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PSEG LONG ISLAND LLC

On Behalf of and as Agent for

the LONG ISLAND POWER AUTHORITY f/k/a LONG ISLAND LIGHTING COMPANY d/b/a LONG ISLAND POWER AUTHORITY

Commercial Avenue Equipment Project

Case 25-T-0243

Terminal

Environmental Management and Construction Plan

APPENDIX N

Soil, Sediment, and Stone Handling Plan

TABLE OF CONTENTS

LIST OF TABLES

LIST OF ATTACHMENTS

1 SOIL, SEDIMENT, AND STONE HANDLING

As part of constructing the Commercial Avenue Terminal (Terminal) portion of the Commercial Avenue Equipment Project (Project), soil will be exposed during the grading of the Terminal parcel and the installation of foundations for the Terminal equipment. The Certificate Holder will backfill all excavations and trenches in accordance with the approved Plan & Profile Drawings (Appendix A). Backfill material will be native backfill.

The Certificate Holder will dispose of any excess spoils, debris, soils, or fill, whether or not contaminated, in accordance with code requirements applicable to such substance. Excavated soils will be removed from the site to enable continued pedestrian or vehicular access. If necessary, soil will be staged within the Terminal parcel or in laydown areas, in covered stockpiles or in covered or sealed roll-off containers. No excavated material shall be stored outside the Project Limits of Disturbance (LOD) or the Project's approved disposal location(s).

The following sections detail the procedures through which soil generated during excavation activities will be evaluated for potential environmental impacts, evaluated for reuse or suitability as backfill, stored or stockpiled, and disposed soils. Appendix B – SWPPP provides further details of material management practices.

No portion of the LOD contains a New York State Department of Environmental Conservation (NYSDEC) Environmental Cleanup parcel, site, or easement.

1.1 Soil Borings

In March of 2026, two soil borings were collected from the Terminal parcel. Soil samples were tested for soil content and moisture, infiltration, electric resistivity, thermal resistivity, and corrosivity. Soil materials were classified as mostly fine to coarse grained sand with various colors, consistent with the typical subsurface materials in this portion of Long Island. See Attachment N-1 – Final Geotechnical Report.

Table 1. Soil Boring Results

Boring ID	Coordinates	Total Depth of Hole (Feet)	Depth to Ground Water (Feet)	Sample Depths for Thermal Resistivity Testing (feet)	Corrosivity Testing (feet)*
BH 2E	40° 43' 49.73" N, 73° 36' 23.48" W	52	27.42	5-7 and 15-17	10-12 and 10-22
BH 4E	40° 43' 49.97" N, 73° 36' 21.76" W	52	27.42	5-7 and 15-17	10-12 and 10-22

*Chemical testing suite to determine corrosivity. Parameters included pH, soluble sulfates, chloride ion, redox potential, and sulfides.

POZ Engineering & Environmental, LLC (POZ) conducted a geotechnical survey on March 5, 2026, which included two soil borings that reached a depth of 52 feet. POZ detected suspected contaminants throughout the 52-foot run of soil bore BH2E. The color of the soil became lighter with depth and the diesel fuel became less concentrated. Conversely, BH4E did not appear contaminated at the sample depths.

1.2 Soil Evaluation During Construction

Soil screening during construction, if contaminated soils are suspected, would analyze for Volatile Organic Compounds (VOC), Semi-Volatile Organic Compounds (SVOC), Metals, Polychlorinated Biphenyls (PCB), Toxicity Characteristic Leaching Procedure (TCLP) VOC, TCLP SVOC, TCLP Herbicides, TCLP Pesticides, and Ignitability, Reactivity, and Corrosivity. A petroleum-contaminated soil is considered a characteristic hazardous waste when it exhibits any of the following characteristics: ignitability, corrosivity, reactivity, or toxicity, as defined in Section 6 NYCRR Part 371, subsection 371.3, or 40 Code of Federal Regulations (CFR) Section 261.

Excavated material may be evaluated by construction and engineering personnel for suitability as backfill. A qualified environmental professional, or a person under their supervision, will oversee all intrusive activities and the handling of any excavated material, and verify that the soil is not environmentally contaminated. The Environmental Monitor will be responsible for completing visual and olfactory assessments of all materials as they are excavated for evidence of contamination, such as discoloration, debris, free product, or other non-native materials, and for evaluating suspect soils for the presence of total VOC using a Photoionization Detector (PID).

Any soil showing evidence of contamination from the PID reading, staining, free product or visual or olfactory observations of impact will be treated as contaminated material. Tested soil will be kept separate from other materials in the laydown areas and staged on and covered with polyethylene sheeting to prevent contact with the ground surface and erosion/transport. Soil can also be staged in roll-off containers lined with plastic. The Environmental Monitor will notify the Environmental Compliance Manager of potential contamination. The Environmental Compliance Manager will be responsible for managing additional evaluation and/or sampling of potentially hazardous material to confirm the presence or absence of contaminated soil and determine how it shall be treated or disposed of.

During construction, work will continue if excavated soil generates a PID reading within the background levels. Naturally occurring background levels for PID monitoring range from 0.0 to 2.0 parts per million (ppm), but can also fluctuate due to ambient conditions (e.g., nearby traffic exhaust, high humidity, excess moisture). Work will continue at the discretion of the air monitoring personnel, but will pause if readings exceed 5.0 ppm. Soil with PID readings above the naturally occurring background levels at the specific work site (established by the air monitoring personnel), or which is stained, discolored, or odorous as determined by the Environmental Monitor, shall be transported off-site and disposed of as further detailed in the Certificate Holder’s Environmental Procedure (EP) EP-01 Waste Management (see Appendix P). This disposed soil will be treated as non-hazardous petroleum-contaminated soil.

If soil is determined to be contaminated, it will be treated as if it were hazardous waste. Soil investigations for the Project have not reported any contamination. The Environmental Monitor shall also monitor for Lower Explosive Limit (LEL) levels exceeding 10 percent in any excavation. If LEL readings exceed 10 percent at any time, work will stop immediately, and the Safety Manager will be notified.

Any hazardous waste generated will be managed in accordance with the applicable regulations found in Section 6 NYCRR Parts 370-374 and 376, as well as by the Certificate Holder's EP-01 Waste Management (see Appendix P). Hazardous wastes are those materials that are specifically "listed wastes" per Section 6 NYCRR Part 371 and/or those that display hazardous waste characteristics for ignitability, corrosivity, reactivity, and/or toxicity. Petroleum products and chemical substances (generally termed "hazardous materials) will be managed in such a manner as to minimize the potential for threats to human health and the environment. The Environmental Compliance Manager shall be notified if contaminated material is encountered during excavation work. Any material deemed contaminated shall be handled in accordance with company policy and all applicable regulations and/or codes. The Environmental Compliance Manager will be responsible for managing additional evaluation and/or sampling of potentially contaminated material.

1.3 Soil Reuse

Excavated soil will be used as backfill to close excavations unless the soils are found to be contaminated. If contamination is encountered based on observed soil conditions or free product, the Environmental Monitor and Environmental Compliance Manager will be notified. The Environmental Monitor and Environmental Compliance Manager will make additional notifications, including to the NYSDPS, as appropriate.

If the Environmental Monitor suspects contamination (olfactory or visual signs present), the excavated soil will be placed in lined roll-offs and segregated. If sampling indicates the soil is not contaminated, it may be used as backfill to close the excavation. If sampling indicates the soil is contaminated, it will be taken off-site for disposal in accordance with state and federal requirements, and certified clean fill will be used as backfill.

Excavated soil may be used to restore the original soil surface elevation after utilities have been properly installed, provided that this excavated soil has been deemed suitable for use as backfill by a Certificate Holder engineer and it is also deemed, via visual and olfactory observation, free of contamination. Backfilling will be performed in accordance with NYSDOT Standard Specifications § 203-3.15 Fill and Backfill at Structures, Culverts, Pipes, Conduits and Direct Cable Burials as appropriate. If material is deemed unsuitable for use as backfill, the Contractor shall provide clean washed building sand or suitable thermal fill in its place, such as cementitious slurry backfill, as specified by the Certificate Holder.

1.4 Soil Storage

During excavation, spoils will be temporarily located adjacent to the excavation and within the LOD. Soil stockpiles will be located within the Terminal parcel and in the laydown areas. Excess excavated materials may be removed and transported to an appropriate disposal facility or a designated staging area within a laydown area for testing and proper management. Any soil deemed contaminated material by the on-site environmental professional shall be separated from other excavated materials and staged separately.

Contaminated soil will be stored in lined roll-offs within the Terminal parcel or a laydown area, covered at all times, and secured.

1.5 Soil Handling, Transportation, and Disposal

The Certificate Holder will direct the Contractor to dispose of all excavated material from the site that is not reused as backfill.

Construction and demolition (C&D) debris, including concrete and other masonry waste (including steel or fiberglass reinforcing embedded in concrete), asphalt pavement, brick, soil or rock removed from the site as part of construction, will be disposed of at a State-permitted facility in accordance with Certificate Holder protocols. Disposal facilities will be selected from the list of Certificate Holder-approved facilities included in Appendix P. The debris will not be mixed with any other types of waste. If C&D materials are found to contain industrial waste (coal, coal ash, municipal ash, cinders, or refuse as defined in Section 6 NYCRR Part 360-1.2(b)(88)), it will be handled as industrial waste.

Soil that has been deemed to be contaminated will also be disposed of at a state-permitted end-use facility.

Disposal requirements will be established within the facility prior to commencement of construction. Disposal characterization samples will be collected in accordance with disposal facility permits and all local, state and federal regulations. Prior to the commencement of the Project, the permitted disposal facility will provide the Contractor with its operating permit, including the required sampling frequency, facility analysis, and insurance certificates. The Certificate Holder will provide the disposal facility with the sampling results; prior to the material being transported, the facility will provide the Certificate Holder with an approval letter stating that the analytical data has been reviewed, the results are within the facilities permittable limits, and the facility is allowed to accept the material under the terms of the current operating permit. Prior to disposal of any materials requiring classification sampling under receiving facility operating permits, the Environmental Compliance Manager will send the NYSDEC and NYSDPS acceptance criteria sampling results and copies of approval letters from receiving facilities indicating that the analytical data have been reviewed, and the facility is allowed to receive such materials under the terms of their current operating permit. Waste transporters will possess valid permits, which will be confirmed by the Certificate Holder.

There are currently no landowner agreements or commercial facility agreements in place to receive excess materials generated during construction

2 GEOTECHNICAL AND GROUNDWATER INVESTIGATION

A subsurface investigation conducted in March 2026 consisted of soil boring throughout the Certified Project. These investigations did not encounter any groundwater within the upper 15 feet of the borings. The moisture content of the borings ranged from 2.9% to 28.2%. This investigation advanced the borings (BH-2E and BH-4E) to 52 feet and recorded groundwater at 27.42 feet below ground surface in both borings. Subsurface soils consisted predominantly of poorly graded sands and sand-gravel mixtures, which are relatively permeable and may allow stormwater to accumulate in shallow excavations even when true groundwater is not encountered. According to the United States Geological Survey (USGS) public data, depth to groundwater is anticipated to range from 10 feet below ground surface (bgs) to nearing 40 feet below ground surface. Table 2 shows groundwater depth relative to the freeze pit locations, equipment foundations, and trenching. Final excavation depths will be confirmed during detailed design; if excavations approach the measured groundwater depth of approximately 27 feet, groundwater inflow may occur and will be managed in accordance with Appendix G – Dewatering Plan

Table 2. Estimated Depth to Groundwater at Expected Excavation Locations

Location	Activity	Excavation Depth (ft)	USGS Groundwater Depth (ft bgs)	Groundwater Depth (ft bgs)
Commercial Avenue	Foundation installation	3.5 - 28	10 - 40	27.42
Commercial Avenue	Trenching	3 - 15	10 - 40	27.42

USGS. 2016. Long Island Depth to Water and Hydrologic Conditions Viewer. https://ny.water.usgs.gov/maps/li-dtw/.

Attachment N-1 – Final Geotechnical Report

POZ Engineering & Environmental Consulting, P.C.

Final Geotechnical Report

Revision 2

To

Burns & McDonnell Consultants, P.C.

For

FinalGEOTECHNICAL REPORT.pdf

PSEGLI STEWART/COMMERCIAL AVENUE

P.O. 178669

June 22, 2026

1. **EXECUTIVE SUMMARY**– POZ engaged in a contract with Burns and McDonnell to perform geotechnical services in an empty lot along Commercial Ave in Garden City, Long Island, NY. POZ sub-contracted the drilling operations to Soil Mechanics Drilling, who mobilized with a truck mounted core rig, a GPR unit, and a VAC truck. Soil Mechanics also performed field infiltration and resistivity testing. The purpose of the drilling was to determine the chemical, electrical, and physical characteristics of the site for proposed structures. The geophysical laboratory analyzed samples from one borehole as poorly graded sand (SP) at 7 depths. The silt fraction ranged from 1.7% to 5.1% and no clay fraction present. A proctor was taken from the auger return below 35 feet showing a density of 132.4 pcf at 3.9% moisture. Since the foundation design is not in the scope of services for POZ, the soil bearing capacity was calculated for structures that are proposed for the site and the drawings presented to POZ. BH2E was contaminated with diesel fuel probably from the storage of vehicles on the lot leaking into the soil. Two depths were sampled for chemical and thermal resistivity from each borehole. Chemically, BH2E had a pH of 7.89 at 10 feet and 6.36 at 20 feet. However, soluble sulfates, ORP and conductivity spiked at the 20-foot level suggesting that the diesel fuel is increasing with depth. Sulfides were not tested by the laboratory, but the soil was in an oxidized state and sulfates values were mostly low suggesting the sulfides were also low as well. The groundwater was measured by the driller to be 27.42 feet (March 5 and 6, 2026) at each borehole, which may suggest that the vapors are concentrating above the groundwater and creating the spiked parameters. Conversely, BH4E was not contaminated with diesel fuel at the two depths that were sampled (10 and 20 feet), and the chemical consistency of the samples was relatively expected with depth. Soil samples were collected for thermal resistivity at two levels (S1, 7-foot depth and S2, 11-foot depth) taking a bag sample and augmenting it with bag samples at depths below as a composite. The bulk samples were tested 'as received' moisture content and at the specified standard Proctor dry density. Since the soil is poorly graded sand and gravel (SP) with a relatively high infiltration rate, this resulted in low thermal values. The values are indicative of sandy quartz soil as expected. The samples mostly represent a composite of the soil at each borehole to the 52-foot level. The infiltration test showed the soil to be permeability with a mean coefficient calculated at 8.078×10^{-3} cm/sec from the Falling Head equation. Water moves through the soil to the groundwater level at a rate that minimizes surface and soil retention. The soil resistivity for Traverse 1, 2, and 4 are good to medium and should not involve requiring specialized grounding techniques, such as soil treatment, to reduce resistance. However, along Traverse 3 the soil was good for most of the run but bad only in the proximity of the railroad on the east end. The site should be dewatered if preparing columns/shafts below the ground water table while construction these structures. This can be done by pumping until after the concrete curing process. A phase 2 followed bv a phase 3 EAS should be done prior to design in order to identify zone of contamination with diesel fuel. All contained zones should be removed by various extraction methods before construction of the columns/shafts and also preparing underground electrical cables. Terzaghi, Resse and O'Neill, and Broms methodologies were used at a safety factor of 3 for structures that are proposed for the site and the drawings presented. This analysis was to accommodate shallow and deep foundations. The shallow foundation design was determined using Taraghi model using a 2-foot spread foundation. Deep foundation design was analyzed using Reese & O'Neill model for axial loading with a 3.5-foot, 4-foot and 6- foot diameter foundation at proposed depths with a safety factor of 3. Similarly, Brom's Method was used to calculate the lateral loading by solving for the shear loading and assuming the moment was equal to the shear loads at the top of the shaft/column
2. **PURPOSE AND SCOPE** - The purpose of the drilling was to determine the chemical, electrical, and physical characteristics of the site for proposed structures. For this purpose, POZ engaged in a contract for Burns and McDonnell to perform geotechnical services in an empty lot along Commercial Ave in Garden City, Long Island, NY (Appendix A). POZ sub-contracted the drilling operations to Soil Mechanics Drilling, who mobilized with a truck mounted core rig, a GPR unit, and a VAC truck. Soil

Mechanics also performed field infiltration and resistivity testing. POZ was also to make recommendations for the shaft/column design.

3. **TOPOGRAPHY –** The site is on an island (Long Island NY, See Appendix A) and is relatively flat with an elevation of 76 feet and a local relief of 2 feet throughout the project, according to Google Earth. The project area consists of an elongated lot (80‘by 287’) that is owned by PSEG of Long Island. The lot is fenced along its perimeter in all directions except to the north where the fence is either absent or laying on the ground. The lot is bordered by wrecked vehicles to the east and west, Commercial Avenue to the south, and a rail system to the north.
4. **SOIL -** A soil report was generated from the NRCS WebSoil GIS site and is listed in Appendix B. The search revealed that the soil type is Urban Lands (Ug) with no distinctive soil properties. The frost line in the soil at this location is 42 inches.
5. **SITE GEOLOGY-** The geology of Long Island consists of three categories: pre-glacial, glacial, and post-glacial.
   - **5.1.** **Pre-glacial** consists of metamorphic bedrock from the pre-Cretaceous period. The bedrock slopes to the south and east and does not form any significant landforms on Long Island. Resting on the bedrock are Cretaceous sediments of sand, clay and gravels. This sediment is over 2,000 feet thick at Fire Island and thins out to the north and west, pinching out at Long Island Sound.
   - **5.2.** **Glacial** deposits significantly formed the Long Island land mass and rests on the metamorphic bedrock. This occurred in the Wisconsin stage of the Pleistocene Epoch. The ice mass encompassed all or most of Long Island carrying large amounts of sediment including large boulders.
   - **5.3.** **Post-glacial** period consisted of Kane moraines, glacial outwash, and the formation of kettle lakes. In addition, costal waves and currents have eroded and reshaped the soft glacial sediment to form numerous sandy shorelines features.
   - **5.4.** **Tectonic/Seismic Avitvity** –The structure is considered as a Group U category as defined by International Building Code (IBC). Figure 1613.5(1) lists this location as 30%g at a 0.2 second spectral response acceleration. At a 1 second spectral response acceleration IBC Figure 1613.5(2) lists this location at 6%g.
6. **Hydrology** –
   - 6.1. The surface hydrology of Garden City, NY, is primarily characterized by a system of engineered stormwater recharge basins to manage runoff. Historically, the area was part of the "Hempstead Plains," a prairie-like environment with high infiltration rates and very few surface drainage channels. Most of the village sits atop a permeable glacial outwash plain, where the "surface hydrology" is largely a conduit for recharging the underlying Long Island aquifer system. Due to the area's flat topography and sandy soil, Garden City utilizes numerous recharge basins (locally known as "sumps") to collect surface runoff from roads and developed areas.
     - 6.1.1. Nassau County Storm Water Basin #124: Located near the Roosevelt Field area, this basin manages significant runoff from the eastern part of the village.
     - 6.1.2. Pembrook Basin: A private recharge basin on shopping mall property that also serves local hydrologic functions
   - 6.2. Hydrologic Management – The fresh water supply is managed by the Incorporated Village of Garden City, that oversees the interaction between surface activities and the groundwater supply, including monitoring for contaminants like those at the Old Roosevelt Field site. Much of the surface hydrology is focused on green infrastructure and infiltration to prevent flooding, as the village is situated over the Magothy aquifer, which is highly sensitive to surface conditions.
   - **6.3.** Groundwater consists of the water table and aquifers. Water table data was taken from the USGA GIS website and included three (3) wells as shown in Figure #1 and 2 in Appendix C that mostly transverses the boreholes along Commercial Avenue in Garden City. The water table is proportionate to the rainfall amount and the infiltration rate of the soil.

6.3.1. Glacial Aquifer is the main source of water for most wells. Virtually all private wells and less than half of the Nassau County Water Authority draws from this aquifer (NCWA). The USGS reporting on the groundwater in these wells in Appendix C are as follows:

6.3.1.1. N9945.1 is the most westerly well to the project site at where the elevation of the groundwater is 41.8'.

6.3.1.2. N10035.1 is west but the most approximate well to the project site where the elevation of the groundwater is 49.97'.

6.3.1.3. N11396.1 is the most easterly well to the project site where the elevation of the groundwater is 50.53'.

6.3.2. Magothy Aquifer is the largest of the three aquifers and holds most of the water supply. A little more than half is used by the NCWA.

6.3.3. Lloyd Aquifer is largely untapped and is separated from the Magothy Aquifer by the Raritan aquiclude, which is a clay layer from the Cretaceous formation.

7. **PROPOSED DEVELOPMENT –** The Project includes the installation on the Commercial Avenue Terminal property of two sets of three single phase, air-core reactors, for a total of six individual reactors. The proposed reactors will serve to regulate the 138-462/463 lines. The Applicant intends to tap Lines 138-462/463 in and out of those reactors. The air-core reactors regulate the power on the existing 138-462/463 lines. Work at that property will include installation of underground terminations, H-Frame bus supports, line disconnect switches, surge arrestors, and associated bus. Above ground structures are proposed and shown in Appendix D and Table 1 (below).

Table #1 – Proposed Structures and Requirements

Structure	Column diameter (feet)	Depth (feet)	Weight* (pounds)
H-Frame	6	28	26,000
Pothead/L.A.	4	22	10,370
Three Phase Bus	4	22	4,300
Single Phase Bus	3.5	16	2,100

* values assumed to be normal loads

8. **SCOPE OF SERVICES** –

8.1. **Drilling -**The locations of the proposed boreholes (two) were marked by a surveyor of Burns and McDonnell prior to drilling. The drilling began with the hollow-stem auger placed at the 5-foot level that was vacuumed out. A 2-inch split-spoon core barrel was placed inside the auger and sampled to 7 feet. The 2-inch split spoon sampler was two feet long and used to pull soil at each sampling depth. The soil, in the sampler was measured in feet and placed in a plastic bag that was marked as "S-1 BHxE 5' to 7'", where x= 2 or 4. Augering continued to the next sampling depth at 10 feet, which was S2, etc. (See Appendix E for each borehole logs). In addition, a proctor was collected at each hole from the auger return that was estimated at about 35 feet. The site conditions for each location were as follows:

8.1.1. BH2E – This was the second borehole to be drilled but the first to be vacuumed. The operator of the VAC truck could not penetrate to the 5-foot level because of large slabs of concrete that were presumed buried from the demolition of the pre-existing building. As a result, the operator of the VAC truck moved to the location of BH4E to soft dig. After outlining the area with the GPR and six attempts to penetrate the soil to five feet (see final location in Appendix E), the drill rig was positioned on the top of the hole and began to take 2-foot core samples at 5-foot intervals to 52 feet. In all, ten samples were taken.

