AllRock
Consulting Ltd

Geotechnical Investigation Report

2500 Palladium Drive, Ottawa, Ontario

Prepared For:

Pritec Management
P.O Box 296
Carp, ON K0A 1L0

Date: September 2, 2025
AllRock File: 25013

AllRock Consulting Ltd.
174 Colonnade Road #35
Ottawa, ON K2E 7J5

Version 1.0

Geotechnical Investigation Report

Proposed Commercial Building – 2500 Palladium Drive

Project No.: 25013

September 2, 2025

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QUALITY MANAGEMENT

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Date	March 21, 2025	April 2, 2025	September 2, 2025
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Project No.	25013	25013	25013
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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

1. INTRODUCTION

This report presents the results of a geotechnical investigation carried out for the proposed commercial building located at 2500 Palladium Drive in Ottawa, Ontario.

The purpose of the investigation was to identify the general subsurface conditions at the site by means of a limited number of boreholes and, based on the factual information obtained, to provide engineering guidelines on the geotechnical design aspects of the project, including construction considerations that could influence design decisions.

2. BACKGROUND

2.1 Project Description

It is understood that the proposed development includes a autobody preparation shop for Tony Graham Toyota, located at 2500 Palladium Drive, Unit 4 in Ottawa, Ontario. At the of the geotechnical investigation, the proposed lot was vacant of any existing structures and occupied with herbaceous plants and a granular fill pad.

2.2 Documents Reviewed

AllRock notes no previous investigations have been provided for review. The following documentation was reviewed as apart of preparation for the geotechnical investigation and developing the recommendations herein:

[1] C-3 Prepared by D.B. Gray Engineering Inc dated 2025-06-25

3. SUBSURFACE INVESTIGATION

3.1 Geotechnical Investigation

The field work for this investigation was carried out on the 27th of February 2025. At that time, three (3) boreholes, numbered BH1-25 to BH3-25, were advanced to depth of 7 meters below existing grade.

The borehole locations were selected and positioned on-site by AllRock. The field work was observed throughout by a member of our engineering staff who directed the drilling operations and logged the samples.

Following completion of the boreholes, the soil samples were returned to our laboratory for examination by a geotechnical / materials engineer. Selected samples were submitted for moisture content and grain size distribution testing.

The approximate locations of the boreholes are shown on the Borehole Location Plan, Figure 2. The results of the boreholes are provided on the Record of Boreholes Sheets in Appendix A. The results of the laboratory testing results are provided on the Record of Boreholes Sheets in Appendix B.

3.2 Methodology

Materials and soil description have been made with reference to the following documents:

- Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System) – ASTM D2487-06
- Standard Practice for the Description and Identification of Soils (Visual-Manual Procedure) – ASTM D2488-06

4. SUBSURFACE CONDITIONS

4.1 General

As previously indicated, the soil and groundwater conditions identified in the boreholes are given on the Record of Borehole sheets in Appendix A. The logs indicate the subsurface conditions at the specific test locations only. Boundaries between zones on the logs are often not distinct but rather are transitional and have been interpreted. The precision with which subsurface conditions are indicated depends on the method of exploration, the frequency and recovery of samples, the method of sampling, and the uniformity of the subsurface conditions. Subsurface conditions at other than the borehole locations may vary from the conditions encountered in the boreholes.
The soil descriptions in this report are based on commonly accepted methods of classification and identification employed in geotechnical practice. Classification and identification of soil involves judgement and AllRock does not guarantee descriptions as exact but infers accuracy to the extent that is common in current geotechnical practice.

The groundwater conditions described in this report refer only to those observed at the place and time of observation noted in the report. It is noted that groundwater conditions can vary seasonally or as a result of construction activities in the area.

4.2 Subsurface Conditions

The following presents an overview of the subsurface conditions encountered in the borehole investigation.

4.2.1 Granular Fill

A layer of granular fill was encountered at all locations. The fill was found to have a thickness of approximately 0.75 meters.

4.2.2 Silty Clay

Below the granular fill, a silty clay layer was encountered at all borehole locations and extended to the termination depth of the borehole at 7 meters below ground surface.

Standard penetration tests carried out in the native silty sand gave N values ranging from 2 to 22 blows per 0.3 metres of penetration, which reflects a medium dense to loose relative consistency.

4.2.3 Gradation Analysis and Moisture Content

Table 4-1 Laboratory Results

Location	Sample Number	Sample Depth (ft)	Test Type	Gravel (%)	Sand (%)	Silt (%)	Clay (%)	Moisture Content (%)
BH2-25	SS2	5 - 7	Grain	0.0	10.4	89.6		17.8
BH3-25	SS6	15 - 17	Grain	0.0	6.5	93.5		19.8

Sieve analysis indicates that the soil comprises approximately 10% sand and 90% silt and clay-sized particles, suggesting a predominantly fine-grained, cohesive material. Moisture content at the time of sampling was approximately 20%, which is relatively high and may affect compaction and strength characteristics. Due to the fine-grained nature and high moisture content, the soil is likely to exhibit low permeability, moderate to high compressibility, and reduced shear strength when wet, which may impact construction and long-term performance

4.2.4 Groundwater Levels

Water levels were taken by an AllRock technician on August 27, 2025. The results are included in the table below.

Table 4-2 Groundwater Measurements

MW Name	Date Sampled	Well Depth (mbeg)	Stick Up (m)	Water Level (mbgl)
BH1-25	March 26, 2025	7.0	0.0	0.0[1]
	August 27, 2025			1.9

- It is noted that the 1st attempt to collect water levels on March 26, 2025 was unsuccessful due to the monitoring well being flooded by surface water. In our opinion, this was due to snow melt in conjunction with frozen ground conditions at the site and does not represent the subsurface groundwater conditions. During the drilling investigation, the soil became saturated at a depth of approximately 4 meters below ground surface. Groundwater levels may be higher during wet periods of the year such as the early spring or following periods of precipitation.

5. RECOMMENDATIONS AND GUIDELINES

5.1 General

The information in the following sections is provided for the guidance of the design engineers and is intended for the design of this project only. Contractors bidding on or undertaking the works should examine the factual results of the investigation, satisfy themselves as to the adequacy of the information for construction, and make their own interpretation of the factual data as it affects their construction techniques, schedule, safety and equipment capabilities.
The professional services retained for this project include only the geotechnical aspects of the subsurface conditions.

