GEOTECHNICAL EVALUATION
ONTARIO STREET APARTMENTS
ALBANY, NEW YORK
Dente File No. JB175553

Prepared For:
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18 Locust Street
Albany, NY 12203

January 2018

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APPENDICES

GEOTECHNICAL EVALUATION
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I. INTRODUCTION

This report presents the results of a geotechnical evaluation completed by the Dente Group for the proposed Ontario Street Apartment Buildings in Albany, New York. The evaluation was completed in general accord with Dente proposal number FDE-17-187, which was accepted by Hershberg & Hershberg of Albany, New York.

In general, our scope of services for this project consisted of the following:

- Review of Geotechnical studies completed by this office at nearby sites,
- Layout and completion of five test borings and three infiltration tests,
- Preparation of this report, which summarizes the results of our explorations and presents recommendations to assist in planning for the geotechnical related aspects of the project.

This report and the recommendations contained within it were developed for specific application to the site and construction planned, as we currently understand it. Corrections in our understanding, changes in the structure locations, their grades, loads, etc. should be brought to our attention so that we may evaluate their effect upon the recommendations offered in this report.

It should be understood that this report was prepared, in part, on the basis of a limited field exploration. The borings were advanced at discrete locations and the overburden soils sampled at specific depths. Conditions are only known at the locations and through the depths investigated. Conditions at other locations and depths may be

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different, and these differences may impact upon the conclusions reached and the recommendations offered. For this reason, we strongly recommend that we be retained to provide site observation services during construction.

This report was prepared for informational purposes only and should not be considered part of the contract documents. It should be made available to interested parties in its entirety only. Should the data contained in this report not be adequate for the contractors' bidding purposes, the contractors may make their own investigations, tests, and analyses for use in bid preparation.

The recommendations offered in this report concerning the control of surface and subsurface waters, moisture, or vapor membranes address conventional Geotechnical Engineering aspects only and are not to be construed as recommendations for controlling or providing an environment that would prohibit or control infestations of the structure or its surroundings with mold or other biological agents.

II. SITE AND PROJECT DESCRIPTION

The site is located along the west side of Ontario Street between its intersection with Warren Street and Park Avenue as depicted on the USGS and Site Plan presented in Appendix A. The proposed building site is sloped downward from the northwest to the southeast between elevations of about 204 and 197 feet. The parcel now is occupied by the Playdium Bowling Center, Laundromat, and Food Store surrounded with asphalt pavements, lawn, and shrubs. The existing building is a single story structure with a plan area of about 33,000 square feet with a finished floor at about elevation 204 feet. The existing building will be demolished for this development.

Three new apartment buildings, each with below grade parking, are planned for the site. The buildings will be two and four story wood frame construction with a below grade cast in place concrete parking levels. The grade levels range between 192 and 199 feet, some three to nine feet beneath the existing site grades.

III. SUBSURFACE CONDITIONS

The subsurface conditions at the site were investigated through the completion of five test borings and three infiltration tests at the approximate locations shown on the plan in Appendix A. The test borings were completed using a standard rotary drill rig equipped with hollow stem augers. As the augers were advanced, the overburden soils were sampled and their relative density determined using split-spoon sampling techniques in general accord with ASTM D1586 procedures. Representative portions

of the recovered soil samples were transported to our office for visual classification by a Geotechnical Engineer. Individual subsurface logs were prepared for the borings on this basis and are presented in Appendix B.

The subsurface logs should be reviewed for a description of the conditions encountered at the specific test locations. It should be understood that conditions are only known at the depths and locations sampled. Conditions at other depths and locations may be different.

Subsurface Profile

About two to eight feet of fill material was found at the investigated locations across the site. The fill material is composed of relatively loose mixtures of sand, gravel, the native site soils, and building rubble and debris. The fills were likely created when the current building was constructed and former buildings were demolished and placed into their former basement levels. The underlying native soils were brown grading to grey varved and laminated silt and clay. These cohesive soils were of a medium/stiff grading to very soft consistency through the depths explored at this site, about 52 feet.

Groundwater Conditions

Groundwater measurements were attempted at completion of drilling and sampling and the results are noted on the individual subsurface logs. It should be understood that these measurements likely do not accurately reflect the actual groundwater depths because adequate time did not pass after completion of drilling for water to enter and achieve a static level in the augers.

Based on the change in the soil coloration, it appears that the static groundwater level was generally present below about 10 feet. Layers of trapped or perched groundwater should be expected to exist seasonally within the surface fill materials and also at very shallow depths in the silt and clay soils following the spring thaws and periods of precipitation.

IV. GEOTECHNICAL RECOMMENDATIONS

A. General Site Evaluation

Based upon our evaluation of the subsurface conditions disclosed through our investigation, we have developed the following general conclusions and recommendations to assist in planning for design and construction.

1. All existing fills should be removed and replaced from beneath new building areas, their foundations, and floor slabs.

2. Consideration can be given to leaving the fills in place beneath exterior pavements provided that their surfaces are proof-rolled and stabilized and the Owner accepts some risk that settlement may occur in the future and require greater than normal maintenance.
3. The new building may be supported using ordinary spread foundations bearing upon the undisturbed native soils or upon structural fill placed after the existing fills are removed from the building areas.
4. All buildings should be encircled with foundation level drains.
5. Layers of trapped or perched groundwater may be encountered in the site excavations at shallow depths, seasonally. For these reasons, perimeter swales and or underdrains should be provided along and beneath pavements, and foundation drains along the sides of the perimeter building foundations.
6. Site preparation should preferably be done during a seasonal dry period to reduce the adverse impacts of soft/wet subgrades on construction. This will minimize the quantity of undercutting that will be required to remove and replace soft and/or wet soils and establish a stable base for construction. A contingency should be carried in the project budget for undercutting and replacement of soft and/or wet subgrade soils.
7. The on-site soils, in some areas and at certain depths, contain appreciable amounts of silt, and they will be very sensitive to construction activities and even slight variations in moisture content.

The following report sections provide detailed recommendations to assist in planning for design and construction. We should review plans and specifications prior to their release for bidding to allow us to refine our recommendations, if required, and confirm that our recommendations were properly interpreted and applied.