8.1.2. BH4E – This was the first hole to be drilled and sampled after two attempts to vacuum the soil to the 5-foot level. The GPR unit outlined the second attempt to be approximately 6 inches from the surveyed spot. The drill rig was positioned on the top of the hole and inserted the hole-stem auger at the 5-foot level to take 2-foot core samples at 5-foot intervals to 52 feet. In all, ten samples were taken.

8.2. Field Testing

8.2.1. Infiltration - Infiltration testing was completed in the proximity of BH2E in accordance with Falling Head Infiltration Test. Using the following equation:

$$K= (\pi * d)/(11*(t_2-t_1)*\ln (H_1/H_2)$$

Where:

K=Mean coefficient of permeability (cm/sec)

d= diameter of the casing (cm)

(t_2-t_1) = time interval of test

H_1= Infiltration Start Point

H_2 = Infiltration End Point

A water level meter was placed at a 4-foot level to the top of the casing and time noted when the water dropped 2 feet. A pre-soak was completed 24-hours prior to the testing. See Appendix F, Figure 1 for schematic.

8.2.2. Resistivity testing was completed in four traverses at pin spacing of 0.5, 1, 1.5, 2, 3, 5, 7, 10, 15, 20, 30, 45, 70, and 100 feet diagonally, and 0.5, 1, 1.5, 2, 3, 5, 7, 10, 15, and 20 feet north and south. Testing was in accordance with ASTM G57. See Exhibit 1 in Appendix F for layout.

8.3. **Restoration** of each borehole was reclaimed by adding bags of sand and cuttings from the drilling. The original scope of work for this item was to grout the drill hole with a bentonite slurry mix, but in the kick-off meeting client opted to use drill cuttings to eliminate solids during excavation.

8.4. **Laboratory –** Samples were collected in plastic bags and marked accordingly. There were three laboratories that were used to analyze the bagged soil: Pennoni Geotechnical Lab (physical), Geotherm USA (thermal resistivity), and Long Island Analytical (LIA - chemical).

8.4.1. Physical Parameters– Bagged samples labeled S5 to S10 (27 to 52 feet) were tested for physical parameters: moisture, Dry Unit Weight, Sieve Analysis, % finer than #200, Atterberg Limits, and Unconfined Compression. In addition, the auger return was used to collect a composite of each hole to perform a standard proctor. The labelled samples were delivered to the laboratory with a chain-of-custody form. Since the drilling company (Soil Mechanics Drilling) used a 2-inch spoon, the amount of soil to sample was a limiting factor in testing samples above 27 feet.

8.4.2. Thermal Resistivity - Bagged samples labeled S1 (5 to 7 feet), S3 (15 to 17 feet), and composite of the hole from other bagged sampled depths to acquire 10 pounds. The composite was split between S1 and S3. The samples were delivered via FedEx with the Geotherm Chain of Custody form that was provided with the Scope of Work. Since the amount of soil was insufficient, more soil was sent to Geotherm as a composite of the soil column.

8.4.3. Chemical Parameters – Bagged samples labeled S2 (10 to 12 feet) and S4 (20 to 22 feet) were tested for chemical parameters: pH, Soluble Sulfates, Chloride ion, Redox Potential, Sulfides, and Electrical Resistivity. The labelled samples were delivered via FedEx with a Chain of Custody form.

9. **RESULTS** –

9.1. **Drilling** – Prior to drilling, a soft dig was performed with a VAC truck to a 5-foot depth for both borehole tests. Ground water was detected at 27.42 feet at each borehole, and no sampling of the groundwater was in the scope of this work.

9.1.1. BH2E – This hole was difficult to vacuum (soft dig) with many slabs of concrete as per GPR. The samples pulled out of the hole were contaminated with diesel fuel. Appendix A shows a google earth shot of many vehicles in the lot prior to our project. This contaminant seemed to be somewhat filtered out at about 35 feet or so (see Appendix E BH2E log). See Table #1 in Appendix E for a summary of the drilling results.

9.1.2. BH4E- This hole was vacuumed (soft dig) with two attempts, but only 6 inches apart; the GPR detected only a large boulder. The operation of collecting samples was severely hampered by the weather (rain), which a process of tag and bag was only possible. The result of this drilling is located in Appendix E as BH4E log. See Table #2 in Appendix E for a summary of the drilling results.

9.2. Field Testing

9.2.1. Infiltration Test – Four (4) tests were completed with an average of 9.633 minutes (578 seconds) calculated (see Figure 1 in Appendix F). The mean coefficient of permeability was calculated at 8.078×10^{-3} cm/sec from the Falling Head equation in Section 8.

9.2.2. Resistivity Test –Linear pin spacing for the project, in area of geotechnical borings B-2E and B-4E, was 0.5', 1.0', 1.5', 2.0', 3.0', 5.0', 7.0', 10.0', 15.0', 20.0', 30.0', 45.0', 70.0', 100.0 or as far as practical (see Appendix F, Exhibit 1 for Site Plan and tables). The wearing surface in the survey area consisted of asphalt pavement. The data acquired in the field was used to document soil resistivity at the test locations, identified as Traverse #1 through Traverse #4, as follows (see Appendix F Tables #1 through #4):

9.2.2.1. Traverse #1 North to South (5,362.0 to 14,362.0 ohm-cm)

9.2.2.2. Traverse #2 North to South (5,630.1 to 16,086.0 ohm-cm)

9.2.2.3. Traverse #3 Northwest to Southeast (6,894.0 to 191,500.0 ohm-cm)

9.2.2.4. Traverse #4 Northeast to Southwest (5,745.0 to 55,535.0 ohm-cm)

9.3. **Laboratory** –

9.3.1. **Physical Parameters -** The soils were taken to Pennoni Geotechnical Testing Lab in Pittston, PA (see Appendix G, Exhibit 1, and Appendix E tables 1 and 2 for a summary of these results). The lab tested each interval with the exception of S-1, S-2, S-5, and S-7 for each borehole. These samples were sent to other laboratories for chemical and geothermal analysis. Only one proctor was tested due to the lab not willing to sample the contaminated samples (BH2E), but did a visual on each sample. The tests show a typical glacial outwash material as was expected from the geology. The results of this analysis are listed in Appendix G, Exhibit 1. Atterberg Limits, and Unconfined Compression tests were not completed due to the absence of clay and cohesionless soil.

9.3.2. **Thermal Resistivity -** The samples were tested at 95% of the standard proctor dry density and at higher of the samples received. The testing was in accordance with IEEE Standard 442-2017. The results of this sampling are listed in Table 2 and the detail report in Appendix G, Exhibit 2.

Table 2 – Thermal Resistivity Results

Sample ID	Depth feet	Effort %	Description	Wet °C*cm/W	Dry °C*cm/W	Moisture %	Dry Density (pcf)
BH2E S-1	5-7	95	Lt. Bwn Poorly graded Sand with Gravel	64	131	7	126
BH2E S-3	15-17	95	Lt. Bwn Poorly graded Sand with Gravel	58	129	9	126
BH4E S1	5-7	95	Lt. Bwn Poorly graded Sand with Gravel	61	132	6	126
BH4E S-3	15-17	95	Lt. Bwn Poorly graded Sand with Gravel	62	127	4	126

9.3.3. **Chemical Parameters -** The results of the analysis are listed in Appendix G Exhibit 3 and Table #3 below.

9.3.3.1. BH2E was on the west side of the lot that was contaminated with diesel fuel the chemical parameters in Table #2 shows the pH higher in the top strata with sulfate higher at the 20-foot level. The 20-foot sample shows sulfate to increase (52 ppm) with more oxidation (620mv) and higher conductivity (111.7 um ohm/cm) and less resistivity (8953 ohms). The results for this borehole are listed in Table #2 below and Appendix G.

9.3.3.2. BH4E was on the east side of the lot 205 feet from BH2E. The logs show no contamination of the soil and the chemical parameters in Table #2 mostly reflects this hypothesis. At this location, the resistivity of the soil is higher, the redox potential (oxidizing) lower, a near neutral pH, and no detectable sulfates. Sulfides were omitted by the laboratory for analysis for reasons unknown.

Table #3 – Summary of Laboratory Analysis

BH	**ID #**	**Depth**	**pH**	**SO-4**	**Cl-**	**Redox**	**Conductivity**	**Resistivity**	**Solid**
		Feet	**Unit**	**Mg/kg**	**Mg/kg**	**mV**	**umoh m/cm**	**Ohm* cm**	**%**
2E	S2	10-12	7.89	<20.0	<20.0	541.0	85.1	11750	88.95
2E	S4	20-22	6.36	52.0	<20	620.0	111.7	8953	93.0
4E	S2	10-12	6.89	<20	<20	215.0	37.8	26460	96.7
4E	S4	20-22	6.74	<20	<20	306.0	52.8	18940	93.5

9.4. **Parameters for Foundation Design**

9.4.1. **Methodology** – The results of the field results and laboratory samples were used to calculate the soil bearing capacity (q_{ult}) using principles of engineering for geotechnical results. These results were used to recommend foundations such as spread, and pier (shaft/column), for structures listed in table of the drawings in Appendix D. This data was evaluated using Terzaghi and Reese.

9.4.1.1. **Terzaghi** model was used for square spread footings using the following equation with results in Tables #4 a to b

$$q_{ult} = 1.3c'N_c + \sigma'_D N_q + 0.4\, y'BN_y$$

where:

c' = Effective Cohesion factor

N_c , N_q , N_y = Bearing capacity Factors

σ'_D = Vertical stress at depth from empirical measurements

B = Diameter of footing

	Table #4 - Terzaghi 2-foot footer														
Sample #	C'	O'z	Deg	Nc	Nq	Nd	D (ft)	O'd psf	Y (pcf)	B (FT)	Qult (PSF)	F	σ	s	N (SPT)
S-1	0	27763	40	95.7	81.3	121.5	7	875	125	2	83288	3	5750	4825	38
S-2	0	22277	35	57.8	41.4	47.3	12	1500	125	2	66830	3	4600	3221	19
S-3	0	61638	40	95.7	81.3	121.5	17	2125	125	2	184913	3	3500	2937	26
S-4	0	73071	35	57.8	41.4	47.3	22	5083.76	231.08	2	219212	3	4600	3221	18
S-5	0	15606	30	37.2	22.5	20.1	27	2027.16	75.08	2	46818	3	3750	2165	10
S-6	0	15360	30	37.2	22.5	20.1	32	2003.2	62.6	2	46079	3	4250	2454	11
S-7	0	9959	25	25.1	12.7	9.2	37	2316.2	62.6	2	29876	3	4100	1912	6
S-8	0	20055	30	37.2	22.5	20.1	42	2629.2	62.6	2	60164	3	5500	3176	13
S-9	0	22402	30	37.2	22.5	20.1	47	2942.2	62.6	2	67206	3	4250	2454	11
S-10	0	45711	35	57.8	41.4	47.3	52	3255.2	62.6	2	137134	3	3600	2521	27

C' = Cohesion Factor
O'z = Normal Load
Deg=SPT vs normal Stress
Nd,Nq,Nd= Bearing Capacity Factors
D=depth of footing below the ground
O'd=normal stress
Y=density of soil
B=Circular footing in diameter
Qult=Ultimate Shear Strength of Soil (Terzaghi)
F=Safety Factor
σ=Vertical effect Stress (psf)
qe' = bearing capacity (Reese)
s=shear strength (psf)
Groundwater at 27.42'

9.4.1.2. Reese & O'Neill model for axial load capacity was used for drilled shaft foundations in cohesionless soils listed in Table 5 and 6 with the following equation:

Q'e = 0.60σrN60 < or equal to 90,000PSF

Where,

σr= reference stress =2,000psf

N60=SPT

Q'e= net bearing capacity for shafts less than 50 inches (4.16 feet) in diameter.

Q'er = 4.17(Br/Bb)q'e Bb>50"

Where: Br=reference width =1 and Bb=base diameter

9.4.1.3. The Broms Method for lateral load capacity in cohesionless soils was used to determine the free-head foundation:

$$F=(0.5\lambda B D_{min}^3 Kp)/(V(D_{min}+e)$$

Where $Kp = \tan(45+\Phi/2)^2$

Solving for V:

$V=(0.5\lambda BD_{min}^3\tan(45+\Phi/2)^2-Fe)/(FD_{min})$

Where,

λ=the density of the soil

B and D_{min} are taken from Section 7 Table 1

Φ=the effective friction angle

F=Safety Factor (3)

e=M/V

Table #5 BH-2E

M/V	Diameter (ft)	Depth (ft)	Broms (psf)	Reese (psf)
1	3.5	16	40339	10400
1	4	22	8854	7200
1	6	28.0	6029	4000

Table #6 - BH-4E

M/V	Diameter (ft)	Depth (ft)	Broms (psf)	Reese (psf)
1	3.5	16	1110	7600
1	4	22	43650	12000
1	6	28.0	106059	12800

9.5. **Seismic Analysis –** Using the parameters that were disclosed in the drilling and geotechnical laboratory, the site is classified as D as listed in Table 1613.5.2 of the IBC. The maximum considered earthquake spectral response acceleration (Sms and Sm1) for short period and at 1-second period is present in Table 6 below:

Table #7 - Seismic Analysis

Mapped Spectral Response Acceleration at Short Period (Ss)					
D-class	<.25	<0.5	<0.75	1	>1.25
Fu	1.6	1.4	1.2	1.1	1
Sms	0.4	0.7	0.9	1.1	1.25
Mapped Spectral Response Acceleration at 1-second intervals (S1)					
D-class	<.25	<0.5	<0.75	1	>1.25
Fv	2.4	2	1.8	1.6	1.5
Sm1	0.6	1	1.35	1.6	1.875

Fu & Fv = Site Coefficient

10. **Discussion of Results** –

10.1. BH2E

10.1.1. Drilling and soil classification – This borehole was difficult to vacuum due to concrete slabs that were part of the demolition of the pre-existing building. Once the soft-dig was successful, the sampling spoon captured diesel contaminated soil throughout the 52-foot run. The color of the soil became lighter with depth and the diesel fuel became less concentrated (See Appendix E, BH2E). The geophysical laboratory did not analyze the samples due to the diesel contamination.

10.1.2. Field Testing

10.1.2.1. Infiltration Test –The test showed the soil to be permeability with a mean coefficient calculated at 8.078×10^{-3} cm/sec from the Falling Head equation in Section 8. Water moves through the soil to the groundwater level at a rate that minimizes surface and soil retention.

10.1.2.2. Resistivity Test – The soil resistivity involves analyzing moisture, temperature, and composition, where lower values (e.g., <10000ohm*cm) indicate good conductivity for grounding. High resistivity (>100000 ohm*cm) signals poor, dry, or rocky soil requiring specialized grounding techniques, such as soil treatment, to reduce resistance. The spiked value in Traverse 3 is in the proximity of the railroad.

10.1.2.2.1. Traverse #1 (5,362.0 to 14,362.0 ohm-cm) was good to medium

10.1.2.2.2. Traverse #2 (5,630.1 to 16,086.0 ohm-cm) was good to medium

10.1.2.2.3. Traverse #3 (6,894.0 to 191,500.0 ohm-cm) was good to bad

10.1.2.2.4. Traverse #4 (5,745.0 to 55,535.0 ohm-cm) was good to medium

10.1.3. Foundation Design Parameters- Since the composition of the soil is predominantly sand, c' (cohesionless) is 0 in Section 9.4.1. Since no samples were captured for direct shear analysis, the analysis for the bearing capacity is strictly empirical using tables charts and equations to arrive at results listed in Section 10. As mentioned in Section 10, BH#2 was not sampled by the geophysical laboratory which necessitated the hypothesis that BH2E=BH4E (see Section 11.2.2). This is reasonable, since the boring were in proximity of each other with similar soils. However, BH2E was contaminated with diesel fuel which is a heavy petroleum solvent. While it won't chemically dissolve mature concrete, it will deeply penetrate it. For metals, it acts as a mild lubricant but can cause significant internal corrosion to tanks and fuel systems over time, especially if water is present. The analysis in Section 9 used Reese and O'Neill Method for axial and Broms Method for lateral load capacities. Table #1 was used to calculate these loads at the proposed depth and diameter of the foundation. Although the moment and shear lateral loads were not determined, a hypothetical shear load at the top of the foundation was calculated assuming the moment load is equal to the shear load. The groundwater influence was calculated in the density of the soil.

10.1.4. Chemical Analysis - As noted earlier in this report, BH2E was contaminated with diesel fuel probably from the storage of vehicles on the lot leaking into the soil. Two depths were sampled (10 and 20 feet). The pH was 7.89 at 10 feet and 6.36 at 20 feet. However, soluble sulfates, ORP and conductivity spiked at the 20-foot level suggesting that the diesel fuel is reacting chemically with depth (See Table 2 in Section 9) increasing the oxidation levels. Sulfides mostly exist in a reduced (REDOX) state, and although sulfides were not tested, the samples show oxidized zones at these depths. The groundwater was measured by the driller to be 27.42 feet, which may suggest that the vapors are concentrating above the groundwater and creating the spiked parameters. A note in the analysis (see Exhibit 3 of Appendix G) did confirm that there was a high target compound concentration.

10.1.5. Thermal Resistivity – Soil samples were collected at two levels (S1, 7-foot depth and S2, 11-foot depth) taking a bag sample and augmenting it with bag samples at depths below as a composite. The bulk samples were tested at the 'as received' moisture content and at the specified standard Proctor dry density provided by the Geotechnical Lab. The tests were conducted in accordance with the IEEE standard 442-2017. The results are tabulated in Section 9 and show little difference between the S1 and S3 sampling depth. The soil is poorly graded sand and gravel (SP) with a relatively high infiltration rate that results in low thermal values. These values are indicative of sandy quartz soil. As noted, these samples mostly represent a composite of the soil at BH2E to the 52-foot level. This section of the project area was also contaminated with diesel fuel that did seem to affect the test results.

10.2. BH4E

10.2.1. Drilling and soil classification – This borehole was relatively easier to vacuum due to the lack of demolition in this section of the lot. The sampling spoon captured non-contaminated soil throughout the 52-foot run. The color of the soil was a yellowish color throughout the sampling (See Appendix E, BH4E log). The geophysical laboratory analyzed the samples as poorly graded sand (SP) at 7 depths (see Exhibit 1 in Appendix G, BH 4E). The silt fraction ranged from 1.7% to 5.1% and no clay fraction was present. A proctor was taken from the auger return below 35 feet showing a density of 132.4 pcf at 3.9% moisture.

10.2.2. Foundation Design Parameters –

10.2.2.1. The soils are cohesionless and easily drained (sand and gravel). Mat foundations are generally not used for this type of soil. Instead, a 2-foot spread foundations was used to determine the bearing capacity of the soil using a safety factor of 3. Although spread footing are used for shallow foundations, the calculations continued to 52 feet. Since the frost line is at 42 inches, it is recommended to use the number at the 5-foot depth where the safety factor of 3 would equal 27,763 psf for the normal loading.

10.2.2.2. With a safety factor of 3 Reese & O'Neill models for axial loading was calculated using a column/shaft foundations for a 4 and 6-foot foundation at depths relative to Table #1 in Section 7 of this report. The lateral loading was calculated using Broms' method with the same table. The values were exclusively derived from tables and charts where the limiting factor was the standard penetration testing (N60) values that deviated inversely from BH2E and BH4E. The N60 values for BH4E became greater with depth using Table 1 depth values (19, 30, 32). Whereas, BH2E values were dropping in value with depth (26,18,10).

10.2.3. Chemical Analysis – BH4E was not contaminated with diesel fuel in the two depths were sampled (10 and 20 feet). The chemical consistency of the samples was relatively expected with depth. That is, soluble sulphates, Cl- were not detectable, and ORP and conductivity increased slightly with depth. The soil is in an oxidized state with positive ORP readings. Since the pH was slightly alkaline and sulfate was not detected or <20 ppm in an oxidized state, it is unlikely that sulfides would be a significant factor.

10.2.4. Thermal Resistivity – Soil samples were collected at two levels (S1, 7-foot depth and S2, 11-foot depth) taking a bag sample and augmenting it with bag samples at depths below as a composite. The bulk samples were tested at the 'as received' moisture content and at the specified standard Proctor dry density provided by the Geotechnical Lab. The tests were conducted in accordance with the IEEE standard 442-2017. The results are tabulated in Section 9 and show little difference between the S1 and S3 sampling depth. The soil is poorly graded sand and gravel (SP) with a relatively high infiltration rate that results in low thermal values. These samples mostly represent a composite of the soil at BH4E to the 52-foot level.

10.2.5. Groundwater – According to the USGS monitoring station 10035.1 (See Appendix C), the groundwater will fluctuate at a depth between 22' and 24' (on an average), but has readings to a depth of 20'. The driller recorded a reading of 27.42 feet depth, which is an above average.

11. **CONCLUSIONS**

11.1. Drilling and soil classification –The geophysical laboratory analyzed the samples as poorly graded sand (SP) at 10 sampling depths. The silt fraction ranged from 1.7% to 5.1% and no clay fraction was present. A proctor was taken from the auger return below 35 feet showing a density of 132.4 pcf at 3.9% moisture.

11.2. Infiltration Test –The test showed the soil to be permeability with a mean coefficient calculated at 8.078×10^{-3} cm/sec from the Falling Head equation in Section 8. Water moves through the soil to the groundwater level at a rate that minimizes surface and soil retention.

11.3. Resistivity Test – The soil resistivity for Traverse 1, 2, and 4 are good to medium and should not involve requiring specialized grounding techniques, such as soil treatment, to reduce resistance. However, along Traverse 3 the soil was good for most of the run but bad in the proximity of the railroad.

11.4. Foundation Design Parameters - Since the foundation design is not in the scope of services for this POZ, Terzaghi, Resse and O'Neill, and Broms methodologies were used at a safety factor of 3 for structures that are proposed for the site and the drawings presented. This analysis was to accommodate shallow and deep foundations.

11.4.1. The shallow foundation design was determined using Taraghi model using a 2-foot spread foundation.

11.4.2. Deep foundation design was analyzed using Reese & O'Neill model for axial loading with a 3.5-foot, 4-foot and 6- foot diameter foundation at proposed depths with a safety factor of 3. Similarly, Brom's Method was used to calculate the lateral loading by solving for the shear loading and assuming the moment was equal to the shear loads at the top of the shaft/column.