The National Building Code of Canada 2020 Guidelines (hereafter NBCC 2020), the 2012 Ontario Building Code (OBC 2012) and the 4th edition of the Canadian Foundation Engineering Manual, 2006 (hereafter CFEM 2006) were considered for these recommendations. Based on the collected information from the boreholes advanced as part of this investigation, the geotechnical recommendations are presented in the following sections.

5.2 Proposed Site Development

5.2.1 Excavation

The excavation for the proposed dwellings will be carried out through granular fill and silty clay. The sides of the excavation should be sloped in accordance with the requirements in Ontario Regulation 213/91 under the Occupational Health and Safety Act. According to the act, soils at this site can be classified as Type 3. That is, open cut excavations within overburden deposits should be carried out with side slopes of 1 horizontal to 1 vertical, or flatter. Where excavation side slopes cannot be accommodated due to space constraints, a shoring system may be required. Additional guidelines for the design and selection of a suitable shoring system could be provided as the design progresses.

In the event that a granular pad is necessary below the foundations, the excavations should be sized to accommodate a pad of imported granular material which extends at least 0.6 metres horizontally beyond the edge of the footings and down and out from this point at 1 horizontal to 1 vertical, or flatter.

Depending on construction methodology, it may be necessary to the lower the groundwater level in the native deposits to about 0.3 metres below the base of the excavation. Below the groundwater level, sloughing of the overburden soils into the excavation should be anticipated, along with disturbance to the soils in the bottom of the excavation. Sloughing of the excavation side slopes below the groundwater level could be reduced, where necessary, by a shoring system installed along the sides of the excavation to below the level of the excavation in combination with pumping from within the excavation.

5.2.2 Groundwater and Pumping Management

Groundwater inflow, if any, from the overburden deposits should be controlled by pumping from filtered sumps within the excavation. It is not expected that short term pumping during excavation will have a significant effect on nearby structures and services. It is anticipated that groundwater inflow from the overburden deposits into the excavations could be handled from within the excavations.

It is noted that groundwater levels and surface water flows can increase during wet periods of the year such as the early spring or following periods of precipitation.

The groundwater handling should be carried out in accordance with provincial and local regulations. Suitable detention and filtration will be required before discharging water. The contractor should be required to submit an excavation and groundwater management plan for review.

Depending on the depth of proposed foundations and groundwater level at the time of construction, an Environmental Activity and Sector Registry (EASR) in accordance with Environmental Protection Act Part II or a Category 3 Permit to Take Water may be required.

5.2.3 Site Grading

As noted above, a site plan was provided to AllRock for review. The site plan indicates no significant grade raise at this site. Based on the current plans the proposed grade raise will be less than 200 millimetres.

The granular fill is not geotechnically suitable and must be stripped from site; however, the native soils at this site are considered suitable for re-use as grade fill at the site unless there is material proposed for reuse which to be taken from greater depths (i.e., below the groundwater level) that could have moisture contents above that for the optimum compaction. If required, the material may need to be allowed to dry prior to reuse. It is noted that any existing or imported fill to be used onsite must be approved by the geotechnical engineer.

All new and/or existing earth fill placed as engineered fill shall be inorganic, geotechnically suitable soil (as approved by AllRock) sourced from the site or clean imported soil. The soil must be placed in loose lifts of 200 millimetres and compacted to 98% of the Standard Proctor Maximum Dry Density (SPMDD), at a moisture content with 2% of optimum. The engineered fill must be placed under the full-time supervision of the geotechnical engineer, who shall perform frequent density measurements to ensure uniformity and adequacy of the compact effort. The engineered fill must extend 3 metres beyond the footprint of the structures and roadway on all sides.

Common earth fill may not be readily compacted in small volumes, such as trenches or in areas adjacent to foundations or catch basins etc. For areas of limited extent, readily compactable aggregate source backfills such as Granular ‘B’ (OPSS 1010) are recommended, if there is to be post-construction grade integrity. All new fill shall be compacted to a minimum of 99% SPMDD.

The proposed grade raise at the site is minimal, and as such, the potential for settlement of the underlying soils is considered negligible. No significant consolidation of existing native soils is expected, and standard placement of engineered fill in accordance with the recommendations provided should provide stable subgrade support. Consequently, settlement is not anticipated to pose a concern for the proposed construction. Subgrade Preparation and Placement of Engineered Fill

Any of the existing granular fill should be removed from below the proposed structures.

Imported granular material (engineered fill) should be used to raise the grade in areas where the proposed founding level is above the level of the native soil, or where sub-excavation of material is required below proposed founding level. The engineered fill should consist of granular material meeting Ontario Provincial Standard Specifications (OPSS) requirements for Granular B Type II and should be compacted in maximum 200-millimetre-thick lifts to at least 99 percent of the standard Proctor maximum dry density. To allow spread of load beneath the footings, the engineered fill should extend horizontally at least 0.6 metres beyond the footings and then down and out from the edges of the footings at 1 horizontal to 1 vertical, or flatter. The excavations should be sized to accommodate this fill placement.

It is noted that engineered fill in excess of 1 metre thick can be expected to experience post-construction settlement in the order of 0.5 to 1 precent of the height of the soil placed (depending on the composition of the engineered fill). It is anticipated that if engineered soil is sourced from the native onsite soils, it may take 2 to 4 months for the majority of post-construction settlement to occur; however, if imported granular fill as such as that meeting the (OPSS) requirements for Granular B Type II, settlement will likely occur within 1 to 2 weeks of placement.

5.2.4 Footing Design

In general, the native silty clay is considered suitable to support the proposed structures founded on conventional strip/spread footings. The existing granular fill is not considered suitable for the support of the proposed development and should be removed from the proposed development areas.

For preliminary design purposes, footings founded on the native sand and gravel or on a pad of compacted engineered fill above native sand and gravel should be sized using a geotechnical reaction at Serviceability Limit State (SLS) of 90 kilopascals and a factored geotechnical resistance at Ultimate Limit State (ULS) of 135 kilopascals.

