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G1187V2 **DECEMBER 2022**

PRELIMINARY GEOTECHNICAL REPORT
PROPOSED RESIDENTIAL DEVELOPMENT
190 RUTLEDGE ROAD
MISSISSAUGA, ONTARIO

DISTRIBUTION:

1 COPY (electronic)	FOREST GREEN HOMES
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PREPARED FOR:

FOREST GREEN HOMES
5332 HIGHWAY 7, 2ND FLOOR
WOODBRIDGE, ON
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1.0 INTRODUCTION

MCR was retained by Forest Green Homes, to prepare a geotechnical report for the proposed residential/commercial development located at 190 Rutledge Road, in the City of Mississauga, Ontario.

The objective of the report was to determine design data required for foundations, dewatering, shoring/excavation, backfill, slab on grade, and pavement. The above design and construction issues are addressed in the following report.

2.0 SITE CONDITIONS

The Site is located on the north and west side of Rutledge Road, approximately 785 m southwest of the intersection of Queen Street South and Britannia Road West.

The Site is irregular in shape with an area of approximately 6,232 m^2 and is mostly a vacant lot with a one storey building.

3.0 PROPOSED DEVELOPMENT

The Site is proposed for residential development consisting of a ten [10] storey building with three to four [3 to 4] levels of below grade parking.

Based on the architectural drawings presented in Appendix A, ground finished floor slab elevation (FFE) will be at an elevation of 164.00 m, P3 FFE will be at elevations of 153.845 to 150.895 m and partial P4 FFE will be at elevations 50.645 to 149.450 m.

4.0 SITE INVESTIGATION

Initially, four (4) boreholes (BH 101 to BH 104) were drilled by MCR at the subject Site during the period of April 26 to 30, 2007.

Four (4) supplementary boreholes (BH 201 to 204) were drilled by MCR at the subject Site during the period of February 13 to 18, 2020.

The borehole locations are shown in Drawing No. 1 and the borehole records are presented in Appendix B.

Monitoring wells were installed in boreholes 102, 202 and 203 for long term groundwater monitoring and water sampling.

Elevations of boreholes 101 to 104, referred to in this report are geodetic and metric and are referenced to the top of the railway crossing, located at the southeast corner of the subject site, with an Elevation of 159.65 m, as per the Preliminary grading plan by Land-Pro Engineering Consultants Inc., issued in January 2004.

Borehole 201 to 204 elevations, referred to in this report, are geodetic and metric, and are referenced to two local benchmarks; a catch basin with a reported elevation of 163.38 m and a manhole with a reported elevation of 160.67 m, based on a survey plan by Land Survey Group dated October 16, 2019.

Borehole elevations are shown on the borehole logs in Appendix B.

5.0 SOIL AND GROUNDWATER CONDITIONS

Subsurface conditions encountered at the borehole locations are shown on Borehole Log Sheets, attached in Appendix B and summarized on a Soil Profile/Drawing No. 2&3, as follows:

Fill: Soft to stiff/loose fill was found at the surface of all boreholes and extended to depths of 1.00 to 9.15 m. The grey to black/brown to black/brown fill consisted of silty clay/clayey silt/sandy silt soils. The fill contained trace to some sand and gravel, trace of organics and rootlets, shale fragments and was in a moist to wet condition.

For the purpose of offsite disposal, the type/quality and extent of the existing fill should be explored by further test pit/borehole investigation prior to contract award.

Organics: A layer of firm peat was found below the fill in borehole 103 and extended to the depth of 3.05 m. The black peat layer was in a moist condition.

Sand: Compact to loose layer of fine to medium sand was detected below fill in borehole 102 and extended to the depth of 2.30 m. The brown sand layer contained trace of silt, gravel and organics and was in a moist condition.

Clayey Silt (Till)/Silty Clay: Firm to hard layer of clayey silt (till)/silty clay was observed below the fill/organics/sand in all boreholes and extend to the depths of 4.25 to 12.20 m. The brown to grey/mottled grey/black clayey silt (till)/silty clay deposit contained wet sandy silt seams, cobbles, some gravel and sand, trace organics and rootlets, oxidized fissures and was in a moist to wet condition.

Sandy Silt Till/Weathered Shale Complex: Grey moist sandy silt till/weathered shale complex was encountered below the clayey silt (till)/silty clay in all boreholes at depths ranging from 4.25 to 12.20 m i.e., elevations 152.75 to 154.25 m and extended to depths 4.55 to 12.95 m, i.e., elevations 150.90 to 152.95 m to the underlying weathered shale in boreholes 101, 104, 201 to 203, and to refusal due to probable shale or limestone in boreholes 102, 103 and 204.

It should be noted that the till/sand soil is an unsorted deposit; therefore, boulders and cobbles are anticipated.

Shale Bedrock: Grey, moist shale bedrock was detected below the sandy silt till/weathered shale complex in all the boreholes except 102, 103 and 204 at about depths of 4.55 to 12.95 m i.e., elevations 150.90 to 152.95 m and extended to extended to the maximum explored depth of the boreholes.

The surface of the shale bedrock will vary across the site; therefore, it should be confirmed by further borehole investigation and during foundation installations.

Groundwater: Upon completion of drilling, boreholes 101, 104, 202, 203 and 204 remained dry. Groundwater was measured at depths ranging from 3.65 to 5.30 m in rest of the boreholes.

The results of subsequent groundwater level monitoring are summarized in Table 1.

Table 1 – Groundwater Level Monitoring Results

Monitoring Well Id	Ground Surface Elevation (masl)	Water Level (mbgs)	Groundwater Elevation (masl)	Date of Measurement (mm/dd/yyyy)	Depth of Well (mbgs)	Depth of Bentonite (mbgs)	Length of Screen (m)	Inside Diameter of Pipe (mm)	Top of Monitoring Well
BH 102	157.45	-0.1	157.55	04/30/2007	5.50	2.15	3.05	50	Protective Metal Casing
		-0.1	157.55	05/01/2007					
BH 202	165.40	8.45	156.95	02/19/2020	12.80	9.14	3.05	50	Protective Metal Casing
		9.04	156.36	11/03/2022					
		9.16	156.24	11/16/2022					
BH 203	159.75	6.61	153.14	02/19/2020	7.01	3.35	3.05	50	Protective Metal Casing
		4.76	154.99	11/03/2022					
		4.75	155.00	11/16/2022					
Min	157.45	-0.10	153.14	-	5.50	-	-	-	-
Max	165.40	9.16	157.55	-	12.80	-	-	-	-
Average	160.87	5.32	155.97	-	8.44	-	-	-	-

Please note that the groundwater levels are subject to seasonal fluctuations. Consequently, definitive information on the long-term groundwater levels could not be obtained at the present time.

In addition, the sedimentary bedrock contains waterbearing bedding planes. Please note that the presence/thickness of bedding planes is difficult to assess due to rock coring pressure.

When the bedding planes are intercepted in rock excavation, caissons or elevator pistons etc., a substantial amount of water, often under a hydrostatic head may be encountered.

Geohydrology assessment study is currently underway by MCR. The results of the assessment will be presented in a separate report upon completion.

Subject to the owner's approval, groundwater monitoring should continue, and the results should be presented in a separate report addressing Geohydrology/Dewatering induced Settlement issues, if required.

6.0 FOUNDATION

The Site is proposed for residential development consisting of a ten [10] storey building with three to four [3 to 4] levels of below grade parking.

Based on the architectural drawings presented in Appendix A, ground finished floor slab elevation (FFE) will be at an elevation of 164.00 m, P3 FFE will be at elevations of 153.845 to 150.895 m and partial P4 FFE will be at of 150.645 to 149.450 m.

Based on the encountered soil/rock conditions and subject to design grades/final loads the proposed development with three to four [3 to 4] levels of underground parking, can be supported on conventional spread/strip footings.

The recommendations are based on the current information and design. Should changes are made during the design phase or construction, this office must be retained to modify recommendations accordingly or propose additional field work.

6.1 SPREAD/STRIP FOOTINGS

The proposed footings could be proportioned using the following bearing resistance:

Factored Bearing Resistance at ULS = 3500 kPa
Bearing Resistance at SLS = 2500 kPa

When the underside of the footings is founded in weathered shale bedrock, at least 500 mm below the surface of shale, at or below an approximate Elevation of 150.40 m, **subject to the depth of shale bedrock across the site and field inspection during footing installation.**

Alternatively, the proposed footings could be proportioned using the following bearing resistance:

Factored Bearing Resistance at ULS = 7000 kPa
Bearing Resistance at SLS = 5000 kPa

When founded in sound shale bedrock at or below an Elevation of 148.90 m, and at least 1.50 m below the surface of the shale bedrock, **subject to the depth of shale bedrock across the site and field inspection during footing installation.**

6.2 GENERAL FOUNDATION NOTES

It should be noted that the till, and interbedded sand soils, in southern Ontario are glacial/interglacial in origin and as such contain cobbles, boulders and other erratic rock, the precise placement and location of which cannot be determined without comprehensive excavation. Removal of cobbles, boulders and other erratic rock will usually result in extra excavation and construction cost.

It is recommended that your excavation and construction contract provisions include unit prices for excavation into wet soils which may contain cobbles, boulders and erratic rock to minimize potential unexpected extra costs during excavation and foundation installations.

Adjacent footings, founded at different elevations, preferably are to be stepped at 10 horizontal to 7 vertical, subject to rock condition during excavations.

For frost protection requirements, the exterior footings and footings in unheated P3/P4 areas must have a minimum shale bedrock cover of 0.5 m.

Any water or loose materials must be removed from the footing bases prior to placing concrete.

The recommended resistance at SLS allows for up to 25 mm of total settlement. Potential differential settlements are to be evaluated after completion of the foundation drawings.

Furthermore, the recommended bearing resistance and foundation elevations have been calculated from the limited borehole information and are intended for design purposes only. More specific information with respect to rock/foundation conditions will be available when the proposed shoring/foundation construction is underway.

Therefore, the encountered rock/foundation conditions must be verified in the field, and all drilled foundations/footings must be inspected and approved by our office prior to placement of concrete.

7.0 EARTHQUAKE CONSIDERATION

The building must be designed to resist a minimum earthquake force. The National Building Code specifies that the building be designed to withstand a minimum lateral seismic force, V, which is assumed to act non-currently in any direction on the building as per the following expression:

$$V = S(T_a)\, M_v I_E W / R_d R_o$$

It should be noted that V shall not be less than:

$$S(2.0)\, M_v I_E W / R_d R_o$$

In addition, the SFRS (Seismic Force Resisting System (s)) with R_d equal to or greater than 1.5, V should not be greater than:

$$2/3\, S(0.2)\, I_E W / R_d R_o$$

Where $S(T_a)$ shall be calculated by $S_a(T_a)F_a$ or $S_a(T_a)F_v$, depending on fundamental lateral period T_a. The terms, which are relevant to the geotechnical conditions at the site, are acceleration-based site coefficient F_a and velocity-based site coefficient F_v.

For the subject site, classified as Class B (based on the borehole information), the applicable values of Fa and Fv are 0.8 and 0.6 respectively. A structural consultant should review all factors.

8.0 BASEMENT WALLS

Underground parking walls should be designed to resist a pressure "p", at any depth, "h" below the surface, as given by the expression:

$$p = 0.40[\gamma h + q]$$

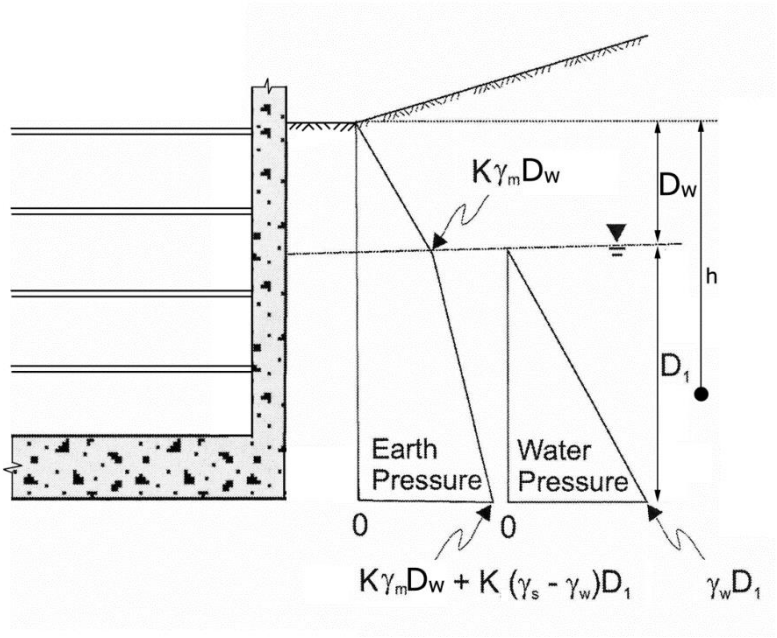
Where: K = 0.40 for the earth pressure coefficient considered applicable
K = 0.25 for the shale pressure coefficient considered applicable
γ = 21.7 kN/m^3 is the unit weight of backfill
q = an allowance for surcharge.

The above equation assumes that perimeter drains will be provided and that the backfill against subsurface walls, where applicable, would be a free draining granular material.

However, subject to groundwater conditions and the presence of the wet soils, all subject to further groundwater monitoring results, we suggest that perimeter walls below the groundwater level be designed for hydrostatic pressure to resist a pressure "p", at any depth "h" below the surface, as given by the expression:

$$p = \begin{cases} Kq + K\gamma_m h & h \le D_w \\ Kq + K\gamma_w D_w + K(\gamma_s - \gamma_w)(h - D_w) + \gamma_w(h - D_w) & h > D_w \end{cases}$$

Where: K = 0.50 for the earth pressure coefficient considered applicable
K = 0.25 for the shale pressure coefficient considered applicable
γ_m = 20 kN/m^3 is moist or wet soil unit weight
γ_s = 21.7 kN/m^3 is saturated soil unit weight
γ_w = 9.80 kN/m^3 is the unit weight of water
q = an allowance for surcharge



9.0 DEWATERING

The excavation for the proposed underground parking will extend below the groundwater table, subject to further investigation, groundwater monitoring results and excavation condition.

