

## DESIGN AND CONSTRUCTION GROUP THE GOVERNOR NELSON A. ROCKEFELLER EMPIRE STATE PLAZA ALBANY, NY 12242

## ADDENDUM NO. 1 TO PROJECT NO. Q1665

#### CONSTRUCTION WORK REHABILITATE ROADWAYS AND WALKWAYS BROOKWOOD SECURE CENTER PO BOX 419 COUNTY ROAD 29 CLAVERACK, NY

October 16, 2017

**NOTE:** This Addendum forms a part of the Contract Documents. Insert it in the Project Manual. Acknowledge receipt of this Addendum in the space provided on the Bid Form.

#### **BIDDING REQUIREMENTS**

1. DOCUMENT 001114 ADVERTISEMENT FOR BIDS: The last date for receipt of bids is changed from Wednesday, October 18, 2017 to Wednesday October 25, 2017.

#### **SPECIFICATIONS**

2. GEOTECHNICAL LETTER REPORT: Add the accompanying Report (23 pages) to the end of Document 003132.

#### DRAWINGS

- 3. Drawing No. G-002, GENERAL SECURITY NOTES, Note 6: Delete this Note in its entirety.
- 4. Drawing No. G-002, GENERAL CONSTRUCTION NOTES: Add the following Note:
  - "18. Contractor to assume that electrical conduits associated with parking lot site lighting will be in conflict with the proposed work. The Contractor shall verify the locations and protect existing lighting conduit and appurtenances."
- 5. Revised Drawings:
  - a. Drawing Nos. C-202, C-302, and C-303 noted "REVISED DRAWING 10/13/2017" accompany this Addendum and supersede the same numbered originally issued drawings.

#### **END OF ADDENDUM**

Margaret F. Larkin Executive Director Design and Construction

JRC/JP:jrc



Engineers Land Surveyors Planners Environmental & Safety Professionals Landscape Architects

September 11, 2015

Mr. John Pokines NYS Office of General Services Design and Construction 34th Floor Corning Tower Empire State Plaza Albany, NY 12242

Re: Brookwood Secure Center – Evaluate and Correct Roadways and Walkways Geotechnical Assessment and Recommendations Town of Claverack, Columbia County, New York Chazen OGS Contract S6871 Chazen Project No. 31232.05 OGS Project No. Q1665

Dear Mr. Pokines:

The New York State Office of General Services (NYSOGS) retained The Chazen Companies (Chazen) to advance a limited subsurface exploration program at the Brookwood Secure Center located at 419 County Road 29, Town of Claverack, Columbia County, New York herein referred to as the project site. The objective of the exploration program was to define subsurface conditions in support of new asphalt pavement areas and existing asphalt pavement improvements.

#### **Subsurface Exploration**

Chazen conducted subsurface explorations to characterize the in situ conditions and to collect representative soil samples. Samples were used for visual classification and as a basis for determining design criteria cited in this letter report. Seven (7) test borings designated B-1 through B-7 were advanced on August 13, 2015 by Atlantic Testing Laboratories (ATL) of Canton, NY utilizing a truck-mounted CME-45 drill rig. Borings B-1 and B-4 were performed within two (2) gravel parking areas. Borings B-2 and B-3 were performed in the northeastern area of the Brookwood patrol road. Borings B-5, B-6, and B-7 were performed within the southwestern parking area. The locations of these test borings are depicted on the attached Exploration Location Plan in **Attachment A**.

Explorations were monitored by a Chazen representative to advise the drillers regarding location and depth of the test boring explorations, to record activities, and to modify the subsurface exploration program as necessary. Subsurface soils were visually classified in the field in accordance with the Unified Soil Classification System (USCS) and ASTM D 2488. Logs detailing the explorations were prepared by Chazen to document subsurface conditions at the project site and are included as **Attachment B**.

## **Capital District Office**

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#### Subsurface Stratigraphy

Explorations indicate that at least two distinct strata are present within the depth of explorations at the project site. The sequence of strata, starting from existing site grades and working downward, is: Asphalt/Subbase/Fill, and Glaciolacustrine Deposits. Each stratum is described in greater detail below using the soil percentage descriptions per ASTM D2488.

**Asphalt/Subbase/Fill:** Borings B-1 and B-4 were performed in existing gravel parking areas and encountered 3 inches and 5 inches of gravel subbase, respectively, overlying Glaciolacustrine Deposits. Borings B-2 and B-3 respectively encountered an approximate 2.5-inch thick and a 1-inch thick layer of asphalt overlying 4 inches of subbase, overlying Glaciolacustrine Deposits. Borings B-5 through B-7 encountered a 5- to 6-inch thick layer of asphalt overlying a 4-inch to 6-inch thick subbase layer overlying Fill material. The observed Fill layer was approximately 0.5- to 1-foot thick and classified as Silty Gravel with Sand. Typically, the subbase encountered within borings B-1 through B-7 was classified as Poorly-Graded Gravel with Sand (GP) and observed to consist of gray, mostly gravel, a little percentage of sand, and a trace percentage of silt. No filter fabric was observed underlying the subbase.

**Glaciolacustrine Deposits:** A stratum of Glaciolacustrine Deposits was observed underlying the Subbase or Fill material within all borings. All borings were terminated within this stratum at a depth of 8 feet below ground surface. The Glaciolacustrine Deposits stratum was typically classified as a Silt (ML) to Sandy Silt (ML) and varied to Silty Sand (SM) or Lean Clay (CL). The stratum was observed to generally consist of moist to saturated, brown to gray, mostly to a little percentage of silt, mostly to no percentage of sand, and some to no percentage of clay.

No cobbles and/or boulders were observed within the test boring explorations. However, cobbles and/or boulders may be encountered during earthwork activities and can vary across the project site and with depth.

**Groundwater:** Groundwater was observed to be at a depth of approximately 2 feet below ground surface within borings B-3, B-5, B-6, and B-7. Groundwater levels recorded on the exploration logs are based on field observations and visual classification of the soil samples. Groundwater will fluctuate with season, precipitation, nearby construction activity, and other factors.

#### **Pavement Evaluation**

In concert with the site exploration program, Chazen visually assessed and photographed the asphaltic surface at the project site. Specifically, the northeastern portion of the patrol road and southwestern parking area were observed to consist of multiple areas of "alligator" cracking, and "block" cracking. Additionally, it is understood that the Client has observed pumping and weaving of the asphalt surface at these locations. A photograph showing an example of each type of distress at the project site is provided in **Attachment C**.

It is Chazen's opinion that the main causes for the types of distresses observed at the project site are due to the following:

- The lack of an adequate thickness of subbase;
- A lack of filter fabric underlying the subbase, and;
- High groundwater conditions within predominately fine-grained subgrade soils.

#### **Pavement Recommendations**

We recommend use of a flexible pavement system incorporating an asphalt surface, binder and subbase course for paved areas founded on in-situ soils after removal of all loose, disturbed or unsuitable soils. In order to develop the pavement section recommendation, we made the following preliminary design/loading assumptions pertaining to the anticipated traffic at the project site:

- 1. Vehicular traffic equal to the following:
  - a. 2 trips/year with a 100,000 lb fire truck,
  - b. 20 trips/year with a 50,000 lb fully loaded snow plow truck,
  - c. 1000 trips/year with a 35,000 lb 3-axle service vehicle, and
  - d. 6000 trips/year with a 7,500 lb 2-axle large truck.
  - e. Minor loading from light-weight passenger vehicles (e.g. cars, trucks, SUV's) were ignored.
- 2. A design life of 15-years.
- 3. A subgrade California Bearing Ratio (CBR) value of 10 (ML).
- 4. A frost susceptibility class of F3/F4 for subgrade with greater than 15% fines.

Based on these traffic trip assumptions and using reduced subgrade strength due to frost conditions, we recommend the following pavement section:

Pavement Course	Thickness (inches)	NYSDOT Specification (May 2008)
Тор	1.5	Type 6F Top, Section 403.17
Binder	2.5	Type 3 Binder, Section 403.13
Subbase	12	Type 2, Section 304

In addition, we recommend use of a non-woven, separation geotextile fabric such as Amoco Amopave or equivalent, located between prepared subgrade and subbase course. The properly prepared pavement subgrade should be sloped towards the pavement edges to prevent water from ponding below the pavement.

