GEOTECHNICAL ENGINEERING STUDY
LOT C

for

Hudson Logistics Center
Hudson, New Hampshire

Prepared For:

Hillwood
5050 W. Tilghman Street Suite 435
Allentown, PA 18104

Prepared By:

Langan MA, Inc.
888 Boylston Street, Suite 510
Boston, MA 02199

Clayton Patterson
Associate

John Plante, P.E.
Managing Principal

LANGAN

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EXECUTIVE SUMMARY

In support of the proposed industrial park development in Hudson, New Hampshire, Langan conducted a geotechnical subsurface exploration and prepared a geotechnical engineering study to provide geotechnical design and construction recommendations. Specifically, this report addresses Lot C within the overall development. The remaining two lots (Lots A and B) are addressed in separate reports.

Existing grades on the 111 acre lot generally slope down from the southwest to the east (about el +175 to +125). The design concept includes the construction of a distribution warehouse having a footprint of about 530,000 square feet (sf) and a proposed finished floor elevation (FFE) of about el +149. Proposed site grades generally range from about el +125 to +175. The remaining development includes new access roads, parking areas, loading docks, utilities, and stormwater features.

At this time, the site grading has not been finalized. As such, the recommendations provided here are subject to change when the revised site grading is complete. If the grading approach changes, a revised geotechnical engineering report may be required as the grading affects our recommendations.

Our subsurface exploration was performed between June and July, 2020 and consisted of borings (60), test pits (31), observation wells (4), laboratory testing, and infiltration tests (2).

The general subsurface conditions across the entire lot consisted of a surficial layer of topsoil (about 2 to 24 inches thick), underlain by discontinuous layers of fill (about 1 to 3 feet thick), sand/silt (about 1 to up to 24 feet thick), glacial till (about 2 to up to 23 feet thick), and bedrock (top of about el +108 to +143). Groundwater was encountered or observed across the site (about el +120 to +151). Within the proposed building footprint, bedrock was encountered from about el +108 to +151 and groundwater was encountered or observed from about el +125 to +149.

The proposed warehouse building can be supported on a conventional shallow foundation system using an allowable bearing pressure of 3,000 pounds per square foot (psf) bearing on the natural sand/silt, glacial till, bedrock, or compacted structural fill. Total and differential settlements are estimated to be 1 inch and ½ inch or less, respectively. The proposed slab areas can be constructed as conventional slab-on-grade bearing on the natural sands, glacial till, or proof-rolled existing fill.

Site Class D and Seismic Design Category B may be used in design.

The following design and construction premiums were identified:

- The natural sand is generally poorly graded and both the sand and glacial till materials have a fines contents ranging from 4% to 23%. Mixing the sand and glacial till with a more granular material may be required such that the materials are well graded to meet the specifications for structural fill and so that the material are not as sensitive to moisture.
- Groundwater was encountered across the site from about 4 to 20 feet below grade (about el +120 to +151).
    - Temporary groundwater dewatering will be required throughout construction where excavations extend to below groundwater.
    - Groundwater was encountered within 4 feet and above proposed select paved areas. Permanent dewatering (underdrains) will be required at the western side of the lot for up to 250,000 square feet of paved areas.
    - Groundwater was encountered one foot below the proposed slab elevation for the building. Permanent dewatering (sub-slab underdrains) will be required for up to 10,000 square feet of the building area.
- Bedrock was encountered across the site from about 12 to 36 feet below grade (about el +108 to +151).
    - Bedrock was encountered in one test pit within the proposed building in the asphalt paved areas. If bedrock is encountered within the building, rock removal will be required.
    - Rock removal will be required for site areas to the west.
- Select wetlands are proposed for filling as part of the development. All unsuitable materials (i.e. water, organic materials, etc.) must be removed prior to filling. Dewatering activities should be expected in these areas.
- The foundations for the proposed water towers have not been designed yet as they are a delegated design. Ground improvement may be required for the water towers; however this should be determined by the water tower design engineer of record.
- Topsoil will need to be segregated, as it is not suitable for re-use beneath structural areas (pavements, buildings, retaining walls, etc.). Topsoil may be re-used in landscaped areas, pending approval.

INTRODUCTION

This report presents our geotechnical engineering study for the proposed industrial park development in Hudson, New Hampshire. Specifically, this report addresses Lot C within the overall development. The remaining two lots (Lots A and B) are addressed in separate reports.

The purposes of this study were to explore subsurface conditions, evaluate feasible foundation options, and develop geotechnical engineering recommendations. Services were performed in accordance with our authorized proposal (19 September 2019 and revised 1 July 2020).

Our approach and recommendations were developed considering the following plans, design criteria, preliminary loads, and design bulletin. Any changes to the design scheme must be reviewed by Langan for effects on our recommendations.

- Site development plans prepared by Langan (August 2020 progress print).
- "Design Criteria and Outline Specification for the Development of 2019-2020 NA Traditional Non-Sort Facility, Version 7.0" prepared by Ford & Associates Architects, Inc. (10 September 2019).
- Column Loading Map prepared by HSA & Associates, Inc. (received 20 July 2020).
- Design bulletin DB-0088 NACF Pavement Design Criteria and Guidelines (3 March 2020).

At this time, the site grading is still progressing. As such, the recommendations provided here are subject to change with the revised site grading.

Elevations are referenced from a "Topographic Subdivision Plan, Hudson Logistics Center" (21 April 2020) prepared by Hayner/Swanson, Inc. referencing the National Geodetic Vertical Datum of 1929 (NGVD29).

SITE DESCRIPTION

Overall

The overall about 320-acre site is occupied by the Green Meadow Golf Club at 59 Steele Road in Hudson, New Hampshire. The site is bounded by Sagamore Bridge Road to the north, commercial properties, streams/wetlands and New Hampshire Route 3A to the east, residential neighborhoods to the south along Fairway and Eagle Drives, and the Merrimack River to the west. Figure 1 shows the site location and surrounding properties.

The golf club consists of a 39-hole golf course including wooded areas, open fairways, water features, and sand traps. Structures include a two-story clubhouse, one-story maintenance building, and pump houses. Grades generally slope up from the east to the center of the site and slope down from the center to the west towards the Merrimack River.

Multiple utilities run throughout the site to support the existing golf course (irrigation, electric, stormwater, etc.).

Lot C

Lot C is about 111 acres and is located on the southeast part of the overall site. Site grades generally slope down from the southwest to east (about el +175 to +125). High points (between about el +160 and +175) exist in the southwestern part of the lot. Elevations typically vary in the north part of the lot between about el +135 and +150, and at the center and south parts of the lot between about el +145 and +160. Low areas exist along the eastern part of the lot (about el +125 to +135). Wetlands exists along the western part of the site with grades typically below about el +125.

PROPOSED DEVELOPMENT

Overall

The overall proposed development will include demolition of the existing club golf course and ancillary structures, and the construction of three distribution warehouses on separate lots. No basement levels are proposed. Each proposed warehouse will have associated parking stalls, loading docks, access roads, landscaped areas, and stormwater basins. Additionally, one aboveground water tank is proposed for each lot (to be designed by others).

Several fill retaining walls up to about 10 feet high are proposed throughout the overall site.

Two new access roadways are proposed (Walmart Boulevard to the north and Green Meadow Drive to the south) to connect the three lots to Route 3A to the east. Walmart Boulevard will extend towards Route 3A from the northeast corner of Lot A and Green Meadow Drive will extend towards Route 3A from the east between Lots A and C. The roadways will traverse the existing wetlands and streams using a pipe culvert.

A boat ramp is being contemplated at the Merrimack River adjacent to Lot B. Explorations and associated recommendations for this area and the boat ramp are beyond the scope of this study.

Lot C

Though the building has not been engineered at this time per the structural engineer, the structural engineer had provided the general proposal building information here. Table 1 details the proposed building information. No internal mezzanine areas are proposed.

Proposed grades vary between about el +125 to +175. The proposed FFE is about el +149 with an about 4 foot drop to adjacent grades at the loading docks to the west, where the pavement grades generally slope away from the building. Pavement areas vary between about el +132 and +147. Proposed infiltration basins are located at the north, east and west of the lot (about el +128 to +143). A proposed soil berm to the south varies between about el +125 and +175. The proposed roadway runs along the eastern part of the lot and typically varies between about el +132 and +140.

Table 1. Proposed Site Development

Proposed Building		**Estimated Grades Within the Proposed Building Footprint**			**Proposed Structural Loads**	
Stories (#)	**Footprint** (SF)	**Existing**	**Proposed FFE**	**Resulting Cuts/Fills** (ft)	**Building Column** (kips)	**Wall Loads** (kips/foot)
One	530,000	el +133 to +169	el +149	Cut =19 Fill = 16	190 to 220	9 to 11

REVIEW OF AVAILABLE INFORMATION

Regional Geology

The surficial geology map from the United States Department of Agriculture (Figure 2) indicates the overburden is loamy sand. The bedrock geology map from the United State Geologic Survey (Figure 3) indicates the bedrock below the site is granofels.

Federal Emergency Management Agency Flood Map

We reviewed the Flood Insurance Rate Map (FIRM) for the town of Hudson, New Hampshire, published by the Federal Emergency Management Agency (FEMA), Map No. 33011C0656D and 33011C0658D effective 25 September 2009 (Figure 4). Table 2 gives a summary of the findings.

Table 2. Flood Mapping

Flood Mapping[1,2]	
Building Area	**Site and Roadway Areas**
Zone X (not shaded)	Eastern Edge: Zone X (not shaded) & Zone A

Available Historic Information

We reviewed historic topographic maps (1893 to 2012) and aerial photographs (1938 to 2016) for the overall site. Historic information provided in Appendix A.

Pre-1893 – The site is shown as undeveloped with an unnamed stream running through the southeast part of the site. The surrounding areas also appear to be undeveloped.

Late 1910s to 1920s – The site is shown as mostly undeveloped, with unidentified structures and an access road in the eastern part of the site.

1930s to 1950s – The unknown structures from the late 1910s and 1920s are no longer shown on the topographic maps. Parts of the southeast and northern areas of the site are developed as agricultural fields with associated structures and access roads.

Early 1960s to Present – The site is developed as a golf course with a residential building in the east. Site development features include a clubhouse, maintenance building, access roads, asphalt-paved parking, and water features. Topographic maps show existing gravel pits in the western part of the site from 1965 through 1987. Aerial maps show similar gravel pits to the west and northwest of the maintenance building from 1963 through 1995. The site has remained similar to its current state since about 1965.

Available Geotechnical Report

We have reviewed a geotechnical engineering report titled "Preliminary Geotechnical Engineering Study" prepared by GZA GeoEnvironmental, Inc. (May 2006). Relevant information is attached in Appendix B. The report includes 21 borings, 22 test pits, and 3 field permeability tests performed around the site. Identified design and construction premiums for the overall site included shallow groundwater reported to the west, shallow refusal on bedrock reported to the north, and potentially liquefiable soils reported to the east.

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[1] Zone X (not shaded), "areas of minimal flood hazard" (i.e. outside the 500-year flood)

[2] Zone A, "1% annual chance flood, base flood elevations determined," (i.e. 100-year flood)

SUBSURFACE EXPLORATION

Langan performed a subsurface exploration consisting of borings, observation wells, test pits, and infiltration tests throughout the proposed development area. All work was overseen by a Langan field engineer. An exploration location plan is shown in Figure 5.

Borings

Standard Penetration Test (SPT) N-values[3] were documented and soil samples were generally obtained continuously to a depth of 12 feet and every 5 feet thereafter. Disturbed soil samples were obtained using a standard 2-inch-outer-diameter split-spoon sampler driven by a 140-pound automatic or safety hammer in accordance with ASTM D1586, Standard Penetration Test. See Tables 3 and 4 for additional information regarding the boring program.

Recovered soil samples were visually examined and classified in the field in general accordance with the Unified Soil Classification System (USCS). Soil classifications, N-values, and other field observations were recorded on our field logs provided in Appendix C.

Bedrock was cored in selected borings using a 2-⅞-inch NQ core barrel. The core barrel was equipped with a diamond cutting bit in accordance with ASTM D2113, Rock Core Drilling. Rock type, percent recovery (REC)[4] and Rock Quality Designation (RQD)[5] were determined for each the core run.

Table 3. Summary of Boring Subcontractors

Date Range	Drilling Companies	Drilling Equipment
1 June to 2 July, 2020*	SoilTesting, Inc.	CME 550X ATV Rig, CME55 Truck-mounted Rig, Deidrich D50 Steel Track Rig
	Seaboard Geotechnical & Environmental Drilling Services	Diedrich D50 Track Rig, Mobile Drill B52 Truck-mounted Rig
	Atlantic Testing Laboratories Limited	CME75 Track Rig, (2) Geoprobe 7720DT

*Dates reflect duration of the overall exploration program (i.e. Lots A, B, and C)

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[3] The Standard Penetration Test (SPT) is an in situ testing technique used to infer soil density and consistency. The SPT N-value is defined as the number of blows required to drive a 2-inch-diameter split-barrel sampler 12 inches after an initial penetration of 6-inches using a 140-pound hammer falling freely from 30 inches.

[4] Rock Core Recovery (REC) is defined as the ratio of the total length of rock recovered to the total core run length, expressed as a percent.

[5] The RQD is defined as the ratio of the summation of each rock piece greater than 4 inches long (for NX cores) to total core run length, expressed as a percent.

Table 4. Summary of Borings

Total (#)	**Subtotal** (#)	**Boring Locations**	**Boring ID's**	**Depth Range** (ft)	**Elevation Range** (Bottom of Boring)
60	30	Proposed Building Areas	C-B-BOR-01, C-B-BOR-01A, C-B-BOR-02 to C-B-BOR-29	14 to 34	el +140 to +108
	6	Proposed Roadway Areas	C-R-BOR-01 to C-R-BOR-04, C-R-BOR-06, C-R-BOR-06A	17 to 22	el +117 to +107
	24	Proposed Site Areas	C-S-BOR-01 to C-S-BOR-24	13 to 22	el +153 to +110

Test Pits

Test pit were excavated throughout the site to further observe the subsurface soils and to perform infiltration testing. See Tables 5 and 6 for additional information regarding the exploration program. Test Pit logs are provided in Appendix D, and photographs are provided in Appendix E.

Table 5. Summary of Test Pit Subcontractor

Date Range	**Test Pit Company**	**Test Pit Equipment**
29 May to 30 June, 2020*	Polster Industries, LLC	CAT 304E, CAT 305E, Takeuchi TB260

*Dates reflect duration of the overall exploration program (i.e. Lots A, B, and C)

Table 6. Summary of Test Pits

Total (#)	**Subtotal** (#)	**Test Pit Locations**	**Test Pit ID's**	**Depth Range** (ft)	**Elevation Range** (Bottom of Test Pit)
31	14	Proposed Building Areas	C-B-TP-01 to C-B-TP-10, C-B-TP-10A, C-B-TP-10B, C-B-TP-11 to C-B-TP-12	4 to 9	el +128 to +155
	3	Proposed Roadway Areas	C-R-TP-01 to C-R-TP-03	7 to 8	el +123 to +124
	14	Proposed Site Areas	C-S-TP-01 to C-S-TP-08, C-S-TP-11, C-S-TP-13 to C-S-TP-17	5 to 8	el +120 to +157

Groundwater Observation Wells

Groundwater observation wells were installed throughout the site. See Table 7 for a summary of observation wells installed. Well construction logs are provided in Appendix F.

Table 7. Summary of Observation Wells

Total (#)	**ID**	**Depth** (ft)	**Bottom of Observation Well Elevation**
4	C-B-BOR-02(OW)	10	el +122
	C-B-BOR-16(OW)	25	el +133
	C-B-BOR-20(OW)	20	el + 137
	C-S-BOR-04(OW)	10	el +121

Lab Testing

Selected samples were sent to a testing laboratory to confirm visual classifications and to determine index properties (physical and mechanical). Testing for chlorides and sulfates was performed at the structural engineer's request. See Table 8 for a summary of the completed laboratory tests. Laboratory results are provided in Appendix G.

Table 8. Laboratory Testing Summary

Test Description	ASTM Standard	Quantity
Grain Size	ASTM D-6913	9
Moisture	ASTM D-2216	12
Percent Passing No. 200	ASTM D-1140	1
Organic Matter	ASTM D2974	1
Chlorides	ASTM D-512	2
Sulfates	ASTM D-516	2

SUBSURFACE CONDITIONS

Subsurface Materials

The subsurface conditions generally consist of a surficial layer of topsoil underlain by layers of discontinuous fill, sand/silt, glacial till, and finally bedrock. A summary of subsurface materials is provided in Table 9. A description of subsurface materials encountered is provided below in order of increasing depth.

Table 9. Subsurface Conditions

Layer	Thickness (feet)	Top Elevation Range	N-Value Range	Average Density	Fines Content (%)	Moisture Content (%)
Topsoil	2-inches to 24-inches	el +170 to +127	2 to 28	Loose	N/A	N/A
Fill	1 to 3	el +127 to +125	7	Loose	N/A	N/A
Sand/Silt	1 up to 24	el +169 to +107	3 to Refusal[6]	M. Dense	Sand: 4 to 23 Silt: 60 to 91	Sand: 2 to 11 Silt: 18 to 48
Glacial Till	2 up to 23	el +165 to +108	20 to Refusal	V. Dense	23 to 31	9 to 13
Bedrock	See Table 10					

Topsoil – A layer of topsoil was encountered in 54 borings and 31 test pits. The topsoil generally consists of brown to dark brown fine to medium sand with varying proportions of gravel, roots,

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[6] Refusal defined as 50 blows per 6-inches or greater.

and silt. In the remaining 6 borings, the surficial material was consistent with the fill or natural sand material.

Fill – Below the topsoil, a layer of fill was encountered in one boring and five test pits. The fill is generally composed of light brown to dark brown fine to medium sand with varying amounts of gravel, roots, debris, and silt. Note an abandoned rubble well was encountered in one test pits (C-B-TP-10B) to a depth of about 9 feet. The fill layer is generally classified as poorly graded sand (SP) in accordance with the USCS.

Sand/Silt – Below the fill or topsoil, a layer of sand, with some silty sand and silt pockets, was encountered in all borings. The sand is generally composed of light brown to brown fine to coarse sand with varying amounts of gravel and silt. The silt, which was limited to discrete and discontinuous areas, is generally composed of light brown to brown silt with varying amounts of fine sand and gravel. Note that higher SPT N-values (Table 9) within the sand/silt layer are likely the result of obstructions (boulders, cobbles, or gravel) blocking the sampler. The sand layer, and silty layers within, are generally classified as poorly graded sand (SP), silty sand (SM), and silt (ML) in accordance with the USCS.

Glacial Till – Below the sand/silt, a layer of glacial till was encountered. The glacial till is generally composed of brown to grayish brown fine to coarse sand with varying amounts of gravel, silt, and weathered rock fragments. Note that higher SPT N-values (Table 9) within the glacial till layer are likely the result of obstructions (boulders, cobbles, or gravel) blocking the sampler. The glacial till layer is generally classified as silty sand (SM) in accordance with the USCS.

Bedrock – Below the glacial till, a layer of bedrock was inferred or cored in 21 borings. A summary of encountered bedrock is provided in Table 10. The bedrock consists of gray schist, fine to medium grained, moderately weathered, close to very close fractures, and moderate dipping and horizontal fractures. Up to five-foot-long rock cores were taken in nine borings during our exploration. The REC and RQD of the rock core samples ranged from about 35% to 100% and 0% to 91%, respectively. Though not encountered in the borings or test pits, the lower REC and RQD values may be indicative of weathered bedrock.

Table 10. Summary Bedrock Information

Location	Bedrock Depth			
	Cored		Inferred	
	Depth (ft)	**Elevation**	**Depth** (ft)	**Elevation**
Proposed Building Areas	12 to 34	el +112 to +130	15 to 36	el +108 to +140 (Bedrock was foundation up to el +151 in one test pit: C-B-TP-10)
Proposed Roadway Areas	Not Performed	Not Performed	20	el +116
Proposed Site Areas	Not Performed	Not Performed	16 to 22	el +122 to +143

Groundwater – A summary of groundwater is provided in Table 11. Groundwater, if encountered, should be expected to fluctuate with seasons, precipitation, construction activities, irrigation activities, etc.

Table 11. Summary Groundwater Information

Location	Groundwater Depth			
	Observation Wells/Test Pits		Inferred in Borings	
	Depth (ft)	**Elevation**	**Depth** (ft)	**Elevation**
Proposed Building Areas	6 to 14	el +126 to +144	4 to 20	el +125 to +149
Proposed Roadway Areas	6	el +124	4 to 8	el +123 to +129
Proposed Site Areas	4 to 7	el +120 to +135	4 to 18	el +121 to +151

Infiltration Testing

Infiltration rates were measured in the proposed stormwater systems as specified by the civil engineer. Infiltration tests were performed in accordance with the New Hampshire Code of Administrative Rules (Env-Wq 1500). A summary of average infiltration rates at each location is presented in Table 12. A detailed summary of infiltration tests is provided in Appendix H. Generally, the measured infiltration rates are higher than the rates in the available geotechnical report. Final design infiltration rates should be selected by the civil engineer based on the stormwater system design and allowable infiltration rates.

Table 12. Infiltration Test Results Summary

Location	**Surface Elev.**	**Test Depth** (ft)	**Test Elev.**	**Measured Infiltration Rate** (in/hr)	**Material Type**
C-S-TP-01	el +128	4	el +124	11	Light brown silty fine SAND, about 2-inch-thick fine to medium lenses
C-S-TP-17	el +133	3	el +130	79	Light brown silty fine SAND

Sulfate & Chloride Testing

Chemical analyses were performed on select samples generally obtained from soils within 5 feet of both proposed grades and the finished floor elevation. The soluble sulfate and chloride concentrations were both less than 10 parts-per-million. A summary of laboratory testing is provided in Appendix G. Based on the laboratory testing, the sulfate exposure class[7] is S0 and the chloride exposure class[7] is C1 given the presence of groundwater. Consideration could be given to using chloride exposure class C0 for building slabs as a vapor barrier is proposed below.

GEOTECHNICAL DESIGN RECOMMENDATIONS

Additional Explorations & Analysis

As the design progresses, we recommend the following additional exploration and analysis work be performed to advance the geotechnical design and construction recommendations:

- Test pits should be completed along the northern part of Green Meadow Drive as access was not provided during our exploration program.
- Groundwater levels should be obtained throughout design for additional measurements and potential refinements to recommendations for permanent water controls. Additionally, groundwater readings should be collected when watering of the course has stopped and after the site irrigation system is decommissioned as leaks in the system or surface-level infiltration from the system may affect groundwater levels.
- Additional design and coordination work should be performed with respect to site and sub-slab underdrain systems.

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[7] Exposure class from ACI 318-14.

- The retaining walls will need to be designed by a design engineer registered in New Hampshire. Design should include all internal and external stability checks.
- The water tower foundations will need to be designed by others as this is a delegated design.
- Temporary works for pre-cast/tilt-up wall panels will need to be designed by others as this is a delegated design.

Liquefaction

We evaluated the liquefaction potential of non-cohesive soil below the groundwater table and up to 50 feet below the ground surface (as required by the New Hampshire Building Code) using the procedure outlined by Youd et. al (2001). The Youd et. al method is considered to be the state-of-practice procedure as recommended by the National Earthquake Hazard Reduction Program. The method presents an empirical relationship between the earthquake demand represented by the Cyclic Stress Ratio (CSR), and the soil resistance to dynamic loading represented by the Cyclic Resistance Ratio (CRR). Field N-values are converted to $N_{1,60,cs}$ by applying corrections for hammer energy efficiency, soil overburden pressure, borehole diameter, rod length, sampler lining, and fines content.

The available geotechnical engineering report indicated a potentially liquefiable area to the east (in the vicinity of GZA boring B-18). As part of our subsurface exploration and evaluation, we performed borings in the vicinity of boring B-18 and analyzed the results.

Our analysis was performed on a sample set of borings that were potentially liquefiable across the lot.

Input parameters included a peak ground acceleration of 0.200g (from USGS). Our analysis indicates an adequate factor of safety for liquefaction for explorations advanced within the building and roadway/site areas. We concluded that liquefaction need not be considered in the design. Plots showing factors of safety versus depth are provided as Figures 6 and 7 for the building and roadway/site areas, respectively.

Seismic Design

This section presents seismic design recommendation, in accordance with the 2019 New Hampshire State Building Code (International Building Code 2015). We have considered the soil conditions encountered in the borings to be consistent and representative of the soil conditions in the top 100 feet of soil at this lot.

Table 13. Seismic Design Values

Description	**Parameter**	**Recommended Value**
Mapped Spectral Acceleration for short periods[10]:	S_s	0.238 g
Mapped Spectral Acceleration for 1-sec period[11]:	S_1	0.075 g
Site Class:	--	**D – Stiff Soil Profile**
Site Coefficient:	F_a	1.6
Site Coefficient:	F_v	2.4
5% damped design spectral response acceleration at short periods:	$\mathbf{S_{DS}}$	**0.254 g**
5% damped design spectral response acceleration at 1-sec period:	$\mathbf{S_{D1}}$	**0.120 g**
Anticipated Risk Category	--	**II**
Seismic Design Category	**--**	**B**

Based on the above spectral accelerations and the anticipated risk category, we have estimated the Seismic Design Category (SDC). The structural engineer is responsible for confirming the appropriate use group, occupancy category, and final SDC for the proposed structure.

Building Foundations

The materials encountered at the anticipated footing elevation consist of fill, sand/silt, and glacial. Bedrock was encountered in one test pit within the building footprint and to the west of the proposed building in the truck court/parking area; as such, bedrock may be encountered at the bottom of footing elevation as well. The existing fill and silt are not suitable for foundation support. The proposed structure and guard house can be supported on shallow foundations bearing on structural fill, sand/silt, glacial till, weathered rock, or bedrock using an allowable bearing pressure of 3,000 psf. If desired, a higher bearing pressure for footings bearing on weathered rock or bedrock could be provided. Footing subgrades should be prepared in accordance with the Subgrade Preparation section of this report.

All exterior footings should be constructed 48 inches or deeper below the lowest adjacent grade for frost protection. Interior footings in heated spaces may be constructed at a convenient depth below the slab; however, all bottoms of footings should be at least 1.5 feet below the finished-floor elevation. Interior footings in non-heated spaces, or where frost protection is not provided

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[10] Value obtained from AT Council Hazards by Location as provided by the USGS.

[11] Value obtained from AT Council Hazards by Location as provided by the USGS.

throughout construction, should be protected from frost (e.g., lowering footings, backfilling, heaters/blankets, etc.).

Isolated column footings should have a minimum dimension of 3 feet, and strip footings should have a minimum width of 2 feet even if smaller dimensions can be justified using the recommended allowable bearing pressure.

Foundations should not be located so that one foundation is within the zone of influence of an adjacent foundation. The zone of influence is taken as a 1H:1V projection extending outward and downward from the edge of the foundation.

Building Settlement

Total settlement of the structure is estimated to be on the order of 1 inch or less, provided the bearing pressure recommended here is used and the subgrade preparation work described here is performed. Differential settlements of adjacent new structure columns are expected to be about ½ inch. The majority of the settlement is expected to take place during construction.

Water Tower

The design engineer of record should confirm that the bearing capacity and calculated settlements (based on the water tower loads) are acceptable for use with a shallow foundation design. If not, the water tower design engineer of record should determine if supplemental foundation recommendations are required. Ground improvement to achieve higher bearing capacities may be required.

Given the design of the water tower is not finalized, we recommend that an allowance for ground improvement (stone columns up to 25 feet long) be provided for initial cost estimating until a final design can be prepared by others.

Building Floor Slabs

We recommend that ground-floor slabs be constructed as a slab-on-grade bearing on natural soils, structural fill, or compacted existing fill prepared in accordance with the recommendations here. Additional recommendations for sub-slab underdrains are provided below. If bedrock or weathered rock is encountered, it should be over-excavated a minimum of 2 feet below the proposed bottom of slab elevation and replaced with structural fill or gravel; additional rock removal may be required for sub-slab utilities and should be coordinated as the design progresses. The slab-on-grade supporting short-term loads over smaller areas (e.g., vehicle wheel loads)[12] should be designed for a modulus of subgrade reaction of 125 pounds per cubic inch (pci). The slab-on-grade supporting long-term loads over larger areas (e.g., uniform or rack loading) should be designed for a reduced modulus of subgrade reaction of 80 pci.

We recommend a minimum 6-inch-thick layer of ¾-inch clean crushed stone be included beneath the slabs to protect the prepared subgrade and to serve as a capillary break. Additional assessment is on-going regarding recommendations for a permanent drainage design.

A vapor barrier should be used below the ground-floor slab to limit transmission of water vapor through the slab. We recommend a vapor barrier with a minimum thickness of 20 mils. Omission of a vapor barrier can lead to floor-covering problems including delamination and mold. Additional waterproofing measures may be required pending the on-going recommendations for permanent drainage design. The contractor may elect to place up to 4-inches of a fine to medium sand (i.e., stone dust) above the vapor barrier for slab constructability considerations. The sand layer should have a maximum particle diameter of 3/16-inch and should consist of hard durable sand free from ice and snow, roots, sod and other deleterious matter. The vapor barrier should be coordinated with the environmental requirements for the development.

Permanent Groundwater Control

Building Areas

Perimeter wall and footing drains should be installed to divert groundwater flow away from the structure during prolonged precipitation, snowmelt, or utility breaks. Manufactured geocomposite drainage panels or a 12-inch-wide layer of ¾-inch washed crushed stone should be installed against the outside of all perimeter walls and should extend to within 1 foot of adjacent surface grade. In the truck-court areas, gravel should be used. The drainage panels (or crushed stone) should connect to a perforated footing drain at the base of the footing having a minimum diameter of 6 inches. The footing drains should be connected to the site stormwater system and where possible drain by gravity. Where used, drainage panels should be secured in place and the filter-fabric side must face the soil. If washed crushed stone is used, it should be wrapped with a geotextile filter fabric.

As noted, the grading plans are currently being finalized. We recommend modeling anticipated post construction groundwater elevations to determine if permanent dewatering measures for site features (sub-slab underdrain, pavement underdrains, etc.) are required.

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[12] "Engineering Bulletin, Modulus of Subgrade Reaction – Which One Should be Used?" by Structural Services, Inc. (8 April 2016).

Groundwater levels (el +125 to +149) are up to within 1 foot of the proposed top of slab elevation (el +150) within about 10,000 square feet of the proposed building (generally on the western side of the building). We propose modeling these areas further, but as the grading plans are still being finalized, we recommend that allowances and unit rates be carried for permanent dewatering measures at this point in the design (i.e. sub-slab underdrains).

A preliminary design groundwater elevation of el +153 should be used (i.e. 4 feet above the highest recorded groundwater levels to date). Underdrains should consist of a minimum of a 12-inch-thick gravel layer (3/4-inch washed, crush stone) beneath the slab. Geotextile filter fabric should be placed between the soil subgrade and the stone. Within the stone, an inter-connected grid network of 6-inch diameter SCH-80 PVC pipes should be placed. The pipes should be spaced at 15 feet on-center. The pipes should be routed to internal sump pits and connected to the site stormwater system to discharge via gravity. A minimum of one sump pit per 5,000 square-foot (or tributary area) of underdrain area should be assumed at this time.

Additionally, we recommend a perforated pipe, having a minimum diameter of 6 inches, be located on the in-board side of the truck-court foundation wall (western side of the building) at the bottom of footing elevation. The pipe should be routed to the site stormwater system. A 12-inch thick gravel (3/4-inch washed, crushed stone) trench wrapped in filter fabric should encapsulate the perforated pipe and extend from the bottom of footing to bottom of slab elevation.

Site Areas

Groundwater was encountered to the west of the building above and within 4 feet of the proposed pavement and truck court grades for about 250,000 square feet of the overall pavement footprint. We recommend that allowances and unit rates be carried for permanent dewatering measures at this point in the design (i.e. pavement underdrains). The pavement underdrain design will be included on the civil plans.

Underdrains should consist of a minimum of a 12-inch-thick gravel layer (3/4-inch washed, crush stone) beneath the pavement. Filter fabric should be placed between the soil subgrade and the stone. Within the stone, an inter-connected grid network of 6-inch diameter SCH-80 PVC pipes should be placed. The pipes should be spaced at 20 feet on-center. The pipes should be routed to the site stormwater system to discharge via gravity.

Pavement Design

We have provided recommendations for minimum asphalt-pavement sections using 115% of the daily traffic loading provided by the traffic engineer (Langan) detailed in Table 14. The pavement sections were designed using a California Bearing Ratio (CBR) of 10 for proofrolled site soils or properly placed compacted fill. CBR testing must be performed in pavement areas at the start of construction to confirm the design assumptions. A life expectancy of 20 years was used for flexible pavements and 30 years for rigid pavements. Pavement design calculations are provided in Appendix I. Refer to subsequent sections for subgrade preparation procedures.

We have prepared the following site-wide (i.e. all three lots) pavement design recommendations for the overall site.

Table 14: Proposed Daily Traffic Loading

Area	**Passenger Cars** (#)		**Light Trucks** (#)		**Tractor Trailers** (#)	
	Proposed	**115%**	Proposed	**115%**	Proposed	**115%**
Lot A:	651	**749**	n/a	**n/a**	131	**151**
Lot B:	326	**375**	25	**29**	40	**46**
Lot C:	354	**407**	n/a	**n/a**	60	**69**
Northern Access Roadway (Walmart Blvd.):	390	**449**	n/a	**n/a**	131	**151**
Southern Access Roadway (Green Meadow Drive):	941	**1,082**	25	**29**	100	**115**

Table 15: Standard & Heavy Duty Flexible Pavement Sections (Site Areas)

Material	**Thickness** (in)	
	Standard Duty	**Heavy Duty**
Area:	Passenger car drive aisles & parking stalls	Access drives & truck courts
Top (Finish) Course:	2.0 inches	2.0 inches
Asphalt Pavement Binder Course:	2.0 inches	3.0 inches
Processed Aggregate and Gravel (NH DOT Item No. 304.3):	8.0 inches	12.0 inches
One pavement design provided for all three lots. Lots A and C control the pavement design. Traffic loading for Lot A used in the pavement calculations.		
Processed aggregate and gravel course has been increased by 2 inches from the minimum calculated pavement sections given the anticipated underlying loose fine sands.		

Table 16: Standard, Heavy, Extra Heavy Duty Rigid Pavement Sections (Site Areas)

Material	**Thickness** (in) **/ Materials**		
	Standard Duty	**Heavy Duty**	**Extra Heavy Duty**
Area:	Passenger car drive aisles & parking stalls	Access drives & truck courts	Dolly pads & loading/unloading aprons
Concrete (4,500 psi 28-day strength, 6% air-entrained, chloride resistant):	5.0	8.0	8.0*
Processed Aggregate and Gravel (NH DOT Item No. 304.3):	6.0	8.0	8.0
Continuous Reinforcing Each Way:	#3 bar at 22-inch on-center	#3 bar at 16-inch on-center	#3 bar at 16-inch on-center
Per the design criteria, dowels are to be used at construction joints.			
Minimum calculated design heavy and extra heavy duty rigid pavement sections increased to match the design criteria minimum cross-section (8.0 inches of concrete and 6.0 inches of processed aggregate and gravel).			
Processed aggregate and gravel course has been increased by 2 inches from the minimum calculated/design criteria pavement sections given the anticipated underlying loose fine sands.			
*Extra heavy duty rigid pavement shall be enhanced with a minimum of 7.5 pounds of synthetic macrofibers per cubic yard of concrete.			

Table 17. Heavy Duty Flexible Pavement Section (Roadways)

Material	**Thickness** (in)	
	Northern Access Roadway (Walmart Blvd.)	**Southern Access Roadway** (Green Meadow Drive)
Top (Finish) Course:	1.5	1.5
Asphalt Pavement Binder Course:	2.5	2.5
Crushed Gravel (NH DOT Item No. 304.2):	6.0	6.0
Gravel (NH DOT Item No. 304.3):	12.0	12.0
Minimum calculated design pavement section increased to match the Town of Hudson minimum typical cross-section for subdivision streets (commercial/industrial) Town of Hudson Engineering Department, Engineering Technical Guidelines & Typical Details, Detail R-1 (revised February 2020) (4 inches of hot bituminous pavement, 6 inches of crushed gravel, and 12 inches of gravel).		

Retaining Walls

Site fill-retaining walls may be designed as geogrid reinforced modular block walls (such as Mesa, Keystone, Versa-lok, or Redi-Rock type walls) or gravity-type retaining walls, depending on the location and size of the proposed wall.

Retaining walls can be designed using a moist unit weight of 130 pounds per cubic foot and a drained angle of internal friction of 30°. Site retaining walls, where movement is acceptable, can be designed using active earth pressures. Walls where movement cannot be tolerated should be designed for at-rest earth pressures. The parameters described above presume (1) the wall backfill materials (i.e., within the reinforced zones) are select imported granular soils, (2) full drainage is provided behind the reinforced zone and wall facing to prevent the buildup of hydrostatic pressure, (3) that surface loads at the top of the retaining walls will consist of parking and driving areas and vehicles, and (4) the slope at the top of the retaining wall is level. Presuming the aforementioned fill, fill placement, and compaction requirements are adhered to, a coefficient of active earth pressure (Ka = 0.33) or a coefficient of at-rest earth pressure (Ko = 0.50) can be used as appropriate. The fill used may consist of imported materials that satisfy the minimum strength parameters specified here and gradation requirements specified by the wall designer. Design parameters should be confirmed during construction via laboratory testing on the actual proposed backfill materials, and adjustment of the pressures should be made by the designer where appropriate to consider these factors.

Retaining-wall foundations should bear on natural soils (if fill or silt is encountered it should be fully removed and replaced) or well-compacted structural/engineered fill compacted with at least six coverages of a minimum 5-ton static-drum-weight vibratory roller. Soft or otherwise unsuitable natural or fill identified by the geotechnical engineer in the field during proofrolling and compaction should be removed and replaced with approved compacted structural/engineered fill. Backfill behind the walls should be placed as discussed in the Fill Materials, Placement and Compaction Criteria section of this report. Over-compaction should be avoided behind the walls.

The proposed retaining wall design (including calculations and global stability and groundwater mounding analyses) and construction means and methods should be provided and signed and sealed by a Professional Engineer licensed in the State of New Hampshire.

GEOTECHNICAL CONSTRUCTION RECOMMENDATIONS

Site Preparation

All existing foundations, floor slabs, and utilities should be completely removed within 10 feet of the proposed footprint. Given the current use of the site, we expect below-grade irrigation infrastructure to be encountered throughout the lot. Below grade structures outside the building footprint can be abandoned in place provided they are removed to at least 3 feet below finished subgrade levels, 2 feet below proposed utilities, and to eliminate conflicts with new utilities or structures. Slabs left in place should be sufficiently broken up to allow water to drain and so that a geotechnical engineer can observe whether voids exist beneath the slab. Existing asphalt pavement and concrete walkways should be completely removed.

Existing utilities within the building footprint should be completely removed. Existing utilities outside of the proposed building footprint should be removed or abandoned in place by completely filling with grout.

Excavations made to remove below grade elements should be backfilled with approved, compacted fill in accordance with the Excavation, Fill, Placement, and Compaction Criteria section of this report and any environmental requirements.

Clearing and grubbing of trees and vegetation designated for removal (including root systems) should be performed. Buried debris should be completely removed beneath proposed building slab, footing, and pavement locations. Given the former and current uses of the site, bury holes with topsoil, tree stumps, or similar unknown objects should be expected throughout. Topsoil should be stripped from the proposed building and pavement areas and should be stockpiled and protected from erosion. Topsoil will be evaluated by the landscape architect (Langan) for reuse in landscape areas and coordinated with the environmental engineer (Langan). All clearing and stripping activities should be performed in strict accordance with the approved soil-erosion and sediment-control plan and the environmental reports prepared for the project.

Existing wetlands slated for removal should be completely dewatered at the on-set and maintained dry during backfilling activities. Once dewatered, all organic and silty materials should be completely removed to the top of natural granular soils, weathered rock, or bedrock. A choker 2-foot-thick layer of 3- to 6-inch diameter stone should be placed at the subgrade. A layer of filter fabric should be placed above the stone. The resulting excavation should be backfilled with structural fill as described here.

All demolition and site-clearing work should be performed in accordance with any environmental requirements established for the site, and all local, state, and federal regulations. All debris and trees and other vegetation should be properly disposed of off-site in accordance with applicable regulations. All construction work should be performed so as not to adversely impact the neighboring buildings, off site structures or utilities, including the existing utilities and trees that are to remain. Protection of these elements should be provided as necessary. Before beginning grading or placing fill, any miscellaneous trash, debris, or other unsuitable materials should be removed from the site.

Subgrade Preparation

All soil footing and utility-trench subgrades, except bedrock, should be proofrolled with six overlapping coverages of a double-drum 1-ton walk-behind vibratory roller (such as a Bomag BW75 or equivalent).

Along the western edge of the building, footings for the truck-court may bear on bedrock. If a footing or adjacent footings will bear on rock and soil, a transition zone should be created. For adjacent footings, the rock should be over-excavated a minimum of 12 inches and replaced with ¾ inch crushed gravel. For strip footings, rock should be over-excavated a minimum of 12 inches for 5 horizontal feet in either direction (total of 10 feet) from the point of bearing material transition and replaced with ¾-inch gravel. The specific requirements will be based on the field conditions observed at the subject location and the geotechnical engineer's subsequent recommendations.

All slab subgrade areas should be proofrolled with six overlapping coverages of a vibratory drum roller having a minimum static drum weight of 10 tons. Once the slab is fully compacted, a proofroll with a fully loaded dump truck should be performed. The maximum acceptable depression under the fully loaded dump truck is ½ inch. If depressions greater than a ½ inch are observed, corrective action must be taken by the contractor.

Soft areas identified during proofrolling should be excavated and replaced with approved structural fill. The actual extent of necessary removal and replacement should be determined by a qualified Langan geotechnical engineer. Care should be taken when proofrolling near any existing underground utilities that are to remain.

Soil footing subgrades should be excavated level and if any cobbles or boulders are encountered at the footing subgrade level such that a relatively level subgrade is not achieved, the cobbles or boulders should be removed and replaced with compacted structural fill, compacted ¾-inch crushed stone, or lean concrete. All soil subgrades for footings or slabs should be compacted to the project specified compaction criteria.

If foundations are not poured in a timely manner, the subgrade should be protected with a lean-concrete mud mat to protect the footing subgrades.

Steps should be taken by the contractor to control and remove surface-water runoff and precipitation. When soil is wet and subjected to construction traffic, previously acceptable subgrades can soften and become unacceptable. A smooth-drum roller should be used to seal the surface and provide for better drainage. We also recommend crowning or sloping the subgrade to provide positive drainage off the subgrades.

Removal/Replacement

If encountered beneath foundations, a minimum of 3-feet of the miscellaneous fill, or otherwise deleterious material, should be removed within the foundation zone of influence (i.e. 1H to 1V downward projection from the edge). The resulting material should be proofrolled in accordance with the Subgrade Preparation section outlined herein. The resulting excavation should be backfilled with structural fill in compacted lifts.

An abandoned rubble well was encountered in one test pits (C-B-TP-10B) to a depth of about 9 feet. The well and any surrounding unsuitable fill should be completely removed and the resulting excavation backfilled with structural fill as outlined here.

Placement of additional fill materials in foundation areas, if required, should be performed in accordance with the Excavation, Fill, Placement, and Compaction Criteria recommendations outlined herein.

Excavation, Fill, Placement, and Compaction Criteria

Excavation through the fill and the underlying sand/silt and glacial till can likely be performed using conventional earthmoving equipment (e.g., backhoes, excavators, dozers, etc.). Excavations made for footings and utilities should be conducted to minimize disturbance to the subgrade (i.e., backhoe with a smooth-edge bucket). Larger equipment may be required for removal of obstructions such as boulders, etc.

Within the proposed building footprint, the top of competent rock (either refusal of the drilling equipment or rock coring) was encountered from about el +108 to el +140. Though at one test pit location (C-B-TP-10), bedrock was inferred at el +151). Given a proposed finished floor elevation of el +150, rock removal within the proposed building is anticipated.

Within the proposed roadway and site areas, the top of competent rock (either refusal of the drilling equipment or rock coring) was encountered from about el +116 to el +143. Based on the current site grading, rock removal may be required to the west of the proposed building in the truck court and parking areas.

- Bedrock should be removed to a minimum of 6 inches below the proposed pavement section a minimum of 10 feet horizontal feet beyond. The resulting excavation should be backfilled with compacted ¾-inch stone. A layer of filter fabric should be placed between the ¾-inch stone and the pavement section.
- In truck court and parking areas where utilities that are sensitive to settlement transition from bearing on rock to bearing on soil, rock should be over-excavated a minimum of 12 inches for 5 horizontal feet in either direction (total of 10 feet) from the point of bearing material transition and replaced with ¾-inch gravel to reduce the potential for differential settlements. The specific requirements will be based on the field conditions observed at the subject location, the geotechnical engineer’s subsequent recommendations, and the sensitivity of the utility to differential settlement.

Rock excavation techniques will be required to excavate to the required elevations. Blasting may be required. The actual means and methods required for rock excavation should be selected by the contractor based upon experience and capabilities. All blasting should be performed in accordance with the applicable state and local regulations and in a manner such than no on-site or off-site structures or features are adversely impacted.

All excavations should be properly sloped or braced and conform with applicable OSHA regulations including, but not limited to, temporary shoring, trench boxes, temporary rock stabilization, or proper benching or both.

All excavation and backfilling must be performed in accordance with the project environmental engineer's recommendations.

The following types of fill can be used.

Structural Fill – Structural fill should be well-graded sand and gravel having a maximum particle size of 3 inches and no more than 10% passing the No. 200 sieve. Additionally, the structural fill should be free of organics, clay, roots, concrete, other non-soil constituents, and other deleterious or compressible materials. Any approved imported structural fill should be "certified clean fill" free of hazardous substances and meeting all local, state, federal and the New Hampshire Department Environmental Services regulations.

Material Reuse – The contractor may reuse the on-site granular fill, sand, or glacial till as structural fill provided the soils meet the requirements for structural fill outlined above and is approved by the environmental engineer. The silt may not be used as structural fill. Note that samples obtained within the fill, sand, and glacial till layers have a fines content (material passing the No. 200 sieve) ranging from about 6% to 48%; therefore, select soils will be sensitive to moisture. The overall amount of soil that can be reused will be dependent on the amount of fines present within the soil, the contractor's ability to add stone, the time of year the earthwork is carried out (e.g., potentially inclement weather), and the ability of the earthwork contractor to stage, aerate and process the material to facilitate placement and compaction. The existing shallow sand generally has a uniform gradation and low silt content (poorly graded) which may be difficult to compact to specifications without systematic application of water to each layer or blending the material to create a well-graded fill. In addition, the contractor may need to place the material in thinner lifts to achieve the compaction requirements specified herein.

General Fill – On-site soils not meeting the requirements for structural fill can be used as general fill for site landscape and other nonstructural areas (e.g., landscaped areas) if environmentally suitable for reuse. The fill and silt layers may be used as general fill, if required.

Compaction Criteria – All fill should be placed in uniform 12-inch-thick loose lifts and compacted. Fill in landscaped areas should be compacted to 90% of its maximum dry unit weight as determined by ASTM D1557; all other fill should be compacted to at least 95%. In restricted areas where only hand-operated compactors can be used, the maximum lift thickness should be limited to 8 inches. The appropriate water content at the time of compaction should be plus or minus 2% points of optimum as determined by the laboratory compaction tests of proposed fill. No backfill should be placed on areas where free water is standing or on frozen subsoil areas.

Groundwater Control

Across the lot, groundwater was encountered from about el +120 to +151. Based on the proposed grades, we expect that groundwater will be encountered along the western part of the building. Temporary groundwater control in this area, and potentially throughout the site, will be required.

We anticipate that dewatering will be required during construction. Water infiltration to the foundation excavation can likely be controlled using gravity-fed sump pumps via gravel trenches or sumps assisted with collector trenches. Deeper systems such as well points may be required. The final dewatering measures required should be evaluated and designed by the contractor. The dewatering measures implemented should adequately dewater all foundation-related excavations such that compaction of footing subgrades is feasible.

Collection of rainwater runoff will also be needed during the excavation of the removal and replacement program and during the subgrade preparation work. Water runoff is expected to be controlled with the use of gravel-lined collection trenches, pits and submersible pumps. Care should be taken to ensure that drainage is provided during all phases of excavation work. Environmental pretreatment of groundwater, if necessary, is beyond the scope of this study. Collected water should be discharged in accordance with applicable regulations and any environmental requirements.

SERVICES DURING DESIGN, CONSTRUCTION DOCUMENTS AND CONSTRUCTION QUALITY ASSURANCE

During final design, Langan should be retained to consult with the design team as geotechnical questions arise. Technical specifications and design drawings should incorporate our recommendations. When authorized, we will assist the design team in preparing specification sections related to geotechnical issues such as earthwork, shallow foundations, backfill, retaining walls, and excavation support. Langan should also, when authorized, review the project plans and contractor submittals relating to materials and construction procedures for geotechnical work to confirm the designs incorporate the intent of our recommendations.

Langan has explored and interpreted the site subsurface conditions and developed the foundation design recommendations contained here, and is therefore best suited to perform quality-assurance observation and testing of geotechnical-related work during construction. The work requiring quality-assurance confirmation or special inspections per the Building Code includes, but is not limited to, earthwork, shallow foundations, backfill, retaining walls, and excavation support.

Recognizing that construction observation is the final stage of geotechnical design, quality-assurance observation during construction by Langan is necessary to confirm the design assumptions and design elements, to maintain our continuity of responsibility on this project, and allow us to make changes to our recommendations, as necessary. The foundation system and general geotechnical construction methods recommended herein are predicated upon Langan's assisting with the final design and providing construction observation services for the owner. If Langan is not retained for these services, we cannot assume the role of geotechnical engineer of record, and the entity providing the final design and construction observation services must serve as the engineer of record.

LIMITATIONS

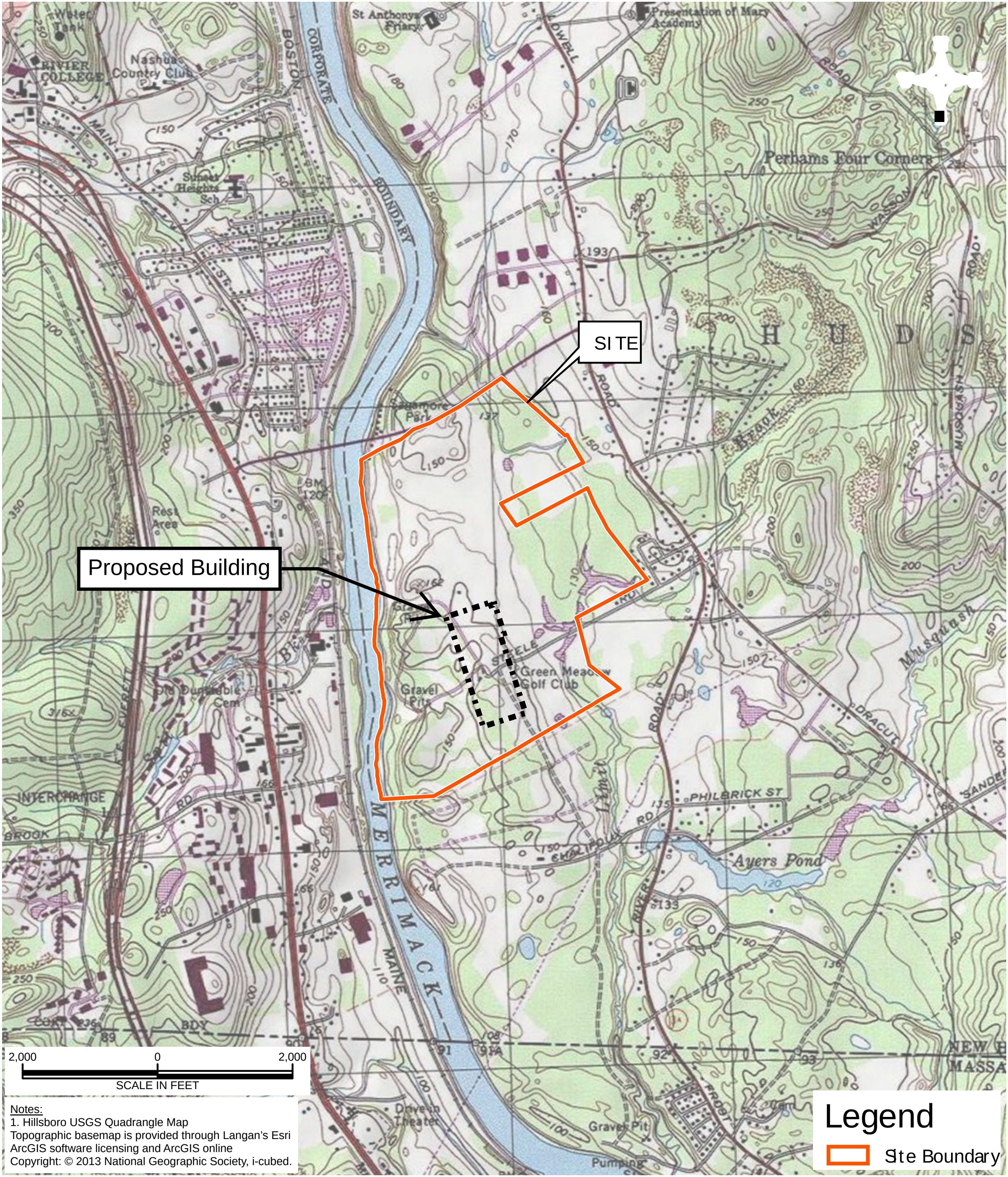
The conclusions and recommendations provided in this report result from our interpretation of the geotechnical conditions existing at the site inferred from a limited number of borings and test pits, and information provided by Hillwood. Actual subsurface conditions may vary. Recommendations provided are dependent upon one another and no recommendation should be followed independent of the others.

Any proposed changes in structures or their locations should be brought to Langan's attention as soon as possible so we can determine whether such changes affect our recommendations. Information on subsurface strata and groundwater levels shown on the logs represent conditions encountered only at the locations indicated and at the time of our exploration. If different conditions are encountered during construction, they should immediately be brought to Langan's attention for evaluation because they might affect our recommendations.

This report has been prepared to assist the owner, architect, and structural engineer in the design process and is only applicable to the design of the specific project identified. The information in this report cannot be used or depended on by engineers or contractors involved in evaluations or designs of facilities (including underpinning, grouting, stabilization, etc.) on adjacent properties beyond the limits of that which is the specific subject of this report.

Environmental issues (such as permitting or potentially contaminated soil and groundwater) are outside the scope of this study and are addressed in a separate Langan evaluation.

FIGURES



Notes:
1. Hillsboro USGS Quadrangle Map
Topographic basemap is provided through Langan's Esri ArcGIS software licensing and ArcGIS online
Copyright: © 2013 National Geographic Society, i-cubed.

Legend
🟧 Site Boundary

LANGAN

888 Boylston Street, Suite 510
Boston, MA 02199
T: 617.824.9100 F: 617.824.9101 www.langan.com

Langan Engineering & Environmental Services, Inc.
Langan Engineering, Environmental, Surveying and Landscape Architecture, D.P.C.
Langan MA, Inc.
Langan International LLC
Collectively known as Langan

Project

HUDSON LOGISTICS CENTER

HUDSON NEW HAMPSHIRE

Drawing Title

SITE LOCATION

Project No. 151010101	Figure 1
Date 04/27/2020	
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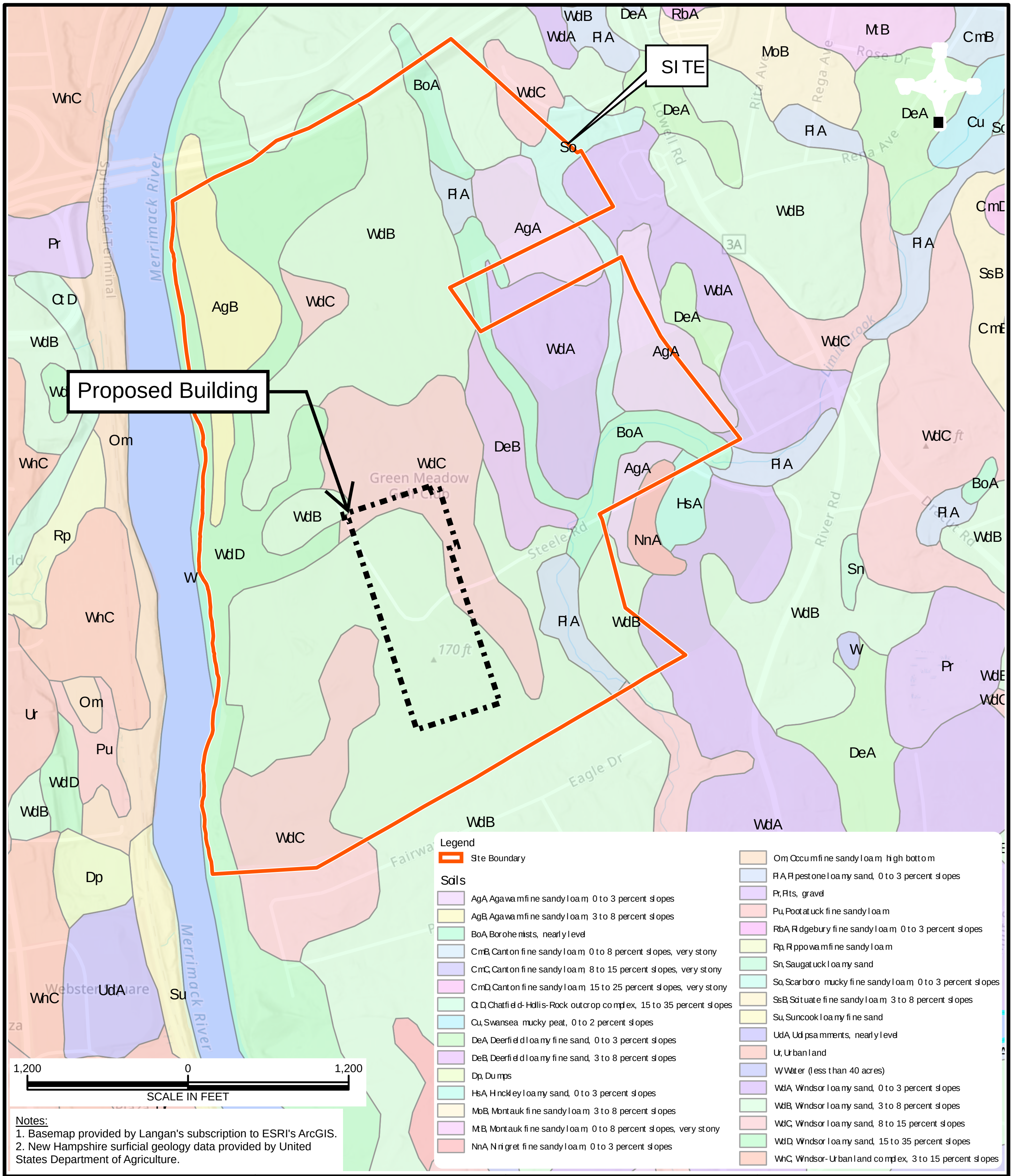

Legend

Site Boundary

Soils

- AgA, Agawam fine sandy loam, 0 to 3 percent slopes
- AgB, Agawam fine sandy loam, 3 to 8 percent slopes
- BoA, Borohemists, nearly level
- CmB, Canton fine sandy loam, 0 to 8 percent slopes, very stony
- CmC, Canton fine sandy loam, 8 to 15 percent slopes, very stony
- CmD, Canton fine sandy loam, 15 to 25 percent slopes, very stony
- CtD, Chatfield-Hollis-Rock outcrop complex, 15 to 35 percent slopes
- Cu, Swansea mucky peat, 0 to 2 percent slopes
- DeA, Deerfield loamy fine sand, 0 to 3 percent slopes
- DeB, Deerfield loamy fine sand, 3 to 8 percent slopes
- Dp, Dumps
- HsA, Hinckley loamy sand, 0 to 3 percent slopes
- MoB, Montauk fine sandy loam, 3 to 8 percent slopes
- MtB, Montauk fine sandy loam, 0 to 8 percent slopes, very stony
- NnA, Ninigret fine sandy loam, 0 to 3 percent slopes
- Om, Occum fine sandy loam, high bottom
- PiA, Pipestone loamy sand, 0 to 3 percent slopes
- Pr, Pits, gravel
- Pu, Pootatuck fine sandy loam
- RbA, Ridgebury fine sandy loam, 0 to 3 percent slopes
- Rp, Rippowam fine sandy loam
- Sn, Saugatuck loamy sand
- So, Scarboro mucky fine sandy loam, 0 to 3 percent slopes
- SsB, Scituate fine sandy loam, 3 to 8 percent slopes
- Su, Suncook loamy fine sand
- UdA, Udipsamments, nearly level
- Ur, Urban land
- W, Water (less than 40 acres)
- WdA, Windsor loamy sand, 0 to 3 percent slopes
- WdB, Windsor loamy sand, 3 to 8 percent slopes
- WdC, Windsor loamy sand, 8 to 15 percent slopes
- WdD, Windsor loamy sand, 15 to 35 percent slopes
- WhC, Windsor-Urban land complex, 3 to 15 percent slopes

Notes:
1. Basemap provided by Langan's subscription to ESRI's ArcGIS.
2. New Hampshire surficial geology data provided by United States Department of Agriculture.

LANGAN

888 Boylston Street, Suite 510
Boston, MA 02199
T: 617.824.9100 F: 617.824.9101 www.langan.com

Langan Engineering & Environmental Services, Inc.
Langan Engineering, Environmental, Surveying and Landscape Architecture, D.P.C.
Langan MA, Inc.
Langan International LLC
Collectively known as Langan

Project

HUDSON LOGISTICS CENTER

HUDSON NEW HAMPSHIRE

Drawing Title

SURFICIAL GEOLOGY

Project No. 151010101

Date 04/27/2020

Scale 1" = 1200'

Drawn By EB

Figure 2

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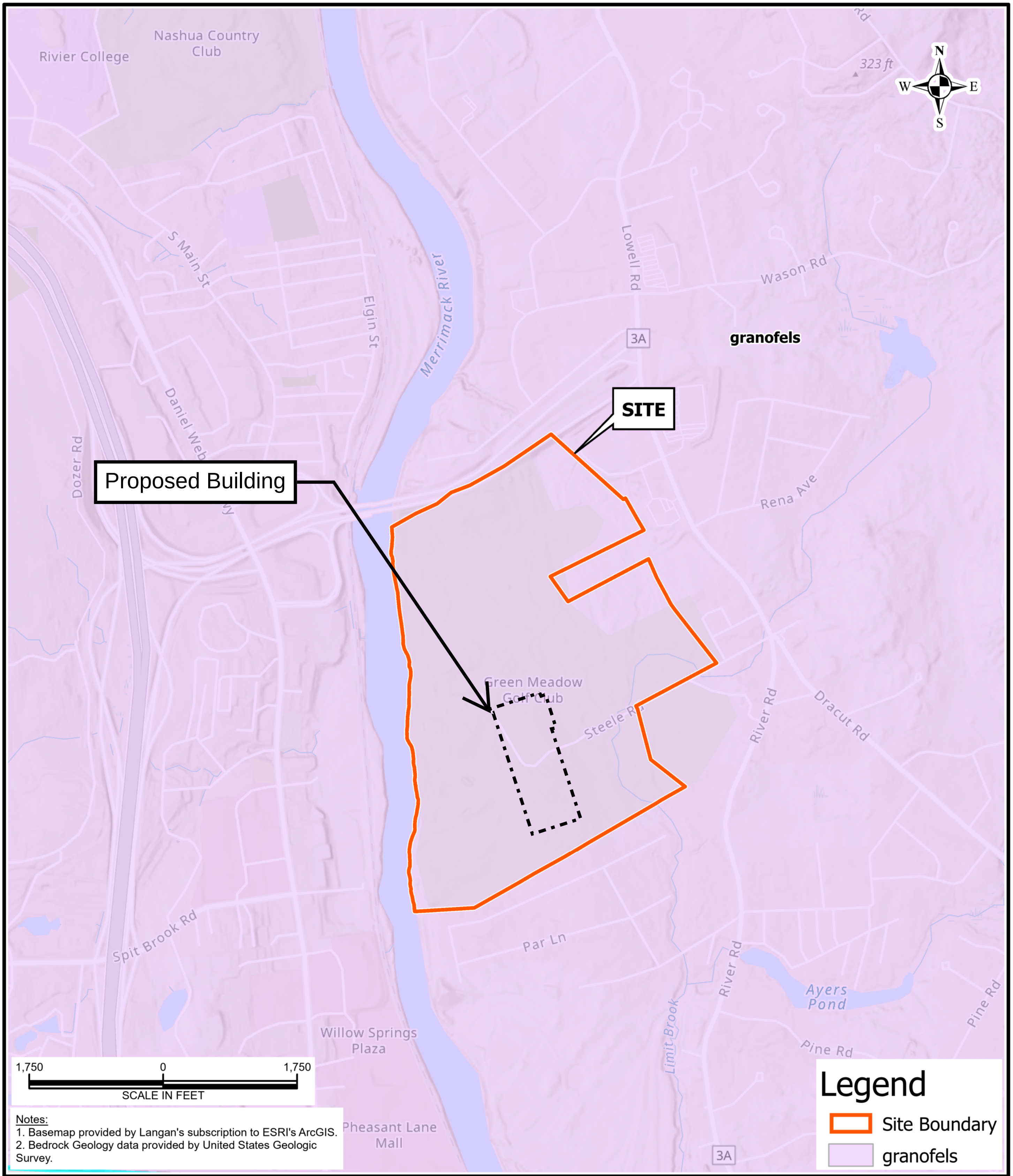

Notes:
1. Basemap provided by Langan's subscription to ESRI's ArcGIS.
2. Bedrock Geology data provided by United States Geologic Survey.

LANGAN

888 Boylston Street, Suite 510
Boston, MA 02199
T: 617.824.9100 F: 617.824.9101 www.langan.com

Langan Engineering & Environmental Services, Inc.
Langan Engineering, Environmental, Surveying and Landscape Architecture, D.P.C.
Langan MA, Inc.
Langan International LLC
Collectively known as Langan

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HUDSON LOGISTICS CENTER

HUDSON NEW HAMPSHIRE

Drawing Title

BEDROCK GEOLOGY

Project No.
151010101

Date
04/27/2020

Scale
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Figure
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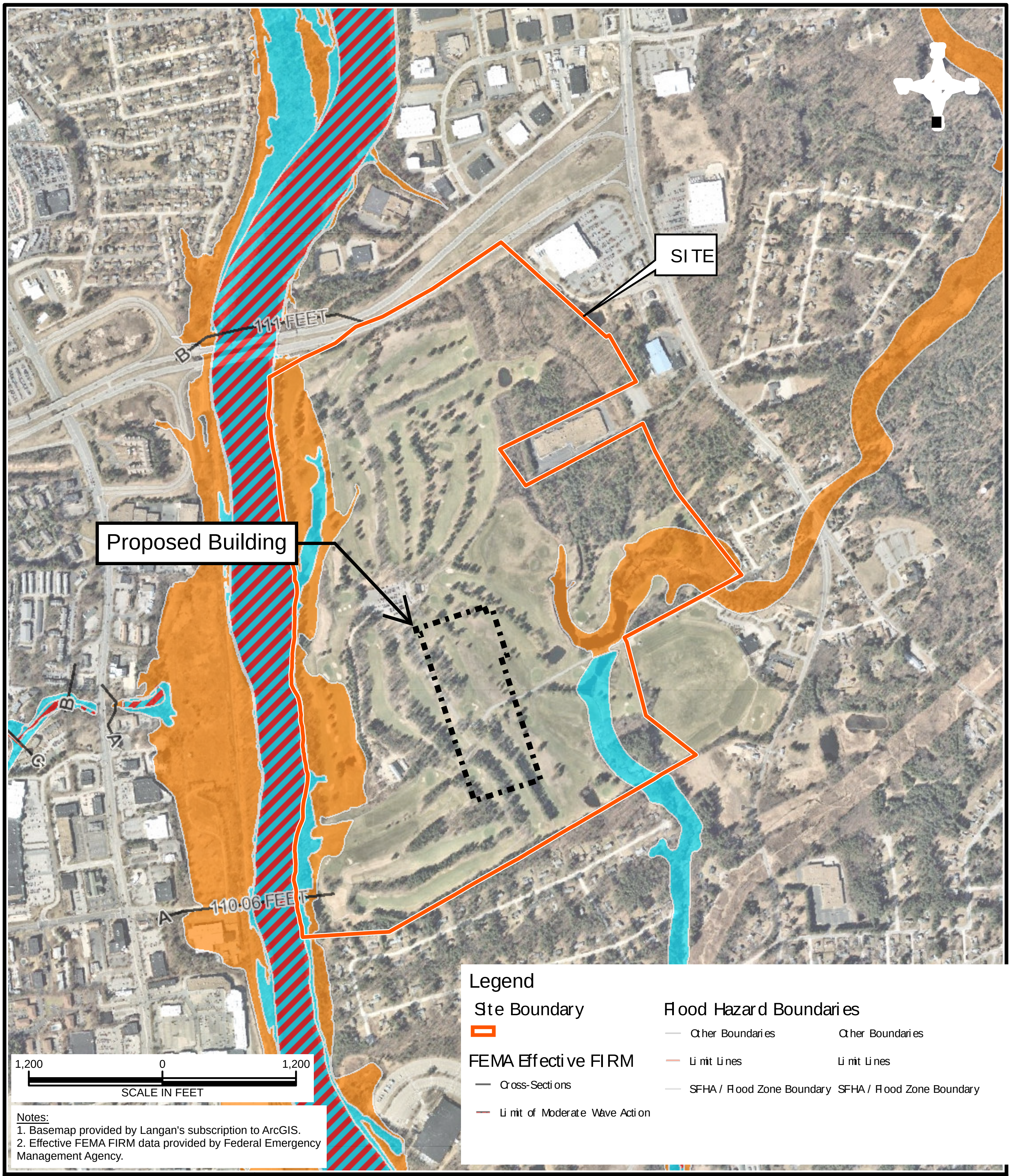

Notes:
1. Basemap provided by Langan's subscription to ArcGIS.
2. Effective FEMA FIRM data provided by Federal Emergency Management Agency.

LANGAN

888 Boylston Street, Suite 510
Boston, MA 02199
T: 617.824.9100 F: 617.824.9101 www.langan.com

Langan Engineering & Environmental Services, Inc.
Langan Engineering, Environmental, Surveying and Landscape Architecture, D.P.C.
Langan MA, Inc.
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Collectively known as Langan

Project

HUDSON LOGISTICS CENTER

HUDSON NEW HAMPSHIRE

Drawing Title

EFFECTIVE FEMA FIRM

Project No.
151010101

Date
04/27/2020

Scale
1" = 1200'

Drawn By
EB

Figure
4

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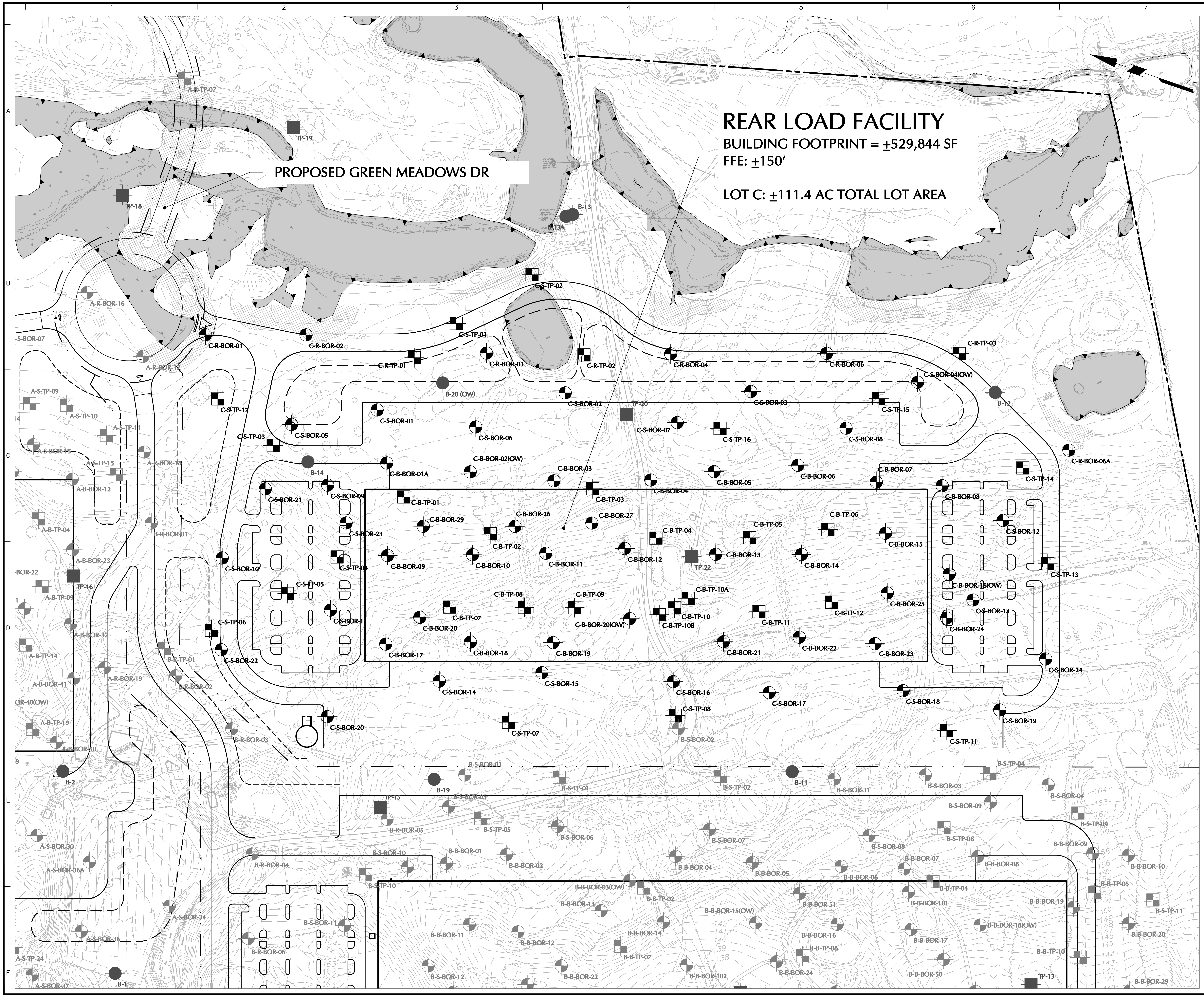


NOTES

1. ALL BORING, TEST PIT, AND OBSERVATION WELL LOCATIONS ARE APPROXIMATE.
2. BASE MAP INFORMATION OBTAINED FROM "TOPOGRAPHIC SUBDIVISION PLAN, HUDSON LOGISTICS CENTER" PREPARED BY HAYNER/SWANSON, INC., DATED 21 APRIL 2020.
3. PROPOSED DEVELOPMENT INFORMATION OBTAINED FROM A PROGRESS "CONCEPTUAL SITE PLAN" BY LANGAN TAKEN AUGUST 2020.
4. ELEVATIONS REFERENCE THE NGVD29 DATUM.
5. APPROXIMATE EXPLORATION LOCATIONS BY GZA GEOENVIRONMENTAL, INC. WERE OBTAINED FROM A REPORT TITLED "PRELIMINARY GEOTECHNICAL ENGINEERING STUDY" PREPARED BY GZA GEOENVIRONMENTAL, INC., DATED MAY 2006.
6. LANGAN TEST PITS WERE PERFORMED BY POLSTER INDUSTRIES BETWEEN 29 MAY AND 30 JUNE 2020, UNDER THE OBSERVATION OF A LANGAN FIELD ENGINEER.
7. LANGAN BORINGS WERE PERFORMED BY SOILTESTING, INC., SEABOARD DRILLING INC., AND ATLANTIC TESTING LABORATORIES BETWEEN 1 JUNE AND 2 JULY 2020, UNDER THE OBSERVATION OF A LANGAN FIELD ENGINEER. EXPLORATIONS ASSOCIATED WITH THE REMAINING TWO LOTS ARE SHOWN ON SEPARATE PLANS.
8. SEE GEOTECHNICAL REPORT FOR ADDITIONAL INFORMATION.
9. LIMITS OF FILL ARE BASED ON THE RESULTS FROM THE BORINGS. TEST PITS AND BORINGS DO NOT EXISTING INFRASTRUCTURE (BUILDINGS, ROADWAYS, UTILITIES, ECT.).

ADDITIONAL NOTES

1. **INFORMATION PROVIDED HERE IS INFERRED BASED ON THE AVAILABLE BORINGS AND TEST PITS AND IS PROVIDED FOR INFORMATION/DISCUSSION PURPOSES ONLY.**
2. **CONTRACTOR IS RESPONSIBLE TO DETERMINE/CONFIRM ESTIMATED QUANTITIES AND DEPTHS BASED ON THE AVAILABLE BORING/TEST PIT LOGS, THEIR OWN EXPLORATION WORK, AND THEIR OWN MEANS/METHODS.**

INVESTGATION NOMENCLATURE

LANGAN EXPLORATION LOCATION

A-B-BOR-01
- 01 — NUMBER
- BOR — INVESTIGATION (BORING OR TEST–PIT)
- B — FEATURE(R–ROAD, B–BUILDING, S–SITE)
- A — PARCEL (A, B, C)

BUILDINGS SHIFTED AFTER THE EXPLORATION WORK WAS COMPLETE. AS SUCH, SOME SITE BORINGS/TEST PITS (IF APPLICABLE) SHOW UP IN THE BUILDING FOOTPRINTS.

LEGEND

LANGAN BORING	⊕ A-B-BOR-01
LANGAN TEST PIT	▨ A-B-TP-01
HISTORIC GZA BORING	● B-1
HISTORIC GZA TEST PIT	■ TP-1
PROPOSED BUILDING LIMITS	━━━
PROPOSED ROADWAY AND PARKING LOT LIMITS	───
PROPOSED INFILTRATION BASIN LIMITS	— — —
PROPOSED LOT LINE	— · · —
PROPERTY LINE	━ - - ━

100 0 50 100
SCALE IN FEET

LANGAN

LANGAN MA, INC.

888 Boylston Street, Suite 510
Boston, MA

T: 617.824.9100 F: 617.824.9101 www.langan.com

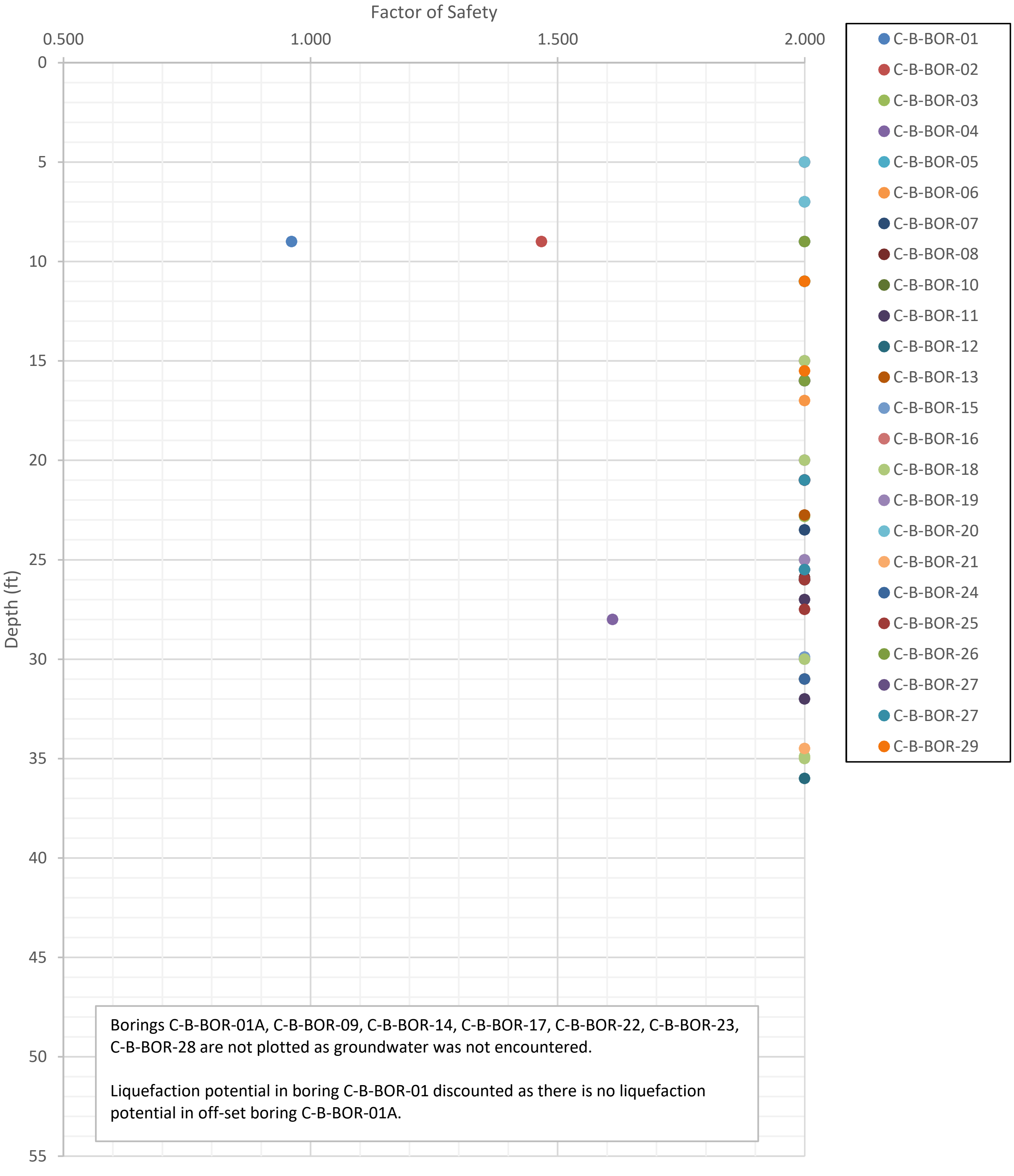
Project

HUDSON LOGISTICS CENTER

HUDSON
HILLSBOROUGH NEW HAMPSHIRE

EXPLORATION LOCATION PLAN

Project No. 151010101	Figure
Date 10 JULY 2020	5
Drawn By TDS	
Checked By LC	Sheet 0 of 1



Borings C-B-BOR-01A, C-B-BOR-09, C-B-BOR-14, C-B-BOR-17, C-B-BOR-22, C-B-BOR-23, C-B-BOR-28 are not plotted as groundwater was not encountered.

Liquefaction potential in boring C-B-BOR-01 discounted as there is no liquefaction potential in off-set boring C-B-BOR-01A.

LANGAN

555 Long Wharf Drive, New Haven, CT 06511
T: 203.562.5771 F: 203.789.6142 www.langan.com

NEW JERSEY NEW YORK CONNECTICUT PENNSYLVANIA OHIO
WASHINGTON, DC FLORIDA TEXAS NORTH DAKOTA CALIFORNIA
ABU DHABI ATHENS DOHA DUBAI ISTANBUL PANAMA

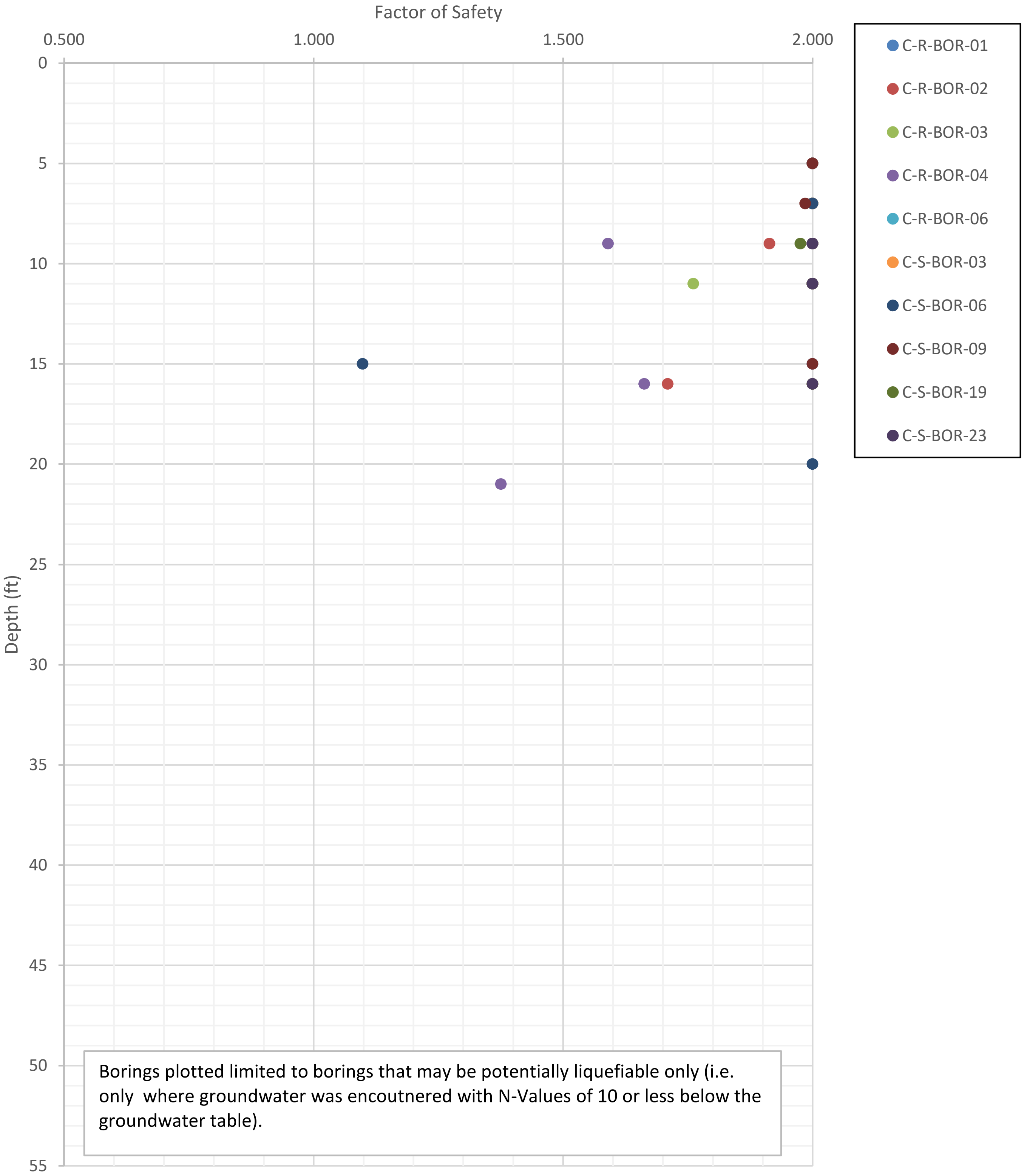
Langan Engineering, Environmental, Surveying and Landscape Architecture, D.P.C. S.A.
Langan Engineering, Environmental, Surveying and Landscape Architecture, D.P.C.
Langan Engineering and Environmental Services, Inc.
Langan CT, Inc.
Langan International LLC
Collectively known as Langan

Project
HUDSON LOGISTICS
CENTER
HUDSON NEW HAMPSHIRE

Drawing Title
SOIL LIQUEFACTION
EVALUATION
BUILDING ONLY (LOT C)

Project No.
151010101
Date
7/7/2020
Scale
N.T.S
Drawn By
LHC

Drawing No.
6



Borings plotted limited to borings that may be potentially liquefiable only (i.e. only where groundwater was encoutnered with N-Values of 10 or less below the groundwater table).

