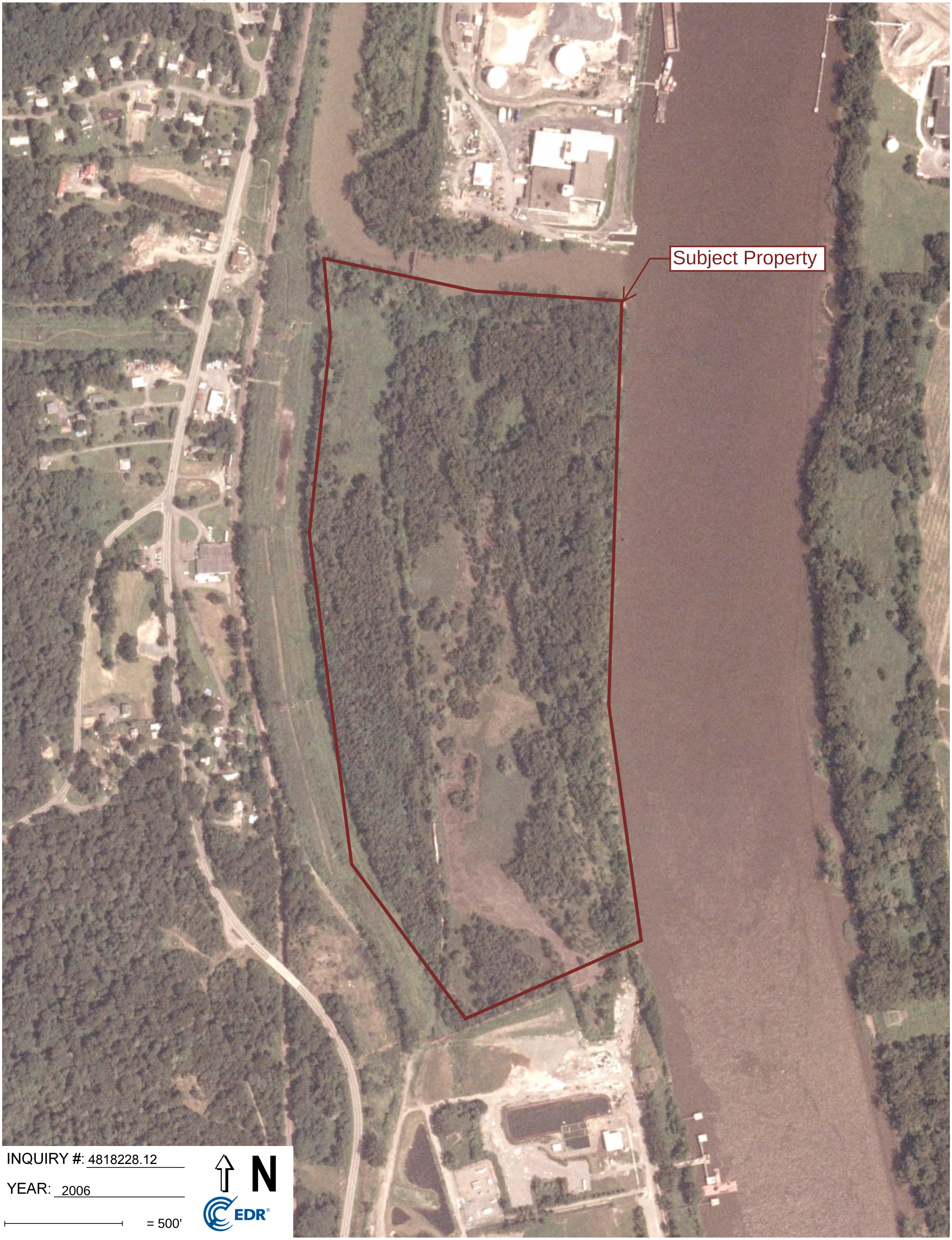
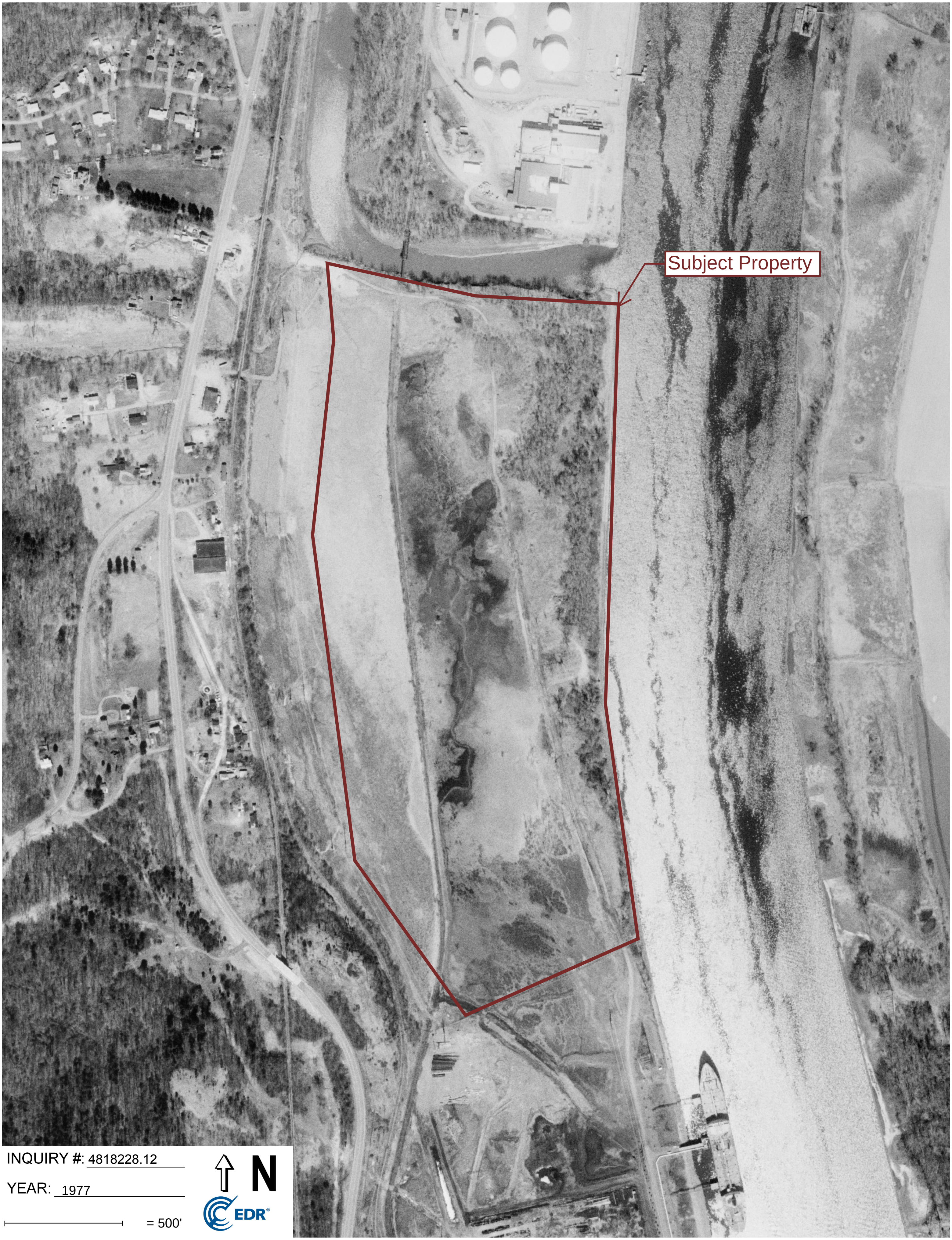

Subject Property
INQUIRY #: 4818228.12
YEAR: 2008
= 500'
N
EDR


Subject Property
INQUIRY #: 4818228.12
YEAR: 2006
= 500'
N
EDR


Subject Property
INQUIRY #: 4818228.12
YEAR: 1994
= 500'
N
EDR

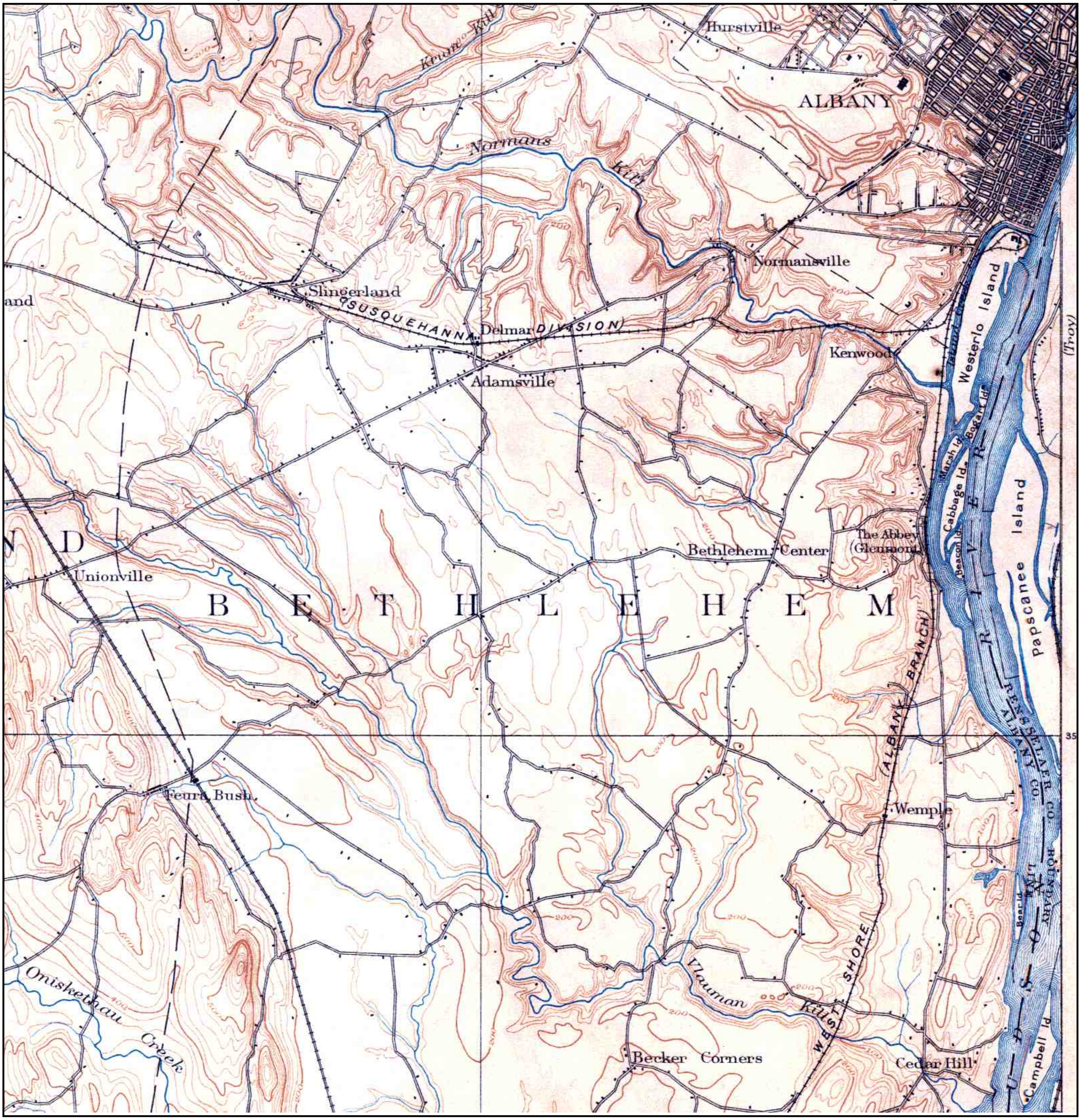

Subject Property
INQUIRY #: 4818228.12
YEAR: 1985
= 500'
N
EDR


Subject Property
INQUIRY #: 4818228.12
YEAR: 1977
= 500'
N
EDR


Subject Property
INQUIRY #: 4818228.12
YEAR: 1973
= 500'
N
EDR


Subject Property
INQUIRY #: 4818228.12
YEAR: 1952
= 500'
N
EDR

Historical Topographic Map



N	TARGET QUAD NAME: ALBANY MAP YEAR: 1898 SERIES: 15 SCALE: 1:62500	SITE NAME: Beacon Harbor ADDRESS: River Road Glenmont, NY 12077 LAT/LONG: 42.6012 / -73.7646	CLIENT: Empire Zero CONTACT: Phil Holloway INQUIRY#: 3310051.4 RESEARCH DATE: 04/25/2012

Obtained from Phase I ESA Report by Bergmann, Dated 01-27-17

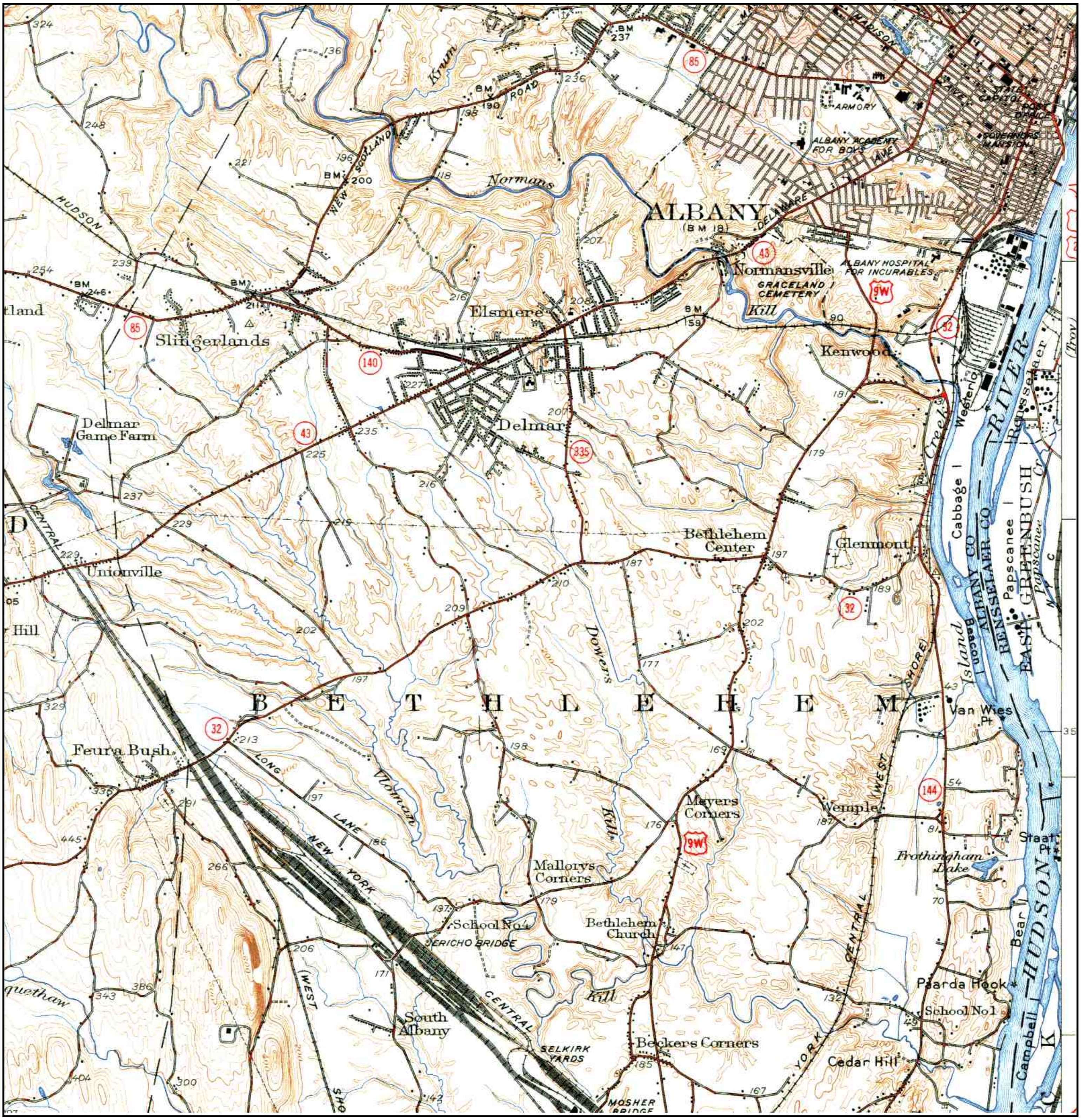
Historical Topographic Map

Attachment to CME Report Number: 27211B-01-0417

N	TARGET QUAD NAME: ALBANY MAP YEAR: 1927 SERIES: 15 SCALE: 1:62500	SITE NAME: Beacon Harbor ADDRESS: River Road Glenmont, NY 12077 LAT/LONG: 42.6012 / -73.7646	CLIENT: Empire Zero CONTACT: Phil Holloway INQUIRY#: 3310051.4 RESEARCH DATE: 04/25/2012

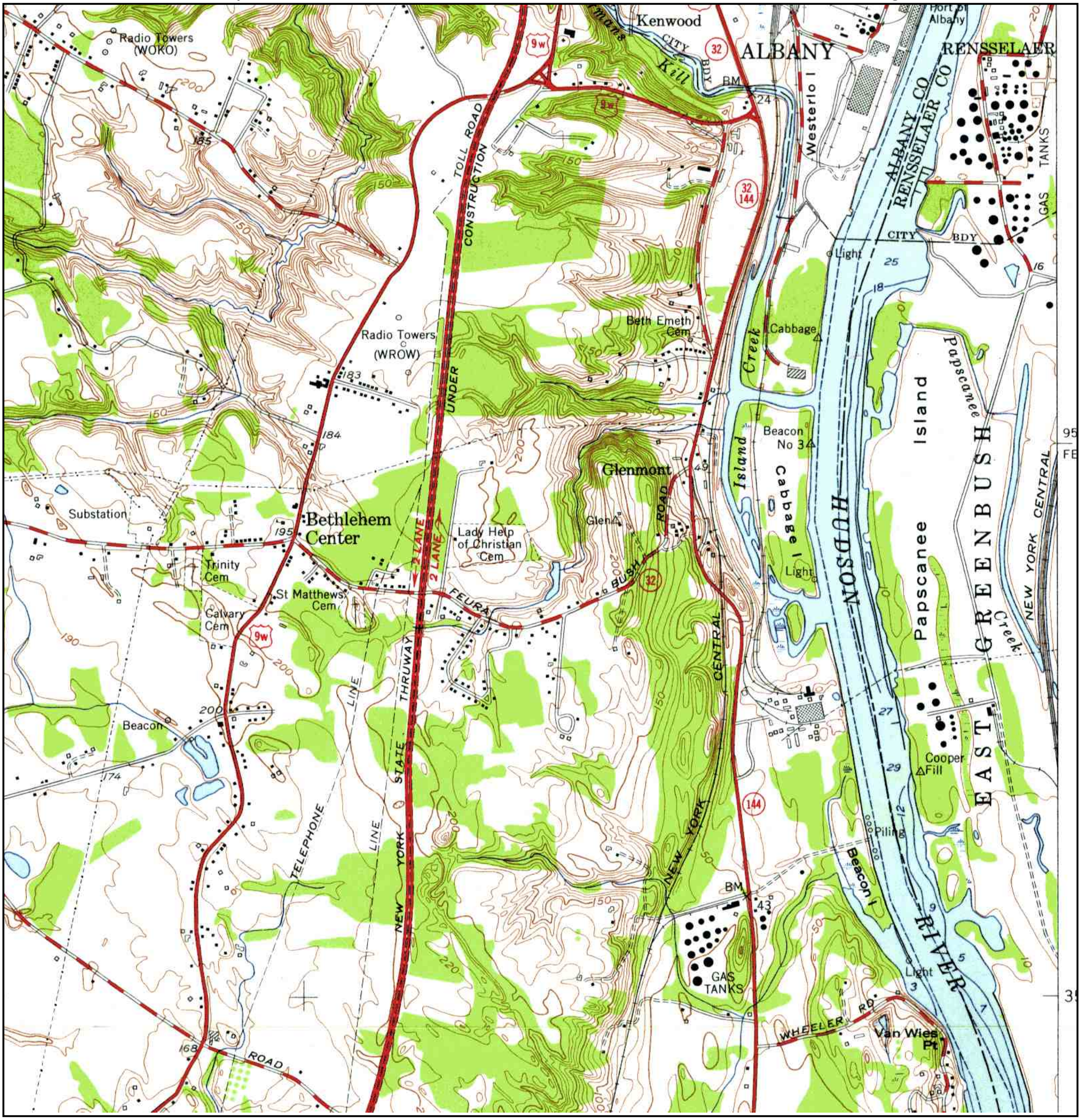
Obtained from Phase I ESA Report by Bergmann, Dated 01-27-17

Historical Topographic Map



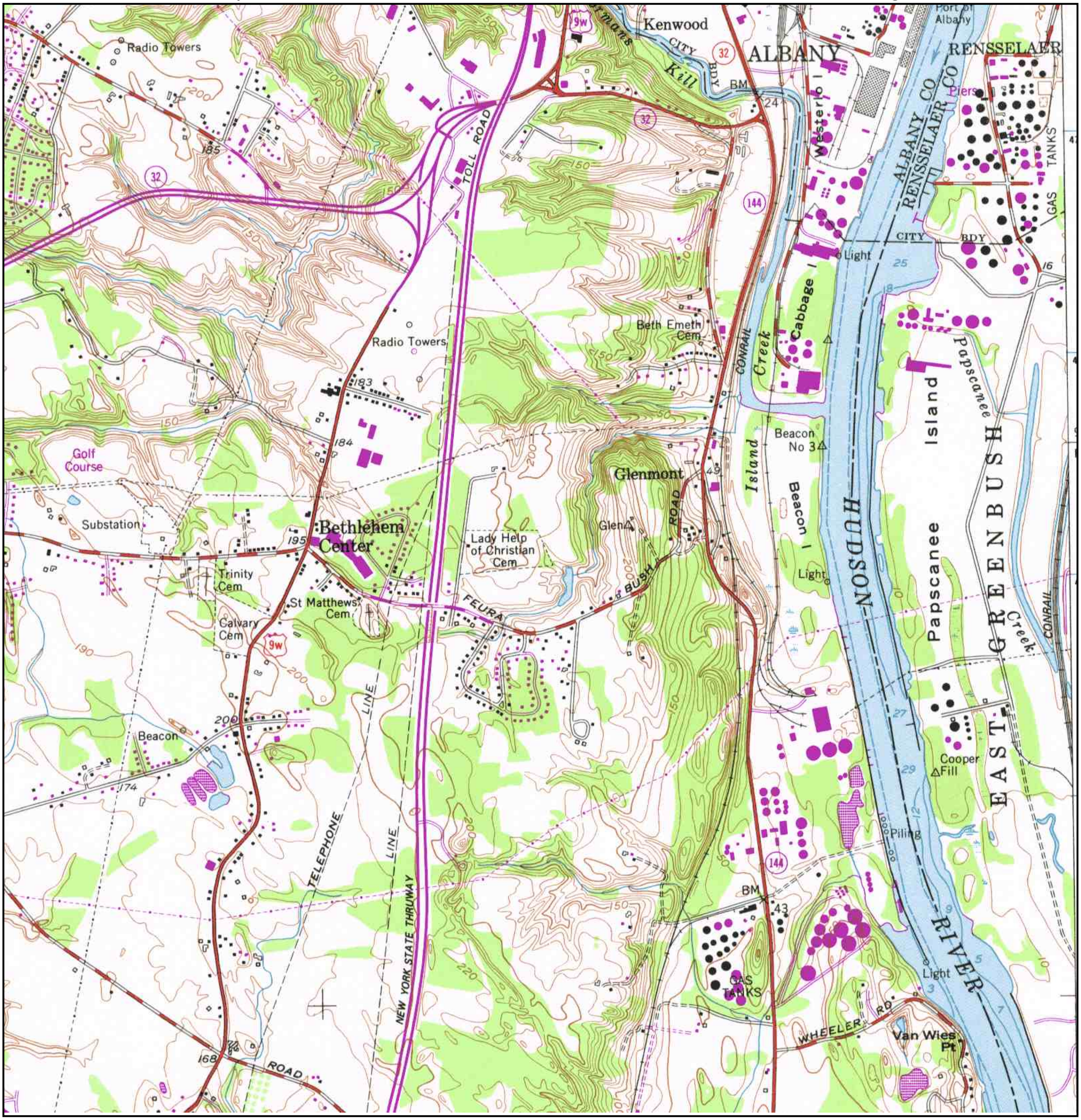
N	TARGET QUAD NAME: ALBANY MAP YEAR: 1950 SERIES: 15 SCALE: 1:62500	SITE NAME: Beacon Harbor ADDRESS: River Road Glenmont, NY 12077 LAT/LONG: 42.6012 / -73.7646	CLIENT: Empire Zero CONTACT: Phil Holloway INQUIRY#: 3310051.4 RESEARCH DATE: 04/25/2012

Obtained from Phase I ESA Report by Bergmann, Dated 01-27-17



N	TARGET QUAD NAME: DELMAR MAP YEAR: 1953 SERIES: 7.5 SCALE: 1:24000	SITE NAME: Beacon Harbor ADDRESS: River Road Glenmont, NY 12077 LAT/LONG: 42.6012 / -73.7646	CLIENT: Empire Zero CONTACT: Phil Holloway INQUIRY#: 3310051.4 RESEARCH DATE: 04/25/2012

Obtained from Phase I ESA Report by Bergmann, Dated 01-27-17



N	TARGET QUAD	SITE NAME: Beacon Harbor	CLIENT: Empire Zero
	NAME: DELMAR	ADDRESS: River Road	CONTACT: Phil Holloway
	MAP YEAR: 1980	Glenmont, NY 12077	INQUIRY#: 3310051.4
	PHOTOREVISED FROM :1953	LAT/LONG: 42.6012 / -73.7646	RESEARCH DATE: 04/25/2012
	SERIES: 7.5		
	SCALE: 1:24000		