B. Seismic Design Considerations

For seismic design purposes, we evaluated the site conditions in accord with Section 1613 of the International Building Code (2015) adopted by New York State. On this basis, it was determined that Seismic Site Class “D - Stiff Profile” is applicable to this project. Based upon the composition of the site soils, liquefaction should not occur in response to earthquake motions. The site classification and liquefaction analyses is based, in part, upon shear wave velocity testing conducted in similar subsurface profiles in the general project area.

C. Site Preparation and Earthwork

We caution that the subgrade soils, where silt rich, will easily soften and lose strength when subjected to ordinary construction equipment traffic whether the soils are moist or wet. The contractor should make efforts to maintain the subgrades in as dry and stable condition as possible. These efforts may include the installation of drainage trenches and shaping of subgrade surfaces to promote runoff away from the

construction areas, restricting construction equipment traffic from traveling across the subgrade surface when it is wet, and installing temporary haul and construction roads as appropriate for the specific weather conditions and equipment he intends to employ at the site.

After the existing building is demolished and its foundations and slabs area removed in their entirety, site preparation in the new building pad and pavement areas should commence with the clearing and stripping of pavements, topsoil and surficial organics, along with the installation of perimeter swales to intercept and divert runoff away from the work areas.

All existing fills should be removed from beneath the new building pads and the adjoining areas extending at least five (5) feet beyond the building perimeter.

The existing fills may be left in place beneath exterior pavements provided that the surfaces are proof-rolled and stabilized as recommended below and the Owner accepts some risk that settlement may occur.

The subgrades must be shaped, crowned, and sloped to promote their drainage at all times and that of the granular structural fills which will overlie them. Prior to placing fills, the building and pavement subgrades should be proof-rolled by completing at least three (3) passes using a steel drum roller with a static weight of at least ten (10) tons. The roller should operate in the static mode unless directed otherwise by a Geotechnical Engineer observing the work. Any subgrade soils that are or become soft and wet should be undercut and stabilized accordingly.

Imported Structural Fill should be used as fill and backfill in new building and pavement areas and it should consist of well graded bank-run sand and gravel with no particles larger than three (3) inches, between 30 and 70 percent passing the No. 4 sieve, and less than 15 percent, by weight, of material finer than a No. 200 mesh sieve. The fill should not contain recycled asphalt, bricks, glass, pyritic shale, or recycled concrete, unless the recycled concrete is from a NYSDOT approved stockpile, and even then only with the owner's specific consent. The existing site soils are considered unsuitable for use as a source of structural fill and should be reserved for use in landscaped areas well away from the planned buildings and their backfills.

The Structural Fill should be placed in uniform loose layers no more than about one (1) foot in thickness where heavy vibratory compaction equipment is used. Smaller lifts should be used where hand operated equipment is required for compaction. Each

lift should be compacted to no less than 95 percent of the maximum dry density for the soil which is established by the Modified Proctor Compaction Test, ASTM D1557. In landscape areas, the compaction may be reduced to 90 percent of maximum dry density.

D. Foundations

New building foundations may be seated on the undisturbed native soils or imported Structural Fill placed to increase site grades.

Where the native soils will form bearing grades or less than a foot of structural fill will separate the foundations and the native silt and clay soils, the bearing grades must be protected throughout the construction period using either a three-inch-thick lean concrete mud mat or by over excavating 12 inches beneath the bearing grade and placing synthetic fabric followed with a 50/50 blend of NYSDOT #1 & 2 aggregate to form a stabilized bearing pad.

The foundations, when bearing upon structural fill, the mud mat, or the stone pad protected grades, may be proportioned for a maximum net allowable bearing pressure equal to 3,000 psf. Continuous wall and isolated column foundations should have minimum widths of 18 and 36 inches, respectively, even if this results in a bearing pressure which is less than the maximum allowable. Exterior foundations should bear at least four (4) feet beneath final adjacent exterior grades to afford frost penetration protection. Interior foundations may be seated at a nominal two (2) foot depth below the floor slab if allowed by local codes.

Assuming standard care is used in preparing the bearing grades, we estimate that total foundation settlement should be less than one (1) inch. The settlements should occur within a few days after construction is completed and each load increment is applied.

All below grade foundation and any site retaining walls should be designed to support lateral earth pressures together with all applicable temporary and permanent surcharge loads. Structural fill materials should be used as the retaining and foundation wall's backfill.

If the walls are free to deflect as the backfill is placed or surcharge loads applied, "Active" earth pressures may be assumed. If the walls are braced prior to backfilling or applying surcharge loads, "At-Rest" conditions should be assumed. The following design parameters are provided to assist in determining the lateral wall loads for level soil surfaces above and below the wall, whichever apply:

- Coefficient of “At-Rest” Lateral Earth Pressure $K_o = 0.50$
- Coefficient of “Active” Lateral Earth Pressure $K_a = 0.33$
- Coefficient of “Passive” Earth Pressure $K_P = 2.0$
- Total Unit Weight of Soil and Compacted Backfill $Y_T = 120$ pcf
- Coefficient of Sliding Friction (On Native or Fill Soil) $\delta_f = 0.30$

The building walls should be moisture proofed, the walls provided with a drainage layer and the below grade building areas encircled with a perimeter foundation drain. The stone layer which we recommended to be placed beneath the below grade slabs must be drained to the foundation drainage system. The foundation and sub slab systems should drain via gravity where possible and if not possible, through a pump system with backup power.

Any site retaining walls should have a foundation level drain provided.

E. Floor Slabs

At grade floor slabs should be constructed upon a minimum eight (8) inch thick subbase of Imported Structural Fill and, where floor coverings or moisture sensitive coatings are to be placed upon the slabs, four (4) inch thick base of crushed stone (ASTM Blend 57 material). Where the below grade slabs are planned, the crushed stone should be at least twelve (12) inches thick and drained to the recommended foundation drainage system.

A vapor retarder (Stego Wrap 15 mil Class A or equivalent) should be installed if any floor coverings or moisture sensitive coatings are to be placed upon the slabs. The vapor retarder should be positioned above or below the stone base in accord with the American Concrete Institute Manual of Concrete Practice Manual Section 302.1R. A modulus of subgrade reaction equal to 150 pounds per cubic inch (pci) at the top of the stone base layer may be assumed for the slab design purposes.

F. Pavements

Two flexible pavement sections are provided for consideration at the site dependent upon anticipated traffic types. A Heavy Section should be used for entrance drives and areas subject to repeated truck traffic, and a Light Section employed for areas subject to automobile parking and occasional delivery and/or service trucks. We should review final grading plans to determine if modifications to the pavement design are needed.

