

GEOTECHNICAL ENGINEERING REPORT

**Mixed-Use Development
901 5th Street NW
Washington, DC**

SchnabelDC Reference: 15141007
August 5, 2015

DRAFT



Schnabel Engineering DC

Board of Zoning Adjustment
District of Columbia
CASE NO.19103
EXHIBIT NO.29I



4200 Wisconsin Avenue, NW, Suite LL9 / Washington, DC / 20016

August 5, 2015

Mr. R. Donahue Peebles III
TPC 5th and I Partners, LLC
c/o The Peebles Corporation
745 Fifth Avenue, Suite 1620
New York, New York 10151

Subject: Project 15141011, DRAFT Geotechnical Engineering Report, Mixed-Use Development, 901 5th Street NW, Washington, DC

Dear Mr. Peebles:

SCHNABEL ENGINEERING DC, INC. (Schnabel) is pleased to submit our draft geotechnical engineering report for this project. This study was performed in accordance with our proposal dated July 10, 2015 as authorized by you on July 30, 2015.

We appreciate the opportunity to be of service for this project. Please call us if you have any questions regarding this report.

Sincerely,

SCHNABEL ENGINEERING DC, INC.

Joan Bentel, PE
Associate

Bill Khouri, PE
Principal

JB:BK:is

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1.0 EXECUTIVE SUMMARY

This report presents the results of previous subsurface exploration conducted by Schnabel at the subject site and geotechnical engineering analysis for the proposed mixed-use development. Based on our review of the available information, we have developed the following summary of our major conclusions and recommendations. Detailed recommendations are presented in the body of the report.

- We consider spread footings suitable for support of the proposed building with a lowest level at EL +5. Footings should be founded on suitable natural soils consisting of the medium dense to very dense sand of Stratum D or the very stiff to hard clay of Stratum E. We recommend column footings and wall footings supported on these materials be designed for a net allowable soil bearing pressure of 10,000 psf and 8,000 psf, respectively. A mat foundation or drilled shafts are also feasible for support of the building; however, these systems are expected to be more expensive than the spread footing option. Additional details on these systems can be provided in the final report if requested.
- The proposed floor slabs can be supported on suitable natural soils of Strata B, C, D and E or new compacted structural fill. A modulus of subgrade reaction, k , of 150 kcf should be used in design of floor slabs.
- We evaluated the Seismic Site Class for this project according to the International Building Code (IBC) Section 1613 (2012). Considering a lowest level at EL +5, our analysis indicates Site Class D for this location. This Site Class was evaluated based on extrapolated SPT values and shear strength values from pocket penetrometer test results.
- The proposed mixed-use building will extend up to four levels below grade, and the basement walls will need to be designed to withstand lateral earth pressures. Additional details are provided herein.
- Groundwater is anticipated between EL +30 and EL +16; therefore, groundwater will be 10 ft to 25 ft above the proposed lowest level of the building (EL +5). Based on these observations, dewatering of the site during construction and subdrainage below the floor slab and behind the exterior below-grade walls will be required.
- The basement excavation will extend into water bearing soils. Therefore, dewatering will be required during construction. Also, a greater volume of water inflow into the excavation would occur. Furthermore, greater than normal trenching and sumping will be required in order to control groundwater. Additional details are provided herein.
- We also considered the use of a conventional H-pile and wood lagging excavation support system. This system is self-draining and water leakage between the lagging boards will occur.

We are providing this executive summary solely for purposes of overview. Any party that relies on this report must read the full report. This executive summary omits several details, any one of which could be very important to the proper application of the report.