LANGAN

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NEW JERSEY NEW YORK CONNECTICUT PENNSYLVANIA OHIO
WASHINGTON, DC FLORIDA TEXAS NORTH DAKOTA CALIFORNIA
ABU DHABI ATHENS DOHA DUBAI ISTANBUL PANAMA

Langan Engineering, Environmental, Surveying and Landscape Architecture, D.P.C. S.A.
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Langan CT, Inc.
Langan International LLC
Collectively known as Langan

Project
HUDSON LOGISTICS CENTER
HUDSON NEW HAMPSHIRE

Drawing Title
SOIL LIQUEFACTION EVALUATION
SITE & ROADS ONLY (LOT C)

Project No.
151010101

Date
7/7/2020

Scale
N.T.S

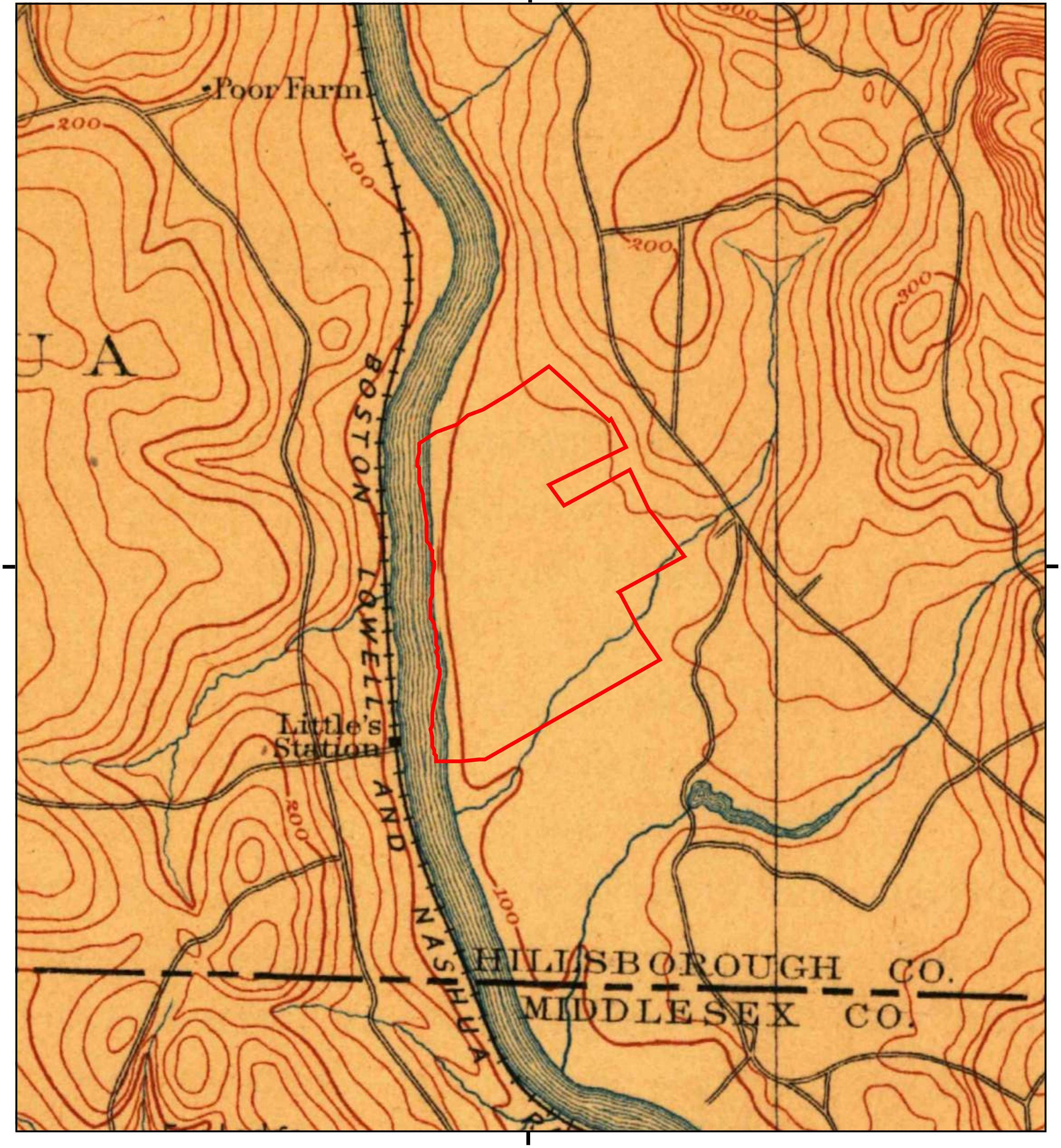
Drawn By
LHC

Drawing No.
7

APPENDIX A
HISTORIC INFORMATION

Historical Topo Map

1893



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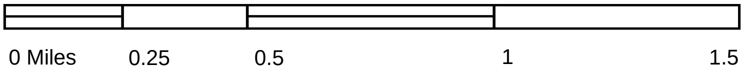
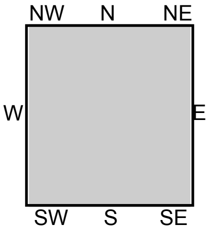


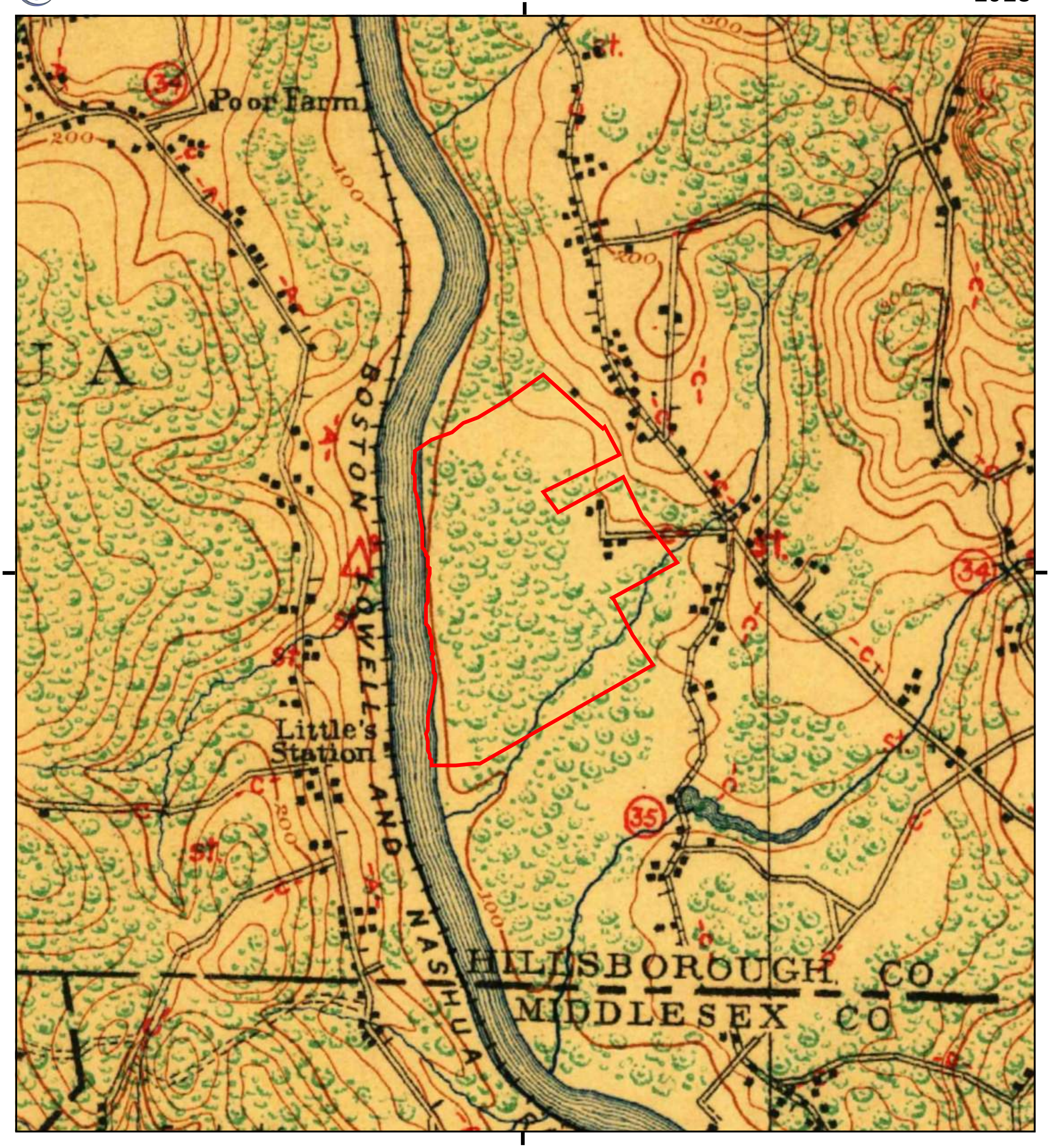


TP, Lowell, 1893, 15-minute

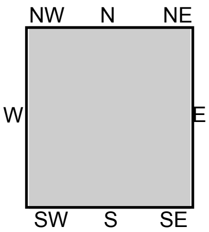
SITE NAME: 59 Steele Road
ADDRESS: 59 Steele Road
Hudson, NH 03051
CLIENT: Langan Environmental Services

Historical Topo Map

1918



This report includes information from the following map sheet(s).



TP, Lowell, 1918, 15-minute

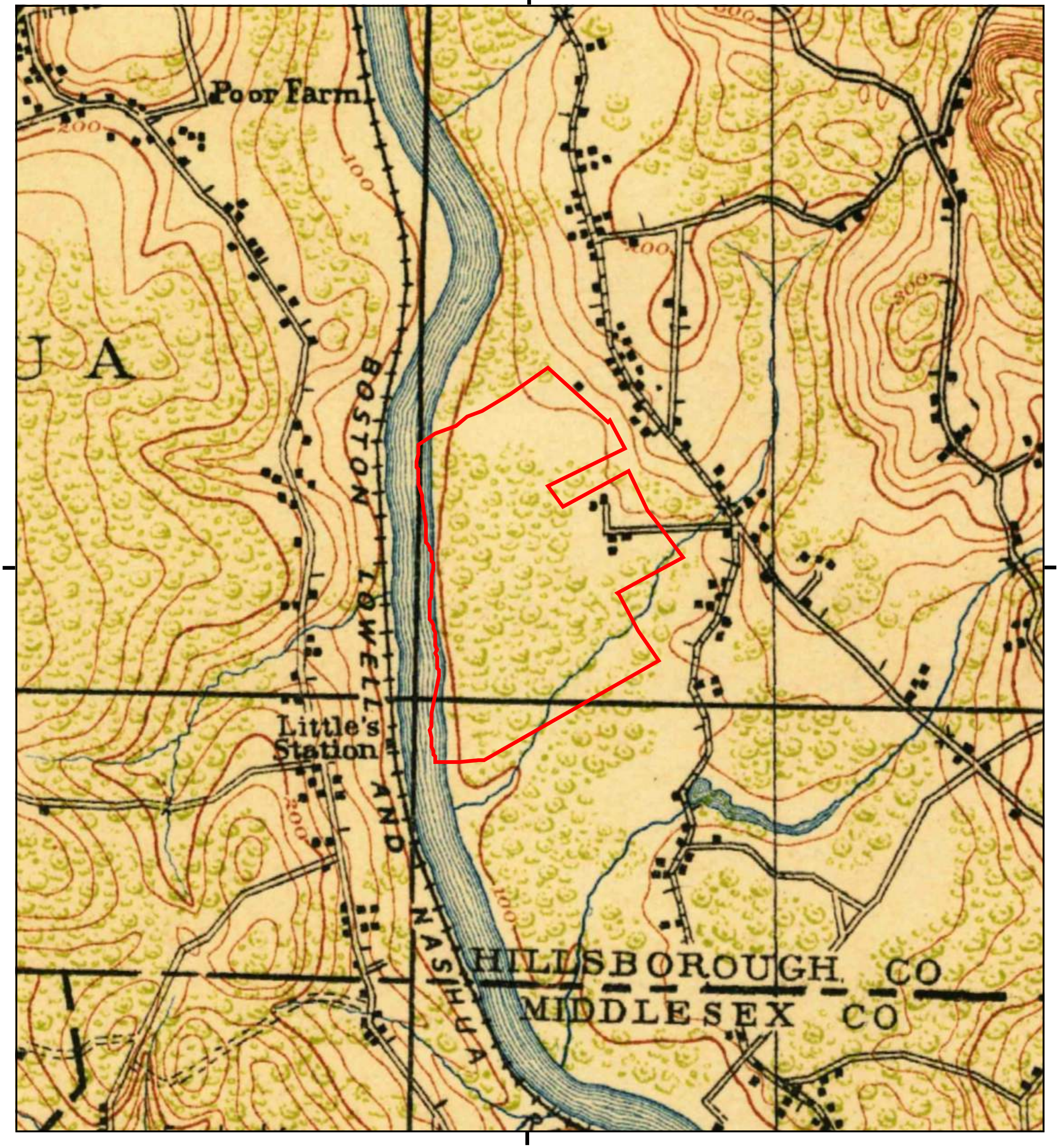
SITE NAME: 59 Steele Road

ADDRESS: 59 Steele Road
Hudson, NH 03051

CLIENT: Langan Environmental Services

Historical Topo Map

1921



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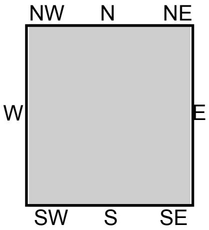
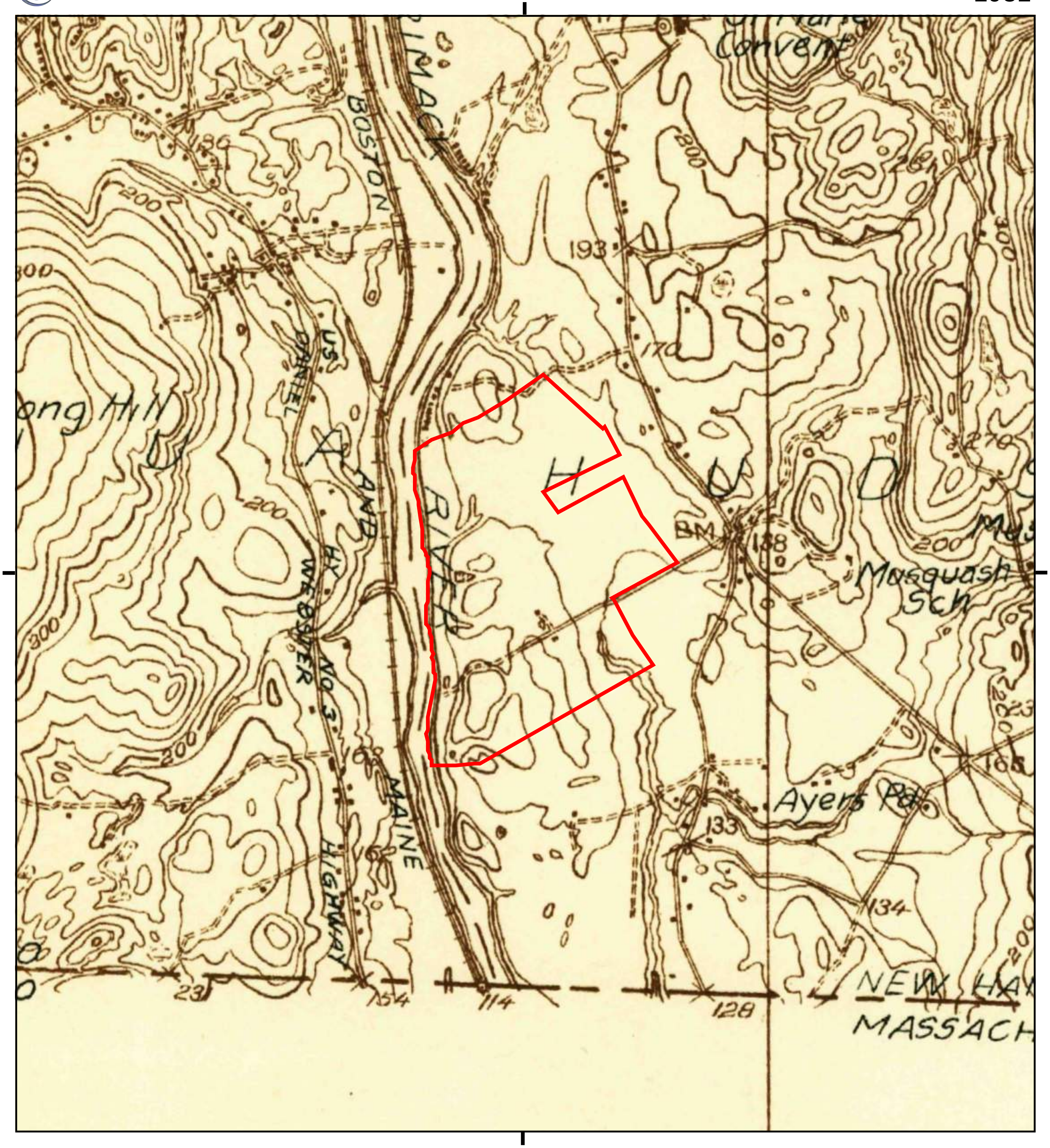


TP, Lowell, 1921, 15-minute

SITE NAME: 59 Steele Road
ADDRESS: 59 Steele Road
Hudson, NH 03051
CLIENT: Langan Environmental Services

Historical Topo Map

1931



This report includes information from the following map sheet(s).

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NW N NE
W E
SW S SE

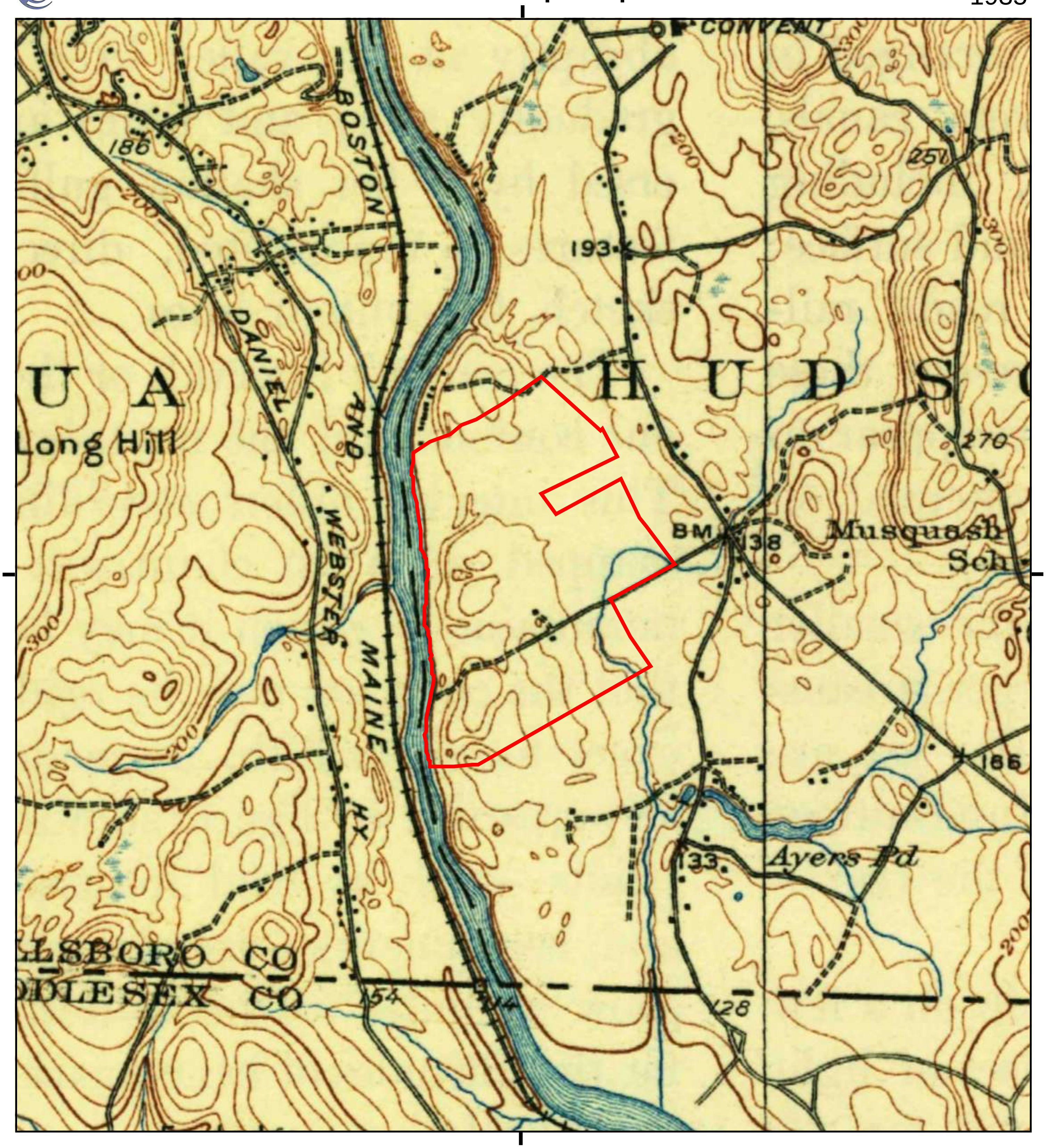
TP, Lowell, 1931, 15-minute

SITE NAME: 59 Steele Road
ADDRESS: 59 Steele Road
Hudson, NH 03051
CLIENT: Langan Environmental Services

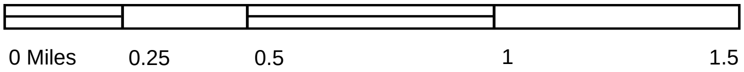
N

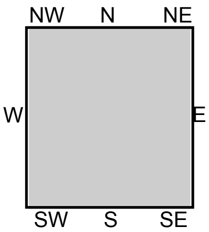
Historical Topo Map

1935



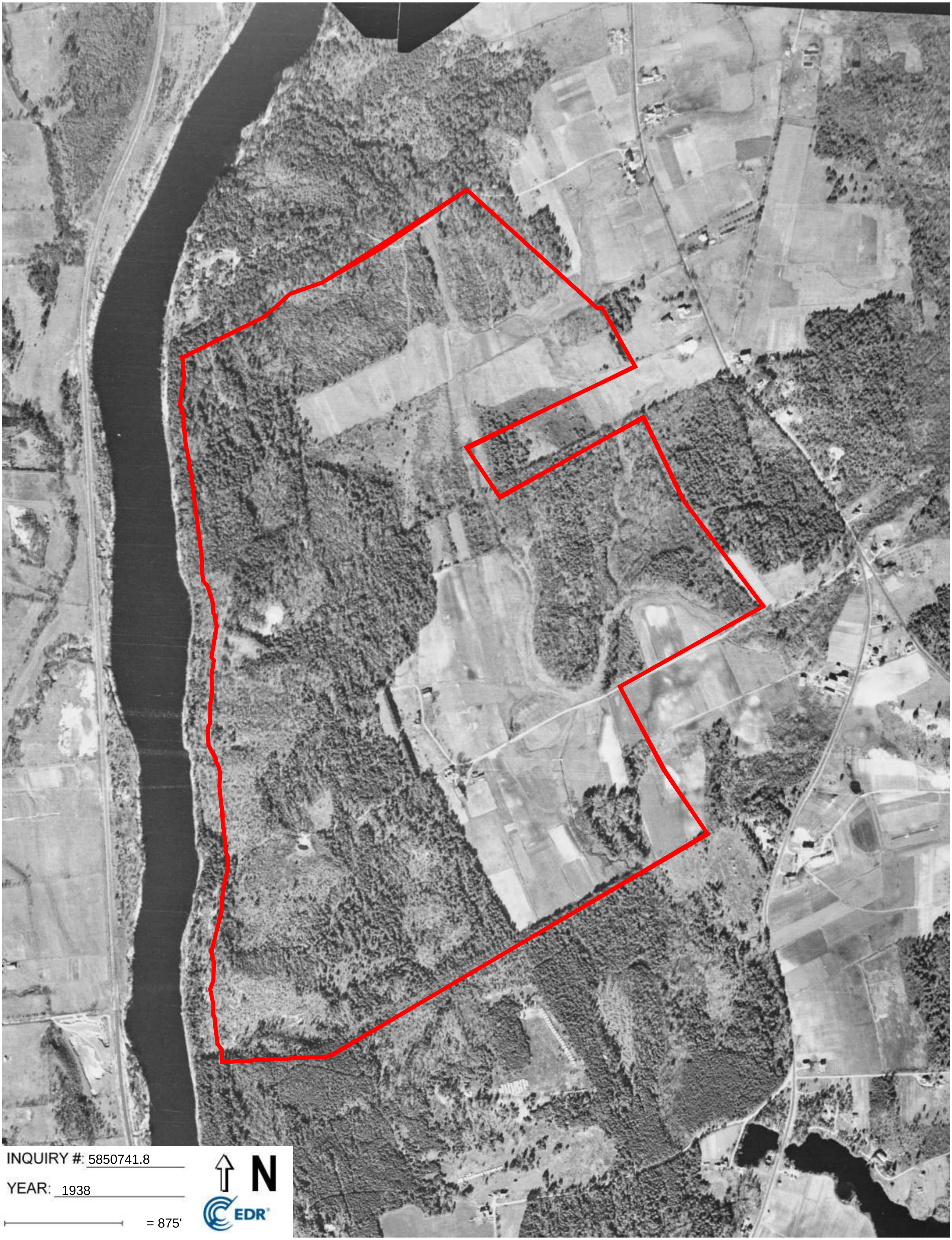
This report includes information from the following map sheet(s).





TP, Lowell, 1935, 15-minute

SITE NAME: 59 Steele Road
ADDRESS: 59 Steele Road
Hudson, NH 03051
CLIENT: Langan Environmental Services



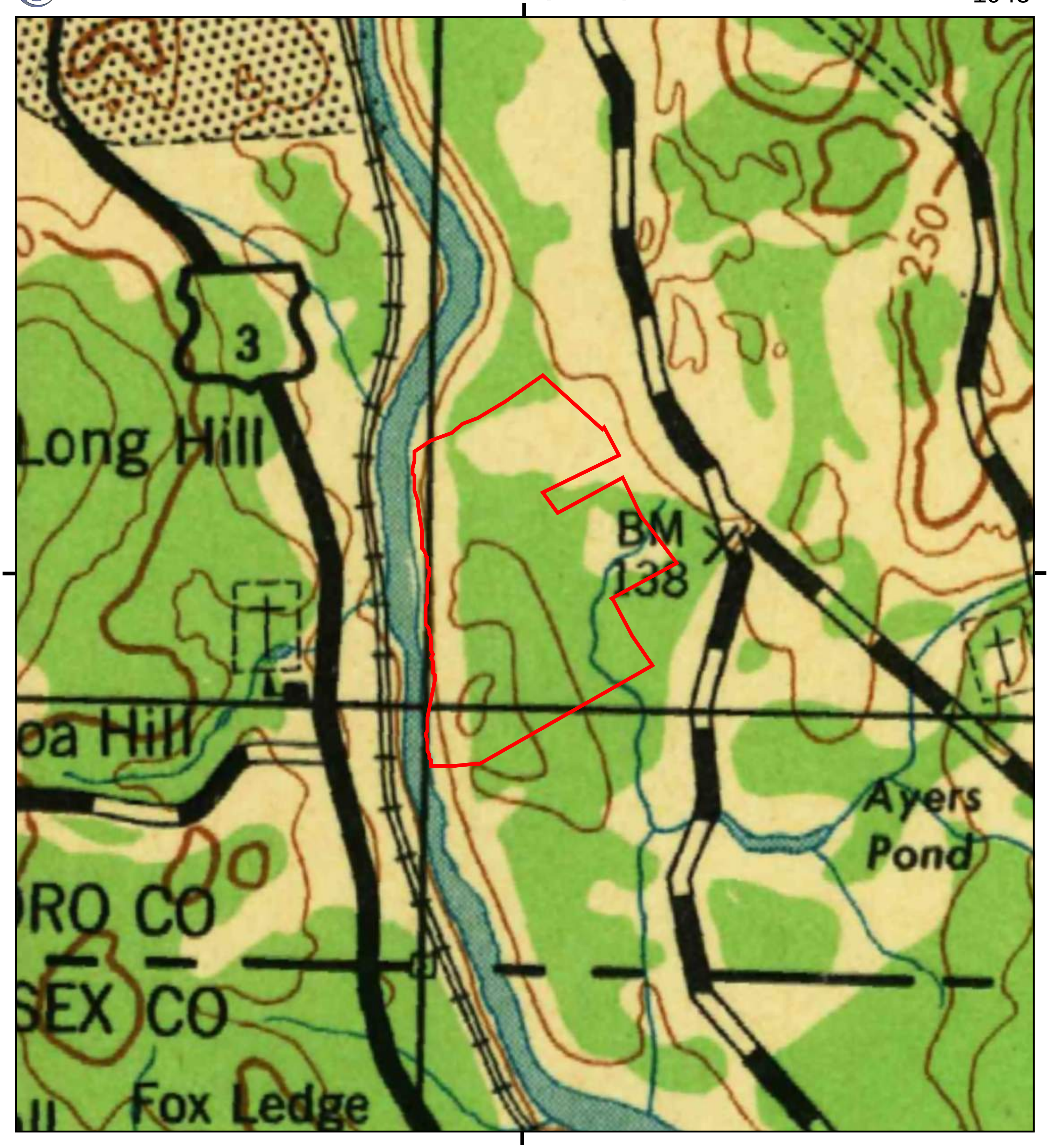
INQUIRY #: 5850741.8

YEAR: 1938

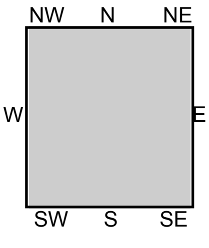
= 875'

Historical Topo Map

1943



This report includes information from the following map sheet(s).

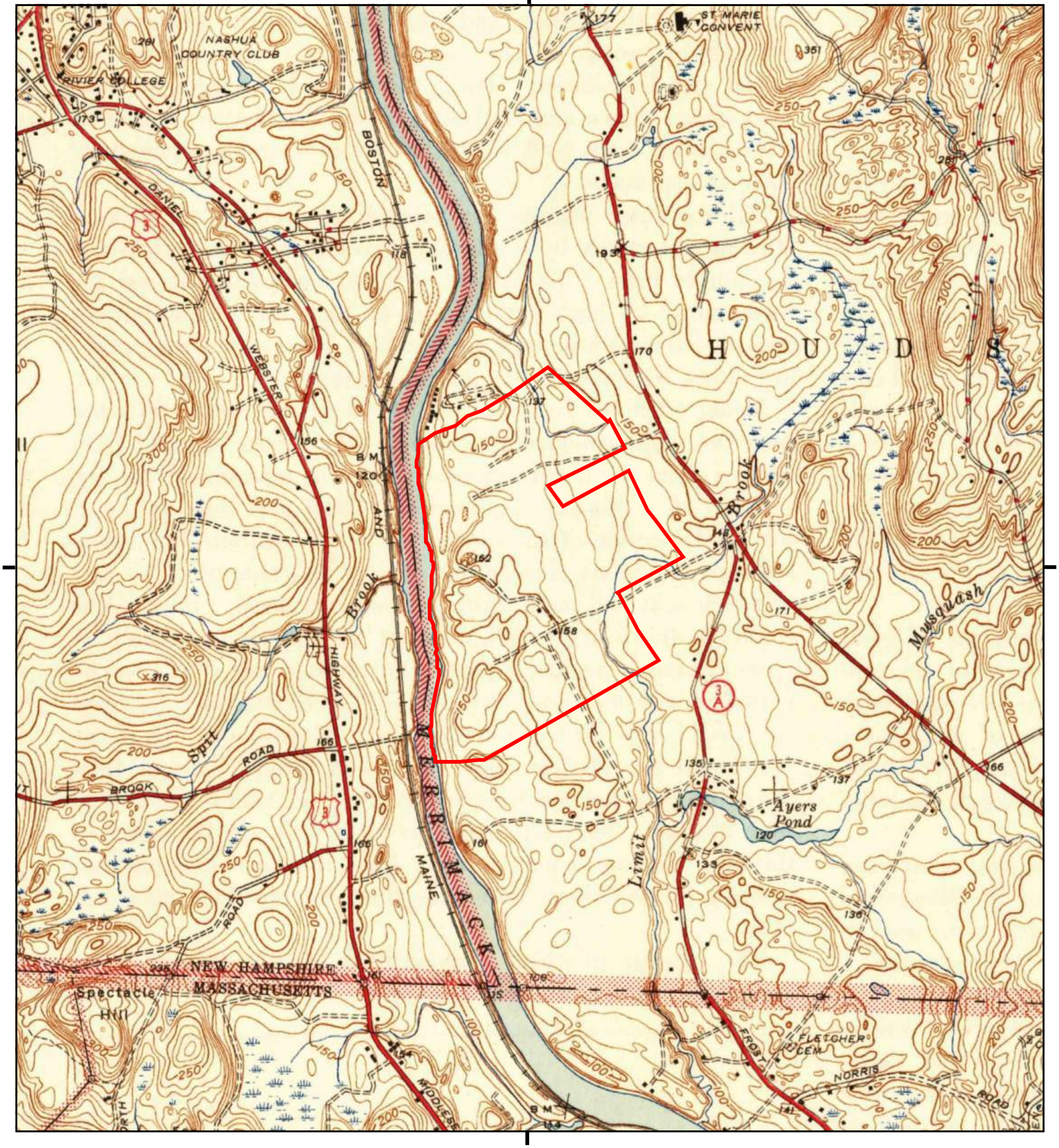


TP, Lowell, 1943, 30-minute

SITE NAME: 59 Steele Road
ADDRESS: 59 Steele Road
Hudson, NH 03051
CLIENT: Langan Environmental Services

Historical Topo Map

1946



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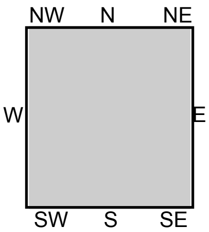
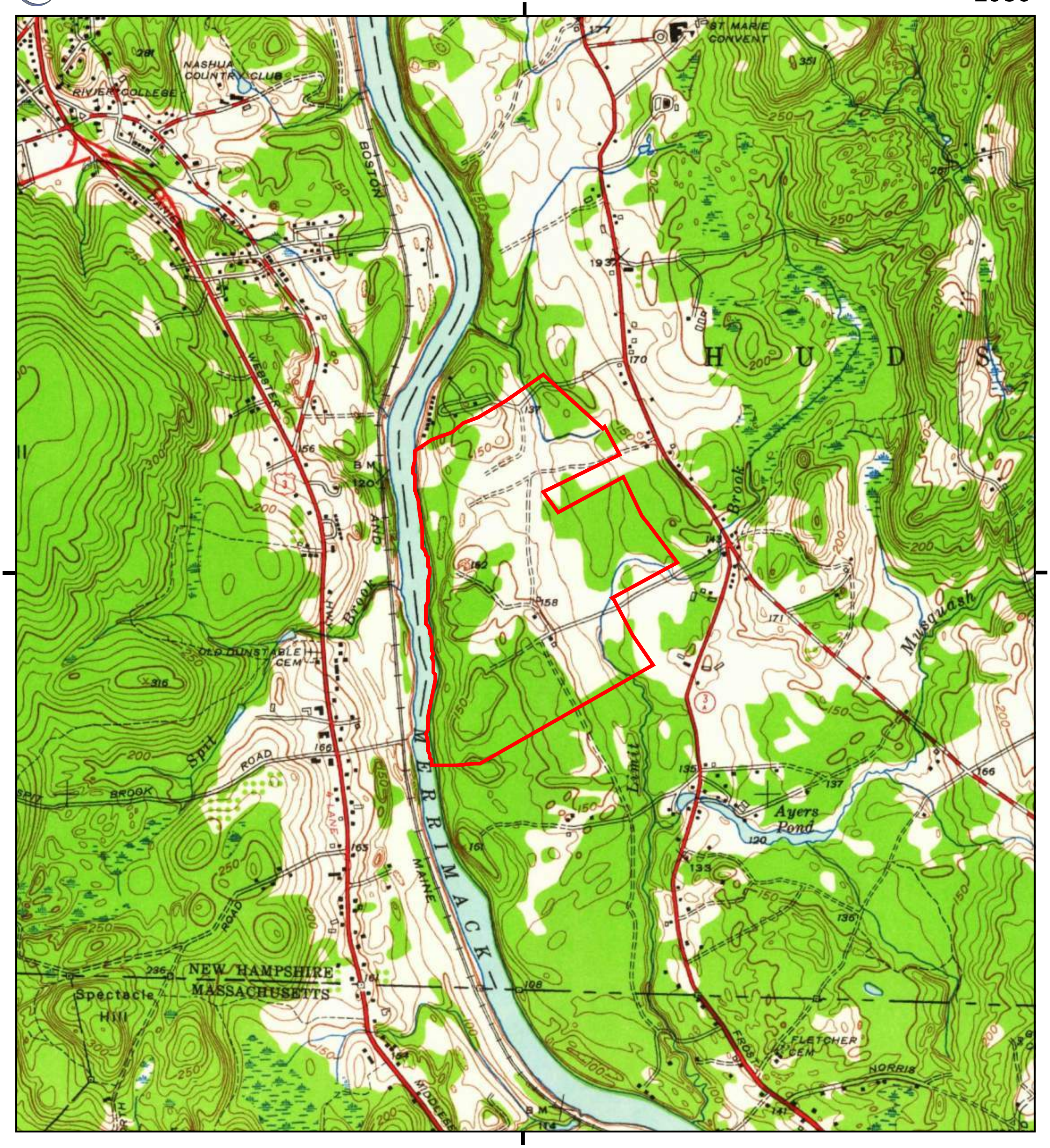


TP, Tyngsboro, 1946, 7.5-minute

SITE NAME: 59 Steele Road
ADDRESS: 59 Steele Road
Hudson, NH 03051
CLIENT: Langan Environmental Services

Historical Topo Map

1950



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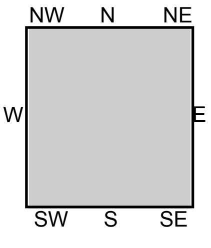


TP, Tyngsboro, 1950, 7.5-minute
TP, NASHUA SOUTH, 1950, 7.5-minute

SITE NAME: 59 Steele Road
ADDRESS: 59 Steele Road
Hudson, NH 03051
CLIENT: Langan Environmental Services

INQUIRY #: 5850741.8

YEAR: 1952

Subject boundary not shown because it exceeds image extent or

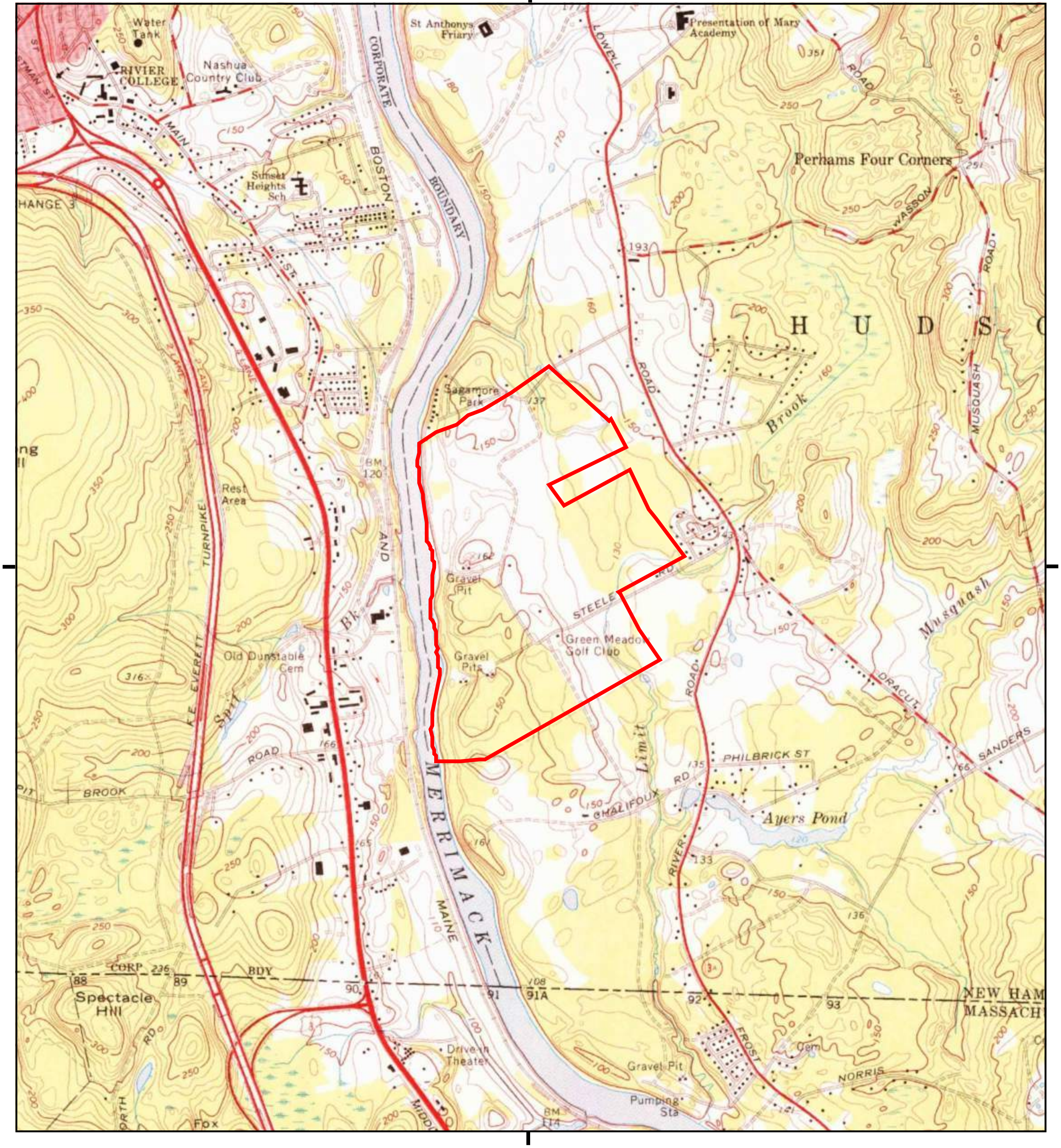
INQUIRY #: 5850741.8

YEAR: 1963

= 875'

Historical Topo Map

1965



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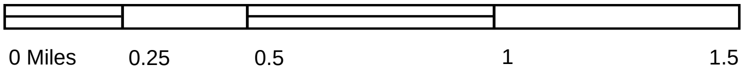
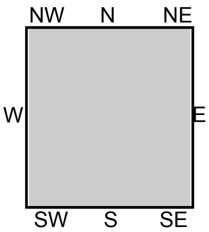




TP, Nashua South, 1965, 7.5-minute

SITE NAME: 59 Steele Road
ADDRESS: 59 Steele Road
Hudson, NH 03051
CLIENT: Langan Environmental Services

INQUIRY #: 5850741.8

YEAR: 1965

= 875'

INQUIRY #: 5850741.8

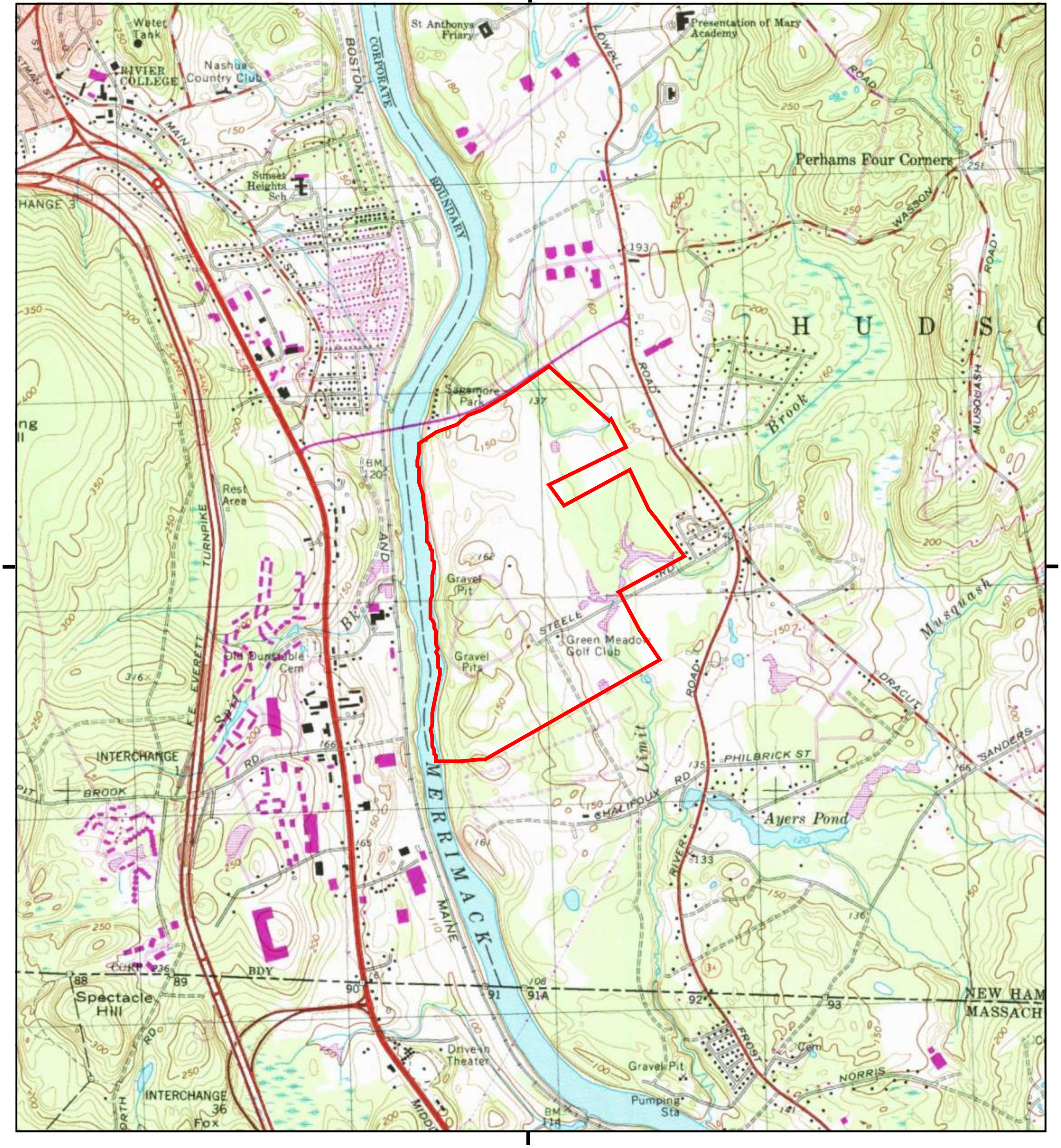
YEAR: 1977

= 875'

N

Historical Topo Map

1979



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

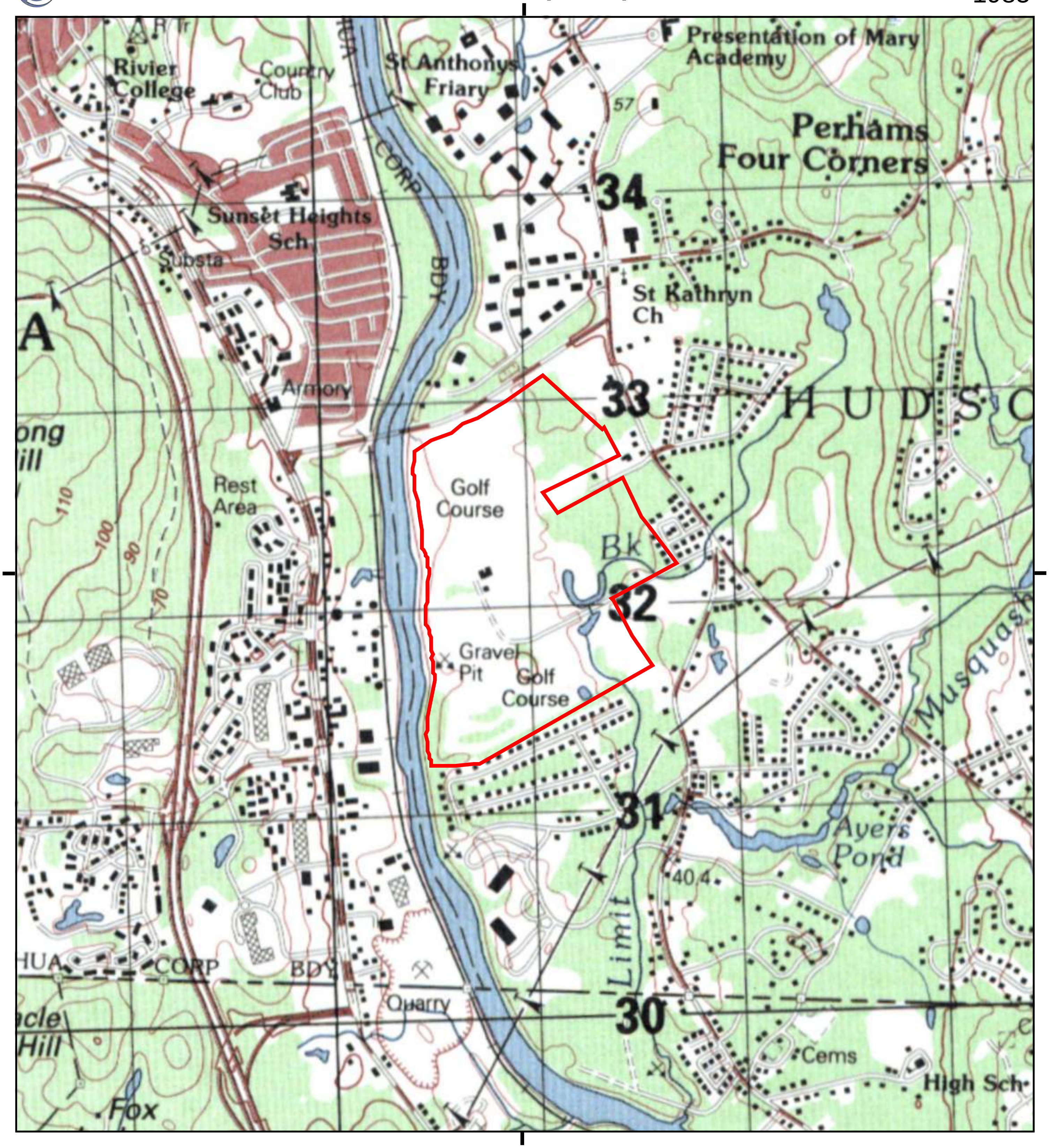
NW N NE
W E
SW S SE

TP, Nashua South, 1979, 7.5-minute

SITE NAME: 59 Steele Road
ADDRESS: 59 Steele Road
Hudson, NH 03051
CLIENT: Langan Environmental Services

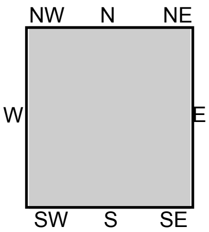
Historical Topo Map

1985



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5



TP, LOWELL, 1985, 15-minute

SITE NAME: 59 Steele Road
ADDRESS: 59 Steele Road
Hudson, NH 03051
CLIENT: Langan Environmental Services

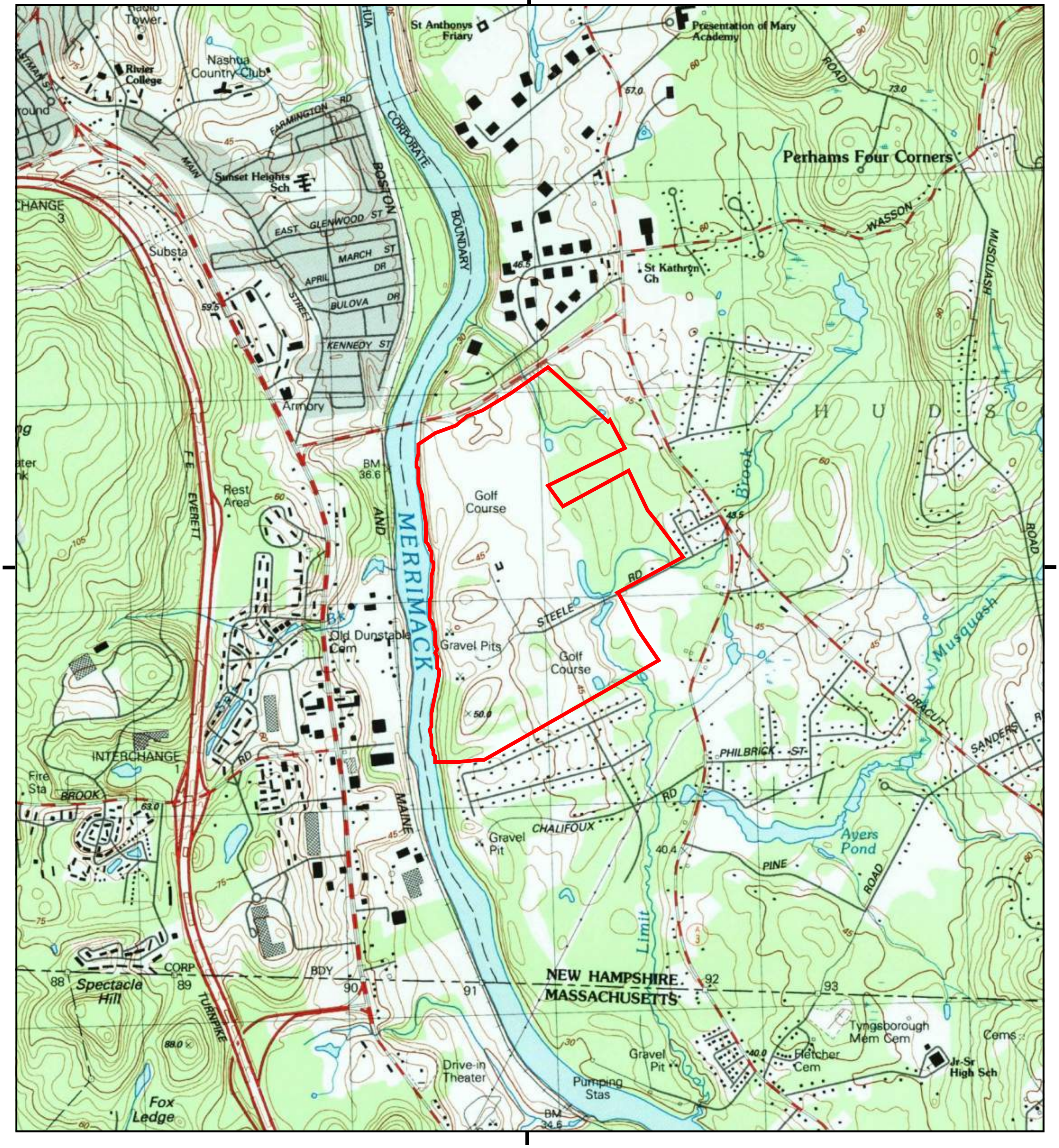
INQUIRY #: 5850741.8

YEAR: 1985

= 875'

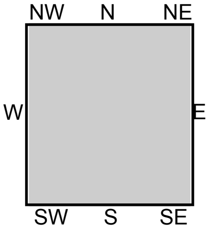
Historical Topo Map

1987



This report includes information from the following map sheet(s).

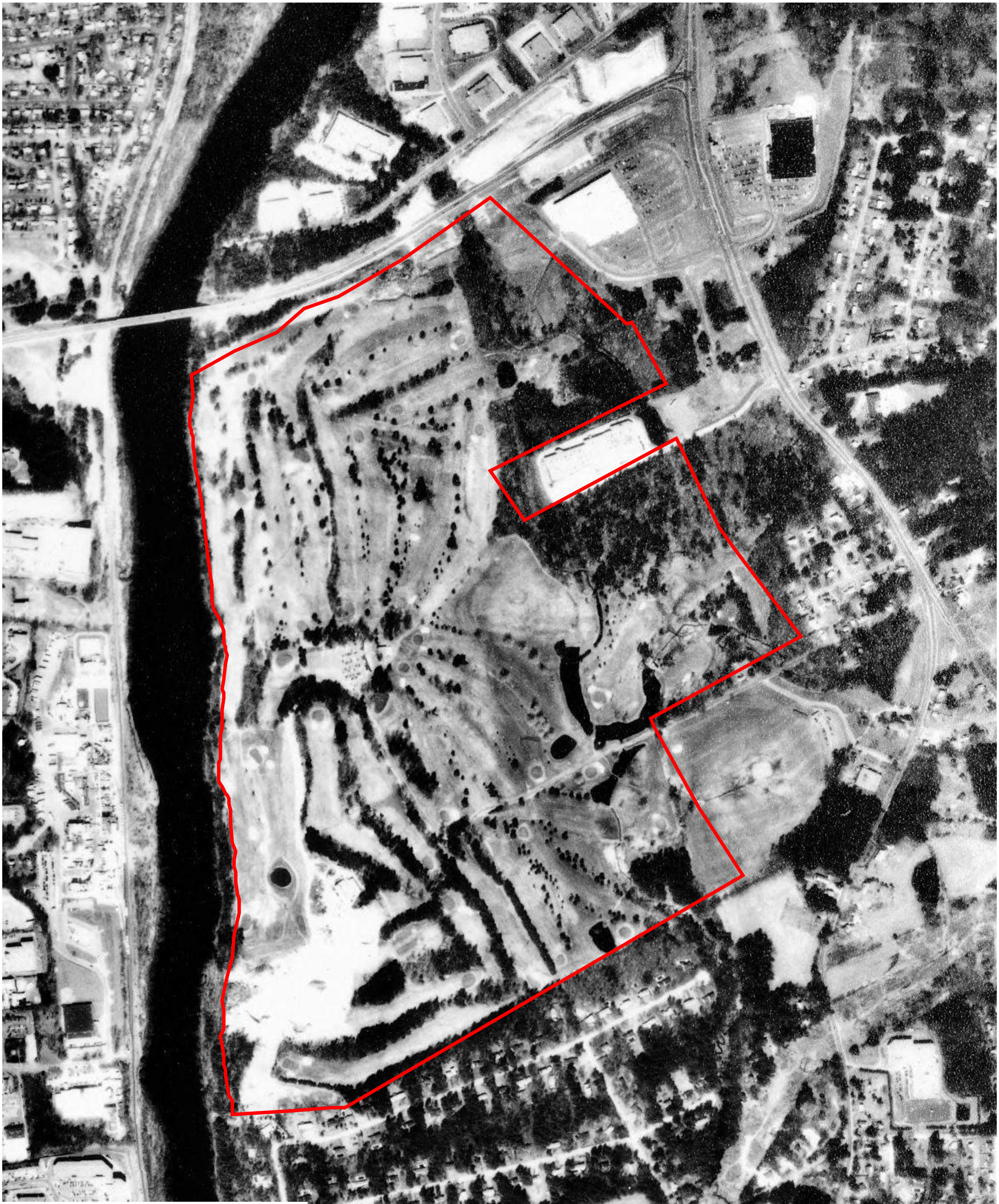
0 Miles 0.25 0.5 1 1.5



TP, Lowell, 1987, 7.5-minute

SITE NAME: 59 Steele Road
ADDRESS: 59 Steele Road
Hudson, NH 03051
CLIENT: Langan Environmental Services

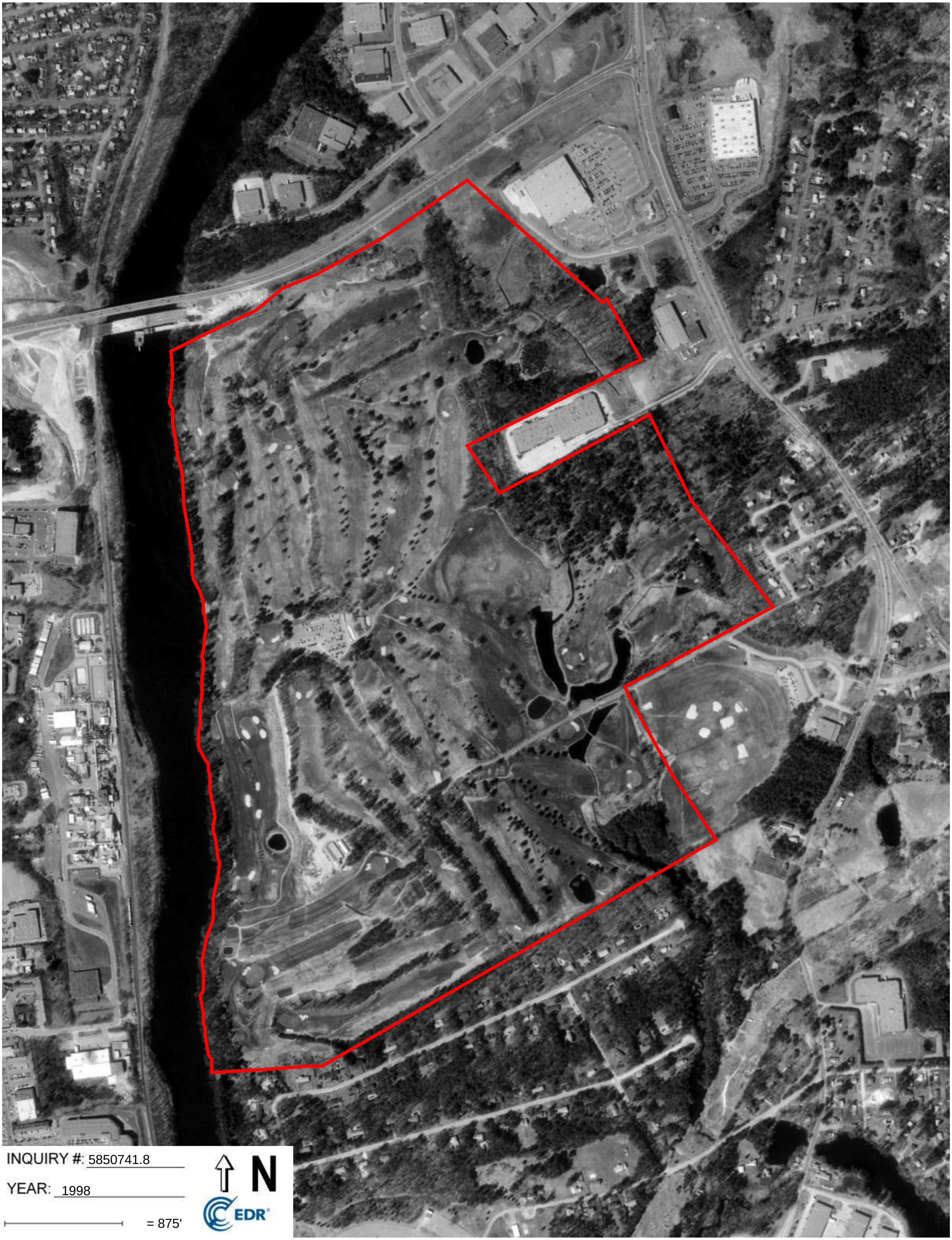
N



INQUIRY #: 5850741.8

YEAR: 1995

= 875'



INQUIRY #: 5850741.8

YEAR: 1998

= 875'

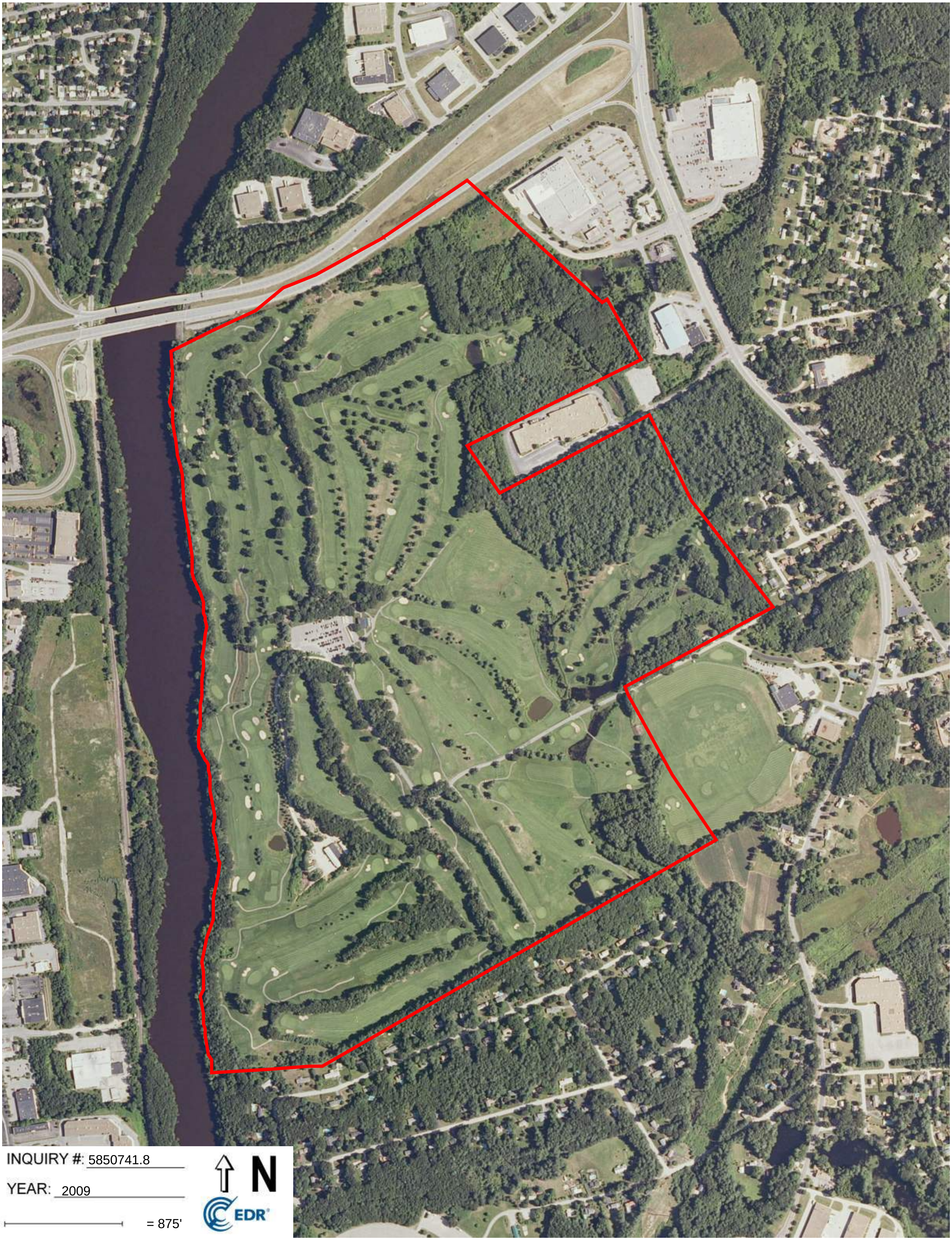
N

INQUIRY #: 5850741.8

YEAR: 2006

= 875'

N



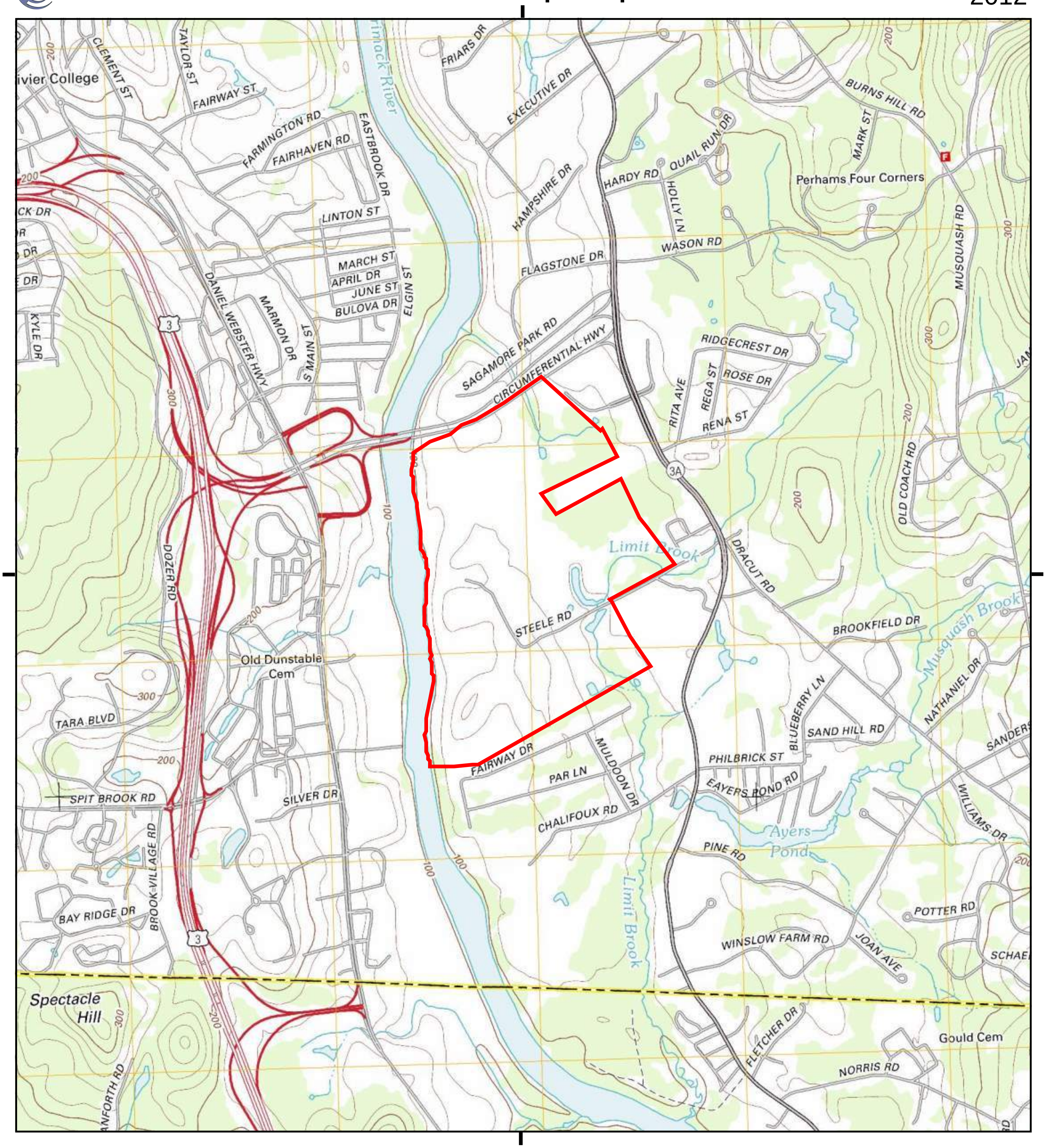
INQUIRY #: 5850741.8

YEAR: 2009

= 875'

Historical Topo Map

2012



This report includes information from the following map sheet(s).

NW	N	NE
W		E
SW	S	SE

TP, Nashua South, 2012, 7.5-minute

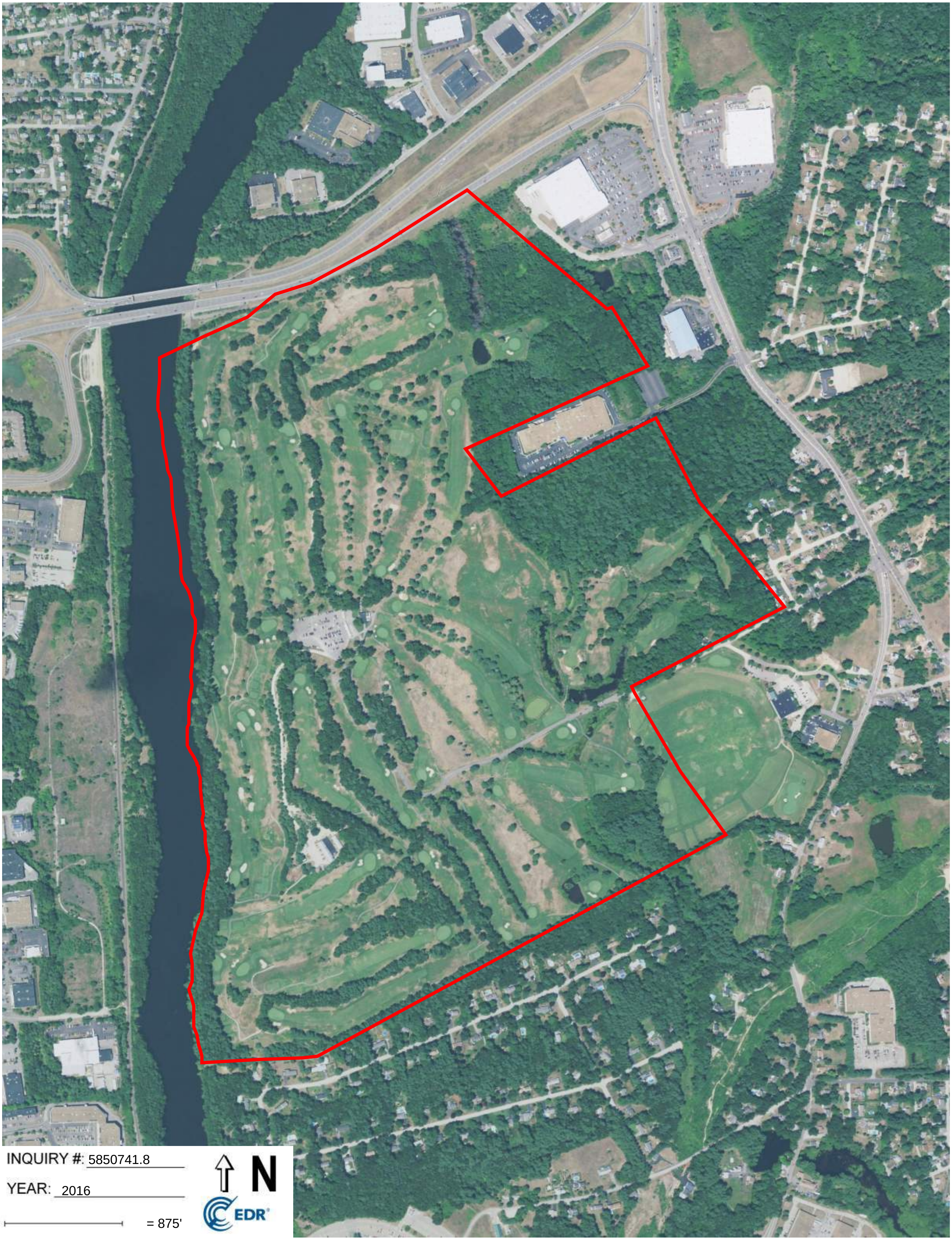
SITE NAME: 59 Steele Road
ADDRESS: 59 Steele Road
Hudson, NH 03051
CLIENT: Langan Environmental Services

N

INQUIRY #: 5850741.8

YEAR: 2012

= 875'



INQUIRY #: 5850741.8

YEAR: 2016

= 875'

APPENDIX B
AVAILABLE GEOTECHNICAL REPORT

TABLE 1
SUMMARY OF TEST BORINGS AND TEST PITS

River Place
Hudson, New Hampshire

Test Boring Designation[1]	Notes	Ground Surface Elev. +/-(feet)[2]	Exploration Depth (feet)	Groundwater[3]		Thickness of Deposit (feet)							Refusal	
				Depth to (feet)	Elev. of (feet)	Topsoil	Subsoil	Silt	Sand	Silty Sand	Gravelly Sand	Peat	Depth to (feet)	Elev. of (feet)
B-1	6	136.0	30.2	NA					29.7				30.2	105.8
B-2		150.6	22.0	NA		0.2			>21.5				NE	
B-3		138.7	22.0	NA		1.0	1.0	>13.5	6.5				NE	
B-4		132.8	22.0	NA		1.0	1.5	3.5	>16				NE	
B-5	6	153.9	13.2	NA		1.0			11.2				13.2	140.7
B-6		119.8	22.0	*15.0*	104.8	0.5	1.5			>20			NE	
B-7		111.2	22.0	6.0	105.2	0.5	2.0	>13.5	6.5				NE	
B-8		116.6	27.0	*21.0*	95.6	0.3	2.2			>24.5			NE	
B-9		147.5	37.0	25.0	122.5				8.5	>28.5			NE	
B-10 (OW)	4	112.9	25.0	19.6	93.3	2.0			>23				NE	
B-11	6	169.6	10.5	NA		1.0	1.0			8.0	0.5		10.5	159.1
B-12	6	132.1	20.8	3.0	129.1	2.0				18.8			20.8	111.3
B-13	6	127.8	15.1	NA		0.5				14.6			15.1	112.7
B-13A	6	128.1	19.1	*5.6*	122.5	0.5				15.0	3.6		19.1	109.0
B-14		133.3	11.0	3.6	129.7	1.2	1.3		>8.5				NE	
B-15		133.7	12.0	*3.7*	130.0	0.5			>11.5				NE	
B-16	5	129.7	12.0	6.0	123.7	1.0	1.0		>6	4.0			NE	
B-17 (OW)	5	132.6	19.0	10.3	122.3	0.5		7.0	>11.5				NE	
B-18	5	132.4	12.0	5.5	126.9	1.0	1.0		>10				NE	
B-19	6	149.2	16.5	*15.0*	134.2	1.0	1.0		9.9	2.1	2.5		16.5	132.7
B-20 (OW)		133.1	11.0	3.8	129.3	0.7	1.3		>3.5	5.5			NE	
TP-1		146.6	7.0	NE		0.5			3.5	>3			NE	
TP-2		135.1	7.0	NE		0.3				>6.7			NE	
TP-3		138.5	7.0	NE		0.5				>6.5			NE	
TP-4		157.7	6.5	NE		0.5					>6		NE	
TP-5	6	136.7	2.5	NE							>2.5		2.5	134.2
TP-5A	6	136.7	2.5	NE					2.5				2.5	134.2
TP-6		131.3	7.0	7.0	124.3	1.5				>5.5			NE	
TP-7		138.5	7.0	NE		0.5				>6.5			NE	
TP-8		119.1	7.0	NE		0.5	0.8			>5.7			NE	
TP-9		137.2	7.0	NE		0.7				>6.3			NE	
TP-10		119.0	7.0	NE		0.5				>6.5			NE	
TP-11		109.6	7.0	NE		1.5		>5.5					NE	
TP-12		134.1	7.0	NE		0.5		4.0	>2.5				NE	
TP-13		139.9	6.5	NE		0.4			>5	1.1			NE	
TP-14		138.1	6.0	NE		0.3			>4.5	1.2			NE	
TP-15	7	150.0	6.5	NE		0.5			>2.2	3.8			NE	
TP-16		142.5	7.0	NE		0.8			>4.8	1.4			NE	
TP-17		135.8	7.0	NE		0.5			>5	1.5			NE	
TP-18		126.5	6.5	*5.4*	121.1	0.2				4.0		>2.5	NE	
TP-19		127.7	7.0	NE		0.8				>6.2			NE	
TP-20		133.2	7.0	*4.8*	128.4	0.7				>6.3			NE	
TP-21		127.7	6.8	6.7	121.0	0.5				>6.3			NE	
TP-22		146.3	7.0	NE		0.4		>0.8	5.8				NE	

Notes:

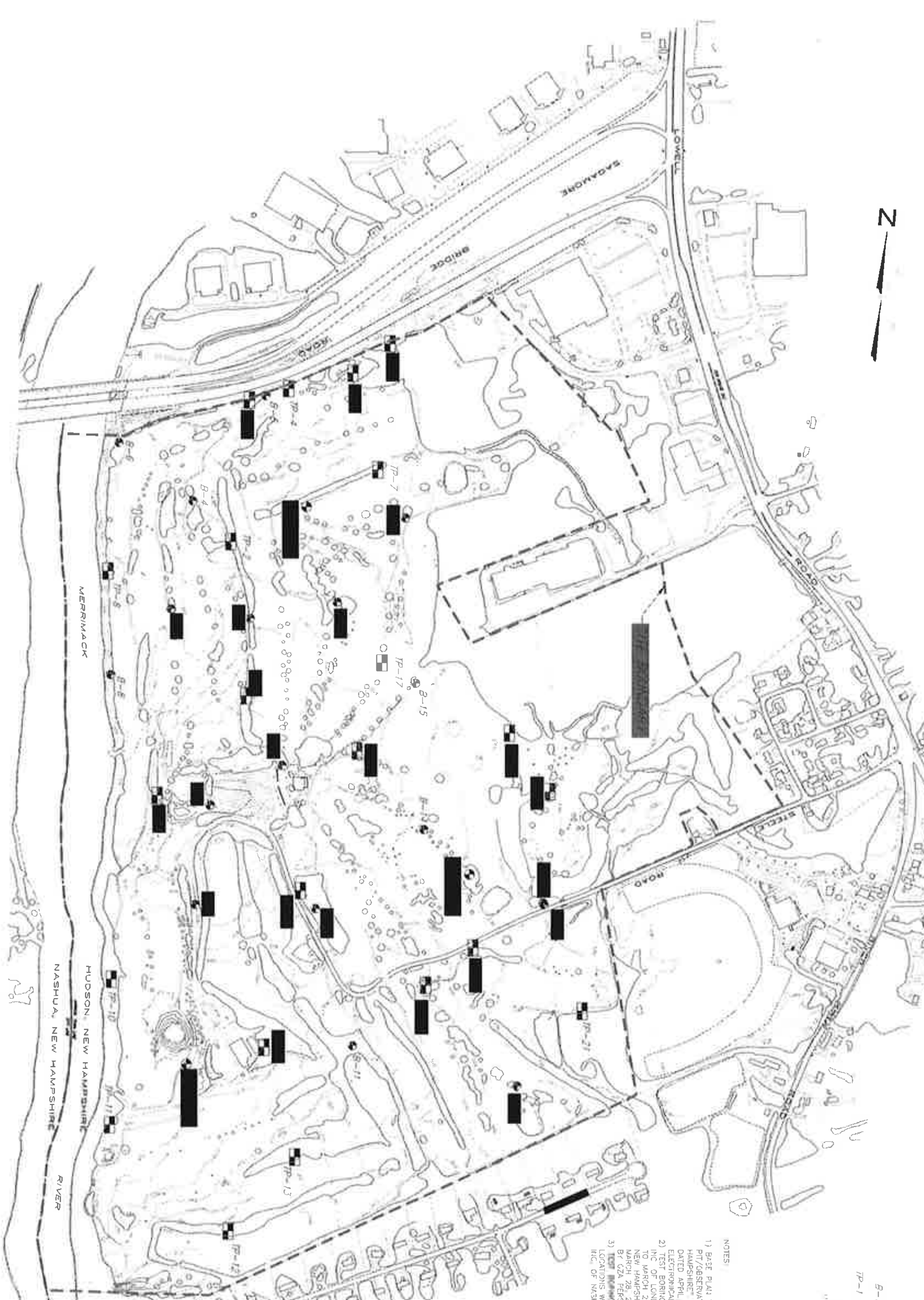
1. Refer to **Appendix B** for test boring logs and **Appendix C** for test pit logs.
2. Approximate ground surface elevation information was interpolated from survey information presented on a plan entitled "Boring/Test Pit/Observation Well Location Plan, 59 Steele Road, Hudson, New Hampshire," prepared by Hayner/Swanson, Inc. of Nashua, New Hampshire, dated April 2006.
3. Groundwater readings shown for test borings with observation wells installed were measured in groundwater observation wells on April 14, 2006. Italicized groundwater readings represent groundwater readings taken during drilling or test pit excavation and do not represent stabilized levels.
4. Cobble layer encountered from 15 to 15.5 feet below ground surface. Sand deposit thickness shown does not include cobble layer thickness.
5. Boring terminated due to running sands.
6. Refusal encountered due to boulders or bedrock.
7. Approximate ground surface elevation was interpolated from topography site plan provided by Hayner Swanson.

Abbreviations:
NA = Not Available
NE = Not Encountered
OW = Observation Well Installed

TABLE 2
SUMMARY OF LABORATORY TESTING
River Place
Hudson, New Hampshire

Boring / Test Pit No.	Sample No.	Depth (feet)	Soil Description	Grain Size Distribution			Natural Water Content (%)
				Gravel	Sand	Silt	
B-1	S-3	10-12	Fine to coarse SAND, some Gravel, trace Silt	21.0	73.7	5.3	4.4
B-2	S-2	5-7	Medium to coarse SAND, little Gravel, trace Silt	15.0	80.0	5.0	3.1
B-3	S-2	5-7	Medium to coarse SAND and Gravel, trace Silt	36.9	60.4	2.7	3.3
B-4	S-2A	5-6.8	SILT and fine Sand	0.1	48.8	51.1	20.4
B-5	S-3	10-12	Fine to medium SAND, some Gravel, little Silt	33.9	46.3	19.8	5.0
B-8	S-2	5-7	Fine to medium SAND, some Silt	0.0	73.4	26.6	7.5
B-9	S-2	5-7	Fine to medium SAND, trace Silt	0.2	95.9	3.9	5.8
B-11	S-2	4-6	Fine to medium SAND, some Silt	0.1	79.4	20.5	7.0
B-15	S-2	5-7	Fine to coarse SAND, little Silt, trace Gravel	7.5	75.9	16.6	24.3
B-16	S-1B	0-2	SILT, trace fine Sand	0.0	4.8	95.2	33.7
B-17(OW)	S-2	4-6	SILT, some fine Sand	0.2	30.0	69.8	25.4
B-18	S-3	10-12	Fine to medium SAND, trace Silt	0.0	93.2	6.8	26.4
TP-1	S-3	3.5	Medium to coarse SAND, little Gravel, trace Silt	10.8	85.6	3.6	4.0
TP-2	S-2	1.5	SILT and fine Sand	0.0	44.1	55.9	13.3
TP-4	S-1	2	GRAVEL and medium to coarse Sand, trace Silt	51.3	44.0	4.7	4.4
TP-5A	S-1	1	Fine to coarse SAND, some Silt, little Gravel	19.6	55.5	24.9	7.6
TP-6	S-2	2-3	Fine to medium SAND, some Silt	0.0	68.0	32.0	14.1
TP-9	S-2	2	Fine to medium SAND and Silt, trace Gravel	5.3	59.3	35.4	10.2
TP-13	S-3	3	Medium to coarse SAND, trace Silt	0.5	97.5	2.0	4.4

Notes:
1. Refer to **Appendix D** for laboratory results.



LEGEND

B-1 ● TEST BORING LOCATION AND DESIGNATION
TP-1 ▚ TEST PIT LOCATION AND DESIGNATION
(OW) INDICATES AN OBSERVATION WELL INSTALLED
EXISTING GROUND SURFACE CONTOUR

NOTES:

1) BASE PLAN WAS DEVELOPED FROM A PLAN ENTITLED "BORING/TEST PIT/OBSERVATION WELL LOCATION PLAN, 59 STEELE ROAD, HUDSON NEW HAMPSHIRE" PREPARED BY HAYNER/SWANSON, INC. OF NASHUA, NEW HAMPSHIRE, DATED APRIL 2006. ORIGINAL SCALE 1" = 200' AND PLANS RECEIVED ELECTRONICALLY FROM W/S DEVELOPMENT ASSOCIATES, INC.
2) TEST BORINGS B-1 THROUGH B-20 WERE DRILLED BY NEW HAMPSHIRE BORING, INC. OF LONDONDERRY, NEW HAMPSHIRE BETWEEN THE DATES MARCH 17, 2006 TO MARCH 24, 2006. TEST PITS TP-1 THROUGH TP-22 WERE EXCAVATED BY NEW HAMPSHIRE BORING, INC. BETWEEN THE DATES OF MARCH 26, 2006 TO MARCH 28, 2006. TEST BORINGS AND TEST PITS WERE OBSERVED AND LOGGED BY GZA PERSONNEL.
3) TEST BORINGS B-1 THROUGH B-20 AND TEST PITS TP-1 THROUGH TP-22 LOCATIONS WERE DETERMINED BY A SURVEY PERFORMED BY HAYNER/SWANSON, INC. OF NASHUA, NEW HAMPSHIRE.

FIGURE NO. 2	PROJECT NO. 24050.01	PRELIMINARY GEOTECHNICAL ENGINEERING STUDY RIVER PLACE HUDSON, NEW HAMPSHIRE SITE AND SUBSURFACE EXPLORATION LOCATION PLAN	PROJ MGR: JLH DESIGNED BY: RAB REVIEWED BY: JVE DRAWN BY: BJC SCALE: AS SHOWN DATE: APR 2006

GRAPHIC SCALE 1" = 300'
0 150 300 600

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360 HARVEY ROAD
MANCHESTER, NEW HAMPSHIRE 03103

REV. NO	DESCRIPTION	BY	DATE

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Engineers and Scientists

River Place
Hudson, New Hampshire

Boring No.: B-1
Page: 1 **of** 1
File No.: 04.0024050.01
Check: RAB

Contractor: New Hampshire Boring, Inc.
Foreman: Ken Smith
Logged by: Chris Melby
Date Start/Finish: 3-18-06 / 3-18-06
Boring Location: See Exploration Location Plan
GS Elev.: 136.0 ft **Datum:** NGVD

	Auger/ Casing	Sampler
Type:	HSA	SS
I.D.:	4.25 in	1.38 in
Hammer Wt.:		140 lb
Hammer Fall:		30 in

Rig Type: Dietrich D50 Truck Mounted Rig

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Depth (ft)	Sample Information: No.	Pen./ Rec. (in)	Depth (ft)	Blows (/6")	Field Test Data (ppm)	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
							ASPHALT 0.5 ft	1	No Equipment Installed
5	S-2	24/ 0	5.0- 7.0	16-10 12-19	ND	No Recovery Auger cuttings description: Brown, fine to medium SAND, little Gravel, little Silt.		2	
10	S-3	24/ 16	10.0- 12.0	9-12 15-16	ND	Medium dense, light brown, fine to coarse SAND, some Gravel, trace Silt.			
15	S-4	24/ 22	15.0- 17.0	17-36 33-53	ND	Very dense, light brown, fine to coarse SAND, little Gravel, trace Silt.	SAND		
20	S-5	24/ 14	20.0- 22.0	14-15 19-47	ND	Medium dense, light brown, fine to medium SAND, trace Silt.			
25	S-6	3/ 0	25.0- 25.3	100/4"	NA	No Recovery			
30	S-7	2/ 0	30.0- 30.2	100/2"	NA	No Recovery - spoon refusal Bottom of boring at 30.2 feet below ground surface. Split spoon and auger refusal encountered.	30.2 ft		

REMARKS

1. Soil samples were screened for total volatile organic compounds (VOCs) using a TEI Model 580B organic vapor meter referenced to an isobutylene-in-air standard. Total VOCs detected are reported in parts per million (ppm) in the "Field Test Data" column. "ND" indicates no VOCs detected.
2. Piece of Asphalt in spoon tip.

All depth measurements are approximate. Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

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River Place
Hudson, New Hampshire

Boring No.: B-2
Page: 1 **of** 1
File No.: 04.0024050.01
Check: RAB

Contractor: New Hampshire Boring, Inc.
Foreman: Ken Smith
Logged by: Chris Melby
Date Start/Finish: 3-17-06 / 3-17-06
Boring Location: See Exploration Location Plan
GS Elev.: 150.6 ft **Datum:** NGVD

	Auger/ Casing	Sampler
Type:	HSA	SS
I.D.:	2.25 in	1.38 in
Hammer Wt.:		140 lb
Hammer Fall:		30 in

Rig Type: Dietrich D50 Truck Mounted Rig

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Depth (ft)	Sample Information					Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	No.	Pen./ Rec. (in)	Depth (ft)	Blows (/6")	Field Test Data (ppm)				
	S-1	24/ 12	0.0- 2.0	8-7 9-8	ND	S-1A: Medium dense, dark brown, fine to medium SAND, little Organics, little Silt. Topsoil S-1B: Medium dense, light brown, fine to medium SAND, little Silt.	0.3 ft ASPHALT 0.5 ft TOPSOIL	1	No Equipment Installed
5	S-2	24/ 12	5.0- 7.0	7-7 9-10	ND	Medium dense, light brown, medium to coarse SAND, little Gravel, trace Silt.			
10	S-3	24/ 14	10.0- 12.0	7-7 7-6	ND	Medium dense, light brown, fine to coarse SAND, trace Silt.	SAND		
15	S-4	24/ 13	15.0- 17.0	29-6 9-10	ND	Medium dense, light brown, fine to coarse SAND, trace Silt. Moist			
20	S-5	24/ 20	20.0- 22.0	6-7 8-10	ND	Medium dense, light brown, fine to coarse SAND, trace Silt. Gravel at top of spoon.			
						Bottom of boring at 22 feet below ground surface. No refusal encountered.	22.0 ft		
25									

REMARKS

1. Soil samples were screened for total volatile organic compounds (VOCs) using a TEI Model 580B organic vapor meter referenced to an isobutylene-in-air standard. Total VOCs detected are reported in parts per million (ppm) in the "Field Test Data" column. "ND" indicates no VOCs detected.

GZA
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River Place
Hudson, New Hampshire

Boring No.: B-3
Page: 1 **of** 1
File No.: 04.0024050.01
Check: RAB

Contractor: New Hampshire Boring, Inc.
Foreman: Ken Smith
Logged by: Chris Melby
Date Start/Finish: 3-17-06 / 3-17-06
Boring Location: See Exploration Location Plan
GS Elev.: 138.7 ft **Datum:** NGVD

	Auger/ Casing	Sampler
Type:	HSA	SS
I.D.:	2.25 in	1.38 in
Hammer Wt.:		140 lb
Hammer Fall:		30 in
Rig Type:	Dietrich D50	

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Depth (ft)	Sample Information					Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	No.	Pen./ Rec. (in)	Depth (ft)	Blows (/6")	Field Test Data (ppm)				
	S-1	24/ 12	0.0- 2.0	3-9 6-4	ND	S1A: Medium dense, brown, fine to medium SAND, some Silt, little Organics. Topsoil S1B: Medium dense, light brown, fine to medium SAND, some Silt, trace Root Figers. Subsoil	TOPSOIL 1.0 ft SUBSOIL 2.0 ft	1	No Equipment Installed
5	S-2	24/ 10	5.0- 7.0	3-3 10-7	ND	Medium dense, brown, medium to coarse SAND and Gravel, trace Silt.	SAND		
							8.5 ft		
10	S-3	24/ 21	10.0- 12.0	10-14 13-16	ND	Very stiff, light brown, SILT, some fine Sand.			
15	S-4	24/ 16	15.0- 17.0	5-9 13-12	ND	Very stiff, light brown, SILT, some fine Sand. Wet	SILT		
20	S-5	24/ 19	20.0- 22.0	7-7 11-10	ND	Very stiff, light brown, SILT, little fine Sand. Wet			
						Bottom of boring at 22 feet below ground surface. No refusal encountered.	22.0 ft		
25									

REMARKS

1. Soil samples were screened for total volatile organic compounds (VOCs) using a TEI Model 580B organic vapor meter referenced to an isobutylene-in-air standard. Total VOCs detected are reported in parts per million (ppm) in the "Field Test Data" column. "ND" indicates no VOCs detected.

