENDED PUMPING SETTING FEET AT WATER AT E  SERVATION WELL  GABANDONED, P  ST HOLE CHARGE WELL  MESTIC 5 COMMERCIAL	15-16 HOURS	IN DIAGRAM BELOW SHOW LOT LINE. INDICATE NORTH	DISTANCES OF WELL FROM ROAD AI BY ARROW.  CUMBERLAN  TWP	20
PUMPING TEST METHOD  TO PUMP PING TEST METHOD  STATIC LEVEL  STATIC LEVEL  POPING  FEET  PUMPING  STATIC LEVEL  POPING  FEET  STATIC FEET  PUMPING  GIVE RATE  GPM  RECOMMENDED PUMP TYPE  STATUS  STATUS  OF WELL  STATUS  OF WELL	PPM/FT. SPECIFIC CAPACITY  SERVATION WELL  ST HOLE  CARGE WELL  MESTIC  OF PUMPING RATE  11-14  DURATION OF  GPM.  15-14  DURATION OF  GPM.  15-14  DURATION OF  GPM.  25-28  30 MINUTES  29-31  45 MINUTES  29-31  47  WATER AT E  WATER AT E  WATER AT E  1 □ CLE  WATER AT E  1 □ CLE  WATER AT E  SERVATION WELL  G ABANDONED, P  SET HOLE  CHARGE WELL  MESTIC  OCK  G MUNICIPAL  7  MUNICIPAL  8 □ COOLING OR AIR COOLING O	15-16 MINS.  PUMPING RECOVERY TES 35-37 PEET PEET 42  CLOUDY ED 46-49 GPM.  CONDITIONING	IN DIAGRAM BELOW SHOW LOT LINE. INDICATE NORTH	DISTANCES OF WELL FROM ROAD AI BY ARROW.  CUMBERLAN  TWP	20
PUMPING TEST METHOD  1 PUMP 2 BAILER  STATIC END OF PUMPING GIVE RATE  SHALLOW DEEP  50-53 DEEP  FINAL  STATUS OF WELL  55-56  WATER USE  9 1 D D 2 D STATUS 3 D TES 0 D STATUS 3 D TES 0 STATUS	PUMPING RATE  25 WATER LEVELS DURING  25 WATER LEVELS DURING  25 WATER LEVELS DURING  25 WATER LEVELS DURING  25 WATER AT LEVELS	15-16 HOURS PUMPING RECOVERY TES 35-37 PEET ND OF TEST A2 CLOUDY ED 46-49 GPM.  SUBSTITUTE OOR QUALITY  ONDITIONING NOT USED	IN DIAGRAM BELOW SHOW LOT LINE. INDICATE NORTH	DISTANCES OF WELL FROM ROAD AI BY ARROW.  CUMBERLAN  TWP	20
PUMPING TEST METHOD  TO PUMP POMP 2  BAILER  STATIC WATER LEVEL END OF PUMPING  STATIC LEVEL 99-21  PEET POMPING  GIVE RATE  SHALLOW DEEP  SO-53  FINAL STATUS  OF WELL  STATUS	PUMPING RATE  25 WATER LEVELS DURING  41 15 MINUTES 25 228 30 MINUTES 29-31 41 PUMP INTAKE SET AT  AT PUMP INTAKE SET AT  AT PUMP SETTING  AT PUMP SETTING  BERVATION WELL  ST HOLE  CHARGE WELL  MESTIC 2  5 COMMERCIAL  6 MUNICIPAL  7 DUSTRIAL  3 COOLING OR AIR COULTY  BLE TOOL  TARY (CONVENTIONAL)  6 BORINI  7 DIAMO  8 DIAMO  8 DIAMO  8 DIAMO  8 DIAMO  8 DIAMO  8 DIAMO  9 DIAMO  10 DIAMO	15-16 HOURS ON MINS.  PUMPING RECOVERY TES 35-37  PEET PO FEET ND OF TEST 42  CAR 2 CLOUDY ED 46-49  GPM.  ONDITIONING NOT USED GND G	IN DIAGRAM BELOW SHOW LOT LINE. INDICATE NORTH	DISTANCES OF WELL FROM ROAD AI BY ARROW.  CUMBERLAN  TWP	20
PUMPING TEST METHOD  TO PUMP PUMP PUMP PUMPING  STATIC LEVEL PUMPING  GIVE RATE  SHALLOW DEEP  SOF WELL  STATUS  OF WELL  STATUS  OR  OF WELL  OR  OR  OR  OR  OR  OR  OR  OR  OR	PUMPING RATE  25 WATER LEVELS DURING  25 WATER LEVELS DURING  25 WATER LEVELS DURING  26 15 MINUTES 25 28 9 9 6 7 1 1	15-16 HOURS  PUMPING RECOVERY TES 35-37  PFEET PO FEET ND OF TEST A2 CLOUDY ED A6-49 GPM.  ONDITIONING NOT USED G G G G D RILLEF	IN DIAGRAM BELOW SHOW OF LINE. INDICATE NORTH	DISTANCES OF WELL FROM ROAD AI BY ARROW.  CUMBERLAN  TWP	20 21 22 23
PUMPING TEST METHOD  TO PUMP PUMP PUMP PUMPING  STATIC LEVEL PUMPING  GIVE RATE  SHALLOW DEEP  SOF WELL  STATUS  OF WELL  STATUS  OR  OF WELL  OR  OR  OR  OR  OR  OR  OR  OR  OR	PUMPING RATE  25 WATER LEVELS DURING  25 WATER LEVELS DURING  25 WATER LEVELS DURING  26 15 MINUTES  29 29 90 45 MINUTES  41 PUMP INTAKE SET AT  RECOMMENDED PUMP SETTING  FEET  RECOMMENDED PUMP PUMP PUMP PUMP RATE  5 COMMERCIAL  6 MUNICIPAL  7 CHARGE WELL  MESTIC  6 MUNICIPAL  7 COOLING OR AIR CO DITARY (CONVENTIONAL)  7 DIARRY (CONVENTIONAL)  8 DETTIN  8 DETTIN  6 BBLE TOOL  7 DIARRY (AIR)  8 DITARY (AIR)  9 DRIVIN	15-16 HOURS PUMPING RECOVERY TES 33-34 FEET PRET FOR THE TOTAL TOT	IN DIAGRAM BELOW SHOW OT LINE. INDICATE NORTH	DISTANCES OF WELL FROM ROAD AID BY ARROW.  CUMBERLAN  TWP  59-62 DATE RECEIVED  08 0	20 21 22 23
PUMPING TEST METHOD  1 PUMP 2 BAILER  STATIC WATER LEVEL FEET WATER LEVEL FEET PUMPING  19-21 PUMP 22-2-2  19 PUMPING TEST METHOD  1 PUMP 2 BAILER  WATER LEVEL FEET PUMPING  STATUS  OF WELL  54 DEEP  50-53 DOO. G  FINAL STATUS  OF WELL  55-56 1 D DO  2 STO  3 D RE  WATER USE 9 4 IND  METHOD  OF DRILLING  NAME OF WELL CONTRACTOR	DETAIL   4   1-14   DURATION OF GPM.   25   WATER LEVELS DURING   2   45 MINUTES   20 28   90   61   10   10   10   10   10   10   1	15-16 HOURS PUMPING RECOVERY TES 35-34 FEET POFFET ND OF TEST A2 CLOUDY ED 46-49 GPM.  GPM.  ONDITIONING NOT USED G G G D LICENCE NUMBER A3 3 3 3 4 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	IN DIAGRAM BELOW SHOW OF LINE. INDICATE NORTH	DISTANCES OF WELL FROM ROAD AID BY ARROW.  CUMBERLAN  TWP	20 21 22 23
PUMPING TEST METHOD  1 PUMP 2 BAILER  STATIC WATER LEVEL FEET WATER LEVEL FEET PUMPING  19-21 PUMP 22-2-2  19 PUMPING TEST METHOD  1 PUMP 2 BAILER  WATER LEVEL FEET PUMPING  STATUS  OF WELL  54 DEEP  50-53 DOO. G  FINAL STATUS  OF WELL  55-56 1 D DO  2 STO  3 D RE  WATER USE 9 4 IND  METHOD  OF DRILLING  NAME OF WELL CONTRACTOR	PUMPING RATE  25 WATER LEVELS DURING  25 WATER LEVELS DURING  25 WATER LEVELS DURING  26 15 MINUTES  29 29 90 45 MINUTES  41 PUMP INTAKE SET AT  RECOMMENDED PUMP SETTING  FEET  RECOMMENDED PUMP PUMP PUMP PUMP RATE  5 COMMERCIAL  6 MUNICIPAL  7 CHARGE WELL  MESTIC  6 MUNICIPAL  7 COOLING OR AIR CO DITARY (CONVENTIONAL)  7 DIARRY (CONVENTIONAL)  8 DETTIN  8 DETTIN  6 BBLE TOOL  7 DIARRY (AIR)  8 DITARY (AIR)  9 DRIVIN	15-16 HOURS PUMPING RECOVERY TES 35-37 PHEET POFFET ND OF TEST ACCUOUDY ED 46-49 GPM.  CONDITIONING NOT USED G G G LICENCE NUMBER LICENCE NUMBER REI REI REI REI REI REI REI REI REI R	IN DIAGRAM BELOW SHOW OT LINE. INDICATE NORTH	DISTANCES OF WELL FROM ROAD AID BY ARROW.  CUMBERLAN  TWP  59-62 DATE RECEIVED  08 0	20 21 22 23
PUMPING TEST METHOD  1 PUMP 2 BAILER  STATIC WATER LEVEL FEET WATER LEVEL FEET PUMPING  19-21 PUMP 22-2-2  19 PUMPING TEST METHOD  1 PUMP 2 BAILER  WATER LEVEL FEET PUMPING  STATUS  OF WELL  54 DEEP  50-53 DOO. G  FINAL STATUS  OF WELL  55-56 1 D DO  2 STO  3 D RE  WATER USE 9 4 IND  METHOD  OF DRILLING  NAME OF WELL CONTRACTOR	DETAIL   4   1-14   DURATION OF GPM.   25   WATER LEVELS DURING   2   45 MINUTES   20 28   90   61   10   10   10   10   10   10   1	15-16 HOURS  PUMPING RECOVERY TES 33-34 FEET POFFEET ND OF TEST 42 FAR 2 CLOUDY FED 46-49 GPM.  SUBPLICIENT SUPPLY OOR QUALITY OOR QUALITY ONDITIONING NOT USED G G G LICENCE NUMBER 2 3 3 3 3 DAT	IN DIAGRAM BELOW SHOW OF LINE. INDICATE NORTH	DISTANCES OF WELL FROM ROAD AID BY ARROW.  CUMBERLAN  TWP  59-62 DATE RECEIVED  08 0	20 21 22 23 23 23 27