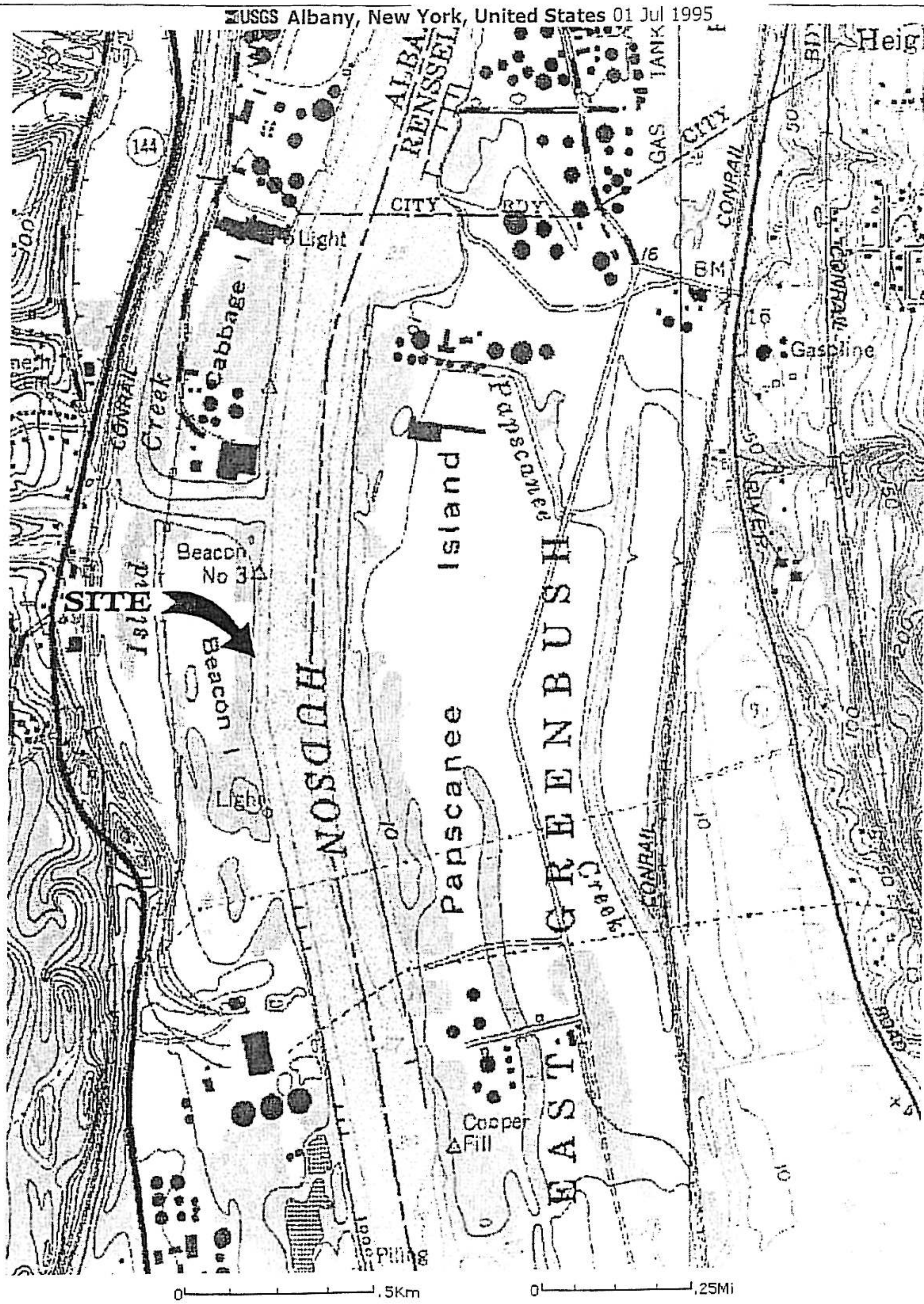
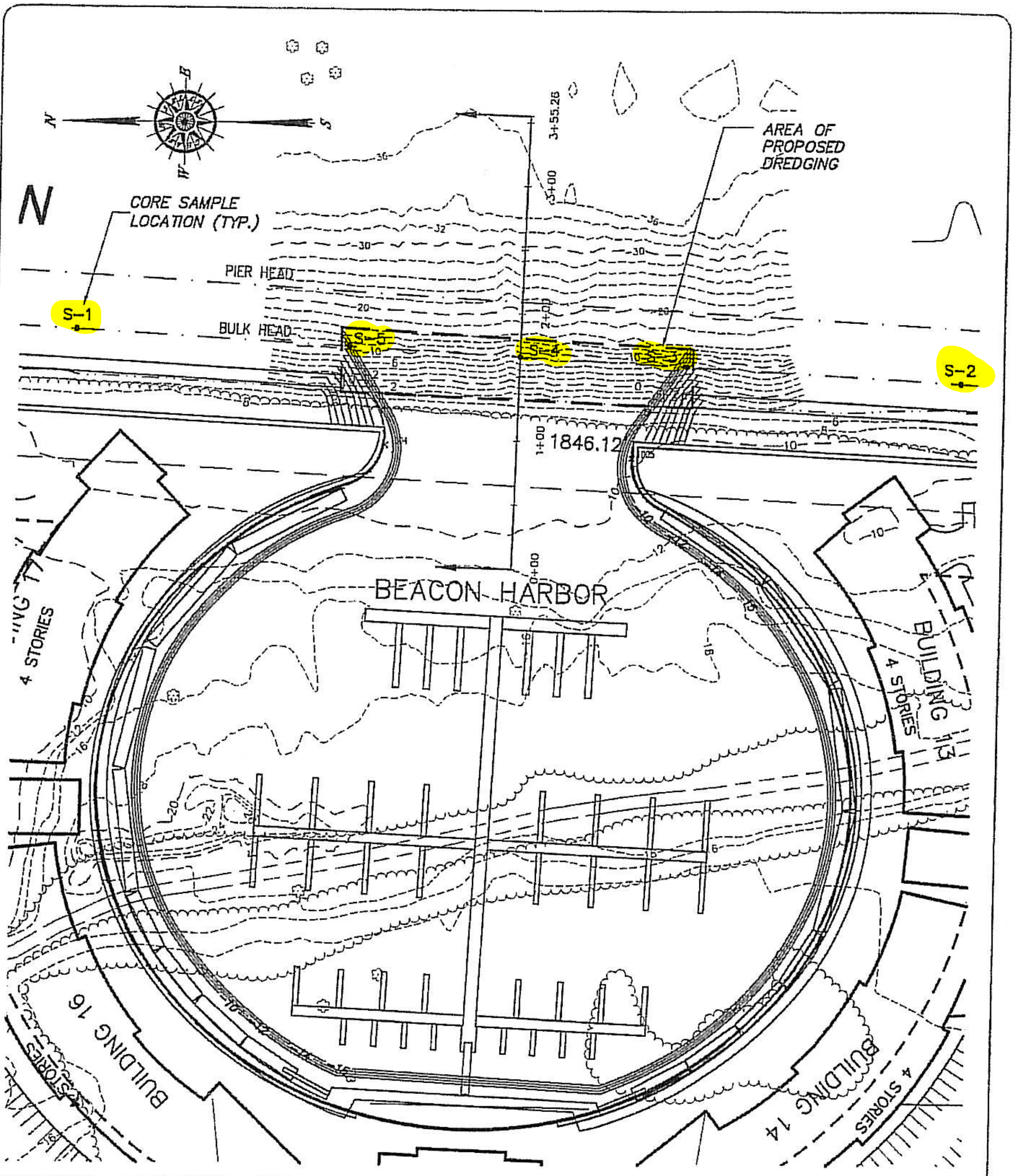


Image courtesy of the U.S. Geological Survey

OP-TECH Environmental Services, Inc.

Beacon Harbor Site Location Map Bethlehem, NY	Date: June 2007 FIGURE 1



CHAS. H. SELLS, INC. Consulting Engineers, Surveyors & Photogrammetrists CIVIL, STRUCTURAL AND TRANSPORTATION ENGINEERING 7 WASHINGTON SQUARE ALBANY, NEW YORK 12205 518•452•3545 FAX 518•452•3755	Unauthorized alteration or addition to this map is a violation of section 7209, sub-division 2 of the New York State Education Law. Only copies from the original of this map bearing an original signature and the embossed seal of the preparer shall be considered to be true and valid copies.	N.Y.S. Lic. No. 49,454 Michael I. Groll, P.L.S.	BEACON HARBOR ROUTE 144 TOWN OF BETHLEHEM • ALBANY COUNTY • NEW YORK CORE SAMPLE LOCATION Date: August 7, 2007 Scale: 1" = 100' Cadd: coresample.dwg

OP-TECH ENVIRONMENTAL SERVICES

10 Walker Way
Albany, New York 12205

Sediment Core 1

Location: 15-ft from shoreline stake, Beacon Harbor, Bethlehem, New York	Drill Rig: Geoprobe Drill Method: FLUSH CASING Driller: Zebra Logged By: P. Holloway Sample Type: 2-inch Macrocore Date: 8/29/07 Weather: Sunny 80	Bore Hole/Well Data Diam. (in.): 2 Water Depth 10 Depth (ft): 16 Boring Number: 1 DTW (ft):
Coordinates 73° 45' 48.1" 42° 36' 11.0"		

Depth Below Mudline	P.I.D. Readings (ppm)	Recovery (%)	Field Description of Soil:	Drillers Remarks:
0				Core pushed 0 ft to 4.0 ft (top of mudline was coverd with boulders)
			Gray medium sand; some fine sand tr silt;	
4		80%	laminated	laminations
8		75%	Same; with tr fine gravel	
12		75%	Same	
16		100%	Same	Samples submitted for analysis composite from 0 to 12 feet

OP-TECH ENVIRONMENTAL SERVICES

10 Walker Way
Albany, New York 12205

Sediment Core S-2

Location:	15-ft from shoreline stake Beacon Harbor Bethlehem, New York	Drill Rig: Geoprobe Drill Method: FLUSH CASING Driller: Zebra Logged By: P. Holloway Sample Type: 2-inch Macrocore Date: 8/29/07 Weather: Sunny 80	Bore Hole/Well Data Diam. (in.): 2 Water Depth 14 Depth (ft): 16 Boring Number: 2 DTW (ft):		
Coordinates	73° 45' 47.2" 42° 36' 3.6"				

Depth Below Mudline	P.I.D. Readings (ppm)	Recovery (%)	Field Description of Soil:	Drillers Remarks:
0				Core pushed 0 ft to 4.0 ft (top of mudline was coverd with boulders)
4		100%	Gray medium sand, some fine sand tr silt; laminated	laminations
8		80%	Same; with tr fine gravel	
12		100%	Same; tr fine gravel	
16		50%	Same	lost some of sample from retrieval Samples submitted for analysis composite from 0 to 12 feet

OP-TECH ENVIRONMENTAL SERVICES

10 Walker Way
Albany, New York 12205

Sediment Core S-3

Location:	15-ft from shoreline stake Beacon Harbor Bethlehem, New York	Drill Rig: Geoprobe Drill Method: FLUSH CASING Driller: Zebra Logged By: P. Holloway Sample Type: 2-inch Macrocore Date: 8/29/07 Weather: Sunny 80	Bore Hole/Well Data		
Coordinates	73° 45' 47.8" 42° 36' 5.2"		Diam. (in.): 2 Depth (ft): 16 Boring Number: 3	Water Depth 12 DTW (ft):	

Depth Below Mudline	P.I.D. Readings (ppm)	Recovery (%)	Field Description of Soil:	Drillers Remarks:
0				(top of mudline was clear)
4		75%	Gray medium sand; some fine sand tr silt; laminated	laminations
8		100%	Same;	
12		90%	Same	laminations
16		75%	Same; tr fine gravel	Samples submitted for analysis composite from 0 to 12 feet (Duplicate S-3d)

OP-TECH ENVIRONMENTAL SERVICES

10 Walker Way
Albany, New York 12205

Sediment Core S-4

Location:	15-ft from shoreline stake Beacon Harbor Bethlehem, New York	Drill Rig: Geoprobe Drill Method: FLUSH CASING Driller: Zebra Logged By: P. Holloway Sample Type: 2-inch Macrocore	Bore Hole/Well Data Diam. (in.): 2 Water Depth 14 Depth (ft): 16		
Coordinates	73° 45' 48.1" 42° 36' 7.1"	Date: 8/29/07 Weather: Sunny 80	Boring Number: 4 DTW (ft):		

Depth Below Mudline	P.I.D. Readings (ppm)	Recovery (%)	Field Description of Soil:	Drillers Remarks:
0				(top of mudline was with some boulders)
4		75%	Gray medium sand; some fine sand tr silt; laminated; tr fine gravel	laminations
8		75%	Same;	
12		100%	Same; tr fine gravel	laminations
16		100%	Same; tr fine gravel	Samples submitted for analysis composite from 0 to 12 feet

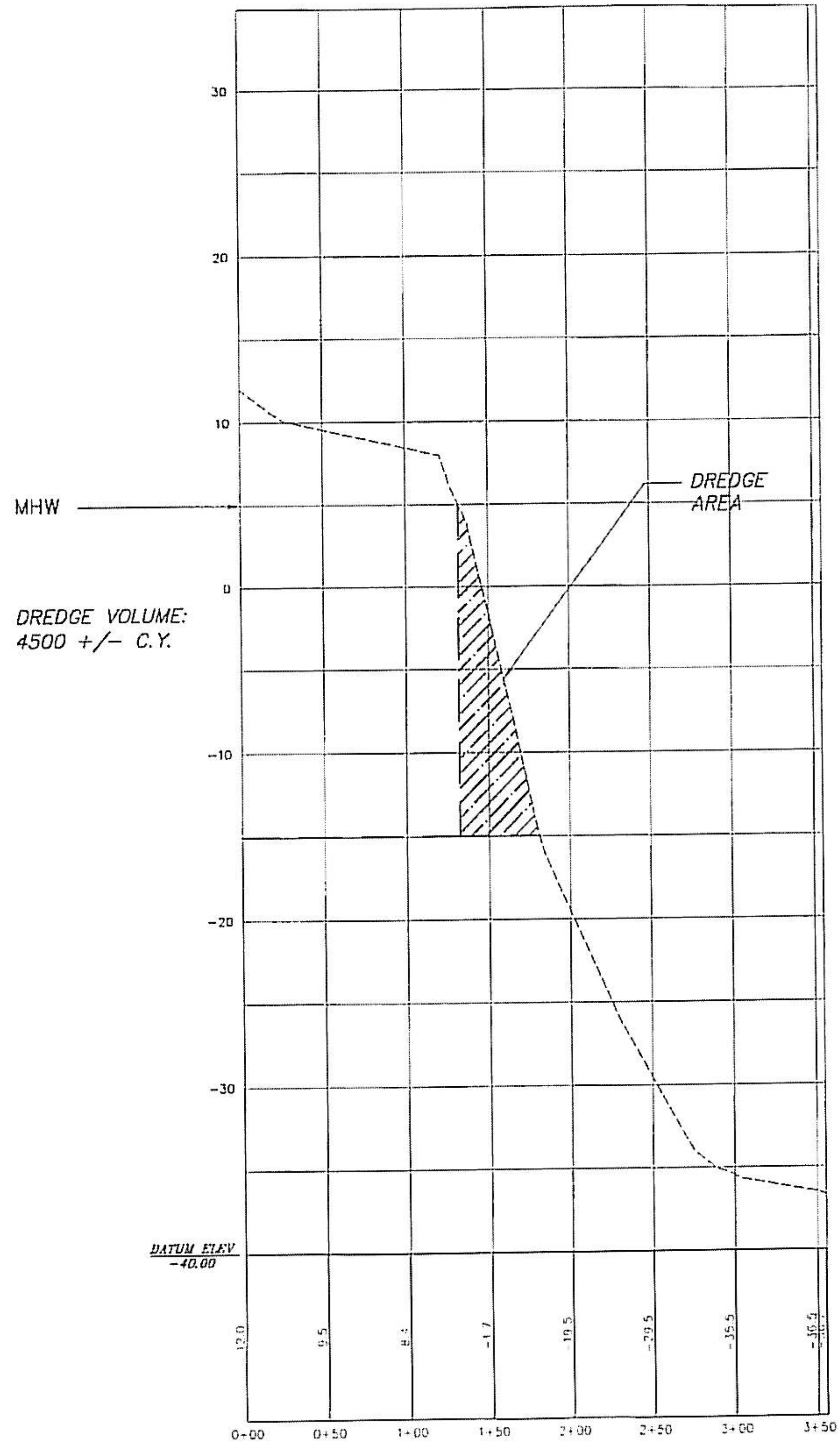
OP-TECH ENVIRONMENTAL SERVICES

10 Walker Way
Albany, New York 12205

Sediment Core S-5

Location:	15-ft from shoreline stake Beacon Harbor Bethlehem, New York	Drill Rig:	Geoprobe	Bore Hole/Well Data	
		Drill Method:	FLUSH CASING	Diam. (in.): 2	Water Depth 8
	73° 45' 48.2"	Driller:	Zebra	Depth (ft): 16	
Coordinates	42° 36' 8.9"	Logged By:	P. Holloway		
		Sample Type:	2-inch Macrocore		
		Date: 8/29/07	Weather: Sunny 80	Boring Number: 5	DTW (ft):

Depth Below Mudline	P.I.D. Readings (ppm)	Recovery (%)	Field Description of Soil:	Drillers Remarks:
0				(top of mudline was covered with boulders)
4		100%	Gray medium sand; some fine sand tr silt; laminated; tr fine gravel	laminations
8		100%	Same;	
12		100%	Same;	laminations
16		75%	Same; tr fine gravel	Samples submitted for analysis composite from 0 to 12 feet



DREDGING AREA PROFILE

CHAS. H. SELLS, INC.
Consulting Engineers, Surveyors & Photogrammetrists
CIVIL, STRUCTURAL AND TRANSPORTATION ENGINEERING
7 WASHINGTON SQUARE
ALBANY, NEW YORK 12205
518-452-3545 FAX 518-452-3755

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Michael I. Groff, P.L.S.

BEACON HARBOR

ROUTE 144

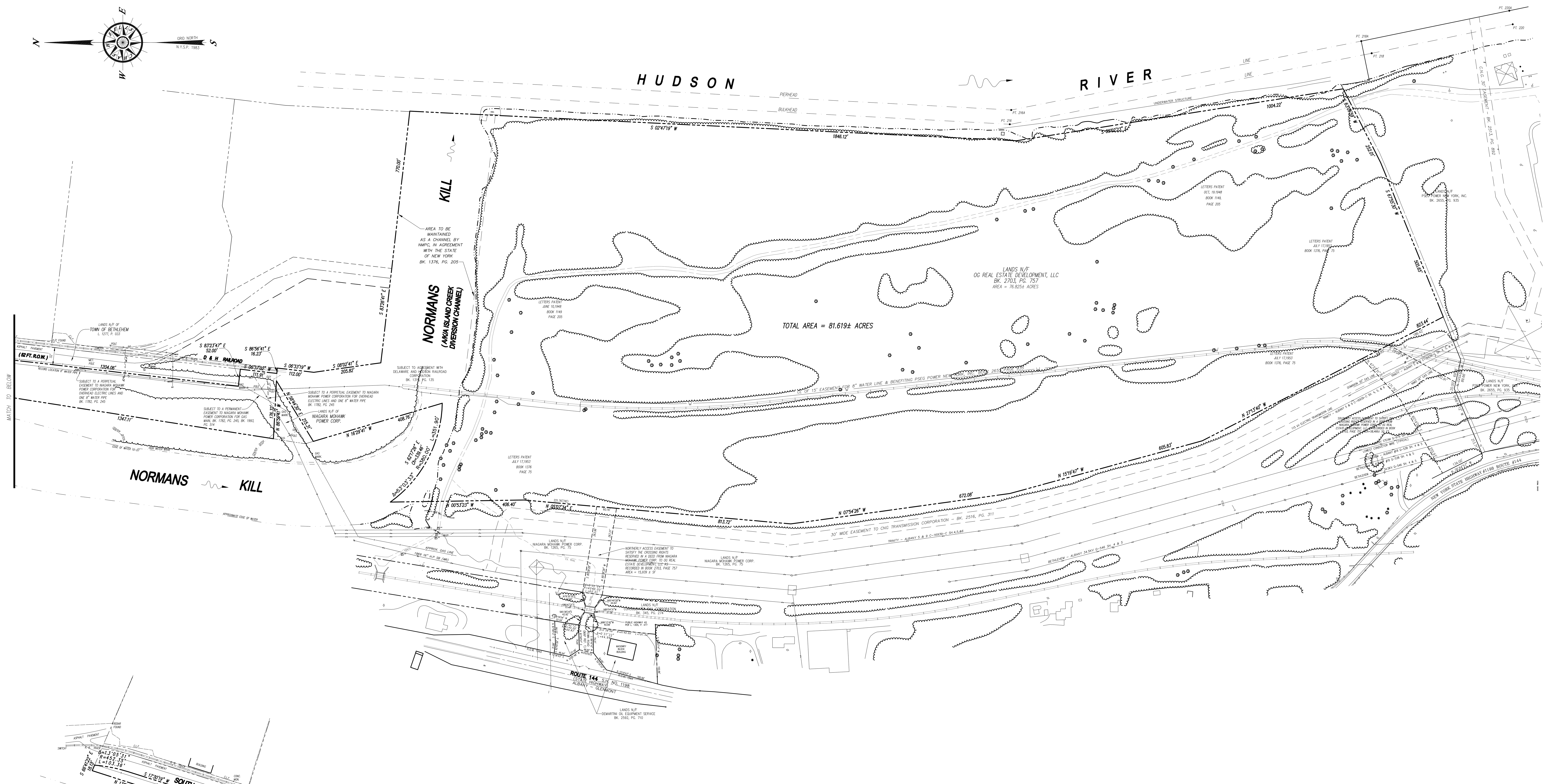
TOWN OF BETHLEHEM • ALBANY COUNTY • NEW YORK

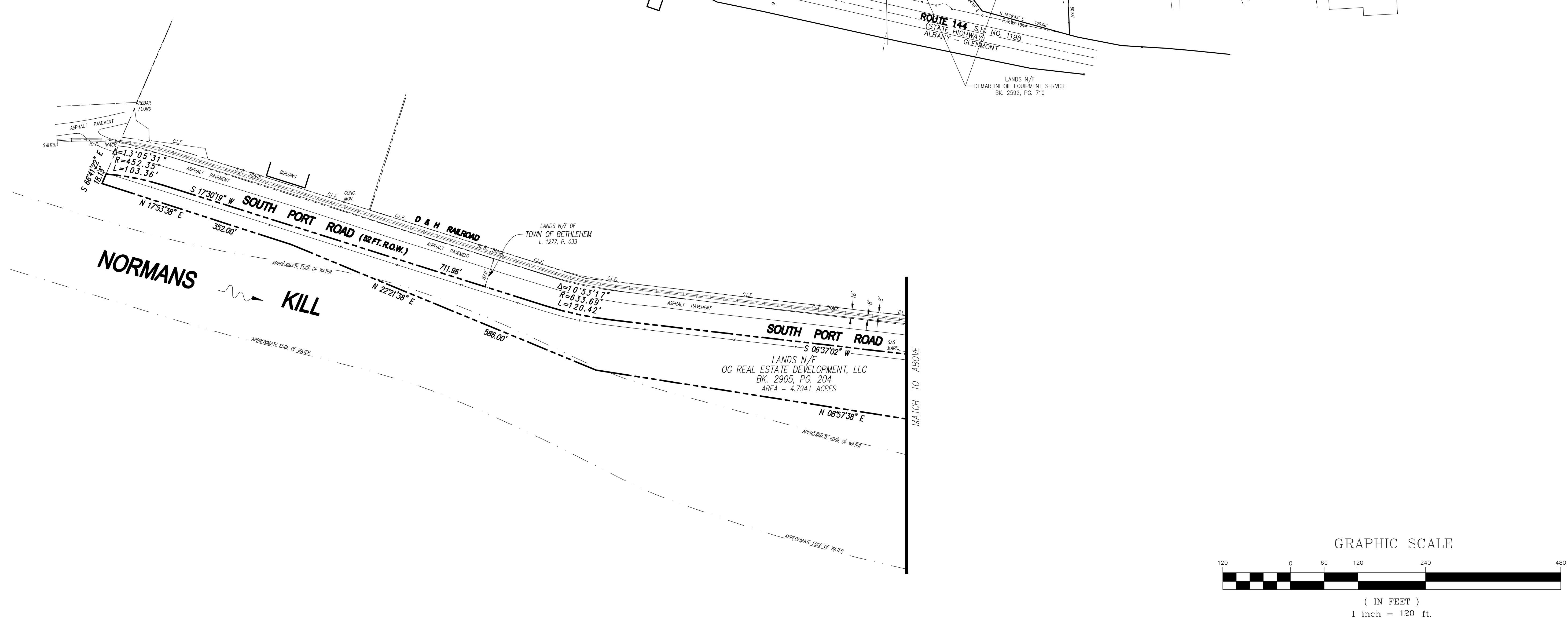
PROPOSED DREDGING AREA

Date: August 7, 2007	Scale: 1" = 100'	Cadd: prelim2

Attachment to CME Report Number: 27211B-01-0417

Boundary Survey from Phase I ESA Report by Bergmann, dated 01-27-17





NOTES:

1. UNDERGROUND UTILITIES SHOWN HEREON BASED ON UTILITY EVIDENCE VISIBLE AT GROUND SURFACE AND RECORD DRAWINGS AND ARE SUBJECT TO FIELD VERIFICATION BY EXCAVATION.

2. UTILITIES SHOWN DO NOT PURPORT TO CONSTITUTE OR REPRESENT ALL UTILITIES LOCATED UPON OR ADJACENT TO THE SURVEYED PREMISES.

3. THE OFFSETS OR DIMENSIONS SHOWN HEREON, FROM THE PROPERTY LINES TO THE STRUCTURES, ARE FOR A SPECIFIC PURPOSE AND USE; THEREFORE, THEY ARE NOT INTENDED TO MONUMENT THE PROPERTY LINES OR TO GUIDE THE ERECTION OF FENCES, ADDITIONAL STRUCTURES, OR ANY OTHER IMPROVEMENT.

4. EASEMENTS AND/OR SUBSURFACE STRUCTURES RECORDED OR UNRECORDED ARE NOT GUARANTEED UNLESS PHYSICALLY EVIDENT ON THE PREMISES AT THE TIME OF THE SURVEY.

5. SUBJECT TO ALL RIGHTS, EASEMENTS, COVENANTS AND RESTRICTIONS OF RECORD.

6. FIRST AMERICAN TITLE INSURANCE COMPANY OF NEW YORK CERTIFICATE OF TITLE INSURANCE NO. 852-A-09965 USED TO PROVIDE RECORD INFORMATION REGARDING TITLE FOR THIS PROPERTY.

7. TAX MAP DESIGNATION: 98.00-2-10.023 & 98.01-2-1

MAP REFERENCES:

1. OGS MAP NO. 1916, A MAP OF A SURVEY OF A PORTION OF LANDS TO BE CONVEYED BY NIAGARA MOHAWK POWER CORP. NORTH OF THE ALBANY STEAM STATION, TOWN OF BETHLEHEM, ALBANY COUNTY, NY, DATED DECEMBER 26, 2001.

2. EXISTING CONDITIONS HARBOR AT BEACON POINTE, LANDS OF OG REAL ESTATE DEVELOPERS, LLC, TOWN OF BETHLEHEM, ALBANY COUNTY, NEW YORK, DATED JANUARY 15, 2003, PREPARED BY INGALLS SMART ASSOCIATES.

3. FLOOD INSURANCE RATE MAP PANEL NUMBERS 361540 0011 B & 361540 0013 B, EFFECTIVE DATE JUNE 15, 1983.

4. BOUNDARY AND PARTIAL TOPOGRAPHY SURVEY LANDS NOW OR FORMERLY OF CIBRO BETHLEHEM LAND CORP., TOWN OF BETHLEHEM, ALBANY COUNTY, NEW YORK, DATED OCTOBER 29, 2007, PREPARED BY CHAS. H. SELLS, INC.