All depth measurements are approximate. Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: B-3

GZA
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River Place
Hudson, New Hampshire

Boring No.: B-4
Page: 1 **of** 1
File No.: 04.0024050.01
Check: RAB

Contractor: New Hampshire Boring, Inc.
Foreman: Ken Smith
Logged by: Chris Melby
Date Start/Finish: 3-17-06 / 3-17-06
Boring Location: See Exploration Location Plan
GS Elev.: 132.8 ft **Datum:** NGVD

	Auger/ Casing	Sampler
Type:	HSA	SS
I.D.:	2.25 in	1.38 in
Hammer Wt.:		140 lb
Hammer Fall:		30 in
Rig Type:	Dietrich D50	

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Depth (ft)	Sample Information: No.	Pen./ Rec. (in)	Depth (ft)	Blows (/6")	Field Test Data (ppm)	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	S-1	24/ 16	0.0- 2.0	8-4 1-2	ND	S-1A (Top 12 inches): Loose, dark brown, fine to medium SAND, some Silt, little Organics. Topsoil S-1B (Bottom 4 inches): Light brown, SILT, little fine Sand, trace Root Fibers. Subsoil	TOPSOIL 1.0 ft SUBSOIL 2.5 ft	1	No Equipment Installed
							SILT AND FINE SAND		
5	S-2	24/ 20	5.0- 7.0	3-5 7-8	ND	S-2A: Stiff, light brown, SILT and fine Sand. S-2B: Brown, fine to coarse SAND, trace Silt.	6.0 ft		
10	S-3	24/ 14	10.0- 12.0	5-8 12-15	ND	Medium dense, brown, medium to coarse SAND, trace Silt. Wet			
15	S-4	24/ 18	15.0- 17.0	4-5 9-9	ND	Medium dense, brown, medium to coarse SAND, trace Silt.	SAND		
20	S-5	24/ 21	20.0- 22.0	5-10 11-16	ND	Medium dense, brown, medium to coarse SAND, trace Silt.			
						Bottom of boring at 22 feet below ground surface. No refusal encountered.	22.0 ft		
25									

REMARKS

1. Soil samples were screened for total volatile organic compounds (VOCs) using a TEI Model 580B organic vapor meter referenced to an isobutylene-in-air standard. Total VOCs detected are reported in parts per million (ppm) in the "Field Test Data" column. "ND" indicates no VOCs detected.

All depth measurements are approximate. Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: B-4

GZA GeoEnvironmental, Inc.
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River Place
Hudson, New Hampshire

Boring No.: B-5
Page: 1 **of** 1
File No.: 04.0024050.01
Check: RAB

Contractor: New Hampshire Boring, Inc.
Foreman: Ken Smith
Logged by: Chris Melby
Date Start/Finish: 3-17-06 / 3-17-06
Boring Location: See Exploration Location Plan
GS Elev.: 153.9 ft **Datum:** NGVD

	Auger/ Casing	Sampler
Type:	Auger	SS
I.D.:	2.25 in	1.38 in
Hammer Wt.:		140 lb
Hammer Fall:		30 in
Rig Type:	Dietrich D50	

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Depth (ft)	Sample Information					Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	No.	Pen./ Rec. (in)	Depth (ft)	Blows (/6")	Field Test Data (ppm)				
	S-1	24/ 18	0.0- 2.0	5-6 5-7	ND	S-1A (Top 9 inches): Medium dense, dark brown, fine to medium SAND, little Organics, little Silt. S-1B (Bottom 9 inches): Light brown, fine to medium SAND, little Silt.	TOPSOIL 1.0 ft	1	No Equipment Installed
5	S-2	24/ 12	5.0- 7.0	12-14 9-18	ND	Medium dense, light brown, fine to coarse SAND, trace Gravel, trace Silt.	SAND	2	
							8.0 ft COBBLES	3	
							9.0 ft	4	
10	S-3	24/ 18	10.0- 12.0	41-51 52-87	ND	Very dense, brown, fine to medium SAND, some Gravel, little Silt.	SAND AND GRAVEL		
	S-4	0/ 0	13.2- 13.2	50/0"		No Recovery Auger and spoon refusal encountered at 13.2 feet below ground surface.	13.2 ft	5	
15									
20									
25									

REMARKS

1. Soil samples were screened for total volatile organic compounds (VOCs) using a TEI Model 580B organic vapor meter referenced to an isobutylene-in-air standard. Total VOCs detected are reported in parts per million (ppm) in the "Field Test Data" column. "ND" indicates no VOCs detected.
2. Rock lodged in spoon tip.
3. Auger encountered cobbles at 8 to 9 feet below ground surface.
4. Additional boring drilled approximately 10 feet south. Augers advanced to refusal at 13.2 feet below ground surface. No sampling performed. Cobbles encountered at approximately 9 feet below ground surface
5. Additional boring drilled approximately 20 feet south. Auger refusal encountered at approximately 2 feet below ground surface. No sampling performed.

All depth measurements are approximate. Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: B-5

GZA GeoEnvironmental, Inc.
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River Place
Hudson, New Hampshire

Boring No.: B-6
Page: 1 of 1
File No.: 04.0024050.01
Check: RAB

Contractor: New Hampshire Boring, Inc.
Foreman: Matt Stone
Logged by: Chris Melby
Date Start/Finish: 3-20-06 / 3-20-06
Boring Location: See Exploration Location Plan
GS Elev.: 119.8 ft **Datum:** NGVD

	Auger/ Casing	Sampler
Type:	HSA	SS
I.D.:	2.25 in	1.38 in
Hammer Wt.:		140 lb
Hammer Fall:		30 in
Rig Type:	Dietrich D50	

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Depth (ft)	Sample Information					Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	No.	Pen./ Rec. (in)	Depth (ft)	Blows (/6")	Field Test Data (ppm)				
	S-1	24/ 18	0.0- 2.0	4-5 7-6	ND	S-1A: Medium dense, dark brown, fine to medium SAND, some Organics, little Silt. Topsoil S-1B: Medium dense, light brown, SILT, some fine Sand.	TOPSOIL 0.5 ft SUBSOIL 2.0 ft	1	No Equipment Installed
5									
	S-2	24/ 20	7.0- 9.0	6-5 6-7	ND	Medium dense, light brown, SILT, some fine Sand.			
10	S-3	24/ 18	10.0- 12.0	5-4 5-4	ND	Loose, light brown, fine SAND, some Silt.	FINE SANE AND SILT		
15	S-4	24/ 22	15.0- 17.0	5-4 6-8	ND	Loose, light brown, fine SAND, some Silt.		2	
20	S-5	24/ 19	20.0- 22.0	21-24 20-10	ND	Dense, light brown, SILT and fine Sand.			
						Bottom of boring at 22 feet below ground surface. No refusal encountered.	22.0 ft	3	
25									

REMARKS

1. Soil samples were screened for total volatile organic compounds (VOCs) using a TEI Model 580B organic vapor meter referenced to an isobutylene-in-air standard. Total VOCs detected are reported in parts per million (ppm) in the "Field Test Data" column. "ND" indicates no VOCs detected.
2. Groundwater encountered at approximately 15 feet below ground surface based on soil samples recovered.
3. Cobbles encountered.

All depth measurements are approximate. Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: B-6

GZA GeoEnvironmental, Inc.
Engineers and Scientists

River Place
Hudson, New Hampshire

Boring No.: B-7
Page: 1 **of** 1
File No.: 04.0024050.01
Check: RAB

Contractor: New Hampshire Boring, Inc.
Foreman: Matt Stone
Logged by: Chris Melby
Date Start/Finish: 3-20-06 / 3-20-06
Boring Location: See Exploration Location Plan
GS Elev.: 111.2 ft **Datum:** NGVD

	Auger/ Casing	Sampler
Type:	HSA	SS
I.D.:	2.25 in	1.38 in
Hammer Wt.:		140 lb
Hammer Fall:		30 in

Rig Type: Dietrich D50

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Depth (ft)	Sample Information					Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	No.	Pen./ Rec. (In)	Depth (ft)	Blows (/6")	Field Test Data (ppm)				
	S-1	24/ 14	0.0- 2.0	5-5 5-3	ND	S1A: Medium dense, dark brown, fine to medium SAND, some Organics, some Silt. S-1B: Medium dense, light brown, SILT and Sand.	TOPSOIL 0.5 ft SUBSOIL	1	No Equipment Installed
							2.5 ft		
5	S-2	24/ 24	5.0- 7.0	6-6 6-8	ND	Medium dense, light brown, fine SAND, some Silt. Damp	SILTY SAND	2	
							8.5 ft		
10	S-3	24/ 20	10.0- 12.0	6-7 6-5	ND	Stiff, light brown, SILT, little fine Sand. Wet			
15	S-4	24/ 24	15.0- 17.0	7-7 6-5	ND	Stiff, light brown, SILT, little Sand. Wet	SILT		
20	S-5	24/ 24	20.0- 22.0	8-7 7-7	ND	Stiff, light brown, SILT with Silt and Clay seams, trace, fine Sand. Wet			
						Bottom of boring at 22 feet below ground surface. No refusal encountered.	22.0 ft		
25									

REMARKS

1. Soil samples were screened for total volatile organic compounds (VOCs) using a TEI Model 580B organic vapor meter referenced to an isobutylene-in-air standard. Total VOCs detected are reported in parts per million (ppm) in the "Field Test Data" column. "ND" indicates no VOCs detected.
2. Groundwater encountered at 6 feet below ground surface based on soil samples recovered.

All depth measurements are approximate. Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: B-7

GZA GeoEnvironmental, Inc.
Engineers and Scientists

River Place
Hudson, New Hampshire

Boring No.: B-8
Page: 1 **of** 1
File No.: 04.0024050.01
Check: RAB

Contractor: New Hampshire Boring, Inc.
Foreman: Matt Stone
Logged by: Chris Melby
Date Start/Finish: 3-20-06 / 3-20-06
Boring Location: See Exploration Location Plan
GS Elev.: 116.6 ft **Datum:** NGVD

	Auger/ Casing	Sampler
Type:	Auger	SS
I.D.:	2.25 in	1.38 in
Hammer Wt.:		140 lb
Hammer Fall:		30 in
Rig Type:	Dietrich D50	

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Depth (ft)	Sample Information: No.	Pen./ Rec. (in)	Depth (ft)	Blows (/6")	Field Test Data (ppm)	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	S-1	24/ 14	0.0- 2.0	5-3 3-3	ND	S-1A: Loose, dark brown, fine to medium SAND, some Organics, little Silt. S-1B: Medium stiff, light brown, SILT, some fine Sand.	0.3 ft TOPSOIL SUBSOIL 2.5 ft	1	No Equipment Installed
5	S-2	24/ 16	5.0- 7.0	4-3 4-4	ND	Loose, light brown, fine to medium SAND, some Silt.			
10	S-3	24/ 18	10.0- 12.0	6-5 5-6	ND	Medium dense, light brown, fine to medium SAND and Silt. Moist			
15	S-4	24/ 20	15.0- 17.0	13-12 15-13	ND	Medium dense, light brown, fine SAND and Silt.	SILTY SAND		
20	S-5	24/ 17	20.0- 22.0	10-12 14-13	ND	Medium dense, light brown, fine SAND and SILT. Moist		2	
25	S-6	24/ 17	25.0- 27.0	7-7 7-7	ND	Medium dense, light brown, SILT and fine Sand. Wet			
						Bottom of boring at 27 feet below ground surface. No refusal encountered.	27.0 ft		

REMARKS

1. Soil samples were screened for total volatile organic compounds (VOCs) using a TEI Model 580B organic vapor meter referenced to an isobutylene-in-air standard. Total VOCs detected are reported in parts per million (ppm) in the "Field Test Data" column. "ND" indicates no VOCs detected.
2. Groundwater encountered at approximately 21 feet below ground surface based on soil samples recovered.

All depth measurements are approximate. Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: B-8

GZA GeoEnvironmental, Inc.
Engineers and Scientists

River Place
Hudson, New Hampshire

Boring No.: B-9
Page: 1 of 1
File No.: 04.0024050.01
Check: RAB

Contractor: New Hampshire Boring, Inc.
Foreman: Matt Stone
Logged by: Chris Melby
Date Start/Finish: 3-20-06 / 3-20-06
Boring Location: See Exploration Location Plan
GS Elev.: 147.5 ft Datum: NGVD

	Auger/ Casing	Sampler
Type:	Auger	SS
I.D.:	2.25 in	1.38 in
Hammer Wt.:		140 lb
Hammer Fall:		30 in
Rig Type:	Dietrich D50	

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Depth (ft)	Sample Information No.	Pen./ Rec. (in)	Depth (ft)	Blows (/6")	Field Test Data (ppm)	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	S-1	24/ 12	0.0- 2.0	2-11 16-10	ND	Medium dense, light brown, fine to coarse SAND, little Gravel, trace Silt.	SAND	1	No Equipment Installed
5	S-2	24/ 15	5.0- 7.0	12-7 9-13	ND	Medium dense, light brown, fine to medium SAND, trace Silt.	8.5 ft		
10	S-3	24/ 14	10.0- 12.0	6-9 14-12	ND	Medium dense, light brown, fine to medium SAND, little Gravel, little Silt.	SILTY SAND		
15	S-4	24/ 18	15.0- 17.0	9-9 9-10	ND	Medium dense, light brown, fine to medium SAND, some Silt.			
20	S-5	24/ 22	20.0- 22.0	6-10 11-6	ND	Medium dense, light brown, fine to medium SAND, some Silt. Dry			
25	S-6	24/ 24	25.0- 27.0	6-7 13-15	ND	Medium dense, light brown, fine SAND and SILT. Dry		2	
30	S-7	24/ 20	30.0- 32.0	13-16 13-11	ND	Medium dense, light brown, fine SAND and SILT. Moist			
35	S-8	24/ 22	35.0- 37.0	12-15 19-23	ND	Dense, light brown, fine SAND and SILT. Wet			
						Bottom of boring at 37 feet below ground surface. No refusal encountered.	37.0 ft		

REMARKS

1. Soil samples were screened for total volatile organic compounds (VOCs) using a TEI Model 580B organic vapor meter referenced to an isobutylene-in-air standard. Total VOCs detected are reported in parts per million (ppm) in the "Field Test Data" column. "ND" indicates no VOCs detected.
2. Groundwater encountered at 25 feet below ground surface based on soil samples recovered.

All depth measurements are approximate. Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: B-9

GZA GeoEnvironmental, Inc.
Engineers and Scientists

River Place
Hudson, New Hampshire

Boring No.: B-10
Page: 1 of 1
File No.: 04.0024050.01
Check: RAB

Contractor: New Hampshire Boring, Inc.
Foreman: Matt Stone
Logged by: Chris Melby
Date Start/Finish: 3-21-06 / 3-22-06
Boring Location: See Exploration Location Plan
GS Elev.: 112.9 ft Datum: NGVD

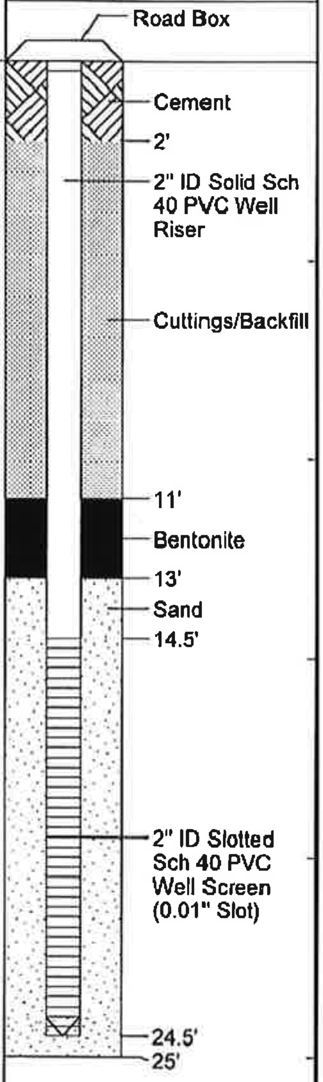
	Auger/ Casing	Sampler
Type:	Auger	SS
I.D.:	4.25 in	1.38 in
Hammer Wt.:		140 lb
Hammer Fall:		30 in
Rig Type:	Dietrich D50	

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab
3/21/06	1600	20.7 ft	GS	15 minutes
3/22/06	0700	18.9 ft	GS	1 day
3/22/06	0830	18.8 ft	Top PVC	1 day
3/22/06	1520	18.8 ft	Top PVC	1.5 days
4/14/06	0930	19.6 ft	GS	23 days

Depth (ft)	Sample Information					Sample Description & Classification	Stratum Desc.	Remarks
	No.	Pen./ Rec. (in)	Depth (ft)	Blows (/6")	Field Test Data (ppm)			
	S-1	24/ 14	0.0- 2.0	5-4 10-16	ND	Dense, dark brown, fine to medium SAND, some Organics, little Silt. Topsoil	TOPSOIL 2.0 ft	1
5	S-2	24/ 12	5.0- 7.0	21-14 9-6	ND	Dense, dark brown, fine to medium SAND, little Silt, trace Gravel.	SAND	
10	S-3	24/ 20	10.0- 12.0	11-12 30-37	ND	Medium dense, gray, fine to medium SAND, trace Silt. Moist		
15	S-4	3/ 0	15.0- 15.3	100/3"		No Recovery	15.0 ft BOULDERS 15.5 ft	2
20	S-5	24/ 20	20.0- 22.0	9-10 12-20	ND	Dense, brown, fine to coarse SAND, little Silt. Wet	SAND	
25						Bottom of boring at 25 feet below ground surface. No refusal encountered.	25.0 ft	3

Equipment Installed



REMARKS

1. Soil samples were screened for total volatile organic compounds (VOCs) using a TEI Model 580B organic vapor meter referenced to an isobutylene-in-air standard. Total VOCs detected are reported in parts per million (ppm) in the "Field Test Data" column. "ND" indicates no VOCs detected.
2. Probable boulder layer encountered at 15 feet below ground surface.
3. Blow in sands encountered overnight at bottom of borehole.

All depth measurements are approximate. Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: B-10

GZA GeoEnvironmental, Inc.
Engineers and Scientists

River Place
Hudson, New Hampshire

Boring No.: B-11
Page: 1 of 1
File No.: 04.0024050.01
Check: RAB

Contractor: New Hampshire Boring, Inc.
Foreman: Matt Stone
Logged by: Chris Melby
Date Start/Finish: 3-22-06 / 3-22-06
Boring Location: See Exploration Location Plan
GS Elev.: 169.6 ft **Datum:** NGVD

	Auger/ Casing	Sampler
Type:	HSA	SS
I.D.:	2.25 in	1.38 in
Hammer Wt.:		140 lb
Hammer Fall:		30 in
Rig Type:	Dietrich D50	

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Depth (ft)	Sample Information: No.	Pen./ Rec. (in)	Depth (ft)	Blows (/6")	Field Test Data (ppm)	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	S-1	24/ 12	0.0- 2.0	3-3 3-3	ND	S-1A: Loose, dark brown, fine to medium SAND, little Organics, some Silt. Topsoil S-1B: Loose, brown, fine to medium SAND, little Silt, trace roots. Subsoil	TOPSOIL 1.0 ft SUBSOIL 2.0 ft	1	No Equipment Installed
5	S-2	24/ 16	5.0- 7.0	4-4 3-5	ND	Loose, light brown, fine to medium SAND, some Silt. Dry	SILTY SAND		
10	S-3	8/ 1	10.0- 10.7	19-100/2"	ND	Very dense, gray, fine to coarse SAND and Gravel, trace Silt. Dry Bottom of boring at 10.5 feet below ground surface. Split spoon and Auger refusal encountered.	10.0 ft GRAVEL 10.5 ft	2	
15									
20									
25									

REMARKS

1. Soil samples were screened for total volatile organic compounds (VOCs) using a TEI Model 580B organic vapor meter referenced to an isobutylene-in-air standard. Total VOCs detected are reported in parts per million (ppm) in the "Field Test Data" column. "ND" indicates no VOCs detected.
2. Additional boring (B-11A) drilled 10 feet southwest. Split spoon refusal encountered at 10.5 feet below ground surface.

All depth measurements are approximate. Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: B-11

GZA GeoEnvironmental, Inc.
Engineers and Scientists

River Place
Hudson, New Hampshire

Boring No.: B-12
Page: 1 **of** 1
File No.: 04.0024050.01
Check: RAB

Contractor: New Hampshire Boring, Inc.
Foreman: Matt Stone
Logged by: Chris Melby
Date Start/Finish: 3-22-06 / 3-22-06
Boring Location: See Exploration Location Plan
GS Elev.: 132.1 ft **Datum:** NGVD

	Auger/ Casing	Sampler
Type:	Auger	SS
I.D.:	2.25 in	1.38 in
Hammer Wt.:		140 lb
Hammer Fall:		30 in
Rig Type:	Dietrich D50	

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab
3/22/06	1445	3.0 ft	GS	10 minutes

Depth (ft)	Sample Information No.	Pen./ Rec. (in)	Depth (ft)	Blows (/6")	Field Test Data (ppm)	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	S-1	24/ 12	0.0- 2.0	3-6 5-5	ND	Medium dense, dark brown, fine to medium SAND, some Silt, little Organics. Moist	TOPSOIL	1	No Equipment Installed
							2.0 ft		
5	S-2	24/ 10	5.0- 7.0	5-7 10-9	ND	Medium dense, light brown, SILT, some, fine SAND. Moist			
10	S-3	24/ 20	10.0- 12.0	14-17 13-16	ND	Medium dense, light brown to gray, fine to medium SAND and Silt, little Gravel. Wet	SILTY SAND		
15	S-4	24/ 24	15.0- 17.0	5-6 7-12	ND	Medium dense, light brown, Clayey SILT and fine SAND, trace Gravel. Wet			
20	S-5	9/ 9	20.0- 20.8	83-50/3"	ND	Very dense, light brown, fine to medium SAND, and Clayey SILT, little Gravel. Wet Bottom of boring at 20.75 feet below ground surface. Split refusal encountered.	20.8 ft	2	
25									

REMARKS

1. Soil samples were screened for total volatile organic compounds (VOCs) using a TEI Model 580B organic vapor meter referenced to an isobutylene-in-air standard. Total VOCs detected are reported in parts per million (ppm) in the "Field Test Data" column. "ND" indicates no VOCs detected.
2. Rock lodged in spoon tip.

All depth measurements are approximate. Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: B-12

GZA GeoEnvironmental, Inc.
Engineers and Scientists

River Place
Hudson, New Hampshire

Boring No.: B-13
Page: 1 **of** 1
File No.: 04.0024050.01
Check: RAB

Contractor: New Hampshire Boring, Inc.
Foreman: Matt Stone
Logged by: Chris Melby
Date Start/Finish: 3-23-06 / 3-23-06
Boring Location: See Exploration Location Plan
GS Elev.: 127.8 ft **Datum:** NGVD

	Auger/ Casing	Sampler
Type:	HSA	SS
I.D.:	2.25 in	1.38 in
Hammer Wt.:		140 lb
Hammer Fall:		30 in

Rig Type: Dietrich D50

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab
3/23/06	0720	12.3 ft	GS	10 minute
3/23/06	0825	5.6 ft	GS	1.25 hour

Depth (ft)	Sample Information: No.	Pen./ Rec. (in)	Depth (ft)	Blows (/6")	Field Test Data (ppm)	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	S-1	24/ 10	0.0- 2.0	2-3 3-4	ND	S-1A: Loose, dark brown, fine to medium SAND, some Organics, some Silt. Topsoil S-1B: Loose, light brown, fine to medium SAND, some Silt.	TOPSOIL 0.5 ft	1	No Equipment Installed
5	S-2	24/ 22	5.0- 7.0	4-5 5-5	ND	Medium dense, light brown, fine SAND and Silt. Moist	SILTY SAND		
10	S-3	24/ 24	10.0- 12.0	8-11 10-12	ND	Medium dense, gray, fine to medium SAND, some Silt. Wet			
15	S-4	1/ 0	15.0- 15.1	100/1"	ND	No Recovery Bottom of boring at 15.1 feet below ground surface. Split spoon and Auger refusal encountered.	15.1 ft	2	
20									
25									

REMARKS

1. Soil samples were screened for total volatile organic compounds (VOCs) using a TEI Model 580B organic vapor meter referenced to an isobutylene-in-air standard. Total VOCs detected are reported in parts per million (ppm) in the "Field Test Data" column. "ND" indicates no VOCs detected.
2. Additional boring (B-13A) drilled approximately 10 feet north.

GZA GeoEnvironmental, Inc.
Engineers and Scientists

River Place
Hudson, New Hampshire

Boring No.: B-13A
Page: 1 **of** 1
File No.: 04.0024050.01
Check: RAB

Contractor: New Hampshire Boring, Inc.
Foreman: Matt Stone
Logged by: Chris Melby
Date Start/Finish: 3-23-06 / 3-23-06
Boring Location: See Exploration Location Plan
GS Elev.: 128.1 ft **Datum:** NGVD

	Auger/ Casing	Sampler
Type:	HSA	SS
I.D.:	2.25 in	1.38 in
Hammer Wt.:		140 lb
Hammer Fall:		30 in
Rig Type:	Dietrich D50	

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab
3/23/06	0720	12.3 ft	GS	10 minute
3/23/06	0825	5.6 ft	GS	1.25 hour

Depth (ft)	Sample Information: No.	Pen./ Rec. (in)	Depth (ft)	Blows (/6")	Field Test Data (ppm)	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
							TOPSOIL 0.5 ft	1	No Equipment Installed
5						See B-13 for soil descriptions.	SILTY SAND		
10									
15	S-1	24/ 14	15.0- 17.0	25-22 22-35	ND	Dense, gray to brown, fine to coarse SAND and Gravel, little Silt. Wet	15.5 ft SAND AND GRAVEL		
	S-2	1/ 0	19.0- 19.1	100/1"		No Recovery.	19.1 ft		
20						Bottom of boring at 19.1 feet below ground surface. Split spoon and Auger refusal encountered.			
25									

REMARKS

1. Soil samples were screened for total volatile organic compounds (VOCs) using a TEI Model 580B organic vapor meter referenced to an isobutylene-in-air standard. Total VOCs detected are reported in parts per million (ppm) in the "Field Test Data" column. "ND" indicates no VOCs detected.

All depth measurements are approximate. Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: B-13A

GZA
GeoEnvironmental, Inc.
Engineers and Scientists

River Place
Hudson, New Hampshire

Boring No.: B-14
Page: 1 **of** 1
File No.: 04.0024050.01
Check: RAB

Contractor: New Hampshire Boring, Inc.
Foreman: Matt Stone
Logged by: Chris Melby
Date Start/Finish: 3-23-06 / 3-23-06
Boring Location: See Exploration Location Plan
GS Elev.: 133.3 ft **Datum:** NGVD

	Auger/ Casing	Sampler
Type:	HSA	SS
I.D.:	2.25 in	1.38 in
Hammer Wt.:		140 lb
Hammer Fall:		30 in
Rig Type:	Dietrich D50	

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Depth (ft)	Sample Information					Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	No.	Pen./ Rec. (In)	Depth (ft)	Blows (/6")	Field Test Data (ppm)				
	S-1	24/ 16	0.0- 2.0	2-2 3-5	ND	S-1A: Loose, dark brown, fine to medium SAND, some Organics, some Silt. Topsoil S-1B: Loose, light brown, fine SAND and Silt.	TOPSOIL 1.2 ft SUBSOIL 2.5 ft	1	No Equipment Installed
5	S-2	24/ 19	5.0- 7.0	5-6 8-7	ND	Medium dense, light brown, fine to medium SAND, little Silt. Wet	SAND		
10	S-3	24/ 24	9.0- 11.0	4-6 6-4	ND	Medium dense, brown, fine to medium SAND, little Silt. Wet			
						Bottom of boring at 11 feet below ground surface. No refusal encountered.	11.0 ft	2	
15									
20									
25									

REMARKS

1. Soil samples were screened for total volatile organic compounds (VOCs) using a TEI Model 580B organic vapor meter referenced to an isobutylene-in-air standard. Total VOCs detected are reported in parts per million (ppm) in the "Field Test Data" column. "ND" indicates no VOCs detected.
2. Boring terminated due to blow in/running sands.

All depth measurements are approximate. Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: B-14

SOIL BL WELL BORING LOGS.GPJ GZA NH.GDT 4/18/06

GZA GeoEnvironmental, Inc.
Engineers and Scientists

River Place
Hudson, New Hampshire

Boring No.: B-15
Page: 1 **of** 1
File No.: 04.0024050.01
Check: RAB

Contractor: New Hampshire Boring, Inc.
Foreman: Matt Stone
Logged by: Chris Melby
Date Start/Finish: 3-23-06 / 3-23-06
Boring Location: See Exploration Location Plan
GS Elev.: 133.7 ft **Datum:** NGVD

	Auger/ Casing	Sampler
Type:	HSA	SS
I.D.:	2.25 in	1.38 in
Hammer Wt.:		140 lb
Hammer Fall:		30 in
Rig Type:	Dietrich D50	

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab
3/23/06	1115	3.7 ft	GS	5 minutes

Depth (ft)	No.	Pen./ Rec. (in)	Depth (ft)	Blows (/6")	Field Test Data (ppm)	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	S-1	24/ 18	0.0- 2.0	6-5 4-5	ND	S-1A: Loose, dark brown, fine to medium SAND, some Silt, little Organics. Topsoil S-1B: Loose, light brown, fine to medium SAND, some Silt.	TOPSOIL 0.5 ft	1	No Equipment Installed
5	S-2	24/ 18	5.0- 7.0	5-4 4-8	ND	Loose, brown, fine to coarse SAND, little Silt, trace Gravel. Bottom 1 inch: Loose, light brown, fine SAND and Silt.	SAND		
10	S-3	24/ 24	10.0- 12.0	7-9 8-11	ND	Medium dense, brown, fine to medium SAND, trace Silt. Wet			
						Bottom of boring at 12 feet below ground surface.	12.0 ft	2	
15									
20									
25									

REMARKS

1. Soil samples were screened for total volatile organic compounds (VOCs) using a TEI Model 580B organic vapor meter referenced to an isobutylene-in-air standard. Total VOCs detected are reported in parts per million (ppm) in the "Field Test Data" column. "ND" indicates no VOCs detected.
2. Boring terminated due to blow in/running sands.

All depth measurements are approximate. Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: B-15

GZA
GeoEnvironmental, Inc.
Engineers and Scientists

River Place
Hudson, New Hampshire

Boring No.: B-16
Page: 1 **of** 1
File No.: 04.0024050.01
Check: RAB

Contractor: New Hampshire Boring, Inc.
Foreman: Matt Stone
Logged by: Chris Melby
Date Start/Finish: 3-23-06 / 3-23-06
Boring Location: See Exploration Location Plan
GS Elev.: 129.7 ft **Datum:** NGVD

	Auger/ Casing	Sampler
Type:	HSA	SS
I.D.:	2.25 in	1.38 in
Hammer Wt.:		140 lb
Hammer Fall:		30 in
Rig Type:		

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Depth (ft)	Sample Information					Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	No.	Pen./ Rec. (in)	Depth (ft)	Blows (/6")	Field Test Data (ppm)				
	S-1	24/ 12	0.0- 2.0	2-5 4-4	ND	S-1A: Loose, dark brown, fine to medium SAND, little Organics, trace Silt. Topsoil S-1B: Loose, light brown, SILT, trace fine Sand.	TOPSOIL 1.0 ft SUBSOIL 2.0 ft	1	No Equipment Installed
							SAND AND SILT		
5	S-2	24/ 16	5.0- 7.0	6-9 6-7	ND	S-2A: Medium dense, light brown, fine SAND and SILT. Dry S-2B: Medium dense, brown, fine to coarse SAND, trace Silt. Wet	6.0 ft	2	
							SAND		
10	S-3	24/ 20	10.0- 12.0	6-9 5-6	ND	Medium dense, brown, fine to coarse SAND, trace Silt. Wet			
						Bottom of boring at 12 feet below ground surface.	12.0 ft	3	
15									
20									
25									

REMARKS

1. Soil samples were screened for total volatile organic compounds (VOCs) using a TEI Model 580B organic vapor meter referenced to an isobutylene-in-air standard. Total VOCs detected are reported in parts per million (ppm) in the "Field Test Data" column. "ND" indicates no VOCs detected.
2. Groundwater encountered approximately 6 feet below ground surface based on soil samples recovered.
3. Boring terminated due to blow in/running sands.

All depth measurements are approximate. Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: B-16

GZA GeoEnvironmental, Inc.
Engineers and Scientists

River Place
Hudson, New Hampshire

Boring No.: B-17
Page: 1 of 1
File No.: 04.0024050.01
Check: RAB

Contractor: New Hampshire Boring, Inc.
Foreman: Matt Stone
Logged by: Chris Melby
Date Start/Finish: 3-24-06 / 3-24-06
Boring Location: See Exploration Location Plan
GS Elev.: 132.6 ft Datum: NGVD

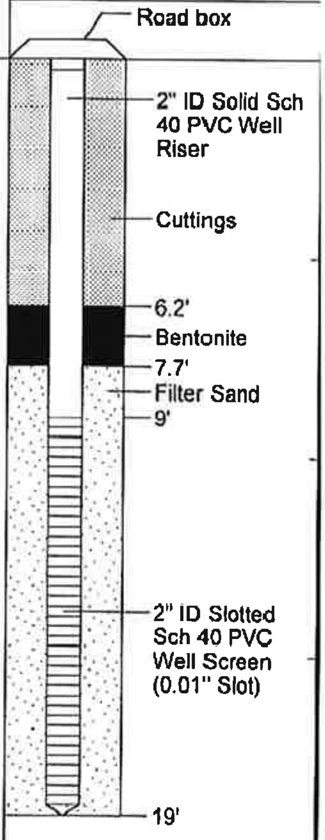
	Auger/ Casing	Sampler
Type:	HSA	SS
I.D.:	4.25 in	1.38 in
Hammer Wt.:		140 lb
Hammer Fall:		30 in
Rig Type:	Dietrich D50	

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab
3/24/06	0830	12.0 ft	GS	15 minute
3/24/06	0930	9.7 ft	Top PVC	45 minute
4/14/06	1030	10.3 ft	GS	21 days

Depth (ft)	Sample Information					Sample Description & Classification	Stratum Desc.	Remarks
	No.	Pen./ Rec. (in)	Depth (ft)	Blows (/6")	Field Test Data (ppm)			
	S-1	24/ 20	0.0- 2.0	3-6 6-5	ND	S-1A: Medium dense, dark brown, fine to medium SAND, and Silt, trace Organics. Topsoil S-1B: Stiff, light brown, SILT, some fine Sand.	TOPSOIL 0.5 ft	1
5	S-2	24/ 20	4.0- 6.0	6-6 5-8	ND	Stiff, brown, SILT, some fine Sand.	SILT 7.5 ft	
10	S-3	24/ 18	9.0- 11.0	10-11 13-10	ND	Medium dense, brown, fine to coarse SAND, trace Silt.		
15	S-4	24/ 24	14.0- 16.0	8-8 6-8	ND	S-4A: Medium dense, brown, fine to coarse SAND, little Silt. Wet S-4B: Brown, medium to coarse SAND, trace Gravel, trace Silt.	SAND	
20						Bottom of boring at 19 feet below ground surface.	19.0 ft	2
25								

Equipment Installed



REMARKS

1. Soil samples were screened for total volatile organic compounds (VOCs) using a TEI Model 580B organic vapor meter referenced to an isobutylene-in-air standard. Total VOCs detected are reported in parts per million (ppm) in the "Field Test Data" column. "ND" indicates no VOCs detected.
2. Boring terminated due to blow in/running sands.

All depth measurements are approximate. Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: B-17

GZA GeoEnvironmental, Inc.
Engineers and Scientists

River Place
Hudson, New Hampshire

Boring No.: B-18
Page: 1 **of** 1
File No.: 04.0024050.01
Check: RAB

Contractor: New Hampshire Boring, Inc.
Foreman: Matt Stone
Logged by: Chris Melby
Date Start/Finish: 3-23-06 / 3-23-06
Boring Location: See Exploration Location Plan
GS Elev.: 132.4 ft **Datum:** NGVD

	Auger/ Casing	Sampler
Type:	HSA	SS
I.D.:	2.25 in	1.38 in
Hammer Wt.:		140 lb
Hammer Fall:		30 in
Rig Type:	Dietrich D50	

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Depth (ft)	Sample Information					Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	No.	Pen./ Rec. (in)	Depth (ft)	Blows (/6")	Field Test Data (ppm)				
	S-1	24/ 20	0.0- 2.0	3-5 4-4	ND	Loose, light brown, fine to medium SAND, little Silt and Organics. Topsoil	TOPSOIL 1.0 ft SUBSOIL	1	No Equipment Installed
	S-2	24/ 20	2.0- 4.0	4-5 4-6	ND	Loose, gray, medium to coarse SAND, little Silt. Wet	2.0 ft		
5								2	
							SAND		
10	S-3	24/ 22	10.0- 12.0	3-6 6-8	ND	Medium dense, brown, fine to medium SAND, trace Silt.			
						Bottom of boring at 12 feet below ground surface.	12.0 ft	3	
15									
20									
25									

REMARKS

1. Soil samples were screened for total volatile organic compounds (VOCs) using a TEI Model 580B organic vapor meter referenced to an isobutylene-in-air standard. Total VOCs detected are reported in parts per million (ppm) in the "Field Test Data" column. "ND" indicates no VOCs detected.
2. Groundwater encountered at approximately 5.5 feet below ground surface based on soil samples recovered.
3. Boring terminated due to blow in/running sands.

All depth measurements are approximate. Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: B-18

SOIL BL WELL BORING LOGS.GPJ GZA NH.GDT 4/18/06

GZA GeoEnvironmental, Inc.
Engineers and Scientists

River Place
Hudson, New Hampshire

Boring No.: B-19
Page: 1 of 1
File No.: 04.0024050.01
Check: RAB

Contractor: New Hampshire Boring, Inc.
Foreman: Matt Stone
Logged by: Chris Melby
Date Start/Finish: 3-22-06 / 3-22-06
Boring Location: See Exploration Location Plan
GS Elev.: 149.2 ft Datum: NGVD

	Auger/ Casing	Sampler
Type:	HSA	SS
I.D.:	2.25 in	1.38 in
Hammer Wt.:		140 lb
Hammer Fall:		30 in
Rig Type:	Dietrich D50	

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Depth (ft)	Sample Information					Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	No.	Pen./ Rec. (in)	Depth (ft)	Blows (/6")	Field Test Data (ppm)				
	S-1	24/ 12	0.0- 2.0	2-4 3-3	ND	S-1A: Loose, dark brown, fine to medium SAND, some Silt, little Organics. Topsoil S-1B: Loose, light brown, fine to medium SAND, some Silt.	TOPSOIL 1.0 ft SUBSOIL 2.0 ft	1	No Equipment Installed
5	S-2	24/ 20	5.0- 7.0	12-15 16-18	ND	Medium dense, gray to light brown, fine to medium SAND, trace Silt. Dry	SAND		
10	S-3	24/ 18	10.0- 12.0	13-14 23-28	ND	S-3A: Medium dense, gray to light brown, fine to medium SAND, little SILT. Dry S-3B: Hard, light brown, SILT and fine Sand. Dry	11.9 ft SILT AND FINE SAND 14.0 ft		
15	S-4	19/ 12	15.0- 16.6	11-42 28-50/1"	ND	Very dense, brown, medium to coarse SAND and Gravel, little Silt.	SAND AND GRAVEL 16.5 ft	2	
						Bottom of boring at 16.5 feet below ground surface. Split spoon and Auger refusal encountered.			
20									
25									

REMARKS

1. Soil samples were screened for total volatile organic compounds (VOCs) using a TEI Model 580B organic vapor meter referenced to an isobutylene-in-air standard. Total VOCs detected are reported in parts per million (ppm) in the "Field Test Data" column. "ND" indicates no VOCs detected.
2. Groundwater encountered at approximately 15 below ground surface based on soil samples recovered.

All depth measurements are approximate. Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: B-19

GZA GeoEnvironmental, Inc.
Engineers and Scientists

River Place
Hudson, New Hampshire

Boring No.: B-20
Page: 1 **of** 1
File No.: 04.0024050.01
Check: RAB

Contractor: New Hampshire Boring, Inc.
Foreman: Matt Stone
Logged by: Chris Melby
Date Start/Finish: 3-24-06 / 3-24-06
Boring Location: See Exploration Location Plan
GS Elev.: 133.1 ft **Datum:** NGVD

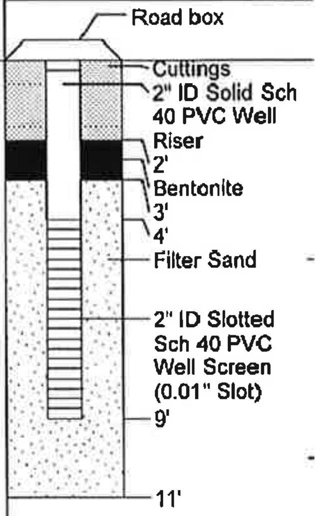
	Auger/ Casing	Sampler
Type:	HSA	SS
I.D.:	4.25 in	1.38 in
Hammer Wt.:		140 lb
Hammer Fall:		30 in
Rig Type:	Dietrich D50	

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab
3/24/06	1145	3.8 ft	GS	5 minute
4/14/06	1130	3.8 ft	GS	21 days

Depth (ft)	Sample Information: No.	Pen./ Rec. (in)	Depth (ft)	Blows (/6")	Field Test Data (ppm)	Sample Description & Classification	Stratum Desc.	Remarks
	S-1	24/ 14	0.0- 2.0	3-2 3-4	ND	S-1A: Loose, dark brown, fine to medium SAND, some Silt, little Organics. Topsoil S-1B: Loose, light brown, SILT, little fine Sand, trace root fibers.	TOPSOIL 0.7 ft SUBSOIL 2.0 ft	1
5	S-2	24/ 16	4.0- 6.0	4-3 3-4	ND	Loose, brown, fine SAND and SILT. Wet	SILTY SAND 7.5 ft	
10	S-3	24/ 20	9.0- 11.0	5-5 6-5	ND	Medium dense, brown, fine to coarse SAND, trace Silt. Wet	SAND 11.0 ft	
						Bottom of boring at 11 feet below ground surface. No refusal encountered.		
15								
20								
25								

Equipment Installed



REMARKS

1. Soil samples were screened for total volatile organic compounds (VOCs) using a TEI Model 580B organic vapor meter referenced to an isobutylene-in-air standard. Total VOCs detected are reported in parts per million (ppm) in the "Field Test Data" column. "ND" indicates no VOCs detected.

All depth measurements are approximate. Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: B-20

APPENDIX C

TEST PIT LOGS

GZA GeoEnvironmental, Inc.
Engineers/Scientists

380 Harvey Road
Manchester, New Hampshire 03103

River Place
Hudson, New Hampshire

Test Pit No. TP-1
Page No. 1 of 1
File No. 04.0024050.01
Checked By: RAB

Excavation Equipment

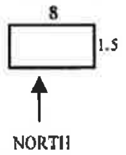
GZA Rep.	C. Melby	Contractor	New Hampshire Boring, Inc.			Date	3/26/2006
		Operator	Matt Stone			Ground Elev.	146.6 feet
Weather	Sunny, 50s	Make	Komatsu	Model	PC 27	Time Started	0800
		Capacity	1.5 feet^3	Reach	10 feet	Time Completed	0830

Depth	Soil Description	Sample No.	PID Reading (ppm)	Excav. Effort	Boulders: Count/ Class	Note No.
0	Dark brown, fine to medium SAND, little Silt, little Organics. TOPSOIL	S-1	ND	E		1
0.5'	Brown, fine to coarse SAND, little Gravel, trace Silt, trace Root Fibers.	S-2				
1'			ND	E		
2'				E		
3'	SAND	S-3	ND	E		
4'	Light brown to gray, fine SAND and Silt.			E		
5'				E		
6'	SILTY SAND			E		
7'	Bottom of test pit at 7 feet below ground surface. No refusal encountered.					
8'						
9'						
10'						
11'						
12'						
13'						

Notes:

1. Soil samples were screened for total volatile organic compounds (VOCS) using a TEI Model 580b organic vapor meter referenced to an isobutylene-in-air standard. Total VOCS detected are reported in parts per million (ppm) in the "Field Test Data" column. "ND" indicates no VOCS detected.

Test Pit Plan



Volume = 3.1 cu. yd.

Boulder Class

Letter Designation	Size Range Classification
A	6" - 17"
B	18" - 36"
C	36" and Larger

Excavation Effort
E -----Easy
M ----Moderate
D -----Difficult

Proportions Used

TRACE (TR.)	0 - 10%
LITTLE (LI.)	10 - 20%
SOME (SO.)	20 - 35%
AND	35 - 50%

Abbreviations
F = Fine
M = Medium
C = Coarse
V = Very
F/M = Fine to medium
F/C = Fine to coarse
GR = Gray
BN = Brown
YEL = Yellow

GROUNDWATER
( ) Encountered
(X) Not Encountered

Elapsed Time to Reading (Hours)	Depth to Groundwater

GZA GeoEnvironmental, Inc.

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GZA GeoEnvironmental, Inc.
Engineers/Scientists

380 Harvey Road
Manchester, New Hampshire 03103

River Place
Hudson, New Hampshire

Test Pit No. TP-2
Page No. 1 of 1
File No. 04.0024050.01
Checked By: RAB

Excavation Equipment

GZA Rep. C. Melby
Weather Sunny, 50s

Contractor New Hampshire Boring, Inc.
Operator Matt Stone
Make Komatsu Model PC 27
Capacity 1.5 feet^3 Reach 10 feet

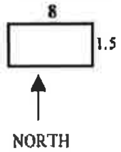
Date 3/26/2006
Ground Elev. 135.1 feet
Time Started 0840
Time Completed 0900

Depth	Soil Description	Sample No.	PID Reading (ppm)	Excav. Effort	Boulders: Count/ Class	Note No.
0	Dark brown Organics, little SAND and Silt. TOPSOIL.	S-1	ND	E		1
0.3'	Light brown to gray, SILT and fine Sand.					
1'		S-2	ND	E		
2'				E		
3'				E		
4'				E		
5'	SILTY SAND			E		
6'				E		
7'	Bottom of test pit at 7 feet below ground surface. No refusal encountered.					
8'						
9'						
10'						
11'						
12'						
13'						

Notes:

1. Soil samples were screened for total volatile organic compounds (VOCS) using a TEI Model 580b organic vapor meter referenced to an isobutylene-in-air standard. Total VOCS detected are reported in parts per million (ppm) in the "Field Test Data" column. "ND" indicates no VOCS detected.

Test Pit Plan



Volume = 3.1 cu. yd.

Boulder Class

Letter Designation	Size Range Classification
A	6" - 17"
B	18" - 36"
C	36" and Larger

Excavation Effort
E -----Easy
M ----Moderate
D -----Difficult

Proportions Used

TRACE (TR.)	0 - 10%
LITTLE (LI.)	10 - 20%
SOME (SO.)	20 - 35%
AND	35 - 50%

Abbreviations
F = Fine
M = Medium
C = Coarse
V = Very
F/M = Fine to medium
F/C = Fine to coarse
GR = Gray
BN = Brown
YEL = Yellow

GROUNDWATER
( ) Encountered
(X) Not Encountered

Elapsed Time to Reading (Hours)	Depth to Groundwater

GZA GeoEnvironmental, Inc.
Engineers/Scientists

380 Harvey Road
Manchester, New Hampshire 03103

River Place
Hudson, New Hampshire

Test Pit No. TP-3
Page No. 1 of 1
File No. 04.0024050.01
Checked By: RAB

Excavation Equipment

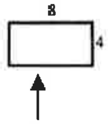
GZA Rep.	C. Melby	Contractor	New Hampshire Boring, Inc.			Date	3/26/2006
		Operator	Matt Stone			Ground Elev.	138.5 feet
Weather	Sunny, 50s	Make	Komatsu	Model	PC 27	Time Started	0900
		Capacity	1.5 $feet^3$	Reach	10 feet	Time Completed	0930

Depth	Soil Description	Sample No.	PID Reading (ppm)	Excav. Effort	Boulders: Count/ Class	Note No.
0 0.2'	Dark brown, fine to medium SAND, little Organics, little Silt. TOPSOIL	S-1	ND	E		1
0.9'	Light brown to gray, fine to medium SAND, trace Silt, trace Gravel with Boulders.					
1'		S-2	ND	E	3/A	
2'				E	2/A	
3'				E	10/A	
4'				M	5/A 2/C	
5'	SILTY SAND			M	3/A	
6'				D	2/C	
7'	Bottom of test pit at 7 feet below ground surface. No refusal encountered					
8'						
9'						
10'						
11'						
12'						
13'						

Notes:

1. Soil samples were screened for total volatile organic compounds (VOCS) using a TEI Model 580b organic vapor meter referenced to an isobutylene-in-air standard. Total VOCS detected are reported in parts per million (ppm) in the "Field Test Data" column. "ND" indicates no VOCS detected.

Test Pit Plan



NORTH
Volume = 8.3 cu. yd.

Boulder Class

Letter Designation	Size Range Classification
A	6" - 17"
B	18" - 36"
C	36" and Larger

Excavation Effort
E ----Easy
M ----Moderate
D ----Difficult

Proportions Used

TRACE (TR.)	0 - 10%
LITTLE (LI.)	10 - 20%
SOME (SO.)	20 - 35%
AND	35 - 50%

Abbreviations
F = Fine
M = Medium
C = Coarse
V = Very
F/M = Fine to medium
F/C = Fine to coarse
GR = Gray
BN = Brown
YEL = Yellow

GROUNDWATER
( ) Encountered
(X) Not Encountered

Elapsed Time to Reading (Hours)	Depth to Groundwater

GZA GeoEnvironmental, Inc.
Engineers/Scientists

380 Harvey Road
Manchester, New Hampshire 03103

River Place
Hudson, New Hampshire

Test Pit No. TP-4
Page No. 1 of 1
File No. 04.0024050.01
Checked By: RAB

Excavation Equipment

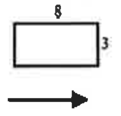
GZA Rep. C. Melby
Weather Sunny, 50s
Contractor New Hampshire Boring, Inc.
Operator Matt Stone
Make Komatsu
Model PC 27
Capacity 1.5 feet^3
Reach 10 feet
Date 3/27/2006
Ground Elev. 157.7 feet
Time Started 0935
Time Completed 1000

Depth	Soil Description	Sample No.	PID Reading (ppm)	Excav. Effort	Boulders: Count/ Class	Note No.
0	Dark brown, fine to medium SAND, little Silt, little Organics. Topsoil			E		1
0.5'	Brown to light brown, GRAVEL and medium to coarse SAND, trace Silt.					
1'		S-1	ND	E		
2'				E		
3'				E		
4'	GRAVEL and SAND			E		
5'				E		
6'				M		
	Bottom of test pit at 6.5 feet below ground surface. No refusal encountered.					
7'						
8'						
9'						
10'						
11'						
12'						
13'						

Notes:

1. Soil samples were screened for total volatile organic compounds (VOCS) using a TEI Model 580b organic vapor meter referenced to an isobutylene-in-air standard. Total VOCS detected are reported in parts per million (ppm) in the "Field Test Data" column. "ND" indicates no VOCS detected.

Test Pit Plan



NORTH
Volume = 5.8 cu. yd.

Boulder Class

Letter Designation	Size Range Classification
A	6" - 17"
B	18" - 36"
C	36" and Larger

Excavation Effort
E -----Easy
M ----Moderate
D -----Difficult

Proportions Used

TRACE (TR.)	0 - 10%
LITTLE (LI.)	10 - 20%
SOME (SO.)	20 - 35%
AND	35 - 50%

Abbreviations
F = Fine
M = Medium
C = Coarse
V = Very
F/M = Fine to medium
F/C = Fine to coarse
GR = Gray
BN = Brown
YEL = Yellow

GROUNDWATER
( ) Encountered
(X) Not Encountered

Elapsed Time to Reading (Hours)	Depth to Groundwater

GZA GeoEnvironmental, Inc.

GZA GeoEnvironmental, Inc.
Engineers/Scientists

380 Harvey Road
Manchester, New Hampshire 03103

River Place
Hudson, New Hampshire

Test Pit No. TP-5
Page No. 1 of 1
File No. 04.0024050.01
Checked By: RAB

Excavation Equipment

GZA Rep. C. Melby
Weather Sunny, 50s

Contractor New Hampshire Boring, Inc.
Operator Matt Stone
Make Komatsu Model PC 27
Capacity 1.5 feet^3 Reach 10 feet

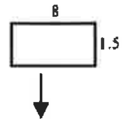
Date 3/27/2006
Ground Elev. 136.7 feet
Time Started 1005
Time Completed 1030

Depth	Soil Description	Sample No.	PID Reading (ppm)	Excav. Effort	Boulders: Count/ Class	Note No.
0	Brown, fine to coarse SAND, some Gravel, little Silt.	S-1	ND	D	5/A	1
1'	SAND & GRAVEL			D	10/A	
2'	Bottom of test pit at 2.5 feet below ground surface. Refusal encountered on probable Bedrock.			D		
3'						
4'						
5'						
6'						
7'						
8'						
9'						
10'						
11'						
12'						
13'						

Notes:

1. Soil samples were screened for total volatile organic compounds (VOCS) using a TEI Model 580b organic vapor meter referenced to an isobutylene-in-air standard. Total VOCS detected are reported in parts per million (ppm) in the "Field Test Data" column. "ND" indicates no VOCS detected.

Test Pit Plan



Volume = 1.1 cu. yd.

Boulder Class

Letter Designation	Size Range Classification
A	6" - 17"
B	18" - 36"
C	36" and Larger

Excavation Effort
E -----Easy
M ----Moderate
D -----Difficult

Proportions Used

TRACE (TR.)	0 - 10%
LITTLE (LI.)	10 - 20%
SOME (SO.)	20 - 35%
AND	35 - 50%

Abbreviations
F = Fine
M = Medium
C = Coarse
V = Very
F/M = Fine to medium
F/C = Fine to coarse
GR = Gray
BN = Brown
YEL = Yellow

GROUNDWATER
( ) Encountered
(X) Not Encountered

Elapsed Time to Reading (Hours)	Depth to Groundwater

GZA GeoEnvironmental, Inc.
Engineers/Scientists

380 Harvey Road
Manchester, New Hampshire 03103

River Place
Hudson, New Hampshire

Test Pit No. TP-5A
Page No. 1 of 1
File No. 04.0024050.01
Checked By: RAB

Excavation Equipment

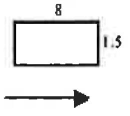
GZA Rep.	C. Melby	Contractor	New Hampshire Boring, Inc.			Date	3/27/2006
		Operator	Matt Stone			Ground Elev.	~136.7 feet
Weather	Sunny, 50s	Make	Komatsu	Model	PC 27	Time Started	1005
		Capacity	1.5 feet^3	Reach	10 feet	Time Completed	1030

Depth	Soil Description	Sample No.	PID Reading (ppm)	Excav. Effort	Boulders: Count/ Class	Note No.
0	Gray, fine to coarse SAND, some Silt, little Gravel.	S-1	ND	M	5/A	1
1'	SAND			D	3/C	
2'	Bottom of test pit at 2.5 feet below ground surface. Refusal encountered on probable Bedrock.					
3'						
4'						
5'						
6'						
7'						
8'						
9'						
10'						
11'						
12'						
13'						

Notes:

1. Soil samples were screened for total volatile organic compounds (VOCS) using a TEI Model 580b organic vapor meter referenced to an isobutylene-in-air standard. Total VOCS detected are reported in parts per million (ppm) in the "Field Test Data" column. "ND" indicates no VOCS detected.

Test Pit Plan



NORTH
Volume = 1.1 cu. yd.

Boulder Class

Letter Designation	Size Range Classification
A	6" - 17"
B	18" - 36"
C	36" and Larger

Excavation Effort
E ----Easy
M ----Moderate
D -----Difficult

Proportions Used

TRACE (TR.)	0 - 10%
LITTLE (LI.)	10 - 20%
SOME (SO.)	20 - 35%
AND	35 - 50%

Abbreviations
F = Fine
M = Medium
C = Coarse
V = Very
F/M = Fine to medium
F/C = Fine to coarse
GR = Gray
BN = Brown
YEL = Yellow

GROUNDWATER
( ) Encountered
(X) Not Encountered

Elapsed Time to Reading (Hours)	Depth to Groundwater

GZA GeoEnvironmental, Inc.

GZA GeoEnvironmental, Inc.
Engineers/Scientists

380 Harvey Road
Manchester, New Hampshire 03103

River Place
Hudson, New Hampshire

Test Pit No. TP-6
Page No. 1 of 1
File No. 04.0024050.01
Checked By: RAB

Excavation Equipment

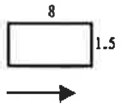
GZA Rep.	C. Melby	Contractor	New Hampshire Boring, Inc.			Date	3/27/2006
		Operator	Matt Stone			Ground Elev.	131.3 feet
Weather	Sunny, 50s	Make	Komatsu	Model	PC 27	Time Started	1030
		Capacity	1.5 feet^3	Reach	10 feet	Time Completed	1100

Depth	Soil Description	Sample No.	PID Reading (ppm)	Excav. Effort	Boulders: Count/ Class	Note No.
0	Brown, fine to medium SAND, little Silt, little Organics. TOPSOIL	S-1	ND	E		1
1'	Gray, fine to medium SAND, some Silt.			E		
2'		S-2	ND	E		
3'				E		
4'				M	1/B	
5'	SILTY SAND			E	1/B	
6'				E		
7'	Bottom of test pit at 7 feet below ground surface. No refusal encountered.					
8'						
9'						
10'						
11'						
12'						
13'						

Notes:

1. Soil samples were screened for total volatile organic compounds (VOCS) using a TEI Model 580b organic vapor meter referenced to an isobutylene-in-air standard. Total VOCS detected are reported in parts per million (ppm) in the "Field Test Data" column. "ND" indicates no VOCS detected.

Test Pit Plan



NORTH
Volume = 3.1 cu. yd.

Boulder Class

Letter Designation	Size Range Classification
A	6" - 17"
B	18" - 36"
C	36" and Larger

Excavation Effort
E -----Easy
M ----Moderate
D -----Difficult

Proportions Used

TRACE (TR.)	0 - 10%
LITTLE (LI.)	10 - 20%
SOME (SO.)	20 - 35%
AND	35 - 50%

Abbreviations
F = Fine
M = Medium
C = Coarse
V = Very
F/M = Fine to medium
F/C = Fine to coarse
GR = Gray
BN = Brown
YEL = Yellow

GROUNDWATER
(X) Encountered
(   ) Not Encountered

Elapsed Time to Reading (Hours)	Depth to Groundwater
5 minutes	7 feet

GZA GeoEnvironmental, Inc.

GZA GeoEnvironmental, Inc.
Engineers/Scientists

380 Harvey Road
Manchester, New Hampshire 03103

River Place
Hudson, New Hampshire

Test Pit No. TP-7
Page No. 1 of 1
File No. 04.0024050.01
Checked By: RAB

Excavation Equipment

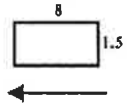
GZA Rep.	C. Melby	Contractor	New Hampshire Boring, Inc.			Date	3/27/2006
		Operator	Matt Stone			Ground Elev.	138.5 feet
Weather	Sunny, 50s	Make	Komatsu	Model	PC 27	Time Started	1110
		Capacity	1.5 feet^3	Reach	10 feet	Time Completed	1140

Depth	Soil Description	Sample No.	PID Reading (ppm)	Excav. Effort	Boulders: Count/ Class	Note No.
0	Dark brown, fine to medium SAND, little Silt, little Organics. TOPSOIL	S-1	ND	E		1
0.5'	Light brown to gray, fine SAND, little Silt.					
1'		S-2	ND	E		
2'				E		
3'				E		
4'				E		
5'	SILTY SAND			E		
6'				E		
7'	Bottom of test pit at 7 feet below ground surface. No refusal encountered.					
8'						
9'						
10'						
11'						
12'						
13'						

Notes:

1. Soil samples were screened for total volatile organic compounds (VOCS) using a TEI Model 580b organic vapor meter referenced to an isobutylene-in-air standard. Total VOCS detected are reported in parts per million (ppm) in the "Field Test Data" column. "ND" indicates no VOCS detected.

Test Pit Plan



NORTH
Volume = 3.1 cu. yd.

Boulder Class

Letter Designation	Size Range Classification
A	6" - 17"
B	18" - 36"
C	36" and Larger

Excavation Effort
E -----Easy
M ---Moderate
D -----Difficult

Proportions Used

TRACE (TR.)	0 - 10%
LITTLE (LI.)	10 - 20%
SOME (SO.)	20 - 35%
AND	35 - 50%

Abbreviations
F = Fine
M = Medium
C = Coarse
V = Very
F/M = Fine to medium
F/C = Fine to coarse
GR = Gray
BN = Brown
YEL = Yellow

GROUNDWATER
( ) Encountered
(X) Not Encountered

Elapsed Time to Reading (Hours)	Depth to Groundwater

GZA GeoEnvironmental, Inc.
Engineers/Scientists

380 Harvey Road
Manchester, New Hampshire 03103

River Place
Hudson, New Hampshire

Test Pit No.	TP-8
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File No.	04.0024050.01
Checked By:	RAB

Excavation Equipment

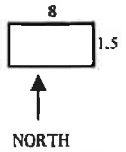
GZA Rep.	C. Melby	Contractor	New Hampshire Boring, Inc.			Date	3/27/2006
		Operator	Matt Stone			Ground Elev.	119.1 feet
Weather	Sunny, 50s	Make	Komatsu	Model	PC 27	Time Started	1240
		Capacity	1.5 feet^3	Reach	10 feet	Time Completed	1305

Depth	Soil Description	Sample No.	PID Reading (ppm)	Excav. Effort	Boulders: Count/ Class	Note No.
0	Dark brown, fine to medium SAND, some Silt, little Organics. TOPSOIL	S-1	ND	E		1
0.5'	Light brown, silt, some, fine Sand, trace Root Fibers. SUBSOIL					
1'		S-2	ND	E		
2'				E		
3'				E		
4'				E		
5'	SILTY SAND			E		
6'				E		
7'	Bottom of test pit at 7 feet below ground surface. No refusal encountered.					
8'						
9'						
10'						
11'						
12'						
13'						

Notes:

1. Soil samples were screened for total volatile organic compounds (VOCS) using a TEI Model 580b organic vapor meter referenced to an isobutylene-in-air standard. Total VOCS detected are reported in parts per million (ppm) in the "Field Test Data" column. "ND" indicates no VOCS detected.

Test Pit Plan



Volume = 3.1 cu. yd.

Boulder Class

Letter Designation	Size Range Classification
A	6" - 17"
B	18" - 36"
C	36" and Larger

Excavation Effort
E ----Easy
M ----Moderate
D -----Difficult

Proportions Used

TRACE (TR.)	0 - 10%
LITTLE (LI.)	10 - 20%
SOME (SO.)	20 - 35%
AND	35 - 50%

Abbreviations
F = Fine
M = Medium
C = Coarse
V = Very
F/M = Fine to medium
F/C = Fine to coarse
GR = Gray
BN = Brown
YEL = Yellow

GROUNDWATER
( ) Encountered
(X) Not Encountered

Elapsed Time to Reading (Hours)	Depth to Groundwater

GZA GeoEnvironmental, Inc.

GZA GeoEnvironmental, Inc.
Engineers/Scientists

380 Harvey Road
Manchester, New Hampshire 03103

River Place
Hudson, New Hampshire

Test Pit No. TP-9
Page No. 1 of 1
File No. 04.0024050.01
Checked By: RAB

Excavation Equipment

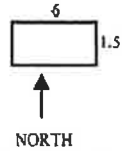
GZA Rep. C. Melby
Weather Sunny, 50s
Contractor New Hampshire Boring, Inc.
Operator Matt Stone
Make Komatsu Model PC 27
Capacity 1.5 feet^3 Reach 10 feet
Date 3/27/2006
Ground Elev. 137.2 feet
Time Started 1310
Time Completed 1340

Depth	Soil Description	Sample No.	PID Reading (ppm)	Excav. Effort	Boulders: Count/ Class	Note No.
0	Dark brown, fine to medium SAND, little Organics, little Silt. TOPSOIL	S-1	ND	E		1
0.7'		0.7'				
1'	Light brown, fine SAND and Silt, trace Gravel.	S-2	ND	E		
2'				E		
3'				E		
4'				E		
5'	SILTY SAND			E		
6'				E		
7'	Bottom of test pit at 7 feet below ground surface. No refusal encountered.					
8'						
9'						
10'						
11'						
12'						
13'						

Notes:

1. Soil samples were screened for total volatile organic compounds (VOCS) using a TEI Model 580b organic vapor meter referenced to an isobutylene-in-air standard. Total VOCS detected are reported in parts per million (ppm) in the "Field Test Data" column. "ND" indicates no VOCS detected.

Test Pit Plan



Volume = 2.3 cu. yd.

Boulder Class

Letter Designation	Size Range Classification
A	6" - 17"
B	18" - 36"
C	36" and Larger

Excavation Effort
E ----Easy
M ----Moderate
D -----Difficult

Proportions Used

TRACE (TR.)	0 - 10%
LITTLE (LI.)	10 - 20%
SOME (SO.)	20 - 35%
AND	35 - 50%

Abbreviations
F = Fine
M = Medium
C = Coarse
V = Very
F/M = Fine to medium
F/C = Fine to coarse
GR = Gray
BN = Brown
YEL = Yellow

GROUNDWATER
( ) Encountered
(X) Not Encountered

Elapsed Time to Reading (Hours)	Depth to Groundwater

GZA GeoEnvironmental, Inc.
Engineers/Scientists

380 Harvey Road
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Hudson, New Hampshire

Test Pit No. TP-10
Page No. 1 of 1
File No. 04.0024050.01
Checked By: RAB

Excavation Equipment

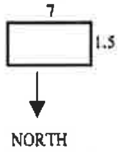
GZA Rep.	C. Melby	Contractor	New Hampshire Boring, Inc.	Date	3/27/2006
		Operator	Matt Stone	Ground Elev.	119.0 feet
Weather	Sunny, 50s	Make	Komatsu Model PC 27	Time Started	1345
		Capacity	1.5 feet^3 Reach 10 feet	Time Completed	1405

Depth	Soil Description	Sample No.	PID Reading (ppm)	Excav. Effort	Boulders: Count/ Class	Note No.
0	Dark brown, fine to medium SAND, some Silt, little Organics. TOPSOIL Light brown, SILT, some fine Sand. SUBSOIL	S-1	ND	E		1
1'		S-2	ND	E		
2'				E		
3'				E		
4'				E		
5'				E		
6'	SILTY SAND			E		
7'	Bottom of test pit at 7 feet below ground surface. No refusal encountered.					
8'						
9'						
10'						
11'						
12'						
13'						

Notes:

1. Soil samples were screened for total volatile organic compounds (VOCS) using a TEI Model 580b organic vapor meter referenced to an isobutylene-in-air standard. Total VOCS detected are reported in parts per million (ppm) in the "Field Test Data" column. "ND" indicates no VOCS detected.

Test Pit Plan



Volume = 2.7 cu. yd.

Boulder Class

Letter Designation	Size Range Classification
A	6" - 17"
B	18" - 36"
C	36" and Larger

Excavation Effort
E -----Easy
M ----Moderate
D -----Difficult

Proportions Used

TRACE (TR.)	0 - 10%
LITTLE (LI.)	10 - 20%
SOME (SO.)	20 - 35%
AND	35 - 50%

Abbreviations
F = Fine
M = Medium
C = Coarse
V = Very
F/M = Fine to medium
F/C = Fine to coarse
GR = Gray
BN = Brown
YEL = Yellow

GROUNDWATER
( ) Encountered
(X) Not Encountered

Elapsed Time to Reading (Hours)	Depth to Groundwater

GZA GeoEnvironmental, Inc.

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Hudson, New Hampshire

Test Pit No.	TP-11
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File No.	04.0024050.01
Checked By:	RAB

Excavation Equipment

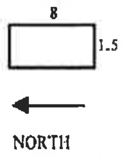
GZA Rep.	C. Melby	Contractor	New Hampshire Boring, Inc.			Date	3/27/2006
		Operator	Matt Stone			Ground Elev.	109.6 feet
Weather	Sunny, 50s	Make	Komatsu	Model	PC 27	Time Started	1405
		Capacity	1.5 feet^3	Reach	10 feet	Time Completed	1435

Depth	Soil Description	Sample No.	PID Reading (ppm)	Excav. Effort	Boulders: Count/ Class	Note No.
0	Dark brown, fine to medium SAND,some Organics, some Silt. TOPSOIL	S-1	ND	M		1
1'				M		
1.5'	Light brown, SILT, little fine Sand.					
2'		S-2	ND	M		
3'				M		
4'				M		
5'				M		
6'	SILT			M		
7'	Bottom of test pit at 7 feet below ground surface. No refusal encountered.					
8'						
9'						
10'						
11'						
12'						
13'						

Notes:

1. Soil samples were screened for total volatile organic compounds (VOCS) using a TEI Model 580b organic vapor meter referenced to an isobutylene-in-air standard. Total VOCS detected are reported in parts per million (ppm) in the "Field Test Data" column. "ND" indicates no VOCS detected.

Test Pit Plan



Volume = 3.1 cu. yd.

Boulder Class

Letter Designation	Size Range Classification
A	6" - 17"
B	18" - 36"
C	36" and Larger

Excavation Effort
E -----Easy
M ----Moderate
D -----Difficult

Proportions Used

TRACE (TR.)	0 - 10%
LITTLE (LI.)	10 - 20%
SOME (SO.)	20 - 35%
AND	35 - 50%

Abbreviations
F = Fine
M = Medium
C = Coarse
V = Very
F/M = Fine to medium
F/C = Fine to coarse
GR = Gray
BN = Brown
YEL = Yellow

GROUNDWATER
( ) Encountered
(X) Not Encountered

Elapsed Time to Reading (Hours)	Depth to Groundwater

GZA GeoEnvironmental, Inc.

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Hudson, New Hampshire

Test Pit No. TP-12
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File No. 04.0024050.01
Checked By: RAB

Excavation Equipment

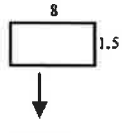
GZA Rep. C. Melby
Weather Sunny, 50s
Contractor New Hampshire Boring, Inc.
Operator Matt Stone
Make Komatsu
Model PC 27
Capacity 1.5 feet^3
Reach 10 feet
Date 3/27/2006
Ground Elev. 134.1 feet
Time Started 1440
Time Completed 1505

Depth	Soil Description	Sample No.	PID Reading (ppm)	Excav. Effort	Boulders: Count/ Class	Note No.
0	Dark brown, fine to medium SAND, little Silt, little Organics. TOPSOIL	S-1	ND			1
0.5'	Light brown, SILT, little, fine Sand.					
1'		S-2	ND			
2'						
3'						
4'	SILT					
4.5'	Light gray, fine to medium SAND, little Silt.	S-3	ND			
5'						
6'	SAND					
7'	Bottom of test pit at 7 feet below ground surface. No refusal encountered.					
8'						
9'						
10'						
11'						
12'						
13'						

Notes:

1. Soil samples were screened for total volatile organic compounds (VOCS) using a TEI Model 580b organic vapor meter referenced to an isobutylene-in-air standard. Total VOCS detected are reported in parts per million (ppm) in the "Field Test Data" column. "ND" indicates no VOCS detected.

Test Pit Plan



NORTH
Volume = 3.1 cu. yd.

Boulder Class

Letter Designation	Size Range Classification
A	6" - 17"
B	18" - 36"
C	36" and Larger

Excavation Effort
E -----Easy
M ---Moderate
D -----Difficult

Proportions Used

TRACE (TR.)	0 - 10%
LITTLE (LI.)	10 - 20%
SOME (SO.)	20 - 35%
AND	35 - 50%

Abbreviations
F = Fine
M = Medium
C = Coarse
V = Very
F/M = Fine to medium
F/C = Fine to coarse
GR = Gray
BN = Brown
YEL = Yellow

GROUNDWATER
( ) Encountered
(X) Not Encountered

Elapsed Time to Reading (Hours)	Depth to Groundwater

GZA GeoEnvironmental, Inc.

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Hudson, New Hampshire

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File No. 04.0024050.01
Checked By: RAB

Excavation Equipment

GZA Rep. C. Melby
Weather Sunny, 50s

Contractor New Hampshire Boring, Inc.
Operator Matt Stone
Make Komatsu Model PC 27
Capacity 1.5 feet^3 Reach 10 feet

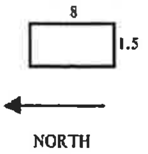
Date 3/27/2006
Ground Elev. 139.9 feet
Time Started 1510
Time Completed 1525

Depth	Soil Description	Sample No.	PID Reading (ppm)	Excav. Effort	Boulders: Count/ Class	Note No.
0	Dark brown, fine to medium SAND, some Silt, little Organics. TOPSOIL	S-1	ND	E		1
0.4'	Light brown, fine to medium SAND and SILT.	0.4'				
1'	SILTY SAND	S-2	ND	E		
1.5'	Brown, medium to coarse SAND, trace Silt.	1.5'				
2'		S-3	ND	E		
3'				E		
4'				E		
5'	SAND			E		
6'	Bottom of test pit at 6.5 feet below ground surface. No refusal encountered.			E		
7'						
8'						
9'						
10'						
11'						
12'						
13'						

Notes:

1. Soil samples were screened for total volatile organic compounds (VOCS) using a TEI Model 580b organic vapor meter referenced to an isobutylene-in-air standard. Total VOCS detected are reported in parts per million (ppm) in the "Field Test Data" column. "ND" indicates no VOCS detected.

Test Pit Plan



Volume = 2.8 cu. yd.

Boulder Class

Letter Designation	Size Range Classification
A	6" - 17"
B	18" - 36"
C	36" and Larger

Excavation Effort
E -----Easy
M ----Moderate
D -----Difficult

Proportions Used

TRACE (TR.)	0 - 10%
LITTLE (LI.)	10 - 20%
SOME (SO.)	20 - 35%
AND	35 - 50%

Abbreviations
F = Fine
M = Medium
C = Coarse
V = Very
F/M = Fine to medium
F/C = Fine to coarse
GR = Gray
BN = Brown
YEL = Yellow

GROUNDWATER
( ) Encountered
(X) Not Encountered

Elapsed Time to Reading (Hours)	Depth to Groundwater

GZA GeoEnvironmental, Inc.

GZA GeoEnvironmental, Inc.
Engineers/Scientists

380 Harvey Road
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River Place
Hudson, New Hampshire

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Checked By: RAB

Excavation Equipment

GZA Rep. C. Melby
Weather Sunny, 50s

Contractor New Hampshire Boring, Inc.
Operator Matt Stone
Make Komatsu Model PC 27
Capacity 1.5 feet^3 Reach 10 feet

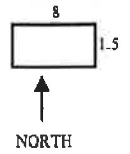
Date 3/27/2006
Ground Elev. 138.1 feet
Time Started 1530
Time Completed 1400

Depth	Soil Description	Sample No.	PID Reading (ppm)	Excav. Effort	Boulders: Count/ Class	Note No.
0 0.3'	Dark brown, fine to medium SAND, some Silt, little Gravel. TOPSOIL Orange brown, fine to medium SAND and SILT.	0.3' S-1	ND	E		1
1' 1.5'	SILTY SAND Gray, fine to medium SAND, little Silt.	S-2	ND	E		
2'		S-3	ND	E		
3'				E		
4'	SAND			E		
5'				E		
6'	Bottom of test pit at 6 feet below ground surface. No refusal encountered.					
7'						
8'						
9'						
10'						
11'						
12'						
13'						

Notes:

1. Soil samples were screened for total volatile organic compounds (VOCS) using a TEI Model 580b organic vapor meter referenced to an isobutylene-in-air standard. Total VOCS detected are reported in parts per million (ppm) in the "Field Test Data" column. "ND" indicates no VOCS detected.

Test Pit Plan



Volume = 2.6 cu. yd.

Boulder Class

Letter Designation	Size Range Classification
A	6" - 17"
B	18" - 36"
C	36" and Larger

Excavation Effort
E ----Easy
M ----Moderate
D -----Difficult

Proportions Used

TRACE (TR.)	0 - 10%
LITTLE (LI.)	10 - 20%
SOME (SO.)	20 - 35%
AND	35 - 50%

Abbreviations
F = Fine
M = Medium
C = Coarse
V = Very
F/M = Fine to medium
F/C = Fine to coarse
GR = Gray
BN = Brown
YEL = Yellow

GROUNDWATER
( ) Encountered
(X) Not Encountered

Elapsed Time to Reading (Hours)	Depth to Groundwater

GZA GeoEnvironmental, Inc.

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GZA GeoEnvironmental, Inc.
Engineers/Scientists

380 Harvey Road
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River Place
Hudson, New Hampshire

Test Pit No. TP-15
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File No. 04.0024050.01
Checked By: RAB

Excavation Equipment

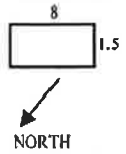
GZA Rep. C. Melby
Weather Sunny, 50s
Contractor New Hampshire Boring, Inc.
Operator Matt Stone
Make Komatsu Model PC 27
Capacity 1.5 feet^3 Reach 10 feet
Date 3/28/2006
Ground Elev. ~150 feet
Time Started 0715
Time Completed 0735

Depth	Soil Description	Sample No.	PID Reading (ppm)	Excav. Effort	Boulders: Count/ Class	Note No.
0	Dark brown, fine to medium SAND, some Silt, little Organics. Topsoil	S-1	ND	E		1
1'	Light brown, fine SAND and Silt	S-2	ND	E		
2'				E		
3'	SILTY SAND			E		
4' 4.3'	Gray, fine to medium SAND, some SILT.	4.3' S-3	ND	E		
5'	SAND			E		
6'	Bottom of test pit at 6.5 feet below ground surface. No refusal encountered.			E		
7'						
8'						
9'						
10'						
11'						
12'						
13'						

Notes:

1. Soil samples were screened for total volatile organic compounds (VOCS) using a TEI Model 580b organic vapor meter referenced to an isobutylene-in-air standard. Total VOCS detected are reported in parts per million (ppm) in the "Field Test Data" column. "ND" indicates no VOCS detected.

Test Pit Plan



Volume = 2.8 cu. yd.

Boulder Class

Letter Designation	Size Range Classification
A	6" - 17"
B	18" - 36"
C	36" and Larger

Excavation Effort
E -----Easy
M ----Moderate
D -----Difficult

Proportions Used

TRACE (TR.)	0 - 10%
LITTLE (LI.)	10 - 20%
SOME (SO.)	20 - 35%
AND	35 - 50%

Abbreviations
F = Fine
M = Medium
C = Coarse
V = Very
F/M = Fine to medium
F/C = Fine to coarse
GR = Gray
BN = Brown
YEL = Yellow

GROUNDWATER
( ) Encountered
(X) Not Encountered

Elapsed Time to Reading (Hours)	Depth to Groundwater

GZA GeoEnvironmental, Inc.

GZA GeoEnvironmental, Inc.
Engineers/Scientists

380 Harvey Road
Manchester, New Hampshire 03103

River Place
Hudson, New Hampshire

Test Pit No. TP-16
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Checked By: RAB

Excavation Equipment

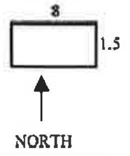
GZA Rep.	C. Melby	Contractor	New Hampshire Boring, Inc.			Date	3/28/2006
		Operator	Matt Stone			Ground Elev.	142.5 feet
Weather	Sunny, 50s	Make	Komatsu	Model	PC 27	Time Started	0735
		Capacity	1.5 feet^3	Reach	10 feet	Time Completed	0800

Depth	Soil Description	Sample No.	PID Reading (ppm)	Excav. Effort	Boulders: Count/ Class	Note No.
0 0.8'	Dark brown, fine to medium SAND, some Silt, little Organics. TOPSOIL	S-1 0.8'	ND	E		1, 2
1'	Light brown, fine SAND and SILT. SILTY SAND	S-2	ND	E		
2' 2.2'	Light brown, fine to medium SAND, little Silt.	2.2'		E		
3'				E		
4'		S-3	ND	E		
5'				E		
6'				E		
7'	Bottom of test pit at 7 feet below ground surface. No refusal encountered.					
8'						
9'						
10'						
11'						
12'						
13'						

Notes:

1. Frost encountered.
2. Soil samples were screened for total volatile organic compounds (VOCS) using a TEI Model 580b organic vapor meter referenced to an isobutylene-in-air standard. Total VOCS detected are reported in parts per million (ppm) in the "Field Test Data" column. "ND" indicates no VOCS detected.

Test Pit Plan



Volume = 3.1 cu. yd.

Boulder Class

Letter Designation	Size Range Classification
A	6" - 17"
B	18" - 36"
C	36" and Larger

Excavation Effort
E -----Easy
M ----Moderate
D -----Difficult

Proportions Used

TRACE (TR.)	0 - 10%
LITTLE (LI.)	10 - 20%
SOME (SO.)	20 - 35%
AND	35 - 50%

Abbreviations

F = Fine
M = Medium
C = Coarse
V = Very
F/M = Fine to medium
F/C = Fine to coarse
GR = Gray
BN = Brown
YEL = Yellow

GROUNDWATER

( ) Encountered
(X) Not Encountered

Elapsed Time to Reading (Hours)	Depth to Groundwater

GZA GeoEnvironmental, Inc.

GZA GeoEnvironmental, Inc.
Engineers/Scientists

380 Harvey Road
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River Place
Hudson, New Hampshire

Test Pit No. TP-17
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File No. 04.0024050.01
Checked By: RAB

Excavation Equipment

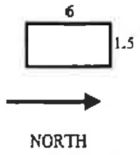
GZA Rep.	C. Melby	Contractor	New Hampshire Boring, Inc.			Date	3/28/2006
		Operator	Matt Stone			Ground Elev.	135.8 feet
Weather	Sunny, 50s	Make	Komatsu	Model	PC 27	Time Started	0815
		Capacity	1.5 feet^3	Reach	10 feet	Time Completed	0845

Depth	Soil Description	Sample No.	PID Reading (ppm)	Excav. Effort	Boulders: Count/ Class	Note No.
0 – 0.5'	Dark brown, fine to medium SAND, little Silt, little Organics. TOPSOIL	0.5' S-1	ND	E		1
0.5' – 1'	Light brown, fine SAND and Silt.					
1' – 2'	SILTY SAND	S-2	ND	E		
2' – 3'	Gray, fine to medium SAND, little Silt.			E		
3' – 4'			ND	E		
4' – 5'		S-3		E		
5' – 6'				E		
6' – 7'	SAND			E		
7' – 8'	Bottom of test pit at 7 feet below ground surface. No refusal encountered.					
8' – 9'						
9' – 10'						
10' – 11'						
11' – 12'						
12' – 13'						
13'						

Notes:

1. Soil samples were screened for total volatile organic compounds (VOCS) using a TEI Model 580b organic vapor meter referenced to an isobutylene-in-air standard. Total VOCS detected are reported in parts per million (ppm) in the "Field Test Data" column. "ND" indicates no VOCS detected.

Test Pit Plan



Volume = 2.3 cu. yd.

Boulder Class

Letter Designation	Size Range Classification
A	6" - 17"
B	18" - 36"
C	36" and Larger

Excavation Effort
E -----Easy
M ----Moderate
D ----Difficult

Proportions Used

TRACE (TR.)	0 - 10%
LITTLE (LI.)	10 - 20%
SOME (SO.)	20 - 35%
AND	35 - 50%

Abbreviations
F = Fine
M = Medium
C = Coarse
V = Very
F/M = Fine to medium
F/C = Fine to coarse
GR = Gray
BN = Brown
YEL = Yellow

GROUNDWATER
( ) Encountered
(X) Not Encountered

Elapsed Time to Reading (Hours)	Depth to Groundwater

GZA GeoEnvironmental, Inc.
Engineers/Scientists

380 Harvey Road
Manchester, New Hampshire 03103

River Place
Hudson, New Hampshire

Test Pit No. TP-18
Page No. 1 of 1
File No. 04.0024050.01
Checked By: RAB

Excavation Equipment

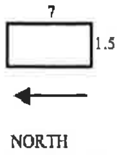
GZA Rep. C. Melby
Weather Sunny, 50s
Contractor New Hampshire Boring, Inc.
Operator Matt Stone
Make Komatsu Model PC 27
Capacity 1.5 feet^3 Reach 10 feet
Date 3/28/2006
Ground Elev. 126.5 feet
Time Started 0845
Time Completed 0920

Depth	Soil Description	Sample No.	PID Reading (ppm)	Excav. Effort	Boulders: Count/ Class	Note No.
0	Dark brown, fine to medium SAND, little Silt, little Organics. TOPSOIL					
	Brown, fine to medium SAND, some Silt.			E		1
1'		S-1	ND	E		
2'				E		
3'	SILTY SAND			E		
4'	Black, Organic Peat, trace Root Fibers.			M		
5'	PEAT	S-2	ND	M		
6'	Bottom test pit at 6.5 feet below ground surface. No refusal encountered.			M		
7'						
8'						
9'						
10'						
11'						
12'						
13'						

Notes:

1. Soil samples were screened for total volatile organic compounds (VOCS) using a TEI Model 580b organic vapor meter referenced to an isobutylene-in-air standard. Total VOCS detected are reported in parts per million (ppm) in the "Field Test Data" column. "ND" indicates no VOCS detected.

Test Pit Plan



Volume = 2.5 cu. yd.

Boulder Class

Letter Designation	Size Range Classification
A	6" - 17"
B	18" - 36"
C	36" and Larger

Excavation Effort
E ----- Easy
M ----Moderate
D -----Difficult

Proportions Used

TRACE (TR.)	0 - 10%
LITTLE (LI.)	10 - 20%
SOME (SO.)	20 - 35%
AND	35 - 50%

Abbreviations
F = Fine
M = Medium
C = Coarse
V = Very
F/M = Fine to medium
F/C = Fine to coarse
GR = Gray
BN = Brown
YEL = Yellow

GROUNDWATER
(X) Encountered
(   ) Not Encountered

Elapsed Time to Reading (Hours)	Depth to Groundwater
5 minutes	5.4 feet

GZA GeoEnvironmental, Inc.
Engineers/Scientists

380 Harvey Road
Manchester, New Hampshire 03103

River Place
Hudson, New Hampshire

Test Pit No. TP-19
Page No. 1 of 1
File No. 04.0024050.01
Checked By: RAB

Excavation Equipment

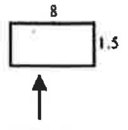
GZA Rep.	C. Melby	Contractor	New Hampshire Boring, Inc.			Date	3/28/2006
		Operator	Matt Stone			Ground Elev.	127.7 feet
Weather	Sunny, 50s	Make	Komatsu	Model	PC 27	Time Started	0920
		Capacity	1.5 feet^3	Reach	10 feet	Time Completed	1010

Depth	Soil Description	Sample No.	PID Reading (ppm)	Excav. Effort	Boulders: Count/ Class	Note No.
0	Dark brown, fine to medium SAND, little Silt, little Organics. TOPSOIL	S-1	ND	E		1
0.8'		0.8'				
1'	Gray and brown, fine SAND and Silt. Moist		ND	E		
2'		S-2		E		
3'				E		
4'				E		
5'	SILTY SAND			E		
6'				E		
7'	Bottom of test pit at 7 feet below ground surface. No refusal encountered.					
8'						
9'						
10'						
11'						
12'						
13'						

Notes:

1. Soil samples were screened for total volatile organic compounds (VOCS) using a TEI Model 580b organic vapor meter referenced to an isobutylene-in-air standard. Total VOCS detected are reported in parts per million (ppm) in the "Field Test Data" column. "ND" indicates no VOCS detected.

Test Pit Plan



NORTH
Volume = 3.1 cu. yd.

Boulder Class

Letter Designation	Size Range Classification
A	6" - 17"
B	18" - 36"
C	36" and Larger

Excavation Effort
E -----Easy
M ----Moderate
D -----Difficult

Proportions Used

TRACE (TR.)	0 - 10%
LITTLE (LI.)	10 - 20%
SOME (SO.)	20 - 35%
AND	35 - 50%

Abbreviations
F = Fine
M = Medium
C = Coarse
V = Very
F/M = Fine to medium
F/C = Fine to coarse
GR = Gray
BN = Brown
YEL = Yellow

GROUNDWATER
( ) Encountered
(X) Not Encountered

Elapsed Time to Reading (Hours)	Depth to Groundwater

GZA GeoEnvironmental, Inc.

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GZA GeoEnvironmental, Inc.
Engineers/Scientists

380 Harvey Road
Manchester, New Hampshire 03103

River Place
Hudson, New Hampshire

Test Pit No. TP-20
Page No. 1 of 1
File No. 04.0024050.01
Checked By: RAB

Excavation Equipment

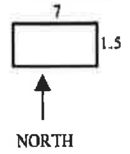
GZA Rep. C. Melby
Weather Sunny, 50s
Contractor New Hampshire Boring, Inc.
Operator Matt Stone
Make Komatsu Model PC 27
Capacity 1.5 feet^3 Reach 10 feet
Date 3/28/2006
Ground Elev. 133.2 feet
Time Started 1115
Time Completed 1140

Depth	Soil Description	Sample No.	PID Reading (ppm)	Excav. Effort	Boulders: Count/ Class	Note No.
0	Dark brown, fine to medium SAND, little Silt, little Organics. TOPSOIL	S-1	ND	E		1
0.7'		0.7'				
1'	Light brown to gray, fine SAND and Silt. Moist			E		
2'				E		
3'				E		
4'		S-2	ND	E		
5'	SILTY SAND			E		
6'				E		
7'	Bottom of test pit at 7 feet below ground surface. No refusal encountered.					
8'						
9'						
10'						
11'						
12'						
13'						

Notes:

1. Soil samples were screened for total volatile organic compounds (VOCS) using a TEI Model 580b organic vapor meter referenced to an isobutylene-in-air standard. Total VOCS detected are reported in parts per million (ppm) in the "Field Test Data" column. "ND" indicates no VOCS detected.

Test Pit Plan



Volume = 2.7 cu. yd.

Boulder Class

Letter Designation	Size Range Classification
A	6" - 17"
B	18" - 36"
C	36" and Larger

Excavation Effort
E -----Easy
M ----Moderate
D -----Difficult

Proportions Used

TRACE (TR.)	0 - 10%
LITTLE (LI.)	10 - 20%
SOME (SO.)	20 - 35%
AND	35 - 50%

Abbreviations
F = Fine
M = Medium
C = Coarse
V = Very
F/M = Fine to medium
F/C = Fine to coarse
GR = Gray
BN = Brown
YEL = Yellow

GROUNDWATER
(X) Encountered
( ) Not Encountered

Elapsed Time to Reading (Hours)	Depth to Groundwater
5 minutes	4.8 feet

GZA GeoEnvironmental, Inc.

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GZA GeoEnvironmental, Inc.
Engineers/Scientists

380 Harvey Road
Manchester, New Hampshire 03103

River Place
Hudson, New Hampshire

Test Pit No. TP-21
Page No. 1 of 1
File No. 04.0024050.01
Checked By: RAB

Excavation Equipment

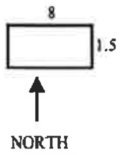
GZA Rep.	C. Melby	Contractor	New Hampshire Boring, Inc.			Date	3/28/2006
		Operator	Matt Stone			Ground Elev.	127.7 feet
Weather	Sunny, 50s	Make	Komatsu	Model	PC 27	Time Started	1015
		Capacity	1.5 feet^3	Reach	10 feet	Time Completed	1050

Depth	Soil Description	Sample No.	PID Reading (ppm)	Excav. Effort	Boulders: Count/ Class	Note No.
0 0.5'	Dark brown, fine to medium SAND, little Silt, little Organics. TOPSOIL	S-1 0.5'	ND	E		1
1'	Light brown, SILT, some fine Sand. Moist			E	1C	
2'				E		
3'		S-2	ND	E		
4'				E		
5'	SILT			E		
6'				E		
6.8' 7'	Bottom of test pit at 6.8 feet below ground surface. No refusal encountered.	6.8'				
8'						
9'						
10'						
11'						
12'						
13'						

Notes:

1. Soil samples were screened for total volatile organic compounds (VOCS) using a TEI Model 580b organic vapor meter referenced to an isobutylene-in-air standard. Total VOCS detected are reported in parts per million (ppm) in the "Field Test Data" column. "ND" indicates no VOCS detected.

Test Pit Plan



Volume = 3.0 cu. yd.

