

February 2, 2018
Summit #17004

Attn: Peter Bass
Random Orbit, Inc.
30 Danforth Street
Portland, Maine 04101

Reference: Geotechnical Engineering Report Addendum – Proposed Building
50 Cove Street, Portland, Maine

Dear Peter,

A geotechnical report for the above referenced project was prepared by Summit Geoengineering Services, Inc. (SGS) dated September 21, 2017 revised September 24, 2017. Subsequent to the completion of our original geotechnical report, we have had discussions with the design team as the project concept progressed and have provided geotechnical recommendations in addition to those presented in our original geotechnical report. This addendum will catalog any additional recommendations or alterations made since issuing the original report.

The following section is intended to supersede Section 5.1 of the original geotechnical report. All other sections of the report remain applicable.

Slab Subgrade Preparation and Design

Based on the soil conditions encountered in our explorations, we anticipate that existing fill will be exposed at the bottom of the slab subgrade excavation. We recommend that the structural mat for the proposed building be constructed with thickened edges extending 24" below exterior finish grade with a minimum of 2" of rigid insulation along the entire exterior and interior of perimeter walls for frost protection as shown in the detail in the original report. If the recommendations below are followed, the structural mat can be designed using an allowable contact pressure of 500 psf. This contact pressure should include the dead weight of the slab. Total settlement is expected to be less than 1.5" and differential settlement is expected to remain within tolerable limits for the structure. This allowable bearing pressure is based on the following:

- All existing pavement is removed in its entirety from within the building footprints.
- Excavate to 6" below the bottom of haunch elevation throughout the entire footprint (approximately 24" to 30" below existing grade).
- Once the pavement and existing fill is removed to the required depth, the exposed soil throughout the entire site is proofrolled with a minimum of 16 passes (8 in each north-

south and east-west directions) with a large vibratory roller. The vibratory roller should have a minimum operating weight of 15 tons. The direction of each 2 successive passes should be oriented perpendicular to the previous 2 coverages. Summit Geoengineering Services (SGS) should be contacted to observe this proofrolling.

- All unsuitable soils and existing rubble (granite block, abandoned pipes, etc.) exposed in the footing excavations are removed and stabilized by overexcavating a minimum of 12" and installing ¾" crushed stone over a non-woven geotextile in place of the removed material.
- TriAx TX160 triaxial geogrid is installed on top of proofrolled subgrade and beneath the perimeter haunch of the slab. Assuming the haunches are 12" thick, the triaxial geogrid should be centered beneath the haunch and extend a minimum of 30" beyond both edges (total geogrid width of 72"). Seams should be overlapped a minimum of 12." The geogrid should be pre-tensioned and staked prior to placing the crushed stone or SF on top of it.
- Footings are constructed on dry, unfrozen soils.
- Any fill placed within the building footprint consists of Structural Fill (SF) or ¾" crushed stone placed in 6" to 8" lifts. We anticipate that the excavated fill will be able to be reused as SF.
- The exterior haunch is structurally tied to the mat to prevent concentrated loads beneath the haunch. If any cold joints are required to construct the slab and haunch, they should be adequately designed to transfer all axial loads, shear forces, and moments to the slab. Interior columns are supported on thickened slab sections and not on independent footings.

Refer to the attached geogrid layout plan and detail. SGS should be retained to observe the foundation subgrade during the proofrolling process.

We recommend that the imported fill beneath the slab consist of Structural Fill (SF, see table below). The portion of SF passing the 3" sieve shall meet the following gradation requirements:

STRUCTURAL FILL (SF)	
Sieve Size	Percent finer
3 inch	100
½ inch	35 to 80
¼ inch	25 to 65
No. 40	0 to 30
No. 200	0 to 7

Reference: MDOT Specification 703.06, Type D

The maximum particle size should be limited to 6 inches. Structural Fill should be placed in 6 to 8 inch lifts and should be compacted to a minimum of 95 percent of its maximum dry density,

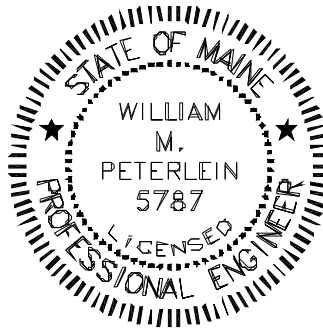
determined in accordance with ASTM D1557. We anticipate that the excavated fill soil in the upper 30" of the site will meet the gradation requirements for SF. For the conditions described above, the slab can be designed using a subgrade modulus value of 150 pci.