CERTIFICATIONS INDICATED HEREON SIGNIFY THAT THIS SURVEY WAS PREPARED IN ACCORDANCE WITH THE EXISTING CODE OF PRACTICE FOR LAND SURVEYORS ADOPTED BY THE N.Y. STATE ASSOCIATION OF PROFFESSIONAL LAND SURVEYORS. SAID CERTIFICATIONS SHALL RUN ONLY TO THE PERSON FOR WHOM THE SURVEY IS PREPARED, AND ON BEHALF TO THE TITLE COMPANY, GOVERNMENTAL AGENCY AND LENDING INSTITUTION LISTED HEREON, AND TO THE ASSIGNEES OF THE LENDING INSTITUTION. CERTIFICATIONS ARE NOT TRANSFERABLE TO ADDITIONAL INSTITUTIONS OR SUBSEQUENT OWNERS.

- OG REAL ESTATE DEVELOPMENT, LLC
- BERKSHIRE BANK, ITS SUCCESSORS AND/OR ASSIGNS
- FIRST AMERICAN TITLE INSURANCE COMPANY OF NEW YORK
- LAWYERS TITLE INSURANCE CORPORATION

DATE	REVISIONS	BY	DATE	REVISIONS	BY

WSP · SELLS
Transportation & Infrastructure
1 Columbia Circle • Albany, NY 12203 • 518.452.3545
www.wspsells.com

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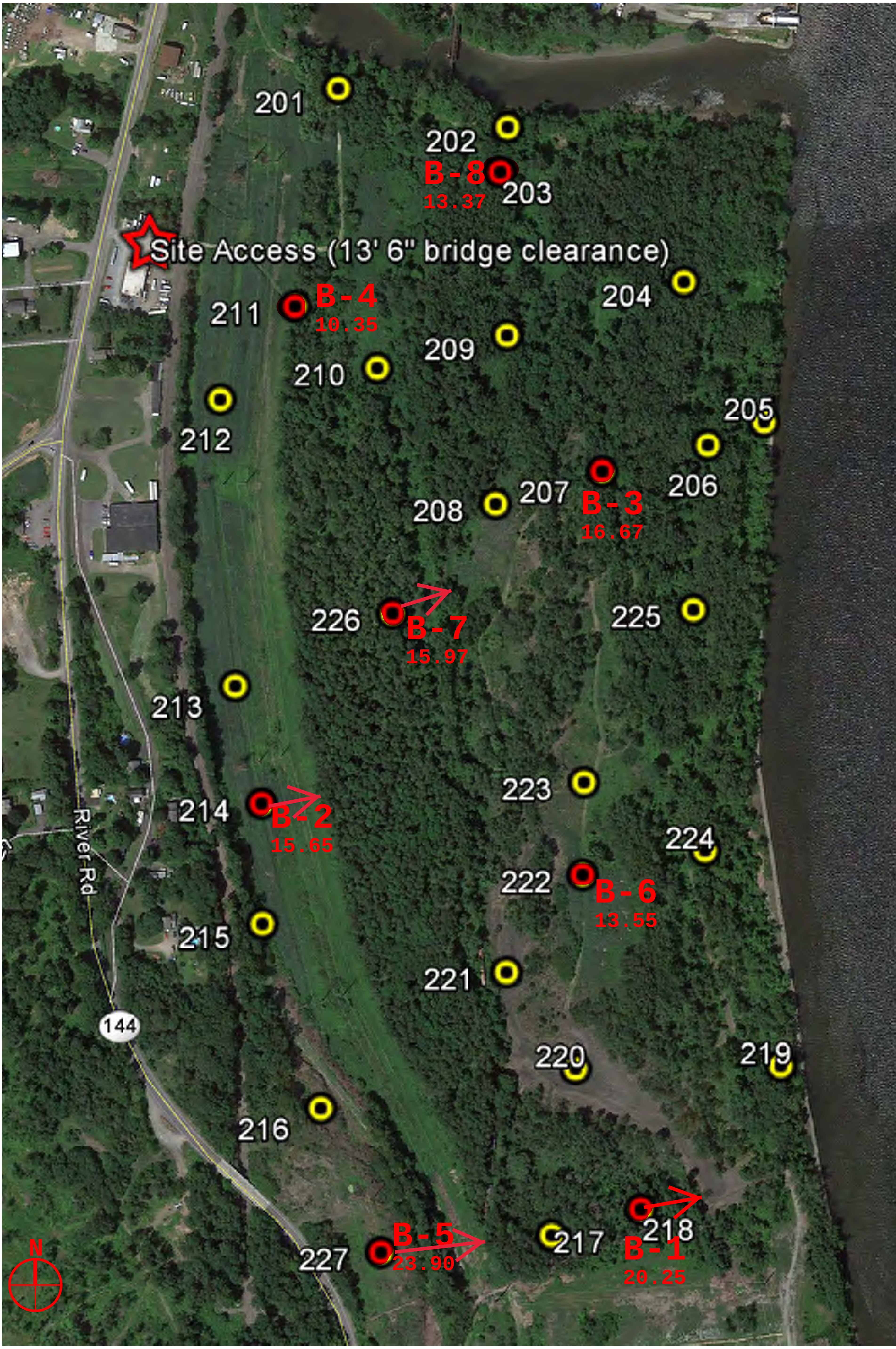
Michael I. Groff, P.L.S.

BOUNDARY SURVEY
SHOWING LANDS N/F OF
OG REAL ESTATE DEVELOPMENT, LLC
TOWN OF BETHLEHEM * ALBANY COUNTY * NEW YORK

Date: September 16, 2009 | Scale: 1" = 120' | Cadd: Harbor Survey

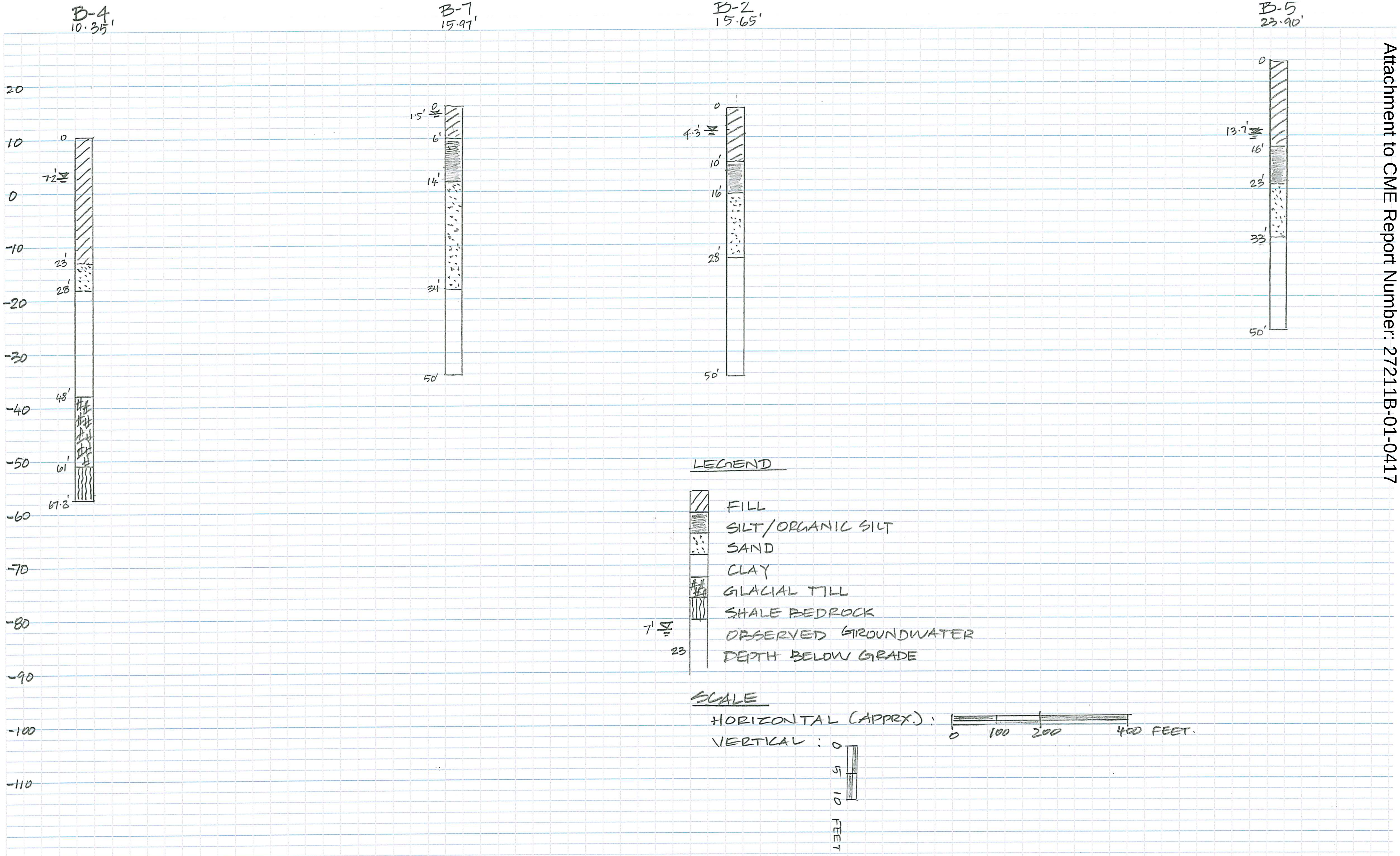
Sheet: 1
1 of 1

Attachment to CME Report Number: 27211B-01-0417



Notes:
1. Boring locations were selected and staked in the field by Bergmann. Please see GPS Coordinates and Elevations Page 1 of 2 for GPS Coordinates and Elevations for Boring locations staked by Bergmann.
2. Boring locations B-1, B-2, B-5 and B-7 were relocated by CME due to assess issues. GPS Coordinates and Elevations for these Borings at the new locations were obtained by CME and given on GPS Coordinates and Elevations Page 2 of 2.

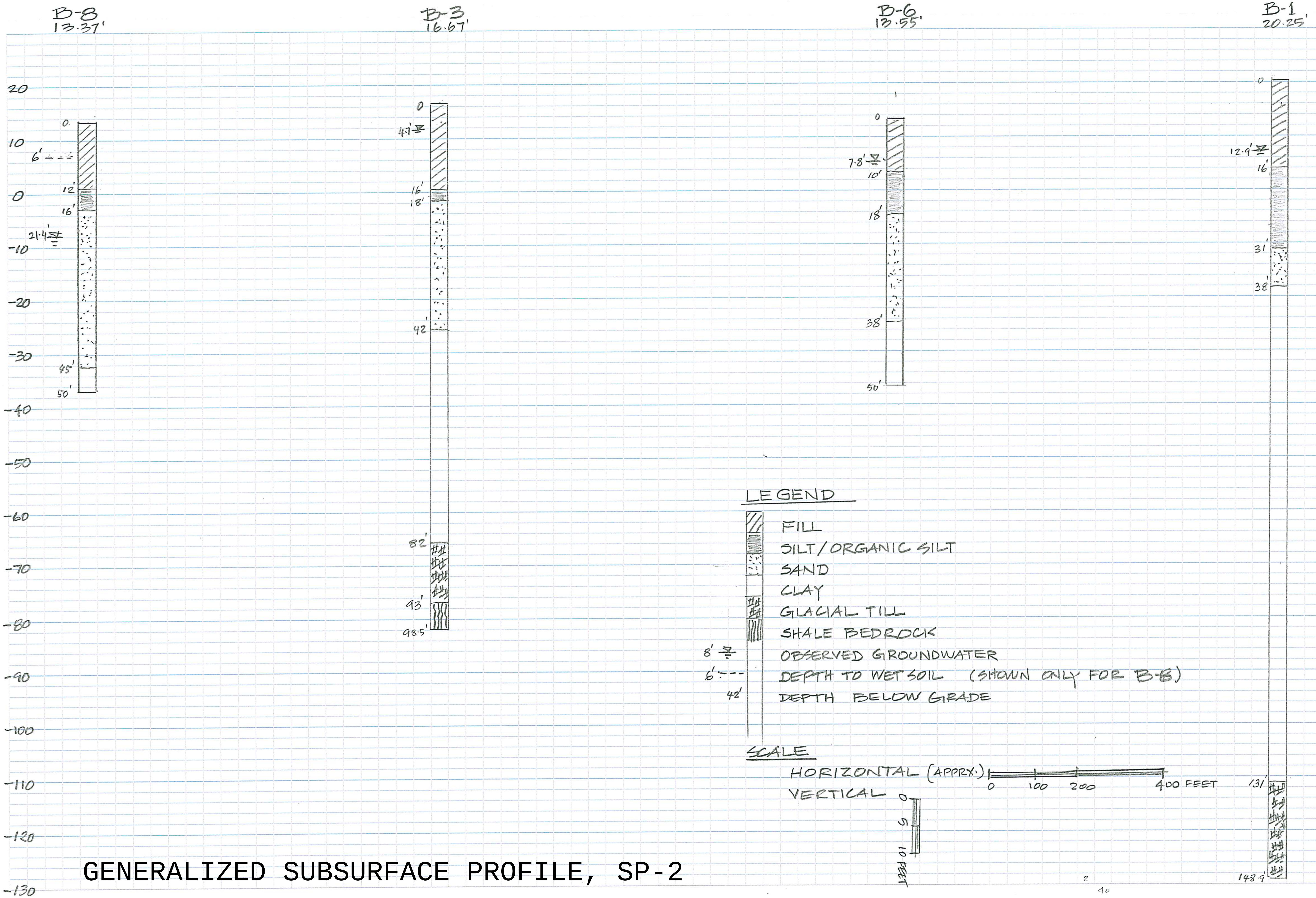
CME EXPLORATION LOCATION PLAN, EX-1 04-01-17



GENERALIZED SUBSURFACE PROFILE, SP-1

Attachment to CME Report Number: 27211B-01-0417

Attachment to CME Report Number: 27211B-01-0417



GENERALIZED SUBSURFACE PROFILE, SP-2

Attachment to CME Report Number: 27211B-01-0417

GPS Coordinates and Elevations

GPS Coordinates and Elevations for original exploration locations staked by Bergmann:

201,1375701.829,689373.031,9.69,TEST PIT
202,1375607.845,689802.825,16.27,SEDIMENT SAMPLE
203,1375494.562,689784.426,13.37,BORE HOLE B-8
204,1375221.355,690252.066,6.78,TEST PIT
205,1374870.439,690457.544,6.99,SEDIMENT SAMPLE
206,1374810.186,690316.155,9.53,TEST PIT
207,1374742.024,690049.050,16.67,BORE HOLE B-3
208,1374657.416,689780.077,11.90,TEST PIT
209,1375082.705,689805.643,17.34,TEST PIT
210,1374997.451,689477.864,10.87,TEST PIT
211,1375151.398,689268.213,10.35,BORE HOLE B-4
212,1374914.513,689080.967,11.41,TEST PIT
213,1374192.404,689125.264,13.46,TEST PIT
214,1373896.974,689194.429,12.53,BORE HOLE B-2
215,1373594.071,689199.319,14.07,TEST PIT
216,1373130.500,689351.124,46.31,TEST PIT
217,1372815.711,689937.463,15.62,TEST PIT
218,1372883.648,690162.477,16.03,BORE HOLE B-1
219,1373247.333,690513.421,11.40,SEDIMENT SAMPLE
220,1373235.646,689994.651,13.86,TEST PIT
221,1373477.204,689817.789,13.33,TEST PIT
222,1373724.330,690007.888,13.55,BORE HOLE B-6
223,1373957.560,690009.580,13.48,TEST PIT
224,1373788.328,690317.516,13.75,TEST PIT
225,1374394.799,690282.696,14.19,TEST PIT
226,1374379.295,689521.551,12.16, BORE HOLE B-7
227,1372769.184,689506.553,70.81,BORE HOLE B-5

GPS Coordinates and Elevations

GPS Coordinates and Elevations for the following Borings were obtained by CME, after relocating from the original locations staked by Bergmann.

B-7
N 42.60359699
E -73.76583635
Elev. 15.97

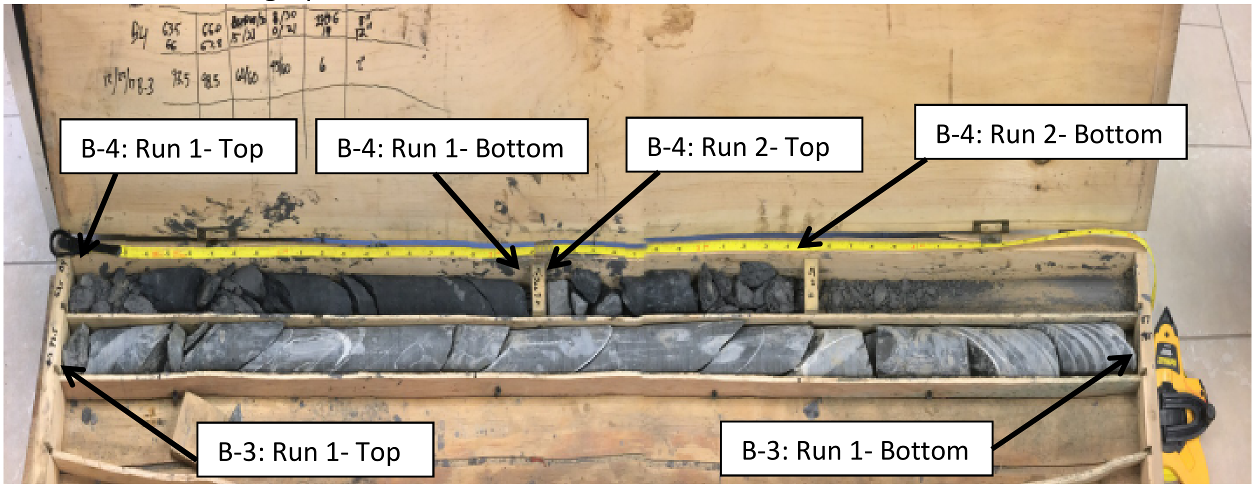
B-1
N 42.59980617
R -73.76390149
Elev. 20.25

B-5
N 42.59933693
E -73.76583477
Elev. 23.90

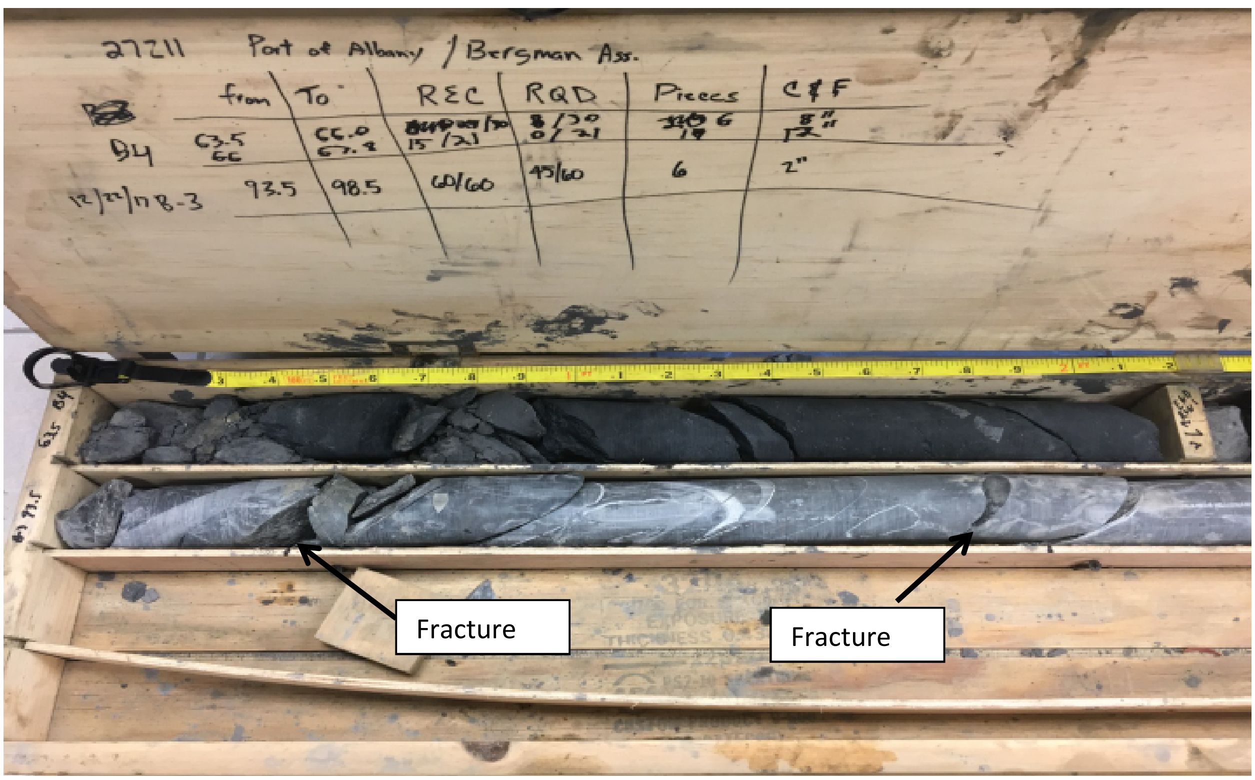
B-2
N 42.60247448
E -73.76751487
Elev. 15.65

<u>Notes:</u>
GPS coordinates were obtained utilizing a Trimble GeoXH system.
Latitude and Longitude are based on the World Geodetic System of 1984 (WGS 1984).
Elevations are based on NAVD 1988.

Attachment to CME Report No. 27211B-01-0417
Bedrock Core Photographs

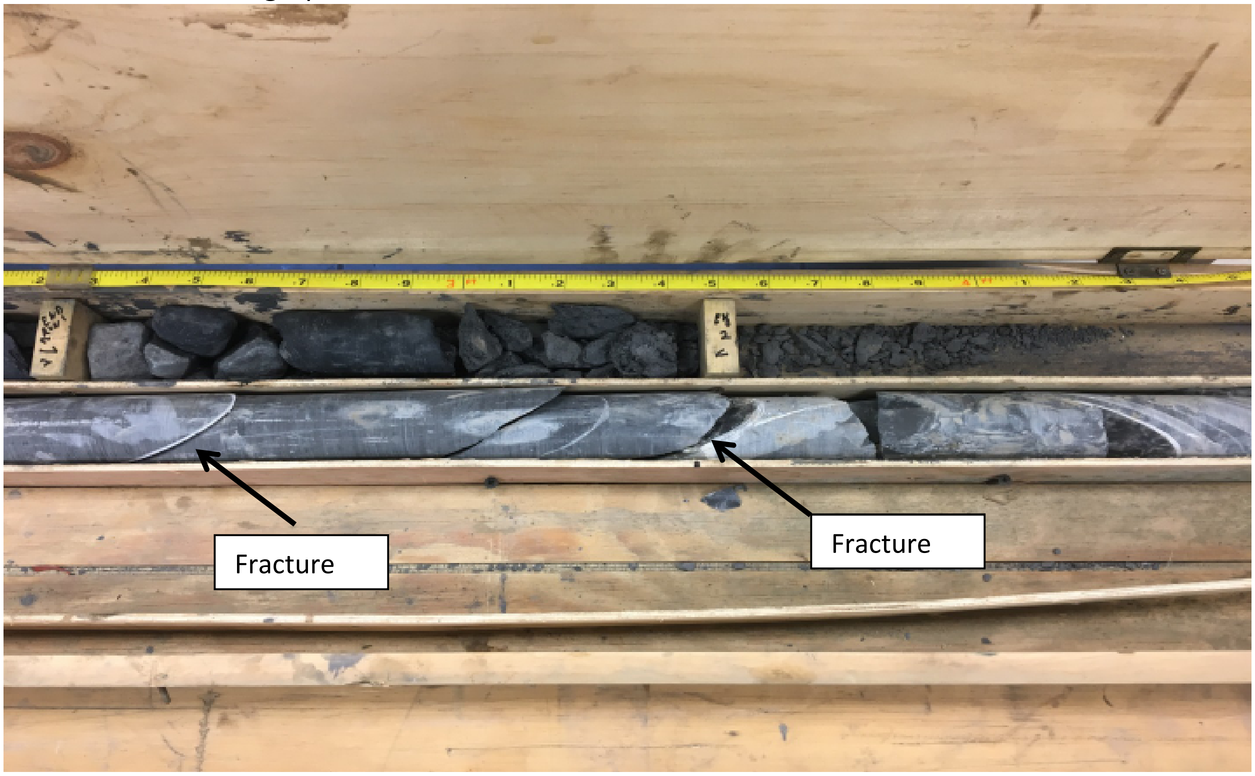


Photograph 1: Boring B-4: Core Run 1 (63.5' – 66.0') and Core Run 2 (66.0' – 67.8'). Note: B-4 core recoveries low.
Boring B-3: Core Run 1 (93.5' – 98.5')

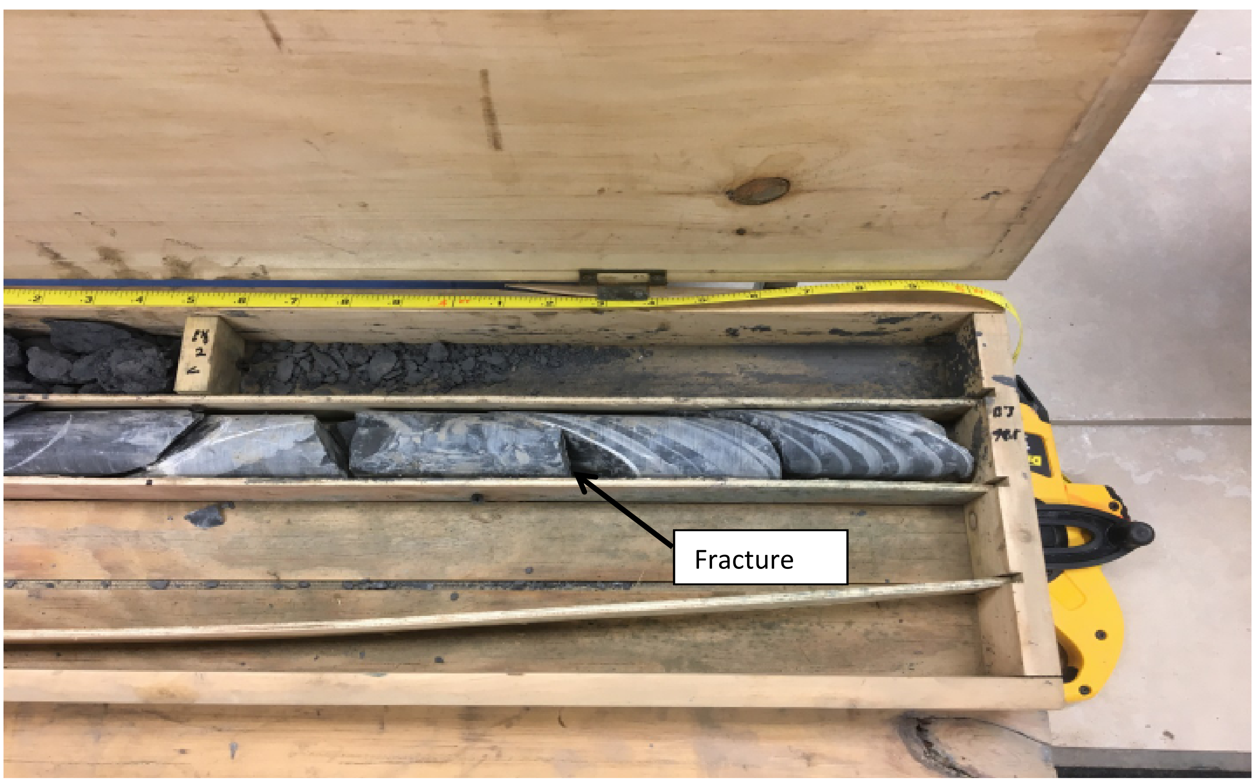


Photograph 2: B-4: Core Run 1 (See Photo No. 1).
B-3 Top of Core Run 1 – 93.5' – 95.5' (See Photo No. 1). High angle fractures at 93.8' and 95.4'

Attachment to CME Report No. 27211B-01-0417
Bedrock Core Photographs



Photograph 3: B-4: Core Run 2 (See Photo No. 1).
B-3 Middle of Core Run 1 – 95.5’ – 97.5’ (See Photo No. 1). High angle fractures at 95.9’ and 97.0’



Photograph 4: B-3 Bottom of Core Run 1 – 97.5’ – 98.5’ (See Photo No. 1). High angle fracture at 97.8’

CME Associates, Inc.