The post construction total and differential settlement of footings should be less than 25 and 15 millimetres respectively, provided that all loose or disturbed soil is removed from the bearing surface and provided that any engineered fill material is compacted to the required density.

Based on the current plans, the underside of footing elevation will be 102.04 meters geodetic (approximately 1.3 meters below existing grade).

5.2.5 Frost Protection of Foundations

All exterior footings for heated buildings that consist of slab on grade construction or included basement should be provided with at least 1.5 metres of earth cover for frost protection purposes. Isolated, unheated and/or exterior pier footings adjacent to surfaces which are cleaned of snow cover during the winter months should be provided with a minimum of 1.8 metres of earth cover. Alternatively, the required frost protection could be provided by means of a combination of earth cover and extruded polystyrene insulation. Further details regarding the insulation of foundations could be provided at the detailed design stage, if necessary.

5.2.6 Concrete Slab Support (only required for slab-on-grade)

Based on the results of the investigation, the area in the vicinity of the proposed structure is generally underlain by asphalt, fill material and native overburden deposits. The existing topsoil and fill material should be removed from the slab on grade areas. The grade below the concrete slabs on grade could be raised, where necessary, with granular material meeting OPSS Specification book requirements for Granular B. The use of Granular B material is preferred under wet conditions. The granular base for the proposed slab on grade should consist of at least 150 millimeters of Granular A.

All imported granular materials placed below the proposed floor slab should be compacted in maximum 200-millimetre thick lifts to at least 99 percent of the standard Proctor maximum dry density value.

Proper moisture protection with a vapour retarder should be used for any slab on grade where the floor will be covered by moisture sensitive flooring material or where moisture sensitive equipment, products or environments will exist. The “Guide for Concrete Floor and Slab Construction”, ACI 302.1R-04 should be considered for the design and construction of vapour retarders below the floor slab.

Underfloor drainage is considered unlikely provided that the floor slab level is above the finished exterior ground surface level provided the groundwater level is not at ground surface. Additional groundwater levels will be taken to determine the stabilized groundwater level.

Thermal protection of the concrete slab on grade is required in areas that will remain unheated during the winter period. The type of insulation used below the slabs will depend on the stresses imposed on the insulation. The stress on the insulation should not exceed about 35 percent of the insulation’s quoted compressive strength due to the time dependent creep characteristics of this material. Further comments could be provided as the design progresses.

5.3 Site Services

5.3.1 Excavation

Based on the investigation, the excavations for the services within the site will be carried out through granular fill and silty clay.

The sides of the excavations within overburden soils should be sloped in accordance with the requirements in Ontario Regulation 213/91 under the Occupational Health and Safety Act. According to the Act, the soils at this site can be classified as Type 3 soils. Therefore, for design purposes, allowance should be made for 1 horizontal to 1 vertical, or flatter, excavation slopes within the native soils at this site. As an alternative to sloping the excavations, all services installations could be carried out within a tightly fitting, braced steel trench box, which is specifically designed for this purpose.

The groundwater inflow should be controlled throughout the excavation and pipe laying operations by pumping from sumps within the excavation.

5.3.2 Groundwater Pumping

Possible groundwater inflow from the overburden deposits into the excavations could be controlled by pumping from filtered sumps within the excavations. It is not expected that short term pumping during excavation will have any significant affect on nearby structures and services. The groundwater handling should be carried out in accordance with provincial and local regulations. To reduce the groundwater pumping requirements, we suggest that the excavation be planned for the dry period of the year (i.e., June to September).

Suitable detention and filtration will be required before discharging water. The contractor should be required to submit an excavation and groundwater management plan for review.

5.3.3 Pipe Bedding and Cover

The bedding for the sanitary sewers, storm sewers and watermains should be in accordance with OPSD 802.010 and 802.031 for flexible and rigid pipes, respectively. The pipe bedding should consist of at least 150 millimetres of well graded crushed stone meeting OPSS requirements for Granular A. OPSS documents allow recycled asphaltic concrete and concrete to be used in Granular A and Granular B Type II material.

Since the source of recycled material cannot be determined, it is suggested that any granular materials used in the service trenches be composed of virgin (i.e., not recycled) material only. Allowance should be made for sub excavation of any existing fill, organic deposits, or disturbed material encountered at subgrade level.

Allowance should be made to place a subbedding layer composed of 150 to 300 millimetres of OPSS Granular B Type II in areas where wet silty sand is encountered at the pipe subgrade level to reduce the potential for disturbance.

Cover material, from pipe spring line to at least 300 millimetres above the top of the pipe, should consist of granular material, such as OPSS Granular A.

The use of clear crushed stone should not be permitted for the installation of site services, since it could exacerbate groundwater lowering of the overburden materials due to “French Drain” effects.

5.3.4 Seismic Site Classification

According to Table 4.1.8.4.A of the NBCC 2020, Site Class D should be used for the seismic design of the structures bearing on native soils or on engineered fill material over native soils.

In our opinion the soils at this site are not considered to be liquefiable or collapsible under seismic loads.

5.3.5 Lateral Earth Pressures

The static “At Rest” thrust (Po) acting on the walls should be calculated using the following formula:

$$Po = 0.5\ Ko\ \gamma\ H^2$$

where;

- Po: Static at rest thrust component (kN/m);
- γ: Moist material unit weight (kN/ m^3);
- Ko: “At Rest” earth pressure coefficient;
- H: Wall height (m).

Seismic shaking can increase the forces on the retaining walls. The total “At Rest” thrust acting on the wall (Poe) during a seismic event should be calculated using the following formula:

$$P_{oe} = 0.5\ Koe\ \gamma\ H^2$$

where;

- P_{oe}: Total “At rest” thrust (kN/m);
- γ: Moist material unit weight (kN/m^3);
- Ko: “At Rest” earth pressure coefficient;
- Koe: Dynamic at rest earth pressure coefficient;
- H: Wall height (m).

The static thrust component (Po) acts at a point located H/3 above the base of the walls. During seismic shaking, the total “At Rest” thrust (Poe) acts at a point located about H/2 above the base of the wall. It should be noted that the total “At Rest” thrust, Poe, is composed of a static component and a dynamic component.