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,



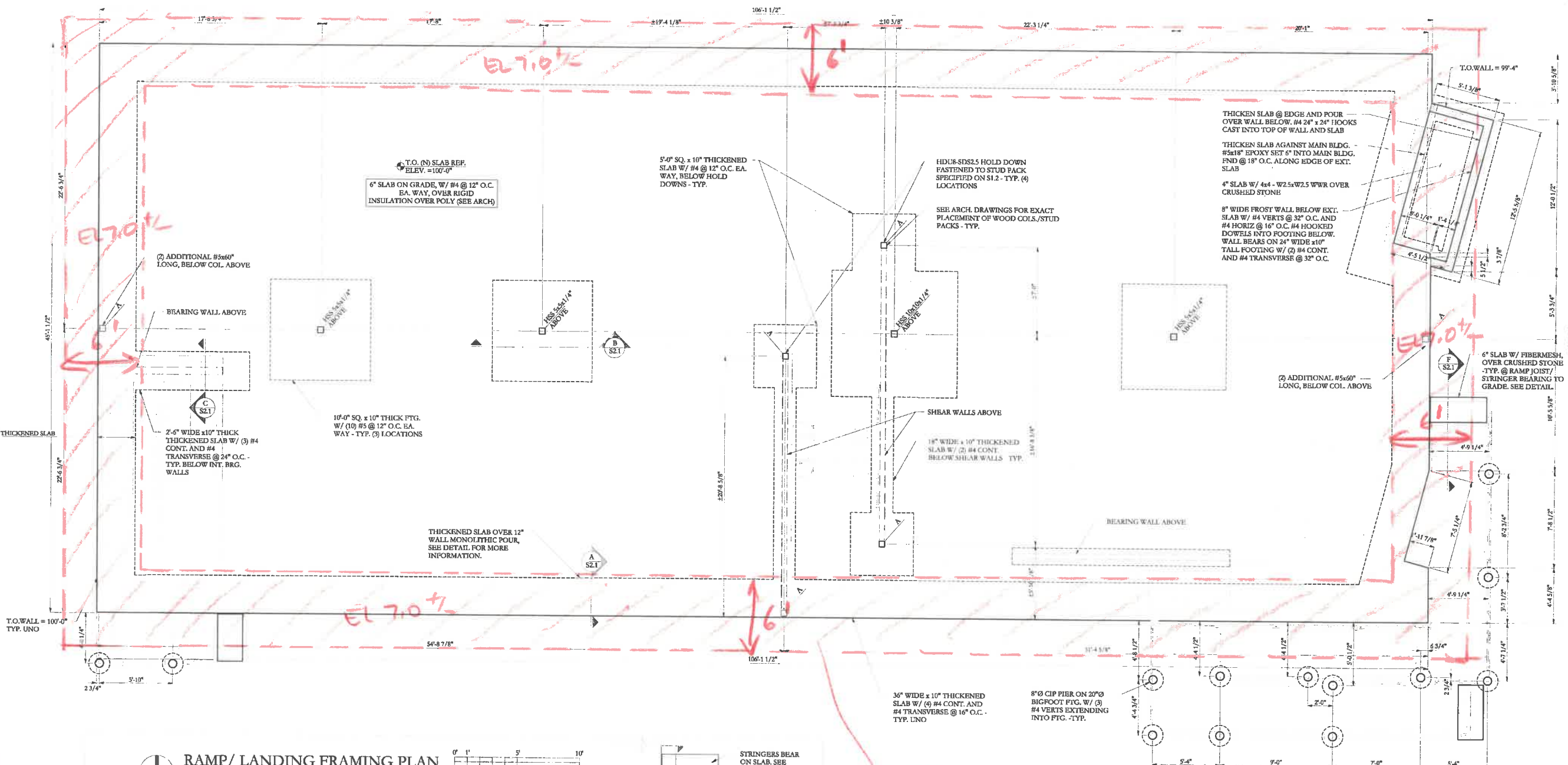
Mathew Hardison, PE
Geotechnical Engineer