For soldier pile/lagging, to protect the sides of the excavation from being disturbed by excess groundwater pressure, i.e. to prevent quick sand/dilating silt conditions, the water table should initially be lowered to the top of bedrock.

Positive dewatering, above bedrock, should consist of well points. The selected dewatering system, designed by a specialty contractor, will be most effective if it is installed and activated at the earliest opportunity during general excavation.

To control the potential localized groundwater influx, bedrock could be trenched and temporary sump pumps installed.

Where caisson wall shoring is required, any breaches in caisson wall shoring might result in localized piping. Creation of piping channels might increase the volume of both temporary dewatering and permanent drainage. It is critical that during general excavation **potential formation of localized piping be carefully evaluated and**

appropriate corrective measures implemented.

A pre-construction survey of adjacent structures/roads should be carried out prior to the dewatering/shoring construction/foundation installation stage. Potential adverse effects on adjacent structures, due to the dewatering must be assessed/quantified and suitable preventive/remedial measures implemented.

10.0 EXCAVATION AND BACKFILL

Excess soils shall be managed in accordance to O. Reg. 406/19. As of January 1, 2022, the Project Leader may be required to file a notice in the registry as prescribed under Section 8 of the regulation. The notice shall contain the information set out in Schedule 1 of the regulation. Before the notice is filed the Project Leader shall ensure that a Qualified Person (Qualified Person within the meaning of Section 5 or 6 of O. Reg. 153/04) prepares the documents, as required, under Sections 11, 12, 13 of the regulation.

The Project Leader shall, if required to file a notice and before removing excess soil from the project area, develop and apply a tracking system in accordance with the Soil Rules, to track each load of excess soil during its transportation and deposit.

No major problems will be encountered for the anticipated depth of general excavations, carried out within a shoring wall enclosure.

The excavation in weathered shale bedrock can be carried out with a heavy-duty backhoe. However, the shoring/foundation contractor must be aware that the relatively harder and thick limestone slabs or seams, are interbedded in the shale bedrock.

For excavation above the water table, the anticipated water seepage, if any, into the excavations from the more permeable seams/lenses or surface run-off can be handled by conventional pumping methods.

A dewatering system such as well points will be required for excavation at/below the groundwater level, above bedrock, subject to excavation condition and long-term groundwater monitoring results.

The material to be used for backfilling under floor slab should be size 19 mm clear stone.

In service trenches (outside the building), the fill should be suitable for compaction, i.e. free of limestone fragments of a size greater than 150 mm, and with natural moisture content, which is within 2 percent of the optimum moisture content.

The backfill material should be compacted to at least 98 percent of the Standard Proctor Maximum Dry Density (SPMDD).

The backfill under floor slab against subsurface walls, where applicable, should be free draining granular fill, preferably conforming to the Ontario Provincial Standard Specification for granular base course, Granular B.

11.0 SHORING

The installed/existing shoring system, especially if secant caisson walls were used, should be carefully evaluated for a potential re-use, plus new macropiles/tiebacks/rock bolts. To be discussed with selected shoring designer/contractor.

Assuming the existing substructure, including perimeter walls, will be demolished, a shoring system should be designed to protect adjacent structures and services. The fourth edition of the Foundation Manual should be referred to for the design of the shoring system.

It should be noted that groundwater and cobbles/boulders might be encountered during soldier pile/caisson construction, and the contractor must be prepared to deal with boulders and water seepage into the caisson shafts without undue delays.

Specifically, the shoring contractor may experience difficulties during the drilling the much harder/thick limestone slabs.

Subject to groundwater conditions/monitoring results; it might be difficult to prevent groundwater from penetrating into the excavation through gaps in timber lagging.

The geotechnical parameters, which are considered to be applicable for the design, are as follows:

Active earth pressure coefficient Ka = 0.45 for walls in areas where structures or sensitive services are being supported.

Active earth pressure coefficient Ka = 0.28 for remaining areas.

Natural unit weight of soil = 21.7 kN/m^3

Passive pressure coefficient in shale bedrock Kp = 5

Any surcharge loads must be included in the lateral pressure calculations.

Lateral movements of the shoring wall, designed using Ka = 0.28, are expected to be in order of 15 mm. They are expected to be less if Ka value of 0.45 is used. The expected movements are based on a properly constructed system.

The horizontal and vertical movements should be monitored during construction to ensure satisfactory performance of the shoring system.

Soil and rock anchors should be designed for 30 and 600 kPa (based on our experience with the area and subject to confirmation by on site load tests). **It is re-iterated that subsurface conditions may vary beyond the site's confines. As a result, the design values must be confirmed by at least two load tests, carried out to twice the design load.**

It is imperative that a stability analysis of the entire support system is undertaken prior to commencement of construction. The final shoring design should be reviewed by our office.

Space and groundwater influx permitting, lowest parking level could be excavated "neat" into the rock face. A sufficient rock bench/rock bolts will be required to secure the integrity of the shoring system.

The exposed rock face could be shotcreted, subject to site condition/field inspection

during excavation.

Schematic drawing for the proposed permanent drainage system is enclosed (Drawing No. 4).

In addition, a pre-construction survey of the surrounding structures/roads is recommended prior to commencement of shoring construction.

The shoring system and surrounding structures must be monitored for horizontal and vertical movements, prior to, during and after the excavation.

12.0 SLAB ON GRADE AND PERMANENT DRAINAGE

The lowest garage floor slabs can be constructed as slab on grade (SOG), supported by shale bedrock.

Upon completion of foundation work, the SOG should rest on a well compacted bed of size 19 mm clear stone at least 200 mm thick. The stone bed would act as a barrier and prevent capillary rise of moisture from the subgrade to the floor slab.

A permanent Private Water Drainage System (PWDS), as shown on Drawings No. 4 and 5, where shoring is constructed, should be considered. Please note that MCR does not prepare working/shop drawings for the PWDS.

To minimize siltation, all drainage pipe connections must be solid slotted PVC, with elbows and Ts, no “butt” end connections should be permitted. The pipes should slope to a sump at a minimum 1% slope.

Perimeter drainage pipes, with a positive gravity outlet, should be solid and slotted PVC with a minimum of 0.5% slope. In addition, silt traps must be provided at convenient/accessible locations.

We request that PWDS drawings indicate design elevations for both perimeter and underfloor installation. MCR will provide calculations for sizing of permanent pumps, when required.

Upon completion of general excavation, scope and adequacy of the PWDS is to be re-evaluated. The installation of PWDS must be inspected by our office, prior to placement of filter stone.

Design changes must be approved by the architect and reflected on mandatory as built drawings. *

* A copy of this page “Slab on grade and Permanent Water Drainage System” page should be posted at a site office as a permanent display.

In addition, the elevator pit should be fully waterproofed as shown on Drawing No. 6.

13.0 PAVEMENT

The critical section of pavement will be at the transition from the infinitely rigid substructure onto soil/backfill subgrade.

As a result, we suggest that an approach type slab be considered to protect underground utilities (on the City’s property) at the entrance/exit points, as shown on Drawing No. 7.

The approach slab will alleviate detrimental effects of dynamic loading/settlement/pavement depression in the backfill to the rigid substructure.

Subject to the anticipated road traffic volumes/AADT/axle loads, the pavement structural design matrix as per City of Mississauga Standards presented in Table 2 and attached in Appendix C, must be followed.

In pavement areas, any organic soil/topsoil/loose fill should be removed (subject to field inspection) and the base should be thoroughly proof-rolled. Any soft spots revealed during proof rolling should be sub-excavated and backfilled with suitable materials, compacted to 98 % SPMDD.

The natural soil is of a low permeability and frost susceptible. The design of pavement is therefore mainly influenced by the need to minimize the effects of freezing and

thawing. Consequently, the ground must not be unnecessarily disturbed and drainage must be provided.

The subgrade should be sloped at least 2% to facilitate drainage towards catch basins and the final subgrade should be compacted before the pavement is constructed.

Table 2 – Pavement Structural Design Matrix as Per City of Mississauga

Class of Road	Structural Road Component	Minimum Structural Road Depth (mm)			
Arterial / Industrial & Residential / Collector Local Industrial	Top Course Asphalt	40	40	40	40
	Base Course Asphalt	60	85	100	100
	Granular Base	200	200	200	200
	Granular Sub-Base	65	325	400	400
	Total Depth	**365**	**650**	**740**	**740**
Minor Local Industrial / Minor Residential / Collector	Top Course Asphalt	40	40	40	40
	Base Course Asphalt	50	85	100	100
	Granular Base	200	200	200	200
	Granular Sub-Base	0	225	325	360
	Total Depth	**290**	**580**	**665**	**700**
Residential (Minor Local/Local)	Top Course Asphalt	40	40	40	40
	Base Course Asphalt	50	85	85	100
	Granular Base	200	200	200	200
	Granular Sub-Base	0	175	235	250
	Total Depth	**290**	**500**	**560**	**590**
Frost Susceptibility Factor		1 (80% Sand)	3 5 7 (30% MAX. Silt; 30% MIN. Sand)	11 (55% MAX. Silt)	15 (+55% Silt)

A typical pavement structure above garage roof slab, please see Drawings No. 8 and 9.

It should be noted that the subgrade should be dry, not spongy, during the compaction and construction of the [sub] base.

Soft or spongy subgrade areas should also be sub-excavated and properly replaced

with suitable approved backfill, compacted to 98 % SPMDD.

The subgrade will suffer strength regression if water is allowed to infiltrate into the mantle. Therefore, sub-drains should be installed (subject to field inspection) to prevent surface water from infiltrating into the road subgrade.

For construction of concrete curbs, it is recommended that the concrete curbs be constructed on a granular base of at least 300 mm thick of granular A material, subject to pavement design.

In addition, in soft and/or wet areas Geotextile filter fabric/Geogrid may have to be used.

Again, pavement designs, as per the City of Mississauga Standard Requirements, attached to this report as Appendix C, are adequate for this Development.

All granular materials used in the pavement construction should be compacted to 100 % of the Standard Proctor Maximum Dry Density.

Should the proposed roads be constructed during wet seasons, the moisture content in the subgrade will probably be above the optimum, and this will render its shear strength inadequate to support paving equipment traffic. In the above case, the granular sub/base should be replaced by an equal thickness of compacted size 50 mm Crusher-Run Limestone.

14.0 METHANE GAS

The concentrations of methane gas in the borehole were measured at all samples and no gas was detected. The methane gas concentrations are presented on the attached MCR's borehole log sheets in Appendix B.

15.0 GENERAL COMMENTS

The comments given in this report are intended only as guidance for design engineers and are subject to field verification during construction. As more specific subsurface information, with respect to conditions between boreholes becomes available during excavations on the subject site, this report should be updated.

Contractors bidding on or undertaking the work should decide on their own investigations, as well as their own interpretations of the factual borehole results. This concern specifically applies to the classification of the subsurface soil and the potential reuse of these soils on/off site.

The contractors must draw their own conclusions as to how the near surface and subsurface conditions may affect them.

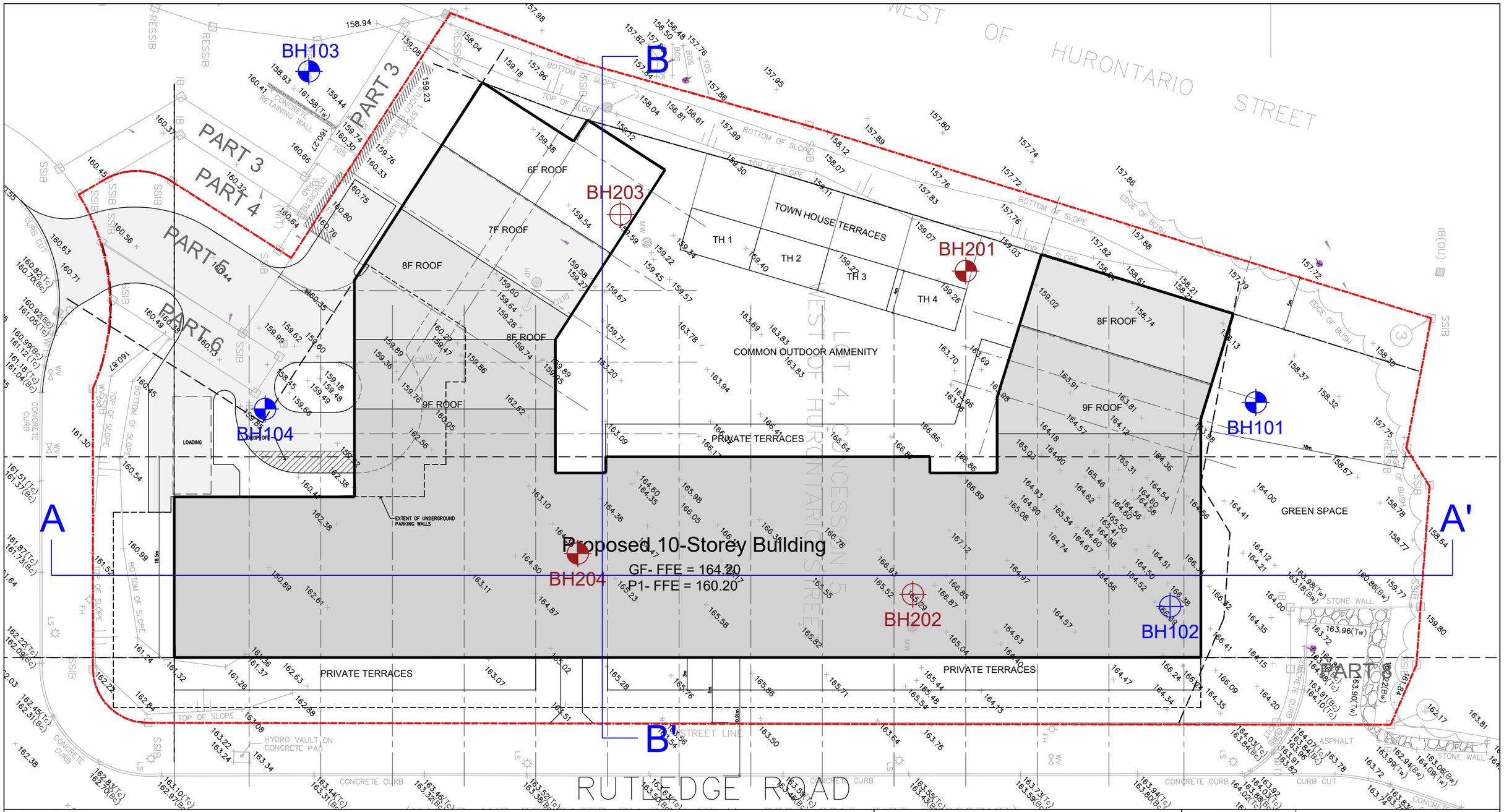
We trust this report contains information requested at this time. However, if any clarification is required or if we can be of further assistance, please call us.