11.5. Chemical Analysis - BH2E was contaminated with diesel fuel probably from the storage of vehicles on the lot leaking into the soil. Two depths were sampled (10 and 20 feet) for each borehole. BH2E had a pH of 7.89 at 10 feet and 6.36 at 20 feet. However, soluble sulfates, ORP and conductivity spiked at the 20-foot level suggesting that the diesel fuel is reacting chemically with depth. Since the soil is in an oxidized state, sulfides although not tested are considered to be below the sulfate concentration. The groundwater was measured by the driller to be 27.42 feet, which may suggest that the vapors are concentrating above the groundwater and creating the spiked parameters. Conversely, BH4E was not contaminated with diesel fuel in the two depths that were sampled (10 and 20 feet), and the chemical consistency of the samples was relatively expected with depth. Diesel fuel is essentially a heavy petroleum solvent. While it won't chemically dissolve mature concrete, it will deeply penetrate it and leave dark, persistent stains. For metals, it acts as a mild lubricant but can cause significant internal corrosion to tanks and fuel systems over time, especially in a water environment.

11.6. Thermal Resistivity – Soil samples were collected at two levels (S1, 7-foot depth and S2, 11-foot depth) taking a bag sample and augmenting it with bag samples at depths below as a composite due to the driller using a 2-inch spoon. The bulk samples were tested at the 'as received' moisture content and at the specified standard Proctor from BH4E a dry density was provided by the geotechnical lab. The tests were conducted in accordance with the IEEE standard 442-2017. The results are tabulated in Section 9 and show little difference between the S1 and S3 sampling depth. The values are indicative of sandy quartz soil. The soil is poorly graded sand and gravel (SP) with a relatively high infiltration rate that results in low thermal values. These samples mostly represent a composite of the soil at BH2E to the 52-foot level. This section of the project area was also contaminated with diesel fuel that did seem to affect the test results.

12. RECOMMENDATIONS

12.1. Dewatering

12.1.1. The site should be dewatered by pumping or by using a concrete additive in preparing columns/shafts below the ground water table while constructing these structures. This can be done by excavating to the design depth then placing an abutment around the soil face for pumping purposes. Pumping can be done to dewater each site until after the concrete curing process. The problem with pumping water is challenging, since the infiltration rate of the soil may warrant water being pumped off-site and possibly treated. Therefore, the water should be tested for chemical and environmental parameters.

12.1.2. Using a concrete additive in the concrete placement, such as Sodium Silicate, will allow the concrete to set up quicker and add strength to the concrete. The process of any additive should be researched fully before use.

12.2. A Phase 2 EAS should be done prior to design in order to identify zones of contamination with diesel fuel or other lubricates. After identifying the contaminated zones, the contaminated soil should be removed by various extraction methods including excavation in a Phase 3 effort before construction of the columns/shafts and preparing underground electrical cables. The contaminated soil, if excavated, should be taken to an approved landfill licensed for this contaminate.

12.3. Foundation design can be accomplished for shallow and deep foundations.

12.3.1. Shallow foundations can be either slab of grade for equipment or storage sheds or using a spread foundation.

12.3.1.1. Slab on grade should be reinforced and hunched along the edges The thickness and reinforced will depend on the loading.

12.3.1.2. Spread footing should be 2- feet wide with 3 parallel reinforcing steel bars equally spaced at a depth at or below 42 inches.

12.3.2. Deep foundations require shear and moment loads that are affected by cables, wind, snow/ice, earth movement, and equipment needs to be calculated to determine the foundation depth as specified in Section 10.1.3. These values must to determined prior to design the foundations.

12.4. It is presumed that columns/shafts will be constructed as shown in Appendix D. Contaminated soils, concrete slabs and debris that were delineated in Section 9 should be excavated and removed from the site. Any excavation and/or removal of soils, should be replaced with AASHTO #57 and compacted to 95 to 100 percent, and the debris taken off-site to an approved disposal area.

13. REFERENCES

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14. SIGNATORY

06/22/2026

EMANUEL T. POSLUSZNY, P.E. **DATE**

PRESIDENT

APPENDIX A

Location

APPENDIX B

Soils

Appendix C

Groundwater

Appendix D

Structures

Appendix E

Borehole Data

Appendix F

Field Tests

Appendix G

Laboratory Results

APPENDIX A

Location

Stewart Ave.
#178669
Legend
Feature 1
Feature 2
LineFrRail
T45-Commercial Ave
B2E
B2E
B2E
B4E
B4E
Commercial Ave
Commercial Ave
Google Earth
Image Landsat / Copernicus
100 ft
N

APPENDIX B

Soils

United States Department of Agriculture

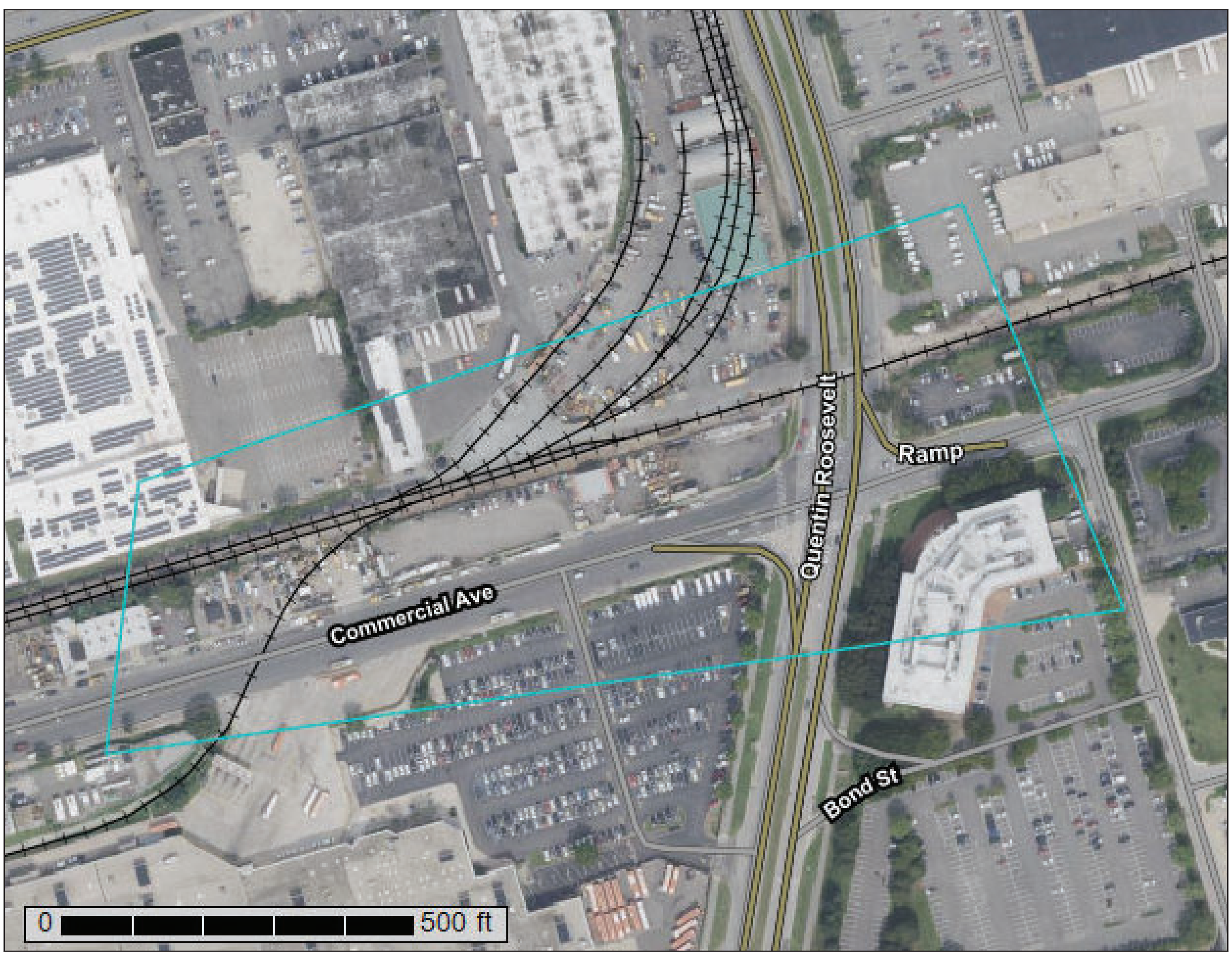
NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for

Nassau County, New York



April 28, 2026

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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Contents

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Soil Map

Map Scale: 1:2,420 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0, 35, 70, 140, 210

Feet: 0, 100, 200, 400, 600

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Nassau County, New York
Survey Area Data: Version 23, Aug 28, 2025

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Mar 1, 2023—Sep 1, 2023

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Ug	Urban land	15.0	100.0%
Totals for Area of Interest		**15.0**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Nassau County, New York

Ug—Urban land

Map Unit Setting

National map unit symbol: 9ttq
Mean annual precipitation: 42 to 46 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 190 to 230 days
Farmland classification: Not prime farmland

Map Unit Composition

Urban land: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Minor Components

Enfield

Percent of map unit: 2 percent
Hydric soil rating: No

Riverhead

Percent of map unit: 2 percent
Hydric soil rating: No

Hempstead

Percent of map unit: 2 percent
Hydric soil rating: No

Udipsamments

Percent of map unit: 2 percent
Hydric soil rating: No

Udorthents

Percent of map unit: 2 percent
Hydric soil rating: No

Soil Information for All Uses

Suitabilities and Limitations for Use

The Suitabilities and Limitations for Use section includes various soil interpretations displayed as thematic maps with a summary table for the soil map units in the selected area of interest. A single value or rating for each map unit is generated by aggregating the interpretive ratings of individual map unit components. This aggregation process is defined for each interpretation.

Building Site Development

Building site development interpretations are designed to be used as tools for evaluating soil suitability and identifying soil limitations for various construction purposes. As part of the interpretation process, the rating applies to each soil in its described condition and does not consider present land use. Example interpretations can include corrosion of concrete and steel, shallow excavations, dwellings with and without basements, small commercial buildings, local roads and streets, and lawns and landscaping.

Shallow Excavations

ENG - Engineering

Shallow excavations are trenches or holes dug to a maximum depth of 5 or 6 feet for graves, utility lines, open ditches, or other purposes. The ratings are based on the soil properties that influence the ease of digging and the resistance to sloughing. Depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, the amount of large stones, and dense layers influence the ease of digging, filling, and compacting. Depth to the seasonal high water table, flooding, and ponding may restrict the period when excavations can be made. Slope influences the ease of using machinery. Soil texture, depth to the water table, and linear extensibility (shrink-swell potential) influence the resistance to sloughing.

The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect the specified use. "Not limited" indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. "Somewhat limited" indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. "Very limited" indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

The map unit components listed for each map unit in the accompanying Summary by Map Unit table in Web Soil Survey or the Aggregation Report in Soil Data Viewer are determined by the aggregation method chosen. An aggregated rating class is shown for each map unit. The components listed for each map unit are only those that have the same rating class as listed for the map unit. The percent composition of each component in a particular map unit is presented to help the user better understand the percentage of each map unit that has the rating presented.

Other components with different ratings may be present in each map unit. The ratings for all components, regardless of the map unit aggregated rating, can be viewed by generating the equivalent report from the Soil Reports tab in Web Soil Survey or from the Soil Data Mart site. Onsite investigation may be needed to validate these interpretations and to confirm the identity of the soil on a given site.

Map—Shallow Excavations

Map Scale: 1:2,420 if printed on A landscape (11" x 8.5") sheet.

Meters: 0, 35, 70, 140, 210

Feet: 0, 100, 200, 400, 600

N

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Rating Polygons

Very limited

Somewhat limited

Not limited

Not rated or not available

Soil Rating Lines

Very limited

Somewhat limited

Not limited

Not rated or not available

Soil Rating Points

Very limited

Somewhat limited

Not limited

Not rated or not available

Water Features

Streams and Canals

Transportation

Rails

Interstate Highways

US Routes

Major Roads

Local Roads

Background

Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Nassau County, New York
Survey Area Data: Version 23, Aug 28, 2025

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Mar 1, 2023—Sep 1, 2023

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Tables—Shallow Excavations

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
Ug	Urban land	Not rated	Urban land (90%)		15.0	100.0%
			Enfield (2%)			
			Riverhead (2%)			
			Hempstead (2%)			
			Udipsamments (2%)			
			Udorthents (2%)			
Totals for Area of Interest					**15.0**	**100.0%**

Rating	Acres in AOI	Percent of AOI
Null or Not Rated	15.0	100.0%
Totals for Area of Interest	**15.0**	**100.0%**

Rating Options—Shallow Excavations

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Water Management

Water Management interpretations are tools for evaluating the potential of the soil in the application of various water management practices. Example interpretations include pond reservoir area, embankments, dikes, levees, and excavated ponds.

Infiltration Systems, Shallow

Shallow infiltration systems are stormwater management practices that are placed 1 to 3 feet in the ground, depending on the application. These systems include pervious pavement, buffer strips, filter strips, and vegetated swales. They slow the movement of stormwater to surface waters and also filter a significant portion of pollutants from the stormwater. The fundamental function of these systems is to hold the runoff generated by an area, such as a parking lot, from the first 1 inch of rainfall during a 24-hour storm preceded by 48 hours of no measurable precipitation. There should be little or no ponding at the surface. The water should infiltrate into the surrounding soil in 24 to 48 hours. Only that part of the soil between depths of 24 and 80 inches is evaluated.

The ratings are based on the soil properties that affect infiltration of the stormwater, construction and maintenance of the system, and public safety and health. Saturated hydraulic conductivity (Ksat), depth to a water table, ponding, depth to bedrock or a cemented pan, and flooding affect the transmission of rainwater. Stones and boulders, ice, and bedrock or a cemented pan interfere with installation. Subsidence interferes with installation and maintenance. Excessive slope may cause lateral seepage and surfacing of the water in downslope areas. Some slopes may become unstable and move upon addition of water.

Soils underlain by loose sand and gravel or fractured bedrock at a depth of less than 4 feet below the bottom of the system may adversely affect water quality and public health. In these soils the shallow infiltration system may not adequately filter the stormwater, particularly if the adsorptive capacity of the soil below the system is low. As a result, the ground water may become contaminated. In areas underlain by limestone, solution channels and subsequent subsidence may damage adjacent infrastructure. Also, areas underlain by limestone may be subject to ground-water contamination.

The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect the specified infiltration system. "Not limited" indicates that the soil has features that are very favorable for the specified system. Good performance and very low maintenance can be expected. "Somewhat limited" indicates that the soil has features that are moderately favorable for the specified system. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. "Very limited" indicates that the soil has one or more features that are unfavorable for the specified system. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the specified system (1.00) and the point at which the soil feature is not a limitation (0.00).

The accompanying Summary by Map Unit table in Web Soil Survey or the Aggregation Report in Soil Data Viewer lists the map unit components. These components are determined by the aggregation method chosen. An aggregated rating class is shown for each map unit. The components listed for each map unit are only those that have the same rating class as the one listed for the map unit. The percent composition of each component in a particular map unit is shown to help the user better understand the percentage of each map unit that has the rating indicated. Other components with different ratings may occur in each map unit.

The complete ratings list for all components, regardless of the map unit aggregated rating, can be viewed by generating the equivalent report from the Soil Reports tab in Web Soil Survey or from the Soil Data Mart site. Onsite investigation may be needed to validate these interpretations and to confirm the identity of the soil on a given site.

Map—Infiltration Systems, Shallow

Map Scale: 1:2,420 if printed on A landscape (11" x 8.5") sheet.

Meters: 0, 35, 70, 140, 210

Feet: 0, 100, 200, 400, 600

N

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils

Soil Rating Polygons
- Severely limited
- Somewhat limited
- Not limited
- Not rated or not available

Soil Rating Lines
- Severely limited
- Somewhat limited
- Not limited
- Not rated or not available

Soil Rating Points
- Severely limited
- Somewhat limited
- Not limited
- Not rated or not available

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Nassau County, New York
Survey Area Data: Version 23, Aug 28, 2025

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Mar 1, 2023—Sep 1, 2023

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Tables—Infiltration Systems, Shallow

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
Ug	Urban land	Not rated	Urban land (90%)		15.0	100.0%
			Enfield (2%)			
			Riverhead (2%)			
			Hempstead (2%)			
			Udipsamments (2%)			
			Udorthents (2%)			
Totals for Area of Interest					**15.0**	**100.0%**

Rating	Acres in AOI	Percent of AOI
Null or Not Rated	15.0	100.0%
Totals for Area of Interest	**15.0**	**100.0%**

Rating Options—Infiltration Systems, Shallow

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

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Appendix C

Groundwater

An official website of the United States government

Here's how you know

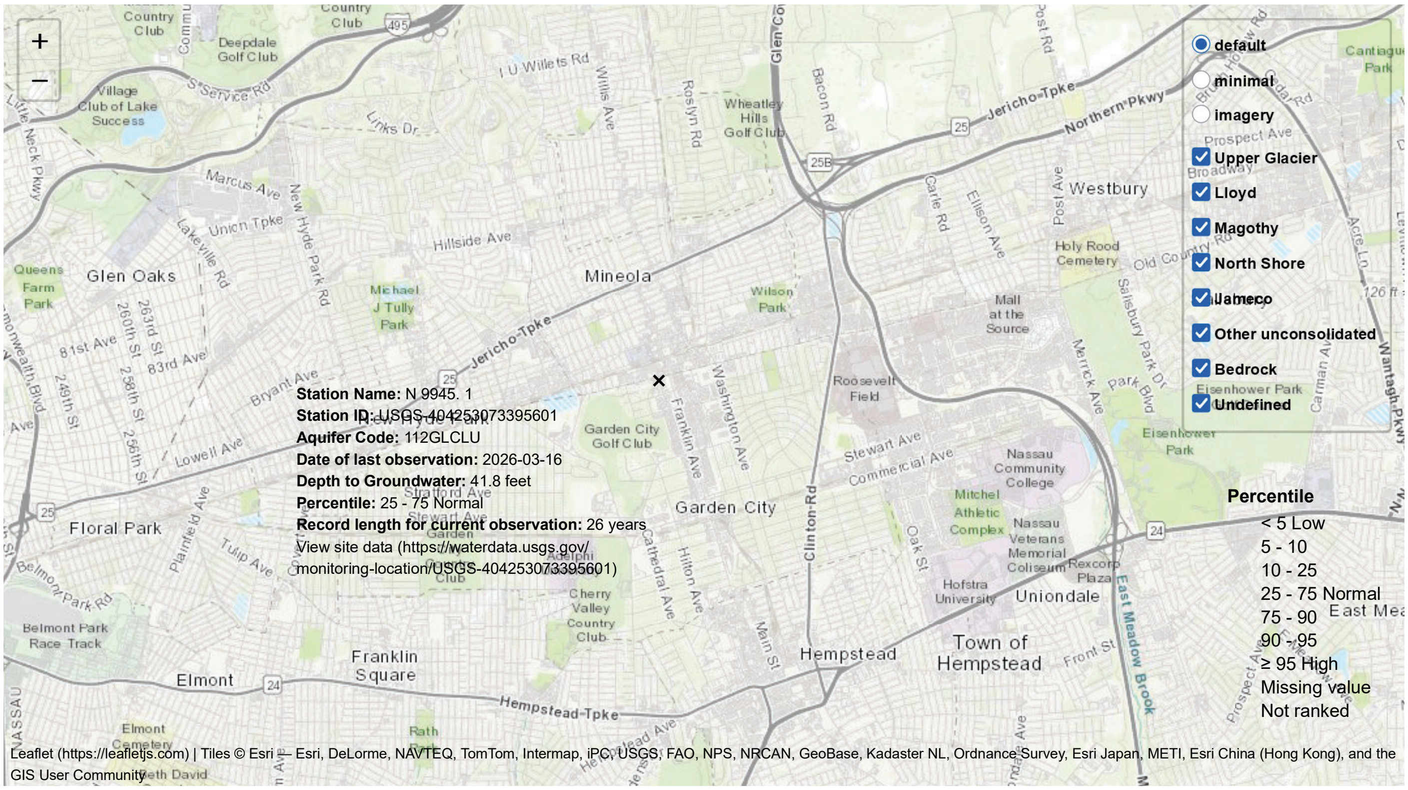
Here's how you know

(https://www.usgs.gov/)

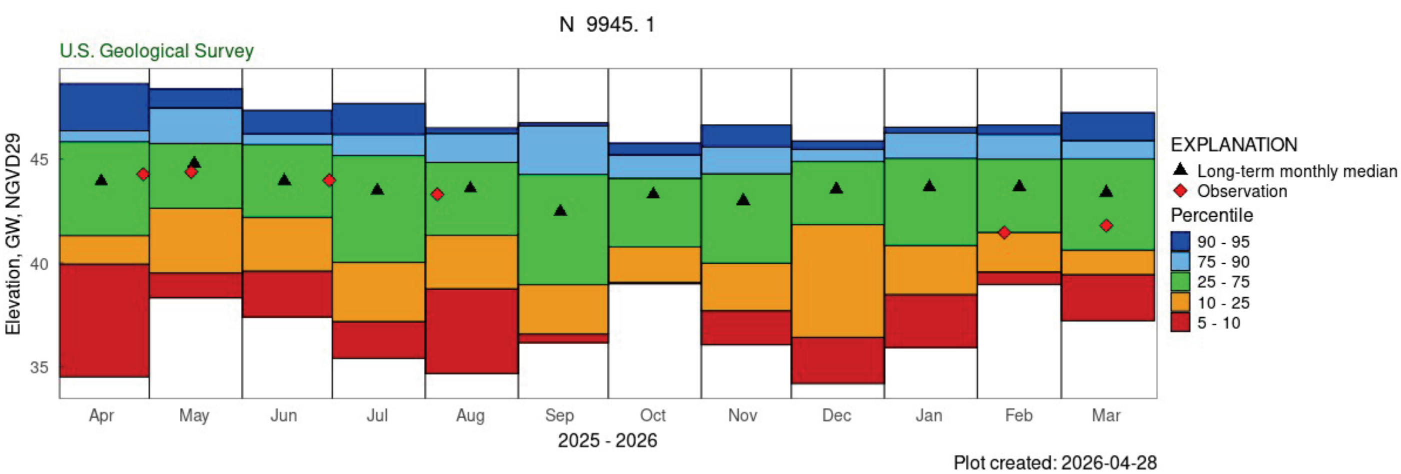
The U.S. Geological Survey New York Water Science Center maintains a network of monitoring wells across New York State in cooperation with federal, state, and local partners. The map at right displays color-coded percentiles from either the most recent depth-to-water data or the previous month of data based on the selection criteria below. Sites with less than 10 years of data are shown on the map as 'Not ranked'. Monitoring sites with continuous data are displayed with a and those with discrete data have a .Click a site on the map to display detailed site information, a plot of monthly conditions for the past year, and links to the site data. In addition, the checkbox in the top right allows a user to turn on and off wells based on the aquifer the well is monitoring. The monthly conditions plot may take a few seconds to load after clicking a site depending on the amount of data available.