All base course layers and their subgrades should be drained through sloping and crowning of subgrades to the peripheral swales and/or french drains recommended

previously, or to underdrains where appropriate to the final grading plan to assure satisfactory performance. Peripheral and intermediate under drains should also be incorporated, as well as gravel backfilled utilities with sloped subgrades, to assure that drained base courses are provided. All base course materials should be compacted to 95 percent of the material's maximum dry density as established through the Modified Proctor Test, ASTM D-1557.

MATERIAL SECTION	THICKNESS (inches)		NYSDOT SPECIFICATION
	Light Section	Heavy Section	
Wearing Course	1	1	403 Type 6
Binder Course	2	3	403 Type 3
Base Course	8	12	304 Type 2
Fabric – Mirafi 500X or Eq.	Yes	Yes	-

Note: The base course thickness may be reduced to 8" where at least 12" of imported Structural Fill is placed beneath the subgrade elevation.

Rigid Portland concrete pavement may be designed to bear upon twelve (12) inches of NYSDOT Type 2 material and the synthetic fabric recommended above, and designed in accord with the recommended procedures of the American Concrete Institute or Portland Cement Association using a composite modulus of subgrade reaction equal to 150 pounds per cubic inch when constructed upon the subgrades prepared as recommended previously.

It should be understood that sidewalks and pavements constructed upon the site's soils will heave as frost seasonally penetrates the subgrades. The magnitude of the seasonal heave will vary with many factors, and result in differential movements. As the frost leaves the ground, the sidewalks and pavements will settle back, but not entirely in all areas, and this may accentuate the differential movements across the pavement areas. Where curbs, walks, and storm drains meet these pavements, these differential heave and settlements may result in undesirable movements, and create trip hazards. To limit the magnitude of heave and the creation of these uneven joints to generally tolerable magnitudes for most winters, a sixteen (16) inch thick crushed stone base course, composed of Blend 57 aggregate, may be placed beneath the sensitive sidewalk, drive, etc. areas. The stone layer must have an underdrain placed within it.

It should also be understood that the recommended pavement sections were not designed to support heavy construction equipment loads which would require an augmented section. The contractor should construct temporary haul and construction roadways and routes about the site as appropriate for the specific weather conditions and construction equipment he intends to employ, and the overburden soil conditions encountered in the specific areas. Construction period traffic should not be routed across the recommended pavement sections unless augmented.

Finally, all pavements require routine maintenance and occasional repairs. Failure to provide maintenance and complete the required repairs in a timely manner will result in a shortened pavement service life.

G. Plan Review and Construction Monitoring

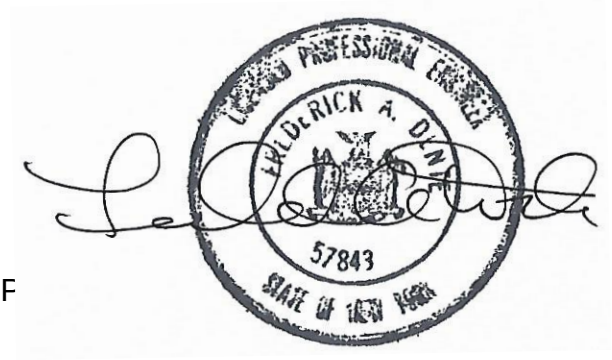
The Dente Group should be retained to review plans and specifications related to site grading, foundations, and earthwork prior to their release for bidding to confirm that the recommendations contained herein were properly interpreted and applied.

It should be understood that the actual subsurface conditions that exist across this site will only be known when the site is excavated. For this reason, we should be retained to monitor earthwork and bearing grade preparations for foundations, floor slabs, and pavements. The presence of the Geotechnical Engineer during the earthwork and foundation construction phases will allow validation of the subsurface conditions assumed to exist for this study and the design recommended in this report.

V. CLOSURE

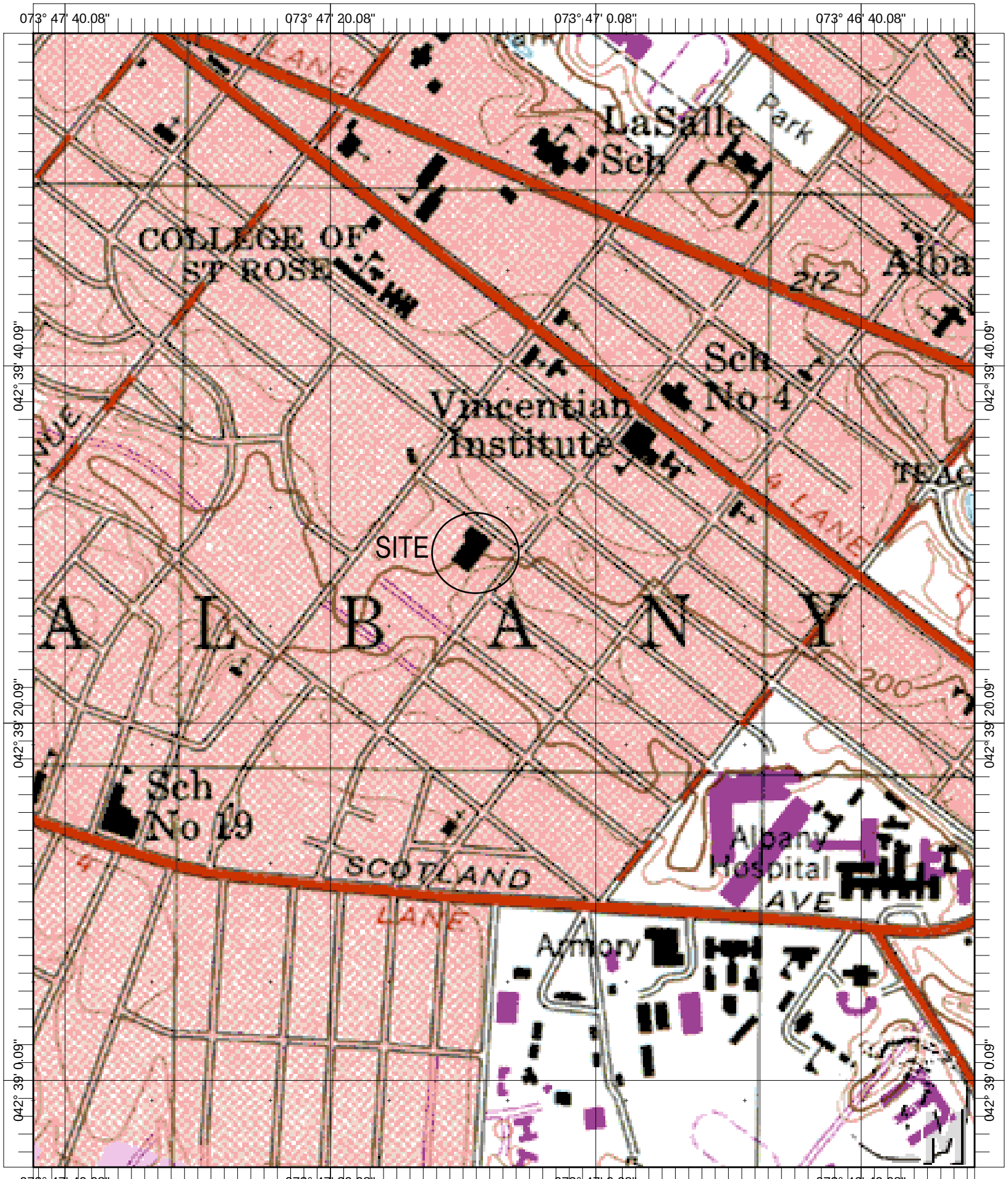
This report was prepared for specific application to the project site and the construction planned using methods and practices common to Geotechnical Engineering in the area and at the time of its preparation. No other warranty, either expressed or implied, is made. We appreciate the opportunity to be of service. Should questions arise or if we may be of any other service, please contact us at your convenience.