Based on the existing pavement conditions and proposed pavement section, we recommend full-depth reconstruction of the southwestern parking lot and northeastern portion of the patrol road. To support drainage of water and lowering of high groundwater levels, we recommend the following underdrains for each pavement area:

### Southwestern Parking Lot

A system of underdrains with pipe laterals should be installed underlying the pavement section described above. The underdrain should consist of 6-inch diameter perforated pipe which spans the length of the parking lot. The underdrain pipe laterals should consist of 4-inch diameter perforated pipe branched perpendicularly from the underdrain and spaced approximately 40-feet on center. The perforated underdrain pipes should be surrounded by a minimum 6-inch thickness of ¾-inch washed stone in each direction, which is wrapped in Mirafi 140N filter fabric or approved equal. The perforated underdrains should connect to solid pipes which daylight to an approved stormwater management areas.

### Patrol Road

A 6-inch diameter perforated underdrain should be installed below the pavement section along the length of the reconstructed patrol road. The underdrain pipe should be surrounded by a minimum 6-inch thickness of  $\frac{3}{4}$ -inch washed stone in each direction, which is wrapped in Mirafi 140N filter fabric or approved equal. The

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perforated underdrain should connect to a solid pipe that daylights to an acceptable stormwater management area.

#### **Existing Gravel Parking Areas**

For the two (2) existing gravel parking areas proposed to be reconstructed into paved parking areas, the pavement section outlined above is adequate without an underdrain. The subbase course should be sloped toward the pavement edges to an area allowing water to freely discharge to an approved stormwater management area and/or infiltrate into free-draining soils (i.e. less than 15 percent fines and a minimum of 2 feet above groundwater table) without ponding beneath paved areas.

#### **Control of Water**

Based on observed groundwater levels, groundwater seepage into open excavations may occur. Temporary dewatering measures (e.g., sumps, barriers) should be readily available during construction to maintain water levels at a minimum of 12-inches below soil subgrade elevations.

### **Fill Materials**

Fill materials shall be free of unsuitable material such as organics, construction debris, cobbles/boulders, frozen material, etc. Stockpiles of fill materials should be maintained to prevent material from fluctuating from the optimum moisture content, freezing, separating due to migration of fine grained soils, and collection of snow or ice within the stockpiles. Fill areas shall be cleared of all vegetation, roots, and other organic materials prior to placement of fill. Stockpiled soils may require installation of run-off protection between drainage channels and the stockpile.

Compaction should consist of at least four (4) systematic passes using a vibratory roller. In confined areas, hand guided vibratory equipment shall be utilized to compact the soil to the specified criteria. If soil weaving or other disturbance is noticed during compaction, vibratory compaction should be discontinued. Compaction shall meet the requirements stated below or as approved by the Director's Representative.

**NYSDOT Selected Fill:** Selected Fill is recommended to be used in landscaped areas (i.e. areas not below pavement or structures). Selected Fill should consist of inorganic, sand based, granular soils, free of debris and other deleterious material. This material should be placed in lifts not exceeding 9 inches loose measure and compacted to 90% of the maximum dry density as determined by ASTM D 1557.

We anticipate that the subbase below existing paved areas and within the existing gravel parking areas may be re-used as subbase in paved areas provided it meets the gradation and compaction requirements for Type 2 subbase outlined in Section 304 of the NYSDOT Standard Specifications (May 2008).

### <u>Closure</u>

This letter report and the recommendations contained herein have been prepared for the exclusive use of the NYSOGS and their representatives for specific application to the design and construction of the paving improvements at the Brookwood Secure Center located at 419 County Road 29, Town of Claverack, Columbia County, New York. This letter report was prepared in accordance with generally accepted geotechnical engineering practices. No other warranty, expressed or implied, is made. The analysis and recommendation submitted in this letter report are based in part upon the data obtained from subsurface explorations available at the time of this letter report. The nature and extent of variations between these explorations

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may not become evident until construction. If significant variations then appear, then it may be necessary to reevaluate the recommendations cited in this letter report.

Please feel free to contact Chazen at (518) 273-0055 if you have any questions. Chazen looks forward to working with you on this project.

Sincerely,

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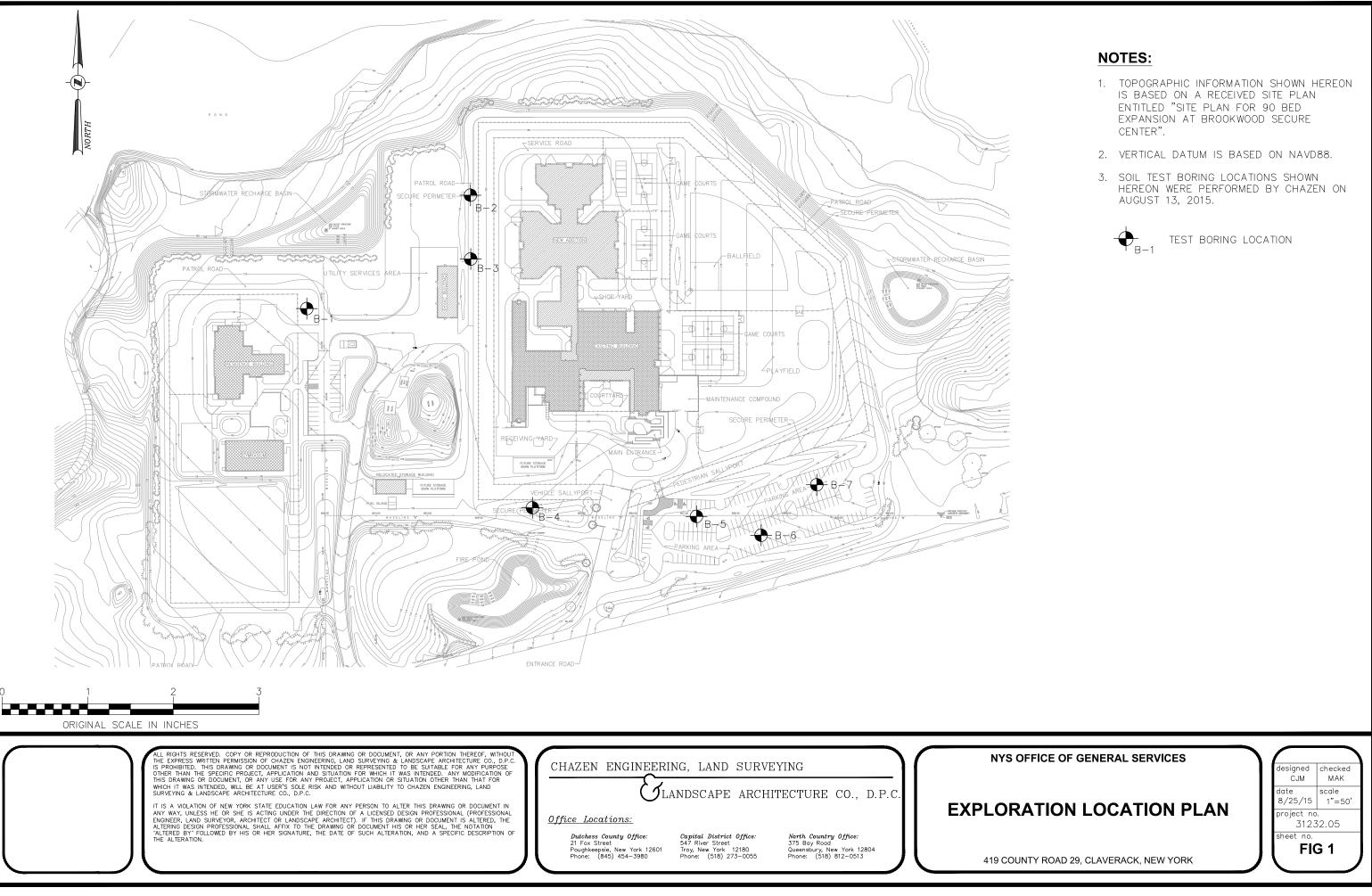
Christopher J. Marini, P.E. Project Engineer

Reviewed and approved by:

Joseph M. Lanaro, P.E., M.ASCE Principal Vice President, Engineering



ATTACHMENT A Exploration Location Plan





ATTACHMENT B Test Boring Logs

## INTERPRETATION OF SUBSURFACE LOGS

The Exploration Logs present observations and the results of tests performed in the field by the Driller, Technician, Geologists, and Geotechnical Engineers as noted. Soil/Rock classifications are made visually and modified accordingly based on laboratory results. The classification of soils or soil like material is subject to limitations imposed by the size of the sampler, the size of the sample and it's degree of disturbance and moisture.