Respectfully,
McCLYMONT & RAK ENGINEERS INC.

S. Tavassoli, E.I.T.

L.J. Rak, M.Eng., P.Eng.

DRAWINGS



LEGEND:

- BOREHOLE/MONITORING WELL INSTALLED BY MCR, 2007
- BOREHOLE/MONITORING WELL INSTALLED BY MCR, 2020

Drawing Notes: Image drafted from property survey, Toronto Maps, Google Maps, and site inspections. Not for construction purposes.

PROJECT NORTH

TRUE NORTH

0 2 5 10 20

SCALE (m)

McCLYMONT&RAK ENGINEERS, INC.
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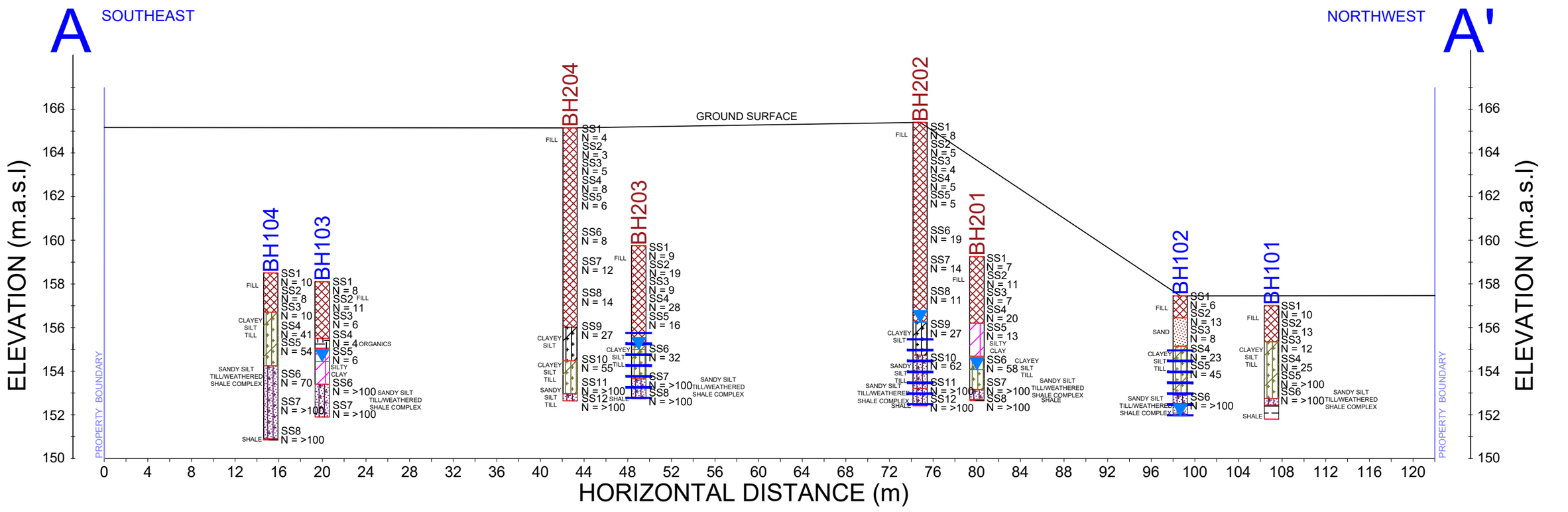
RUTLEDGE ROAD, MISSISSAUGA, ONTARIO

BOREHOLE LOCATION PLAN

Project No.	Date	Drawing No.
G1187V2	DECEMBER 2022	1



LEGEND:

- SCREENED INTERVALS
- ELEVATION MARK (masl)
- APPROXIMATE WATER LEVEL
- FILL
- SHALE
- SANDY SILT
- SAND
- SILT
- SILTY SAND
- CLAYEY SILT

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GEO-ENVIRONMENTAL CONSULTANTS

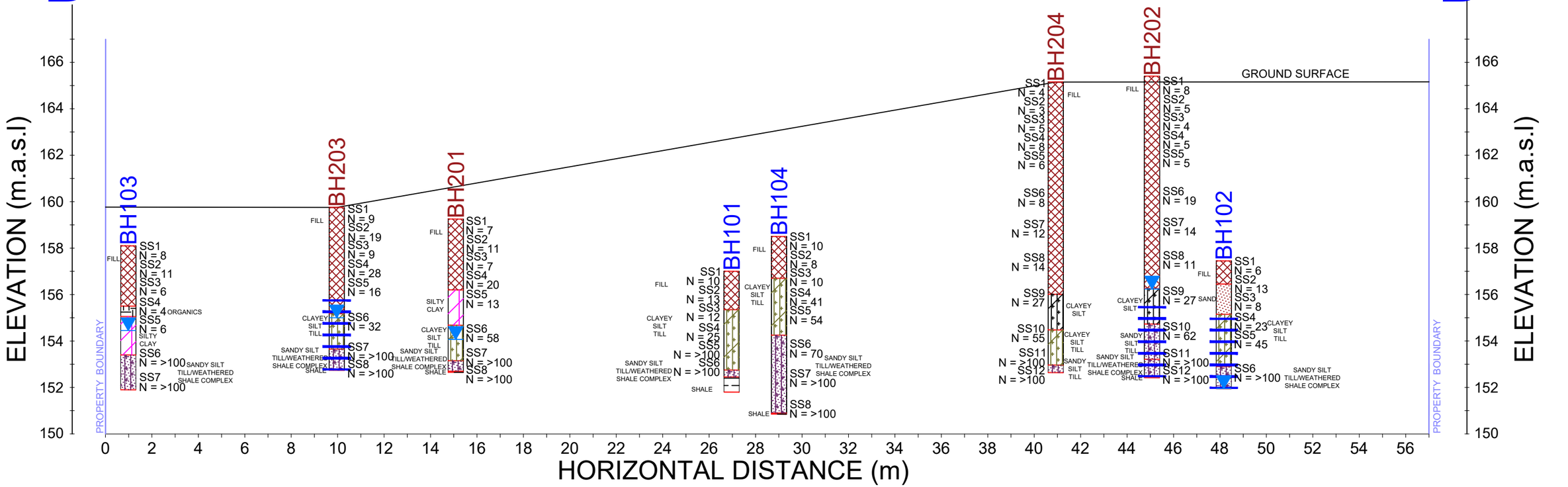
RUTLEDGE ROAD, MISSISSAUGA, ONTARIO

CROSS-SECTION A-A'

Project No.	Date	Drawing No.
G1187V2	DECEMBER 2022	2

B SOUTHWEST

NORTHEAST B'



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- SCREENED INTERVALS
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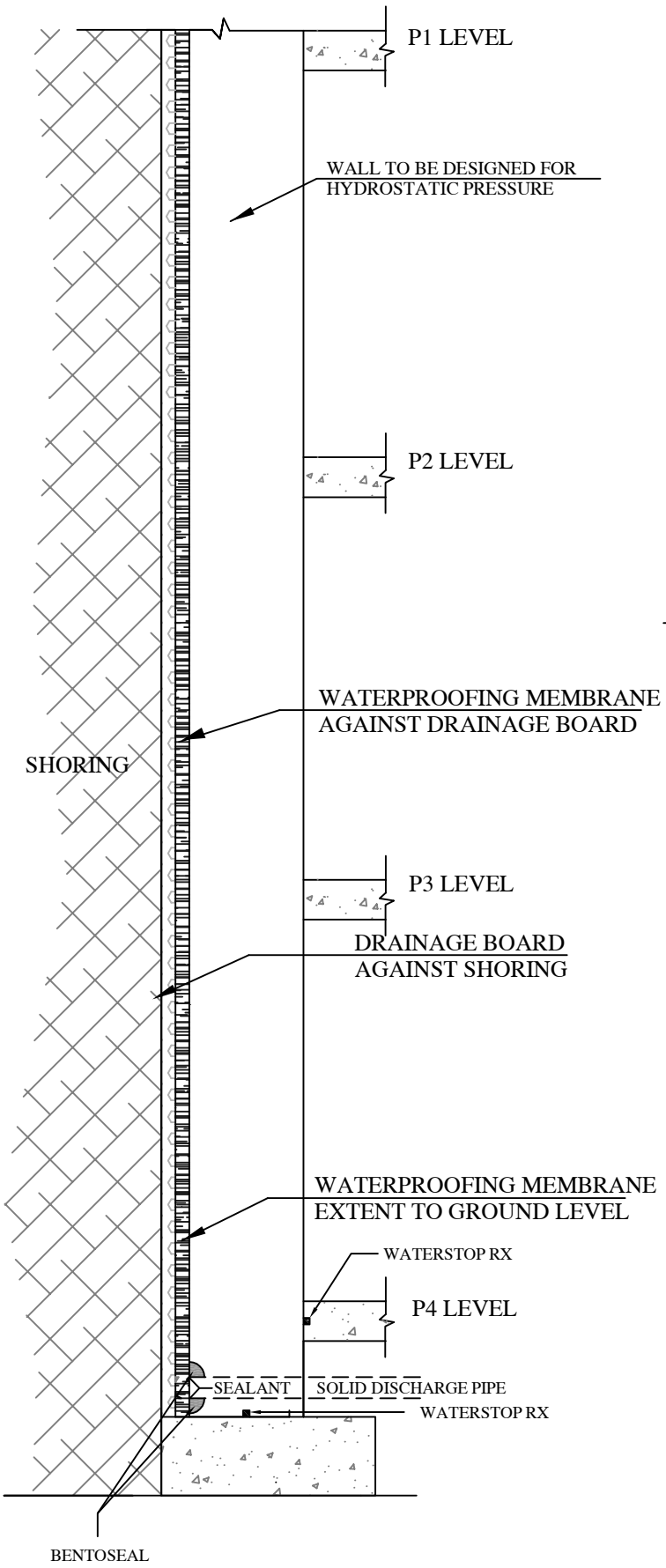
RUTLEDGE ROAD, MISSISSAUGA, ONTARIO

CROSS-SECTION B-B'

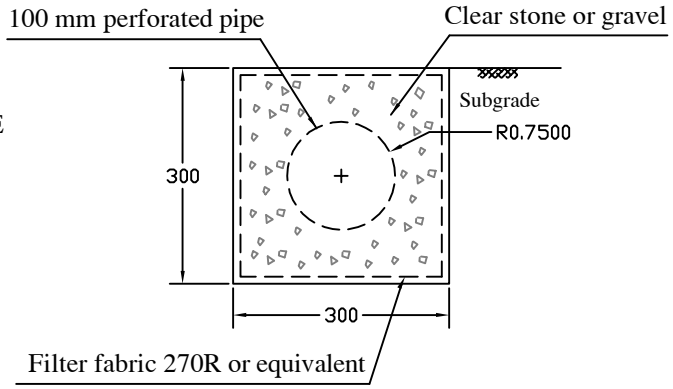
Project No.	Date	Drawing No.
G1187V2	DECEMBER 2022	3

SUGGESTED EXTERIOR DRAINAGE AGAINST SHORING



NOTE:

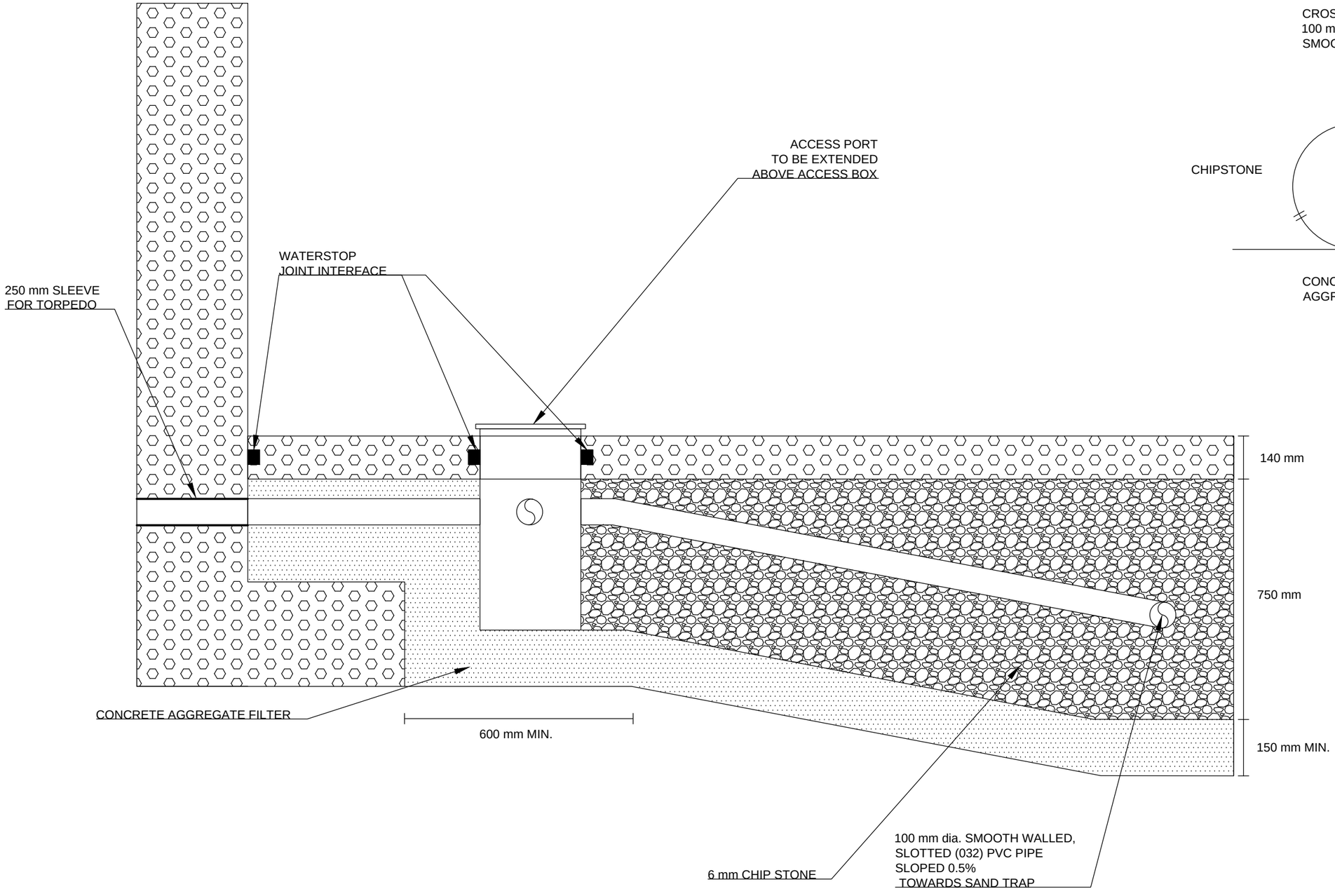
* All permanent drainage pipes must have Geotextile filter sleeve to prevent long term silting. To further minimize siltation of the drainage system, all drainage pipe connections must be solid PVC elbows and Ts, no "butt" end connections should be permitted.
* Perimeter collection pipe to be solid pipe.



DETAILS OF SUB-FLOOR DRAINS
TO BE PLACED IN PARALLEL ROWS 6- 8M (20'- 25')
CENTERLINE TO CENTERLINE.

McCLYMONT AND RAK ENGINEERS INC.
GEO-ENVIROMENTAL CONSULTANTS
1271 DENISON STREET, UNIT 45, MARKHAM, ON. TEL: 905 470 0160 FAX : 905 475 6371

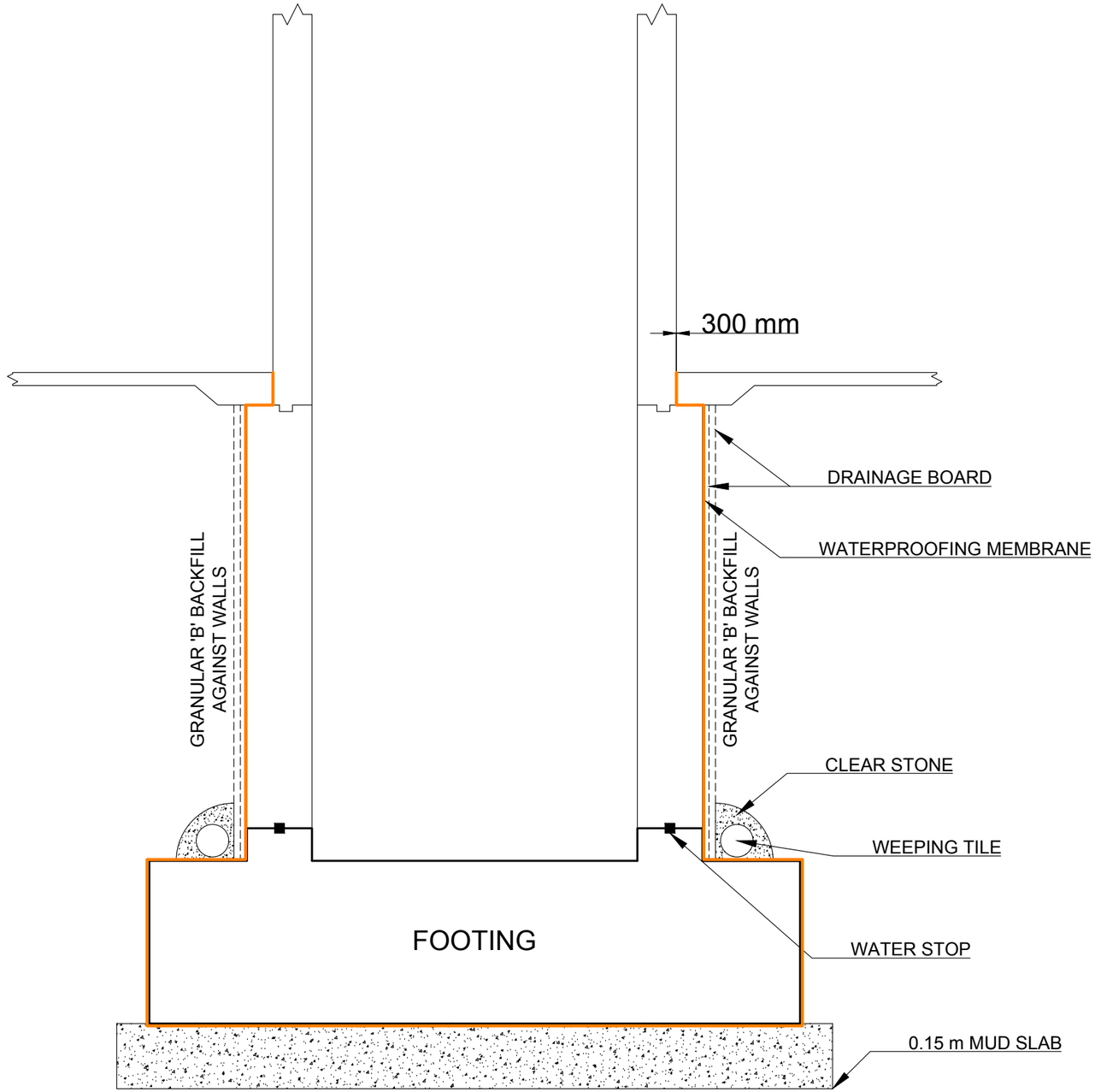
Project : PROPOSED DEVELOPMENT		
Scale : N.T.S.	Date :	Drawing No. 4