Boulder Class

Letter Designation	Size Range Classification
A	6" - 17"
B	18" - 36"
C	36" and Larger

Excavation Effort
E ----Easy
M ----Moderate
D -----Difficult

Proportions Used

TRACE (TR.)	0 - 10%
LITTLE (LI.)	10 - 20%
SOME (SO.)	20 - 35%
AND	35 - 50%

Abbreviations
F = Fine
M = Medium
C = Coarse
V = Very
F/M = Fine to medium
F/C = Fine to coarse
GR = Gray
BN = Brown
YEL = Yellow

GROUNDWATER
(X) Encountered
(   ) Not Encountered

Elapsed Time to Reading (Hours)	Depth to Groundwater
5 minutes	6.7 feet

GZA GeoEnvironmental, Inc.

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GZA GeoEnvironmental, Inc.
Engineers/Scientists

380 Harvey Road
Manchester, New Hampshire 03103

River Place
Hudson, New Hampshire

Test Pit No. TP-22
Page No. 1 of 1
File No. 04.0024050.01
Checked By: RAB

Excavation Equipment

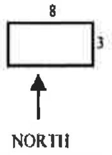
GZA Rep. C. Melby
Weather Sunny, 50s
Contractor New Hampshire Boring, Inc.
Operator Matt Stone
Make Komatsu Model PC 27
Capacity 1.5 $feet^3$ Reach 10 feet
Date 3/28/2006
Ground Elev. 146.3 feet
Time Started 1115
Time Completed 1140

Depth	Soil Description	Sample No.	PID Reading (ppm)	Excav. Effort	Boulders: Count/ Class	Note No.
0 – 0.4'	Dark brown, fine to medium SAND, little Silt, little Organics TOPSOIL	0.4' S-1	ND			1
0.4' – 1'	Brown fine to medium SAND, little Silt					
1' – 2'			ND		1/C	2
2' – 3'	SAND					
3' – 3.4'		3.4'	ND			
3.4' – 4.3'	Dark brown, fine to medium SAND, little Silt, trace Organics (Wood pieces). SAN	S-2 4.3'				
4.3' – 5'	Color change					
5' – 6.2'	Brown, fine to medium SAND, trace Silt. SAND		ND			
6.2' – 7'	Gray, SILT, little, fine Sand. Moist SILT	6.2'	ND			
7'	Bottom of test pit at 7 feet below ground surface. No refusal encountered.					
8'						
9'						
10'						
11'						
12'						
13'						

Notes:

1. Soil samples were screened for total volatile organic compounds (VOCS) using a TEI Model 580b organic vapor meter referenced to an isobutylene-in-air standard. Total VOCS detected are reported in parts per million (ppm) in the "Field Test Data" column. "ND" indicates no VOCS detected.
2. Metal debris encountered at approximately 2 feet below ground surface.

Test Pit Plan



Volume = 6.2 cu. yd.

Boulder Class

Letter Designation	Size Range Classification
A	6" - 17"
B	18" - 36"
C	36" and Larger

Excavation Effort
E -----Easy
M ----Moderate
D -----Difficult

Proportions Used

TRACE (TR.)	0 - 10%
LITTLE (LI.)	10 - 20%
SOME (SO.)	20 - 35%
AND	35 - 50%

Abbreviations
F = Fine
M = Medium
C = Coarse
V = Very
F/M = Fine to medium
F/C = Fine to coarse
GR = Gray
BN = Brown
YEL = Yellow

GROUNDWATER
( ) Encountered
(X) Not Encountered

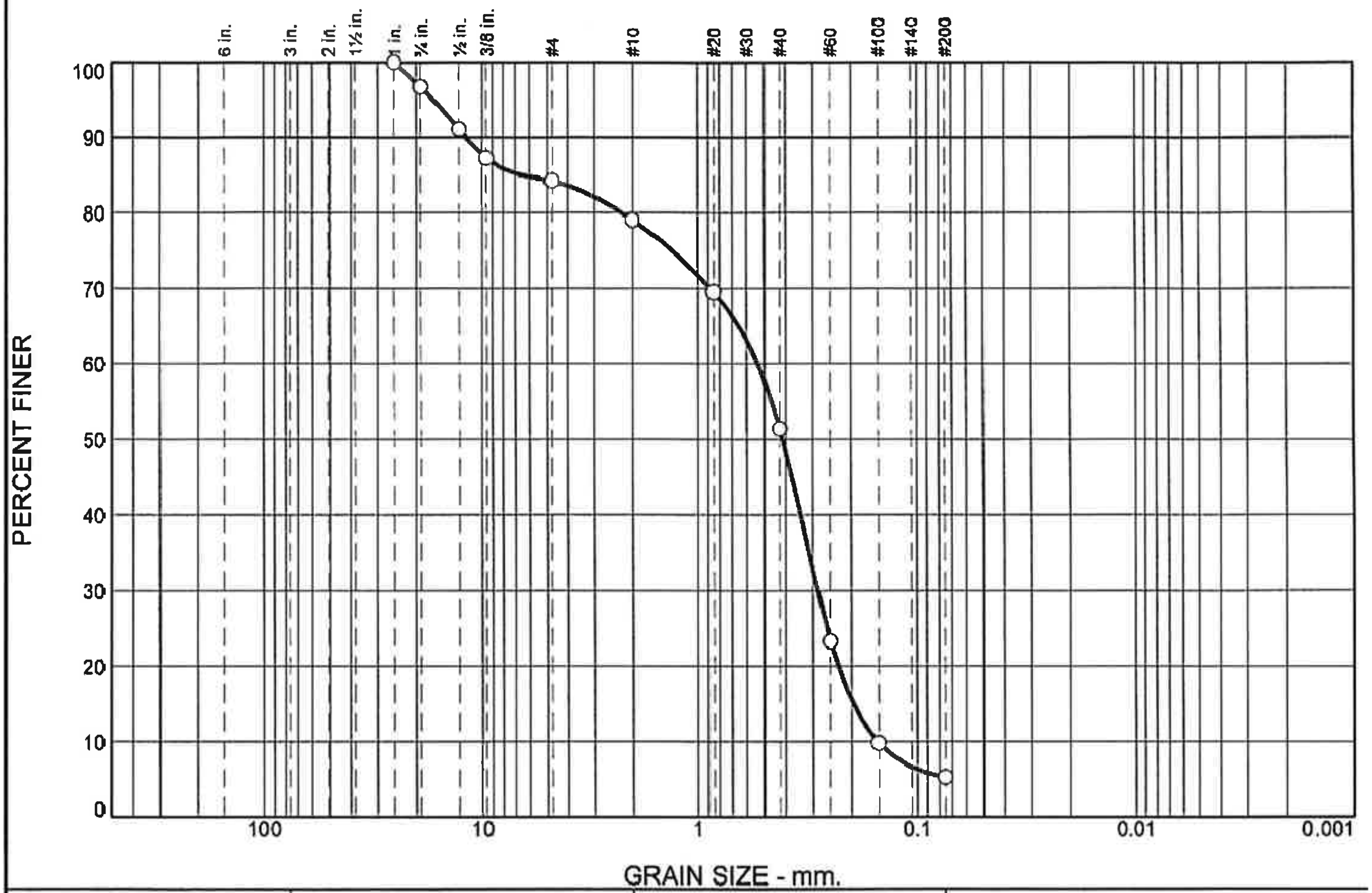
Elapsed Time to Reading (Hours)	Depth to Groundwater

GZA GeoEnvironmental, Inc.

APPENDIX D

LABORATORY TESTING

Particle Size Distribution Report



% +3"	% Gravel			% Sand			% Fines
	Coarse	Medium	Fine	Coarse	Medium	Fine	
0.0	0.0	12.8	8.2	15.8	39.9	18.0	5.3

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
3/4	96.7		
1/2	91.0		
3/8	87.2		
#4	84.3		
#10	79.0		
#20	69.5		
#40	51.4		
#60	23.3		
#100	9.8		
#200	5.3		

* (no specification provided)

Material Description

Brown, fine to coarse SAND, some Gravel, trace Silt.

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 6.5298 D_{60}= 0.5332 D_{50}= 0.4127
D_{30}= 0.2865 D_{15}= 0.1971 D_{10}= 0.1525
C_u= 3.50 C_c= 1.01

Classification

USCS= SP-SM AASHTO= A-3

Remarks

Sample Number: S-3
Source of Sample: B-1 **Depth:** 10-12 ft. **Date:**

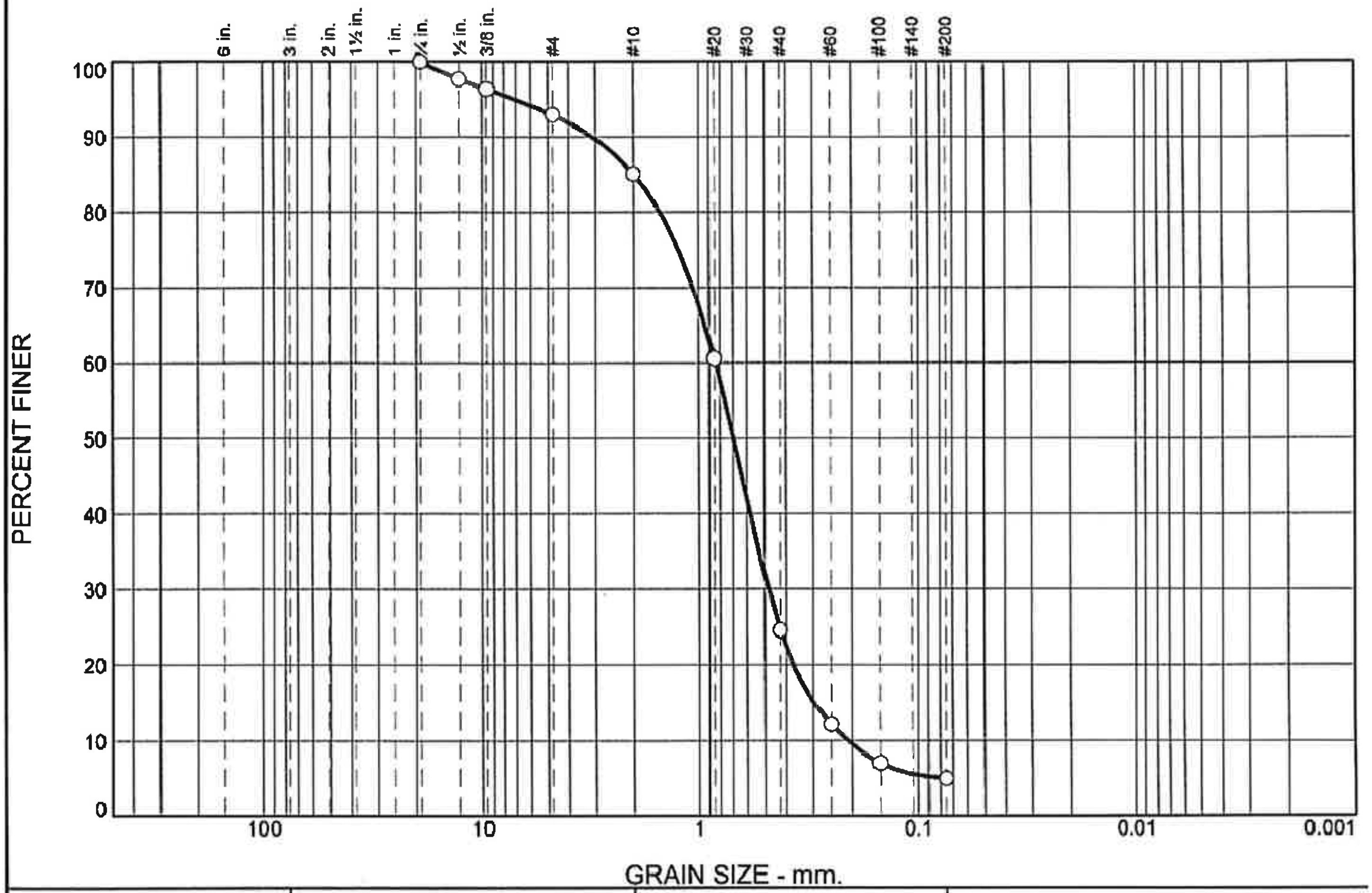
GZA GeoEnvironmental, Inc.

Manchester, NH

Client: W/S Development Associates, LLC
Project: River Place Hudson, NH

Project No: 24050.01 **Figure**

Particle Size Distribution Report



% +3"	% Gravel			% Sand			% Fines
	Coarse	Medium	Fine	Coarse	Medium	Fine	
0.0	0.0	3.7	11.3	43.3	29.5	7.2	5.0

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/4	100.0		
1/2	97.6		
3/8	96.3		
#4	92.9		
#10	85.0		
#20	60.5		
#40	24.6		
#60	12.2		
#100	7.0		
#200	5.0		

* (no specification provided)

Material Description

Brown, medium to coarse SAND, little Gravel, trace Silt.

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 1.9957 D_{60}= 0.8406 D_{50}= 0.6956
D_{30}= 0.4810 D_{15}= 0.2993 D_{10}= 0.2091
C_u= 4.02 C_c= 1.32

Classification

USCS= SP-SM AASHTO= A-1-b

Remarks

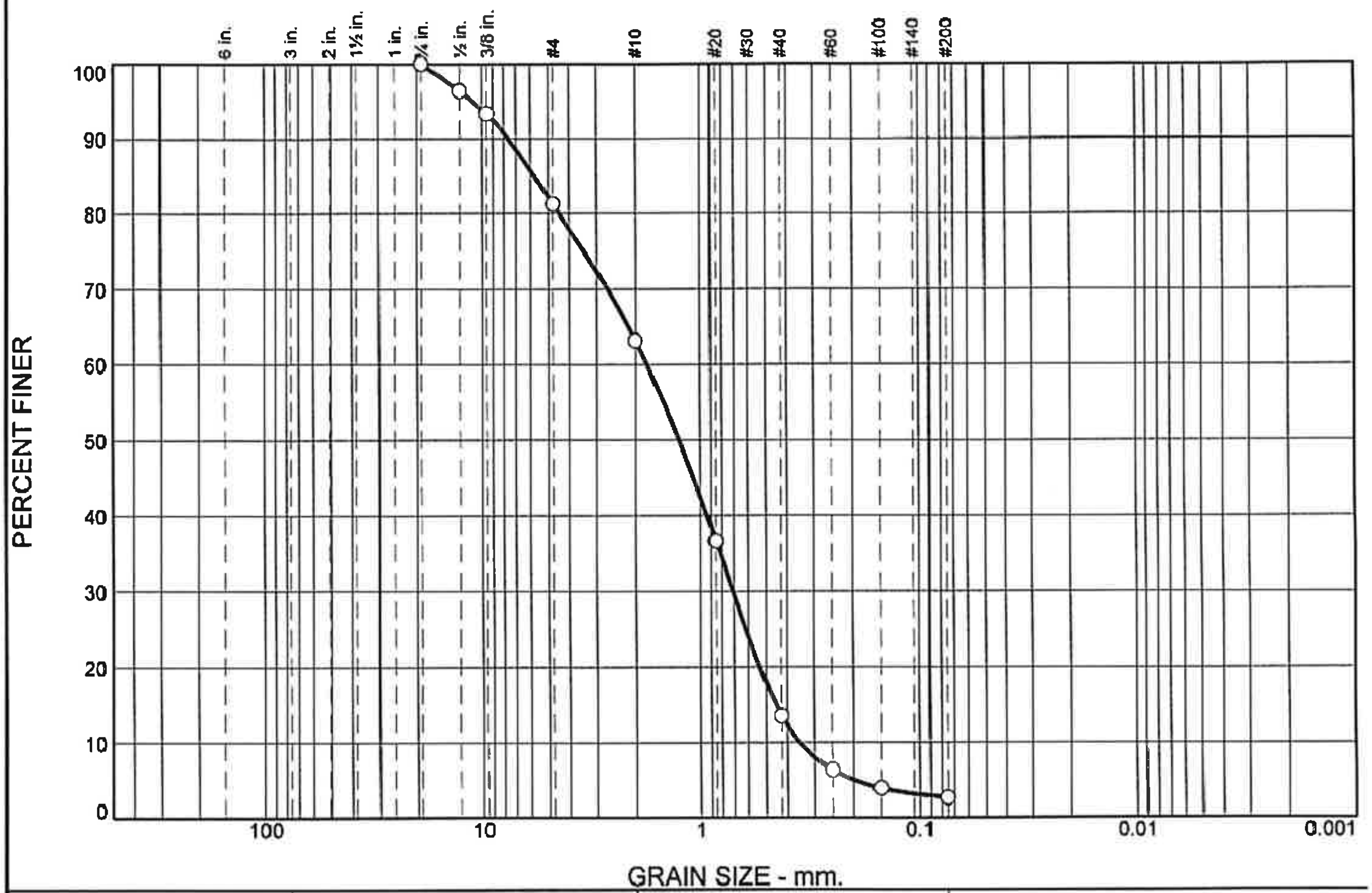
Sample Number: S-2
Source of Sample: B-2 **Depth:** 5-7 ft. **Date:**

GZA GeoEnvironmental, Inc.

Manchester, NH

Client: W/S Development Associates, LLC
Project: River Place Hudson, NH
Project No: 24050.01 **Figure**

Particle Size Distribution Report



% +3"	% Gravel			% Sand			% Fines
	Coarse	Medium	Fine	Coarse	Medium	Fine	
0.0	0.0	6.7	30.2	39.2	17.6	3.6	2.7

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/4	100.0		
1/2	96.3		
3/8	93.3		
#4	81.3		
#10	63.1		
#20	36.7		
#40	13.5		
#60	6.3		
#100	3.9		
#200	2.7		

* (no specification provided)

Material Description

Brown, medium to coarse SAND and Gravel, trace Silt.

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 5.7652 D_{60}= 1.7718 D_{50}= 1.2577

D_{30}= 0.7099 D_{15}= 0.4515 D_{10}= 0.3539

C_u= 5.01 C_c= 0.80

Classification

USCS= SP AASHTO= A-1-b

Remarks

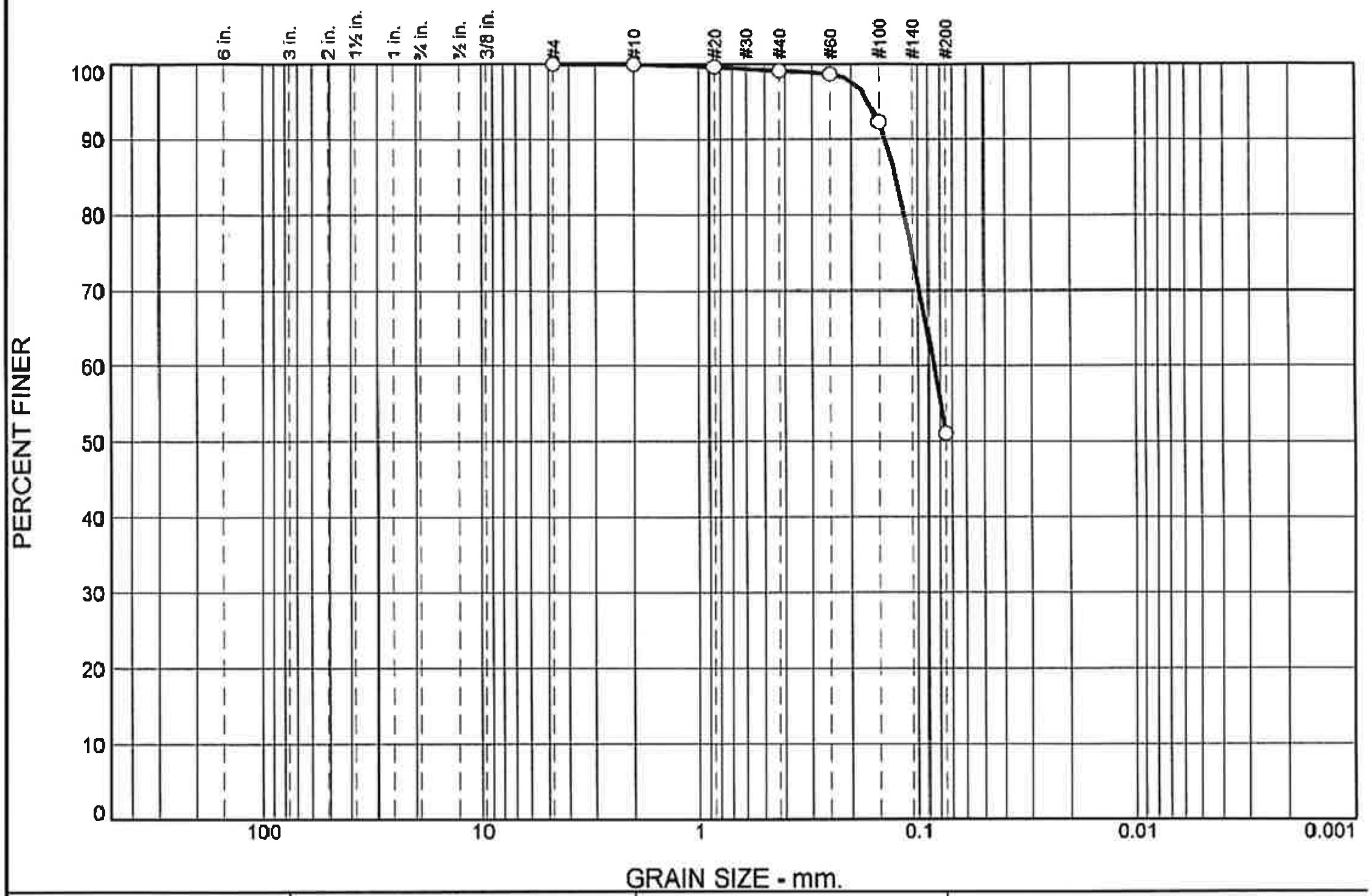
Sample Number: S-2
Source of Sample: B-3 **Depth:** 5-7 ft. **Date:**

GZA GeoEnvironmental, Inc.

Manchester, NH

Client: W/S Development Associates, LLC
Project: River Place Hudson, NH
Project No: 24050.01 **Figure**

Particle Size Distribution Report



% +3"	% Gravel			% Sand			% Fines
	Coarse	Medium	Fine	Coarse	Medium	Fine	
0.0	0.0	0.0	0.1	0.6	0.7	47.5	51.1

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	99.9		
#20	99.6		
#40	99.0		
#60	98.6		
#100	92.1		
#200	51.1		

* (no specification provided)

Material Description

Brown, SILT and fine Sand.

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 0.1265 D_{60}= 0.0849 D_{50}=
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= ML AASHTO= A-4(0)

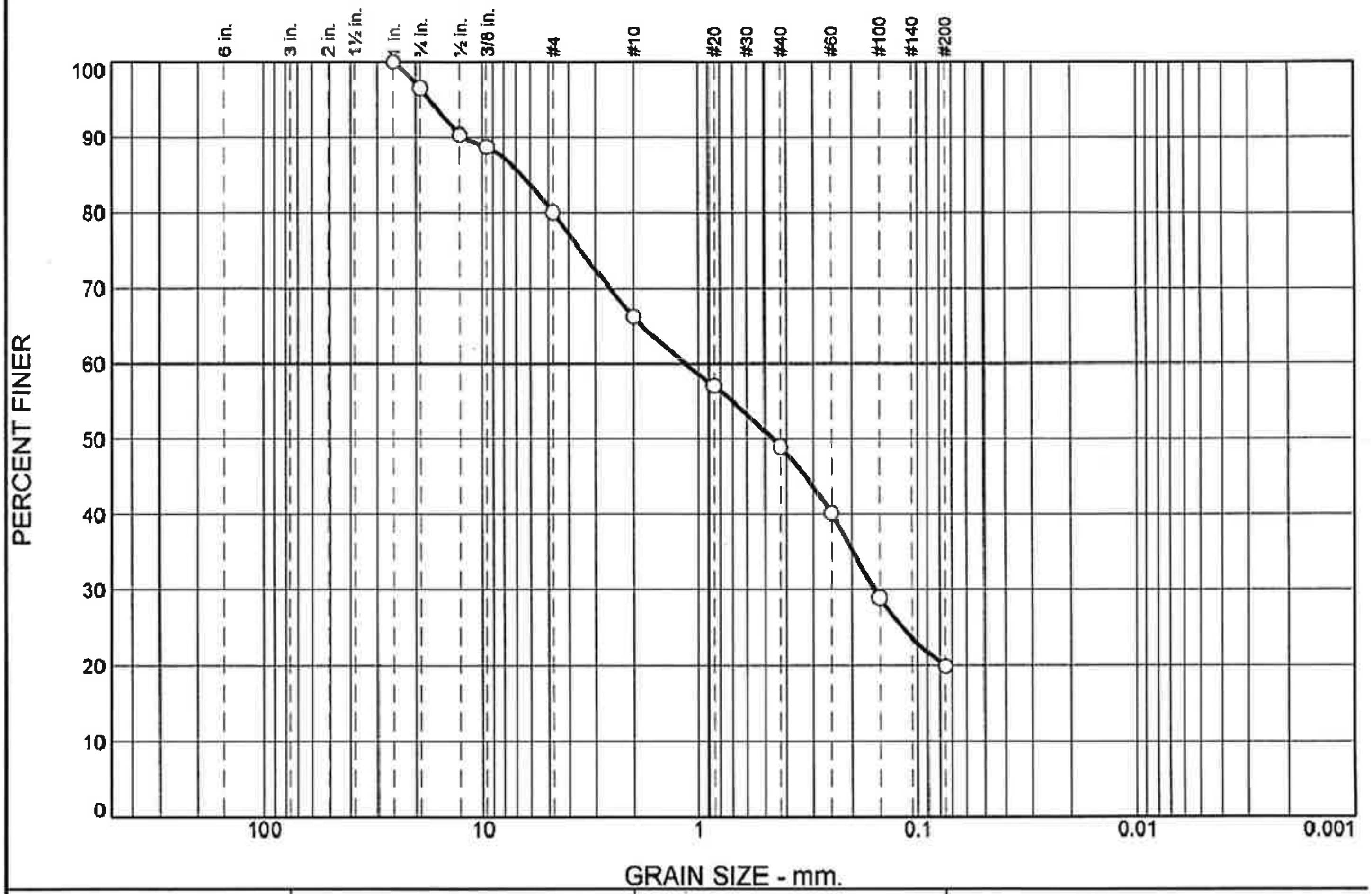
Remarks

Sample Number: S-2A
Source of Sample: B-4 **Depth:** 5-6.8 ft. **Date:**

GZA GeoEnvironmental, Inc.
Manchester, NH

Client: W/S Development Associates, LLC
Project: River Place Hudson, NH
Project No: 24050.01 **Figure**

Particle Size Distribution Report



% +3"	% Gravel			% Sand			% Fines
	Coarse	Medium	Fine	Coarse	Medium	Fine	
0.0	0.0	11.3	22.6	12.9	13.1	20.3	19.8

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
3/4	96.5		
1/2	90.3		
3/8	88.7		
#4	80.0		
#10	66.1		
#20	57.0		
#40	48.9		
#60	40.1		
#100	28.9		
#200	19.8		

* (no specification provided)

Material Description

Brown, fine to medium Sand, some Gravel, little Silt.

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 6.5879 D_{60}= 1.1538 D_{50}= 0.4621
D_{30}= 0.1587 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= SM AASHTO= A-1-b

Remarks

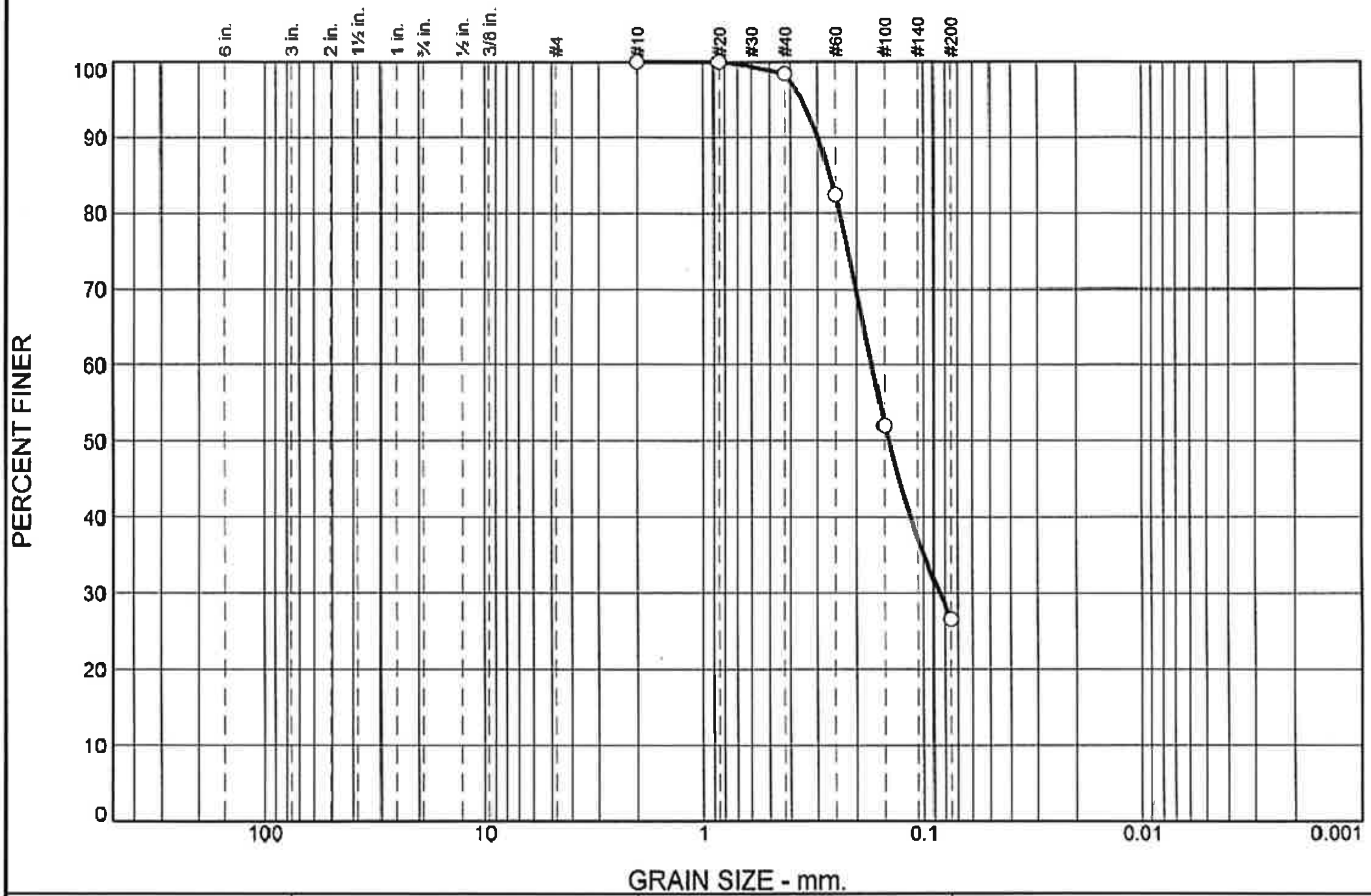
Sample Number: S-3A
Source of Sample: B-5 **Depth:** 10-12 ft. **Date:**

GZA GeoEnvironmental, Inc.

Manchester, NH

Client: W/S Development Associates, LLC
Project: River Place Hudson, NH
Project No: 24050.01 **Figure**

Particle Size Distribution Report



% +3"	% Gravel			% Sand			% Fines
	Coarse	Medium	Fine	Coarse	Medium	Fine	
0.0	0.0	0.0	0.0	0.7	16.9	55.8	26.6

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#20	100.0		
#40	98.3		
#60	82.4		
#100	52.0		
#200	26.6		

* (no specification provided)

Material Description

Brown, fine to medium SAND, some Silt.

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 0.2641 D_{60}= 0.1721 D_{50}= 0.1445
D_{30}= 0.0846 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= SM AASHTO= A-2-4(0)

Remarks

Sample Number: S-2
Source of Sample: B-8 **Depth:** 5-7 ft. **Date:**

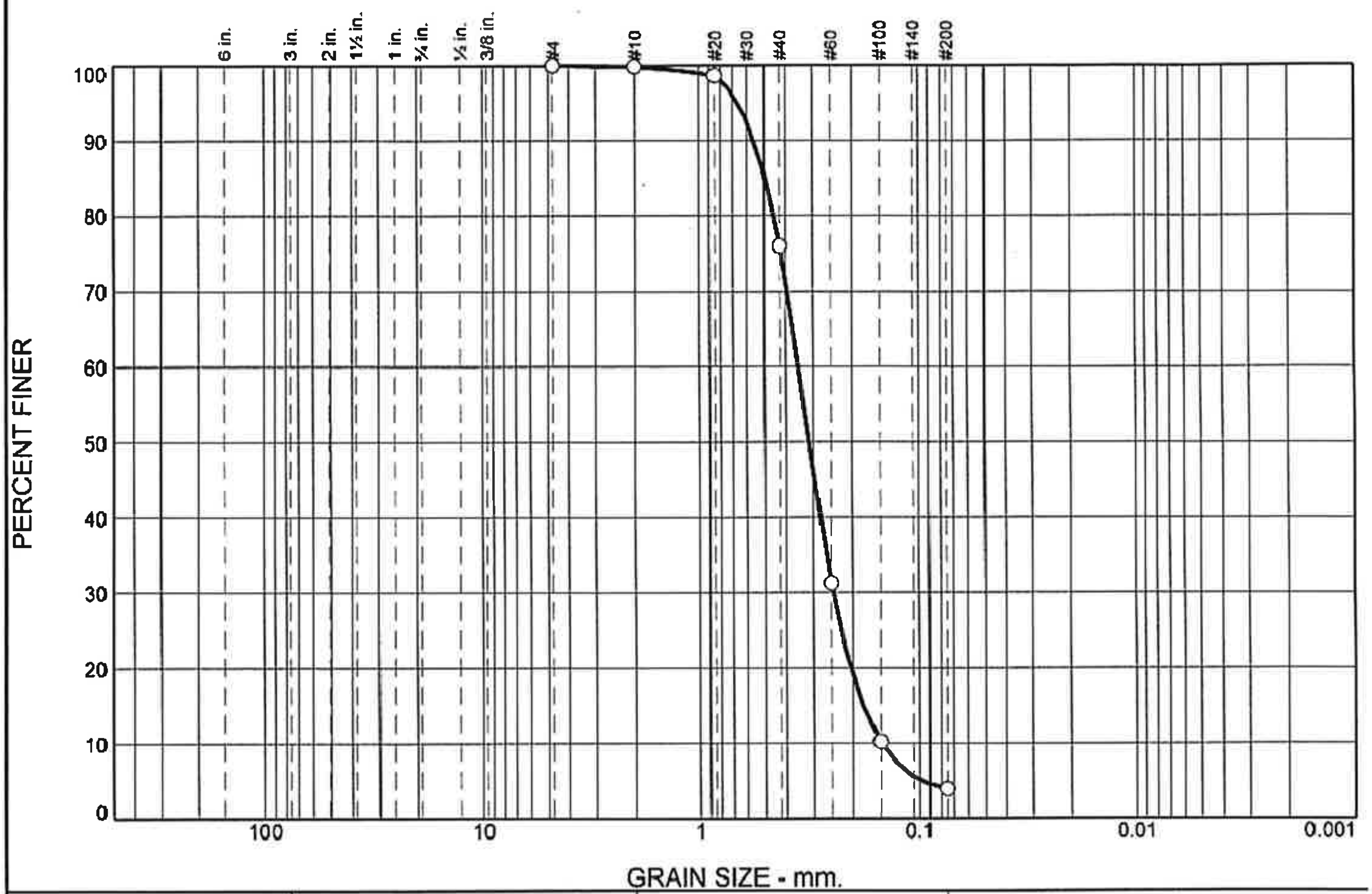
GZA GeoEnvironmental, Inc.

Manchester, NH

Client: W/S Development Associates, LLC
Project: River Place Hudson, NH

Project No: 24050.01 **Figure**

Particle Size Distribution Report



% +3"	% Gravel			% Sand			% Fines
	Coarse	Medium	Fine	Coarse	Medium	Fine	
0.0	0.0	0.0	0.2	7.2	61.4	27.3	3.9

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	99.8		
#20	98.6		
#40	75.9		
#60	31.2		
#100	10.1		
#200	3.9		

* (no specification provided)

Material Description

Brown, fine to medium SAND, trace Silt.

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 0.4944 D_{60}= 0.3500 D_{50}= 0.3134
D_{30}= 0.2456 D_{15}= 0.1809 D_{10}= 0.1489
C_u= 2.35 C_c= 1.16

Classification

USCS= SP AASHTO= A-3

Remarks

Sample Number: S-2
Source of Sample: B-9 **Depth:** 5-7 ft. **Date:**

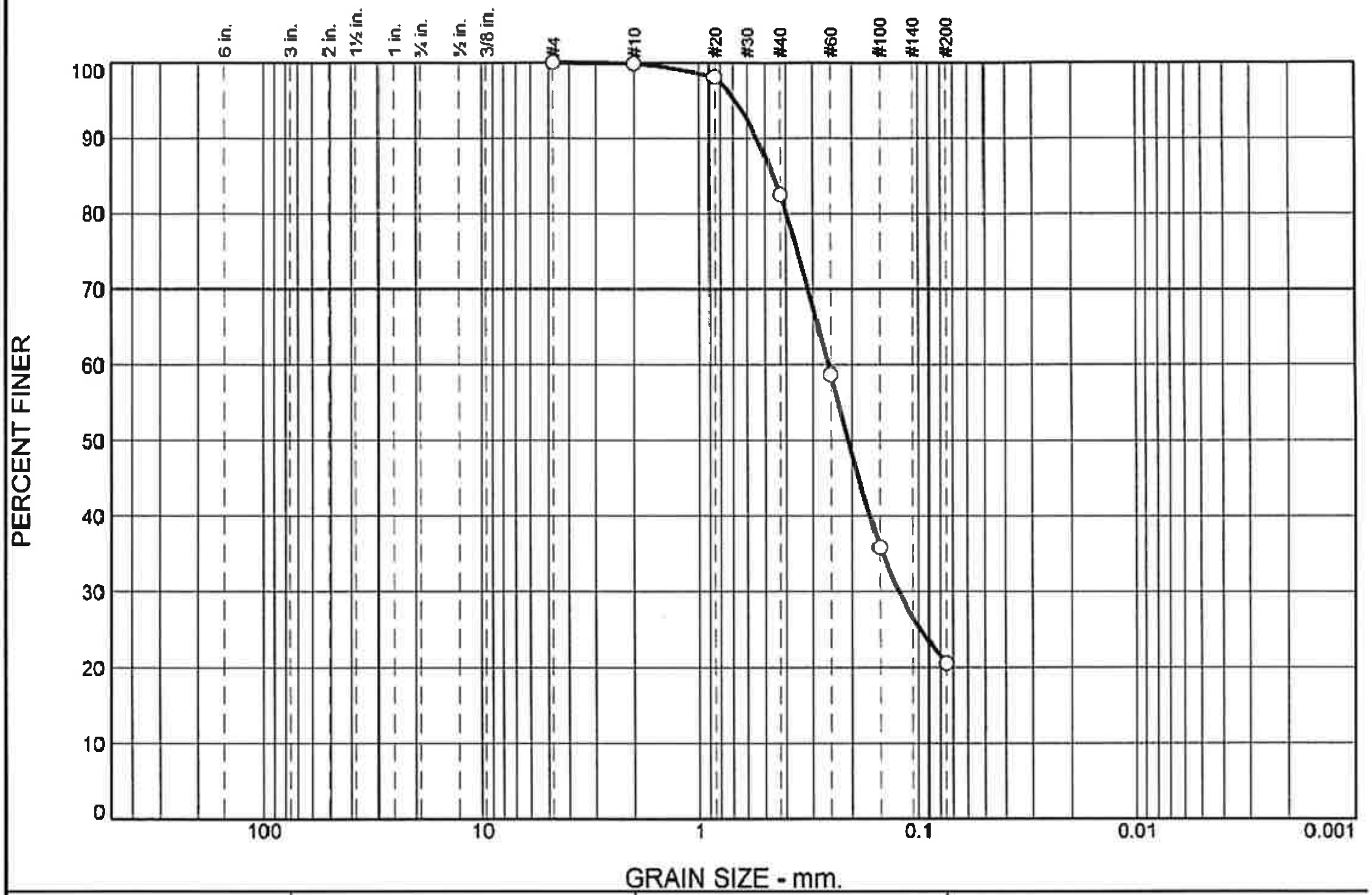
GZA GeoEnvironmental, Inc.

Manchester, NH

Client: W/S Development Associates, LLC
Project: River Place Hudson, NH

Project No: 24050.01 **Figure**

Particle Size Distribution Report



% +3"	% Gravel			% Sand			% Fines
	Coarse	Medium	Fine	Coarse	Medium	Fine	
0.0	0.0	0.0	0.1	7.5	33.7	38.2	20.5

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	99.9		
#20	98.0		
#40	82.4		
#60	58.7		
#100	35.8		
#200	20.5		

* (no specification provided)

Material Description

Brown, fine to medium SAND, some Silt.

Atterberg Limits

PL=
LL=
PI=

Coefficients

D_{85}= 0.4579
D_{60}= 0.2567
D_{50}= 0.2092
D_{30}= 0.1237
D_{15}=
D_{10}=
C_u=
C_c=

Classification

USCS= SM
AASHTO= A-2-4(0)

Remarks

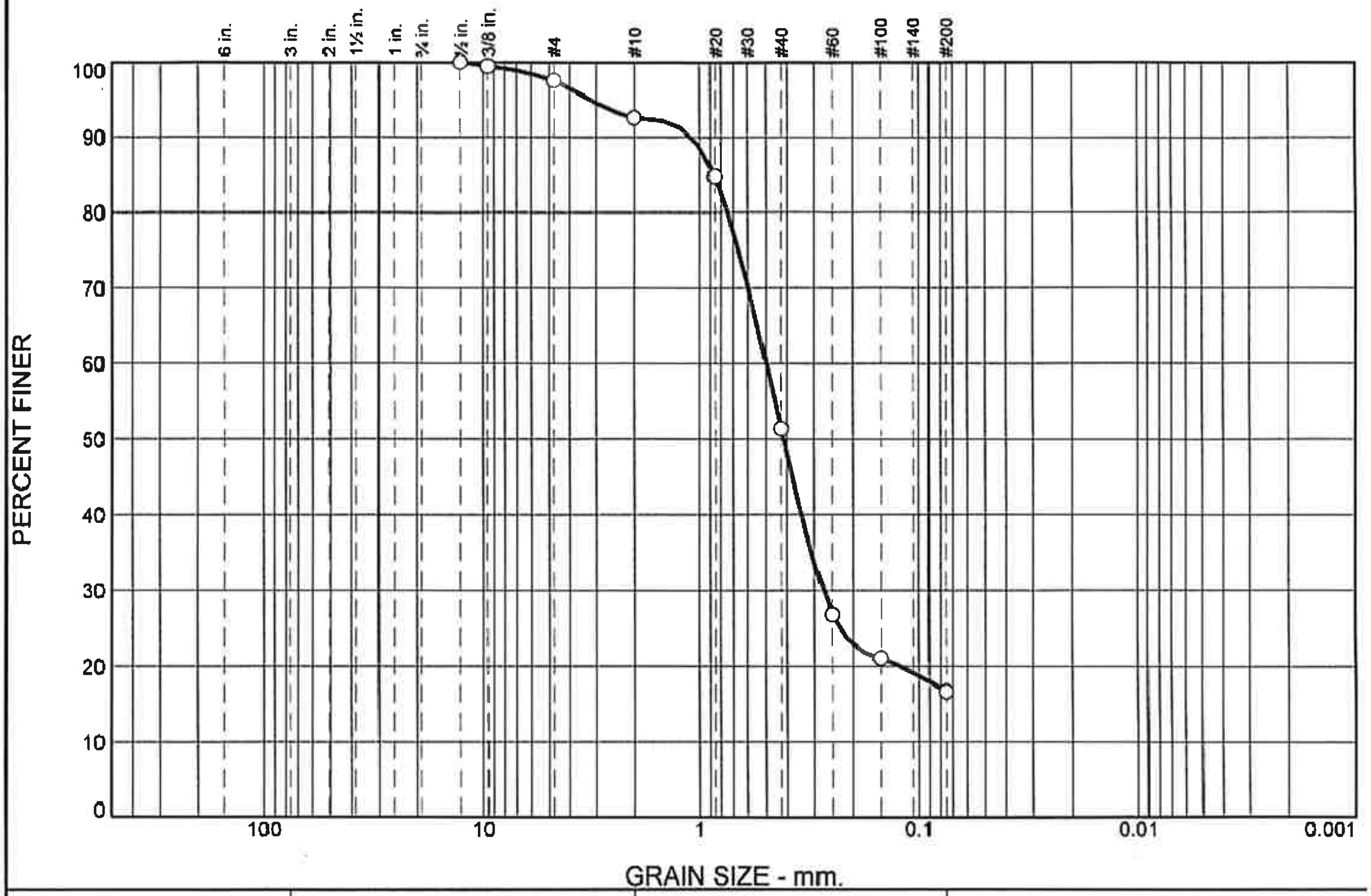
Sample Number: S-2
Source of Sample: B-11 **Depth:** 4-6 ft. **Date:**

GZA GeoEnvironmental, Inc.

Manchester, NH

Client: W/S Development Associates, LLC
Project: River Place Hudson, NH
Project No: 24050.01 **Figure**

Particle Size Distribution Report



% +3"	% Gravel			% Sand			% Fines
	Coarse	Medium	Fine	Coarse	Medium	Fine	
0.0	0.0	0.5	7.0	22.3	43.4	10.2	16.6

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1/2	100.0		
3/8	99.5		
#4	97.5		
#10	92.5		
#20	84.7		
#40	51.3		
#60	26.8		
#100	21.1		
#200	16.6		

* (no specification provided)

Material Description

Brown, fine to coarse SAND, little Silt, trace Gravel.

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 0.8574 D_{60}= 0.4958 D_{50}= 0.4150
D_{30}= 0.2756 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= SM AASHTO= A-2-4(0)

Remarks

Sample Number: S-2
Source of Sample: B-15 **Depth:** 5-7 ft. **Date:**

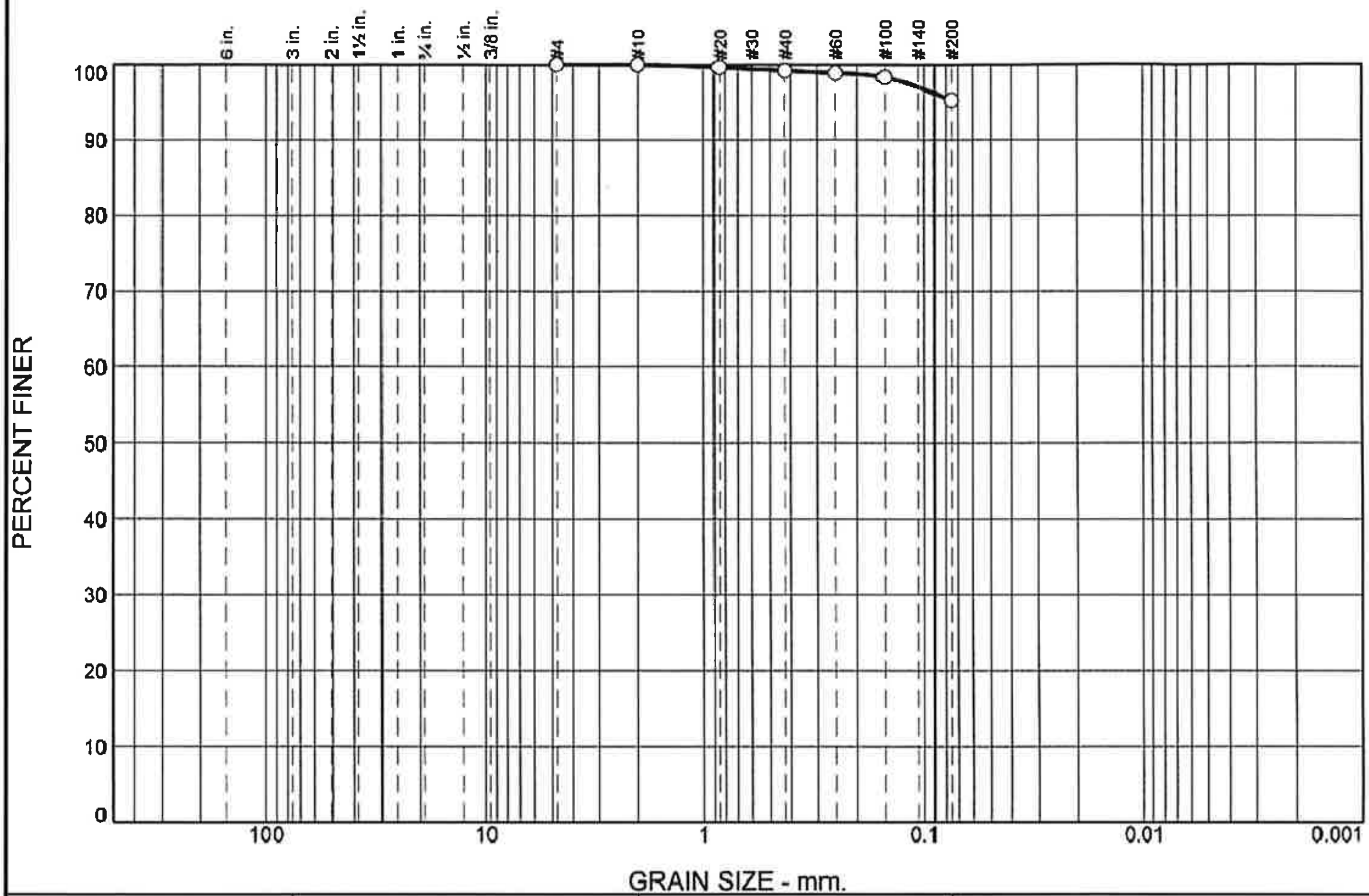
GZA GeoEnvironmental, Inc.

Manchester, NH

Client: W/S Development Associates, LLC
Project: River Place Hudson, NH

Project No: 24050.01 **Figure**

Particle Size Distribution Report



% +3"	% Gravel			% Sand			% Fines
	Coarse	Medium	Fine	Coarse	Medium	Fine	
0.0	0.0	0.0	0.0	0.6	0.6	3.6	95.2

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	100.0		
#20	99.6		
#40	99.2		
#60	98.8		
#100	98.3		
#200	95.2		

* (no specification provided)

Material Description

Brown, SILT, trace fine Sand.

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= D_{60}= D_{50}=
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= ML AASHTO= A-4(0)

Remarks

Sample Number: S-1B
Source of Sample: B-16 **Depth:** 0-2 ft. **Date:**

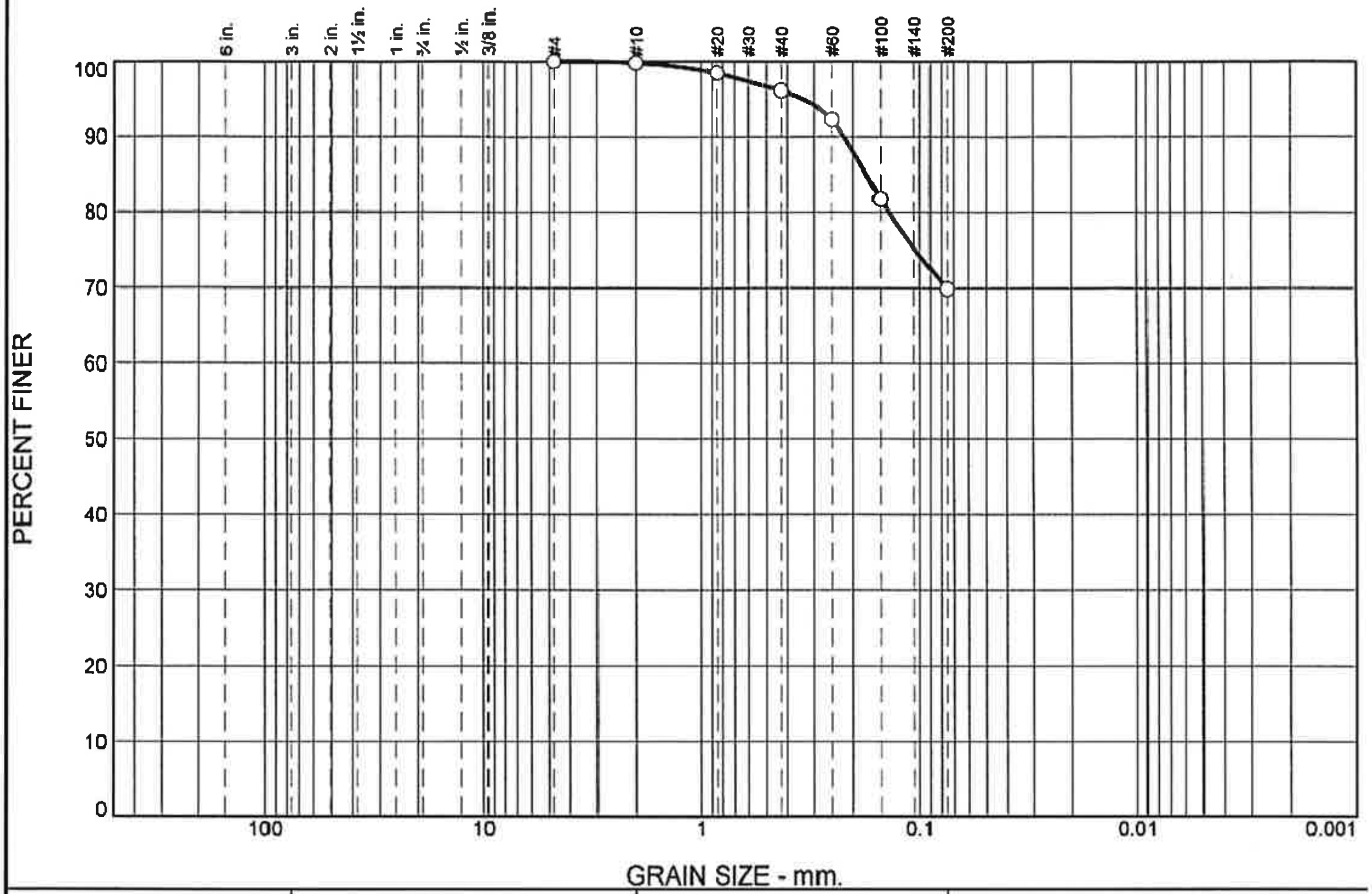
GZA GeoEnvironmental, Inc.

Manchester, NH

Client: W/S Development Associates, LLC
Project: River Place Hudson, NH

Project No: 24050.01 **Figure**

Particle Size Distribution Report



% +3"	% Gravel			% Sand			% Fines
	Coarse	Medium	Fine	Coarse	Medium	Fine	
0.0	0.0	0.0	0.2	2.5	5.1	22.4	69.8

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	99.8		
#20	98.4		
#40	96.0		
#60	92.2		
#100	81.6		
#200	69.8		

* (no specification provided)

Material Description

Brown, SILT, some fine Sand.

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 0.1747 D_{60}= D_{50}=
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= ML AASHTO= A-4(0)

Remarks

Sample Number: S-2B
Source of Sample: B-17 **Depth:** 4-6 ft. **Date:**

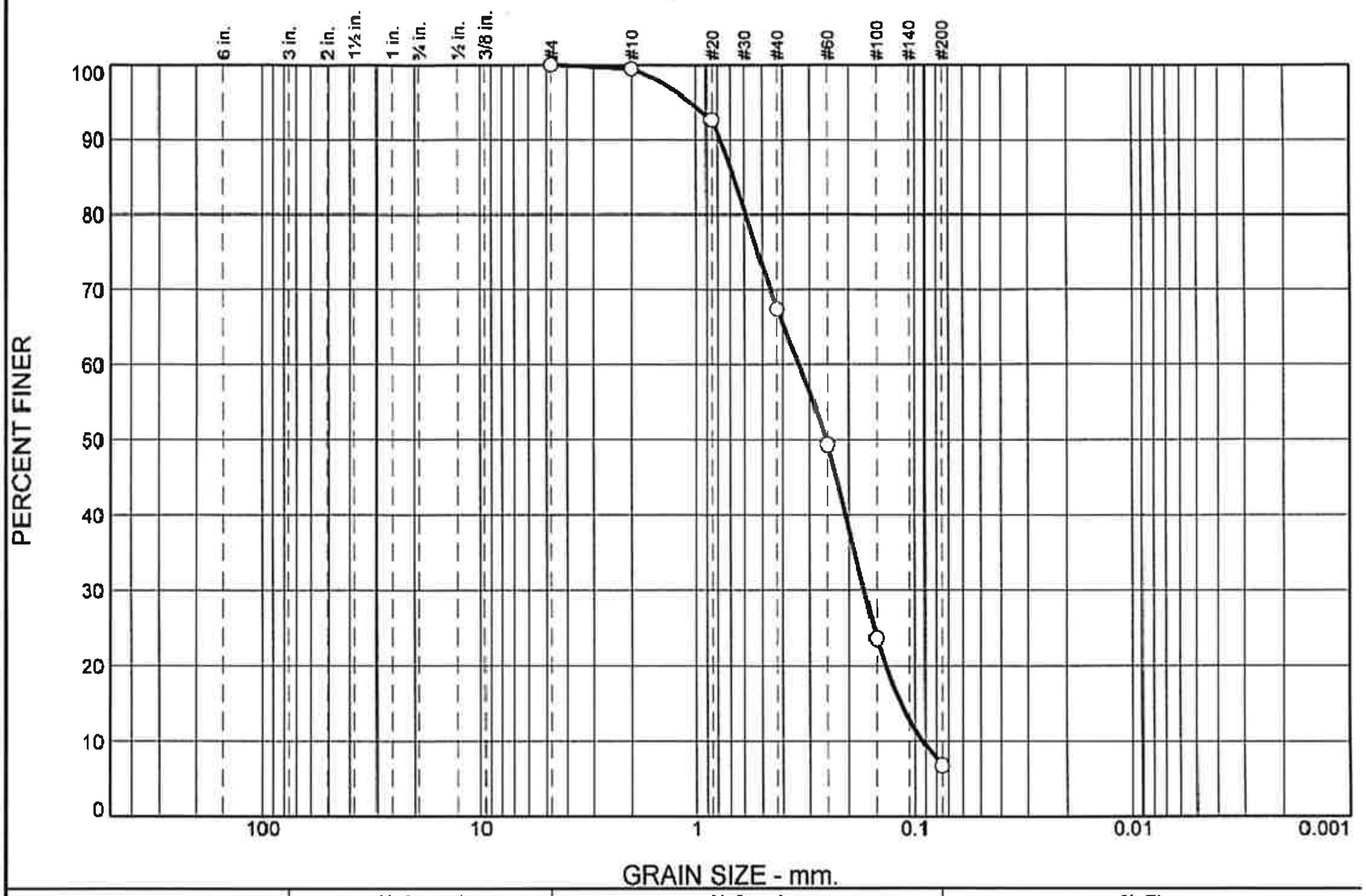
GZA GeoEnvironmental, Inc.

Manchester, NH

Client: W/S Development Associates, LLC
Project: River Place Hudson, NH

Project No: 24050.01 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.5	32.1	60.6	6.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	99.5		
#20	92.6		
#40	67.4		
#60	49.3		
#100	23.6		
#200	6.8		

* (no specification provided)

Material Description

Brown, fine to medium SAND, trace Silt.

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 0.6726 D_{60}= 0.3367 D_{50}= 0.2538
D_{30}= 0.1717 D_{15}= 0.1167 D_{10}= 0.0922
C_u= 3.65 C_c= 0.95

Classification

USCS= AASHTO=

Remarks

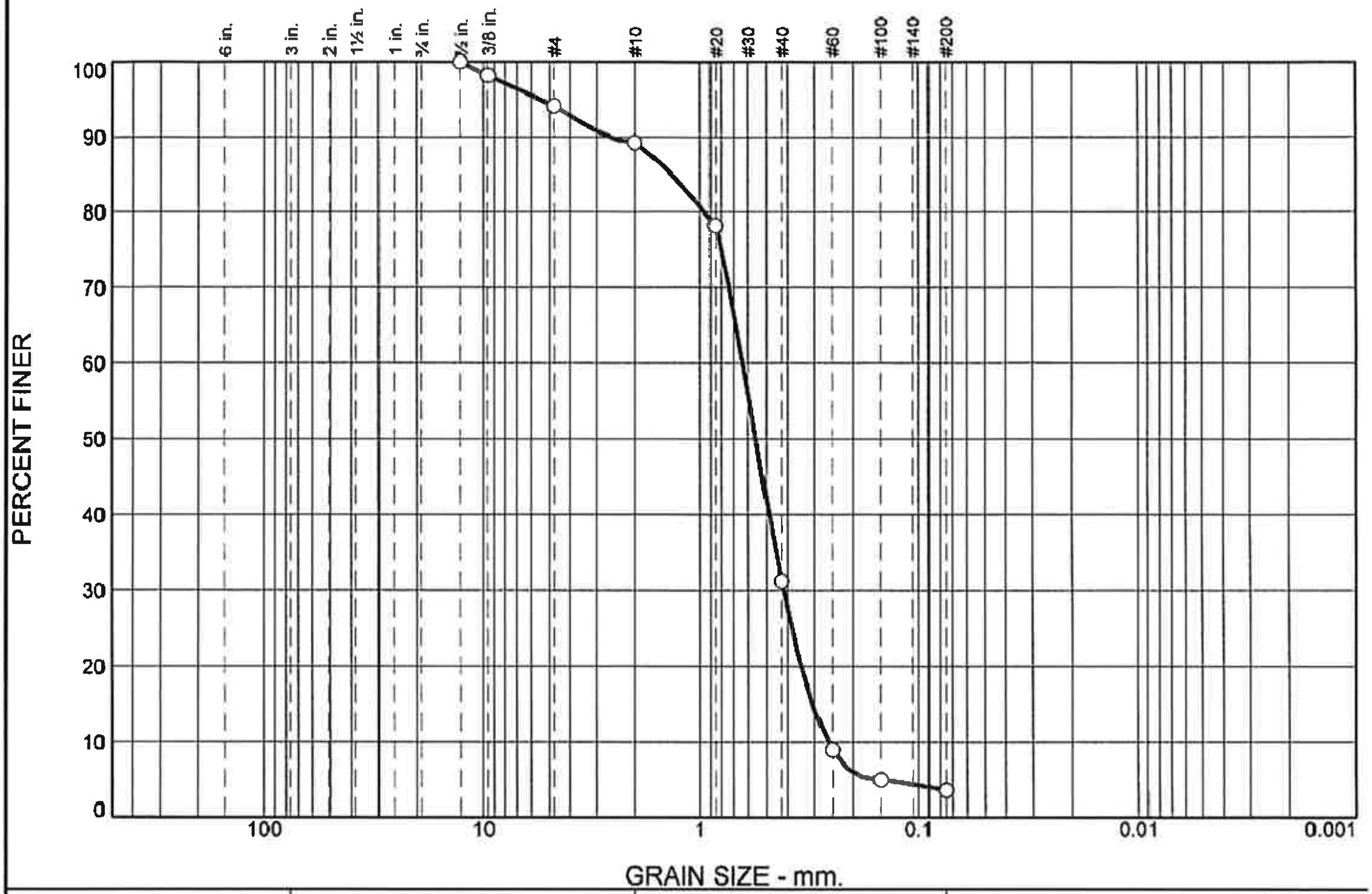
Sample Number: S-3
Source of Sample: B-18 **Depth:** 10-12 ft **Date:**

GZA GeoEnvironmental, Inc.

Manchester, NH

Client: W/S Development Associates, LLC
Project: River Place Hudson, NH
Project No: 24050.01 **Figure**

Particle Size Distribution Report



% +3"	% Gravel			% Sand			% Fines
	Coarse	Medium	Fine	Coarse	Medium	Fine	
0.0	0.0	1.9	8.9	33.2	47.1	5.3	3.6

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1/2	100.0		
3/8	98.1		
#4	94.1		
#10	89.2		
#20	78.2		
#40	31.2		
#60	8.9		
#100	5.0		
#200	3.6		

* (no specification provided)

Material Description

Brown, medium to coarse SAND, little Gravel, trace Silt.

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 1.3608 D_{60}= 0.6336 D_{50}= 0.5535
D_{30}= 0.4167 D_{15}= 0.3082 D_{10}= 0.2623
C_u= 2.42 C_c= 1.05

Classification

USCS= SP AASHTO= A-1-b

Remarks

Sample Number: S-3
Source of Sample: TP-1 **Depth:** 3.5 ft. **Date:**

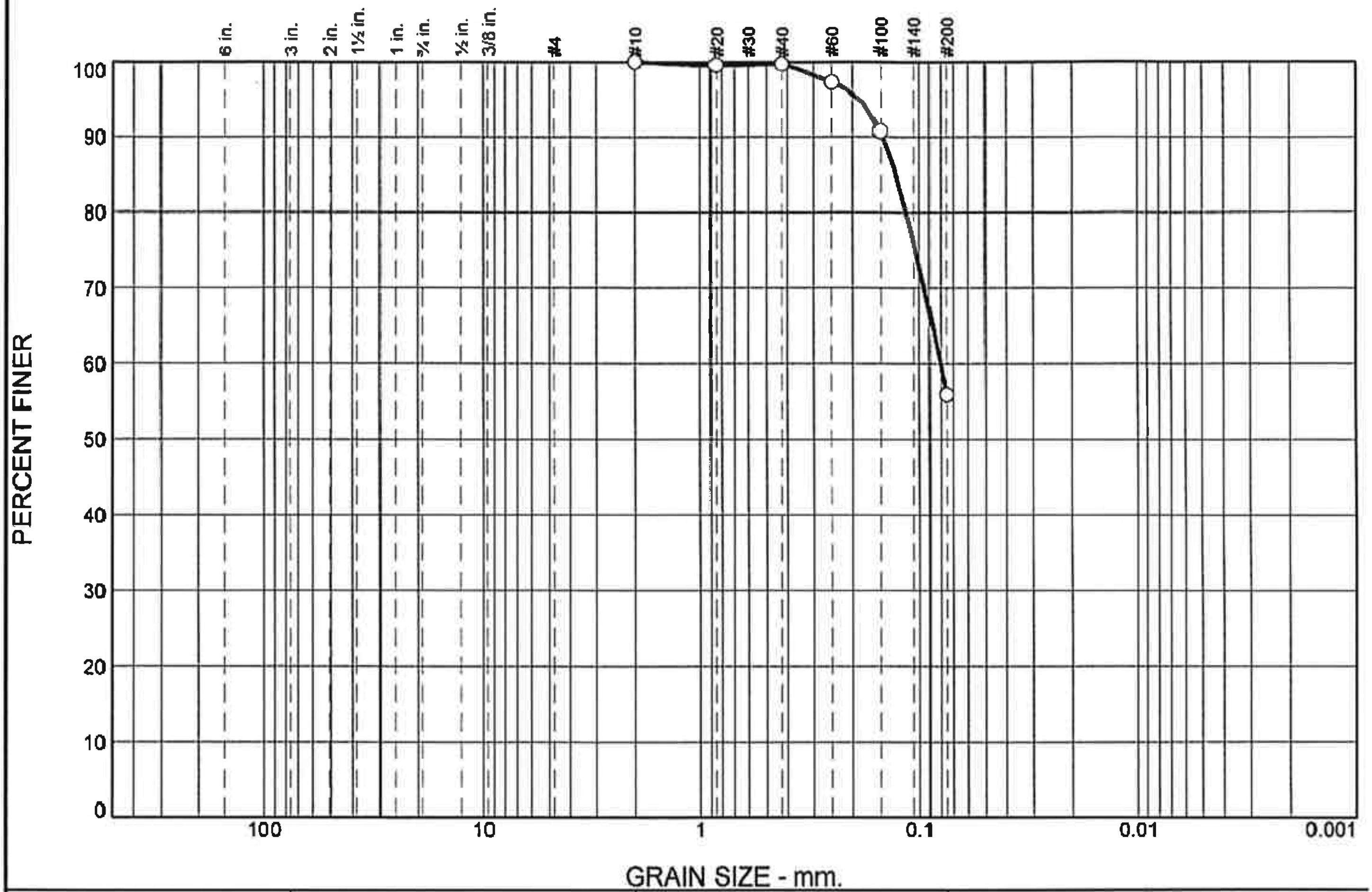
GZA GeoEnvironmental, Inc.

Manchester, NH

Client: W/S Development Associates, LLC
Project: River Place Hudson, NH

Project No: 24050.01 **Figure**

Particle Size Distribution Report



% +3"	% Gravel			% Sand			% Fines
	Coarse	Medium	Fine	Coarse	Medium	Fine	
0.0	0.0	0.0	0.0	0.4	2.4	41.3	55.9

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#20	99.6		
#40	99.7		
#60	97.2		
#100	90.7		
#200	55.9		

* (no specification provided)

Material Description

SILT and fine Sand.

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 0.1277 D_{60}= 0.0802 D_{50}=
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= ML AASHTO= A-4(0)

Remarks

Sample Number: S-2
Source of Sample: TP-2 **Depth:** 1.5 ft. **Date:**

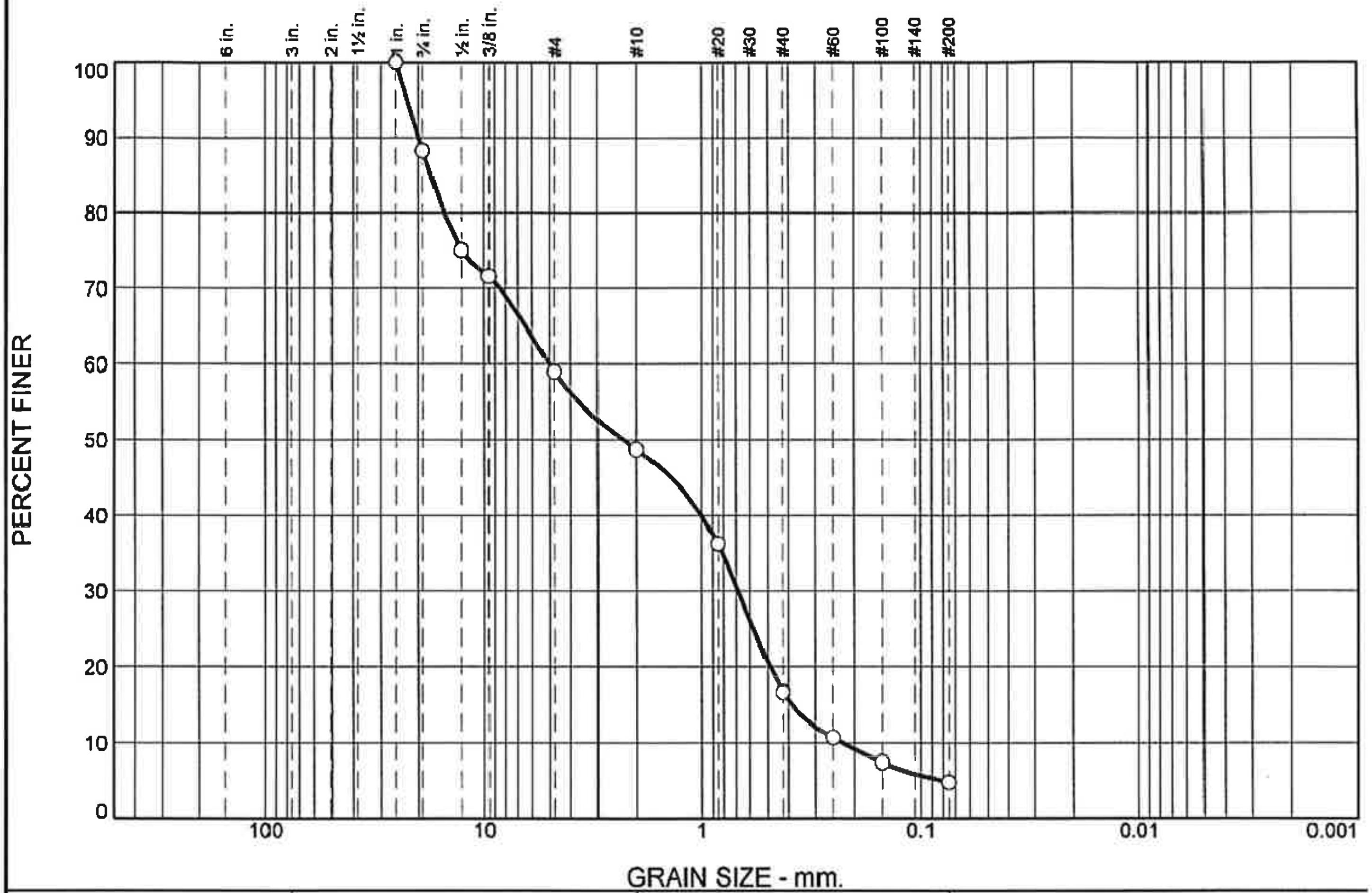
GZA GeoEnvironmental, Inc.

Manchester, NH

Client: W/S Development Associates, LLC
Project: River Place Hudson, NH

Project No: 24050.01 **Figure**

Particle Size Distribution Report



% +3"	% Gravel			% Sand			% Fines
	Coarse	Medium	Fine	Coarse	Medium	Fine	
0.0	0.0	28.4	22.9	22.8	15.2	6.0	4.7

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
3/4	88.2		
1/2	75.0		
3/8	71.6		
#4	59.0		
#10	48.7		
#20	36.2		
#40	16.6		
#60	10.7		
#100	7.4		
#200	4.7		

* (no specification provided)

Material Description

Brown, GRAVEL and medium to coarse Sand, trace Silt.

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 17.5571 D_{60}= 5.0270 D_{50}= 2.3135
D_{30}= 0.6841 D_{15}= 0.3886 D_{10}= 0.2269
C_u= 22.16 C_c= 0.41

Classification

USCS= SP AASHTO= A-1-a

Remarks

Sample Number: S-1
Source of Sample: TP-4 **Depth:** 0.5-6.5 ft. **Date:**

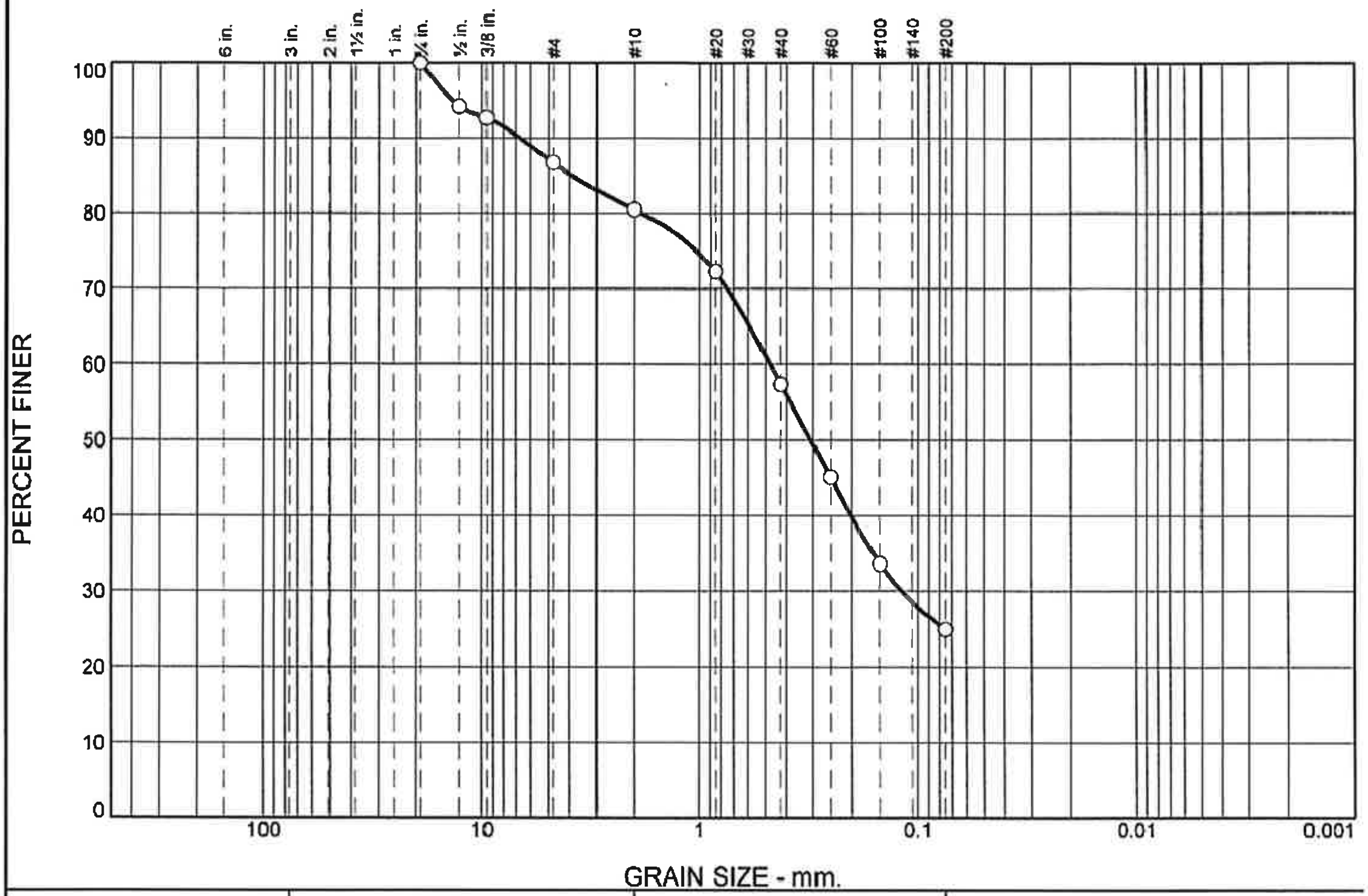
GZA GeoEnvironmental, Inc.

Manchester, NH

Client: W/S Development Associates, LLC
Project: River Place Hudson, NH

Project No: 24050.01 **Figure**

Particle Size Distribution Report



% +3"	% Gravel			% Sand			% Fines
	Coarse	Medium	Fine	Coarse	Medium	Fine	
0.0	0.0	7.4	12.2	15.0	20.4	20.1	24.9

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/4	100.0		
1/2	94.1		
3/8	92.6		
#4	86.7		
#10	80.4		
#20	72.2		
#40	57.3		
#60	45.0		
#100	33.6		
#200	24.9		

* (no specification provided)

Material Description

Brown, fine to coarse SAND, some Silt, little Gravel.

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 3.9077 D_{60}= 0.4758 D_{50}= 0.3098
D_{30}= 0.1192 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= SM AASHTO= A-2-4(0)

Remarks

Sample Number: S-1
Source of Sample: TP-5A **Depth:** 0-2.5 ft. **Date:**

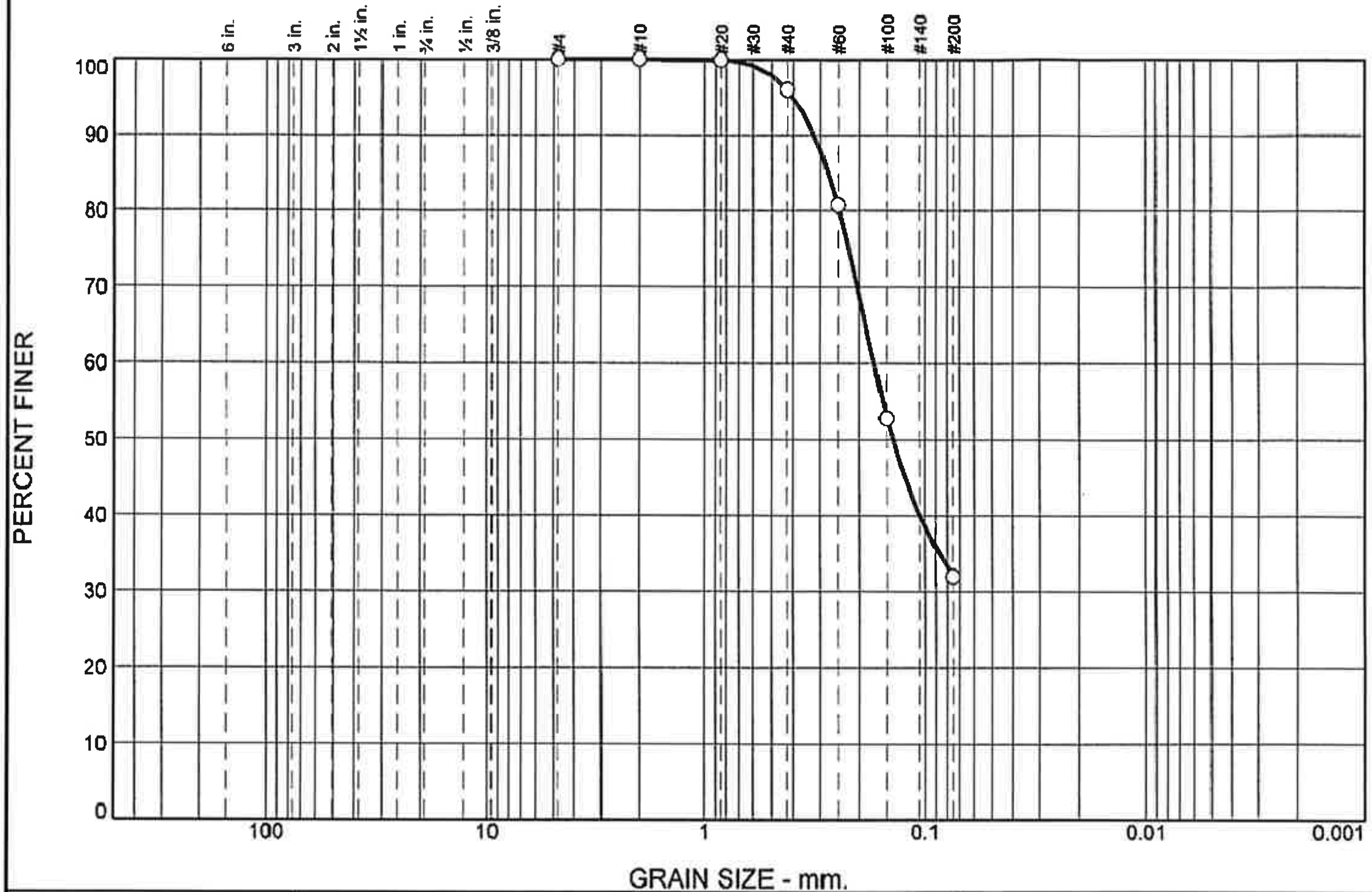
GZA GeoEnvironmental, Inc.

Manchester, NH

Client: W/S Development Associates, LLC
Project: River Place Hudson, NH

Project No: 24050.01 **Figure**

Particle Size Distribution Report



% +3"	% Gravel			% Sand			% Fines
	Coarse	Medium	Fine	Coarse	Medium	Fine	
0.0	0.0	0.0	0.0	0.8	18.5	48.7	32.0

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	100.0		
#20	99.9		
#40	96.0		
#60	80.7		
#100	52.8		
#200	32.0		

* (no specification provided)

Material Description

Brown, fine to medium SAND, some Silt.

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 0.2762 D_{60}= 0.1719 D_{50}= 0.1410
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= SM AASHTO= A-2-4(0)

Remarks

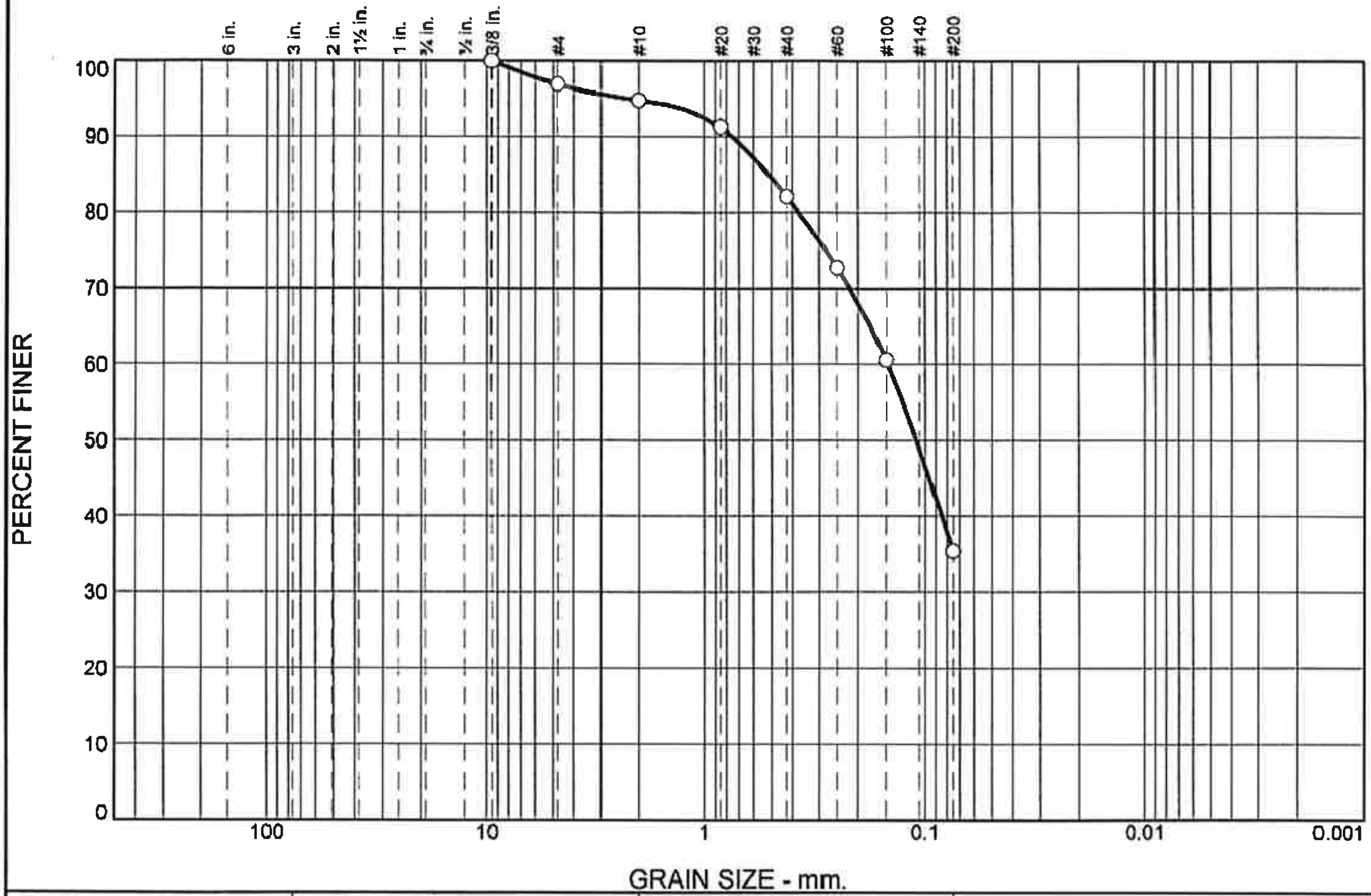
Sample Number: S-2
Source of Sample: TP-6 **Depth:** 2-3 ft. **Date:**

GZA GeoEnvironmental, Inc.

Manchester, NH

Client: W/S Development Associates, LLC
Project: River Place Hudson, NH
Project No: 24050.01 **Figure**

Particle Size Distribution Report



% +3"	% Gravel			% Sand			% Fines
	Coarse	Medium	Fine	Coarse	Medium	Fine	
0.0	0.0	0.0	5.3	7.5	14.5	37.3	35.4

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/8	100.0		
#4	96.9		
#10	94.7		
#20	91.2		
#40	82.0		
#60	72.7		
#100	60.5		
#200	35.4		

* (no specification provided)

Material Description

Brown, fine to medium SAND and Silt, trace Gravel.

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 0.5149 D_{60}= 0.1474 D_{50}= 0.1095
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= SM AASHTO= A-2-4(0)

Remarks

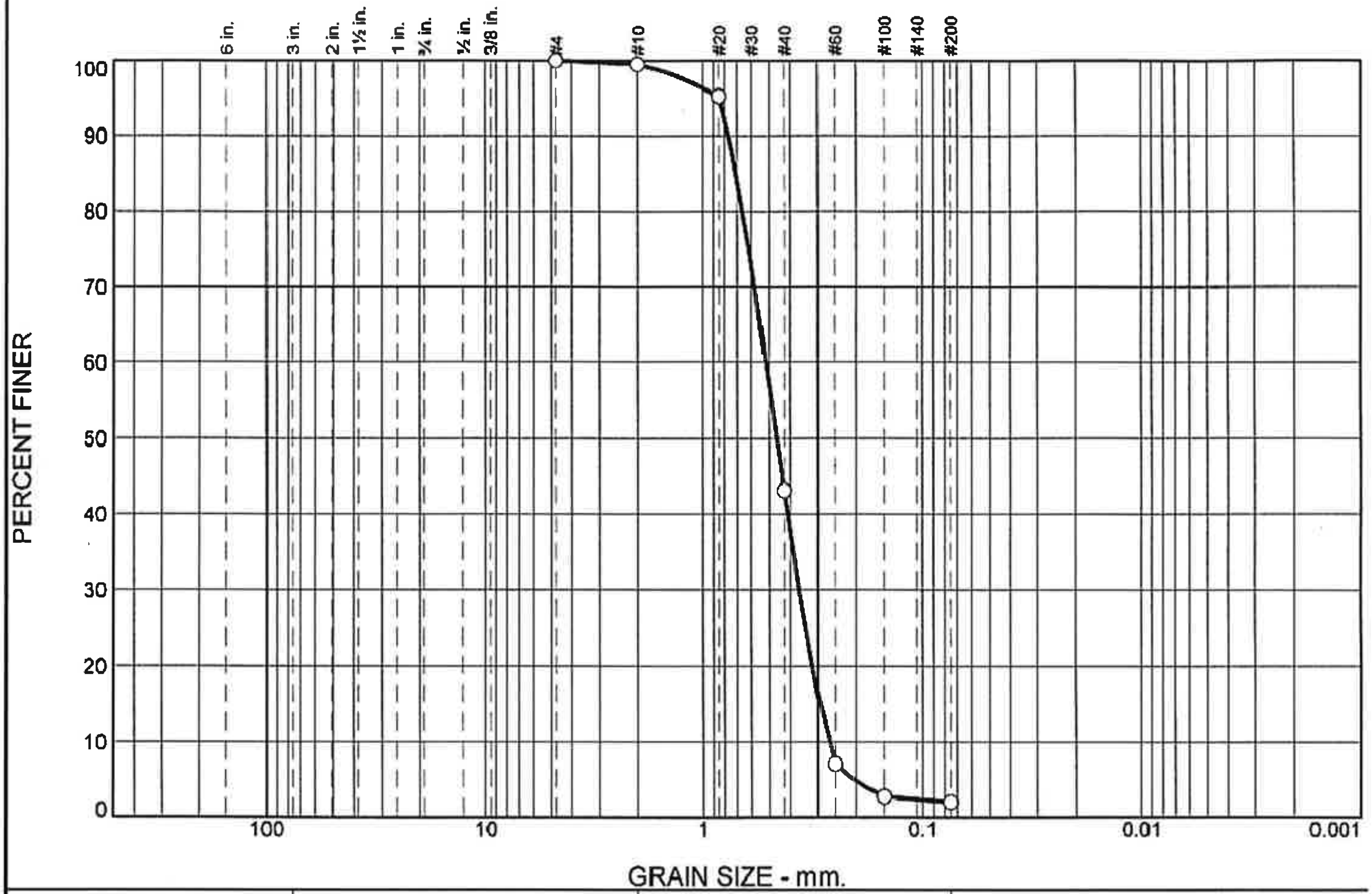
Sample Number: S-2
Source of Sample: TP-9 **Depth:** 0.7-7 ft. **Date:**

GZA GeoEnvironmental, Inc.

