REPORT

Geotechnical Engineering Design Input Holland Cross Expansion

1560 Scott Street, Ottawa, Ontario

Submitted to:

Pomerleau

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Submitted by:

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1.0 INTRODUCTION

Golder Associates Ltd. (Golder) previously carried out a geotechnical desktop review as part of a Site Plan Agreement application to the City of Ottawa for the proposed expansion to the Holland Cross facility, located at 1560 Scott Street in Ottawa, Ontario. The results of that desktop review were provided in the Golder report dated December 2013 (Report Number 13-1121-0176).

The purpose of that previous report was to assess the subsurface conditions at the site by means of review of existing geotechnical information and, based on an interpretation of the factual information available, to provide preliminary engineering input on the geotechnical design aspects of the project, including comments on construction considerations which could influence design decisions. The foundation engineering guidelines provided in that previous report were consistent with the procedures outlined in the 2006 Ontario Building Code (OBC). At that time, the proposed expansion consisted of development of a 12 storey low-rise building with two basement/below grade levels.

It is understood that the proposed building design has subsequently been modified to comprise a 23 storey building, also with two basement/below grade levels.

The purpose of this report is to provide updated geotechnical recommendations in accordance with the current 2012 OBC to reflect the changes in the proposed design.

The reader is referred to the “Important Information and Limitations of This Report” which follows the text but forms an integral part of this document.

2.0 BACKGROUND INFORMATION

2.1 Site and Project Descriptions

Consideration is being given to the design and construction of a 23 storey building to be located at 1560 Scott Street in Ottawa, Ontario (see Key Plan, Figure 1).

The following is known about the existing property:

- The proposed building will be located in the southeast corner of an overall site that is bordered to the north by Scott Street, to the west by Holland Avenue, to the south by multi-storey residential buildings and to the east by Hamilton Avenue.
- The overall site measures about 140 m by 140 m in plan area and contains two 7 storey office buildings, one along the northern perimeter and one on the western perimeter border, and a 2 storey building in the southern part of the site. A single storey building covers most of the remainder of the site footprint.
- The existing facility in the area of the proposed 23 storey building consists of a low-rise building with two basement levels. These building areas will be demolished to allow for construction of the expansion.

The current development plans indicate:

- The proposed building footprint is identified on the Site Plan, see Figure 2.
- The proposed building will be 23 storeys in height and encompass a plan area of about 36 m by 47 m.
- Similar to the existing structure at the site, the proposed structure will have 2 basement/below-grade levels.

Additional details on finished floor slab levels were not available at the time of preparation of this report.

2.2 Available Subsurface Information

Previous subsurface investigations at or near the site were carried out by Golder, and also by McRostie Genest Middlemiss and Associates (McRostie) who have since joined Golder. The following reports were reviewed in the assessment of site conditions for this study, which include the investigations for the existing development:

1) Report to J.L. Richards & Associates Ltd. by Golder titled "*Geotechnical Investigation, Proposed Watermain and Sanitary Sewer Replacement, Holland Avenue, Scott Street to Tyndall Street, Ottawa, Ontario*" dated June 2012 (Report No. 11-1121-0281).
2) Letter to Laurnic Investments by McRostie titled "*Holland and Spencer Avenues, Beech Foundry Site, Rock Elevations*" dated June 6, 1984 (Report No. SF-2481).
3) Report to Citicom Inc., Brisbin Brooke Beynon, Architects and Carwood Leclair Inc. Consulting Engineers by McRostie titled "*Holland Cross Project, Holland Ave., Spencer St. & Scott St., Ottawa*" dated July 3, 1986 (Report No. SF-2687).

Golder also previously carried Vertical Seismic Profiling (VSP) geophysical testing on a nearby Tunney's Pasture site for Public Works and Government Services Canada in 2011 and that information has also been reviewed in preparation of this report.

Based on the available information, the subsurface conditions are anticipated to consist surficial fill material overlying glacial till and then by bedrock with the bedrock surface located at depths varying from about 0.5 to 2.8 m below the original ground surface.

Published bedrock geology mapping indicates that the site is underlain by dolomite and limestone of the Bobcaygeon Formation.

3.0 SUBSURFACE CONDITIONS

3.1 General

The approximate locations of the boreholes and test pits previously advanced at the site are identified on Figure 2. Relevant borehole and test pit records from the previous investigations by McRostie in the immediate vicinity of the proposed building are provided in Appendix A.

The following provides an overview of the subsurface conditions encountered in the test pits and boreholes previously advanced at the site followed by more detailed descriptions of the major soil strata and shallow groundwater conditions. It should be noted that the previous investigations pre-dated development of the site and, as such, the near surface conditions are anticipated to have been altered by the existing development (e.g., removal of materials to permit construction of the existing below-grade structures) including bedrock excavations.

In general, the subsurface conditions consist of up to approximately 2.8 m of surficial fill materials overlying limestone bedrock. Organic materials and/or glacial till deposits were present between the fill materials and bedrock at some locations on the site.

3.2 Surficial Fill Materials, Organic Material and Glacial Till

The records for the McRostie test pits and boreholes encountered a concrete slab at ground surface with a thickness ranging between about 60 to 150 mm in test pits numbered 2 to 11, inclusively. Topsoil was encountered in some test pits over the site ranging in thickness from about 200 to 300 mm. A layer of fill material was present underlying the concrete slab, topsoil or at surface, within or near the proposed building footprint; the fill extended to depths of up to about 2.3 m below the original ground surface (but was locally thinner). The past investigations generally describe the fill material as being comprised of a variety of materials including topsoil, sand, gravel, clay, bricks, wood, metal, concrete and other debris.

A 0.3 to 0.8 m thick organic layer was encountered at or near the proposed building footprint (i.e., in borehole 86-8 and at test pits N120/E120 and N150/E120) at depths of 0.40, 1.7 and 1.35 m below the ground surface, respectively.

The previous geotechnical investigations carried out on this site indicate that the fill and/or organic materials were underlain by glacial till at or near the proposed building footprint. The glacial till consists of a heterogeneous mixture of gravel, cobbles, and boulders in a silty sand matrix.

As the proposed building footprint currently contains two below grade levels, it is anticipated that the most if not all of the above noted materials were removed during construction of the existing building.

3.3 Bedrock

The near surface materials described above are underlain by bedrock. Records for the McRostie boreholes indicate that limestone bedrock was encountered at depths ranging between 0.52 and 2.8 m below ground surface (Elevation 59.6 to 61.2 m) within the overall site. At test pits and boreholes advanced within or near the footprint of the proposed tower, the bedrock surface was encountered at elevations of about 59.8 to 61.0 m.

The upper portion of the rock was noted to be slightly weathered and soil filled seams within the bedrock were identified in the core drilling program.

3.4 Groundwater

The existing groundwater data indicates that, at least seasonally, the groundwater level was near ground surface. Groundwater levels are expected to fluctuate seasonally. Higher groundwater levels are expected during wet periods of the year, such as spring, and during and following periods of sustained precipitation.

However, it is noted that the groundwater levels at this site have likely been altered as a result of the existing development (e.g., current water levels are anticipated to be influenced by existing building drainage systems).

4.0 DISCUSSION

4.1 General

This section of the report provides preliminary engineering input on the geotechnical design aspects of the proposed development, based on our interpretation of available information described herein and the project requirements.

The foundation engineering guidelines presented in this section of the report have been developed in a manner consistent with the procedures outlined in 2012 OBC for Limit States Design.

4.2 Excavations

Details on the finished floor elevations for the proposed building were not available at the time of preparation of this report. However, it is understood that the proposed building will be constructed within a portion of the existing building footprint which contains two below-grade levels and which will be demolished prior to construction of the new building. The proposed building will also incorporate two below-grade levels. As the proposed and existing buildings both have two underground levels, it is anticipated that excavations will be limited primarily to new footing areas.

The available subsurface information suggests that the bedrock surface in the immediate vicinity of the proposed building was located at shallow depth (i.e., at depths ranging between about 1.6 and 2.5 m below ground surface at the time of the previous investigations). The founding levels for new building foundations are therefore expected to be within limestone bedrock.

In general, the subsurface conditions on this site consisted of topsoil and fill overlying glacial till, with the bedrock surface located at depths varying from about 1.6 to 2.5 m below the ground surface at the time of the previous investigations. In accordance with the Occupational Health and Safety Act (OHSA) of Ontario, the soils above the water table at this site would generally be classified as Type 3 soils and side slopes in the overburden *above the water table* may therefore be sloped at a minimum of 1H:1V. However, in accordance with the OHSA of Ontario, the soils below the water table would generally be classified as Type 4 soils, and excavation side slopes must be sloped at a minimum of 3H:1V if dewatering of these materials is not carried out. This condition is not, however, anticipated to exist.

Depending on the final excavation geometry, some shoring/temporary support may be needed for the excavation adjacent to the loading dock facility located immediately north of the proposed building and/or adjacent to Hamilton Avenue to prevent undermining of the roadways.

It is expected that near vertical walls may be developed in the bedrock for the shallow excavations needed for new footing construction. However, the exposed bedrock should be inspected by qualified geotechnical personnel at the time of excavation to confirm this assessment.

Similarly, if/where the existing foundation walls are removed; vertical bedrock excavation walls are anticipated to be feasible.

Shallow depths of bedrock removal for this project, such as those required for localized excavations for footings, could be accomplished using mechanical methods (such as hoe ramming in conjunction with line drilling).
Care will need to be taken to protect the adjacent structures/foundations from damage during bedrock excavation. It is expected/assumed that blasting will not be required.

It is assumed that there is an existing drainage system below the existing building floor slab which has lowered the groundwater level to below the base of the existing building. Provided that the bulk excavation for the new building does not extend substantially below the current below-grade building levels, groundwater inflow into the foundation excavations can probably be handled by pumping from properly constructed and filtered sumps located within the excavations.

4.3 Foundations

It is understood that the proposed building will have two basement levels. It is expected that the excavation will extend about 1 to 2 m below the basement floor level to accommodate footing construction. At these levels, new building foundations are expected to be founded within limestone bedrock.

For initial assessment purposes, it is expected that footings founded on or within the competent limestone bedrock would be sized using an Ultimate Limit States (ULS) factored bearing resistance in the range of 2 to 4 MPa; additional site-specific investigation will be required prior to detailed design to further assess and optimize design bearing pressures.

Provided the bedrock surface is acceptably cleaned of loose or broken bedrock, the settlement of footings at the corresponding service (unfactored) load is considered negligible therefore the SLS condition will not govern the design.

The ultimate resistance of the footings to lateral loading may be calculated using an ULS friction value of 0.7 (unfactored) across the interface between the footing and the bedrock. If greater resistance is required, the footings could be provided with shear keys or prestressed rock anchors could be used to increase the normal stress level across the interface. Further guidance on this issue can be provided, if required.

The available information from previous investigations at the site typically does not include detailed descriptions of bedrock weathering conditions but did identify the presence of soil filled seams within the bedrock. Based on these conditions, it is recommended that probe holes (50 mm diameter drilled holes) be advanced within the footing areas to depths of about 2 m below founding level. These probe holes should be inspected by the geotechnical engineer and would be used to confirm that the weathered bedrock has been entirely removed and no soil filled seams are present beneath the footings. Contract drawings should include provision for making variations in footing sizes or founding elevations in the event that weathered or other poor quality rock or soil infilled seams are encountered.

4.4 Seismic Design

The seismic design provisions of the 2012 OBC depend, in part, on the shear wave velocity of the upper 30 m of soil and/or rock below founding level.

Site specific shear wave velocity profiling, using the Vertical Seismic Profiling (VSP) method (down-hole geophysical method), was carried out in a borehole on an adjacent Tunney's Pasture site for Public Works and Government Services Canada in 2011.

A review of the borehole information indicates that both sites are underlain by similar overburden conditions (i.e., less than about 1 m of fill material) and similar bedrock conditions (i.e., limestone of the Bobcaygeon Formation). The results of the nearby VSP testing would therefore also be applicable to this site as permitted by the OBC. The results of the VSP testing indicated an average shear-wave velocity for the bedrock of 2,200 m/s. As such, this site can be assigned a Seismic Site Class A.

4.5 Basement Floor Slab

In preparation for the construction of the basement floor slab, all loose, wet, and disturbed material should be removed from beneath the floor slab. The feasibility of reusing existing underslab granular fill materials can also be evaluated.

Provision should be made for at least 300 mm of 16 mm clear crushed stone to form the base of the floor slab. To prevent hydrostatic pressure build up beneath the floor slab, it is suggested that the granular base for the floor slab be drained. This should be achieved by installing rigid 100 mm diameter perforated pipes in the floor slab bedding at 6 m centres. The perforated pipes should discharge to a positive outlet such as a storm sewer or a sump from which the water is pumped.

If or where an asphalt surface will be provided for the basement level, a thickness of at least 150 mm of OPSS Granular A base materials should be provided above the clear stone. The Granular A should be compacted to at least 100 percent of the material’s Standard Proctor Maximum Dry Density (SPMDD).

4.6 Frost Protection

All perimeter and exterior foundation elements or interior foundation elements in unheated areas should be provided with a minimum of 1.5 m of earth cover for frost protection purposes. Isolated, unheated exterior footings adjacent to surfaces which are cleared of snow cover during winter months should be provided with a minimum of 1.8 m of earth cover.

It is expected that these requirements will be satisfied for all of the structure footings due to the deep founding levels required to accommodate the below-grade parking.

4.7 Basement Walls

The backfill and drainage requirements for basement walls, as well as the lateral earth pressures will depend on the type of excavation that is made to construct the basement levels.

The following sections assume that water-tight construction will not be required. If it is determined that water-tight construction is needed, additional design guidelines will be required.

4.7.1 Open Cut Excavations

The soils at this site are frost susceptible and should not be used as backfill against exterior, unheated, or well insulated foundation elements within the depth of potential frost penetration (1.5 m) to avoid problems with frost adhesion and heaving. Free draining backfill materials are also required if hydrostatic water pressure against the basement walls (and potential leakage) is to be avoided. The foundation and basement walls therefore should be backfilled with non-frost susceptible sand or sand and gravel conforming to the requirements for OPSS Granular B Type I.

To avoid ground settlements around the basement walls which could affect site grading and drainage, all of the backfill materials should be placed in 0.3 m thick lifts and compacted to at least 95 percent of the material’s SPMDD.

The basement wall backfill should be drained by means of a perforated pipe subdrain in a surround of 19 mm clear stone, fully wrapped in a geotextile, which leads by positive drainage to a storm sewer or to a sump from which the water is pumped.

4.7.2 Excavations in Bedrock

Where basement walls will be poured against bedrock, vertical drainage such as Miradrain or equivalent must be installed on the face of the bedrock to provide the necessary drainage. The top edge of the vertical drainage should be sealed or covered with a geotextile to prevent the loss of soil into the void between the sheet and geotextile of the drainage system.

Where the basement walls will be constructed using formwork, it will be necessary to backfill a narrow gallery with free draining backfill between the shoring or bedrock face and the outside of the walls. The backfill should consist of 6 mm clear stone ‘chip’, placed by a stone slinger or chute.

In no case should the clear stone chip be placed in direct contact with other soils. For example, surface landscaping or backfill soils placed near the top of the clear stone back fill should be separated from the clear stone with a geotextile.

Both the drain pipe for the wall backfill and/or the drainage system should be connected to a perimeter drain at the base of the excavation which is connected to a sump pump.

4.7.3 Lateral Earth Pressures

It is considered that three design conditions exist with regards to the lateral earth pressures that will be exerted on the basement walls:

1) Walls cast directly against the bedrock face.
2) Walls cast against formwork with a narrow backfilled gallery provided between the basement wall and the adjacent excavation bedrock face.
3) Walls cast against formwork with a wide backfilled gallery provided between the basement wall and the adjacent excavation face.

For Case 1 there will be no effective lateral earth pressures on the basement wall under static conditions.