Prepared by,
Dente Group



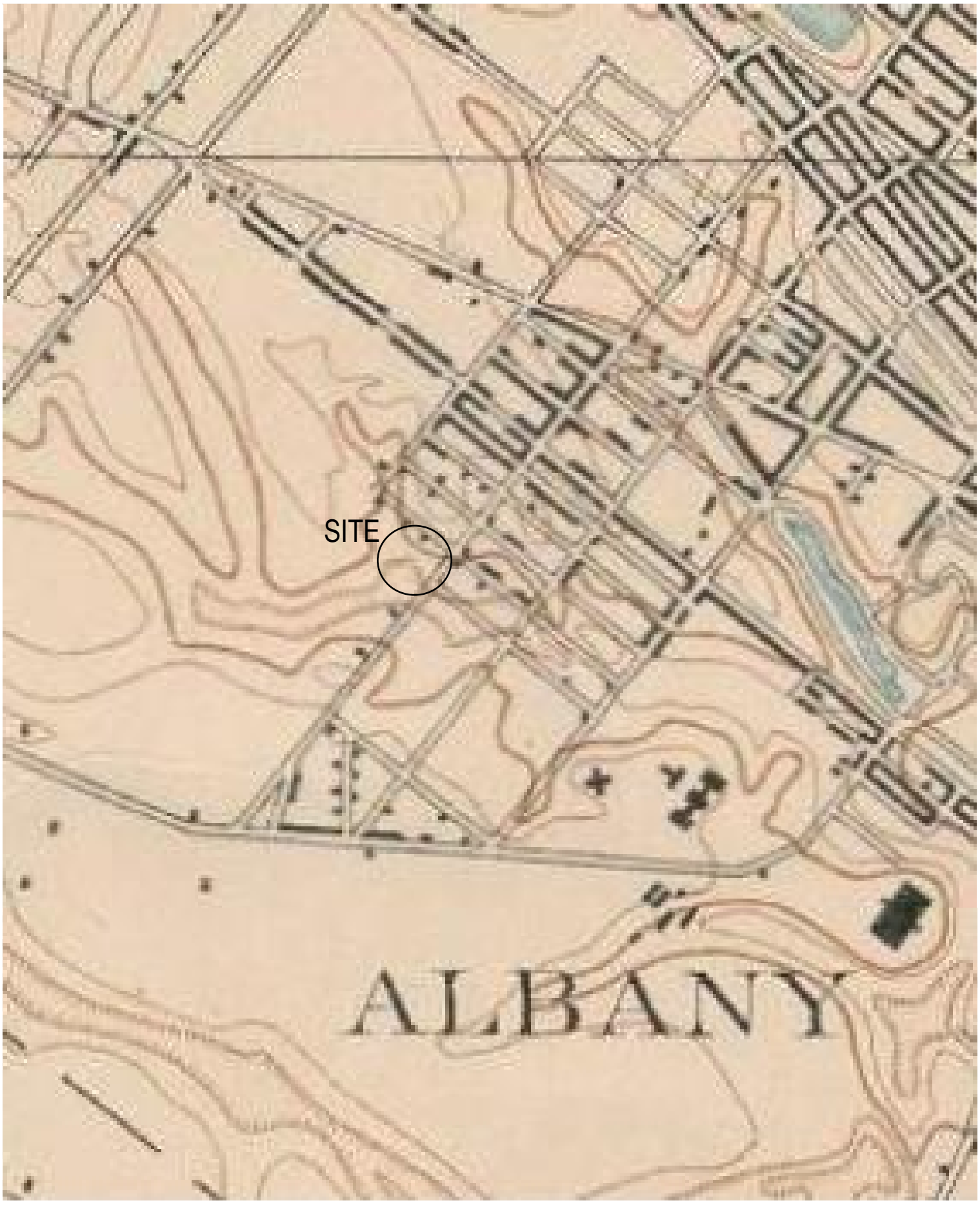
Fred A. Dente, P
Principal

APPENDIX A



Name: ALBANY
Date: 12/14/117
Scale: 1 inch equals 666 feet

Location: 042° 39' 26.9" N 073° 47' 07.0" W



363 Ontario Street, Albany, New York 1893

Soil Map—Albany County, New York

Map Scale: 1:1,070 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 15 30 60 90

Feet: 0 50 100 200 300

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

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

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

Special Point Features

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

Water Features

- Streams and Canals

Transportation

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

Background

- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

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

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

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

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

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

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

Soil Survey Area: Albany County, New York
Survey Area Data: Version 15, Oct 8, 2017

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

Date(s) aerial images were photographed: Jun 10, 2015—Mar 29, 2017

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

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Uh	Udorthents, clayey-Urban land complex	2.1	100.0%
Totals for Area of Interest		**2.1**	**100.0%**