Select data to display on map:

Most recent data available



Disclaimer: https://waterdata.usgs.gov/provisional-data-statement/ (https://waterdata.usgs.gov/provisional-data-statement/)

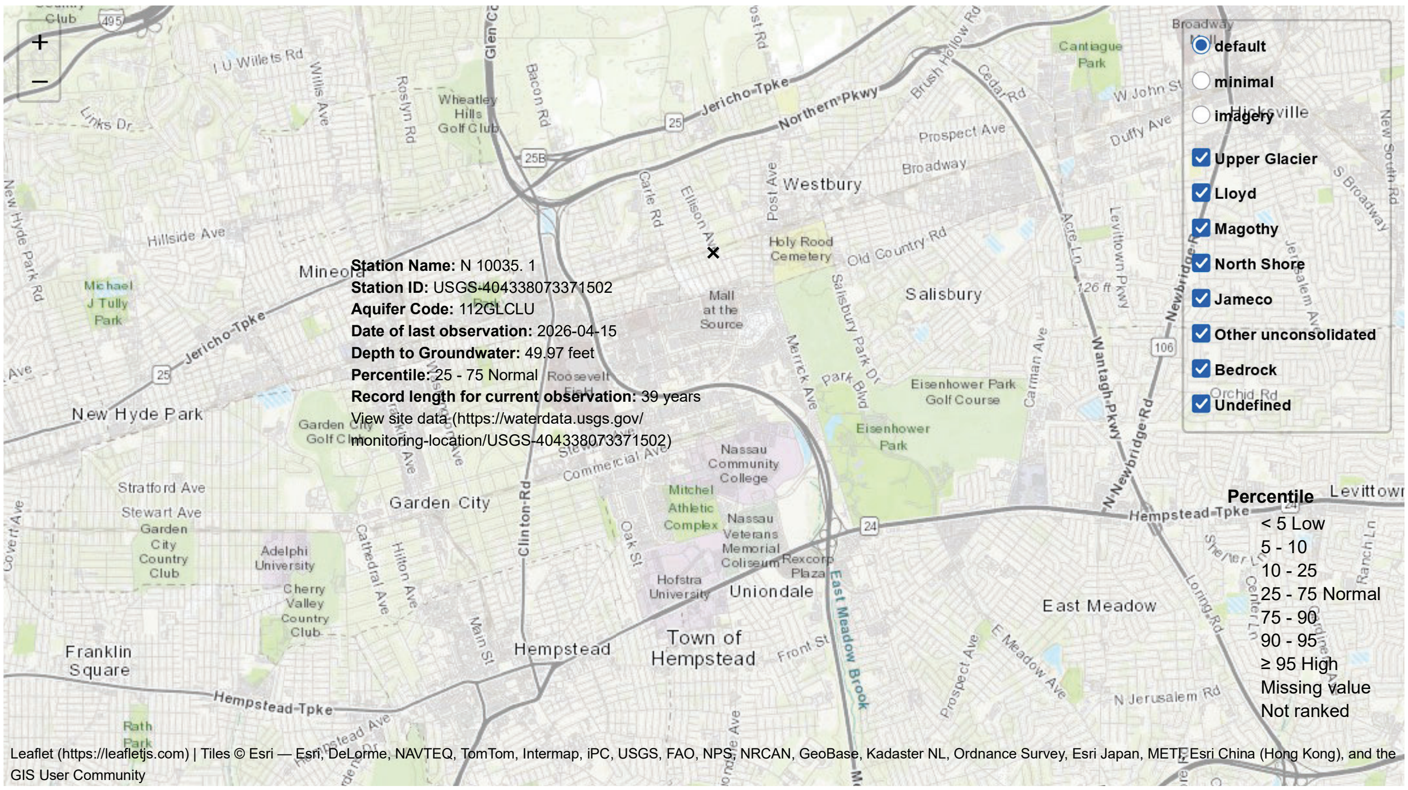


Maintained by the U.S. Geological Survey New York Water Science Center (https://www.usgs.gov/centers/new-york-water-science-center).

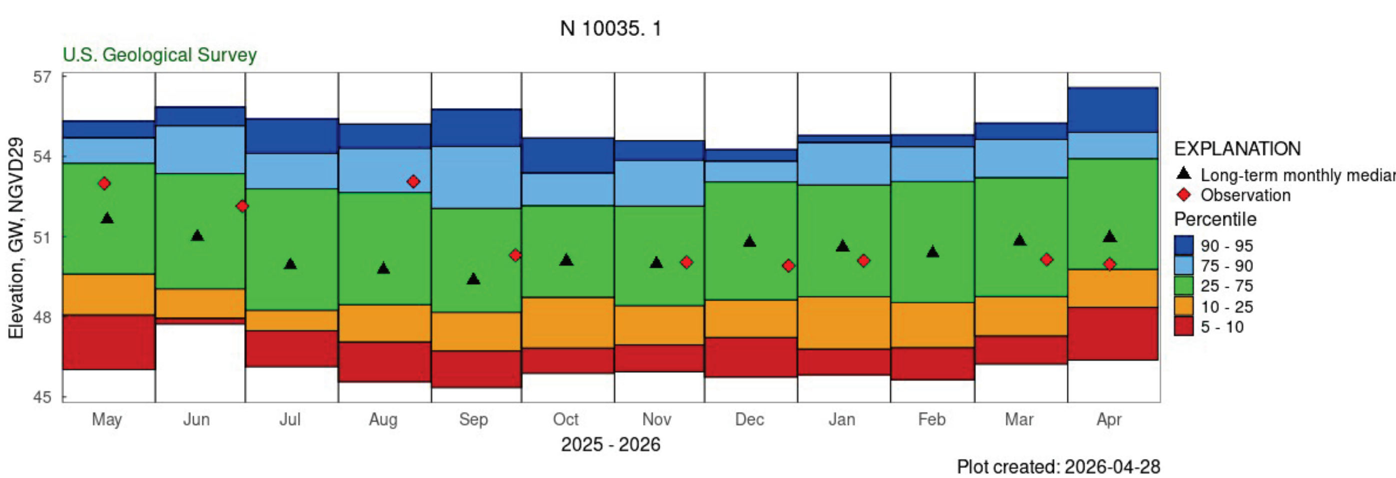
The U.S. Geological Survey New York Water Science Center maintains a network of monitoring wells across New York State in cooperation with federal, state, and local partners. The map at right displays color-coded percentiles from either the most recent depth-to-water data or the previous month of data based on the selection criteria below. Sites with less than 10 years of data are shown on the map as 'Not ranked'. Monitoring sites with continuous data are displayed with a ● and those with discrete data have a ▲ .Click a site on the map to display detailed site information, a plot of monthly conditions for the past year, and links to the site data. In addition, the checkbox in the top right allows a user to turn on and off wells based on the aquifer the well is monitoring. The monthly conditions plot may take a few seconds to load after clicking a site depending on the amount of data available.

Select data to display on map:

Most recent data available



Disclaimer: https://waterdata.usgs.gov/provisional-data-statement/ (https://waterdata.usgs.gov/provisional-data-statement/)

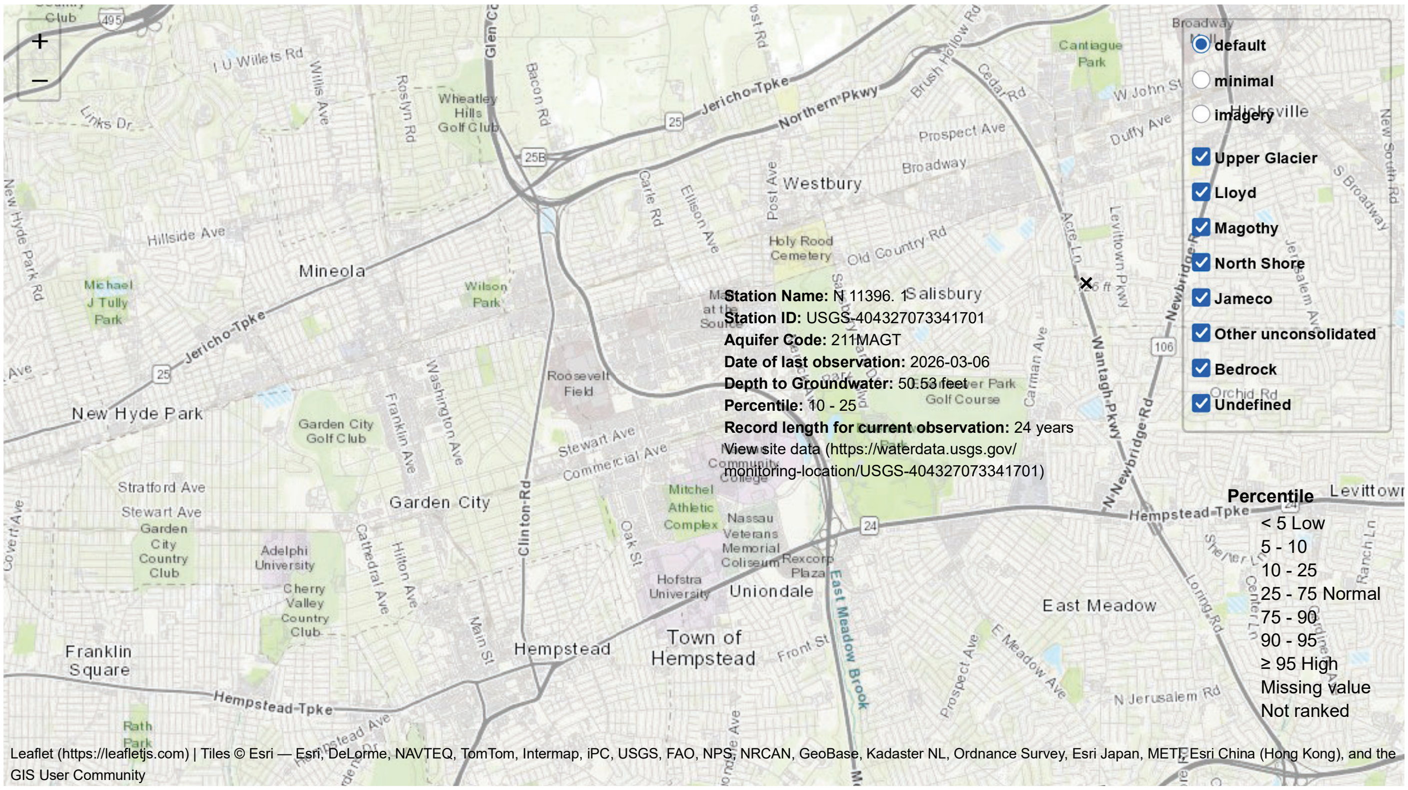


Maintained by the U.S. Geological Survey New York Water Science Center (https://www.usgs.gov/centers/new-york-water-science-center).

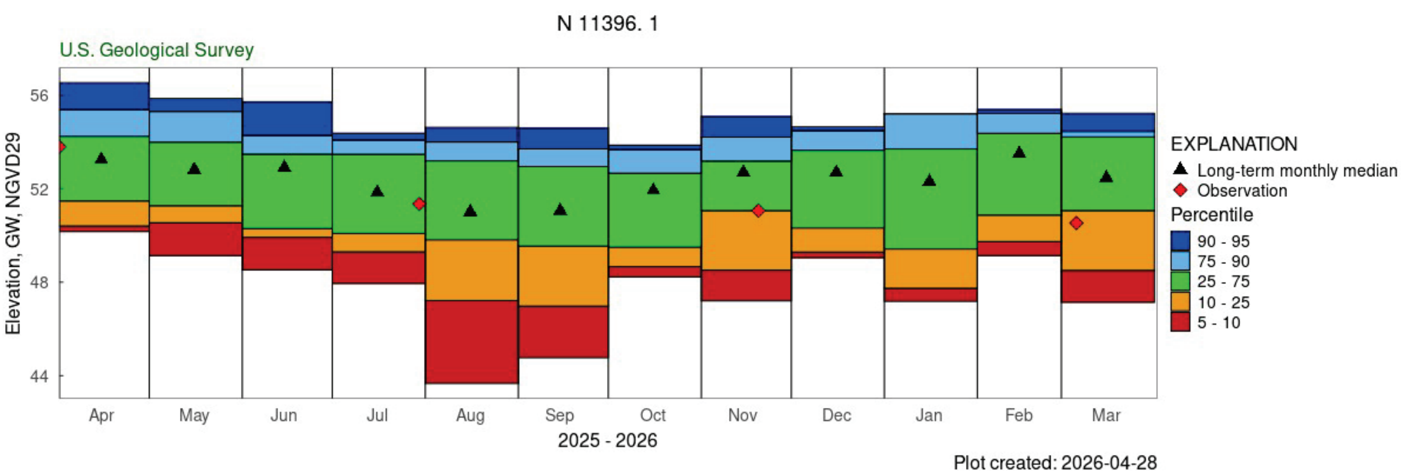
The U.S. Geological Survey New York Water Science Center maintains a network of monitoring wells across New York State in cooperation with federal, state, and local partners. The map at right displays color-coded percentiles from either the most recent depth-to-water data or the previous month of data based on the selection criteria below. Sites with less than 10 years of data are shown on the map as 'Not ranked'. Monitoring sites with continuous data are displayed with a ● and those with discrete data have a ▲ .Click a site on the map to display detailed site information, a plot of monthly conditions for the past year, and links to the site data. In addition, the checkbox in the top right allows a user to turn on and off wells based on the aquifer the well is monitoring. The monthly conditions plot may take a few seconds to load after clicking a site depending on the amount of data available.

Select data to display on map:

Most recent data available



Disclaimer: https://waterdata.usgs.gov/provisional-data-statement/ (https://waterdata.usgs.gov/provisional-data-statement/)



Maintained by the U.S. Geological Survey New York Water Science Center (https://www.usgs.gov/centers/new-york-water-science-center).

Appendix D

Structures

CONFIDENTIAL CRITICAL ENERGY INFRASTRUCTURE INFORMATION (CEII) HAS BEEN REDACTED FROM THIS DOCUMENT

[redacted]

CONFIDENTIAL CRITICAL ENERGY INFRASTRUCTURE INFORMATION (CEII) HAS BEEN REDACTED FROM THIS DOCUMENT

[redacted]

Appendix E

Borehole Data

Hole No. BH 2E

DRILLING LOG	DIVISION	INSTALLATION OF	SHEET: 1 of 2 SHEETS
1. PROJECT: Stewart Ave. #178669		10. SIZE AND TYPE OF BIT: 2-inch	
2. LOCATION (Coordinates or Station): 40d43’49.73” N 73d36’23.48” W		11. DATUM FOR ELEVATION SHOWN (TBM or MSL): 76’ asl	
3. DRILLING AGENCY: Soil Mechanics		12. MANUFACTURERS DESIGNATION OF DRILL: CME	
4. HOLE NO. (As shown on drawing title and title number): B2E		13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN	DISTURBED 10 / UNDISTURBED
5. NAME OF DRILLER: Steve Mitchell		14. TOTAL NUMBER CORE BOXES N/A	
6. DIRECTION OF HOLE X:VERTICAL INCLINED ____ DEG. FROM VERT.		15. ELEVATION GROUND WATER: 76 feet	
		16. DATE HOLE	STARTED: 3/6/2026 COMPLETED: 3/6/2026
		17. ELEVATION TOP OF HOLE: 76’	
7. THICKNESS OF OVERBURDEN: N/A		18. TOTAL CORE RECOVERY FOR BORING: N/A	
8. DEPTH DRILLED INTO ROCK: N/A		19. SIGNATURE OF INSPECTOR	
9. TOTAL DEPTH OF HOLE: 52’			

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOV-ERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
76’-	0’	--	Surface			Soft dig with Vacuum Truck to 5 feet
71’	5	--	Gravel & Coarse grain Sand 5Y4/3	1’ 50%	S1	SPT=6-16-20-18, Diesel smell, wet, 5 to 7 feet, SP
			Auger			
66’	10	--	Gravel & Coarse grain Sand 5Y4/4	1.1’ 55%	S2	SPT=5-8-11-8, wet 10 to 12 feet, SP
			Auger			
61’	15	--	Gravel & Coarse grain Sand 5Y4/4	1.1’ 55%	S3	SPT=10-11-12-14, Moist 15 to 17 feet, SP
			Auger			
56’	20	--	Coarse grain sand 5Y5/4	1.75’ 87.5%	S4	SPT=6-9-9-9, Moist 20 to 22 feet, SP
			Auger			
51’	25	--	Coarse grain sand 5Y5/6	1’ 50%	S5	SPT=4-5-5-5, Moist 25 to 27 feet, SP
			Auger			^ depth to ground water 27.42 feet
46’	30	--	Coarse grain sand 5Y5/6	2’ 100%	S6	SPT=4-5-5-6, Wet 3 0 to 32 feet, SP
			Auger			
41’	35	--	Coarse grain sand and gravel 5Y6/8	1” 50%	S7	SPT=5-3-3-3, wet 35 to 37 feet, SP-SM
			Auger			
36’	40	--	Coarse grain sand and gravel 5Y6/8	0.9’ 45%	S8	SPT=6-6-6-7, wet 40 to 42 feet, SP
31’	45	--	Auger See page 2			

DRILLING LOG (Cont Sheet) | ELEVATION TOP OF HOLE | Hole No.: B2E

PROJECT: Stewart Ave., # 178669 | INSTALLATION | SHEET :2 of 2 SHEETS
OF:

ELEVATION a	DEPTH b	LEGEND C	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOV-ERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
	42	- - -	Auger			
31’	45	-- -	Fine grain Sand w/ gravel 5Y6/8	0.95’ 47.5%	S9	SPT=4-5-5-6, wet, 45 to 47 feet, SP
		- - -	Auger			
26’	50	-- - -	Fine grain sand 5Y6/8	1.2’ 60%	S10	SPT=4-7-10-17, wet 50 to 52 feet, SP
			BOH			

DRILLING LOG	DIVISION	INSTALLATION	SHEET: 1 of 2 OF SHEETS
1. PROJECT: Stewart Ave. #178669		10. SIZE AND TYPE OF BIT: 2-inch	
2. LOCATION (Coordinates or Station): 40d43'49.97" N 73d36'21.76" W		11. DATUM FOR ELEVATION SHOWN (TBM or MSL): 76' asl	
3. DRILLING AGENCY: Soil Mechanics		12. MANUFACTURERS DESIGNATION OF DRILL:	
4. HOLE NO. (As shown on drawing title and title number): B4E		13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN	DISTURBED 10 / UNDISTURBED
5. NAME OF DRILLER: Steve Mitchell		14. TOTAL NUMBER CORE BOXES N/A	
6. DIRECTION OF HOLE X:VERTICAL INCLINED ___ DEG. FROM VERT.		15. ELEVATION GROUND WATER: 76 feet	
		16. DATE HOLE	STARTED: 3/5/2026 COMPLETED: 3/5/2026
		17. ELEVATION TOP OF HOLE: 76'	
7. THICKNESS OF OVERBURDEN: N/A		18. TOTAL CORE RECOVERY FOR BORING: N/A	
8. DEPTH DRILLED INTO ROCK: N/A		19. SIGNATURE OF INSPECTOR	
9. TOTAL DEPTH OF HOLE: 52'			

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOV-ERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
76'-	0'	--	Surface			Soft dig with Vacuum Truck to 5 feet
71'	5	--	Gravel & Coarse grain Sand 5Y6/4	1.4' 70%	S1	SPT=7-20-21-21, moist 5 to 7 feet, SP
			Auger			
66'	10	--	Gravel & Coarse grain Sand 5Y6/8	1.5' 75%	S2	SPT=10-12-16-23, moist 10 to 12 feet, SP
			Auger			
61'	15	--	Gravel & Coarse grain Sand 5Y6/8	1.4' 70%	S3	SPT=6-8-10-9, Moist 15 to 17 feet, SP
			Auger			
56'	20	--	Coarse grain sand & gravel 5Y6/8	1.4' 70%	S4	SPT=9-12-15-15, Moist 20 to 22 feet, SP
			Auger			
51'	25	--	Fine grain sand & gravel 5Y7/8	1.6' 80%	S5	SPT=5-11-15-17, Moist 25 to 27 feet, SP
			Auger			^ water at 27.42 feet
46'	30	--	Fine grain sand & gravel 5Y7/8	2' 100%	S6	SPT=10-11-15-20, Wet 30 to 32 feet, SP
			Auger			Washed casing
41'	35	--	Fine grain sand and gravel 5Y7/8	1.2" 60%	S7	SPT=10-15-13-20, wet 35 to 37 feet, SP-SM
			Auger			Washing casing
36'	40	--	Fine grain sand and gravel 5Y7/8	0.9' 45%	S8	SPT=6-6-8-9, wet 40 to 42 feet, SP
31'	45	--	Auger See page 2			Washed casing

DRILLING LOG (Cont Sheet) ELEVATION TOP OF HOLE Hole No.: B4E

PROJECT: Stewart Ave., # 178669 INSTALLATION SHEET :2 of 2
OF: SHEETS

ELEVATION a	DEPTH b	LEGEND C	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOV-ERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
	42	- - -	Auger			Washed casing
31’	45	-- -	Fine grain Sand w/ gravel 5Y7/8	0.7’ 35%	S9	SPT=7-10-13-14, wet, 45 to 47 feet, SP
		- - -	Auger			Washing casing
26’	50	-- - -	Fine grain sand 5Y7/8	1.2’ 60%	S10	SPT=10-10-13-14, wet 50 to 52 feet, SP
			BOH			

Table #1 - BH2E*										SPT							
					Recovery					Blows							
Strata	moisture	Sample#	Depth Interval (ft)	Penetration (ft)	Feet	Percent	RQD	6"	12"	18"	24"	N (SPT)	Grd Water	USCS*	NM%*	LL*	PL*
Light Bwn Poorly grd Sand w/ Gravel	M	S-1	5-7	2	1	50%	N/A	6	16	20	18	38		SP			
Gray poorly grd sand	M	S-2	10-12	2	1.1	55%	N/A	5	8	11	8	19		SP			
Gray poorly grd sand	**W**	S-3	15-17	2	1.1	55%	**N/A**	10	11	12	14	26		SP			
Light Bwn Poorly grd Sand w/Gravel	**W**	S-4	20-22	2	1.75	88%	**N/A**	6	9	9	9	18		SP			
Light Bwn Poorly grd Sand	**W**	S-5	25-27	2	1	50%	**N/A**	4	5	5	5	10	27.42	SP			
Light Bwn Poorly grd Sand	**W**	S-6	30-32	2	2	100%	**N/A**	4	5	5	6	11		SP			
Light Bwn Poorly grd Sand w/ Gravel	**W**	S-7	35-37	2	1	50%	**N/A**	5	3	3	3	6		SP			
Light Bwn Poorly grd Sand w/ Gravel	**W**	S-8	40-42	2	0.9	45%	**N/A**	6	6	6	7	13		SP			
Light Bwn Poorly grd Sand w/ Gravel	**W**	S-9	45-47	2	0.95	48%	**N/A**	4	5	5	6	11		SP			
Light Bwn Poorly grd Sand w/ Gravel	**W**	S-10	50-52	2	1.2	60%	**N/A**	4	7	10	17	27		SP			

Table #2 - B-4	**BH 4E**							**SPT**										
Southeast corner					**Recovery**			**Blows**										
Strata	**moisture**	**Sample#**	**Depth Interval (ft)**	**Penetration (ft)**	**Feet**	**Percent**	**RQD**	**6"**	**12"**	**18"**	**24"**	**N (SPT)**	**Grd Water**	**USCS**	**NOTE**	**NM%**	**LL**	**PL**
Light Bwn Poorly grd Sand w/ Gravel	M	S-1	5-7	2	1.4	70%	N/A	7	20	21	21	42		SP		2.9	NP	NP
Org/brwn poorly grd sand	M	S-2	10-12	2	1.5	75%	N/A	10	12	16	23	39	27.42	SP		5.2	NP	NP
Light Bwn Poorly grd Sand w/ Gravel	**W**	S-3	15-17	2	1.4	70%	**N/A**	6	8	10	9	19		SP		11.3	NP	NP
Light Bwn Poorly grd Sand w/ silt & Gravel	**W**	S-4	20-22	2	1.4	70%	**N/A**	9	12	15	15	30		SP-SM		12.7	NP	NP
Light Bwn Poorly grd Sand w/ Gravel	**W**	S-5	25-27	2	1.6	80%	**N/A**	5	11	15	17	32		SP		28.2	NP	NP
Light Bwn Poorly grd Sand	**W**	S-6	30-32	2	2	100%	**N/A**	10	11	15	20	35		SP		16	NP	NP
Light Bwn Poorly grd Sand w/ Gravel	**W**	S-7	35-37	2	1.2	60%	**N/A**	10	15	13	20	33		SP		14.7	NP	NP
Light Bwn Poorly grd Sand w/ Gravel	**W**	S-8	40-42	2	0.9	45%	**N/A**	6	6	8	9	17		SP		14.7	NP	NP
Light Bwn Poorly grd Sand w/ Gravel	**W**	S-9	45-47	2	0.7	35%	**N/A**	7	10	13	14	27		SP		14.7	NP	NP
Light Bwn Poorly grd Sand w/ Gravel	**W**	S-10	50-52	2	1.2	60%	**N/A**	10	10	13	14	27		SP		14.7	NP	NP

Appendix F

Field Tests

B - IT - 1

$$K_m = \frac{\pi * d}{11 * (t_2 - t_1)} * \ln \frac{H_1}{H_2}$$

K_m = MEAN COEFFICENT OF PERMIABILITY (cm./sec.)

d = INSIDE DIAMETER (cm.)