For Case 2, the magnitude of the lateral earth pressure depends on the magnitude of the arching which can develop in the backfill and therefore depends on the width of the backfill, its angle of internal friction, as well as the interface friction angles between the backfill and both the rock face and the basement wall. The magnitude of the lateral earth pressure can be calculated as:

$$\sigma_h(z) = \frac{\gamma B}{2\,tan\,\delta}\left(1 - e^{-2K\frac{z}{B}tan\,\delta}\right) + K\,q$$

Where: $\sigma_h(z)$ = Lateral earth pressure on the basement wall at depth z, in kPa;

K = Earth pressure coefficient, use 0.6;

γ = Unit weight of retained soil, use 20 kN/m^3 for clear stone chip;

B = Width of backfill (between basement wall and bedrock face), m;

δ = Average interface friction angle at backfill-basement wall and backfill-rock face interfaces, use 15°;

z = Depth below top of formwork, m; and,

q = Uniform surcharge at ground surface to account for traffic, equipment, or stock piled materials (use 15 kPa).

For Case 3, the basement walls should be designed to resist lateral earth pressures calculated as:

$$\sigma_h(z) = K_o (\gamma z + q)$$

Where: $\sigma_h(z)$ = Lateral earth pressure on the wall at depth z, in kPa;

K_o = At-rest earth pressure coefficient, use 0.5;

γ = Unit weight of retained soil, use 22 kN/m^3;

z = Depth below top of wall, m; and,

Conventional damp proofing of the basement walls is appropriate with the above design approach. For concrete walls poured against shoring or bedrock, damp proofing using a crystalline barrier such as Crystal Lok, Xypex or equivalent could be used. The use of a concrete additive that provides reduced permeability could also be considered.

For all cases, hydrostatic groundwater pressures would also need to be considered if the structure is designed to be water-tight.

The lateral earth pressures acting on the below-grade walls as a result of seismic events will be highly dependent on the backfill types and methods. For Case 3, the lateral earth pressures noted above would increase under seismic loading conditions. The earthquake-induced dynamic pressure distribution, which is to be added to the static earth pressure distribution, is a linear distribution with maximum pressure at the top of the wall and minimum pressure at its toe (i.e., an inverted triangular pressure distribution).

The combined pressure distribution (static plus seismic) may be determined as follows:

$$\sigma_h(z) = K_o \gamma z + (K_{AE} - K_A) \gamma (H-z);\ \text{non-yielding walls}$$

Where: K_{AE} = The seismic earth pressure coefficient, use 0.42;

K_a = The static active earth pressure coefficient

H = The total depth to the bottom of the foundation wall (m).

For the other backfill design conditions, design lateral pressures resulting from seismic loading should be assessed during the next design stage once further details on building and backfill configuration are available.

Hydrodynamic groundwater pressures would also need to be considered if the structure is designed to be water-tight. However, more sophisticated analyses may need to be carried out at the detailed design stage.

All of the lateral earth pressure equations are given in an unfactored format and will need to be factored for Limit States Design purposes.

It has been assumed that the underground parking levels will be maintained at minimum temperatures but will not be permitted to freeze. If these areas are to be unheated, additional guidelines for the design of the basement walls and foundations will be required.

In areas where pavement or other hard surfacing will abut the building, differential frost heaving could occur between the granular fill immediately adjacent to the building and the more frost susceptible backfill placed beyond the wall backfill. To reduce the severity of this differential heaving, the backfill adjacent to the wall should be placed to form a frost taper. The frost taper should be brought up to pavement subgrade level from 1.5 m below finished exterior grade at a slope of 3 horizontal to 1 vertical, or flatter, away from the wall. The granular fill should be placed in maximum 300 mm thick lifts and should be compacted to at least 95 percent of the material's SPMDD using suitable vibratory compaction equipment.

4.8 Impacts on Adjacent Development

Possible impacts on adjacent developments could result from:

- Ground movement around the perimeter of the excavation.
- Ground settlements due to the planned temporary and permanent groundwater level lowering, if sensitive and compressible clay soils exist within the expected zone of influence of the groundwater level lowering (which, as discussed below, it not the case for this development).

A preconstruction survey of all structures located within close proximity to this site should be carried out prior to commencement of the excavation.

The structures that are mostly at risk of being impacted by ground movements associated with construction of the new building are the portions of the existing structure that are located immediately adjacent to the excavation (e.g., the parkade structure ramps to the south and the single storey building located in the central portion of the site. It is understood that these structures also contain two below-grade levels and are anticipated to be supported on spread footings on bedrock.

As a general guideline for excavation planning, the excavation for the new structure should not come within 0.5 m of the edge of the footings of the existing buildings. To avoid undermining of the rock and/or disturbance of the rock, careful line drilling of the excavation limits in this area must be undertaken.

Given the relatively shallow depth of additional bedrock excavation, no rock reinforcement is anticipated to be required for this excavation. However, the exposed bedrock should be inspected by qualified geotechnical personnel at the time of excavation to confirm that assessment particularly in areas where excavations will be developed in close proximity to existing foundations.

Temporary and permanent groundwater level lowering would be an issue with regards to surrounding ground settlements if sensitive and compressible clay soils exist within the expected zone of influence of the groundwater level lowering (both during construction and in the long term due to the foundation drainage system). It is noted that the lowest level of the new structure is expected to be at or close to the lowest level of the existing structure; therefore, provided similar drainage systems are used for the new building, the construction of this building is not anticipated to result in a significant permanent groundwater lowering compared to existing conditions. Furthermore, the review of information from investigations at and nearby the site as well as published geologic mapping does not indicate that compressible soils are present near this zone. Based on these conditions, groundwater level lowering will not be an issue with regards to ground settlements due to overstressing sensitive and compressible clay soils.

4.9 Environmental Considerations

The site is located in an area of the City that is known to contain contaminated groundwater; therefore, the development of deep excavations or the installation of dewatering systems that could cause substantial changes to groundwater flow patterns (either during construction or in the long term) should be avoided.

5.0 ADDITIONAL CONSIDERATIONS

Additional site specific investigation will be required prior to finalising the design of the building in order to more accurately assess the bedrock characteristics immediately beneath the building footprint; this information would be used as input to geotechnical aspects of detailed design (e.g., confirming design bearing pressures for foundations, providing information for use in assessing rock anchors that could be required to resist seismic loading, etc.).

All footing and subgrade areas should be inspected by experienced geotechnical personnel prior to filling or concreting to ensure that bedrock having adequate bearing capacity has been reached and that the bearing surfaces have been properly prepared. The placing and compaction of any engineered fill should be inspected to ensure that the materials used conform to the specifications from both a grading and compaction viewpoint.

Pumping from the excavation will result in groundwater flow from the surrounding properties towards this site. Therefore, groundwater contamination beneath adjacent properties, if present, could be drawn towards this site. If any such pumping is planned, additional chemical testing should be carried out prior to construction to determine the groundwater quality so that disposal requirements can be confirmed. The inflow of contaminated groundwater during construction could result in increased groundwater disposal costs.

At the time of the writing of this report, only preliminary details for the proposed development were available. Golder should be retained to review the detailed drawings and specifications for this project prior to tendering to ensure that the guidelines in this report have been adequately interpreted.

6.0 CLOSURE

We trust this report meets with your current requirements. If you have any questions regarding this report, please contact the undersigned.

Golder Associates Ltd.

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IMPORTANT INFORMATION AND LIMITATIONS OF THIS REPORT

Standard of Care: Golder Associates Ltd. (Golder) has prepared this report in a manner consistent with that level of care and skill ordinarily exercised by members of the engineering and science professions currently practicing under similar conditions in the jurisdiction in which the services are provided, subject to the time limits and physical constraints applicable to this report. No other warranty, expressed or implied is made.

Basis and Use of the Report: This report has been prepared for the specific site, design objective, development and purpose described to Golder by the Client, **Pomerleau.** The factual data, interpretations and recommendations pertain to a specific project as described in this report and are not applicable to any other project or site location. Any change of site conditions, purpose, development plans or if the project is not initiated within eighteen months of the date of the report may alter the validity of the report. Golder cannot be responsible for use of this report, or portions thereof, unless Golder is requested to review and, if necessary, revise the report.

The information, recommendations and opinions expressed in this report are for the sole benefit of the Client. No other party may use or rely on this report or any portion thereof without Golder's express written consent. If the report was prepared to be included for a specific permit application process, then the client may authorize the use of this report for such purpose by the regulatory agency as an Approved User for the specific and identified purpose of the applicable permit review process, provided this report is not noted to be a draft or preliminary report, and is specifically relevant to the project for which the application is being made. Any other use of this report by others is prohibited and is without responsibility to Golder. The report, all plans, data, drawings and other documents as well as all electronic media prepared by Golder are considered its professional work product and shall remain the copyright property of Golder, who authorizes only the Client and Approved Users to make copies of the report, but only in such quantities as are reasonably necessary for the use of the report by those parties. The Client and Approved Users may not give, lend, sell, or otherwise make available the report or any portion thereof to any other party without the express written permission of Golder. The Client acknowledges that electronic media is susceptible to unauthorized modification, deterioration and incompatibility and therefore the Client cannot rely upon the electronic media versions of Golder's report or other work products.

The report is of a summary nature and is not intended to stand alone without reference to the instructions given to Golder by the Client, communications between Golder and the Client, and to any other reports prepared by Golder for the Client relative to the specific site described in the report. In order to properly understand the suggestions, recommendations and opinions expressed in this report, reference must be made to the whole of the report. Golder cannot be responsible for use of portions of the report without reference to the entire report.

Unless otherwise stated, the suggestions, recommendations and opinions given in this report are intended only for the guidance of the Client in the design of the specific project. The extent and detail of investigations, including the number of test holes, necessary to determine all of the relevant conditions which may affect construction costs would normally be greater than has been carried out for design purposes. Contractors bidding on, or undertaking the work, should rely on their own investigations, as well as their own interpretations of the factual data presented in the report, as to how subsurface conditions may affect their work, including but not limited to proposed construction techniques, schedule, safety and equipment capabilities.

Soil, Rock and Groundwater Conditions: Classification and identification of soils, rocks, and geologic units have been based on commonly accepted methods employed in the practice of geotechnical engineering and related disciplines. Classification and identification of the type and condition of these materials or units involves judgment, and boundaries between different soil, rock or geologic types or units may be transitional rather than abrupt. Accordingly, Golder does not warrant or guarantee the exactness of the descriptions.

IMPORTANT INFORMATION AND LIMITATIONS OF THIS REPORT (cont'd)

Special risks occur whenever engineering or related disciplines are applied to identify subsurface conditions and even a comprehensive investigation, sampling and testing program may fail to detect all or certain subsurface conditions. The environmental, geologic, geotechnical, geochemical and hydrogeologic conditions that Golder interprets to exist between and beyond sampling points may differ from those that actually exist. In addition to soil variability, fill of variable physical and chemical composition can be present over portions of the site or on adjacent properties. **The professional services retained for this project include only the geotechnical aspects of the subsurface conditions at the site, unless otherwise specifically stated and identified in the report.** The presence or implication(s) of possible surface and/or subsurface contamination resulting from previous activities or uses of the site and/or resulting from the introduction onto the site of materials from off-site sources are outside the terms of reference for this project and have not been investigated or addressed.

Soil and groundwater conditions shown in the factual data and described in the report are the observed conditions at the time of their determination or measurement. Unless otherwise noted, those conditions form the basis of the recommendations in the report. Groundwater conditions may vary between and beyond reported locations and can be affected by annual, seasonal and meteorological conditions. The condition of the soil, rock and groundwater may be significantly altered by construction activities (traffic, excavation, groundwater level lowering, pile driving, blasting, etc.) on the site or on adjacent sites. Excavation may expose the soils to changes due to wetting, drying or frost. Unless otherwise indicated the soil must be protected from these changes during construction.

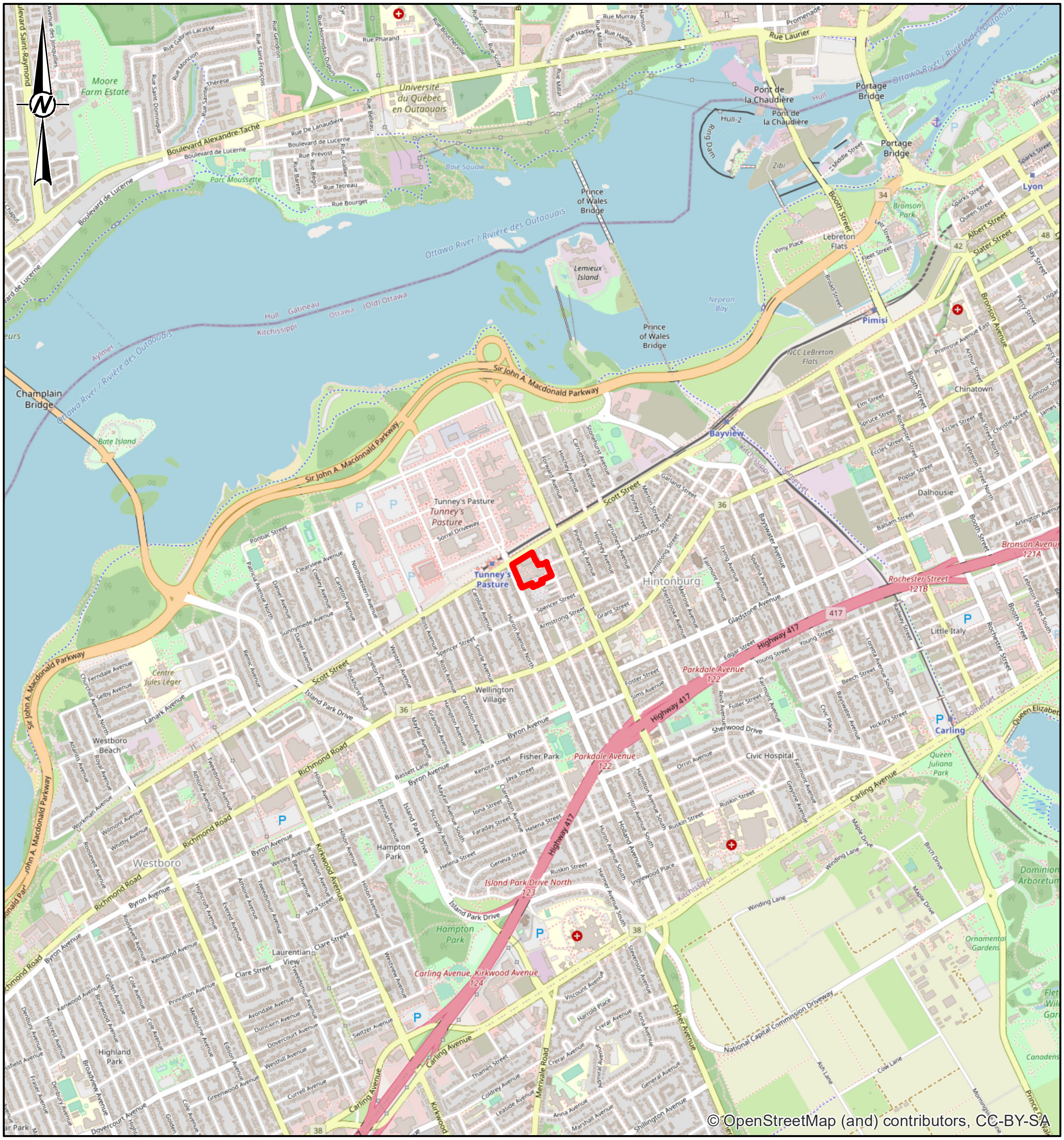
Sample Disposal: Golder will dispose of all uncontaminated soil and/or rock samples 90 days following issue of this report or, upon written request of the Client, will store uncontaminated samples and materials at the Client's expense. In the event that actual contaminated soils, fills or groundwater are encountered or are inferred to be present, all contaminated samples shall remain the property and responsibility of the Client for proper disposal.

Follow-Up and Construction Services: All details of the design were not known at the time of submission of Golder's report. Golder should be retained to review the final design, project plans and documents prior to construction, to confirm that they are consistent with the intent of Golder's report.