For design purposes, the parameters provided in Table 5.1 can be used to calculate the thrust acting on the wall during static and seismic loading conditions.

Table 5.1 - Summary of Design Parameters (Building Foundation)

Parameter	OPSS Granular B Type II
Material Unit Weight, γ (kN/m^3)	22
Estimated Friction Angle (degrees)	38
"At Rest" Earth Pressure Coefficient K_o, assuming horizontal backfill behind the structure	0.38
Dynamic "At Rest" Earth Pressure Coefficient K_{oe}, assuming horizontal backfill behind the structure	0.52

According to the 2024 Ontario Building Code, the peak ground acceleration (PGA) for the site is 0.35 for firm ground conditions (i.e., for Site Class C) and has been correct to 0.40 for Site Class D. The dynamic at rest earth pressure coefficient was calculated using the method suggested by Mononobe and Okabe, assuming a horizontal coefficient k_h of 0.37 (taken as the PGA) and assuming that the vertical seismic coefficient k_v. is zero.

5.4 Pavement Design Recommendations

5.4.1 Pavement Structure

The following minimum asphaltic concrete and granular thicknesses, could be used for parking lot construction:

5.4.2 Light Duty Pave Areas (cars and small passenger trucks)

- 60 millimetres of hot mix asphaltic concrete (60 millimetres of Superpave 12.5 (Traffic Level B) over
- 150 millimetres of OPSS Granular A base over
- 300 millimetres of OPSS Granular B, Type II subbase

5.4.3 Heavy Duty Paved Areas (fire route, heavy trucks, trailers etc.)

- 100 millimetres of hot mix asphaltic concrete (50 millimetres of Superpave 12.5 (Traffic Level B) over 50 millimetres of Superpave 19.0 (Traffic Level B) over
- 150 millimetres of OPSS Granular A base over
- 400 millimetres of OPSS Granular B, Type II subbase or

The above pavement structure assumes that any trench backfill for private services is adequately compacted, and that the fire laneway and parking lot subgrade surfaces are prepared as described in this report. If the subgrade surfaces become disturbed or wetted due to construction operations or precipitation, the granular subbase thickness given above may not be adequate and it may be necessary to increase the thickness of the subbase and/or to incorporate a woven geotextile separator between the subgrade surfaces and the granular subbase material. The adequacy of the design pavement thickness should be assessed by geotechnical personnel at the time of construction.

If the granular pavement materials are to be used by construction traffic, it may be necessary to increase the thickness of the granular subbase layer, install a woven geotextile separator between the roadway subgrade surface and the granular subbase material, or a combination of both, to prevent pumping and disturbance to the subbase material. The contractor should be made responsible for their construction access.

5.4.4 Asphalt Cement Type

Performance grade PG 58-34 asphalt cement should be specified for Superpave asphaltic concrete mixes.

5.4.5 Subgrade Preparation

In preparation for parking lot construction at this site, topsoil and any soft, wet, or deleterious materials should be removed from the proposed parking areas.

Prior to placing granular material for the parking lot, the exposed subgrade should be proof rolled using a large (10-ton) roller and approved by geotechnical personnel.

Any soft areas should be sub-excavated and replaced with suitable (dry) earth borrow or well shattered and graded rock fill material that is frost compatible with the materials exposed on the sides of the area of sub-excavation.

Similarly, should it be necessary to raise the parking lot grades at this site, material which meets OPSS specifications for Select Subgrade Material, earth borrow, or well shattered and graded rock fill material may be used.

The select subgrade material or earth borrow should be placed in maximum 300-millimetre-thick lifts and compacted to at least 95 percent of the standard Proctor maximum dry density value using vibratory compaction equipment. Rock fill should also be placed in thin lifts and suitably compacted either with a large drum roller, the haulage and spreading equipment, or a combination of both.

Truck traffic should be avoided on the native soil subgrade and the trench backfill within the roadways especially under wet conditions.

5.4.6 Pavement Drainage

Adequate drainage of the pavement granular materials and subgrade is important for the long-term performance of the pavement at this site. The existing grades at the site should be maintained provided that they provide drainage ditches and/or catch basins to promote drainage of the pavement granular materials. Existing catch basins should already be equipped with minimum 3-metre-long stub drains extending in two directions at the subgrade level.

5.4.7 Granular Material Compaction

The granular base and subbase materials should be compacted in maximum 300-millimetre-thick lifts to at least 99 percent of the standard Proctor maximum dry density value.

6. ADDITIONAL CONSIDERATIONS

6.1 Corrosion of Buried Concrete and Steel

The measured sulphate concentration in the sample of soil obtained from borehole BH1-25 was <0.05 percent. According to the Canadian Standards Association “Concrete Materials and Methods of Concrete Construction” (CSA A23.1-14 Table 3), the concentration of sulphate in the soil sample obtained is considered to have less than the minimum concentration for “moderate” sulfate exposure. As a result, any concrete that will be in contact with the soil can be batched with general-use (GU) cement.

Based on the resistivity and pH of the sample, the soil can be classified as non-aggressive to towards unprotected steel. The manufacturer of any buried steel elements that will be in contact with the soil and groundwater should be consulted to ensure that the durability of the intended product is appropriate. It is noted that the corrosivity of the groundwater could vary throughout the year due to the application of de-icing chemicals.

Other factors (structurally reinforced or non-structurally reinforced, freeze-thaw environment, chloride exposure, agricultural environment) should be considered in selecting the Class of Exposure and associated air entrainment and concrete mix proportions for any concrete.

6.2 Effects of Construction Induced Vibration

Some of the construction operations (such as excavation, granular material compaction, etc.) will cause ground vibration on and off on the site. The vibrations will attenuate with distance from the source but may be felt at nearby structures. Assuming that any excavating is carried out in accordance with the guidelines in this report, the magnitude of the vibrations will be much less than that required to cause damage to the nearby structures or services in good condition but may be felt at the nearby structures.

6.3 Excess Soil Management Plan

This report does not constitute an excess soil management plan. The disposal requirements for excess soil from the site have not been assessed.