L = LENGTH OF CASING (cm.)

H_1 = PIEZOMETER HEAD FOR $t = t_1$ (cm.)

H_2 = PIEZOMETER HEAD FOR $t = t_2$ (cm.)

D_1 = DEPTH TO H_1 FROM TOP OF CASING (cm.)

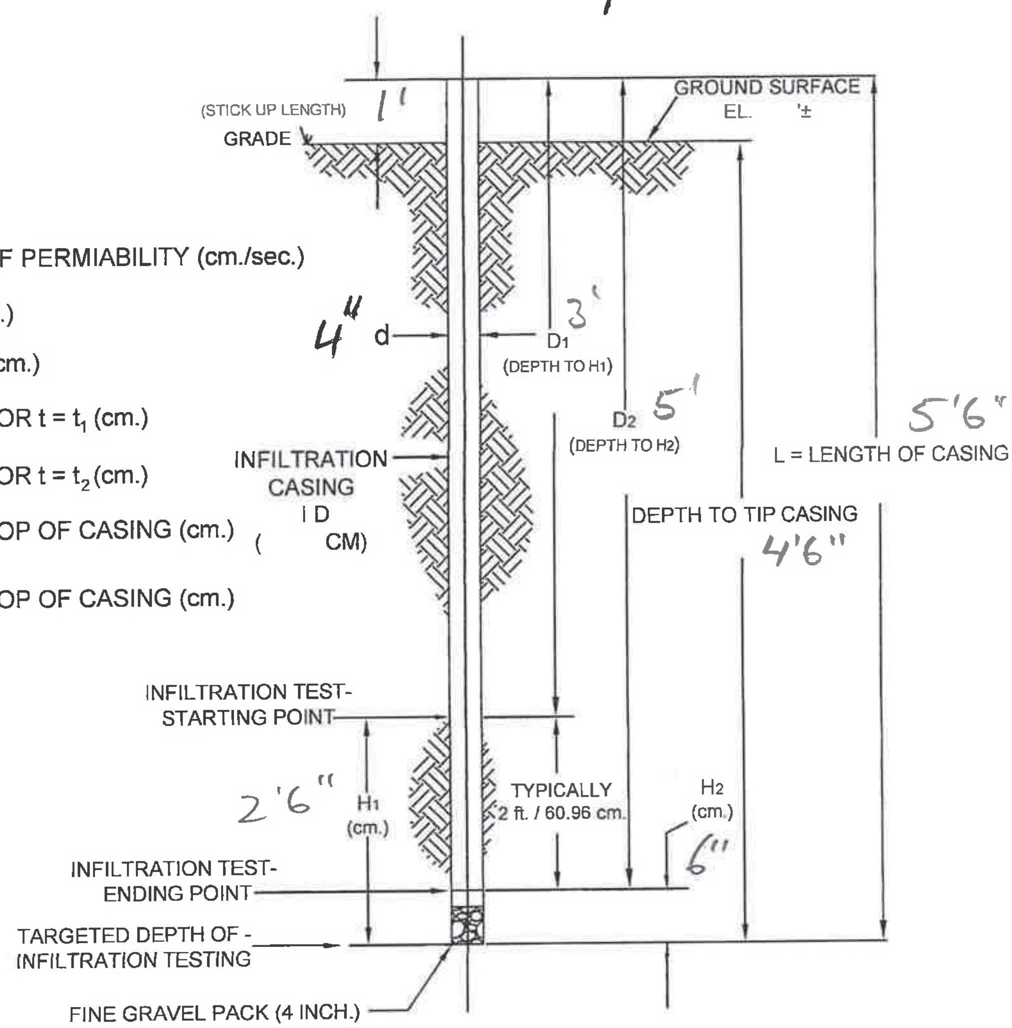
D_2 = DEPTH TO H_2 FROM TOP OF CASING (cm.)

t = TIME (sec.)

ln = NATURAL LOG

$H_1 = L - D_1$ (cm.)

$H_2 = L - D_2$ (cm.)



JOB NO. 25-332　　LOCATION: IT-1

DATE: PRESOAK: 3/5/26　　DATE TEST CONDUCTED: 3/6/26

FALLING HEAD INFILTRATION TEST DATA

D_1 3 ft. X.XX m. XX.X cm.

D_2 5 ft. X.XX m. XX.X cm.

RUN No.	START (T1)	END (T2)	ELAPSED	COMMENTS
NO. 1			11 min 42 sec	Drained 2'
NO. 2			9 min 15 sec	
NO. 3			8 min 44 sec	
NO. 4			8 min 49 sec	
NO. 5				

TIME: (MINUTES AND SECONDS)

Avg 9 min 38 sec

I.D. OF CASING Ø 4" ID = cm 10.16

DEPTH TO TIP AT BOTTOM OF CASING FT. 4'6"

$$K_m = \frac{\pi * d}{11 * (t_2 - t_1)} * \ln \frac{H_1}{H_2}$$

ALL UNITS IN CM. AND SECONDS

K_m = MEAN COEFFICIENT OF PERMIABILITY (CM/SEC) = 8.078×10^{-3}

SUBSOIL
INVESTIGATIONS

SOIL MECHANICS DRILLING CORP.

3770 MERRICK ROAD, SEAFORD, NEW YORK 11783
PH: (516) 221-2333 FAX: (516) 221-0254
EMAIL: SOILMECHANICSDRAFT@EARTHLINK.NET

April 27, 2026

POZ Engineering & Environmental
P.O. Box 663
Pittston, PA 6418640
Attn: Mr. Posluszny, PE
emanuel@poz-e.com
570-498-7676

Re: 99200 Commercial Ave.
Garden City, NY
Proposal # 25-5370
Project #25-332

Dear Mr. Posluszny:

Forwarded herewith are the results of investigative efforts, conducted in general conformance with Field Wenner 4-Pin Soil Resistivity Testing (ASTM G57), completed at the above referenced property on 4/24/26.

I Field Wenner 4-Pin Soil Resistivity Testing (ASTM G57)

Linear pin spacing for the project, in area of geotechnical borings B-2E and B-4E, was 0.5', 1.0', 1.5', 2.0', 3.0', 5.0', 7.0', 10.0', 15.0', 20.0', 30.0', 45.0', 70.0', 100.0 or as far as practical (see Site Plan attached). The wearing surface in the survey area consisted of asphalt pavement. The data acquired in the field was used to document soil resistivity at the test locations, identified as Traverse #1 through Traverse #4, as follows (see Tables #1 through #4 attached):

(i) Traverse #1 North to South (5,362.0 to 14,362.0 ohm-cm)
(ii) Traverse #2 North to South (5,630.1 to 16,086.0 ohm-cm)

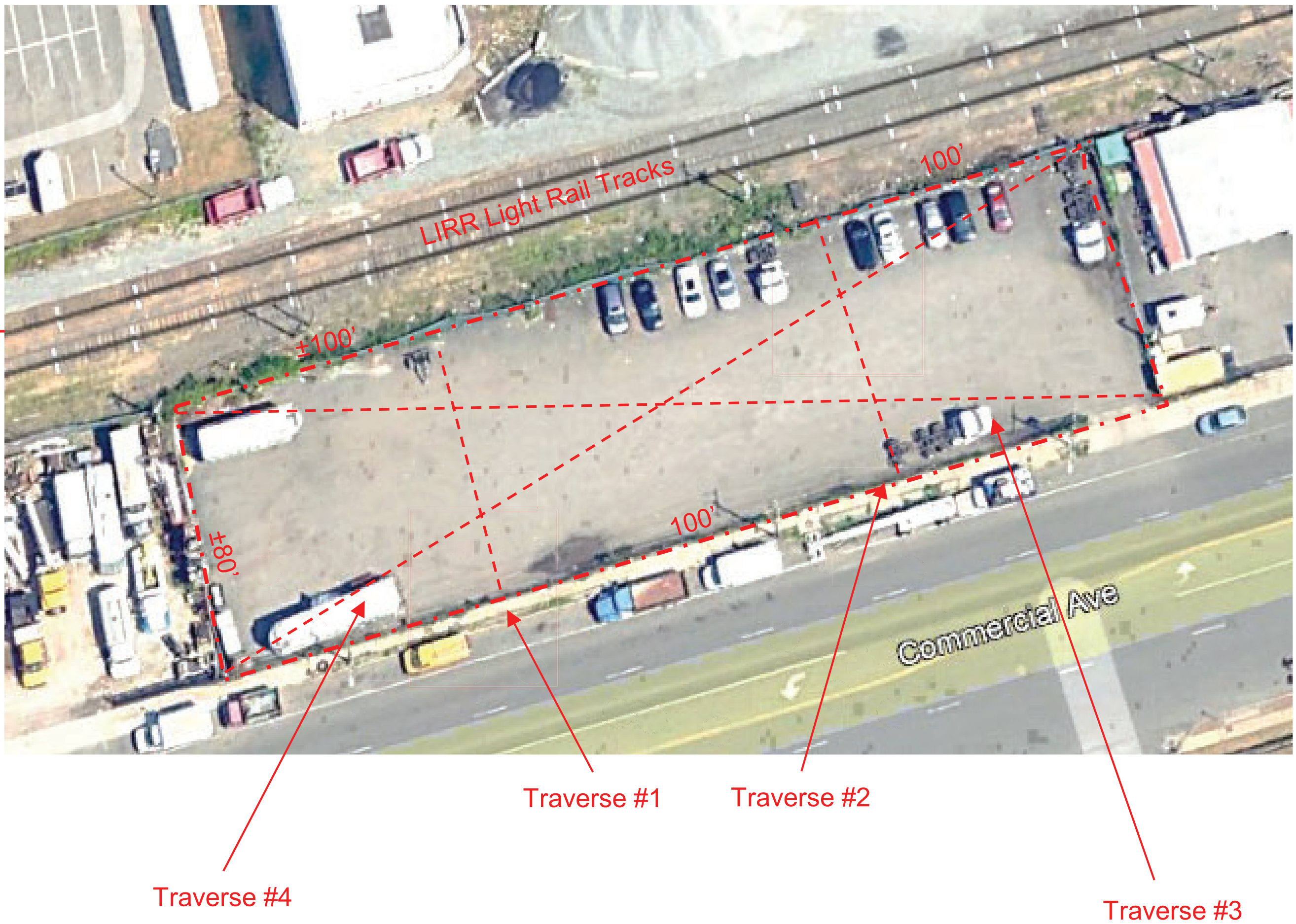
(iii) Traverse #3 Northwest to Southeast (6,894.0 to 191,500.0 ohm-cm)
(iii) Traverse #4 Northeast to Southwest (5,745.0 to 55,535.0 ohm-cm)

Should you have any questions regarding the contents of this report/letter, please feel free to contact our office.

Very truly yours,
Soil Mechanics Drilling Corp.

Altan Gulum, C.P.G., P.G.
Project Geologist

Daniel Marzano
Environmental Scientist



SOIL MECHANICS DRILLING
3770 MERRICK ROAD • SEAFORD, L. I., NEW YORK 11783
(516) 221-2333 • FAX (516) 221-0254

Site Plan **99200 Commercial Ave.** **Garden City, NY**		N W E S
DATE: 4/26		
SCALE: N.T.S.	JOB NO.: 25-332	

Table #1

Project: 99200 Commercial Ave., Garden City, NY Sampling Location: Boring Location B2E & B4E Date: 4/24/26 Prepared For: Poz Engineering	Instrument Manufacturer/Model #: McMiller 400A Soil Resistivity Meter Soil Temperature: 60° Air Temperature: 65° Percent Moisture: NA Soil Composition: NA Ground Water Table: NA Last 48 Hours Precipitation (Inches): 0.05” (Area of survey asphalt paved)

Test Location	Pin Spacing S (ft.)	Dial Reading D	Range Switch Setting R	Resistance (ohm) D x R	Spacing Multiplier: 191.5 x S	Resistivity (ohm-cm) Resistance x Spacing Multiplier
Traverse #1	0.5’	1.5	100.0	150.0	95.75	14,362.5
	1.0’	6.6	10.0	66.0	191.5	12,639.0
	1.5’	3.8	10.0	38.0	287.25	10,915.5
	2.0’	2.5	10.0	25.0	383.0	9,575.0
	3.0’	2.0	10.0	20.0	574.5	11,490.0
	5.0’	7.0	1.0	7.0	957.5	6,702.5
	7.0’	4.0	1.0	4.0	1,340.5	5,362.0
	10.0’	4.0	1.0	4.0	1,915.0	7,660.0
	15.0’	3.5	1.0	3.5	2,872.5	10,053.75
	20.0’	3.0	1.0	3.0	3,830.0	11,490.0

Table #2

Project: 99200 Commercial Ave., Garden City, NY Sampling Location: Boring Location B2E & B4E Date: 4/24/26 Prepared For: Poz Engineering	Instrument Manufacturer/Model #: McMiller 400A Soil Resistivity Meter Soil Temperature: 60° Air Temperature: 65° Percent Moisture: NA Soil Composition: NA Ground Water Table: NA Last 48 Hours Precipitation (Inches): 0.05" (Area of survey asphalt paved)

Test Location	Pin Spacing S (ft.)	Dial Reading D	Range Switch Setting R	Resistance (ohm) D x R	Spacing Multiplier: 191.5 x S	Resistivity (ohm-cm) Resistance x Spacing Multiplier
Traverse #2	0.5'	10.0	10.0	100.0	95.75	9,575.0
	1.0'	6.0	10.0	60.0	191.5	11,490.0
	1.5'	4.0	10.0	40.0	287.25	11,490.0
	2.0'	2.8	10.0	28.0	383.0	10,724.0
	3.0'	1.6	10.0	16.0	574.5	9,192.0
	5.0'	6.2	1.0	6.2	957.5	5,936.5
	7.0'	4.2	1.0	4.2	1,340.5	5,630.1
	10.0'	4.1	1.0	4.1	1,915.0	7,851.5
	15.0'	5.0	1.0	5.0	2,872.5	14,362.5
	20.0'	4.2	1.0	4.2	3,830.0	16,086.0

Table #3

Project: 99200 Commercial Ave., Garden City, NY Sampling Location: Boring Location B2E & B4E Date: 4/24/26 Prepared For: Poz Engineering	Instrument Manufacturer/Model #: McMiller 400A Soil Resistivity Meter Soil Temperature: 60° Air Temperature: 65° Percent Moisture: NA Soil Composition: NA Ground Water Table: NA Last 48 Hours Precipitation (Inches): 0.05” (Area of survey asphalt paved)

Test Location	Pin Spacing S (ft.)	Dial Reading D	Range Switch Setting R	Resistance (ohm) D x R	Spacing Multiplier: 191.5 x S	Resistivity (ohm-cm) Resistance x Spacing Multiplier
Traverse #3	0.5’	1.6	100.0	160.0	95.75	15,320.0
	1.0’	5.4	10.0	54.0	191.5	10,341.0
	1.5’	4.0	10.0	40.0	287.25	11,490.0
	2.0’	3.0	10.0	30.0	383.0	11,490.0
	3.0’	2.2	10.0	22.0	574.5	12,639.0
	5.0’	7.2	1.0	7.2	957.5	6,894.0
	7.0’	5.6	1.0	5.6	1,340.5	7,506.8
	10.0’	4.5	1.0	4.5	1,915.0	8,617.5
	15.0’	2.5	1.0	2.5	2,872.5	7,181.25
	20.0’	2.9	1.0	2.9	3,830.0	11,107.0
	30.0’	3.5	1.0	3.5	5,745.0	20,107.5
	45.0’	3.6	1.0	3.6	8,617.5	31,023.0
	70.0’	2.9	1.0	2.9	13,405.0	38,874.5
	100.0’	10.0	1.0	10.0	19,150.0	191,500.0

Table #4

Project: 99200 Commercial Ave., Garden City, NY Sampling Location: Boring Location B2E & B4E Date: 4/24/26 Prepared For: Poz Engineering	Instrument Manufacturer/Model #: McMiller 400A Soil Resistivity Meter Soil Temperature: 60° Air Temperature: 65° Percent Moisture: NA Soil Composition: NA Ground Water Table: NA Last 48 Hours Precipitation (Inches): 0.05” (Area of survey asphalt paved)

Test Location	Pin Spacing S (ft.)	Dial Reading D	Range Switch Setting R	Resistance (ohm) D x R	Spacing Multiplier: 191.5 x S	Resistivity (ohm-cm) Resistance x Spacing Multiplier
Traverse #4	0.5’	2.3	100.0	230.0	95.75	22,022.5
	1.0’	7.2	10.0	72.0	191.5	13,788.0
	1.5’	4.4	10.0	44.0	287.25	12,639.0
	2.0’	2.6	10.0	26.0	383.0	9,958.0
	3.0’	10.0	1.0	10.0	574.5	5,745.0
	5.0’	7.0	1.0	7.0	957.5	6,702.5
	7.0’	4.7	1.0	4.7	1,340.5	6,300.35
	10.0’	3.2	1.0	3.2	1,915.0	6,128.0
	15.0’	2.2	1.0	2.2	2,872.5	6,319.5
	20.0’	3.0	1.0	3.0	3,830.0	11,490.0
	30.0’	2.0	1.0	2.0	5,745.0	11,490.0
	45.0’	2.5	1.0	2.5	8,617.5	21,543.75
	70.0’	2.5	1.0	2.5	13,405.0	33,512.5
	100.0’	2.9	1.0	2.9	19,150.0	55,535.0

Appendix G

Laboratory Results

TRANSMITTAL NOTICE

March 24, 2026

PEECP26001
LAB #07-215981

POZ Engineering & Environmental Consulting, P.C.
Attn: Mr. Emanuel T. Posluszny, P.E.
emanuel@poz-e.com
490 North Main Street
P.O. Box 663
Pittston, PA 18640

RE: Stewart Avenue #178669 (#26029)
Garden City, NY

Mr. Posluszny:

Please find enclosed the results of the laboratory testing performed on the test boring samples for boring BH-4E and BH-2E delivered to our office on March 16, 2026.

Sample BH-4E was tested for gradation & classification and moisture-density relationship. The results of this testing are included herein as Enclosure (1).

Sample BH-2E was visually classified. The results of this testing are included herein as Enclosure (2).

If you have any questions, please contact our office.

Sincerely,
PENNONI ASSOCIATES, INC.