6035 Corporate Drive
East Syracuse, New York 13057
(315) 701-0522
(315) 701-0526 (Fax)
www.cmeassociates.com

LABORATORY TEST SUMMARY
Port of Albany Expansion Feasibility Project
CME Report No.: 27211L-01-0317
March 22, 2017

CME Representatives obtained soil samples from Test Borings advanced as part of the Subsurface Exploration Program conducted for the subject project. Selected samples were delivered to CME's East Syracuse facility, an AASTHO AMRL[1] accredited laboratory for various laboratory testing. The results are presented below:

Sample ID Notations: B - Test Boring, S – Sample

I. Natural Moisture Content (ASTM D2216)

Sample ID	Natural Moisture (%)
B-1; S-9	47.5
B-1; S-10	50.1
B-1; S-13	22.5
B-1; S-15	43.3
B-1; S-18	28.4
B-1; S-27	26.7
B-8; S-16	30.6

II. Organic Content (ASTM D2974)

Sample ID	Organic Content (%)
B-1; S-9	5.2
B-1; S-10	5.8

III. Atterberg Limits Testing (ASTM D4318)

Sample ID	Liquid Limit	Plastic Limit	Plasticity Index	Natural Moisture (%)
B-1; S-9 (Wet Prep)	51	28	23	47.5
B-1; S-9 (Dry Prep)	38	28	10	47.5
B-1; S-10 (Wet Prep)	59	31	28	50.1
B-1; S-10 (Dry Prep)	41	31	10	50.1
B-1; S-15	48	23	25	43.3
B-1; S-18	30	19	11	28.4
B-1; S-27	26	19	7	26.7
B-8; S-16	36	19	17	30.6

IV. Mechanical Analysis (ASTM D422)

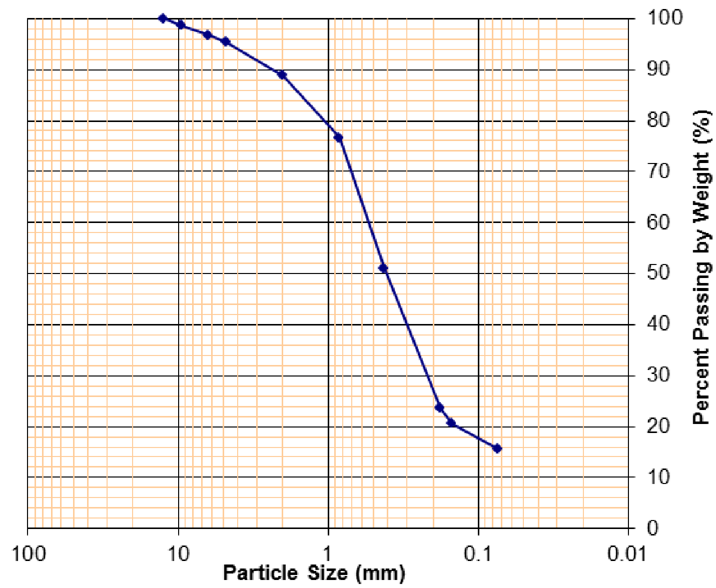
Material Identification

Sample #
B-1;S-13

Classification
Grey cmf SAND, little SILT, trace mf GRAVEL

Sieve Designation	Sieve Size (mm)	Passing by Dry Weight (%)
1/2"	12.5	100
3/8"	9.5	99
1/4"	6.25	97
No.4	4.75	95
No.10	2.00	89
No.20	0.850	77
No.40	0.425	51
No.80	0.180	24
No.100	0.150	21
No.200	0.075	16

Grain Size Distribution Curve

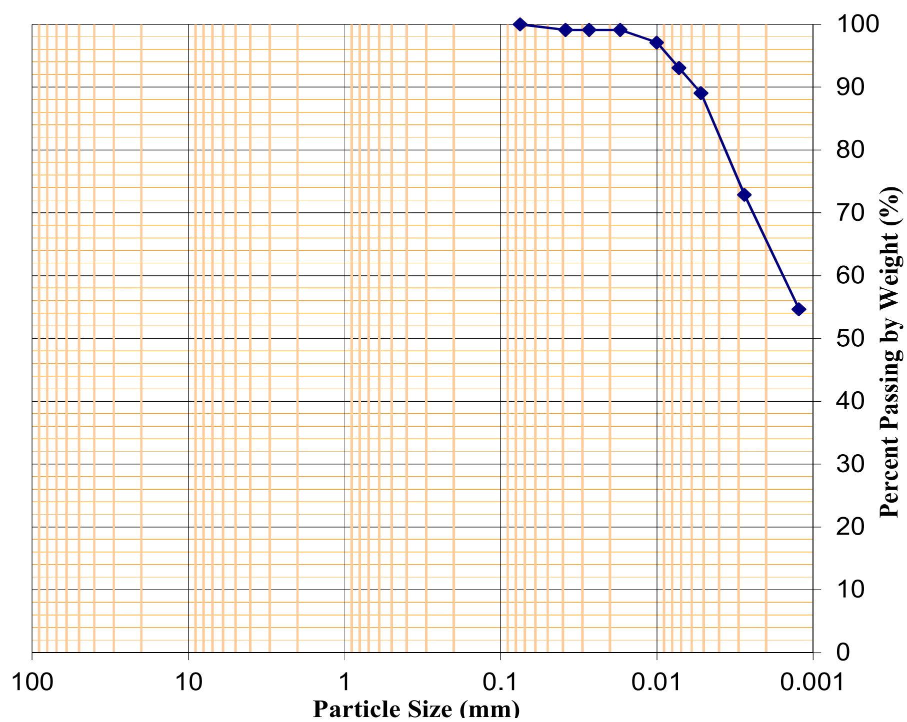


Material Identification

Sample #
B-1; S-15

Classification
Grey Clay, little SILT

Sieve Designation	Sieve Size (mm)	Percent Passing by Weight (%)
No.200	0.075	100
Hydrometer	0.038	99
	0.027	99
	0.017	99
	0.010	97
	0.007	93
	0.005	89
	0.003	73
	0.001	55



CME Associates, Inc.

Material Identification

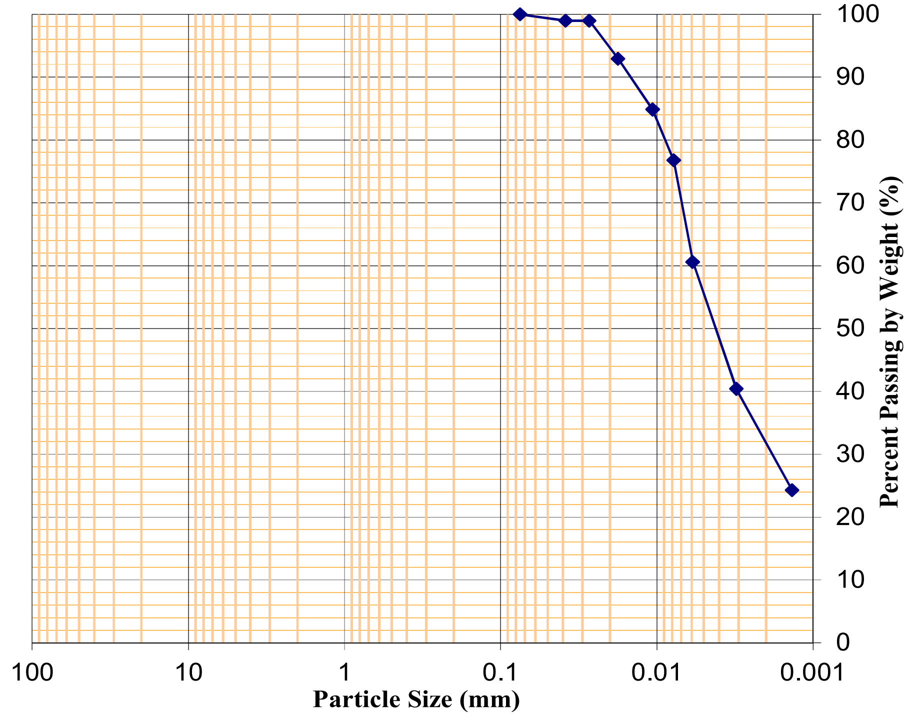
Sample #

B-1; S-18

Classification

Grey Clay and SILT

Sieve Designation	Size (mm)	Percent Passing by Weight (%)
No.200	0.075	100
Hydrometer	0.038	99
	0.027	99
	0.018	93
	0.011	85
	0.008	77
	0.006	61
	0.003	40
	0.001	24



Material Identification

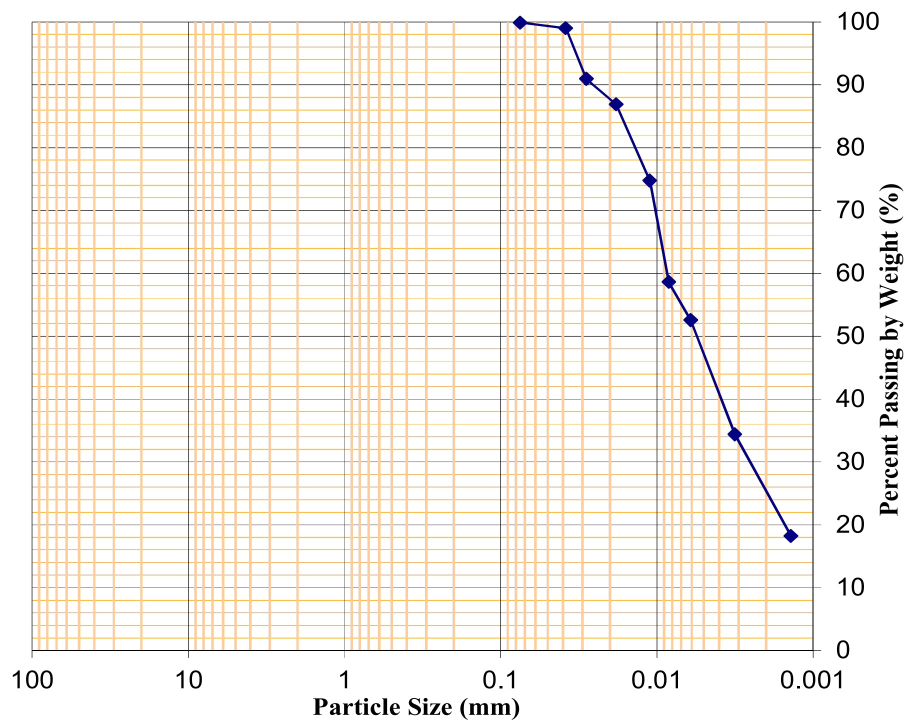
Sample #

B-1; S-27

Classification

Grey SILT and CLAY

Sieve Designation	Size (mm)	Percent Passing by Weight (%)
No.200	0.075	100
Hydrometer	0.038	99
	0.028	91
	0.018	87
	0.011	75
	0.008	59
	0.006	53
	0.003	34
	0.001	18



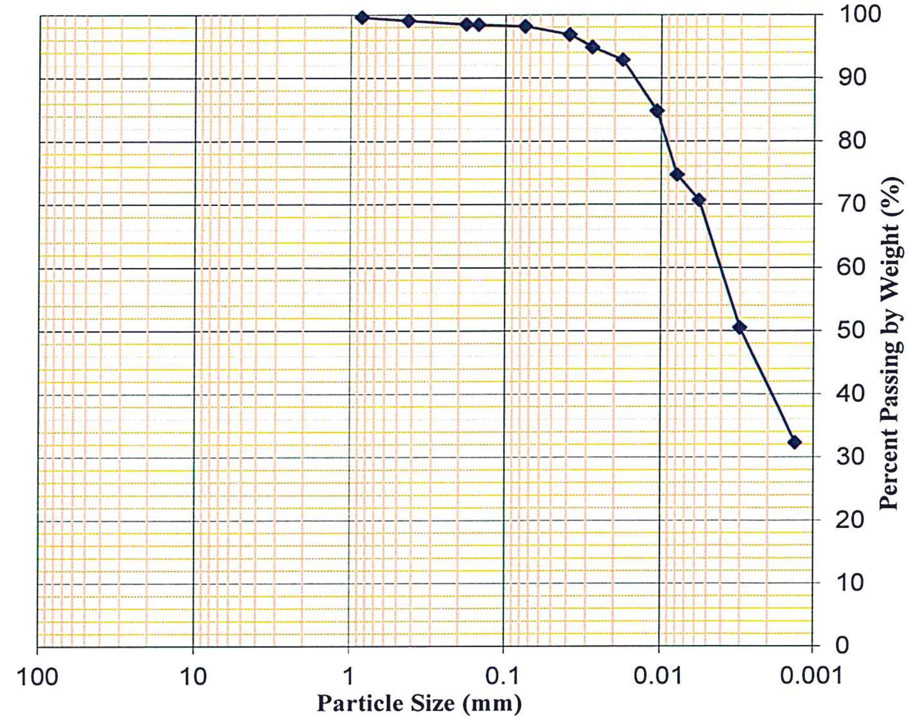
CME Associates, Inc.

Material Identification

Sample #
B-8; S-16

Sieve Designation	Size (mm)	Percent Passing by Weight (%)
No.20	0.850	100
No.40	0.425	99
No.80	0.180	98
No.100	0.150	98
No.200	0.075	98
Hydrometer	0.039	97
	0.028	95
	0.018	93
	0.011	85
	0.008	75
	0.006	71
	0.003	50
	0.001	32

Classification
Grey CLAY, some SILT, trace fine SAND



If you have any questions regarding this report please contact our office.

Yvonne Chu
Laboratory Supervisor

SUBSURFACE EXPLORATION – TEST BORING LOG

Project: Port of Albany Expansion Feasibility Project, Albany, NY		**Report No.:** 27211B-01-0417	
Client: Bergmann Associates, P.C.		**Date Started:** 02-15-17	**Finished:** 02-15-17
Location of Boring: See Exploration Location Plan		**Elevation of Surface of Boring:** 20.3’	

METHODS OF INVESTIGATION			
Casing:	3-1/4” ID H. Stem Auger	**Driller:**	Bill Murphy
Casing Hammer:		**Driller:**	Beau Fletcher
Other:		**Inspector:**	
Soil Sampler:	2” OD Split Barrel	**Rod Size:**	AWJ
Sampler Hammer: Wt.	140 lbs.	**Fall:**	30 in.
Make & Model of Drill Rig:		CME 550x ATV-Mounted	

GROUND WATER OBSERVATIONS

Date	Time	Depth	Casing At
02-15-17	While drilling	12.9’	14.0’
02-15-17	Before casing removed		
02-15-17	After casing removed	12.0’	out
02-15-17	After casing removed	caved @ 14.0’	out

LOG OF BORING SAMPLES / **CLASSIFICATION OF MATERIAL**

Depth Scale (Feet)	Casing Blows/ Foot	Sample I.D.	Depth of Sample (Feet) From	Depth of Sample (Feet) To	Sample Type/ Recovery (Inches)	Blows On Sampler Per 6 inches	Depth Of Change (feet)	c – coarse, m – medium, f – fine; and – 35 to 50 %, some – 20 to 35 %, little – 10 to 20 %, trace – 0 to 10 %	SPT “N” or RQD
0	XXX	1	0.0	2.0	SS/10	10-3-2-2		Miscellaneous FILL; black fine sand, coal ash, silt (moist)	5
	H								
		2	2.0	4.0	SS/12	2-2-2-2		Similar as above (moist)	4
	O								
	L	3	4.0	6.0	SS/22	WH-1-1-1		Similar as above (moist)	2
5									
	L								
		4	6.0	8.0	SS/16	1-1-1-1		Similar as above (moist)	2
	O							~ Landfill ~	
	W	5	8.0	10.0	SS/10	WH-WH-1-WH		Similar as above (moist)	1
10		6	10.0	12.0	SS/15	1-1-1-1		Similar as above (moist)	2
	S								
		7	12.0	14.0	SS/20	WH-WH-WH-WH		Similar as above (wet)	0
	T								
	E	8	14.0	16.0	SS/24	WR-WR-WWH		Similar as above (wet)	0
15	M						16		
		9	16.0	18.0	SS/24	WH-WH-WH-WH		Brown/Grey SILT, some CLAY, trace fine SAND, trace ORGANIC MATTER (moist, very soft)	0
		10	18.0	20.0	SS/19	WH-WH-WH-1		Similar as above (moist, very soft)	0
	A								
	U								
20								~ Buried Organic ~	
	G								
	E								
		11	23.5	25.0	SS/6	8-10-7		Grey SILT, some CLAY, trace fine GRAVEL (moist, very stiff)	17
	R								
25								Continued on page 2	

SS – Split Spoon, U – Undisturbed Tube, C – Core, WR = Weight of Rods, WH = Weight of Hammer plus Rods.

Remarks:

LOG OF BORING SAMPLES							CLASSIFICATION OF MATERIAL		
Depth Scale (Feet)	Casing Blows/ Foot	Sample I.D.	Depth of Sample (Feet) From	To	Sample Type/ Recovery (Inches)	Blows On Sampler Per 6 inches	Depth Of Change (feet)	**c** – **c**oarse, **m** – **m**edium, **f** – **f**ine; **and** – 35 to 50 %, **some** – 20 to 35 %, **little** – 10 to 20 %, **trace** – 0 to 10 %	SPT "N" or RQD
25								Continued from page 1	
	H								
	O	12	28.5	30.0	SS/10	4-1-2		Grey SILT, some CLAY, trace fine SAND, trace ORGANIC MATTER (moist, soft)	3
30	L								
	L								
	O								
	W	13	33.5	35.0	SS/10	3-4-5		Grey cmf SAND, little SILT, trace mf GRAVEL (moist, loose)	9
35								~ Glaciofluvial ~	
	S								
	T	14	38.5	40.0	SS/8	1-1-2		Grey CLAY, little SILT (moist, soft)	3
	E								
40	M								
	A	15	43.5	45.0	SS/24	WH-WH-WH		Similar as above (moist, very soft)	0
45	U								
	G							~ Lacustrine ~	
	E	16	48.5	50.0	SS/20	WH-1-2		Similar as above (moist, soft)	3
	R								
50								Continued on page 3	

SS – Split Spoon, U – Undisturbed Tube, C – Core, WR = Weight of Rods, WH = Weight of Hammer plus Rods.

Remarks:

LOG OF BORING SAMPLES							CLASSIFICATION OF MATERIAL		
Depth Scale (Feet)	Casing Blows/ Foot	Sample I.D.	Depth of Sample (Feet) From	To	Sample Type/ Recovery (Inches)	Blows On Sampler Per 6 inches	Depth Of Change (feet)	**c** – **c**oarse, **m** – **m**edium, **f** – **f**ine; **and** – 35 to 50 %, **some** – 20 to 35 %, **little** – 10 to 20 %, **trace** – 0 to 10 %	SPT "N" or RQD
50								Continued from page 2	
	H								
	O	17	53.5	55.0	SS/24	WH-2-3		Grey CLAY, some SILT (moist, medium stiff)	5
	L								
55	L								
	O								
	W	18	58.5	60.0	SS/24	WH-3-4		Grey CLAY and SILT (moist, medium stiff)	7
60								~ Lacustrine ~	
	S								
	T								
	E	19	63.5	65.0	SS/24	WH-3-3		Similar as above (moist, medium stiff)	6
65	M								
	A	20	68.5	70.0	SS/24	3-3-4		Similar as above (moist, medium stiff)	7
70	U								
	G								
	E								
	R	21	73.5	75.0	SS/24	3-3-4		Similar as above (moist, medium stiff)	7
75								Continued on page 4	

SS – Split Spoon, U – Undisturbed Tube, C – Core, WR = Weight of Rods, WH = Weight of Hammer plus Rods.

Remarks:

LOG OF BORING SAMPLES							CLASSIFICATION OF MATERIAL		
Depth Scale (Feet)	Casing Blows/ Foot	Sample I.D.	Depth of Sample (Feet) From	To	Sample Type/ Recovery (Inches)	Blows On Sampler Per 6 inches	Depth Of Change (feet)	**c** – **c**oarse, **m** – **m**edium, **f** – **f**ine; **and** – 35 to 50 %, **some** – 20 to 35 %, **little** – 10 to 20 %, **trace** – 0 to 10 %	SPT "N" or RQD
75								Continued from page 3	
	H								
	O	22	78.5	80.0	SS/24	WH-3-3		Similar as above (moist, medium stiff)	6
	L								
80	L								
	O								
	W	23	83.5	85.0	SS/24	4-4-4		Similar as above (moist, medium stiff)	8
85								~ Lacustrine ~	
	S								
	T								
	E	24	88.5	90.0	SS/24	WH-3-4		Similar as above (moist, medium stiff)	7
90	M								
	A	25	93.5	95.0	SS/24	WH-2-4		Similar as above (wet, medium stiff)	6
95	U								
	G								
	E								
	R	26	98.5	100.0	SS/24	WH-1-4		Similar as above (wet, medium stiff)	5
100								Continued on page 5	

SS – Split Spoon, U – Undisturbed Tube, C – Core, WR = Weight of Rods, WH = Weight of Hammer plus Rods.

Remarks:

LOG OF BORING SAMPLES							CLASSIFICATION OF MATERIAL			
Depth Scale (Feet)	Casing Blows/ Foot	Sample I.D.	Depth of Sample (Feet)		Sample Type/ Recovery (Inches)	Blows On Sampler Per 6 inches	Depth Of Change (feet)	**c** – **c**oarse **m** – **m**edium **f** – **f**ine **and** – 35 to 50 % **some** – 20 to 35 % **little** – 10 to 20 % **trace** – 0 to 10 %	SPT "N" or RQD
			From	To					
100								Continued from page 4	
	H								
	O								
105	L								
	L								
	O								
	W	27	108.5	110.0	SS/24	WH-2-3		Grey SILT and CLAY (wet, medium stiff)	5
110									
	S								
	T							~ Lacustrine ~	
	E								
115	M								
	A	28	118.5	120.0	SS/24	WH-2-2		Similar as above (wet, medium stiff)	4
120	U								
	G								
	E								
	R								
125								Continued on page 6	

SS – Split Spoon, U – Undisturbed Tube, C – Core, WR = Weight of Rods, WH = Weight of Hammer plus Rods.

Remarks:

LOG OF BORING SAMPLES							CLASSIFICATION OF MATERIAL		
Depth Scale (Feet)	Casing Blows/ Foot	Sample I.D.	Depth of Sample (Feet) From	To	Sample Type/ Recovery (Inches)	Blows On Sampler Per 6 inches	Depth Of Change (feet)	**c** – **c**oarse, **m** – **m**edium, **f** – **f**ine; **and** – 35 to 50 %, **some** – 20 to 35 %, **little** – 10 to 20 %, **trace** – 0 to 10 %	SPT "N" or RQD
125								Continued from page 5	
	H							~ Lacustrine ~	
	O	29	128.5	130.0	SS/24	3-3-4		Grey CLAY, some SILT (wet, medium stiff)	7
	L								
130	L						131.4	*Change in drilling at 131.4'*	
	O								
	W	30	133.5	135.0	SS/0	17-19-28		No Recovery *Gravel stuck in mouth of spoon*	47
135									
	S								
	T								
	E								
140	M							~ Glacial Till ~	
	A								
	U								
145	G								
	E								
	R	31	148.5	148.9	SS/3	100@4"		Black SILT and CLAY, some mf GRAVEL, little cmf SAND (wet, hard) *Spoon refusal at 148.9'*	100+
	XXX							Bottom of Boring @ 148.9'	
150									

SS – Split Spoon, U – Undisturbed Tube, C – Core, WR = Weight of Rods, WH = Weight of Hammer plus Rods.

Remarks:

SUBSURFACE EXPLORATION – TEST BORING LOG

Project:	Port of Albany Expansion Feasibility Project, Albany, NY	**Report No.:**	27211B-01-0417
Client:	Bergmann Associates, P.C.	**Date Started:**	2-27-17 **Finished:** 2-27-17
Location of Boring:	See Exploration Location Plan	**Elevation of Surface of Boring:**	15.7’

METHODS OF INVESTIGATION

Casing:	3-1/4” ID H. Stem Auger	**Driller:**	Bill Murphy
Casing Hammer:		**Driller:**	Beau Fletcher
Other:		**Inspector:**	
Soil Sampler:	2” OD Split Barrel	**Rod Size:**	AWJ
Sampler Hammer: Wt.	140 lbs.	**Fall:**	30 in.
Make & Model of Drill Rig:		CME 550x ATV-Mounted	

GROUND WATER OBSERVATIONS

Date	Time	Depth	Casing At
2-27-17	While drilling	4.3’	4.0’
2-27-17	Before casing removed	34.1’	48.5’
2-27-17	After casing removed	None Noted	out
2-27-17	After casing removed	caved @ 17.1’	out

LOG OF BORING SAMPLES / CLASSIFICATION OF MATERIAL

c – coarse; m – medium; f – fine; **and** – 35 to 50 %; **some** – 20 to 35 %; **little** – 10 to 20 %; **trace** – 0 to 10 %

Depth Scale (Feet)	Casing Blows/ Foot	Sample I.D.	Depth of Sample (Feet) From	To	Sample Type/ Recovery (Inches)	Blows On Sampler Per 6 inches	Depth Of Change (feet)	Classification of Material	SPT "N" or RQD
0	XXX	1	0.0	2.0	SS/17	2-1-2-3		Miscellaneous FILL; grey/black fine sand, coal ash, silt (moist)	3
	H								
		2	2.0	4.0	SS/18	2-2-2-2		Similar as above (moist)	4
	O								
	L	3	4.0	6.0	SS/24	1-1-1-1		Similar as above (wet)	2
5								~ Landfill ~	
	L								
		4	6.0	8.0	SS/18	WH-1-WH-1		Similar as above (wet)	1
	O								
	W	5	8.0	10.0	SS/2	WH-1-WH-1		Miscellaneous FILL; grey/black fine sand, ash, silt, wood (wet)	1
							10		
10		6	10.0	12.0	SS/24	WH-WH-WH-WH		Grey SILT, some CLAY, trace ORGANIC MATTER, trace fine SAND (wet, very soft)	0
	S								
		7	12.0	14.0	SS/18	WH-1-WH-WH		Similar as above (wet, very soft)	1
	T							~ Buried Organic ~	
	E	8	14.0	16.0	SS/8	WH-WH-1-1		Similar as above (wet, very soft)	1
15	M						16.0		
		9	16.0	18.0	SS/20	1-2-3-3		Grey mf SAND, little SILT (wet, loose)	5
		10	18.0	20.0	SS/17	2-1-1-1		Grey mf SAND, some SILT (wet, very loose)	2
	A								
	U								
20								~ Glaciofluvial ~	
	G								
	E								
		11	23.5	25.0	SS/18	3-2-1		Grey mf SAND, little SILT (wet, very loose)	3
	R								
25								Continued on page 2	

SS – Split Spoon, U – Undisturbed Tube, C – Core, WR = Weight of Rods, WH = Weight of Hammer plus Rods.

