

October 16, 2023

Town of Clinton
P.O. Box 5194
Clinton, New Jersey 08809

Attention: Allison Witt (via e-mail – awitt@clintonnj.gov)

Reference: Clinton Moebus 34, LLC – Geotech **Supplement to Technical Report #5**
Clinton Commons – Block 14, Lot 32
Preliminary/Final Major Subdivision and Preliminary Site Plan
Town of Clinton, Hunterdon County, New Jersey

Dear Allison:

The Applicant filed additional Geotech documentation on **September 13, 2023**, prior to the last hearing on **September 19, 2023**. The new submission entitled “Geotechnical Recommendations Report” dated September 6, 2023, was prepared by ANS GEO (Thileepan Rajah PE). This document represents the Phase 2 Carbonate Study & Geotechnical Investigation and included additional borings and laboratory testing that was not part of the prior submission. In essence, this documentation was intended to replace the prior submission of a report entitled “*Geophysical Investigation Report*” that was also prepared by ANS Geo (Atulkumar N. Shah, PE), dated December 23, 2022 (REV. 4) and referenced as submission item G-8 in my Technical Report dated June 16, 2023. Since this new submission represents additional documentation that was not covered under comments in my Technical Report #5, I am **supplementing the refenced sections Section of my prior report that relate to the Geophysical aspects of the applicant’s proposal as follows:**

• **Section 2 - Site Grading & Carbonic Rock (From Tech Rpt #5 Page #16 of 30)**

- A. There were several discussions with ANS Geo relating to the earthwork elements of the site grading and the underlying carbonate rock. Soil laboratory testing was performed by ANS Geo to provide additional soil data and support their recommendations related to the reuse and compaction of the on-site soils. This soil data was attached to their revised Geotechnical Recommendations Report. My supplemental comments relating to this aspect of their new submission are as follows:
1. The results of lab testing (sieve analysis, atterberg limits, rock strength and proctor) were included in the Geotechnical Recommendations Report. Due to the variation in soil types identified in the lab testing (clays to clayey sands), additional modified proctor testing will be required. One proctor was performed and the max dry density of 110.8 would be representative of a fine-grained soil, but too low for the coarse-grained sandy soils present on-site.

OFFICE LOCATIONS

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Bethlehem, PA
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Hillsborough, NJ
908-359-8291

Mt. Arlington, NJ
862-284-1100

Phillipsburg, NJ
908-454-3080

Doylestown, PA
215-345-1876

Pottstown, PA
610-323-4040

2. Disposal of unsuitable material not addressed. Section 9.1.1 (Soil and Bedrock Disposal) does not include a discussion of unsuitable material but does discuss structural vs general fill.
3. Report does not clearly define structural fill or which structures, improvements, roads or utilities where it's use will be necessary.
4. Report Section 9.4 (Backfilling and Re-use of Native Soils) indicates that none of the on-site soils can be used as structural fill since they contain more than 10% fines and will only qualify as general fill. Additionally, Section 8 (Foundation Recommendations) is requiring that all footings be over excavated by 12 inches and replaced with crushed stone or imported structural fill. The combination of these 2 items will result in additional disturbance and the need to remove/import larger quantities of soils from/to the site than originally anticipated. As originally requested, the magnitude of the Impact resulting from this recommendation should be addressed.
5. Clarification should be provided as to why specifications for import of structural fill is discussed in 2 separate Sections. Section 9.3 (Subgrade Preparation and Compaction) and import of general fill provided in Section 9.4 (Backfilling and Re-use of Native Soils).

- B. Part of the geotechnical investigation included drilling of additional soil borings on the site.
1. The intended locations of the Borings included one adjacent to Central Avenue (B-20) that would document the location of rock in in the area of the site where the applicant is proposing a deep cut within the limited ROW to install the gravity sewer line serving this project. However, this boring was moved approximately 150-foot away from the intended location and does not provide the requested information. The Engineer should address why this modification was made.
 2. There is a concern regarding shallow bedrock in the area of Central Avenue and challenge of excavating a deep trench within the limited ROW. Given the close proximity of the adjoining homes and driveways the report should address the means and methods that could be used to install this line as planned. Currently Section 9.1.1 (Excavation of Rock) only offers general recommendations for rock removal.

- **Section C - Wall Design – (From Tech Rpt #5 Page #17)**

- C. A critical part of the development of this site is the retaining wall required for the stormwater basin. Recommendations and soil properties for such retaining walls are typically included in the Geotechnical Report for use by the wall designer. The Phase 2 Report (Table 8) only provides a general soil profile for the site. While Section 8.2 (Retaining Wall Design) provides additional recommendations a Global stability analysis will be required as part of the final design of this basin retaining wall.