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 United Soil Classification ASTM D-2488. The soil density or consistency is based on the penetration resistance determined by ASTM D 1586. Soil Moisture of the recovered materials is described as DRY, MOIST, WET or SATURATED.

SIZE DESC	RIPTION	RELATIVE DEN	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"	Very Loose	< 4	Very Soft	< 2					
Gravel-Coarse	$3" - \frac{3}{4}"$	Loose	5 - 10	Soft	2 - 5					
Gravel-Fine	¾" <b>-</b> #4	Medium Dense	11 - 30	Medium Stiff	6 - 10					
Sand-Coarse	#4 - #10	Dense	31-50	Stiff	10 - 20					
Sand-Medium	#10 - #40	Very Dense	50+	Very Stiff	20 - 30					
Sand-Fine	#40 - #200			Hard	>30					
Silt/NonPlastic	< #200									
Clay/Plastic	< #200									

So	IL STRUCTURE	RELATIVE PROPORTION OF SOIL TYPES				
Structure	Description	Description	% of Sample by Weight			
Layer	6" Thick or Greater	Mostly	50 - 100			
Seam	6" Thick or Less	Some	30 - 45			
Parting	Less than ¼" thick	Little	15 - 25			
Varved	Uniform horizontal	Few	5 - 10			
	partings or seams	Trace	Less than 5			

Additional Notes:

- 1. Utilized c: coarse, m: medium, and f: fine when describing the size of sand or gravel.
- 2. WOH weight of hammer.
- 3. WOR weight of rods.
- 4. bgs below ground surface
- 5. NA Not Available
- 6.  $\underline{\mathbf{V}}$  Phreatic Surface, if observed

## Refusal:

- 1. Split-spoon refusal is considered 50 blows over six inches.
- 2. Auger and Casing refusal occurs if the driller is unable to advance the boring.
- 3. Roller bit refusal occurs if the bit is worn and needs to be replaced or the bedrock is a dense very hard material.