Ministry 1525164			Ontario Water			
of the Environment	W	ATER	WEL	L RI	ECO	RD
Ontario OTTAWA - CARLETON I. PRINT ONLY IN SE	PACES BROVIDED	15251	64	5002		109
2. CHECK 🗵 CORRE	CT BOX WHERE APPLICABLE 1 2  TOWNSHIP, BOROUGH, CITY, TOWN, VI		10	TRACT. SURVEY ETC		22 23 24 OT 25-27
COUNTY OR DISTRICT	)(05+8)	_	9			
		Sociana	-	DAY	3 MO 5	
	ING	RC. ELEVATION	RC. BASIN C	ODE 11		, , , ,
1 2 10 12	G OF OVERBURDEN AND E	EDBOCK MATERIA	AIS CEE INSTRUC	TIONS		47
MOST	OTHER MATERIALS	EDROCK WATERIA	GENERAL DESC		DEPTH	
GENERAL COLOUR COMMON MATERIAL	1				FROM ()	70
rellon sand	Loam		00se		15	70
Blue Clay		0	inse l'al		70	77
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41 WATER RECORD	51 CASING & OPEN	OLE RECORD	SIZE(S) OF OPE	ENING 31-33 C	DIAMETER 34-38 L	ENGTH 39.40
WATER FOUND WATER						
AT - FEET KIND OF WATER	INSIDE WALL DIAM MATERIAL THICKNE INCHES INCHES	FROM TO	MATERIAL AN	D TYPE	DEPTH TO TOP OF SCREEN	41-44 30
AT - FEET SIND OF WATER  9 50 1   FRESH 3 SULPHUR 14   MINERALS 6   GAS 15	DIAM MATERIAL THICKNE INCHES	FROM TO	MATERIAL AN		DEPTH TO TOP OF SCREEN	FEET
AT - FEET 1 THE OF WATER 14 14 14 15 16 16 16 16 16 16 16 16 16 16 16 16 16	DIAM MATERIAL THICKNE INCHES    O-11   MSTEEL   12   V   Control   12   Control   12   Control   12   Control   13   Control   13   Control   14   Control   15   Control	FROM TO	MATERIAL AN	PLUGGING & SI	DEPTH TO TOP OF SCREEN	RD NT GROUT
AT - FEET   1   FRESH 3   SULPHUR   14	DIAM INCHES  DIAM MATERIAL THICKNE INCHES  10-11   MSTEEL 12   12   12   12   12   12   13   14   15   15   15   15   15   15   15	5 PROM 10 13-0 20-2	MATERIAL AN	PLUGGING & SI	DEPTH TO TOP OF SCREEN	PRD
AT - FEET   FRESH 3   SULPHUR   14	DIAM INCHES  DIAM	5 0 77	MATERIAL AN  O  O  O  DLPTH SET AT  FROM  10-13	PLUGGING & SI	DEPTH TO TOP OF SCREEN	RD NT GROUT
AT - FEET   FRESH 3   SULPHUR 14   MINERALS   6   GAS   15-18   1   FRESH 3   SULPHUR 19   15-18   1   FRESH 3   SULPHUR 19   2   SALTY 6   GAS   20-23   1   FRESH 3   SULPHUR 24   MINERALS   2   SALTY 6   GAS   25-28   1   FRESH 3   SULPHUR 29   MINERALS   2   SALTY 6   GAS   30-33   1   FRESH 3   SULPHUR 34   30   SULPHUR 34   SULP	DIAM INCHES  DIAM MATERIAL THICKNE INCHES  10-11	5 0 77 77 100	MATERIAL AN  6  6  61  DEPTH SET AT - FROM  10-13	PLUGGING & SI FEET MATERIAL TO CLA	DEPTH TO TOP OF SCREEN	RD NT GROUT
AT - FEET	DIAM MATERIAL THICKNE INCHES    O-11     STEEL   12   2   3   CONCRETE   4   OPEN HOLE   5   PLASTIC	5 0 77 77 100	66 MATERIAL AN  O DEPTH SET AT -  FROM  10-13  10-13  26-29	PLUGGING & SI  FEET MATERIAL  10  7  22-25  30-33  40	EALING RECO	RD NT GROUT
AT - FEET	DIAM   MATERIAL   THICKME   INCHES   12   2   GALVANIZED   3   GONCRETE   4   OPEN HOLE   5   DIASTIC   19   2   GALVANIZED   3   GONCRETE   4   OPEN HOLE   5   DIASTIC   24-25   1   STEEL   26   GALVANIZED   3   GONCRETE   4   OPEN HOLE   5   DIASTIC	5 0 77 100 27-31 17-18 18-5	MATERIAL AN  O  O  O  O  O  O  O  O  O  O  O  O  O	PLUGGING & SI  FEET MATERIAL  10  7  22-25  30-33  40  ATION OF W	EALING RECO	PRD  NT GROUT  CKER, ETC )
AT - FEET   FRESH 3   SULPHUR 14   MINERALS   G. GAS    15-18   1   FRESH 3   SULPHUR 19   GAS   GAS    20-23   1   FRESH 3   SULPHUR 24   MINERALS   GAS    20-23   1   FRESH 3   SULPHUR 24   MINERALS   GAS    21   SALTY 6   GAS   GAS   GAS   GAS    22   SALTY 6   GAS   GAS   GAS   GAS    23   T   FRESH 3   SULPHUR 24   MINERALS   GAS   GAS   GAS   GAS    25-28   T   FRESH 3   SULPHUR 34   GAS   GAS	DIAM INCHES  DIAM MATERIAL THICKNE INCHES  10-11	5 FROM 10 13-16 77 100 27-31 17-18 1N E LOT	MATERIAL AN  O  O  O  O  O  O  O  O  O  O  O  O  O	PLUGGING & SI  FEET MATERIAL  10  7  22-25  30-33  40  ATION OF W	EALING RECO	PRD  NT GROUT  CKER, ETC )
AT - FEET   FRESH 3   SULPHUR 14   MINERALS   G. GAS   SALTY   G. GAS   G. GAS   SALTY   G. GAS   G. GAS   SALTY   G. GAS   G. GAS   SALTY   G. GAS   G. G	DIAM MATERIAL THICKNE INCHES    O-11   Content   12   Content   12   Content   12   Content   12   Content   13   Concept   14   Content   15   Content   15	17-18 IN IES 35-37	MATERIAL AN  O  O  O  O  O  O  O  O  O  O  O  O  O	PLUGGING & SI  FEET MATERIAL  TO MATERIAL  22-25  30-33 80  ATION OF W  DW DISTANCES OF W	EALING RECO	PRD  NT GROUT  CKER, ETC )
AT - FEET   FRESH 3   SULPHUR 14   MINERALS   G. GAS   SALTY   G. GAS   G. GAS   SALTY   G. GAS   G. GAS   SALTY   G. GAS   G. GAS   SALTY   G. GAS   G. G	DIAM MATERIAL THICKNE INCHES    O-11	17-18 IN E LOT 122-27-31 IN E LO	MATERIAL AN  O  O  O  O  O  O  O  O  O  O  O  O  O	PLUGGING & SI  FEET MATERIAL  TO MATERIAL  22-25  30-33 80  ATION OF W  DW DISTANCES OF W	EALING RECO	PRD  NT GROUT  CKER, ETC )
AT - FEET   FRESH 3   SULPHUR 14   MINERALS   G. GAS   SALTY   G. GAS   G. GAS   SALTY   G. GAS   G. GAS   SALTY   G. GAS   G. GAS   SALTY   G. GAS   G. G	DIAM INCHES  DIAM	17-18 IN E LOT 122-27-31 IN E LO	MATERIAL AN  O  O  O  O  O  O  O  O  O  O  O  O  O	PLUGGING & SI  FEET MATERIAL  10  22-25  30-33  80  ATION OF W  DW DISTANCES OF W  NORTH BY ARROW.	EALING RECO	PRD  NT GROUT  CKER, ETC )