McCLYMONT&RAK
ENGINEERS, INC.
GEO-ENVIRONMENTAL CONSULTANTS

PRIVATE WATER DRAINAGE SYSTEM

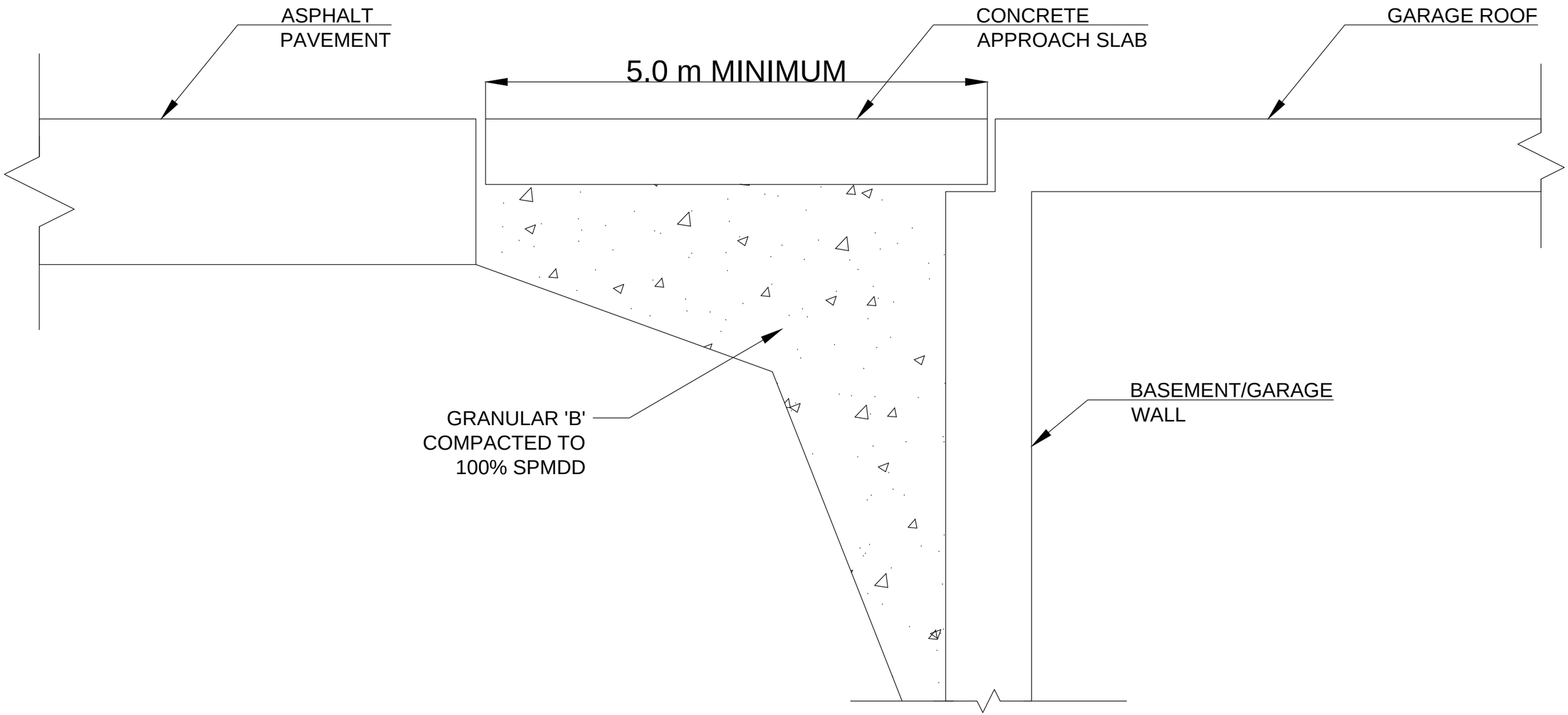
Scale:	Drawing No.
NTS	5



McCLYMONT&RAK ENGINEERS, INC.
GEO-ENVIRONMENTAL CONSULTANTS

TYPICAL ELEVATOR PIT WATERPROOFING

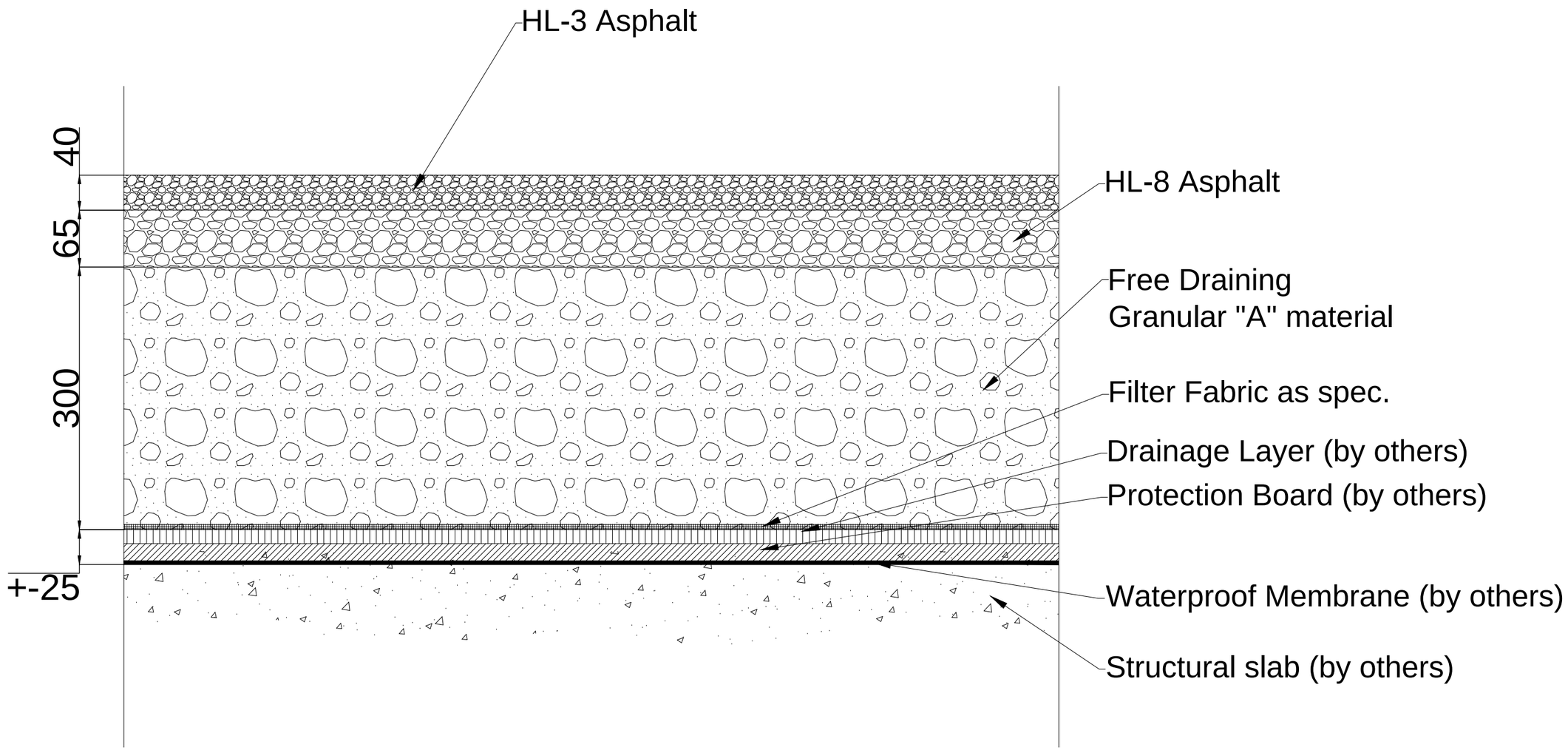
Scale:	Drawing No.
NTS	6



McCLYMONT&RAK
ENGINEERS, INC.
GEO-ENVIRONMENTAL CONSULTANTS

SUGGESTED APPROACH
SLAB DETAIL

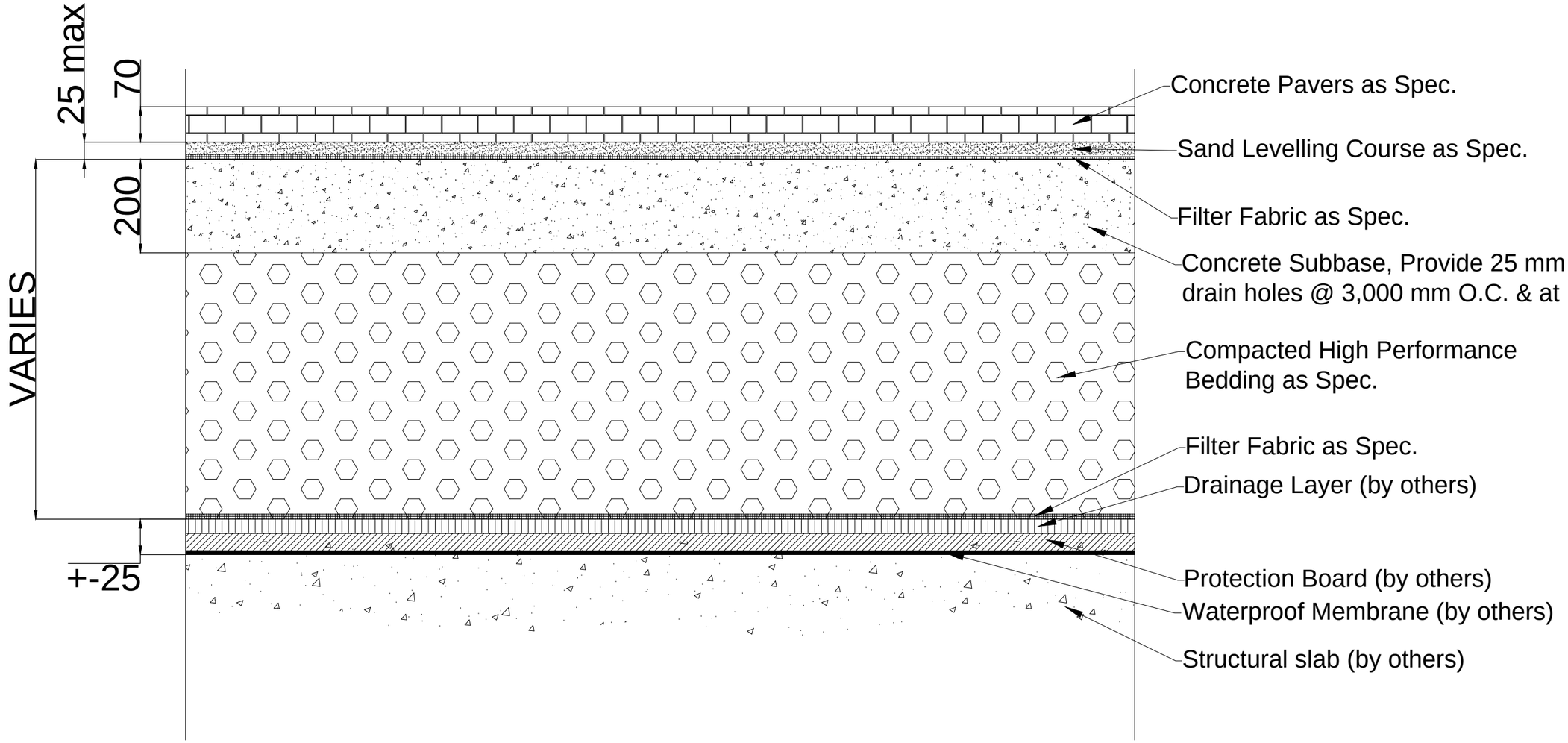
Scale:	Drawing No.
NTS	7



McCLYMONT&RAK
ENGINEERS, INC.
GEO-ENVIRONMENTAL CONSULTANTS

PAVEMENT ABOVE
GARAGE ROOF SLAB

Scale:	Drawing No.
NTS	8



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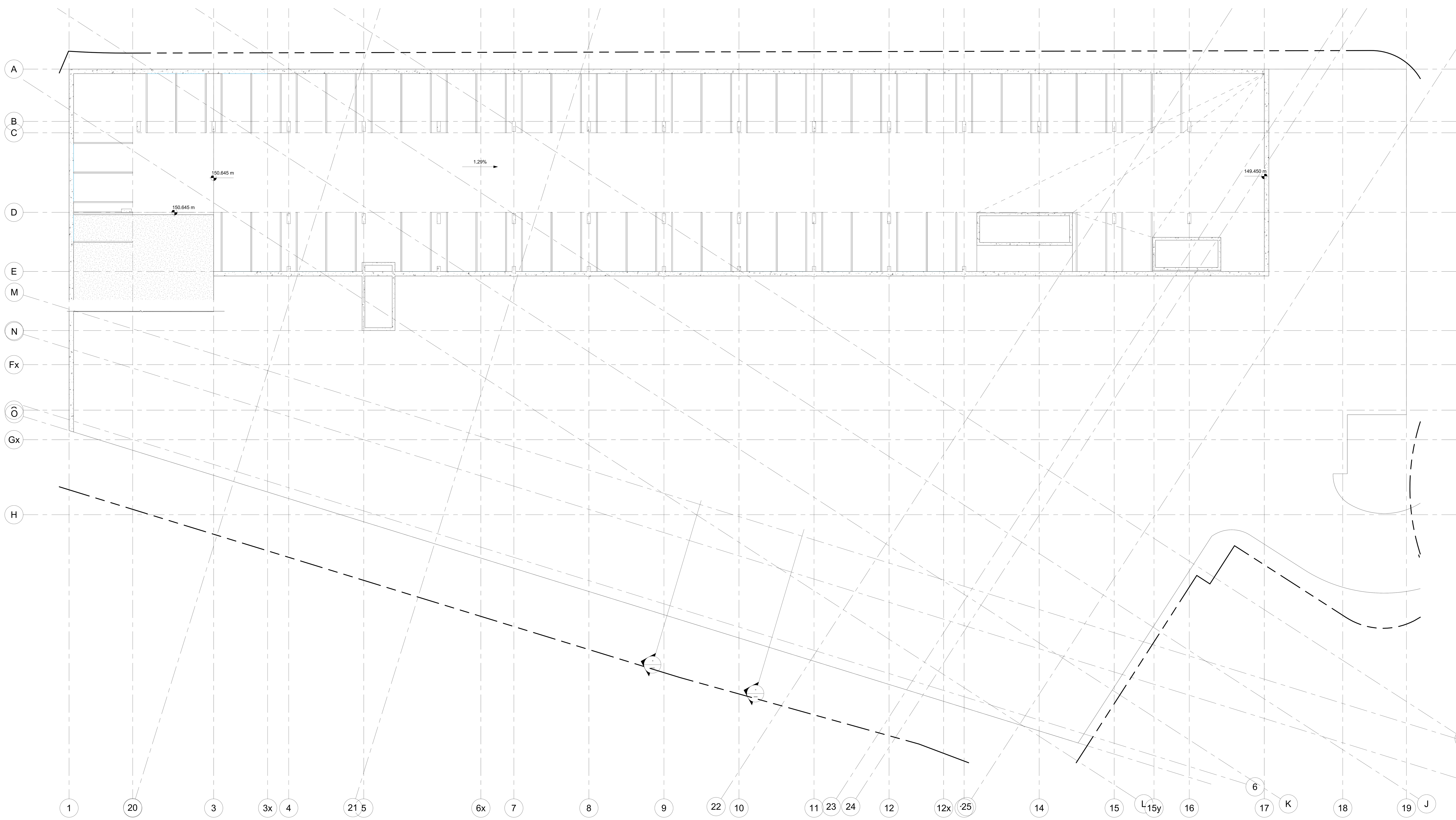
ENGINEERS, INC.
GEO-ENVIRONMENTAL CONSULTANTS

PAVEMENT ABOVE
GARAGE ROOF SLAB

Scale:	Drawing No.
NTS	9

APPENDIX A



DATE	ISSUED FOR

NO.	DATE	DESCRIPTION
1		

REVISIONS

Contractor must check and verify all dimensions and be responsible for same. Reporting any discrpancies to the Architect before commencing work.

All drawings, prints and specifications are the property of the ARchitect and must be returned to him on completion of work. Latest drawings only to be used for construction.

Prints are not to be scaled.

ONTARIO ASSOCIATION OF ARCHITECTS
RANIERI POSSAMAI
LICENCE
5061

PROJECT NORTH
NORTH

GLOBAL ARCHITECT INC.
6 Leswyn Road, Toronto, Ontario M6A 1K2
ph: 416 256 4440 fx: 416 256 4449

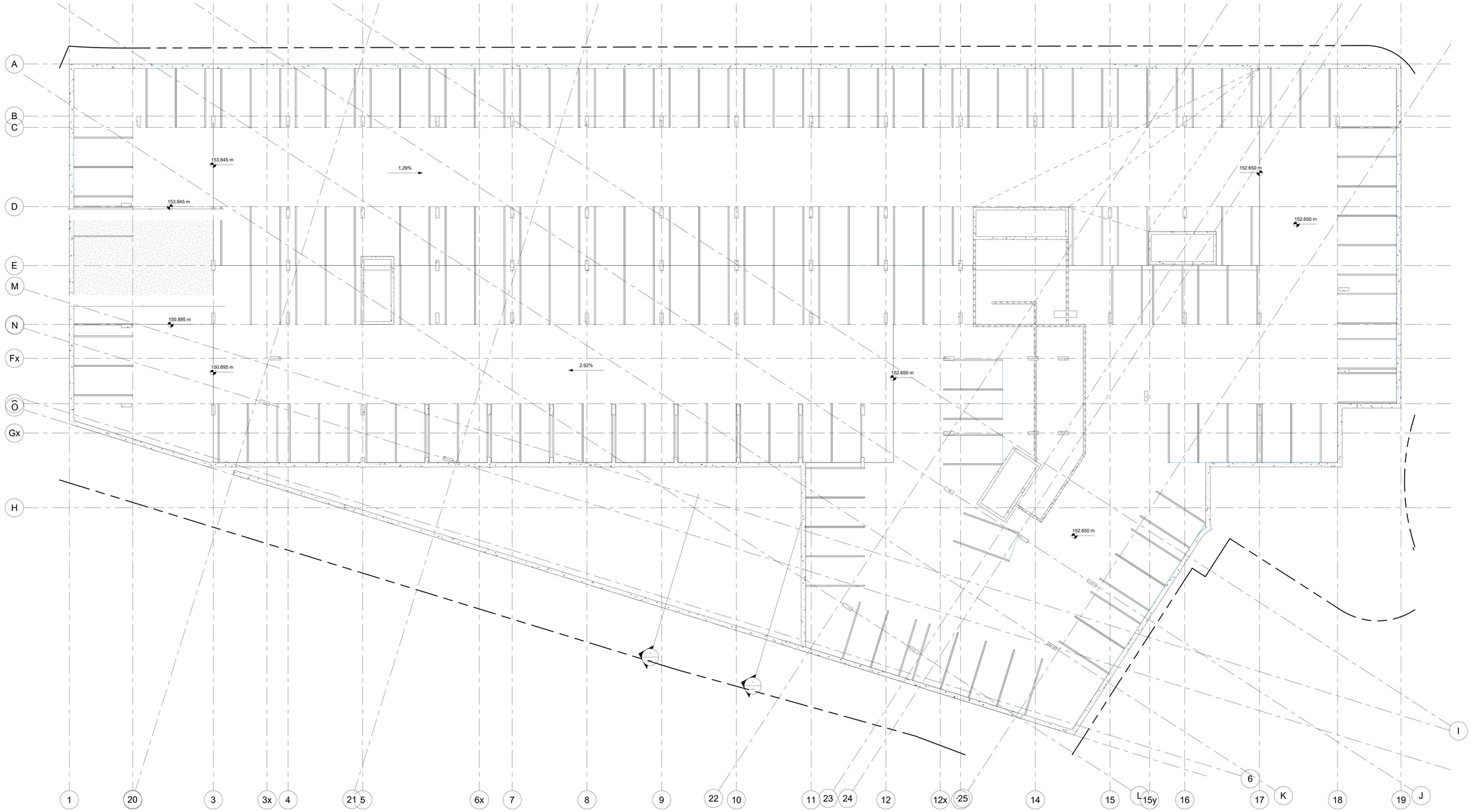
CLIENT

PROJECT NAME	Vic 2 RUTLEDGE RD.
DRAWN BY	CM
CHECKED BY	RP, PP
DATE	04/28/22
SCALE	1 : 125

DWG. TITLE

P4 PLAN

PROJECT NO.	
22-03	A200



DATE	ISSUED FOR

NO.	DATE	DESCRIPTION
1		

REVISIONS

Contractor must check and verify all dimensions and be responsible for same. Reporting any discpancies to the Architect before commencing work.

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Prints are not to be scaled.

ONTARIO ASSOCIATION OF ARCHITECTS
RICHARD PASSMAN
LICENCE
5081

GLOBAL ARCHITECTS INC.
6 Leswyn Road, Toronto, Ontario M6A 1K2
ph: 416 256 4440 fx: 416 256 4449

CLIENT

PROJECT NAME: Vic 2
RUTLEDGE RD.