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2       77       85.2       13       4       SM       Same as above, little gravel.         4       75       85.3       11       18								Ulacio	hacustimej					
1       17       15       16         2       17       15       18         4       18       SM       Same as above.         7       10       12       12         1       12       12       11         4       17       SS4       13       16       SM         7       10       11       14       14       14         6       17       12       14       14       14         7       10       14       14       14       14         10       14       14       14       14       14         16       14       14       14       14       14       14         16       14	2	178	~~ •					~						
J       17       16       16         4       17       55.3       11       18       SM         5       17       9       10       10       10         6       17       12       10       10       10         6       17       10       10       10       10         7       10       10       10       10       10         8       17       10       10       10       10         10       12       10       10       10       10         11       12       10       10       10       10       10         10       10       10       10       10       10       10       10         11       10       10       11       10			SS-2		4		SM	Same a	s above, little grave	l.				
4       78       19       12       19       12       12       12       12       12       12       12       10       11	3	177						-						
1       10       10       10         1       10       10       10       10         1       10       10       10       10       10         1       11       10       10       10       10       10         1       10       10       10       10       10       10       10         1       12       10						L		1						
SS-3         11         18         SM         Same as above.           7         10         12         14         16         Same as above.           7         17         SS-4         13         16         SM         Same as above.           7         17         SS-4         13         16         SM         Same as above.           7         17         12         10         11         Image: SS-4	4	176				L								
3       17       9       1         6       7       12       1         7       10       1       1         8       17       10       1         7       11       1       1         8       17       12       1         17       12       1       1         18       17       1       1         19       10       1       1         10       1       1       1         11       1       1       1         12       12       1       1         10       1       1       1         11       1       1       1         12       10       1       1         14       10       1       1         15       1       1       1         16       1       1       1         18       16       1       1         19       10       1       1         10       1       1       1         11       1       1       1         12       16       1       1		-	SS-3		18		SM	Same a	s above.					
0         0         12           10         10         10           11         10         11           11         11         11           11         12         11           11         12         11           11         12         11           11         12         12           11         12         12           11         12         12           11         12         12           11         12         12           11         12         12           11         12         12           11         12         12           12         12         12           13         14         12           14         14         14           16         14         14           16         14         14           16         14         14           16         14         14           17         14         14           18         16         14           19         10         14           10         14         14	5	175				<u> </u>		1						
a       77       SS-4       13       16       SM       Same as above.         7       11       11       11       11       11       11         8       172       12       12       11       11       11         8       172       12       12       11		-												
SS-4         13         16         SM         Same as above.           11         10         11	6	174												
7       113       111         8       171       12         17       12       1         18       177       1         19       10       10         10       107       10         11       108       10         12       108       100         13       107       100         14       108       100         15       108       100         16       108       100         18       108       100         19       108       100         10       108       100         10       108       100         10       108       100         10       108       100         10       108       100         10       108       100         10       108       100         10       108       100         108       100       100         109       100       100         100       100       100         101       100       100         102       100       100         <	0		SS-4	13	16		SM	Same a	s above.					
Image: Normal base in the second se	7	172		10										
8       172       End of boring at 8 feet.         9       171       End of boring at 8 feet.         10       170       End of boring at 8 feet.         11       170       End of boring at 8 feet.         12       170       End of boring at 8 feet.         13       170       End of boring at 8 feet.         14       170       End of boring at 8 feet.         17       18       End of boring at 8 feet.         18       165       End of boring at 8 feet.         18       164       End of boring at 8 feet.         18       164       End of boring at 8 feet.         18       164       End of boring at 8 feet.         19       164       End of boring at 8 feet.         18       164       End of boring at 8 feet.         19       164       End of boring at 8 feet.         10       164       End of boring at 8 feet.         18       164       End of boring at 8 feet.         19       164       End of boring at 8 feet.         10       164       End of boring at 8 feet.         18       164       End of boring at 8 feet.         19       164       End of boring boring boring boring boring boring boring borin		1/3		11				-						
0       Int				12										
9       171       1       1         10       170       1       1         11       170       1       1         12       188       1       1         14       165       1       1         15       1       1       1         16       1       1       1         17       163       1       1         18       1       1       1         19       1       1       1         10       1       1       1         11       1       1       1         12       1       1       1         13       1       1       1         14       1       1       1         15       1       1       1         16       1       1       1       1         16       1       1       1       1         16       1       1       1       1         17       1       1       1       1       1         17       1       1       1       1       1         16       1       1<	8	172						End of	boring at 8 feet.					
10       10 <td< td=""><td></td><td>-</td><td></td><td></td><td></td><td></td><td></td><td></td><td>U</td><td></td><td></td><td></td><td></td><td></td></td<>		-							U					
11       100       100       100       100         12       105       100       100       100         14       166       100       100       100         15       100       100       100       100         16       100       100       100       100         16       100       100       100       100         16       100       100       100       100         17       100       100       100       100         18       100       100       100       100         19       101       100       100       100         19       101       100       100       100         10       100       100       100       100         10       100       100       100       100         10       100       100       100       000         100       100       100       100       000         100       100       100       100       000         100       100       100       100       000         100       100       100       100       100	9	171												
11       100       100       100       100         12       105       100       100       100         14       166       100       100       100         15       100       100       100       100         16       100       100       100       100         16       100       100       100       100         16       100       100       100       100         17       100       100       100       100         18       100       100       100       100         19       101       100       100       100         19       101       100       100       100         10       100       100       100       100         10       100       100       100       100         10       100       100       100       000         100       100       100       100       000         100       100       100       100       000         100       100       100       100       000         100       100       100       100       100		-						-						
12       100       100       100         13       107       100       100         14       106       100       100         15       106       100       100         16       100       100       100         17       160       100       100         18       160       100       100         19       160       100       100         10       160       100       100         10       160       100       100         10       160       100       100         10       160       100       100         10       160       100       100         10       160       100       100         10       160       100       100         10       160       100       100         20       160       100       100         20       160       100       100         20       160       100       100         20       160       100       100         20       160       100       100         20       160       100<	10	170						-						
12       100       100       100         13       107       100       100         14       106       100       100         15       106       100       100         16       100       100       100         17       160       100       100         18       160       100       100         19       160       100       100         10       160       100       100         10       160       100       100         10       160       100       100         10       160       100       100         10       160       100       100         10       160       100       100         10       160       100       100         10       160       100       100         20       160       100       100         20       160       100       100         20       160       100       100         20       160       100       100         20       160       100       100         20       160       100<	ŀ													
13       107       104       105         14       105       104       104         15       105       104       104         16       104       104       104         17       105       104       104         18       102       104       104         19       101       104       104         19       101       104       104         101       104       104       104         102       104       104       104         103       104       104       104         104       104       104       104         105       104       104       104         106       104       104       104         109       101       104       104         100       104       104       104         105       104       104       104         105       104       104       104         105       104       104       104         105       104       104       104         105       104       104       104         105       104	11	169						-						
13       107       104       105         14       105       104       104         15       105       104       104         16       104       104       104         17       105       104       104         18       102       104       104         19       101       104       104         19       101       104       104         101       104       104       104         102       104       104       104         103       104       104       104         104       104       104       104         105       104       104       104         106       104       104       104         109       101       104       104         100       104       104       104         105       104       104       104         105       104       104       104         105       104       104       104         105       104       104       104         105       104       104       104         105       104								-						
Id       Id <thid< th="">       Id       Id       <thi< td=""><td>12</td><td>168</td><td></td><td></td><td></td><td></td><td></td><td>-</td><td></td><td></td><td></td><td></td><td></td><td></td></thi<></thid<>	12	168						-						
Id       Id <thid< th="">       Id       Id       <thi< td=""><td>ŀ</td><td>-</td><td></td><td></td><td></td><td></td><td></td><td>-</td><td></td><td></td><td></td><td></td><td></td><td></td></thi<></thid<>	ŀ	-						-						
15       165       164       16	13	167						-						
15       165       164       16								-						
16       164       164       164       164       165         17       163       164       164       164       164       165         18       162       162       164       164       164       165         19       161       164       164       164       165       165         19       161       164       164       164       165       165         19       164       164       164       164       165       165         19       164       164       164       166       166       166         100       164       164       166       166       166       167         164       164       164       166       166       167       168         164       164       164       166       166       167       168         19       164       164       166       166       168       168         19       164       164       166       168       168       168         SAMPLE TYPES: SS-Split Spoon, RC-Rock Core, GS-Gab, ST-Shelby Tube, PC - Pavement Core       Method: DP       0 to 0.3         NOTES:       2. Test Boring Log Page 1:	14	166			-	<u> </u>		-						
16       164       164       164       164       165         17       163       164       164       164       164       165         18       162       162       164       164       164       165         19       161       164       164       164       165       165         19       161       164       164       164       165       165         19       164       164       164       164       165       165         19       164       164       164       166       166       166         100       164       164       166       166       166       167         164       164       164       166       166       167       168         164       164       164       166       166       167       168         19       164       164       166       166       168       168         19       164       164       166       168       168       168         SAMPLE TYPES: SS-Split Spoon, RC-Rock Core, GS-Gab, ST-Shelby Tube, PC - Pavement Core       Method: DP       0 to 0.3         NOTES:       2. Test Boring Log Page 1:					-			-						
IT       Instant       Instant <thinstant< th=""> <thinstant< th="">       Instant       <t< td=""><td>15</td><td>165</td><td>L</td><td></td><td></td><td> </td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<></thinstant<></thinstant<>	15	165	L											
IT       Instant       Instant <thinstant< th=""> <thinstant< th="">       Instant       <t< td=""><td></td><td></td><td></td><td> </td><td></td><td><u> </u></td><td> </td><td>4</td><td></td><td></td><td></td><td></td><td></td><td></td></t<></thinstant<></thinstant<>						<u> </u>		4						
IT       Instant       Instant <thinstant< th=""> <thinstant< th="">       Instant       <t< td=""><td>16</td><td>164</td><td>L</td><td> </td><td></td><td></td><td> </td><td>1</td><td></td><td></td><td></td><td></td><td></td><td></td></t<></thinstant<></thinstant<>	16	164	L					1						
18       162       162       161       16		-				L								
18       162       162       161       16	17	163				<u> </u>		1						
19       161       161       161       161       160       16		-												
19       161       161       161       161       160       16	18	162												
20       -       160       -       160       - <td></td>														
20       -       160       -       160       - <td>10</td> <td>161</td> <td></td>	10	161												
METHODS: HA- Hollow Stem Auger, RWH- Rotary Wash, DP-Direct Push, TC -Thin-Walled Core       DRILLING INFORMATION         SAMPLE TYPES: SS-Split Spoon, RC-Rock Core, GS-Grab, ST-Shelby Tube, PC - Pavement Core       Method: DP       0 to       8.0         STANDARD 1. Samples classified in accordance with ASTM D-2488 unless otherwise noted.       Method: TC       0 to       0.3         NOTES:       2. Test Boring Log Page 1: 0 - 20 feet. Each subsequent page: Additional 25 feet.       Sample       Core         3. Refer to the "Interpretation of Subsurface Logs" for additional symbology and abbreviation definitions.       Type       SS       PC         ADDITIONAL       Thin-walled pavement core performed adjacent to boring hole.       Int Diam.       2"       5.8"         NOTES:       Veright       140 lb       Int 0.1       140 lb       Int 0.1	19	- 101												
METHODS: HA- Hollow Stem Auger, RWH- Rotary Wash, DP-Direct Push, TC -Thin-Walled Core       DRILLING INFORMATION         SAMPLE TYPES: SS-Split Spoon, RC-Rock Core, GS-Grab, ST-Shelby Tube, PC - Pavement Core       Method: DP       0 to       8.0         STANDARD 1. Samples classified in accordance with ASTM D-2488 unless otherwise noted.       Method: TC       0 to       0.3         NOTES:       2. Test Boring Log Page 1: 0 - 20 feet. Each subsequent page: Additional 25 feet.       Sample       Core         3. Refer to the "Interpretation of Subsurface Logs" for additional symbology and abbreviation definitions.       Type       SS       PC         ADDITIONAL       Thin-walled pavement core performed adjacent to boring hole.       Int Diam.       2"       5.8"         NOTES:       Veright       140 lb       Int 0.1       140 lb       Int 0.1	20							1						
SAMPLE TYPES: SS-Split Spoon, RC-Rock Core, GS-Grab, ST-Shelby Tube, PC - Pavement Core       Method:       DP       0       to       8.0         STANDARD       1. Samples classified in accordance with ASTM D-2488 unless otherwise noted.       Method:       TC       0       to       0.3         NOTES:       2. Test Boring Log Page 1: 0 - 20 feet. Each subsequent page: Additional 25 feet.       Sample       Core         3. Refer to the "Interpretation of Subsurface Logs" for additional symbology and abbreviation definitions.       Type       SS       PC         ADDITIONAL       Thin-walled pavement core performed adjacent to boring hole.       Int Diam.       2"       5.8"         NOTES:       Weight       140 lb	20	160					1	1						
SAMPLE TYPES: SS-Split Spoon, RC-Rock Core, GS-Grab, ST-Shelby Tube, PC - Pavement Core       Method:       DP       0       to       8.0         STANDARD       1. Samples classified in accordance with ASTM D-2488 unless otherwise noted.       Method:       TC       0       to       0.3         NOTES:       2. Test Boring Log Page 1: 0 - 20 feet. Each subsequent page: Additional 25 feet.       Sample       Core         3. Refer to the "Interpretation of Subsurface Logs" for additional symbology and abbreviation definitions.       Type       SS       PC         ADDITIONAL       Thin-walled pavement core performed adjacent to boring hole.       Int Diam.       2"       5.8"         NOTES:       Weight       140 lb	MET	HODS:	HA- H	Hollow	Stem A	uger.	RWI	I- Rotar	y Wash, <b>DP</b> -Direct	Push, TC -Thin-Walle	ed Core		DRILLING I	NFORMATION
STANDARD       1. Samples classified in accordance with ASTM D-2488 unless otherwise noted.       Method:       TC       0       to       0.3         NOTES:       2. Test Boring Log Page 1: 0 - 20 feet. Each subsequent page: Additional 25 feet.       Sample       Core         3. Refer to the "Interpretation of Subsurface Logs" for additional symbology and abbreviation definitions.       Type       SS       PC         ADDITIONAL       Thin-walled pavement core performed adjacent to boring hole.       Int Diam.       2"       5.8"         NOTES:       Weight       140 lb       Int Diam.       140 lb       Int Diam.						-							•	
NOTES:       2. Test Boring Log Page 1: 0 - 20 feet. Each subsequent page: Additional 25 feet.       Sample       Core         3. Refer to the "Interpretation of Subsurface Logs" for additional symbology and abbreviation definitions.       Type       SS       PC         ADDITIONAL       Thin-walled pavement core performed adjacent to boring hole.       Int Diam.       2"       5.8"         NOTES:       Weight       140 lb       Int Diam.       140 lb       Int Diam.				_	_						- · · •		4	
3. Refer to the "Interpretation of Subsurface Logs" for additional symbology and abbreviation definitions.       Type       SS       PC         ADDITIONAL       Thin-walled pavement core performed adjacent to boring hole.       Int Diam.       2"       5.8"         NOTES:       Weight       140 lb       Int Diam.       140 lb				-									10	
ADDITIONAL       Thin-walled pavement core performed adjacent to boring hole.       Int Diam.       2"       5.8"         NOTES:       Weight       140 lb       140 lb						-				-		lefinitions	Type	· · ·
NOTES:		TION									ubbieviation u	crinicions.		
				1 1111-W	, and p	aveili		ne perio	and adjacent to be	ang note.				
	TION	-0 <b>-</b>												
													Fail	50

