APPENDIX I-5

THIRD-PARTY REVIEW OF SUBSURFACE INFORMATION

Haley & Aldrich of New York

August 4, 2020

HALEY & ALDRICH OF NEW YORK
200 Town Centre Drive
Suite 2
Rochester, NY 14623
585.359.9000

4 August 2020
File No. 131659-007

The Northwind Group, LLC
c/o Nelson, Pope & Voorhis, LLC
572 Walt Whitman Road
Melville, NY 11747

Attention: Charles J. Voorhis

Subject: Third-Party Review of Subsurface information
The Preserve at Indian Hills
Northpoint, Town of Huntington, New York

Ladies and Gentlemen:

This letter summarizes Haley & Aldrich of New York's (Haley & Aldrich's) third-party review of following documents:

- Report for "Geotechnical Engineering Services, Bluff Area Stability – Phase I", prepared by Paulus, Sokolowski, and Sartor Engineering, PC and dated 25 July 2008.
- Report for "Geotechnical Engineering Investigation and Slope Stability Analysis", prepared by PS&S and dated 14 January 2019.
- Letter for "Response to Comments from Town of Huntington", prepared by Dynamic Earth, LLC and dated 8 July 2019.
- Letter for "Review of Appendix H", prepared by AECOM and dated 23 October 2019
- Letter for "Response to Comments from AECOM", prepared by Dynamic Earth, LLC and dated 11 November 2019.
- Letter for "Review of Appendix H Response", prepared by AECOM and dated 24 March 2020.
- Report for "The Preserve at Indian Hills", prepared by Dynamic Earth and dated 3 August 2020

Proposed Project

The Northwind Group, LLC is embarking on a project to re-develop portions of the subject site for residential housing, including site work to prepare the development parcels for building construction. As part of permitting and design, analyses have been completed by others to evaluate the existing slope/scarp (known as the Broken Ground landslip) located north of the proposed development and within the northern limits of the property. The Broken Ground landslip can be identified in the field and is designated as the Coastal Erosion Hazard Line as located by Nelson, Pope & Voorhis, LLC, on 29 August 2019. The proposed residential development is currently sited 120 ft south of the Coastal Erosion Hazard Line.

Existing site grades vary from El. 80 to El. 85 (top of Broken Ground landslip) and slope downward to approximately El. 2 along the edge of property at Long Island Sound.

Subsurface Conditions

A total of three test borings were completed between 19 May 2020 and 27 May 2020 by Allied Drilling and were observed in the field by a representative from Dynamic Earth, LLC. Test borings ranged in depth below ground surface from 46 ft to 101 ft and continuous split spoon soil samples were conducted the full depth in each of the test borings. Visual observation of the collected soil samples by Dynamic Earth, LLC was conducted in the field for soil type, depth, gradation, and presence of failure surfaces.

In general, the subsurface conditions consist of the following soil strata encountered below ground surface

- Loose to medium dense Granular Fill, 1.5 to 10-ft. thick
- Glacial Deposits (silts and clays). The Glacial Deposits were not fully penetrated in the three test borings.

Groundwater

Groundwater in the area was measured during drilling of test borings and within temporary piezometers installed in test boring nos. B-2 and B-3. Measured groundwater levels at the recently completed test borings ranged from 2.9 to 6.8 ft below ground surface.

Geotechnical Laboratory Testing

In addition to continuous split spoon soil samples and visual field observation of soil samples, engineering properties of soils encountered were determined by soil samples submitted to a geotechnical testing laboratory. Samples were submitted for soil index testing (Atterberg Limits), Moisture Content, washed soil gradations, and hydrometer analyses. Unconsolidated Undrained (UU) Triaxle tests were conducted on select samples

Ground Movement Optical Survey Program and Visual Observations

A surface survey monitoring program was implemented during a two-month period (May and June 2020) to measure surface movements (vertical and horizontal) both outside the Coastal Erosion Hazard Line and within the Coastal Erosion Hazard Line. The surface monitoring program measured northward lateral movements of up to approximately 1.9 inches during the monitoring program. Measurements outside the Coastal Erosion Hazard Line were generally within the accuracy of the optical survey equipment (+/- 1/8 in.).

Visual observations of an adjacent residential property were obtained by others that documented performance of the foundation system between initial construction in 2016 and 2020. The adjacent residential structure is located south of the Coastal Erosion Hazard Line and is located in closer proximity to the Coastal Erosion Hazard Line than the proposed project (The Preserve at Indian Hills).

Slope Stability Assessment

Dynamic Earth, LLC performed slope stability analyses to assess the factor of safety of the slope near the Coastal Erosion Hazard Line under various conditions to evaluate the 120 ft setback of the property from the Coastal Erosion Hazard Line. The computer software Soilworks, by Midas, was used to perform the evaluation.

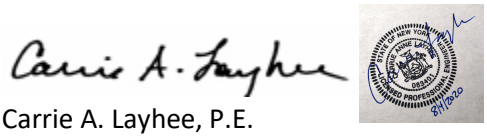
The slope stability assessment revealed factors of safety less than 1.0 for the current slope condition; consistent with the optical survey measurements collected within the Coastal Erosion Hazard Line. The potential or forced slip surfaces generated behind the 120 ft setback from the Coastal Erosion Hazard Line have factors of safety greater than 1.5. The slope stability assessment revealed factors of safety of 1.5 or greater when modeled with the proposed building surcharge, site grade raises, and a 120 ft setback from the Coastal Erosion Hazard Line. For reference, a factor of safety of 1.0 is considered to be a state of pending instability. A factor of safety less than 1.0 is an indicator that the slope would begin to slide (failure state).

Summary and Closing

Based on our review of the reports provided, the geotechnical recommendations are consistent with the current practice in the New York State area and thus the performance of the building will be as required for the intended use.

We appreciate the opportunity to provide our services to you on this project. If you have any questions or require any additional information, please call.

Sincerely yours,
HALEY & ALDRICH OF NEW YORK



Carrie A. Layhee, P.E.
Associate

Mark X. Haley, PE (MA)
Principal Consultant

\\haleyaldrich.com\share\CF\Projects\135103\Report\2020-0803_HAI_Indian Hills_ Third_Party_Review_F.docx