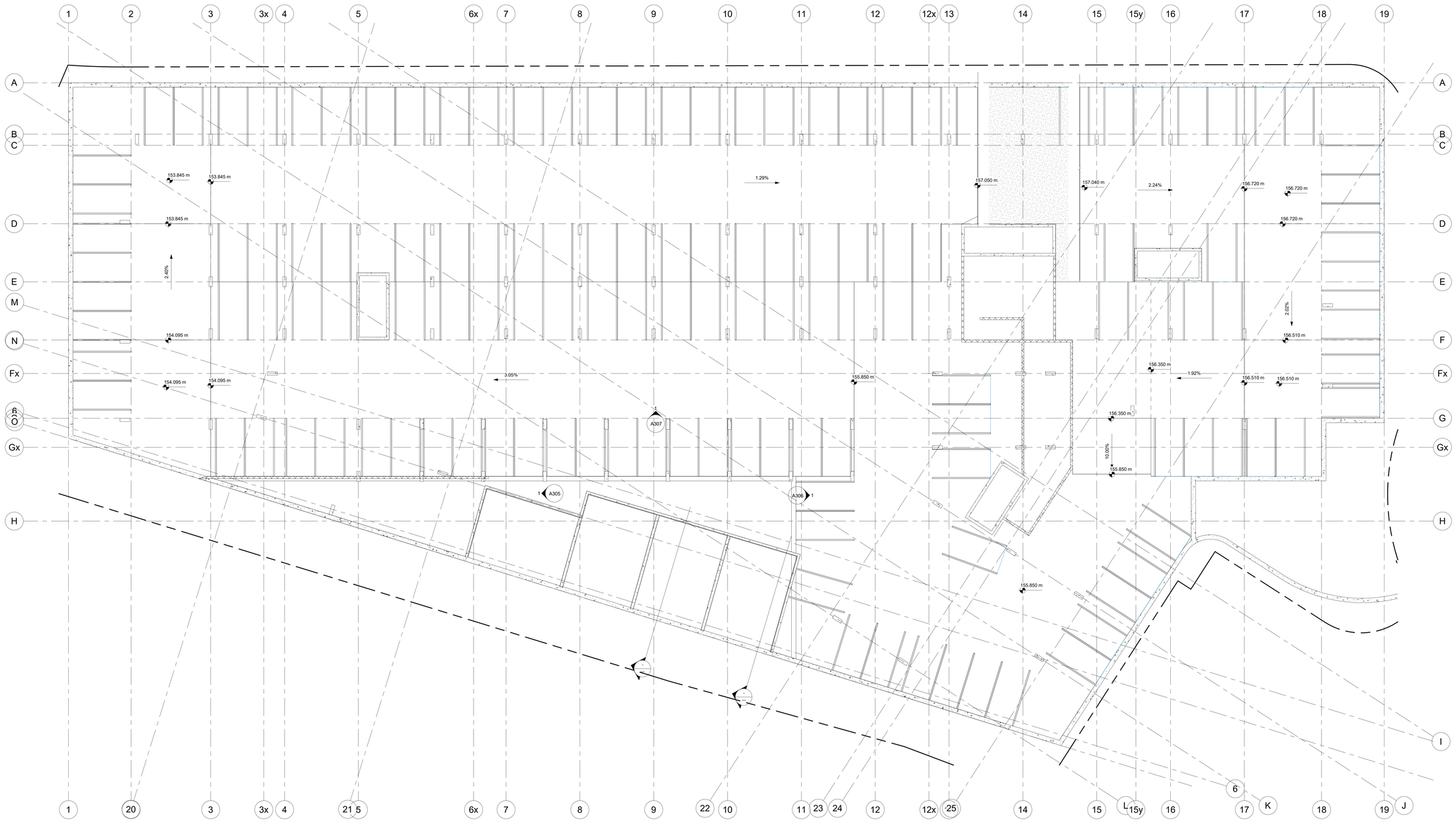
DRAWN BY	CM
CHECKED BY	RP, PP
DATE	04/28/22
SCALE	1 : 125

DWG. TITLE

P3 PLAN

PROJECT NO.: 22-03

A201



DATE	ISSUED FOR

NO.	DATE	DESCRIPTION
1		

REVISIONS

Contractor must check and verify all dimensions and be responsible for same. Reporting any discrpancies to the Architect before commencing work.

All drawings, prints and specifications are the property of the ARchitect and must be returned to him on completion of work. Latest drawings only to be used for construction.

Prints are not to be scaled.

ONTARIO ASSOCIATION OF ARCHITECTS
ROMAN CSSAM
5081

GLOBAL ARCHITECTS INC.
6 Leswyn Road, Toronto, Ontario M6A 1K2
ph: 416 256 4440 fx: 416 256 4449

CLIENT

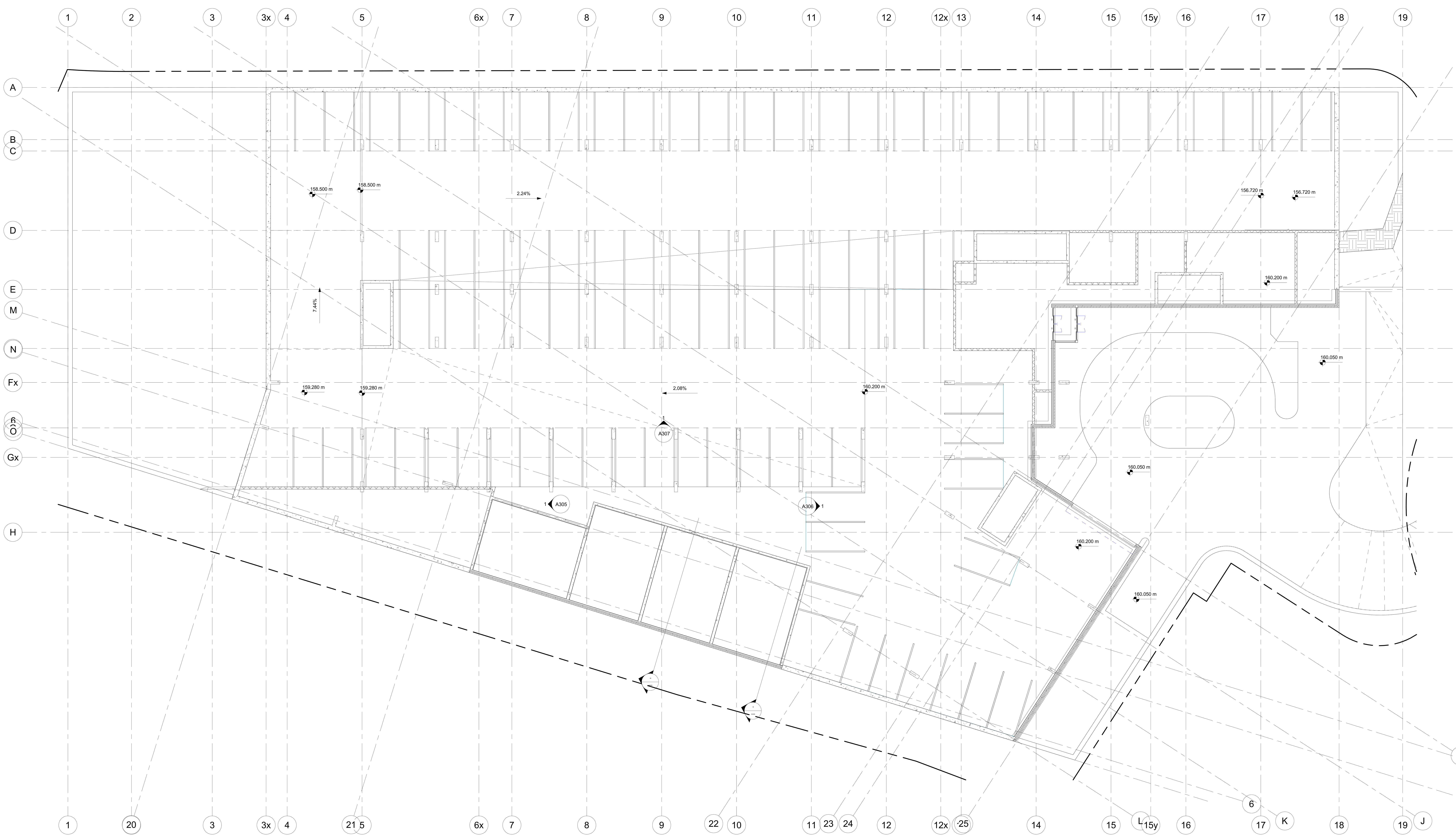
PROJECT NAME: Vic 2
RUTLEDGE RD.

DRAWN BY	CM
CHECKED BY	RP, PP
DATE	04/28/22
SCALE	1 : 125

DWG. TITLE

P2 PLAN

PROJECT NO.	
22-03	A202



DATE	ISSUED FOR

NO.	DATE	DESCRIPTION
1		

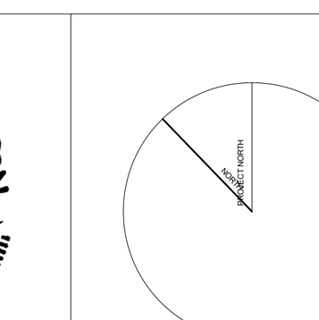
REVISIONS

Contractor must check and verify all dimensions and be responsible for same. Reporting any discrpancies to the Architect before commencing work.

All drawings, prints and specifications are the property of the ARchitect and must be returned to him on completion of work. Latest drawings only to be used for construction.

Prints are not to be scaled.

ONTARIO ASSOCIATION OF ARCHITECTS
RANIERI POSSAMAI
LICENCE
5061



GLOBAL ARCHITECT INC.
6 Leswyn Road, Toronto, Ontario M6A 1K2
ph: 416 256 4440 fx: 416 256 4449

CLIENT

PROJECT NAME: Vic 2
RUTLEDGE RD.

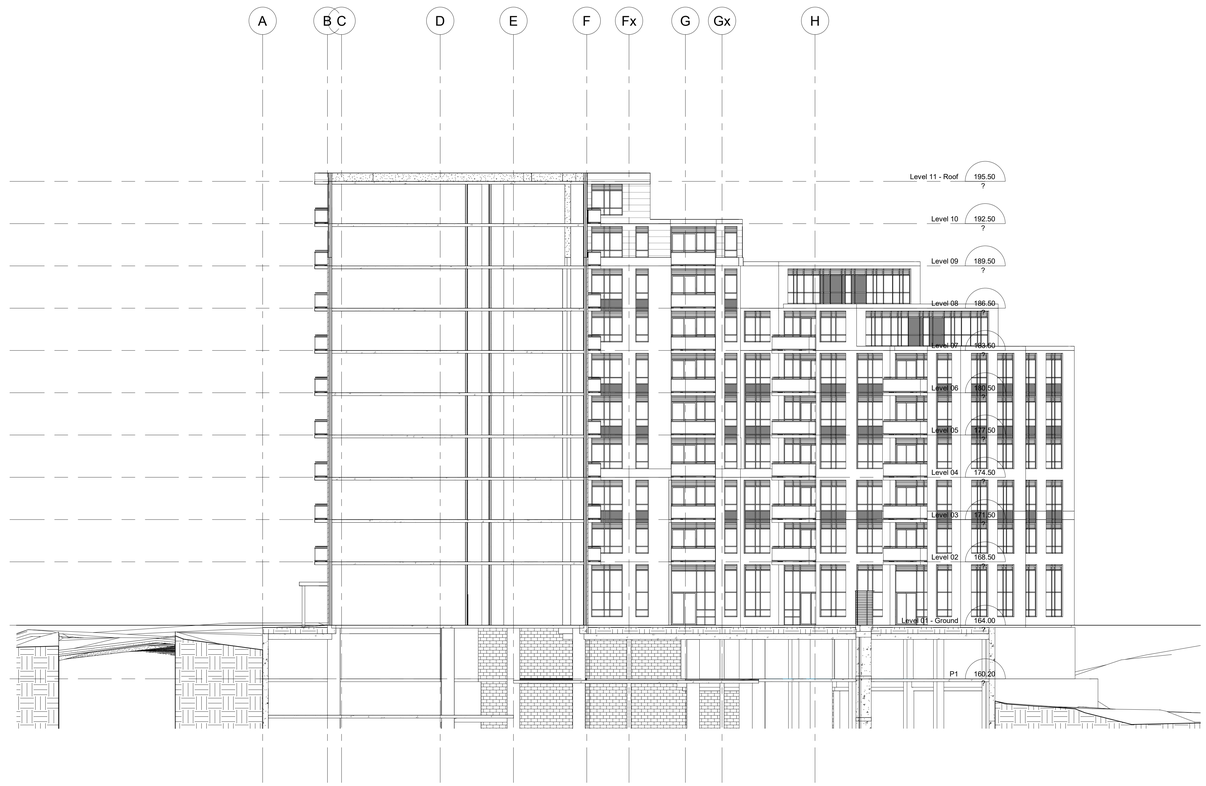
DRAWN BY	CM
CHECKED BY	RP, PP
DATE	04/28/22
SCALE	1 : 125

DWG. TITLE

P1 PLAN

PROJECT NO.: 22-03

A203



1 Courtyard West
1 : 150

DATE	ISSUED FOR

Exterior Finish

6	Window Wall Vision Panel
7	Window Wall Spandrel Panel

NOTE:
BUILDING MATERIALS/CLADDING SELECTIONS ARE REPRESENTATIVE OF SIZE AND COLOR OF MATERIALS TO BE CHOSEN AT A LATER DATE

NO.	DATE	DESCRIPTION
1		

REVISIONS

Contractor must check and verify all dimensions and be responsible for same. Reporting any discpancies to the Architect before commencing work.

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Prints are not to be scaled.