Manchester, NH

Client: W/S Development Associates, LLC
Project: River Place Hudson, NH
Project No: 24050.01 **Figure**

Particle Size Distribution Report



% +3"	% Gravel			% Sand			% Fines
	Coarse	Medium	Fine	Coarse	Medium	Fine	
0.0	0.0	0.0	0.5	26.7	65.7	5.1	2.0

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	99.5		
#20	95.2		
#40	43.1		
#60	7.1		
#100	2.8		
#200	2.0		

* (no specification provided)

Material Description

Brown, medium to coarse SAND, trace Silt.

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 0.7078 D_{60}= 0.5155 D_{50}= 0.4600
D_{30}= 0.3638 D_{15}= 0.2944 D_{10}= 0.2681
C_u= 1.92 C_c= 0.96

Classification

USCS= SP AASHTO= A-1-b

Remarks

Sample Number: S-3
Source of Sample: TP-13 **Depth:** 1.5-6.5 ft. **Date:**

GZA GeoEnvironmental, Inc.

Manchester, NH

Client: W/S Development Associates, LLC
Project: River Place Hudson, NH

Project No: 24050.01 **Figure**

APPENDIX C
BORING LOGS

LANGAN

Log of Boring **C-B-BOR-01** Sheet 1 of 2

Project: Hudson Logistics Center
Project No.: 151010101
Location: 59 Steele Road, Hudson NH
Elevation and Datum: Elev. + 132 (NGVD29)
Drilling Company: Atlantic Testing Laboraties
Date Started: 6/13/20
Date Finished: 6/13/20
Drilling Equipment: Geoprobe 7720 DT
Completion Depth: 24 ft
Rock Depth: 19 ft
Size and Type of Bit: 3-7/8in Tricone Roller Bit
Number of Samples: Disturbed 8; Undisturbed -; Core 1
Casing Diameter (in): 4in
Casing Depth (ft): 19
Water Level (ft.): First ▽ 4; Completion ▼ N/A; 24 HR. ▼ N/A
Casing Hammer: Automatic; Weight (lbs): 140; Drop (in): 30
Drilling Foreman: Scott McGregor
Sampler: 2-inch-diameter split spoon
Sampler Hammer: Automatic; Weight (lbs): 140; Drop (in): 30
Field Engineer: Olivia Chasse

Elev. (ft)	Sample Description	Coring (min)	Depth Scale	Number	Type	Recov. (in)	Penetr. resist BL/6in	N-Value (Blows/ft)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
+132.0	13" Dark brown fine-medium SAND, some silt, trace roots (dry) [TOPSOIL]		0						Started Drilling on 6/13/2020 S-1 at 0.5ft
+130.8	Light brown fine SAND, some silt (dry)		1	S-1A S-1B	SS	13	1 1 1	2	
	Light brown fine-medium SAND, some silt (moist)		2	S-2	SS	23	2 3 4 8	7	S-2 at 2ft
	▽ Light brown fine-coarse SAND, trace silt (wet)		4	S-3	SS	12	13 8 8 7	16	Drive casing to 4.0ft S-3 at 4ft
	Light brown fine-coarse SAND, trace silt (wet)		6	S-4	SS	17	7 7 10 17	17	S-4 at 6ft
	Light brown fine-coarse SAND, trace silt (wet)		8	S-5	SS	8	1 WOH WOH 5		Drive casing to 8.0ft S-5 at 8ft
+122.0	Grayish brown fine-medium SAND, some silt, some fine gravel (wet) [TILL]		10	S-6	SS	12	16 40 38 26	78	S-6 at 10ft
	Grayish brown fine-medium SAND, some silt, some fine gravel (wet) [TILL]		14	S-7	SS	2	65 50/2	50/2	Drive casing to 14.0ft S-7 at 14ft
+113.0	No Recovery.		19	S-8	SS	0	50/0	50/0	Drive casing to 19ft Roller bit to 19ft, hard drilling S-8 at 19ft
	Mottled gray SCHIST; fine to medium grained; slightly weathered; wide to very wide fracture spacing;	3:18	20	C-1					

\\LANGAN.COM\DATA\BOS\DATA1\151010101\PROJECT DATA_DISCIPLINE\GEOTECHNICAL\GINTLOGS\151010101_ENTERPRISE_BORINGS_USE.GPJ ... 7/22/2020 5:30:08 PM ... Report: Log - LANGAN

LANGAN

Log of Boring **C-B-BOR-01** Sheet 2 of 2

Project	Project No.
Hudson Logistics Center	151010101
Location	**Elevation and Datum**
59 Steele Road, Hudson NH	Elev. + 132 (NGVD29)

MATERIAL SYMBOL	Elev. (ft)	Sample Description	Coring (min)	Depth Scale	Sample Data					Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
					Number	Type	Recov. (in)	Penetr. resist BL/6in	N-Value (Blows/ft) 10 20 30 40	
▨	+112.0	fractures shallow dipping; [BEDROCK]	3:22	20	C-1	NQ CORE	REC=54"/60" =90%	RQD=50"/60" =83%		C-1 at 19ft
▨			4:34	21						
▨			2:50	22						
▨			2:25	23						
	+108.0	Bottom of Boring		24						Bottom of boring on 6/13/2020 Boring backfilled with soil cuttings.
				25						
				26						
				27						
				28						
				29						
				30						
				31						
				32						
				33						
				34						
				35						
				36						
				37						
				38						
				39						
				40						
				41						
				42						
				43						
				44						
				45						

\\LANGAN.COM\DATA\BOS\DATA1\151010101\PROJECT DATA_DISCIPLINE\GEOTECHNICAL\GINTLOGS\151010101_ENTERPRISE_BORINGS_USE.GPJ ... 7/22/2020 5:30:08 PM ... Report: Log - LANGAN

LANGAN

Log of Boring **C-B-BOR-01A** Sheet 1 of 1

Project: Hudson Logistics Center		Project No.: 151010101		
Location: 59 Steele Road, Hudson NH		Elevation and Datum: Elev. + 132 (NGVD29)		
Drilling Company: Atlantic Testing Laboraties		Date Started: 6/18/20	Date Finished: 6/18/20	
Drilling Equipment: Geoprobe 7822 DT		Completion Depth: 17 ft	Rock Depth: 17 ft	
Size and Type of Bit: 3-7/8in Tricone Roller Bit		Number of Samples	Disturbed: 8	Undisturbed: - Core: -
Casing Diameter (in): 4in	Casing Depth (ft): 12	Water Level (ft.)	First ▽ N/E	Completion ▼ N/A 24 HR. ▼ N/A
Casing Hammer: Automatic	Weight (lbs): 140 Drop (in): 30	Drilling Foreman: Scott McGregor		
Sampler: 2-inch-diameter split spoon		Field Engineer: Reid Balkind		
Sampler Hammer: Automatic	Weight (lbs): 140 Drop (in): 30			

Elev. (ft)	Sample Description	Depth Scale	Number	Type	Recov. (in)	Penetr. resist BL/6in	N-Value (Blows/ft)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
+132.0	8" Dark brown fine-medium SAND, trace silt, trace roots (moist) [TOPSOIL]	0	S-1A	SS	18	1		Started Drilling on 6/18/2020 S-1 at 0ft
+131.3	Light brown Sandy SILT (moist)	1				1 1	2	
	Light brown SILT (moist)	2	S-1B S-2A	SS	23	1 3		S-2 at 2ft
+129.0	Brown fine-medium SAND, trace silt (moist)	3				5 8	13	
	Brown fine-medium SAND, trace silt (wet)	4	S-2B S-3	SS	12	6 8		S-3 at 4ft
		5				7 4 4	11	Drive casing to 4ft and washout boring
+125.5	Brown fine-medium SAND, trace silt, trace fine gravel (wet)	6	S-4A	SS	18	9		S-4 at 6ft
	Brownish gray fine SAND, some silt, trace weathered gravel (moist) [TILL]	7	S-4B			52 81 47	133	
	Brownish gray fine SAND, some silt, trace coarse gravel, trace weathered gravel (moist) [TILL]	8	S-5	SS	14	23 16 34 41	50	S-5 at 8ft Drive casing to 8ft and washout boring
	Brownish gray fine SAND, some silt, trace coarse gravel, trace weathered gravel (moist) [TILL]	10	S-6	SS	16	16 18 18 20	36	S-6 at 10ft
	Brownish gray fine SAND, trace silt, trace coarse gravel, some weathered gravel (moist) [TILL]	12	S-7	SS	11	15 45 50/3	50/3	S-7 at 12ft Drive casing to 12ft and washout boring
		15						Drill roller bit to 15ft. Medium chatter and moderate drilling. S-8 at 15ft
	Brownish gray fine SAND, trace silt, trace coarse gravel, some weathered gravel (moist) [TILL] Inferred Top of Bedrock	16	S-8	SS	7	19 27 50/1	50/1	
+114.9	Bottom of Boring	17						Auger refusal at 17.1 ft Bottom of boring on 6/18/2020 Boring backfilled with soil cuttings

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Log of Boring **C-B-BOR-02(OW)** Sheet 1 of 1

Project Hudson Logistics Center	Project No. 151010101
Location 59 Steele Road, Hudson NH	Elevation and Datum Elev. + 132 (NGVD29)
Drilling Company SoilTesting, Inc.	Date Started 6/13/20 / Date Finished 6/13/20
Drilling Equipment CME Truck-Mounted Drill Rig	Completion Depth 14 ft / Rock Depth N/E
Size and Type of Bit 4in Hollow Stem Auger	Number of Samples: Disturbed 7 / Undisturbed - / Core -
Casing Diameter (in) N/A / Casing Depth (ft) N/A	Water Level (ft.): First ▽ 4 / Completion ▼ N/A / 24 HR. ▼ 5
Casing Hammer N/A / Weight (lbs) N/A / Drop (in) N/A	Drilling Foreman Sam Deangelis
Sampler 2-inch-diameter split spoon	
Sampler Hammer Safety / Weight (lbs) 140 / Drop (in) 30	Field Engineer Jack Berritt

Elev. (ft)	Sample Description	Depth Scale	Number	Type	Recov. (in)	Penetr. resist BL/6in	N-Value (Blows/ft)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
+132.0	2' Brown silty fine SAND, trace root (moist) [TOPSOIL]	0	S-1	SS	16	2 3 3 5	6	Started Drilling on 6/13/2020 S-1 at 0ft
+130.0	Brown silty fine SAND (moist)	2	S-2	SS	13	4 5 7 7	12	S-2 at 2ft Auger to 4 ft
	Brown silty fine-medium SAND (wet)	4 ▽ 4 ▼ 5	S-3	SS	18	6 5 5 5	10	S-3 at 4ft
	Brown fine SAND, trace silt (wet)	6	S-4	SS	12	7 7 9 13	16	S-4 at 6ft Auger to 8 ft
	Brown fine SAND, trace silt (wet)	8	S-5	SS	21	3 4 6 10	10	S-5 at 8ft
	Brown fine-coarse SAND, trace silt, trace fine gravel (wet)	10	S-6	SS	24	12 20 29 30	49	S-6 at 10ft
		12						Auger to 14ft Refusal at 14 ft
+118.0	Bottom of Boring	14						Bottom of boring on 6/13/2020 Observation well installed. Refer to well construction log.
		20						

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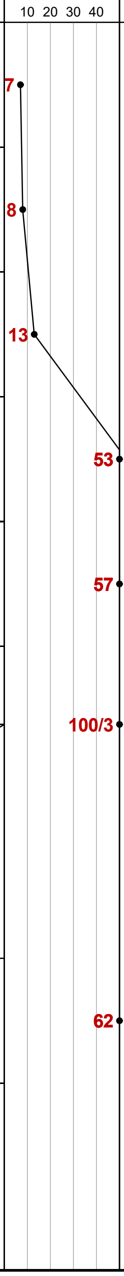
Log of Boring **C-B-BOR-03** Sheet 1 of 2

Project: Hudson Logistics Center	Project No.: 151010101
Location: 59 Steele Road, Hudson NH	Elevation and Datum: Elev. + 134.5 (NGVD29)
Drilling Company: SoilTesting, Inc.	Date Started: 6/12/20 / Date Finished: 6/12/20
Drilling Equipment: Truck Mounted Diedrich D-50	Completion Depth: 26 ft / Rock Depth: 21.8 ft
Size and Type of Bit: 4in Hollow Stem Auger	Number of Samples: Disturbed 8 / Undisturbed - / Core 1
Casing Diameter (in): N/A / Casing Depth (ft): N/A	Water Level (ft.): First ▽ 10 / Completion ▼ N/A / 24 HR. ▼ N/A
Casing Hammer: N/A / Weight (lbs): N/A / Drop (in): N/A	Drilling Foreman: Sam DeAngelis
Sampler: 2-inch-diameter split spoon	
Sampler Hammer: Safety / Weight (lbs): 140 / Drop (in): 30	Field Engineer: Justin Hall

Depth Scale	Elev. (ft)	Sample Description	Coring (min)	Number	Type	Recov. (in)	Penetr. resist BL/6in	N-Value (Blows/ft)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
0	+134.5	8" Dark brown fine-coarse SAND, some silt, some roots (moist) [TOPSOIL]		S-1A	SS	12	3		Started Drilling at 6/12/2020 S-1 at 0ft
	+133.8						3	7	
1		Dark brown fine-medium SAND, some silt, trace roots (dry)		S-1B			4		
							3		
2		Tannish brown fine-coarse SAND, some silt, trace fine gravel (moist)		S-2A	SS	14	3		S-2 at 2ft
							3	8	
3	+131.5	Light brown medium-fine SAND, trace silt (dry)		S-2B			5		
							5		
4		Light brown medium-fine SAND, trace silt, trace fine gravel (dry)		S-3	SS	16	4		Auger to 4ft S-3 at 4ft
							5	13	
5							8		
							14		
6		Light grayish brown fine-coarse SAND, trace silt, trace f-c gravel (moist)		S-4	SS	8	26		S-4 at 6ft
							32	53	
7							21		
							32		
8	+126.5	Light grayish brown fine-coarse SAND, some silt, trace f-c gravel (moist) [TILL]		S-5	SS	18	31		Auger to 8ft S-5 at 8ft
							28	57	
9							29		
							35		
10 ▽		Light grayish brown fine-coarse SAND, some silt, trace f-c gravel (wet) [TILL]		S-6	SS	10	24		S-6 at 10ft
							34		
11							100/3	100/3	
12									
13									
14									
15		Light grayish brown fine-coarse SAND, some silt, trace f-c gravel (wet) [TILL]		S-7	SS	18	25		Auger to 15ft S-7 at 15ft
							26	62	
16							36		
							51		
17									
18									
19									
20									



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Log of Boring **C-B-BOR-03** Sheet 2 of 2

Project Hudson Logistics Center	Project No. 151010101
Location 59 Steele Road, Hudson NH	Elevation and Datum Elev. + 134.5 (NGVD29)

MATERIAL SYMBOL	Elev. (ft)	Sample Description	Coring (min)	Depth Scale	Sample Data Number	Sample Data Type	Sample Data Recov. (in)	Sample Data Penetr. resist BL/6in	N-Value (Blows/ft) 10 20 30 40	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	+114.5	Light brown fine-coarse SAND, some silt, trace fine gravel (wet) [TILL]		20 21	S-8	SS	10	37 33 71 100/4	104	Auger to 20ft S-8 at 20ft
	+112.7	Gray SCHIST; fine to medium grained; slightly to moderately weathered; close to moderate fracture spacing; fractures moderately dipping to shallow dipping; strong; rock quality fair [BEDROCK]	3:07 4:10 4:03 4:15 4:10	22 23 24 25 26	C-1	NQ CORE	REC=51"/54" =94%	RQD=30.5"/54" =56%		C-1 at 21.83ft
	+108.2	Bottom of Boring		27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45						Bottom of boring at 6/12/2020 Boring backfilled with auger cuttings

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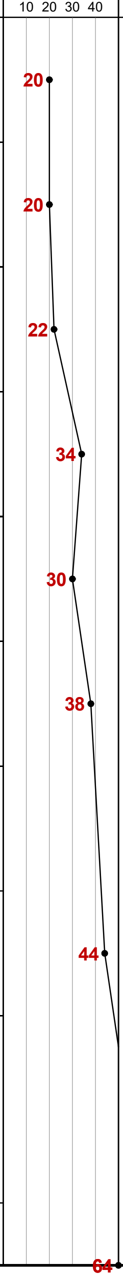
Log of Boring **C-B-BOR-04** Sheet 1 of 2

Project Hudson Logistics Center			Project No. 151010101		
Location 59 Steele Road, Hudson NH			Elevation and Datum Elev. + 139 (NGVD29)		
Drilling Company Seaboard Drilling, Inc			Date Started 6/8/20	Date Finished 6/8/20	
Drilling Equipment Diedrich D50			Completion Depth 32 ft	Rock Depth 27 ft	
Size and Type of Bit 3-7/8in Roller Bit			Number of Samples	Disturbed 9	Undisturbed -	Core 1
Casing Diameter (in) 4in		Casing Depth (ft) 19	Water Level (ft.)	First ∇ 8	Completion ▼ N/A	24 HR. ▼ N/A
Casing Hammer Automatic	Weight (lbs) 140	Drop (in) 30	Drilling Foreman Jeff Nitsch		
Sampler 2-inch-diameter split spoon			Field Engineer Taylor Sisti		
Sampler Hammer Automatic	Weight (lbs) 140	Drop (in) 30			



Elev. (ft)	Sample Description	Coring (min)	Depth Scale	Number	Type	Recov. (in)	Penetr. resist BL/6in	N-Value (Blows/ft)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
+139.0	18" Dark brown fine-medium SAND, some silt, trace fine gravel, some roots (dry) [TOPSOIL]		0	S-1A S-1B	SS	16	2 4 16 9	20	Started Drilling at 6/8/2020 S-1 at 0ft
+137.5	Brown fine-medium SAND, some f-c gravel, trace silt (dry) Brown fine-coarse SAND, some silt, some fine gravel (moist)								
			2	S-2	SS	17	7 7 13 14	20	S-2 at 2ft
	Brown fine-medium SAND, some silt, trace f-c gravel (moist)		4	S-3	SS	11	8 11 11 14	22	Drive casing to 4ft, drill to 4ft S-3 at 4ft
	Brown fine-medium SAND, some silt, some f-c gravel (moist)		6	S-4	SS	18	8 18 16 14	34	S-4 at 6ft
	Brown fine-medium SAND, some silt, trace f-c gravel (wet)	∇	8	S-5	SS	12	12 14 16 15	30	Drive casing to 8ft, drill to 8ft S-5 at 8ft
+129.0	Brown fine-medium SAND, some silt, trace f-c gravel (wet) [TILL]		10	S-6	SS	10	14 17 21 47	38	S-6 at 10ft
			13						Drive casing to 14ft, drill to 14ft, easy drilling
	Brown fine-medium SAND, some silt, trace f-c gravel (wet) [TILL]		14	S-7	SS	16	21 22 22 21	44	S-7 at 14ft
			18						Drill to 19ft, moderate drilling, some light rig chatter
	Brown fine-coarse SAND, some silt, trace f-c gravel (wet) [TILL]		19	S-8	SS	10	22 27	64	S-8 at 19ft Gray platey rock fragments in spoon tip
			20						

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Log of Boring **C-B-BOR-04** Sheet 2 of 2

Project Hudson Logistics Center	Project No. 151010101
Location 59 Steele Road, Hudson NH	Elevation and Datum Elev. + 139 (NGVD29)

Elev. (ft)	Sample Description	Coring (min)	Depth Scale	Sample Data				N-Value (Blows/ft) 10 20 30 40	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
				Number	Type	Recov. (in)	Penetr. resist BL/6in		
+119.0	Brown fine-coarse SAND, some silt, some fine gravel (wet) [TILL]		20	S-8	SS	10	37 50/3	64	Drive casing to 19ft, drill to 25ft, moderate drilling
			25	S-9	SS	2	50/2	50/2	S-9 at 25ft Drill to 27ft, hard drilling, some light rig chatter Roller bit refusal at 27ft
+112.0	Light gray SCHIST; medium to coarse grained; fresh to moderately weathered; very close to close fracture spacing; fractures near vertical to moderately dipping, strong [BEDROCK]	2:20 2:54 2:57 2:39 3:34	27	C-1	NQ CORE	REC=56"/60" =93%	RQD=34"/60" =57%		C-1 at 27ft
+107.0	Bottom of Boring		32						Bottom of boring at 6/8/2020 Boring backfilled with soil cuttings

Depth Scale: 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45

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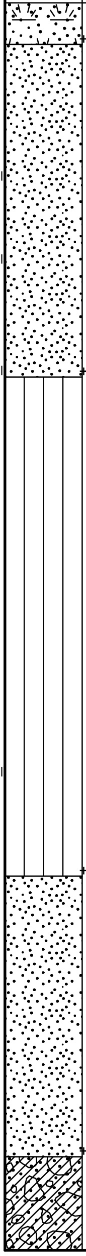
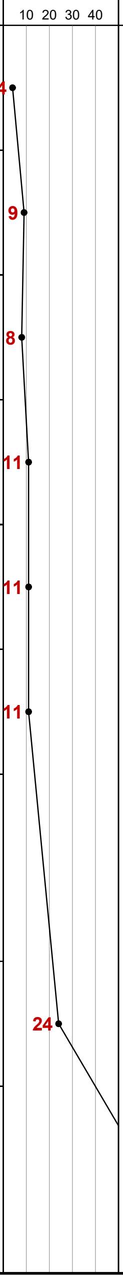
Log of Boring **C-B-BOR-05** Sheet 1 of 2

Project: Hudson Logistics Center		Project No.: 151010101	
Location: 59 Steele Road, Hudson NH		Elevation and Datum: Elev. + 135 (NGVD29)	
Drilling Company: Seaboard Drilling, Inc		Date Started: 6/16/20	Date Finished: 6/16/20
Drilling Equipment: Diedrich D50		Completion Depth: 27 ft	Rock Depth: 27 ft
Size and Type of Bit: 4in Hollow Stem Auger		Number of Samples: Disturbed 9	Undisturbed - Core -
Casing Diameter (in): N/A	Casing Depth (ft): N/A	Water Level (ft.): First ▽ 7.5	Completion ▼ N/A 24 HR. ▼ N/A
Casing Hammer: N/A	Weight (lbs): N/A Drop (in): N/A	Drilling Foreman: Jeff Nitsch	
Sampler: 2-inch-diameter split spoon		Field Engineer: Reid Balkind	
Sampler Hammer: Automatic/Safety	Weight (lbs): 140 Drop (in): 30		





Elev. (ft)	Sample Description	Depth Scale	Number	Type	Recov. (in)	Penetr. resist BL/6in	N-Value (Blows/ft)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
+135.0	8" Dark brown fine-medium SAND, some silt, trace roots (moist)[TOPSOIL]	0	S-1A	SS	22	1 2	4	Started Drilling on 6/16/2020. S-1 at 0ft
+134.3	Orangish brown fine-medium SAND, trace silt (moist)	1	S-1B			2 2		
	Orangish brown fine-medium SAND, trace silt (moist)	2	S-2	SS	18	4 4 5 6	9	S-2 at 2ft
	Light brown fine-coarse SAND, trace silt, trace fine gravel (moist)	4	S-3	SS	24	2 3 5 7	8	Auger to 4ft S-3 at 4ft
+129.0	Grayish gray to brown SILT, trace clay, trace fine sand (wet)	6	S-4	SS	24	5 5 6 6	11	S-4 at 6ft
	▽	7						
	Grayish brown SILT, trace clay, trace fine sand (wet)	8	S-5	SS	22	5 5 6 6	11	Auger to 8ft S-5 at 8ft
	Light brown SILT, trace clay, trace fine sand (wet)	10	S-6	SS	20	4 5 6 5	11	S-6 at 10ft
		13						Augur to 15ft. Moderate drilling
+121.0		14						
	Brown to orangish brown fine-coarse SAND, some silt, trace clay, trace f-c gravel (wet)	15	S-7	SS	16	12 12 12 16	24	S-7 at 15ft Augur to 20ft. Moderate drilling
		18						Autohammer breaks, switch to safety hammer for 20 ft sample
+116.5		19						
		20						

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Log of Boring **C-B-BOR-05** Sheet 2 of 2

Project Hudson Logistics Center	Project No. 151010101
Location 59 Steele Road, Hudson NH	Elevation and Datum Elev. + 135 (NGVD29)

MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data Number	Sample Data Type	Sample Data Recov. (in)	Sample Data Penetr. resist BL/6in	N-Value (Blows/ft) 10 20 30 40	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	+115.0	Brown fine-medium SAND, some silt, trace f-c gravel (moist)[TILL]	20	S-8	SS	10	30 70/4	70/4	S-8 at 20ft
			21						
			22						
			23						Augur to 25ft. Hard drilling
			24						
		Brown silty fine-coarse SAND, some coarse gravel, trace clay, some weathered gravel (moist)[TILL]	25	S-9	SS	23	35 45 75 100/5	120	S-9 at 25ft
		Inferred Top of Bedrock	26						
	+108.0	Bottom of Boring	27						Bottom of boring on 6/16/2020. Augur and spoon refusal encountered at 27 ft. End of boring at 27ft. Backfilled with auger cuttings to grade
			28						
			29						
			30						
			31						
			32						
			33						
			34						
			35						
			36						
			37						
			38						
			39						
			40						
			41						
			42						
			43						
			44						
			45						

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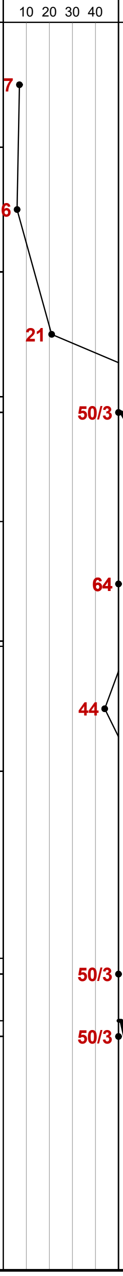
Log of Boring **C-B-BOR-06** Sheet 1 of 1

Project	Hudson Logistics Center	Project No.	151010101
Location	59 Steele Road, Hudson NH	Elevation and Datum	Elev. + 137 (NGVD29)
Drilling Company	Seaboard Drilling, Inc	Date Started / Date Finished	6/17/20 / 6/17/20
Drilling Equipment	Diedrich D50	Completion Depth / Rock Depth	16 ft / 16 ft
Size and Type of Bit	4in Hollow Stem Auger	Number of Samples	Disturbed 8 / Undisturbed - / Core -
Casing Diameter (in) / Casing Depth (ft)	N/A / N/A	Water Level (ft.)	First ∇ 9 / Completion ▼ N/A / 24 HR. ▼ N/A
Casing Hammer / Weight (lbs) / Drop (in)	N/A / N/A / N/A	Drilling Foreman	Jeff Nitsch
Sampler	2-inch-diameter split spoon	Field Engineer	Reid Balkind
Sampler Hammer / Weight (lbs) / Drop (in)	Safety / 140 / 30		



Elev. (ft)	Sample Description	Depth Scale	Number	Type	Recov. (in)	Penetr. resist BL/6in	N-Value (Blows/ft)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
+137.0	13" Dark brown fine-medium SAND, trace silt, trace fine gravel, trace roots (dry)[TOPSOIL]	0	S-1A	SS	15	4 4	7	Started Drilling at 6/17/2020 S-1 at 0ft
+135.9	Light brown fine-coarse SAND, trace silt (dry)	1	S-1B			3 2		
	Light brown fine-coarse SAND, trace silt (dry)	2	S-2	SS	12	3 3 3 4	6	S-2 at 2ft Auger to 4ft
	Light brown fine-coarse SAND, trace silt, trace fine gravel (moist)	4	S-3	SS	20	3 4 17 24	21	S-3 at 4ft
+131.0	Light brown fine-coarse SAND, trace silt (moist) [TILL]	6	S-4	SS	2	50/3	50/3	S-4 at 6ft Heavy chatter at 6ft Auger to 8ft
	Grayish brown fine SAND, some silt, trace fine gravel (wet) [TILL]	8	S-5	SS	13	19 24 40 50/5	64	S-5 at 8ft Auger to 10ft. Heavy chatter. Perched water at 9ft
	∇	9						
	Grayish brown fine SAND, some silt, trace fine gravel (wet) [TILL]	10	S-6	SS	15	14 21 23 23	44	S-6 at 10ft Auger to 15 ft Switch to Autohammer
	No Recovery	15	S-7	SS	0	50/3	50/3	S-7 at 15ft. Drive second spoon. Refusal encountered and no recovery
+120.8	No Recovery Inferred Top of Bedrock	16	S-8	SS	0	50/3	50/3	S-8 at 16ft Auger and spoon refusal encountered at 16ft. Bottom of boring at 6/17/2020 Boring backfilled with soil to grade.
	Bottom of Boring							

Depth Scale: 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20

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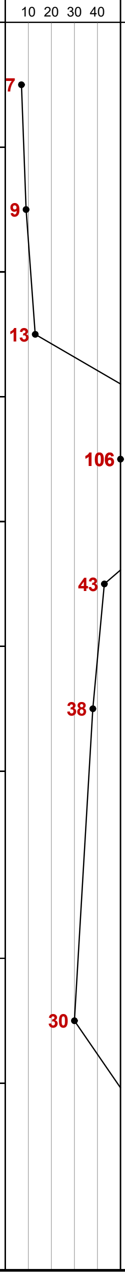
Log of Boring **C-B-BOR-07** Sheet 1 of 2

Project Hudson Logistics Center			Project No. 151010101		
Location 59 Steele Road, Hudson NH			Elevation and Datum Elev. + 141.5 (NGVD29)		
Drilling Company SoilTesting, Inc.			Date Started 6/16/20	Date Finished 6/16/20	
Drilling Equipment Truck Mounted Diedrich D-50			Completion Depth 22.5 ft	Rock Depth 22.5 ft	
Size and Type of Bit 4in Hollow Stem Auger			Number of Samples	Disturbed 8	Undisturbed - / Core -
Casing Diameter (in) N/A	Casing Depth (ft) N/A		Water Level (ft.)	First ▽ 12	Completion ▼ N/A / 24 HR. ▼ N/A
Casing Hammer N/A	Weight (lbs) N/A	Drop (in) N/A	Drilling Foreman Sam DeAngelis		
Sampler 2-inch-diameter split spoon					
Sampler Hammer Automatic	Weight (lbs) 140	Drop (in) 30	Field Engineer Justin Hall		

Elev. (ft)	Sample Description	Depth Scale	Number	Type	Recov. (in)	Penetr. resist BL/6in	N-Value (Blows/ft)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
+141.5 +141.0	6" Dark brown fine-coarse SAND, some silt, trace roots (moist) [TOPSOIL] Light brown fine-medium SAND, trace silt (dry)	0	S-1A S-1B	SS	16	5 4 3 3	7	Started Drilling on 6/16/2020. S-1 at 0ft
	Light brown fine-medium SAND, trace silt (dry)	2	S-2	SS	12	4 4 5 5	9	S-2 at 2ft
	Light brown fine-coarse SAND, trace silt, trace fine gravel (dry)	4	S-3	SS	16	8 5 8 18	13	S-3 at 4ft
	Light brown fine-coarse SAND, some fine gravel (dry) Light grayish brown fine-coarse SAND, some silt, trace fine gravel (dry)	6	S-4A S-4B	SS	20	28 70 36 27	106	S-4 at 6ft Medium rig chattering at 6'-8'
	Light grayish brown fine-coarse SAND, some silt, trace fine gravel (dry)	8	S-5A S-5B	SS	10	13 19 24 23	43	S-5 at 8ft
	Light brown fine-coarse SAND, some silt, trace fine gravel (moist)	10	S-6	SS	20	14 18 20 16	38	S-6 at 10ft
	▽	12						
	Light brown fine-coarse SAND, some silt, trace fine gravel (wet)	15	S-7	SS	10	4 13 17 20	30	S-7 at 15ft
+121.5		20						



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Log of Boring **C-B-BOR-07** Sheet 2 of 2

Project	Project No.
Hudson Logistics Center	151010101
Location	**Elevation and Datum**
59 Steele Road, Hudson NH	Elev. + 141.5 (NGVD29)

MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data Number	Type	Recov. (in)	Penetr. resist BL/6in	N-Value (Blows/ft) 10 20 30 40	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
▨	+121.5	Light brown fine-coarse SAND, some silt, trace fine gravel (wet) [TILL]	20	S-8	SS	14	25 67 56 60		S-8 at 20ft
▨			21					123	
▨	+119.0	No Recovery Inferred Top of Bedrock	22	S-9	SS	0	100/0	100/0	S-9 at 22.5ft. Auger and spoon refusal at 22.5ft Bottom of boring on 6/16/2020. Boring backfilled with auger cuttings.
		Bottom of Boring	23						
			24						
			25						
			26						
			27						
			28						
			29						
			30						
			31						
			32						
			33						
			34						
			35						
			36						
			37						
			38						
			39						
			40						
			41						
			42						
			43						
			44						
			45						

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Log of Boring **C-B-BOR-08** Sheet 1 of 2

Project	Hudson Logistics Center	Project No.	151010101
Location	59 Steele Road, Hudson NH	Elevation and Datum	Elev. + 141.5 (NGVD29)
Drilling Company	Atlantic Testing Laboraties	Date Started	6/17/20
		Date Finished	6/17/20
Drilling Equipment	Geoprobe 7822 DT	Completion Depth	30 ft
		Rock Depth	25 ft
Size and Type of Bit	3-7/8in Tricone Roller Bit	Number of Samples	Disturbed 9 Undisturbed - Core 1
Casing Diameter (in)	4in	Water Level (ft.)	First ▽ 15 Completion ▼ N/A 24 HR. ▼ N/A
Casing Depth (ft)	17		
Casing Hammer	Automatic	Drilling Foreman	Ben Crary
Weight (lbs)	140		
Drop (in)	30		
Sampler	2-inch-diameter split spoon	Field Engineer	Justin Hall
Sampler Hammer	Automatic		
Weight (lbs)	140		
Drop (in)	30		

Elev. (ft)	Sample Description	Coring (min)	Depth Scale	Sample Data Number	Type	Recov. (in)	Penetr. resist BL/6in	N-Value (Blows/ft)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
+141.5	12" Dark brown fine-medium SAND, trace silt, trace roots (moist) [TOPSOIL]		0	S-1A	SS	20	2 2	5	Started Drilling at 6/17/2020 S-1 at 0ft
+140.5	Brown fine SAND, trace silt, trace roots (dry)		1	S-1B			3 4		
	Light brown fine SAND, trace silt (dry)		2	S-2	SS	15	2 3 5 4	8	S-2 at 2ft Drive casing to 4.0ft Drill to 4.0ft, Easy drilling
	Light brown fine-medium SAND, trace silt (moist)		4	S-3	SS	10	4 4 5 5	9	S-3 at 4ft
	Light brown fine-coarse SAND, trace silt, trace fine gravel (moist)		6	S-4	SS	13	6 7 15 16	22	S-4 at 6ft Drive casing to 8.0ft Drill to 8.0ft, Easy drilling
+133.5	Grayish brown fine-coarse SAND, some silt, trace fine gravel (moist)[TILL]		8	S-5	SS	2	36 30 26 29	56	S-5 at 8ft
	Grayish brown fine-coarse SAND, some silt, trace fine gravel (moist) [TILL]		10	S-6	SS	16	25 34 31 29	65	S-6 at 10ft
			12						Drive casing to 15.0ft Drill to 15.0ft, Light rig chatter
	▽ Grayish brown fine-coarse SAND, some silt, some fine gravel (wet) [TILL]		15	S-7	SS	6	44 20 63 31	83	S-7 at 15ft
			17						Drive casing to 20.0ft Drill to 20.0ft, Moderate rig chatter 4inch casing refusal Continue drilling with roller bit.
			20						

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Log of Boring **C-B-BOR-08** Sheet 2 of 2

Project	Project No.
Hudson Logistics Center	151010101
Location	**Elevation and Datum**
59 Steele Road, Hudson NH	Elev. + 141.5 (NGVD29)

MATERIAL SYMBOL	Elev. (ft)	Sample Description	Coring (min)	Depth Scale	Sample Data					Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
					Number	Type	Recov. (in)	Penetr. resist BL/6in	N-Value (Blows/ft) 10 20 30 40	
	+121.5	No Recovery		20	S-8	SS	0	50/4	50/4	S-8 at 20ft
				21 22 23 24						
	+116.5	No Recovery		25	S-9	SS	0	50/0	50/0	S-9 at 25ft Rollerbit and spoon refusal at 25ft. C-1 at 25ft
		Light gray SCHIST; fine to medium grained; fresh to slightly weathered; very close to moderate fracture spacing; fractures near horizontal to shallow dipping; strong; fair quality [BEDROCK]	10:04 5:37 5:10 2:36 2:29	26 27 28 29	C-1	NQ CORE	REC=49"/60" =82%	RQD=31"/60" =52%		
	+111.5	Bottom of Boring		30						Bottom of boring at 6/17/2020 Boring backfilled with soil cuttings.
				31 32 33 34 35 36 37 38 39 40 41 42 43 44 45						

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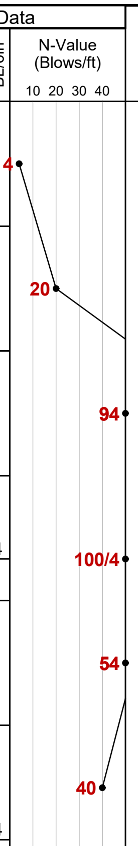
Log of Boring **C-B-BOR-09** Sheet 1 of 1

Project Hudson Logistics Center		Project No. 151010101	
Location 59 Steele Road, Hudson NH		Elevation and Datum Elev. + 141.5 (NGVD29)	
Drilling Company Seaboard Drilling, Inc		Date Started 6/13/20	Date Finished 6/13/20
Drilling Equipment Diedrich D50		Completion Depth 17 ft	Rock Depth 12 ft
Size and Type of Bit 4in Hollow Stem Auger		Number of Samples: Disturbed 6; Undisturbed -; Core -	
Casing Diameter (in) N/A	Casing Depth (ft) N/A	Water Level (ft.): First ▽ N/E; Completion ▼ N/A; 24 HR. ▼ N/A	
Casing Hammer N/A; Weight (lbs) N/A	Drop (in) N/A	Drilling Foreman Jeff Nitch	
Sampler 2-inch-diameter split spoon			
Sampler Hammer Automatic; Weight (lbs) 140	Drop (in) 30	Field Engineer Kenneth Idem	



Elev. (ft)	Sample Description	Coring (min)	Depth Scale	Number	Type	Recov. (in)	Penetr. resist BL/6in	N-Value (Blows/ft)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
+141.5 +141.3	2" Brown fine-medium SAND, trace silt, fine medium gravel, trace roots (dry) [TOPSOIL]		0	S-1A	SS	7	2 2	4	Started Drilling on 6/13/2020 S-1 at 0ft
	Brown fine-medium SAND, trace silt, dry granite (dry)		1	S-1B			2 2		
	Brown fine-medium SAND, trace silt, fine medium gravel (dry)		2	S-2	SS	18	3 5 15 99	20	S-2 at 2ft
+137.5	Brown fine-medium SAND, some fine gravel, trace silt (dry) [TILL]		4	S-3	SS	16	20 64 30 23	94	Auger to 4ft ,Moderate Augering, Medium Chatter S-3 at 4ft
	Brown fine-medium SAND, some fine gravel, trace silt (dry) [TILL]		6	S-4	SS	14	17 63 100/4	100/4	S-4 at 6ft Auger to 8ft, Easy Augering
	Brown fine-medium SAND, some silt, trace fine gravel (dry) [TILL]		8	S-5	SS	18	22 28 26 30	54	S-5 at 8ft
	Brown fine-coarse SAND, some silt, trace fine gravel (dry) [TILL]		10	S-6	SS	11	30 22 18 100/4	40	S-6 at 10ft
+129.7	Gray SCHIST; fine to medium grained; slightly weathered; close fracture spacing; fractures moderately dipping; strong; [BEDROCK]	2:29 2:28 3:07 2:55 3:02	12	C-1	NQ CORE	REC=21"/60" =35%	RQD=14.5"/60" =24%		Auger to 12ft, Hard Augering, Heavy Chattering C-1 at 11.8ft
+124.7	Bottom of Boring		17						Bottom of boring on 6/13/2020 Boring backfilled with auger cuttings. Observation well installed, refer to well construction log.

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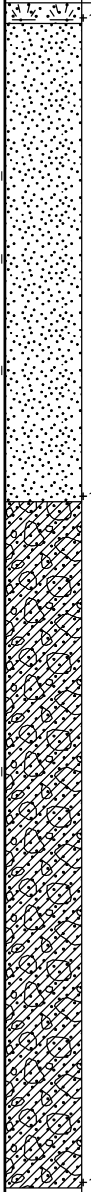
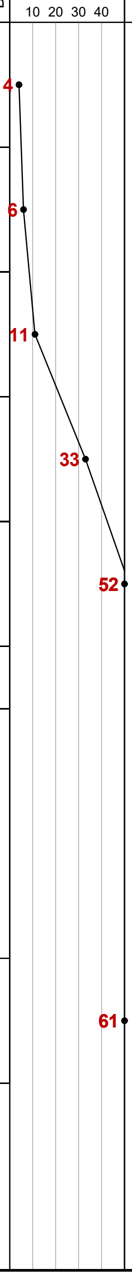
Log of Boring **C-B-BOR-10** Sheet 1 of 1

Project	Hudson Logistics Center		Project No.	151010101	
Location	59 Steele Road, Hudson NH		Elevation and Datum	Elev. + 142.5 (NGVD29)	
Drilling Company	Seaboard Drilling, Inc		Date Started	6/13/20	Date Finished 6/13/20
Drilling Equipment	Diedrich D50		Completion Depth	17 ft	Rock Depth N/E
Size and Type of Bit	4in Hollow Stem Auger		Number of Samples	Disturbed 7	Undisturbed - Core -
Casing Diameter (in)	N/A	Casing Depth (ft) N/A	Water Level (ft.)	First ∇ 17	Completion ▼ N/A 24 HR. ▼ N/A
Casing Hammer	N/A	Weight (lbs) N/A Drop (in) N/A	Drilling Foreman	Jeff Nitch	
Sampler	2-inch-diameter split spoon				
Sampler Hammer	Automatic	Weight (lbs) 140 Drop (in) 30	Field Engineer	Kenneth Idem	





Elev. (ft)	Sample Description	Depth Scale	Number	Type	Recov. (in)	Penetr. resist BL/6in	N-Value (Blows/ft)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
+142.5 +142.2	3" Brown fine SAND, trace silt, trace roots (dry) [TOPSOIL]	0	S-1A S-1B	SS	9	2 2 2 2	4	Started Drilling at 6/13/2020 S-1 at 0ft
	Brown fine-medium SAND, trace silt, trace fine gravel (dry)	2	S-2	SS	10	2 2 4 9	6	S-2 at 2ft
	Brown fine-medium SAND, trace silt, trace fine gravel (dry)	4	S-3	SS	12	4 5 6 8	11	Auger to 4ft, Easy Augering S-3 at 4ft
	Brown fine-medium SAND, trace silt, trace fine gravel (moist)	6	S-4	SS	11	8 13 20 29	33	S-4 at 6ft
+134.5	Brown gravelly fine-coarse SAND, some silt (wet) [TILL]	8	S-5	SS	19	80 30 22 22	52	Auger to 8ft, Moderate Augering, Medium Chatter S-5 at 8ft
	Brown fine-coarse SAND, some silt, some fine gravel (moist) [TILL]	10	S-6	SS	12	28 100		S-6 at 10ft
		11						Auger to 15ft, Moderate Augering, Medium Chatter
	Brown gravelly fine-coarse SAND, some silt (moist) [TILL]	15	S-7	SS	14	10 32 29 25	61	S-7 at 15ft
	∇	17						Auger to 20ft, Hard Augering
		18						Auger Refusal at 18.5ft Bottom of boring at 6/13/2020 Boring backfilled with auger cuttings.
+123.5	Bottom of Boring	19						
		20						

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Log of Boring **C-B-BOR-11** Sheet 1 of 2

Project Hudson Logistics Center	Project No. 151010101
Location 59 Steele Road, Hudson NH	Elevation and Datum Elev. + 148 (NGVD29)
Drilling Company Seaboard Drilling, Inc	Date Started 6/12/20 Date Finished 6/12/20
Drilling Equipment Diedrich D50	Completion Depth 34 ft Rock Depth 26 ft
Size and Type of Bit 2-7/8in Tricone Roller Bit	Number of Samples: Disturbed 9; Undisturbed -; Core 2
Casing Diameter (in) 4in Casing Depth (ft) 15	Water Level (ft.): First ▽ 15; Completion ▼ N/A; 24 HR. ▼ N/A
Casing Hammer Automatic Weight (lbs) 140 Drop (in) 30	Drilling Foreman Jeff Nitsch
Sampler 2-inch-diameter split spoon	
Sampler Hammer Automatic Weight (lbs) 140 Drop (in) 30	Field Engineer Taylor Sisti

Elev. (ft)	Sample Description	Coring (min)	Depth Scale	Number	Type	Recov. (in)	Penetr. resist BL/6in	N-Value (Blows/ft) 10 20 30 40	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
+148.0	11" Brown to grayish fine-medium SAND, some silt, trace roots (moist)[TOPSOIL]		0	S-1A	SS	18	1 2	3	Started Drilling on 6/12/2020 S-1 at 0ft
+147.1	Brown to grayish fine-medium SAND, some silt, trace roots (moist)		1	S-1B			1 2		
+145.5	Brown to grayish fine-medium SAND, some silt (moist)		2	S-2A	SS	11	2 3	6	S-2 at 2ft
	Brown to grayish fine-medium SAND, trace silt, trace f-c gravel (dry)		3	S-2B			3 7		Drive casing to 4ft, drill to 4ft
	Brown to grayish fine-coarse SAND, some f-c gravel, trace silt (moist)		4	S-3	SS	12	4 11 12 14	23	S-3 at 4ft
	Brown to grayish fine-medium SAND, trace silt, trace f-c gravel (moist)		6	S-4	SS	21	13 15 21 19	36	S-4 at 6ft Drive casing to 8ft, drill to 8ft
+140.0	Brown to grayish gravelly fine-coarse SAND, some silt (moist) [TILL]		8	S-5	SS	15	12 15 17 21	32	S-5 at 8ft
	Brown to grayish brown fine-coarse SAND, some silt, trace f-c gravel, trace weathered cobble fragments (moist) [TILL]		10	S-6	SS	20	16 57 100/3	100/3	S-6 at 10ft
			12 13 14						Drill to 15ft, hard drilling 11.5-13.5ft - inferred boulder. Drive casing to 15ft, clean out casing
	▽ Brown to grayish brown fine-medium SAND, some silt, trace f-c gravel, trace weathered cobble fragments (wet) [TILL]		15	S-7	SS	16	13 19 27 38	46	S-7 at 15ft
			17 18 19 20						Drill to 20ft, moderate drilling

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Log of Boring **C-B-BOR-11** Sheet 2 of 2

Project	Project No.
Hudson Logistics Center	151010101
Location	**Elevation and Datum**
59 Steele Road, Hudson NH	Elev. + 148 (NGVD29)

Elev. (ft)	Sample Description	Coring (min)	Depth Scale	Sample Data Number	Type	Recov. (in)	Penetr. resist BL/6in	N-Value (Blows/ft)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
+128.0	Brown to grayish brown gravelly fine-medium SAND, some silt, some weathered cobble fragments (wet) [TILL]		20	S-8	SS	14	27 78 39 28	117	S-8 at 20ft
			23						Auger to 25ft, moderate drilling
	Brown to grayish brown fine-medium SAND, some silt, trace fine gravel, some weathered cobble fragments (wet) [TILL]		25	S-9	SS	6	63 50/1	50/1	S-9 at 25ft Roller bit refusal at 26ft
122.0	Gray to black SCHIST; fine to medium grained; highly weathered; extremely close to close fracture spacing; fractures shallow dipping, strong [BEDROCK]	1:02 1:08 1:56 2:15 2:18	26	C-1	NQ CORE	REC=24"/60" =40%	RQD=0"/60" =0%		C-1 at 26ft
	Gray to black SCHIST; fine to medium grained quartz intrusion; highly weathered; extremely close to close fracture spacing; fractures shallow dipping, strong [BEDROCK]	2:38 2:38 7:25	31	C-2	NQ CORE	REC=47%	RQD=14%		C-2 at 31ft
114.0	Bottom of Boring		34						Barrel clogged at 34ft, remove rock from core barrel, attempt to put core barrel back down and hole collapsed. Bottom of boring on 6/12/2020. Boring backfilled with soil cuttings.

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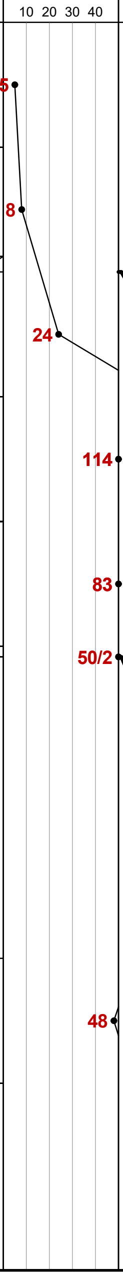
Log of Boring **C-B-BOR-12** Sheet 1 of 2

Project Hudson Logistics Center		Project No. 151010101	
Location 59 Steele Road, Hudson NH		Elevation and Datum Elev. + 152 (NGVD29)	
Drilling Company SoilTesting, Inc.		Date Started 6/8/20	Date Finished 6/8/20
Drilling Equipment CME Truck-Mounted Drill Rig		Completion Depth 36 ft	Rock Depth 36 ft
Size and Type of Bit 4in Hollow Stem Auger		Number of Samples	Disturbed 11 / Undisturbed - / Core -
Casing Diameter (in) N/A	Casing Depth (ft) N/A	Water Level (ft.)	First ▽ 19 / Completion ▼ N/A / 24 HR. ▼ N/A
Casing Hammer N/A / Weight (lbs) N/A	Drop (in) N/A	Drilling Foreman John Knepple	
Sampler 2-inch-diameter split spoon			
Sampler Hammer Automatic / Weight (lbs) 140	Drop (in) 30	Field Engineer Kenneth Idem	

Elev. (ft)	Sample Description	Depth Scale	Number	Type	Recov. (in)	Penetr. resist BL/6in	N-Value (Blows/ft)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
+152.0 151.7	Brown fine-medium SAND, trace silt, trace roots (dry) [TOPSOIL]	0	S-1	SS	10	1 3 2 3	5	Started Drilling at 6/8/2020 S-1 at 0ft
	Brown fine-medium SAND, trace fine gravel, trace silt (dry)	2	S-2	SS	10	3 3 5 50/3	8	S-2 at 2ft
	Brown fine-medium SAND, trace silt, trace fine gravel (dry)	4	S-3	SS	19	5 11 13 20	24	Auger to 4ft S-3 at 4ft
	Brown fine SAND, trace silt, trace fine gravel (dry)	6	S-4	SS	4	25 53 61 56	114	S-4 at 6ft
	Brown silty fine-coarse SAND, trace fine gravel (dry)	8	S-5	SS	21	19 36 47 73	83	Auger to 8ft S-5 at 8ft
	Brown fine-medium SAND, some silt, trace fine gravel (dry)	10	S-6	SS	3	50/2	50/2	S-6 at 10ft Auger to 15ft
137.0	Brown fine SAND, some silt, trace fine gravel (moist) [TILL]	15	S-7	SS	16	9 19 29 33	48	S-7 at 15ft
		17						Auger to 20ft
	▽	19						
		20						



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Log of Boring **C-B-BOR-12** Sheet 2 of 2

Project Hudson Logistics Center	Project No. 151010101
Location 59 Steele Road, Hudson NH	Elevation and Datum Elev. + 152 (NGVD29)

MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data Number	Sample Data Type	Sample Data Recov. (in)	Sample Data Penetr. resist BL/6in	Sample Data N-Value (Blows/ft) 10 20 30 40	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	+132.0	Brown fine-medium SAND, some silt, trace fine gravel (wet) [TILL]	20	S-8	SS	10	16 42 48 50/3	90	S-8 at 20ft
			21						
			22						Auger to 25ft
			23						
			24						
		Brown fine-medium SAND, some silt, trace fine gravel (wet) [TILL]	25	S-9	SS	10	41 55 50/1	50/1	S-9 at 25ft Auger to 30ft
			26						
			27						
			28						
			29						
		Brown fine-medium SAND, some silt, trace fine gravel, trace clay (wet) [TILL]	30	S-10	SS	9	27 50/4	50/4	S-10 at 30ft
			31						
			32						
			33						
			34						
		Brown gravelly fine-medium SAND, some silt, trace clay (wet) [TILL] Inferred Top of Bedrock	35	S-11	SS	8	65 50/3	50/3	Auger to 35ft S-11 at 35ft Split spoon and auger refusal Bottom of boring at 6/8/2020 Boring backfilled with auger cuttings.
	+116.3	Bottom of Boring	36						
			37						
			38						
			39						
			40						
			41						
			42						
			43						
			44						
			45						

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Log of Boring **C-B-BOR-13** Sheet 1 of 2

Project: Hudson Logistics Center
Project No.: 151010101
Location: 59 Steele Road, Hudson NH
Elevation and Datum: Elev. + 146.5 (NGVD29)
Drilling Company: Seaboard Drilling, Inc
Date Started: 6/16/20
Date Finished: 6/16/20
Drilling Equipment: Diedrich D50
Completion Depth: 22 ft
Rock Depth: 22 ft
Size and Type of Bit: 4in Hollow Stem Auger
Number of Samples: Disturbed 9; Undisturbed -; Core -
Casing Diameter (in): N/A
Casing Depth (ft): N/A
Water Level (ft.): First ▽ 18; Completion ▼ N/A; 24 HR. ▼ N/A
Casing Hammer: N/A
Weight (lbs): N/A
Drop (in): N/A
Drilling Foreman: Jeff Nitsch
Sampler: 2-inch-diameter split spoon
Sampler Hammer: Automatic
Weight (lbs): 140
Drop (in): 30
Field Engineer: Reid Balkind

Elev. (ft)	Sample Description	Depth Scale	Number	Type	Recov. (in)	Penetr. resist BL/6in	N-Value (Blows/ft)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
+146.5	12" Orangish brown fine-medium SAND, some silt, trace f-c gravel, trace roots (dry) [TOPSOIL]	0	S-1A	SS	18	3 4	8	Started Drilling on 6/16/2020 S-1 at 0ft
+145.5	Orangish brown fine-medium SAND, some silt, trace f-c gravel, trace roots (dry)	1	S-1B			4 7		
	Orangish brown fine-medium SAND, trace silt (dry)	2	S-2	SS	16	8 5 3 3	8	S-2 at 2ft
	Light brown fine-medium SAND, trace silt (moist)	4	S-3	SS	18	3 3 4 5	7	S-3 at 4ft Auger to 4ft
	Light brown fine-coarse SAND, trace silt, trace fine gravel (moist)	6	S-4	SS	20	6 5 4 6	9	Auger to 8ft. Medium chatter at 6ft. S-4 at 6ft
	Light gray fine-coarse SAND, some fine gravel, trace silt (dry)	8	S-5A	SS	8	27 19	32	S-5 at 8ft Auger to 12ft. Heavy chatter at 9 ft
	Grayish brown fine-medium SAND, some fine gravel, trace silt (moist)	9	S-5B			13 13		
+136.5	Brown fine-medium SAND, some silt, trace fine gravel (wet) [TILL]	10	S-6	SS	22	11 9 11 17	20	S-6 at 10ft Medium chatter at 11ft
		12						Auger to 15ft. Hard drilling
	Grayish brown silty fine-medium SAND, trace fine gravel (moist) [TILL]	15	S-7	SS	16	28 16 25 15	41	S-7 at 15ft
		17						Auger to 20ft. Moderate drilling
	▽	18						
		20						

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Log of Boring **C-B-BOR-13** Sheet 2 of 2

Project Hudson Logistics Center	Project No. 151010101
Location 59 Steele Road, Hudson NH	Elevation and Datum Elev. + 146.5 (NGVD29)

MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data					Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
				Number	Type	Recov. (in)	Penetr. resist BL/6in	N-Value (Blows/ft) 10 20 30 40	
	+126.5	Grayish brown fine-coarse SAND, trace silt, trace fine gravel, trace weathered gravel fragments (wet) [TILL] Light gray fine-coarse GRAVEL, trace silt, trace f-c sand (moist) [TILL] Inferred Top of Bedrock	20 21	S-8	SS	20	19 14 41 50/3	55	S-8 at 20ft
	+124.4		22	S-9	SS	4	76 50/1	50/1	Hard drilling and heavy chatter. Auger and split spoon refusal encountered at 22 ft. S-9 at 21.5ft Bottom of boring on 6/16/2020. Backfilled boring with auger cuttings to grade
		Bottom of Boring	23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45						

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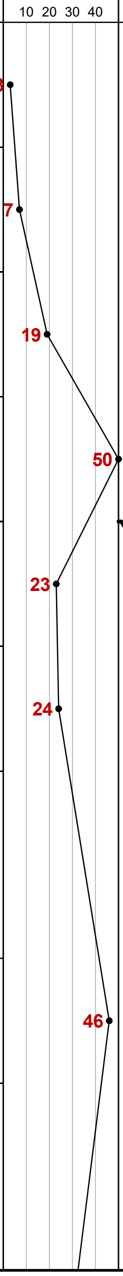
Log of Boring **C-B-BOR-14** Sheet 1 of 2

Project Hudson Logistics Center		Project No. 151010101	
Location 59 Steele Road, Hudson NH		Elevation and Datum Elev. + 152 (NGVD29)	
Drilling Company Atlantic Testing Laboratories		Date Started 6/16/20	Date Finished 6/16/20
Drilling Equipment Geoprobe 7822 DT		Completion Depth 31 ft	Rock Depth 26 ft
Size and Type of Bit 3-7/8in Drag Bit		Number of Samples	Disturbed 9 / Undisturbed - / Core 1
Casing Diameter (in) 4in	Casing Depth (ft) 25	Water Level (ft.)	First ▽ N/E / Completion ▼ N/A / 24 HR. ▼ N/A
Casing Hammer Automatic / Weight (lbs) 140	Drop (in) 30	Drilling Foreman Ben Crary	
Sampler 2-inch-diameter split spoon		Field Engineer Jack Berritt	
Sampler Hammer Automatic / Weight (lbs) 140	Drop (in) 30		

Elev. (ft)	Sample Description	Coring (min)	Depth Scale	Number	Type	Recov. (in)	Penetr. resist BL/6in	N-Value (Blows/ft)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
+152.0 +151.5	6" Dark brown fine-medium SAND, some silt, trace roots (moist) [TOPSOIL] Brown fine SAND, trace silt (dry)		0	S-1A S-1B	SS	14	1 2 1 2	3	Started Drilling at 6/16/2020 S-1 at 0ft
	Brown fine SAND, trace silt (dry)		2	S-2	SS	14	2 4 3 3	7	S-2 at 2ft Drive casing to 4.0ft. Drill to 4.0ft, Easy drilling
	Brown fine-coarse SAND, trace silt, trace fine gravel (moist)		4	S-3	SS	10	7 9 10 11	19	S-3 at 4ft
	Brown fine-coarse SAND, trace silt, trace fine gravel (moist)		6	S-4	SS	12	18 22 28 26	50	S-4 at 6ft Drive casing to 8.0ft. Drill to 8.0ft, Light rig chattering
	Brown fine-coarse SAND, trace silt, trace fine gravel (moist)		8	S-5	SS	9	11 13 10 9	23	S-5 at 8ft
	Brown fine-coarse SAND, some silt, trace fine gravel (moist)		10	S-6	SS	18	7 13 11 12	24	S-6 at 10ft
			12						Drive casing to 15.0ft, Light rig chattering Drill to 15.0ft
+137.0	Light brown fine-coarse SAND, some silt, some fine gravel (moist) [TILL]		15	S-7	SS	16	24 25 21 18	46	S-7 at 15ft
			17						Drive casing to 20.0ft, Moderate rig chatter Drill to 20.0ft
			20						



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Log of Boring **C-B-BOR-14** Sheet 2 of 2

Project Hudson Logistics Center	Project No. 151010101
Location 59 Steele Road, Hudson NH	Elevation and Datum Elev. + 152 (NGVD29)

MATERIAL SYMBOL	Elev. (ft)	Sample Description	Coring (min)	Depth Scale	Sample Data Number	Sample Data Type	Sample Data Recov. (in)	Sample Data Penetr. resist BL/6in	N-Value (Blows/ft) 10 20 30 40	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	+132.0	Light brown fine-coarse SAND, some silt, trace fine gravel (moist) [TILL]		20 21	S-8	SS	10	32 15 14 7	29	S-8 at 20ft
				22 23 24						Drive casing to 25.0ft, Moderate rig chatter Drill to 25.0ft
		No Recovery		25	S-9	SS	0	50/0	50/0	S-9 at 25ft Drill to 26ft, Heavy rig chatter
	+126.0	Light gray GRANITE; fine to coarse grained; fresh to slightly weathered; close to moderate fracture spacing; fractures shallow dipping to near horizontal; rock quality good [BEDROCK]	8:46 6:03 8:07 7:10 7:36	26 27 28 29 30	C-1	NQ CORE	REC=60"/60" =100%	RQD=46"/60" =77%		C-1 at 26ft
	+121.0	Bottom of Boring		31 32 33 34 35 36 37 38 39 40 41 42 43 44 45						Bottom of boring at 6/16/2020 Boring backfilled with soil cuttings.

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Log of Boring **C-B-BOR-15** Sheet 1 of 2

Project: Hudson Logistics Center
Project No.: 151010101
Location: 59 Steele Road, Hudson NH
Elevation and Datum: Elev. + 152 (NGVD29)
Drilling Company: Atlantic Testing Laboratories
Date Started: 6/17/20
Date Finished: 6/17/20
Drilling Equipment: Geoprobe 7822 DT
Completion Depth: 34 ft
Rock Depth: 29 ft
Size and Type of Bit: 3-7/8in Tricone Roller Bit
Number of Samples: Disturbed 10; Undisturbed -; Core 1
Casing Diameter (in): 4in
Casing Depth (ft): 30
Water Level (ft.): First ∇ 15; Completion ▼ N/A; 24 HR. ▼ N/A
Casing Hammer: Automatic
Weight (lbs): 140
Drop (in): 30
Drilling Foreman: Ben Crary
Sampler: 2-inch-diameter split spoon
Field Engineer: Jack Berritt
Sampler Hammer: Automatic
Weight (lbs): 140
Drop (in): 30

Elev. (ft)	Sample Description	Coring (min)	Depth Scale	Number	Type	Recov. (in)	Penetr. resist BL/6in	N-Value (Blows/ft)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
+152.0 +151.8	3" Dark brown fine-medium SAND, trace silt, trace roots (moist) [TOPSOIL]		0	S-1A	SS	15	1 2	3	Started Drilling at 6/17/2020 S-1 at 0ft
	Light brown fine SAND, trace silt, trace roots (dry)		1	S-1B			1 2		
	Light brown fine SAND, trace silt (dry)		2	S-2	SS	13	2 2 3 4	5	S-2 at 2ft Drive casing to 4.0ft, Easy drilling Drill to 4.0ft
	Grayish brown fine-coarse SAND, trace silt, trace fine gravel (moist)		4	S-3	SS	16	7 9 17 20	26	S-3 at 4ft
+146.0	Grayish brown fine-coarse SAND, some silt, trace fine gravel (moist) [TILL]		6	S-4	SS	20	28 21 25 30	46	S-4 at 6ft Drive casing to 8.0ft, Light rig chatter Drill to 8.0ft
	Grayish brown fine-coarse SAND, some silt, trace fine gravel (moist) [TILL]		8	S-5	SS	12	25 30 33 31	63	S-5 at 8ft
	Grayish brown fine-coarse SAND, some silt, trace fine gravel (moist) [TILL]		10	S-6	SS	12	34 26 33 26	59	S-6 at 10ft
			12						Drive casing to 15.0ft, Moderate rig chatter Drill to 15.0ft
	∇ Grayish brown fine-coarse SAND, some silt, trace fine gravel (wet) [TILL]		15	S-7	SS	13	32 26 17 17	43	S-7 at 15ft
			17						Drive casing to 20.0ft, Moderate rig chatter Drill to 20.0ft
			20						

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Log of Boring **C-B-BOR-15** Sheet 2 of 2

Project	Project No.
Hudson Logistics Center	151010101
Location	**Elevation and Datum**
59 Steele Road, Hudson NH	Elev. + 152 (NGVD29)

MATERIAL SYMBOL	Elev. (ft)	Sample Description	Coring (min)	Depth Scale	Sample Data Number	Sample Data Type	Sample Data Recov. (in)	Sample Data Penetr. resist BL/6in	N-Value (Blows/ft) 10 20 30 40	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	+132.0	Grayish brown fine-coarse SAND, some silt, trace fine gravel (wet) [TILL]		20	S-8	SS	16	45 36 51 61	87	S-8 at 20ft
				22						Drill to 25.0ft, Moderate rig chatter
		Grayish brown fine-coarse SAND, some silt, trace fine gravel (wet) [TILL]		25	S-9	SS	4	100/5	100/5	S-9 at 25ft
				27						Drill to 30.0ft, Heavy rig chatter at 29.0ft
	+123.0	No Recovery		29	S-10	SS	0	50/0	50/0	S-10 at 29ft C-1 at 29ft
		Light gray GRANITE; fine to medium grained; fresh to slightly weathered; very close to moderate fracture spacing; fractures moderately dipping to near horizontal; rock quality fair [BEDROCK]	7:26 5:21 6:23 6:39 5:18	29–34	C-1	NQ CORE	REC=51"/60" =85%	RQD=32"/60" =53%		
	+118.0	Bottom of Boring		34						Bottom of boring at 6/17/2020 Boring backfilled with soil cuttings.
				35–45						

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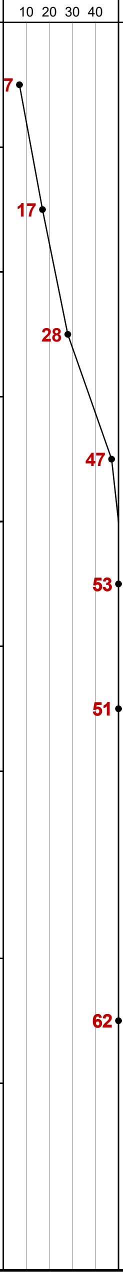
Log of Boring **C-B-BOR-16(OW)** Sheet 1 of 2

Project: Hudson Logistics Center
Project No.: 151010101
Location: 59 Steele Road, Hudson NH
Elevation and Datum: Elev. + 158 (NGVD29)
Drilling Company: SoilTesting, Inc.
Date Started: 6/17/20
Date Finished: 6/17/20
Drilling Equipment: CME Truck-Mounted Drill Rig
Completion Depth: 26 ft
Rock Depth: 26 ft
Size and Type of Bit: 4in Hollow Stem Auger
Number of Samples: Disturbed 9; Undisturbed -; Core -
Casing Diameter (in): N/A
Casing Depth (ft): N/A
Water Level (ft.): First ▽ 15; Completion ▼ N/A; 24 HR. ▼ 14.3
Casing Hammer: N/A
Weight (lbs): N/A
Drop (in): N/A
Drilling Foreman: Mike Kennedy
Sampler: 2-inch-diameter split spoon
Field Engineer: Olivia Chasse
Sampler Hammer: Safety
Weight (lbs): 140
Drop (in): 30

Elev. (ft)	Sample Description	Depth Scale	Number	Type	Recov. (in)	Penetr. resist BL/6in	N-Value (Blows/ft)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
+158.0		0						
+157.5	6" Dark brown fine-medium SAND, trace silt, some roots (dry) [TOPSOIL]	0	S-1A	SS	14	4 4		Started Drilling at 6/17/2020 S-1 at 0ft
	Light brown fine SAND, some silt (dry)	1	S-1B			3 5	7	
	Light brown fine-coarse SAND, some silt, trace fine gravel (dry)	2	S-2	SS	15	7 6 11 13	17	S-2 at 2ft
	Light brown fine-medium SAND, trace silt, trace fine gravel (dry)	4	S-3A	SS	18	8 12		Auger to 4ft, easy drilling S-3 at 4ft
	Brown fine-coarse SAND, trace silt, trace fine gravel (moist)	5	S-3B			16 14	28	
	Brown fine-coarse SAND, trace silt, trace fine gravel (moist)	6	S-4	SS	14	16 18 29 29	47	S-4 at 6ft
	Grayish brown fine-medium SAND, some silt, some fine gravel (moist)	8	S-5	SS	14	24 24 29 21	53	Auger to 8ft, easy drilling S-5 at 8ft
	Brown fine-medium SAND, some silt, some fine gravel (moist)	10	S-6	SS	16	22 25 26 31	51	S-6 at 10ft
	▼	14						
	▽	15						
	Brown fine-coarse SAND, some silt, some fine gravel (wet)	15	S-7	SS	16	25 27 35 16	62	Auger to 15ft, easy to moderate drilling S-7 at 15ft
+138.0		20						



Project Hudson Logistics Center	Project No. 151010101
Location 59 Steele Road, Hudson NH	Elevation and Datum Elev. + 158 (NGVD29)

Elev. (ft)	Sample Description	Depth Scale	Number	Type	Recov. (in)	Penetr. resist BL/6in	N-Value (Blows/ft)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
+138.0	Gray fine-medium SAND, some silt, some fine gravel (wet)[TILL]	20	S-8	SS	8	59 50/5	50/5	Auger to 20ft, easy to moderate drilling S-8 at 20ft
	Gray fine-medium SAND, some silt, some fine gravel (wet)[TILL] Inferred Top of Bedrock	25	S-9	SS	12	50 50/4	50/4	Auger to 25ft, easy to moderate drilling S-9 at 25ft Bottom of boring at 6/17/2020 Observation well installed. Refer to well construction log.
+132.2	Bottom of Boring	26						

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Log of Boring **C-B-BOR-17** Sheet 1 of 1

Project	Hudson Logistics Center	Project No.	151010101
Location	59 Steele Road, Hudson NH	Elevation and Datum	Elev. + 151.5 (NGVD29)
Drilling Company	SoilTesting, Inc.	Date Started	6/12/20
		Date Finished	6/12/20
Drilling Equipment	CME Truck-Mounted Drill Rig	Completion Depth	19.5 ft
		Rock Depth	19.5 ft
Size and Type of Bit	4in Hollow Stem Auger	Number of Samples	Disturbed 7 Undisturbed - Core -
Casing Diameter (in)	N/A	Water Level (ft.)	First ∇ N/E Completion ▼ N/A 24 HR. ▼ N/A
Casing Depth (ft)	N/A		
Casing Hammer	N/A	Drilling Foreman	John Knepple
Weight (lbs)	N/A		
Drop (in)	N/A		
Sampler	2-inch-diameter split spoon	Field Engineer	Kenneth Idem
Sampler Hammer	Automatic		
Weight (lbs)	140		
Drop (in)	30		

Elev. (ft)	Sample Description	Depth Scale	Number	Type	Recov. (in)	Penetr. resist BL/6in	N-Value (Blows/ft)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
+151.5 151.2	3" Brown fine SAND, trace silt, trace roots (dry) [TOPSOIL]	0	S-1	SS	6	3 4 6 7	10	Started Drilling at 6/12/2020 S-1 at 0ft
	Brown fine-coarse SAND, some fine gravel, trace silt (dry)	2	S-2	SS	13	7 8 10 9	18	S-2 at 2ft
	Brown fine SAND, trace silt (dry)	4	S-3	SS	12	5 6 11 13	17	Auger to 4ft, easy augering S-3 at 4ft
	Brown fine-coarse SAND, some fine gravel, trace silt (dry)	6	S-4	SS	18	19 29 38 35	67	S-4 at 6ft
	Gray fine-coarse SAND, some fine gravel, trace silt (dry)	8	S-5	SS	13	20 26 33 5/3	59	Auger to 8ft, moderate augering, medium chatter S-5 at 8ft
	Gray gravelly fine-coarse SAND, trace silt (dry)	10	S-6	SS	19	38 49 80 50/3	129	S-6 at 10ft
		12						Auger to 15ft, hard augering, heavy chatter
	Brown fine-coarse SAND, some silt, trace fine gravel (moist)	15	S-7	SS	12	31 22 17 50/2	39	S-7 at 15ft
		17						Auger to 20ft, hard augering, heavy chatter
	Inferred Top of Bedrock	18						Auger refusal at 19.5ft Bottom of Boring at 6/12/2020 Boring backfilled with auger cuttings.
132.0	Bottom of Boring	19						
		20						

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Log of Boring **C-B-BOR-18** Sheet 1 of 2

Project Hudson Logistics Center		Project No. 151010101	
Location 59 Steele Road, Hudson NH		Elevation and Datum Elev. + 158.5 (NGVD29)	
Drilling Company Atlantic Testing Laboratories		Date Started 6/12/20	Date Finished 6/12/20
Drilling Equipment CME75 Track Rig		Completion Depth 39 ft	Rock Depth 34 ft
Size and Type of Bit 3-7/8in Tricone Roller Bit		Number of Samples	Disturbed 11 / Undisturbed - / Core 1
Casing Diameter (in) 4in	Casing Depth (ft) 25	Water Level (ft.)	First ▽ 10 / Completion ▼ 14.3 / 24 HR. ▼ N/A
Casing Hammer Automatic	Weight (lbs) 140 / Drop (in) 30	Drilling Foreman Mark Childes	
Sampler 2-inch-diameter split spoon		Field Engineer Olivia Chasse	
Sampler Hammer Automatic	Weight (lbs) 140 / Drop (in) 30		

Elev. (ft)	Sample Description	Coring (min)	Depth Scale	Number	Type	Recov. (in)	Penetr. resist BL/6in	N-Value (Blows/ft)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
+158.5 +158.3	Dark brown fine-medium SAND, trace silt, trace fine gravel, trace roots (dry) [TOPSOIL]		0	S-1A	SS	13	1 2	4	Started Drilling at 6/12/2020 S-1 at 0ft
	Light brown fine-medium SAND, trace silt, trace fine gravel (dry)		1	S-1B			2 4		
	Light brown fine-medium SAND, trace silt, trace fine gravel (dry)		2	S-2	SS	12	7 4 4 4	8	S-2 at 2ft
	Brown fine-coarse SAND, some fine gravel, trace silt (moist)		4	S-3	SS	7	4 6 7 14	13	Drive casing to 4.0ft S-3 at 4ft
	Brown fine-coarse SAND, some fine gravel, trace silt (moist)		6	S-4	SS	16	13 18 22 27	40	S-4 at 6ft
	No Recovery		8	S-5	SS	0	50/1	50/1	Drive casing to 8.0ft S-5 at 8ft Possible Obstruction
	▽ Brown fine SAND, some silt, some fine gravel (wet)		10	S-6	SS	8	30 18 18 23	36	Roller bit to 10ft S-6 at 10ft
+144.5	▼ Brown fine-medium SAND, some silt, some fine gravel (wet) [TILL]		14	S-7	SS	16	30 67 85 50/2	152	Drive casing to 14.0ft S-7 at 14ft
	Brown fine-coarse SAND, some silt, some fine gravel (wet) [TILL]		19	S-8	SS	2	50/2	50/2	S-8 at 19ft
			20						

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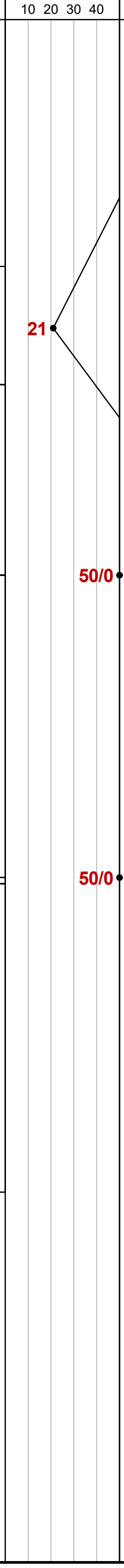
Log of Boring **C-B-BOR-18** Sheet 2 of 2

Project Hudson Logistics Center	Project No. 151010101
Location 59 Steele Road, Hudson NH	Elevation and Datum Elev. + 158.5 (NGVD29)

MATERIAL SYMBOL	Elev. (ft)	Sample Description	Coring (min)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	N-Value (Blows/ft)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	+138.5			20						
		Brown fine-medium SAND, some silt, some fine gravel (wet) [TILL]		24	S-9	SS	8	15 12 9 50/5	21	Drive casing to 24.0ft S-9 at 24ft
		No Recovery		29	S-10	SS	0	50/0	50/0	S-10 at 29ft
	+124.5	No Recovery		34	S-11	SS	0	50/0	50/0	S-11 at 34ft C-1 at 34ft
		Mottled gray SCHIST; fine grained; slightly weathered; moderate to wide fracture spacing; fractures shallow dipping; rock quality good [BEDROCK]	5:58 2:43 3:51 3:56 6:12	34–39	C-1	NQ CORE	REC=59"/60" =98%	RQD=54.5"/60" =91%		
	+119.5	Bottom of Boring		39						Bottom of boring at 6/12/2020 Boring backfilled with soil cuttings.
				45						



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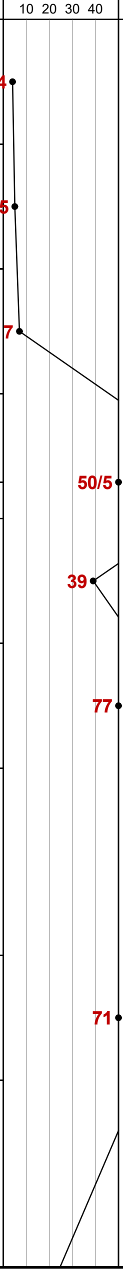
Log of Boring **C-B-BOR-19** Sheet 1 of 2

Project	Hudson Logistics Center	Project No.	151010101
Location	59 Steele Road, Hudson NH	Elevation and Datum	Elev. + 160 (NGVD29)
Drilling Company	Seaboard Drilling, Inc	Date Started / Date Finished	6/12/20 / 6/12/20
Drilling Equipment	Diedrich D50	Completion Depth / Rock Depth	24 ft / 24.1 ft
Size and Type of Bit	4in Hollow Stem Auger	Number of Samples	Disturbed 9 Undisturbed - Core -
Casing Diameter (in)	N/A Casing Depth (ft) N/A	Water Level (ft.)	First ∇ 20 Completion ▼ N/A 24 HR. ▼ N/A
Casing Hammer	N/A Weight (lbs) N/A Drop (in) N/A	Drilling Foreman	Jeff Nitsch
Sampler	2-inch-diameter split spoon		
Sampler Hammer	Automatic Weight (lbs) 140 Drop (in) 30	Field Engineer	Taylor Sisti

Elev. (ft)	Sample Description	Depth Scale	Number	Type	Recov. (in)	Penetr. resist BL/6in	N-Value (Blows/ft)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
+160.0 +159.5	6" Brown fine-medium SAND, some silt, trace f-c gravel, some roots (dry) [TOPSOIL] Brown fine-coarse SAND, trace silt, trace f-c gravel (dry)	0 - 2	S-1A S-1B	SS	11	1 2 2 2	4	Started Drilling on 6/12/2020. S-1 at 0ft
	Brown fine-coarse SAND, trace silt, trace f-c gravel (dry)	2 - 4	S-2	SS	13	2 2 3 3	5	S-2 at 2ft Auger to 4ft
	Brown to brown fine-coarse SAND, trace silt, trace f-c gravel (dry)	4 - 6	S-3	SS	15	2 2 5 9	7	S-3 at 4ft
	Brown fine-coarse SAND, trace silt, trace f-c gravel (dry)	6 - 8	S-4	SS	14	8 8 50/5	50/5	S-4 at 6ft, spoon bouncing Auger to 8ft, light rig chatter
	Brown fine-coarse SAND, some f-c gravel, trace silt, trace weathered gravel fragments (dry)	8 - 10	S-5	SS	17	7 16 23 44	39	S-5 at 8ft
	Brown fine-coarse SAND, some f-c gravel, trace silt, trace weathered gravel fragments (dry)	10 - 12	S-6	SS	16	42 45 32 34	77	S-6 at 10ft
		12 - 15						Auger to 15ft, moderate drilling, some light rig chatter
	Brown fine-coarse SAND, some f-c gravel, trace silt, trace weathered gravel fragments (dry)	15 - 17	S-7	SS	14	12 34 37 39	71	S-7 at 15ft
	∇	17 - 20						Auger to 20ft, easy-moderate drilling



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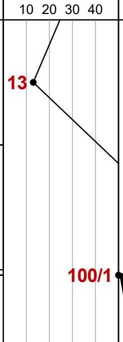
Log of Boring **C-B-BOR-19** Sheet 2 of 2

Project Hudson Logistics Center	Project No. 151010101
Location 59 Steele Road, Hudson NH	Elevation and Datum Elev. + 160 (NGVD29)

Elev. (ft)	Sample Description	Depth Scale	Sample Data Number	Type	Recov. (in)	Penetr. resist BL/6in	N-Value (Blows/ft)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
+140.0	Brown fine-coarse SAND, some silt, trace fine gravel, trace weathered gravel fragments (wet)	20	S-8	SS	13	4 5 8 16	13	S-8 at 20ft
		21						
		22						
	Gray fine-coarse GRAVEL, trace silt, trace weathered rock fragments (wet) Inferred Top of Bedrock	23						Auger to 24ft, hard drilling and light rig chatter at 23ft
+135.9		24	S-9	SS	1	100/1	100/1	S-9 at 24ft, auger and split spoon refusal at 24ft Bottom of boring on 6/12/2020 Boring backfilled with auger cuttings.
		25						
	Bottom of Boring	26						



27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45

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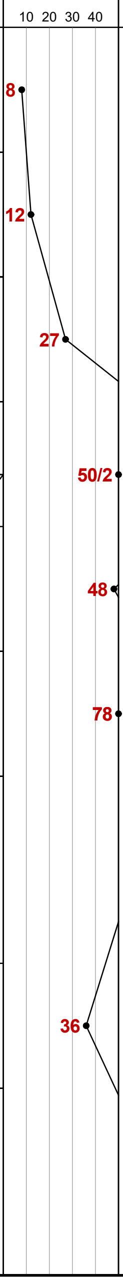
Log of Boring **C-B-BOR-20(OW)** Sheet 1 of 2

Project	Hudson Logistics Center	Project No.	151010101
Location	59 Steele Road, Hudson NH	Elevation and Datum	Elev. + 156.5 (NGVD29)
Drilling Company	SoilTesting, Inc.	Date Started / Date Finished	6/5/20 / 6/5/20
Drilling Equipment	CME Truck-Mounted Drill Rig	Completion Depth / Rock Depth	22 ft / 22 ft
Size and Type of Bit	4in Hollow Stem Auger	Number of Samples	Disturbed 10 / Undisturbed - / Core -
Casing Diameter (in) / Casing Depth (ft)	N/A / N/A	Water Level (ft.)	First ▽ 10 / Completion ▼ N/A / 24 HR. ▼ 5.6
Casing Hammer / Weight (lbs) / Drop (in)	N/A / N/A / N/A	Drilling Foreman	Sam Deangelis
Sampler	2-inch-diameter split spoon		
Sampler Hammer / Weight (lbs) / Drop (in)	Automatic / 140 / 30	Field Engineer	Jack Berritt

Elev. (ft)	Sample Description	Depth Scale	Number	Type	Recov. (in)	Penetr. resist BL/6in	N-Value (Blows/ft)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
+156.5	Light brown fine SAND, some silt (dry)	0	S-1	SS	14	4 4 4 4	8	S-1 at 0ft
+154.5	Light brown fine SAND, trace silt (dry)	2	S-2	SS	13	5 5 7 8	12	S-2 at 2ft Auger to 4 ft
	Light brown gravelly fine-coarse SAND, trace silt (dry)	4	S-3	SS	14	5 11 16 25	27	S-3 at 4ft
	Brown silty fine SAND (dry)	6	S-4	SS	9	29 57 50/2	50/2	S-4 at 6ft Auger to 8ft
+148.5	Brown fine-medium SAND, some silt, trace fine gravel (dry) [TILL]	8	S-5	SS	12	10 19 29 46	48	S-5 at 8ft
	Brown fine-medium SAND, some silt, trace fine gravel (moist) [TILL]	10	S-6	SS	15	39 37 41 41	78	S-6 at 10ft Auger to 15ft
	Brown fine-coarse SAND, some silt, trace fine gravel (moist) [TILL]	15	S-7	SS	15	14 21 15 14	36	S-7 at 15ft



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Log of Boring **C-B-BOR-20(OW)** Sheet 2 of 2

Project	Project No.
Hudson Logistics Center	151010101
Location	**Elevation and Datum**
59 Steele Road, Hudson NH	Elev. + 156.5 (NGVD29)

MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data Number	Sample Data Type	Sample Data Recov. (in)	Sample Data Penetr. resist BL/6in	Sample Data N-Value (Blows/ft) 10 20 30 40	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	+136.5	Brown fine-coarse SAND, some silt, trace fine gravel (moist) [TILL]	20	S-8	SS	10	35 74 50/2	50/2	S-8 at 20ft Auger refusal at 22ft
			21						
		Inferred Top of Bedrock							
	+134.5		22						Bottom of boring at 6/05/2020 Observation well installed. Refer to well construction log.
		Bottom of Boring	23						
			24						
			25						
			26						
			27						
			28						
			29						
			30						
			31						
			32						
			33						
			34						
			35						
			36						
			37						
			38						
			39						
			40						
			41						
			42						
			43						
			44						
			45						

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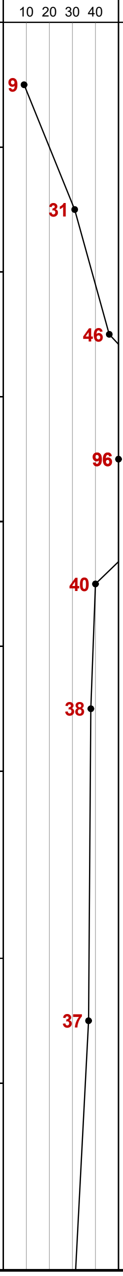
Log of Boring **C-B-BOR-21** Sheet 1 of 2

Project Hudson Logistics Center		Project No. 151010101	
Location 59 Steele Road, Hudson NH		Elevation and Datum Elev. + 160 (NGVD29)	
Drilling Company SoilTesting, Inc.		Date Started 6/16/20	Date Finished 6/16/20
Drilling Equipment ATV Mounted CME 550X		Completion Depth 33.5 ft	Rock Depth 33.5 ft
Size and Type of Bit 4in Hollow Stem Auger		Number of Samples: Disturbed 10; Undisturbed -; Core -	
Casing Diameter (in) N/A	Casing Depth (ft) N/A	Water Level (ft.): First ▽ 15; Completion ▼ N/A; 24 HR. ▼ N/A	
Casing Hammer N/A; Weight (lbs) N/A; Drop (in) N/A		Drilling Foreman Sam DeAngelis	
Sampler 2-inch-diameter split spoon			
Sampler Hammer Automatic; Weight (lbs) 140; Drop (in) 30		Field Engineer Justin Hall	

Elev. (ft)	Sample Description	Depth Scale	Number	Type	Recov. (in)	Penetr. resist BL/6in	N-Value (Blows/ft)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
+160.0 +159.6	5" Dark brown fine-coarse SAND, some silt, trace roots (moist) [TOPSOIL] Light brown medium-fine SAND, some silt (dry)	0	S-1A S-1B	SS	24	3 4 5 4	9	Started Drilling on 6/16/2020 S-1A at 0ft S-1B at 5"
	Light brown medium-coarse SAND, trace silt, trace fine gravel (dry)	2	S-2A	SS	13	8 15 16 31	31	S-2 at 2ft
	Light grayish brown fine-coarse SAND, some silt, trace fine gravel (dry)	4	S-3	SS	19	5 14 32 35	46	S-3 at 4ft
	Light grayish brown fine-coarse SAND, trace silt, trace fine gravel (dry)	6	S-4	SS	16	38 46 50 43	96	S-4 at 6ft
	Light grayish brown fine-coarse SAND, some silt, trace fine gravel (dry)	8	S-5	SS	17	7 21 19 25	40	S-5 at 8ft
	Light grayish brown fine-coarse SAND, some silt, trace fine gravel (dry)	10	S-6	SS	15	27 22 16 22	38	S-6 at 10ft
	▽ Light grayish brown fine-coarse SAND, trace silt, trace fine gravel (wet)	15	S-7	SS	15	8 18 19 11	37	S-7 at 15ft
+140.0		20						



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Log of Boring **C-B-BOR-21** Sheet 2 of 2

Project Hudson Logistics Center	Project No. 151010101
Location 59 Steele Road, Hudson NH	Elevation and Datum Elev. + 160 (NGVD29)

Elev. (ft)	Sample Description	Depth Scale	Number	Type	Recov. (in)	Penetr. resist BL/6in	N-Value (Blows/ft)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
+140.0	Light grayish brown fine-coarse SAND, trace silt, trace fine gravel (wet) [TILL]	20	S-8	SS	18	5 15 15 16	30	S-8 at 20ft
	Light grayish brown fine-coarse SAND, some silt, trace fine gravel (wet) [TILL]	25	S-9	SS	5	65 100/5	100/5	S-9 at 25ft
	Light grayish brown fine-coarse SAND, some silt, trace f-m gravel, Grey (wet) [TILL]	30	S-10	SS	7	14 86 100/5	100/5	S-10 at 30ft
+126.5	No Recovery Inferred Top of Bedrock		S-11	SS	0	100/0	100/0	S-11 at 33.5ft. Auger and spoon refusal at 33.5ft Bottom of boring on 6/16/2020. Boring backfilled with auger cuttings
	Bottom of Boring							

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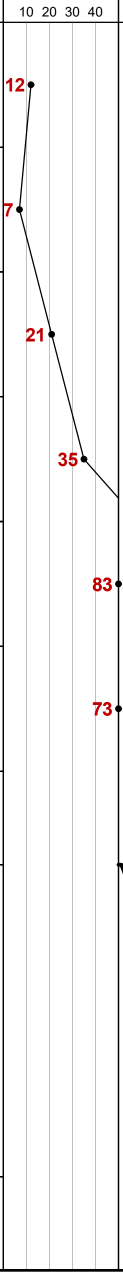
Log of Boring **C-B-BOR-22** Sheet 1 of 2

Project Hudson Logistics Center	Project No. 151010101
Location 59 Steele Road, Hudson NH	Elevation and Datum Elev. + 164.5 (NGVD29)
Drilling Company SoilTesting, Inc.	Date Started 6/16/20 Date Finished 6/16/20
Drilling Equipment Diedrich D50	Completion Depth 25 ft Rock Depth 25 ft
Size and Type of Bit 4in Hollow Stem Auger	Number of Samples: Disturbed 7; Undisturbed -; Core 2
Casing Diameter (in) N/A Casing Depth (ft) N/A	Water Level (ft.): First ▽ N/E; Completion ▼ N/A; 24 HR. ▼ N/A
Casing Hammer N/A Weight (lbs) N/A Drop (in) N/A	Drilling Foreman Michael Kennedy
Sampler 2-inch-diameter split spoon	
Sampler Hammer Safety Weight (lbs) 140 Drop (in) 30	Field Engineer Kenneth Idem

