TOWN OF NEWBURGH
PLANNING BOARD
TECHNICAL REVIEW COMMENTS

PROJECT NAME:	**HADID CLEARING & GRADING APPLICATION-34 SUSAN DR**
PROJECT NO.:	**2021-10**
PROJECT LOCATION:	**SECTION 46, BLOCK 5, LOT 21**
REVIEW DATE:	**29 OCTOBER 2021**
MEETING DATE:	**4 NOVEMBER 2021**
PROJECT REPRESENTATIVE:	**ENGINEERING & SURVEYING PROPERTIES**

1. The Applicant's representative has addressed comments from the Geotechnical Consultant.

2. The application is before the Planning Board before a Public Hearing under Chapter 83, Clearing and Grading.

3. The plan identifies relocation of the subsurface sanitary sewer disposal system. A permit from the Town of Newburgh for construction of the sanitary sewer disposal system is required.

4. The Planning Board should discuss the need for security for the clearing and grading application. Typically the Town of Newburgh requires posting of $3,500 per acre security.

5. Material is proposed to be excavated from the site under the current proposal. The Planning Board may wish to obtain additional security for potential damage to the roadway. The Superintendent's comments regarding this should be received.

6. Respectfully submitted,

MHE Engineering, D.P.C.

Patrick J. Hines
Principal

PJH/kbw

NEW YORK OFFICE
33 Airport Center Drive, Suite 202, New Windsor, NY 12553
845-567-3100 | F: 845-567-3232 | mheny@mhepc.com

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August 5, 2021 (*Revised September 29, 2021)*

Mr. Patrick J. Hines
Principal – McGoey, Hauser and Edsall Consulting Engineers, D.P.C.
33 Airport Center Drive, Suite 202
New Windsor, New York 12553

Re: Revised Letter Report – Geotechnical Investigation
34 Susan Drive
Newburgh, New York

Dear Mr. Hines:

In accordance with our proposal, this Letter Report presents the results of the field investigation by Geotechnical Engineering Services, P.C. (GES) and recommendations concerning the backfill surrounding the partially completed pool, at the rear of the existing residence at 34 Susan Drive, in Newburgh, NY. This report has been updated in response to a September 24, 2021 Letter by Daniel G. Loucks, P.E., which provided comments on GES' August 5, 2021 Letter.

The project site is currently occupied by a single-family residence, front yard, and recently backfilled and raised area for a partially completed pool, at the rear (east side) of the house. The property is bordered to the west by Susan Drive, to the north by an existing single-family residence, driveway, pool, and rear yard at 36 Susan Drive, to the east by woods, and to the south by a one-to-two-story single family residence, front yard, and rear deck at 32 Susan Drive. No New York City Transit Authority (TA) rail lines are located within 200 feet of the partially completed pool.

Based on our investigation and recent discussions between your office and Mr. Ziad H. Maad, P.E., D. GE., of GES, we understand the previous grades at the backyard of 34 Susan Drive used to slope up, from east to west, from about el. +124 to +147. The existing first-floor elevation of the residence at 34 Susan Drive is at el. +155.7. We understand a pool was partially constructed, with the top elevation at about el. +146.7. A pool deck was planned to surround the pool, at about el. +146 to +147. Backfill was also placed to surround the pool, at a steep slope, extending down to the east and south, and may currently be obstructing the view, looking north, of the Hudson River from 32 Susan Drive, to the south. The imported fill slopes down from about el. +146 to between +125 and +131, along the southern property line with 32 Susan Drive, or 15 to 20-feet of imported fill.

Therefore, based on our discussions, we performed a geotechnical investigation, consisting of five (5) geotechnical borings within the imported fill, to the south and east of the proposed pool. The purpose for our investigation was to determine the apparent density and gradation of the imported fill material, and provide recommendations for re-grading the slope, to provide a restored view of the Hudson River from 32 Susan Drive, help complete the project at 34 Susan Drive, and provide a response to the comments made to your office, from the Town of Newburgh Planning Board. This report also includes comments on the local and global slope stability of the property.

6 Bayberry Road
Elmsford, NY 10523
914-592-4616
914-592-0416 (Fax)

GES did not perform any surveying and solely relied on the information contained in the Property Survey by Steven P. Drabick, P.L.S., P.C., provided to us, dated August 4, 2021. All elevations referenced in this survey and Letter Report reference the North American Vertical Datum of 1988 (NAVD88), and are approximate. All depths referenced in this Report are measured from surrounding ground surface.

SUMMARY OF FINDINGS

General:

Five (5) geotechnical borings, denoted as Borings B-1 to B-5, were performed in about the locations shown on the attached Boring Location Plan in Figure 1. Borings B-1, B-2, B-3, and B-5 were performed along the eastern edge of the imported fill, while Boring B-4 was performed along the southern edge of the fill layer. The borings were performed by Municipal Testing Laboratory (MTL) of Hauppauge, NY using a GeoProbe 3100GT Truck-Mounted Drill Rig from July 19 to 20, 2021. Boring locations were selected in the field by GES, and were continuously inspected by Mr. Michael Torino, P.E. of GES. Typed boring logs are attached to this Letter Report, as are laboratory test results, discussed below.

Methodology:

The borings were drilled utilizing the mud-rotary drilling technique with a 3-7/8-inch diameter tri-cone roller bit and 4-inch diameter steel casing to stabilize each boring. Soil samples were obtained using techniques and equipment in general accordance with the American Society for Testing and Materials (ASTM) Standard Specification D1586-Standard Penetration Test (SPT). The SPT consists of driving a 2-inch O.D. split-spoon sampler with repeated blows of a 140-lb hammer free falling a distance of 30-inches. The standard penetration resistance, or N-Value, is determined as the number of blows required to advance the sampler the middle 12-inches of a 24-inch penetration. The hammer used was an automatic hammer. The automatic hammer operates with about a 90% efficiency, whereas the manual (cathead and rope) hammer operates at about a 60% efficiency. This means that the blow counts that are reported on the boring logs, where the automatic hammer was used, are about 2/3 of the values that would be reported if a conventional hammer had been used. A correction factor of 1.33 is generally used to convert the N-Values from the automatic hammer to the normalized N-Value (N60).