Albany County, New York

Uh—Udorthents, clayey-Urban land complex

Map Unit Setting

National map unit symbol: 9pj2
Mean annual precipitation: 36 to 41 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 100 to 170 days
Farmland classification: Not prime farmland

Map Unit Composition

Udorthents, clayey, and similar soils: 40 percent
Urban land: 30 percent
Minor components: 30 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Udorthents, Clayey

Typical profile

H1 - 0 to 18 inches: silty clay
H2 - 18 to 72 inches: stratified silt loam to clay

Properties and qualities

Slope: 0 to 8 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 6 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Moderate (about 8.2 inches)

Description of Urban Land

Typical profile

H1 - 0 to 6 inches: variable

Minor Components

Scio

Percent of map unit: 10 percent
Hydric soil rating: No

Hudson

Percent of map unit: 10 percent
Hydric soil rating: No

Rhinebeck

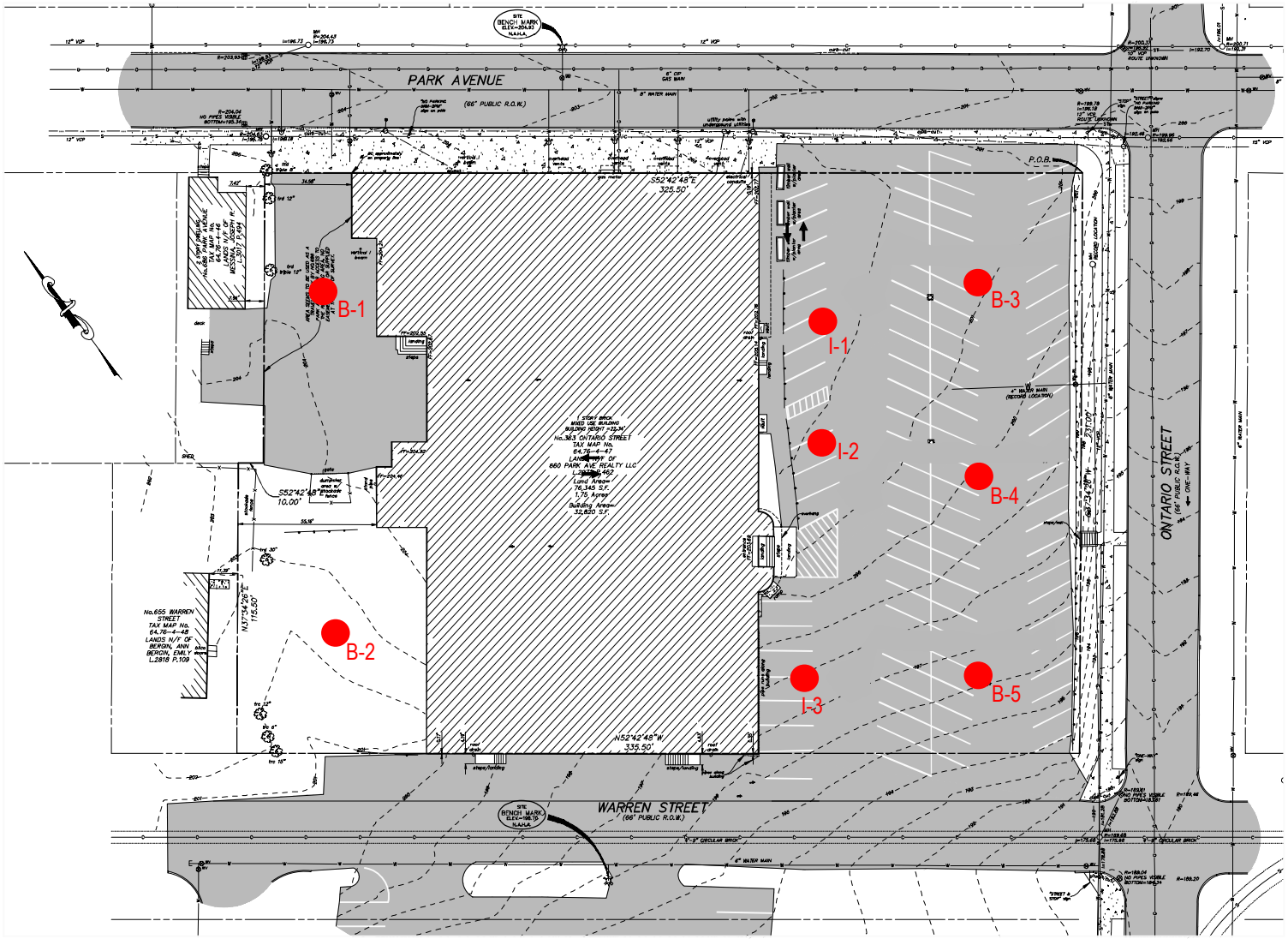
Percent of map unit: 7 percent
Hydric soil rating: No

Madalin

Percent of map unit: 3 percent
Landform: Depressions
Hydric soil rating: Yes

Data Source Information

Soil Survey Area: Albany County, New York
Survey Area Data: Version 15, Oct 8, 2017



LEGEND

- MH — MANHOLE
- CATCHBASIN
- SIGN
- FENCE LINE
- GUARD RAIL
- OVERHEAD WIRE, UTILITY POLE & GUY WIRE
- WATER SHUT OFF
- WV — WATER VALVE
- HYDRANT
- GV — GAS VALVE
- STREET LIGHT
- LIGHT POLE
- CONCRETE
- PAVEMENT

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.

● Soil Boring / Infiltration Test Locations

FOR MUNICIPAL APPROVAL ONLY-NOT INTENDED FOR CONSTRUCTION

HERSHBERG & HERSHBERG
Consulting Engineers and Land Surveyors
18 Locust Street
Albany, New York 12203

REVISIONS		
REMARKS	DATE
BLDG 2 HT, STREET TREES ADDED	9/28/17

EXISTING CONDITIONS
363 ONTARIO STREET APARTMENTS
ALBANY, NEW YORK

TILE: 17034 | SCALE: 1"=20' | BY: AS | CHK: DRH | DATE: 6/12/17 | 17034-5 REVISE

C1

APPENDIX B

INTERPRETATION OF SUBSURFACE LOGS

The Subsurface Logs present observations and the results of tests performed in the field by the Driller, Technicians, Geologists and Geotechnical Engineers as noted. Soil/Rock Classifications are made visually, unless otherwise noted, on a portion of the materials recovered through the sampling process and may not necessarily be representative of the materials between sampling intervals or locations.