- **Carbonate Area District: Phase II Carbonate Area District Report (From Tech Rpt #5 Page #18 of 30)- & Geotechnical Investigations (From page #19)**

- D. The original submission of the Geophysical Investigation Report was deemed incomplete since the subsurface conditions at several of the proposed commercial and residential structures were not investigated. Additionally, the prior report was limited to performing a geologic investigation and presenting the data without including an evaluation, reaching conclusions, or offering recommendations related to the development of the site. Accordingly, the current Phase 2 Report includes additional borings that were performed at the structures not previously investigated and the findings discussed in the ANS Geo's **Geotechnical Recommendations Report**. My comments relative to this aspect of the new submission are as follows:
1. The Report included performing additional borings for the habitable structures and Center Ave sewer however, it does not bring together all the subsurface data and only focuses on the borings performed in August 2023 and May to September 2022. The summary of the ANS Geo borings is presented in 2 separate tables and different sections of the report as Table 1 in Section 3.1 and Table 2 in Section 4.2. The Report does not include, reference or evaluate any of the percussion probes or soil logs previously completed by E&LP.
 2. The Report does not provide conclusions or evaluation of the site's karst conditions. Section 7 (Risk Evaluation and Conclusions) from the Geophysical Investigation report (REV 4) attached as Appendix F touches on this subject however, this section was prepared prior to the completion of the additional borings. Accordingly, the Report should be updated to reflect the additional data and insight provided by the additional borings and soil laboratory testing.
 3. Section 9.3 (Subgrade Preparation and Compaction) does not include proof rolling the subgrade. This section mentions inspecting below the fabric for unsatisfactory conditions but does not include specifying what type of inspecting or testing shall be performed. Typically, in large areas (building slabs, paved areas etc.) the most common method for determining subgrade soil suitability and stability is to proof roll the subgrade with a large roller or loaded triaxle prior to the placement of any fabric. Additionally, the Report does not mention probing of the footing subgrade for soft soil or possible voids as is standard practice for karst sites. ANS Geo shall expand this section to include specific testing used to identify unsuitable material and type of remediation.
- E. As noted above, additional borings were performed by ANS Geo since the subsurface conditions at several of the proposed commercial and residential structures were not investigated. As part of the submission, we requested that a spreadsheet be included that listed the proposed structures, their square footage, the number of borings that had been performed and number of borings proposed.
1. ANS Geo provided a spreadsheet with the proposed structures prior to testing but did not incorporate this item into the Geotechnical report. One of the purposes of the report was to bring together all the information and data submitted. Report shall include this item and previously submitted spreadsheet updated based on the results of the August 2023 test borings.

- **2-Stormwater Management – Design Methodology- Groundwater Recharge (Tech Rpt #5- page 21)**

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- F. ANS Geo had previously recommended that the proposed stormwater basin be lined so that it would not infiltrate however that recommendation was in conflicted with the design of the stormwater basin. ANS Geo responded by stating that the basin was being designed by others to infiltrate in smaller volume and addressed infiltration in their Geotechnical Recommendations Report. Clarification of this recommendation is required to address the following:
1. The current recommendation is for infiltration to be less than existing conditions. which is not consistent with the Towns Stormwater Control regulations.
 2. The current SWM Basin has been designed to address stormwater infiltration. Accordingly, ANS Geo should review the current plan and offer any recommendations related to issues associated with any potential impact on the underlying karst formations.
- G. ANS Geo had previously recommended that the applicant “be prepared to mitigate any impacts to the basin” but stated “construction and operation of the basin will not impact Geotechnical Recommendations Report. Clarification of the conflicting statement was requested.
1. Geotechnical Report Section 7 (Stormwater Basin Recommendations) does not contain any references to mitigation of impacts to the basin or the basin not impacting karst formations. Section 9.6 (Karst Mitigation Plan) does not mention the stormwater basin or discuss any specifics with regard to mitigation. ANS Geo shall provide an explanation as to why these items were withdrawn and not incorporated into the Geotechnical report.

Please contact me if you have any questions.

Very Truly Yours,



Robert J. Clerico, P.E.

Board Engineer

RJC: L-5548083-231016- Geotech **Supplement** Tech Rpt 5.docx

CC: Board Members (email)
Board Attorney – Kathryn Razin Esq. (email)
Board Planner – Jim Kyle (email)
Applicant’s Attorney – Howard J. Apgar, Esq. (email)
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