Split spoon sampling was performed continuously through the fill to natural sand, for all borings. The recovered split-spoon soil samples were labeled with the project name, boring number, sample number, depth of sample, SPT blow counts and length of recovery. Soil samples were placed in jars following the completion of sampler advancement. All samples were taken to MTL's office for storage. Boring logs and laboratory test results are attached to this Letter Report:

- Boring B-1 (el. ± 146.5) was drilled near the southeastern corner of the pool, to about 20 feet (about el. +126.5). The bottom of the fill was measured at about 14 feet (about el. +132.5).
- Boring B-2 (el. ± 146.5) was drilled near the eastern edge of the pool, to about 20 feet (about el. +126.5). The bottom of the fill was measured at about 14 feet (about el. +132.5).

- Boring B-3 (el. ± 146.5) was drilled near the northeastern corner of the pool, to about 20 feet (about el. +126.5). The bottom of the fill was measured at about 13 feet (about el. +133.5).

- Boring B-4 (el. ± 146) was drilled near the southwestern corner of the pool, to about 20 feet (about el. +126). The bottom of the fill was measured to be at 10 feet (about el. +136).

- Boring B-5 (el. ± 146.5) was drilled near the southeastern corner of the pool, to about 27 feet (about el. +119.5). Continuous sampling was performed to 22 feet (about el. +124.5). The bottom of the fill was measured to be at 14 feet (about el. +132.5).

Laboratory Testing:

Upon completion of the geotechnical investigation, GES performed an in-depth laboratory testing program on five (5) recovered split spoon samples, which include Sieve Analysis, as well as re-classification and verification of sample descriptions. Four (4) of the samples were taken from the imported fill, while one (1) sample was taken of the underlying natural sand. Laboratory testing was performed by TerraSense Laboratory in Totowa, New Jersey. Test results are attached to this Letter Report, and shown on the typed boring logs.

A Sieve Analysis (ASTM D422) is a quantitative determination of the distribution of particle sizes within soils. Granular portions of the soil are retained on sieves after mechanical shaking, while silt and clay portions pass through the No. 200 Sieve.

FINDINGS

The following general descriptions of the subsurface strata are based on our interpretations of the results of the field investigation. All boring logs and laboratory test data has been attached to this report. Please note that study of groundwater levels at this site were not part of this investigation, and no discussion of groundwater levels has been included below. Blow counts have not been corrected for the use of the automatic hammer:

Stratum 1 – Fill: The Fill can be described as a medium dense, tan and brown, medium to fine sand, with varying amounts of gravel, silt, brick, concrete, glass, and wood fragments, and roots, and was encountered at grade in all borings. The Fill was found to extend to between 10 and 14 feet below existing grade in the borings, to about el. +132.5 to +136, depending on the boring location. Generally, less Fill was encountered closer to the existing residence. SPT N-Values within the Fill generally ranged from about 1 to 45 blows per foot (bpf) with an average of about 15 bpf. Laboratory test results of the four (4) Fill samples generally indicate that the Water Content ranged from about 7 to 10 percent, while the Fines Content of Stratum 1 generally ranged from 16 to 35 percent, indicative of sand with some silt and/or clay.

Stratum 2 – Natural Sand: Encountered below the Fill in all borings, this stratum generally consists of medium dense to dense, brown and dark brown medium to fine sand, with varying amounts of silt, clay and gravel. All borings were terminated in Stratum 2 after extending between 6 and 13 feet into the stratum, or to between about el. +119.5 to +126.5. A thin clay layer was encountered in the final 6 inches of a sample at 27 feet in Boring B-2. The SPT N-Values ranged from 6 to 51 bpf with an average of about 30 bpf, indicative of medium dense sand. Laboratory

test results of the one (1) sample, taken from Boring B-1, indicated the Water Content was about 35 percent, while the Fines Content was about 35 percent. GES recommends that caution is exercised if extrapolating data points based on a single lab test sample from Stratum 2.

RECOMMENDATIONS

Based on the results of this geotechnical investigation, the imported Fill material currently on-site appears to generally consist of medium dense sand, with varying amounts of gravel, silt, brick, concrete, glass, and wood fragments, and trace amounts of roots. No organic clay or peat were encountered within the imported fill layer.

Currently, the imported fill material has been graded to be relatively flat in the area of the proposed pool to about +146 to +147. The imported fill slopes down to between +125 and +131, along the southern property line with 32 Susan Drive, and to the east, or 15 to 20 feet of imported fill.

Based on our most recent discussions, and the investigation performed, we recommend the following:

- The existing slope lining the east and south sides of the partially completed pool should be re-graded, as part of a revised landscaping plan, to be completed at a later date by others.

- The pool deck should be designed such that it is no wider than 20 feet to the east and south sides of the pool, this will provide enough room to build the desired slope. There is no limitation on pool deck width to the west and to the north.

- We recommend that the imported fill be re-graded such that the bottom of the slope starts from about el. +124, and sloped up towards the pool at a maximum slope of two (2) feet horizontal for every one (1) foot vertical, i.e., at a 2H:1V slope, or flatter, and compacted. We understand the top elevation of the pool would be about el. +146 to +147.