The following defines some of the terms utilized in the preparation of the Subsurface Logs.

SOIL CLASSIFICATIONS

Soil Classifications are visual descriptions on the basis of the Unified Soil Classification ASTM D-2487 and USBR, 1973 with additional comments by weight of constituents by BUHRMASTER. The soil density or consistency is based on the penetration resistance determined by ASTM METHOD D1586. Soil Moisture of the recovered materials is described as DRY, MOIST, WET or SATURATED.

SIZE DESCRIPTION		RELATIVE DENSITY/CONSISTENCY (basis ASTM D1586)			
SOIL TYPE	PARTICLE SIZE	GRANULAR SOIL		COHESIVE SOIL	
BOULDER	> 12	DENSITY	BLOWS/FT.	CONSISTENCY	BLOWS/FT.
COBBLE	3" - 12"	LOOSE	< 10	VERY SOFT	< 3
GRAVEL-COARSE	3" - 3/4"	FIRM	11 - 30	SOFT	4 - 5
GRAVEL - FINE	3/4" - #4	COMPACT	31 - 50	MEDIUM	6 - 15
SAND - COARSE	#4 - #10	VERY COMPACT	50 +	STIFF	16 - 25
SAND - MEDIUM	#10 - #40			HARD	25 +
SAND - FINE	#40 - #200				
SILT/NONPLASTIC	< #200				
CLAY/PLASTIC	< #200				

SOIL STRUCTURE		RELATIVE PROPORTION OF SOIL TYPES	
STRUCTURE	DESCRIPTION	DESCRIPTION	% OF SAMPLE BY WEIGHT
LAYER	6" THICK OR GREATER	AND	35 - 50
SEAM	6" THICK OR LESS	SOME	20 - 35
PARTING	LESS THAN 1/4" THICK	LITTLE	10 - 20
VARVED	UNIFORM HORIZONTAL PARTINGS OR SEAMS	TRACE	LESS THAN 10

Note that the classification of soils or soil like materials is subject to the limitations imposed by the size of the sampler, the size of the sample and its degree of disturbance and moisture.

ROCK CLASSIFICATIONS

Rock Classifications are visual descriptions on the basis of the Driller's, Technician's, Geologist's or Geotechnical Engineer's observations of the coring activity and the recovered samples applying the following classifications.

CLASSIFICATION TERM	DESCRIPTION
VERY HARD	NOT SCRATCHED BY KNIFE
HARD	SCRATCHED WITH DIFFICULTY
MEDIUM HARD	SCRATCHED EASILY
SOFT	SCRATCHED WITH FINGERNAIL
VERY WEATHERED	DISINTEGRATED WITH NUMEROUS SOIL SEAM
WEATHERED	SLIGHT DISINTEGRATION, STAINING, NO SEAMS
SOUND	NO EVIDENCE OF ABOVE
MASSIVE	ROCK LAYER GREATER THAN 36" THICK
THICK BEDDED	ROCK LAYER 12" - 36"
BEDDED	ROCK LAYER 4" - 12"
THIN BEDDED	ROCK LAYER 1" - 4"
LAMINATED	ROCK LAYER LESS THAN 1"
FRACTURES	NATURAL BREAKS AT SOME ANGLE TO BEDS

Core sample recovery is expressed as percent recovered of total sampled. The ROCK QUALITY DESIGNATION (RQD) is the total length of core sample pieces exceeding 4" length divided by the total core sample length for N size cored.

GENERAL

- Soil and Rock classifications are made visually on samples recovered. The presence of Gravel, Cobbles and Boulders will influence sample recovery classification density/consistency determination.
- Groundwater, if encountered, was measured and its depth recorded at the time and under the conditions as noted.
- Topsoil or pavements, if present, were measured and recorded at the time and under the conditions as noted.
- Stratification Lines are approximate boundaries between soil types. These transitions may be gradual or distinct and are approximated.

DENTE GROUP, A TERRACON COMPANY	SUBSURFACE LOG: B-1

PROJECT: 363 Ontario Street	**DATE**	**START:** 12/15/17	**FINISH:** 12/15/17

LOCATION: Albany, New York	**METHODS:** 3 1/4" Hollow Stem Augers, ASTM
CLIENT: Hershberg & Hershberg	D1586 Drilling Methods with Auto Hammer
JOB NUMBER: JB175553	**SURFACE ELEVATION**: +/- 204.0'
DRILL TYPE: CME 45C	**CLASSIFICATION:** O.Burns

SAMPLE		**BLOWS ON SAMPLER**					**CLASSIFICATION / OBSERVATIONS**
DEPTH	#	6"	12"	18"	24"	N	+/- 2" Aspahlt
	1	5	15				FILL: Sand and Gravel noted
				5	3	20	- -
	2	3	3				Brown Varved and Banded SILT and CLAY
				3	3	6	(MOIST)
5'	3	2	2				
				2	3	4	
10'	4	WH	1				Grades Gray
				1	1	2	
15'	5	1	1				
				2	2	3	
20'	6	WH	WH				
				2	2	2	
25'	7	1/12"	-				
				1	1	1	

DENTE GROUP, A TERRACON COMPANY	SUBSURFACE LOG: B-1 contin.

PROJECT: 363 Ontario Street	**DATE**	START: 12/15/17	FINISH: 12/15/17

LOCATION: Albany, New York	**METHODS:** 3 1/4" Hollow Stem Augers, ASTM
CLIENT: Hershberg & Hershberg	D1586 Drilling Methods with Auto Hammer
JOB NUMBER: JB175553	**SURFACE ELEVATION**: +/- 204.0’
DRILL TYPE: CME 45C	**CLASSIFICATION:** O.Burns

SAMPLE		BLOWS ON SAMPLER					CLASSIFICATION / OBSERVATIONS
DEPTH	#	6"	12"	18"	24"	N	
30’	8	WH	1				Gray Varved and Banded SILT and CLAY
				1	1	2	
35'	9	WH	WH				
				WH	1	WH	
40'	10	WH	WH				
				2	3	2	
45'	11	WH	WH				
				2	2	2	
50'	12	WH	WH				
				1	2	1	**(MOIST, MEDIUM TO VERY SOFT)**
55'							End of boring 52.0’ depth. Groundwater was not present within auger casings upon completion of borehole.