During construction, Golder should be retained to perform sufficient and timely observations of encountered conditions to confirm and document that the subsurface conditions do not materially differ from those interpreted conditions considered in the preparation of Golder's report and to confirm and document that construction activities do not adversely affect the suggestions, recommendations and opinions contained in Golder's report. Adequate field review, observation and testing during construction are necessary for Golder to be able to provide letters of assurance, in accordance with the requirements of many regulatory authorities. In cases where this recommendation is not followed, Golder's responsibility is limited to interpreting accurately the information encountered at the borehole locations, at the time of their initial determination or measurement during the preparation of the Report.

Changed Conditions and Drainage: Where conditions encountered at the site differ significantly from those anticipated in this report, either due to natural variability of subsurface conditions or construction activities, it is a condition of this report that Golder be notified of any changes and be provided with an opportunity to review or revise the recommendations within this report. Recognition of changed soil and rock conditions requires experience and it is recommended that Golder be employed to visit the site with sufficient frequency to detect if conditions have changed significantly.

Drainage of subsurface water is commonly required either for temporary or permanent installations for the project. Improper design or construction of drainage or dewatering can have serious consequences. Golder takes no responsibility for the effects of drainage unless specifically involved in the detailed design and construction monitoring of the system.



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LEGEND

🟥 STUDY AREA

0 250 500 1,000

1:25,000 METRES

NOTE(S)

1. ALL LOCATIONS ARE APPROXIMATE

REFERENCE(S)

1. PROJECTION: TRANSVERSE MERCATOR DATUM: NAD 83
COORDINATE SYSTEM: MTM ZONE 9 VERTICAL DATUM: CGVD28

CLIENT

POMERLEAU

PROJECT

HOLLAND CROSS EXPANSION
OTTAWA, ONTARIO

TITLE

KEY PLAN

CONSULTANT

GOLDER

YYYY-MM-DD	2020-04-13
DESIGNED	----
PREPARED	BR/JEM
REVIEWED	KCP
APPROVED	MJK

PROJECT NO.	CONTROL	REV.	FIGURE
20141578	0001	0	1

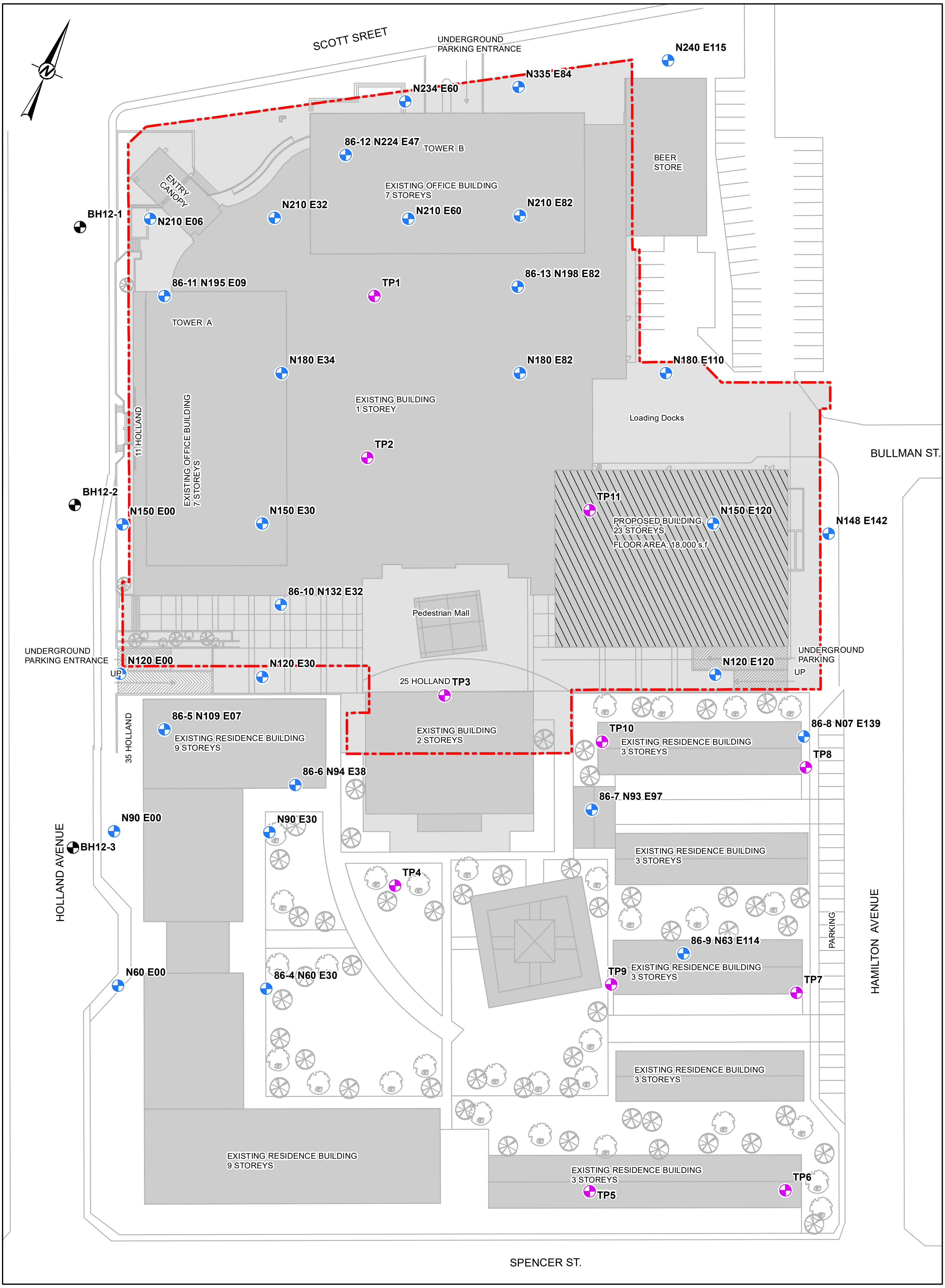
Path: N:\Active\Spatial_IM\Pomerleau\Holland_Cross\99_PROJ\20141578_Pomerleau_Geotech\0001_Geotech_Investigation\20141578-0001-BG-0001.mxd

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM:

25mm

0

PATH: N:\Active\Spatial_IM\Pomerleau\Holland_Cross\99_PROJ\20141578_Pomerleau_Geotech\0001_Geotech_Investigation\20141578-0001-BG-0002.mxd PRINTED ON: 2020-04-29 AT: 10:58:57 AM



LEGEND

- ◐ EXISTING BOREHOLE/TEST PIT - PREVIOUS INVESTIGATION 11-1121-0281 (GOLDER) (NOT TO SCALE=APPROXIMATE LOCATIONS)
- ◐ EXISTING BOREHOLE/TEST PIT - PREVIOUS INVESTIGATION SF2481 (MCROSTIE GENEST MIDDLEMISS)
- ◐ EXISTING BOREHOLE/TEST PIT - PREVIOUS INVESTIGATION SF2687 (MCROSTIE GENEST MIDDLEMISS)
- ▭ EXISTING BUILDINGS
- ▨ PROPOSED BUILDING
- ⬚ STUDY AREA

0 10 20 40

1:750 METRES

REFERENCE(S)

1. BASE CAD PLAN "SITEPLAN TO COLONNADE (26, JULY 2013).DWG" PROVIDED BY COLONNADE DEVELOPMENT INC.
2. PROJECTION: TRANSVERSE MERCATOR, DATUM: NAD 83, COORDINATE SYSTEM: MTM ZONE 9, VERTICAL DATUM: CGVD28

CLIENT
POMERLEAU

PROJECT
HOLLAND CROSS EXPANSION
OTTAWA, ONTARIO

CONSULTANT

GOLDER

YYYY-MM-DD	2020-04-13
DESIGNED	----
PREPARED	BR/JEM
REVIEWED	KCP
APPROVED	MJK

TITLE
SITE PLAN

PROJECT NO.	CONTROL	REV.	FIGURE
20141578	0001	0	2

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B

25mm

0

APPENDIX A

Borehole and Test Pit Records Previous Investigation (McRostie Genest Middlemiss & Associates Ltd., Report No. SF-2687)

McROSTIE GENEST MIDDLEMISS
& ASSOCIATES LTD. & ASSOCIÉS LTÉE
CONSULTING ENGINEERS - INGÉNIEURS CONSEILS
OTTAWA CANADA

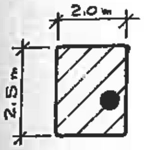
SOIL PROFILE & TEST SUMMARIES
PROFIL SOUTERRAIN ET RÉSUMÉ DES ESSAIS

Holland and Spencer

SF2687

ELEVATION OF GROUND SURFACE (ZERO DEPTH) / NIVEAU DU SOL (PROFONDEUR ZERO) 62.03 m
DATE May 26 & June 2,86
HOLE / FORAGE No. & Test Pit 86-4
N 60 E 30
NOTES See Plate No. 2

~~Probing or~~ ~~Vane Test~~ ~~Sondage ou~~ ~~Essai au Scissomètre~~
Marteau ______ Hammer
Chute Libre ______ Drop
No Casing - Sans Tubage
Barre ______ Dia. Rod
~~Blows / 30 cm or Shear Strength (kPa)~~
~~Coups/30cm ou Résistance au Cisaillement (kPa)~~

DEPTH IN METRES PROFONDEUR-MÈTRES	Small Scale Penetrometer kPa Petit Pénétromètre kPa	Essai-Standard Pénétration Blows-Coups / 30cm	SAMPLE ÉCHANTILLON No.	DESCRIPTION OF SOIL DU SOL	DEPTH IN METRES PROFONDEUR-MÈTRES	ELEVATION m NIVEAU m
				Ground Surface - Niveau du Sol	0	62.03
				FILL - sand gravel metal wood concrete & brick		
1					1.00	61.03
	water at El. 60.73 →					
2	Bottom of pit →				2.20	59.83
				LIMESTONE core recovery 98%	2.95	59.08
3				LIMESTONE core recovery 99%	3.94	58.09
4				LIMESTONE core recovery 100%	4.36	57.67
5				LIMESTONE core recovery 100%	5.64	56.39
6				LIMESTONE core recovery 100%	6.91	55.12
7				LIMESTONE core recovery 100%	7.20	54.93
				Bottom of hole		

← water level June 4,86 El. 60.83

0 25 50 75 100

R = REMOULDED - RENANIÉ
CR = CORE RECOVERY, CAROTTE RÉCUPERÉE
NR = NO RECOVERY - NON RÉCUPERÉ

WATER CONTENT % TENEUR EN EAU
NATURAL NATURELLE ——— ⊙
LIQUID LIMIT LIMITE DE LIQUIDITÉ ——— ⊡
PLASTIC LIMIT LIMITE DE PLASTICITÉ ——— △

PLATE PLAQUE No. 6

McROSTIE GENEST MIDDLEMISS
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SF2687

ELEVATION OF GROUND SURFACE (ZERO DEPTH) / NIVEAU DU SOL (PROFONDEUR ZERO) 61.62 m DATE May 28 & June 4,86

NOTES See Plate No. 2

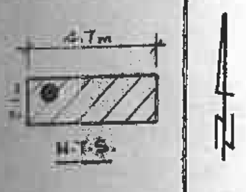
HOLE / FORAGE No. & Test Pit 86-5
N 109 E 7

~~Probing or Vane Test~~ ~~Sondage ou Essai au Scissomètre~~

Marteau ________ Hammer
Chute Libre ________ Drop
No Casing - Sans Tubage
Barre ________ Dia. Rod

~~Blows / 30 cm or Shear Strength (kPa) / Coups / 30 cm ou Résistance au Cisaillement (kPa)~~

DEPTH IN METRES / PROFONDEUR - MÈTRES | [illegible] Pénétromètre kPa | Essai - Standard Pénétration Blows - Coups / 30cm | SAMPLE ÉCHANTILLON No.



	DESCRIPTION OF SOIL / DU SOL Ground Surface - Niveau du Sol	DEPTH IN METRES / PROFONDEUR - MÈTRES	ELEVATION m / NIVEAU m	
		0	61.62	
	FILL - sand gravel & topsoil with some crushed stone brick & wood & a little metal & ashes	1.00	60.62	
water seepage at El. 59.62				
Bottom of pit		2.30	59.32	
	LIMESTONE core recovery 98%	2.82	58.80	water level June 9,86 El. 58.77
seam at El. 58.35	LIMESTONE core recovery 96%	3.27	58.35	
seam at El. 58.05 seam at El. 58.02	core recovery 97%	3.61	58.01	
seam at El. 57.01	LIMESTONE core recovery 99%	4.61	57.01	
	LIMESTONE core recovery 100%	5.84	55.78	
	core recovery 100%	5.93	55.69	
seam at El. 54.90	LIMESTONE core recovery 100%	6.72	54.90	
	LIMESTONE core recovery 100%	7.33	54.29	
	Bottom of hole			

0 25 50 75 100

R : REMOULDED - REMANIÉ
CR : CORE RECOVERY - CAROTTE RÉCUPÉRÉE
NR : NO RECOVERY - NON RÉCUPÉRÉ

WATER CONTENT % TENEUR EN EAU
NATURAL / NATURELLE ○
LIQUID LIMIT / LIMITE DE LIQUIDITÉ ⊡
PLASTIC LIMIT / LIMITE DE PLASTICITÉ △

PLATE / PLAQUE No. 7

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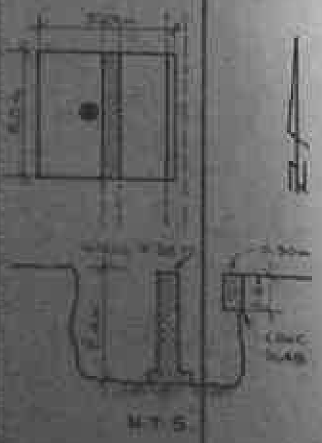
SF2687

ELEVATION OF GROUND SURFACE (ZERO DEPTH) / NIVEAU DU SOL (PROFONDEUR ZERO) 62.21 m DATE May 27 & June 3,86

NOTES See Plate No. 2

HOLE / FORAGE No. & Test Pit 86-6
N. 94 E38

DEPTH IN METRES / PROFONDEUR - METRES	[illegible]	Essai - Standard Pénétration Blows - Coups / 30cm	SAMPLE ÉCHANTILLON No.	DESCRIPTION OF SOIL / DU SOL	DEPTH IN METRES / PROFONDEUR - MÈTRES	ELEVATION m / NIVEAU m
				Ground Surface - Niveau du Sol	0	62.21
1				FILL - sand gravel ashes brick wood and boulders up to 0.60 m dia.	1.00	61.21
2	Bottom of pit				2.40	59.81
3				LIMESTONE core recovery 97%	3.80	58.41
4				LIMESTONE core recovery 98%	5.32	56.89
				LIMESTONE core recovery 100%	6.82	55.39
				LIMESTONE core recovery 100%	7.35	54.86
				Bottom of hole		



Probing or Vane Test / Sondage ou Essai au Scissomètre
Marteau __________ Hammer
Chute Libre __________ Drop
No Casing - Sans Tubage
Barre __________ Dia. Rod
Blows / 30 cm or Shear Strength (kPa) / Coups / 30 cm ou Résistance au Cisaillement (kPa)

0 25 50 75 100

← overnight water level
El. 60.73

R - REMOULDED - REMANIÉ
CR - CORE RECOVERY
[illegible]
[illegible] RÉCUPÉRÉ

WATER CONTENT
% TENEUR EN EAU
NATURAL / NATURELLE ⊙
LIQUID LIMIT / LIMITE DE LIQUIDITÉ ⊡
PLASTIC LIMIT / LIMITE DE PLASTICITÉ △

PLATE / PLAQUE No. 8

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Holland and Spencer

SF 26087

ELEVATION OF GROUND SURFACE (ZERO DEPTH) / NIVEAU DU SOL (PROFONDEUR ZERO): 62.41 m

DATE: May 27 & June 4,86

NOTES: See Plate No. 2

HOLE / FORAGE No. & Test Pit 86-7, cont'
N 93 E 97

~~Probing or Vane Test~~ ~~Sondage ou Essai au Scissomètre~~

Marteau __________ Hammer
Chute Libre __________ Drop
No Casing - Sans Tubage
Barre __________ Dia. Rod

~~Blows/30 cm or Shear Strength (kPa)~~
~~Coups/30 cm ou Résistance au Cisaillement (kPa)~~

	Blows - Coups / 30cm	SAMPLE ÉCHANTILLON No.	DESCRIPTION OF SOIL DU SOL ~~Ground Surface - Niveau du Sol~~	DEPTH IN METRES PROFONDEUR - MÈTRES	ELEVATION m NIVEAU m
				7.00	55.41
			core recovery 99%	7.37	55.04
			LIMESTONE		
1cm seam at El. 54.59 →			core recovery 94%	7.83	54.58
			Bottom of hole		

0 25 50 75 100

WATER CONTENT
% TENEUR EN EAU
NATURAL / NATURELLE ⊙
LIQUID LIMIT / LIMITE DE LIQUIDITÉ ⊡
PLASTIC LIMIT / LIMITE DE PLASTICITÉ △

PLATE / PLAQUE No. 9

R = REMOULDED - REMANIÉ
CR = CORE RECOVERY - CAROTTE RÉCUPÉRÉE
NR = NO RECOVERY - NON RÉCUPÉRÉ

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SF2687

ELEVATION OF GROUND SURFACE (ZERO DEPTH) / NIVEAU DU SOL (PROFONDEUR ZERO) 62.41 m DATE May 27 & June 4,86

NOTES See Plate NO. 2

HOLE / FORAGE No. & Test Pit 86-7
N 93 E 97

Small Static Penetrometer kPa / Petit Pénétromètre kPa

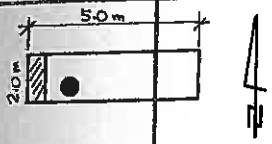
Essai - Standard Pénétration / Blows - Coups / 30cm

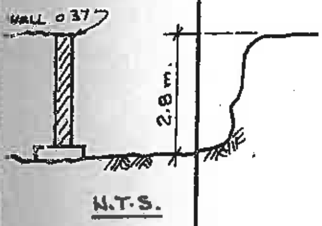
SAMPLE / ÉCHANTILLON No.