- We recommend that re-grading of the slope be performed as follows:
    - In areas that must be cut, we recommend that the excavation be cut at 2H:1V, or flatter, and compacted as noted above, under continuous inspection by an Engineer.
    - In areas that must be filled in, to create a flatter slope, we recommend the slope be cut, and benched at a 2H:1V slope, and remove any deleterious materials, such as vegetation, silt/clay, trash, wood, large cobbles, or other materials that cannot be compacted or may degrade over time. We recommend that clean on-site fill be placed back onto these areas in maximum 12-inch-thick loose lifts, and compacted to a minimum of 95% of the maximum dry density, until reaching the final desired grade.
- On-site material may be used for re-grading the slope, provided the excavation and fill placement work is performed under continuous inspection by an Engineer. We recommend compaction of the fill be performed using a minimum of six (6) passes of a dual-drum vibratory roller, or approved equivalent, in order to lock in the fill placed, with the in-situ material below it. Any material that is unsuitable for use as backfill, or appears to be

pumping, or otherwise damaged during construction activities or storm events, must be replaced and re-compacted.

- We recommend that the existing grass and other vegetation that currently line the east and south sides be removed and replaced, following re-grading of the fill along these sides.
- GES performed a slope stability analysis for the existing imported fill slope, as well as a proposed final condition, with consideration of the steep slope (up to 1:1) beyond the limits of the area where fill was placed, i.e., towards the Hudson River. Both local and global slope stability were analyzed for the slope of imported fill itself, and the entire slope, leading to the on-grade rail tracks below, to the east, as well as the proposed finished condition of a finished landscaped slope at 2H:1V. The calculated Factors of Safety exceed a minimum Factor of Safety of 1.5, as recommended for permanent slopes by the New York State Department of Transportation (NYSDOT). **GES is of the opinion that the local and global slope stability are not a problem at this site, based on our analyses.**
- Based on the results of the local and global slope stability analyses, we are of the opinion that if the fill is re-graded properly, along with appropriate landscaping with trees/grass, that the construction of a retaining wall will not be required, and the view of the Hudson River will be restored for the south adjacent neighbor at 32 Susan Drive. Please note that if erosion of soil begins to occur during construction, the damage done to the slope will be repaired immediately.

CLOSING

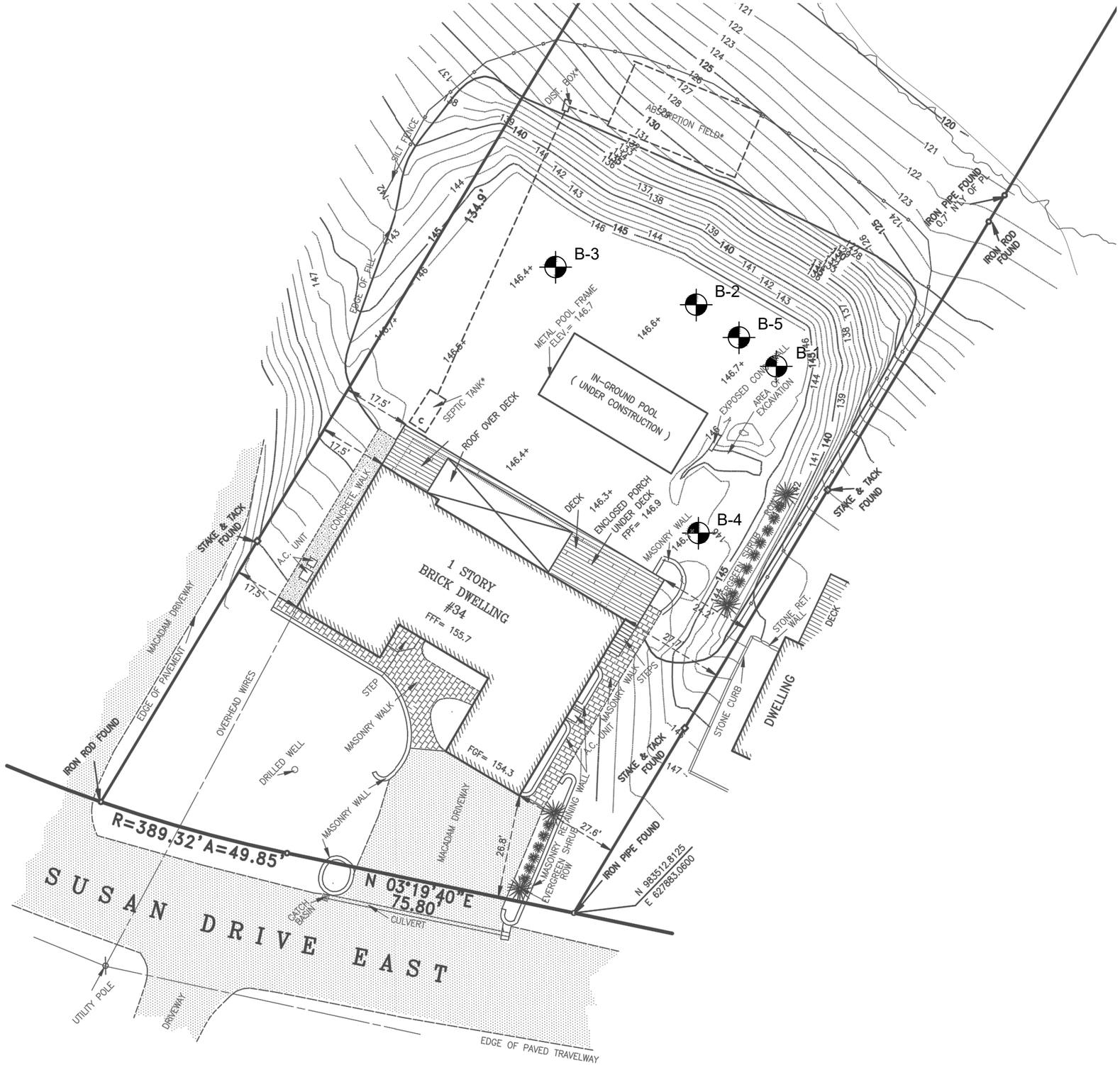
Please do not hesitate to reach out to us with any questions regarding our recommendations. Thank you for this great opportunity to work with you on this interesting project. If you have any questions or would like to discuss the contents of this Letter Report, please don't hesitate to call me in the office at 914-592-4616 or on my mobile at 973-727-7329.

Very truly yours,
Geotechnical Engineering Services, P.C.