Elev. (ft)	Sample Description	Coring (min)	Depth Scale	Number	Type	Recov. (in)	Penetr. resist BL/6in	N-Value (Blows/ft)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
+164.5 +163.8	8" Dark brown fine-medium SAND, trace silt, trace roots (dry) [TOPSOIL] Light brown fine SAND, trace silt (dry)		0 – 2	S-1A S-1B	SS	15	3 4 8 7	12	Started Drilling at 6/16/2020 S-1 at 0ft
	Light brown fine SAND, trace silt (dry)		2 – 4	S-2	SS	16	6 4 3 2	7	S-2 at 2ft Auger to 4ft, Easy Augering
	Light brown fine-coarse SAND, trace silt, trace fine gravel (dry)		4 – 6	S-3	SS	11	7 9 12 14	21	S-3 at 4ft
	Light brown fine-coarse SAND, trace silt, trace fine gravel (dry)		6 – 8	S-4	SS	15	17 16 19 21	35	S-4 at 6ft Auger to 8ft, Easy Augering
+156.5	Light brown fine-medium SAND, some silt, some fine gravel (dry) [TILL]		8 – 10	S-5	SS	12	25 41 42 38	83	S-5 at 8ft
	Light brown fine-coarse SAND, some silt, trace fine gravel (moist) [TILL]		10 – 12	S-6	SS	17	50 33 40 31	73	S-6 at 10ft
			12 – 13.5						Auger to 15ft, Hard Augering, Heavy Chattering Inferred Cobble from 13ft to 13.5ft
	Gray BOULDER	4:51 1:43 1:52 1:30 1:24	13.5 – 18.5	C-1	NQ CORE	REC=28"/60" =47%	RQD=14.5"/60" =24%		C-1 at 13.5ft
	Gray f-c GRAVEL [TILL]	1:32	18.5 – 20	C-2	NQ CORE				C-2 at 18.5ft



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Log of Boring **C-B-BOR-22** Sheet 2 of 2

Project	Project No.
Hudson Logistics Center	151010101
Location	**Elevation and Datum**
59 Steele Road, Hudson NH	Elev. + 164.5 (NGVD29)

MATERIAL SYMBOL	Elev. (ft)	Sample Description	Coring (min)	Depth Scale	Sample Data Number	Sample Data Type	Sample Data Recov. (in)	Sample Data Penetr. resist BL/6in	N-Value (Blows/ft) 10 20 30 40	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
▨	+144.5		1:06 0:33 1:01 2:00	20 21 22 23	C-2	NQ CORE	REC=4"/60" =7%	RQD=0"/60" =0%		
▨		Light brown silty fine-coarse SAND, some fine gravel, some silt (moist) [TILL] Inferred Top of Bedrock		24	S-7	SS	5	36 74 50/3	50/3	S-7 at 23.5ft
	+139.8			25						Bottom of boring at 6/16/2020 Boring backfilled with auger cuttings
		Bottom of Boring		26						
				27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45						

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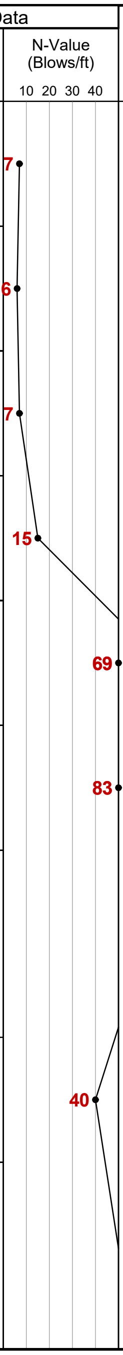
Log of Boring **C-B-BOR-23** Sheet 1 of 2

Project Hudson Logistics Center	Project No. 151010101
Location 59 Steele Road, Hudson NH	Elevation and Datum Elev. + 165 (NGVD29)
Drilling Company SoilTesting, Inc.	Date Started 6/27/20 — Date Finished 6/27/20
Drilling Equipment CME Truck-Mounted Drill Rig	Completion Depth 27 ft — Rock Depth N/E
Size and Type of Bit 4in Hollow Stem Auger	Number of Samples: Disturbed 9 — Undisturbed - — Core -
Casing Diameter (in) N/A — Casing Depth (ft) N/A	Water Level (ft.): First ▽ N/E — Completion ▼ N/A — 24 HR. ▼ N/A
Casing Hammer N/A — Weight (lbs) N/A — Drop (in) N/A	Drilling Foreman John Knepple
Sampler 2-inch-diameter split spoon	
Sampler Hammer Automatic — Weight (lbs) 140 — Drop (in) 30	Field Engineer Kenneth Idem



Elev. (ft)	Sample Description	Depth Scale	Number	Type	Recov. (in)	Penetr. resist BL/6in	N-Value (Blows/ft)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
+165.0 +164.8	Dark brown fine SAND, trace silt, trace roots (dry) [TOPSOIL]	0	S-1A	SS	12	4 3	7	Started Drilling at 6/27/2020 S-1 at 0ft
	Light brown fine SAND, trace silt (dry)	1	S-1B			4 3		
	Light brown fine-medium SAND, trace silt (dry)	2	S-2	SS	16	3 3 3 5	6	S-2 at 2ft
	Light brown fine-medium SAND, trace silt (dry)	4	S-3	SS	13	2 4 3 5	7	Auger to 4ft, Easy Augering S-3 at 4ft
	Light brown fine-medium SAND, trace silt (dry)	6	S-4	SS	19	5 6 9 11	15	S-4 at 6ft
+157.0	Light brown fine-medium SAND, some silt, trace fine gravel (dry) [TILL]	8	S-5	SS	13	10 36 33 29	69	Auger to 8ft, Easy Augering S-5 at 8ft
	Light brown fine-medium SAND, some silt, some fine gravel (dry) [TILL]	10	S-6	SS	18	22 39 44 31	83	S-6 at 10ft
		12						Auger to 15ft, Moderate Augering, Medium Chattering
	Light brown fine-medium SAND, some silt, some fine gravel (moist) [TILL]	15	S-7	SS	16	13 20 20 18	40	S-7 at 15ft Auger to 20ft, Moderate Augering, Medium Chattering
		20						

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Log of Boring **C-B-BOR-23** Sheet 2 of 2

Project	Project No.
Hudson Logistics Center	151010101
Location	**Elevation and Datum**
59 Steele Road, Hudson NH	Elev. + 165 (NGVD29)

MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data Number	Sample Data Type	Sample Data Recov. (in)	Sample Data Penetr. resist BL/6in	Sample Data N-Value (Blows/ft) 10 20 30 40	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
▨	+145.0	Light brown fine-medium SAND, some silt, some fine gravel (moist) [TILL]	20	S-8	SS	16	20 25 36 40	61	S-8 at 20ft
▨			22						Auger to 25ft, Moderate Augering, Medium Chattering
▨		Light brown silty fine-coarse SAND, some fine gravel (moist) [TILL]	25	S-9	SS	22	27 38 40 56	78	S-9 at 25ft
	+138.0	Bottom of Boring	27						Bottom of boring at 6/27/2020 Boring backfilled with auger cuttings.
			28						
			29						
			30						
			31						
			32						
			33						
			34						
			35						
			36						
			37						
			38						
			39						
			40						
			41						
			42						
			43						
			44						
			45						

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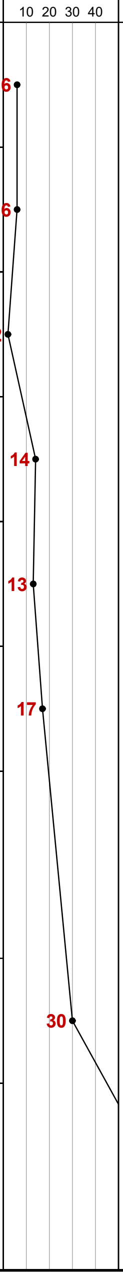
Log of Boring **C-B-BOR-24** Sheet 1 of 2

Project Hudson Logistics Center	Project No. 151010101
Location 59 Steele Road, Hudson NH	Elevation and Datum Elev. + 162 (NGVD29)
Drilling Company SoilTesting, Inc.	Date Started 6/27/20 · Date Finished 6/27/20
Drilling Equipment CME Truck-Mounted Drill Rig	Completion Depth 30 ft · Rock Depth 30 ft
Size and Type of Bit 4in Hollow Stem Auger	Number of Samples: Disturbed 10 · Undisturbed - · Core -
Casing Diameter (in) N/A · Casing Depth (ft) N/A	Water Level (ft.): First ▽ 15 · Completion ▼ N/A · 24 HR. ▼ N/A
Casing Hammer N/A · Weight (lbs) N/A · Drop (in) N/A	Drilling Foreman John Knepple
Sampler 2-inch-diameter split spoon	
Sampler Hammer Automatic · Weight (lbs) 140 · Drop (in) 30	Field Engineer Kenneth Idem

Elev. (ft)	Sample Description	Depth Scale	Number	Type	Recov. (in)	Penetr. resist BL/6in	N-Value (Blows/ft)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
162.0	8" Dark brown fine SAND, trace silt, trace roots (dry) [TOPSOIL]	0	S-1A S-1B	SS	17	3 3 3 2	6	Started Drilling at 6/27/2020 S-1 at 0ft
161.3	Light brown fine-medium SAND, some silt (dry)	1						
	Light brown fine-medium SAND, some silt (dry)	2	S-2	SS	4	3 3 3 3	6	S-2 at 2ft Auger to 4ft, Easy Augering
	Light brown fine-medium SAND, some silt (dry)	4	S-3	SS	5	1 1 1 2	2	S-3 at 4ft
156.0	Light brown silty fine SAND (dry)	6	S-4A S-4B	SS	16	3 4 10 11	14	S-4 at 6ft
154.9	Light brown fine-medium SAND, trace silt (dry)	7						Auger to 8ft, Easy Augering
	Light brown fine-coarse SAND, trace silt, trace fine gravel (dry)	8	S-5	SS	7	3 3 10 12	13	S-5 at 8ft
	Light brown fine-coarse SAND, trace silt (dry)	10	S-6	SS	16	11 8 9 12	17	S-6 at 10ft
		12						Auger to 15ft, Moderate Augering, Medium Chattering
	▽ Light brown fine-medium SAND, some silt, trace fine gravel (wet)	15	S-7	SS	14	12 13 17 17	30	S-7 at 15ft
		17						Auger to 20ft, Moderate Augering, Medium Chattering
142.0		20						



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Log of Boring **C-B-BOR-24** Sheet 2 of 2

Project Hudson Logistics Center	Project No. 151010101
Location 59 Steele Road, Hudson NH	Elevation and Datum Elev. + 162 (NGVD29)

Elev. (ft)	Sample Description	Depth Scale	Sample Data Number	Sample Data Type	Sample Data Recov. (in)	Sample Data Penetr. resist BL/6in	Sample Data N-Value (Blows/ft) 10 20 30 40	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
+142.0	Light brown silty fine-medium SAND, trace fine gravel (wet) [TILL]	20	S-8	SS	7	39 50/3	50/3	S-8 at 20ft Auger to 25ft, Moderate Augering, Medium Chattering
		21						
		22						
		23						
		24						
	Light brown silty fine-medium SAND, trace fine gravel (wet) [TILL]	25	S-9	SS	9	65 50/3	50/3	S-9 at 25ft Auger to 30ft, Moderate Augering, Medium Chattering
		26						
		27						
		28						
		29						
+131.8	Light brown silty fine-medium SAND, trace fine gravel (wet) [TILL] Inferred Top of Bedrock	30	S-10	SS	3	50/3	50/3	S-10 at 30ft Bottom of boring at 6/27/2020 Boring backfilled with auger cuttings
		31						
	Bottom of Boring	32						
		33						
		34						
		35						
		36						
		37						
		38						
		39						
		40						
		41						
		42						
		43						
		44						
		45						

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Log of Boring **C-B-BOR-25** Sheet 1 of 2

Project	Hudson Logistics Center	Project No.	151010101
Location	59 Steele Road, Hudson NH	Elevation and Datum	Elev. + 160.5 (NGVD29)
Drilling Company	Seaboard Drilling, Inc	Date Started / Date Finished	6/15/20 / 6/15/20
Drilling Equipment	Diedrich D50	Completion Depth / Rock Depth	27 ft / 27 ft
Size and Type of Bit	4in Hollow Stem Auger	Number of Samples	Disturbed 8 / Undisturbed - / Core -
Casing Diameter (in) / Casing Depth (ft)	N/A / N/A	Water Level (ft.)	First ∇ 20 / Completion ▼ N/A / 24 HR. ▼ N/A
Casing Hammer / Weight (lbs) / Drop (in)	N/A / N/A / N/A	Drilling Foreman	Jeff Nitsch
Sampler	2-inch-diameter split spoon		
Sampler Hammer / Weight (lbs) / Drop (in)	Automatic / 140 / 30	Field Engineer	Taylor Sisti

Elev. (ft)	Sample Description	Depth Scale	Number	Type	Recov. (in)	Penetr. resist BL/6in	N-Value (Blows/ft)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
+160.5	12" Light brown to orangish fine-medium SAND, some silt, trace roots (moist) [TOPSOIL]	0	S-1A	SS	10	2 2	5	Started Drilling on 6/15/2020 S-1 at 0ft
+159.5	Light brown to orangish fine-medium SAND, trace silt, trace f-c gravel (moist)	1	S-1B			3 3		
	Light brown to orangish fine-medium SAND, trace silt, trace fine gravel (dry)	2	S-2	SS	11	3 3 3 4	6	S-2 at 2ft
	Light brown fine-coarse SAND, some f-c gravel, trace silt (dry)	4	S-3	SS	10	7 7 8 10	15	Auger to 4ft S-3 at 4ft
	Light brown fine-coarse SAND, some f-c gravel, trace silt, some weathered rock fragments (dry)	6	S-4A	SS	15	10 16 58	74	S-4 at 6ft
+152.8	White to gray gravelly fine-coarse SAND, trace silt (dry) [TILL]		S-4B			41		Auger to 8ft
	Brown fine-medium SAND, some silt, trace weathered rock fragments (dry) [TILL]	8	S-5A	SS	15	34 24 19	43	S-5 at 8ft
	Brown fine-medium SAND, some silt (dry) [TILL]		S-5B			17		
	Brown fine-medium SAND, some silt (dry) [TILL]	10	S-6	SS	9	29 23 50/2	50/2	S-6 at 10ft
		12						Auger to 15ft, Easy Augering
		13						Auger to 15ft, hard drilling
	Brown fine-coarse SAND, some f-c gravel, trace silt, trace weathered gravel fragments (dry) [TILL]	15	S-7	SS	17	9 39 42 75	81	S-7 at 15ft
		17						Auger to 20ft, Moderate Augering, Medium Chattering Auger to 20ft, moderate to hard drilling
	∇	20						

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Log of Boring **C-B-BOR-25** Sheet 2 of 2

Project Hudson Logistics Center	Project No. 151010101
Location 59 Steele Road, Hudson NH	Elevation and Datum Elev. + 160.5 (NGVD29)

Elev. (ft)	Sample Description	Depth Scale	Sample Data Number	Type	Recov. (in)	Penetr. resist BL/6in	N-Value (Blows/ft) 10 20 30 40	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
+140.5	Brown fine-medium SAND, some silt, trace f-c gravel, trace weathered rock fragments (wet) [TILL]	20	S-8	SS	11	16 13 24 23	37	S-8 at 20ft
		21						
		22						
		23						
		24						
	Light brown silty fine SAND, some f-m gravel (wet) [TILL]	25	S-9	SS	9	55 50/3	50/3	S-9 at 25ft
		26						
+133.5	Light brown silty fine SAND, some f-m gravel (wet) [TILL] Inferred Top of Bedrock		S-10	SS	3	100/5	100/5	Auger Refusal at 26.5ft. S-10 at 26.5ft Bottom of boring on 6/16/2020 Boring backfilled with auger cuttings
	Bottom of Boring	27						
		28						
		29						
		30						
		31						
		32						
		33						
		34						
		35						
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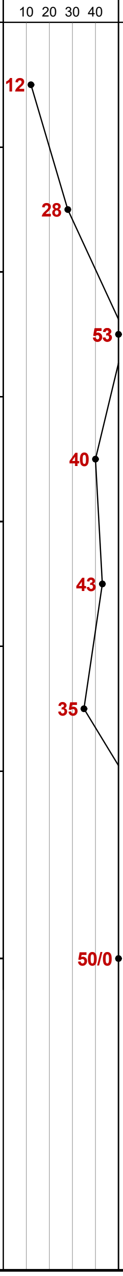
Log of Boring **C-B-BOR-26** Sheet 1 of 1

Project Hudson Logistics Center		Project No. 151010101	
Location 59 Steele Road, Hudson NH		Elevation and Datum Elev. + 140 (NGVD29)	
Drilling Company SoilTesting, Inc.		Date Started 6/15/20	Date Finished 6/15/20
Drilling Equipment DIEDRICH D-50		Completion Depth 15.5 ft	Rock Depth 15.5 ft
Size and Type of Bit 4in Hollow Stem Auger		Number of Samples: Disturbed 7	Undisturbed - ; Core -
Casing Diameter (in) N/A	Casing Depth (ft) N/A	Water Level (ft.): First ▽ 9	Completion ▼ N/A ; 24 HR. ▼ N/A
Casing Hammer N/A; Weight (lbs) N/A	Drop (in) N/A	Drilling Foreman Michael Kennedy	
Sampler 2-inch-diameter split spoon			
Sampler Hammer Safety; Weight (lbs) 140	Drop (in) 30	Field Engineer Kenneth Idem	

Elev. (ft)	Sample Description	Depth Scale	Number	Type	Recov. (in)	Penetr. resist BL/6in	N-Value (Blows/ft)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
+140.0	8" Dark brown fine SAND, trace silt, trace root (dry) [TOPSOIL]	0	S-1	SS	8	3 4 8 10	12	Started Drilling on 6/15/2020 S-1 at 0ft
+138.0	Brown fine-coarse SAND, some silt, trace fine gravel (dry)	2	S-2	SS	15	15 13 15 17	28	S-2 at 2ft
+136.0	Gray fine-coarse SAND, some silt, trace fine gravel (dry) [TILL]	4	S-3	SS	16	20 21 32 21	53	Auger to 4ft, Easy Augering. S-3 at 4ft
	Brown fine to coarse SAND, some silt, trace fine gravel (moist) [TILL]	6	S-4	SS	15	23 20 20 19	40	S-4 at 6ft
	Brown fine to coarse SAND, some silt, trace f gravel (wet) [TILL]	8 ▽ 9	S-5	SS	14	17 20 23 19	43	Auger to 8ft, Moderate Augering, Light Chattering. S-5 at 8ft
	Brown fine to coarse SAND, some silt, trace fine gravel (wet) [TILL]	10	S-6	SS	12	17 17 18 19	35	S-6 at 10ft
		12						Auger to 15ft, Moderate Augering, Light Chattering
	No Recovery Inferred Top of Bedrock	15	S-7	SS	0	50/0	50/0	S-7 at 15ft
+124.5	Bottom of Boring	15.5						Auger Refusal at 15.5ft Bottom of boring on 6/15/2020 Boring backfilled with auger cuttings



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Log of Boring **C-B-BOR-27** Sheet 1 of 2

Project Hudson Logistics Center		Project No. 151010101	
Location 59 Steele Road, Hudson NH		Elevation and Datum Elev. + 144.5 (NGVD29)	
Drilling Company SoilTesting, Inc.		Date Started 6/15/20	Date Finished 6/15/20
Drilling Equipment DIEDRICH D-50		Completion Depth 24.5 ft	Rock Depth 24.5 ft
Size and Type of Bit 4in Hollow Stem Auger		Number of Samples: Disturbed 9	Undisturbed - / Core -
Casing Diameter (in) N/A	Casing Depth (ft) N/A	Water Level (ft.): First ▽ 20	Completion ▼ N/A / 24 HR. ▼ N/A
Casing Hammer N/A / Weight (lbs) N/A	Drop (in) N/A	Drilling Foreman Michael Kennedy	
Sampler 2-inch-diameter split spoon			
Sampler Hammer Safety / Weight (lbs) 140	Drop (in) 30	Field Engineer Kenneth Idem	

Elev. (ft)	Sample Description	Depth Scale	Number	Type	Recov. (in)	Penetr. resist BL/6in	N-Value (Blows/ft)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
144.5	8" Brown fine SAND, trace silt, trace roots (dry) [TOPSOIL]	0	S-1A	SS	18	2 3	6	Started Drilling on 6/15/2020 S-1 at 0ft
143.8	Orangy brown fine-medium SAND, trace silt (dry)	1	S-1B			3 3		
	Brown fine-medium SAND, some silt, trace fine gravel (dry)	2	S-2	SS	15	5 5 12 12	17	S-2 at 2ft
	Brown fine-medium SAND, some fine gravel, trace silt (dry)	4	S-3	SS	16	19 23 43 52	66	Auger to 4ft, Easy Augering . S-3 at 4ft
138.5	Brown fine-medium SAND, some silt, trace fine gravel (moist) [TILL]	6	S-4	SS	16	32 27 27 27	54	S-4 at 6ft
	Brown fine-medium SAND, some silt, trace fine gravel (moist) [TILL]	8	S-5	SS	18	24 29 31 27	60	Auger to 8ft,Hard Augering, Medium Chattering . S-5 at 8ft
	Brown fine-medium SAND, some silt, trace fine gravel (moist) [TILL]	10	S-6	SS	16	34 33 32 24	65	S-6 at 10ft
		12						Auger to 15ft, Moderate Augering, Medium Chattering
	Brown fine-coarse SAND, some silt, trace fine gravel (moist) [TILL]	15	S-7	SS	16	21 27 53 48	80	S-7 at 15ft
		17						Auger to 20ft,Moderate Augering, Medium Chattering
	▽	20						

Project Hudson Logistics Center	Project No. 151010101
Location 59 Steele Road, Hudson NH	Elevation and Datum Elev. + 144.5 (NGVD29)

MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data Number	 Type	 Recov. (in)	 Penetr. resist BL/6in	 N-Value (Blows/ft) 10 20 30 40	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
▨	+124.5	Brown fine-medium SAND, some silt (wet) [TILL]	20	S-8	SS	14	35 90 100/5	100/5	S-8 at 20ft
▨			21						Auger to 25ft, Hard Augering, Medium Chattering
▨			22						
▨			23						
▨		No Recovery Inferred Top of Bedrock	24						
	120.0	Bottom of Boring		S-9	SS	0	50/0	50/0	S-9 at 24.5ft Auger and Spoon refusal at 24.5ft. Bottom of boring on 6/15/2020. Boring backfilled with auger cuttings
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			26						
			27						
			28						
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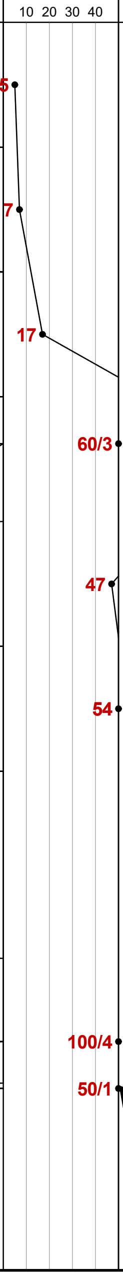
Log of Boring **C-B-BOR-28** Sheet 1 of 1

Project Hudson Logistics Center		Project No. 151010101	
Location 59 Steele Road, Hudson NH		Elevation and Datum Elev. + 151 (NGVD29)	
Drilling Company Seaboard Drilling, Inc		Date Started 6/15/20	Date Finished 6/15/20
Drilling Equipment Diedrich D50		Completion Depth 17 ft	Rock Depth 17 ft
Size and Type of Bit 4in Hollow Stem Auger		Number of Samples	Disturbed 8 / Undisturbed - / Core -
Casing Diameter (in) N/A	Casing Depth (ft) N/A	Water Level (ft.)	First ▽ N/E / Completion ▼ N/A / 24 HR. ▼ N/A
Casing Hammer N/A	Weight (lbs) N/A / Drop (in) N/A	Drilling Foreman Jeff Nitsch	
Sampler 2-inch-diameter split spoon		Field Engineer Taylor Sisti	
Sampler Hammer Automatic	Weight (lbs) 140 / Drop (in) 30		

Elev. (ft)	Sample Description	Depth Scale	Number	Type	Recov. (in)	Penetr. resist BL/6in	N-Value (Blows/ft)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
+151.0	8" Brown to grayish fine-medium SAND, some silt, some roots (dry) [TOPSOIL]	0	S-1A	SS	16	3 3	5	Started Drilling at 6/15/2020 S-1 at 0ft
+150.3	Brown fine-medium SAND, some silt, trace fine gravel, trace roots (dry)	1	S-1B			2 3		
	Brown fine-coarse SAND, trace silt, trace fine gravel (dry)	2	S-2	SS	8	3 3 4 7	7	S-2 at 2ft
	Brown fine-medium SAND, some f-c gravel, trace silt (dry)	4	S-3	SS	3	8 8 9 24	17	Auger to 4ft S-3 at 4ft
+145.0	Brown fine-medium SAND, some f-c gravel, trace silt (dry) [TILL]	6	S-4	SS	2	18 60/3	60/3	S-4 at 6ft Auger to 8ft, moderate to hard drilling
	Brown fine-medium SAND, some f-c gravel, trace silt, trace weathered gravel fragments (dry) [TILL]	8	S-5	SS	19	21 22 25 19	47	S-5 at 8ft
	Brown gravelly fine-medium SAND, trace silt, trace weathered gravel fragments (dry) [TILL]	10	S-6	SS	20	28 24 30 27	54	S-6 at 10ft
		13						Auger to 13ft, moderate drilling
	Brown gravelly fine-medium SAND, trace silt, trace weathered gravel fragments (dry) [TILL] Gray fine-medium SAND, trace fine gravel, trace silt (dry) [TILL] Inferred Top of Bedrock	15	S-7	SS	7	8 11 100/4	100/4	S-7 at 15ft Auger to 17ft, hard drilling
+133.9	Bottom of Boring	17	S-8	SS	1	50/1	50/1	S-8 at 17ft, auger and split spoon refusal at 17ft Bottom of boring on 6/15/2020 Boring backfilled with auger cuttings



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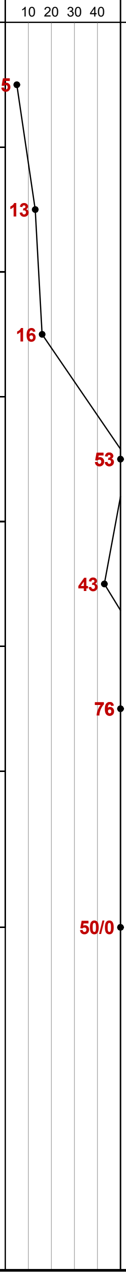
Log of Boring **C-B-BOR-29** Sheet 1 of 1

Project	Hudson Logistics Center	Project No.	151010101
Location	59 Steele Road, Hudson NH	Elevation and Datum	Elev. + 138 (NGVD29)
Drilling Company	SoilTesting, Inc.	Date Started / Date Finished	6/15/20 / 6/15/20
Drilling Equipment	DIEDRICH D-50	Completion Depth / Rock Depth	14.5 ft / 14.5 ft
Size and Type of Bit	4in Hollow Stem Auger	Number of Samples: Disturbed / Undisturbed / Core	7 / - / -
Casing Diameter (in) / Casing Depth (ft)	N/A / N/A	Water Level (ft.): First / Completion / 24 HR.	11 / N/A / N/A
Casing Hammer / Weight (lbs) / Drop (in)	N/A / N/A / N/A	Drilling Foreman	Michael Kennedy
Sampler	2-inch-diameter split spoon		
Sampler Hammer / Weight (lbs) / Drop (in)	Safety / 140 / 30	Field Engineer	Kenneth Idem

Elev. (ft)	Sample Description	Depth Scale	Number	Type	Recov. (in)	Penetr. resist BL/6in	N-Value (Blows/ft)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
+138.0	12" Brown fine SAND, trace silt, trace fine gravel, trace roots (dry) [TOPSOIL]	0	S-1	SS	5	2 2 3 5	5	Started Drilling on 6/15/2020. S-1 at 0ft
+136.0	Brown fine-medium SAND, trace silt, trace fine gravel (dry)	2	S-2	SS	2	7 8 5 5	13	S-2 at 2ft
	Brown fine-coarse SAND, trace silt, trace fine gravel (dry)	4	S-3	SS	16	8 6 10 27	16	Auger to 4ft, Easy Augering . S-3 at 4ft
+132.0	Brown to gray fine to coarse SAND, some silt, trace fine gravel (moist) [TILL]	6	S-4	SS	12	39 29 24 28	53	S-4 at 6ft
	Brown to gray fine to coarse SAND, some silt, trace fine gravel (moist) [TILL]	8	S-5	SS	14	21 22 21 17	43	Auger to 18ft, Moderate Augering, Medium Chattering . S-5 at 8ft
	Brown to gray fine to coarse SAND, some silt, some fine gravel (wet) [TILL]	10	S-6	SS	16	41 37 39 49	76	S-6 at 10ft
		12						Auger to 12ft, Hard Augering, Medium Chattering
	No Recovery Inferred Top of Bedrock	14.5	S-7	SS	0	50/0	50/0	S-7 at 14.5ft. Auger and Spoon refusal at 14.5ft Bottom of boring at 6/15/2020. Boring backfilled with auger cuttings
+123.0	Bottom of Boring	15						



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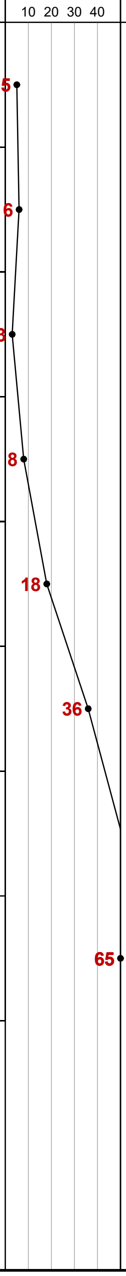
Log of Boring **C-R-BOR-01** Sheet 1 of 1

Project: Hudson Logistics Center
Project No.: 151010101
Location: 59 Steele Road, Hudson NH
Elevation and Datum: Elev. + 129 (NGVD29)
Drilling Company: Atlantic Testing Laboratories
Date Started: 6/4/20
Date Finished: 6/4/20
Drilling Equipment: CME75 Track Rig
Completion Depth: 16 ft
Rock Depth: N/E
Size and Type of Bit: 3-7/8in Tricone Roller Bit
Number of Samples: Disturbed 7; Undisturbed -; Core -
Casing Diameter (in): 4in
Casing Depth (ft): 4
Water Level (ft.): First ▽ 8; Completion ▼ 5.8; 24 HR. ▼ N/A
Casing Hammer: Automatic; Weight (lbs): 140; Drop (in): 30
Drilling Foreman: Brad Perry
Sampler: 2-inch-diameter split spoon
Field Engineer: Olivia Chasse
Sampler Hammer: Automatic; Weight (lbs): 140; Drop (in): 30

Elev. (ft)	Sample Description	Depth Scale	Number	Type	Recov. (in)	Penetr. resist BL/6in	N-Value (Blows/ft)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
+129.0 +128.7	4" Dark brown fine-medium SAND, trace silt, some roots (dry) [TOPSOIL]	0	S-1A	SS	20	1 2	5	Started Drilling at 6/4/2020 S-1 at 0ft
	Light brown fine-medium SAND, trace silt (dry)	1	S-1B			3 3		
	Light brown fine SAND, trace silt (dry)	2	S-2	SS	18	2 3 3 3	6	S-2 at 2ft
	Light brown fine SAND, some silt (dry)	4	S-3	SS	17	2 2 1 1	3	Drive casing to 4.0ft S-3 at 4ft
	Light brown fine SAND, some silt (dry)	6	S-4	SS	22	3 5 3 3	8	S-4 at 6ft
	Light brown fine SAND, some silt (wet)	8	S-5	SS	15	2 8 10 8	18	Drill to 8ft, easy drilling S-5 at 8ft
	Light brown fine-coarse SAND, some silt, some fine gravel (wet)	10	S-6	SS	20	12 15 21 21	36	S-6 at 10ft
+115.0	Gray fine-medium SAND, some silt, some fine gravel (wet) [TILL]	14	S-7	SS	8	16 25 40 41	65	Drill to 14ft, easy drilling S-7 at 14ft
+113.0	Bottom of Boring	16						Bottom of boring at 6/4/2020 Boring backfilled with soil cuttings.



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Log of Boring **C-R-BOR-02** Sheet 1 of 1

Project: Hudson Logistics Center		Project No.: 151010101	
Location: 59 Steele Road, Hudson NH		Elevation and Datum: Elev. + 132 (NGVD29)	
Drilling Company: SoilTesting, Inc.		Date Started: 6/14/20	Date Finished: 6/14/20
Drilling Equipment: CME Truck-Mounted Drill Rig		Completion Depth: 17 ft	Rock Depth: N/E
Size and Type of Bit: 4in Hollow Stem Auger		Number of Samples: Disturbed 7	Undisturbed - Core -
Casing Diameter (in): N/A	Casing Depth (ft): N/A	Water Level (ft.): First ▽ 4	Completion ▼ N/A 24 HR. ▼ N/A
Casing Hammer: N/A Weight (lbs): N/A	Drop (in): N/A	Drilling Foreman: Sam Deangelis	
Sampler: 2-inch-diameter split spoon		Field Engineer: Jack Berritt	
Sampler Hammer: Safety Weight (lbs): 140	Drop (in): 30		

Elev. (ft)	Sample Description	Depth Scale	Number	Type	Recov. (in)	Penetr. resist BL/6in	N-Value (Blows/ft)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
+132.0	Brown fine SAND, some silt (dry)	0	S-1	SS	10	3 2 4 4	6	Started Drilling on 6/14/2020 S-1 at 0ft
	Light brown silty fine SAND (moist)	2	S-2	SS	15	4 4 5 4	9	S-2 at 2ft Auger to 4 ft
	Light brown silty fine SAND (wet)	▽ 4	S-3	SS	15	12 7 10 8	17	S-3 at 4ft
	Light brown silty fine SAND (wet)	6	S-4	SS	24	4 6 5 7	11	S-4 at 6ft Auger to 8 ft
	Light brown silty fine SAND (wet)	8	S-5	SS	16	4 4 6 7	10	S-5 at 8ft
	Light brown silty fine SAND (wet)	10	S-6	SS	20	6 8 9 11	17	S-6 at 10ft
		12						Auger to 15 ft
	Light brown fine-coarse SAND, some silt, trace fine gravel (wet)	15	S-7	SS	18	3 5 7 8	12	S-7 at 15ft
+115.0	Bottom of Boring	17						Bottom of boring on 6/14/2020 Boring backfilled with auger cuttings
		20						

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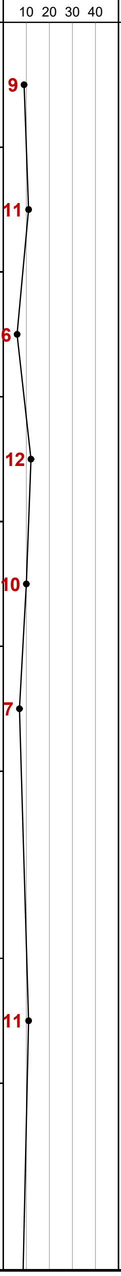
Log of Boring **C-R-BOR-03** Sheet 1 of 2

Project	Hudson Logistics Center	Project No.	151010101
Location	59 Steele Road, Hudson NH	Elevation and Datum	Elev. + 129.5 (NGVD29)
Drilling Company	SoilTesting, Inc.	Date Started / Date Finished	6/14/20 / 6/14/20
Drilling Equipment	Geoprobe 7822 DT	Completion Depth / Rock Depth	22 ft / N/E
Size and Type of Bit	4in Hollow Stem Auger	Number of Samples	Disturbed 8 / Undisturbed - / Core -
Casing Diameter (in) / Casing Depth (ft)	N/A / N/A	Water Level (ft.)	First ∇ 6 / Completion ▼ N/A / 24 HR. ▼ N/A
Casing Hammer / Weight (lbs) / Drop (in)	N/A / N/A / N/A	Drilling Foreman	Sam Deangelis
Sampler	2-inch-diameter split spoon	Field Engineer	Jack Berritt
Sampler Hammer / Weight (lbs) / Drop (in)	Automatic / 140 / 30		

Elev. (ft)	Sample Description	Depth Scale	Number	Type	Recov. (in)	Penetr. resist BL/6in	N-Value (Blows/ft)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
+129.5	Brown fine SAND, some silt (dry)	0	S-1	SS	22	3 4 5 5	9	Started Drilling on 6/14/2020 S-1 at 0ft
	Brownish black fine SAND, some silt, trace organics (dry)	2	S-2	SS	20	5 6 5 5	11	S-2 at 2ft Auger to 4 ft
	Light brown silty fine SAND, some silt, trace organics (moist)	4	S-3	SS	20	7 3 3 4	6	S-3 at 4ft
	Light brown fine SAND, some silt, trace organics (wet)	6 ∇	S-4	SS	14	7 6 6 6	12	S-4 at 6ft Auger to 8 ft
	Light brown fine SAND, some silt, trace organics (wet)	8	S-5	SS	10	5 5 5 4	10	S-5 at 8ft
	Brown silty fine SAND (wet)	10	S-6	SS	14	2 4 3 4	7	S-6 at 10ft
		12						Auger to 15 ft
	Brown silty fine-medium SAND (wet)	15	S-7	SS	16	5 6 5 5	11	S-7 at 15ft
		17						Auger to 20 ft
		20						



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Log of Boring **C-R-BOR-03** Sheet 2 of 2

Project	Project No.
Hudson Logistics Center	151010101
Location	**Elevation and Datum**
59 Steele Road, Hudson NH	Elev. + 129.5 (NGVD29)

MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data Number	Type	Recov. (in)	Penetr. resist BL/6in	N-Value (Blows/ft) 10 20 30 40	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	+109.5	Brown fine-coarse SAND, trace silt, trace fine gravel (wet)	20				3		S-8 at 20ft
			21	S-8	SS	17	4 4	8	
	+107.5	Bottom of Boring	22				4		Bottom of boring on 6/14/2020 Boring backfilled with auger cuttings
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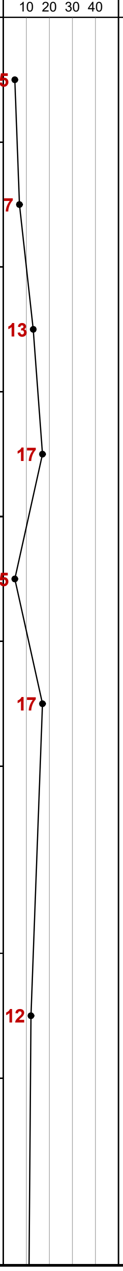
Log of Boring **C-R-BOR-04** Sheet 1 of 2

Project Hudson Logistics Center		Project No. 151010101	
Location 59 Steele Road, Hudson NH		Elevation and Datum Elev. + 128.5 (NGVD29)	
Drilling Company SoilTesting, Inc.		Date Started 6/17/20	Date Finished 6/17/20
Drilling Equipment ATV Mounted CME 550X		Completion Depth 22 ft	Rock Depth N/E
Size and Type of Bit 4in Hollow Stem Auger		Number of Samples: Disturbed 8; Undisturbed -; Core -	
Casing Diameter (in) N/A	Casing Depth (ft) N/A	Water Level (ft.): First ▽ 6; Completion ▼ N/A; 24 HR. ▼ N/A	
Casing Hammer N/A; Weight (lbs) N/A	Drop (in) N/A	Drilling Foreman Sam DeAngelis	
Sampler 2-inch-diameter split spoon		Field Engineer Justin Hall	
Sampler Hammer Automatic; Weight (lbs) 140	Drop (in) 30		

Elev. (ft)	Sample Description	Depth Scale	Number	Type	Recov. (in)	Penetr. resist BL/6in	N-Value (Blows/ft)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
+128.5	18" Dark brown fine-coarse SAND, some silt, trace roots (moist)[TOPSOIL]	0	S-1A	SS	20	1 2 3 3	5	Started Drilling on 6/17/2020 S-1 at 0ft
+127.0	Light grayish brown fine-medium SAND, some silt, trace roots (moist) [FILL]	1.5	S-1B					
	Light grayish brown fine-medium SAND, some silt (moist) [FILL]	2	S-2A	SS	13	4 5 2 3	7	S-2 at 2ft
+124.8	Light brown to black organic SILT, trace fine sand (moist)	3.7	S-2B					
	Light brown to black organic SILT, trace fine sand (moist)	4	S-3A	SS	20	5 7 6 7	13	S-3 at 4ft
+123.5	Light brown silty fine-medium SAND (moist)	5	S-3B					
	Light brown silty fine-medium SAND (wet) ▽	6	S-4	SS	18	7 9 8 8	17	S-4 at 6ft
	Light brown fine-medium SAND, some silt (wet)	8	S-5	SS	14	3 2 3 4	5	S-5 at 8ft
	Light brown silty fine-medium SAND (wet)	10	S-6	SS	15	6 8 9 10	17	S-6 at 10ft
+113.5	Light brown fine-medium SAND, trace silt (wet)	15	S-7	SS	18	2 5 7 8	12	S-7 at 15ft



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Log of Boring **C-R-BOR-04** Sheet 2 of 2

Project Hudson Logistics Center	Project No. 151010101
Location 59 Steele Road, Hudson NH	Elevation and Datum Elev. + 128.5 (NGVD29)

MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data Number	Type	Recov. (in)	Penetr. resist BL/6in	N-Value (Blows/ft) 10 20 30 40	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	+108.5	Light brown fine-medium SAND, trace silt (wet)	20 21	S-8	SS	20	2 5 6 8	11	S-8 at 20ft
	+106.5	Bottom of Boring	22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45						Bottom of boring on 6/17/2020 Boring backfilled with auger cuttings

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Log of Boring **C-R-BOR-06** Sheet 1 of 1

Project	Hudson Logistics Center		Project No.	151010101	
Location	59 Steele Road, Hudson NH		Elevation and Datum	Elev. + 128 (NGVD29)	
Drilling Company	Seaboard Drilling, Inc		Date Started: 6/17/20	Date Finished: 6/17/20	
Drilling Equipment	Diedrich D50		Completion Depth: 17 ft	Rock Depth: N/E	
Size and Type of Bit	4in Hollow Stem Auger		Number of Samples	Disturbed: 7	Undisturbed: - Core: -
Casing Diameter (in): N/A	Casing Depth (ft): N/A		Water Level (ft.)	First ▽ 4.5	Completion ▼ N/A 24 HR. ▼ N/A
Casing Hammer: N/A	Weight (lbs): N/A	Drop (in): N/A	Drilling Foreman	Jeff Nitsch	
Sampler	2-inch-diameter split spoon		Field Engineer	Reid Balkind	
Sampler Hammer: Safety	Weight (lbs): 140	Drop (in): 30			

Depth Scale	Elev. (ft)	Sample Description	Number	Type	Recov. (in)	Penetr. resist BL/6in	N-Value (Blows/ft)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
0	+128.0 +127.7	4" Dark brown fine SAND, trace silt, trace roots (dry) [TOPSOIL]	S-1A	SS	16	2		Started Drilling at 6/17/2020 S-1 at 0ft
1		Brown fine-medium SAND, some silt (dry)	S-1B			2 3 3	5	
2		Brown fine-medium SAND, some silt (dry)	S-2	SS	19	3 4 4 5	8	S-2 at 2ft
4		Brown silty fine-medium SAND (wet) ▽	S-3	SS	18	4 4 5 6	9	S-3 at 4ft Auger to 4ft
6		Brown silty fine-medium SAND (wet)	S-4A S-4B	SS	24	6 6 11 13	17	S-4 at 6ft
8		Brown fine-coarse SAND, some silt (wet)	S-5	SS	16	10 14 12 12	26	S-5 at 8ft Auger to 8ft
10		Brown fine-coarse SAND, trace silt, trace fine gravel (wet)	S-6	SS	19	13 13 16 17	29	S-6 at 10ft
12								S-7 at 12ft Auger to 15ft. Easy drilling
15	+113.0	Grayish brown fine-coarse SAND, some fine gravel, some silt, trace weathered gravel (wet) [TILL]	S-7	SS	20	36 34 50 52	84	
17	+111.0	Bottom of Boring						Bottom of boring at 6/17/2020 Boring backfilled with auger cuttings.
20								

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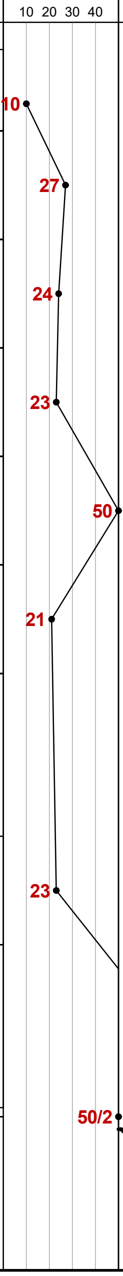
Log of Boring **C-R-BOR-06A** Sheet 1 of 1

Project Hudson Logistics Center		Project No. 151010101	
Location 59 Steele Road, Hudson NH		Elevation and Datum Elev. + 136.5 (NGVD29)	
Drilling Company SoilTesting, Inc.		Date Started 6/17/20	Date Finished 6/24/20
Drilling Equipment CME Truck-Mounted Drill Rig		Completion Depth 20 ft	Rock Depth 20.4 ft
Size and Type of Bit 4in Hollow Stem Auger		Number of Samples	Disturbed 8 / Undisturbed - / Core -
Casing Diameter (in) N/A	Casing Depth (ft) N/A	Water Level (ft.)	First ▽ 8 / Completion ▼ N/A / 24 HR. ▼ N/A
Casing Hammer N/A / Weight (lbs) N/A	Drop (in) N/A	Drilling Foreman Mike Kennedy	
Sampler 2-inch-diameter split spoon			
Sampler Hammer Safety / Weight (lbs) 140	Drop (in) 30	Field Engineer Olivia Chasse	

MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Number	Type	Recov. (in)	Penetr. resist BL/6in	N-Value (Blows/ft)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	+136.5	24" Brown fine-medium SAND, some silt, some roots (dry)[TOPSOIL]	0						Started Drilling on 6/17/2020
			1	S-1	SS	7	3 5 5	10	S-1 at 0.5ft
	+134.5	Brown fine-medium SAND, some silt, trace fine gravel (dry)	2	S-2	SS	15	6 13 14 12	27	S-2 at 2ft
	+132.5	Brown fine-medium SAND, some silt, some fine gravel (dry)[TILL]	4	S-3	SS	12	14 10 14 11	24	Auger to 4ft, easy to moderate drilling S-3 at 4ft
		Brown fine-medium SAND, some silt, some fine gravel (dry)[TILL]	6	S-4	SS	4	15 9 14 30	23	S-4 at 6ft
		Brown fine-medium SAND, some silt, some fine gravel (wet)[TILL]	▽ 8	S-5	SS	3	39 34 16 15	50	Auger to 8ft, easy drilling S-5 at 8ft
		Brown fine-medium SAND, some silt, some fine gravel (wet)[TILL]	10	S-6	SS	2	16 11 10 12	21	S-6 at 10ft
		Brown fine-medium SAND, some silt, some fine gravel (wet)[TILL]	15	S-7	SS	4	5 12 11 13	23	Auger to 15ft, easy drilling S-7 at 15ft
		Brown fine GRAVEL, some silt, some f-m sand (wet) [WEATHERED ROCK]	19						
	+116.1		20	S-8	SS	2	50/2	50/2	S-8 at 20ft Bottom of boring on 6/24/2020. Auger refusal at 20.4ft. Boring backfilled with auger cuttings
		Bottom of Boring	21						



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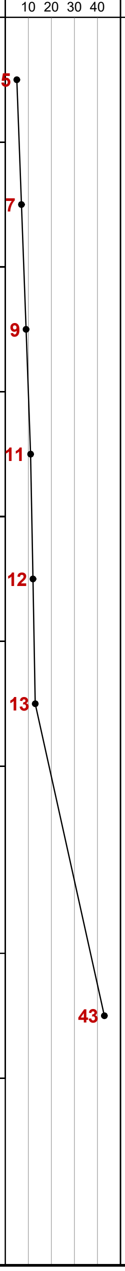
Log of Boring **C-S-BOR-01** Sheet 1 of 1

Project Hudson Logistics Center		Project No. 151010101	
Location 59 Steele Road, Hudson NH		Elevation and Datum Elev. + 132 (NGVD29)	
Drilling Company SoilTesting, Inc.		Date Started 6/14/20	Date Finished 6/14/20
Drilling Equipment Geoprobe 7822 DT		Completion Depth 17 ft	Rock Depth N/E
Size and Type of Bit 4in Hollow Stem Auger		Number of Samples	Disturbed 7 / Undisturbed - / Core -
Casing Diameter (in) N/A	Casing Depth (ft) N/A	Water Level (ft.)	First ▽ 6 / Completion ▼ N/A / 24 HR. ▼ N/A
Casing Hammer N/A	Weight (lbs) 140 / Drop (in) 30	Drilling Foreman Sam Deangelis	
Sampler 2-inch-diameter split spoon			
Sampler Hammer Automatic	Weight (lbs) 140 / Drop (in) 30	Field Engineer Jack Berritt	

MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Number	Type	Recov. (in)	Penetr. resist BL/6in	N-Value (Blows/ft)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	+132.0	Brown fine SAND, some silt (dry)	0	S-1	SS	12	2 2 3 3	5	Started Drilling at 6/14/2020 S-1 at 0ft
		Brown fine SAND, some silt (dry)	2	S-2	SS	18	4 4 3 5	7	S-2 at 2ft Auger to 4 ft
		Brown fine SAND, some silt (moist)	4	S-3	SS	15	4 5 4 4	9	S-3 at 4ft
		Brown fine SAND, some silt (wet)	▽ 6	S-4	SS	17	6 6 5 6	11	S-4 at 6ft Auger to 8 ft
		Brown fine-coarse SAND, trace silt (wet)	8	S-5	SS	11	3 4 8 8	12	S-5 at 8ft
		Brown fine-coarse SAND, trace silt (wet)	10	S-6	SS	20	5 7 6 10	13	S-6 at 10ft
			12						Auger to 15 ft
		Brown fine-coarse SAND, trace silt, trace fine gravel (wet)	15	S-7	SS	16	14 19 24 40	43	S-7 at 15ft
	+115.0	Bottom of Boring	17						Bottom of boring at 6/14/2020 Boring backfilled with auger cuttings.
			20						



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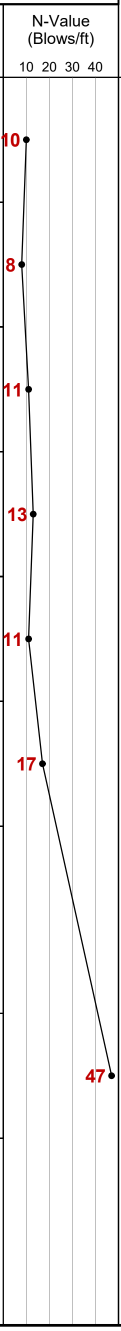
Log of Boring **C-S-BOR-02** Sheet 1 of 1

Project Hudson Logistics Center		Project No. 151010101	
Location 59 Steele Road, Hudson NH		Elevation and Datum Elev. + 132 (NGVD29)	
Drilling Company SoilTesting, Inc.		Date Started 6/13/20	Date Finished 6/13/20
Drilling Equipment CME Truck-Mounted Drill Rig		Completion Depth 17 ft	Rock Depth N/E
Size and Type of Bit 4in Hollow Stem Auger		Number of Samples: Disturbed 7 / Undisturbed - / Core -	
Casing Diameter (in) N/A	Casing Depth (ft) N/A	Water Level (ft.): First ∇ 8 / Completion ▼ N/A / 24 HR. ▼ N/A	
Casing Hammer N/A | Weight (lbs) N/A	Drop (in) N/A	Drilling Foreman Sam Deangelis	
Sampler 2-inch-diameter split spoon			
Sampler Hammer Safety | Weight (lbs) 140	Drop (in) 30	Field Engineer Jack Berritt	



Elev. (ft)	Sample Description	Depth Scale	Sample Data Number	Type	Recov. (in)	Penetr. resist BL/6in	N-Value (Blows/ft)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
+132.0	Grayish brown fine SAND, some silt (dry)	0	S-1	SS	14	4 5 5 5	10	Started Drilling on 6/13/2020. S-1 at 0ft
	Grayish brown silty fine SAND (moist)	2	S-2	SS	15	3 4 4 7	8	S-2 at 2ft Auger to 4 ft
	Grayish brown silty fine SAND (moist)	4	S-3	SS	14	4 5 6 6	11	S-3 at 4ft
	Grayish brown silty fine SAND (moist)	6	S-4	SS	20	6 6 7 7	13	S-4 at 6ft Auger to 8 ft
	∇ Grayish brown fine SAND, some silt (wet)	8	S-5	SS	15	11 5 6 6	11	S-5 at 8ft
	Grayish brown fine-medium SAND, trace silt (wet)	10	S-6	SS	20	5 7 10 12	17	S-6 at 10ft Auger to 15 ft
+117.0	Grayish brown fine SAND, trace silt, trace fine gravel (wet) [TILL]	15	S-7	SS	16	12 17 30 34	47	S-7 at 15ft
+115.0	Bottom of Boring	17						Bottom of boring on 6/13/2020 Boring backfilled with auger cuttings.

Depth Scale: 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20

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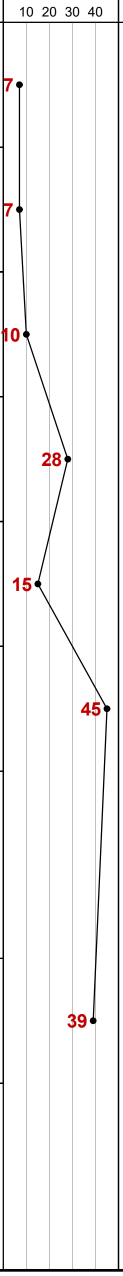
Log of Boring **C-S-BOR-03** Sheet 1 of 1

Project Hudson Logistics Center		Project No. 151010101	
Location 59 Steele Road, Hudson NH		Elevation and Datum Elev. + 130 (NGVD29)	
Drilling Company SoilTesting, Inc.		Date Started 6/17/20	Date Finished 6/17/20
Drilling Equipment ATV Mounted CME 550X		Completion Depth 17 ft	Rock Depth N/E
Size and Type of Bit 4in Hollow Stem Auger		Number of Samples — Disturbed 7	Undisturbed - ; Core -
Casing Diameter (in) N/A	Casing Depth (ft) N/A	Water Level (ft.) — First ▽ 4	Completion ▼ N/A ; 24 HR. ▼ N/A
Casing Hammer N/A ; Weight (lbs) N/A	Drop (in) N/A	Drilling Foreman Sam DeAngelis	
Sampler 2-inch-diameter split spoon			
Sampler Hammer Automatic ; Weight (lbs) 140	Drop (in) 30	Field Engineer Justin Hall	

Elev. (ft)	Sample Description	Depth Scale	Number	Type	Recov. (in)	Penetr. resist BL/6in	N-Value (Blows/ft)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
+130.0 +129.5	8" Dark brown fine-coarse SAND, some silt, trace fine gravel, trace root (moist) [TOPSOIL]	0	S-1A	SS	16	2 3	7	Started Drilling on 6/17/2020. S-1 at 0ft
	Light brown fine-medium SAND, some silt (moist)	1	S-1B			4 3		
	Light brown silty fine-medium SAND, some silt (moist)	2	S-2	SS	18	3 3 4 3	7	S-2 at 2ft
	▽ Light brown silty fine-medium SAND (wet)	4	S-3	SS	16	4 5 5 6	10	S-3 at 4ft
	Light brown fine-medium SAND, some silt (wet)	6	S-4A	SS	17	5 13 15	28	S-4 at 6ft
	Light brown fine-coarse SAND, trace silt (wet)	7.5	S-4B			12		
	Light brown fine-medium SAND, trace silt (wet)	8	S-5	SS	12	5 7 8 9	15	S-5 at 8ft
	Light brown fine-medium SAND, trace silt (wet)	10	S-6A	SS	16	9 21	45	S-6 at 10ft
+119.0	Light grayish brown fine-coarse SAND, some silt, trace fine gravel (wet) [TILL]	11	S-6B			24 27		
	Light grayish brown fine-coarse SAND, some silt, trace fine gravel (wet) [TILL]	15	S-7	SS	12	21 19 20 12	39	S-7 at 15ft
+113.0	Bottom of Boring	17						Bottom of boring on 6/17/2020 Boring backfilled with auger cuttings



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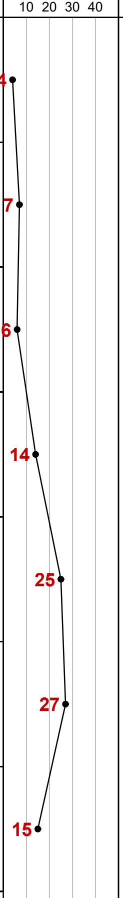
Log of Boring **C-S-BOR-04(OW)** Sheet 1 of 1

Project: Hudson Logistics Center		Project No.: 151010101	
Location: 59 Steele Road, Hudson NH		Elevation and Datum: Elev. + 130.5 (NGVD29)	
Drilling Company: SoilTesting, Inc.		Date Started: 6/18/20	Date Finished: 6/18/20
Drilling Equipment: ATV Mounted CME 550X		Completion Depth: 14 ft	Rock Depth: N/E
Size and Type of Bit: 4in Hollow Stem Auger		Number of Samples: Disturbed 7	Undisturbed - Core -
Casing Diameter (in): N/A	Casing Depth (ft): N/A	Water Level (ft.): First ▽ 7.5	Completion ▼ N/A 24 HR. ▼ 6.9
Casing Hammer: N/A	Weight (lbs): N/A Drop (in): N/A	Drilling Foreman: Sam DeAngelis	
Sampler: 2-inch-diameter split spoon			
Sampler Hammer: Automatic	Weight (lbs): 140 Drop (in): 30	Field Engineer: Justin Hall	

Elev. (ft)	Sample Description	Depth Scale	Number	Type	Recov. (in)	Penetr. resist BL/6in	N-Value (Blows/ft)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
+130.5	8" Dark brown fine SAND, some silt, trace roots (moist) [TOPSOIL]	0	S-1A	SS	17	3 2	4	Started Drilling on 6/18/2020 S-1A at 0ft
+129.8	Orange brown fine SAND, some silt, trace roots (moist)	1	S-1B			2 2		
	Light brown fine-medium SAND, some silt (moist)	2	S-2	SS	16	3 4 3 4	7	S-2 at 2ft
	Light brown fine-medium SAND, some silt (moist)	4	S-3	SS	16	3 3 3 4	6	S-3 at 4ft
	Light brown fine-medium SAND, some silt (moist)	6	S-4A	SS	14	6 7 7	14	S-4 at 6ft
	▼ ▽ Light brown fine-coarse SAND, some silt (wet)	7	S-4B			8		
	Light brown fine-medium SAND, some silt (wet)	8	S-5	SS	18	8 12 13 19	25	S-5 at 8ft
	Light brown fine-medium SAND, some silt (wet)	10	S-6	SS	14	4 9 18 12	27	S-6 at 10ft
	Light brown fine-coarse SAND, trace silt (wet)	12	S-7	SS	17	3 8 7 10	15	S-7 at 12ft
+116.5	Bottom of Boring	14						Bottom of boring on 6/18/2020 Observation well installed. Refer to well construction log.



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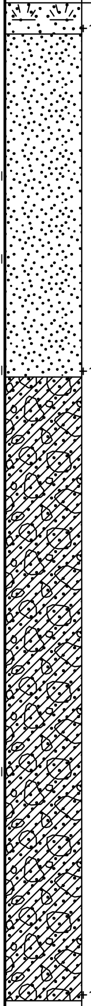
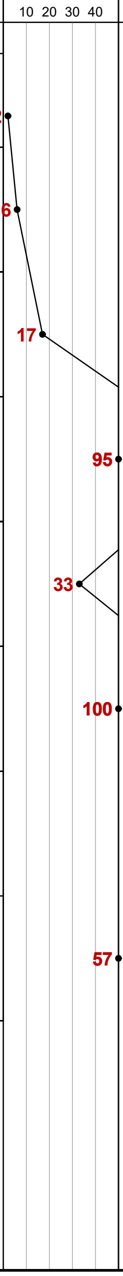
Log of Boring **C-S-BOR-05** Sheet 1 of 1

Project: Hudson Logistics Center		Project No.: 151010101	
Location: 59 Steele Road, Hudson NH		Elevation and Datum: Elev. + 133 (NGVD29)	
Drilling Company: Atlantic Testing Laboraties		Date Started: 6/14/20	Date Finished: 6/14/20
Drilling Equipment: Geoprobe 7720 DT		Completion Depth: 16 ft	Rock Depth: N/E
Size and Type of Bit: 3-7/8in Tricone Roller Bit		Number of Samples: Disturbed 7	Undisturbed - Core -
Casing Diameter (in): 4in	Casing Depth (ft): 4ft	Water Level (ft.): First ▽ N/E	Completion ▼ 8.5 24 HR. ▼ N/A
Casing Hammer: Automatic	Weight (lbs): 140 Drop (in): 30	Drilling Foreman: Scott McGregor	
Sampler: 2-inch-diameter split spoon		Field Engineer: Olivia Chasse	
Sampler Hammer: Automatic	Weight (lbs): 140 Drop (in): 30		



Elev. (ft)	Sample Description	Depth Scale	Number	Type	Recov. (in)	Penetr. resist BL/6in	N-Value (Blows/ft)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
+133.0 +132.5	6" Dark brown fine-medium SAND, some silt, some roots (dry)[TOPSOIL]	0						Started Drilling on 6/14/2020
	Light brown fine SAND, some silt, trace roots (dry)	1	S-1A S-1B	SS	12	1 1 1	2	S-1 at 0.5ft
	Light brown fine SAND, some silt (dry)	2	S-2	SS	18	2 2 4 6	6	S-2 at 2ft
	Light brown fine-medium SAND, some silt, trace fine gravel (dry)	4	S-3	SS	12	10 9 8 8	17	Drive casing to 4.0ft. S-3 at 4ft
+127.0	Brown fine-medium SAND, some silt, some gravel (wet)[TILL]	6	S-4	SS	9	32 64 31 42	95	S-4 at 6ft. Some decomposed rock
	Brown fine-medium SAND, some silt, some gravel (wet)[TILL] ▼	8	S-5	SS	8	9 16 17 20	33	Open hole to 8ft S-5 at 8ft
	Brown fine-medium SAND, some silt, some gravel (wet)[TILL]	10	S-6	SS	12	39 50 50 40	100	S-6 at 10ft
		12						
	Brown fine-coarse SAND, some silt, some gravel (wet)[TILL]	14	S-7	SS	13	4 13 44 51	57	Open hole to 14ft. S-7 at 14ft
+117.0	Bottom of Boring	16						Bottom of boring on 6/14/2020 Boring backfilled with soil cuttings.
		17						
		18						
		19						
		20						



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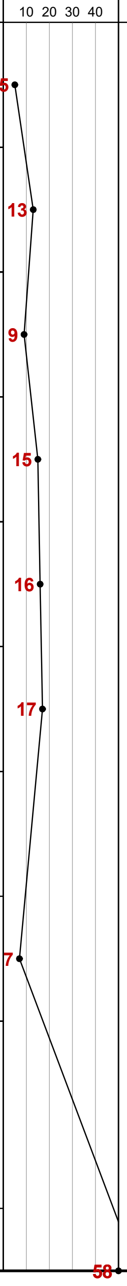
Log of Boring **C-S-BOR-06** Sheet 1 of 2

Project	Hudson Logistics Center	Project No.	151010101
Location	59 Steele Road, Hudson NH	Elevation and Datum	Elev. + 130.5 (NGVD29)
Drilling Company	Atlantic Testing Laboratories	Date Started / Date Finished	6/13/20 / 6/13/20
Drilling Equipment	Geoprobe 7822 DT	Completion Depth / Rock Depth	21 ft / N/E
Size and Type of Bit	3-7/8in Tricone Roller Bit	Number of Samples	Disturbed 8 / Undisturbed - / Core -
Casing Diameter (in) / Casing Depth (ft)	4in / 4ft	Water Level (ft.)	First ▽ N/E / Completion ▼ 3.5 / 24 HR. ▼ N/A
Casing Hammer / Weight (lbs) / Drop (in)	Automatic / 140 / 30	Drilling Foreman	Scott McGregor
Sampler	2-inch-diameter split spoon	Field Engineer	Olivia Chasse
Sampler Hammer / Weight (lbs) / Drop (in)	Automatic / 140 / 30		



Elev. (ft)	Sample Description	Depth Scale	Number	Type	Recov. (in)	Penetr. resist BL/6in	N-Value (Blows/ft)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
+130.5 +130.0	6" Brown fine-medium SAND, some silt, some roots (dry) [TOPSOIL] Light brown fine-medium SAND, some silt (dry)	0–2	S-1	SS	19	3 2 3 4	5	Started Drilling on 6/13/2020 S-1 at 0.5ft
	Light brown fine-medium SAND, some silt (wet)	2–4 (▼ 3.5)	S-2	SS	14	3 3 10 10	13	S-2 at 2ft
	Light brown fine-medium SAND, some silt (wet)	4–6	S-3	SS	10	13 5 4 5	9	Drive casing to 4.0ft. S-3 at 4ft
	Light brown fine-medium SAND, some silt (wet)	6–8	S-4A S-4B	SS	12	4 5 10 12	15	S-4 at 6ft
	Brown fine-coarse SAND, trace silt (wet) Brown fine-coarse SAND, trace silt (wet)	8–10	S-5	SS	13	4 7 9 9	16	Open hole to 8ft S-5 at 8ft
	Brown fine-coarse SAND, trace silt (wet)	10–12	S-6	SS	13	4 9 8 8	17	S-6 at 10ft
		12–14						
	Brown fine-coarse SAND, trace silt, trace fine gravel (wet)	14–16	S-7	SS	19	4 2 5 8	7	Open hole to 14ft S-7 at 14ft
		16–19						
+111.5	Brown fine-coarse SAND, trace silt, trace fine gravel (wet)	19–20	S-8A	SS	22	11 22	58	Open hole to 19ft S-8 at 19ft

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Log of Boring **C-S-BOR-06** Sheet 2 of 2

Project Hudson Logistics Center	Project No. 151010101
Location 59 Steele Road, Hudson NH	Elevation and Datum Elev. + 130.5 (NGVD29)

MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data Number	Sample Data Type	Sample Data Recov. (in)	Sample Data Penetr. resist BL/6in	Sample Data N-Value (Blows/ft) 10 20 30 40	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
▨	+110.5	Brown fine-medium SAND, some silt, some fine gravel (wet) [TILL]	20	S-8B	SS	22	36 37		
	+109.5	Bottom of Boring	21						Bottom of boring on 6/13/2020 Boring backfilled with soil cuttings.
			22						
			23						
			24						
			25						
			26						
			27						
			28						
			29						
			30						
			31						
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			45						

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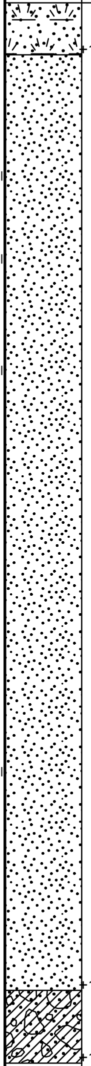
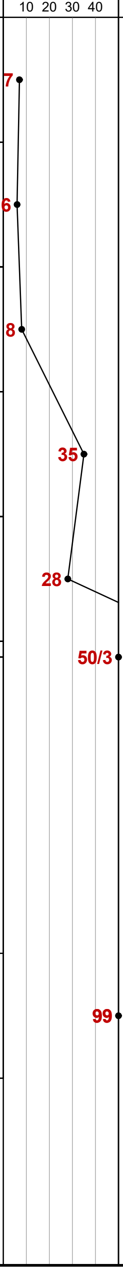
Log of Boring **C-S-BOR-07** Sheet 1 of 1

Project	Hudson Logistics Center	Project No.	151010101
Location	59 Steele Road, Hudson NH	Elevation and Datum	Elev. + 133 (NGVD29)
Drilling Company	Seaboard Drilling, Inc	Date Started / Date Finished	6/17/20 / 6/17/20
Drilling Equipment	Diedrich D50	Completion Depth / Rock Depth	17 ft / N/E
Size and Type of Bit	4in Hollow Stem Auger	Number of Samples	Disturbed 7; Undisturbed -; Core -
Casing Diameter (in) / Casing Depth (ft)	N/A / N/A	Water Level (ft.)	First ▽ 6.5; Completion ▼ N/A; 24 HR. ▼ N/A
Casing Hammer / Weight (lbs) / Drop (in)	N/A / N/A / N/A	Drilling Foreman	Jeff Nitsch
Sampler	2-inch-diameter split spoon		
Sampler Hammer / Weight (lbs) / Drop (in)	Safety / 140 / 30	Field Engineer	Reid Balkind



Elev. (ft)	Sample Description	Depth Scale	Number	Type	Recov. (in)	Penetr. resist BL/6in	N-Value (Blows/ft)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
+133.0	10" Dark brown fine SAND, trace silt, trace roots (moist) [TOPSOIL]	0	S-1A	SS	14	2 4	7	Started Drilling on 6/17/2020 S-1 at 0ft
+132.2	Light brown fine-medium SAND, some silt, trace roots (moist)	1	S-1B			3 3		
	Light brown fine-medium SAND, some silt, trace roots (moist)	2	S-2 S-2B	SS	18	2 3 3 3	6	S-2 at 2ft Auger to 4ft,Easy Augering
	Light brown sandy SILT (moist)	4	S-3	SS	20	3 3 5 5	8	S-3 at 4ft
	Light brown sandy SILT (wet)	6	S-4A	SS	18	7 14	35	S-4 at 6ft
	Brown fine-coarse SAND, trace silt, trace fine gravel (wet)	7	S-4B			21 20		Auger to 8ft, Easy Augering
	Brown fine-coarse SAND, trace silt, trace fine gravel (wet)	8	S-5	SS	22	10 13 15 14	28	S-5 at 8ft
	Brown fine-coarse SAND, trace silt, trace fine gravel (wet)	10	S-6	SS	3	50/3	50/3	S-6 at 10ft Auger to 15ft. Medium chattering at 10.5ft. Moderate drilling
	Brown fine-coarse SAND, trace silt, trace fine gravel (wet)	15	S-7A	SS	16	25 49	99	S-7 at 15ft
+117.2	Grey fine-coarse SAND, some silt, trace fine gravel (wet) [TILL]	16	S-7B			50 79		
+116.0	Bottom of Boring	17						Bottom of boring at 6/17/2020 Boring backfilled with auger cuttings.



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Log of Boring **C-S-BOR-08** Sheet 1 of 1

Project Hudson Logistics Center	Project No. 151010101
Location 59 Steele Road, Hudson NH	Elevation and Datum Elev. + 132.5 (NGVD29)
Drilling Company SoilTesting, Inc.	Date Started 6/17/20 — Date Finished 6/17/20
Drilling Equipment ATV Mounted CME 550X	Completion Depth 17 ft — Rock Depth N/E
Size and Type of Bit 4in Hollow Stem Auger	Number of Samples — Disturbed 7 — Undisturbed - — Core -
Casing Diameter (in) N/A — Casing Depth (ft) N/A	Water Level (ft.) — First ∇ 10 — Completion ▼ N/A — 24 HR. ▼ N/A
Casing Hammer N/A — Weight (lbs) N/A — Drop (in) N/A	Drilling Foreman Sam DeAngelis
Sampler 2-inch-diameter split spoon	
Sampler Hammer Automatic — Weight (lbs) 140 — Drop (in) 30	Field Engineer Justin Hall

MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data Number	Type	Recov. (in)	Penetr. resist BL/6in	N-Value (Blows/ft)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	+132.5	6" Dark brown fine-coarse SAND, some silt, trace roots (moist) [TOPSOIL]	0	S-1A	SS	16	3 2	5	Started Drilling on 6/17/2020. S-1A at 0ft S-1B at 0.5ft
	+132.0	Light brown fine-coarse SAND, trace silt, trace fine gravel (dry)	1	S-1B	SS		3 3		
		Light brown fine-medium SAND, some silt (dry)	2	S-2	SS	10	3 4 3 4	7	S-2 at 2ft
		Light brown fine-coarse SAND, some silt, trace fine gravel (dry)	4	S-3	SS	18	6 7 7 8	14	S-3 at 4ft
	+124.5	Light brown fine-coarse SAND, some silt, trace f-c gravel, trace weathered rock (moist) [TILL]	8	S-5A	SS	13	22 14 76 30	90	S-5 at 8ft
		∇ Light brown fine-coarse SAND, some silt, trace fine gravel, trace weathered rock (wet) [TILL]	10	S-6	SS	20	20 20 27 25	47	S-6 at 10ft Heavy Rig Chatter 11-15'
		Light gray GRAVEL (wet) [TILL]	15	S-7	SS	1	16 17 17 22	34	S-7 at 15ft
	+115.5	Bottom of Boring	17						Bottom of boring on 6/17/2020 Boring backfilled with auger cuttings

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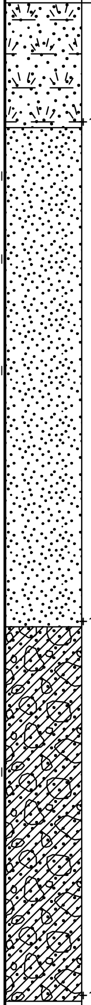
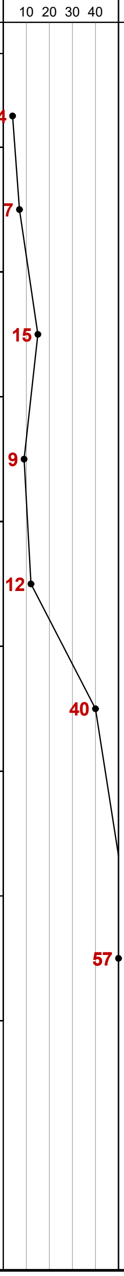
Log of Boring **C-S-BOR-09** Sheet 1 of 1

Project: Hudson Logistics Center
Project No.: 151010101
Location: 59 Steele Road, Hudson NH
Elevation and Datum: Elev. + 135 (NGVD29)
Drilling Company: Atlantic Testing Laboratories
Date Started: 6/13/20
Date Finished: 6/13/20
Drilling Equipment: Geoprobe 7720 DT
Completion Depth: 16 ft
Rock Depth: N/E
Size and Type of Bit: 3-7/8in Tricone Roller Bit
Number of Samples: Disturbed 7 Undisturbed - Core -
Casing Diameter (in): 4in
Casing Depth (ft): 4ft
Water Level (ft.): First ▽ N/E Completion ▼ 6.7 24 HR. ▼ N/A
Casing Hammer: Automatic Weight (lbs) 140 Drop (in) 30
Drilling Foreman: Scott McGregor
Sampler: 2-inch-diameter split spoon
Field Engineer: Olivia Chasse
Sampler Hammer: Automatic Weight (lbs) 140 Drop (in) 30





Elev. (ft)	Sample Description	Depth Scale	Number	Type	Recov. (in)	Penetr. resist BL/6in	N-Value (Blows/ft)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
+135.0		0						Started Drilling on 6/13/2020
	2' Dark brown fine-medium SAND, trace silt, trace fine gravel (dry)[TOPSOIL]	1	S-1	SS	12	2 2 2	4	S-1 at 0.5ft
+133.0	Brown fine-coarse SAND, trace silt (dry)	2	S-2	SS	16	2 2 5 8	7	S-2 at 2ft
	Brown fine-coarse SAND, trace silt (wet)	4	S-3	SS	12	13 8 7 6	15	Drive casing to 4.0ft. S-3 at 4ft
	Brown fine-coarse SAND, trace silt, trace fine gravel (wet) ▼	6	S-4	SS	7	4 4 5 5	9	S-4 at 6ft
	Brown fine-coarse SAND, trace silt, trace fine gravel (wet)	8	S-5	SS	9	2 4 8 10	12	S-5 at 8ft
+125.0	Brown fine-medium SAND, some silt, some fine gravel (wet) [TILL]	10	S-6	SS	8	14 18 22 18	40	Change to mud rotary technique . S-6 at 10ft
		12						
	Brown fine-medium SAND, some silt, some fine gravel (wet) [TILL]	14	S-7	SS	7	32 31 26 37	57	S-7 at 14ft
+119.0	Bottom of Boring	16						Bottom of boring on 6/13/2020 Boring backfilled with soil cuttings.
		17						
		18						
		19						
		20						

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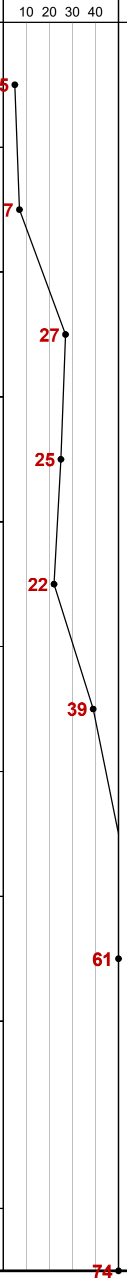
Log of Boring **C-S-BOR-10** Sheet 1 of 2

Project Hudson Logistics Center			Project No. 151010101		
Location 59 Steele Road, Hudson NH			Elevation and Datum Elev. + 143.5 (NGVD29)		
Drilling Company Seaboard Drilling, Inc			Date Started 6/14/20	Date Finished 6/14/20	
Drilling Equipment Diedrich D50			Completion Depth 21.5 ft	Rock Depth 21.5 ft	
Size and Type of Bit 4in Hollow Stem Auger			Number of Samples	Disturbed 8	Undisturbed -
				Core -	
Casing Diameter (in) N/A		Casing Depth (ft) N/A	Water Level (ft.)	First ▽ 18	Completion ▼ N/A
				24 HR. ▼ N/A	
Casing Hammer N/A	Weight (lbs) N/A	Drop (in) N/A	Drilling Foreman Jeff Nitch		
Sampler 2-inch-diameter split spoon			Field Engineer Kenneth Idem		
Sampler Hammer Automatic	Weight (lbs) 140	Drop (in) 30			

Elev. (ft)	Sample Description	Depth Scale	Number	Type	Recov. (in)	Penetr. resist BL/6in	N-Value (Blows/ft)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
+143.5 +142.8	7" Brown fine SAND, trace silt, trace root (dry) [TOPSOIL]	0	S-1A	SS	10	2 3	5	Started Drilling on 6/14/2020 S-1 at 0ft
	Orange brown, fine SAND, some silt (moist)	1	S-1B			2 2		
	Brown fine-medium SAND, trace silt, trace fine gravel (dry)	2	S-2	SS	12	2 3 4 5	7	S-2 at 2ft
	Brown fine-medium SAND, trace silt, trace fine gravel (moist)	4	S-3	SS	7	11 15 12 11	27	Auger to 4ft, Easy Augering . S-3 at 4ft
	Brown fine-coarse SAND, trace silt, trace fine gravel (moist)	6	S-4	SS	14	15 12 13 15	25	S-4 at 6ft
	Brown fine-coarse SAND, trace silt, trace fine gravel (moist)	8	S-5	SS	17	2 6 16 26	22	Auger to 8ft, Easy Augering . S-5 at 8ft
	Brown fine-coarse SAND, some silt, trace fine gravel (moist)	10	S-6	SS	13	32 21 18 17	39	S-6 at 10ft
		12						Auger to 15ft, Easy Augering
+129.5	Brown fine-medium SAND, some silt, trace fine gravel (moist) [TILL]	14	S-7	SS	16	39 29 32 31	61	S-7 at 14ft
		16						Auger to 19ft, Moderate Augering, Light Chattering
	▽	18						
	Brown fine-medium SAND, some silt, trace fine gravel (wet) [TILL]	19	S-8	SS	21	46 38	74	S-8 at 19ft
		20						



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Log of Boring **C-S-BOR-10** Sheet 2 of 2

Project Hudson Logistics Center	Project No. 151010101
Location 59 Steele Road, Hudson NH	Elevation and Datum Elev. + 143.5 (NGVD29)

MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data Number	Sample Data Type	Sample Data Recov. (in)	Sample Data Penetr. resist BL/6in	Sample Data N-Value (Blows/ft) 10 20 30 40	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
▨	+123.5		20	S-8	SS	21	36 36		
	+122.0	Inferred Top of Bedrock	21						Auger to 24ft, Hard Augering, Heavy Chattering Bottom of boring on 6/14/2020. Auger Refusal at 21.5ft Boring backfilled with auger cuttings.
			22						
		Bottom of Boring	23						
			24						
			25						
			26						
			27						
			28						
			29						
			30						
			31						
			32						
			33						
			34						
			35						
			36						
			37						
			38						
			39						
			40						
			41						
			42						
			43						
			44						
			45						

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Log of Boring **C-S-BOR-11** Sheet 1 of 1

Project	Hudson Logistics Center	Project No.	151010101
Location	59 Steele Road, Hudson NH	Elevation and Datum	Elev. + 144.5 (NGVD29)
Drilling Company	Seaboard Drilling, Inc	Date Started	6/13/20
		Date Finished	6/13/20
Drilling Equipment	Diedrich D50	Completion Depth	17 ft
		Rock Depth	N/E
Size and Type of Bit	4in Hollow Stem Auger	Number of Samples	Disturbed 7 Undisturbed - Core -
Casing Diameter (in)	N/A	Water Level (ft.)	First ▽ N/E Completion ▼ N/A 24 HR. ▼ N/A
Casing Depth (ft)	N/A		
Casing Hammer	N/A	Drilling Foreman	Jeff Nitch
Weight (lbs)	N/A		
Drop (in)	N/A		
Sampler	2-inch-diameter split spoon	Field Engineer	Kenneth Idem
Sampler Hammer	Automatic		
Weight (lbs)	140		
Drop (in)	30		

Elev. (ft)	Sample Description	Depth Scale	Sample Data					Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
			Number	Type	Recov. (in)	Penetr. resist BL/6in	N-Value (Blows/ft) 10 20 30 40	
+144.5 +144.2	3" Brown fine SAND, trace silt, trace root (dry) [TOPSOIL] S-1B Light brown fine to medium sand, trace silt (moist)	0	S-1A S-1B	SS	12	2 3 5 4	8	Started Drilling on 6/13/2020 S-1 at 0ft
	Brown fine SAND, some silt (moist)	2	S-2	SS	12	3 3 2 3	5	S-2 at 2ft
	Brown fine-coarse SAND, some silt, some fine gravel (moist)	4	S-3	SS	11	16 27 12 10	39	Auger to 4ft, Easy Augering. S-3 at 4ft
	Brown medium-coarse SAND, trace silt, trace fine gravel (moist)	6	S-4	SS	16	7 8 8 8	16	S-4 at 6ft
	Brown fine-coarse SAND, trace silt, some fine gravel (moist)	8	S-5	SS	15	3 5 14 19	19	Auger to 8ft, Easy Augering. S-5 at 8ft
+134.5	Brown fine-coarse SAND, some silt, some fine gravel (moist) [TILL]	10	S-6	SS	16	18 19 26 26	45	S-6 at 10ft
		12						Auger to 15ft, Hard Augering, Heavy Chattering
	Brown fine-coarse SAND, some silt, some fine gravel (moist) [TILL]	15	S-7	SS	17	68 49 21 22	70	S-7 at 15ft
+127.5	Bottom of Boring	17						Bottom of boring on 6/13/2020 Boring backfilled with auger cuttings.
		18						
		19						
		20						

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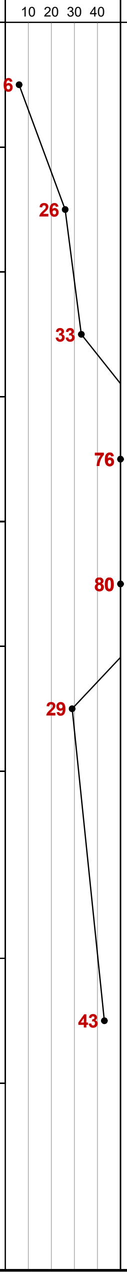
Log of Boring **C-S-BOR-12** Sheet 1 of 1

Project: Hudson Logistics Center
Project No.: 151010101
Location: 59 Steele Road, Hudson NH
Elevation and Datum: Elev. + 148.5 (NGVD29)
Drilling Company: SoilTesting, Inc.
Date Started: 6/18/20
Date Finished: 6/18/20
Drilling Equipment: ATV Mounted CME 550X
Completion Depth: 17 ft
Rock Depth: N/E
Size and Type of Bit: 4in Hollow Stem Auger
Number of Samples: Disturbed 7 Undisturbed - Core -
Casing Diameter (in): N/A
Casing Depth (ft): N/A
Water Level (ft.): First ∇ 9 Completion ▼ N/A 24 HR. ▼ N/A
Casing Hammer: N/A Weight (lbs): N/A Drop (in): N/A
Drilling Foreman: Sam DeAngelis
Sampler: 2-inch-diameter split spoon
Field Engineer: Justin Hall
Sampler Hammer: Automatic Weight (lbs): 140 Drop (in): 30

Elev. (ft)	Sample Description	Depth Scale	Number	Type	Recov. (in)	Penetr. resist BL/6in	N-Value (Blows/ft)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
+148.5 +148.0	6" Dark brown fine-coarse SAND, some silt, trace roots (dry) [TOPSOIL] Orange fine SAND, some silt (dry)	0 1	S-1A S-1B	SS	16	2 3 3 4	6	Started Drilling on 6/18/2020 S-1 at 0ft
+145.5	Light brown fine-coarse SAND, some silt (dry) Light grayish brown fine-coarse SAND, some silt, trace f-c gravel (moist) [TILL]	2 3	S-2A S-2B	SS	17	5 10 16 12	26	S-2 at 2ft
	Light grayish brown fine-coarse SAND, some silt, trace f-c gravel (moist) [TILL]	4 5	S-3	SS	18	19 12 21 16	33	S-3 at 4ft
	Light grayish brown fine-coarse SAND, some silt, trace f-c gravel (moist) [TILL]	6 7	S-4	SS	20	33 30 46 30	76	S-4 at 6ft
	Light grayish brown fine-coarse SAND, some silt, trace f-c gravel (wet) [TILL] ∇	8 9	S-5	SS	13	7 22 58 13	80	S-5 at 8ft
	Light grayish brown fine-coarse SAND, some silt, trace f-c gravel (wet) [TILL]	10 11	S-6	SS	17	18 18 11 17	29	S-6 at 10ft. Light to medium rig chatter 8-15ft
		12 13 14						
	Light grayish brown fine-coarse SAND, some silt, trace f-c gravel (wet) [TILL]	15 16	S-7	SS	10	14 22 21 37	43	S-7 at 15ft
+131.5	Bottom of Boring	17 18 19 20						Bottom of boring at 6/18/2020 Boring backfilled with auger cuttings



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Log of Boring **C-S-BOR-13** Sheet 1 of 1

Project	Hudson Logistics Center	Project No.	151010101
Location	59 Steele Road, Hudson NH	Elevation and Datum	Elev. + 159.5 (NGVD29)
Drilling Company	SoilTesting, Inc.	Date Started	6/26/20
		Date Finished	6/26/20
Drilling Equipment	CME Truck-Mounted Drill Rig	Completion Depth	17 ft
		Rock Depth	N/E
Size and Type of Bit	4in Hollow Stem Auger	Number of Samples	Disturbed 7 Undisturbed - Core -
Casing Diameter (in)	N/A	Water Level (ft.)	First ▽ N/E Completion ▼ N/A 24 HR. ▼ N/A
Casing Depth (ft)	N/A	Drilling Foreman	John Knepple
Casing Hammer	N/A	Weight (lbs)	N/A
Drop (in)	N/A	Field Engineer	Kenneth Idem
Sampler	2-inch-diameter split spoon		
Sampler Hammer	Automatic	Weight (lbs)	140
Drop (in)	30		

Elev. (ft)	Sample Description	Depth Scale	Number	Type	Recov. (in)	Penetr. resist BL/6in	N-Value (Blows/ft)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
+159.5	6" Dark brown fine SAND, trace silt, trace roots (dry) [TOPSOIL]	0	S-1A	SS	15	4 14	28	Started Drilling at 6/26/2020 S-1 at 0ft
+159.0	Light brown fine-medium SAND, trace silt, trace fine gravel (dry)	1	S-1B			14 10		
	Light brown fine-coarse SAND, trace silt, trace fine gravel (moist)	2	S-2	SS	13	6 6 7 5	13	S-2 at 2ft Auger to 4ft, Easy Augering
	Light brown fine-coarse SAND, trace silt, trace fine gravel (moist)	4	S-3	SS	13	17 12 9 50/2	21	S-3 at 4ft
	Light brown fine-coarse SAND, some fine gravel, trace silt (moist)	6	S-4A S-4B	SS	22	22 37 50/3	50/3	S-4 at 6ft
+152.3	Light brown silty fine SAND (moist) [TILL]	7						Auger to 8ft, Moderate Augering, Medium Chattering
	Light brown silty fine SAND, trace fine gravel (moist) [TILL]	8	S-5	SS	14	15 22 30 45	52	S-5 at 8ft
	Light brown silty fine SAND, some fine gravel (moist) [TILL]	10	S-6	SS	24	42 45 30 50	75	S-6 at 10ft Auger to 15ft, Moderate Augering, Medium Chattering
	Light brown silty fine-medium SAND, some fine gravel (moist) [TILL]	15	S-7	SS	15	16 25 30 30	55	S-7 at 15ft
+142.5	Bottom of Boring	17						Bottom of boring at 6/26/2020 Boring backfilled with auger cuttings.

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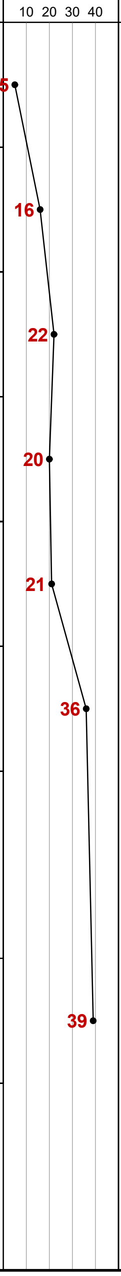
Log of Boring **C-S-BOR-14** Sheet 1 of 1

Project: Hudson Logistics Center
Project No.: 151010101
Location: 59 Steele Road, Hudson NH
Elevation and Datum: Elev. + 156 (NGVD29)
Drilling Company: SoilTesting, Inc.
Date Started: 6/12/20
Date Finished: 6/12/20
Drilling Equipment: CME Truck-Mounted Drill Rig
Completion Depth: 17 ft
Rock Depth: N/E
Size and Type of Bit: 4in Hollow Stem Auger
Number of Samples: Disturbed 7 Undisturbed - Core -
Casing Diameter (in): N/A
Casing Depth (ft): N/A
Water Level (ft.): First ▽ N/E Completion ▼ N/A 24 HR. ▼ N/A
Casing Hammer: N/A Weight (lbs): N/A Drop (in): N/A
Drilling Foreman: John Knepple
Sampler: 2-inch-diameter split spoon
Field Engineer: Kenneth Idem
Sampler Hammer: Automatic Weight (lbs): 140 Drop (in): 30

Elev. (ft)	Sample Description	Depth Scale	Number	Type	Recov. (in)	Penetr. resist BL/6in	N-Value (Blows/ft)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
+156.0 +155.7	2" Brown fine SAND, trace silt, trace root (dry) [TOPSOIL]	0	S-1A	SS	12	3 2	5	Started Drilling on 6/12/2020 S-1 at 0ft
	Light brown, fine to medium sand, trace silt (moist)	1	S-1B			3 5		
	Brown fine-medium SAND, trace silt (dry)	2	S-2	SS	12	6 8 8 7	16	S-2 at 2ft
	Brown fine-medium SAND, trace silt (dry)	4	S-3	SS	12	7 12 10 17	22	Auger to 4ft, Easy Augering. S-3 at 4ft
	Brown fine-medium SAND, trace silt (dry)	6	S-4	SS	24	11 10 10 12	20	S-4 at 6ft
	Brown fine-medium SAND, some fine gravel, trace silt (dry)	8	S-5	SS	12	7 10 11 16	21	Auger to 8ft, Easy Augering. S-5 at 8ft
	Brown fine-coarse SAND, trace silt, trace fine gravel (dry)	10	S-6	SS	15	17 16 20 20	36	S-6 at 10ft
		12						Auger to 15ft, Hard Augering, Moderate Chattering
	Brown fine to medium SAND, some silt, trace fine gravel (dry)	15	S-7	SS	13	21 20 19 21	39	S-7 at 15ft
+139.0	Bottom or Boring	17						Bottom of boring on 6/12/2020 Boring backfilled with auger cuttings.