DENTE GROUP, A TERRACON COMPANY	SUBSURFACE LOG: B-2

PROJECT: 363 Ontario Street	**DATE**	**START:** 12/18/17	**FINISH:** 12/18/17

LOCATION: Albany, New York	**METHODS:** 3 1/4" Hollow Stem Augers, ASTM
CLIENT: Hershberg & Hershberg	D1586 Drilling Methods with Auto Hammer
JOB NUMBER: JB175553	**SURFACE ELEVATION**: +/- 202.5'
DRILL TYPE: CME 45C	**CLASSIFICATION:** O.Burns

SAMPLE		BLOWS ON SAMPLER					CLASSIFICATION / OBSERVATIONS
DEPTH	#	6"	12"	18"	24"	N	+/- 1.5" Topsoil
	1	2	3				Brown SILT and CLAY with Occasional
				4	7	7	Silt Seams (MOIST)
	2	4	4				
				2	2	6	
	3	3	4				
5'				5	5	9	
	4	8	8				
				6	4	14	
10'	5	1	1				
				2	4	3	
15'	6	2	2				Similar with Some Varved Bands
				3	4	5	
20'	7	2	3				
				3	2	6	**(MOIST, MEDIUM AND SOFT)**
							End of boring 22.0' depth.
							Groundwater was not present within auger
25'							casings upon completion of borehole.

DENTE GROUP, A TERRACON COMPANY	SUBSURFACE LOG: B-3

PROJECT: 363 Ontario Street	**DATE**	**START:** 12/15/17	**FINISH:** 12/15/17

LOCATION: Albany, New York	**METHODS:** 3 1/4" Hollow Stem Augers, ASTM
CLIENT: Hershberg & Hershberg	D1586 Drilling Methods with Auto Hammer
JOB NUMBER: JB175553	**SURFACE ELEVATION**: +/- 201.0’
DRILL TYPE: CME 45C	**CLASSIFICATION:** O.Burns

SAMPLE		BLOWS ON SAMPLER					CLASSIFICATION / OBSERVATIONS
DEPTH	#	6"	12"	18"	24"	N	+/- 4” Aspahlt
	1	34	29				**FILL:** Gray F-C SAND and GRAVEL, Little
				8	6	37	Asphalt, trace silt **(MOIST, COMPACT)**
	2	6	4				Brown Banded SILT and CLAY
				5	4	9	
5'	3	2	2				Grades Gray
				2	2	4	
10'	4	1	1				
				1	2	2	
15'	5	1	1				
				1	1	2	
20'	6	WH	1				
				1	1	2	**(MOIST, MEDIUM TO VERY SOFT)**
							End of boring 22.0’ depth.
							Groundwater was not present within auger
25'							casings upon completion of borehole.

DENTE GROUP, A TERRACON COMPANY	SUBSURFACE LOG: B-4

PROJECT: 363 Ontario Street	**DATE**	**START:** 12/14/17	**FINISH:** 12/14/17

LOCATION: Albany, New York	**METHODS:** 2 1/4" Hollow Stem Augers, ASTM
CLIENT: Hershberg & Hershberg	D1586 Drilling Methods with Auto Hammer
JOB NUMBER: JB175553	**SURFACE ELEVATION**: +/- 200.0'
DRILL TYPE: CME 55	**CLASSIFICATION:** O.Burns

SAMPLE		BLOWS ON SAMPLER					CLASSIFICATION / OBSERVATIONS
DEPTH	#	6"	12"	18"	24"	N	+/- 3.5" Aspahlt, +/- 10" Bankrun Gravel
							FILL: Brown F-C SAND, SILT, CLAY, and
	1	15	13				GRAVEL, Little Roots, trace brick
				14	15	27	**(MOIST, FIRM)**
5'	2	4	4				Dark Brown/Gray to Brown Mottled SILT and
				4	4	8	CLAY
10'	3	2	1				Similar with Silt Seams
				2		3	
15'	4	WH	1				Grades Gray Varved and Banded
				2		3	
20'	5	1	2				**(MOIST, MEDIUM TO SOFT)**
				2		4	
							End of boring 21.5' depth.
							Groundwater was not present within auger
25'							casings upon completion of borehole.

DENTE GROUP, A TERRACON COMPANY	SUBSURFACE LOG: B-5

PROJECT: 363 Ontario Street	**DATE**	**START:** 12/15/17	**FINISH:** 12/15/17

LOCATION: Albany, New York	**METHODS:** 2 1/4" Hollow Stem Augers, ASTM
CLIENT: Hershberg & Hershberg	D1586 Drilling Methods with Auto Hammer
JOB NUMBER: JB175553	**SURFACE ELEVATION**: +/- 196.0'
DRILL TYPE: CME 55	**CLASSIFICATION:** O.Burns

SAMPLE		BLOWS ON SAMPLER					CLASSIFICATION / OBSERVATIONS
DEPTH	#	6"	12"	18"	24"	N	+/- 3" Asphalt, +/- 10" Silt & Gravel Subbase
	1	6	6				**FILL:** Brown/Dark Brown Mottled SILT and
				5	6	11	CLAY, trace sand and brick (MOIST)
	2	6	7				Grades Some F-C Sand and Brick
				8	11	15	Grades to Gray ASH to Dark Brown SILT and
5'	3	3	3				CLAY, trace ash and brick
				4	4	7	**(MOIST, FIRM, LOOSE, AND MEDIUM)**
	4	3	3				Brown/Dark Brown Mottled SILT and CLAY
				5	5	8	
10'	5	2	3				Grades Brown/Gray Mottled
				3		6	
15'	6	2	2				Similar with Silt Seams
				4		6	
20'	7	3	3				Grades Gray, Varved and Banded
				2		5	
25'	8	WH/18"	-				
				-		WH	

DENTE GROUP, A TERRACON COMPANY	SUBSURFACE LOG: B-5 contin.