Remarks:

LOG OF BORING SAMPLES							CLASSIFICATION OF MATERIAL		
Depth Scale (Feet)	Casing Blows/ Foot	Sample I.D.	Depth of Sample (Feet) From	To	Sample Type/ Recovery (Inches)	Blows On Sampler Per 6 inches	Depth Of Change (feet)	**c** – **c**oarse, **m** – **m**edium, **f** – **f**ine; **and** – 35 to 50 %, **some** – 20 to 35 %, **little** – 10 to 20 %, **trace** – 0 to 10 %	SPT "N" or RQD
25								Continued from page 1	
	H								
	O	12	28.5	30.0	SS/8	3-2-1		Grey CLAY, little SILT (wet, soft)	3
	L								
30									
	L								
	O								
	W	13	33.5	35.0	SS/18	WH-WH-WH		Grey CLAY, some SILT (wet, very soft)	0
35									
								~ Lacustrine ~	
	S								
	T								
		14	38.5	40.0	SS/18	WH-WH-WH		Similar as above (wet, very soft)	0
	E								
40	M								
	A	15	43.5	45.0	SS/18	WH-2-3		Similar as above (wet, medium stiff)	5
	U								
45									
	G								
	E								
	R	16	48.5	50.0	SS/18	1-2-3		Similar as above (wet, medium stiff)	5
50	XXX							Bottom of Boring @ 50.0'	

SS – Split Spoon, U – Undisturbed Tube, C – Core, WR = Weight of Rods, WH = Weight of Hammer plus Rods.

Remarks:

SUBSURFACE EXPLORATION – TEST BORING LOG

Project: Port of Albany Expansion Feasibility Project, Albany, NY **Report No.:** 27211B-01-0417
Client: Bergmann Associates, P.C. **Date Started:** 02-20-17 **Finished:** 02-22-17
Location of Boring: See Exploration Location Plan **Elevation of Surface of Boring:** 16.7'

METHODS OF INVESTIGATION

Casing: 3-1/4" ID H. Stem Auger **Driller:** Bill Murphy
Casing Hammer: **Driller:** Beau Fletcher
Other: NQ-Core **Inspector:**
Soil Sampler: 2" OD Split Barrel **Rod Size:** AWJ
Sampler Hammer: Wt. 140 lbs. **Fall:** 30 in.
Make & Model of Drill Rig: CME 550x ATV-Mounted

GROUND WATER OBSERVATIONS

Date	Time	Depth	Casing At
02-20-17	While drilling	14.9'	14.0'
02-21-17	Before casing removed	5.3'	33.5' *
02-22-17	Before casing removed	4.7'	93.0' *
02-22-17	After casing removed	8.8'	out
02-22-17	After casing removed	caved @ 48.8'	out

LOG OF BORING SAMPLES / CLASSIFICATION OF MATERIAL

c – **c**oarse, **m** – **m**edium, **f** – **f**ine; **and** – 35 to 50 %, **some** – 20 to 35 %, **little** – 10 to 20 %, **trace** – 0 to 10 %

Depth Scale (Feet)	Casing Blows/ Foot	Sample I.D.	Depth of Sample (Feet) From	To	Sample Type/ Recovery (Inches)	Blows On Sampler Per 6 inches	Depth Of Change (feet)	Classification of Material	SPT "N" or RQD
0	XXX	1	0.0	2.0	SS/18	1-8-8-8		Miscellaneous FILL; black fine sand, silt (moist)	16
	H								
		2	2.0	4.0	SS/21	7-7-7-8		Miscellaneous FILL; black fine sand, silt, coal ash (moist)	14
	O								
	L	3	4.0	6.0	SS/19	7-2-3-7		Miscellaneous FILL; organic silt, fine sand, gravel, silt, ash (moist)	5
5									
	L								
		4	6.0	8.0	SS/10	7-14-8-8		Similar as above (moist)	22
	O							~ Landfill ~	
	W	5	8.0	10.0	SS/18	5-5-6-6		Similar as above (moist)	11
10		6	10.0	12.0	SS/12	5-4-5-5		FILL; brown cmf sand (moist)	9
	S								
		7	12.0	14.0	SS/8	4-5-5-6		Similar as above (moist)	10
	T								
	E	8	14.0	16.0	SS/12	6-4-4-3		Miscellaneous FILL; brown cmf sand, gravel, ash (moist)	8
15	M						16		
		9	16.0	18.0	SS/12	2-3-3-3		Grey/Brown SILT, little mf SAND, trace CLAY, trace ORGANIC MATTER (moist, medium stiff)	6
							18	~ Buried Organic ~	
		10	18.0	20.0	SS/20	1-2-3-4		Grey/Brown cmf SAND, little SILT (moist, loose)	5
	A								
	U								
20								~ Glaciofluvial ~	
	G								
	E								
		11	23.5	25.0	SS/18	2-2-4		Grey cmf SAND, some SILT (moist, loose)	6
	R								
25								Continued on page 2	

SS – Split Spoon, U – Undisturbed Tube, C – Core, WR = Weight of Rods, WH = Weight of Hammer plus Rods.
Remarks: *Overnight.

LOG OF BORING SAMPLES							CLASSIFICATION OF MATERIAL		
Depth Scale (Feet)	Casing Blows/ Foot	Sample I.D.	Depth of Sample (Feet) From	To	Sample Type/ Recovery (Inches)	Blows On Sampler Per 6 inches	Depth Of Change (feet)	**c** – **c**oarse, **m** – **m**edium, **f** – **f**ine; **and** – 35 to 50 %, **some** – 20 to 35 %, **little** – 10 to 20 %, **trace** – 0 to 10 %	SPT "N" or RQD
25								Continued from page 1	
	H								
	O	12	28.5	30.0	SS/14	5-4-5		Similar as above (wet, loose)	9
	L								
30									
	L							~ Glaciofluvial ~	
	O								
	W	13	33.5	35.0	SS/18	4-5-5		Grey cmf SAND, trace SILT (wet, medium compact)	10
35									
	S								
	T								
	E	14	38.5	40.0	SS/18	6-5-6		Similar as above (wet, medium compact)	11
40	M								
	A	15	43.5	45.0	SS/14	3-3-3		Grey CLAY, trace SILT (wet, medium stiff)	6
	U								
45								~ Lacustrine ~	
	G								
	E								
	R	16	48.5	50.0	SS/18	WH-WH-1		Similar as above (wet, very soft)	1
50								Continued on page 3	

SS – Split Spoon, U – Undisturbed Tube, C – Core, WR = Weight of Rods, WH = Weight of Hammer plus Rods.

Remarks:

LOG OF BORING SAMPLES							CLASSIFICATION OF MATERIAL		
Depth Scale (Feet)	Casing Blows/ Foot	Sample I.D.	Depth of Sample (Feet) From	To	Sample Type/ Recovery (Inches)	Blows On Sampler Per 6 inches	Depth Of Change (feet)	**c** – **c**oarse, **m** – **m**edium, **f** – **f**ine; **and** – 35 to 50 %, **some** – 20 to 35 %, **little** – 10 to 20 %, **trace** – 0 to 10 %	SPT "N" or RQD
50								Continued from page 2	
	H								
	O	17	53.5	55.0	SS/18	WH-WH-1		Similar as above (wet, very soft)	1
	L								
55									
	L								
	O								
	W	18	58.5	60.0	SS/18	1-2-3		Grey CLAY, some SILT (wet, medium stiff)	5
60									
								~ Lacustrine ~	
	S								
	T								
		19	63.5	65.0	SS/18	WH-1-3		Similar as above (wet, medium stiff)	4
	E								
65	M								
	A	20	68.5	70.0	SS/18	WH-1-3		Grey CLAY, little SILT (wet, medium stiff)	4
	U								
70									
	G								
	E								
	R								
75								Continued on page 4	

SS – Split Spoon, U – Undisturbed Tube, C – Core, WR = Weight of Rods, WH = Weight of Hammer plus Rods.

Remarks:

LOG OF BORING SAMPLES							CLASSIFICATION OF MATERIAL		
Depth Scale (Feet)	Casing Blows/ Foot	Sample I.D.	Depth of Sample (Feet) From	To	Sample Type/ Recovery (Inches)	Blows On Sampler Per 6 inches	Depth Of Change (feet)	**c** – **c**oarse, **m** – **m**edium, **f** – **f**ine; **and** – 35 to 50 %, **some** – 20 to 35 %, **little** – 10 to 20 %, **trace** – 0 to 10 %	SPT "N" or RQD
75								Continued from page 3	
	H							~ Lacustrine ~	
	O								
		21	78.5	80.0	SS/18	2-3-3		Similar as above (wet, medium stiff)	6
	L								
80	L								
							81.6	*Drilled gravelly at 81.6'*	
	O							Grey mf SAND and SILT, little mf GRAVEL	
		22	82.0	83.5	SS/17	8-20-14		(moist, compact)	34
	W								
	S								
85	T								
	E							~ Glacial Till ~	
	M								
	A								
90	U								
	G						92	*Change in drilling at 92'*	
								Roller bit to 93.0'	
	E							~ Normanskill Shale Formation ~	
		23	93.0	93.0	SS/0	100@0"		No Recovery, Spoon Refusal	100+
	R								
	XXX	R-1	93.5	98.5	C/60	NQ-Core		Grey/Black SHALE Bedrock, weathered, medium hard, thin high angle bedding and mechanical breaks, fractures at 93.8', 95.4', 95.9', 97.0' and 97.8', calcite filling and veins in core Recovery: 60"/60" = 100% RQD: 45"/60" = 75% 6 Pieces; 2" Chips and Fragments (*See Remark 1*)	75%
95	C O R E								
	XXX							Bottom of Boring @ 98.5'	
100									

SS – Split Spoon, U – Undisturbed Tube, C – Core, WR = Weight of Rods, WH = Weight of Hammer plus Rods.

Remarks: 1. See Bedrock Core Photos.

SUBSURFACE EXPLORATION – TEST BORING LOG

Project:	Port of Albany Expansion Feasibility Project, Albany, NY	**Report No.:**	27211B-01-0417
Client:	Bergmann Associates, P.C.	**Date Started:**	02-14-17 **Finished:** 02-15-17
Location of Boring:	See Exploration Location Plan	**Elevation of Surface of Boring:**	10.4’

METHODS OF INVESTIGATION

Casing:	3-1/4” ID H. Stem Auger	**Driller:**	Bill Murphy
Casing Hammer:		**Driller:**	Beau Fletcher
Other:	NQ-Core	**Inspector:**	
Soil Sampler:	2” OD Split Barrel	**Rod Size:**	AWJ
Sampler Hammer: Wt.	140 lbs.	**Fall:**	30 in.
Make & Model of Drill Rig:	CME 550x ATV-Mounted		

GROUND WATER OBSERVATIONS

Date	Time	Depth	Casing At
02-14-17	While drilling	7.2’	8.0’
02-15-17	Before casing removed	35.8’	63.5’
02-15-17	After casing removed		out
02-15-17	After casing removed	caved @	out

LOG OF BORING SAMPLES / **CLASSIFICATION OF MATERIAL**

c – coarse, m – medium, f – fine; **and** – 35 to 50 %, **some** – 20 to 35 %, **little** – 10 to 20 %, **trace** – 0 to 10 %

Depth Scale (Feet)	Casing Blows/ Foot	Sample I.D.	Depth of Sample (Feet) From	Depth of Sample (Feet) To	Sample Type/ Recovery (Inches)	Blows On Sampler Per 6 inches	Depth Of Change (feet)	Classification of Material	SPT “N” or RQD
0	XXX	1	0.0	2.0	SS/20	5-1-1-1		Miscellaneous FILL; black silt, fine sand, organic matter (moist)	2
	H	2	2.0	4.0	SS/24	2-2-1-2		Miscellaneous FILL; black fine sand, silt, ash (wet)	3
	O L	3	4.0	6.0	SS/0	1-WH-1-WH		No Recovery	1
5	L O	4	6.0	8.0	SS/24	1-WH-1-WH		Miscellaneous FILL; black fine sand, coal ash, silt (wet)	1
	W	5	8.0	10.0	SS/0	WH-WH-WH-WH		No Recovery ~ Landfill ~	0
10		6	10.0	12.0	SS/4	WH-WH-WH-WH		Miscellaneous FILL; black/grey fine sand, coal ash, silt (wet)	0
	S	7	12.0	14.0	SS/8	WH-WH-WH-WH		Similar as above (wet)	0
	T E	8	14.0	16.0	SS/8	WH-1-1-2		Similar as above (wet)	2
15	M	9	16.0	18.0	SS/8	WH-1-WH-1		Similar as above (wet)	1
		10	18.0	20.0	SS/14	WH-WH-2-2		Similar as above (wet)	2
20	A U G								
	E	11	23.5	25.0	SS/12	3-2-2		Grey cmf SAND, little SILT, trace mf GRAVEL (wet, loose) ~ Glaciofluvial ~	4
25	R							Continued on page 2	

SS – Split Spoon, U – Undisturbed Tube, C – Core, WR = Weight of Rods, WH = Weight of Hammer plus Rods.

Remarks:

LOG OF BORING SAMPLES							CLASSIFICATION OF MATERIAL		
Depth Scale (Feet)	Casing Blows/ Foot	Sample I.D.	Depth of Sample (Feet) From	Depth of Sample (Feet) To	Sample Type/ Recovery (Inches)	Blows On Sampler Per 6 inches	Depth Of Change (feet)	**c** – **c**oarse, **m** – **m**edium, **f** – **f**ine; **and** – 35 to 50 %, **some** – 20 to 35 %, **little** – 10 to 20 %, **trace** – 0 to 10 %	SPT "N" or RQD
25								Continued from page 1	
	H								
	O	12	28.5	30.0	SS/14	3-2-1		Grey CLAY, trace SILT (wet, soft)	3
	L								
30	L								
	O								
	W	13	33.5	35.0	SS/16	WH-1-2		Similar as above (wet, soft)	3
35									
								~ Lacustrine ~	
	S								
	T	14	38.5	40.0	SS/18	WH-1-2		Similar as above (wet, soft)	3
	E								
40	M								
	A	15	43.5	45.0	SS/18	WH-WH-WH		Grey CLAY and SILT (wet, very soft)	0
45	U								
	G								
	E						47.5	*Change in drilling at 47.5'*	
	R	16	48.5	50.0	SS/10	6-7-14		Grey SILT and mf SAND, trace fine GRAVEL (wet, very stiff) ~ Glacial Till ~	21
50								Continued on page 3	

SS – Split Spoon, U – Undisturbed Tube, C – Core, WR = Weight of Rods, WH = Weight of Hammer plus Rods.

Remarks:

LOG OF BORING SAMPLES							CLASSIFICATION OF MATERIAL		
Depth Scale (Feet)	Casing Blows/ Foot	Sample I.D.	Depth of Sample (Feet) From	To	Sample Type/ Recovery (Inches)	Blows On Sampler Per 6 inches	Depth Of Change (feet)	c – coarse, m – medium, f – fine; **and** – 35 to 50 %, **some** – 20 to 35 %, **little** – 10 to 20 %, **trace** – 0 to 10 %	SPT "N" or RQD
50								Continued from page 2	
	H								
	O								
	L	17	53.5	55.0	SS/13	8-6-14		Grey mf SAND, some SILT, little fine GRAVEL	20
	L							(wet, medium compact)	
	O								
55	W								
								~ Glacial Till ~	
	S								
	T								
	E								
	M	18	58.5	59.5	SS/8	52-100@5”		Grey SILT and mf GRAVEL, little fine SAND	100+
								(wet, hard)	
	A								
60	U								
	G								
	E						60.7	*Change in drilling at 60.7’ – lifting rig*	
	R							~ Normanskill Shale Formation ~	
	XXX	19	63.5	63.5	SS/0	100@0”		Black ROCK FRAGMENTS; shale	100+
		R-1	63.5	66.0	C/24	NQ-Core		Black, SHALE Bedrock, weathered, medium hard,	27%
65	C							thin high angle bedding and mechanical breaks	
								Recovery: 24”/30” = 80%	
								RQD: 8”/30” = 27%	
	O							6 Pieces; 8” Chips and Fragments	
								Core blocked at 66.0’ – approximately 2” of mud	
								seam at 66.0’	
	R	R-2	66.0	67.8	C/15	NQ-Core		Black, SHALE Bedrock, highly weathered,	0%
								medium hard, thin high angle bedding and	
								mechanical breaks	
	E							Recovery: 15”/21” = 71%	
								RQD: 0”/21” = 0%	
								1 Piece; 12” Chips and Fragments	
	XXX							*Core blocked at 67.8’* (*See Remark 1*)	
								Bottom of Boring @ 67.8’	
70									

SS – Split Spoon, U – Undisturbed Tube, C – Core, WR = Weight of Rods, WH = Weight of Hammer plus Rods.

Remarks: 1. See Bedrock Core Photos.

SUBSURFACE EXPLORATION – TEST BORING LOG

Project:	Port of Albany Expansion Feasibility Project, Albany, NY	**Report No.:**	27211B-01-0417
Client:	Bergmann Associates, P.C.	**Date Started:**	2-27-17 **Finished:** 2-27-17
Location of Boring:	See Exploration Location Plan	**Elevation of Surface of Boring:**	23.9’

METHODS OF INVESTIGATION

Casing:	3-1/4” ID H. Stem Auger	**Driller:**	Bill Murphy
Casing Hammer:		**Driller:**	Beau Fletcher
Other:		**Inspector:**	
Soil Sampler:	2” OD Split Barrel	**Rod Size:**	AWJ
Sampler Hammer: Wt.	140 lbs.	**Fall:**	30 in.
Make & Model of Drill Rig:		CME 550x ATV-Mounted	

GROUND WATER OBSERVATIONS

Date	Time	Depth	Casing At
2-27-17	While drilling	13.7’	14.0’
2-27-17	Before casing removed	39.8’	48.5’
2-27-17	After casing removed	18.1’	out
2-27-17	After casing removed	caved @ 19.2’	out

LOG OF BORING SAMPLES / **CLASSIFICATION OF MATERIAL**

c – coarse, m – medium, f – fine; **and** – 35 to 50 %, **some** – 20 to 35 %, **little** – 10 to 20 %, **trace** – 0 to 10 %

Depth Scale (Feet)	Casing Blows/ Foot	Sample I.D.	Depth of Sample (Feet) From	Depth of Sample (Feet) To	Sample Type/ Recovery (Inches)	Blows On Sampler Per 6 inches	Depth Of Change (feet)	Classification of Material	SPT “N” or RQD
0	XXX	1	0.0	2.0	SS/17	1-2-2-2		Miscellaneous FILL; black fine sand, coal ash, silt, organic matter (moist)	4
	H								
		2	2.0	4.0	SS/21	2-3-3-3		Similar as above (moist)	6
	O								
	L	3	4.0	6.0	SS/15	3-3-3-3		Similar as above (moist)	6
5								~ Landfill ~	
	L								
		4	6.0	8.0	SS/24	4-4-4-4		Miscellaneous FILL; brown fine sand, silt, ash, organic matter (moist)	8
	O								
	W	5	8.0	10.0	SS/11	3-4-7-7		Miscellaneous FILL; brown sand, ash, silt, gravel (moist)	11
10		6	10.0	12.0	SS/24	7-6-3-3		Similar as above (moist)	9
	S								
		7	12.0	14.0	SS/6	2-6-4-3		Grey Similar as above (moist)	10
	T								
	E	8	14.0	16.0	SS/4	3-2-2-4		Miscellaneous FILL; grey gravel, silt, ash (wet)	4
15	M						16		
		9	16.0	18.0	SS/24	3-2-1-2		Grey SILT, some CLAY, trace ORGANIC MATTER (wet, soft)	3
								~ Buried Organic ~	
		10	18.0	20.0	SS/24	3-2-1-1		Grey/Brown SILT, some CLAY (wet, soft)	3
	A								
	U								
20									
	G								
	E								
		11	23.5	25.0	SS/22	WH-5-8		Brown mf SAND, trace SILT (wet, medium compact)	13
	R								
								~ Glaciofluvial ~	
25								Continued on page 2	

SS – Split Spoon, U – Undisturbed Tube, C – Core, WR = Weight of Rods, WH = Weight of Hammer plus Rods.

Remarks:

LOG OF BORING SAMPLES							CLASSIFICATION OF MATERIAL		
Depth Scale (Feet)	Casing Blows/ Foot	Sample I.D.	Depth of Sample (Feet) From	To	Sample Type/ Recovery (Inches)	Blows On Sampler Per 6 inches	Depth Of Change (feet)	c – coarse, m – medium, f – fine; **and** – 35 to 50 %, **some** – 20 to 35 %, **little** – 10 to 20 %, **trace** – 0 to 10 %	SPT "N" or RQD
25								Continued from page 1	
	H								
								Drilled gravelly at 27.7'	
	O	12	28.5	30.0	SS/14	26-13-8		Grey/Brown cmf SAND, some mf GRAVEL, trace SILT (wet, medium compact)	21
	L								
30								~ Glaciofluvial ~	
	L								
	O								
	W	13	33.5	35.0	SS/18	2-2-2		Grey CLAY, some SILT (wet, soft)	4
35									
	S								
	T								
		14	38.5	40.0	SS/18	2-2-2		Grey CLAY, little SILT (wet, soft)	4
	E								
40	M								
								~ Lacustrine ~	
	A	15	43.5	45.0	SS/18	3-3-3		Similar as above (wet, medium stiff)	6
	U								
45									
	G								
	E								
	R	16	48.5	50.0	SS/18	1-2-2		Grey CLAY, some SILT (wet, medium stiff)	4
50	XXX							Bottom of Boring @ 50.0'	

SS – Split Spoon, U – Undisturbed Tube, C – Core, WR = Weight of Rods, WH = Weight of Hammer plus Rods.

Remarks:

SUBSURFACE EXPLORATION – TEST BORING LOG

Project: Port of Albany Expansion Feasibility Project, Albany, NY **Report No.:** 27211B-01-0417
Client: Bergmann Associates, P.C. **Date Started:** 2-22-17 **Finished:** 2-23-17
Location of Boring: See Exploration Location Plan **Elevation of Surface of Boring:** 13.6'

METHODS OF INVESTIGATION

Casing: 3-1/4" ID H. Stem Auger **Driller:** Bill Murphy
Casing Hammer: **Driller:** Beau Fletcher
Other: **Inspector:**
Soil Sampler: 2" OD Split Barrel **Rod Size:** AWJ
Sampler Hammer: Wt. 140 lbs. **Fall:** 30 in.
Make & Model of Drill Rig: CME 550x ATV-Mounted

GROUND WATER OBSERVATIONS

Date	Time	Depth	Casing At
2-22-17	While drilling	7.8'	6.0' *
2-23-17	Before casing removed	33.8'	48.5' *
2-23-17	After casing removed	None Noted	out
2-23-17	After casing removed	caved @ 8.5'	out

LOG OF BORING SAMPLES / CLASSIFICATION OF MATERIAL

c – coarse, m – medium, f – fine; **and** – 35 to 50 %, **some** – 20 to 35 %, **little** – 10 to 20 %, **trace** – 0 to 10 %

Depth Scale (Feet)	Casing Blows/ Foot	Sample I.D.	Depth of Sample (Feet) From	To	Sample Type/ Recovery (Inches)	Blows On Sampler Per 6 inches	Depth Of Change (feet)	Classification of Material	SPT "N" or RQD
0	XXX	1	0.0	2.0	SS/12	3-2-1-1		Miscellaneous FILL; black fine sand, coal ash, silt, organic matter (moist)	3
	H								
		2	2.0	4.0	SS/14	1-1-1-1		Similar as above (moist)	2
	O								
	L	3	4.0	6.0	SS/13	1-1-1-1		Miscellaneous FILL; black fine sand, silt (moist)	2
5								~ Landfill ~	
	L								
		4	6.0	8.0	SS/10	1-1-2-1		Similar as above (moist)	3
	O								
	W	5	8.0	10.0	SS/12	1-1-1-1		Similar as above (moist)	2
							10.0		
10		6	10.0	12.0	SS/20	1-1-1-1		Grey ORGANIC SILT, some CLAY, trace fine SAND, trace ORGANIC MATTER (wet, soft) *Reddish rusty stain noted*	2
	S								
		7	12.0	14.0	SS/24	WH-WH-WH-WH		Grey ORGANIC SILT, little CLAY (moist, very soft)	0
	T							~ Buried Organic ~	
	E	8	14.0	16.0	SS/22	WH-WH-WH-WH		Grey ORGANIC SILT, some CLAY, little fine SAND, trace ORGANIC MATTER (moist, very soft)	0
15	M								
		9a	16.0	17.5	SS/24	1-2-2-3		Black/Brown SILT and fine SAND, trace ORGANIC MATTER (moist, medium stiff)	4
		9b	17.5	18.0			18.0	Grey/Brown SILT, some CLAY, trace ORGANIC MATTER (moist, medium stiff)	
	A	10	18.0	20.0	SS/22	WH-2-1		Grey cmf SAND, trace SILT, trace fine GRAVEL (moist, very loose)	3
	U								
20								*Flowing sands – water added*	
	G								
								~ Glaciofluvial ~	
	E								
		11	23.5	25.0	SS/24	3-4-5		Grey cmf SAND, little mf GRAVEL, trace SILT (wet, loose)	9
	R								
25								Continued on page 2	

SS – Split Spoon, U – Undisturbed Tube, C – Core, WR = Weight of Rods, WH = Weight of Hammer plus Rods.
Remarks: *Overnight.

LOG OF BORING SAMPLES							CLASSIFICATION OF MATERIAL		
Depth Scale (Feet)	Casing Blows/ Foot	Sample I.D.	Depth of Sample (Feet) From	To	Sample Type/ Recovery (Inches)	Blows On Sampler Per 6 inches	Depth Of Change (feet)	**c** – **c**oarse, **m** – **m**edium, **f** – **f**ine; **and** – 35 to 50 %, **some** – 20 to 35 %, **little** – 10 to 20 %, **trace** – 0 to 10 %	SPT "N" or RQD
25								Continued from page 1	
	H								
	O	12	28.5	30.0	SS/22	3-2-3		Grey cmf SAND, little SILT, trace fine GRAVEL (wet, loose)	5
30	L								
	L							~ Glaciofluvial ~	
	O								
	W	13	33.5	35.0	SS/24	4-2-3		Similar as above (wet, loose)	5
35									
	S								
	T								
	E	14	38.5	40.0	SS/6	2-3-2		Grey CLAY, little SILT (moist, medium stiff)	5
40	M								
	A	15	43.5	45.0	SS/12	2-3-2		Similar as above (moist, medium stiff)	5
45	U								
	G							~ Lacustrine ~	
	E								
	R	16	48.5	50.0	SS/19	1-2-2		Similar as above (moist, soft)	4
50	XXX							Bottom of Boring @ 50.0'	

SS – Split Spoon, U – Undisturbed Tube, C – Core, WR = Weight of Rods, WH = Weight of Hammer plus Rods.