Ziad H. Maad, P.E., D. GE.

Attachments:

- Boring Location Plan (Figure 1)
- Boring Logs (Borings B-1 to B-5)
- Lab Testing Results



LEGEND

B-1 — 2021 GES Boring

PROFESSIONAL ENGINEER

No.	DESCRIPTION	DATE	BY

GES
GEOTECHNICAL ENGINEERING SERVICES, P.C.
6 BAYBERRY ROAD
ELMSFORD, NEW YORK 10523
PHONE: 914-592-4616 FAX: 914-592-0416

34 SUSAN DRIVE
NEWBURGH, NY

BLOCK: LOT: ZONE: MAP:

BORING
LOCATION PLAN

PROJECT #:	2021069
SCALE:	NTS
DATE:	08/05/2021
DRAWING NO:	B-100.00
SHEET NO:	1 OF 1

Log of Boring B-1

Project: 34 Susan Drive (Hadid's Residence)			**Project Number: 2021069**
Location: Susan Drive, Newburgh, NY			
Date(s) Drilled: **7/19/21 - 7/19/21**	Inspector: **Mike Torino, P.E.**		Coordinates: **North: East:**
Drilling Agency: **Municipal Testing Laboratories**	Foreman: **Dave Johnson**		Approximate Surface Elevation (feet): **± 146.5 (NAVD 88)**
Drilling Equipment: **Geoprobe 3100GT (Truck Rig)**	Drilling Method: **Mud Rotary**		Completion Depth (feet): **20.0** Rock Depth (feet): **NA**
Casing Size/Type: **4" Steel**	Size/Type of Bit: **3-7/8" Roller Bit**		Sampler Type(s): **2" Split Spoon**
Groundwater Level and Date Measured: **NA NA**	Hammer Wt/Drop: **140/30" (Auto)**	Casing Hammer Wt/Drop: **140/30" (Auto)**	Size/Type of Core Barrel: **NA**
Boring Location: **See Boring Location Plan (Figure 1)**			No. of Samples: **Dist.: 10 Undist.: 0 Core (ft): 0**

Depth, feet	Soil Samples: Type, Number	Recov. (ft)	Pen. Resist. (blows/6 in)	Rock Coring: Run Number	Recov. (%)	RQD (%)	Graphic Log	DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont.(%)	% Fines	REMARKS
0	S-1	0.5	5 9 8 6					FILL: Brown Silty medium to fine Sand, trace Gravel, Roots					S-1: Dry
	S-2	0.8	4 9 8 8					FILL: Same as Above					S-2: Dry
5	S-3	1.0	7 7 5 6					FILL: Tan Silty medium to fine Sand, some fine Gravel					S-3: Dry
	S-4	0.0	3 5 7 4					FILL: No Recovery. Presumed Same as Above					S-4: Dry
	S-5	1.2	8 9 7 8					FILL: Brown Clayey medium to fine Sand, some Gravel, trace Brick and Concrete fragments					S-5: Dry Cased to 10 ft
10	S-6	0.2	20 13 10 7					FILL: Brown Gravelly medium to fine Sand, some Silt					S-6: Moist
	S-7	0.7	3 5 5 5					FILL: Brown Silty medium to fine Sand, trace Gravel, Roots					S-7: Dry
15	S-8	0.9	6 9 8 9					NATURAL: Brown Silty medium to fine Sand (SM)					S-8: Dry Cased to 15 ft
	S-9	1.0	4 5 5 5					Same as Above (SM)					S-9: Dry
	S-10	1.5	10 13 14 17					Same as Above (SM)			18	36	S-10: Dry
20								Boring Completed to 20 ft Below Ground Surface. Boring Backfilled with Cuttings upon completion					
25													

Template: GENERAL GES LOGO Proj ID: 34 SUSAN DRIVE (2).GPJ

GES P.C.

Printed: 8/5/21

Log of Boring B-2

Project: 34 Susan Drive (Hadid's Residence)			**Project Number: 2021069**
Location: Susan Drive, Newburgh, NY			
Date(s) Drilled: **7/19/21 - 7/19/21**	Inspector: **Mike Torino, P.E.**		Coordinates: **North: East:**
Drilling Agency: **Municipal Testing Laboratories**	Foreman: **Dave Johnson**		Approximate Surface Elevation (feet): **± 146.5 (NAVD 88)**
Drilling Equipment: **Geoprobe 3100GT (Truck Rig)**	Drilling Method: **Mud Rotary**		Completion Depth (feet): **20.0** Rock Depth (feet): **NA**
Casing Size/Type: **4" Steel**	Size/Type of Bit: **3-7/8" Roller Bit**		Sampler Type(s): **2" Split Spoon**
Groundwater Level and Date Measured: **NA NA**	Hammer Wt/Drop: **140/30" (Auto)**	Casing Hammer Wt/Drop: **140/30" (Auto)**	Size/Type of Core Barrel: **NA**
Boring Location: **See Boring Location Plan (Figure 1)**			No. of Samples: **Dist.: 10 Undist.: 0 Core (ft): 0**