~~Probing or Vane Test~~ ~~Sondage ou Essai au Scissomètre~~

Marteau ________ Hammer
Chute Libre ________ Drop
No Casing - Sans Tubage
Barre ________ Dia. Rod

~~Blows/30 cm or Shear Strength (kPa)~~
~~Coups/30 cm ou Résistance au Cisaillement (kPa)~~





	DESCRIPTION OF SOIL / DU SOL	DEPTH IN METRES / PROFONDEUR - MÈTRES	ELEVATION m / NIVEAU m
	Ground Surface - Niveau du Sol	0	62.41
	FILL - sand brick metal concrete blocks rubber broken rock & a few large pieces of concrete	1.00	61.41
		2.00	60.41
bottom of pit	LIMESTONE	2.80	59.61
1cm seam at El.59.32	core recovery 100%	3.09	59.32
	LIMESTONE		
seam at El. 57.71	core recovery 100%	4.70	57.71
	LIMESTONE		
7cm soft drilling at El. 56.33 1cm soft drilling at El. 56.23	core recovery 100%	5.96	56.45
	LIMESTONE		
	Borehole continued	7.00	55.41

← water level June 9, 86
El. 60.33

0 25 50 75 100

WATER CONTENT
% TENEUR EN EAU
NATURAL / NATURELLE ⊙
LIQUID LIMIT / LIMITE DE LIQUIDITÉ ⊡
PLASTIC LIMIT / LIMITE DE PLASTICITÉ △

PLATE / PLAQUE No. 10

R: REMOULDED - REMANIÉ
CR: CORE RECOVERY, CAROTTE RECUPÉRÉE
NR: NO RECOVERY - NON RÉCUPÉRÉ

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Holland and Spencer

SF2687

ELEVATION OF GROUND SURFACE (ZERO DEPTH) / NIVEAU DU SOL (PROFONDEUR ZERO) 61.67 m DATE May 27 & June 3,86

NOTES See Plate No. 2

HOLE / FORAGE No. & Test Pit 86-8
N 107 E 139

~~Probing or Vane Test~~ ~~Sondage ou Essai au Scissomètre~~

Marteau ________ Hammer
Chute Libre ________ Drop
No Casing - Sans Tubage
Barre ________ Dia. Rod

~~Blows/30 cm or Shear Strength (kPa)~~
~~Coups/30 cm ou Résistance au Cisaillement (kPa)~~

DEPTH IN METRES PROFONDEUR - MÈTRES		Essai - Standard Pénétration Blows - Coups / 30 cm	SAMPLE ÉCHANTILLON No.	DESCRIPTION OF SOIL DU SOL	DEPTH IN METRES PROFONDEUR - MÈTRES	ELEVATION m NIVEAU m	
				Ground Surface - Niveau du Sol	0	61.67	
	M.T.S. 	4		FILL - crushed stone	0.15	61.52	
				FILL - fine sand & ashes	0.40	61.27	← overnight water level El. 61.27
	Bottom of pit →			ORGANIC material	0.72	60.95	
1				LIMESTONE core recovery 91%	0.97	60.70	
				LIMESTONE core recovery 100%	1.73	59.94	
2				LIMESTONE core recovery 100%	2.14	59.53	
				LIMESTONE core recovery 94%	2.52	59.15	
3 4				LIMESTONE core recovery 100%	4.14	57.53	
5 6	Seam at El.56.38 →			LIMESTONE core recovery 99%	5.78	55.89	
				Bottom of hole			
7							

0 25 50 75 100

R = REMOULDED - REMANIÉ
CR = CORE RECOVERY - CAROTTE RÉCUPÉRÉE
NR = NO RECOVERY - NON RÉCUPÉRÉ

WATER CONTENT
% TENEUR EN EAU
NATURAL NATURELLE ⊙
LIQUID LIMIT LIMITE DE LIQUIDITÉ ⊡
PLASTIC LIMIT LIMITE DE PLASTICITÉ △

PLATE PLAQUE No. 11

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Holland and Spencer

SF2687

ELEVATION OF GROUND SURFACE (ZERO DEPTH) / NIVEAU DU SOL (PROFONDEUR ZERO) 62.06 m

DATE May 27 & June 3,86

NOTES See Plate No. 2

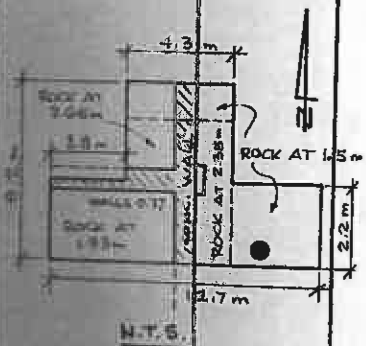
HOLE / FORAGE No. & Test pit 86-9
N 63 E 114

~~Probing or Vane Test~~ ~~Sondage ou Essai au Scissomètre~~

Marteau ____________ Hammer
Chute Libre ____________ Drop
No Casing - Sans Tubage
Barre ____________ Dia. Rod

~~Blows/30 cm or Shear Strength (kPa)~~
~~Coups/30 cm ou Résistance au Cisaillement (kPa)~~

	SAMPLE ÉCHANTILLON No.	DESCRIPTION OF SOIL / DU SOL Ground Surface - Niveau du Sol	DEPTH IN METRES / PROFONDEUR - MÈTRES	ELEVATION m / NIVEAU m	
			0	62.06	
		FILL - sand gravel [illegible] boulders brick broken rock wood metal & ashes			
bottom of pit		LIMESTONE core recovery 100%	1.50	60.56	
3cm seam at El. 60.24		core recovery 80%	1.82	60.24	
		LIMESTONE	1.90	60.16	overnight water level El. 60.08
1cm seam at El. 59.88		core recovery 81%	2.26	59.80	
		LIMESTONE core recovery 100%	3.52	58.54	
		LIMESTONE core recovery 100%	4.52	57.54	
seam at El. 56.27		LIMESTONE core recovery 100%	5.79	56.27	
		LIMESTONE core recovery 95%	6.60	55.46	
		Bottom of hole			



0 25 50 75 100

WATER CONTENT % TENEUR EN EAU
NATURAL NATURELLE ⊙
LIQUID LIMIT LIMITE DE LIQUIDITÉ ⊡
PLASTIC LIMIT LIMITE DE PLASTICITÉ △

PLATE PLAQUE No. 12

RM - REMOULDED - REMANIÉ
CR - CORE RECOVERY - CAROTTE RÉCUPÉRÉE
NR - NO RECOVERY - NON RÉCUPÉRÉ

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Holland and Spencer

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ELEVATION OF GROUND SURFACE (ZERO DEPTH) / NIVEAU DU SOL (PROFONDEUR ZERO) 61.96 m DATE May 28 & June 4,86

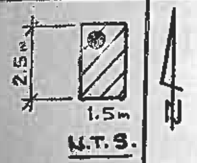
NOTES See Plate No. 2

HOLE / FORAGE No. & Test Pit 86-10
N 132 E 30

~~Probing or Vane Test~~ ~~Sondage ou Essai au Scissomètre~~

Marteau ________ Hammer
Chute Libre ________ Drop
No Casing - Sans Tubage
Barre ________ Dia. Rod

~~Blows/30 cm or Shear Strength (kPa)~~
~~Coups/30 cm ou Résistance au Cisaillement (kPa)~~



DEPTH IN METRES PROFONDEUR - MÈTRES	Small Scale Penetrometer kPa / Petit Pénétromètre kPa	Essai - Standard Pénétration Blows - Coups / 30cm	SAMPLE ECHANTILLON No.	DESCRIPTION OF SOIL DU SOL	DEPTH IN METRES PROFONDEUR - MÈTRES	ELEVATION m NIVEAU m	
				Ground Surface - Niveau du Sol	0	61.96	
				FILL - crushed stone	0.10	61.86	
1	Bottom of pit →			FILL - sand & gravel with some ashes coal metal & wood	1.07	60.89	
	seam at El. 60.61 →			LIMESTONE core recovery 80%	1.27	60.69	
				core recovery 100%	1.50	60.46	
				core recovery 100%	1.60	60.36	
	seam at El. 60.20 →			core recovery 100%	1.80	60.16	
2	seam at El. 60.08 →			core recovery 100%	1.90	60.06	
3					3.00	58.96	water level June 9,86 El. 58.90
				LIMESTONE			
4					4.00	57.96	
5					5.00	56.96	
6	seam at El. 56.19 →			core recovery 99%	5.77	56.19	
				LIMESTONE core recovery 100%	6.57	55.39	
7				Bottom of hole			

0 25 50 75 100

WATER CONTENT
% TENEUR EN EAU

NATURAL / NATURELLE ——— ⊙
LIQUID LIMIT / LIMITE DE LIQUIDITÉ —— ⊡
PLASTIC LIMIT / LIMITE DE PLASTICITÉ — △

R: REMOULDED - REMANIÉ
CR: CORE RECOVERY - CAROTTE RÉCUPÉRÉE
NR: NO RECOVERY - NON RÉCUPÉRÉ

PLATE / PLAQUE No. 13

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ELEVATION OF GROUND SURFACE (ZERO DEPTH) / NIVEAU DU SOL (PROFONDEUR ZERO): 61.73 m

DATE: May 28 & June 3,86

NOTES: See Plate No. 2

HOLE / FORAGE & Test Pit No. 86-11
N 195 E 9

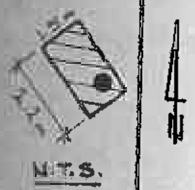
~~Probing or Vane Test~~ ~~Sondage ou Essai au Scissomètre~~

Marteau ________ Hammer
Chute Libre ________ Drop
No Casing - Sans Tubage
Barre ________ Dia. Rod

~~Blows/30 cm or Shear Strength (kPa)~~
~~Coups/30 cm ou Résistance au Cisaillement (kPa)~~

Depth in metres / Profondeur en mètres	[illegible]	Essai - Standard Pénétration Blows - Coups / 30 cm	Sample / Échantillon No.	DESCRIPTION OF SOIL / DU SOL	Depth in metres / Profondeur - mètres	Elevation m / Niveau m
				Ground Surface - Niveau du Sol	0	61.73
		ASPHALT			0.08	61.65
				FILL - crushed stone	0.20	61.53
	Bottom of pit			FILL - sand & ashes with some metal wood & pieces of electric wire	1.15	60.58
	all water lost at El.60.08			LIMESTONE core recovery 95%	2.66	59.07
				LIMESTONE core recovery 100%	4.16	57.57
				LIMESTONE core recovery 93%	5.68	56.05
				LIMESTONE core recovery 100%	6.20	55.53
				Bottom of hole		

overnight water level El. 59.69



R = REMOULDED - REMANIÉ
CR = CORE RECOVERY - CAROTTE RECUPÉRÉE
NR = NO RECOVERY - NON RÉCUPÉRÉ

WATER CONTENT % TENEUR EN EAU: 0 25 50 75 100

NATURAL / NATURELLE ○
LIQUID LIMIT / LIMITE DE LIQUIDITÉ ☐
PLASTIC LIMIT / LIMITE DE PLASTICITÉ △

PLATE / PLAQUE No. 14

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SF2687

ELEVATION OF GROUND SURFACE (ZERO DEPTH) NIVEAU DU SOL (PROFONDEUR ZERO) 61.67 m DATE May 30 & June 2,86

NOTES See Plate No. 2

HOLE FORAGE No. & Test Pit 86-12
N 224 E 47

~~Probing or Vane Test~~ ~~Sondage ou Essai au Scissomètre~~

Marteau ____________ Hammer
Chute Libre ____________ Drop
No Casing - Sans Tubage
Barre ____________ Dia. Rod

~~Blows/30 cm or Shear Strength (kPa)~~
~~Coups/30 cm ou Résistance au Cisaillement (kPa)~~

Blows - Coups / 30cm

SAMPLE ÉCHANTILLON No.

DESCRIPTION OF SOIL DU SOL Ground Surface - Niveau du Sol	DEPTH IN METRES PROFONDEUR - MÈTRES	ELEVATION m NIVEAU m
FILL sand & crushed stone with a trace of metal & ashes	0	61.67
Bottom of pit →	0.52	61.15
LIMESTONE core recovery 54%	1.02	60.65
LIMESTONE core recovery 60%	2.52	59.15
LIMESTONE core recovery 91%	4.02	57.65
LIMESTONE core recovery 85%	5.57	56.10
Bottom of hole		

← water level June 4,86 El. 58.86

all water lost at El.57.44
all water returning at El.57.45

R = REMOULDED - REMANIÉ
CR = CORE RECOVERY - CAROTTE RÉCUPÉRÉE
NR = NO RECOVERY - NON RÉCUPÉRÉ

0 25 50 75 100

WATER CONTENT
% TENEUR EN EAU
NATURAL NATURELLE ——— ⊙
LIQUID LIMIT LIMITE DE LIQUIDITÉ —— ⊡
PLASTIC LIMIT LIMITE DE PLASTICITÉ — △

PLATE PLAQUE No. 15

McROSTIE GENEST MIDDLEMISS
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Holland and Spencer

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ELEVATION OF GROUND SURFACE (ZERO DEPTH) / NIVEAU DU SOL (PROFONDEUR ZERO) 61.73 m DATE May 30 & June 4,86

NOTES See Plate No. 2

HOLE / FORAGE No. & Test Pit 86-13 / 86-13A
N 198 E 82

~~Probing or Vane Test~~ ~~Sondage ou Essai au Scissomètre~~

Marteau ________ Hammer
Chute Libre ________ Drop
No Casing - Sans Tubage
Barre ________ Dia. Rod

~~Blows/30 cm or Shear Strength (kPa)~~
~~Coups/30cm ou Résistance au Cisaillement (kPa)~~

Essai - Standard Pénétration Blows - Coups / 30cm

SAMPLE ÉCHANTILLON No.