Timothy Burns, P.E.
Senior Engineer
tburns@pennoni.com

Encls:
(1) Laboratory Test Data (Test Boring BH-4E)
- Soil Classifications Summary
- Gradation and Classifications (8 sheets)
- Moisture-Density Relationship

(2) Laboratory Test Data (Test Boring BH-2E)
- Soil Classifications Summary

PENNONI ASSOCIATES, INC.
120 Commerce Road • Pittston Twp., PA 18640-9552
570/655-2200 (phone) • www.pennoni.com

#26029
LABORATORY TEST DATA

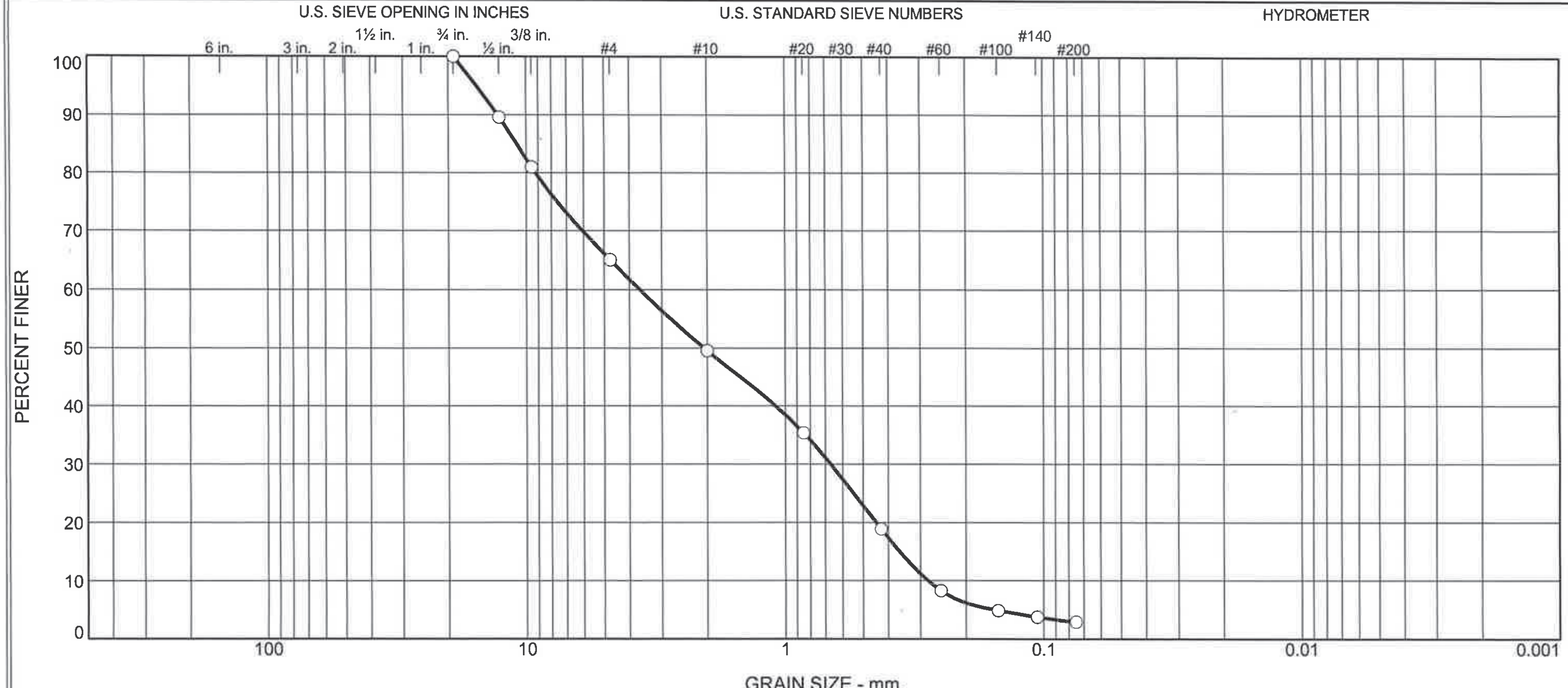
- Soil Classifications Summary (BH-4E)
- Gradation and Classifications (8 sheets)
- Moisture-Density Relationship

SOIL CLASSIFICATIONS SUMMARY

Results of testing are summarized in the following table, and the individual gradation and classification curves are included within this enclosure.

Test Boring BH-4E Sample No.	Soil Sample Depth	Classification (ASTM D-2487)	%Moisture (D-2216)	Combined Silt/Clay (% < #200)
S-2	10’ – 12’	light brown poorly graded SAND with gravel (SP)	2.9%	2.9%
S-5	25’ – 27’	orange/brown poorly graded SAND (SP)	5.2%	2.8%
S-6	30’ – 32’	light brown poorly graded SAND with gravel (SP)	11.3%	1.8%
S-7	35’ – 37’	light brown poorly graded SAND with silt and gravel (SP-SM)	12.7%	5.1%
S-8	40’ – 42’	light brown poorly graded SAND with gravel (SP)	28.2%	2.9%
S-9	45’ – 47’	light brown poorly graded SAND (SP)	16.0%	1.7%
S-10	50’ – 52’	light brown poorly graded SAND with gravel (SP)	14.7%	3.1%
Bulk	below 35’	light brown poorly graded SAND with gravel (SP)	7.2%	2.5%

GRADATION AND CLASSIFICATION



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○ 0.0	0.0	34.9	15.6	30.6	16.0	2.9	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○ Stewart Ave. #178669	BH-4E S-2	10'-12'	3/5/26	SP	lt. brown poorly graded SAND with gravel	2.9	NP	NP

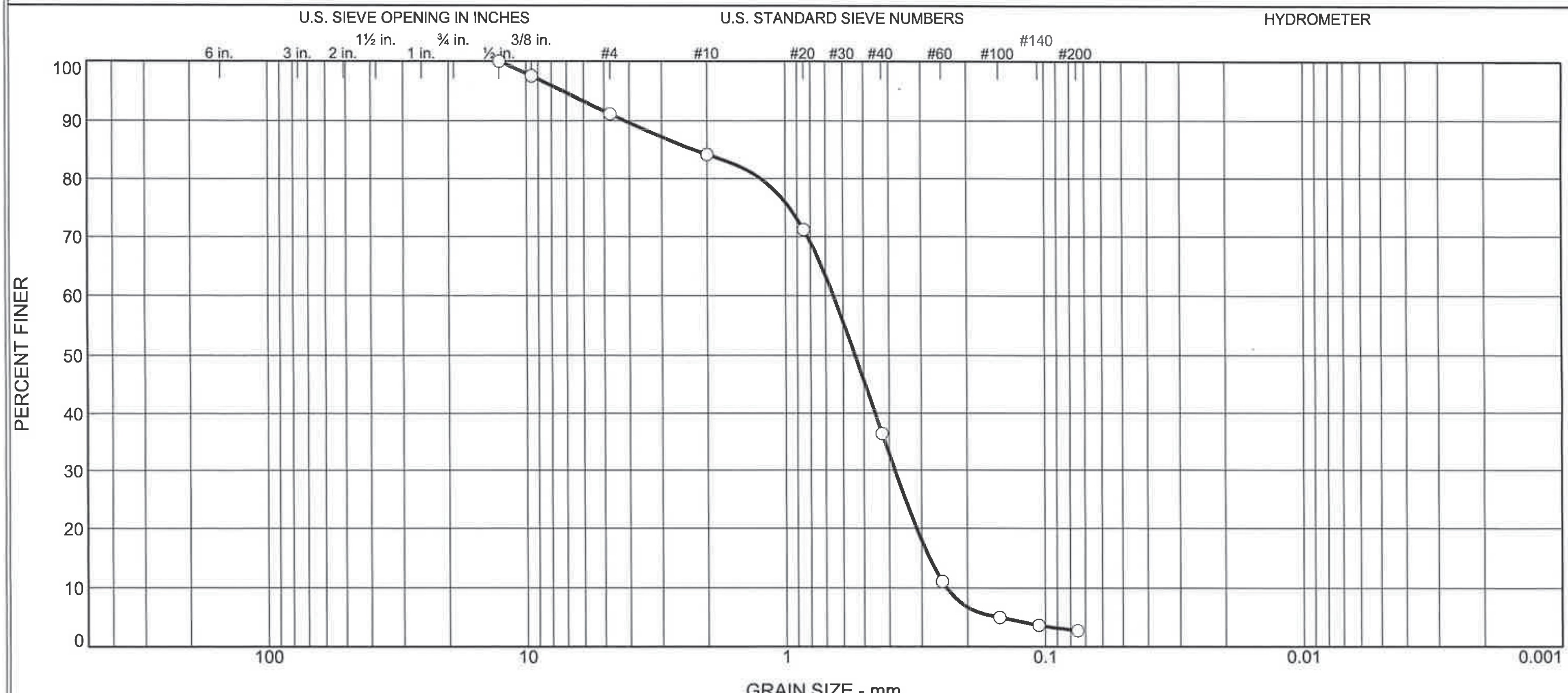
Client POZ Engineering & Environmental
Project Materials Testing 2026
Project No. 26029 Figure

Pennoni

○ Plasticity Index PI= Non-Plastic

Tested By: MJ

GRADATION AND CLASSIFICATION



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	8.8	7.0	47.8	33.6	2.8	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Stewart Ave. #178669	BH-4E S-5	25'-27'	3/5/26	SP	orange/brown poorly graded SAND	5.2	NP	NP

Client POZ Engineering & Environmental

Project Materials Testing 2026

Project No. 26029

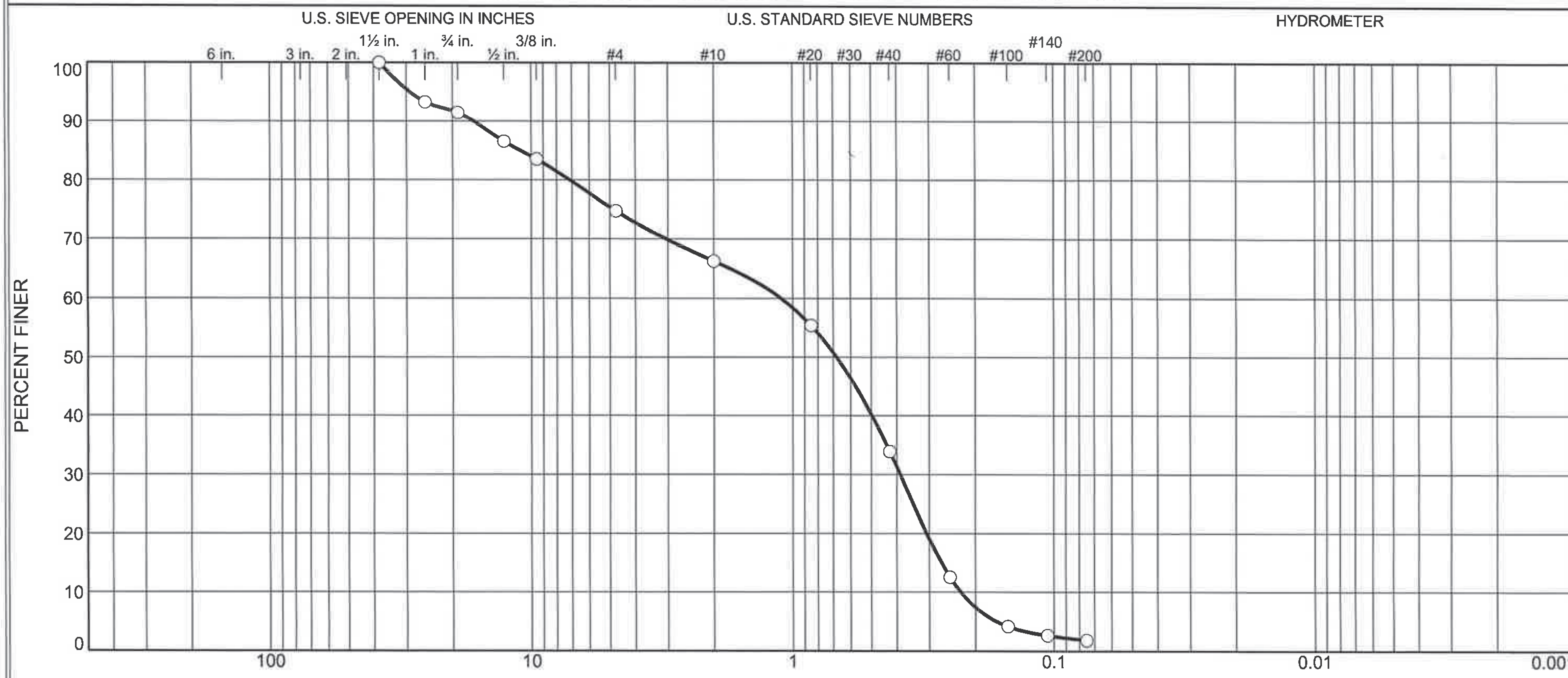
Figure

Pennoni

○ Plasticity Index PI= Non-Plastic

Tested By: MJ

GRADATION AND CLASSIFICATION



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○ 0.0	8.6	16.7	8.4	32.4	32.1	1.8	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○ Stewart Ave. #178669	BH-4E S-6	30'-32'	3/5/26	SP	lt. brown poorly graded SAND with gravel	11.3	NP	NP

Client POZ Engineering & Environmental

Project Materials Testing 2026

Project No. 26029

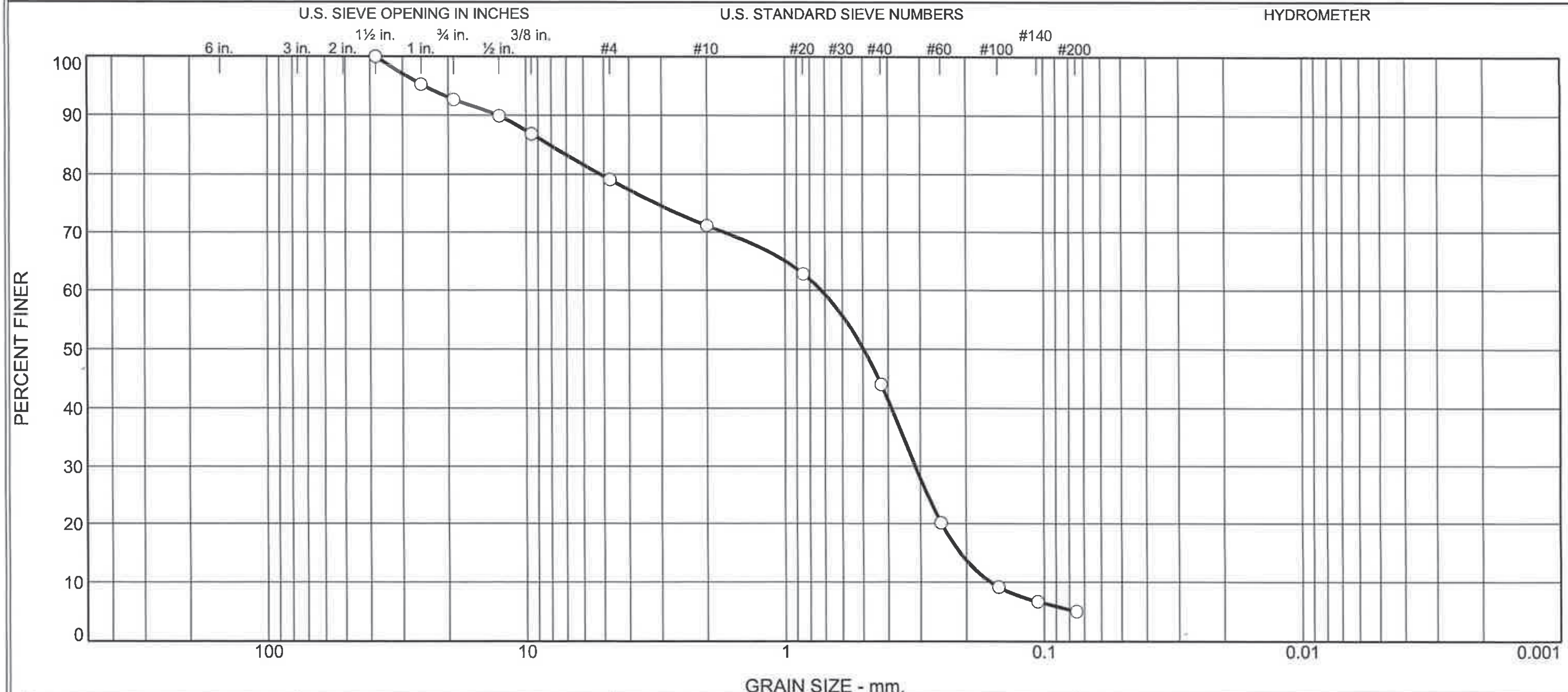
Figure

Pennoni

○ Plasticity Index PI= Non-Plastic

Tested By: MJ

GRADATION AND CLASSIFICATION



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	7.3	13.6	8.0	27.0	39.0	5.1	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Stewart Ave. #178669	BH-4E S-7	35'-37'	3/5/26	SP-SM	lt. brown poorly graded SAND with silt and gravel	12.7	NP	NP

Client POZ Engineering & Environmental

Project Materials Testing 2026

Project No. 26029

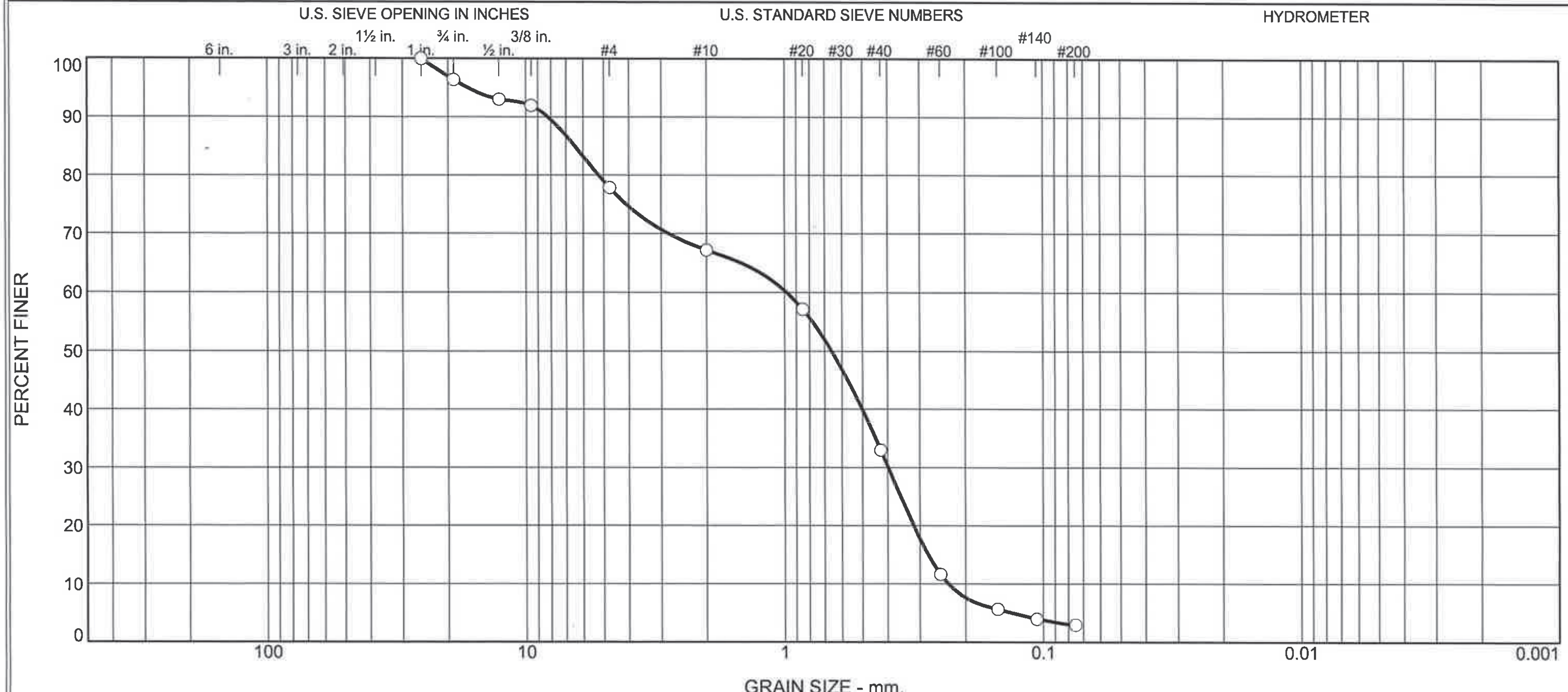
Figure

Pennoni

○ Plasticity Index PI= Non-Plastic

Tested By: MJ

GRADATION AND CLASSIFICATION



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○ 0.0	3.6	18.6	10.6	34.2	30.1	2.9	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○ Stewart Ave. #178669	BH-4E S-8	40'-42'	3/5/26	SP	lt. brown poorly graded SAND with gravel	28.2	NP	NP

Client POZ Engineering & Environmental

Project Materials Testing 2026

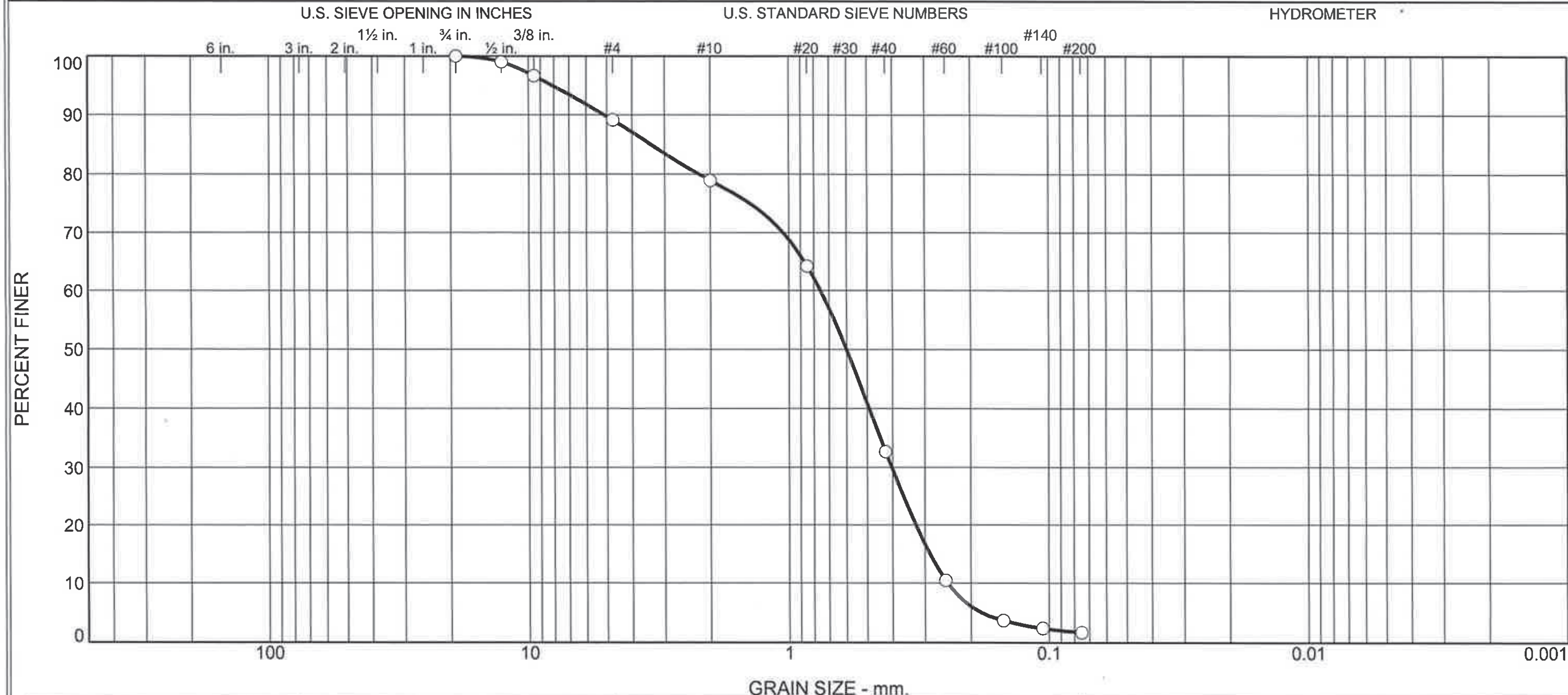
Project No. 26029

Figure

○ Plasticity Index PI= Non-Plastic

Tested By: MJ

GRADATION AND CLASSIFICATION



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	10.9	10.2	46.2	31.0	1.7	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Stewart Ave. #178669	BH-4E S-9	45'-47'	3/5/26	SP	lt. brown poorly graded SAND	16.0	NP	NP