Depth, feet	Soil Samples: Type, Number	Recov. (ft)	Pen. Resist. (blows/6 in)	Rock Coring: Run Number	Recov. (%)	RQD (%)	Graphic Log	DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont.(%)	% Fines	REMARKS
0	S-1	0.9	5 6 6 5					FILL: Brown Silty medium to fine Sand, some Gravel, trace Concrete and Glass fragments					S-1: Dry
	S-2	0.5	9 9 9 8					FILL: Brown Silty medium to fine Sand, some Gravel, trace Concrete and Wood fragments			9	35	S-2: Dry
5	S-3	0.4	7 8 6 5					FILL: Brown Clayey Gravel, some medium to fine Sand, trace Brick fragments, Roots					S-3: Dry
	S-4	0.3	4 4 5 5					FILL: Same as Above					S-4: Dry
	S-5	0.5	5 5 13 17					FILL: Brown Clayey medium to fine Sand, some Gravel, trace Brick and Glass fragments, Roots					S-5: Dry Cased to 10 ft
10	S-6	0.1	17 12 10 10					FILL: Gray Gravel, trace medium to fine Sand					S-6: Wet
	S-7	0.5	7 15 30 13					FILL: Brown medium to fine Sand, some Gravel, Silt, trace Roots					S-7: Dry. Gravel stuck in tip of spoon Water loss while drilling
15	S-8	1.5	3 3 3 5					NATURAL: Brown Silty medium to fine Sand (SM)					S-8: Dry Cased to 15 ft
	S-9	1.8	8 10 9 10					Brown coarse to fine Sand, trace Silt (SP)					S-9: Dry
	S-10a	1.0	15 27					Same as Above (SP)					S-10: Moist
	S-10b	0.6	15 22					Brown fine Sandy Clay, some Gravel (CL)					
20								Boring Completed to 20 ft Below Ground Surface. Boring Backfilled with Cuttings upon completion					
25													

Template: GENERAL GES LOGO Proj ID: 34 SUSAN DRIVE (2).GPJ

GES P.C.

Printed: 8/5/21

Log of Boring B-3

Project: 34 Susan Drive (Hadid's Residence)			**Project Number: 2021069**
Location: Susan Drive, Newburgh, NY			
Date(s) Drilled: **7/19/21 - 7/19/21**	Inspector: **Mike Torino, P.E.**		Coordinates: **North: East:**
Drilling Agency: **Municipal Testing Laboratories**	Foreman: **Dave Johnson**		Approximate Surface Elevation (feet): **± 146.5 (NAVD 88)**
Drilling Equipment: **Geoprobe 3100GT (Truck Rig)**	Drilling Method: **Mud Rotary**		Completion Depth (feet): **20.0** / Rock Depth (feet): **NA**
Casing Size/Type: **4" Steel**	Size/Type of Bit: **3-7/8" Roller Bit**		Sampler Type(s): **2" & 3" Split Spoons**
Groundwater Level and Date Measured: **NA / NA**	Hammer Wt/Drop: **140/30" (Auto)**	Casing Hammer Wt/Drop: **140/30" (Auto)**	Size/Type of Core Barrel: **NA**
Boring Location: **See Boring Location Plan (Figure 1)**			No. of Samples: **Dist.: 10 Undist.: 0 Core (ft): 0**

Depth, feet	Soil Samples: Type, Number	Recov. (ft)	Pen. Resist. (blows/6 in)	Rock Coring: Run Number	Recov. (%)	RQD (%)	Graphic Log	DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont.(%)	% Fines	REMARKS
0	S-1	1.0	2 4 6 5					FILL: Brown Silty medium to fine Sand, some Gravel, trace Concrete fragments					S-1: Dry
	S-2	0.3	5 4 4 6					FILL: Same as Above					S-2: Dry
5	S-3	0.0	9 6 4 4					FILL: No Recovery. See Remarks. Brown Clayey Gravel, some medium to fine Sand, trace Wood and Concrete fragments.			10	27	Cased to 6 ft No Recovery with 2" Split Spoon 3" Split Spoon used for S-3
	S-4	0.3	WOH/12" 1 2					FILL: Same as Above					S-4: Moist
	S-5	0.2	3 3 3 4					FILL: Brown Clayey medium to fine Sand, some Gravel, trace Wood, Brick, and Concrete fragments					S-5: Moist Cased to 10 ft
10	S-6	0.5	4 9 11 6					FILL: Brown medium to fine Sand, some Silt, trace Gravel, Concrete fragments					S-6: Dry
	S-7a	1.0	6 11					FILL: Brown Silty medium to fine Sand, some Gravel					S-7: Dry
	S-7b	0.5	13 16					NATURAL: Brown Silty medium to fine Sand (SM)					
15	S-8	1.0	5 3 9 7					Brown medium to fine Sand, trace Silt, Gravel (SP-SM)					S-8: Dry
	S-9	1.4	7 13 27 22					Brown Silty medium to fine Sand, some Gravel (SM)					S-9: Dry
	S-10a	1.5	12 17 29					Brown Clayey medium to fine Sand, some Gravel (SC)					S-10a: Moist
	S-10b	0.3	40					Brown Silty medium to fine Sand (SM)					S-10b: Dry
20								Boring Completed to 20 ft Below Ground Surface. Boring Backfilled with Cuttings upon completion					
25													

Template: GENERAL GES LOGO Proj ID: 34 SUSAN DRIVE (2).GPJ

GES P.C.

Printed: 8/5/21

Log of Boring B-4

Project: 34 Susan Drive (Hadid's Residence)			**Project Number: 2021069**
Location: Susan Drive, Newburgh, NY			
Date(s) Drilled: **7/20/21 - 7/20/21**	Inspector: **Mike Torino, P.E.**		Coordinates: **North: East:**
Drilling Agency: **Municipal Testing Laboratories**	Foreman: **Dave Johnson**		Approximate Surface Elevation (feet): **± 146.0 (NAVD 88)**
Drilling Equipment: **Geoprobe 3100GT (Truck Rig)**	Drilling Method: **Mud Rotary**		Completion Depth (feet): **20.0** Rock Depth (feet): **NA**
Casing Size/Type: **4" Steel**	Size/Type of Bit: **3-7/8" Roller Bit**		Sampler Type(s): **2" Split Spoon**
Groundwater Level and Date Measured: **NA NA**	Hammer Wt/Drop: **140/30" (Auto)**	Casing Hammer Wt/Drop: **140/30" (Auto)**	Size/Type of Core Barrel: **NA**
Boring Location: **See Boring Location Plan (Figure 1)**			No. of Samples: **Dist.: 10 Undist.: 0 Core (ft): 0**