DESCRIPTION OF SOIL / DU SOL	DEPTH IN METRES / PROFONDEUR - METRES	ELEVATION m / NIVEAU m
Ground Surface - Niveau du Sol	0	61.73
FILL - topsoil	0.20	61.53
FILL - sand & gravel with a trace of ashes & metal	0.80	60.93
LIMESTONE core recovery 86%	2.32	59.41
LIMESTONE core recovery 100%	3.82	57.91
LIMESTONE core recovery 61%	4.72	57.01
LIMESTONE core recovery 94%	5.80	55.93

Bottom of pit → 0.80

Bottom of hole

water level June 9,86
El. 60.73

0 25 50 75 100

WATER CONTENT % TENEUR EN EAU
NATURAL NATURELLE ⊙
LIQUID LIMIT LIMITE DE LIQUIDITÉ ⊡
PLASTIC LIMIT LIMITE DE PLASTICITÉ △

PLATE PLAQUE No. 16

R - REMOULDED - REMANIÉ
CR - CORE RECOVERY CAROTTE RÉCUPÉRÉE
NR - NO RECOVERY - NON RÉCUPÉRÉ

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ELEVATION OF GROUND SURFACE (ZERO DEPTH) / NIVEAU DU SOL (PROFONDEUR ZERO) 61.43 m DATE May 30, 1986

NOTES See Plate No. 2

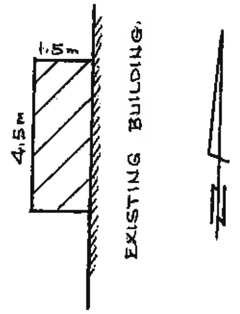
~~HOLE~~ ~~FORAGE~~ No. Test Pit N 60 E 00

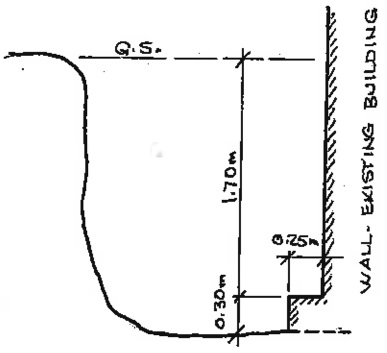
~~Probing or Vane Test~~ ~~Sondage ou Essai au Scissomètre~~

Marteau ________ Hammer
Chute Libre ________ Drop
No Casing - Sans Tubage
Barre ________ Dia. Rod

~~Blows/30 cm or Shear Strength (kPa)~~
~~Coups/30 cm ou Résistance au Cisaillement (kPa)~~

DEPTH IN METRES PROFONDEUR - MÈTRES	SAMPLE ÉCHANTILLON No.	DESCRIPTION OF SOIL / DESCRIPTION DU SOL	DEPTH IN METRES PROFONDEUR - MÈTRES	ELEVATION m NIVEAU m
		Ground Surface - Niveau du Sol	0	61.43
		FILL - topsoil	0.30	61.13
		FILL - sand & gravel with some topsoil brick & concrete blocks with a little metal ashes & glass	2.00	59.43
		Bottom of pit on rock		





N.T.S.

0 25 50 75 100

WATER CONTENT
% TENEUR EN EAU

NATURAL / NATURELLE ○
LIQUID LIMIT / LIMITE DE LIQUIDITÉ ⊡
PLASTIC LIMIT / LIMITE DE PLASTICITÉ △

R = REMOULDED - RENANIÉ
CR = CORE RECOVERY, CAROTTE RÉCUPÉRÉE
NR = NO RECOVERY - NON RÉCUPÉRÉ

PLATE PLAQUE No. 24

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ELEVATION OF GROUND SURFACE (ZERO DEPTH) NIVEAU DU SOL (PROFONDEUR ZERO) 61.37 m DATE May 30, 1986

~~HOLE~~ ~~FORAGE~~ No. Test Pit N 90 E 00

NOTES See Plate No. 2

DEPTH IN METRES PROFONDEUR - METRES	Small Scale Penetrometer kPa Petit Pénétromètre kPa	Essai - Standard Pénétration Blows - Coups / 30cm	SAMPLE ÉCHANTILLON No.	DESCRIPTION OF SOIL DU SOL	DEPTH IN METRES PROFONDEUR - METRES	ELEVATION m NIVEAU m
				Ground Surface - Niveau du Sol	0	61.37
				FILL - topsoil	0.30	61.07
1				FILL - sand gravel & topsoil with some brick metal concrete blocks wood glass & a little organic material	1.85	59.52
2				Bottom of pit on rock		
3						
4						
5						
6						
7						

~~Probing or Vane Test~~ ~~Sondage ou Essai au Scissomètre~~

Marteau ________ Hammer

Chute Libre ________ Drop

No Casing - Sans Tubage

Barre ________ Dia. Rod

~~Blows/30 cm or Shear Strength (kPa)~~
~~Coups/30 cm ou Résistance au Cisaillement (kPa)~~

0 25 50 75 100

WATER CONTENT
% TENEUR EN EAU

NATURAL NATURELLE ——— ⊙
LIQUID LIMIT LIMITE DE LIQUIDITÉ ——— ⊡
PLASTIC LIMIT LIMITE DE PLASTICITÉ ——— △

PLATE PLAQUE No. 25

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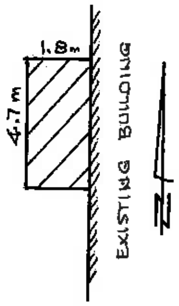

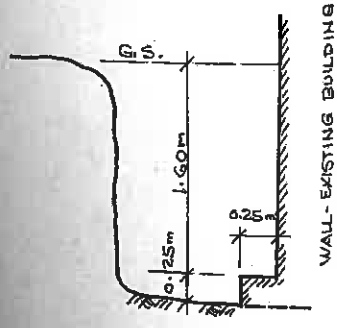

N.T.S.

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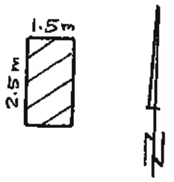
ELEVATION OF GROUND SURFACE (ZERO DEPTH) / NIVEAU DU SOL (PROFONDEUR ZERO) 61.91 m DATE May 26, 1986

~~HOLE~~ ~~FORAGE~~ No. Test Pit N 90 E 30

NOTES See Plate No. 2

~~Probing or Vane Test~~ ~~Sondage ou Essai au Scissomètre~~
Marteau ________ Hammer
Chute Libre ________ Drop
No Casing - Sans Tubage
Barre ________ Dia. Rod
~~Blows / 30 cm or Shear Strength (kPa)~~
~~Coups / 30 cm ou Résistance au Cisaillement (kPa)~~

DEPTH IN METRES PROFONDEUR - MÈTRES	Shell Tube Penetrometer or Petit Pénétromètre T.P.	Essai - Standard Pénétration Blows - Coups / 30cm	SAMPLE ÉCHANTILLON No.	DESCRIPTION OF SOIL DU SOL	DEPTH IN METRES PROFONDEUR - MÈTRES	ELEVATION m NIVEAU m
				Ground Surface - Niveau du Sol	0	61.91
				FILL - sand & organic material with some ashes brick broken rock & boulders		
1	water at El. 60.71 →					
2				Bottom of pit on rock	2.05	59.86
3						
4						
5						
6						
7						



N.T.S.

0 25 50 75 100

R = REMOULDED - REMANIÉ
CR = CORE RECOVERY
CARROTTE RÉCUPÉRÉE
NR = NO RECOVERY - NON RÉCUPÉRÉ

WATER CONTENT
% TENEUR EN EAU
NATURAL / NATURELLE ——— ⊙
LIQUID LIMIT / LIMITE DE LIQUIDITÉ ——— ⊡
PLASTIC LIMIT / LIMITE DE PLASTICITÉ ——— △

PLATE PLAQUE No. 26

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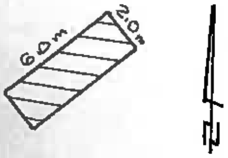
ELEVATION OF GROUND SURFACE (ZERO DEPTH)
NIVEAU DU SOL (PROFONDEUR ZERO) 61.25 m DATE May 29, 1986
NOTES See Plate No. 2

~~HOLE~~ ~~FORAGE~~ No. Test Pit N 120 E 00

~~Probing or~~ ~~Vane Test~~ ~~Sondage ou~~ ~~Essai au Scissomètre~~
Marteau ________ Hammer
Chute Libre ________ Drop
No Casing - Sans Tubage
Barre ________ Dia. Rod
~~Blows/30 cm or Shear Strength (kPa)~~
~~Coups/30 cm ou Résistance au Cisaillement (kPa)~~

DEPTH IN METRES PROFONDEUR - MÈTRES	[illegible] kPa [illegible] kPa	Essai - Standard Pénétration Blows - Coups / 30cm	SAMPLE ÉCHANTILLON No.	DESCRIPTION OF SOIL DU SOL	DEPTH IN METRES PROFONDEUR - MÈTRES	ELEVATION m NIVEAU m
				Ground Surface - Niveau du Sol	0	61.25
				FILL - crushed stone	0.10	61.15
1				FILL - sand gravel & topsoil with some brick metal ashes & boulders & a little cloth & glass		
2	water seepage at El. 59.30			Bottom of pit on rock	1.95	59.30
3						
4						
5						



N.T.S.

0 25 50 75 100

WATER CONTENT
% TENEUR EN EAU
NATURAL NATURELLE ⊙
LIQUID LIMIT LIMITE DE LIQUIDITÉ ⊡
PLASTIC LIMIT LIMITE DE PLASTICITÉ △

R - REMOULDED - REMANIÉ
CR - CORE RECOVERY
CAROTTE RÉCUPÉRÉE
NR - NO RECOVERY - NON RÉCUPÉRÉ

PLATE PLAQUE No. 27

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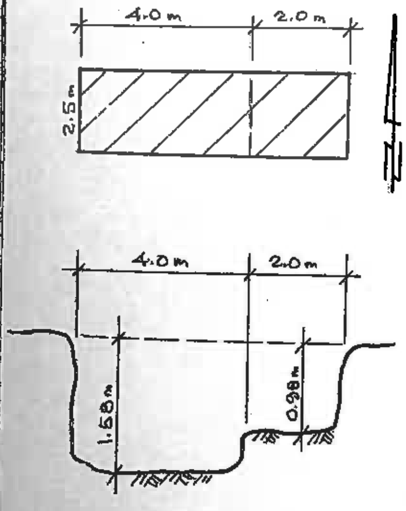
SF26B7

ELEVATION OF GROUND SURFACE (ZERO DEPTH) / NIVEAU DU SOL (PROFONDEUR ZERO) 62.05 m DATE May 28, 1986

~~HOLE~~ ~~FORAGE~~ No. Test Pit N 120 E 30

NOTES See Plate No. 2

DEPTH IN METRES / PROFONDEUR MÈTRES	Small Scale Penetrometer kPa / Petit Pénétromètre kPa	Essai - Standard Pénétration / Blows - Coups / 30cm	SAMPLE ÉCHANTILLON No.	DESCRIPTION OF SOIL / DU SOL Ground Surface - Niveau du Sol	DEPTH IN METRES / PROFONDEUR - MÈTRES	ELEVATION m / NIVEAU m
					0	62.05
				FILL - crushed stone	0.10	61.95
				FILL - sand & gravel with some ashes & a little wood brick & topsoil	0.50	61.55
1				medium dense coarse SAND & GRAVEL with some boülders up to 0.6 m dia.	1.58	60.47
2				Bottom of pit on rock		
3						
4						
5						
6						
7						



N.T.S.

~~Probing or~~ ~~Vane Test~~ ~~Sondage ou~~ ~~Essai au Scissomètre~~

Marteau ________ Hammer

Chute Libre ________ Drop

No Casing - Sans Tubage

Barre ________ Dia. Rod

~~Blows / 30 cm or Shear Strength (kPa)~~

~~Coups/30 cm ou Résistance au Cisaillement (kPa)~~

0 25 50 75 100

R = REMOULDED - REMANIÉ
CR = CORE RECOVERY
CAROTTE RÉCUPÉRÉE
NR = NO RECOVERY - NON RÉCUPÉRÉ

WATER CONTENT
% TENEUR EN EAU
NATURAL
NATURELLE ———— ⊙
LIQUID LIMIT
LIMITE DE LIQUIDITÉ —— ⊡
PLASTIC LIMIT
LIMITE DE PLASTICITÉ — △

PLATE
PLAQUE
No. 28

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ELEVATION OF GROUND SURFACE (ZERO DEPTH) / NIVEAU DU SOL (PROFONDEUR ZERO) 62.24 m DATE May 26, 1986

NOTES See Plate No. 2

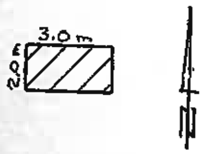
~~HOLE~~ ~~FORAGE~~ No. Test Pit N 120 E 120

~~Probing or Vane Test~~ ~~Sondage ou Essai au Scissomètre~~

Marteau ________ Hammer
Chute Libre ________ Drop
No Casing - Sans Tubage
Barre ________ Dia. Rod

~~Blows/30 cm or Shear Strength (kPa)~~
~~Coups/30 cm ou Résistance au Cisaillement (kPa)~~

DEPTH IN METRES PROFONDEUR - METRES	[illegible] kPa	Essai - Standard Pénétration Blows - Coups / 30cm	SAMPLE ÉCHANTILLON No.	DESCRIPTION OF SOIL / DU SOL	DEPTH IN METRES PROFONDEUR - METRES	ELEVATION m NIVEAU m
				Ground Surface - Niveau du Sol	0	62.24
				FILL - sand & clay with some wood brick & concrete		
	water seepage at El. 60.54				1.70	60.54
				ORGANIC material		
				Bottom of pit on rock	2.45	59.79



N.T.S.

0 25 50 75 100

WATER CONTENT
% TENEUR EN EAU
NATURAL / NATURELLE ⊙
LIQUID LIMIT / LIMITE DE LIQUIDITÉ ⊡
PLASTIC LIMIT / LIMITE DE PLASTICITÉ △

PLATE / PLAQUE No. 29

RE. REMOULDED - REMANIÉ
CR. CORE RECOVERY
SAMPLE RÉCUPÉRÉE
NR NO RECOVERY - NON RÉCUPÉRÉ

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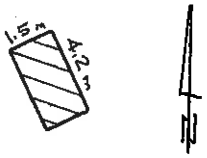
ELEVATION OF GROUND SURFACE (ZERO DEPTH)
NIVEAU DU SOL (PROFONDEUR ZERO) 61.74 m DATE May 30, 1986

NOTES See Plate No. 2

~~HOLE~~
~~FORAGE~~ No.
Test Pit
N 150 E 00

DEPTH IN METRES PROFONDEUR - MÈTRES	Pocket Pénétromètre kPa	Essai - Standard Pénétration Blows - Coups / 30cm	SAMPLE ÉCHANTILLON No.	DESCRIPTION OF SOIL DU SOL Ground Surface - Niveau du Sol	DEPTH IN METRES PROFONDEUR - MÈTRES	ELEVATION m NIVEAU m
					0	61.74
				FILL - crushed stone	0.10	61.64
				FILL - sand gravel & topsoil with some brick & ashes & a little metal & glass	1.25	60.49
				Bottom of pit on rock		



N.T.S.

~~Probing or Vane Test~~ ~~Sondage ou Essai au Scissomètre~~

Marteau ______ Hammer
Chute Libre ______ Drop
No Casing - Sans Tubage
Barre ______ Dia. Rod

~~Blows / 30 cm or Shear Strength (kPa)~~
~~Coups / 30 cm ou Résistance au Cisaillement (kPa)~~

0 25 50 75 100

1 2 3 4 5 6 7

R = REMOULDED - REMANIÉ
CR = CORE RECOVERY
CAROTTE RÉCUPÉRÉE
NR = NO RECOVERY - NON RÉCUPÉRÉ

WATER CONTENT
% TENEUR EN EAU
NATURAL
NATURELLE ———— ⊙
LIQUID LIMIT
LIMITE DE LIQUIDITÉ —— ⊡
PLASTIC LIMIT
LIMITE DE PLASTICITÉ — △

PLATE
PLAQUE
No.
30

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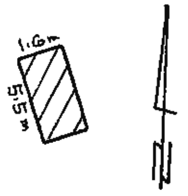
ELEVATION OF GROUND SURFACE (ZERO DEPTH) / NIVEAU DU SOL (PROFONDEUR ZERO): 61.96 m

DATE: May 28, 1986

NOTES: See Plate No. 2

~~HOLE~~ ~~FORAGE~~ No. Test Pit N 150 E 30

DEPTH IN METRES / PROFONDEUR - MÈTRES	Shear Strength Penetrometer kPa / Petit Pénétromètre kPa	Essai - Standard Pénétration Blows - Coups / 30cm	SAMPLE ÉCHANTILLON No.	DESCRIPTION OF SOIL / DU SOL	DEPTH IN METRES / PROFONDEUR - MÈTRES	ELEVATION m / NIVEAU m
				Ground Surface - Niveau du Sol	0	61.96
				FILL - crushed stone	0.10	61.86
				FILL - sand & gravel with some wood ashes metal & brick	1.00	60.96
1				rock removed by shovel	1.14	60.82
				Bottom of pit on rock		
2						
3						
4						
5						
6						
7						



N.T.S.