6.4 Design Review and Construction Observation

It is recommended that the final design drawings be reviewed by the geotechnical engineer to ensure that the guidelines provided in this report have been interpreted as intended.

The engagement of the services of the geotechnical consultant during construction is recommended to confirm that the subsurface conditions throughout the proposed excavations do not materially differ from those given in the report and that the construction activities do not adversely affect the intent of the design.

The subgrade surfaces for the proposed structures should be inspected by experienced geotechnical personnel to ensure that suitable materials have been reached and properly prepared. The placing and compaction of earth fill and imported granular materials should be inspected to ensure that the materials used conform to the grading and compaction specifications.

7. CLOSURE

We trust this report provides sufficient information for your present purposes. If you have any questions concerning this report, please do not hesitate to contact our office.

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FIGURE TITLE:	KEY MAP
PROJECT:	Proposed Tony Graham Prep Shop
CLIENT:	Pritec
ADDRESS:	2500 Palladium Drive
PROJECT NO: 25013	NTS

AllRock Consulting Ltd

DATE: March 2025	FIGURE NO.: 1
DRAWN BY: JM	CHECKED BY: GD

AllRock Consulting Ltd

174 Colonnade Road #35
Ottawa, Ontario K2E 7J5

Borehole Plan

Client No:	Job No: 25013(2)

Client: Pritec

Project: 2500 Palladium

Address: 2500 Palladium Drive, Kanata, ON, Canada

Legend:

- Borehole Locations
- Groundwater Monitoring Well Locations

Image Source: Google Maps	Viewed: 2025-03-21

Drawn By:	Checked By:	Date:	Figure:
Jeremy Milsom	Greg Davidson	2025-03-21	1

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Appendix A

Record of Borehole Sheets

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Geotechnical Log - Borehole

BH1-25

UTM	**: 18T**	**Drill Rig**	**: Truckmount Drill Rig**	**Job Number**	**: 25013**
Latitude	**: 45.29153**	**Driller Supplier**	**: Downing Drilling**	**Client**	**: Pritec**
Longitude	**: -75.93297**	**Logged By**	**: Jeremy Milsom**	**Project**	**: 2500 Palladium**
Ground Elevation	**: 103.05 (m)**	**Reviewed By**	**: Greg Davidson**	**Location**	**: 2500 Palladium Drive, Kanata, ON, Canada**
Total Depth	**: 7 m BGL**	**Date**	**: 27/02/2025**	**Loc Comment**	**:**

SPT Sample	Grab Sample	Blow Counts	Graphic Log	Elevation / Depth (m)	Material Description	Well Diagram	Water
	GS1			102.29	Unnatural Fill Sub Base Course Granular Fill		
SS1		8,6,7,6 (N=13) R = 70		0.76	Silty Clay Medium plasticity, Moist Grey plasticity, (CL-ML)		
SS2		2,3,2,2 (N=5) R = 24					
SS3		2,2,1,1 (N=3) R = 80					
SS4		1,1,WH,1 (N=2) R = 100					
SS5		WH, WH, WH,WH (N=0) R = 100					
SS6		WH, WH, WH,WH (N=0) R = 100					
SS7		1,1,1,1 (N=2) R = 100			**BH1-25 Terminated at 7m**		Standing

AllRock Consulting

Geotechnical Log - Borehole

BH2-25

UTM	**: 18T**	**Drill Rig**	**: Truckmount Drill Rig**	**Job Number**	**: 25013**
Latitude	**: 45.29157**	**Driller Supplier**	**: Downing Drilling**	**Client**	**: Pritec**
Longitude	**: -75.93302**	**Logged By**	**: Jeremy Milsom**	**Project**	**: 2500 Palladium**
Ground Elevation	**: 103.04 (m)**	**Reviewed By**	**: Greg Davidson**	**Location**	**: 2500 Palladium Drive, Kanata, ON, Canada**
Total Depth	**: 7 m BGL**	**Date**	**: 27/02/2025**	**Loc Comment**	**:**

Samples		Blow Counts	Graphic Log	Elevation / Depth (ft)	Material Description
SPT Sample	Grab Sample				
	GS1			102.28	Unnatural Fill Sub Base Course Granular Fill
SS2		10,8,7,6 (N=15) R = 50		0.76	Silty Clay Medium plasticity, Firm, Moist Grey plasticity, (CL-ML)
SS3		2,2,3,2 (N=5) R = 80			
SS4		1,1,2,1 (N=3) R = 100			
SS5		1,1,WH,1 (N=2) R = 100			
SS6		WH,WH,WH,WH (N=0) R = 100			
SS7		WH,WH,WH,WH (N=0) R = 60			
SS8		2,1,1,1 (N=2) R = 100			**BH2-25 Terminated at 7m**

AllRock Consulting

Geotechnical Log - Borehole

BH3-25

UTM	**: 18T**	**Drill Rig**	**: Truckmount Drill Rig**	**Job Number**	**: 25013**
Latitude	**: 45.29161**	**Driller Supplier**	**: Downing Drilling**	**Client**	**: Pritec**
Longitude	**: -75.93295**	**Logged By**	**: Jeremy Milsom**	**Project**	**: 2500 Palladium**
Ground Elevation	**: 103.2 (m)**	**Reviewed By**	**: Greg Davidson**	**Location**	**: 2500 Palladium Drive, Kanata, ON, Canada**
Total Depth	**: 7 m BGL**	**Date**	**: 27/02/2025**	**Loc Comment**	**:**

Samples		Blow Counts	Graphic Log	Elevation / Depth (m)	Material Description
SPT Sample	Grab Sample				
	GS1			102.43 0.76	Unnatural Fill Sub Base Course Granular
SS1		4,3,4 (N=7) R = 60			Silty Clay Medium plasticity, Stiff, (CL-ML)
SS2		3,4,2,2 (N=6) R = 60			
SS3		1,1,2,1 (N=3) R = 100			
SS4		1,WH,1,1 (N=2) R = 100			
SS5		WH,WH,WH,WH (N=0) R = 100			
SS6		WH,WH,WH,WH (N=0) R = 100			
SS7		(N=2) R = 24			**BH3-25 Terminated at 7 m**