PROJECT: 363 Ontario Street	**DATE**	START: 12/15/17	FINISH: 12/15/17

LOCATION: Albany, New York	**METHODS:** 2 1/4" Hollow Stem Augers, ASTM
CLIENT: Hershberg & Hershberg	D1586 Drilling Methods with Auto Hammer
JOB NUMBER: JB175553	**SURFACE ELEVATION**: +/- 196.0'
DRILL TYPE: CME 55	**CLASSIFICATION:** O.Burns

SAMPLE		BLOWS ON SAMPLER					CLASSIFICATION / OBSERVATIONS
DEPTH	#	6"	12"	18"	24"	N	
30'	9	WH/18"	-				Gray Varved and Banded SILT and CLAY
				-		WH	
35'	10	WH/18"	-				
				-		WH	
40'	11	WH/18"	-				
				-		WH	
45'	12	WH/18"	-				
				-		WH	
50'	13	WH/18"	-				**(MOIST, MEDIUM TO VERY SOFT)**
				-		WH	
							End of boring 51.5' depth with split spoon refusal.
55'							Groundwater was not present within auger casings upon completion of borehole.

DENTE GROUP, A TERRACON COMPANY	SUBSURFACE LOG: I-1

PROJECT: 363 Ontario Street	**DATE**	**START:** 12/14/17	**FINISH:** 12/14/17

LOCATION: Albany, New York	**METHODS:** 2 1/4" Hollow Stem Augers, ASTM
CLIENT: Hershberg & Hershberg	D1586 Drilling Methods with Auto Hammer
JOB NUMBER: JB175553	**SURFACE ELEVATION**: +/- 202.0’
DRILL TYPE: CME 55	**CLASSIFICATION:** O.Burns

SAMPLE		BLOWS ON SAMPLER					CLASSIFICATION / OBSERVATIONS
DEPTH	#	6"	12"	18"	24"	N	+/- 1” Aspahlt, +/- 12” Bankrun Gravel
							FILL Noted
	1	4	4				Gray Banded SILT and CLAY (MOIST)
				4	5	8	
5'							
	2	2	1				
				2	3	3	
	3	3	3				
				2	2	5	**(MOIST, MEDIUM AND SOFT)**
10'							
							End of boring 10.0’ depth.
15'							
20'							
25'							

DENTE GROUP, A TERRACON COMPANY	SUBSURFACE LOG: I-2

PROJECT: 363 Ontario Street	**DATE**	**START:** 12/14/17	**FINISH:** 12/14/17

LOCATION: Albany, New York	**METHODS:** 2 1/4" Hollow Stem Augers, ASTM
CLIENT: Hershberg & Hershberg	D1586 Drilling Methods with Auto Hammer
JOB NUMBER: JB175553	**SURFACE ELEVATION**: +/- 202.0’
DRILL TYPE: CME 55	**CLASSIFICATION:** O.Burns

SAMPLE		BLOWS ON SAMPLER					CLASSIFICATION / OBSERVATIONS
DEPTH	#	6"	12"	18"	24"	N	+/- 3” Asphalt, +/- 11” Bankrun Gravel
	1	6	5				Brown Banded SILT and CLAY (MOIST)
				4	4	9	
5'							
	2	2	4				Grades Gray, fine sand partings noted
				2	3	6	
	3	2	1				Similar with Brown Bands
				2	4	3	**(MOIST, MEDIUM TO VERY SOFT)**
10'							
							End of boring 10.0’ depth.
							Groundwater was not present within auger
							casings upon completion of borehole.
15'							
20'							
25'							

DENTE GROUP, A TERRACON COMPANY	SUBSURFACE LOG: I-3

PROJECT: 363 Ontario Street	**DATE**	START: 12/14/17	FINISH: 12/14/17

LOCATION: Albany, New York	**METHODS:** 2 1/4" Hollow Stem Augers, ASTM
CLIENT: Hershberg & Hershberg	D1586 Drilling Methods with Auto Hammer
JOB NUMBER: JB175553	**SURFACE ELEVATION**: +/- 198.0’
DRILL TYPE: CME 55	**CLASSIFICATION:** O.Burns

SAMPLE		BLOWS ON SAMPLER					CLASSIFICATION / OBSERVATIONS
DEPTH	#	6"	12"	18"	24"	N	+/- 2.5” Aspahlt, +/- 10” Bankrun Gravel
	1		7				**FILL**: Dark Brown/Gray SILT and CLAY, trace
				5	4		ash, brick and charred wood (MOIST)
		4				9	
5'							
	2	5	4				Grades to Black/White/Red CINDERS, ASH,
				3	3	7	and BRICK, Some Gravel, trace coal
	3	3	2				Grades Little Silt and Clay
				1	1	3	**(MOIST, LOOSE)**
10'							
							End of boring 10.0’ depth.
15'							
20'							
25'							

APPENDIX C

INFILTRATION TEST RESULTS

PROJECT: 363 Ontartio Street	**PROJECT NO.** JB175553
PROJECT LOCATION: Albany, New York	**TEST DATE:** 12/15/17
WEATHER:	**TESTER:** J. Lamm

Test Location	Test Depth (feet)	Trial No.	Water Drop (inches)	Elapsed Time (hours)	Infiltration Rate (inches/hour)
I-1	8.0	1	0.0	1.00	0.0
		2	0.0	1.00	0.0
		3	0.0	1.00	0.0
		Water did not infiltrate over a three hour period, and as such the infiltration test is considered failed.			
I-2	8.0	1	3.0	1.00	3.0
		2	1.5	1.00	1.5
		3	0.5	1.00	0.5
		Approximately 12 inches of presoak water was found remaining within the infiltration pipe. Average infiltration rate for three trials was 1.7 inches per hour. Infiltration rate of final trial was 0.5 inches per hour.			
I-3	8.0	1	12.0	1.00	12.0
		2	10.0	1.00	10.0
		3	7.0	1.00	7.0
		Average infiltration rate for three trials was 9.7 inches per hour. Infiltration rate of final trial was 7.0 inches per hour.			

Notes:

(1) Testing was conducted in general accord with the “Infiltration Testing Requirements” contained in Appendix D of the New York State Storm Water Management Design Manual.

(2) Test pipes were installed in boreholes made adjacent to test borings I-1, -2, and -3.

SOIL CLASSIFICATION AT TEST DEPTH

Test Location I-1: Gray Banded SILT and CLAY

Test Location I-2: Gray Banded SILT and CLAY with fine sand partings, Occasional Brown Bands

Test Location I-3: FILL: Black/White/Red CINDERS, ASH, and BRICK, Some Gravel, Little Silt and Clay, trace coal