ONTARIO ASSOCIATION OF ARCHITECTS
KYUNGWON KOO-NAM
LICENCE
5081

GLOBAL ARCHITECTS INC.
6 Leswyn Road, Toronto, Ontario M6A 1K2
ph: 416 256 4440 fx: 416 256 4449

CLIENT

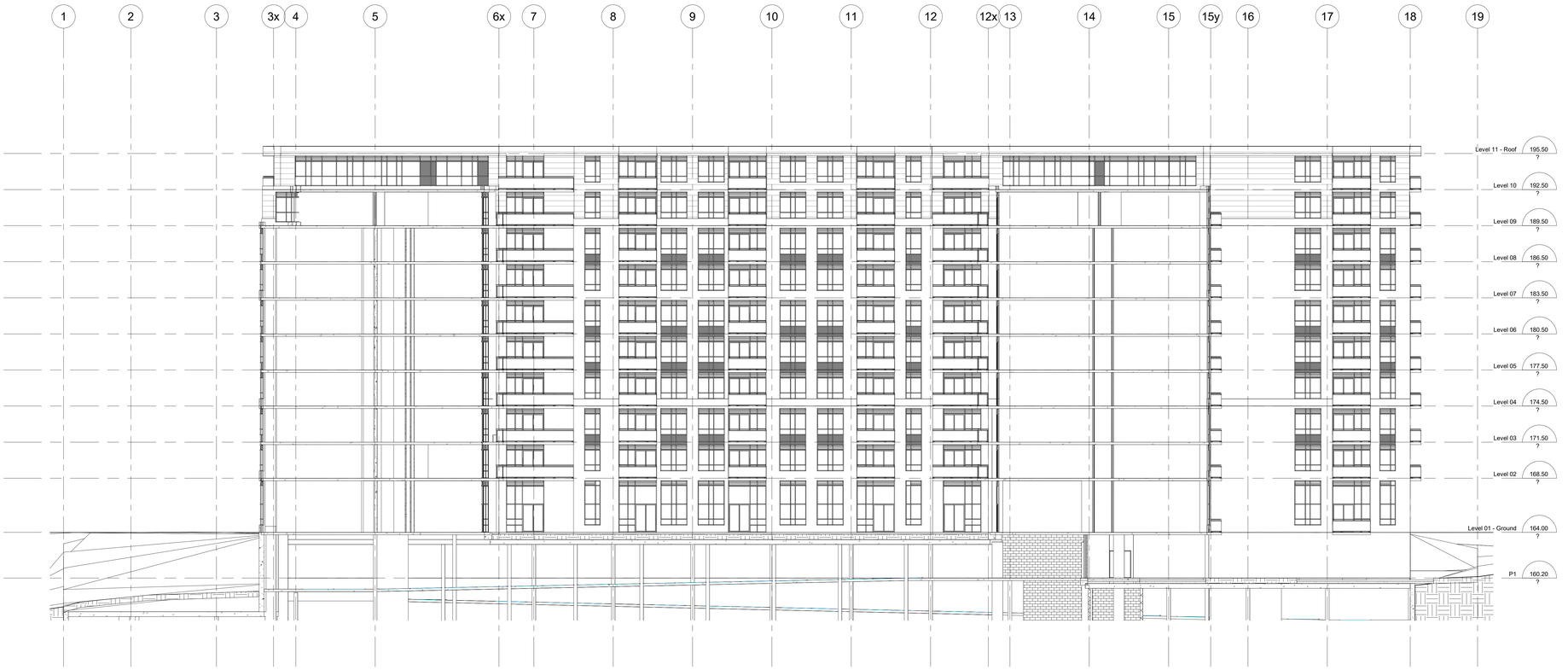
PROJECT NAME: Vic 2
RUTLEDGE RD.

DRAWN BY: Author
CHECKED BY: Checker
DATE: 06/29/21
SCALE: 1 : 150

DWG. TITLE
WEST COURT ELEVATION

PROJECT NO.
22-03

A306



1 Courtyard South
1 : 150

DATE	ISSUED FOR

Exterior Finish

6	Window Wall Vision Panel
7	Window Wall Spandrel Panel

NOTE:
BUILDING MATERIALS/CLADDING SELECTIONS ARE REPRESENTATIVE OF SIZE AND COLOR OF MATERIALS TO BE CHOSEN AT A LATER DATE

NO.	DATE	DESCRIPTION
1		

REVISIONS

Contractor must check and verify all dimensions and be responsible for same. Reporting any discpancies to the Architect before commencing work.

All drawings, prints and specifications are the property of the ARchitect and must be returned to him on completion of work. Latest drawings only to be used for construction.

Prints are not to be scaled.

ONTARIO ASSOCIATION OF ARCHITECTS
Ontario
9061

GLOBAL ARCHITECTS INC.
6 Leswyn Road, Toronto, Ontario M6A 1K2
ph: 416 256 4440 fx: 416 256 4449

CLIENT

PROJECT NAME	Vic 2 RUTLEDGE RD.
DRAWN BY	Author
CHECKED BY	Checker
DATE	06/29/21
SCALE	1 : 150

DWG. TITLE
SOUTH COURT ELEVATION

PROJECT NO.	
22-03	A307

APPENDIX B

RECORD OF BOREHOLE 101

PROJECT : G1187A2
LOCATION : Ville Condominiums, 180 Rutledge Road, Mississauga, Ontario
STARTED : April 26, 2007
COMPLETED : April 26, 2007

MC CLYMONT & RAK ENGINEERS, INC.

SHEET 1 OF 1
DATUM Geodetic

DEPTH SCALE (metres)	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	NUMBER	TYPE	BLOWS/0.3m	ORGANIC VAPOUR READINGS (ppm) ⊗ 100 200 300 400 / % LEL - (hexane) □ 20 40 60 80	SHEAR STRENGTH: Cu, KPa nat V - ✤ rem V - ● Q - ✖ U - ▲ 20 40 60 80 / WATER CONTENT, PERCENT wp w wl 10 20 30 40	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		GROUND SURFACE		157.00							
	POWER BORING / SOLID STEM AUGER	FILL: silty clay, some gravel, trace of fine to coarse sand, trace of organics, grey to black, moist, stiff.			1	SS	10				
					2	SS	13				
		CLAYEY SILT TILL: some gravel and sand, trace of organics and rootlets, oxidized fissures, disturbed in the upper 150 mm, brown to grey, moist, stiff to hard.		155.35 1.65	3	SS	12				
2					4	SS	25				
					5	SS	>100				
		-sandy silt seam, brown, wet at 3.43 m depth. -cobbles at 3.45 m depth.									
4				152.75 4.25							
		SANDY SILT TILL/WEATHERED SHALE COMPLEX: grey, moist.		152.45 4.55	6	SS	>100				
		SHALE: limestone fragments, grey, moist.									
		End of Borehole: Auger Refusal.		151.80 5.20							
6		Note: 1)Borehole remained dry on completion of drilling.									
8											

GROUNDWATER ELEVATIONS

▽ SHALLOW/SINGLE INSTALLATION
WATER LEVEL: m bgs

▼ DEEP/DUAL INSTALLATION
WATER LEVEL:

LOGGED : AL
CHECKED : LM

MCR LOG ENVIRONMENTAL 1187A.GPJ 11-18-22

RECORD OF BOREHOLE 102

PROJECT : G1187A2
LOCATION : Ville Condominiums, 180 Rutledge Road, Mississauga, Ontario
STARTED : April 26, 2007
COMPLETED : April 26, 2007

MC CLYMONT & RAK ENGINEERS, INC.

SHEET 1 OF 1
DATUM Geodetic

DEPTH SCALE (metres)	BORING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	TYPE	BLOWS/0.3m	ORGANIC VAPOUR READINGS (ppm) ⊗ 100 200 300 400 / % LEL - (hexane) □ 20 40 60 80	SHEAR STRENGTH: Cu, KPa nat V - ✚ rem V - ● Q - ✖ U - ▲ 20 40 60 80 / WATER CONTENT, PERCENT wp w wl 10 20 30 40	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		GROUND SURFACE		157.45							
	POWER BORING / SOLID STEM AUGER	FILL: silty clay, some sand and gravel, brown, to grey, moist, firm to stiff.			1	SS	6				
		SAND: fine to medium, trace of silt and gravel, trace of organics, brown, moist, compact to loose.		156.45 1.00	2	SS	13				bentonite
2					3	SS	8				3 m Long 20 mm ID PVC Riser 155.30 155.00
		CLAYEY SILT TILL: some sand and gravel, oxidized fissures, brown, moist, very stiff to hard. -silt grey to black, trace of organics, wet in the upper 159 mm.		155.15 2.30	4	SS	23				
4					5	SS	45				Silica sand
		SANDY SILT TILL/ WEATHERED SHALE COMPLEX: grey, moist.		152.90 4.55	6	SS	>100				3 m Long 20 mm ID Well Screen ▽ 151.95
		-shale/limestone at 5.5 m depth. End of Borehole: Auger Refusal.		151.95 5.50							
6		Note: 1)Water level was measured at 5.3 m on completion of drilling. 2)Combustible vapour reading was 130 ppm at 2.3 m depth in open borehole. 3)Water level was measured at +0.1 m on April 30, 2007. 4)Water level was measured at +0.1 m on May 1, 2007.									
8											

GROUNDWATER ELEVATIONS

▽ SHALLOW/SINGLE INSTALLATION — WATER LEVEL: 5.3 m bgs

▼ DEEP/DUAL INSTALLATION — WATER LEVEL:

LOGGED : AL
CHECKED : LM

MCR LOG ENVIRONMENTAL 1187A.GPJ 11-18-22

RECORD OF BOREHOLE 103

PROJECT : G1187A2
LOCATION : Ville Condominiums, 180 Rutledge Road, Mississauga, Ontario
STARTED : April 30, 2007
COMPLETED : April 30, 2007

MC CLYMONT & RAK ENGINEERS, INC.

SHEET 1 OF 1
DATUM Geodetic

DEPTH SCALE (metres)	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES BLOWS/0.3m	ORGANIC VAPOUR READINGS (ppm) ⊗ 100 200 300 400 / % LEL - (hexane) □ 20 40 60 80	SHEAR STRENGTH: Cu, KPa nat V - ✤ rem V - ● Q - ✖ U - ▲ 20 40 60 80 / WATER CONTENT, PERCENT wp w wl 10 20 30 40	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		GROUND SURFACE		158.10							
	POWER BORING / SOLID STEM AUGER	FILL: silty clay/clayey silt, trace of gravel and sand, trace of organics and rootlets, brown, moist to wet, firm to stiff.			1	SS	8				
					2	SS	11				
					3	SS	6				
2											
					4	SS	4				
		ORGANICS: peat, black moist, firm.		155.50 2.60							
		SILTY CLAY: some organics, peat, brown, moist to wet. firm.		155.05 3.05	5	SS	6				▽
4		-sand and gravel,wet at 4.55 m depth.									
		SANDY SILT TILL/WEATHERED SHALE COMPLEX: moist.		153.40 4.70	6	SS	>100				
6		limestone at 6.2 m depth.		151.90 6.20	7	SS	>100				
		End of Borehole, Auger Refusal.									
		Note: 1)Water level was measured at 3.65 m on completion of drilling. 2)Combustible vapour reading was 110 ppm at 3.05 m depth in open borehole. 3)Combustible vapour reading was 120 ppm at 4.75 m depth in open borehole.									
8											

GROUNDWATER ELEVATIONS

▽ SHALLOW/SINGLE INSTALLATION
WATER LEVEL: 3.65 m bgs

▼ DEEP/DUAL INSTALLATION
WATER LEVEL:

LOGGED : AL
CHECKED : LM

MCR LOG ENVIRONMENTAL 1187A.GPJ 11-18-22

RECORD OF BOREHOLE 104

PROJECT : G1187A2
LOCATION : Ville Condominiums, 180 Rutledge Road, Mississauga, Ontario
STARTED : April 30, 2007
COMPLETED : April 30, 2007

MC CLYMONT & RAK ENGINEERS, INC.

SHEET 1 OF 1
DATUM Geodetic

DEPTH SCALE (metres)	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER	TYPE	BLOWS/0.3m	ORGANIC VAPOUR READINGS (ppm) ⊗ 100 200 300 400 / % LEL - (hexane) □ 20 40 60 80	SHEAR STRENGTH: Cu, KPa nat V - ✚ rem V - ● Q - ✖ U - ▲ 20 40 60 80 / WATER CONTENT, PERCENT wp w wl 10 20 30 40	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		GROUND SURFACE		158.50							
	POWER BORING / SOLID STEM AUGER	FILL: silty clay with organics, trace of gravel and sand, trace of rootlets, shale fragments, dark brown to brown, moist to wet, stiff to firm..			1	SS	10				
					2	SS	8				
				156.70	3	SS	10				
2		CLAYEY SILT TILL: some sand, trace of gravel, trace of rootlets and organics in the upper 100 mm, fissured, brown, moist, stiff to hard.		1.80							
					4	SS	41				
		-some gravel, oxidized fissures below 3.35 m depth.			5	SS	54				
4				154.25							
		SANDY SILT TILL/WEATHERED SHALE COMPLEX: grey, moist.		4.25							
		-moist to dry at 4.85 m depth.			6	SS	70				
6					7	SS	>100				
		SHALE: weathered, grey, moist.		150.90	8	SS	>100				
		End of Borehole.		7.65							
8		Note: 1)Borehole remained dry on completion of drilling.									

GROUNDWATER ELEVATIONS

▽ SHALLOW/SINGLE INSTALLATION
WATER LEVEL: m bgs

▼ DEEP/DUAL INSTALLATION
WATER LEVEL:

LOGGED : AL
CHECKED : LM

MCR LOG ENVIRONMENTAL 1187A.GPJ 11-18-22

RECORD OF BOREHOLE 201

PROJECT : G1187V-2
LOCATION : Rutledge Road, Mississauga, Ontario
STARTED : February 18, 2020
COMPLETED : February 18, 2020

MC CLYMONT & RAK ENGINEERS, INC.