AT - FEET	DIAM MATERIAL THICKNE INCHES    O-11     STEEL   12   2   3   CONCRETE   4   OPEN HOLE   5   PLASTIC   19   19   19   19   19   19   19   1	17-18 IN E LOT 120-27-31 IN E LOT 121-28-28-28-28-28-28-28-28-28-28-28-28-28-	MATERIAL AN  6  61  61  CONTROL OF THE SET AT - FROM  10-13  10-21  26-29  LOCA  DIAGRAM BELOW SHC  INDICATE	PLUGGING & SI  FEET MATERIAL  10  22-25  30-33  80  ATION OF W  DW DISTANCES OF W  NORTH BY ARROW.	EALING RECO	PRD  NT GROUT  CKER, ETC )
AT - FEET	DIAM INCHES  DIAM INCHES  DIAM INCHES    O-11	17-18 17-18 17-18 17-18 17-18 18-18	MATERIAL AN  O  O  O  O  O  O  O  O  O  O  O  O  O	PLUGGING & SI  FEET MATERIAL  10  22-25  30-33  80  ATION OF W  DW DISTANCES OF W  NORTH BY ARROW.	EALING RECO	PRD  NT GROUT  CKER, ETC )
15-18	DIAM INCHES    DIAM   MATERIAL   THICKME INCHES	17-18 17-18 17-18 17-18 17-18 18-18	MATERIAL AN  6  61  61  CONTROL OF THE SET AT - FROM  10-13  10-21  26-29  LOCA  DIAGRAM BELOW SHC  INDICATE	PLUGGING & SI  FEET MATERIAL  10  22-25  30-33  80  ATION OF W  DW DISTANCES OF W  NORTH BY ARROW.	EALING RECO	PRD  NT GROUT  CKER, ETC )
15-18	DIAM INCHES  DIAM	17-18 17-18 17-18 17-18 17-18 18-18	MATERIAL AN  6  61  61  CONTROL OF THE SET AT - FROM  10-13  10-21  26-29  LOCA  DIAGRAM BELOW SHC  INDICATE	PLUGGING & SI  FEET MATERIAL  10  22-25  30-33  80  ATION OF W  DW DISTANCES OF W  NORTH BY ARROW.	EALING RECO	PRD  NT GROUT  CKER, ETC )
15-18	DIAM INCHES  DIAM	17-18 17-18 17-18 17-18 17-18 18-18	MATERIAL AN  6  61  61  CONTROL OF THE SET AT - FROM  10-13  10-21  26-29  LOCA  DIAGRAM BELOW SHC  INDICATE	PLUGGING & SI  FEET MATERIAL  10  22-25  30-33  80  ATION OF W  DW DISTANCES OF W  NORTH BY ARROW.	EALING RECO	PRD  NT GROUT  CKER, ETC )
15-18	DIAM INCHES  DIAM INCHES  DIAM INCHES  DIAM INCHES  DIAM INCHES  DIAM INCHES  10-11  DIAM INCHES  DIAM INCHES	17-18 17-18 17-18 17-18 17-18 18-18	MATERIAL AN  6  61  61  CONTROL OF THE SET AT - FROM  10-13  10-21  26-29  LOCA  DIAGRAM BELOW SHC  INDICATE	PLUGGING & SI  FEET MATERIAL  10  22-25  30-33  80  ATION OF W  DW DISTANCES OF W  NORTH BY ARROW.	EALING RECO	PRD  NT GROUT  CKER, ETC )
15-18	DIAM INCHES  DIAM	17-18 17-18 17-18 17-18 17-18 18-18	MATERIAL AN  6  61  61  CONTROL OF THE SET AT - FROM  10-13  10-21  26-29  LOCA  DIAGRAM BELOW SHC  INDICATE	PLUGGING & SI  FEET MATERIAL  10  22-25  30-33  80  ATION OF W  DW DISTANCES OF W  NORTH BY ARROW.	EALING RECO	PRD  NT GROUT  CKER, ETC )
15-18	DIAM INCHES  DIAM INCHES  DIAM INCHES    O-11	17-18 17-18 17-18 17-18 17-18 18-18	MATERIAL AN  6  61  61  CONTROL OF THE SET AT - FROM  10-13  10-21  26-29  LOCA  DIAGRAM BELOW SHC  INDICATE	PLUGGING & SI  FEET MATERIAL  10  22-25  30-33  80  ATION OF W  DW DISTANCES OF W  NORTH BY ARROW.	DEPTH TO TOP OF SCREEN  EALING RECO LAND TYPE LEAD FA  ELL  ELL  FROM ROAD A	PRD  NT GROUT  CKER, ETC )
15-18	DIAM INCHES    DIAM INCHES   MATERIAL   THICKME INCHES	17-18 17-18 17-18 17-18 18-18	61 DEPTH SET AT - FROM 10-13 -	PLUGGING & SI  FEET MATERIAL  10  22-25  30-33  80  ATION OF W  DW DISTANCES OF W  NORTH BY ARROW.	DEPTH TO TOP OF SCREEN  EALING RECO LAND TYPE LEAD FA  ELL  ELL  FROM ROAD A	PRD  NT GROUT  CKER, ETC )
AT - FEET	DIAM INCHES    DIAM INCHES   MATERIAL   THICKME INCHES	17-18 17-18 17-18 17-18 100 27-31 17-18 100 27-31 17-18 100 27-31 17-18 27-31 17-18 27-31 17-18 27-31 17-18 27-31 17-18 27-31 17-18 27-31 17-18 27-31 17-18 27-31 17-18 27-31 17-18 27-31	61 DEPTH SET AT - FROM 10-13 -	PLUGGING & SI  FEET MATERIAL  TO MATERIAL  ATION OF W  OW DISTANCES OF W  NORTH BY ARROW.  COR 59-62 DATE REC	EALING RECO  AND TYPE ICEM  ELL  ELL FROM ROAD A	PRD  NT GROUT  CCKER. ETC.)  ND  138
AT - FEET	DIAM INCHES    DIAM INCHES   MATERIAL   THICKME INCHES	FROM TO  13-1  20-2  77 100  27-3  17-18  MINUTES 35-37  FEET 42  CLOUDY 46-43  GPM  DATE OF INI  DATE OF INI	6 S CONTRACT	PLUGGING & SI  FEET MATERIAL  TO MATERIAL  ATION OF W  OW DISTANCES OF W  NORTH BY ARROW.  COR 59-62 DATE REC	EALING RECO AND TYPE CEMP  ELL  ELL FROM ROAD A	PRD  NT GROUT  CCKER. ETC.)  ND  138
AT - FEET	DIAM INCHES    DIAM INCHES   MATERIAL   THICKME INCHES	TO T	6 S CONTRACT	PLUGGING & SI  FEET MATERIAL  10 MATERIAL  22-25 30-33 A0  ATION OF W  DW DISTANCES OF W  NORTH BY ARROW.	EALING RECO  AND TYPE ICEM  ELL  ELL FROM ROAD A	PRD  NT GROUT  CCKER. ETC.)  ND  138
AT - FEET	DIAM INCHES    DIAM   MATERIAL   THICKME INCHES	TO T	6 S CONTRACT	PLUGGING & SI  FEET MATERIAL  10 MATERIAL  22-25 30-33 A0  ATION OF W  DW DISTANCES OF W  NORTH BY ARROW.	EALING RECO  AND TYPE ICEM  ELL  ELL FROM ROAD A	PRD  NT GROUT  CCKER. ETC.)  ND  138
AT - FEET	DIAM INCHES    DIAM   MATERIAL   THICKME INCHES	TO T	6 S CONTRACT	PLUGGING & SI  FEET MATERIAL  10 MATERIAL  22-25 30-33 A0  ATION OF W  DW DISTANCES OF W  NORTH BY ARROW.	EALING RECO  AND TYPE ICEM  ELL  ELL FROM ROAD A	NT GROUT CCKER. ETC.)  ND  138