Depth, feet	Soil Samples: Type, Number	Recov. (ft)	Pen. Resist. (blows/6 in)	Rock Coring: Run Number	Recov. (%)	RQD (%)	Graphic Log	DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont.(%)	% Fines	REMARKS
0	S-1	0.9	4 6 5 4					FILL: Brown Silty medium to fine Sand, some Gravel, trace Brick fragments and Roots					S-1: Dry
	S-2	0.5	3 5 6 8					FILL: Brown Silty medium to fine Sand, some Gravel, trace Roots					S-2: Dry
5	S-3	1.2	8 9 7 6					FILL: Brown Clayey Gravel, some medium to fine Sand, trace Roots, Brick and Wood fragments					S-3: Dry
	S-4	0.6	11 10 11 13					FILL: Brown Clayey Gravel, some medium to fine Sand					S-4: Dry
	S-5	1.4	9 18 19 20					FILL: Brown Clayey Gravel, some medium to fine Sand, trace Brick fragments			11	16	S-5: Dry Cased to 10 ft
10	S-6	1.4	11 12 11 11					NATURAL: Brown Gravelly medium to fine Sand, some Clay (SC)					S-6: Moist
	S-7a	1.5	12 16 20					Brown Clayey medium to fine Sand (SC)					S-7: Moist
	S-7b	0.3	22					Brown Silty coarse to fine Sand (SM)					
15	S-8	1.8	17 18 19 30					Brown Clayey medium to fine Sand, some Gravel (SC)					S-8: Dry Cased to 16 ft
	S-9	1.0	10 22 29 22					Same as Above (SC)					S-9: Dry
	S-10	1.0	13 20 25 58					Same as Above (SC)					S-10: Dry
20								Boring Completed to 20 ft Below Ground Surface. Boring Backfilled with Cuttings upon completion					
25													

Template: GENERAL GES LOGO Proj ID: 34 SUSAN DRIVE (2).GPJ

GES P.C.

Printed: 8/5/21

Log of Boring B-5

Project: 34 Susan Drive (Hadid's Residence)			**Project Number: 2021069**
Location: Susan Drive, Newburgh, NY			
Date(s) Drilled: **7/20/21 - 7/20/21**	Inspector: **Mike Torino, P.E.**		Coordinates: **North: East:**
Drilling Agency: **Municipal Testing Laboratories**	Foreman: **Dave Johnson**		Approximate Surface Elevation (feet): **± 146.5 (NAVD 88)**
Drilling Equipment: **Geoprobe 3100GT (Truck Rig)**	Drilling Method: **Mud Rotary**		Completion Depth (feet): **27.0** / Rock Depth (feet): **NA**
Casing Size/Type: **4" Steel**	Size/Type of Bit: **3-7/8" Roller Bit**		Sampler Type(s): **2" Split Spoon**
Groundwater Level and Date Measured: **NA / NA**	Hammer Wt/Drop: **140/30" (Auto)**	Casing Hammer Wt/Drop: **140/30" (Auto)**	Size/Type of Core Barrel: **NA**
Boring Location: **See Boring Location Plan (Figure 1)**			No. of Samples: **Dist.: 12 Undist.: 0 Core (ft): 0**

Depth, feet	Soil Samples: Type, Number	Recov. (ft)	Pen. Resist. (blows/6 in)	Rock Coring: Run Number	Recov. (%)	RQD (%)	Graphic Log	DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont.(%)	% Fines	REMARKS
0	S-1	0.9	4 8 12 7					FILL: Brown Silty medium to fine Sand, some Gravel, trace Brick fragments					S-1: Dry
	S-2	0.5	5 7 6 6					FILL: Brown Silty medium to fine Sand, some Gravel, trace Brick and Wood fragments					S-2: Dry
5	S-3	1.2	10 7 8 9					FILL: Brown Clayey Gravel with medium to fine Sand, trace Brick and Wood fragments					S-3: Dry
	S-4	0.3	6 8 5 5					FILL: Same As Above			8	31	S-4: Dry
	S-5	0.5	7 6 6 6					FILL: Brown Clayey medium to fine Sand, some Gravel, trace Brick fragments					S-5: Dry Cased to 10 ft
10	S-6	1.0	8 4 3 4					FILL: Brown Clayey medium to fine Sand, trace Brick fragments and Roots					Water Loss during Drilling
	S-7a	0.7	8 10 12					FILL: Same as Above					S-7: Dry
	S-7b	0.3	12					FILL: Gray Gravel					
15	S-8	0.5	11 14 14 9					NATURAL: Brown Silty medium to fine Sand, some Gray Gravel (SM)					S-8: Dry Cased to 15 ft
	S-9	1.0	5 7 9 10					Same as Above (SM)					S-9: Dry
	S-10	1.0	9 20 25 21					Same as Above (SM)					S-10: Dry
20	S-11	0.2	25 22 17 24					Same as Above (SM)					S-11: Dry
25													

Template: GENERAL GES LOGO Proj ID: 34 SUSAN DRIVE (2).GPJ

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Log of Boring B-5

Project: 34 Susan Drive (Hadid's Residence) | **Project Number: 2021069**

Location: Susan Drive, Newburgh, NY

Depth, feet	Soil Samples: Type, Number	Recov. (ft)	Pen. Resist. (blows/6 in)	Rock Coring: Run Number	Recov. (%)	RQD (%)	Graphic Log	DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont.(%)	% Fines	REMARKS
25	S-12a	1.0	14 16 19					Brown Clayey medium to fine Sand, some Gravel (SC)					S-12: Dry
	S-12b	0.5	40					Gray Silty medium to fine Sand, some Gravel (SM)					
								Boring Completed to 27 ft Below Ground Surface. Boring Backfilled with Cuttings upon completion					
30													
35													
40													
45													
50													

Template: GENERAL GES LOGO Proj ID: 34 SUSAN DRIVE (2).GPJ

GES P.C.