Client POZ Engineering & Environmental

Project Materials Testing 2026

Project No. 26029

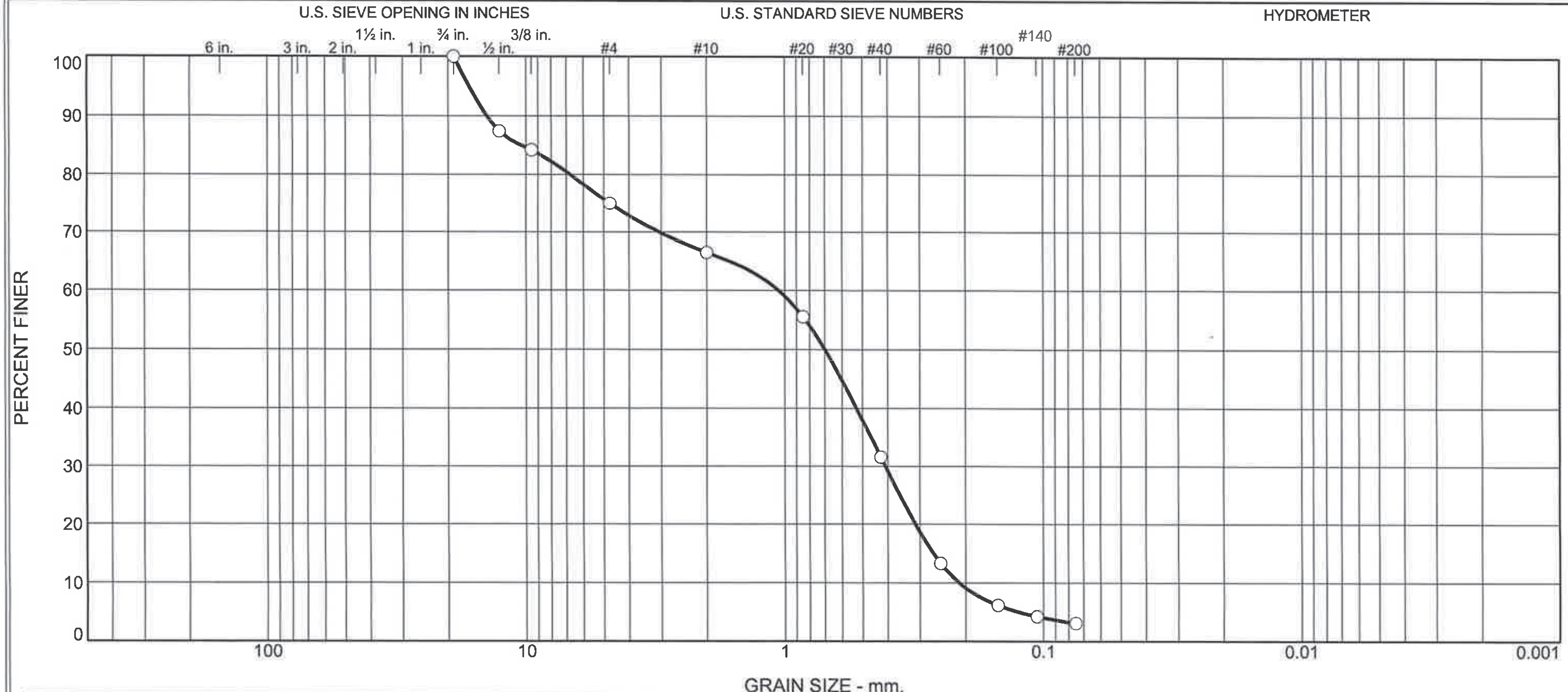
Figure

Pennoni

○ Plasticity Index PI= Non-Plastic

Tested By: MJ

GRADATION AND CLASSIFICATION



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	25.0	8.5	34.9	28.5	3.1	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Stewart Ave. #178669	BH-4E S-10	50'-52'	3/5/26	SP	lt. brown poorly graded SAND with gravel	14.7	NP	NP

Client POZ Engineering & Environmental

Project Materials Testing 2026

Project No. 26029

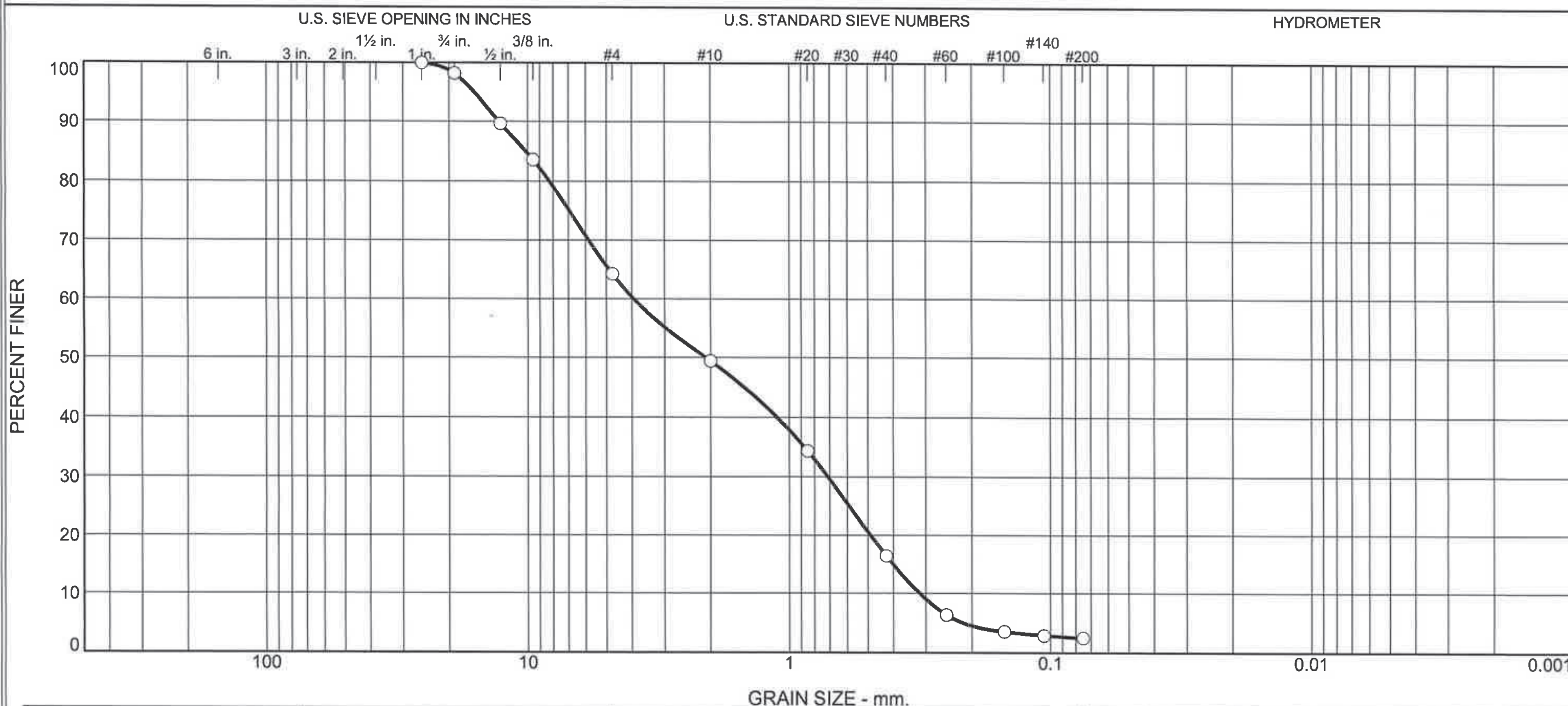
Figure

Pennoni

○ Plasticity Index PI= Non-Plastic

Tested By: MJ

GRADATION AND CLASSIFICATION



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	1.8	33.9	14.9	32.9	14.0	2.5	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Stewart Ave. #178669	S-1 (bulk)	below 35'	3/5/26	SP	lt. browm poorly graded SAND with gravel	7.2	NP	NP

Client POZ Engineering & Environmental

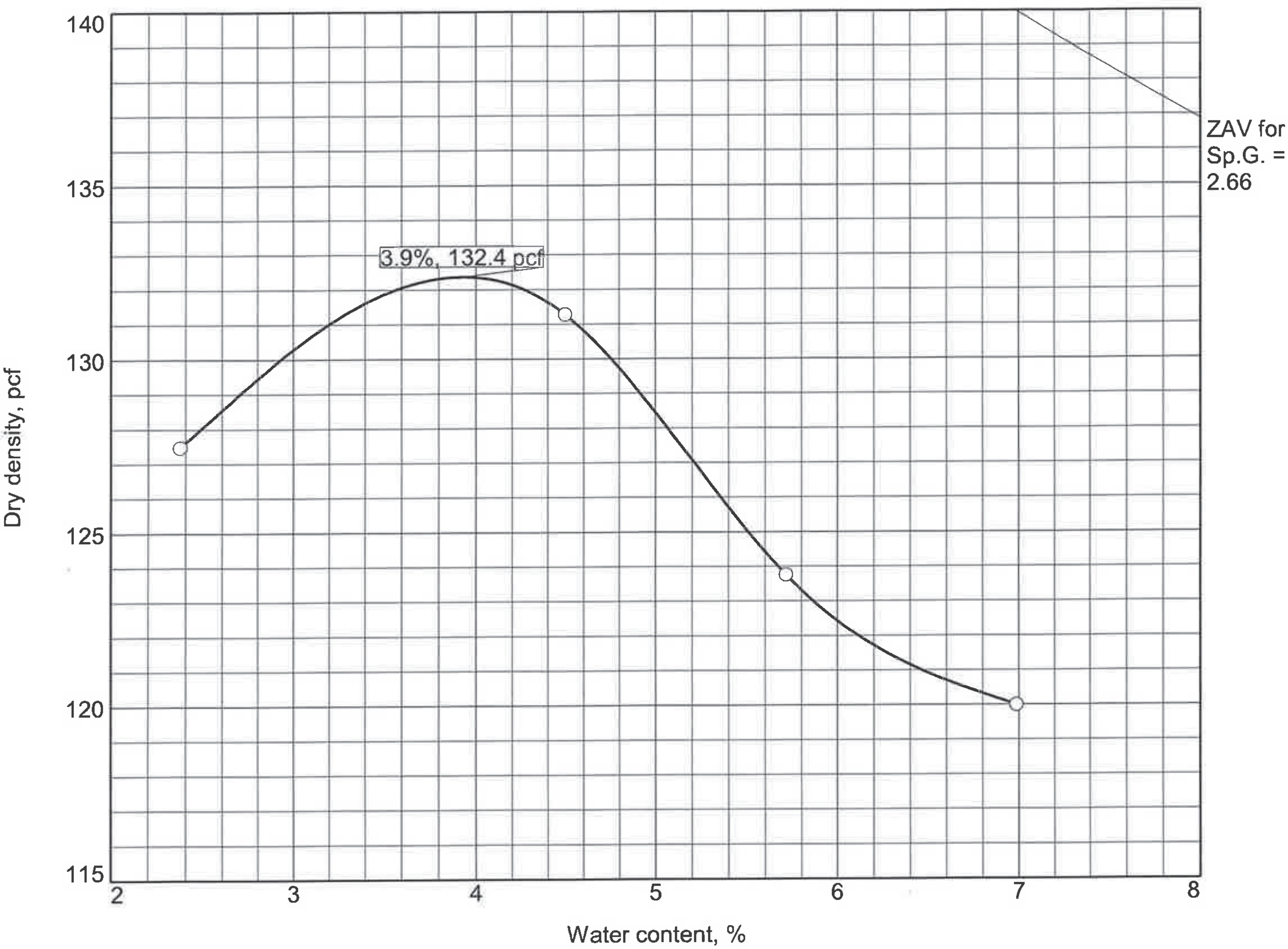
Project Materials Testing 2026

Project No. 26029 Figure

○ Plasticity Index PI= Non-Plastic
Specific Gravity= 2.659
Unit Weight= 106.8 lbs/cuft

Tested By: MJ

MOISTURE-DENSITY RELATIONSHIP



Test specification: ASTM D 698-12 Method B Standard

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > 3/8 in.	% < No.200
	USCS	AASHTO						
below 35'	SP	A-1-a	7.2	2.659	NP	NP	16.4	2.5

TEST RESULTS	MATERIAL DESCRIPTION
Maximum dry density = 132.4 pcf Optimum moisture = 3.9 %	lt. browm poorly graded SAND with gravel

Project No. 26029 **Client:** POZ Engineering & Environmental

Project: Materials Testing 2026

○ **Source of Sample:** Stewart Ave. #178669 **Sample Number:** S-1 (bulk)

Pennoni

Remarks:

S-1 bulk
3-5-26
Specific Gravity= 2.659

Figure

Tested By: MJ

PENNONI ASSOCIATES, INC.
120 Commerce Road • Pittston Twp., PA 18640-9552
570/655-2200 (phone) • www.pennoni.com

#26029
LABORATORY TEST DATA

- Soil Classifications Summary (BH-2E)

SOIL CLASSIFICATIONS SUMMARY

Results of visual observation are summarized in the following table.

Test Boring BH-2E Sample No.	Soil Sample Depth	Classification (ASTM D-2488*)
S-2	10' – 12'	light brown poorly graded SAND with gravel (SP)
S-5	25' – 27'	gray poorly graded SAND (SP)
S-6	30' – 32'	gray poorly graded SAND (SP)
S-7	35' – 37'	light brown poorly graded SAND with gravel (SP)
S-8	40' – 42'	light brown poorly graded SAND (SP)
S-9	45' – 47'	light brown poorly graded SAND (SP)
S-10	50' – 52'	light brown poorly graded SAND (SP)
Bulk	below 35'	gray poorly graded SAND with gravel (SP)

Note: *Visual classification per ASTM D-2488.

Geotherm

7828 Columbia Drive
Katy, TX 77494
Office: 281-985-9344
info@geothermusa.com
http://www.geothermusa.com

April 29, 2026

POZ Engineering & Environmental Consulting
419 N Main St,
Pittston, Pennsylvania 18640
Attn: Emanuel T Posluszny, PE

Thermal Resistivity Report
Stewart Ave. – Long Island, NY (Project No. 178669)

The following is the report of thermal dryout characterization tests conducted on four (4) bulk samples of native soil from the referenced project sent to our laboratory.

Thermal Resistivity Tests: The samples were tested at 95% of the standard Proctor dry density and at higher of the 'as received' or 'optimum' moisture content ***provided by Pennoni***. The tests were conducted in accordance with the **IEEE standard 442-2017**. The results are tabulated below and the thermal dryout curves are presented in **Figures 1-4.**

Sample ID, Description, Thermal Resistivity, Moisture Content and Density

Sample ID	Depth (ft)	Effort (%)	Description (Pennoni)	Thermal Resistivity (°C-cm/W)		Moisture Content (%)	Dry Density (lb/ft^3)
				Wet	Dry		
BH2E S-1	5 – 7	95	lt. Brown Poorly Graded Sand with Gravel	64	131	7	126
BH2E S-3	15 – 17	95	lt. Brown Poorly Graded Sand with Gravel	58	129	9	126
BH4E S-1	5 – 7	95	lt. Brown Poorly Graded Sand with Gravel	61	132	6	126
BH4E S-3	15 – 17	95	lt. Brown Poorly Graded Sand with Gravel	62	127	4	126

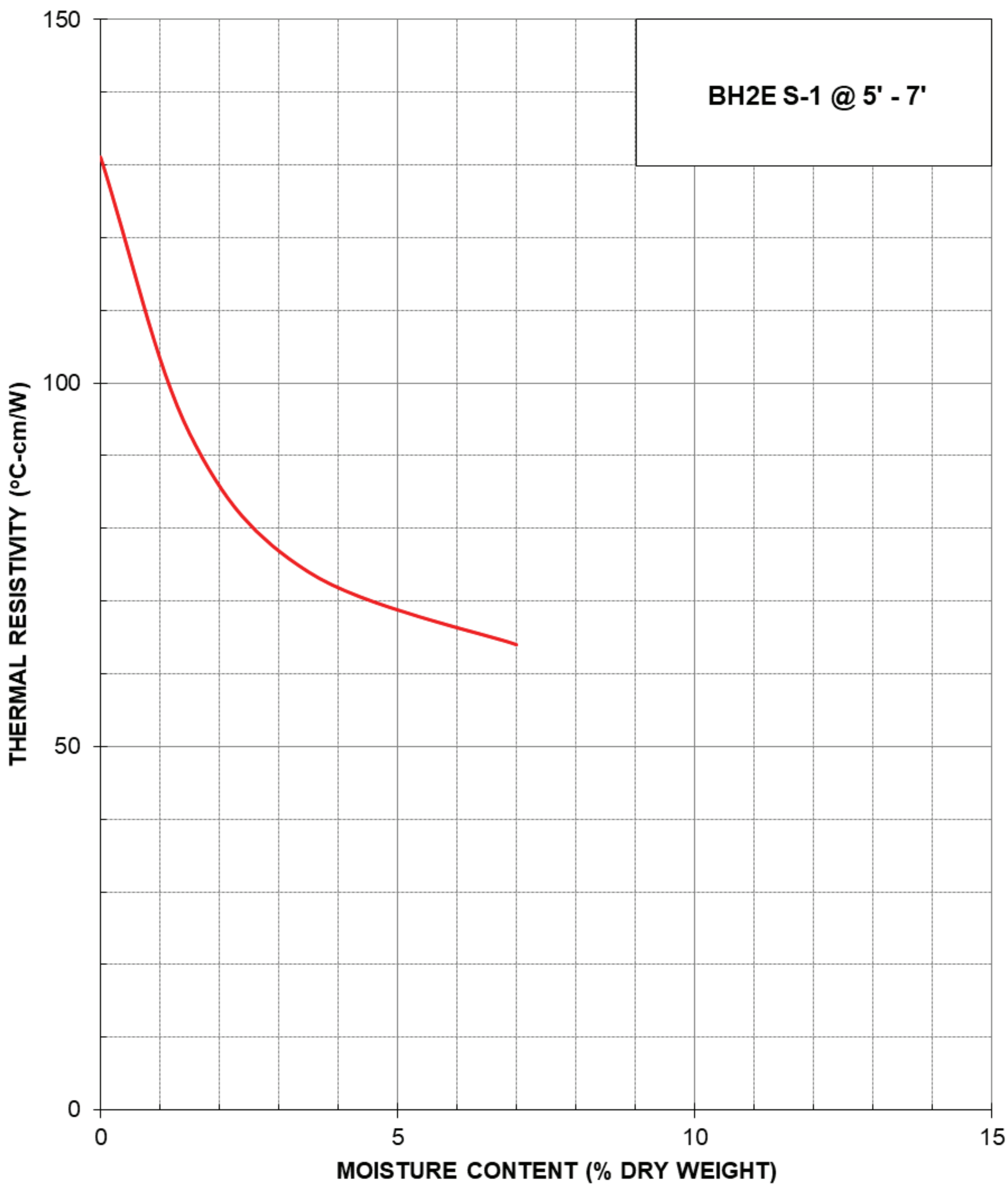
Comments: The thermal characteristic depicted in the dryout curves apply for the soils at their respective test dry density.

Please contact us if you have any questions or if we can be of further assistance.