									DOKING LA			· · · · · ·	age 50	
TH				547 R					rookwood Secure Co					
C	Ina	zen	2						Claverack (Hudson),			Test Boring No.	· <b>B</b> ·	-3
C	OMPA	ANIES	5		(518				Office of General Ser	· ,		TALDAR		6
	~			Fax:	(518	) 273	8391 <b>PR</b>		1232.05 (Chazen) Q			Total Depth		ft.
		ractor:		45 5			D.	Start Date:	13-Aug-2015	Northing:	See Figure 1	Borehole Dia.		in.
		-	CME 4		ck-Mo	ountec	Rıg	Finish Date: El. Datum:	13-Aug-2015 NAVD88	Easting: Latitude:		Water Depth		ft.
									-	Rock Depth Sample Hammer		ft.		
		Jector.		Marini				S. Elevation.	180	Longitude.	-	Sample Hammer	• Autor	naue
	Elevation (Ft)	ė	s	(in)	Groundwater	Group Symbol								
(Ft)	tion	e N	low	ery(	mpi	Sy								
Depth (Ft)	eval	Sample No.	SPT Blows	Recovery(in)	oun	dno						-		
De	El			Re	G	Gr	Stratum De	_				Field Notes, Com	iments:	
		SS-1	14	12			1" Asphalt		" Subbase			4		
1	179		5			ML			light brown, mostly	silt, little f. sand	d			
			4		_		[Glaciolacus	strinej						
2	178	SS-2	5	24	<u> </u>	ML	Silt (MI): W	Vot brown most	tly silt, few sand, fev	alay [Glasiala	austrinal			
		33-2	8	24		ML	Sift (ML).	vet, brown, mos	tiy siit, iew sailu, iev		cusumej			
3	177		0 10											
			10			-								
4	176	SS-3	15	24		ML	Same as abo	ove.						
5	175		10				]							
,	- 1/3		13											
6	174		10											
	_	SS-4	13	24		ML	Sandy Silt (	ML): Wet, brow	n, mostly silt, some f	f. sand [Glaciola	acustrine]			
7	173		10											
			14											
8	172		13				F 1 (1 '					-		
							End of borir	ng at 8 feet.						
9	171													
10	170													
	-													
11	169													
12	168													
13	167													
14	166													
15	165					-								
		1												
16	164					1								
17	163						]							
17	- 105													
18	162													
19	161													
				-										
20	160													
MET	HUDG.	на 1	Jollow	Stem A	lloor	PW/I	L Rotary We	sh <b>DP</b> Direct I	Push, TC -Thin-Wall	ed Core		DRILLING I	NEODMA	FION
					-				Tube, <b>PC</b> - Paveme			Method: DP	0 to	<u>110N</u> 8.0
			_	_					ess otherwise noted.			Method: DI Method: TC	0 to 0 to	0.1
NOTI			-						ge: Additional 25 fee	t.			Sample	
					-				tional symbology and		lefinitions.	Туре	Sample	PC
ADDI	TIONA				-			-				Int Diam.	2"	5.8"
NOTI				1					Weight	140 lb				
												Fall	30"	

													50 + 01	
TH				547 R	River	Stree	t	PROJECT: Br	ookwood Secure Ce	enter				
(	Iba	zen	2	Troy,	, New	Yorl	x 12180	LOCATION: CI	averack (Hudson), N	New York		Test Boring No.:	В-	4
	OMP/						-0055		ffice of General Serv			_	~~	-
	JIVIE		)		(518			PROJECT NO.: 31				Total Depth:	8	ft.
	Conti	actor:	ATL			,		Start Date:	13-Aug-2015	Northing:		Borehole Dia.:	4	in.
			CME 4	15 True	·k-Mo	untec	Rig	Finish Date:	13-Aug-2015	Easting:	See Figure 1	Water Depth:	N/A	ft.
		-	Tyler V		/K-1VIC	untee	i Kig	El. Datum:	NAVD88	Latitude:		Rock Depth:	N/A	ft.
			Corey					G.S. Elevation:	176 NAVD88	Longitude:	-	Sample Hammer:	Auton	
			Corey	vv aisii		-	1	0.5. Elevation.	170	Longitude.	_	Sample Hammer.	Auton	latic
	Elevation (Ft)			(u	Groundwater	Group Symbol								
Ft)	on	ž	SWC	ry(i	wa	Syn								
th (	/ati	ple	B	ove	nnc	dn								
Depth (Ft)	Iev	Sample No.	SPT Blows	Recovery(in)	LO	LO L	Stratu	m Descriptions:				Field Notes, Comm	ents:	
Ξ	щ	SS-1	<b>S</b>	12	Ċ	0	5" Subl	-				Gravel Parking Area		
ŀ		55-1	3	12		ML		h Sand (ML): Light b	rown moist mostly	silt little f san	d	Graver I arking Area		
1	175		4			ML		lacustrine]	iowii, moist, mostry	sint, intrie 1. sain	iu			
ŀ							Ulacio	nacustrinej						
2	174		3				a							
ļ	-	SS-2	6	14		ML	Same a	s above.						
3	173		10				-							
ļ			13			<u> </u>	-							
4	172	L	10			<u> </u>	1							
ļ	-	SS-3	10	12		ML	Same a	s above.						
5	171		13			L								
ļ			15											
6	170		17											
	-	SS-4	11	16		SM		and (SM): Light brown	n, moist, mostly f. sa	and, some silt				
7	169		14				[Glacio	lacustrine]						
ŕ			12											
8	168		16											
0	- 108						End of	boring at 8 feet.				1		
								-						
9	167						-							
ľ	-						-							
10	166						-							
ľ														
11	165						-							
ŀ							-							
12	164						-							
ŀ							-							
13	163						-							
ŀ	-						-							
14	162						1							
ŀ	-					<u> </u>	1							
15	161						-							
ŀ	-						-							
16	160						-							
ŀ	-					<u> </u>	-							
17	159	<u> </u>				<u> </u>	-							
ŀ						<u> </u>	-							
18	158	L				<u> </u>	-							
ŀ	-					<u> </u>	-							
19	157	L		-										
ļ						L								
20	156													
					-			y Wash, <b>DP</b> -Direct P				DRILLING INF	ORMAT	ION
			_	_				GS-Grab, ST-Shelby		nt Core		Method: DP	0 to	8.0
STAN	DARD	1. Sar	nples cl	lassifie	d in a	ccord	ance wit	h ASTM D-2488 unle	ss otherwise noted.			Method:		
ITON			-					Each subsequent page		t.			Sample	Co
					-			urface Logs" for additi			lefinitions.	Туре	SS	
ADDI	TIONA				<u></u>			<u> </u>				Int Diam.	2"	1
NOTI												Weight	140 lb	
												Fall	30"	