~~Probing or Vane Test~~ ~~Sondage ou Essai au Scissomètre~~

Marteau ____________ Hammer
Chute Libre ________ Drop
No Casing - Sans Tubage
Barre ________ Dia. Rod

~~Blows/30 cm or Shear Strength (kPa)~~
~~Coups/30 cm ou Résistance au Cisaillement (kPa)~~

0 25 50 75 100

WATER CONTENT
% TENEUR EN EAU

NATURAL / NATURELLE ⊙
LIQUID LIMIT / LIMITE DE LIQUIDITÉ ⊡
PLASTIC LIMIT / LIMITE DE PLASTICITÉ △

R : REMOULDED - REMANIÉ
CR : CORE RECOVERY
CAROTTE RÉCUPÉRÉE
NR : NO RECOVERY - NON RÉCUPÉRÉ

PLATE
PLAQUE
No. 31

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ELEVATION OF GROUND SURFACE (ZERO DEPTH) NIVEAU DU SOL (PROFONDEUR ZERO) 61.50 m DATE May 26, 1986

NOTES See Plate No. 2

~~HOLE~~ ~~FORAGE~~ No. Test Pit N 150 E 120

DEPTH IN METRES PROFONDEUR - MÈTRES	[illegible] Petit Pénétromètre kPa	Essai - Standard Pénétration Blows - Coups / 30cm	SAMPLE ÉCHANTILLON No.	DESCRIPTION OF SOIL DU SOL Ground Surface - Niveau du Sol	DEPTH IN METRES PROFONDEUR - MÈTRES	ELEVATION m NIVEAU m
					0	61.50
1				FILL - topsoil sand gravel bricks & pieces of wood		
	water seepage at El. 60.20				1.35	60.25
				ORGANIC material	1.60	59.95
2				Bottom of pit on rock		
3						
4						
5						
6						
7						

~~Probing or Vane Test~~ ~~Sondage ou Essai au Scissomètre~~

Marteau ____________ Hammer

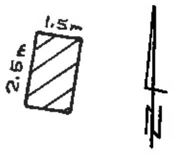
Chute Libre __________ Drop

No Casing - Sans Tubage

Barre __________ Dia. Rod

~~Blows/30 cm or Shear Strength (kPa)~~
~~Coups/30 cm ou Résistance au Cisaillement (kPa)~~

0 25 50 75 100



N.T.S.

R : REMOULDED - REMANIÉ
CR : CORE RECOVERY - CAROTTE RECUPERÉE
NR : NO RECOVERY - NON RECUPÉRÉ

WATER CONTENT
% TENEUR EN EAU
NATURAL NATURELLE ———— ⊙
LIQUID LIMIT LIMITE DE LIQUIDITÉ —— ⊡
PLASTIC LIMIT LIMITE DE PLASTICITÉ —— △

PLATE PLAQUE No. 32

McROSTIE GENEST MIDDLEMISS
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OTTAWA CANADA

SOIL PROFILE & TEST SUMMARIES
PROFIL SOUTERRAIN ET RÉSUMÉ DES ESSAIS

Holland and Spencer

SF2687

ELEVATION OF GROUND SURFACE (ZERO DEPTH) / NIVEAU DU SOL (PROFONDEUR ZERO) 61.67 m DATE May 29, 1986

~~HOLE~~ ~~FORAGE~~ No. Test Pit N 150 E 150

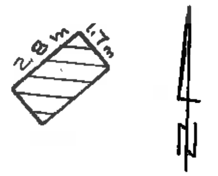
NOTES See Plate No. 2

~~Probing or Vane Test~~ ~~Sondage ou Essai au Scissomètre~~

Marteau ________ Hammer
Chute Libre ________ Drop
No Casing - Sans Tubage
Barre ________ Dia. Rod

~~Blows/30 cm or Shear Strength (kPa)~~
~~Coups/30 cm ou Résistance au Cisaillement (kPa)~~

DEPTH IN METRES PROFONDEUR - MÈTRES	Small Scale Penetrometer kPa Petit Pénétromètre kPa	Essai - Standard Pénétration Blows - Coups / 30cm	SAMPLE ÉCHANTILLON No.	DESCRIPTION OF SOIL DU SOL	DEPTH IN METRES PROFONDEUR - MÈTRES	ELEVATION m NIVEAU m
				Ground Surface - Niveau du Sol	0	61.67
				FILL - crushed stone	0.10	61.57
				FILL - topsoil & sand with some broken rock ashes metal & glass	1.80	60.87
1				Bottom of pit on rock		
2						
3						
4						
5						
6						
7						



N.T.S.

0 25 50 75 100

R = REMOULDED - REMANIÉ
CR = CORE RECOVERY - CAROTTE RÉCUPERÉE
NR = NO RECOVERY - NON RÉCUPÉRÉ

WATER CONTENT
% TENEUR EN EAU
NATURAL NATURELLE ⊙
LIQUID LIMIT LIMITE DE LIQUIDITÉ ⊡
PLASTIC LIMIT LIMITE DE PLASTICITÉ △

PLATE PLAQUE No. 33

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Holland and Spencer

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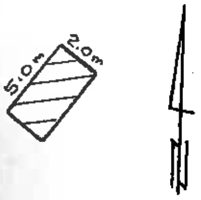
ELEVATION OF GROUND SURFACE (ZERO DEPTH) NIVEAU DU SOL (PROFONDEUR ZERO) 62.37 m DATE May 28, 1986

NOTES See Plate No. 2

~~HOLE~~ ~~FORAGE~~ No. Test Pit N 180 E 30

DEPTH IN METRES PROFONDEUR - MÈTRES	[illegible]	Essai - Standard Pénétration Blows - Coups / 30cm	SAMPLE ÉCHANTILLON No.	DESCRIPTION OF SOIL DU SOL Ground Surface - Niveau du Sol	DEPTH IN METRES PROFONDEUR - MÈTRES	ELEVATION m NIVEAU m
					0	62.37
				FILL - crushed stone	0.10	62.27
1				FILL - sand gravel & topsoil with some ashes brick broken rock metal & wood		
2					1.80	60.57
				Bottom of pit on rock		
3						
4						
5						
6						
7						



N.T.S.

~~Probing or~~ ~~Vane Test~~ ~~Sondage ou~~ ~~Essai au Scissomètre~~

Mouton ________ Hammer
Chute Libre ________ Drop
No Casing - Sans Tubage
Barre ________ Dia. Rod

~~Blows/30 cm or Shear Strength (kPa)~~
~~Coups/30 cm ou Résistance au Cisaillement (kPa)~~

0 25 50 75 100

WATER CONTENT
% TENEUR EN EAU
NATURAL NATURELLE —— ⊙
LIQUID LIMIT LIMITE DE LIQUIDITÉ —— ⊡
PLASTIC LIMIT LIMITE DE PLASTICITÉ —— △

PLATE PLAQUE No. 34

R : REMOULDED - REMANIÉ
CR : CORE RECOVERY
CAROTTE RÉCUPÉRÉE
NR : NO RECOVERY - NON RÉCUPÉRÉ

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SF2687

ELEVATION OF GROUND SURFACE (ZERO DEPTH) NIVEAU DU SOL (PROFONDEUR ZERO) 61.73 m DATE May 30, 1986

~~HOLE~~ ~~FORAGE~~ No. Test Pit N 180 E 82

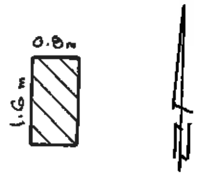
NOTES: See Plate No. 2

~~Probing or Vane Test~~ ~~Sondage ou Essai au Scissomètre~~

Marteau ________ Hammer
Chute Libre ________ Drop
No Casing - Sans Tubage
Barre ________ Dia. Rod

~~Blows/30 cm or Shear Strength (kPa)~~
~~Coups/30 cm ou Résistance au Cisaillement (kPa)~~

DEPTH IN METRES PROFONDEUR EN MÈTRES	Pocket Penetrometer kPa Petit Pénétromètre kPa	Essai - Standard Pénétration Blows - Coups / 30cm	SAMPLE ÉCHANTILLON No.	DESCRIPTION OF SOIL DU SOL	DEPTH IN METRES PROFONDEUR - MÈTRES	ELEVATION m NIVEAU m
				Ground Surface - Niveau du Sol	0	61.73
				FILL - topsoil	0.20	61.53
				FILL - fine sand with a little metal & brick	0.70	61.03
1				Bottom of pit on rock		
2						
3						
4						
5						
6						
7						



N.T.S.

0 25 50 75 100

R - REMOULDED - REMANIÉ
CR - CORE RECOVERY
CAROTTE RÉCUPÉRÉE
NR - NO RECOVERY - NON RÉCUPÉRÉ

WATER CONTENT
% TENEUR EN EAU
NATURAL NATURELLE ———— ⊙
LIQUID LIMIT LIMITE DE LIQUIDITÉ ——— ⊡
PLASTIC LIMIT LIMITE DE PLASTICITÉ — △

PLATE PLAQUE No. 35

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ELEVATION OF GROUND SURFACE (ZERO DEPTH) / NIVEAU DU SOL (PROFONDEUR ZERO) 62.06 m DATE May 29, 1986

~~HOLE~~ ~~FORAGE~~ No. Test Pit N 180 E 110

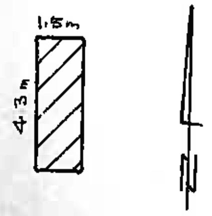
NOTES See Plate No. 2

~~Probing or~~ ~~Vane Test~~ ~~Sondage ou~~ ~~Essai au Scissomètre~~

Marteau ________ Hammer
Chute Libre ________ Drop
No Casing - Sans Tubage
Barre ________ Dia. Rod

~~Blows/30 cm or Shear Strength (kPa)~~
~~Coups/30 cm ou Résistance au Cisaillement (kPa)~~

DEPTH IN METRES / PROFONDEUR - MÈTRES	[illegible] kPa	Essai - Standard Pénétration Blows - Coups / 30cm	SAMPLE ÉCHANTILLON No.	DESCRIPTION OF SOIL / DU SOL	DEPTH IN METRES / PROFONDEUR - MÈTRES	ELEVATION m / NIVEAU m
				Ground Surface, Niveau du Sol	0	62.06
				FILL - topsoil	0.25	61.81
				FILL - fine sand	0.50	61.56
				TOPSOIL	0.58	61.48
1				loose coarse SAND & GRAVEL	0.90	61.16
2	water seepage at → El. 59.96			medium dense sandy TILL with a few boulders up to 0.45 m dia.	2.30	59.76
3				Bottom of pit on rock		
4						
5						
6						
7						



N.T.S.

0 25 50 75 100

WATER CONTENT
% TENEUR EN EAU
NATURAL / NATURELLE ⊙
LIQUID LIMIT / LIMITE DE LIQUIDITÉ ⊡
PLASTIC LIMIT / LIMITE DE PLASTICITÉ △

PLATE PLAQUE No. 36

[illegible] REMOULDED - REMANIÉ
CORE RECOVERY
[illegible] CAROTTE RÉCUPÉRÉE
NR = NO RECOVERY - NON RÉCUPÉRÉ

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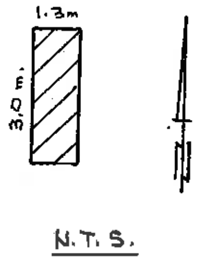
Holland and Spencer

SF2687

ELEVATION OF GROUND SURFACE (ZERO DEPTH)
NIVEAU DU SOL (PROFONDEUR ZERO) 61.14 m DATE May 29, 1986
NOTES See Plate No. 2

~~HOLE~~
~~FORAGE~~ No.
Test Pit
N 210 E 6

DEPTH IN METRES PROFONDEUR METRES	Shear Vane Scissomètre kPa Petit Pénétromètre kPa	Essai - Standard Pénétration Blows - Coups / 30cm	SAMPLE ÉCHANTILLON No.	DESCRIPTION OF SOIL DU SOL	DEPTH IN METRES PROFONDEUR - METRES	ELEVATION m NIVEAU m
				Ground Surface, Niveau du Sol	0	61.14
				FILL - crushed stone	0.10	61.04
				FILL - sand & gravel with some ashes broken rock brick & metal		
1					1.00	60.14
				Bottom of pit on rock		
2						
3						
4						
5						
6						
7						



~~Probing or~~ ~~Sondage ou~~
~~Vane Test~~ ~~Essai au Scissomètre~~

Marteau ________ Hammer
Chute Libre ________ Drop
No Casing - Sans Tubage
Barre ________ Dia. Rod

~~Blows/30 cm or Shear Strength (kPa)~~
~~Coups/30 cm ou Résistance au Cisaillement (kPa)~~

0 25 50 75 100

R = REMOULDED - REMANIÉ
CR = CORE RECOVERY
CAROTTE RÉCUPÉRÉE
NR = NO RECOVERY - NON RÉCUPÉRÉ

WATER CONTENT
% TENEUR EN EAU
NATURAL
NATURELLE ⊙
LIQUID LIMIT
LIMITE DE LIQUIDITÉ ⊡
PLASTIC LIMIT
LIMITE DE PLASTICITÉ △

PLATE
PLAQUE
No.
37

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Holland and Spencer

SF2687

ELEVATION OF GROUND SURFACE (ZERO DEPTH) / NIVEAU DU SOL (PROFONDEUR ZERO) 62.38 DATE May 28, 1986

NOTES See Plate No. 2

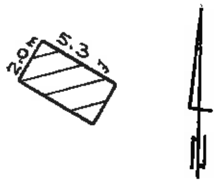
~~HOLE~~ ~~FORAGE~~ No. Test Pit N 210 E 30~~0~~2

~~Probing or Vane Test~~ ~~Sondage ou Essai au Scissomètre~~

Marteau ____________ Hammer
Chute Libre ________ Drop
No Casing - Sans Tubage
Barre ________ Dia. Rod

~~Blows / 30 cm or Shear Strength (kPa)~~
~~Coups / 30 cm ou Résistance au Cisaillement (kPa)~~

DEPTH IN METRES PROFONDEUR - METRES	Shear Scale Penetrometer kPa Poids Pénétromètre kPa	Essai - Standard Pénétration Blows - Coups / 30cm	SAMPLE ÉCHANTILLON No.	DESCRIPTION OF SOIL DU SOL	DEPTH IN METRES PROFONDEUR - METRES	ELEVATION m NIVEAU m
				Ground Surface, Niveau du Sol	0	62.38
				FILL - topsoil	0.30	62.08
1				FILL - sand & gravel with some broken rock brick metal wood glass & topsoil	1.80	60.58
2				Bottom of pit on rock		
3						
4						
5						
6						
7						



N.T.S.

0 25 50 75 100

R: REMOULDED - REMANIÉ
CR: CORE RECOVERY
CAROTTE RECUPERÉE
NR - NO RECOVERY - NON RÉCUPÉRÉ

WATER CONTENT
% TENEUR EN EAU
NATURAL NATURELLE ⊙
LIQUID LIMIT LIMITE DE LIQUIDITÉ ⊡
PLASTIC LIMIT LIMITE DE PLASTICITÉ △

PLATE PLAQUE No. 38

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SF2687

ELEVATION OF GROUND SURFACE (ZERO DEPTH)
NIVEAU DU SOL (PROFONDEUR ZERO) 61.73 m DATE May 30, 1986

NOTES See Plate No. 2

~~HOLE~~
~~FORAGE~~ No.
Test Pit
N 210 E 60

DEPTH IN METRES / PROFONDEUR - METRES

[illegible] Pénétromètre kPa

Essai - Standard Pénétration Blows - Coups / 30cm

SAMPLE ÉCHANTILLON No.

