



Kollaard Associates

Engineers

210 Prescott Street, Unit 1

P.O. Box 189

Kemptville, Ontario K0G 1J0

Civil • Geotechnical •  
Structural • Environmental •  
Hydrogeology

**(613) 860-0923**

FAX: (613) 258-0475

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Kollaard Associates Inc File# 220214

2250276 Ontario Inc.  
7 Charnwood Court  
Nepean, Ontario  
K2E 7C9

RE: ASSESSMENT FOR THE POTENTIAL OF A SLOPED EXCAVATION  
AND PLAN OF EXCAVATION FOR  
PROPOSED RESIDENTIAL BUILDING  
370 CAMBRIDGE STREET NORTH  
CITY OF OTTAWA, ONTARIO

Dear Sir:

This letter presents a plan of excavation for the proposed foundation of the proposed residential building to be constructed at the property known as 370 Cambridge Street North, City of Ottawa following a site visit to assess the potential for the use of a sloped excavation.

Kollaard Associates Inc. visited the site on July 31, 2023 to verify the subsurface soil conditions and observe the areas in the vicinity of the proposed excavation. For the purposes of this letter, Cambridge Street North is considered to be oriented along a north south axis. The site fronts onto the west side of Cambridge Street North. A PDF drawing set which included the proposed site plan and grading plan was provided by the client. Kollaard Associates completed a geotechnical investigation in April 2022 for the site. The report is entitled Geotechnical Investigation, Proposed 4-Storey Residential Apartment Building, 370 Cambridge Street North, City of Ottawa, Ontario, Project Number 220214, Dated April 8, 2022. The results of that report indicated that bedrock was encountered from about 0.9 to 1.0 metres depth. The report should be read in conjunction with this letter.

### **Background Information:**

The following information was obtained from the drawings and from the observations made during the site visit:

#### **Subject Property – 370 Cambridge Street North:**

- The site consists of an existing two storey building which includes 4 rental units. A single storey wooden detached garage exists at the southwest corner of the site. The remaining portion of the site is garden and yard space and a small parking area. The building has a full depth conventional concrete basement. The rear yard space is divided by chain link fences for each unit.



- The subsurface conditions consist of fill materials (topsoil/asphaltic concrete, grey crushed stone, black silty sand, some gravel) over shallow bedrock. Bedrock was encountered at about 0.9 to 1.0 metres in the boreholes. Refusal to probe by hand was encountered at the time of the site visit on July 31, 2023. at about 0.7 to 0.9 metres below the existing ground surface.
- The proposed building is to consist of a four storey low rise apartment building with 20 units.
- The proposed building will be set back about 1.6 metres from the front property line and as such will have no impact on the City Services or road allowance.
- The building will be located about 1.3 metres from the north property line and about 1.2 metres from the south property line.
- The proposed building will extend to about 9.0 metres from the west property boundary and will have no impact on the rear road allowance.
- The existing grade in the area of the proposed dwelling varies from about 71.7m to 71.96m. There are two proposed underside of footing elevations, an upper and lower underside of footing level. The upper underside of footing level is 70.10m and the lower underside of footing level is 68.85m. As such, the depth of the excavation will vary between about 1.9 to 3.3 metres below existing ground surface.
- The existing dwelling and detached garage on the property are to be demolished and removed prior to construction of the new proposed building.

#### Surrounding Area:

#### **368 Cambridge Street North**

- The existing dwelling to the north known as 368 Cambridge Street North consists of a two storey single family dwelling. Based on a review of the legal survey, the building is located on the shared north property boundary and about 1.3 to 1.4 metres from the existing building at the site. As indicated above, the proposed building is to remain about 1.3 metres from the neighbouring building to the north.
- The following was observed:
  - The dwelling has a full depth conventional concrete basement.
  - The proposed excavation is not in proximity to the driveway at 368 Cambridge Street North.
  - There is an existing wooden fence along the shared property line with 368 Cambridge Street North. There is a small garden shed located behind the dwelling. The rear portion of the garden shed is located immediately adjacent the fence.
  - There is a gas meter located at the southeast corner of 368 Cambridge Street North. It is considered that the gas meter should not be impacted by the proposed excavation.
  - The downspouts from the eavestroughs at 368 Cambridge Street North are located at the southeast corner and directed toward the street. The downspouts should not be impacted by the excavation.

#### **3 Raymond Street**

- There is an existing three storey building with an asphaltic surface parking lot located to the south of the site. The use of the building is for the Embassy to Madagascar. The building is located in the west portion of the property and the east portion consists of the parking lot that services the embassy. The existing building is located about 3.0 metres from the embassy. The building fronts onto Raymond Street. Based on the grading plan, the proposed building is to remain 3.0 metres from the adjacent building and about 1.2 metres from the south property line.
- The following was observed:
  - The building has a full depth conventional concrete basement.
  - There is a plastic fence located along the shared property line with 3 Raymond Street.



- The proposed excavation is not in proximity to the parking lot servicing 3 Raymond Street.

### **374, 376 and 378 Arlington Avenue**

- There is an existing two storey building that fronts onto Arlington Avenue. There are no issues with the building as it is set back at least 8 metres from the shared property line.
- A small shed exists adjacent the shared fenceline. The proposed building to the fenceline and shed is about 1.65 metres. By maintaining 0.15 metres from the fencelines with the excavation on the north property line, there should be no significant risk to the fences or sheds located along the north side.