							a .			
TH	~				547 R					D 7
	]hl							<b>LOCATION:</b> Claverack (Hudson), New York	Test Boring No.:	<b>B-5</b>
$\subseteq$	OM	PAÑI	ES	_				-0055 CLIENT: Office of General Services (OGS)		
					Fax:	(518	) 273	8391 <b>PROJECT NO.:</b> 31232.05 (Chazen) Q1665 (OGS)	Total Depth:	8 ft.
		tracto						Start Date: 13-Aug-2015 Northing: See Figure 1	Borehole Dia.:	4 in.
			-	CME 4		k-Mo	ounted	Rig Finish Date: 13-Aug-2015 Easting:	Water Depth:	2 ft.
				Tyler V				El. Datum: NAVD88 Latitude: -	Rock Depth:	N/A ft.
	In	specto	or: (	Corey V	Walsh			G.S. Elevation: 177 Longitude: -	Sample Hammer:	Automatic
	Ft)				(1	er	Group Symbol			
(t)	) U			SWO	y(ii	wal	ym			
р (J	atic	ala		Blo	ver	pui	S di			
Depth (Ft)	Elevation (Ft)	Sample No.		SPT Blows	Recovery(in)	Groundwater	rou	Stratum Descriptions:	Field Notes, Comm	ents:
Α	Ŧ	SS	<u> </u>	<b>2</b> 71	<b>24</b> 16	0	0	6" Asphalt	,,	
	-	22	-1	17	10			6" Subbase		
1	176			17			CM	Silty Gravel with Sand (GM): Moist, gray, some gravel, little silt, little sand		
				13		▼	GM	[Fill]		
2	175	SS	2	15	8	<u> </u>	ML	Sandy Silt with Gravel (ML): Wet, brown, mostly silt, some sand, little gravel		
		66	-2	7	0		WIL	[Glaciolacustrine]		
3	174	-	-+	8			<u> </u>			
	_			7				1		
4	173	SS	-3	5	6		ML	Silt (ML): Wet, brown to gray, mostly silt, little clay, few sand		
			-	5				[Glaciolacustrine]		
5	172		+	6			<u> </u>			
				7						
6	171	SS	-4	12	18		CL	Lean Clay (CL): Wet, brown, some clay, some silt, trace f. sand		
			-	11				[Glaciolacustrine]		
7	170			10						
				13						
8	169							End of boring at 8 feet.		
	-									
9	168									
	_									
10	167									
11	- 166									
12	165									
12	- 10.									
13										
	_									
14	163									
	_						<u> </u>			
15	162									
								4		
16	161									
			_					4		
17	- 160									
							<u> </u>	4		
18	159	-					<u> </u>	4		
		_	-+							
19	158		-					4		
20	157	-	-				-			
MET	HUDa	. II 4	- U	ollow	Stem A	1100*	<b>R</b> W/	H-Rotary Wash, <b>DP</b> -Direct Push, <b>TC</b> -Thin-Walled Core	DRILLING INF	ORMATION
						-		k Core, <b>GS</b> -Grab, <b>ST</b> -Shelby Tube, <b>PC</b> - Pavement Core	Method: DP	0  to  8.0
				_	_			ance with ASTM D-2488 unless otherwise noted.	Method: DP Method: TC	0 to 8.0 0 to 0.5
NOTI				-				20 feet. Each subsequent page: Additional 25 feet.	Memou. IC	Sample Core
	<u> </u>					-		of Subsurface Logs" for additional symbology and abbreviation definitions.	Туре	SS PC
ADDI	TION							bi Substituce Logs for additional symbology and abbreviation definitions.	Int Diam.	2" 5.8"
NOTI					-			record water level. Water rose from 8' b.g.s. to 5' b.g.s within 1 hour. It is	Weight	140 lb
	LU•				-			prising based on water content of samples.	Fall	30"
<b>I</b>				unicipi						

	_	_												50 0 01	
TH					547 R	River	Stree	ţ	PROJECT: Br	ookwood Secure Ce	enter			_	
	$\mathcal{J}$	ba	zen	2				x 12180	LOCATION: Cl	Test Boring No.:	В-	6			
C	$\bigcirc$	MP/	ANIES	5			) 273-			fice of General Serv					
					Fax:	(518	) 273-	8391	PROJECT NO.: 31				Total Depth:	8	ft.
	С		actor:						Start Date:	13-Aug-2015	Northing:	See Figure 1	Borehole Dia.:	4	in.
			ll Rig:			ck-Mo	ounted	Rig	Finish Date:	13-Aug-2015	Easting:	0	Water Depth:	2	ft.
			riller:						El. Datum:	NAVD88	Latitude:	-	Rock Depth:	N/A	ft.
			ector:	Chris I	Vlarini		-		G.S. Elevation:	178	Longitude:	-	Sample Hammer:	Auton	natic
		Elevation (Ft)	÷		in)	ıter	<b>Froup Symbol</b>								
(Ft)		ion	Ň	9W0	ry(	dwa	Syı								
Depth (Ft)		vat	Sample No.	SPT Blows	Recovery(in)	Groundwater	dnc								
Del		Ele	Sar	SP	Rec	Gre	Gre	Stratu	m Descriptions:				Field Notes, Comm	ents:	
			SS-1	39	8			6" Aspl	halt						
1	_	177		10				5" Subl							
				9			GM	-	ravel with Sand (GM)	: Wet, gray, mostly	gravel, little sar	nd, little silt			
2		176		5		<u> </u>		[Fill]					4		
-			SS-2	4	18		ML		h Sand (ML): Wet, bro lacustrine]	own, mostly silt, litt	ie sand, trace g	ravel			
3	_	175		5 6					navusu nitj						
-				6				1							
4	_	174	SS-3	12	22		ML	Silt (M	L): Wet, brown, mostl	y silt, few clav [Gla	ciolacustrinel				
į		17-		13	-				,		L.				
5	_	173		14				]							
6		172		13											
-			SS-4	13	24		ML	Same a	s above, little clay.						
7	_	171		15											
-				14											
8		170		13				End of	1				-		
ŀ								End of	boring at 8 feet.						
9		169													
ŀ															
10	_	168													
11		167													
		107						-							
12	_	166						-							
ŀ								-							
13	_	165						-							
ŀ								-							
14	_	164						1							
								1							
15		163						1							
16		162													
		- 02													
17	_	161						1							
ŀ								-							
18	_	160													
ŀ								1							
19	_	159						1							
ŀ								1							
20	_	158						1							
MET	HO	DDS:	HA- H	Iollow S	Stem A	uger,	RWI	I- Rotar	y Wash, <b>DP</b> -Direct P	ush, TC -Thin-Wall	ed Core		DRILLING INF	ORMAT	ION
				_	_				GS-Grab, ST-Shelby		nt Core		Method: DP	0 to	8.0
				-					h ASTM D-2488 unle				Method: TC	0 to	0.5
NOTI	ES:	:				-			Each subsequent page					Sample	Co
1000	· · · · ·	<u></u>							Inface Logs" for addition	onal symbology and	abbreviation d	lefinitions.	Туре	SS	PC
ADDI					-		-		performed of day).	na hala			Int Diam.	2"	5.8
NOTI	19:			Inin-w	alled p	pavem	ient co	ore perfo	rmed adjacent to borin	ng noie.			Weight Fall	140 lb 30"	
													1'all	50	