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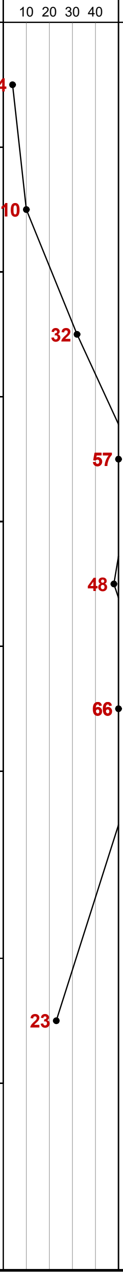
Log of Boring **C-S-BOR-15** Sheet 1 of 1

Project Hudson Logistics Center		Project No. 151010101	
Location 59 Steele Road, Hudson NH		Elevation and Datum Elev. + 157 (NGVD29)	
Drilling Company SoilTesting, Inc.		Date Started 6/12/20	Date Finished 6/12/20
Drilling Equipment CME Truck-Mounted Drill Rig		Completion Depth 17 ft	Rock Depth N/E
Size and Type of Bit 4in Hollow Stem Auger		Number of Samples: Disturbed 7; Undisturbed -; Core -	
Casing Diameter (in) N/A	Casing Depth (ft) N/A	Water Level (ft.): First ▽ N/E; Completion ▼ N/A; 24 HR. ▼ N/A	
Casing Hammer N/A; Weight (lbs) N/A	Drop (in) N/A	Drilling Foreman John Knepple	
Sampler 2-inch-diameter split spoon			
Sampler Hammer Automatic; Weight (lbs) 140	Drop (in) 30	Field Engineer Kenneth Idem	

Elev. (ft)	Sample Description	Depth Scale	Number	Type	Recov. (in)	Penetr. resist BL/6in	N-Value (Blows/ft)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
+157.0 +156.7	2" Brown fine SAND, trace silt, trace root (dry) [TOPSOIL]	0	S-1A			2		Started Drilling on 6/12/2020 S-1 at 0ft
	Light brown fine-medium SAND, trace silt (moist)	1	S-1B	SS	12	2 2 2	4	
	Brown fine to coarse SAND, trace fine gravel, trace silt (dry)	2–3	S-2	SS	10	2 5 5 11	10	S-2 at 2ft
	Brown fine-coarse SAND, fine gravel, trace silt (dry)	4–5	S-3	SS	20	9 14 18 35	32	Auger to 4ft, Easy Augering S-3 at 4ft
	Brown fine-medium SAND, some silt, trace fine gravel (dry)	6–7	S-4	SS	14	15 30 27 39	57	S-4 at 6ft
	Brown fine-coarse SAND, trace silt, trace fine gravel (dry)	8–9	S-5	SS	15	15 22 26 26	48	Auger to 8ft, Easy Augering . S-5 at 8ft
	Brown fine-medium SAND, trace silt, trace fine gravel (dry)	10–11	S-6	SS	14	19 33 33 36	66	S-6 at 10ft
		12–14						Auger to 15ft, Easy Augering
	Brown fine-medium SAND, some silt, trace fine gravel (moist)	15–16	S-7	SS	16	7 11 12 10	23	S-7 at 15ft
+140.0	Bottom of Boring	17						Bottom of boring on 6/12/2020 Boring backfilled with auger cuttings.
		18–20						



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Log of Boring **C-S-BOR-16** Sheet 1 of 1

Project: Hudson Logistics Center	Project No.: 151010101
Location: 59 Steele Road, Hudson NH	Elevation and Datum: Elev. + 160 (NGVD29)
Drilling Company: SoilTesting, Inc.	Date Started: 6/8/20 Date Finished: 6/8/20
Drilling Equipment: CME Truck-Mounted Drill Rig	Completion Depth: 17 ft Rock Depth: N/E
Size and Type of Bit: 4in Hollow Stem Auger	Number of Samples: Disturbed 7 Undisturbed - Core -
Casing Diameter (in): N/A Casing Depth (ft): N/A	Water Level (ft.): First ▽ 16.5 Completion ▼ N/A 24 HR. ▼ N/A
Casing Hammer: N/A Weight (lbs): N/A Drop (in): N/A	Drilling Foreman: John Knepple
Sampler: 2-inch-diameter split spoon	
Sampler Hammer: Automatic Weight (lbs): 140 Drop (in): 30	Field Engineer: Kenneth Idem

Elev. (ft)	Sample Description	Depth Scale	Number	Type	Recov. (in)	Penetr. resist BL/6in	N-Value (Blows/ft)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
+160.0 +159.7	2" Brown fine SAND, some silt, trace root (dry) [TOPSOIL] Brown fine to medium SAND, some silt (moist)	0	S-1A S-1B	SS	18	4 4 3 2	7	Started Drilling on 6/8/2020 S-1 at 0ft
	Brown fine to coarse SAND, trace silt, trace fine gravel (dry)	2	S-2	SS	12	3 5 6 13	11	S-2 at 2ft
	Brown fine to coarse SAND, trace silt, trace fine gravel (dry)	4	S-3	SS	14	8 23 24 29	47	Auger to 4ft S-3 at 4ft
	Brown fine to medium SAND, trace silt, trace fine gravel (dry)	6	S-4	SS	19	27 35 31 27	66	S-4 at 6ft
	Brown fine to medium SAND, trace silt, trace fine gravel (dry)	8	S-5	SS	19	15 27 23 19	50	Auger to 8ft S-5 at 8ft
	Brown fine to medium SAND, trace silt, trace fine gravel (dry)	10	S-6	SS	18	17 21 28 36	49	S-6 at 10ft
		12						Auger to 15ft
	Brown fine to coarse SAND, trace silt, trace fine gravel (wet) ▽	15	S-7	SS	19	14 23 25 29	48	S-7 at 15ft
+143.0	Bottom of Boring	17						Bottom of boring on 6/8/2020 Boring backfilled with auger cuttings.

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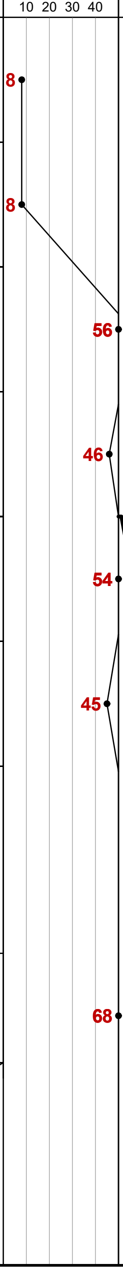
Log of Boring **C-S-BOR-17** Sheet 1 of 1

Project Hudson Logistics Center		Project No. 151010101	
Location 59 Steele Road, Hudson NH		Elevation and Datum Elev. + 169 (NGVD29)	
Drilling Company SoilTesting, Inc.		Date Started 6/27/20	Date Finished 6/27/20
Drilling Equipment CME Truck-Mounted Drill Rig		Completion Depth 17 ft	Rock Depth N/E
Size and Type of Bit 4in Hollow Stem Auger		Number of Samples: Disturbed 7	Undisturbed - / Core -
Casing Diameter (in) N/A	Casing Depth (ft) N/A	Water Level (ft.): First ▽ N/E	Completion ▼ N/A / 24 HR. ▼ N/A
Casing Hammer N/A / Weight (lbs) N/A	Drop (in) N/A	Drilling Foreman John Knepple	
Sampler 2-inch-diameter split spoon			
Sampler Hammer Automatic / Weight (lbs) 140	Drop (in) 30	Field Engineer Kenneth Idem	

Elev. (ft)	Sample Description	Depth Scale	Number	Type	Recov. (in)	Penetr. resist BL/6in	N-Value (Blows/ft)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
+169.0	10" Dark brown fine SAND, trace silt, trace roots (dry) [TOPSOIL]	0	S-1A S-1B	SS	22	2 4 4 5	8	Started Drilling at 6/27/2020 S-1 at 0ft
+168.2	Light brown fine SAND, some silt (dry)	1						
	Light brown fine SAND, some silt (dry)	2	S-2	SS	17	4 4 4 5	8	S-2 at 2ft
		3						Auger to 4ft, Easy Augering
+165.0	Light brown fine-coarse SAND, trace silt (dry) [TILL]	4	S-3	SS	11	6 6 50 37	56	S-3 at 4ft
	Light brown fine-coarse SAND, some silt, trace fine gravel (dry) [TILL]	6	S-4	SS	15	13 20 26 35	46	S-4 at 6ft Auger to 8ft, Moderate Augering, Medium Chattering
	Light brown fine-coarse SAND, some silt, trace fine gravel (dry) [TILL]	8	S-5	SS	12	12 24 30 40	54	S-5 at 8ft
	Light brown fine-coarse SAND, some silt, trace fine gravel (dry) [TILL]	10	S-6	SS	24	31 20 25 25	45	S-6 at 10ft
		12						Auger to 15ft, Moderate Augering, Medium Chattering
	Light brown fine-coarse SAND, some silt (dry)	15	S-7	SS	9	22 30 38 50/3	68	S-7 at 15ft
+152.0	Bottom of Boring	17						Bottom of boring at 6/27/2020 Boring backfilled with auger cuttings.
		20						



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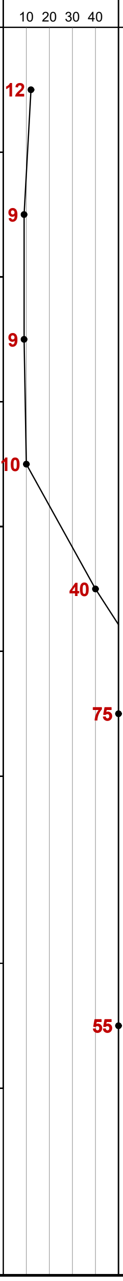
Log of Boring **C-S-BOR-18** Sheet 1 of 1

Project Hudson Logistics Center		Project No. 151010101	
Location 59 Steele Road, Hudson NH		Elevation and Datum Elev. + 169.5 (NGVD29)	
Drilling Company SoilTesting, Inc.		Date Started 6/26/20	Date Finished 6/26/20
Drilling Equipment CME Truck-Mounted Drill Rig		Completion Depth 17 ft	Rock Depth N/E
Size and Type of Bit 4in Hollow Stem Auger		Number of Samples: Disturbed 7	Undisturbed - ; Core -
Casing Diameter (in) N/A	Casing Depth (ft) N/A	Water Level (ft.): First ▽ N/E	Completion ▼ N/A ; 24 HR. ▼ N/A
Casing Hammer N/A ; Weight (lbs) N/A	Drop (in) N/A	Drilling Foreman John Knepple	
Sampler 2-inch-diameter split spoon		Field Engineer Kenneth Idem	
Sampler Hammer Automatic ; Weight (lbs) 140	Drop (in) 30		

Elev. (ft)	Sample Description	Depth Scale	Number	Type	Recov. (in)	Penetr. resist BL/6in	N-Value (Blows/ft)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
+169.5	6" Dark brown fine SAND, trace silt, trace roots (dry) [TOPSOIL]	0	S-1A	SS	15	3 6 6 4	12	Started Drilling at 6/26/2020 S-1 at 0ft
+169.0	Light brown fine SAND, trace silt (dry)	1	S-1B					
	Light brown fine SAND, trace silt (dry)	2	S-2	SS	13	4 4 5 6	9	S-2 at 2ft
	Light brown fine-medium SAND, trace silt (dry)	4	S-3	SS	8	1 4 5 5	9	Auger to 4ft, Easy Augering S-3 at 4ft
	Light brown fine-medium SAND, trace silt (dry)	6	S-4	SS	16	7 4 6 6	10	S-4 at 6ft
+161.5	Light brown fine-medium SAND, some silt, trace fine gravel (dry) [TILL]	8	S-5	SS	21	16 16 24 19	40	Auger to 8ft, Easy Augering S-5 at 8ft
	Light brown fine-medium SAND, some silt, trace fine gravel (dry) [TILL]	10	S-6	SS	12	44 30 45 37	75	S-6 at 10ft
		12						Auger to 15ft, Easy Augering
	Light brown fine-medium SAND, some silt, trace fine gravel (moist) [TILL]	15	S-7	SS	21	14 24 31 20	55	S-7 at 15ft
+152.5	Bottom of Boring	17						Bottom of boring at 6/26/2020 Boring backfilled with auger cuttings



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Log of Boring **C-S-BOR-19** Sheet 1 of 1

Project: Hudson Logistics Center
Project No.: 151010101
Location: 59 Steele Road, Hudson NH
Elevation and Datum: Elev. + 159 (NGVD29)
Drilling Company: SoilTesting, Inc.
Date Started: 6/26/20
Date Finished: 6/26/20
Drilling Equipment: CME Truck-Mounted Drill Rig
Completion Depth: 16 ft
Rock Depth: 16 ft
Size and Type of Bit: 4in Hollow Stem Auger
Number of Samples: Disturbed 7 Undisturbed - Core -
Casing Diameter (in): N/A
Casing Depth (ft): N/A
Water Level (ft.): First ∇ 8 Completion ▼ N/A 24 HR. ▼ N/A
Casing Hammer: N/A Weight (lbs): N/A Drop (in): N/A
Drilling Foreman: John Knepple
Sampler: 2-inch-diameter split spoon
Field Engineer: Kenneth Idem
Sampler Hammer: Automatic Weight (lbs): 140 Drop (in): 30

			Sample Data					
Elev. (ft)	Sample Description	Depth Scale	Number	Type	Recov. (in)	Penetr. resist BL/6in	N-Value (Blows/ft)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
+159.0 +158.5	6" Dark brown fine SAND, trace silt, trace roots (dry) [TOPSOIL]	0	S-1A			2		Started Drilling at 6/26/2020 S-1 at 0ft
	Light brown fine-medium SAND, trace silt (dry)	1	S-1B	SS	24	2 3 6	5	
	Light brown fine-medium SAND, trace silt, trace fine gravel (dry)	2	S-2	SS	9	3 4 5 6	9	S-2 at 2ft Auger to 4ft, Easy Augering
	Light brown fine-medium SAND, trace silt (dry)	4	S-3	SS	3	1 4 10 9	14	S-3 at 4ft
	Brown fine-coarse SAND, some fine gravel, trace silt (moist)	6	S-4	SS	10	14 9 11 10	20	S-4 at 6ft Auger to 8ft, Easy Augering
	Brown fine-coarse SAND, trace silt, trace fine gravel (wet)	∇ 8	S-5	SS	22	3 5 5 11	10	S-5 at 8ft
	Brown fine-coarse SAND, trace silt, trace fine gravel (wet)	10	S-6	SS	24	7 24 20 26	44	S-6 at 10ft Auger to 15ft, Moderate Augering, Medium Chattering
+144.0 +143.3	Light brown fine-medium SAND, some silt, trace fine gravel (wet) [TILL] Inferred Top of Bedrock	15	S-7	SS	10	24 50/3	50/3	S-7 at 15ft Bottom of boring at 6/26/2020 Boring backfilled with auger cuttings.
	Bottom of Boring	16						

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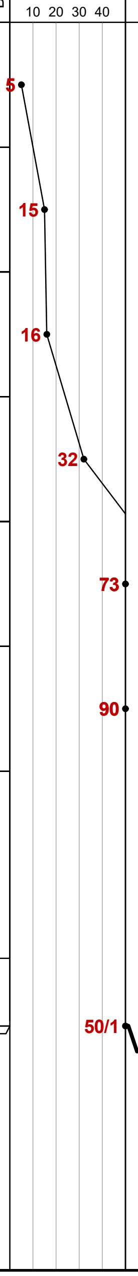
Log of Boring **C-S-BOR-20** Sheet 1 of 1

Project: Hudson Logistics Center
Project No.: 151010101
Location: 59 Steele Road, Hudson NH
Elevation and Datum: Elev. + 147.5 (NGVD29)
Drilling Company: Seaboard Drilling, Inc
Date Started: 6/14/20
Date Finished: 6/14/20
Drilling Equipment: Diedrich D50
Completion Depth: 16 ft
Rock Depth: N/E
Size and Type of Bit: 4in Hollow Stem Auger
Number of Samples: Disturbed 7 Undisturbed - Core -
Casing Diameter (in): N/A
Casing Depth (ft): N/A
Water Level (ft.): First ▽ N/E Completion ▼ N/A 24 HR. ▼ N/A
Casing Hammer: N/A Weight (lbs): N/A Drop (in): N/A
Drilling Foreman: Jeff Nitch
Sampler: 2-inch-diameter split spoon
Sampler Hammer: Automatic Weight (lbs): 140 Drop (in): 30
Field Engineer: Kenneth Idem

Elev. (ft)	Sample Description	Depth Scale	Number	Type	Recov. (in)	Penetr. resist BL/6in	N-Value (Blows/ft)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
+147.5	8" Brown fine SAND, some silt, trace root (dry) [TOPSOIL]	0	S-1A	SS	11	2 3	5	Started Drilling on 6/14/2020 S-1 at 0ft
+146.8	S-1B brown fine-medium sand, trace silt (moist)	1	S-1B			2 3		
	Brown fine-medium SAND, trace fine gravel, trace silt (dry)	2	S-2	SS	4	3 6 9 10	15	S-2 at 2ft
	Brown fine-coarse SAND, trace fine gravel, trace silt (dry)	4	S-3	SS	12	6 9 7 9	16	Auger to 4ft, Easy Augering S-3 at 4ft
	Brown fine-coarse SAND, trace fine gravel, trace silt (dry)	6	S-4	SS	14	11 16 16 16	32	S-4 at 6ft
	Brown fine-coarse SAND, trace silt, some fine gravel (dry)	8	S-5	SS	21	5 26 47 52	73	Auger to 8ft, Easy Augering S-5 at 8ft
	Brown fine-coarse SAND, trace silt, some fine gravel (dry)	10	S-6	SS	22	60 44 46 42	90	S-6 at 10ft
	No Recovery	12						Auger to 15ft, Moderate Augering, Medium Chattering
	Brown fine-medium SAND, trace silt, some fine gravel (dry) Inferred Top of Bedrock	15	S-7	SS	8	11 47 50/1	50/1	S-7 at 15ft
+131.4	Bottom of Boring	16						Auger Refusal at 16ft Bottom of boring on 6/14/2020 Boring backfilled with auger cuttings.

Depth Scale: 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20



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Log of Boring **C-S-BOR-21** Sheet 1 of 1

Project: Hudson Logistics Center		Project No.: 151010101	
Location: 59 Steele Road, Hudson NH		Elevation and Datum: Elev. + 141.5 (NGVD29)	
Drilling Company: SoilTesting, Inc.		Date Started: 6/15/20	Date Finished: 6/15/20
Drilling Equipment: CME Truck-Mounted Drill Rig		Completion Depth: 15.3 ft	Rock Depth: N/E
Size and Type of Bit: 4in Hollow Stem Auger		Number of Samples: Disturbed 7 / Undisturbed - / Core -	
Casing Diameter (in): N/A	Casing Depth (ft): N/A	Water Level (ft.): First ▽ N/E / Completion ▼ N/A / 24 HR. ▼ N/A	
Casing Hammer: N/A / Weight (lbs): N/A	Drop (in): N/A	Drilling Foreman: Sam Deangelis	
Sampler: 2-inch-diameter split spoon			
Sampler Hammer: Safety / Weight (lbs): 140	Drop (in): 30	Field Engineer: Jack Berritt	

Elev. (ft)	Sample Description	Depth Scale	Number	Type	Recov. (in)	Penetr. resist BL/6in	N-Value (Blows/ft)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
+141.5	2' Light brown fine SAND, trace silt, trace roots (dry) [TOPSOIL]	0	S-1	SS	14	3 2 3 4	5	Started Drilling on 6/15/2020 S-1 at 0ft
+139.5	Light brown fine to medium SAND, some fine gravel, trace silt (dry)	2	S-2	SS	3	5 27 30 28	57	S-2 at 2ft Auger to 4 ft
	Light brown fine to medium SAND, some fine gravel, trace silt (dry)	4	S-3	SS	13	5 19 26 46	45	S-3 at 4ft
+135.5	Light brown fine to medium SAND, some fine gravel, trace silt (dry) [TILL]	6	S-4	SS	2	100/5	100/5	S-4 at 6ft Auger to 8 ft
	Light brown fine to medium SAND, some fine gravel, trace silt. trace weathered gravel (dry) [TILL]	8	S-5	SS	12	18 36 30 25	66	S-5 at 8ft
	Light brown fine coarse SAND, some fine gravel, trace silt (dry) [TILL]	10	S-6	SS	12	45 37 32 24	69	S-6 at 10ft Auger to 15 ft
+126.3	Light brown gravelly fine to medium SAND, trace silt, trace weathered gravel (dry) [TILL] Bottom of Boring	15	S-7	SS	1	100/3	100/3	S-7 at 15ft, auger refusal at 15ft. Bottom of boring on 6/15/2020 Boring backfilled with auger cuttings

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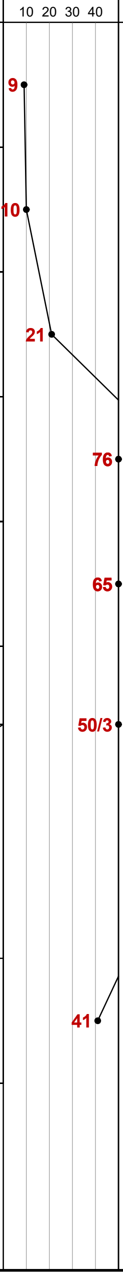
Log of Boring **C-S-BOR-22** Sheet 1 of 1

Project Hudson Logistics Center		Project No. 151010101	
Location 59 Steele Road, Hudson NH		Elevation and Datum Elev. + 142 (NGVD29)	
Drilling Company SoilTesting, Inc.		Date Started 6/15/20	Date Finished 6/15/20
Drilling Equipment CME Truck-Mounted Drill Rig		Completion Depth 17 ft	Rock Depth N/E
Size and Type of Bit 4in Hollow Stem Auger		Number of Samples: Disturbed 7	Undisturbed - ; Core -
Casing Diameter (in) N/A	Casing Depth (ft) N/A	Water Level (ft.): First ∇ N/E	Completion ▼ N/A ; 24 HR. ▼ N/A
Casing Hammer N/A ; Weight (lbs) N/A	Drop (in) N/A	Drilling Foreman Sam Deangelis	
Sampler 2-inch-diameter split spoon			
Sampler Hammer Safety ; Weight (lbs) 140	Drop (in) 30	Field Engineer Jack Berritt	

Elev. (ft)	Sample Description	Depth Scale	Number	Type	Recov. (in)	Penetr. resist BL/6in	N-Value (Blows/ft)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
+142.0	Brown to orange fine to medium SAND, trace silt, trace roots (dry) [TOPSOIL]	0	S-1	SS	10	3 5 4 4	9	Started Drilling on 6/15/2020 S-1 at 0ft
+140.0	Brown fine-coarse SAND, trace silt (dry)	2	S-2	SS	14	6 6 4 5	10	S-2 at 2ft Auger to 4 ft
	Brown fine-coarse SAND, trace silt, trace fine gravel (dry)	4	S-3	SS	9	10 9 12 12	21	S-3 at 4ft
+136.0	Brown to grey fine-coarse SAND, trace silt, trace fine gravel (dry) [TILL]	6	S-4	SS	13	13 29 47 36	76	S-4 at 6ft Auger to 8 ft
	Brown to grey fine-coarse SAND, trace silt, trace fine gravel (dry) [TILL]	8	S-5	SS	8	24 34 31 30	65	S-5 at 8ft
	Brown to grey fine-coarse SAND, trace silt, trace fine gravel (dry) [TILL]	10	S-6	SS	13	23 24 50/3	50/3	S-6 at 10ft Auger to 15 ft
	Brown fine-coarse SAND, some silt, trace fine gravel (moist) [TILL]	15	S-7	SS	14	41 20 21 32	41	S-7 at 15ft
+125.0	Bottom of Boring	17						Bottom of boring at 6/15/2020 Boring backfilled with auger cuttings



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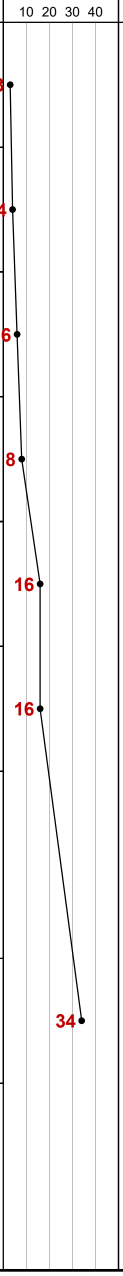
Log of Boring **C-S-BOR-23** Sheet 1 of 1

Project: Hudson Logistics Center		Project No.: 151010101	
Location: 59 Steele Road, Hudson NH		Elevation and Datum: Elev. + 136.5 (NGVD29)	
Drilling Company: Seaboard Drilling, Inc		Date Started: 6/15/20	Date Finished: 6/15/20
Drilling Equipment: Diedrich D50		Completion Depth: 17 ft	Rock Depth: N/E
Size and Type of Bit: 4in Hollow Stem Auger		Number of Samples: Disturbed 7	Undisturbed - Core -
Casing Diameter (in): N/A	Casing Depth (ft): N/A	Water Level (ft.): First ▽ 8	Completion ▼ N/A 24 HR. ▼ N/A
Casing Hammer: N/A Weight (lbs): N/A	Drop (in): N/A	Drilling Foreman: Jeff Nitsch	
Sampler: 2-inch-diameter split spoon			
Sampler Hammer: Automatic Weight (lbs): 140	Drop (in): 30	Field Engineer: Reid Balkind	

Depth Scale	Elev. (ft)	Sample Description	Number	Type	Recov. (in)	Penetr. resist BL/6in	N-Value (Blows/ft)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
0	+136.5	12" Dark brown fine-medium SAND, some silt, trace roots (moist) [TOPSOIL]	S-1A	SS	18	2 2		Started Drilling on 6/15/2020 S-1 at 0ft
1	+135.5	Orangish brown fine-medium SAND, some silt (moist)	S-1B			1 2	3	
2		Light brown fine-coarse SAND, trace silt (moist)	S-2	SS	16	2 2 2 3	4	S-2 at 2ft
4		Light brown fine-coarse SAND, trace silt, trace fine gravel (moist)	S-3	SS	18	3 3 3 3	6	S-3 at 4ft
6		Light brown fine-coarse SAND, trace silt (wet)	S-4	SS	16	4 4 4 4	8	S-4 at 6ft
8 ▽		Light brown to grayish brown fine-coarse SAND, trace silt (wet)	S-5	SS	20	5 6 10 12	16	S-5 at 8ft
10		Light brown to grayish brown fine-coarse SAND, some silt, trace fine gravel (wet)	S-6	SS	18	3 6 10 10	16	S-6 at 10ft
13								Rig Chattering
15	+121.5	Brown silty fine-coarse SAND, trace fine gravel, Trace weathered rock (wet) [TILL]	S-7	SS	12	21 19 15 15	34	
17	+119.5	Bottom of Boring						Bottom of boring on 6/15/2020 Boring backfilled with auger cuttings.



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Log of Boring **C-S-BOR-24** Sheet 1 of 1

Project Hudson Logistics Center		Project No. 151010101	
Location 59 Steele Road, Hudson NH		Elevation and Datum Elev. + 147.5 (NGVD29)	
Drilling Company SoilTesting, Inc.		Date Started 6/30/20	Date Finished 7/1/20
Drilling Equipment Mobile Drill B53		Completion Depth 13.3 ft	Rock Depth N/E
Size and Type of Bit 4in Hollow Stem Auger		Number of Samples	Disturbed 7 Undisturbed - Core -
Casing Diameter (in) N/A	Casing Depth (ft) N/A	Water Level (ft.)	First ▽ N/E Completion ▼ N/A 24 HR. ▼ N/A
Casing Hammer N/A Weight (lbs) N/A	Drop (in) N/A	Drilling Foreman Mike Kennedy	
Sampler 2-inch-diameter split spoon			
Sampler Hammer Safety Weight (lbs) 140	Drop (in) 30	Field Engineer Reid Balkind	

MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data Number	Type	Recov. (in)	Penetr. resist BL/6in	N-Value (Blows/ft) 10 20 30 40	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	+147.5	24" Dark brown fine-medium SAND, trace silt, trace roots (dry) [TOPSOIL]	0 1	S-1	SS	3	3 10 11 16	21	Started Drilling at 6/30/2020 S-1 at 0ft
	+145.5	Light brown fine-coarse SAND, trace silt, trace fine gravel (dry)	2 3	S-2	SS	8	13 19 19 15	38	S-2 at 2ft
		Light brown fine-coarse SAND, trace silt, trace fine gravel (dry)	4 5	S-3	SS	22	14 14 19 27	33	Auger to 4ft S-3 at 4ft
	+141.5	Grayish brown fine-medium SAND, some silt, trace fine gravel, trace weathered rock fragments (moist) [TILL]	6 7	S-4	SS	16	30 36 29 32	65	S-4 at 6ft
		Grayish brown fine-medium SAND, some silt, trace fine gravel, trace weathered rock fragments (moist) [TILL]	8 9	S-5	SS	3	50/3	50/3	Auger to 8ft S-5 at 8ft
		No Recovery	10 11	S-6	SS	0	50/2	50/2	Auger to 13ft. Hard drilling and heavy chatter from 8.5ft to 13ft S-6 at 10ft
		No Recovery Inferred Top of Bedrock	12						
	+134.3		13 14 15 16 17 18 19 20	S-7	SS	0	50/3	50/3	S-7 at 13ft Auger and spoon refusal encountered at 13ft. Bottom of boring at 6/30/2020 Boring backfilled with auger cuttings.

APPENDIX D
TEST PIT LOGS

LOG OF TEST PIT C-B-TP-01

Sheet 1 of 1

PROJECT NAME Hudson Logistics Center	PROJECT NUMBER 151010101	DATE 6/17/2020 12:34:00 PM
LOCATION 59 Steele Road, Hudson, NH	ELEVATION Elev. + 135 (NGVD29)	
EXCAVATION CONTRACTOR Polster Industries	DEPTH 7.5 ft	WATER LEVEL - First 7.2 ft ▽ WATER LEVEL - Completion 7.2 ft ▼
EQUIPMENT Takeuchi TB260	FOREMAN Pat Polster	LANGAN PERSONNEL Taylor Sisti

Symbol	ELEV (feet)	DESCRIPTION	Depth Scale	SAMPLE Number	SAMPLE Type	REMARKS
	+135.0	16" Dark brown fine-medium SAND, some silt, some roots (dry)[TOPSOIL]	0 1			Vertical sidewalls moderately maintained.
	+133.8	Orangish brown fine-medium SAND, some silt, trace fine gravel, trace roots (dry)	2			
	+132.8	Light brown fine-coarse SAND, trace silt, trace f-c gravel (dry)	3 4 5 6 7			
	+127.8	▼ Light brown fine-coarse SAND, trace silt, trace f-c gravel (wet)				Groundwater encountered at 7.2ft
	+127.5	Bottom of Test Pit at 7.5ft	8 9 10 11			Bottom of Test Pit at 7.5ft. Test pit backfilled with excavated soils in compacted lifts to grade. Surface restored with grass removed prior to excavation.

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LOG OF TEST PIT C-B-TP-02

Sheet 1 of 1

PROJECT NAME Hudson Logistics Center	PROJECT NUMBER 151010101	DATE 6/18/2020 10:11:00 AM
LOCATION 59 Steele Road, Hudson, NH	ELEVATION Elev. + 139 (NGVD29)	
EXCAVATION CONTRACTOR Polster Industries	DEPTH 7.5 ft	WATER LEVEL - First N/E ▽ WATER LEVEL - Completion N/E ▼
EQUIPMENT Takeuchi TB260	FOREMAN Pat Polster	LANGAN PERSONNEL Taylor Sisti

Symbol	ELEV (feet)	DESCRIPTION	Depth Scale	SAMPLE Number	SAMPLE Type	REMARKS
	+139.0	9-11" Dark brown fine-medium SAND, some silt, some roots (dry)[TOPSOIL]	0			Vertical sidewalls mostly maintained. No redox.
	+138.1	Orangish brown fine SAND, some silt, trace roots (dry)	1 2			
	+136.9	Light brown fine-medium SAND, trace silt (dry)	3 4 5 6 7			
	+131.5	Bottom of Test Pit at 7.5ft	8 9 10 11			Bottom of Test Pit at 7.5ft, no groundwater encountered. Test pit backfilled with excavated soils in compacted lifts to grade. Surface restored with grass removed prior to excavation.

LANGAN

LOG OF TEST PIT C-B-TP-03

Sheet 1 of 1

PROJECT NAME: Hudson Logistics Center
PROJECT NUMBER: 151010101
DATE: 6/18/2020 9:25:00 AM
LOCATION: 59 Steele Road, Hudson, NH
ELEVATION: Elev. + 139 (NGVD29)
EXCAVATION CONTRACTOR: Polster Industries
DEPTH: 6.5 ft
WATER LEVEL - First: N/E ∇
WATER LEVEL - Completion: N/E ▼
EQUIPMENT: Takeuchi TB260
FOREMAN: Pat Polster
LANGAN PERSONNEL: Taylor Sisti

Symbol	ELEV (feet)	DESCRIPTION	Depth Scale	SAMPLE Number	SAMPLE Type	REMARKS
	+139.0	10-12" Dark brown fine-medium SAND, some silt, some roots (dry)[TOPSOIL]	0			Vertical sidewalls mostly maintained. No redox.
	+138.0	Light brown fine-medium SAND, some silt, trace roots (moist)	1			
	+136.9	Light brown fine-medium SAND, trace silt, trace f-c gravel (dry)	2			
			3			
			4			
	+134.2	Light brown fine-coarse SAND, some f-c gravel, trace silt, trace cobbles up to 8 inches (moist)	5			Slight excavator resistance at 4.8ft
			6			
	+132.5	Bottom of Test Pit at 6.5ft				Bottom of Test Pit at 6.5ft, no groundwater encountered. Test pit backfilled with excavated soils in compacted lifts to grade. Surface restored with grass removed prior to excavation.
			7			
			8			
			9			
			10			
			11			

LANGAN

LOG OF TEST PIT C-B-TP-04

Sheet 1 of 1

PROJECT NAME: Hudson Logistics Center
PROJECT NUMBER: 151010101
DATE: 6/16/2020 9:45:00 AM
LOCATION: 59 Steele Road, Hudson, NH
ELEVATION: Elev. + 150.5 (NGVD29)
EXCAVATION CONTRACTOR: Polster Industries
DEPTH: 5 ft
WATER LEVEL - First: N/E ▽
WATER LEVEL - Completion: N/E ▼
EQUIPMENT: Takeuchi TB260
FOREMAN: Pat Polster
LANGAN PERSONNEL: Taylor Sisti

Symbol	ELEV (feet)	DESCRIPTION	Depth Scale	SAMPLE		REMARKS
				Number	Type	
	+150.5	9-14" dark brown fine-medium SAND, some silt, some roots (dry)[TOPSOIL]	0			Vertical sidewalls maintained. No redox.
	+149.7	Light brown fine-medium SAND, some silt, trace f-c gravel, trace roots, trace boulders up to 12 inches (dry)	1			
	+148.6	Light brown fine-medium SAND, trace silt, trace f-c gravel (dry)	2			
	+147.5	Light brown fine-medium SAND, some silt, trace f-c gravel, trace weathered cobbles, trace boulders up to 6 inches (dry)[TILL]	3 4			Hard excavation at 5ft
	+145.5	Bottom of Test Pit at 5ft	5			Bottom of Test Pit at 5ft, no groundwater encountered. Test pit backfilled with excavated soils in compacted lifts to grade. Surface restored with grass removed prior to excavation.
			6			
			7			
			8			
			9			
			10			
			11			

LANGAN

LOG OF TEST PIT C-B-TP-05

Sheet 1 of 1

PROJECT NAME Hudson Logistics Center	PROJECT NUMBER 151010101	DATE 6/16/2020 1:55:00 PM
LOCATION 59 Steele Road, Hudson, NH	ELEVATION Elev. + 146 (NGVD29)	
EXCAVATION CONTRACTOR Polster Industries	DEPTH 6 ft	WATER LEVEL - First N/E ∇ WATER LEVEL - Completion N/E ▼
EQUIPMENT CAT 305E	FOREMAN Pat Polster	LANGAN PERSONNEL Taylor Sisti

Symbol	ELEV (feet)	DESCRIPTION	Depth Scale	SAMPLE Number	SAMPLE Type	REMARKS
▨	+146.0	11" Dark brown fine-medium SAND, some silt, some roots (dry)[TOPSOIL]	0			Vertical sidewalls mostly maintained. No redox.
▒	+145.1	Light brown fine-medium SAND, trace silt, trace f-c gravel, trace cobbles up to 3 inches (moist)	1 2 3 4 5			
	+140.0	Bottom of Test Pit at 6ft	6 7 8 9 10 11			Bottom of Test Pit at 6ft, no groundwater encountered. Test pit backfilled with excavated soils in compacted lifts to grade. Surface restored with grass removed prior to excavation.

LANGAN

LOG OF TEST PIT C-B-TP-06

Sheet 1 of 1

PROJECT NAME Hudson Logistics Center	PROJECT NUMBER 151010101	DATE 6/16/2020 1:08:00 PM
LOCATION 59 Steele Road, Hudson, NH	ELEVATION Elev. + 149 (NGVD29)	
EXCAVATION CONTRACTOR Polster Industries	DEPTH 7 ft	WATER LEVEL - First N/E ▽
		WATER LEVEL - Completion N/E ▼
EQUIPMENT CAT 305E	FOREMAN Pat Polster	LANGAN PERSONNEL Olivia Chasse

Symbol	ELEV (feet)	DESCRIPTION	Depth Scale	SAMPLE Number	SAMPLE Type	REMARKS
	+149.0	9" Brown fine-medium SAND, some roots, trace silt (dry)[TOPSOIL]	0			Vertical walls mostly maintained. No redox
	+148.3					
			1			Roots to 1ft
		Light brown fine-medium SAND, some f-c gravel, trace silt (dry)	2			
			3	G-1	GRAB	G-1 at 3ft. Environmental sample from 3ft to 4ft Sample name: C-B-TP-06 (3'-4')
			4			
			5			
			6			
	+142.0	Bottom of Test Pit at 7ft	7			Bottom of Test Pit at 7ft, no groundwater encountered. Test pit backfilled with excavated soils in compacted lifts to grade. Surface restored with grass removed prior to excavation.
			8			
			9			
			10			
			11			

LANGAN

LOG OF TEST PIT C-B-TP-07

Sheet 1 of 1

PROJECT NAME Hudson Logistics Center	PROJECT NUMBER 151010101		DATE 6/18/2020 11:33:00 AM
LOCATION 59 Steele Road, Hudson, NH	ELEVATION Elev. + 151.5 (NGVD29)		
EXCAVATION CONTRACTOR Polster Industries	DEPTH 7.2 ft	WATER LEVEL - First N/E ▽	WATER LEVEL - Completion N/E ▼
EQUIPMENT CAT 305E	FOREMAN Wanderley Docarno		LANGAN PERSONNEL Taylor Sisti

Symbol	ELEV (feet)	DESCRIPTION	Depth Scale	SAMPLE Number	SAMPLE Type	REMARKS
	+151.5	11-13" Dark brown fine-medium SAND, some silt, some roots (dry)[TOPSOIL]	0			Vertical walls mostly maintained.
	+150.5	Orangish brown fine-medium SAND, trace silt, trace roots (dry)	1 2			
	+148.5	Light brown fine-coarse SAND, some f-c gravel, trace silt (dry)	3			
	+147.8	Light brown fine-coarse SAND, trace silt, trace f-c gravel (dry)	4 5			
	+145.7	Mottled orangish brown to light brown fine SAND, some silt (moist)	6 7			
	+144.3	Bottom of Test Pit at 7.2ft	8 9 10 11			Bottom of Test Pit at 7.2ft, no groundwater encountered. Test pit backfilled with excavated soils in compacted lifts to grade. Surface restored with grass removed prior to excavation.

LANGAN

LOG OF TEST PIT C-B-TP-08

Sheet 1 of 1

PROJECT NAME Hudson Logistics Center	PROJECT NUMBER 151010101	DATE 6/18/2020 9:04:00 AM	
LOCATION 59 Steele Road, Hudson, NH	ELEVATION Elev. + 155.5 (NGVD29)		
EXCAVATION CONTRACTOR Polster Industries	DEPTH 6.5 ft	WATER LEVEL - First N/E ▽	WATER LEVEL - Completion N/E ▼
EQUIPMENT CAT 305E	FOREMAN Wanderley Docarno	LANGAN PERSONNEL Taylor Sisti	

Symbol	ELEV (feet)	DESCRIPTION	Depth Scale	SAMPLE Number	SAMPLE Type	REMARKS
	+155.5	11-13" Light brown fine-medium SAND, some silt, some roots (dry)[TOPSOIL]	0			Vertical walls mostly maintained. No redox
	+154.5	Light brown fine-medium SAND, some silt, trace roots (dry)	1			
	+153.6	Light brown fine-medium SAND, trace silt, trace f-c gravel, trace roots (dry)	2 3 4			
	+151.0	Light brown fine-coarse SAND, some f-c gravel, trace silt, trace cobbles and boulders up to 12 inches (dry)	5 6			Some excavator resistance at 4.5ft
	+149.0	Bottom of Test Pit at 6.5ft	7 8 9 10 11			Bottom of Test Pit at 6.5ft, no groundwater encountered. Test pit backfilled with excavated soils in compacted lifts to grade. Surface restored with grass removed prior to excavation.

LANGAN

LOG OF TEST PIT C-B-TP-09

Sheet 1 of 1

PROJECT NAME Hudson Logistics Center	PROJECT NUMBER 151010101	DATE 6/18/2020 10:29:00 AM
LOCATION 59 Steele Road, Hudson, NH	ELEVATION Elev. + 160.5 (NGVD29)	
EXCAVATION CONTRACTOR Polster Industries	DEPTH 7.5 ft	WATER LEVEL - First N/E ▽ WATER LEVEL - Completion N/E ▼
EQUIPMENT CAT 305E	FOREMAN Wanderley Docarno	LANGAN PERSONNEL Taylor Sisti

Symbol	ELEV (feet)	DESCRIPTION	Depth Scale	SAMPLE Number	SAMPLE Type	REMARKS
	+160.5	10-11" Dark brown fine-medium SAND, some silt, some roots (dry)[TOPSOIL]	0			Vertical walls mostly maintained. No redox
	+159.6	Orangish brown fine-coarse SAND, some f-c gravel, trace silt, trace roots (dry)	1			
	+158.7	Light brown fine-coarse SAND, some f-c gravel, trace silt, trace cobbles up to 6 inches (dry)	2 3 4			
	+156.0	Light brown fine-medium SAND, trace silt, trace f-c gravel, trace cobbles and boulders up to 18 inches (dry)	5 6 7			
	+153.0	Bottom of Test Pit at 7.5ft	8 9 10 11			Bottom of Test Pit at 7.5ft, no groundwater encountered. Test pit backfilled with excavated soils in compacted lifts to grade. Surface restored with grass removed prior to excavation.

LANGAN

LOG OF TEST PIT C-B-TP-10

Sheet 1 of 1

PROJECT NAME Hudson Logistics Center	PROJECT NUMBER 151010101	DATE 6/16/2020 8:31:00 AM
LOCATION 59 Steele Road, Hudson, NH	ELEVATION Elev. + 156 (NGVD29)	
EXCAVATION CONTRACTOR Polster Industries	DEPTH 6 ft	WATER LEVEL - First N/E ▽
		WATER LEVEL - Completion N/E ▼
EQUIPMENT Takeuchi TB260	FOREMAN Pat Polster	LANGAN PERSONNEL Taylor Sisti

Symbol	ELEV (feet)	DESCRIPTION	Depth Scale	SAMPLE Number	SAMPLE Type	REMARKS
	+156.0	7-14" Dark brown fine-medium SAND, some silt, trace roots (dry)[TOPSOIL]	0			Vertical walls maintained. No redox.
	+155.4	Light brown to black fine-coarse SAND, trace silt, trace organics, trace boulders up to 18 inches, with pockets of wood, metal, brick, glass, and asphalt single pieces (dry)[FILL]	1 2 3	G-1	GRAB	G-1 at 2ft
	+152.7	Light brown fine-medium SAND, some silt, trace roots (moist)	4			
	+151.3	Light brown fine-medium SAND, trace silt, trace f-c gravel (moist)	5			Inferred rock surface sloping down toawrd south at 5.5ft. Excavator refusal at 5.5ft at north edge of test pit.
	+150.0	Bottom of Test Pit at 6ft	6 7 8 9 10 11			Bottom of Test Pit at 6ft, no groundwater encountered. Test pit backfilled with excavated soils in compacted lifts to grade. Surface restored with grass removed prior to excavation.

LANGAN

LOG OF TEST PIT C-B-TP-10A

Sheet 1 of 1

PROJECT NAME Hudson Logistics Center	PROJECT NUMBER 151010101	DATE 6/16/2020 10:40:00 AM
LOCATION 59 Steele Road, Hudson, NH	ELEVATION Elev. + 155 (NGVD29)	
EXCAVATION CONTRACTOR Polster Industries	DEPTH 3.5 ft	WATER LEVEL - First N/E ▽ WATER LEVEL - Completion N/E ▼
EQUIPMENT CAT 305E	FOREMAN Pat Polster	LANGAN PERSONNEL Olivia Chasse

Symbol	ELEV (feet)	DESCRIPTION	Depth Scale	SAMPLE Number	SAMPLE Type	REMARKS
░	+155.0	9" Dark brown fine-medium SAND, some silt, trace fine gravel, some roots (dry)[TOPSOIL]	0			Vertical sidewalls maintained. No redox.
▨	+154.2	Dark brown fine-medium SAND, some silt, some organics, trace asphalt shingles (dry)[FILL]	1 2			Roots to 1ft
▒	+152.0	Light brown fine-medium SAND, some silt, trace roots (moist)	3			
	+151.5	Bottom of Test Pit at 3.5ft	4 5 6 7 8 9 10 11			Bottom of Test Pit at 3.5ft, no groundwater encountered. Test pit backfilled with excavated soils in compacted lifts to grade. Surface restored with grass removed prior to excavation.

LOG OF TEST PIT C-B-TP-10B

Sheet 1 of 1

PROJECT NAME Hudson Logistics Center	PROJECT NUMBER 151010101	DATE 6/16/2020 11:15:00 AM
LOCATION 59 Steele Road, Hudson, NH	ELEVATION Elev. + 156 (NGVD29)	
EXCAVATION CONTRACTOR Polster Industries	DEPTH 9 ft	WATER LEVEL - First N/E ▽
		WATER LEVEL - Completion N/E ▼
EQUIPMENT CAT 305E	FOREMAN Pat Polster	LANGAN PERSONNEL Olivia Chasse

Symbol	ELEV (feet)	DESCRIPTION	Depth Scale	SAMPLE		REMARKS
				Number	Type	
	+156.0	6" Dark brown fine-medium SAND, some roots, trace silt (dry)[TOPSOIL]	0			
	+155.5	Light brown fine-medium SAND, trace silt, trace f-c gravel (dry)[FILL]				
	+155.0	Historic rubble well, about 4ft diameter, bottom of well about 9ft below grade	1 2 3 4 5 6 7 8			About 6-inch-thick concrete cap on top of rubble well. Well about 8 feet deep from cap.
	+147.0	Bottom of Test Pit at 9ft	9 10 11			Inferred bottom of well at 9ft below grade. Measuring tape extended to obstruction at bottom. Bottom of Test Pit at 9ft, no groundwater encountered. Test pit backfilled with excavated soils in compacted lifts to grade. Surface restored with grass removed prior to excavation.

LANGAN

LOG OF TEST PIT C-B-TP-11

Sheet 1 of 1

PROJECT NAME Hudson Logistics Center	PROJECT NUMBER 151010101	DATE 6/16/2020 11:48:00 AM
LOCATION 59 Steele Road, Hudson, NH	ELEVATION Elev. + 158.5 (NGVD29)	
EXCAVATION CONTRACTOR Polster Industries	DEPTH 6 ft	WATER LEVEL - First N/E ▽ WATER LEVEL - Completion N/E ▼
EQUIPMENT CAT 305E	FOREMAN Pat Polster	LANGAN PERSONNEL Olivia Chasse

Symbol	ELEV (feet)	DESCRIPTION	Depth Scale	SAMPLE Number	SAMPLE Type	REMARKS
	+158.5	6" Brown fine-medium SAND, some silt, some roots (dry)[TOPSOIL]	0			Vertical sidewalls maintained. No redox.
	+158.0	Light brown fine-medium SAND, some f-c gravel, trace silt (dry)	1 2			
	+155.5	Brown fine-coarse SAND, some f-c gravel, trace silt (dry)	3 4 5			
	+153.0	Grayish brown fine-medium SAND, some silt, some f-c gravel (dry)[TILL]				
	+152.5	Bottom of Test Pit at 6ft	6 7 8 9 10 11			Bottom of Test Pit at 6ft, no groundwater encountered. Test pit backfilled with excavated soils in compacted lifts to grade. Surface restored with grass removed prior to excavation.

LANGAN

LOG OF TEST PIT C-B-TP-12

Sheet 1 of 1

PROJECT NAME Hudson Logistics Center	PROJECT NUMBER 151010101	DATE 6/16/2020 12:25:00 PM
LOCATION 59 Steele Road, Hudson, NH	ELEVATION Elev. + 160.5 (NGVD29)	
EXCAVATION CONTRACTOR Polster Industries	DEPTH 6 ft	WATER LEVEL - First N/E ▽ WATER LEVEL - Completion N/E ▼
EQUIPMENT CAT 305E	FOREMAN Pat Polster	LANGAN PERSONNEL Olivia Chasse

Symbol	ELEV (feet)	DESCRIPTION	Depth Scale	SAMPLE Number	SAMPLE Type	REMARKS
▨	+160.5	9" Brown fine-medium SAND, some silt, some roots, trace fine gravel (dry)[TOPSOIL]	0			Vertical walls maintained. No redox.
▨	+159.8	Brown fine-medium SAND, some f-c gravel, trace silt (dry)	1 2 3 4			Roots to 3.5ft
▨	+156.0	Grayish brown fine-medium SAND, some silt, some f-c gravel (dry)[TILL]	5			
	+154.5	Bottom of Test Pit at 6ft	6 7 8 9 10 11			Bottom of Test Pit at 6ft, no groundwater encountered. Test pit backfilled with excavated soils in compacted lifts to grade. Surface restored with grass removed prior to excavation.

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LANGAN

LOG OF TEST PIT C-R-TP-01

Sheet 1 of 1

PROJECT NAME Hudson Logistics Center	PROJECT NUMBER 151010101	DATE 6/17/2020 12:00:00 PM
LOCATION 59 Steele Road, Hudson, NH	ELEVATION Elev. + 129 (NGVD29)	
EXCAVATION CONTRACTOR Polster Industries	DEPTH 6.5 ft	WATER LEVEL - First N/E ▽
		WATER LEVEL - Completion N/E ▼
EQUIPMENT CAT 305E	FOREMAN Pat Polster	LANGAN PERSONNEL Olivia Chasse

Symbol	ELEV (feet)	DESCRIPTION	Depth Scale	SAMPLE Number	SAMPLE Type	REMARKS
	+129.0	12" Dark brown fine-medium SAND, some silt, some roots (dry)[TOPSOIL]	0			Vertical walls maintained. No redox.
	+128.0	Light brown fine-medium SAND, some silt, trace fine gravel (dry)	1			
			2			Roots to 1.8ft
			3			
	+125.2	Gray fine-medium SAND, some silt, some f-c gravel (moist)[TILL]	4			
			5			
			6			
	+122.5	Bottom of Test Pit at 6.5ft	7			Bottom of Test Pit at 6.5ft, no groundwater encountered. Test pit backfilled with excavated soils in compacted lifts to grade. Surface restored with grass removed prior to excavation.
			8			
			9			
			10			
			11			

LANGAN

LOG OF TEST PIT C-R-TP-02

Sheet 1 of 1

PROJECT NAME Hudson Logistics Center	PROJECT NUMBER 151010101		DATE 6/17/2020 10:33:00 AM
LOCATION 59 Steele Road, Hudson, NH	ELEVATION Elev. + 130 (NGVD29)		
EXCAVATION CONTRACTOR Polster Industries	DEPTH 6.7 ft	WATER LEVEL - First 6.4 ft ▽	WATER LEVEL - Completion 6.4 ft ▼
EQUIPMENT CAT 305E	FOREMAN Wanderley Docarno		LANGAN PERSONNEL Taylor Sisti

Symbol	ELEV (feet)	DESCRIPTION	Depth Scale	SAMPLE Number	SAMPLE Type	REMARKS
	+130.0	6" Dark brown fine-medium SAND, some silt, some roots (dry)[TOPSOIL]	0			Vertical sidewalls maintained.
	+129.5	Dark brown fine SAND, some silt, trace roots (moist)[FILL]	1 2			
	+127.3	Dark brown to black fine-medium SAND, some silt, trace fine gravel, trace organics, trace roots (moist)	3 4 5	G-1	GRAB	G-1 at 2.7ft
	+124.3	Mottled organish brown to light brown silty fine SAND (wet) ▼	6	G-1	GRAB	G-2 at 5.7ft Slight seepage from wall at 6.4ft
	+123.3	Bottom of Test Pit at 6.7ft	7 8 9 10 11			Bottom of Test Pit at 6.7ft. Test pit backfilled with excavated soils in compacted lifts to grade. Surface restored with grass removed prior to excavation.

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LOG OF TEST PIT C-R-TP-03

Sheet 1 of 1

PROJECT NAME Hudson Logistics Center	PROJECT NUMBER 151010101	DATE 6/17/2020 8:49:00 AM
LOCATION 59 Steele Road, Hudson, NH	ELEVATION Elev. + 132 (NGVD29)	
EXCAVATION CONTRACTOR Polster Industries	DEPTH 8 ft	WATER LEVEL - First N/E ▽ WATER LEVEL - Completion N/E ▼
EQUIPMENT Takeuchi TB260	FOREMAN Pat Polster	LANGAN PERSONNEL Taylor Sisti

Symbol	ELEV (feet)	DESCRIPTION	Depth Scale	SAMPLE		REMARKS
				Number	Type	
	+132.0	12-14" Dark brown fine-medium SAND, some silt, some roots (moist)[TOPSOIL]	0			Vertical sidewalls maintained.
	+130.9	Orangish brown fine SAND, some silt, trace roots (moist)	1			
	+129.9	Light brown silty fine SAND (moist)	2	G-1	GRAB	G-1 at 2.1ft
			3			
			4			
			5			
			6			
			7			Mottling 7-8ft
	+124.0	Bottom of Test Pit at 8ft	8			Bottom of Test Pit at 8ft, no groundwater encountered. Test pit backfilled with excavated soils in compacted lifts to grade. Surface restored with grass removed prior to excavation.
			9			
			10			
			11			

LANGAN

LOG OF TEST PIT C-S-TP-01

Sheet 1 of 1

PROJECT NAME Hudson Logistics Center	PROJECT NUMBER 151010101	DATE 6/18/2020 12:11:00 PM
LOCATION 59 Steele Road, Hudson, NH	ELEVATION Elev. + 127.5 (NGVD29)	
EXCAVATION CONTRACTOR Polster Industries	DEPTH 7.3 ft	WATER LEVEL - First 7.1 ft ▽ WATER LEVEL - Completion 7.1 ft ▼
EQUIPMENT Takeuchi TB260	FOREMAN Pat Polster	LANGAN PERSONNEL Taylor Sisti

Symbol	ELEV (feet)	DESCRIPTION	Depth Scale	SAMPLE Number	SAMPLE Type	REMARKS
	+127.5	10-11" LDark brown fine-medium SAND, some silt, some roots (moist)[TOPSOIL]	0			Vertical sidewalls maintained.
	+126.5	Orangish brown silty fine SAND, trace roots (moist)	1			
	+125.7	Light brown silty fine SAND (moist)	2 3			
			4	G-1	GRAB	G-1 at 4ft. Infiltration test C-IT-01 at 4ft, see infiltration log for details. Mottling 4.5-6ft
		▼	5 6 7			Groundwater encountered at 7.1ft
	+120.2	Bottom of Test Pit at 7.3ft	8 9 10 11			Bottom of Test Pit at 7.3ft. Test pit backfilled with excavated soils in compacted lifts to grade. Surface restored with grass removed prior to excavation.

LANGAN

LOG OF TEST PIT C-S-TP-02

Sheet 1 of 1

PROJECT NAME Hudson Logistics Center	PROJECT NUMBER 151010101	DATE 6/17/2020 10:30:00 AM
LOCATION 59 Steele Road, Hudson, NH	ELEVATION Elev. + 127 (NGVD29)	
EXCAVATION CONTRACTOR Polster Industries	DEPTH 6 ft	WATER LEVEL - First 4 ft ▽ WATER LEVEL - Completion 4 ft ▼
EQUIPMENT Takeuchi TB260	FOREMAN Pat Polster	LANGAN PERSONNEL Taylor Sisti

Symbol	ELEV (feet)	DESCRIPTION	Depth Scale	SAMPLE Number	SAMPLE Type	REMARKS
	+127.0	3" Light brown fine-medium SAND, some silt, some roots (moist)[TOPSOIL]	0			Vertical sidewalls maintained.
	+126.7	Orangish brown fine-medium SAND, some silt, trace roots (moist)				
	+126.2	Light brown fine SAND, some silt (moist)	1 2 3			Mottling 3-4ft
	+123.0	▼ Light brown fine SAND, trace silt (wet)	4			Slight seepage 4-5ft.
	+122.0	Light brown fine-medium SAND, trace silt (wet)	5			
	+121.0	Bottom of Test Pit at 6ft	6 7 8 9 10 11			Bottom of Test Pit at 6ft. Test pit backfilled with excavated soils in compacted lifts to grade. Surface restored with grass removed prior to excavation.

LANGAN

LOG OF TEST PIT C-S-TP-03

Sheet 1 of 1

PROJECT NAME Hudson Logistics Center	PROJECT NUMBER 151010101	DATE 6/18/2020 7:47:00 AM
LOCATION 59 Steele Road, Hudson, NH	ELEVATION Elev. + 133.5 (NGVD29)	
EXCAVATION CONTRACTOR Polster Industries	DEPTH 6.5 ft	WATER LEVEL - First N/E ▽ WATER LEVEL - Completion N/E ▼
EQUIPMENT Takeuchi TB260	FOREMAN Pat Polster	LANGAN PERSONNEL Taylor Sisti

Symbol	ELEV (feet)	DESCRIPTION	Depth Scale	SAMPLE Number	 Type	REMARKS
▨	+133.5	11-13" Dark brown fine-medium SAND, some silt, some roots (moist)[TOPSOIL]	0			Vertical sidewalls maintained. No redox.
▨	+132.5	Orangish brown silty fine-medium SAND, trace roots (moist)	1 2			
▨	+131.4	Light brown fine-coarse SAND, trace silt, trace f-c gravel (moist)	3			
▨	+130.4	Light brown fine-coarse SAND, some f-c gravel, trace silt, trace cobbles and boulders up to 24 inches (moist)[TILL]	4 5 6			Slight excavator resistance at 3.1ft
	+127.0	Bottom of Test Pit at 6.5ft	7 8 9 10 11			Bottom of Test Pit at 6.5ft, no groundwater encountered. Test pit backfilled with excavated soils in compacted lifts to grade. Surface restored with grass removed prior to excavation.

LANGAN

LOG OF TEST PIT C-S-TP-04

Sheet 1 of 1

PROJECT NAME Hudson Logistics Center	PROJECT NUMBER 151010101	DATE 6/17/2020 12:57:00 PM
LOCATION 59 Steele Road, Hudson, NH	ELEVATION Elev. + 141 (NGVD29)	
EXCAVATION CONTRACTOR Polster Industries	DEPTH 6.5 ft	WATER LEVEL - First N/E ▽ WATER LEVEL - Completion N/E ▼
EQUIPMENT CAT305E	FOREMAN Wanderley Docarno	LANGAN PERSONNEL Taylor Sisti

Symbol	ELEV (feet)	DESCRIPTION	Depth Scale	SAMPLE Number	SAMPLE Type	REMARKS
	+141.0	9-12" Dark brown fine-medium SAND, some silt, some roots (dry)[TOPSOIL]	0			Vertical sidewalls mostly maintained. No redox.
	+140.0	Light brown fine-medium SAND, trace silt, trace roots (dry)	1			
	+139.2	Light brown fine-medium SAND, trace silt, trace f-c gravel, trace cobbles up to 4 inches (dry)	2 3 4 5 6			
	+134.5	Bottom of Test Pit at 6.5ft	7 8 9 10 11			Bottom of Test Pit at 6.5ft, no groundwater encountered. Test pit backfilled with excavated soils in compacted lifts to grade. Surface restored with grass removed prior to excavation.

LANGAN

LOG OF TEST PIT C-S-TP-05

Sheet 1 of 1

PROJECT NAME Hudson Logistics Center	PROJECT NUMBER 151010101	DATE 6/17/2020 1:51:00 PM
LOCATION 59 Steele Road, Hudson, NH	ELEVATION Elev. + 144.5 (NGVD29)	
EXCAVATION CONTRACTOR Polster Industries	DEPTH 6.6 ft	WATER LEVEL - First N/E ▽ WATER LEVEL - Completion N/E ▼
EQUIPMENT CAT 305E	FOREMAN Wanderley	LANGAN PERSONNEL Olivia Chasse

Symbol	ELEV (feet)	DESCRIPTION	Depth Scale	SAMPLE		REMARKS
				Number	Type	
	+144.5	6" Brown fine-medium SAND, trace silt, some roots (dry)[TOPSOIL]	0			Vertical sidewalls mostly maintained. No redox.
	+144.0	Light brown fine-medium SAND, some f-c gravel, some cobbles, trace silt, trace boulders (dry)	1 2 3 4 5 6			Roots to 3.5ft
	+137.9	Bottom of Test Pit at 6.6ft	7 8 9 10 11			Bottom of Test Pit at 6.6ft, no groundwater encountered. Test pit backfilled with excavated soils in compacted lifts to grade. Surface restored with grass removed prior to excavation.

LANGAN

LOG OF TEST PIT C-S-TP-06

PROJECT NAME Hudson Logistics Center	PROJECT NUMBER 151010101			DATE 6/17/2020 1:56:00 PM	
LOCATION 59 Steele Road, Hudson, NH	ELEVATION Elev. + 143 (NGVD29)				
EXCAVATION CONTRACTOR Polster Industries	DEPTH 5 ft	WATER LEVEL - First N/E ▽		WATER LEVEL - Completion N/E ▼	
EQUIPMENT Takeuchi TB260	FOREMAN Pat Polster			LANGAN PERSONNEL Taylor Sisti	

Symbol	ELEV (feet)	DESCRIPTION	Depth Scale	SAMPLE Number	SAMPLE Type	REMARKS
	+143.0	6-7" Dark brown fine-medium SAND, some silt, some roots (moist)[TOPSOIL]	0			Vertical sidewalls not maintained.
	+142.5	Orangish brown fine-coarse SAND, trace silt, trace f-c gravel (moist)	1			
	+141.3	Light brown fine-coarse SAND, some f-c gravel, trace silt, trace cobbles up to 6 inches (dry)	2			
	+140.0	Light brown fine-coarse SAND, trace silt, trace f-c gravel (dry)	3 4			
	+138.0	Bottom of Test Pit at 5ft	5 6 7 8 9 10 11			Wall collapsing at 5ft. Bottom of Test Pit at 5ft, no groundwater encountered. Test pit backfilled with excavated soils in compacted lifts to grade. Surface restored with grass removed prior to excavation.

LOG OF TEST PIT C-S-TP-07

Sheet 1 of 1

PROJECT NAME Hudson Logistics Center	PROJECT NUMBER 151010101	DATE 6/18/2020 12:49:00 PM
LOCATION 59 Steele Road, Hudson, NH	ELEVATION Elev. + 153 (NGVD29)	
EXCAVATION CONTRACTOR Polster Industries	DEPTH 7.5 ft	WATER LEVEL - First N/E ▽ WATER LEVEL - Completion N/E ▼
EQUIPMENT CAT 305E	FOREMAN Wanderley Docarno	LANGAN PERSONNEL Taylor Sisti

Symbol	ELEV (feet)	DESCRIPTION	Depth Scale	SAMPLE Number	SAMPLE Type	REMARKS
	+153.0	9-10" Dark brown fine-medium SAND, some silt, some roots (dry)[TOPSOIL]	0			Vertical sidewalls mostly maintained. No redox.
	+152.2	Light brown fine-medium SAND, some silt, some roots (dry)	1 2			
	+149.9	Light brown fine-coarse SAND, some f-c gravel, trace silt, trace cobbles up to 8 inches (moist)	3 4 5 6 7			
	+145.5	Bottom of Test Pit at 7.5ft	8 9 10 11			Bottom of Test Pit at 7.5ft, no groundwater encountered. Test pit backfilled with excavated soils in compacted lifts to grade. Surface restored with grass removed prior to excavation.

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LOG OF TEST PIT C-S-TP-08

Sheet 1 of 1

PROJECT NAME Hudson Logistics Center	PROJECT NUMBER 151010101		DATE 6/18/2020 11:14:00 AM
LOCATION 59 Steele Road, Hudson, NH	ELEVATION Elev. + 162 (NGVD29)		
EXCAVATION CONTRACTOR Polster Industries	DEPTH 5.5 ft	WATER LEVEL - First N/E ▽	WATER LEVEL - Completion N/E ▼
EQUIPMENT Takeuchi TB260	FOREMAN Pat Polster		LANGAN PERSONNEL Taylor Sisti

Symbol	ELEV (feet)	DESCRIPTION	Depth Scale	SAMPLE Number	SAMPLE Type	REMARKS
	+162.0	5" Dark brown fine-medium SAND, some silt, some roots (moist)[TOPSOIL]	0			Vertical sidewalls maintained. No redox.
	+161.6	Light brown fine-coarse SAND, trace silt, trace roots (moist)[FILL]	1			
	+160.7	Dark brown fine-medium SAND, some silt, trace larger roots (moist)[TOPSOIL]	2			
	+159.2	Light brown fine-medium SAND, trace silt (moist)	3			
	+158.2	Light brown fine-coarse SAND, trace silt, trace f-c gravel (moist)	4			
	+157.6	Light brown fine-coarse SAND, some f-c gravel, trace silt (moist)[TILL]	5			Hard excavation at 4.4ft
	+156.5	Bottom of Test Pit at 5.5ft	6 7 8 9 10 11			Bottom of Test Pit at 5.5ft, no groundwater encountered. Test pit backfilled with excavated soils in compacted lifts to grade. Surface restored with grass removed prior to excavation.

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LOG OF TEST PIT C-S-TP-11

Sheet 1 of 1

PROJECT NAME Hudson Logistics Center	PROJECT NUMBER 151010101	DATE 6/30/2020 12:59:00 PM
LOCATION 59 Steele Road, Hudson, NH	ELEVATION Elev. + 162 (NGVD29)	
EXCAVATION CONTRACTOR Polster Industries	DEPTH 7.5 ft	WATER LEVEL - First N/E ▽ WATER LEVEL - Completion N/E ▼
EQUIPMENT Takeuchi TB260	FOREMAN Wanderley Docarno	LANGAN PERSONNEL Olivia Chasse

Symbol	ELEV (feet)	DESCRIPTION	Depth Scale	SAMPLE Number	SAMPLE Type	REMARKS
	+162.0	6" Brown fine-medium SAND, trace silt, trace roots (dry)[TOPSOIL]	0			Vertical sidewalls mostly maintained. No redox.
	+161.5	Light brown fine-medium SAND, some f-c gravel, trace silt, trace boulders (dry)	1 2 3 4 5 6 7			Roots to 5ft
	+154.5	Bottom of Test Pit at 7.5ft	8 9 10 11			Bottom of Test Pit at 7.5ft, no groundwater encountered. Test pit backfilled with excavated soils in compacted lifts to grade. Surface restored with grass removed prior to excavation.

LOG OF TEST PIT C-S-TP-13

Sheet 1 of 1

PROJECT NAME Hudson Logistics Center		PROJECT NUMBER 151010101	DATE 6/17/2020 8:32:00 AM
LOCATION 59 Steele Road, Hudson, NH		ELEVATION Elev. + 155.5 (NGVD29)	
EXCAVATION CONTRACTOR Polster Industries	DEPTH 5.5 ft	WATER LEVEL - First N/E ▽	WATER LEVEL - Completion N/E ▼
EQUIPMENT CAT 305E		FOREMAN Wanderley Docarno	LANGAN PERSONNEL Taylor Sisti

Symbol	ELEV (feet)	DESCRIPTION	Depth Scale	SAMPLE Number	SAMPLE Type	REMARKS
	+155.5	8" Light brown fine-medium SAND, some silt, some roots (dry)[TOPSOIL]	0			Vertical sidewalls maintained. No redox.
	+154.8	Light brown fine-medium SAND, some silt, trace f-c gravel, trace roots, trace cobbles up to 4 inches (dry)	1			
	+153.9	Light brown fine-coarse SAND, trace silt, trace f-c gravel, trace cobbles up to 4 inches (dry)	2 3			
	+151.7	Light brown fine-coarse SAND, trace silt, trace f-c gravel, trace cobbles up to 8 inches, trace weathered cobbles (dry) [TILL]	4 5			Hard excavation at 3.8ft.
	+150.0	Bottom of Test Pit at 5.5ft	6 7 8 9 10 11			Bottom of Test Pit at 5.5ft, no groundwater encountered. Test pit backfilled with excavated soils in compacted lifts to grade. Surface restored with grass removed prior to excavation.

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LOG OF TEST PIT C-S-TP-14

Sheet 1 of 1

PROJECT NAME Hudson Logistics Center	PROJECT NUMBER 151010101	DATE 6/17/2020 7:27:00 AM
LOCATION 59 Steele Road, Hudson, NH	ELEVATION Elev. + 139.5 (NGVD29)	
EXCAVATION CONTRACTOR Polster Industries	DEPTH 5.5 ft	WATER LEVEL - First 4.8 ft ∇ WATER LEVEL - Completion 5.4 ft ▼
EQUIPMENT Takeuchi TB260	FOREMAN Pat Polster	LANGAN PERSONNEL Taylor Sisti

Symbol	ELEV (feet)	DESCRIPTION	Depth Scale	SAMPLE Number	SAMPLE Type	REMARKS
	+139.5	7-8" Dark brown fine-medium SAND, some silt, some roots(dry)[TOPSOIL]	0			Vertical sidewalls mostly maintained. No redox.
	+138.8	Orangish brown fine-medium SAND, some silt, trace roots (dry)	1			
	+138.3	Light brown fine-medium SAND, trace silt, trace fine gravel, trace roots (dry)	2 3 4			
	+135.0	Brown fine-coarse SAND, some f-c gravel, trace silt, trace boulders up to 20 inches (moist) ∇ ▼	5			Some excavator resistance at 4.5ft Water seeping in from wall at 4.8ft Heavy seepage from wall at 5.4ft
	+134.0	Bottom of Test Pit at 5.5ft	6 7 8 9 10 11			Bottom of Test Pit at 5.5ft. Test pit backfilled with excavated soils in compacted lifts to grade. Surface restored with grass removed prior to excavation.

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LOG OF TEST PIT C-S-TP-15

Sheet 1 of 1

PROJECT NAME Hudson Logistics Center	PROJECT NUMBER 151010101		DATE 6/17/2020 9:23:00 AM
LOCATION 59 Steele Road, Hudson, NH	ELEVATION Elev. + 130 (NGVD29)		
EXCAVATION CONTRACTOR Polster Industries	DEPTH 7.2 ft	WATER LEVEL - First 7 ft ▽	WATER LEVEL - Completion 7 ft ▼
EQUIPMENT Takeuchi TB260	FOREMAN Pat Polster		LANGAN PERSONNEL Taylor Sisti

Symbol	ELEV (feet)	DESCRIPTION	Depth Scale	SAMPLE Number	SAMPLE Type	REMARKS
	+130.0	7-8" Dark brown fine-medium SAND, some silt, some roots (moist)[TOPSOIL]	0			Vertical sidewalls maintained.
	+129.3	Orangish brown silty fine SAND, trace roots (moist)	1 2			
	+127.8	Light brown fine SAND, some silt (moist)	3 4			Mottling 3.5-4.5ft
	+125.6	Light brown fine-medium SAND, some silt, trace fine gravel (moist)	5 6			
	+123.5	Light brown silty fine SAND (moist) ▼	7			Slight seepage from wall at 7ft
	+122.8	Bottom of Test Pit at 7.2ft	8 9 10 11			Bottom of Test Pit at 7.2ft. Test pit backfilled with excavated soils in compacted lifts to grade. Surface restored with grass removed prior to excavation.

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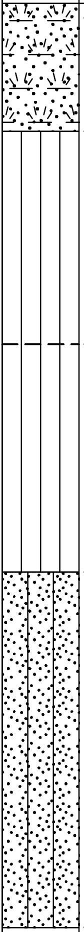
LOG OF TEST PIT C-S-TP-16

Sheet 1 of 1

PROJECT NAME Hudson Logistics Center	PROJECT NUMBER 151010101	DATE 6/17/2020 9:45:00 AM
LOCATION 59 Steele Road, Hudson, NH	ELEVATION Elev. + 131.5 (NGVD29)	
EXCAVATION CONTRACTOR Polster Industries	DEPTH 6.5 ft	WATER LEVEL - First 5.8 ft ▽
		WATER LEVEL - Completion 5.8 ft ▼
EQUIPMENT CAT 305E	FOREMAN Wanderley Docarno	LANGAN PERSONNEL Taylor Sisti



ELEV (feet)	DESCRIPTION	Depth Scale	SAMPLE Number	SAMPLE Type	REMARKS
+131.5	11" Dark brown fine-medium SAND, some silt, some roots (moist) [TOPSOIL]	0			Vertical sidewalls maintained.
+130.6	Light brown SILT, some fine sand, trace roots (moist)	1 2			
+129.1	Mottled light brown SILT, some fine sand (moist)	3			
+127.5	Light brown fine-coarse SAND, some silt, trace f-c gravel, trace boulders up to 18inches, trace weathered boulder and cobble pieces (moist) ▼	4 5 6			Slight seepage from wall at 5.8ft
+125.0	Bottom of Test Pit at 6.5ft	7 8 9 10 11			Bottom of Test Pit at 6.5ft. Test pit backfilled with excavated soils in compacted lifts to grade. Surface restored with grass removed prior to excavation.

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LOG OF TEST PIT C-S-TP-17

Sheet 1 of 1

PROJECT NAME Hudson Logistics Center	PROJECT NUMBER 151010101	DATE 6/18/2020 1:28:00 PM
LOCATION 59 Steele Road, Hudson, NH	ELEVATION Elev. + 133 (NGVD29)	
EXCAVATION CONTRACTOR Polster Industries	DEPTH 7.5 ft	WATER LEVEL - First 7 ft ▽ WATER LEVEL - Completion N/E ▼
EQUIPMENT Takeuchi TB260	FOREMAN Pat Polster	LANGAN PERSONNEL Taylor Sisti

Symbol	ELEV (feet)	DESCRIPTION	Depth Scale	SAMPLE Number	SAMPLE Type	REMARKS
	+133.0	7" Dark brown fine-medium SAND, some silt, some roots (moist)[TOPSOIL]	0			Vertical sidewalls maintained.
	+132.4	Light brown silty fine SAND, trace roots (moist)	1			
	+131.8	Light brown silty fine SAND, some about 2-inch-thick f-m sand lenses (moist)	2			
			3	G-1	GRAB	G-1 at 2.5ft. Infiltration test C-IT-17 at 2.5ft below grade, see log for details.
			4			Mottling 3.8-4.5ft
			5			
			6			
	+126.0	▽ Light brown silty fine SAND (wet)	7			Material wet, no seepage into test pit
	+125.5	Bottom of Test Pit at 7.5ft	8			Bottom of Test Pit at 7.5ft. Test pit backfilled with excavated soils in compacted lifts to grade. Surface restored with grass removed prior to excavation.
			9			
			10			
			11			

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APPENDIX E
TEST PIT PHOTOGRAPHS

C-B-TP-01

151010101
Hudson Logistics Center
Hudson, NH

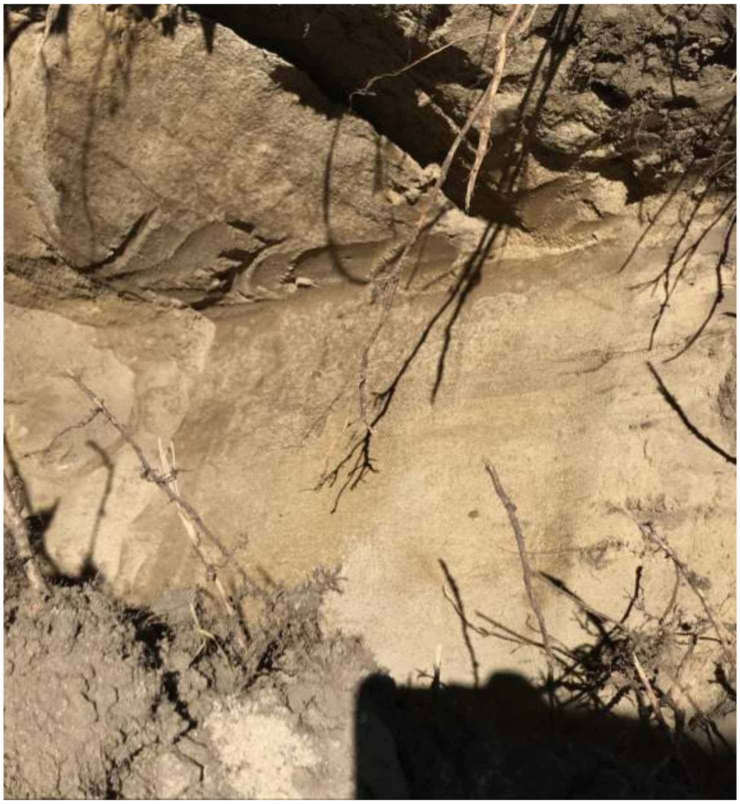
C-B-TP-02

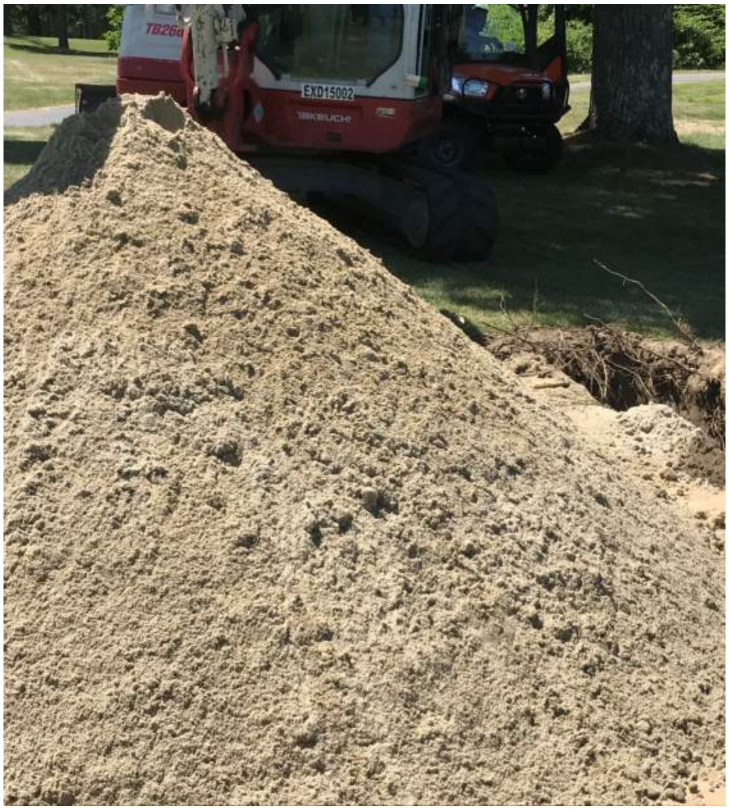
151010101
Hudson Logistics Center
Hudson, NH

C-B-TP-03

C-B-TP-04

C-B-TP-05





C-B-TP-06

C-B-TP-07

151010101
Hudson Logistics Center
Hudson, NH

C-B-TP-08

151010101
Hudson Logistics Center
Hudson, NH

C-B-TP-09

C-B-TP-10

C-B-TP-10A

C-B-TP-10B

151010101
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C-B-TP-11

C-B-TP-12

C-R-TP-01

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Hudson Logistics Center
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C-R-TP-02




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C-R-TP-03

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Hudson Logistics Center
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C-S-TP-01

C-S-TP-02

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Hudson Logistics Center
Hudson, NH

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C-S-TP-03

C-S-TP-04

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C-S-TP-15

C-S-TP-16

151010101
Hudson Logistics Center
Hudson, NH

C-S-TP-17

APPENDIX F
WELL CONSTRUCTION LOGS & READINGS

Lot C
Summary of Groundwater Elevations
Hudson, New Hampshire
Langan Project No.: 151010101

Monitoring Well Lot ID	**C**			
Monitoring Well ID	**C-B-BOR-02(OW)**	**C-S-BOR-04(OW)**	**C-B-BOR-16(OW)**	**C-B-BOR-20(OW)**
Ground Surface Elevation (feet)	132.0	130.5	158.0	156.5
Installation Date	6/13/2020	6/18/2020	6/17/2020	6/8/2020
Reference Point	Ground Surface	Ground Surface	Ground Surface	Ground Surface
June 20, 2020				
Depth to Groundwater (feet)	5.0	NM	13.9	12.8
Groundwater Elevation (feet)	127.0	NA	144.1	143.7
June 30, 2020				
Depth to Groundwater (feet)	5.0	6.9	14.3	NM
Groundwater Elevation (feet)	127.0	123.6	143.7	NA
July 1, 2020				
Depth to Groundwater (feet)	NM	NM	NM	NM
Groundwater Elevation (feet)	NA	NA	NA	NA
July 19, 2020				
Depth to Groundwater (feet)	5.7	NM	NM	NM
Groundwater Elevation (feet)	126.3	NA	NA	NA
July 20, 2020				
Depth to Groundwater (feet)	6.5	7.5	14.9	13.7
Groundwater Elevation (feet)	125.5	123.0	143.1	142.8
July 29, 2020				
Depth to Groundwater (feet)	6.6	7.6	15.0	13.9
Groundwater Elevation (feet)	125.4	122.9	143.0	142.6

Notes:

1. "Depth to Groundwater" results are shown in feet below ground surface. "Groundwater Elevation" is given in feet and references the National Geodetic Vertical Datum of 1929 (NGVD 1929).

2. Ground surface elevations were estimated by Langan by interpolating between the ground surface contours shown on the existing conditions plan provided by Hayner/Swanson, Inc. (HSI) of Nashua, New Hampshire. As such, the elevations should be considered approximate.

3. Abbreviations
   NI = Not Installed
   NA = Not Applicable
   NM = Not Measured

WELL CONSTRUCTION SUMMARY
Well No. C-B-BOR-02(OW)

PROJECT	Project Hudson	**PROJECT NO.**	151010101
LOCATION	59 Steele Road, Hudson, NH	**ELEVATION AND DATUM**	Approx. 132 NGVD29
DRILLING AGENCY	SoilTesting, Inc.	**DATE STARTED** 6/13/2020	**DATE FINISHED** 6/13/2020
DRILLING EQUIPMENT	CME Truck-Mounted Drill Rig	**DRILLER**	Sam Deangelis
SIZE AND TYPE OF BIT	4" Hollow Stem Auger	**INSPECTOR**	Jack Berritt

METHOD OF INSTALLATION

Boring C-B-BOR-02(OW) was advance to about 14ft with 4" HSA. The boring was backfilled with soil cuttings to about 10ft. The screen and riser for the well was placed into the borehole. A 1-foot seal of 3/8" Bentonite Chips was placed above the filter sand. The remaining augers were removed and the remainder of the borehole was backfilled with auger cuttings. A curb box was installed at grade.

METHOD OF WELL DEVELOPMENT

N/A

TYPE OF CASING	PVC	**DIAMETER**	2in.	**TYPE OF BACKFILL MATERIAL**	Auger cuttings
TYPE OF SCREEN	PVC	**DIAMETER**	2in.	**TYPE OF SEAL MATERIAL**	3/8" Bentonite Chips
BOREHOLE DIAMETER	4"			**TYPE OF FILTER MATERIAL**	FilPro #2 sand

	ELEVATION	DEPTH (ft)
TOP OF CASING el.	132	0
TOP OF BACKFILL el.	131.5	0.5
TOP OF SEAL el.	131.5	0.5
TOP OF FILTER el.	130.5	1.5
TOP OF SCREEN el.	132	0
BOTTOM OF BORING el.	118	14

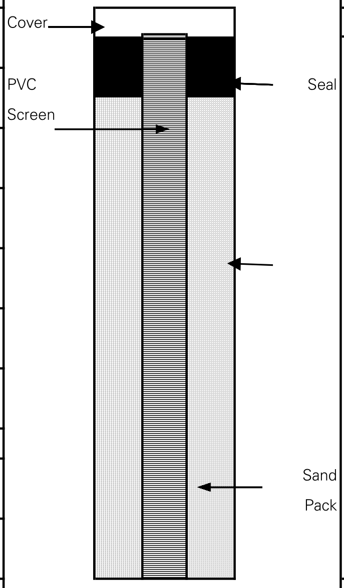
SCREEN LENGTH 10ft

SLOT SIZE 0.1in

GROUNDWATER ELEVATIONS

DATE	ELEVATION	DEPTH TO WATER (ft)
6/20/2020	127.00	5.00
6/30/2020	127.00	5.00
7/29/2020	126.30	5.70
7/20/2020	125.50	6.50
7/29/2020	125.40	6.60

WELL DETAILS



SUMMARY SOIL CLASSIFICATION	DEPTH (FT)
Ground Surface	0.0
Brown fine SAND, trace silt trace fine gravel	0.0
	10.0

LANGAN MA, Inc.

WELL CONSTRUCTION SUMMARY

Well No. C-S-BOR-04(OW)

PROJECT	Project Hudson	**PROJECT NO.**	151010101
LOCATION	59 Steele Road, Hudson, NH	**ELEVATION AND DATUM**	Approx. 130.5 NGVD29
DRILLING AGENCY	SoilTesting, Inc.	**DATE STARTED** 6/18/2020	**DATE FINISHED** 6/18/2020
DRILLING EQUIPMENT	ATV Mounted CME 550X	**DRILLER**	Sam DeAngelis
SIZE AND TYPE OF BIT	4" Hollow Stem Auger	**INSPECTOR**	Justin Hall

METHOD OF INSTALLATION

Boring C-S-BOR-04(OW) was advance to about 14ft with 4" HSA. The boring was backfilled with soil cuttings to about 10ft. The screen and riser for the well was placed into the borehole. #2 filter sand was poured around the pipe to 2ft above the screen as the augers were removed. A 1-foot seal of 3/8" Bentonite Chips was placed above the filter sand. The remaining augers were removed and the remainder of the borehole was backfilled with auger cuttings. A curb box was installed at grade.

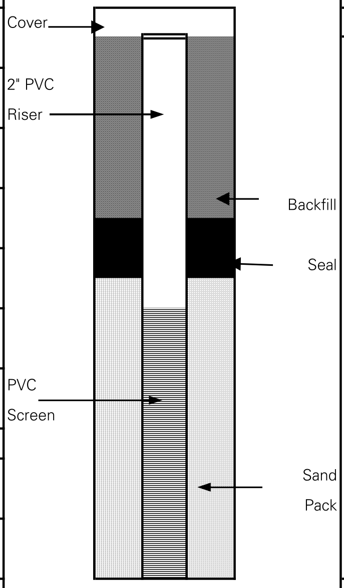
METHOD OF WELL DEVELOPMENT

N/A

TYPE OF CASING	PVC	**DIAMETER**	2in.	**TYPE OF BACKFILL MATERIAL**	Auger cuttings
TYPE OF SCREEN	PVC	**DIAMETER**	2in.	**TYPE OF SEAL MATERIAL**	3/8" Bentonite Chips
BOREHOLE DIAMETER	4"			**TYPE OF FILTER MATERIAL**	FilPro #2 sand

	ELEVATION	DEPTH (ft)
TOP OF CASING	el. 130.5	0
TOP OF BACKFILL	el. 130	0.5
TOP OF SEAL	el. 128.5	2
TOP OF FILTER	el. 127.5	3
TOP OF SCREEN	el. 125.5	5
BOTTOM OF BORING	el. 116.5	14
SCREEN LENGTH	5ft	
SLOT SIZE	0.1in	

WELL DETAILS



SUMMARY SOIL CLASSIFICATION	DEPTH (FT)
Ground Surface	0.0
Light brown fine SAND, some silt	10.0

GROUNDWATER ELEVATIONS

DATE	ELEVATION	DEPTH TO WATER (ft)
6/30/2020	123.60	6.90
7/20/2020	123.00	7.50
7/29/2020	122.90	7.60

LANGAN MA, Inc.

WELL CONSTRUCTION SUMMARY

Well No. C-B-BOR-16(OW)

PROJECT	Project Hudson	**PROJECT NO.**	151010101
LOCATION	59 Steele Road, Hudson, NH	**ELEVATION AND DATUM**	Approx. 158 NGVD29
DRILLING AGENCY	SoilTesting, Inc.	**DATE STARTED** 6/17/2020	**DATE FINISHED** 6/17/2020
DRILLING EQUIPMENT	CME Truck-Mounted Drill Rig	**DRILLER**	Mike Kennedy
SIZE AND TYPE OF BIT	4" Hollow Stem Auger	**INSPECTOR**	Olivia Chasse

METHOD OF INSTALLATION

Boring C-B-BOR-16(OW) was advance to about 25.8ft with 4" HSA. The screen and riser for the well was placed into the borehole. #2 filter sand was poured around the pipe to 2ft above the screen as the augers were removed. A 1-foot seal of 3/8" Bentonite Chips was placed above the filter sand. The remaining augers were removed and the remainder of the borehole was backfilled with auger cuttings. A curb box was installed at grade.

METHOD OF WELL DEVELOPMENT

N/A

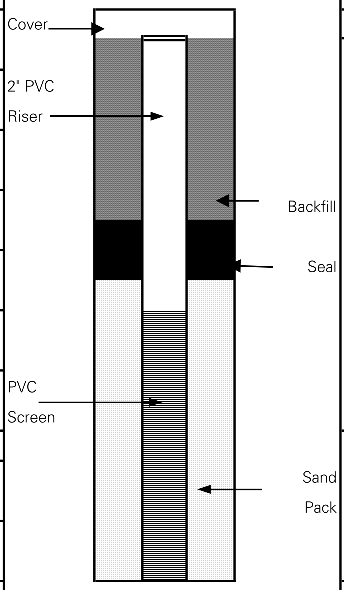
TYPE OF CASING	PVC	**DIAMETER**	2in.	**TYPE OF BACKFILL MATERIAL**	Auger cuttings
TYPE OF SCREEN	PVC	**DIAMETER**	2in.	**TYPE OF SEAL MATERIAL**	3/8" Bentonite Chips
BOREHOLE DIAMETER	4"			**TYPE OF FILTER MATERIAL**	FilPro #2 sand

	ELEVATION	**DEPTH (ft)**
TOP OF CASING	el. 158	0
TOP OF BACKFILL	el. 157.5	0.5
TOP OF SEAL	el. 151	7
TOP OF FILTER	el. 150	8
TOP OF SCREEN	el. 148	10
BOTTOM OF BORING	el. 132.2	25.8

SCREEN LENGTH 15ft

SLOT SIZE 0.1in

WELL DETAILS



SUMMARY SOIL CLASSIFICATION	DEPTH (FT)
Ground Surface	0.0
Light brown fine SAND, some silt trace fine gravel	20.0
TILL	25.0

GROUNDWATER ELEVATIONS

DATE	ELEVATION	DEPTH TO WATER (ft)
6/20/2020	144.10	13.90
6/30/2020	143.70	14.30
7/20/2020	143.10	14.90
7/29/2020	143.00	15.00

LANGAN MA, Inc.