AllRock Consulting Ltd
24 Brydon Drive, Unit #5
Toronto, ON M9W 5R6
1-844-440-7625
www.allrockconsulting.com

Appendix B

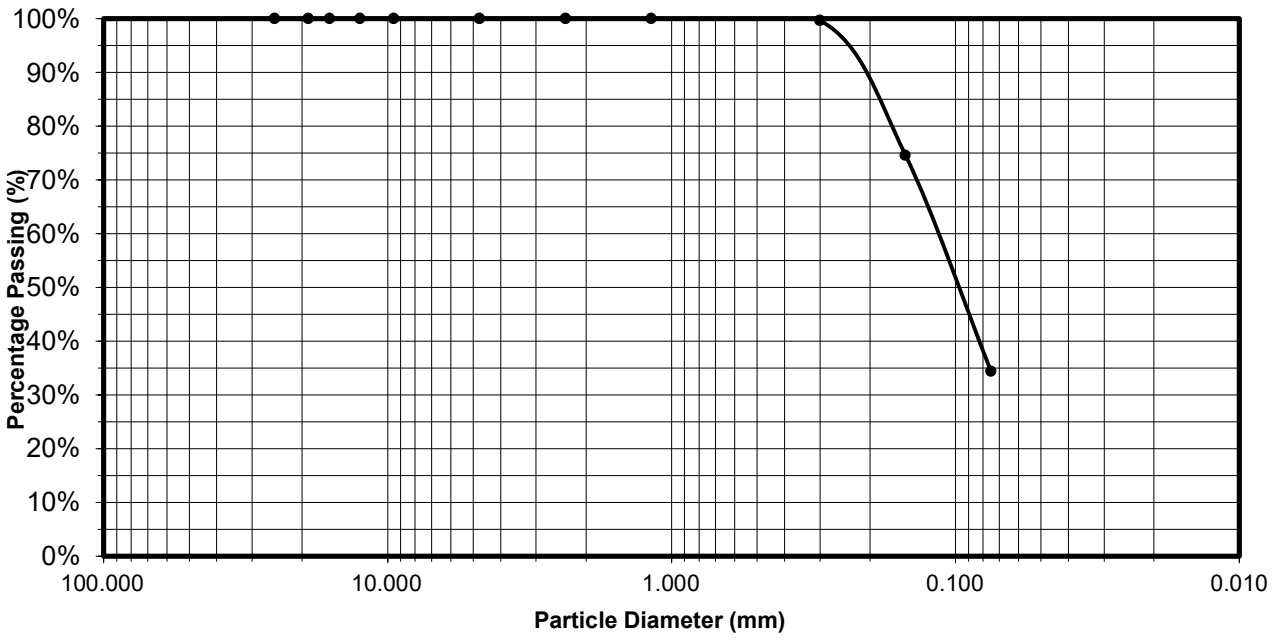
Laboratory Testing Results

SIEVE ANALYSIS OF AGGREGATES
LS-602

AllRock Consulting Ltd
35-174 Colonnade Rd. South
Ottawa, On, K2E7J5

Project:	299 West Hunt Club Road	**Project Number**	25013
Client:	Pritec Management	**Sample Classification:**	Silty Clay Trace Sand
Sample No.	BH2 - SS3	**Sample Depth**	7.5'-9.5'
Date Sampled	February 27, 2025	**Date Tested:**	March 26, 2025
Material Spec:			

Sieve Sizes					Remarks
#	mm	Lower Limit	Upper Limit	Tested Sample	
1"	25			100.0%	More Information Available Upon Request.
3/4"	19			100.0%	
5/8"	16.00			100.0%	
1/2"	12.50			100.0%	Sampled By:
3/8"	9.50			100.0%	J.Milsom
#4	4.75			100.0%	Tested By:
#8	2.36			100.0%	J.Milsom
#16	1.18			100.0%	Approved By
#50	0.3			99.6%	G. Davidson
#100	0.15			74.6%	Moisture Content
#200	0.075			34.4%	17.8