Remarks:

CME Associates, Inc. **BORING NO.: B-7**

SUBSURFACE EXPLORATION – TEST BORING LOG

Project:	Port of Albany Expansion Feasibility Project, Albany, NY	**Report No.:**	27211B-01-0417
Client:	Bergmann Associates, P.C.	**Date Started:**	2-22-17 **Finished:** 2-22-17
Location of Boring:	See Exploration Location Plan	**Elevation of Surface of Boring:**	16.0’

METHODS OF INVESTIGATION

Casing:	3-1/4” ID H. Stem Auger	**Driller:**	Bill Murphy
Casing Hammer:		**Driller:**	Beau Fletcher
Other:		**Inspector:**	
Soil Sampler:	2” OD Split Barrel	**Rod Size:**	AWJ
Sampler Hammer: Wt.	140 lbs.	**Fall:**	30 in.
Make & Model of Drill Rig:	CME 550x ATV-Mounted		

GROUND WATER OBSERVATIONS

Date	Time	Depth	Casing At
2-22-17	While drilling	1.5’	4.0’
2-22-17	Before casing removed	38.4’	48.5’
2-22-17	After casing removed	None Noted	out
2-22-17	After casing removed	caved @ 6.2’	out

LOG OF BORING SAMPLES / **CLASSIFICATION OF MATERIAL**

Depth Scale (Feet)	Casing Blows/ Foot	Sample I.D.	Depth of Sample (Feet)		Sample Type/ Recovery (Inches)	Blows On Sampler Per 6 inches	Depth Of Change (feet)	c – coarse, m – medium, f – fine; **and** – 35 to 50 %, **some** – 20 to 35 %, **little** – 10 to 20 %, **trace** – 0 to 10 %	SPT “N” or RQD
			From	To					
0	XXX	1	0.0	2.0	SS/20	4-2-2-1		Miscellaneous FILL; black fine sand, silt, organic matter (moist)	4
	H								
		2	2.0	4.0	SS/22	1-2-2-1		Miscellaneous FILL; black fine sand, coal ash, silt (wet)	4
	O							~ Landfill ~	
	L	3	4.0	6.0	SS/24	1-WH-1-WH		Similar as above (wet)	1
5									
	L						6		
		4	6.0	8.0	SS/8	1-3-4-4		Brown SILT, trace CLAY, trace ORGANIC MATTER (moist, medium stiff)	7
	O								
	W	5	8.0	10.0	SS/24	1-2-2-WH		Grey SILT, little CLAY (moist, soft)	4
								~ Buried Organic ~	
10		6	10.0	12.0	SS/14	WH-WH-WH-WH		Similar as above (moist, very soft)	0
	S								
		7	12.0	14.0	SS/18	WH-WH-WH-WH		Similar as above (moist, very soft)	0
	T						14		
	E	8	14.0	16.0	SS/13	WH-2-2-3		Grey mf SAND, little SILT (wet, loose)	4
15	M								
		9	16.0	18.0	SS/14	WH-3-3-4		Grey mf SAND, trace SILT (wet, loose)	6
		10	18.0	20.0	SS/24	2-2-2-1		Grey cmf SAND, trace SILT (wet, loose)	4
	A								
	U								
20								~ Glaciofluvial ~	
	G								
	E								
		11	23.5	25.0	SS/24	3-3-4		Grey cmf SAND, little fine GRAVEL, trace SILT (wet, loose)	7
	R							*Flowing sands at 25.0’ feet – water added*	
25								Continued on page 2	

SS – Split Spoon, U – Undisturbed Tube, C – Core, WR = Weight of Rods, WH = Weight of Hammer plus Rods.

Remarks:

LOG OF BORING SAMPLES							CLASSIFICATION OF MATERIAL		
Depth Scale (Feet)	Casing Blows/ Foot	Sample I.D.	Depth of Sample (Feet) From	To	Sample Type/ Recovery (Inches)	Blows On Sampler Per 6 inches	Depth Of Change (feet)	**c** – **c**oarse, **m** – **m**edium, **f** – **f**ine; **and** – 35 to 50 %, **some** – 20 to 35 %, **little** – 10 to 20 %, **trace** – 0 to 10 %	SPT "N" or RQD
25								Continued from page 1	
	H								
	O	12	28.5	30.0	SS/20	2-2-3		Similar as above (wet, loose)	5
	L								
30	L							~ Glaciofluvial ~	
	O								
	W	13a	33.5	34.0	SS/18	2-1-2	34.0	Similar as above (wet, very loose)	3
		13b	34.0	35.0				Grey CLAY, little SILT (moist, soft)	
35									
	S								
	T	14	38.5	40.0	SS/14	WH-1-2		Similar as above (moist, soft)	3
	E								
40	M							~ Lacustrine ~	
	A	15	43.5	45.0	SS/20	WH-WH-WH		Grey CLAY, some SILT (moist, very soft)	0
	U								
45	G								
	E								
	R	16	48.5	50.0	SS/24	2-2-2		Grey CLAY, little SILT (moist, soft)	4
50	XXX							Bottom of Boring @ 50.0'	

SS – Split Spoon, U – Undisturbed Tube, C – Core, WR = Weight of Rods, WH = Weight of Hammer plus Rods.

Remarks:

SUBSURFACE EXPLORATION – TEST BORING LOG

Project: Port of Albany Expansion Feasibility Project, Albany, NY **Report No.:** 27211B-01-0417
Client: Bergmann Associates, P.C. **Date Started:** 2-23-17 **Finished:** 2-23-17
Location of Boring: See Exploration Location Plan **Elevation of Surface of Boring:** 13.4’

METHODS OF INVESTIGATION

Casing: 3-1/4” ID H. Stem Auger **Driller:** Bill Murphy
Casing Hammer: **Driller:** Beau Fletcher
Other: **Inspector:**
Soil Sampler: 2” OD Split Barrel **Rod Size:** AWJ
Sampler Hammer: Wt. 140 lbs. **Fall:** 30 in.
Make & Model of Drill Rig: CME 550x ATV-Mounted

GROUND WATER OBSERVATIONS

Date	Time	Depth	Casing At
2-23-17	While drilling	21.4’	28.5’
2-23-17	Before casing removed	42.4’	48.5’
2-23-17	After casing removed	None Noted	out
2-23-17	After casing removed	caved @ 18.7’	out

LOG OF BORING SAMPLES / CLASSIFICATION OF MATERIAL

c – coarse, m – medium, f – fine; **and** – 35 to 50 %, **some** – 20 to 35 %, **little** – 10 to 20 %, **trace** – 0 to 10 %

Depth Scale (Feet)	Casing Blows/ Foot	Sample I.D.	Depth of Sample (Feet) From	To	Sample Type/ Recovery (Inches)	Blows On Sampler Per 6 inches	Depth Of Change (feet)	Classification of Material	SPT “N” or RQD
0	XXX	1	0.0	2.0	SS/19	4-4-5-6		Miscellaneous FILL; brown silt, fine sand, ash, organic matter (moist)	9
	H								
		2	2.0	4.0	SS/21	6-11-22-22		Similar as above (moist)	33
	O								
	L	3	4.0	6.0	SS/23	9-9-8-9		Miscellaneous FILL; black fine sand, silt, coal ash (moist)	17
5									
	L							~ Landfill ~	
		4	6.0	8.0	SS/22	8-10-8-7		Similar as above (wet)	18
	O								
	W	5	8.0	10.0	SS/17	2-2-4-7		Miscellaneous FILL; black fine sand, silt, coal ash, gravel (wet)	6
10		6	10.0	12.0	SS/8	8-13-10-7		Miscellaneous FILL; brown fine sand, gravel, coal ash (moist)	23
	S						12		
		7	12.0	14.0	SS/5	2-1-2-2		Grey/Brown ORGANIC SILT, little CLAY, trace fine SAND (moist, soft)	3
	T							~ Buried Organic ~	
	E	8	14.0	16.0	SS/24	WH-WH-WH-1		Similar as above (wet, very soft)	0
15	M						16		
		9	16.0	18.0	SS/24	2-3-4-4		Brown/Grey fine SAND, some SILT (wet, loose)	7
		10	18.0	20.0	SS/24	1-1-3-5		Similar as above (wet, loose)	4
	A								
	U								
20								~ Glaciofluvial ~	
	G								
	E								
		11	23.5	25.0	SS/18	1-2-3		Brown/Grey cmf SAND, trace SILT (wet, loose)	5
	R								
25								Continued on page 2	

SS – Split Spoon, U – Undisturbed Tube, C – Core, WR = Weight of Rods, WH = Weight of Hammer plus Rods.

Remarks:

LOG OF BORING SAMPLES							CLASSIFICATION OF MATERIAL		
Depth Scale (Feet)	Casing Blows/ Foot	Sample I.D.	Depth of Sample (Feet) From	To	Sample Type/ Recovery (Inches)	Blows On Sampler Per 6 inches	Depth Of Change (feet)	**c** – **c**oarse, **m** – **m**edium, **f** – **f**ine; **and** – 35 to 50 %, **some** – 20 to 35 %, **little** – 10 to 20 %, **trace** – 0 to 10 %	SPT "N" or RQD
25								Continued from page 1	
	H								
	O	12	28.5	30.0	SS/18	4-4-5		Similar as above (wet, loose) *Putrid odor*	9
	L								
30									
	L								
	O								
	W	13	33.5	35.0	SS/18	5-4-5		Similar as above (wet, loose)	9
35									
								~ Glaciofluvial ~	
	S								
	T								
		14	38.5	40.0	SS/18	4-3-3		Grey Similar as above (wet, loose)	6
	E								
40	M								
	A	15a	43.5	44.8	SS/18	5-4-3	44.8	Similar as above (wet, loose) *Trace clay in end of spoon*	7
	U	15b	44.8	45.0				Grey CLAY, little SILT (wet, medium stiff)	
45									
	G								
								~ Lacustrine ~	
	E								
	R	16	48.5	50.0	SS/18	3-2-3		Grey CLAY, some SILT, trace fine SAND (wet, medium stiff)	5
50	XXX							Bottom of Boring @ 50.0'	

SS – Split Spoon, U – Undisturbed Tube, C – Core, WR = Weight of Rods, WH = Weight of Hammer plus Rods.

Remarks:

CME Associates, Inc.

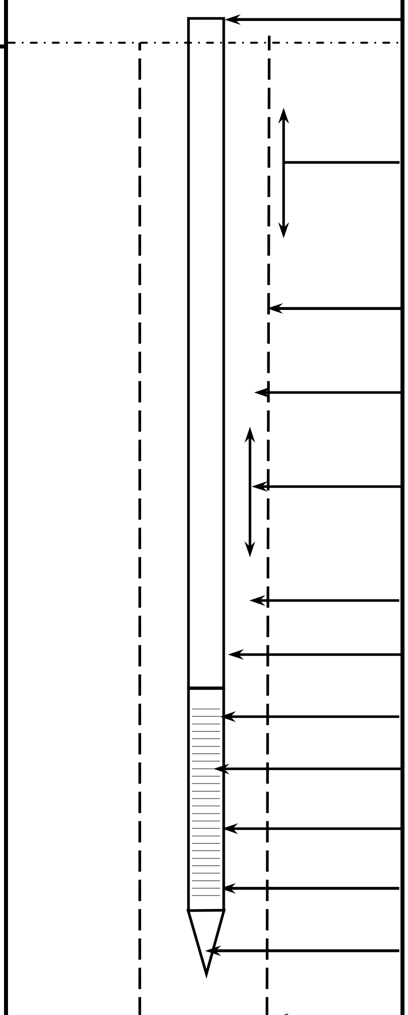
GROUNDWATER OBSERVATION WELL LOG

Project	Port of Albany Expansion Feasibility Project	**Report No.**	27211B-01-0417
Client	Bergmann Associates, P.C.	**Boring No.**	B-3
Location	Albany, New York	**Well No.**	MW-1
Contractor	CME Associates, Inc.	**Location**	See Exploration Location Plan
Driller	Bill Murphy **Inspector** Beau Fletcher	**Surface Elevation**	16.7’
Installation Date	02-28-17	**Sheet**	1 **of** 1

Subsurface Soil Conditions

See Boring Log B-3

Bottom of Boring @ 23’



Stickup of riser pipe above ground surface	3 ft
Thickness of surface seal	2 ft
Type of surface seal	grout
Diameter of Borehole	8 in
Type of backfill around riser	grout
Thickness of seal	2 ft
Type of seal	Bentonite
Depth to top of filter pack	10 ft
Depth to bottom of riser	12 ft
Type of well screen	PVC
Screen gauge or size of openings	0.010 in
Diameter of well	2 in
Type of backfill/filter pack around point	#2 SAND
Depth to bottom of point	22 ft
Depth to bottom of borehole	23 ft

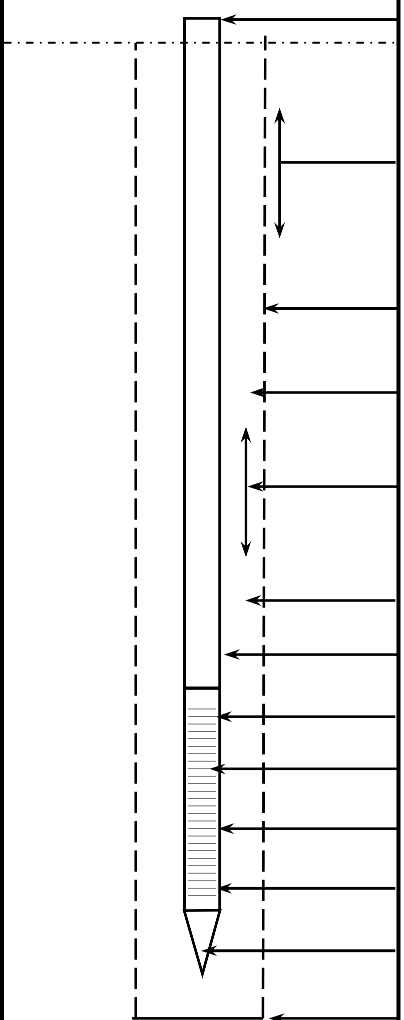
GROUNDWATER OBSERVATION WELL LOG

Project	Port of Albany Expansion Feasibility Project			**Report No.**	27211B-01-0417		
Client	Bergmann Associates, P.C.			**Boring No.**	B-5		
Location	Albany, New York			**Well No.**	MW-2		
Contractor	CME Associates, Inc.			**Location**	See Exploration Location Plan		
Driller	Bill Murphy	**Inspector**	Beau Fletcher	**Surface Elevation**	23.9’		
Installation Date	02-28-17			**Sheet**	1	**of**	1

Subsurface Soil Conditions

See Boring Log B-5

Bottom of Boring @ 22’



Stickup of riser pipe above ground surface	3 ft
Thickness of surface seal	2 ft
Type of surface seal	grout
Diameter of Borehole	2 ft
Type of backfill around riser	grout
Thickness of seal	2 ft
Type of seal	Bentonite
Depth to top of filter pack	9 ft
Depth to bottom of riser	11 ft
Type of well screen	PVC
Screen gauge or size of openings	0.010 in
Diameter of well	2 in
Type of backfill/filter pack around point	#2 SAND
Depth to bottom of point	21 ft
Depth to bottom of borehole	22 ft

CME Associates, Inc.

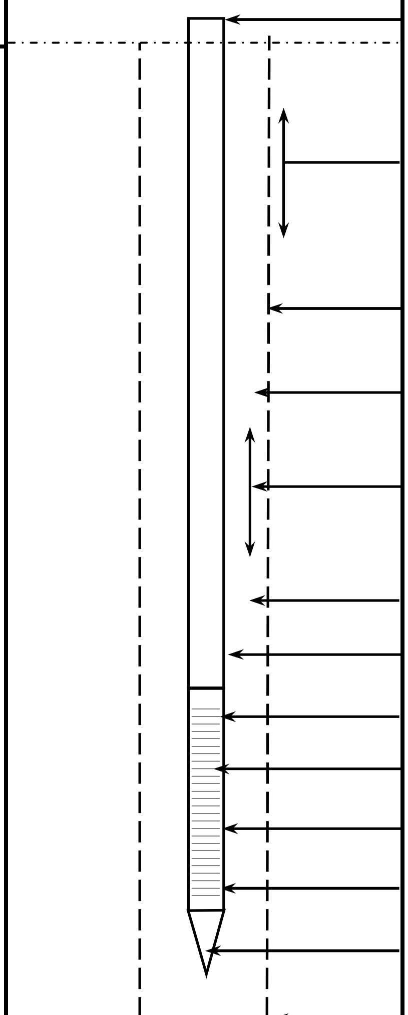
GROUNDWATER OBSERVATION WELL LOG

Project	Port of Albany Expansion Feasibility Project			**Report No.**	27211B-01-0417		
Client	Bergmann Associates, P.C.			**Boring No.**	B-4		
Location	Albany, New York			**Well No.**	MW-3		
Contractor	CME Associates, Inc.			**Location**	See Exploration Location Plan		
Driller	Bill Murphy	**Inspector**	Beau Fletcher	**Surface Elevation**	10.4’		
Installation Date	02-28-17			**Sheet**	1	**of**	1

Subsurface Soil Conditions

See Boring Log B-4

Bottom of Boring @ 16’



Stickup of riser pipe above ground surface	3 ft
Thickness of surface seal	N/A
Type of surface seal	Bentonite
Diameter of Borehole	8 in
Type of backfill around riser	Bentonite
Thickness of seal	N/A
Type of seal	Bentonite
Depth to top of filter pack	3 ft
Depth to bottom of riser	5 ft
Type of well screen	PVC
Screen gauge or size of openings	0.010 in
Diameter of well	2 in
Type of backfill/filter pack around point	#2 SAND
Depth to bottom of point	15 ft
Depth to bottom of borehole	16 ft

GENERAL INFORMATION & KEY TO TEST BORING LOGS

The **Subsurface Exploration - Test Boring Logs produced by CME Associates, Inc.** present the observations and mechanical data collected by the driller while at the site, supplemented, at times, by classification of the materials removed from the borings as determined through visual identification by technicians in the laboratory. It is cautioned that the materials removed from the borings represent only a fraction of the total volume of the deposits at the site and may not necessarily be representative of the subsurface conditions between adjacent borings or between the sampled intervals. The data presented on the Exploration Logs together with the recovered samples will provide a basis for evaluating the character of the subsurface conditions relative to the proposed construction. The evaluation must consider all the recorded details and their significance relative to each other. Often, analyses of standard boring data indicate the need for additional testing and sampling procedures to more accurately evaluate the subsurface conditions. Any evaluations of the contents of CME's report and the recovered samples must be performed by Licensed Professionals having experience in Soil Mechanics and Foundation Engineering. The information presented in this Key defines some of the procedures and terms used on the CME Exploration Logs to describe the conditions encountered. Refer to the Log on page 3 for key number.

Key No. **Description**

1. The figures in the **DEPTH SCALE** column define the vertical scale of the Boring Log.

2. **CASING BLOWS/FOOT** - shows the number of blows required to advance the casing a distance of 12 inches. The casing size, the hammer weight and the length of drop are noted under the **Methods of Investigation**. If the casing is advanced by means other than driving, the method of advancement will be indicated under **Methods of Investigation** at the top of the Log. If Hollow Stem Augers or Coring is used, it will be so noted in this column.

3. The **SAMPLE I.D.** is used for identification on the sample containers and in the Laboratory Test Report or Summary.

4. The **DEPTH OF SAMPLE** column gives the exact depth range from which a sample was recovered.

5. The **SAMPLE TYPE/RECOVERY** column is used to signify the various type of sample attempt. "SS" is Split Spoon, "P" is piston tube, "U" is Undisturbed tube. For soil samples, the recovered length of the sample is also indicated, in inches. If a rock core sample is taken, the core bit size designation is given here.

6. **BLOWS ON SAMPLER** - shows the results of the "Standard Penetration Test (SPT) ASTM D1586", recording the number of blows required to drive a split spoon sampler into the soil beneath the casing. The number of blows required for each six inches of penetration is recorded. The total number of blows required for the 6 inch to 18 inch interval is summarized in the **SPT "N"** column and represents the "Standard Penetration Number". The outside diameter of the sampler, the hammer weight and the length of drop are noted in the **Methods of Investigation** portion of the log. A "WH" or "WR" in this column indicates that the sample spoon advanced the 6 inch interval under **W**eight of **H**ammer or **W**eight of **R**ods, respectively.

7. The **DEPTH OF CHANGE** column designates the depth (in feet) that the driller noted a compactness or stratum change. In soft materials or soil strata exhibiting a consistent relative density, it is difficult for the driller to determine the exact change from one stratum to the next. In addition, a grading or gradual change may exist. In such cases the depth noted is approximate or estimated only and may be represented by a dashed line.

8. **CLASSIFICATION OF MATERIAL - Soil materials** encountered and sampled are described by the driller on the original log. Notes of driller observations are also placed in this column. Recovered samples may also be visually classified by a Soil Technician upon receipt in the Laboratory. Visual sample classification is by Burmister System and strata may be classified additionally by the Unified System. The Burmister System is a type of visual-manual textural classification estimated by the Driller or Technician on the basis of weight-fraction of the recovered soil. See Table 1 **"Classification of Materials"**. The description of the relative soil compactness or consistency is based upon the standard penetration number as defined in Table 2. The description of the soil moisture condition is described as dry, moist, wet, or saturated. Water used to advance the boring may have affected the in-situ moisture content of the sample. Special terms are used as required to describe materials in greater detail, such terms are listed in ASTM D653. When sampling gravelly soils with a standard two-inch O.D. Split Spoon, the true percentage of gravel is often not recovered due to the relatively small sampler diameter. The presence of boulders, cobbles, and large gravel is sometimes, but not necessarily, detected by an evaluation of the casing and sampler blows or through the "action" of the drill rig as reported by the driller.

8. **CLASSIFICATION OF MATERIAL** (continued)
The Description of **Rock** is based upon the recovered rock core. Terms frequently used in the description are included in Table 3. The length of core run is defined as length of penetration between retreivals of the corebarrel from the bore hole, expressed in inches. The core recovery expresses the length of core recovered from the core barrel per core run, in percent. The size core barrel used is noted in **Column 5**. The more commonly used sizes of core barrels are denoted "AX" and "NX". An "NX" core, being larger in diameter than "AX" core, often produces better recovery, and is frequently utilized where accurate information regarding the geologic conditions and engineering properties is needed. A better estimate of in-situ rock quality is provided by a *modified core recovery ratio* known as the **"Rock Quality Designation" (RQD)**. This ratio is determined by considering only pieces of core that are at least 4 inches long and are hard and sound. Breaks obviously caused by drilling are ignored. The diameter of the core should preferably be not less than 2 inches (NX). The percentage ratio between the total length of such core recovered and the length of core drilled on a given run is the RQD. Table 4 gives the rock quality description as related to the **RQD**.

9. The **SPT "N"** or **RQD** is given in this column as applicable to the specific sample taken. In Very Compact coarse grained soils the N-value may be indicated as 50+, and in Hard fine-grained soils the N-value may be indicated as 30+. This typically means that the blow count was achieved prior to driving the sampler the entire 6 inch interval or the sampler refused further penetration. For "NX" rock cores, the RQD is reported here, expressed in percent.

10. **GROUND WATER OBSERVATIONS** and timing noted by the driller are shown in this section. It is important to realize that the reliability of the water level observations depend upon the soil type (water does not readily stabilize in a hole through fine grained soils), and that drill water used to advance the borings may have influenced the observations. Ground water levels typically fluctuate seasonally so those noted on the log are only representative of that exhibited during the period of time noted on the log. One or more perched or trapped water levels may exist in the ground seasonally. All the available readings should be evaluated. If definite conclusions cannot be made, it is often prudent to examine the conditions more thoroughly through test pit excavations or ground water observation well installations.

TABLE 1 - VISUAL CLASSIFICATION OF MATERIALS (BURMISTER)

GROUP	TEXTURAL CLASSIFICATION SIZES
BOULDERS	larger than 12" diameter
COBBLES	12" diameter to 3" sieve
GRAVEL	3" - coarse - 1" - medium - 1/2" - fine - #4 sieve
SAND	#4 - coarse - #10 - medium - #40 - fine - #200 sieve
SILT	#200 sieve (0.074mm) to 0.005mm size (see below *)
CLAY	0.005mm size to 0.001mm size (see below *)

ABBREVIATIONS	PERCENT OF TOTAL SAMPLE BY WEIGHT	
f - fine	and	35 to 50%
m - medium	some	20 to 35%
c - coarse	little	10 to 20%
	trace	0 to 10%

***PLASTICITY DESCRIPTIONS**

TERM	PLASTICITY INDEX	DRY STRENGTH	FIELD TEST
Non-plastic	0 - 3	Very low	falls apart easily
Slightly plastic	4 - 15	Slight	easily crushed by fingers
Plastic	15 - 30	Medium	difficult to crush
Highly plastic	31 or more	High	impossible to crush with fingers

TABLE 2 - DESCRIPTION OF SOIL COMPACTNESS OR CONSISTENCY based on SPT "N"*		
Primary Soil Type	**Descriptive Term of Compactness**	**Range of Standard Penetration Resistance (N)**
COARSE GRAINED SOILS	Very loose	less than 4 blows per foot
(More than half of Material is larger than No. 200 sieve size.)	Loose	4 to 10
	Medium compact	10 to 30
	Compact	30 to 50
	Very compact	Greater than 50
FINE GRAINED SOILS	**Descriptive Term of Consistency**	**Range of Standard Penetration Resistance (N)**
(More than half of material is smaller than No. 200 sieve size.)	Very soft	less than 2 blows per foot
	Soft	2 to 4
	Medium stiff	4 to 8
	Stiff	8 to 15
	Very stiff	15 to 30
	Hard	Greater than 30

*The number of blows of 140 pound weight falling 30 inches to drive 2 inch O.D., 1-3/8 inch I.D. sampler 12 inches is defined as the Standard Penetration Resistance designated "N".