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(8) Ontario	Ministry of the Environment	Vell Tag N·····	non otiober and pri	nt number, below)	153487 Regulation 903		Well R	ecord
		A 0 1	The state of the s		Regulation 30	e Omani E		of
Instructions for Comp			1415		]			01
<ul> <li>All Sections must be</li> </ul>	ce of Ontario only. This completed in full to avoid	delays in process	ing. Further i	nstructions and	d explanations are ava	ailable o	n the back of	this form.
Questions regarding     All matre measures	completing this application	n can be directed to 1/10 <sup>th</sup> of a metro	o the Water	Well Managen	nent Coordinator at	416-23	5-6203.	*
	blue or black ink only.	o in to on a linear	l	2 1 1 20%	Ministry Us	e Only	.i	
Well Owner's Informat	on and Location of W	ell Information	MUN /	( OO ) co	ONOF		LOT	02
RR#/Street Number/Name	50m-136 PA	BLK1 (	City/Town/Vi	lond (at	Site/Compa	2-3 artment/E	RPS of	76720
145 andrum	Rd. Carllad S	prings	Carl		in			114
GPS Reading NAD 8 3	Zone Easting	Northing 5 0 1 0 1 6 9 3	Unit Make/M	lan Mode		lifferentiate erentiated,	Limi	aged
Log of Overburden an	Bedrock Materials (s	ee instructions)		14			Depth	Metres
General Coldur Most com	mon material C	Other Materials		Genera	I Description		From	То
Brun San	dy sail il	wy					9	5
grey clay						*	3	15
there cla	7	· .			4.00	AM 81-1-11-1	75	75
guy Kard	pon qua						10.5	109
quy roc		A A A A A A A A A A A A A A A A A A A					,0,	,,,,
				*	A BANK UNION ANY ANY ANY ANY ANY ANY ANY ANY ANY AN		3 /	
							<u> </u>	· · · · · · · · · · · · · · · · · · ·
	Landana pulmina				<u> </u>		/	
Hole Diameter  Depth Metres Diameter	oter .	Construction Re	<u> </u>		Tes Pumping test method	t of Wel	<del></del>	ecovery
From To Centim	inside	นเทอเนาออุธ	Depth	Metres	Sub.	Time Wa	ater Level Time	Water Level Metres
0 110 6"	centimetres	centimetres	From	To	Pump intake set at -	min Static	Metres min	2.77
	- Asteel F	Casing ibreglass			(metres)		70 1	a.65
	6 Cy Plastic No	oncrete , s	+ 0	1091	(litres/min)  Duration of pumping	2 a	.70 <sup>*</sup> 21	2.64
Water Record Water found At // Metres Kind of Water			January Carlos and A		hrs + min	n e		
10 m Fresh Sulp	hur Plastic C	<u> </u>			Final water level end of pumping metres		<b>.70</b> 3	3.63
Gas Salty Min	Galvanized	1		1	Recommended pump type.	4 2	.72 4	2.62
m Fresh Sulp	hur.	ibreglass oncrete			Recommended pump	5 2	. <b>72</b> 5	2.61
Gas Salty Min	Galvanized			,	depth. 50 metres		. 10"	
m Fresh Sulp	rale	Screen			Recommended pump rate. (litres/min)	10 0	70 10 74 15	3.60 3.60
Other:	diam Steel F				If flowing give rate -	20 🕏	74 20	a 60
After test of well yield, water w	as Galvanized				(litres/min) If pumping discontin-	25 <b>3</b> 30 <b>3</b>	75 25 75 30	a.60
Other, specify		No Casing or Sc	reen		ued, give reason.	40 🕽	75 40	5.60
Chlorinated Yes No	Open hole				0	50 <b>3</b>	760 50 .11 60	d 60
Plugging an	d Sealing Record	Annular space 🔲 i	Abandonment		Location	1 1-1		
	nd type (bentonite slurry, neat cem	ent slumy) etc Volu	me Placed ic metres)	In diagram below Indicate north by	show dist <b>ances of well f</b> i		lot line, and bu	ilding.
0 30°	grant.	3	lag.	NW.		ind	and south the	
			<b>'</b>		" Bulch			
	¥	2 .		3	14		Principle collect space 5 tolers	
				34				
	Method of Construction	n,	· ·	4	(		14 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
I	tary (air) Dia	mond (	Digging Other	1 3	1 parking	1	· Adda	
Rotary (reverse)	I ·		- Journel	1			<i>p</i> *	
<b>Comestic</b> Inc	water Use	olic Supply	Other		end	eum	Rd.	
Stock Co	mmercial No	t used	D Other	***		to Wall Co	Constant	
☐ Irrigation ☐ M	nicipal Co Final Status of Well	oling & air conditioning		Audit No. Z	12477	te Well Co	ompleted OO G	05 20
Water Supply Rechar	ge well Un		doned, (Other)	Was the well ow package delivered	nor o iniornadors	te Delivere		MM DD 95 47
Test Hole Abando	ned, poor quality 📑 Re	watering placement well		Passing dollasier	Ministry Us		007	<u>-/   &amp; ( )</u>
Name of Well Contractor	Contractor/Technician Inf	Well Contractor's		Data Source		ntractor	K 1 7	,
Maure Con Business Address (street name,	number, city etc:)	15 17		Date Received	YYYY MM DD Dat	te of Inspe	UL	MM DD
Carrelna	no	\A/_H =	Lionne N	AUG 1	8 2004			טט יייייי
Name of Well Technician (last na		Well Technician's		Remarks	We	ell Record		
Signature of Technician/Contract	h.: '	Date Submitted YYY	MM DD.	19 ·		1	53487	/6
0506E (09/03)	Contractor's Copy		☐ Well'Own	er's Copy 🔲	Ce <b>g</b> e fo	ormule e	st disponible	en français
			2.78	# NS.7%×				
1	I		I				1	