						a.			1
TH	~			547 R					
	'ha	ZEN	l				<b>LOCATION:</b> Claverack (Hudson), New York	Test Boring No.:	<b>B-7</b>
							-0055 CLIENT: Office of General Services (OGS)		
				Fax:	(518	) 273-	-8391 <b>PROJECT NO.:</b> 31232.05 (Chazen) Q1665 (OGS)	Total Depth:	8 ft.
	Cont	ractor:	ATL				Start Date: 13-Aug-2015 Northing: See Figure 1	Borehole Dia.:	4 in.
	Dri	ill Rig:	CME 4	45 Truc	k-Mo	ounted	1 Rig <b>Finish Date:</b> 13-Aug-2015 <b>Easting:</b>	Water Depth:	2 ft.
		-	Tyler V				El. Datum: NAVD88 Latitude: -	Rock Depth:	N/A ft.
			Corey				G.S. Elevation: 180 Longitude: -	Sample Hammer:	Automatic
				1	•.	Ы		I I I I I I I	
_	Elevation $(Ft)$	÷	\$	in)	Groundwater	Group Symbol			
(Ft)	ion	Ž	MO	ry(	łws	Syı			
th	vat	plqr	BI	0V6	Î	dn			
Depth (Ft)	Ele	Sample No.	SPT Blows	Recovery(in)	25	25	Stratum Descriptions:	Field Notes, Comm	nents:
						Ŭ	5" Asphalt	1	
		SS-1	6				4" Subbase	-	
1	179	55 1	12			GM	Silty Gravel with Sand (GM): Wet, gray, mostly gravel, little sand, little silt	-	
	-		11		▼	UM	[Fill]		
2	178	SS-2	11	8	<u> </u>	ML	Silt with Sand (ML): Wet, brown, mostly silt, little sand, trace gravel	-	
		33-2		0		ML	[Glaciolacustrine]		
3	177		4						
			4			<u> </u>	4		
4	176		6			• ·			
	-	SS-3	10	6		ML	Silt (ML): Wet, brown, mostly silt, few clay [Glaciolacustrine]		
5	175		8				4		
	-		11				4		
6	174		15						
		SS-4	9	18		ML	Same as above, little clay.		
7	173		9						
	1/5		11						
			18						
8	172						End of boring at 8 feet.	1	
	-								
9	171								
	-								
10	170								
	-								
11	169								
12	168						-		
13	167								
	-								
14	166						4		
		<u> </u>	<u> </u>		<u> </u>	<u> </u>	4		
15	165	L					4		
	-	-				L	4		
16	164								
17	163								
	.05						]		
18	162								
18	102								
							1		
19	161				1		1		
	-			+					
20	160			1			1		
MET	HUDE	HA-I	Hollow	Stem A	lloer	RW	H-Rotary Wash, <b>DP</b> -Direct Push, <b>TC</b> -Thin-Walled Core	DRILLING INH	FORMATION
					-		k Core, <b>GS</b> -Grab, <b>ST</b> -Shelby Tube, <b>PC</b> - Pavement Core	Method: TC	0 to $0.4$
							ance with ASTM D-2488 unless otherwise noted.	-	0.4 to 8.0
NOTI			-					Method: DP	
non	20:				-		20 feet. Each subsequent page: Additional 25 feet.	T	Sample Core
	TION				-		of Subsurface Logs" for additional symbology and abbreviation definitions.	Туре	SS PC
	TIONA	<b>а</b> L	Thin-w	valled F	aven	ent C	ore performed on same hole as boring.	Int Diam.	2" 5.8"
NOTI	£S:							Weight	140 lb
L								Fall	30"

ATTACHMENT C Photographs

Appendix C Brookwood Secure Center – Claverack, NY



**Photograph #1** - Description: Observed asphalt "block" cracking at northeastern portion of patrol road. Looking east near B-3.



**Photograph #2** - Description: Observed "Alligator" cracking at northeastern portion of patrol road. Looking east near B-2.

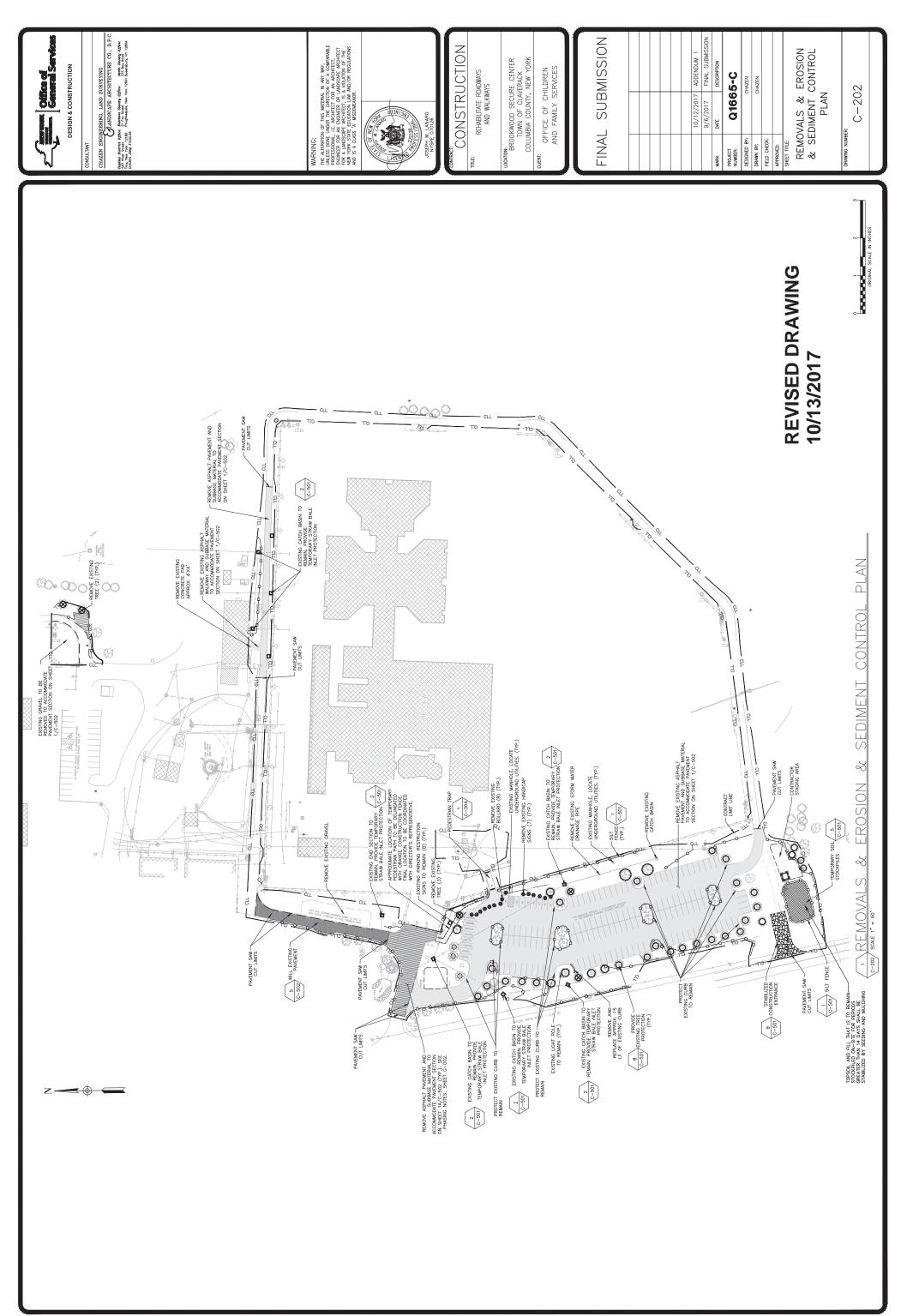
Appendix C Brookwood Secure Center – Claverack, NY