TABLE 3 - ROCK CLASSIFICATION TERMS		
Rock Classification Terms		**Field Test or Meaning of Term**
Hardness	Soft	Scratched by fingernail
	Medium Hard	Scratched easily by penknife
	Hard	Scratched with difficulty by penknife
	Very Hard	Cannot be scratched by penknife
Weathering	Very Weathered Weathered Sound	Judged from the relative amounts of disintegration, iron staining, core recovery, clay seams, etc.
Bedding (Natural Breaks in Rock Layers)	Laminated Thinly bedded Bedded Thickly bedded Massive	less than 1inch 1inch to 4 inches 4 inches to 12 inches 12 inches to 36 inches greater than 36 inches

TABLE 4 **Relation of Rock Quality Designation (RQD) and in-situ Rock Quality**	
RQD (%)	**Rock Quality Term Used**
90 to 100	Excellent
75 to 90	Good
50 to 75	Fair
25 to 50	Poor
0 to 25	Very Poor

BORING NO.: B-1 Page 1 of 1

SUBSURFACE EXPLORATION - TEST BORING LOG

Project:	**Report No.:**	
Client:	**Date Started:**	**Finished:**
Location of Boring:	**Elevation of Surface of Boring:**	

METHODS OF INVESTIGATION	**GROUND WATER OBSERVATIONS**			
	Date	Time	Depth	Casing At
Casing: 3-1/4" I.D. Hollow Stem Auger **Hammer:**		While drilling		
Other:		Before casing removed		
Soil Sampler: 2" O.D. Split Barrel **Rod Size:**		After casing removed		
Sampler Hammer: **Wt.** 140 lbs. **Fall:** 30 in.				
Make & Model of Drill Rig:				

LOG OF BORING SAMPLES							**CLASSIFICATION OF MATERIAL**			
Depth Scale (Feet)	Casing Blows/ Foot	Sample I.D.	Depth of Sample (Feet) From	To	Sample Type/ Recovery (inches)	Blows on Sampler Per 6 inches	Depth of Change (feet)	**f** - fine **m** - medium **c** - coarse	**and** - 35 to 50% **some** - 20 to 35% **little** - 10 to 20% **trace** - 0 to 10%	STP "N" or RQD
1	**2**	**3**	**4**	**4**	**5**	**6**	**7**	**8**		**9**

Denotes Key Number (see page 1)

SUPPLEMENTAL GEOTECHNICAL REPORT
BEACON ISLAND PARCEL
TOWN OF BETHLEHEM, NEW YORK

Dente File No. FDE-17-121

Prepared For:

BERGMANN ASSOCIATES
10B Madison Avenue Extension
Albany, New York 12203

Prepared By:

DENTE GROUP
Watervliet, New York

July 20, 2017

Important Information about This

Geotechnical-Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

While you cannot eliminate all such risks, you can manage them. The following information is provided to help.

Geotechnical Services Are Performed for Specific Purposes, Persons, and Projects

Geotechnical engineers structure their services to meet the specific needs of their clients. A geotechnical-engineering study conducted for a civil engineer may not fulfill the needs of a constructor — a construction contractor — or even another civil engineer. Because each geotechnical- engineering study is unique, each geotechnical-engineering report is unique, prepared *solely* for the client. No one except you should rely on this geotechnical-engineering report without first conferring with the geotechnical engineer who prepared it. *And no one — not even you* — should apply this report for any purpose or project except the one originally contemplated.

Read the Full Report

Serious problems have occurred because those relying on a geotechnical-engineering report did not read it all. Do not rely on an executive summary. Do not read selected elements only.

Geotechnical Engineers Base Each Report on a Unique Set of Project-Specific Factors

Geotechnical engineers consider many unique, project-specific factors when establishing the scope of a study. Typical factors include: the client's goals, objectives, and risk-management preferences; the general nature of the structure involved, its size, and configuration; the location of the structure on the site; and other planned or existing site improvements, such as access roads, parking lots, and underground utilities. Unless the geotechnical engineer who conducted the study specifically indicates otherwise, do not rely on a geotechnical-engineering report that was:

- not prepared for you;
- not prepared for your project;
- not prepared for the specific site explored; or
- completed before important project changes were made.

Typical changes that can erode the reliability of an existing geotechnical-engineering report include those that affect:

- the function of the proposed structure, as when it's changed from a parking garage to an office building, or from a light-industrial plant to a refrigerated warehouse;
- the elevation, configuration, location, orientation, or weight of the proposed structure;
- the composition of the design team; or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project changes—even minor ones—and request an assessment of their impact. *Geotechnical engineers cannot accept responsibility or liability for problems that occur because their reports do not consider developments of which they were not informed.*

Subsurface Conditions Can Change

A geotechnical-engineering report is based on conditions that existed at the time the geotechnical engineer performed the study. *Do not rely on a geotechnical-engineering report whose adequacy may have been affected by*: the passage of time; man-made events, such as construction on or adjacent to the site; or natural events, such as floods, droughts, earthquakes, or groundwater fluctuations. *Contact the geotechnical engineer before applying this report to determine if it is still reliable.* A minor amount of additional testing or analysis could prevent major problems.

Most Geotechnical Findings Are Professional Opinions

Site exploration identifies subsurface conditions only at those points where subsurface tests are conducted or samples are taken. Geotechnical engineers review field and laboratory data and then apply their professional judgment to render an opinion about subsurface conditions throughout the site. Actual subsurface conditions may differ — sometimes significantly — from those indicated in your report. Retaining the geotechnical engineer who developed your report to provide geotechnical-construction observation is the most effective method of managing the risks associated with unanticipated conditions.

A Report's Recommendations Are Not Final

Do not overrely on the confirmation-dependent recommendations included in your report. *Confirmation-dependent recommendations are not final,* because geotechnical engineers develop them principally from judgment and opinion. Geotechnical engineers can finalize their recommendations *only* by observing actual subsurface conditions revealed during construction. *The geotechnical engineer who developed your report cannot assume responsibility or liability for the report's confirmation-dependent recommendations if that engineer does not perform the geotechnical-construction observation required to confirm the recommendations' applicability.*

A Geotechnical-Engineering Report Is Subject to Misinterpretation

Other design-team members' misinterpretation of geotechnical-engineering reports has resulted in costly problems. Confront that risk by having your geotechnical engineer confer with appropriate members of the design team after submitting the report. Also retain your geotechnical engineer to review pertinent elements of the design team's plans and specifications. Constructors can also misinterpret a geotechnical-engineering report. Confront that risk by having your geotechnical engineer participate in prebid and preconstruction conferences, and by providing geotechnical construction observation.

Do Not Redraw the Engineer's Logs

Geotechnical engineers prepare final boring and testing logs based upon their interpretation of field logs and laboratory data. To prevent errors or omissions, the logs included in a geotechnical-engineering report should *never* be redrawn for inclusion in architectural or other design drawings. Only photographic or electronic reproduction is acceptable, *but recognize that separating logs from the report can elevate risk.*

Give Constructors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can make constructors liable for unanticipated subsurface conditions by limiting what they provide for bid preparation. To help prevent costly problems, give constructors the complete geotechnical-engineering report, *but* preface it with a clearly written letter of transmittal. In that letter, advise constructors that the report was not prepared for purposes of bid development and that the report's accuracy is limited; encourage them to confer with the geotechnical engineer who prepared the report (a modest fee may be required) and/or to conduct additional study to obtain the specific types of information they need or prefer. A prebid conference can also be valuable. *Be sure constructors have sufficient time* to perform additional study. Only then might you be in a position to give constructors the best information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions.

Read Responsibility Provisions Closely

Some clients, design professionals, and constructors fail to recognize that geotechnical engineering is far less exact than other engineering disciplines. This lack of understanding has created unrealistic expectations that have led to disappointments, claims, and disputes. To help reduce the risk of such outcomes, geotechnical engineers commonly include a variety of explanatory provisions in their reports. Sometimes labeled "limitations," many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely.* Ask questions. Your geotechnical engineer should respond fully and frankly.

Environmental Concerns Are Not Covered

The equipment, techniques, and personnel used to perform an *environmental* study differ significantly from those used to perform a *geotechnical* study. For that reason, a geotechnical-engineering report does not usually relate any environmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated environmental problems have led to numerous project failures.* If you have not yet obtained your own environmental information, ask your geotechnical consultant for risk-management guidance. *Do not rely on an environmental report prepared for someone else.*

Obtain Professional Assistance To Deal with Mold

Diverse strategies can be applied during building design, construction, operation, and maintenance to prevent significant amounts of mold from growing on indoor surfaces. To be effective, all such strategies should be devised for the *express purpose* of mold prevention, integrated into a comprehensive plan, and executed with diligent oversight by a professional mold-prevention consultant. Because just a small amount of water or moisture can lead to the development of severe mold infestations, many mold- prevention strategies focus on keeping building surfaces dry. While groundwater, water infiltration, and similar issues may have been addressed as part of the geotechnical- engineering study whose findings are conveyed in this report, the geotechnical engineer in charge of this project is not a mold prevention consultant; *none of the services performed in connection with the geotechnical engineer's study were designed or conducted for the purpose of mold prevention. Proper implementation of the recommendations conveyed in this report will not of itself be sufficient to prevent mold from growing in or on the structure involved.*

Rely, on Your GBC-Member Geotechnical Engineer for Additional Assistance

Membership in the Geotechnical Business Council of the Geoprofessional Business Association exposes geotechnical engineers to a wide array of risk-confrontation techniques that can be of genuine benefit for everyone involved with a construction project. Confer with you GBC-Member geotechnical engineer for more information.

GEOTECHNICAL BUSINESS COUNCIL
of the Geoprofessional Business Association

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TABLE OF CONTENTS

APPENDICES

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SUPPLEMENTAL GEOTECHNICAL REPORT
BEACON ISLAND PARCEL
TOWN OF BETHLEHEM, NEW YORK

I. INTRODUCTION

This report presents the results of a supplemental geotechnical investigation and preliminary evaluation for the proposed development of the Beacon Island parcel in the town of Bethlehem, New York. The investigation and evaluation were conducted in general accord with our proposal number PFDE-17-85 which was accepted by Bergmann Associates of Albany, New York. Our services included the following:

- Site reconnaissance by a Geotechnical Engineer,
- Layout and completion of two test borings by our affiliate, ACME Boring,
- Layout and completion of cone penetrometer and shear wave velocity testing at five locations by ConeTec, Inc. of West Berlin, New Jersey,
- Laboratory testing to determine consolidation characteristics and/or index properties of representative soil samples obtained from the test borings,
- Review of the *Preliminary Geotechnical Evaluation and Interpretive Report* for the site prepared by CME Associates, Inc., 4/05/2017,
- Review of the *Phase II Environmental Site Assessment Report* for the site prepared by Bergmann Associates, 4/16/2017,
- Preparation of this report which presents a summary of the site investigations and provides our preliminary conclusions and guideline recommendations with respect to the geotechnical aspects of the proposed development.

It should be understood that this report was prepared, in part, on the basis of a limited number of site explorations. The explorations were made at discrete locations and the overburden soils and bedrock sampled at specific depths. Conditions are only known at the locations and through the depths investigated. Conditions at other locations and depths may be different, and these differences may impact upon the conclusions reached and the recommendations offered.

Planning for the project was in the initial stages at the time this report was prepared and, as such, the conclusions and recommendations presented herein should be considered preliminary. As planning for site development progresses, additional investigations should be performed and the recommendations contained herein refined as required.

A sheet entitled *"Important Information about this Geotechnical Engineering Report"* prepared by the Geotechnical Business Council is presented following the title page of this report. This sheet should never be separated from this report and be carefully reviewed as it sets the only context within which this report should be used.

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 contractor’s purposes, the contractor 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. Similarly, the recommendations do not address environmental concerns related to handling, disposal, reuse, or construction upon the historic fills, coal ash spoils, and any other foreign matter present at the site.

II. SITE AND PROJECT DESCRIPTION

A brief history and description of the project site are presented in the previously referenced CME and Bergmann reports. Presented in this report’s appendices are a recent aerial photograph, USGS topographic maps (dated 1893 and 1980), and U.S Army Corps of Engineers (COE) Maps of the Hudson River (dated 1928, 1936, and 1961). These are provided to assist the reader in reviewing the current condition of the site and filling that has occurred over the years, as described below, to form the present day site grades.

Based upon the CME and Bergmann reports, supplemented by information we obtained, it is known that the site was once an island near the west shore of the Hudson River immediately south of the Port of Albany. Island Creek (a.k.a. Normans Kill) which originally flowed along the west side of the island was filled in sometime between 1936 and 1961 based upon our review of COE Maps of the Hudson River. The creek was diverted in an east direction and now forms the north end of the site. Additional filling with fly or coal ash was placed on the site in the 1950 to 1970's time frame - the COE map dated 1961 labels the site as a “Niagara Mohawk Power Corp Disposal Area”.

The site is now a combinations of woods, open fields and brush covered areas with a strip of low lying wet areas present along the west side where the creek was filled. A railroad line crosses through the west side of the site in a north-south direction. The rails remain as do an engine and several rail cars. The bridge which formerly carried the railroad over the Normans Kill on the north end of the site is no longer present. A series of sheet pile and round pile dikes form the east side of the site along the Hudson River shore according to the COE maps. The west side of the site is adjoined by a Niagara Mohawk Power Corporation overhead power line easement.

It is our understanding that the Port of Albany is evaluating options for development of the project site. Initially, the development may include light-weight manufacturing and/or warehouse buildings with associated site improvements including roads, parking lots, and utilities. For preliminary planning purposes, we assume that the floor loads for the new buildings will be less than 500 psf and building column loads less than 200 kips.

III. SUBSURFACE CONDITIONS

The subsurface conditions at the site were originally investigated in February 2017 through the completion of eight test borings and installation of three groundwater monitoring wells by CME Associates and twelve test pit excavations by Bergmann Associates. To supplement these investigations, two standard test borings were completed by our affiliate, ACME Boring, and cone penetrometer and shear wave velocity testing were conducted at five locations by ConeTec, Inc. The approximate locations of the original and our supplemental testing are shown on the maps and plans in this report's appendices.

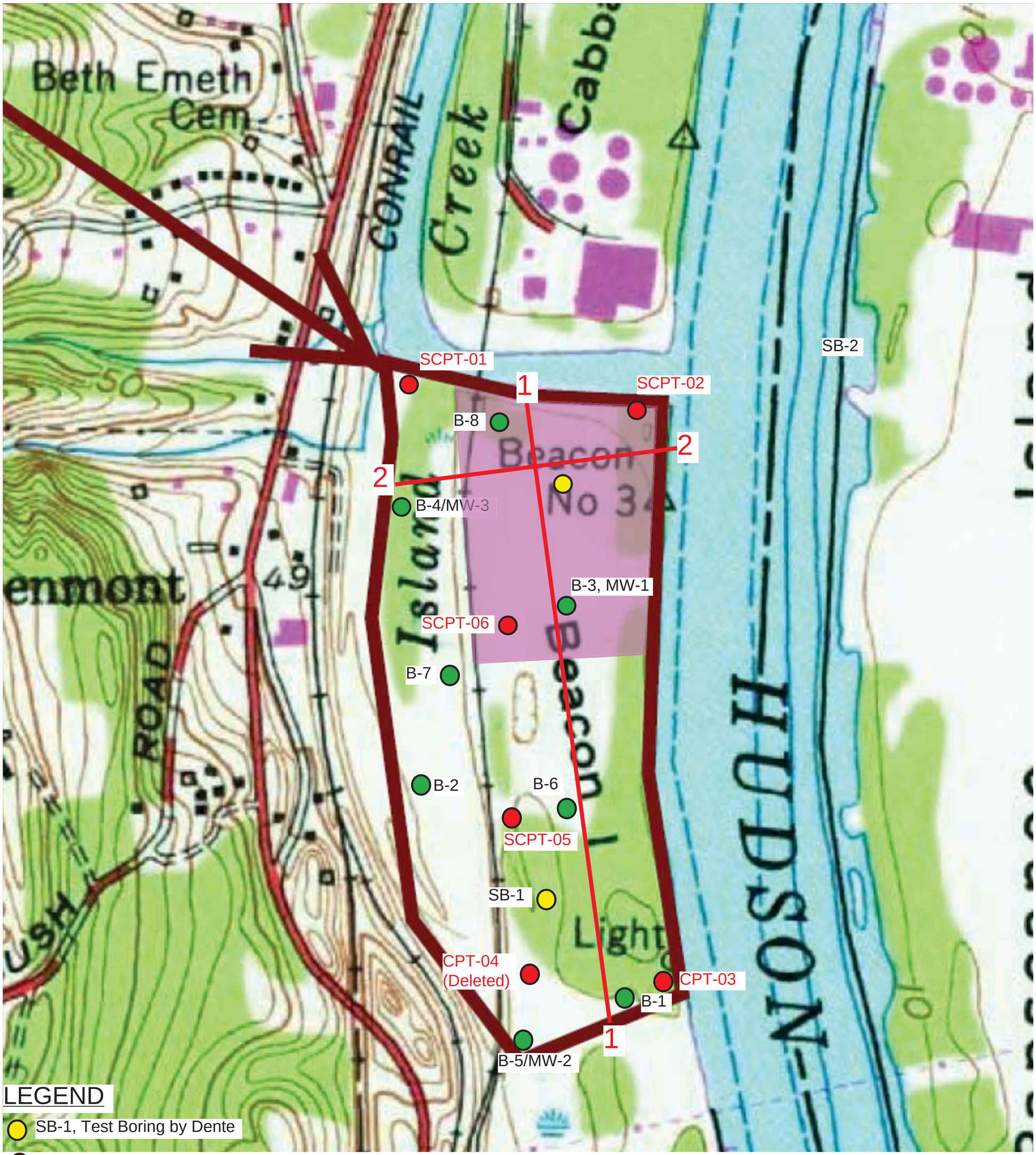
As expected, the original and supplemental investigations revealed various depths of fill material overlying, in sequence with depth; river sediments, alluvial sands, glacio-lacustrine silt and clay, glacial till, and shale bedrock. Subsurface Profiles were prepared and are presented on the following pages to illustrate, in a generalized manner, the relatively complex conditions that were encountered across the site. The approximate profile locations are shown on the 1980 USGS topographic map.

<u>Fill Materials and River Sediments</u>

The thickness of the fill layer ranged from about 6 to as much as 23 feet at the test locations. As shown on the subsurface profiles, three primary types of fill exist at the site including; (1) Miscellaneous Fill composed of varying mixtures of sand, gravel, silt and clay; (2) Ash Fill composed of silt, fine sand, ash and coal mixtures; and (3) River Sediments and/or Fill composed of fine sand, silt, and/or clay with organic matter.

The Miscellaneous Fills were judged to be of a loose to compact relative density based upon standard penetration "N" values. These fills were predominantly located in the north portion of the island east of the existing rail line. The thickness of this layer ranged from nil to about 16 feet. Based upon empirical correlations with the standard penetration "N" values, the Miscellaneous Fill soil's friction angle was estimated in the range of 28 to 33 degrees. Using the cone penetrometer results, higher friction angles of 30 to greater than 36 degrees were estimated for these materials.

The Ash Fills were loose to very loose, with "N" values typically in the range of 0 to 11. These fills were most prevalent on the south side of the site, west of the existing railroad in the former creek channel, and possibly within a thin arm of the Hudson River which once separated Beacon Island from Cabbage Island as shown on the USGS



LEGEND

SB-1, Test Boring by Dente

SCPT-01, Seismic Cone Penetrometer Test by ConeTec, CPT denote cone test with no seismic testing.

B-1, Test Boring by CME Associates, MW denotes well location.

1 —— 1 Generalized Subsurface Profile Line

<table>
<tr><td colspan="3">DENTE GROUP
594 Broadway - Watervliet, New York 12189
Voice 518-266-0310 Fax 518-266-9238</td></tr>
<tr><td>Scale: N.T.S.</td><td rowspan="2">1980 HISTORICAL TOPO MAP
Beacon Island Parcel
Glenmont, New York</td><td>Drawn By: NA</td></tr>
<tr><td>Dated: 7/07/2017</td><td>Drawing No. 1</td></tr>
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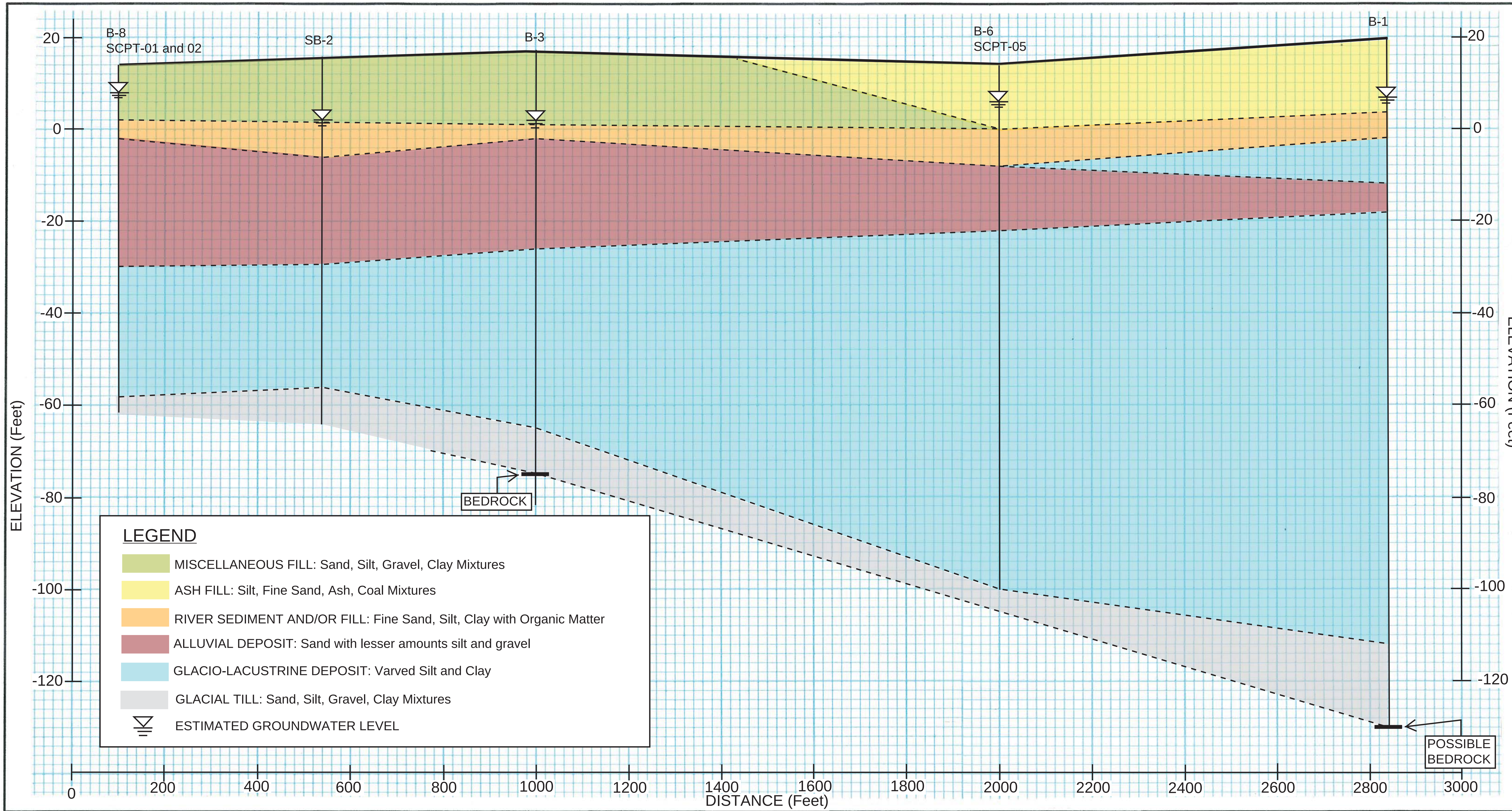

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NOTES:

1. Subsurface conditions are known only at the discrete test boring locations. The subsurface conditions can vary in an unknown manner between the test locations and they may differ from the approximate inferred stratification lines shown on the cross-section.

2. Groundwater levels were measured at the time of investigations under the conditions noted on the subsurface logs. Groundwater conditions can vary seasonally and in response to changes in land use.

3. Refer to the individual subsurface logs for the actual subsurface conditions at each discrete test location.

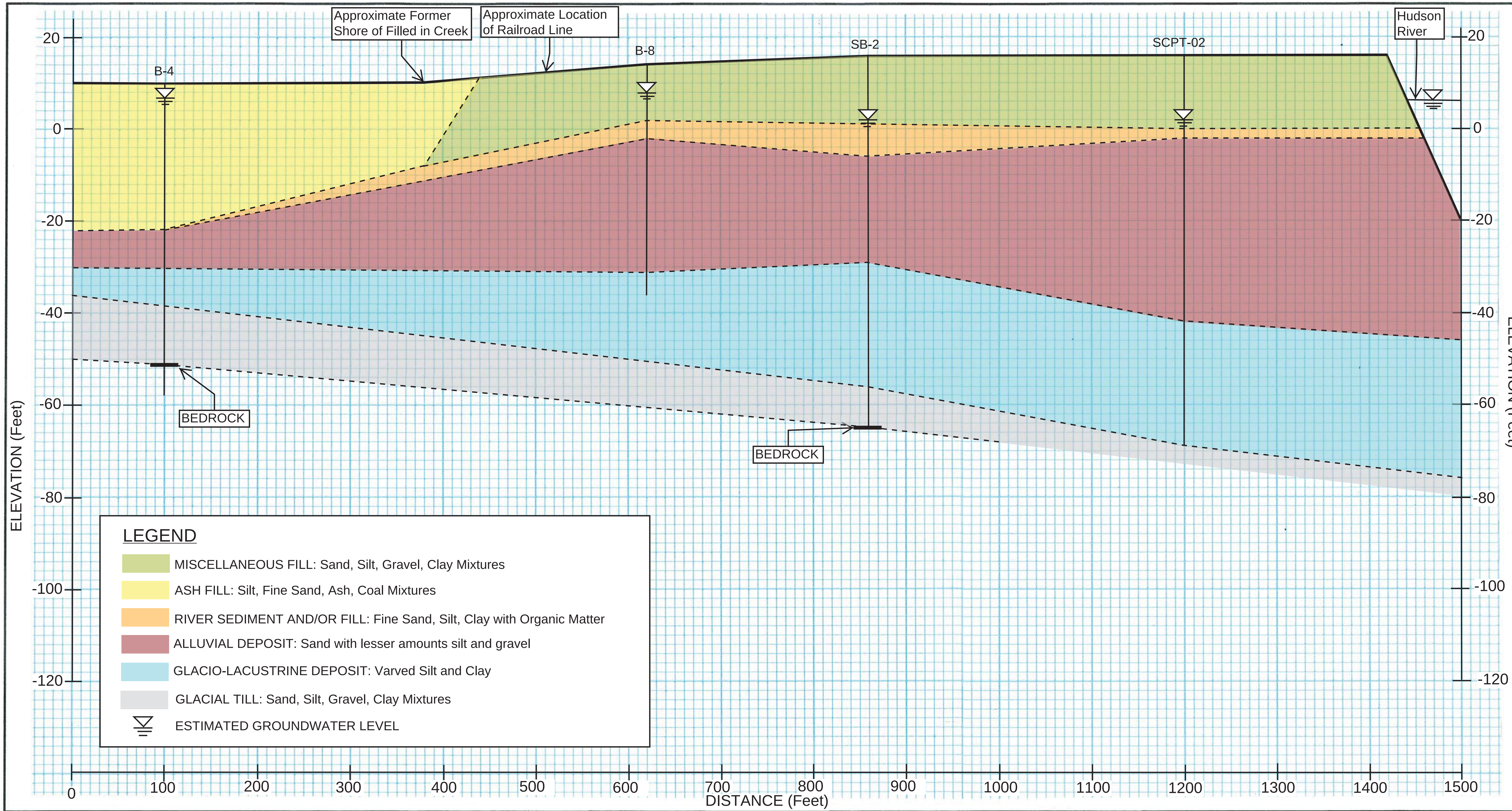
GENERALIZED SUBSURFACE PROFILE NO. 1

BEACON ISLAND PARCEL

TOWN OF BETHLEHEM, NEW YORK

DATE: July 14, 2017 DRAWN BY: ECG

SCALE: As Shown DRAWING NO. 2



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GENERALIZED SUBSURFACE PROFILE NO. 2

BEACON ISLAND PARCEL

TOWN OF BETHLEHEM, NEW YORK

DATE: July 14, 2017	DRAWN BY: ECG
SCALE: As Shown	DRAWING NO. 3

topographic map dated 1893. The thickness of this layer ranged from nil to 23 feet. Based upon empirical correlations with the standard penetration “N” values, the Ash Fill material’s friction angle was estimated to be 25 to less than 20 degrees. Using the cone penetrometer results, higher friction angles of 26 to greater than 30 degrees were estimated for these materials.