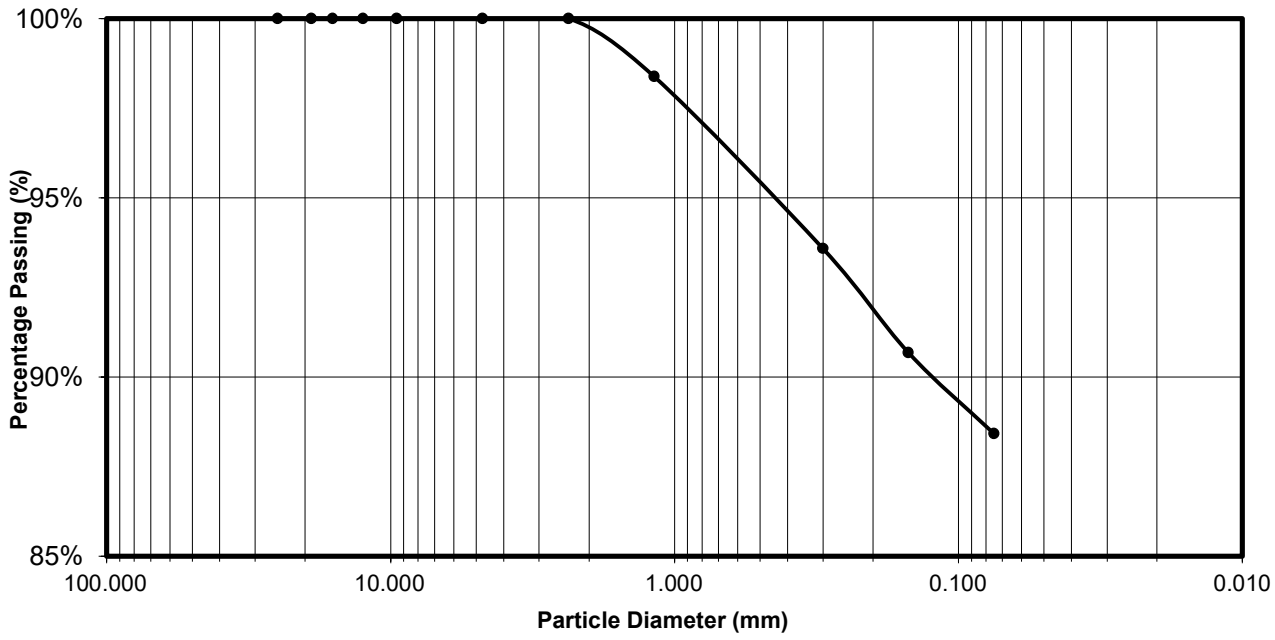


SIEVE ANALYSIS OF AGGREGATES
LS-602

AllRock Consulting Ltd
35-174 Colonnade Rd. South
Ottawa, On, K2E7J5

Project:	25014	**Project Number**	25012
Client:	Pritec Management	**Sample Classification:**	Silty Clay trace Sand
Sample No.	SS5	**Sample Depth**	12.5' - 14.5'
Date Sampled	February 25, 2025	**Date Tested:**	March 27, 2025
Material Spec:			

Sieve Sizes					Remarks
#	mm	Lower Limit	Upper Limit	Tested Sample	
1"	25			100.0%	More Information Available Upon Request.
3/4"	19			100.0%	
5/8"	16.00			100.0%	
1/2"	12.50			100.0%	Sampled By:
3/8"	9.50			100.0%	J.Milsom
#4	4.75			100.0%	Tested By:
#8	2.36			100.0%	J.Milsom
#16	1.18			98.4%	Approved By
#50	0.3			93.6%	G. Davidson
#100	0.15			90.7%	Moisture Content
#200	0.075			88.4%	19.8



AllRock Consulting Ltd
35-174 Colonnade Rd. South
Ottawa, On, K2E7J5

SOIL MOISTURE CONTENT REPORT

Prject Information	
Project Name:	2500 Palladium Drive
Project No.:	25013
Client:	Pritec Management
Sampled By:	J.Milsom
Date Sampled:	February 27, 2025
Sample Description:	Soil Samples
Tested By:	J.Milsom
Date Tested:	March 25, 2025
Reviewed By:	G. Davidson
Date Reviewed:	March 26, 2025

Soil Moisture Content		
Sample	Sample Depth	Moisture Content (%)
BH2 - SS3	7.5'-9.5'	17.8

AllRock Consulting Ltd
35-174 Colonnade Rd. South
Ottawa, On, K2E7J5

SOIL MOISTURE CONTENT REPORT

Prject Information	
Project Name:	2500 Palladium Drive
Project No.:	25013
Client:	Pritec Management
Sampled By:	J.Milsom
Date Sampled:	February 27, 2025
Sample Description:	Soil Samples
Tested By:	J.Milsom
Date Tested:	March 26, 2025
Reviewed By:	G. Davidson
Date Reviewed:	March 26, 2025

Soil Moisture Content		
Sample	Sample Depth	Moisture Content (%)
BH3 - SS5	12.5 - 14.5'	19.8

eurofins | Environment Testing
146 Colonnade Rd, Unit 8, Ottawa, ON K2E 7Y1 (613) 727-5692

OFFICIAL CERTIFICATE OF ANALYSIS - RESULTS

Client : AllRock Consulting Ltd.
Project : 25191

Reception Date: 2025-08-14

					Eurofins Sample No :	**8915453**	**8915454**	**8915455**	**8915456**	**8915457**
					Matrix :	Soil 153	Soil 153	Soil 153	Soil 153	Soil 153
					Sampling Date :	2025-08-14	2025-08-14	2025-08-14	2025-08-14	2025-08-14
					Client Sample Identification :	HA25-01	HA25-02	HA25-03	HA25-04	HA25-05
General Chemistry	**RL**	**Unit**	**Criteria**							
			A	**B**	**C**					
Boron, HWS (Soil, OES)										
Boron (Hot Water Soluble)	0.25	ug/g		1.5	2	0.26	0.30	0.29	<0.25	<0.25
Conductivity (Soil, Manual Meter)										
Electrical Conductivity	0.05	mS/cm	0.57	0.7	1.4	0.35	0.38	0.33	0.41	0.65
Cyanide, Free (Soil, Colorimetry)										
Cyanide (Free)	0.005	ug/g	0.051	0.051	0.051	<0.005	<0.005	<0.005	<0.005	<0.005
pH (Soil, 1:2 CaCl2, Manual Meter)										
pH (1:2 CaCl2)	1					7.01	7.38	7.29	7.24	7.05
SAR (Calculation, Soil)										
Sodium Absorption Ratio (SAR)^	0.01		2.4	5	12	3.26	3.37	2.99	4.12	9.60

					Eurofins Sample No :	**8915458**	**8915459**	**8915460**		
					Matrix :	Soil 153	Soil 153	Soil 153		
					Sampling Date :	2025-08-14	2025-08-14	2025-08-14		
					Client Sample Identification :	HA25-06	HA25-07	DUP (HA25-04)		
General Chemistry	**RL**	**Unit**	**Criteria**							
			A	**B**	**C**					
Boron, HWS (Soil, OES)										
Boron (Hot Water Soluble)	0.25	ug/g		1.5	2	<0.25	<0.25	<0.25		
Conductivity (Soil, Manual Meter)										
Electrical Conductivity	0.05	mS/cm	0.57	0.7	1.4	0.40	0.16	0.43		
Cyanide, Free (Soil, Colorimetry)										
Cyanide (Free)	0.005	ug/g	0.051	0.051	0.051	<0.005	<0.005	<0.005		
pH (Soil, 1:2 CaCl2, Manual Meter)										
pH (1:2 CaCl2)	1					6.89	7.25	7.15		
SAR (Calculation, Soil)										
Sodium Absorption Ratio (SAR)^	0.01		2.4	5	12	5.09	0.45	4.47		

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OFFICIAL CERTIFICATE OF ANALYSIS : 4446608

WORK REQUEST : 100381175

Report Date : 2025-09-02

AllRock Consulting Ltd.
24 Brydon Drive, Unit 5
Toronto, Ontario
M9W 5R6
Attention : Jeremy Milsom

Reception Date :	2025-08-28
Project :	25013
Sampler :	NA
PO Number :	Not Applicable
Temperature :	20 °C

Analysis	Quantity	External Method
Sulphate (Soil, Gravimetric)	1	Modified from 28-3, Methods of Soil Analysis

Sample status upon receipt :

8972218
Compliant

Notes :

- All analysis is completed at Eurofins Environment Testing Canada Inc. (Ottawa, Ontario) unless otherwise stated.
- Eurofins Environment Testing Canada Inc. is accredited by CALA, Canadian Association for Laboratory Accreditation to ISO/IEC 17025 for tests which appear on the scope of accreditation. The scope is available at https://directory.cala.ca/
- Please note: Field data, where presented on the report, has been provided by the client and is presented for informational purposes only. Guideline or regulatory limits listed on this report are provided for ease of use (informational purposes) only. Eurofins recommends consulting the official guideline or regulation as required. Unless otherwise stated, measurement uncertainty is not taken into account when determining guideline or regulatory exceedances.