Printed: 8/5/21

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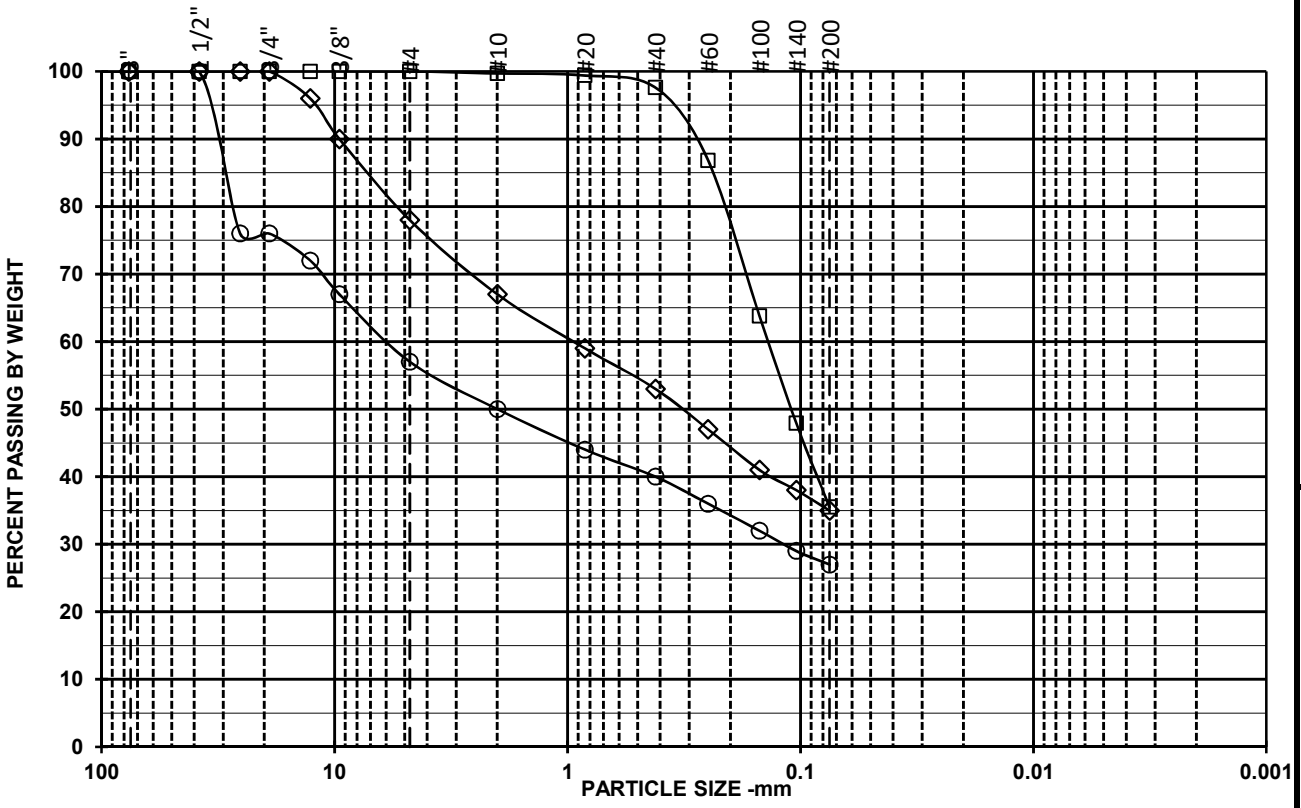
34 Susan Drive
LABORATORY TESTING DATA SUMMARY

BORING NO.	SAMPLE NO.	DEPTH (ft)	IDENTIFICATION TESTS			REMARKS
			WATER CONTENT (%)	USCS SYMB. (1)	SIEVE MINUS NO. 200 (%)	
B-1	S10	18-20	17.7	SM	35.5	
B-2	S2	2-4	8.9	SM	35	
B-3	S3	4-6	10.3	GC	27	
B-4	S5	8-10	10.5	SC	16	
B-5	S4	6-8	7.5	GC	31	

Note: (1) USCS symbol based on visual observation and Sieve reported.



Open Symbols: Sieve analysis by ASTM D6913
Filled symbols: Hydrometer analysis by ASTM D7928 corrected for complete sample

SYMBOL	w (%)	LL	PL	PI	USCS	AASHTO	USCS DESCRIPTION AND REMARKS	DATE
□	17.7				SM		Brown, Silty sand	07/22/21
◇	8.9				SM		Brown, Silty sand with gravel, Insufficient sample size	07/22/21
○	10.3				GC		Brown, Clayey gravel with sand, Insufficient sample size	07/22/21