**Photograph #3** - Description: Observed "Alligator" cracking along vehicle path. Looking west at entrance road.

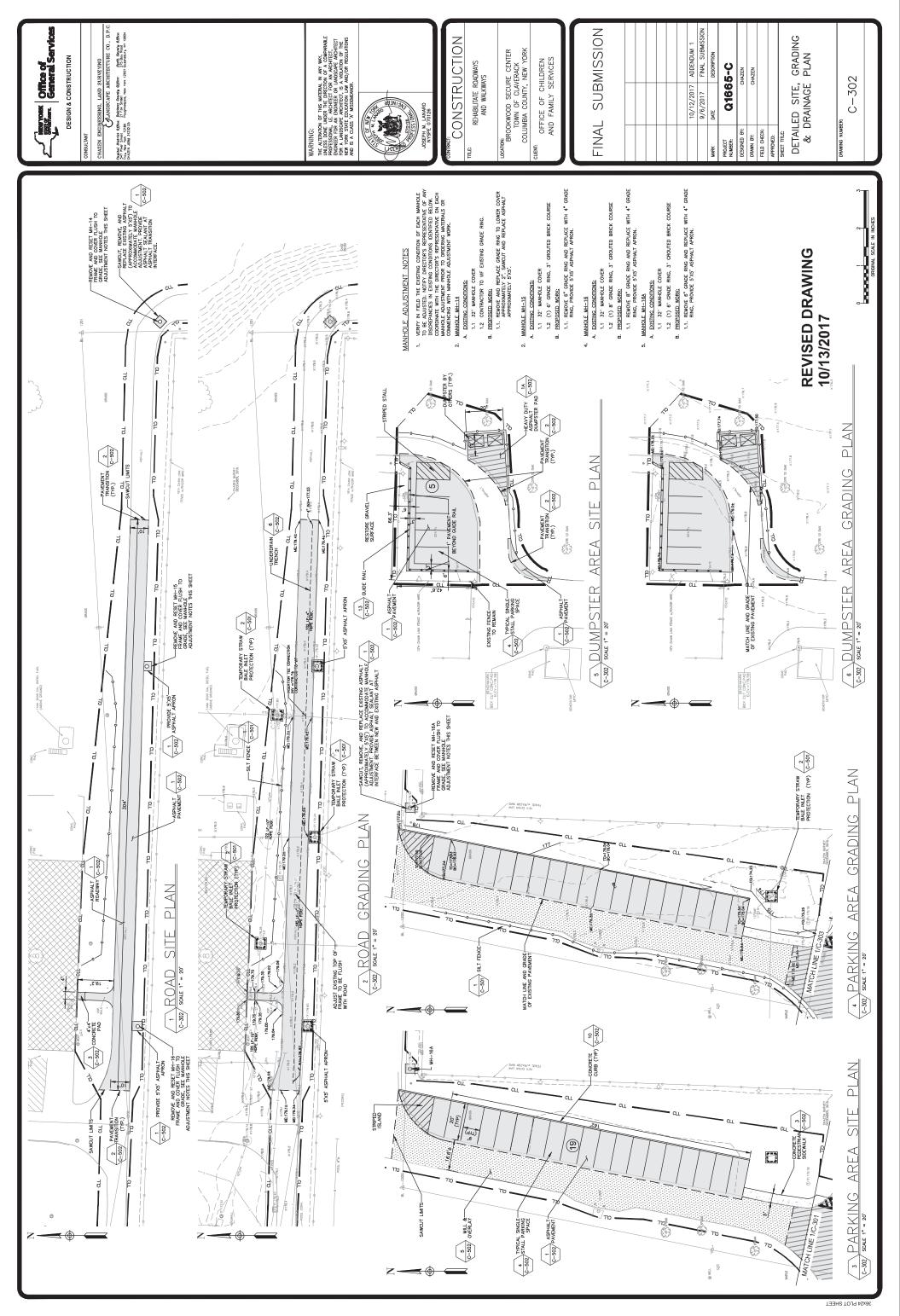


**Photograph #4** - Description: Observed patch at southwestern parking lot, looking south.



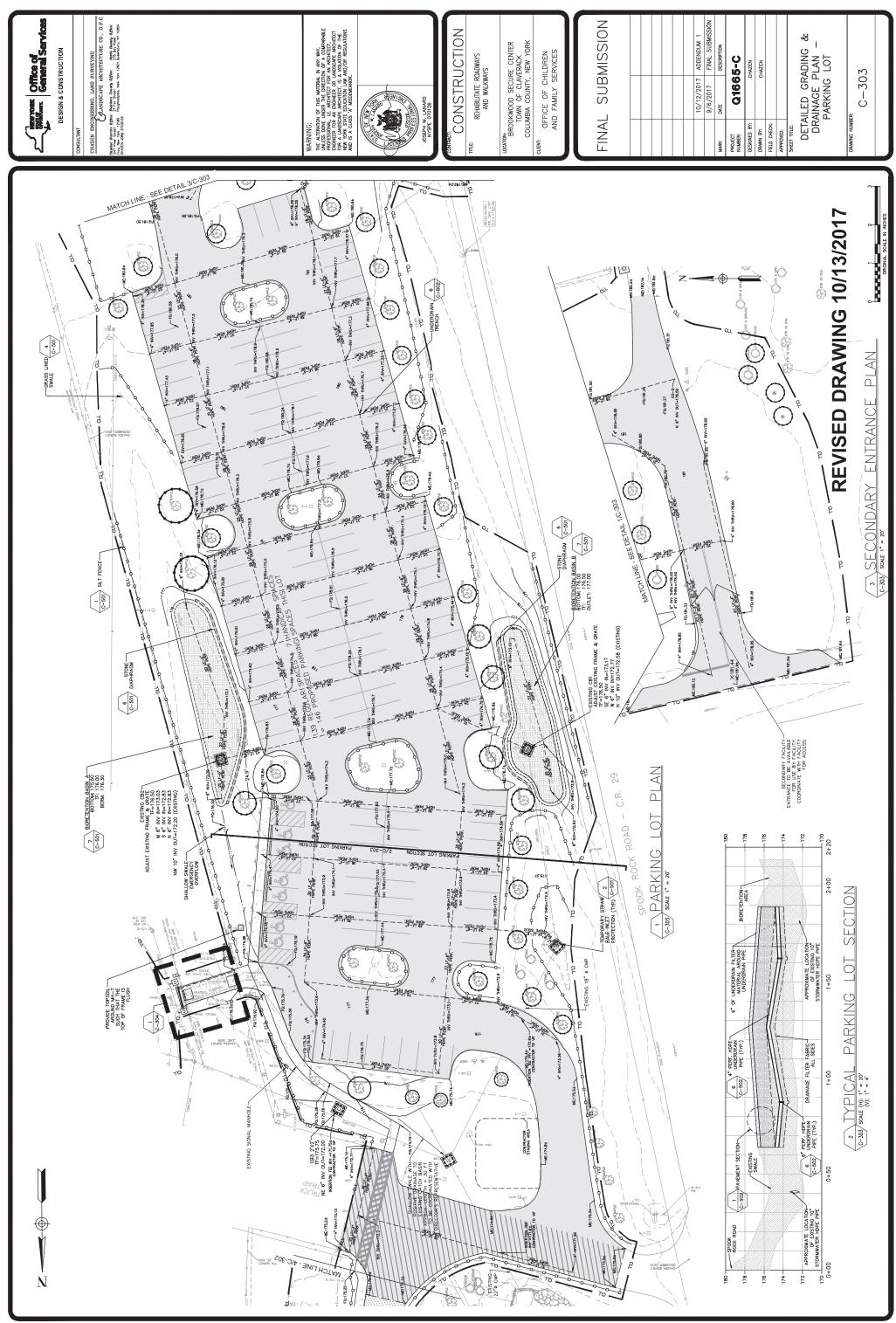
36x24 PLOT SHEET

Oct 13,2017 - 9:21am 2:/projects/31200-31299/31232.05/DWG/Q1665\_02\_C202\_31232-05\_DEM0 PLAN.dwg



0ct 13,2017 - 9:14am 2:\projects/31200-31299/31232.05\DWG\01665\_02\_032.31232-05\_051460 517E PLAN.4wg

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0ct 13.2017 - 12:10pm 2:/projects/3120-31299/31232.05/DWG/Q1665\_02\_C305-304\_31232-05\_GRADING AND DRAINAGE.dwg

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