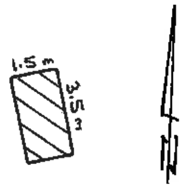
~~Probing or Vane Test~~ ~~Sondage ou Essai au Scissomètre~~

Mouton ________ Hammer
Chute Libre ________ Drop
No Casing - Sans Tubage
Barre ________ Dia. Rod

~~Blows/30 cm or Shear Strength (kPa)~~
~~Coups/30 cm ou Résistance au Cisaillement (kPa)~~

DESCRIPTION OF SOIL / DU SOL	DEPTH IN METRES / PROFONDEUR - MÈTRES	ELEVATION m / NIVEAU m
Ground Surface - Niveau du Sol	0	61.73
FILL - crushed stone		
	0.25	61.48
FILL - topsoil		
	0.47	61.26
FILL - till with a trace of brick & metal		
	0.86	60.87

Bottom of pit on rock



N.T.S.

0 25 50 75 100

R = REMOULDED - REMANIÉ
CR = CORE RECOVERY - CAROTTE RÉCUPÉRÉE
NR = NO RECOVERY - NON RÉCUPÉRÉ

WATER CONTENT
% TENEUR EN EAU
NATURAL NATURELLE ——— ⊙
LIQUID LIMIT LIMITE DE LIQUIDITÉ —— ⊡
PLASTIC LIMIT LIMITE DE PLASTICITÉ —— △

PLATE PLAQUE No. 39

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Holland and Spencer

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ELEVATION OF GROUND SURFACE (ZERO DEPTH)
NIVEAU DU SOL (PROFONDEUR ZERO) 61.82 m DATE May 30, 1986

NOTES See Plate No. 2

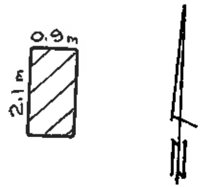
~~HOLE~~
~~FORAGE~~ No.
Test Pit
N 210 E 82

~~Probing or~~
~~Vane Test~~
~~Sondage ou~~
~~Essai au Scissomètre~~

Marteau ______ Hammer
Chute Libre ______ Drop
No Casing - Sans Tubage
Barre ______ Dia. Rod

~~Blows/30 cm or Shear Strength (kPa)~~
~~Coups/30 cm ou Résistance au Cisaillement (kPa)~~

DEPTH IN METRES PROFONDEUR - MÈTRES	Small Scale Penetrometer kPa Petit Pénétromètre kPa	Essai - Standard Pénétration Blows - Coups / 30 cm	SAMPLE ÉCHANTILLON No.	DESCRIPTION OF SOIL DU SOL Ground Surface - Niveau du Sol	DEPTH IN METRES PROFONDEUR - MÈTRES	ELEVATION m NIVEAU m
					0	61.82
				FILL - topsoil		
					0.20	61.62
				FILL - medium sand with a piece of concrete pipe & a trace of metal		
					1.10	60.72
1				Bottom of pit on rock		
2						
3						
4						
5						
6						
7						



N.T.S.

0 25 50 75 100

R = REMOULDED - REMANIÉ
CR = CORE RECOVERY - CAROTTE RÉCUPÉRÉE
NR = NO RECOVERY - NON RÉCUPÉRÉ

WATER CONTENT
% TENEUR EN EAU

NATURAL NATURELLE —— ⊙
LIQUID LIMIT LIMITE DE LIQUIDITÉ —— ⊡
PLASTIC LIMIT LIMITE DE PLASTICITÉ —— △

PLATE
PLAQUE
No. 40

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ELEVATION OF GROUND SURFACE (ZERO DEPTH)
NIVEAU DU SOL (PROFONDEUR ZERO) 61.71 m DATE May 30, 1986

NOTES See Plate No. 2

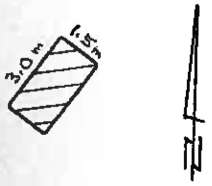
~~HOLE~~
~~FORAGE~~ No.
Test Pit
N234 E 60

~~Probing or Vane Test~~ ~~Sondage ou Essai au Scissomètre~~

Marteau ________ Hammer
Chute Libre ________ Drop
No Casing - Sans Tubage
Barre ________ Dia. Rod

~~Blows/30 cm or Shear Strength (kPa)~~
~~Coups/30 cm ou Résistance au Cisaillement (kPa)~~

DEPTH IN METRES PROFONDEUR - METRES	[illegible] kPa [illegible] Pénétromètre kPa	Essai - Standard Pénétration Blows - Coups / 30 cm	SAMPLE ÉCHANTILLON No.	DESCRIPTION OF SOIL DU SOL	DEPTH IN METRES PROFONDEUR - METRES	ELEVATION m NIVEAU m
				Ground Surface, Niveau du Sol	0	61.71
				FILL - topsoil & sand with a trace of metal brick & ashes		
					0.75	60.96
1				Bottom of pit on rock		
2						
3						
4						
5						
6						
7						



N.T.S.

0 25 50 75 100

R = REMOULDED - REMANIÉ
CR = CORE RECOVERY CAROTTE RECUPÉRÉE
NR = NO RECOVERY - NON RÉCUPÉRÉ

WATER CONTENT
% TENEUR EN EAU
NATURAL
NATURELLE ⊙
LIQUID LIMIT
LIMITE DE LIQUIDITÉ ⊡
PLASTIC LIMIT
LIMITE DE PLASTICITÉ △

PLATE
PLAQUE
No. 41

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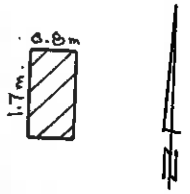
ELEVATION OF GROUND SURFACE (ZERO DEPTH) / NIVEAU DU SOL (PROFONDEUR ZERO) 62.17 m DATE May 30, 1986

NOTES See Plate No. 2

~~HOLE~~ ~~FORAGE~~ No. Test Pit N 235 E 84

DEPTH IN METRES / PROFONDEUR - METRES	Small Scale Penetrometer kPa / Petit Pénétromètre kPa	Essai - Standard Pénétration / Blows - Coups / 30cm	SAMPLE ÉCHANTILLON No.	DESCRIPTION OF SOIL / DU SOL	DEPTH IN METRES / PROFONDEUR - MÈTRES	ELEVATION m / NIVEAU m
				Ground Surface - Niveau du Sol	0	62.17
				FILL - topsoil	0.30	61.87
				FILL - sand gravel & topsoil with a trace of brick & metal	1.10	61.07
				Bottom of pit on rock		

Depth scale: 1, 2, 3, 4, 5, 6, 7



N.T.S.

~~Probing or Vane Test~~ ~~Sondage ou Essai au Scissomètre~~

Marteau ________ Hammer

Chute Libre ________ Drop

No Casing - Sans Tubage

Barre ________ Dia. Rod

~~Blows/30 cm or Shear Strength (kPa)~~
~~Coups/30 cm ou Résistance au Cisaillement (kPa)~~

0 25 50 75 100

WATER CONTENT
% TENEUR EN EAU

NATURAL / NATURELLE ———— ⊙
LIQUID LIMIT / LIMITE DE LIQUIDITÉ —— ⊡
PLASTIC LIMIT / LIMITE DE PLASTICITÉ — △

PLATE / PLAQUE No. 42

R : REMOULDED - REMANIÉ
CR : CORE RECOVERY
CAROTTE RÉCUPÉRÉE
NR : NO RECOVERY - NON RÉCUPÉRÉ

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ELEVATION OF GROUND SURFACE (ZERO DEPTH) / NIVEAU DU SOL (PROFONDEUR ZERO) 62.11 m DATE May 30, 1986

NOTES See Plate No. 2

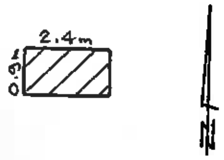
~~HOLE~~ ~~FORAGE~~ No. Test Pit N 240 E 115

~~Probing or Vane Test~~ ~~Sondage ou Essai au Scissomètre~~

Marteau ____________ Hammer
Chute Libre ____________ Drop
No Casing - Sans Tubage
Barre ____________ Dia. Rod

~~Blows/30 cm or Shear Strength (kPa)~~ ~~Coups/30 cm ou Résistance au Cisaillement (kPa)~~

DEPTH IN METRES / PROFONDEUR - MÈTRES	Small Scale Penetrometer kPa / Petit Pénétromètre kPa	Essai - Standard Pénétration / Blows - Coups / 30 cm	SAMPLE No. / ÉCHANTILLON	DESCRIPTION OF SOIL / DU SOL	DEPTH IN METRES / PROFONDEUR - MÈTRES	ELEVATION m / NIVEAU m
				Ground Surface - Niveau du Sol	0	62.11
				FILL - topsoil		
					0.20	61.91
				FILL - sand & gravel with some ashes brick wood metal asphalt & glass		
1					0.95	61.16
				boulders up to 0.6 m dia. in dense sandy TILL		
2					1.80	60.31
				Bottom of pit on rock		
3						
4						
5						
6						
7						



N.T.S.

0 25 50 75 100

RM = REMOULDED - REMANIÉ
CR = CORE RECOVERY - CAROTTE RÉCUPÉRÉE
NR = NO RECOVERY - NON RÉCUPÉRÉ

WATER CONTENT
% TENEUR EN EAU
NATURAL / NATURELLE ———— ⊙
LIQUID LIMIT / LIMITE DE LIQUIDITÉ ———— ⊡
PLASTIC LIMIT / LIMITE DE PLASTICITÉ ———— △

PLATE / PLAQUE No. 43

Holland and Spencer Avenues, Beech Foundry Site, Rock Elevations

McRostie Genest Middlemiss

June 6, 1984

(Report No. SF-2481)

McROSTIE GENEST MIDDLEMISS

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SPENCER ST.

SF 2481

ELEVATION OF GROUND SURFACE (ZERO DEPTH) / NIVEAU DU SOL (PROFONDEUR ZERO) 205.2 DATE MAY 16/84

~~HOLE~~ ~~FORAGE~~ No. TEST PIT 1

NOTES BM (EL. 206.65) GEODETIC CITY OF OTTAWA PLATE ON NORTHEAST CORNER OF OF SPERRY GYROSCOPE BLDG. AT SOUTHWEST CORNER OF PARKDALE & SPENCER

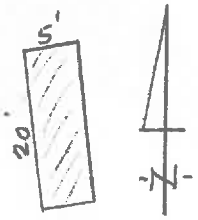
~~PROBING OR VANE TEST~~ ~~SONDAGE OU ESSAI AU MOULINET~~

MARTEAU----HAMMER
CHUTE LIBRE---DROP

NO CASING SANS TUBAGE
BARRE-----DIA. ROD

~~BLOWS/FOOT OR SHEAR STRENGTH K.S.F.~~
~~COUPS/PIED OU RÉSISTANCE AU CISAILLEMENT K/PD.2~~

Compressive Strength K.S.F. Résistance à la Compression K/Pd.2	Small Scale Penetrometer K.S.F. Petit Pénétromètre K/Pd.2	Essai-Standard Penetration Blows/ft.-Coups/pd	Sample No. Echantillon	DUG BY TRACK MOUNTED SHOVEL DESCRIPTION OF SOIL DU SOL Ground Surface – Niveau du Sol	Depth in Feet Profondeur - Pied	Elevation Niveau
					0'	205.2
				-FILL- SAND, GRAVEL, & ASHES, WITH SOME METAL, WOOD, GLASS, & BRICK		
SLIGHT WATER SEEPAGE AT EL. 199.2 →				BOTTOM OF PIT ON ROCK	6'	199.2



WATER CONTENT %TENEUR EN EAU
NATURAL NATURELLE ⊙
LIQUID LIMIT LIMITE DE LIQUIDITÉ ⊡
PLASTIC LIMIT LIMITE DE PLASTICITÉ △

PLATE PLAQUE No.

R = REMOULDED-REMANIE
CR = CORE RECOVERY CAROTTE RECUPEREE

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OTTAWA CANADA

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PROFIL SOUTERRAIN ET RÉSUMÉ DES ESSAIS

SPENCER ST.

SF 2481

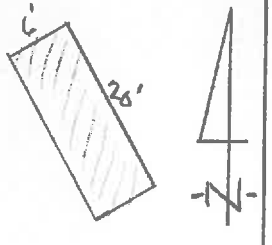
ELEVATION OF GROUND SURFACE (ZERO DEPTH) NIVEAU DU SOL (PROFONDEUR ZERO) 203.9 DATE MAY 16/84

~~HOLE~~ ~~FORAGE~~ No. TEST PIT 2

NOTES SEE PLATE No. 2

Compressive Strength K.S.F. Résistance à la Compression K/Pd.2	Small Scale Penetrometer K.S.F. Petit Pénétromètre K/Pd.2	Essai-Standard Penetration Blows/ft.-Coups/pd	Sample Echantillon No.	DESCRIPTION OF SOIL DU SOL Ground Surface – Niveau du Sol	Depth in Feet Profondeur-Pied	Elevation Niveau
				CONCRETE SLAB	0. 0.2	203.9 203.7
				– FILL – SAND WITH SOME CLAY METAL, BRICK ASHES & WOOD.		
					5'	198.9
				BOTTOM OF PIT ON ROCK		

~~PROBING OR VANE TEST~~ ~~SONDAGE OU ESSAI AU MOULINET~~
MARTEAU----HAMMER
CHUTE LIBRE---DROP
NO CASING SANS TUBAGE
BARRE-----DIA. ROD
~~BLOWS/FOOT OR SHEAR STRENGTH K.S.F.~~
~~COUPS/PIED OU RÉSISTANCE AU CISAILLEMENT K/PD.2~~



R = REMOULDED-REMANIE
CR = CORE RECOVERY CAROTTE RECUPEREE

WATER CONTENT % TENEUR EN EAU
NATURAL NATURELLE ⊙
LIQUID LIMIT LIMITE DE LIQUIDITÉ ☐
PLASTIC LIMIT LIMITE DE PLASTICITÉ △

PLATE PLAQUE No.

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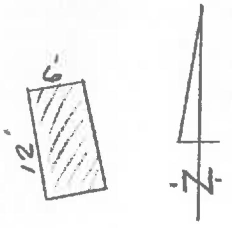
ELEVATION OF GROUND SURFACE (ZERO DEPTH) NIVEAU DU SOL (PROFONDEUR ZERO) 203.5 DATE MAY 16, 1984

~~HOLE~~ ~~FORAGE~~ No. TEST PIT 3

NOTES SEE PLATE No. 2

Compressive Strength K.S.F. Résistance à la Compression K/Pd.2	Small Scale Penetrometer K.S.F. Petit Pénétromètre K/Pd.2	Essai-Standard Penetration Blows/ft.-Coups/pd	Sample Echantillon No.	DESCRIPTION OF SOIL DU SOL Ground Surface – Niveau du Sol	Depth in Feet Profondeur-Pied	Elevation Niveau	~~PROBING OR VANE TEST~~ ~~SONDAGE ou ESSAI AU MOULINET~~ MARTEAU----HAMMER CHUTE LIBRE---DROP NO CASING SANS TUBAGE BARRE-----DIA. ROD ~~BLOWS/FOOT OR SHEAR STRENGTH K.S.F.~~ ~~COUPS/PIED OU~~ ~~RÉSISTANCE AU CISAILLEMENT K/PD.2~~
				CONCRETE SLAB	0. 0.2'	203.5 203.3	
				-FILL- SAND & GRAVEL WITH SOME WOOD, METAL BRICK & BROKEN ROCK	1.5	202.0	
				DENSE SANDY TILL	5.8'	197.7	
				BOTTOM OF PIT ON ROCK			



R = REMOULDED-REMANIE
CR = CORE RECOVERY CAROTTE RECUPEREE

% WATER CONTENT TENEUR EN EAU
NATURAL NATURELLE ⊙
LIQUID LIMIT LIMITE DE LIQUIDITÉ □
PLASTIC LIMIT LIMITE DE PLASTICITÉ △

PLATE PLAQUE No.