Legend :

RL : Reporting limit	N/A : Not applicable	* : Analysis conducted by external subcontracting
QC : Reference material (QC)	1 : Results in annex	^ : Analysis not accredited

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OFFICIAL CERTIFICATE OF ANALYSIS - RESULTS

Client : AllRock Consulting Ltd.
Project : 25013

Reception Date: 2025-08-28

Eurofins Sample No :			**8972218**						
Matrix :			Soil						
Sampling Date :			2025-08-27						
Client Sample Identification :			SS1						
Anions	**RL**	**Unit**							
Sulphate^	0.01	%	0.031						

Approved by :

Patrick Jacques, B.Sc, C.Chem,
Environmental Chemist, Ottawa

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OFFICIAL CERTIFICATE OF ANALYSIS - QUALITY CONTROL

Client : AllRock Consulting Ltd.
Project : 25013

Reception Date: 2025-08-28

Parameter	Unit	RL	Blank	QC		Matrix Spike		Duplicate	
				Recovery %	Range %	Recovery %	Range %	RPD %	Range %
Sulphate (Soil, Gravimetric)									
Method : Sulphate (Soil, Gravimetric). Internal method: AMSO4SE2.									
Sulphate^	%	0.01	<0.01	99	90-110	101	70-130	-	0-40
Associated Samples : 8972218								Prep Date: 2025-08-31 Analysis Date: 2025-08-31	

Where RPD % is reported as "-" the calculation is not available because one or both of the duplicates is within 5 times the RL.

eurofins 236275

STANDARD CHAIN-OF-CUSTODY

146 Colonnade Road, Unit #8, Ottawa, ON, K2E 7Y1 - Phone: 613-727-5692, Fax: 613-727-5222

CLIENT INFORMATION

Company: All Rock Consulting
Contact: Jeremy milsom
Address: 174 Colonnade Road
Telephone: 613-608-4059 Cell:
Email: #1: Jeremy.milsom@Allrock Consulting.com
Email: #2:
Project: 25013 Quote #:

INVOICE INFORMATION (SAME AS CLIENT INFORMATION: YES ☐ NO ☐)

Company:
Contact: Email: #1:
Address: Email: #2:
Telephone: PO #:

TURN-AROUND TIME (Business Days)

☑ 1 Day* (100%) ☐ 2 Day** (50%) ☐ 3-5 Days (25%) ☐ 5-7 Days (Standard)

Please contact Lab in advance to determine rush availability. *For results reported after rush due date, surcharges will apply: before 12:00 - 100%, after 12:00 - 50%. **For results reported after rush due date, surcharges will apply: before 12:00 - 50%, after 12:00 - 25%.

TCLP, SPLP, PFAS, and NP/NPE the rush surcharges are 100% (3 day) and 50% (4 day). For farm soils the rush surcharge is 100% (3-5 days). Regular TAT is 10 days.

REGULATION/GUIDELINE REQUIRED

☐ Sanitary Sewer, City:
☐ Storm Sewer, City:
☐ ODWSOG (Use DW COC if samples are for human consumption)
☐ PWQO
☐ O.Reg. 347 (TCLP)
☐ Other:

☐ O. Reg. 153/04
The sample results from this submission will form part of a formal Record of Site Condition (RSC) under O.Reg. 153/04. Analysis of full parameter list only Yes ☐ No ☐
Table # ___, Coarse / Fine, Surface / subsurface
Type: Com-Ind / Res-Park / Agri / GW / All Other / Sediment

☐ O. Reg 406 Excess Soils
Table # _____ Full depth/Strat/Ceiling/mSPLP Leachate
Type: Com-Ind /Res-Park /Agri/All Other
Category: Surface /Subsurface

The optimal temperature conditions during transport is 4 - 10°C. Sample(s) cannot be frozen, unless otherwise indicated or agreed upon with the Laboratory. This COC must not be used for drinking water samples. The COC must be complete upon submission of the samples, there will be a $25 surcharge if required information is missing (required fields are shaded in grey).

Occasionally, situations arise in which Eurofins Environment Testing Canada (Ottawa) is unable to process a sample after receipt. By signing this chain-of-custody form, the client agrees that Eurofins Environment Testing Canada (Ottawa) may subcontract samples to a laboratory that is similarly accredited. This subcontracted laboratory will perform the same analysis using the same or similar methodology. Agreements made in advance to subcontract to a specific laboratory will be honored.

Sample Details

Sample ID	Date/Time Collected	Sample Matrix	# of Containers	O.Reg.153/04 parameters: PHC F1 - F4	BTEX	VOCs	PAHs	PCBs	Metals + Inorganics	Metals only	Sulphides	RN# (Lab Use Only)
SS1	August 27										✓	8972218

RUSH

S-8194. ULINE. 800-295-5510

	PRINT NAME	LOCATION	SIGN	DATE/TIME	TEMP (°C)
Sampled By:	Jeremy milsom	2500 palladium			
Relinquished By:	Jeremy milsom				
Received By:					
Received By:	Makeyna Pursoo	OTT		Aug 28, 2025 16:29	20°C

COMMENTS:

100381175

Printed On : 2025-08-28 16:48:05

CUSTODY SEAL: ☐ YES ☐ NO Ice packs submit ☐ Yes ☐ No