### **Type of Excavation:**

Based on the observations and information obtained during the site visit as well as the information provided by email, it is considered that a sloped excavation can be used for the excavation for the proposed building.

### **Informed Consent:**

It is understood that the client will obtain written informed consent from the adjacent property owners to facilitate the excavation. This letter can be provided to the adjacent property owners to provide them with the necessary information to give consent.

### **Plan of Excavation:**

Sloped Excavation;

- It is expected that once the excavation for the proposed building foundation begins, the excavation will be completed in 1 to 3 days.
- It is expected that the foundation and excavation will be backfilled within 4 weeks of the time the excavation resumes.
- The top edge of the side slopes of the excavation should not extend beyond the property line at any location.
- The side slopes of the excavation can be grouped into 2 scenarios as follows:
  - Scenario 1 - The side slopes of the excavation adjacent 368 Cambridge Street North and 3 Raymond Street and along the shared fencelines to the north and south should begin 0.15 metres from the property line and be sloped down and inward to the surface of the bedrock. It is expected that the bedrock will be encountered at about 0.7 to 1.0 metres above the bottom of the excavation. Side slopes in the bedrock can be cut near vertical.
  - Scenario 2 - The side slopes of the excavation along the front and back should be sloped inward at 2V:1H or less to the surface of the bedrock. The offset between the foundation wall and the near vertical portion of the excavation side slope can be increased to 1.5 metres. Side slopes in the bedrock can be cut near vertical.
- Since excavation for the proposed building will involve large amounts of bedrock removal, it is recommended that a pre-construction survey be completed by an appropriate specialist prior to commencing excavation.
- Techniques such as line drilling may be used in conjunction with hoe ramming to reduce vibration.



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### **Soil and Equipment Storage:**

- No excavated materials should be stockpiled along the top edge of the excavation.
- No equipment should be stored along the north or south sides of the excavation.

### **Precipitation Management:**

- Following completion of the excavation, the excavation should be protected from rainfall with the use of heavy duty polyethylene sheeting or tarps. The sheeting or tarps should be secured along the top of the excavation and pinned or staked to the side slopes as required to prevent the sheeting or tarp from being dislodged by wind or construction activities.
- Any rain water can be pumped from the excavation if required to control the water level in the excavation.

### **Cold Weather Protection:**

- If the project proceeds during cold weather conditions, the above proposed sheeting and tarps should be replaced with insulated tarps.
- There will remain sufficient distance between the face of the excavation side slopes and the neighbouring foundations such that there will be no risk of damage to the neighboring foundations due to freezing provided excavation is backfilled in the expected time frame.
- The subgrade should be kept from freezing using normal construction practices.

### **Excavation Side Slope Stability:**

- The excavation side slopes, when constructed as indicated above, will be sufficiently stable in the short term to allow the proposed development to proceed with no risk to the adjacent dwellings.
- The side slopes of the excavation, when constructed as indicated above, will be sufficiently stable in the short term to allow the construction of the foundation (including the placement of the footings and foundation walls, foundation water proofing, perimeter drainage and backfill) to proceed in accordance with a normal construction schedule.

### **Risk to Adjacent Properties:**

#### 368 Cambridge Street North and 3 Raymond Street:

- It is considered that the existing buildings at 368 Cambridge Street North and 3 Raymond Street are bearing on bedrock. As such, Kollaard Associates considers that there is no risk of undermining or compromising the foundations or lateral support for the foundations.
- By maintaining 0.15 metre from the fencelines with the excavation on both the north and south property lines, there should be no significant risk to the fences or sheds located on the north side.
- There is no significant risk to the utilities resulting from the excavation.
- There is no significant risk to any adjacent driveways/parking lot. The excavation will not affect the parking lot over the expected duration the completed excavation remains open such that the parking lot cannot be used.
- It is not expected that any landscaping will be affected by the excavation based on the setbacks. If there is any landscaping damage such as sod, it can be easily repaired during the finished landscaping of the subject site.



### Post Permit Inspection:

- Once the offsets for the excavation have been staked out and prior to any excavation, the client is required to arrange a pre-excavation meeting which will include the excavation contractor and Kollaard Associates to ensure that the excavation contractor understands the plan of excavation.
- Following completion of the excavation, Kollaard will return to the site to complete an assessment of the excavation for conformance to the plan of excavation and to review the site for any unexpected conditions that may have been revealed during excavation.
- At this time, Kollaard will confirm:
  - all precipitation measures have been implemented.
  - If required, all cold weather management measures are in place.
- Kollaard will revisit the site to reassess the condition of the side slopes of the excavation if the excavation remains open longer than 4 weeks.
  - If the results of the assessment by Kollaard following the completion of the excavation indicate poorer than expected soil or side slope conditions, a shorter length of time may be required
  - If there is any significant weather event, Kollaard will return to the site to reassess the excavation side slopes and to ensure that the precipitation measures (and cold weather measures if required) remain in place.

We trust that this report provides sufficient information for your present purposes. If you have any questions concerning this information or if we can be of further assistance to you, please do not hesitate to contact our office.

Yours truly,  
Kollaard Associates Inc.

Dean Tataryn, B.E.S., EP.



Steve deWit, P.Eng.