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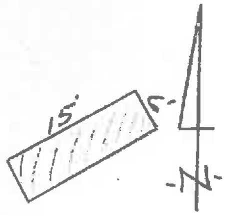
ELEVATION OF GROUND SURFACE (ZERO DEPTH) NIVEAU DU SOL (PROFONDEUR ZERO) 204.1 DATE MAY 16, 1984

~~HOLE~~ ~~FORAGE~~ No. TEST PIT 4

NOTES SEE PLATE No. 2

Compressive Strength K.S.F. Résistance à la Compression K/Pd.2	Small Scale Penetrometer K.S.F. Petit Pénétromètre K/Pd.2	Essai-Standard Penetration Blows/ft.-Coups/pd	Sample Echantillon No.	DESCRIPTION OF SOIL DU SOL Ground Surface - Niveau du Sol	Depth in Feet Profondeur - Pied	Elevation Niveau	~~PROBING OR VANE TEST~~ ~~SONDAGE OU ESSAI AU MOULINET~~ MARTEAU----HAMMER CHUTE LIBRE---DROP NO CASING SANS TUBAGE BARRE-----DIA. ROD ~~BLOWS/FOOT OR SHEAR STRENGTH K.S.F.~~ ~~COUPS/PIED OU RÉSISTANCE AU CISAILLEMENT K/PD.2~~
				CONCRETE SLAB	0	204.1	
				-FILL- SAND & GRAVEL WITH SOME METAL, ASHES, WOOD, & BRICK, WITH A FEW BOULDERS UP TO 24" Ø	0.5	203.6	
				BOTTOM OF PIT ON ROCK	6.3	197.8	



R = REMOULDED-REMANIE
CR = CORE RECOVERY CAROTTE RECUPEREE

WATER CONTENT % TENEUR EN EAU
NATURAL NATURELLE ⊙
LIQUID LIMIT LIMITE DE LIQUIDITÉ ⊡
PLASTIC LIMIT LIMITE DE PLASTICITÉ △

PLATE PLAQUE No.

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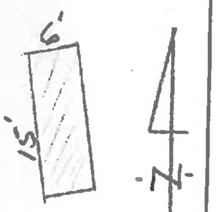
ELEVATION OF GROUND SURFACE (ZERO DEPTH) NIVEAU DU SOL (PROFONDEUR ZERO) 201.5 DATE MAY 16, 1984

~~HOLE FORAGE~~ No. TEST PIT 5

NOTES SEE PLATE No. 2

Compressive Strength K.S.F. Résistance à la Compression K/Pd.2	Small Scale Penetrometer K.S.F. Petit Pénétromètre K/Pd.2	Essai-Standard Penetration Blows/ft.-Coups/pd	Sample No. Echantillon	DESCRIPTION OF SOIL DU SOL Ground Surface – Niveau du Sol	Depth in Feet Profondeur - Pied	Elevation Niveau	~~PROBING OR VANE TEST~~ ~~SONDAGE OU ESSAI AU MOULINET~~ MARTEAU----HAMMER CHUTE LIBRE---DROP NO CASING SANS TUBAGE BARRE-----DIA. ROD ~~BLOWS/FOOT OR SHEAR STRENGTH K.S.F.~~ ~~COUPS/PIED OU RÉSISTANCE AU CISAILLEMENT K/PD.2~~
				ASPHALT	0	201.5	
				-FILL- SAND & GRAVEL	0.3	201.2	
				TOPSOIL	1.5'	2000	
				DENSE SANDY TILL WITH SOME BOULDERS UP TO 18" Ø	2'	199.5	
				BOTTOM OF PIT ON ROCK	6.5'	195.0	



R = REMOULDED-REMANIE
CR = CORE RECOVERY CAROTTE RECUPEREE

WATER CONTENT %TENEUR EN EAU
NATURAL NATURELLE ⊙
LIQUID LIMIT LIMITE DE LIQUIDITÉ ⊡
PLASTIC LIMIT LIMITE DE PLASTICITÉ △

PLATE PLAQUE No.

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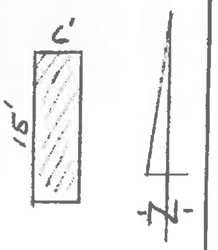
ELEVATION OF GROUND SURFACE (ZERO DEPTH) / NIVEAU DU SOL (PROFONDEUR ZERO) 203.1
DATE MAY 16, 1984
~~HOLE~~ ~~FORAGE~~ No. TEST PIT 6
NOTES SEE PLATE NO. 2

Compressive Strength K.S.F. Résistance à la Compression K/Pd.2	Small Scale Penetrometer K.S.F. Petit Pénétromètre K/Pd.2	Essai-Standard Penetration Blows/ft.-Coups/pd	Sample No. Echantillon	**DESCRIPTION** OF SOIL DU SOL Ground Surface – Niveau du Sol	Depth in Feet Profondeur-Pied	Elevation Niveau	~~PROBING OR VANE TEST~~ ~~SONDAGE OU ESSAI AU MOULINET~~ MARTEAU----HAMMER CHUTE LIBRE---DROP NO CASING SANS TUBAGE BARRE-----DIA. ROD ~~BLOWS/FOOT OR~~ ~~SHEAR STRENGTH K.S.F.~~ ~~COUPS/PIED OU~~ ~~RÉSISTANCE AU CISAILLEMENT~~ ~~K/PD.2~~
				CONCRETE SLAB	0.0 0.2'	203.1 202.9	
				-FILL- SAND & GRAVEL WITH SOME METAL & WOOD, & A TRACE OF BRICK & TOPSOIL			
				BOTTOM OF PIT ON ROCK	3.6'	199.5	



R = REMOULDED-REMANIE
CR = CORE RECOVERY / CAROTTE RECUPEREE

WATER CONTENT
% TENEUR EN EAU
NATURAL / NATURELLE ⊙
LIQUID LIMIT / LIMITE DE LIQUIDITÉ ⊡
PLASTIC LIMIT / LIMITE DE PLASTICITÉ △

PLATE / PLAQUE No.

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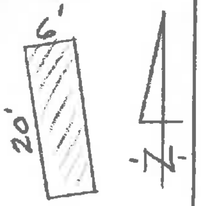
ELEVATION OF GROUND SURFACE (ZERO DEPTH) / NIVEAU DU SOL (PROFONDEUR ZERO) 203.8 DATE MAY 16, 1984

~~HOLE~~ ~~FORAGE~~ No.: TEST PIT 7

NOTES SEE PLATE NO. 2

Compressive Strength K.S.F. Résistance à la Compression K/Pd.2	Small Scale Penetrometer K.S.F. Petit Pénétromètre K/Pd.2	Essai-Standard Penetration Blows/ft.-Coups/pd	Sample No. Echantillon	DESCRIPTION OF SOIL DU SOL Ground Surface – Niveau du Sol	Depth in Feet Profondeur-Pied	Elevation Niveau	~~PROBING OR VANE TEST~~ ~~SONDAGE OU ESSAI AU MOULINET~~ MARTEAU----HAMMER CHUTE LIBRE---DROP NO CASING SANS TUBAGE BARRE-----DIA. ROD ~~BLOWS/FOOT OR SHEAR STRENGTH K.S.F.~~ ~~COUPS/PIED OU RÉSISTANCE AU CISAILLEMENT K/PD.2~~
				CONCRETE SLAB	0	203.8	
					0.3	203.5	
				-FILL- SAND, GRAVEL, & BROKEN ROCK WITH A LITTLE BRICK & METAL			
SLIGHT WATER SEEPAGE AT EL. 199.4 →				BOTTOM OF PIT ON ROCK	4.4'	199.4	



R = REMOULDED-REMANIE
CR = CORE RECOVERY / CAROTTE RECUPEREE

% WATER CONTENT / TENEUR EN EAU
NATURAL / NATURELLE ⊙
LIQUID LIMIT / LIMITE DE LIQUIDITÉ □
PLASTIC LIMIT / LIMITE DE PLASTICITÉ △

PLATE / PLAQUE No.

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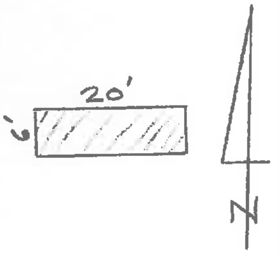
ELEVATION OF GROUND SURFACE (ZERO DEPTH) NIVEAU DU SOL (PROFONDEUR ZERO) 203.5 DATE MAY 16, 1984 ~~HOLE~~ ~~FORAGE~~ No. TEST PIT 8

NOTES SEE PLATE NO. 2

Compressive Strength K.S.F. Résistance à la Compression K/Pd.2	Small Scale Penetrometer K.S.F. Petit Pénétromètre K/Pd.2	Essai-Standard Penetration Blows/ft.-Coups/pd	Sample No. Echantillon	DESCRIPTION OF SOIL DU SOL Ground Surface – Niveau du Sol	Depth in Feet Profondeur-Pied	Elevation Niveau	~~PROBING OR VANE TEST~~ ~~SONDAGE OU ESSAI AU MOULINET~~ MARTEAU----HAMMER CHUTE LIBRE---DROP NO CASING SANS TUBAGE BARRE-----DIA. ROD ~~BLOWS/FOOT OR SHEAR STRENGTH K.S.F.~~ ~~COUPS/PIED OU RÉSISTANCE AU CISAILLEMENT K/PD.2~~
					0'	203.5	
				CONCRETE SLAB	0.3'	203.2	
				-FILL- SAND, GRAVEL, & BROKEN ROCK WITH SOME METAL, & BRICK, & A TRACE OF WOOD			
					4'	199.5	
				BOTTOM OF PIT ON ROCK			



R = REMOULDED-REMANIE
CR = CORE RECOVERY / CAROTTE RECUPEREE

WATER CONTENT
% TENEUR EN EAU
NATURAL NATURELLE ——— ⊙
LIQUID LIMIT LIMITE DE LIQUIDITÉ ——— ⊡
PLASTIC LIMIT LIMITE DE PLASTICITÉ ——— △

PLATE PLAQUE No.

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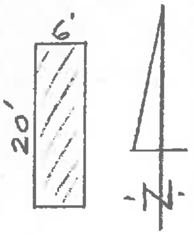
ELEVATION OF GROUND SURFACE (ZERO DEPTH) NIVEAU DU SOL (PROFONDEUR ZERO) 203.0 DATE MAY 16, 1984

~~HOLE~~ ~~FORAGE~~ No. TEST PIT 9

NOTES SEE PLATE No. 2

Compressive Strength K.S.F. Résistance à la Compression K/Pd.2	Small Scale Penetrometer K.S.F. Petit Pénétromètre K/Pd.2	Essai-Standard Penetration Blows/ft.-Coups/pd	Sample No. Echantillon	DESCRIPTION OF SOIL DU SOL Ground Surface – Niveau du Sol	Depth in Feet Profondeur-Pied	Elevation Niveau	~~PROBING OR VANE TEST~~ ~~SONDAGE OU ESSAI AU MOULINET~~ MARTEAU----HAMMER CHUTE LIBRE---DROP NO CASING SANS TUBAGE BARRE-----DIA. ROD ~~BLOWS/FOOT OR SHEAR STRENGTH K.S.F.~~ ~~COUPS/PIED OU RÉSISTANCE AU CISAILLEMENT K/PD.2~~
				CONCRETE SLAB	0' 0.2'	203.0 202.8	
				-FILL- SAND & GRAVEL WITH SOME BRICK, BROKEN ROCK, METAL, WOOD & TOPSOIL			
				BOTTOM OF PIT ON ROCK	4.7'	198.3	



R = REMOULDED – REMANIE
CR = CORE RECOVERY – CAROTTE RECUPEREE

% WATER CONTENT
% TENEUR EN EAU
NATURAL NATURELLE ⊙
LIQUID LIMIT LIMITE DE LIQUIDITÉ ☐
PLASTIC LIMIT LIMITE DE PLASTICITÉ △

PLATE PLAQUE No.

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ELEVATION OF GROUND SURFACE (ZERO DEPTH) NIVEAU DU SOL (PROFONDEUR ZERO) 204.9

DATE MAY 16, 1984

~~HOLE~~ ~~FORAGE~~ No. TEST PIT 10

NOTES SEE PLATE No.2

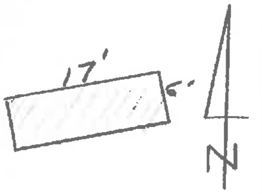
~~PROBING OR VANE TEST~~ ~~SONDAGE OU ESSAI AU MOULINET~~

MARTEAU----HAMMER
CHUTE LIBRE---DROP

NO CASING SANS TUBAGE
BARRE-----DIA. ROD

~~BLOWS/FOOT OR SHEAR STRENGTH K.S.F.~~
~~COUPS/PIED OU~~ ~~RÉSISTANCE AU CISAILLEMENT~~ ~~K/PD.2~~

Compressive Strength K.S.F. Résistance à la Compression K/Pd.2	Small Scale Penetrometer K.S.F. Petit Pénétromètre K/Pd.2	Essai-Standard Penetration Blows/ft.-Coups/pd	Sample No. Echantillon	DESCRIPTION OF SOIL DU SOL Ground Surface – Niveau du Sol	Depth in Feet Profondeur-Pied	Elevation Niveau
				CONCRETE SLAB	0'	204.9
					0.3'	204.6
				-FILL- SAND, GRAVEL, & BROKEN ROCK WITH SOME BRKK METAL & WOOD		
					3.9'	201.0
				TOPSOIL		
					4.3'	200.6
				DENSE SANDY TILL		
					7.5'	197.4
				BOTTOM OF PIT ON ROCK		



R=REMOULDED-REMANIE
CR=CORE RECOVERY CAROTTE RECUPEREE

WATER CONTENT %TENEUR EN EAU
NATURAL NATURELLE ⊙
LIQUID LIMIT LIMITE DE LIQUIDITÉ ⊡
PLASTIC LIMIT LIMITE DE PLASTICITÉ △

PLATE PLAQUE No.

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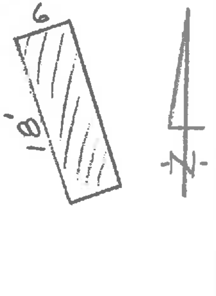
ELEVATION OF GROUND SURFACE (ZERO DEPTH) NIVEAU DU SOL (PROFONDEUR ZERO) 205.0 DATE MAY 16, 1984 ~~HOLE FORAGE~~ No. TEST PIT 11

NOTES SEE PLATE No.2

~~PROBING OR VANE TEST~~ ~~SONDAGE OU ESSAI AU MOULINET~~
MARTEAU----HAMMER
CHUTE LIBRE---DROP
NO CASING SANS TUBAGE
BARRE-----DIA. ROD
~~BLOWS/FOOT OR SHEAR STRENGTH K.S.F.~~
~~COUPS/PIED OU RÉSISTANCE AU CISAILLEMENT K/PD.2~~

Compressive Strength K.S.F. Résistance à la Compression K/Pd.2	Small Scale Penetrometer K.S.F. Petit Pénétromètre K/Pd.2	Essai-Standard Penetration Blows/ft.-Coups/pd	Sample No. Echantillon	DESCRIPTION OF SOIL DU SOL Ground Surface – Niveau du Sol	Depth in Feet Profondeur - Pied	Elevation Niveau
				CONCRETE SLAB	0'	205.0
				-FILL- SAND, GRAVEL & BROKEN ROCK WITH SOME BRICK & METAL	0.3	204.7
				TOPSOIL	3.1'	201.9
				DENSE SANDY TILL	3.4	201.6
				BOTTOM OF PIT ON ROCK	5.4'	199.6



R = REMOULDED-REMANIE
CR = CORE RECOVERY CAROTTE RECUPEREE

WATER CONTENT %TENEUR EN EAU
NATURAL NATURELLE ———— ⊙
LIQUID LIMIT LIMITE DE LIQUIDITÉ ———— □
PLASTIC LIMIT LIMITE DE PLASTICITÉ ———— △

PLATE PLAQUE No.

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