	stry of the Environment Climate Change	Tag No. ( Tag#	· W 700	Well Record
	AMetric Imperial	A 23624	Regulation 903 Ontario	ageof
Well Owner's Information	Laet Name / Organization	3	E-mail Address	
Boundry Ko	ad Developin	cent ho.	WIH	Well Constructed by Well Owner
Mailing Address (Street Gumber)	scaradienne	o Municipality Kirland	Province Postal Code Teleph	one No. (inc. area code)
Well Location  Address of Well Location (Street N	lumber/Name)	Township	Lot Conce	ession
5371 BOW County/District/Municipality		City/TovaA/illage	Flamb 21	Postal Code
UTM Coordinates Zone , Easting	1 Hawa Northing	Municipal Plan and Subio	Ontario	
NAD 8 3 1 8 4 6 4	B005102114185	3	, 7	
	erials/Abandonment Sealing R ommon Material	ecord (see instructions on the Other Materials	e back of this form)  General Description	Depth (m/fi) From   To
Brown Fil	clau	Stone	Hard	0 /8
Brown clas	<u> </u>	3, 14	Hard	1.8 3.9
Grey Cla	3/ 6//	S-2-/	Sost	3.7 21.0
Cres Sai	341	) SAN A	fucrees.	22.25
Grey Shal	e		lawred	2225 60.96
Dark Out of (as (fix)	Annular Space	Volume Placed	Results of Well Yield Tes After test of well yield, water was: Draw Do	**************************************
Depth Set at (m/ft) From To	Type of Sealant Used (Material and Type)	/ / / 3	Clear and sand free. Time Water	
0 24,99	cinent growt	1.5 m	If pumping discontinued, give reason: Static Level 3.6	33 5.75
			1 4,2	42 14.64
			Pump intake set a(m)t) 2 (1.6	SI 24.36
Method of Construction		I Use nmercial ☐ Not used	Pumping rate (Vmin')GPM) 3 4 4 (4	75 3 4.26 10 4 4 72
☐ Rotary (Conventional) ☐ Jettir☐ Rotary (Reverse) ☐ Drivir	g 🔲 Domestic 🔲 Mui	nicipal Dewatering	Duration of pumping  hrs + min  5	79 5 U 18
Boring Diggi		oling & Air Conditioning	Final water level end of pumping (m/fi) 10 11	96 10 4,10
Other, specify	Other, specify		If flowing give rate (I/min / GPM)	16 15 4.03
Inside Open Hole OR Materic Diameter (Galvanized, Fibreglas		Status of Well  Water Supply	Recommended pump depth (m/ft) 20	24 20 3.95
(cm/in) Concrete, Plastic, Stee	(cm/in) From To	Replacement Well Test Hole Recharge Well	Recommended pump rate 30	3/ <sup>25</sup> 3.89
15.55 Steel	98 4.6 24	Dewatering Well	(I/MIN) GPW) 66 40 -	62 40 3.83
11.32 Open Hole	24.99 60	Monitoring Hole  Alteration	Well production (Vinin )GPM) 50 5	70 <sup>50</sup> 3.83
		(Construction)  Abandoned,	Disinfected?  Yes No 60 5.	75 <sup>60</sup> 3.83
Outoido	n Record - Screen  Depth (m/ft)	Insufficient Supply  Abandoned, Poor  Water Quality	Map of Well Location Please provide a map below following instruction	
Diameter (Cm/in) Material (Plastic, Galvanized, Ste	Slot No	Abandoned, other, specify	H17 H0	5
		Other, specify		
Emilian Control Contro	Details	Hole Diameter	380m	
27 (m)ti)	specify Fro	Depth (m/ft) Diameter m To (cm/in)		
Water found at Depth Kind of W. (m/t) ☐ Gas ☐ Other,	ater: Fresh Untested specify	19.79 24.7	50 m 30 ch	
Water found at Depth Kind of W.  (m/ft) ☐ Gas ☐ Other,	alor room omeolou p	1.97 60,9	, Com	
Well/Contra	ector and Well Technician Infor		Thunder	
Business Name of Well Contractor	WI sulley (De)	Well Contractor's Licence No.	KP	
Business Address (Street Numbe		Municipality (Tull)	Comments:	
Province Postal Code	Business F-mail Address		Well owner's Date Package Delivered	Ministry Use Only
Bus.Telephone No. (inc. area code)	Name of Well Technician (Last Na	me, First Name)	information package delivered 20186327 Audit	<sup>№ 2</sup> 276189
Well Technician's Licence No. Signa	ture of Technician and/or Contracto	Date Submitted	Yes Date Work Completed	MAY 0 7 2018
0506E (2014/11)		Ministry's Copy		ved Queen's Printer for Ontario, 2014