WELL CONSTRUCTION SUMMARY
Well No. C-B-BOR-20(OW)

PROJECT	Project Hudson	**PROJECT NO.**	151010101		
LOCATION	59 Steele Road, Hudson, NH	**ELEVATION AND DATUM**	Approx.	156.5	NGVD29
DRILLING AGENCY	SoilTesting, Inc.	**DATE STARTED** 6/5/2020		**DATE FINISHED** 6/5/2020	
DRILLING EQUIPMENT	CME Truck-Mounted Drill Rig	**DRILLER**	Sam Deangelis		
SIZE AND TYPE OF BIT	4" Hollow Stem Auger	**INSPECTOR**	Jack Berritt		

METHOD OF INSTALLATION

Boring C-B-BOR-20(OW) was advance to about 22ft with 4" HSA. The boring was backfilled with soil cuttings to about 20ft. The screen and riser for the well was placed into the borehole. #2 filter sand was poured around the pipe to 1ft above the screen as the augers were removed. A 1-foot seal of 3/8" Bentonite Chips was placed above the filter sand. The remaining augers were removed and the remainder of the borehole was backfilled with auger cuttings. A curb box was installed at grade.

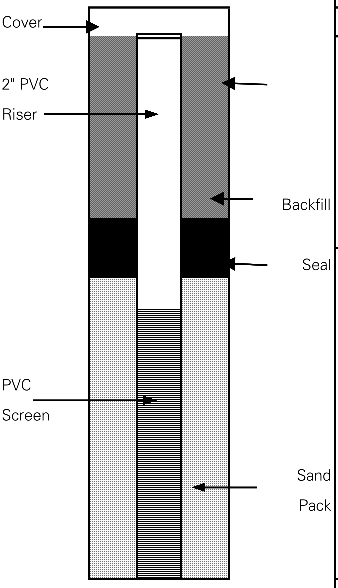
METHOD OF WELL DEVELOPMENT

N/A

TYPE OF CASING	PVC	**DIAMETER**	2in.	**TYPE OF BACKFILL MATERIAL**	Auger cuttings
TYPE OF SCREEN	PVC	**DIAMETER**	2in.	**TYPE OF SEAL MATERIAL**	3/8" Bentonite Chips
BOREHOLE DIAMETER	4"			**TYPE OF FILTER MATERIAL**	FilPro #2 sand

	ELEVATION	**DEPTH (ft)**
TOP OF CASING	el. 156.5	0
TOP OF BACKFILL	el. 156	0.5
TOP OF SEAL	el. 148.5	8
TOP OF FILTER	el. 147.5	9
TOP OF SCREEN	el. 146.5	10
BOTTOM OF BORING	el. 134.5	22
SCREEN LENGTH	10ft	
SLOT SIZE	0.1in	

WELL DETAILS



SUMMARY SOIL CLASSIFICATION	**DEPTH (FT)**
Ground Surface	0.0
Light brown fine SAND trace silt	8.0
TILL	20.0

GROUNDWATER ELEVATIONS

DATE	**ELEVATION**	**DEPTH TO WATER (ft)**
6/20/2020	144.10	12.80
7/20/2020	142.80	13.70
7/29/2020	142.60	13.90

LANGAN MA, Inc.

APPENDIX G
LABORATORY TESTING RESULTS

Client:	Langan Engineering				
Project:	Project Hudson				
Location:	Hudson, NH			Project No:	GTX-311848
Boring ID:	---	Sample Type:	---	Tested By:	ckg
Sample ID:	---	Test Date:	06/29/20	Checked By:	jsc
Depth :	---	Test Id:	561432		

Moisture Content of Soil and Rock - ASTM D2216

Boring ID	Sample ID	Depth	Description	Moisture Content,%
C-B-BOR-04	S- 2	2-4 ft	Moist, light olive brown silty sand with gravel	8.5
C-B-BOR-08	S- 4	6-8 ft	Moist, light yellowish brown sand with silt	9.1
C-B-BOR-11	S- 5	8-10 ft	Moist, light olive brown silty sand with gravel	9.2
C-B-TP-02	G- 1	3-4 ft	Moist, dark olive brown silt with organics	48.3
C-B-TP-06	S- 1	0-5 ft	Moist, olive yellow sand	4.7
C-B-TP-07	S- 1	0-5 ft	Moist, light olive brown silty sand	3.6
C-S-BOR-09	S- 6	10-12 ft	Moist, dark grayish brown silty sand	10.3
C-S-BOR-12	S- 5	8-10 ft	Moist, light brownish gray silty sand	11.4
C-S-BOR-20	S- 3	4-6 ft	Moist, olive yellow sand with gravel	2.0
C-S-BOR-22	S- 7	15-17 ft	Moist, olive brown silty sand	13.2

Notes: Temperature of Drying : 110º Celsius

Client:	Langan Engineering		
Project:	Project Hudson		
Location:	Hudson, NH	Project No:	GTX-311848

Boring ID:	C-S-BOR-23	Sample Type:	jar	Tested By:	ckg
Sample ID:	S-5	Test Date:	06/29/20	Checked By:	jsc
Depth :	8-10 ft	Test Id:	561426		

Test Comment: ---
Visual Description: Moist, olive brown sand with gravel
Sample Comment: ---

Moisture Content of Soil and Rock - ASTM D2216

Boring ID	Sample ID	Depth	Description	Moisture Content,%
C-S-BOR-23	S- 5	8-10 ft	Moist, olive brown sand with gravel	11.1
C-S-TP-01	G- 1	4 ft	Moist, light olive brown sandy silt	31.7
C-S-TP-17	G- 1	2.5 ft	Moist, light yellowish brown sandy silt	18.4

Notes: Temperature of Drying : 110º Celsius

Client:	Langan Engineering				
Project:	Project Hudson				
Location:	Hudson, NH			Project No:	GTX-311848
Boring ID:	---	Sample Type:	---	Tested By:	ckg
Sample ID:	---	Test Date:	08/05/20	Checked By:	bfs
Depth :	---	Test Id:	567302		

Amount of Material Passing #200 Sieve - ASTM D1140

Boring ID	Sample ID	Depth	Visual Description	Fines, %
C-B-BOR-05	S-5	8-10 ft	Moist, olive brown silt	90.6

Notes: Tests performed using Method B - washing using a wetting agent

Dry mass of test specimen was determined directly

Client:	Langan Engineering				
Project:	Project Hudson				
Location:	Hudson, NH			Project No:	GTX-311848
Boring ID:	C-B-TP-02	Sample Type:	jar	Tested By:	cam
Sample ID:	G-1	Test Date:	06/26/20	Checked By:	jsc
Depth :	3-4 ft	Test Id:	561437		

Test Comment: ---
Visual Description: Moist, dark olive brown silt with organics
Sample Comment: ---

Moisture, Ash, and Organic Matter - ASTM D2974

Boring ID	Sample ID	Depth	Description	Moisture Content,%	Ash Content,%	Organic Matter,%
C-B-TP-02	G-1	3-4 ft	Moist, dark olive brown silt with organics	48	93.3	6.7

Notes: Moisture content determined by Method A and reported as a percentage of oven-dried mass;
dried to a constant mass at temperature of 105º C
Ash content and organic matter determined by Method C; dried to constant mass at temperature 440º C

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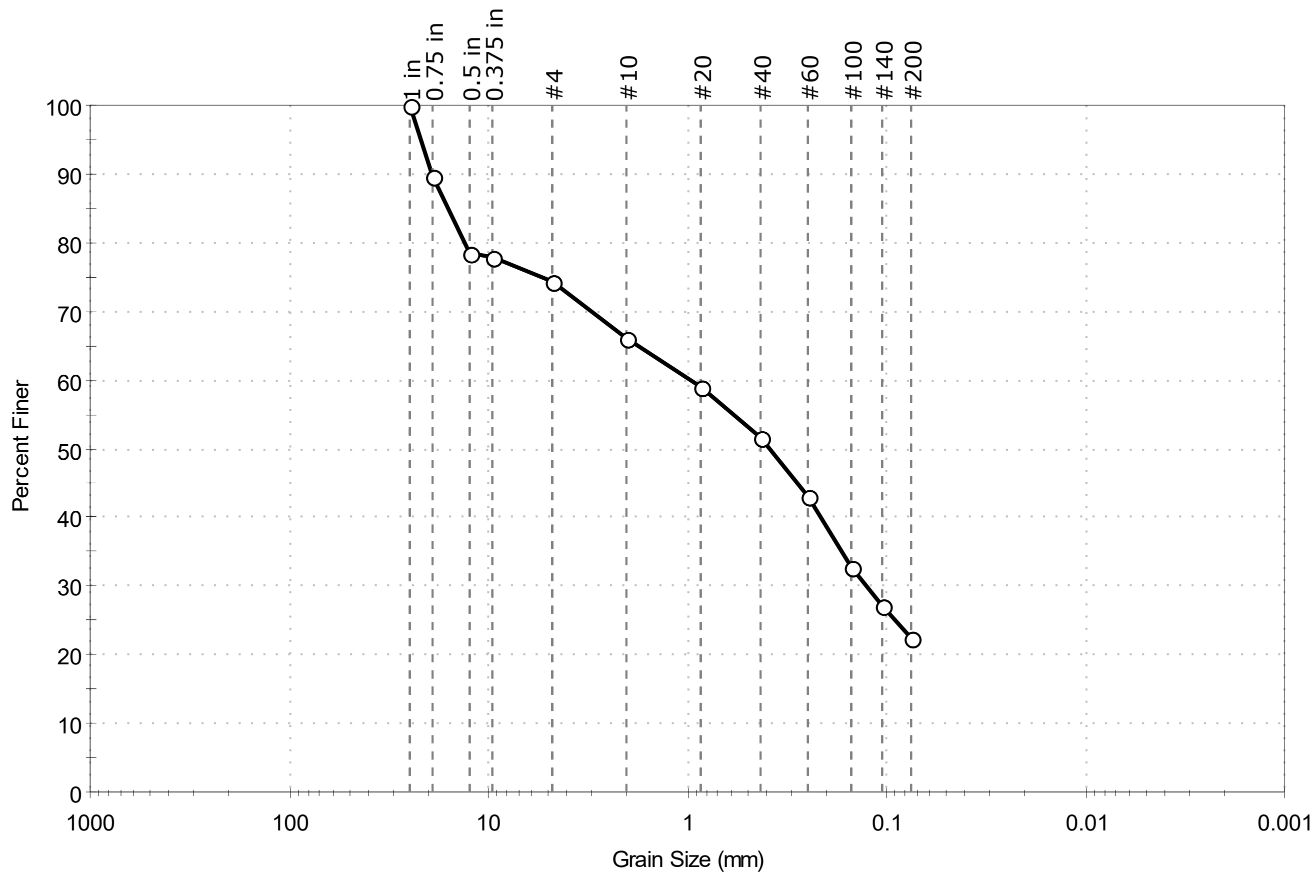
Client:	Langan Engineering				
Project:	Project Hudson				
Location:	Hudson, NH			Project No:	GTX-311848
Boring ID:	C-B-BOR-04	Sample Type:	jar	Tested By:	ckg
Sample ID:	S-2	Test Date:	06/30/20	Checked By:	bfs
Depth :	2-4 ft	Test Id:	561420		

Test Comment: ---

Visual Description: Moist, light olive brown silty sand with gravel

Sample Comment: ---

Particle Size Analysis - ASTM D6913



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	25.8	51.9	22.3

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
1 in	25.00	100		
0.75 in	19.00	90		
0.5 in	12.50	78		
0.375 in	9.50	78		
#4	4.75	74		
#10	2.00	66		
#20	0.85	59		
#40	0.42	51		
#60	0.25	43		
#100	0.15	33		
#140	0.11	27		
#200	0.075	22		

Coefficients

D_{85} =15.9418 mm	D_{30} =0.1264 mm
D_{60} =0.9730 mm	D_{15} =N/A
D_{50} =0.3869 mm	D_{10} =N/A
C_u =N/A	C_c =N/A

Classification

ASTM	N/A
AASHTO	Silty Gravel and Sand (A-2-4 (0))

Sample/Test Description

Sand/Gravel Particle Shape : ANGULAR

Sand/Gravel Hardness : HARD

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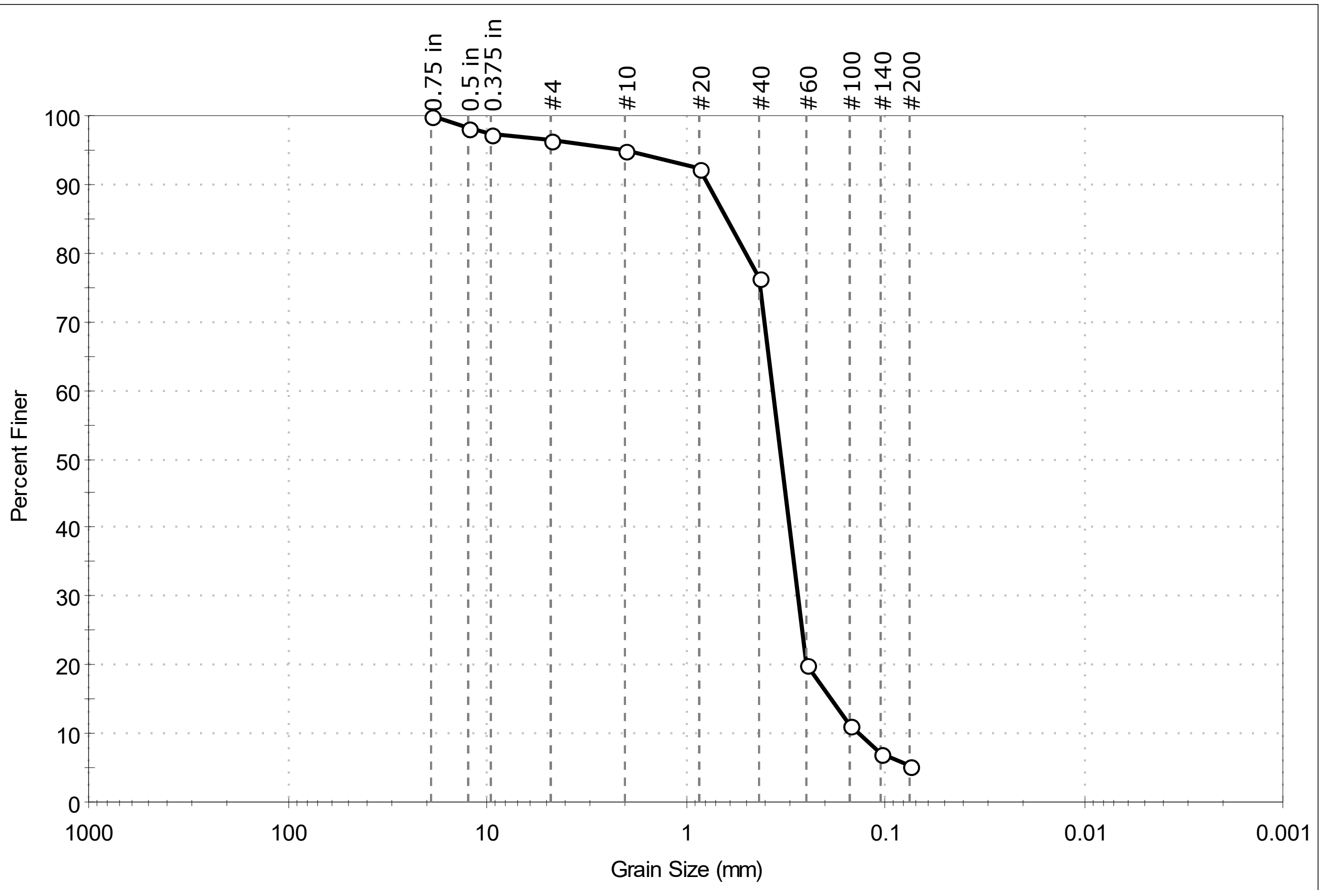
Client: Langan Engineering
Project: Project Hudson
Location: Hudson, NH
Project No: GTX-311848
Boring ID: C-B-BOR-08
Sample Type: jar
Tested By: ckg
Sample ID: S-4
Test Date: 06/30/20
Checked By: bfs
Depth : 6-8 ft
Test Id: 561421
Test Comment: ---
Visual Description: Moist, light yellowish brown sand with silt
Sample Comment: ---

Particle Size Analysis - ASTM D6913



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	3.6	91.2	5.2

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
0.75 in	19.00	100		
0.5 in	12.50	98		
0.375 in	9.50	97		
#4	4.75	96		
#10	2.00	95		
#20	0.85	92		
#40	0.42	76		
#60	0.25	20		
#100	0.15	11		
#140	0.11	7		
#200	0.075	5.2		

Coefficients

D_{85} =0.6184 mm
D_{30} =0.2748 mm
D_{60} =0.3644 mm
D_{15} =0.1876 mm
D_{50} =0.3317 mm
D_{10} =0.1360 mm
C_u =2.679
C_c =1.524

Classification

ASTM N/A

AASHTO Fine Sand (A-3 (1))

Sample/Test Description

Sand/Gravel Particle Shape : ---

Sand/Gravel Hardness : ---

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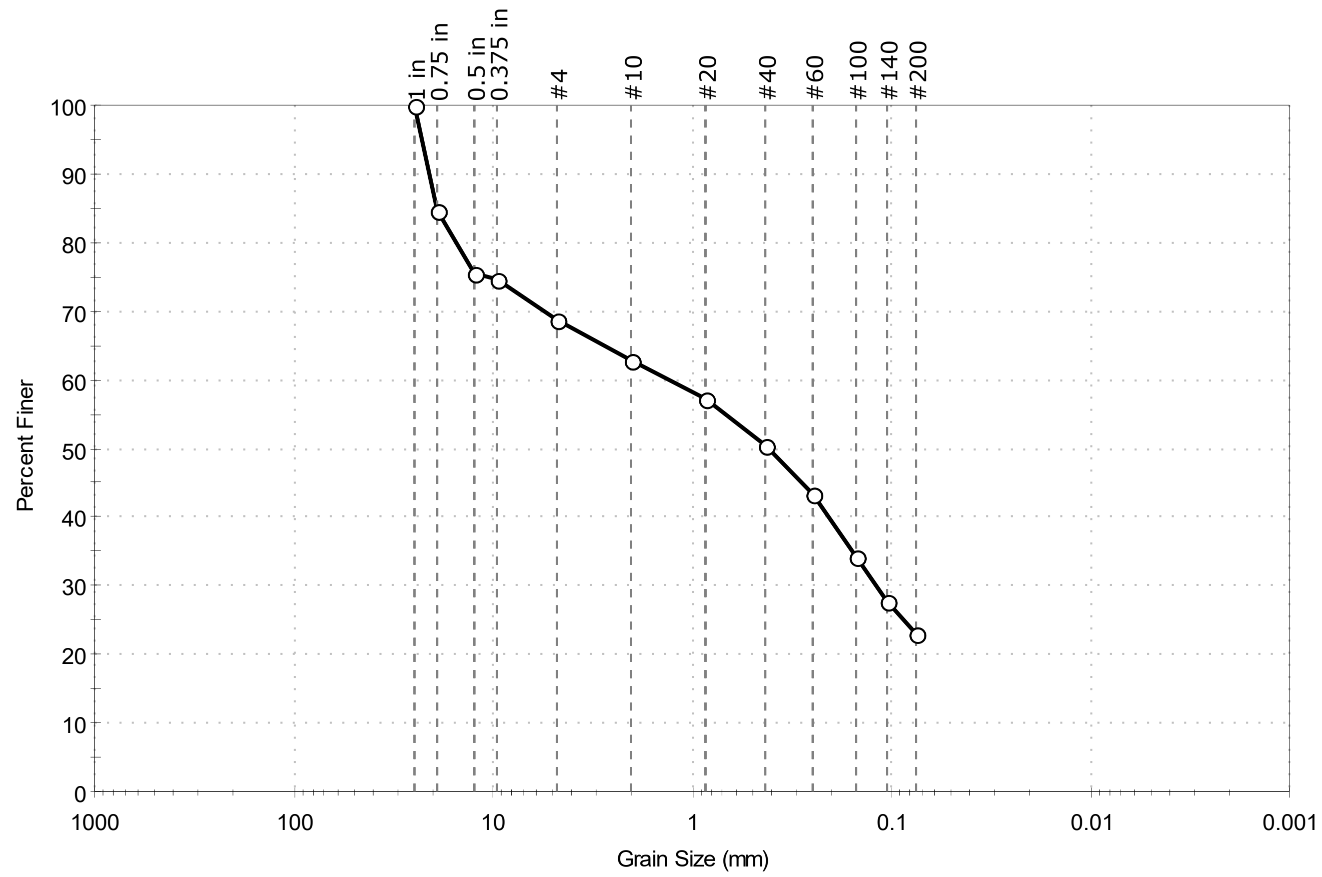
GeoTesting
EXPRESS

Client:	Langan Engineering				
Project:	Project Hudson				
Location:	Hudson, NH			Project No:	GTX-311848
Boring ID:	C-B-BOR-11	Sample Type:	jar	Tested By:	ckg
Sample ID:	S-5	Test Date:	06/30/20	Checked By:	bfs
Depth :	8-10 ft	Test Id:	561419		

Test Comment: ---
Visual Description: Moist, light olive brown silty sand with gravel
Sample Comment: ---

Particle Size Analysis - ASTM D6913



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	31.3	45.6	23.1

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
1 in	25.00	100		
0.75 in	19.00	85		
0.5 in	12.50	75		
0.375 in	9.50	75		
#4	4.75	69		
#10	2.00	63		
#20	0.85	57		
#40	0.42	50		
#60	0.25	43		
#100	0.15	34		
#140	0.11	28		
#200	0.075	23		

Coefficients

D_{85} =19.1226 mm	D_{30} =0.1198 mm
D_{60} =1.3039 mm	D_{15} =N/A
D_{50} =0.4105 mm	D_{10} =N/A
C_u =N/A	C_c =N/A

Classification

ASTM N/A

AASHTO Silty Gravel and Sand (A-2-4 (0))

Sample/Test Description

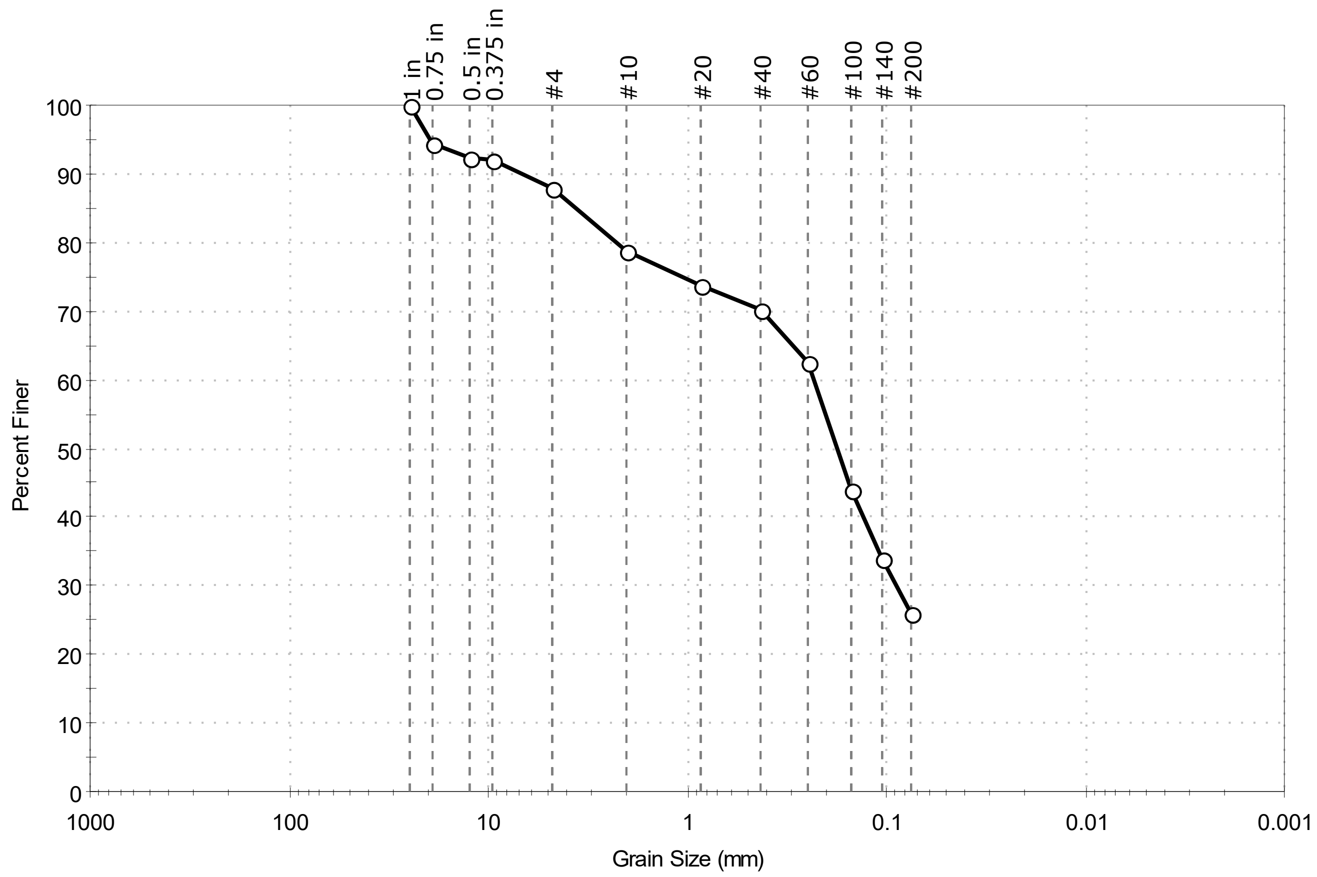
Sand/Gravel Particle Shape : ANGULAR

Sand/Gravel Hardness : HARD

Client:	Langan Engineering				
Project:	Project Hudson				
Location:	Hudson, NH			Project No:	GTX-311848
Boring ID:	C-S-BOR-09	Sample Type:	jar	Tested By:	ckg
Sample ID:	S-6	Test Date:	06/30/20	Checked By:	bfs
Depth :	10-12 ft	Test Id:	561423		

Test Comment: ---
Visual Description: Moist, dark grayish brown silty sand
Sample Comment: ---

Particle Size Analysis - ASTM D6913



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	12.1	61.9	26.0

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
1 in	25.00	100		
0.75 in	19.00	94		
0.5 in	12.50	92		
0.375 in	9.50	92		
#4	4.75	88		
#10	2.00	79		
#20	0.85	74		
#40	0.42	70		
#60	0.25	62		
#100	0.15	44		
#140	0.11	34		
#200	0.075	26		

Coefficients

D_{85} =3.5958 mm	D_{30} =0.0892 mm
D_{60} =0.2336 mm	D_{15} =N/A
D_{50} =0.1768 mm	D_{10} =N/A
C_u =N/A	C_c =N/A

Classification

ASTM N/A

AASHTO Silty Gravel and Sand (A-2-4 (0))

Sample/Test Description

Sand/Gravel Particle Shape : ANGULAR

Sand/Gravel Hardness : HARD

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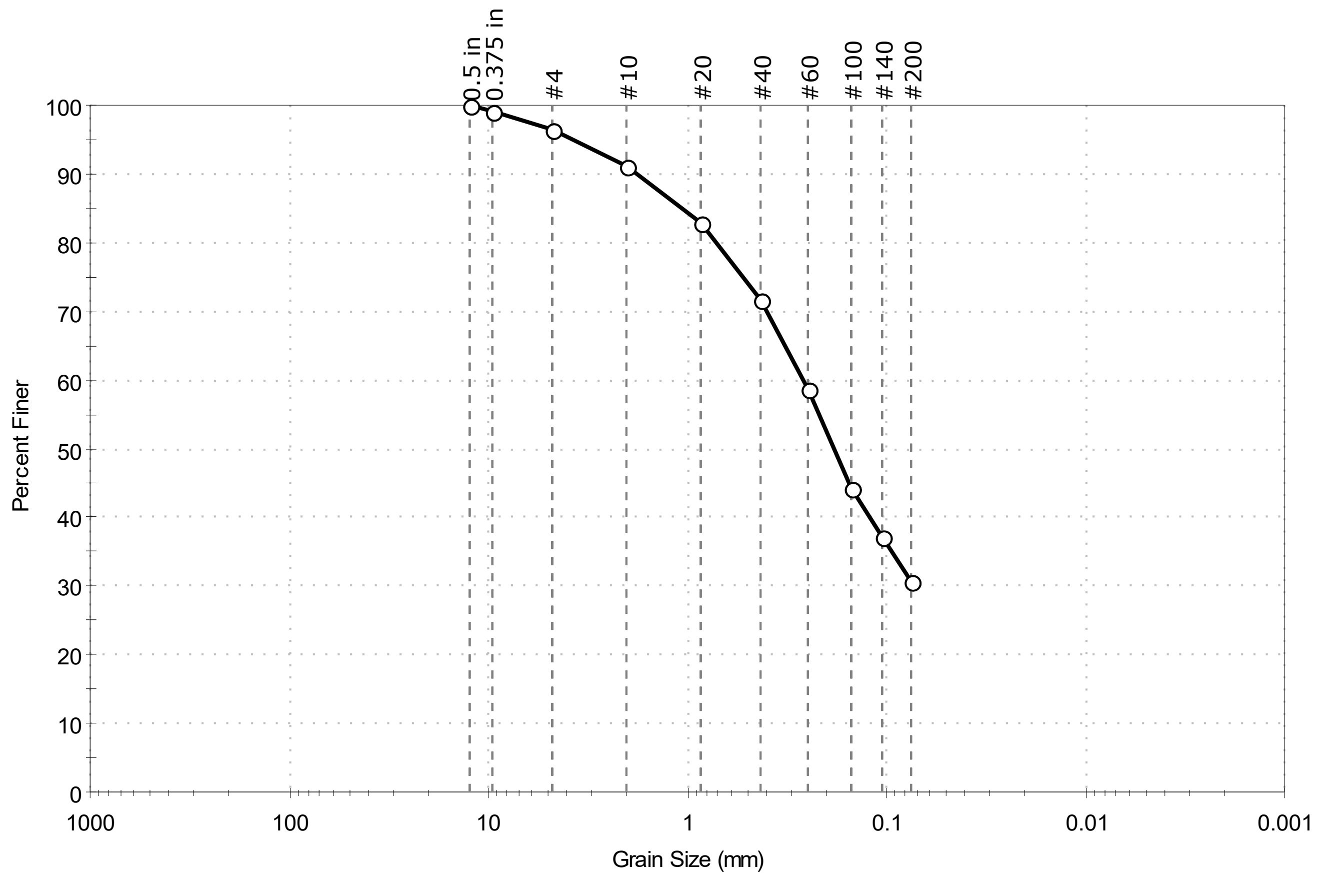
Client:	Langan Engineering				
Project:	Project Hudson				
Location:	Hudson, NH			Project No:	GTX-311848
Boring ID:	C-S-BOR-12	Sample Type:	jar	Tested By:	ckg
Sample ID:	S-5	Test Date:	06/30/20	Checked By:	bfs
Depth :	8-10 ft	Test Id:	561425		

Test Comment: ---
Visual Description: Moist, light brownish gray silty sand
Sample Comment: ---

Particle Size Analysis - ASTM D6913



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	3.6	65.7	30.7

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
0.5 in	12.50	100		
0.375 in	9.50	99		
#4	4.75	96		
#10	2.00	91		
#20	0.85	83		
#40	0.42	72		
#60	0.25	59		
#100	0.15	44		
#140	0.11	37		
#200	0.075	31		

Coefficients

D_{85} =1.0653 mm
D_{30} =N/A
D_{60} =0.2636 mm
D_{15} =N/A
D_{50} =0.1833 mm
D_{10} =N/A
C_u =N/A
C_c =N/A

Classification

ASTM N/A

AASHTO Silty Gravel and Sand (A-2-4 (0))

Sample/Test Description

Sand/Gravel Particle Shape : ANGULAR

Sand/Gravel Hardness : HARD

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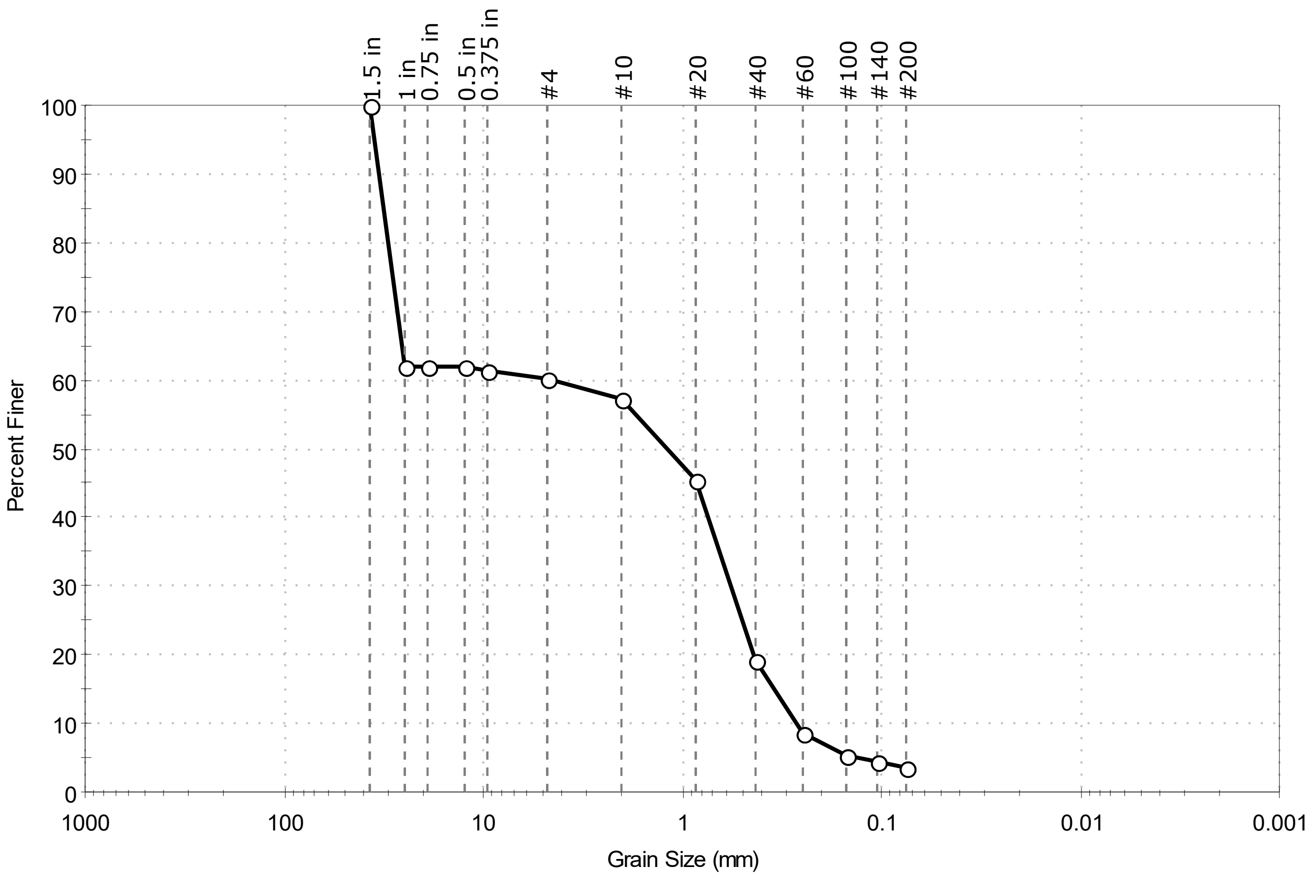
Client: Langan Engineering
Project: Project Hudson
Location: Hudson, NH
Project No: GTX-311848

Boring ID: C-S-BOR-20
Sample Type: jar
Tested By: ckg
Sample ID: S-3
Test Date: 06/30/20
Checked By: bfs
Depth : 4-6 ft
Test Id: 561422

Test Comment: ---
Visual Description: Moist, olive yellow sand with gravel
Sample Comment: ---

Particle Size Analysis - ASTM D6913



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	39.9	56.5	3.6

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
1.5 in	37.50	100		
1 in	25.00	62		
0.75 in	19.00	62		
0.5 in	12.50	62		
0.375 in	9.50	61		
#4	4.75	60		
#10	2.00	57		
#20	0.85	46		
#40	0.42	19		
#60	0.25	8		
#100	0.15	5		
#140	0.11	4		
#200	0.075	3.6		

Coefficients

D_{85} =31.9765 mm
D_{30} =0.5657 mm
D_{60} =4.6338 mm
D_{15} =0.3467 mm
D_{50} =1.1764 mm
D_{10} =0.2702 mm
C_u =17.150
C_c =0.256

Classification

ASTM Poorly graded SAND with Gravel (SP)

AASHTO Stone Fragments, Gravel and Sand (A-1-b (1))

Sample/Test Description

Sand/Gravel Particle Shape : ANGULAR

Sand/Gravel Hardness : HARD

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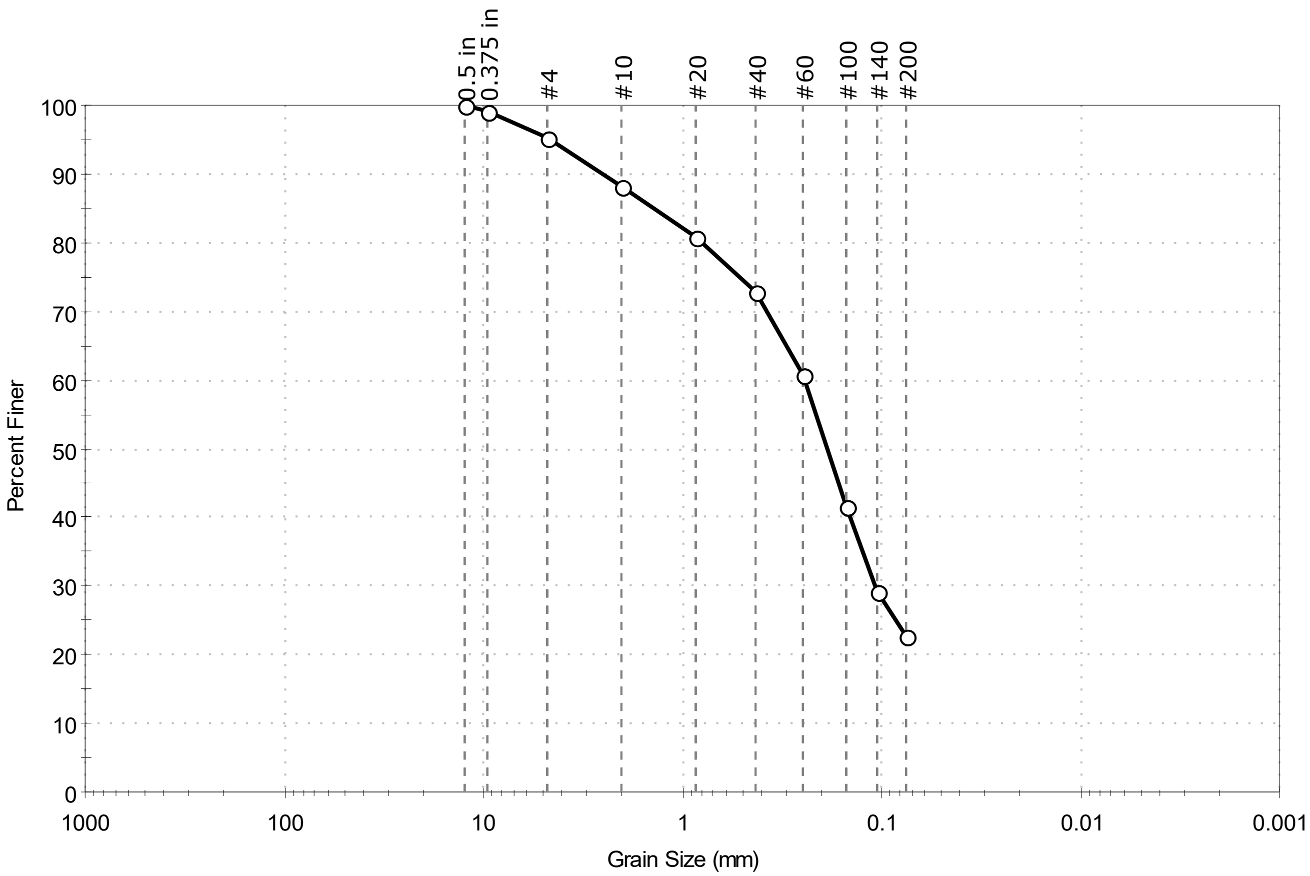
Client:	Langan Engineering				
Project:	Project Hudson				
Location:	Hudson, NH			Project No:	GTX-311848
Boring ID:	C-S-BOR-22	Sample Type:	jar	Tested By:	ckg
Sample ID:	S-7	Test Date:	06/30/20	Checked By:	bfs
Depth :	15-17 ft	Test Id:	561424		

Test Comment: ---
Visual Description: Moist, olive brown silty sand
Sample Comment: ---

Particle Size Analysis - ASTM D6913



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	4.8	72.5	22.7

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
0.5 in	12.50	100		
0.375 in	9.50	99		
#4	4.75	95		
#10	2.00	88		
#20	0.85	81		
#40	0.42	73		
#60	0.25	61		
#100	0.15	41		
#140	0.11	29		
#200	0.075	23		

Coefficients

D_{85} =1.3944 mm
D_{30} =0.1083 mm
D_{60} =0.2453 mm
D_{15} =N/A
D_{50} =0.1881 mm
D_{10} =N/A
C_u =N/A
C_c =N/A

Classification

ASTM N/A

AASHTO Silty Gravel and Sand (A-2-4 (0))

Sample/Test Description

Sand/Gravel Particle Shape : ANGULAR

Sand/Gravel Hardness : HARD

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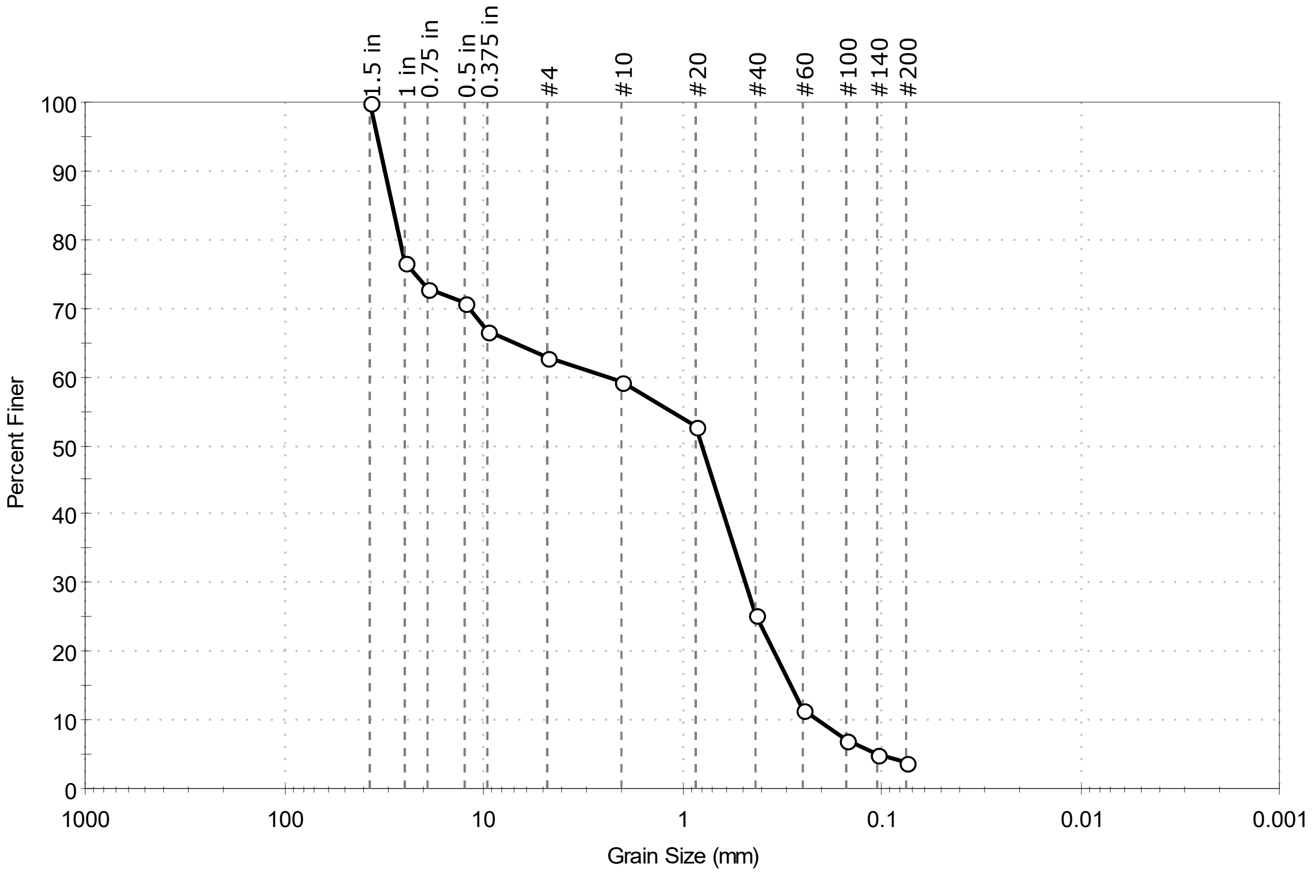
GeoTesting
EXPRESS

Client: Langan Engineering
Project: Project Hudson
Location: Hudson, NH
Project No: GTX-311848
Boring ID: C-S-BOR-23
Sample Type: jar
Tested By: ckg
Sample ID: S-5
Test Date: 06/30/20
Checked By: bfs
Depth : 8-10 ft
Test Id: 561418
Test Comment: ---
Visual Description: Moist, olive brown sand with gravel
Sample Comment: ---

Particle Size Analysis - ASTM D6913



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	37.0	59.1	3.9

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
1.5 in	37.50	100		
1 in	25.00	77		
0.75 in	19.00	73		
0.5 in	12.50	71		
0.375 in	9.50	67		
#4	4.75	63		
#10	2.00	59		
#20	0.85	53		
#40	0.42	25		
#60	0.25	11		
#100	0.15	7		
#140	0.11	5		
#200	0.075	3.9		

Coefficients

D_{85} =28.9099 mm	D_{30} =0.4776 mm
D_{60} =2.3319 mm	D_{15} =0.2864 mm
D_{50} =0.7926 mm	D_{10} =0.2120 mm
C_u =11.000	C_c =0.461

Classification

ASTM	Poorly graded SAND with Gravel (SP)
AASHTO	Stone Fragments, Gravel and Sand (A-1-b (1))

Sample/Test Description

Sand/Gravel Particle Shape : ANGULAR

Sand/Gravel Hardness : HARD

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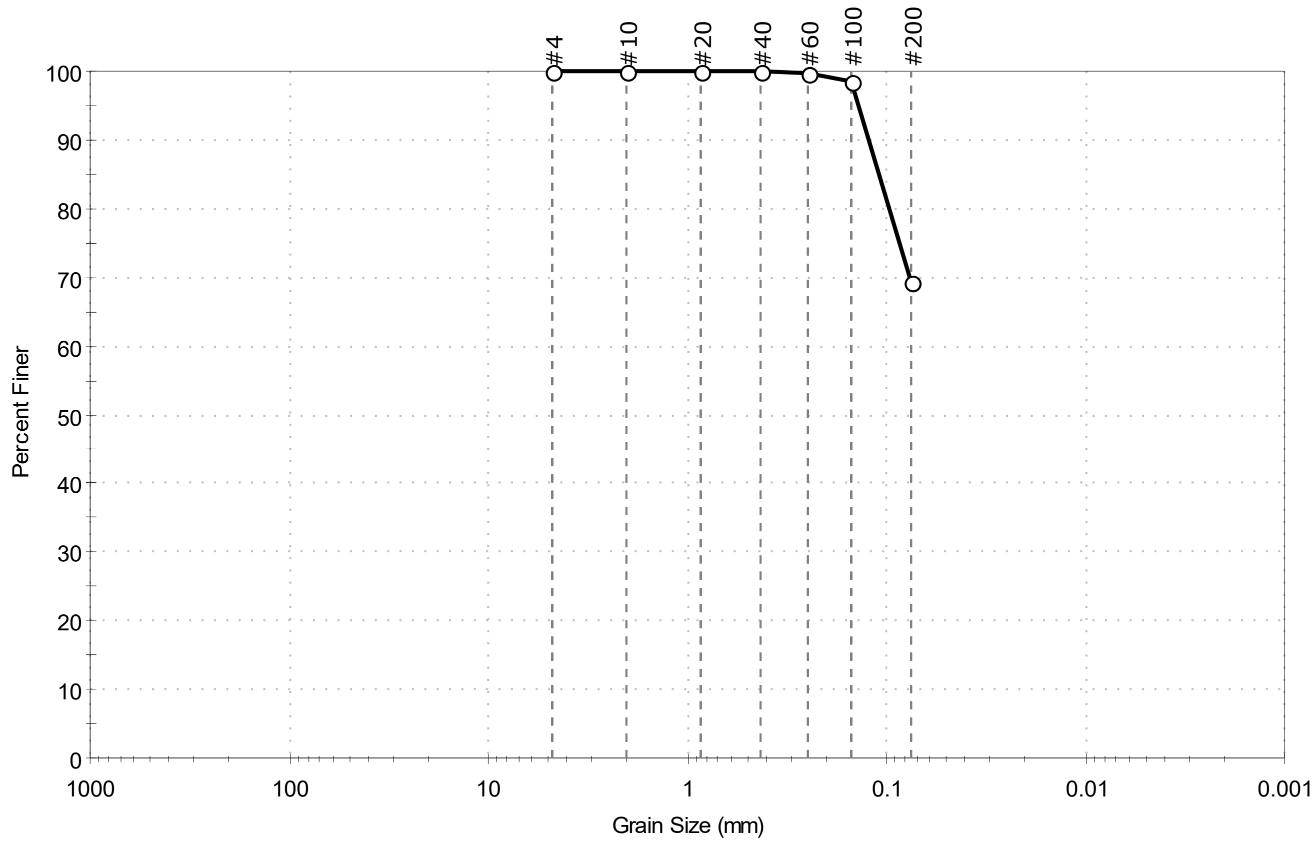
Client:	Langan Engineering				
Project:	Project Hudson				
Location:	Hudson, NH			Project No:	GTX-311848
Boring ID:	C-S-TP-01	Sample Type:	bag	Tested By:	ckg
Sample ID:	G-1	Test Date:	08/03/20	Checked By:	bfs
Depth :	4 ft	Test Id:	567307		

Test Comment: ---

Visual Description: Moist, light olive brown sandy silt

Sample Comment: ---

Particle Size Analysis - ASTM D422



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	30.7	69.3

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	100		
#40	0.42	100		
#60	0.25	100		
#100	0.15	98		
#200	0.075	69		

Coefficients

D_{85} =0.1091 mm	D_{30} =N/A
D_{60} =N/A	D_{15} =N/A
D_{50} =N/A	D_{10} =N/A
C_u =N/A	C_c =N/A

Classification

ASTM N/A

AASHTO Silty Soils (A-4 (0))

Sample/Test Description

Sand/Gravel Particle Shape : ---

Sand/Gravel Hardness : ---

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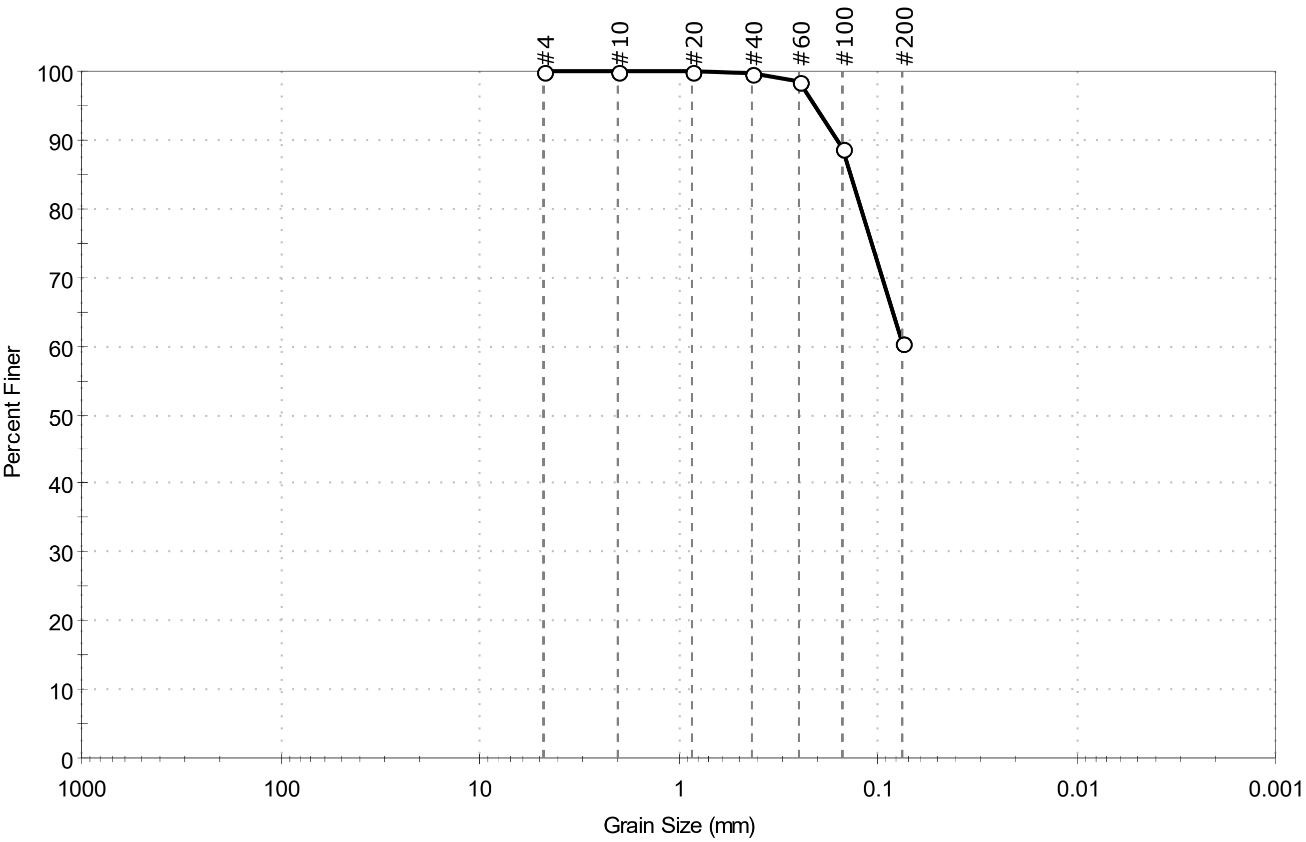
Client:	Langan Engineering				
Project:	Project Hudson				
Location:	Hudson, NH			Project No:	GTX-311848
Boring ID:	C-S-TP-17	Sample Type:	bag	Tested By:	ckg
Sample ID:	G-1	Test Date:	08/03/20	Checked By:	bfs
Depth :	2.5 ft	Test Id:	567308		

Test Comment: ---

Visual Description: Moist, light yellowish brown sandy silt

Sample Comment: ---

Particle Size Analysis - ASTM D422



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.1	39.5	60.4

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	100		
#40	0.42	100		
#60	0.25	99		
#100	0.15	89		
#200	0.075	60		

Coefficients

D_{85} =0.1367 mm	D_{30} =N/A
D_{60} =N/A	D_{15} =N/A
D_{50} =N/A	D_{10} =N/A
C_u =N/A	C_c =N/A

Classification

ASTM	N/A
AASHTO	Silty Soils (A-4 (0))

Sample/Test Description

Sand/Gravel Particle Shape : ---

Sand/Gravel Hardness : ---

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testing services sm
PO Box 572455 / Salt Lake City UT 84157-2455 / USA
TEL +1 801 262 2448 · FAX +1 801 262 9870 · www.TEi-TS.com

GEOTESTING EXPRESS INCORPORATED
125 NAGOG PARK
ACTON MA 01720-3451
USA

Analysis No.	TS-A2008783
Report Date	01 July 2020
Date Sampled	25 June 2020
Date Received	29 June 2020
Where Sampled	Acton, MA USA
Sampled By	Client

This is to attest that we have examined: Soil for Project Name: Project Hudson; Site Location Hudson, NH; Job Number: GTX-311848

When examined to the applicable requirements of:

ASTM D 512 - 12	“Standard Test Methods for Chloride Ion in Water” Method B
ASTM D 516 -16	“Standard Test Method for Sulfate Ion in Water”

Results:

ASTM D 512 – Chloride Method B

Sample		Results		Detection Limit
		ppm (mg/kg)	%[1]	
C-B-TP-06		22.	0.0022	10.
S-1	0 – 5’			
C-B-TP-07		14.	0.0014	
S-1	0 – 5’			

NOTE: [1]Percent by weight as received.

ASTM D 516 – Sulfates (Soluble)

Sample		Results		Detection Limit
		ppm (mg/kg)	%[1]	
C-B-TP-06		<10.	<0.0010	10.
S-1	0 – 5’			
C-B-TP-07		<10.	<0.0010	
S-1	0 – 5’			

NOTE: [1]Percent by weight as received

END OF ANALYSIS

USEPA Laboratory ID UT00930

Merrill Gee

Merrill Gee P.E. – Engineer in Charge

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APPENDIX H
INFILTRATION TEST LOGS

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INFILTRATION TESTS

C-IT-01 performed in C-S-TP-01

PROJECT	Project Hudson	**PROJECT NO.**	151010101
LOCATION	59 Steele Road, Hudson, NH	**DATE**	6/17/2020 to 6/18/2020
INSPECTOR	Taylor Sisti	**WEATHER**	Sunny, 80s°F

PRESOAK	**TIME**	**DEPTH OF WATER IN HOLE (INCH)**	**ELEVATION AND DATUM**			
Start	11:44	24	**Surface Elevation**	Approx.	127.5	(NGVD29)
End	13:00	1.5	**Top of Hole Elevation**	Approx.	125.5	(NGVD29)
		*presoak allowed to continue overnight	**Bottom of Hole Elevation**	Approx.	123.5	(NGVD29)

METHOD OF INFILTRATION TEST

C-S-TP-01 was advanced to a depth of about 2 feet below existing grade. An about 6-inch diameter, 24-inch deep hole was dug by hand with a post hole digger. The circumfrence of the hole was then lined with a 6-inch diameter, 30-inch long PVC pipe. Before running infiltration tests, the hole was presoaked with 24 inches of water and allowed to drain overnight. The infiltration testing hole was free of water the following morning prior to starting infiltration testing. For each infiltration test, the hole was filled with water to a predetermined depth of 24 inches. Then, the time was recorded after one hour or the time for the water to drain 24 inches was recorded. The tables below outline the calculations for determining the average rate in which the water dissipated. Test pit C-S-TP-01 was advanced to to termination depth following completion of the infiltration test. Groundwater was encountered at about 7.1ft below grade.

	TIME (SEC)	DEPTH OF WATER (IN)	TIME INTERVAL (SEC)	RATE (IN/MIN)	RATE (IN/HOUR)	SOIL CONDITIONS
TEST 1	0	24	-	-	-	Light brown sandy SILT
	3600	12.75	3600	0.19	11.25	
				Average Rate:	**11.3**	**inches/hour**

	TIME (SEC)	DEPTH OF WATER (IN)	TIME INTERVAL (SEC)	RATE (IN/MIN)	RATE (IN/HOUR)	SOIL CONDITIONS
TEST 2	0	24	-	-	-	Light brown sandy SILT
	3600	12	3600	0.20	12.00	
				Average Rate:	**12.0**	**inches/hour**

	TIME (SEC)	DEPTH OF WATER (IN)	TIME INTERVAL (SEC)	RATE (IN/MIN)	RATE (IN/HOUR)	SOIL CONDITIONS
TEST 3	0	24	-	-	-	Light brown sandy SILT
	3600	12.5	3600	0.19	11.50	
				Average Rate:	**11.5**	**inches/hour**

	TIME (SEC)	DEPTH OF WATER (IN)	TIME INTERVAL (SEC)	RATE (IN/MIN)	RATE (IN/HOUR)	SOIL CONDITIONS
TEST 4	0	24	-	-	-	Light brown sandy SILT
	3600	12	3600	0.20	12.00	
				Average Rate:	**12.0**	**inches/hour**

Lowest Average Rate:	**11.3**	**inches/hour**

LANGAN

INFILTRATION TESTS

C-IT-17 performed in C-S-TP-17

PROJECT	Project Hudson	**PROJECT NO.**	151010101
LOCATION	59 Steele Road, Hudson, NH	**DATE**	6/17/2020
INSPECTOR	Taylor Sisti	**WEATHER**	Sunny, 80s°F

PRESOAK	**TIME**	**DEPTH OF WATER IN HOLE (INCH)**	**ELEVATION AND DATUM**			
Start	14:59	24	**Surface Elevation**	Approx.	133	(NGVD29)
End	15:13	0	**Top of Hole Elevation**	Approx.	132.5	(NGVD29)
			Bottom of Hole Elevation	Approx.	130.5	(NGVD29)

METHOD OF INFILTRATION TEST

C-S-TP-01 was advanced to a depth of about 0.5 feet below existing grade. An about 6-inch diameter, 24-inch deep hole was dug by hand with a post hole digger. The circumfrence of the hole was then lined with a 6-inch diameter, 30-inch long PVC pipe. Before running infiltration tests, the hole was presoaked with 24 inches of water and allowed to drain. For each infiltration test, the hole was filled with water to a predetermined depth of 24 inches. Then, the time was recorded after one hour or the time for the water to drain 24 inches was recorded. The tables below outline the calculations for determining the average rate in which the water dissipated. Test pit C-S-TP-17 was advanced to to termination depth following completion of the infiltration test.

	TIME (SEC)	**DEPTH OF WATER (IN)**	**TIME INTERVAL (SEC)**	**RATE (IN/MIN)**	**RATE (IN/HOUR)**	**SOIL CONDITIONS**
TEST 1	0	24	-	-	-	Light brown sandy SILT
	711	0	711	2.03	121.52	
				Average Rate:	**121.5**	**inches/hour**

	TIME (SEC)	**DEPTH OF WATER (IN)**	**TIME INTERVAL (SEC)**	**RATE (IN/MIN)**	**RATE (IN/HOUR)**	**SOIL CONDITIONS**
TEST 2	0	24	-	-	-	Light brown sandy SILT
	957	0	957	1.50	90.28	
				Average Rate:	**90.3**	**inches/hour**

	TIME (SEC)	**DEPTH OF WATER (IN)**	**TIME INTERVAL (SEC)**	**RATE (IN/MIN)**	**RATE (IN/HOUR)**	**SOIL CONDITIONS**
TEST 3	0	24	-	-	-	Light brown sandy SILT
	1082	0	1082	1.33	79.85	
				Average Rate:	**79.9**	**inches/hour**

	TIME (SEC)	**DEPTH OF WATER (IN)**	**TIME INTERVAL (SEC)**	**RATE (IN/MIN)**	**RATE (IN/HOUR)**	**SOIL CONDITIONS**
TEST 4	0	24	-	-	-	Light brown sandy SILT
	1091	0	1091	1.32	79.19	
				Average Rate:	**79.2**	**inches/hour**

Lowest Average Rate: **79.2** **inches/hour**

APPENDIX I
PAVEMENT DESIGN

APPENDIX I.1
FLEXIBLE PAVEMENT DESIGN
SITE AREAS (LOTS A, B, C)

Project Information:

Project Title: Hudson Logistic Center
Project Town: Hudson
Project State: New Hampshire
Client: Hudson Logistic Center

Project No.: 151010101
Performed By: NA
Date: 6/16/2020
Location: Site Areas (All Lots)

Design Information:

- ○ Design Life: 20 years
- ○ Initial Servicibility (Po): 4.2
- ○ Terminal Servicibility Index (TSI): 2.5
- ○ Servicibility (Po - TSI): 1.7

- ○ Reliability Factor (R): 0.90
- ○ Standard Deviation (Sd): 0.45
- ○ Direction Distribution Factor (Do): 1.00
- ○ Lane Distribution Factor (Dl): 1.00

- ○ Soil Description: FILL & SP/SM
- ○ USCS Symbol: SP/SM
- ○ California Bearing Ratio (CBR): 10
- ○ Resilent Modulus (MR): 15000 PSI

CBR Based on: Estimated Value

**MR = CBR*1,500*	5 <= CBR <= 10
**MR = 3000*CBR^0.65*	CBR > 10

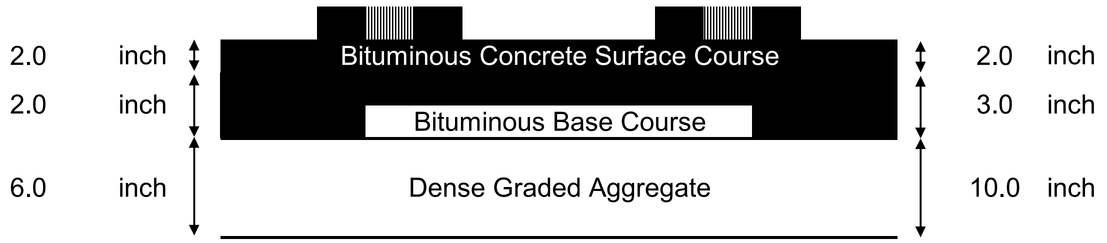
Summary of Results

Standard Section

Design ESAL: 11,422

Heavy Duty Section

Design ESAL: 2,177,920



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Project	Drawing Title	Project No.	Drawing No.
Hudson Logistic Center Hudson New Hampshire	Pavement Design Summary Sheet	151010101	P.01
		Date 6/16/2020	
		Scale Not to Scale	
		Drawn By NA	Sheet 1 of 4

Calculate Equivalent 18-kip Single Axle Loading (ESALs)

Equivalent Single Axle Loads per Vehicle

			Load Equivalency Factors:	Calculated ESALs	
○ ***Typical Car:***					
(S)	Front Single Axle:	2 kips	LEF = 0.001045	(1 axle)(0.001045)+(1 axle)(0.00104	**0.00209 /car**
(S)	Rear Single Axle:	2 kips	LEF = 0.001045		

				Calculated ESALs	
○ ***Typical Delivery Van:***					
(S)	Front Single Axle:	8 kips	LEF = 0.0343	(1 axle)(0.0343)+(1 axle)(0.0343) =	**0.0686 /truck**
(S)	Truck Rear Axle:	8 kips	LEF = 0.0343		

				Calculated ESALs	
○ ***Typical Truck and Trailer (HS20):***					
(S)	Front Single Axle:	12 kips	LEF = 0.189	((Front axle)(0.189)+(Rear axle)(0.8905)	
(T)	Truck Rear Axle:	32 kips	LEF = 0.8905	+(Trailer Tandem)(0.8905)) =	**1.97 /truck**
(T)	Trailer Axle:	32 kips	LEF = 0.8905		

(S) = single axle, (T) = Tandem, (3) = Triple Axles

Traffic Loading ○ Design Life: 20 years (From Sheet P.01)

Standard Pavement Section

Vehicle Types	Current Traffic	% Increase	Design Traffic	ESAL Factor	Design ESAL
Passenger Cars	651	115%	5,465,145	0.00209	11,422
Light Trucks	0	115%	0	0.0686	0

Standard Design ESAL: **11,422**

Heavy Duty Pavement Section

Vehicle Types		Growth Factors	Design Traffic	ESAL Factor	Design ESAL
Passenger Cars	651	115%	5,465,145	0.00209	11,422
Light Trucks	0	115%	0	0.0686	0
Heavy Trucks	131	115%	1,099,745	1.97	2,166,498

Heavy Duty Design ESAL: **2,177,920**

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Project
Hudson Logistic Center
Hudson New Hampshire

Drawing Title
ESAL Calculation

Project No.
151010101

Date
6/16/2020

Scale
Not to Scale

Drawn By
NA

Drawing No.
P.02

Sheet 2 of 4

Design Information (from P.01):

- Reliability Factor (R): 0.90
- Standard Deviation (Sd): 0.45
- Resilent Modulus (MR): 15
- Servicibility (Po - TSI): 1.7

Traffic Information (from P.02):

- Standard ESALs (W18):
  11,422
  (millions) 0.011
- Heavy Duty ESALs (W18):
  2,177,920
  (millions) 2.18

From Nomograph:

Design Structural Number (SN)

Standard Section:

1.8

Heavy Duty Section:

3.0

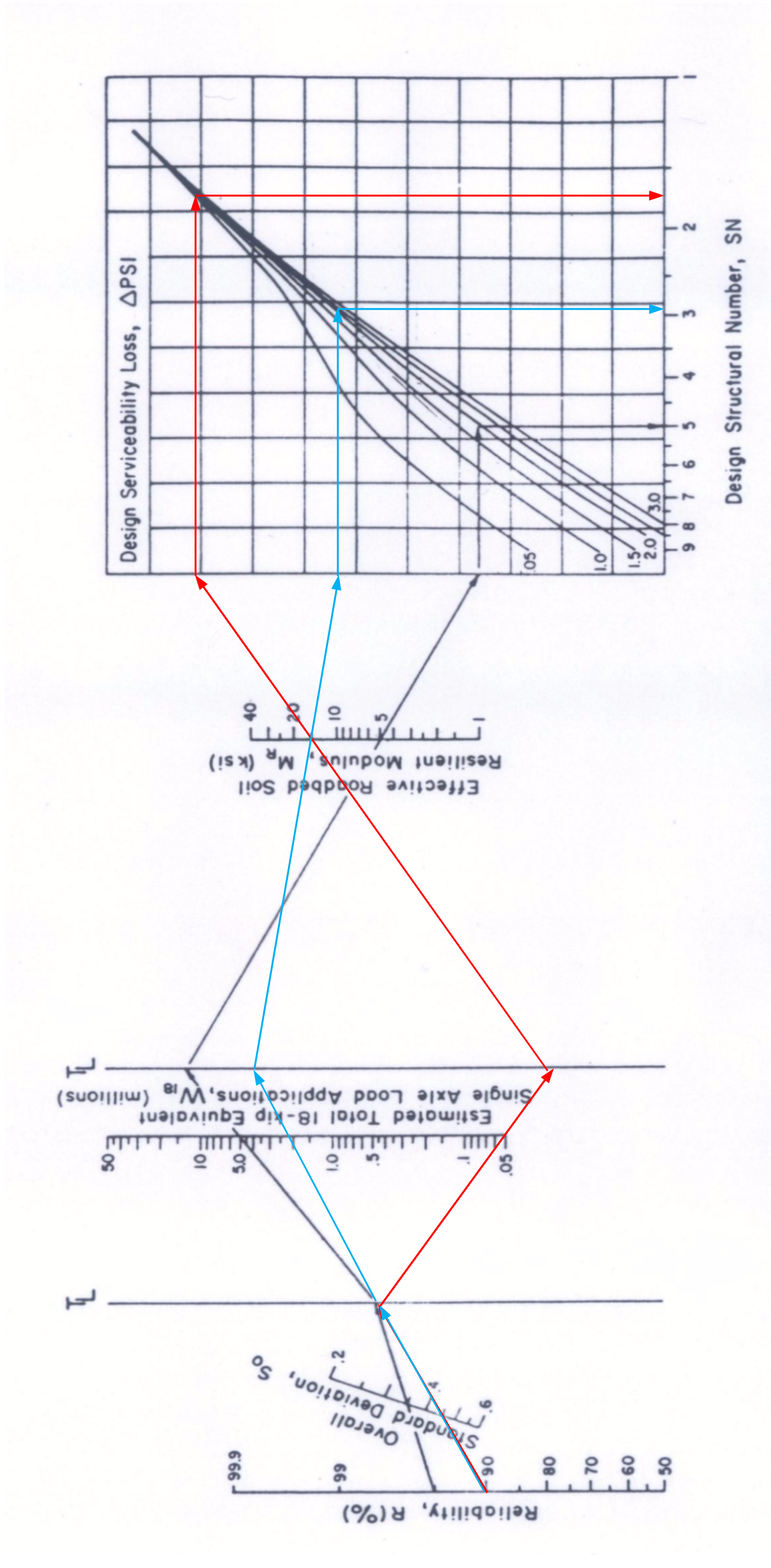

Figure 11.25 Design chart for flexible pavements based on mean values for each input (1 ksi = 6.9 MPa). (From the *AASHTO Guide for Design of Pavement Structures.* Copyright 1986. American Association of State Highway and Transportation Officials, Washington, DC. Used by permission.)

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Hudson New Hampshire

Drawing Title
AASHTO Flexible
Pavement Nomograph

Project No.
151010101

Date
6/16/2020

Scale
As Shown

Drawn By
NA

Drawing No.
P.03

Sheet 3 of 4

Flexible Pavement Section Calculation:

Structural Number:
SN = D1(a1)+D2(a2)+D3(a3)

Standard Section:

Material	Spec	Thickness (inch)		TDS		SN
Bituminuous Concrete Surface Course	Class 2	D1	2.0	a1	0.44	0.88
Bituminuous Concrete Binder Course	Class 1	D2	2.0	a2	0.44	0.88
Dense Graded Aggregate	Subbase	D3	6.0	a3	0.11	0.66

Calculated Structural Number for Section: **2.42**
Check Calculated SN is > Design SN: OK
Design Light Duty Structural Number SN: 1.8 (from P.03)

Heavy Duty Section:

Material	Spec	Thickness (inch)		Layer Strength		SN
Bituminuous Concrete Surface Course	Class 2	D1	2.0	a1	0.44	0.88
Bituminuous Concrete Binder Course	Class 1	D2	3.0	a2	0.44	1.32
Dense Graded Aggregate	Subbase	D3	10.0	a3	0.11	1.10

Calculated Structural Number for Section: **3.30**
Check Calculated SN is > Design SN: OK
Design Heavy Duty Structural Number SN: 3.0 (from P.03)

Minimum Pavement Section

Material	Spec	Thickness (inch)
Bituminuous Concrete (Total)		4.0
Dense Graded Aggregate	Subbase	6.0

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Project	Hudson Logistic Center Hudson New Hampshire
Drawing Title	Flexible Pavement Section Calculation
Project No.	151010101
Date	6/16/2020
Scale	As Shown
Drawn By	NA
Drawing No.	P.04
	Sheet 4 of 4

APPENDIX I.2
RIGID PAVEMENT DESIGN
SITE AREAS (LOTS A, B, C)

DESIGN SUMMARY REPORT FOR

JOINTED-PLAIN CONCRETE PAVEMENT (JPCP)

DATE CREATED:

Wed Sep 02 2020 17:41:11 GMT-0400 (Eastern Daylight Time)

Project Description

Project Name: Lot C - SD

Owner:

Zip Code:

Designer's Name:

Route:

Project Description:

Design Summary

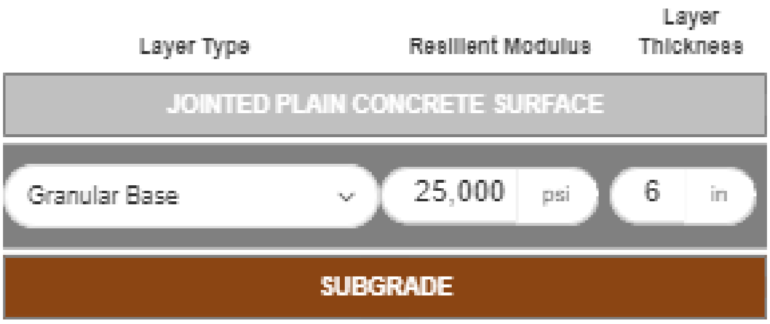
	Doweled	Undoweled		Doweled	Undoweled
Recommended Design Thickness:	5.00 in.	5.00 in.	Maximum Joint Spacing:	8 ft.	8 ft.
Calculated Minimum Thickness:	4.84 in.	4.84 in.			

Pavement Structure

SUBBASE

Calculated Composite K-Value of Substructure: 467 psi/in

Minimum Pavement Section: 5-inches of concrete over 4-inches of aggregate base



Layer Type	Resilient Modulus	Layer Thickness
JOINTED PLAIN CONCRETE SURFACE		
Granular Base	25,000 psi	6 in
SUBGRADE		

CONCRETE

Compressive Strength: 4500 psi

Modulus of Elasticity: 4000000 psi

Calculated Flexural Strength: 627 psi

Edge Support: Yes

Macrofibers in Concrete: No

SUBGRADE

CBR: 10 %

Calculated MRSG Value 9,389 psi

Project Level

TRAFFIC

Spectrum Type: ACI 330 Traffic Spectrum A

Design Life: 30 years

USER DEFINED TRAFFIC

Trucks Per Day: 69

Traffic Growth Rate %: 0 % per year

Directional Distribution: 100 %

Design Lane Distribution: 100 %

GLOBAL

Reliability: 95 %

% Slabs Cracked at End of Design Life: 5 %

Avg Trucks/Day in Design Lane Over the Design Life: 69

Total Trucks in Design Lane Over the Design Life: 756,068

Design Method

The PCA design methodology from StreetPave, was used to produce these results.

PavementDesigner.org

DESIGN SUMMARY REPORT FOR

JOINTED-PLAIN CONCRETE PAVEMENT (JPCP)

DATE CREATED:

Mon Jul 13 2020 13:17:57 GMT-0400 (Eastern Daylight Time)

Project Description

Project Name: Lot C - HD

Owner:

Zip Code:

Designer's Name:

Route:

Project Description:

Design Summary

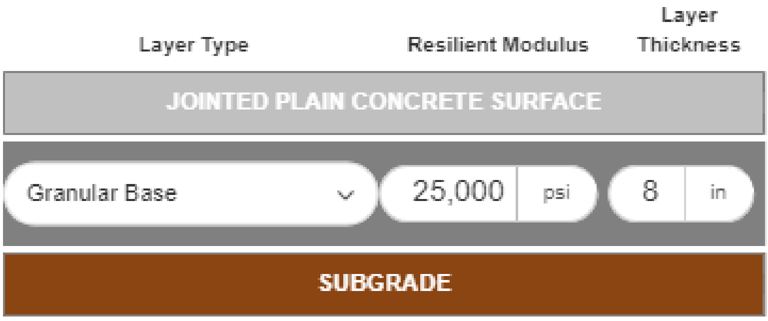
	Doweled	Undoweled
Recommended Design Thickness:	5.75 in.	5.75 in.
Calculated Minimum Thickness:	5.63 in.	5.63 in.

	Doweled	Undoweled
Maximum Joint Spacing:	9 ft.	9 ft.

Pavement Structure

SUBBASE

Calculated Composite K-Value of Substructure: 490 psi/in



Layer Type	Resilient Modulus	Layer Thickness
JOINTED PLAIN CONCRETE SURFACE		
Granular Base	25,000 psi	8 in
SUBGRADE		

Minimum Pavement Section: 8-inches of concrete over 6-inches of aggregate base

CONCRETE

Compressive Strength: 4000 psi

Modulus of Elasticity: 4000000 psi

Calculated Flexural Strength: 580 psi

Edge Support: Yes

Macrofibers in Concrete: No

SUBGRADE

CBR: 10 %

Calculated MRSG Value 9,389 psi

Project Level

TRAFFIC

Spectrum Type: ACI 330 Traffic Spectrum D

Design Life: 30 years

USER DEFINED TRAFFIC

Trucks Per Day: 69

Traffic Growth Rate %: 0 % per year

Directional Distribution: 100 %

Design Lane Distribution: 100 %

GLOBAL

Reliability: 95 %

% Slabs Cracked at End of Design Life: 5 %

Avg Trucks/Day in Design Lane Over the Design Life: 69

Total Trucks in Design Lane Over the Design Life: 756,068

Design Method

The PCA design methodology from StreetPave, was used to produce these results.

APPENDIX I.3
FLEXIBLE PAVEMENT DESIGN
ROADWAYS

Project Information:

Project Title: Hudson Logistic Center
Project Town: Hudson
Project State: New Hampshire
Client: Hudson Logistic Center

Project No.: 151010101
Performed By: NA
Date: 6/16/2020
Location: Roadways (Walmart Blvd. & Green Meadow Drive)

Design Information:

- Design Life: 20 years
- Initial Servicibility (Po): 4.2
- Terminal Servicibility Index (TSI): 2.5
- Servicibility (Po - TSI): 1.7

- Reliability Factor (R): 0.90
- Standard Deviation (Sd): 0.45
- Direction Distribution Factor (Do): 1.00
- Lane Distribution Factor (Dl): 1.00

- Soil Description: FILL & SP/SM
- USCS Symbol: SP/SM
- California Bearing Ratio (CBR): 10
- Resilient Modulus (MR): 15000 PSI

CBR Based on: Estimated Value
*MR = CBR*1,500 5 <= CBR <= 10
*MR = 3000*CBR^0.65 CBR > 10

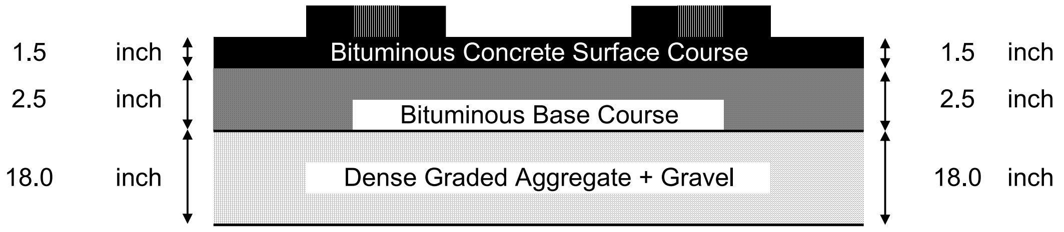
Summary of Results

Northern Access Roadway (Walmart Blvd.)

Design ESAL: 2,173,340

Southern Access Roadway (Green Meadow Drive)

Design ESAL: 1,684,723



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Project
Hudson Logistic Center
Hudson New Hampshire

Drawing Title
Pavement Design Summary Sheet - Roadways

Project No.
151010101
Date
6/16/2020
Scale
Not to Scale
Drawn By
NA

Drawing No.
P.01
Sheet 1 of 4

Calculate Equivalent 18-kip Single Axle Loading (ESALs)

Equivalent Single Axle Loads per Vehicle

Load Equivalency Factors:

- ***Typical Car:*** Calculated ESALs
  - (S) Front Single Axle: 2 kips LEF = 0.001045 (1 axle)(0.001045)+(1 axle)(0.00104 **0.00209 /car**
  - (S) Rear Single Axle: 2 kips LEF = 0.001045

- ***Typical Delivery Van:*** Calculated ESALs
  - (S) Front Single Axle: 8 kips LEF = 0.0343 (1 axle)(0.0343)+(1 axle)(0.0343) = **0.0686 /truck**
  - (S) Truck Rear Axle: 8 kips LEF = 0.0343

- ***Typical Truck and Trailer (HS20):*** Calculated ESALs
  - (S) Front Single Axle: 12 kips LEF = 0.189 ((Front axle)(0.189)+(Rear axle)(0.8905)
  - (T) Truck Rear Axle: 32 kips LEF = 0.8905 +(Trailer Tandem)(0.8905)) = **1.97 /truck**
  - (T) Trailer Axle: 32 kips LEF = 0.8905

(S) = single axle, (T) = Tandem, (3) = Triple Axles

Traffic Loading ○ Design Life: 20 years (From Sheet P.01)

Northern Access Roadway (Walmart Blvd.)

Vehicle Types	Current Traffic	% Increase	Design Traffic	ESAL Factor	Design ESAL
Passenger Cars	390	115%	3,274,050	0.00209	6,843
Light Trucks	0	115%	0	0.0686	0
Heavy Trucks	131	115%	1,099,745	1.97	2,166,498

Heavy Duty Design ESAL: 2,173,340

Southern Access Roadway (Green Meadown Drive)

Vehicle Types	Current Traffic	% Increase	Design Traffic	ESAL Factor	Design ESAL
Passenger Cars	941	115%	7,899,695	0.00209	16,510
Light Trucks	25	115%	209,875	0.0686	14,397
Heavy Trucks	100	115%	839,500	1.97	1,653,815

Heavy Duty Design ESAL: 1,684,723

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Project
Hudson Logistic Center
Hudson New Hampshire

Drawing Title
ESAL Calculation

Project No.
151010101

Date
6/16/2020

Scale
Not to Scale

Drawn By
NA

Drawing No.
P.02

Sheet 2 of 4

Design Information (from P.01):

- Reliability Factor (R): 0.90
- Standard Deviation (Sd): 0.45
- Resilent Modulus (MR): 15
- Servicibility (Po - TSI): 1.7

Traffic Information (from P.02):

- Northern ESALs (W18):
  2,173,340
  (millions) 2.173
- Southern ESALs (W18):
  1,684,723
  (millions) 1.68

From Nomograph:

Design Structural Number (SN)

N. Roadway (Walmart Blvd.):

2.9 →

S. Roadway (Green Meadow Dr.):

2.9 →

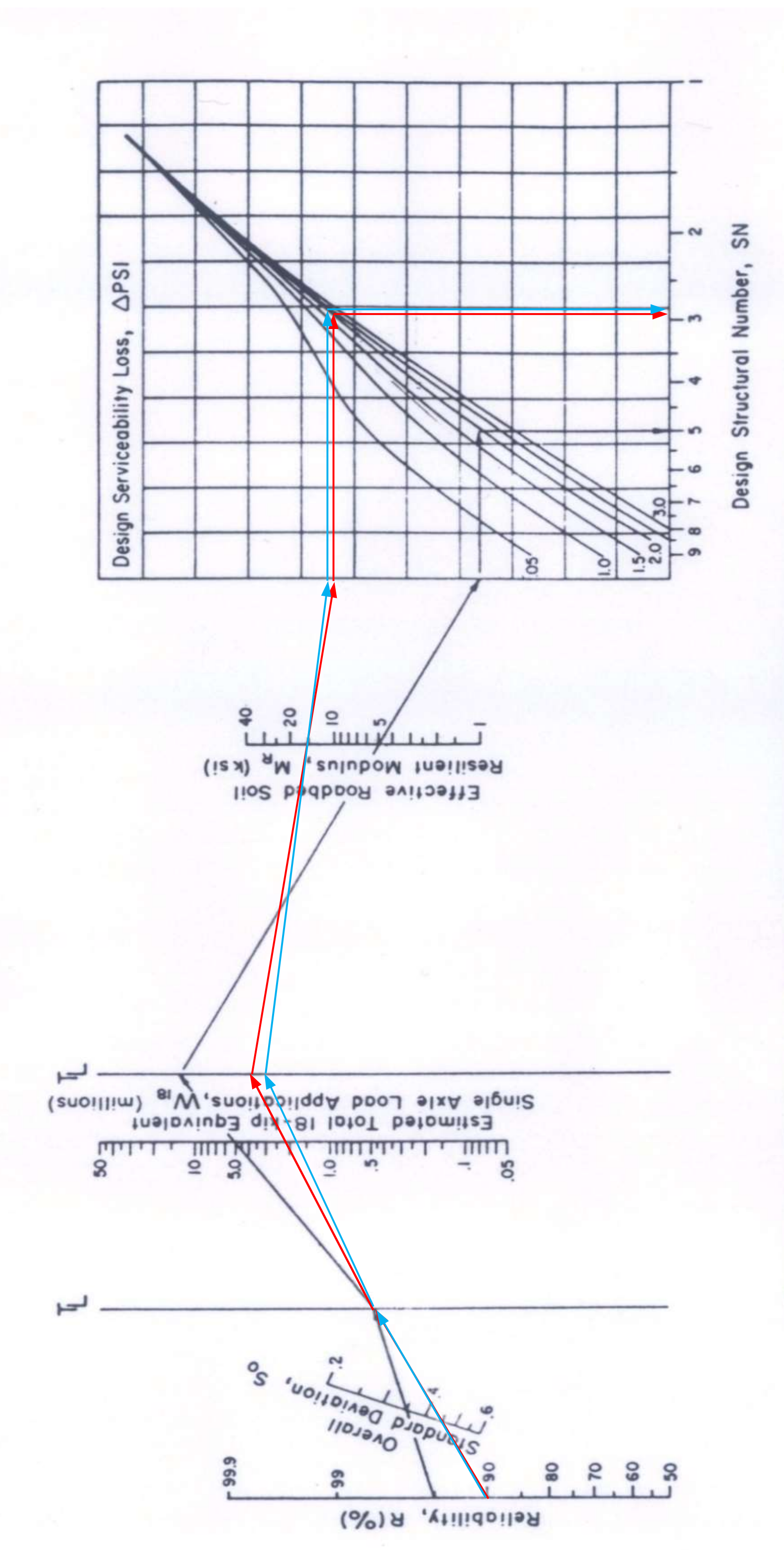

Figure 11.25 Design chart for flexible pavements based on mean values for each input (1 ksi = 6.9 MPa). (From the *AASHTO Guide for Design of Pavement Structures*. Copyright 1986, American Association of State Highway and Transportation Officials, Washington, DC. Used by permission.)

LANGAN

555 Long Wharf Drive, New Haven, CT 06511
T: 203.562.5771 F: 203.789.6142 www.langan.com

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Langan Engineering and Environmental Services, Inc.
Langan CT, Inc.
Langan International LLC
Collectively known as Langan

Project
Hudson Logistic Center
Hudson New Hampshire

Drawing Title
AASHTO Flexible Pavement Nomograph

Project No.
151010101

Date
6/16/2020

Scale
As Shown

Drawn By
NA

Drawing No.
P.03

Sheet 3 of 4

Flexible Pavement Section Calculation:

Structural Number:
SN = D1(a1)+D2(a2)+D3(a3)

Northern Access Roadway (Walmart Blvd.) Section:

Material	Spec	Thickness (inch)		TDS		SN
Bituminuous Concrete Surface Course		D1	1.5	a1	0.44	0.66
Bituminuous Concrete Binder Course		D2	2.5	a2	0.44	1.10
Gravel		D3	6.0	a3	0.11	0.66
Dense Graded Aggregate	Subbase	D4	12.0	a4	0.11	1.32

Calculated Structural Number for Section: **3.74**
Check Calculated SN is > Design SN: OK
Design Structural Number SN: 2.9 (from P.03)

Southern Access Roadway (Green Meadow Drive) Section:

Material	Spec	Thickness (inch)		Layer Strength		SN
Bituminuous Concrete Surface Course		D1	1.5	a1	0.44	0.66
Bituminuous Concrete Binder Course		D2	2.5	a2	0.44	1.10
Gravel		D3	6.0	a3	0.11	0.66
Dense Graded Aggregate	Subbase	D4	12.0	a4	0.11	1.32

Calculated Structural Number for Section: **3.74**
Check Calculated SN is > Design SN: OK
Design Structural Number SN: 2.9 (from P.03)

Minimum Pavement Section

Material	Spec	Thickness (inch)
Bituminuous Concrete (Total)		4.0
Gravel		6.0
Dense Graded Aggregate	Subbase	12.0

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Project
Hudson Logistic Center
Hudson New Hampshire

Drawing Title
Flexible Pavement Section Calculation

Project No. 151010101
Date 6/16/2020
Scale As Shown
Drawn By NA

Drawing No.
P.04

Sheet 4 of 4