SHEET 1 OF 1
DATUM Geodetic

DEPTH SCALE (metres)	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	NUMBER	TYPE	BLOWS/0.3m
		GROUND SURFACE		159.25			
	POWER BORING / SOLID STEM AUGER	FILL: silty clay, trace of sand and organics, brown, moist, firm to stiff.			1	SS	7
					2	SS	11
					3	SS	7
2		silty clay, trace of sand and gravel, trace of shale fragments and organics brown to grey, moist to wet, stiff.		156.96 / 2.29	4	SS	20
		SILTY CLAY: trace of sand and gravel, brown, mottled grey, moist to wet, stiff. -trace of organics in the upper 350 mm.		156.20 / 3.05	5	SS	13
4		CLAYEY SILT TILL: some sand, trace of gravel, oxidized fissures, brown, moist, hard.		154.68 / 4.57	6	SS	58
6		SANDY SILT TILL/WEATHERED SHALE COMPLEX: grey, wet, very dense.		153.15 / 6.10	7	SS	>100
		SHALE: grey, moist.		152.70 / 6.55	8	SS	>100
		End of Borehole. Auger Refusal.		152.69 / 6.60			
8		Note: 1) Water level was measured at 5.18 m bgs on completion of drilling. 2) Combustible vapour reading was 25 ppm at 4.6 m depth in open borehole.					

ORGANIC VAPOUR READINGS (ppm) ⊗: 100 200 300 400
% LEL - (hexane) □: 20 40 60 80

SHEAR STRENGTH: Cu, KPa — nat V - ✚, rem V - ●, Q - ✖, U - ▲: 20 40 60 80
WATER CONTENT, PERCENT — wp, w, wl: 10 20 30 40

ADDITIONAL LAB. TESTING

PIEZOMETER OR STANDPIPE INSTALLATION

GROUNDWATER ELEVATIONS

▽ SHALLOW/SINGLE INSTALLATION — WATER LEVEL: 5.18 m bgs

▼ DEEP/DUAL INSTALLATION — WATER LEVEL:

LOGGED : FR
CHECKED : LM

MCR LOG ENVIRONMENTAL 1187V2.GPJ 11-16-22

RECORD OF BOREHOLE 202

PROJECT : G1187V-2
LOCATION : Rutledge Road, Mississauga, Ontario
STARTED : February 18, 2020
COMPLETED : February 18, 2020

MC CLYMONT & RAK ENGINEERS, INC.

SHEET 1 OF 1
DATUM Geodetic

DEPTH SCALE (metres)	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	NUMBER	TYPE	BLOWS/0.3m	ORGANIC VAPOUR READINGS (ppm) / % LEL - (hexane)	SHEAR STRENGTH: Cu, KPa (nat V, rem V, Q, U) / WATER CONTENT, PERCENT (wp, w, wl)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		GROUND SURFACE		165.40							
	POWER BORING / SOLID STEM AUGER	FILL: sandy silt, trace of clay and gravel, brown, moist, loose.			1	SS	8				Protective Metal Casing 165.10
				164.64 / 0.76							
		silty clay, trace of sand and gravel, brown, moist, soft to stiff.			2	SS	5				
					3	SS	4				
2		-trace of plastics pieces at 2.3 m depth.			4	SS	5				
					5	SS	5				Bentonite
4		-trace of organics and cinders, black below 4.55 m depth.			6	SS	19				
6					7	SS	14				9.75 m Long 20 mm ID PVC Riser
		-trace of brick pieces at 7.6 m depth.			8	SS	11				
8				156.26 / 9.14							▽ 156.26
		CLAYEY SILT: trace of sand and gravel, brown, mottled grey, moist to wet, very stiff. -trace of organics in the upper 300 mm.			9	SS	27				Silics Sand 155.65
10				154.73 / 10.67							
		SANDY SILT TILL: some clay, trace of gravel, brown, moist, very dense.			10	SS	62				3.05 m Long 50 mm ID Well Screen
12				153.21 / 12.19	11	SS	>100				152.60
		SANDY SILT TILL/WEATHERED SHALE COMPLEX: grey, moist, very dense.		152.45 / 12.95	12	SS	>100				
		SHALE: grey, moist.		152.42 / 12.98							
14		End of Borehole. Auger Refusal.									
		Note: 1) Borehole remained dry on completion of drilling. 2) Combustible vapour reading was 15 ppm at 4.6 m and 85 ppm at 9.2 m depth in open borehole. 3) Water level was measured at 8.45 m bgs on February 19, 2020. 4) Water level was measured at 9.04 m bgs on November 3, 2022. 5) Water level was measured at 9.16 m bgs on November 16, 2022.									
16											
18											

GROUNDWATER ELEVATIONS

▽ SHALLOW/SINGLE INSTALLATION — WATER LEVEL: 9.16 m bgs

▼ DEEP/DUAL INSTALLATION — WATER LEVEL:

LOGGED : FR
CHECKED : LM

MCR LOG ENVIRONMENTAL 1187V2.GPJ 11-16-22

RECORD OF BOREHOLE 203

PROJECT : G1187V-2
LOCATION : Rutledge Road, Mississauga, Ontario
STARTED : February 18, 2020
COMPLETED : February 18, 2020

MC CLYMONT & RAK ENGINEERS, INC.

SHEET 1 OF 1
DATUM Geodetic

DEPTH SCALE (metres)	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	NUMBER	TYPE	BLOWS/0.3m	ORGANIC VAPOUR READINGS (ppm) ⊗ 100 200 300 400 / % LEL - (hexane) □ 20 40 60 80	SHEAR STRENGTH: Cu, KPa nat V - ✚ rem V - ● Q - ✖ U - ▲ 20 40 60 80 / WATER CONTENT, PERCENT wp w wl 10 20 30 40	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		GROUND SURFACE		159.75							
	POWER BORING / SOLID STEM AUGER	FILL: silty clay, trace of sand and gravel, brown, moist, stiff.			1	SS	9				Protective Metal Casing 159.45
					2	SS	19				Bentonite
					3	SS	9				
2					4	SS	28				3.96 m Long 20 mm ID PVC Riser
		-trace of shale fragments and plastics pieces below 3.05 m depth.			5	SS	16				156.40 Silics Sand
4											155.79
		CLAYEY SILT TILL: some sand, trace of gravel, brown, moist, hard.		155.18 4.57	6	SS	32				3.05 m Long 50 mm ID Well Screen
6		SANDY SILT TILL/WEATHERED SHALE COMPLEX: grey, moist, very dense.		153.65 6.10	7	SS	>100				
		SHALE: grey, moist.		152.74 7.02	8	SS	>100				152.74
8		End of Borehole. Auger Refusal.									

Note:
1) Borehole remained dry on completion of drilling.
2) Combustible vapour reading was 25 ppm at 4.6 m depth in open borehole.
3) Water level was measured at 6.61 m bgs on February 19, 2020.
4) Water level was measured at 4.76 m bgs on November 3, 2022.
5) Water level was measured at 4.75 m bgs on November 16, 2022.

GROUNDWATER ELEVATIONS

▽ SHALLOW/SINGLE INSTALLATION — WATER LEVEL: 4.75 m bgs

▼ DEEP/DUAL INSTALLATION — WATER LEVEL:

LOGGED : FR
CHECKED : LM

MCR LOG ENVIRONMENTAL 1187V2.GPJ 11-16-22

RECORD OF BOREHOLE 204

PROJECT : G1187V-2
LOCATION : Rutledge Road, Mississauga, Ontario
STARTED : February 13, 2020
COMPLETED : February 13, 2020

MC CLYMONT & RAK ENGINEERS, INC.

SHEET 1 OF 1
DATUM Geodetic

DEPTH SCALE (metres)	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER	TYPE	BLOWS/0.3m
		GROUND SURFACE		165.15			
	POWER BORING / SOLID STEM AUGER	FILL: silty clay, trace of sand and gravel, brown, moist, soft to stiff. -trace of rootlets in the upper 250 mm.			1	SS	4
					2	SS	3
					3	SS	5
2					4	SS	8
		-trace of red shale fragments at 3.05 m depth.			5	SS	6
4					6	SS	8
6		-trace of organics and rootlets below 6.1 m depth.			7	SS	12
8		-trace of shale fragments and grey below 7.6 m depth.			8	SS	14
				156.01			
		CLAYEY SILT: trace of sand and gravel, grey, moist, very stiff. -trace of organics in the upper 200 mm.		9.14	9	SS	27
10				154.48			
		CLAYEY SILT TILL: some sand, trace of gravel, oxidized stains, brown, moist, hard.		10.67	10	SS	55
12				152.96			
		SANDY SILT TILL: some clay, trace of gravel and shale fragments, grey, moist, very dense.		12.19	11	SS	>100
				152.64 12.51	12	SS	>100
		End of Borehole. Auger Refusal due to Probable Shale Bedrock.					
14		Note: 1) Borehole remained dry on completion of drilling. 2) Combustible vapour reading was 110 ppm at 10.7 m depth in open borehole.					
16							
18							

ORGANIC VAPOUR READINGS (ppm) ⊗: 100 200 300 400
% LEL - (hexane) □: 20 40 60 80

SHEAR STRENGTH: Cu, KPa — nat V - ✚, rem V - ●, Q - ✖, U - ▲: 20 40 60 80
WATER CONTENT, PERCENT — wp, w, wl: 10 20 30 40

ADDITIONAL LAB. TESTING

PIEZOMETER OR STANDPIPE INSTALLATION

GROUNDWATER ELEVATIONS

▽ SHALLOW/SINGLE INSTALLATION
WATER LEVEL: m bgs

▼ DEEP/DUAL INSTALLATION
WATER LEVEL:

LOGGED : FR
CHECKED : LM

MCR LOG ENVIRONMENTAL 1187V2.GPJ 11-16-22

APPENDIX C

CLASS OF ROAD	STRUCTURAL ROAD COMPONENT	MINIMUM STRUCTURAL ROAD DEPTH (mm)			
ARTERIAL	TOP COURSE ASPHALT	40	40	40	40
INDUSTRIAL& RESIDENTIAL	BASE COURSE ASPHALT	60	85	100	100
COLLECTOR	GRANULAR BASE	200	200	200	200
LOCAL INDUSTRIAL	GRANULAR SUB-BASE	65	325	400	400
	TOTAL DEPTH	365	650	740	740
MINOR LOCAL INDUSTRIAL	TOP COURSE ASPHALT	40	40	40	40
	BASE COURSE ASPHALT	50	85	100	100
MINOR RESIDENTIAL	GRANULAR BASE	200	200	200	200
COLLECTOR	GRANULAR SUB-BASE	0	255	325	360
	TOTAL DEPTH	290	580	665	700
RESIDENTIAL	TOP COURSE ASPHALT	40	40	40	40
(MINOR LOCAL/LOCAL)	BASE COURSE ASPHALT	50	85	85	100
	GRANULAR BASE	200	200	200	200
	GRANULAR SUB-BASE	0	175	235	250
	TOTAL DEPTH	290	500	560	590
FROST SUSCEPTIBILITY FACTOR		1 (80% SAND)	3 5 7 (30% MAX. SILT; 30% MIN. SAND)	II (55% MAX. SILT)	15 (+55% SILT)

NOTES:

1. THE TOP COURSE ASPHALT SHALL BE OPSS H.L.3 FOR ALL ROAD CLASSES EXCEPT ARTERIAL ROADS WHICH SHALL BE OPSS H.L.1. TOP COURSE ASPHALTIC CONCRETE SHALL BE ADDED TO THE ROAD AFTER ADJACENT BUILDINGS HAVE BEEN BUILT TO A STAGE DEEMED SUFFICIENT BY THE COMMISSIONER OF TRANSPORTATION AND WORKS.
2. THE BASE COURSE ASPHALT ON RESIDENTIAL ROADS SHALL BE OPSS 1150 H.L.8. BASE ASPHALT MAY CONTAIN UP TO 25% RAP. ON INDUSTRIAL AND ARTERIAL ROADS THE BASE ASPHALT SHALL BE HEAVY DUTY BINDER COURSE (HDBC) ASPHALT.
3. PITRUN GRANULAR A & B WERE CONSIDERED TO ESTABLISH GRANULAR PORTION OF ROAD STRUCTURE. THE USE OF LIMESTONE MATERIAL IS PREFERRED. GRANULARS UTILIZED ARE TO BE SIMILAR IN CHARARCTERISTICS WITHIN ANY GIVEN ROAD (EX. STANDARD GRAVEL OR LIMESTONE). MIXING OF MATERIAL TYPES WITHIN THE SAME ROAD STRUCTURE WILL NOT BE PERMITTED
4. THE TOP 1000mm OF THE SUB-GRADE SHALL BE COMPACTED TO A MINIMUM OF 98% OF STANDARD PROCTOR DENSITY WITHIN 2% OF OPTIMUM MOISTURE CONTENT.
5. AT ARTERIAL ROAD OR INDUSTRIAL ROAD INTERSECTIONS, AN ADDITIONAL 150mm THICKNESS OF OPSS GRANULAR 'B', OR EQUIVALENT, SHALL BE ADDED. THIS EXTRA DEPTH SHALL EXTEND FOR A MINIMUM OF 15 METRES FROM THE PROPERTY LINE OF THE INTERSECTING ROAD.
6. FULL LENGTH SUB-DRAINS SHALL BE INSTALLED ON ALL ROADS
7. THESE ARE MINIMUM STRUCTURAL ROAD DESIGN REQUIREMENTS. THE CONSULTANT BEARS THE ULTIMATE RESPONSIBILITY FOR THE DESIGN AND THE PERFORMANCE OF THAT DESIGN AS CONSTRUCTED.
8. WHERE TWO STAGE CURBS ARE UTILIZED; BASE COURSE ASPHALT IS REQUIRED TO BE GROUND AWAY OR SAWCUT FROM BASE CURB PRIOR TO PLACEMENT OF TOP CURB
9. GRANULAR B TYPE I SHALL HAVE A MAXIMUM OF 65% PASSING THE 4.75mm SIEVE

MISSISSAUGA

STANDARD

PAVEMENT AND ROAD BASE DESIGN REQUIREMENTS

EFF. DATE		2002-01-01	SCALE	N.T.S.
REV.	3	2018-04-01	STANDARD No.	2220.010