w\_Service\_Location

### w\_Pipe

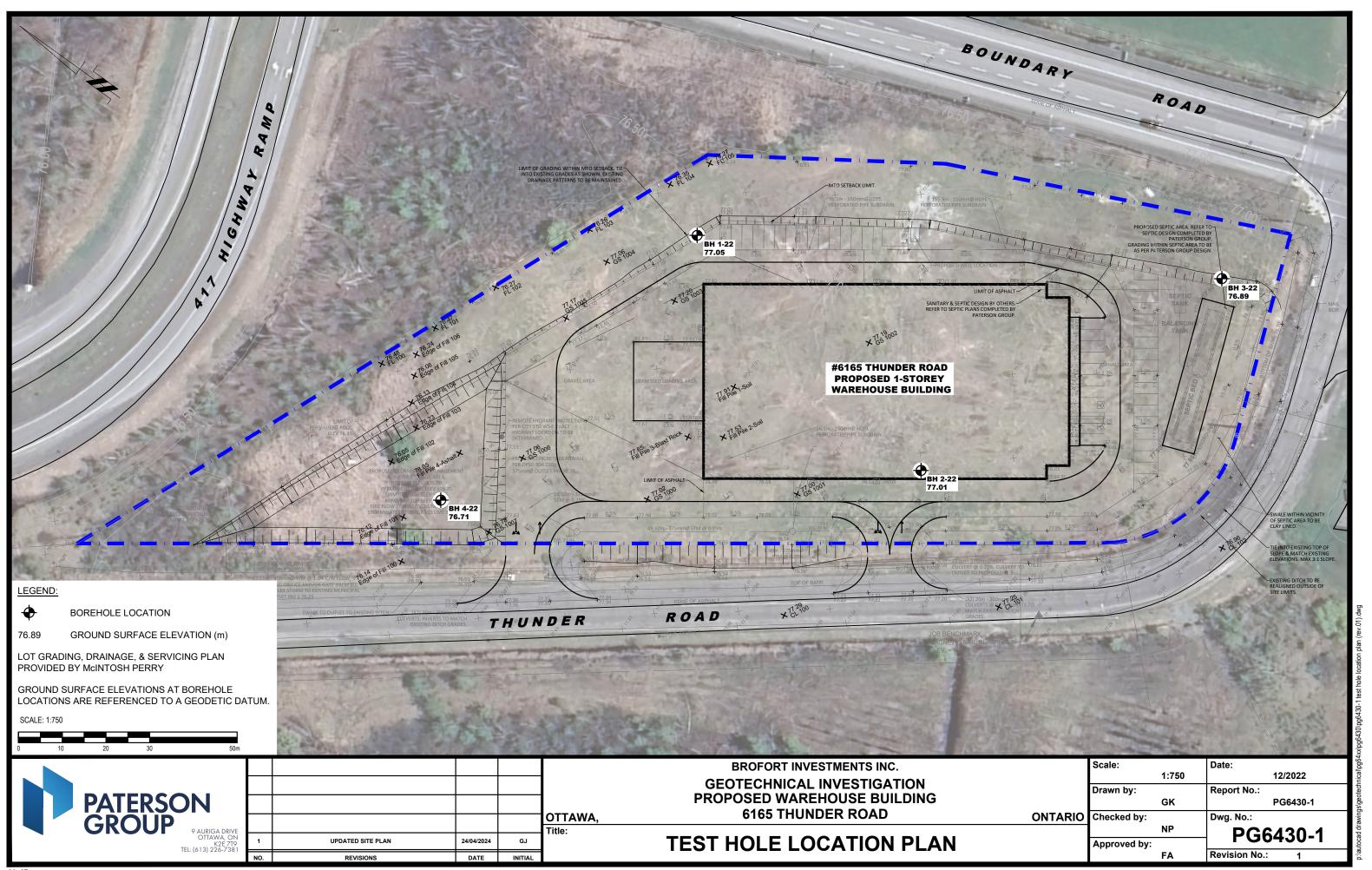
— Service Pipe

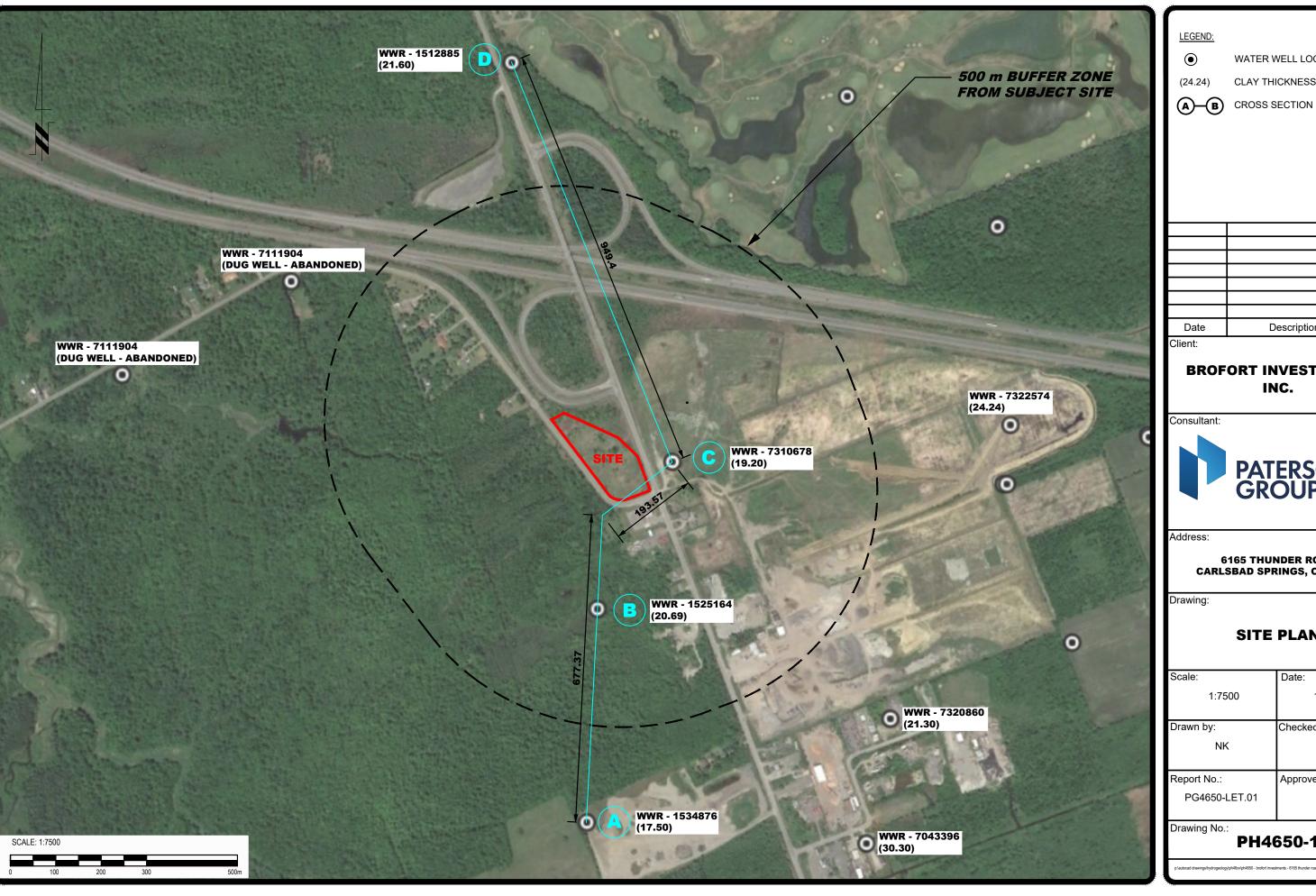
─ Water Pipe

1:5,000

0 50 100 200 Meters

Date: 2022-Dec-02





WATER WELL LOCATION

CLAY THICKNESS (m)

