



CI Excavation Stability

September 10, 2013
SGS #13157

Roger Buck
Home State Properties
150 Glenwood Avenue
Portland, Maine 04103

Reference: Excavation Stability, Foundation Reconstruction
146/148 Sherman Street, Portland, Maine

Dear Roger;

This letter summarizes the site conditions observed during my site visit on August 27, 2013 and provides recommendations for completing the excavation required for replacement of a portion or all of the existing foundation wall on the east side of the 146/148 Sherman Street building. Attention is being given to the potential effects of the excavation on the foundation of an abutting building.

The project consists of the removal and replacement of approximately 15 feet of the north portion of the easternmost existing foundation wall on the east side of the building or possibly the entire wall. The existing foundation wall will be replaced with a cast-in-place retaining/foundation wall with a 5.5 long by 1 foot thick footing. The face of the foundation of an abutting house is located within 10+ feet of the face of the 146 Sherman Street foundation wall.

The footing of the abutting house, exposed at the time of my site visit, consisted of stone of variable composition mortared together and approximately 2 feet deep. The soil adjacent and beneath the existing wall (test holes excavated to a depth of 3 feet) consisted of olive-brown silty sand with a trace to little gravel. This soil was compact and moist. The sidewalls in the test pits were vertical. No groundwater was observed in the test holes.

Based on the foundation design sketch prepared by Joseph Neville, P.E. (attached), the bottom outside corner of the new foundation wall footing will be approximately 8.5 feet horizontal distance and approximately 7.5 feet vertical distance from the outside edge of the abutting house footing. Based on the existing conditions and our geotechnical evaluations, we can make the following conclusions.

1. The existing foundation wall of the abutting building will not transpose any of its loading onto the new foundation wall.



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2. For design purposes a friction factor of 0.45 should be used between cast in place concrete and the soil. I recommend a unit weight of 125 pcf and a friction angle of 30 degrees.
3. The new foundation wall will not exert loads on the existing basement wall (toward Sherman Street).

We recommend that the following guidelines be followed during excavation for and construction of the new footing.

1. The toe of the slope of the excavation for the new footing should be as close to the outside edge of the new foundation wall footing and in no case extend more than 6 inches out from the outside face of the new footing.
2. As much soil as possible should be left undisturbed adjacent to the abutting foundation wall.
3. Surface water should be diverted away from the excavation. This especially applies to runoff from the 146/148 and abutting building roofs. We recommend that the abutter provide gutters or other means for temporarily (or permanently) preventing roof runoff from entering the excavation.
4. Continuous attention should be paid to the condition of the excavated slope. Mitigation measures should be undertaken immediately upon signs of instability of the slope.
5. The Contractor should submit an excavation plan to the Owner indicating the sequence and timing of excavation, demolition, and construction of the new foundation wall, including methods of temporarily stabilizing the excavated slope and actions for mitigating observed slope or abutting foundation movements. The excavation plan should be in accordance with the current OSHA guidelines.
6. The new foundation wall should be backfilled with soil having a maximum of 7% by weight of material passing a #200 sieve, for frost protection. We recommend that the foundation backfill be tamped with the excavator bucket. We do not recommend that vibratory compaction equipment be used.

The guidelines above are based on professional judgment and generally accepted principles of geotechnical engineering. Since the Contractor controls the means and methods of completing this excavation, SGS assumes no liability for slope failure or abutting building movements due to the Contractor's work. Some changes in subsurface conditions from those presented in this report may occur. Should these conditions differ materially from those described in this report, Summit should be notified so that we can re-evaluate our recommendations.

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We understand that the owner of the abutting building has retained a geotechnical consultant to monitor the existing foundation wall for movements. We recommend that monitoring information be available to all parties in a timely manner. In the event movements are detected, work shall cease and excavated areas be backfilled immediately until alternative excavation/construction methods are provided.

We appreciate the opportunity to serve you during this phase of your project. If there are any questions or additional information is required, please do not hesitate to call.

Sincerely yours,
Summit Geoengineering Services,

A handwritten signature in black ink that reads "William M. Peterlein".

William M. Peterlein
Principal Geotechnical Engineer