Geotherm USA, LLC

Nimesh Patel

THERMAL DRYOUT CURVE



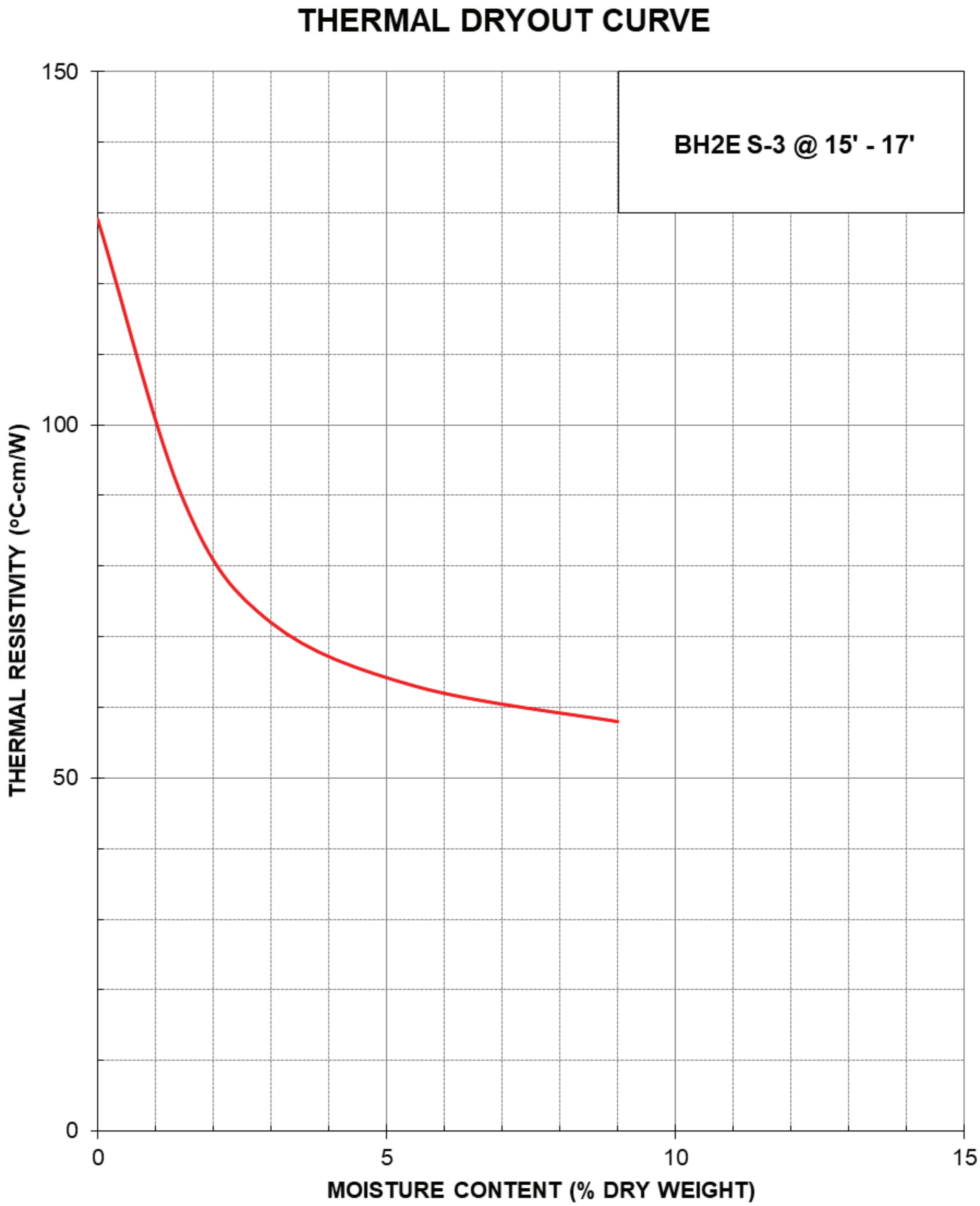
POZ Engineering & Environmental Consulting (Project No. 178669)

Stewart Ave. – Long Island, NY

Thermal Resistivity Report

April 2026 **Figure 1**

Geotherm



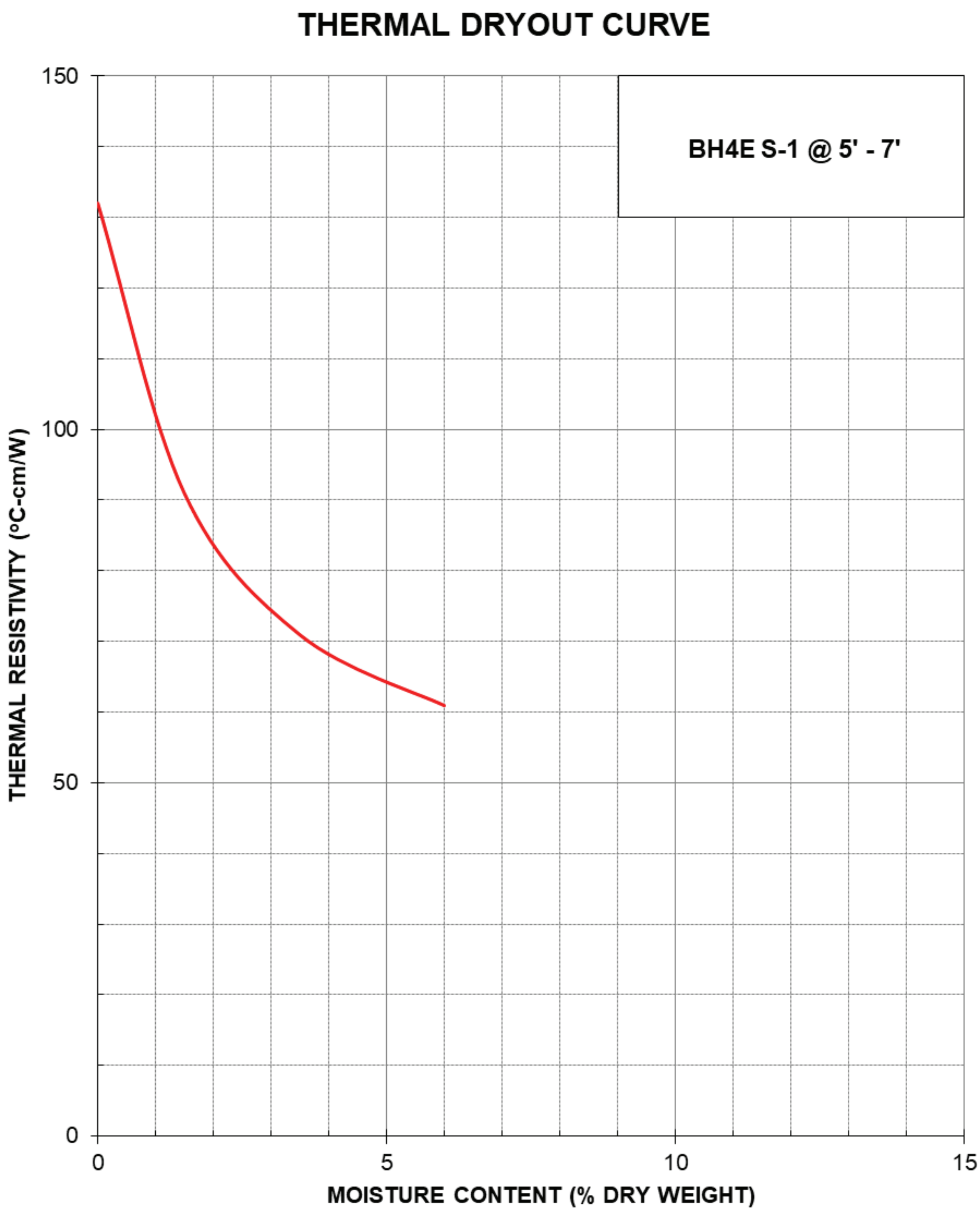
POZ Engineering & Environmental Consulting (Project No. 178669)

Stewart Ave. – Long Island, NY

Thermal Resistivity Report

April 2026 **Figure 2**

Geotherm



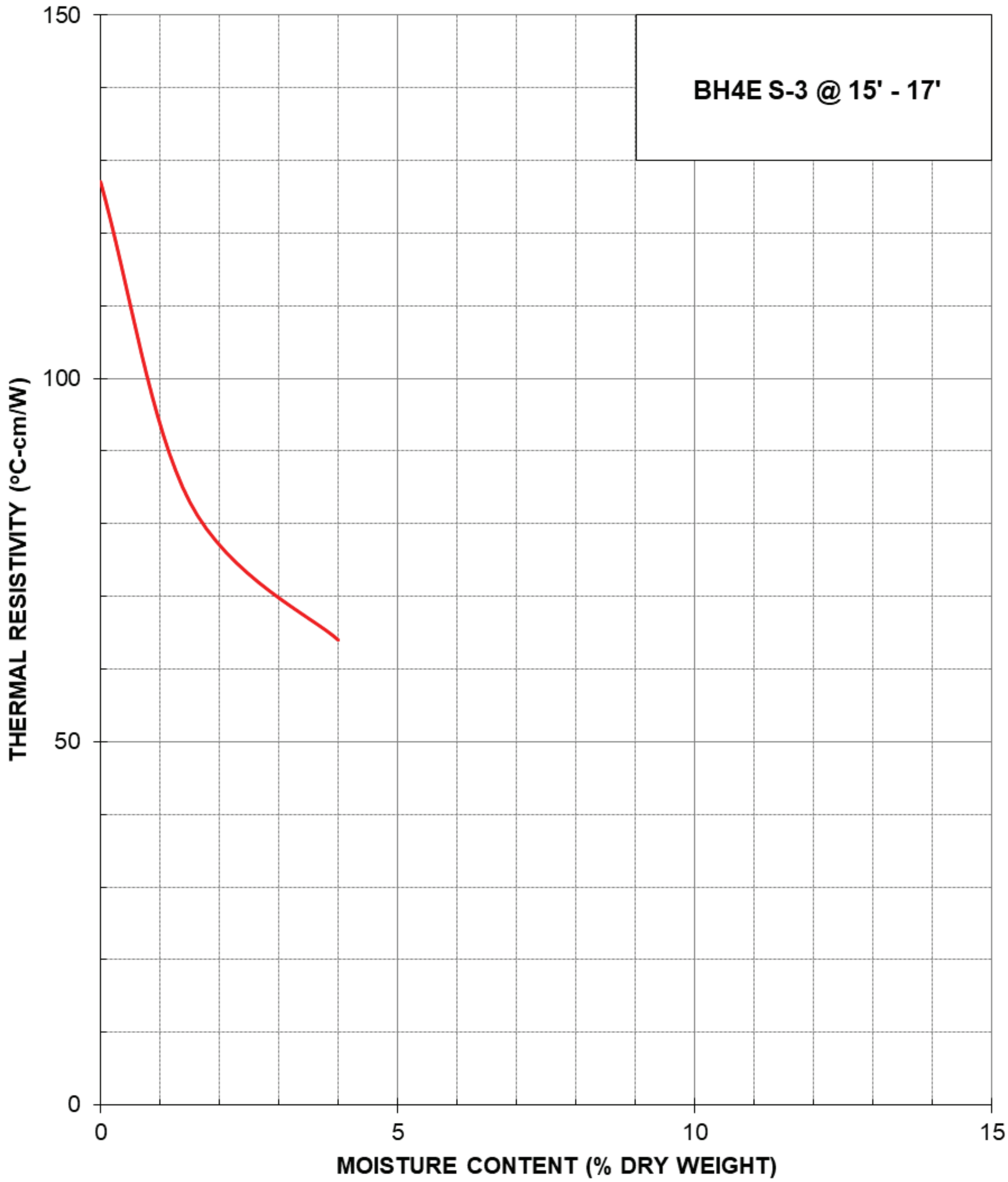
POZ Engineering & Environmental Consulting (Project No. 178669)

Stewart Ave. – Long Island, NY

Thermal Resistivity Report

April 2026 **Figure 3**

THERMAL DRYOUT CURVE



POZ Engineering & Environmental Consulting (Project No. 178669)

Stewart Ave. – Long Island, NY

Thermal Resistivity Report

April 2026 **Figure 4**

LONG ISLAND ANALYTICAL LABORATORIES INC.
"TOMORROWS ANALYTICAL SOLUTIONS TODAY"

Laboratory Report

NYSDOH ELAP# 11693
USEPA# NY01273
CTDOH# PH-0284
AIHA# 164456
NJDEP# NY012
PADEP# 68-2943

LIAL# 6032418

April 03, 2026

POZ Engineering
PO BOx 663
Pittson, PA 18640

Re: 178669 PSEG Stewart Ave

Dear POZ Engineering,
Enclosed please find the laboratory Analysis Report(s) for sample(s) received on March 24, 2026. Long Island Analytical laboratories analyzed the samples on April 03, 2026 for the following:

SAMPLE ID	ANALYSIS
BH2E (S2)	Chloride, Oxidation-Reduction Potential, pH, Resistivity, Specific Conductance, Sulfate
BH2E (S4)	Chloride, Oxidation-Reduction Potential, pH, Resistivity, Specific Conductance, Sulfate
BH4E (S2)	Chloride, Oxidation-Reduction Potential, pH, Resistivity, Specific Conductance, Sulfate
BH4E (S4)	Chloride, Oxidation-Reduction Potential, pH, Resistivity, Specific Conductance, Sulfate

Samples received at 2.8 °C

1.C Holding time exceeded, analyze immediate parameter.

If you have any questions or require further information, please call at your convenience. Long Island Analytical Laboratories Inc. is a NELAP accredited laboratory. All reported results meet the requirements of the NELAP standards unless noted. Report shall not be reproduced except in full without the written approval of the laboratory. Results related only to items tested. Long Island Analytical Laboratories would like to thank you for the opportunity to be of service to you.

Best Regards,

Michael D. Veraldi
Laboratory Technical Director

Long Island Analytical Laboratories, Inc.

Client: POZ Engineering	Client ID: 178669 PSEG Stewart Ave
Date (Time) Collected: 03/06/2026 00:00	Sample ID: BH2E (S2)
Date (Time) Received: 03/24/2026 12:24	Laboratory ID: 6032418-01 % Solid:88.954
Matrix: Soil	ELAP: #11693

General Chemistry Parameters

Parameter	Date Analyzed	Method	LOQ	Result	Units	Flag
Corrosivity (pH)	04/01/2026 16:33	EPA 9045D	NA	7.89	units	1.C
ǂ Oxidation-Reduction Potential (ORP)	04/03/2026 12:49	EPA 9045D	1.00	541.0	mV	
Temperature @ pH in C	04/01/2026 16:33	EPA 9045D	NA	25.40	units	1.C

Date Prepared: 04/01/2026 Preparation Method: No Preparation Method Us

Parameter	Date Analyzed	Method	LOQ	Result	Units	Flag
ǂ Resistivity	04/03/2026 12:47	EPA 9050 A	0.5	11750	ohm-cm	
Specific Conductance	04/02/2026 16:19	EPA 9050 A	2.0	85.1	umhos/cm @ 25 Deg C	1.C

Date Prepared: 04/02/2026 Preparation Method: No Preparation Method Us

Parameter	Date Analyzed	Method	LOQ	Result	Units	Flag
ǂ Chloride	03/26/2026 03:29	EPA 9056A	20.0	<20.0	mg/kg dry	3.A, 4.F
Sulfate as SO4	03/26/2026 03:29	EPA 9056A	20.0	<20.0	mg/kg dry	3.A

Date Prepared: 03/26/2026 Preparation Method: IC Preparation

Client: POZ Engineering	Client ID: 178669 PSEG Stewart Ave
Date (Time) Collected: 03/06/2026 00:00	Sample ID: BH2E (S4)
Date (Time) Received: 03/24/2026 12:24	Laboratory ID: 6032418-02 % Solid:93.015
Matrix: Soil	ELAP: #11693

General Chemistry Parameters

Parameter	Date Analyzed	Method	LOQ	Result	Units	Flag
Corrosivity (pH)	04/01/2026 16:33	EPA 9045D	NA	6.36	units	1.C
ǂ Oxidation-Reduction Potential (ORP)	04/03/2026 12:49	EPA 9045D	1.00	620.0	mV	
Temperature @ pH in C	04/01/2026 16:33	EPA 9045D	NA	25.70	units	1.C

Date Prepared: 04/01/2026 Preparation Method: No Preparation Method Us

Parameter	Date Analyzed	Method	LOQ	Result	Units	Flag
ǂ Resistivity	04/03/2026 12:47	EPA 9050 A	0.5	8953	ohm-cm	
Specific Conductance	04/02/2026 16:19	EPA 9050 A	2.0	111.7	umhos/cm @ 25 Deg C	1.C

Date Prepared: 04/02/2026 Preparation Method: No Preparation Method Us

Parameter	Date Analyzed	Method	LOQ	Result	Units	Flag
ǂ Chloride	03/26/2026 03:49	EPA 9056A	20.0	<20.0	mg/kg dry	3.A
Sulfate as SO4	03/26/2026 03:49	EPA 9056A	20.0	52.0	mg/kg dry	3.E

Date Prepared: 03/26/2026 Preparation Method: IC Preparation

Client: POZ Engineering	Client ID: 178669 PSEG Stewart Ave
Date (Time) Collected: 03/05/2026 00:00	Sample ID: BH4E (S2)
Date (Time) Received: 03/24/2026 12:24	Laboratory ID: 6032418-03 % Solid:96.744
Matrix: Soil	ELAP: #11693

General Chemistry Parameters

Parameter	Date Analyzed	Method	LOQ	Result	Units	Flag
Corrosivity (pH)	03/30/2026 17:15	EPA 9045D	NA	6.89	units	1.C
ǂ Oxidation-Reduction Potential (ORP)	04/03/2026 12:49	EPA 9045D	1.00	215.0	mV	
Temperature @ pH in C	03/30/2026 17:15	EPA 9045D	NA	24.90	units	1.C

Date Prepared: 03/30/2026 Preparation Method: No Preparation Method Us

Parameter	Date Analyzed	Method	LOQ	Result	Units	Flag
ǂ Resistivity	04/03/2026 12:47	EPA 9050 A	0.5	26460	ohm-cm	
Specific Conductance	04/02/2026 16:19	EPA 9050 A	2.0	37.8	umhos/cm @ 25 Deg C	1.C

Date Prepared: 04/02/2026 Preparation Method: No Preparation Method Us

Parameter	Date Analyzed	Method	LOQ	Result	Units	Flag
ǂ Chloride	03/26/2026 04:48	EPA 9056A	20.0	<20.0	mg/kg dry	3.A
Sulfate as SO4	03/26/2026 04:48	EPA 9056A	20.0	<20.0	mg/kg dry	3.A

Date Prepared: 03/26/2026 Preparation Method: IC Preparation

LONG ISLAND ANALYTICAL LABORATORIES INC.
"TOMORROWS ANALYTICAL SOLUTIONS TODAY"
110 Colin Drive • Holbrook, New York 11741
Phone (631) 472-3400 • Fax (631) 472-8505 • Email: LIAL@lialinc.com

Client: POZ Engineering	Client ID: 178669 PSEG Stewart Ave
Date (Time) Collected: 03/05/2026 00:00	Sample ID: BH4E (S4)
Date (Time) Received: 03/24/2026 12:24	Laboratory ID: 6032418-04 % Solid:93.512
Matrix: Soil	ELAP: #11693

General Chemistry Parameters

Parameter	Date Analyzed	Method	LOQ	Result	Units	Flag
Corrosivity (pH)	03/30/2026 17:15	EPA 9045D	NA	6.74	units	1.C
∤ Oxidation-Reduction Potential (ORP)	04/03/2026 12:49	EPA 9045D	1.00	306.0	mV	
Temperature @ pH in C	03/30/2026 17:15	EPA 9045D	NA	25.30	units	1.C

Date Prepared: 03/30/2026 Preparation Method: No Preparation Method Us

Parameter	Date Analyzed	Method	LOQ	Result	Units	Flag
∤ Resistivity	04/03/2026 12:47	EPA 9050 A	0.5	18940	ohm-cm	
Specific Conductance	04/02/2026 16:19	EPA 9050 A	2.0	52.8	umhos/cm @ 25 Deg C	1.C

Date Prepared: 04/02/2026 Preparation Method: No Preparation Method Us

Parameter	Date Analyzed	Method	LOQ	Result	Units	Flag
∤ Chloride	03/26/2026 05:08	EPA 9056A	20.0	<20.0	mg/kg dry	3.A
Sulfate as SO4	03/26/2026 05:08	EPA 9056A	20.0	<20.0	mg/kg dry	3.A

Date Prepared: 03/26/2026 Preparation Method: IC Preparation

Data Qualifiers Key Reference:

1.C	Holding time exceeded, analyze immediate parameter.
3.A	Reporting limit raised due to matrix interference.
3.E	Compound reported at a dilution factor.
4.F	Spike recovery does not meet QC criteria due to high target compound concentration.
MDL	Minimum Detection Limit
LOQ	Limit of Quantitation
H	Holding Time Exceeded
∤	Analyte Non-certified by ELAP.

6032418

POZ Engineering and Environmental Consulting
P.O. Box 663, Pittston, PA 18640
570-654-0113 (Office), 570-654-0116 (Fax)
www.poz-e.com

CHAIN OF CUSTODY FORM

PROJECT:	175669 PSEG STEWART AVE
LOCATION:	Commerce Ave, Garden City, LI
SAMPLE TAKEN (DATE):	3/6/2026 (BH2E) & 3/5/2026 (BH4E)
SAMPLE TYPE:	Soil
POZ PERSONNEL:	Emanuel J. Posluszny
LABORATORY;	Long Island Analytical Lab.
SAMPLE DELIVERED;	
LABORATORY TECHNICIAN:	

ID #	DEPTH	PARAMETER	REMARKS
BH2E (S2)	10 @ 12	Item#: 18, 19, 20, 21 & 23 of attached	see attached
BH2E (S4)	20 @ 22	"	"
BH4E (S2)	10 @ 12	"	"
BH4E (S4)	20 @ 22	"	"

Elon [illegible] 12:24 3-24-26
2.8°C

Project Name: PSEG Long Island Stewart Ave.   Laboratory Testing Schedule   11/12/2025
Project Number: 178669

Item #	Services**	Quantity	Units
1	Thermal Resistivity	4	each
2	Moisture Content	6	each
3	Dry Unit Weight	6	each
4	Sieve Analysis	2	each
5	% Finer than #200	2	each
6	Atterberg Limits	2*	each
7	Unconfined Compression (soil)	2*	each
8	One-Point Triaxial Compression	0	each
9	Brazilian Split Test	0	each
10	CHERCHAR Abrasivity	0	each
11	Mohs Hardness	0	each
12	Slake Durability	0	each
13	Three-Point Triaxial	0	each
14	Direct Shear	0	each
15	Swell Pressure	0	each
16	Consolidation	0	each
17	Standard Proctor	4	each
18	pH	2	each
19	Soluable Sulfates	2	each
20	Chloride Ion	2	each
21	Redox Potential	2	each
22	Sulfides	2	each
23	Lab Electrial Resistivity	2	each
24	Infiltration Test	1	one within 25' of B2E
25	Piezometer	0	each
26	Field Eletrical Resistivity	2	each

*to be performed if applicable soils are encountered

**Consultant is responsible for identifying the applicability of each test. Additional laboratory testing may be required based on the results of field investigation.

LONG ISLAND ANALYTICAL LABORATORIES INC.
"TOMORROWS ANALYTICAL SOLUTIONS TODAY"

Project: **Analysis**
Project Number: **178669 PSEG Stewart Ave**

WORK ORDER
6032418

Date Logged In: 03/24/2026 12:24 PM
Date Received: 03/24/2026 12:24 PM
Date Due: 03/30/2026 (4 day TAT)

Logged In By: Evan Lazzaro
Received By: Evan Lazzaro
Samples Received at: **2.8°C**

6032418-01: BH2E (S2) [Soil] Sampled 3/6/2026 12:00:00AM

Containers — **Preserved In** / **Temperature**

Des	Container	Preservative	Requirement	Verification	Lab	Field	Temperature
A	8 oz Glass						☑

6032418-02: BH2E (S4) [Soil] Sampled 3/6/2026 12:00:00AM

Containers — **Preserved In** / **Temperature**

Des	Container	Preservative	Requirement	Verification	Lab	Field	Temperature
A	8 oz Glass						☐

6032418-03: BH4E (S2) [Soil] Sampled 3/5/2026 12:00:00AM

Containers — **Preserved In** / **Temperature**

Des	Container	Preservative	Requirement	Verification	Lab	Field	Temperature
A	8 oz Glass						☐

6032418-04: BH4E (S4) [Soil] Sampled 3/5/2026 12:00:00AM

Containers — **Preserved In** / **Temperature**

Des	Container	Preservative	Requirement	Verification	Lab	Field	Temperature
A	8 oz Glass						☐