Date	Description	Rev

#### **BROFORT INVESTMENTS** INC.

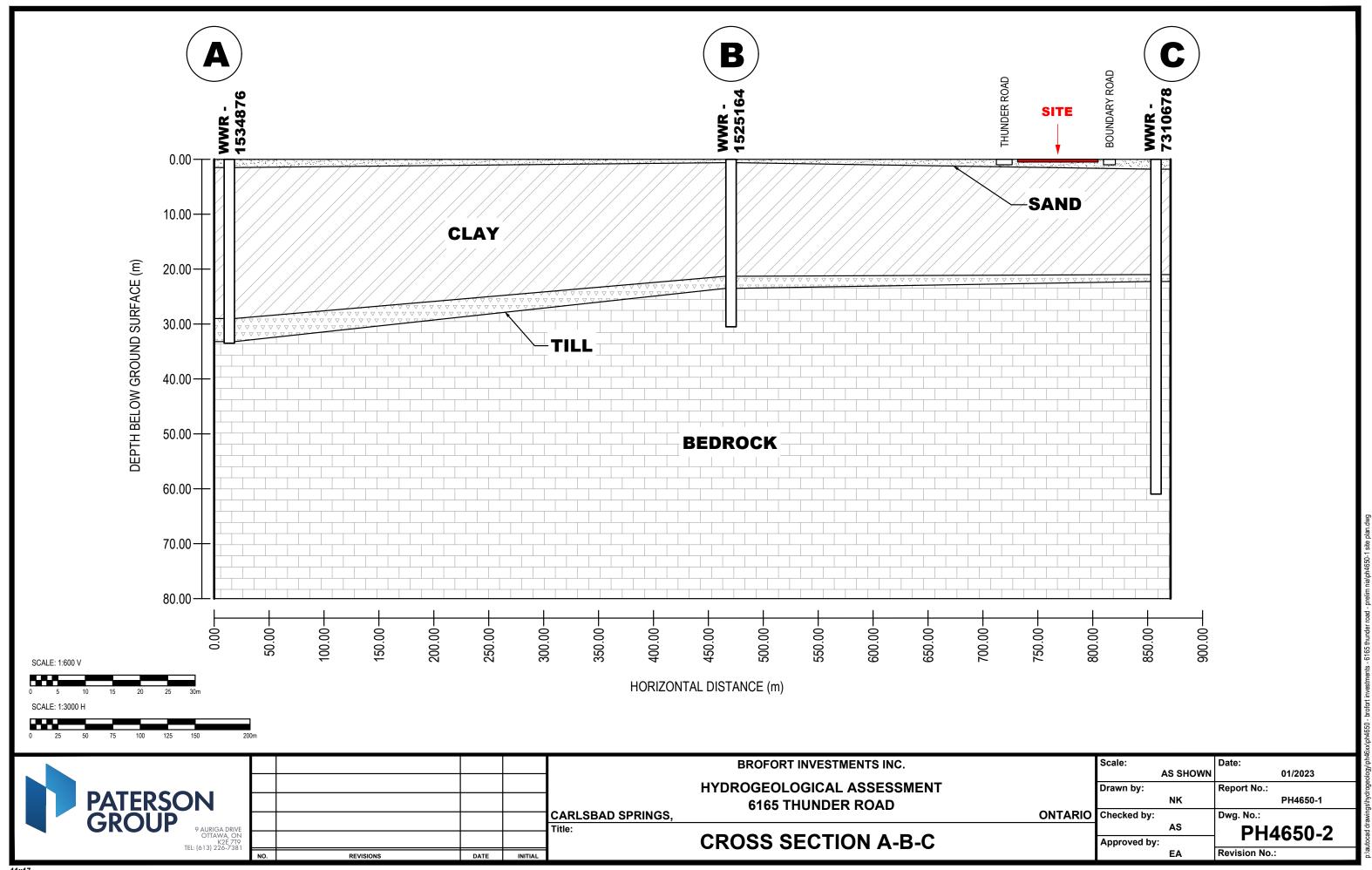


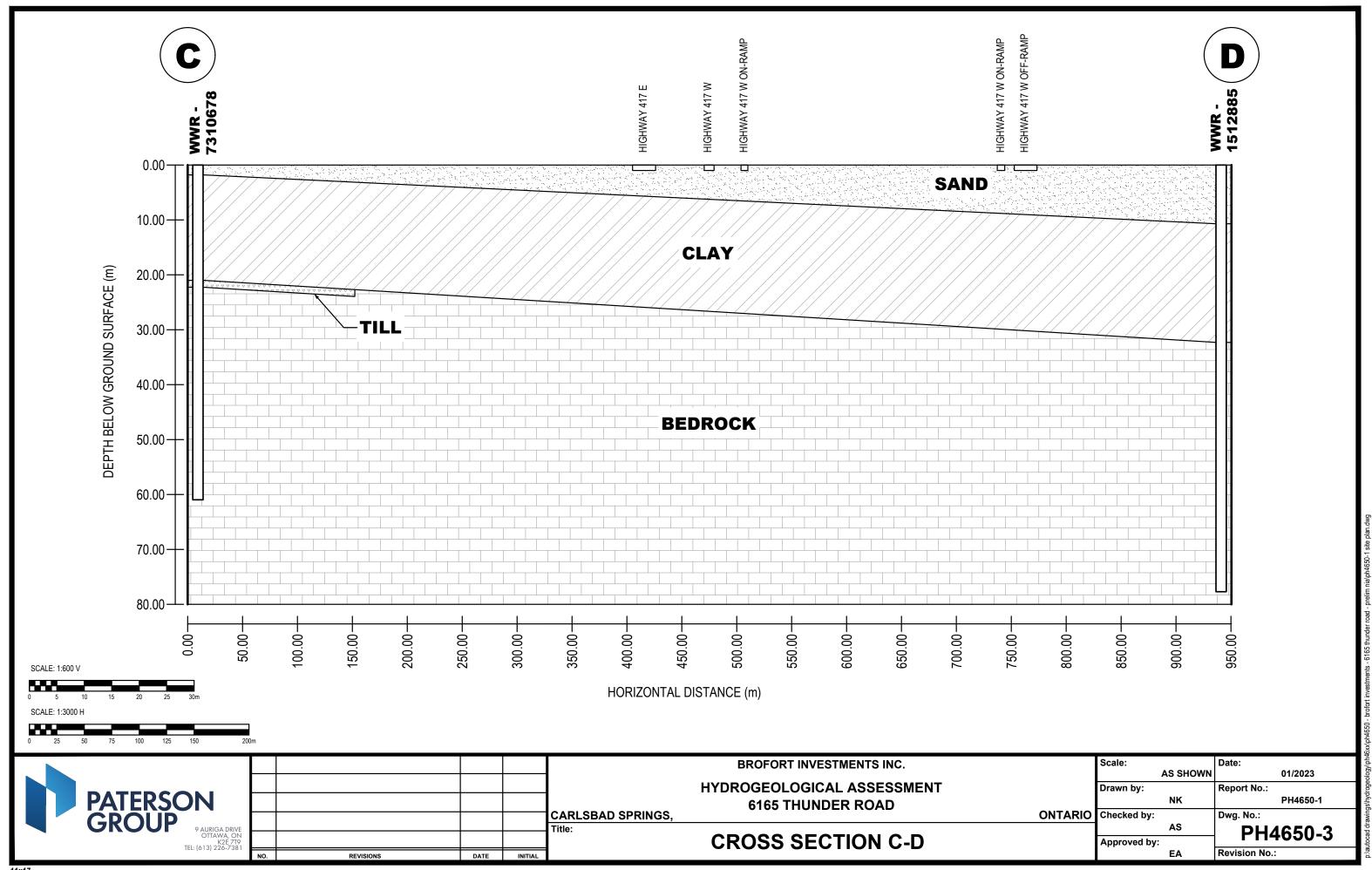
6165 THUNDER ROAD CARLSBAD SPRINGS, ONTARIO

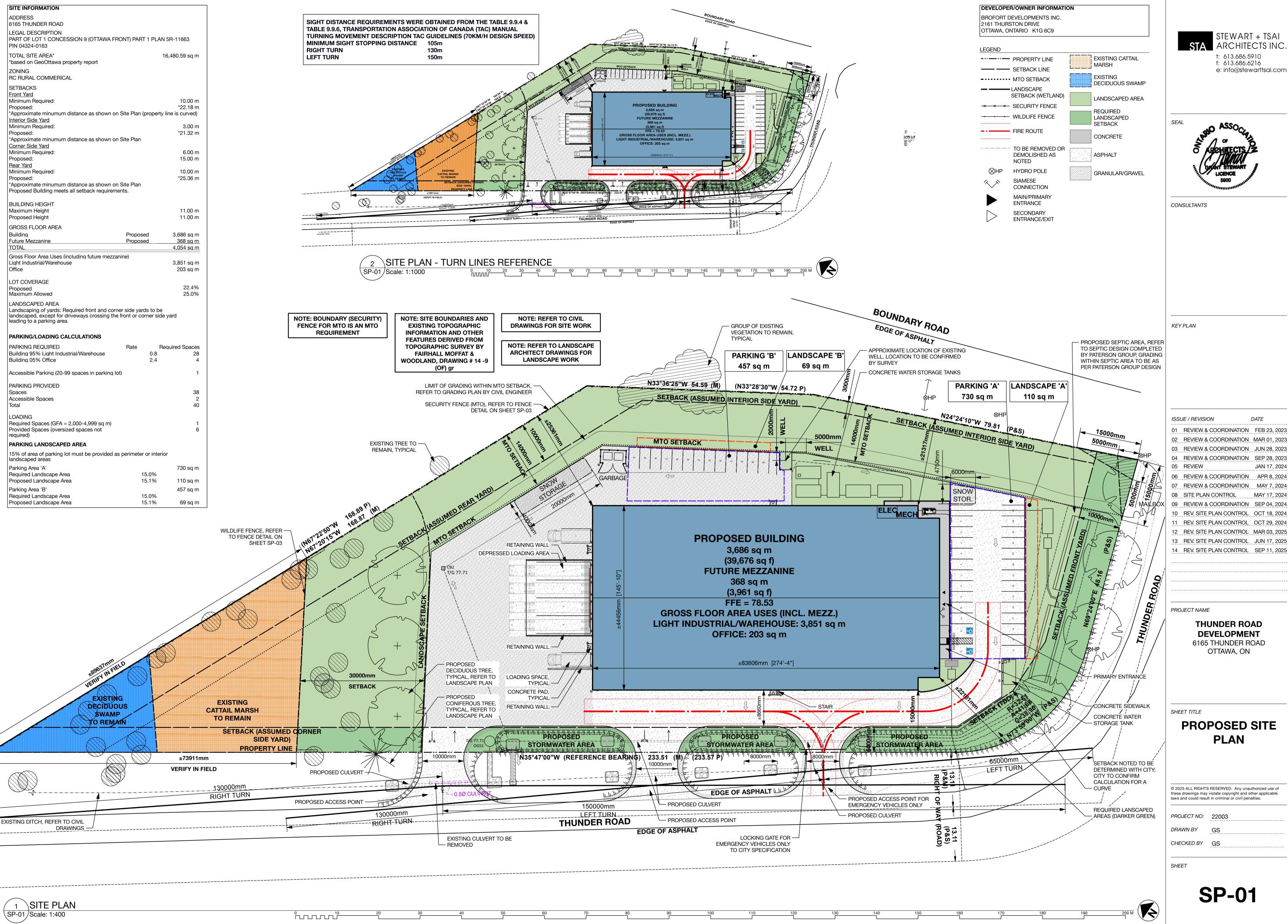
#### **SITE PLAN**

Scale:	Date:
1:7500	12/2022
Drawn by:	Checked by:
NK	AS
Report No.:	Approved by:
PG4650-LET.01	EA

PH4650-1







STEWART + TSAI **STA** ARCHITECTS INC t: 613.686.5910 f: 613.686.6216 e: info@stewarttsai.com



01 REVIEW & COORDINATION FEB 23, 2023 02 REVIEW & COORDINATION MAR 01, 2023 03 REVIEW & COORDINATION JUN 28, 2023 04 REVIEW & COORDINATION SEP 28, 2023 06 REVIEW & COORDINATION APR 8, 2024 07 REVIEW & COORDINATION MAY 7, 2024 10 REV. SITE PLAN CONTROL OCT 18, 2024 11 REV. SITE PLAN CONTROL OCT 29, 2024 12 REV. SITE PLAN CONTROL MAR 03, 2025 13 REV. SITE PLAN CONTROL JUN 17, 2025 14 REV. SITE PLAN CONTROL SEP 11, 2025

> DEVELOPMENT 6165 THUNDER ROAD OTTAWA, ON

# **PROPOSED SITE**

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