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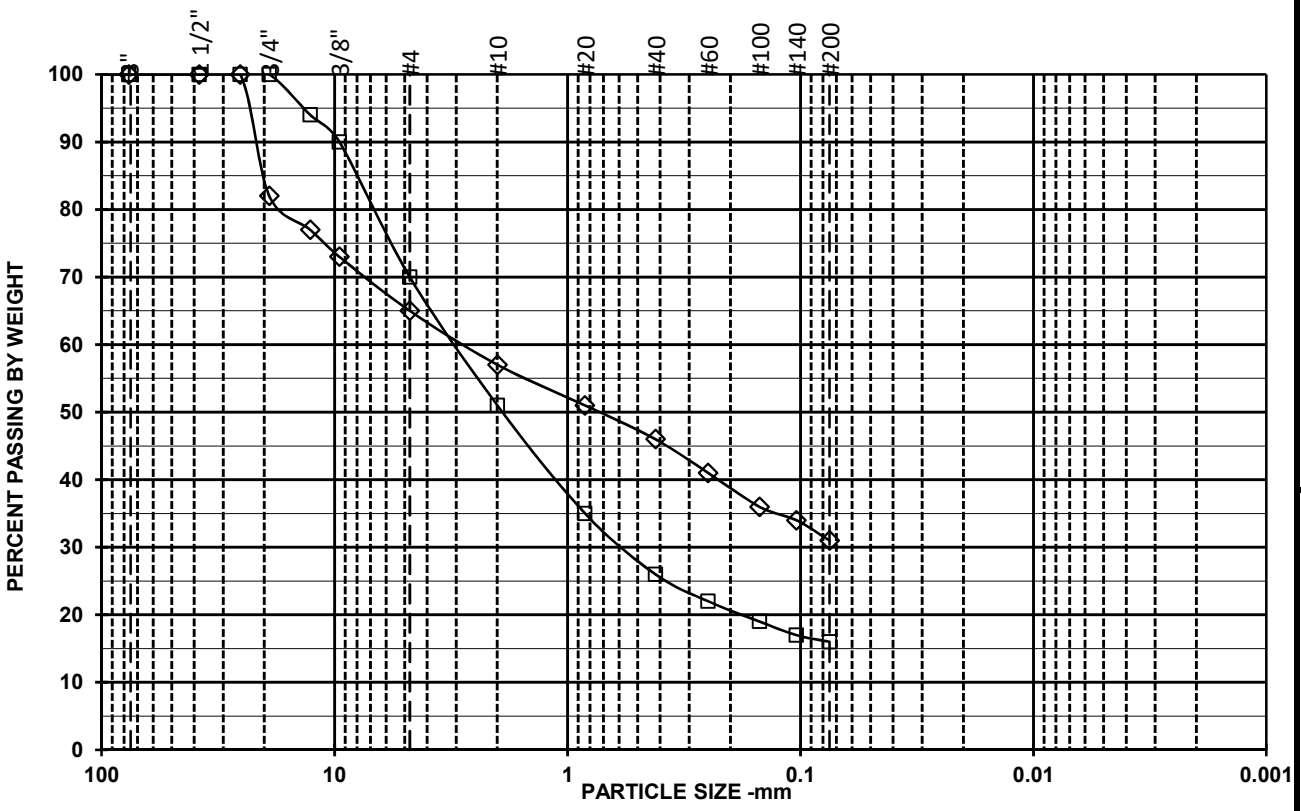
TerraSense #21004306A

34 Susan Drive

Symbol	□	◇	○
Boring	B-1	B-2	B-3
Sample	S10	S2	S3
Depth	18-20	2-4	4-6
% +3"	0	0	0
% Gravel	0	22	43
% SAND	64.5	43	30
%C SAND	0.3	11	7
%M SAND	2.1	14	10
%F SAND	62.1	18	13
% FINES	35.5	35	27
D_{100} (mm)	4.75	19.1	38.1
D_{60} (mm)	0.137	0.937	5.85
D_{30} (mm)			0.12
D_{10} (mm)			
Cc			
Cu			

Sieve Size/ID #	Percent Finer Data		
6"	100.0	100	100
4"	100.0	100	100
3"	100.0	100	100
1 1/2"	100.0	100	100
1"	100.0	100	76
3/4"	100.0	100	76
1/2"	100.0	96	72
3/8"	100.0	90	67
#4	100.0	78	57
#10	99.7	67	50
#20	99.4	59	44
#40	97.6	53	40
#60	86.8	47	36
#100	63.8	41	32
#140	47.9	38	29
#200	35.5	35	27
5μ m			
2μ m			
1μ m			

PARTICLE SIZE DISTRIBUTION
ASTM D6913 & ASTM D7928



Open Symbols: Sieve analysis by ASTM D6913
Filled symbols: Hydrometer analysis by ASTM D7928 corrected for complete sample

SYMBOL	w (%)	LL	PL	PI	USCS	AASHTO	USCS DESCRIPTION AND REMARKS	DATE
□	10.5				SC		Brown, Clayey sand with gravel, Insufficient sample size	07/22/21
◇	7.5				GC		Brown, Clayey gravel with sand organic mat'l noted, Insufficient sample size	07/22/21
○								

Symbol	□	◇	○
Boring	B-4	B-5	
Sample	S5	S4	
Depth	8-10	6-8	
% +3"	0	0	
% Gravel	30	35	
% SAND	54	34	
%C SAND	19	8	
%M SAND	25	11	
%F SAND	10	15	
% FINES	16	31	
D_{100} (mm)	19.1	25.4	
D_{60} (mm)	3.01	2.77	
D_{30} (mm)	0.57		
D_{10} (mm)			
Cc			
Cu			

Sieve Size/ID #	Percent Finer Data		
6"	100	100	
4"	100	100	
3"	100	100	
1 1/2"	100	100	
1"	100	100	
3/4"	100	82	
1/2"	94	77	
3/8"	90	73	
#4	70	65	
#10	51	57	
#20	35	51	
#40	26	46	
#60	22	41	
#100	19	36	
#140	17	34	
#200	16	31	
5μ m			
2μ m			
1μ m			

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TerraSense #21004306A

34 Susan Drive

PARTICLE SIZE DISTRIBUTION
ASTM D6913 & ASTM D7928

DANIEL G. LOUCKS, P.E.

GEOTECHNICAL ENGINEERING

4 October 2021

Patrick Hines
MHE Engineering
33 Airport Center Drive, Suite 202
New Windsor, NY 121553

Re: Additional Geotechnical Review of Hadid Pool Fill at 34 Susan Drive, Newburgh, NY
File No. 3977

I received a copy of the revised Letter Report for 34 Susan Drive, Newburgh, New York dated 29 September 2021. The revised report addresses my comments regarding compaction requirements for the existing and regraded fill material at the pool (requires proof rolling and compaction requirements of 95 percent compaction). The report also addresses my comments regarding global slope stability and slope stability of the regraded slope. In the report they noted that each of the slope situations were analyzed and had a factor of safety for sliding of at least 1.5 (normally accepted values for slope stability analyses) and noted the slope stability is not a problem at this site.

The opinions contained in this letter are based on the information that was provided up to the date the letter was completed. Any changes in the design of the project should be brought to my attention to determine if there needs to be any revision of the geotechnical opinions.

If you have any questions, please call.

Yours truly,

Daniel G. Loucks
N.Y.P.E. 068389

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