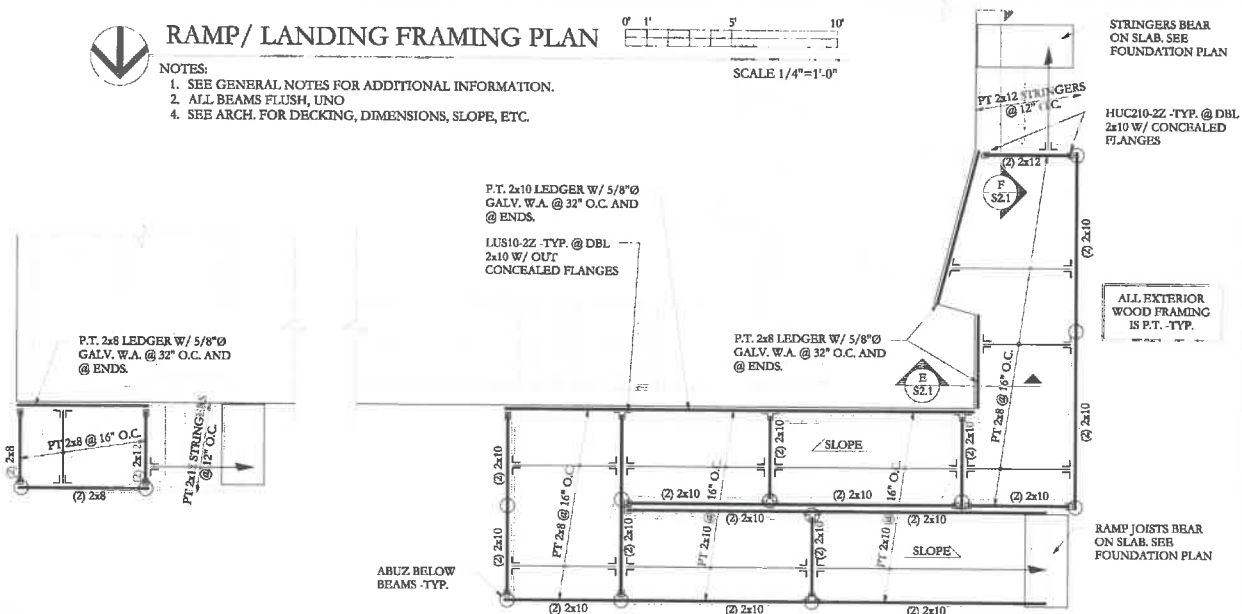
William M. Peterlein, PE
President & Principal Engineer

APPENDIX A

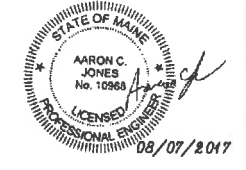
Geogrid Layout Plan and Detail



RAMP/ LANDING FRAMING PLAN
 NOTES:
 1. SEE GENERAL NOTES FOR ADDITIONAL INFORMATION.
 2. ALL BEAMS FLUSH, UNO
 4. SEE ARCH. FOR DECKING, DIMENSIONS, SLOPE, ETC.



FOUNDATION PLAN
 NOTES:
 1. SEE GENERAL NOTES FOR ADDITIONAL INFORMATION.
 2. FOOTINGS TO BEAR MIN. 4'-6\"/>



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PROJECT NO. **17-0127**
 PROJECT NAME **50 COVE STREET**
PORTLAND, ME

REVISIONS	NO.	DESCRIPTION
1	1	
2	2	
3	3	
4	4	
5	5	

DRAWN BY **BDO**
 SHEET TITLE **FOUNDATION & RAMP FRAMING PLANS**

ISSUE DATE **8/7/17**
 SHEET SCALE **AS NOTED**

FOUNDATION PLAN
S1.1

24"x24" #4 HOOK @ 32" O.C. - TYP.

ADDITIONAL REINFORCING @ THICKEN SLAB. AS SPECIFIED ON PLAN

6" S.O.G. W/ REINFORCING PER PLAN

2" TOTAL THICKNESS INSULATED SHEATHING PER ARCH. SEE PLAN FOR FASTENING. - TYP.

P.T. 2X PLATE W/ 1/2" DIA. GALV. W.A. @ 32" O.C.

16" +/- CIP WALL, W/ (2) #5 TOP & BOT. EA. FACE, #4 CONT. @ 12" O.C. EA. FACE, AND #4 VERT. @ 24" O.C. EA. FACE

STRUCTURAL FILL PER CIVIL

SEE PLAN

6" CLEAR

9.25

4" CRUSHER STONE

CRUSHED STONE, SEE CIVIL FND. DRAINAGE BY OTHERS -TYP.

TX 160

7.25

2'-0" MIN

3'-0"

3'-0"

SECTION

A
S2.1

3/4" = 1'-0"

6'-0"