The Miscellaneous and Ash Fills were typically underlain by a nil to 10 foot thick layer of River Sediments and/or Fill. It was not possible to distinguish between natural River Sediments and similar type materials which may have been placed as fill - possibly from dredging, thus the two are presented as a single layer on the subsurface profiles. The non-cohesive sand and silt portions were of a loose relative density and the cohesive silt and clay were of a soft to very soft consistency based upon the standard penetration “N” values.

Alluvial Soils

A layer of alluvial sand with variable amounts of gravel and silt was present beneath the River Sediments. The thickness of this layer ranged from less than 6 to as much as 40 feet. The soils were judged to be of a loose to firm relative density based upon the standard penetration “N” values. Based upon empirical correlations with the standard penetration “N” values, the friction angle for the Alluvial Soils was estimated in the range of about 28 to 33 degrees. Using the cone penetrometer results, higher friction angles of 32 to greater than 36 degrees were estimated for these materials.

Glacio-Lacustrine Silt and Clay

Beneath the Alluvial Soils was a sequence of Glacio-Lacustrine Silt and Clay. This layer was thinnest, less than 8 feet, in the northwest portion of the site and it increased to over 100 feet thick at the southeast corner of the site.

Based upon the standard penetration “N” values, the silt and clay was judged to be of a soft to very soft consistency. Basic index testing of these soils, i.e., moisture contents and Atterberg Limits, could be interpreted as evidence that these soils are normally consolidated and thus, highly compressible. However, based on our knowledge of this soil deposit it is known that the silt and clay has been pre-consolidated to pressures well above the existing overburden stress. This was confirmed by laboratory consolidation testing conducted by GeoTesting Express, the results of which are present in Appendix F. This testing found that a sample obtained in the upper 10 feet of this silt and clay layer was pre-consolidated to about 4,500 pounds per square foot (psf) above the existing overburden stress. With increasing depth the pre-consolidation pressure typically diminishes to between 500 and 750 psf and then remains relatively constant through the very deep silt and clay layers.

Cone penetrometer testing within the silt and clay layer has also shown that the soils are of higher strength than would be expected based upon the very low standard penetration “N” values, with estimated undrained shear strengths in the range of 600 to 1,600 psf. Shear strengths estimated by empirical correlations with the “N” values would be in the range of 500 to less than 250 psf.

Glacial Till

Glacial till soils were found beneath the Glacio-Lacustrine Silt and Clay soils. The thickness of the till layer was only determined in a few locations where it varied between 10 and 20 feet. The till consisted of compact to very compact mixtures of sand, gravel, silt, and clay. The cone tests presumably on or near the surface of the till layer.

Shale Bedrock

Shale bedrock was found beneath the glacial till soils in three locations. The depth to rock ranged from about 80 to as deep as 148 feet in CME boring B-1. The rock depths appear shallowest on the north and west sides of the site and increase to the east towards the Hudson River and in a south direction across the site.

Groundwater

Groundwater was found at variable depths of less than 2 to about 14 feet below the existing ground surface. This corresponds to groundwater elevations in the approximate range of 3 to 14 feet. The high water elevation in the adjoining Hudson River is about 6 feet. Groundwater elevations at the site should vary with seasonal fluctuations in precipitation and runoff and with rising and falling water levels in the Hudson River. Tidal changes in the Hudson River will also influence groundwater levels to some degree daily.

IV. CONCLUSIONS AND RECOMMENDATIONS

A. General Site Evaluation

The project site is mantled with up to 20 feet or more of fill materials and underlying river sediments of variable composition and density. In their existing condition, the fills and sediments are not considered suitable for support of conventional shallow foundations and slab-on-grade construction.

Several methods including deep dynamic compaction, rigid inclusions, surcharges, and partial undercuts with surface stabilization, may be considered to improve the fills and sediments in-place for support of lightly loaded structures and pavements which are not highly sensitive to settlement as detailed below. For the purposes of this discussion, lightly loaded structures are assumed to have floor loads less than 500 psf and column loads less than 200 kips. Heavier structures and those sensitive to settlement may require pile support pending our evaluation of the structure location, loading, settlement tolerance, and supplemental investigations.

In developing methods to improve the site for construction it was determined that the deep layers of glacio-lacustrine silt and clay are of relatively low compressibility and thus of minimal concern with regard to settlement under the weight of new fills and buildings. Of greater concern are the upper sequences of existing fill and river sediments which exhibit significantly higher compressibility characteristics.

It has been determined that the deep layers of glacio-lacustrine silt and clay which are present at the project site have been pre-consolidated to pressures above the existing overburden stresses. The added stress from new fills less than about 10 feet deep and lightly loaded buildings will induce consolidation of the silt and clay layers which should occur within a time period of about 4 to 8 weeks and result in ground surface settlements less than one inch. Concerns with settlements induced by consolidation of the silt and clay layer can be addressed by placing fills and allowing them to set for a 4 to 8 week time period prior to construction of foundations and floor slabs.

Of more concern is the settlement induced by consolidation of existing fills and river sediments under the weight of new fills, which could be several inches under the fill and building loads defined above. This concern is addressed in the Ground Improvement Methods discussion in the following report section.

B. Seismic Design Considerations

Shear wave velocity testing was conducted in several of the cone penetrometer test locations. Based upon the test results, Seismic Site Class D may be assumed for the area where DDC is performed or rigid inclusions are constructed to improve the existing fills. Elsewhere, Seismic Site Class E should be assumed for preliminary design purposes.

The cone penetrometer data was also used to evaluate the potential for liquefaction of the soils during an earthquake. This evaluation was conducted using the computer program LiqueyPro, Version 4 by CivilTech Software. For this analysis, we assumed an earthquake magnitude 6.0 and peak ground acceleration on rock equal to 0.09g based on a seismic deaggregation for the site we obtained from the USGE Earthquake Hazards website. Our analyses determined that the factor of safety against liquefaction should exceed the minimum accepted values of 1.0 to 1.2. It should be understood that while it is not expected that the soils will liquefy, they may consolidate in response to the earthquake motions resulting in ground surface settlements that could be on the order of one to two inches.

C. Ground Improvement Methods

The various options which may be considered to improve the existing fills and sediments for conventional shallow spread foundations and slab-on-grade design are described as follows.

Deep Dynamic Compaction

It is our opinion that deep dynamic compaction (DDC) may be considered to densify the materials defined as “Miscellaneous Fill” on the Subsurface Profiles. These fills are composed predominately of varying mixtures of silt, sand, gravel and clay. For preliminary planning purposes, the area where this type of improvement may be considered is highlighted in purple on the 1980 USGS topograhic map and is located at the north end of the site east of the existing rail line. This area can and should be modified based upon supplemental subsurface investigations.

For preliminary planning purposes, it should be assumed that DDC is not feasible where deep layers of very loose Ash Fill and River Sediments/Fill are present along the former creek channel west of the rail line and in the south portion of the site. However, because DDC is of relatively low cost, consideration should be given to attempting this method in selected test pad areas located over the deep Ash Fills and, if successful, this form of ground modification can possibly be expanded to greater areas of the site.

Test borings and/or cone testing before and after the DDC treatment are typically used as a basis to evaluate the effectiveness.

The DDC program should be designed by a specialty contractor to achieve a specified criteria. In this case it should be feasible to specify that the fills be improved to limit settlement of foundations to less than one inch when designed for a 3,000 psf bearing pressure and settlement of floor slabs to less than one-half inch with loads less than 500 psf. The DDC work can also be extended to improve areas along sensitive buried utilities and pavements to limit their settlement.

For preliminary planning purposes, the cost for DDC work is typically in the range of $1 to $2 per square foot with mobilization/demobilization in the range of $30,000 to $50,000.

Rigid Inclusions

Rigid inclusions are a type of rammed aggregate or cast in place concrete or grouted piers which are formed by drilling though a weak soil layer and filling the hole by vertically ramming thin lifts of aggregate which may have cement added or consist entirely of grout or concrete in very weak soils. The inclusions stiffen and improve settlement and bearing capacity characteristics of the soil mass within which they are formed. At the project site, the rigid inclusions are feasible to improve the deep layers of very loose Ash Fill and River Sediments/Fill found predominately in the former creek channel west of the existing rail line and in the south end of the site.

Similar to the DDC, the inclusions and their spacings are designed by a specialty contractor based upon the soil conditions and requirements for construction. In this case it should be feasible to specify that the fills be improved to limit settlement of foundations to less than one inch when designed for a 4,000 psf bearing pressure and settlement of floor slabs to less than one-half inch with loads less than 500 psf.

The cost for rigid inclusion ground improvement is significantly greater than the DDC work, and may be on the order of $10 to $20 per square foot. If used in conjunction with a surcharge program, as detailed below, it may be possible to limit the rigid inclusion use to foundation areas only and employ a surcharge program for the floor slab areas in an effort to minimize costs.

Removal and Replacement of Existing Fill

Complete removal and replacement of existing fills and underlying River Sediments/Fills is not considered feasible due to the depths of these materials and groundwater conditions. However, partial undercuts may be required in areas where DDC appears feasible and in new pavement areas.

For planning purposes it should be assumed that excavated materials cannot be reused beneath new buildings or pavements and they should preferably be used in landscape areas and in surcharges as needed. An imported Structural Fill should be used to backfill undercuts and as fill beneath buildings and pavements.

Surcharges

Surcharges may be considered to reduce long-term settlement of floor slabs and/or pavements. The height of the surcharge should be selected if possible to double the expected final stress on the ground imposed by the weights of new fill and buildings.

Prior to placing the surcharges settlement plates should be installed and monitored routinely by a licensed land surveyor. The surcharge must remain in place until its removal is approved by a Geotechnical Engineer based upon his review of the settlement data. It should be assumed that the surcharges must remain in place for at least several months, which may be accelerated with wick drains. These extended surcharge times should be considered in long term planning for the site development.

Surficial Stabilization

In new pavement areas and along utility lines, surficial stabilization of the existing fills can be considered, possibly in conjunction with a surcharge program. The surface stabilization would entail proof-rolling of the subgrades with a large roller and investigation of any soft areas to determine the cause and evaluate depths of undercutting and replacement which may be required. In this case, the Owner must accept some degree of risk that long-term settlements may occur and require periodic maintenance.

D. Pile Foundations

Pile foundations may be considered as an option to or in conjunction with the ground improvements methods detailed above for heavy or settlement sensitive structures. Based upon the site conditions, it is our opinion that steel H-piles driven to end bearing in glacial till and/or bedrock are suitable for support of relatively heavy loads with axial capacities exceeding 200 kips for an HP 12X74 section. The pile length may be on the order of 60 to 90 feet on the north end of the site. On the south end of the site the depths to till/rock increases and the H-piles would be more costly with lengths now extending greater than 100 to 140 or more feet.

Friction type piles, auger cast and/or timber, may be feasible in areas where thick alluvial sand deposits are present. These piles would have much lower capacities, in the range of 20 to 40 kips. Because the thickness and continuity of the alluvial sand layer may vary significantly across the site and may differ from that inferred on the Subsurface Profiles, supplemental investigation would be required to determine whether they are suitable for use and as a basis for their design. We do not recommend friction piles which develop their capacity within the deep glacio-lacustrine silt and clay soils.

V. SUMMARY

To summarize our preliminary evaluation;

1. The site is mantled with up to 23 feet of fill which is not, without modification or improvement, suitable for support of conventional shallow spread foundations and slab-on-grade design.

2. It appears that the fills at the north end of the site east of the existing rail line can be improved with deep dynamic compaction (DDC) to support lightly loaded buildings. Some partial undercuts and replacements of the fills may also be required.

3. In other areas of the site where deep layers of Ash Fill and/or River Sediments are present, DDC may not be feasible and ground improvement with more costly rigid inclusions would then be required, possibly in conjunction with a surcharge program, to prepare the areas for support of lightly loaded structures. Because DDC is of relatively low cost, consideration should be given to attempting this method in test pad(s) in the deep Ash Fill areas and, if successful, DDC can be expanded to greater areas of the site.

4. Heavily loaded structures and/or those sensitive to settlement may require pile support. Steel H-piles driven to end bearing in glacial till or bedrock are feasible with axial capacities exceeding 200 kips. Pile lengths could vary from 60 to 80 feet in the north end of the site to well over 100 feet at the south end. Other methods to support these structures can be evaluated based upon the structure location, loads, and tolerance to settlement.

5. Surcharges and surficial stabilization of subgrade can be employed in non-building areas where new pavements or utilities are planned to minimize settlements.

As planning for site development progresses, additional investigations should be performed and the recommendations contained herein refined accordingly.

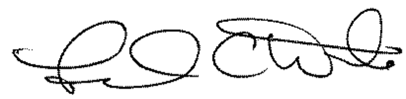
VI. CLOSURE

This report was prepared for specific application to the project site and construction planned using methods and practices common to Geotechnical Engineering in the area and at the time it was prepared. No other warranties expressed or implied are made.

Should questions arise or if we may be of any other service, please contact us at your convenience.

Prepared By,

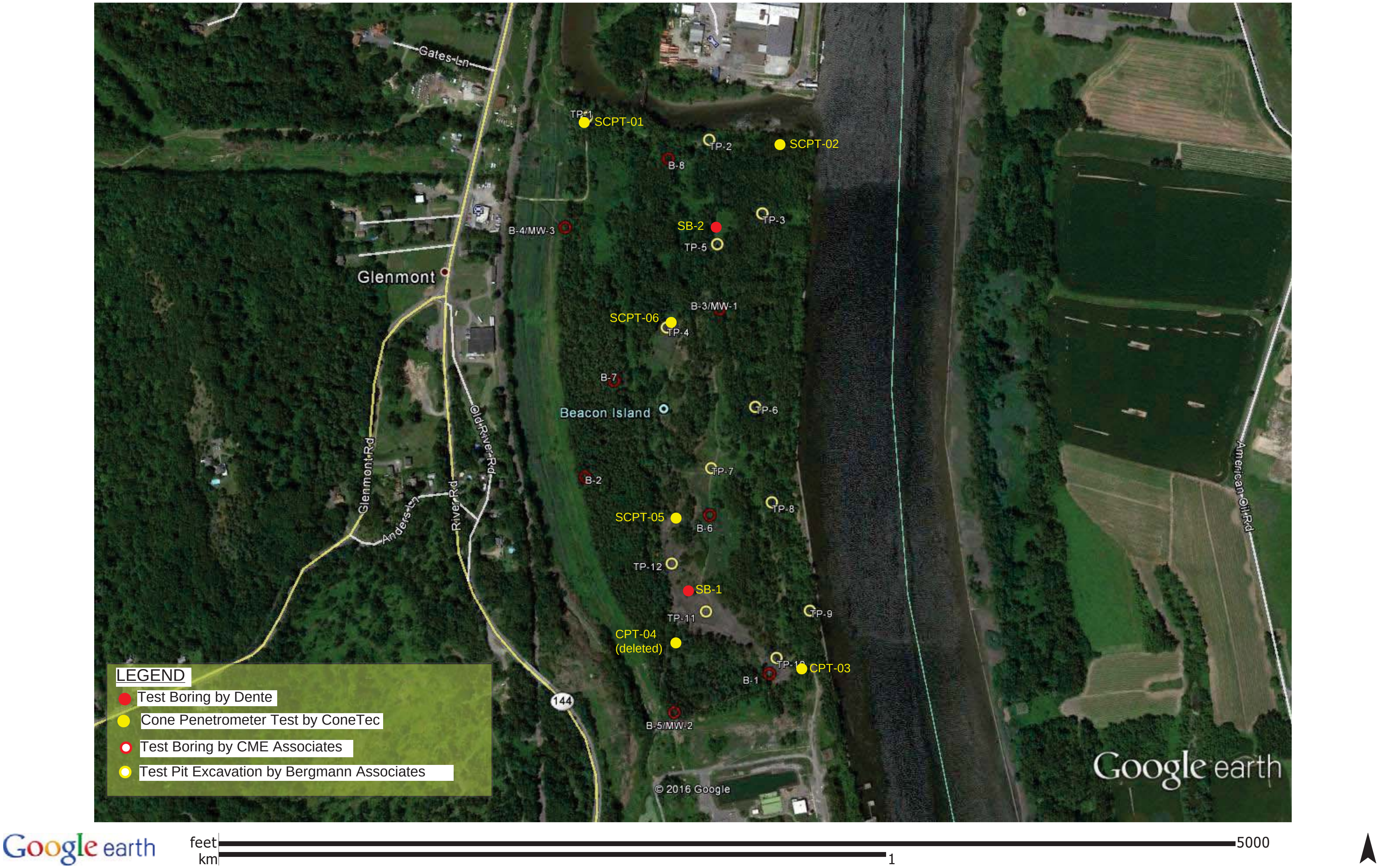
Edward C. Gravelle, P.E.
Senior Project Manager



Fred A. Dente, P.E
Group Manager

APPENDIX A
AERIAL PHOTOGRAPH

Beacon Island Parcel
Town of Bethlehem, NY



Gates Ln
TP-1
SCPT-01
TP-2
SCPT-02
B-8
B-4/MW-3
SB-2
TP-3
TP-5
Glenmont
SCPT-06
B-3/MW-1
TP-4
B-7
Beacon Island
TP-6
Glenmont Rd
Old River Rd
River Rd
Anders Ln
TP-7
B-2
TP-8
SCPT-05
B-6
TP-12
SB-1
TP-11
TP-9
CPT-04
(deleted)
CPT-03
B-1
144
B-5/MW-2
American Oil Rd
© 2016 Google
Google earth
LEGEND
Test Boring by Dente
Cone Penetrometer Test by ConeTec
Test Boring by CME Associates
Test Pit Excavation by Bergmann Associates
feet
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km
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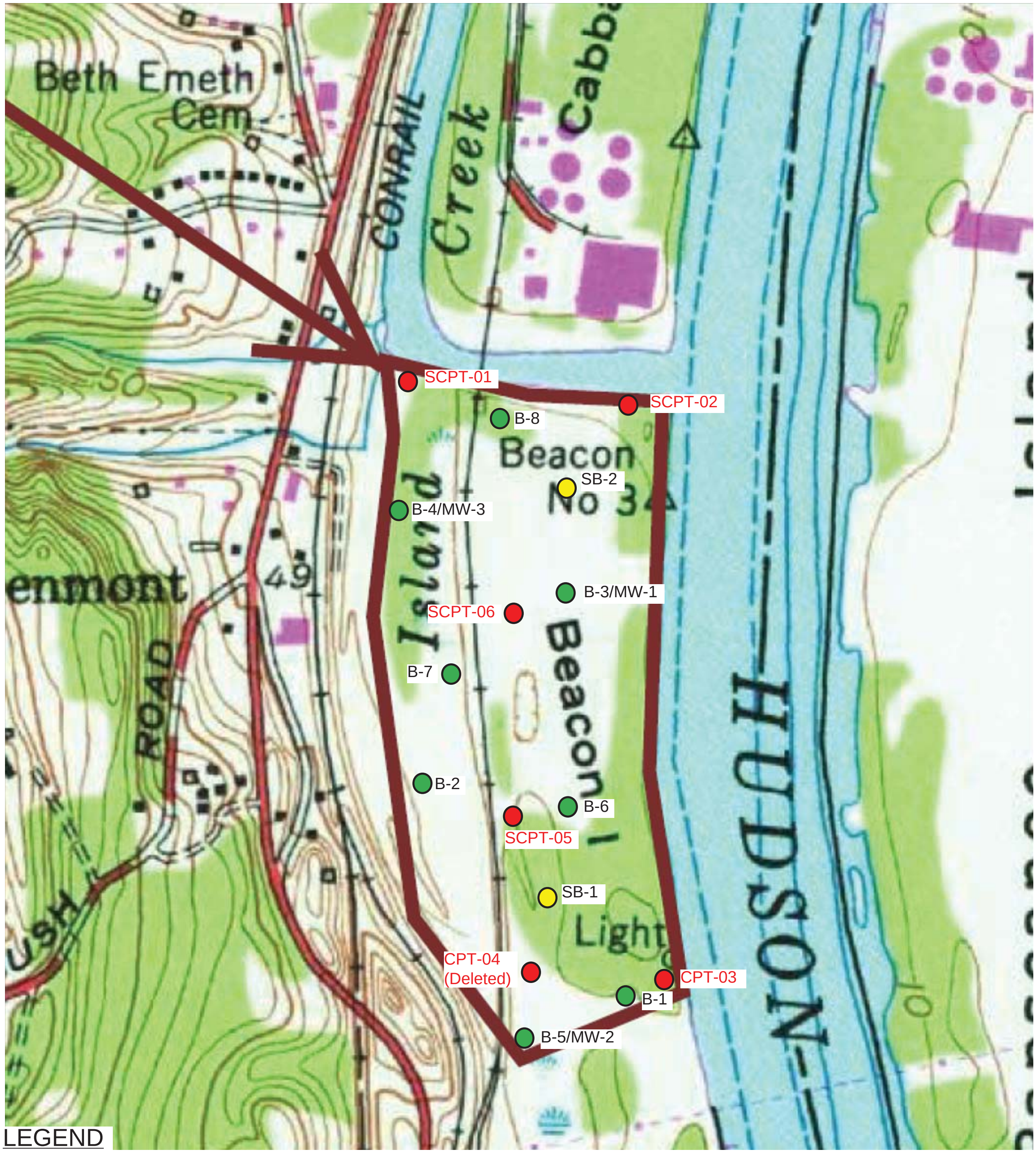
APPENDIX B
USGS TOPOGRAPHIC MAPS
(1893 and 1980)

Beacon Island Parcel
Town of Bethlehem, NY



LEGEND

- SB-1, Test Boring by Dente
- SCPT-01, Seismic Cone Penetrometer Test by ConeTec, CPT denote cone test with no seismic testing.
- B-1, Test Boring by CME Associates, MW denotes well location.

DENTE GROUP
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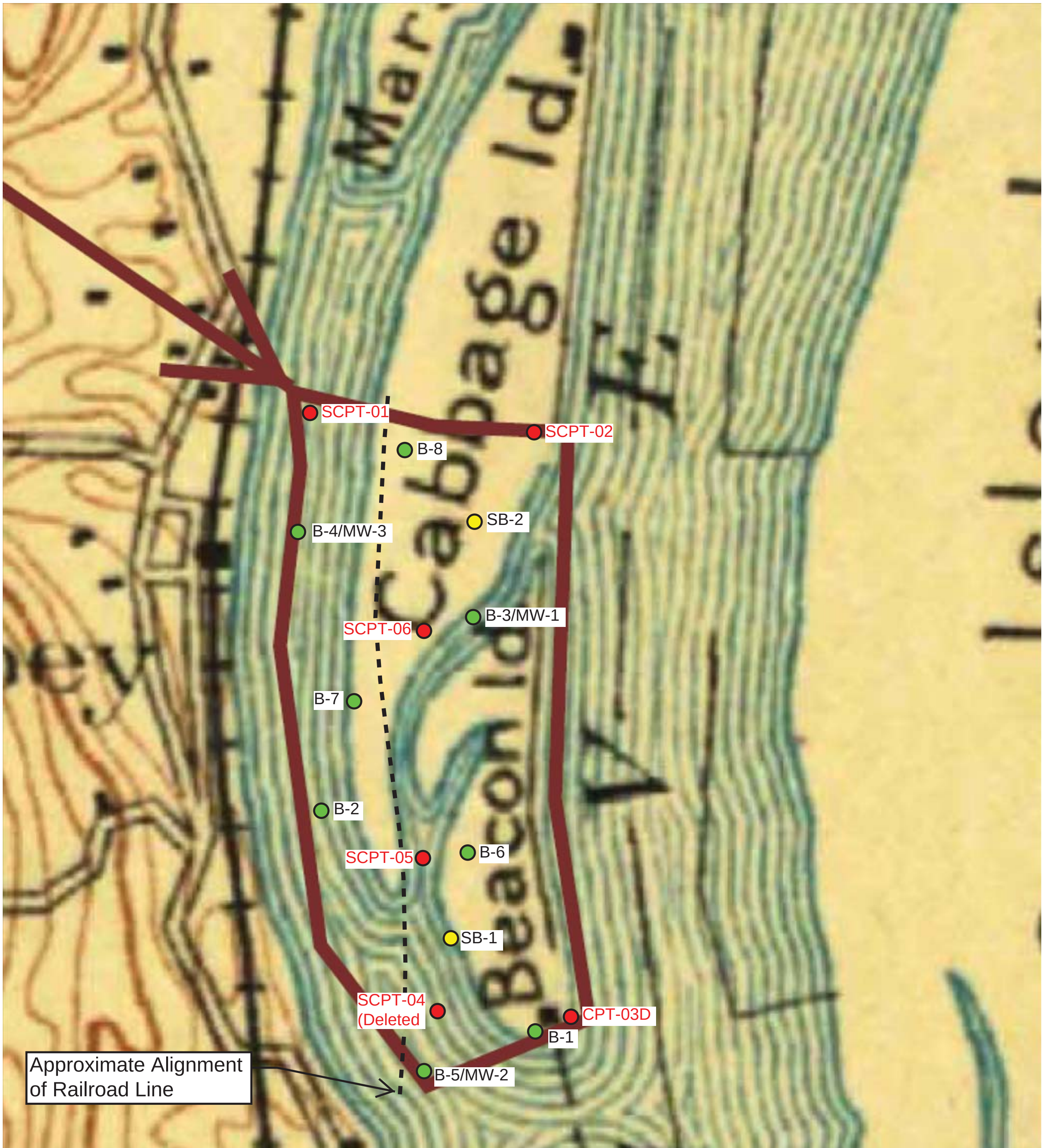
Scale: N.T.S.	**1980 HISTORICAL TOPO MAP** **Beacon Island Parcel** **Glenmont, New York**	**Drawn By: NA**
Dated: 7/07/2017		**Drawing No. 1**



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- SB-1, Test Boring by Dente
- SCPT-02, Seismic Cone Penetrometer Test by ConeTec, CPT denotes cone test with no seismic testing.
- B-6, Test Boring by CME Associates, MW denotes well location.

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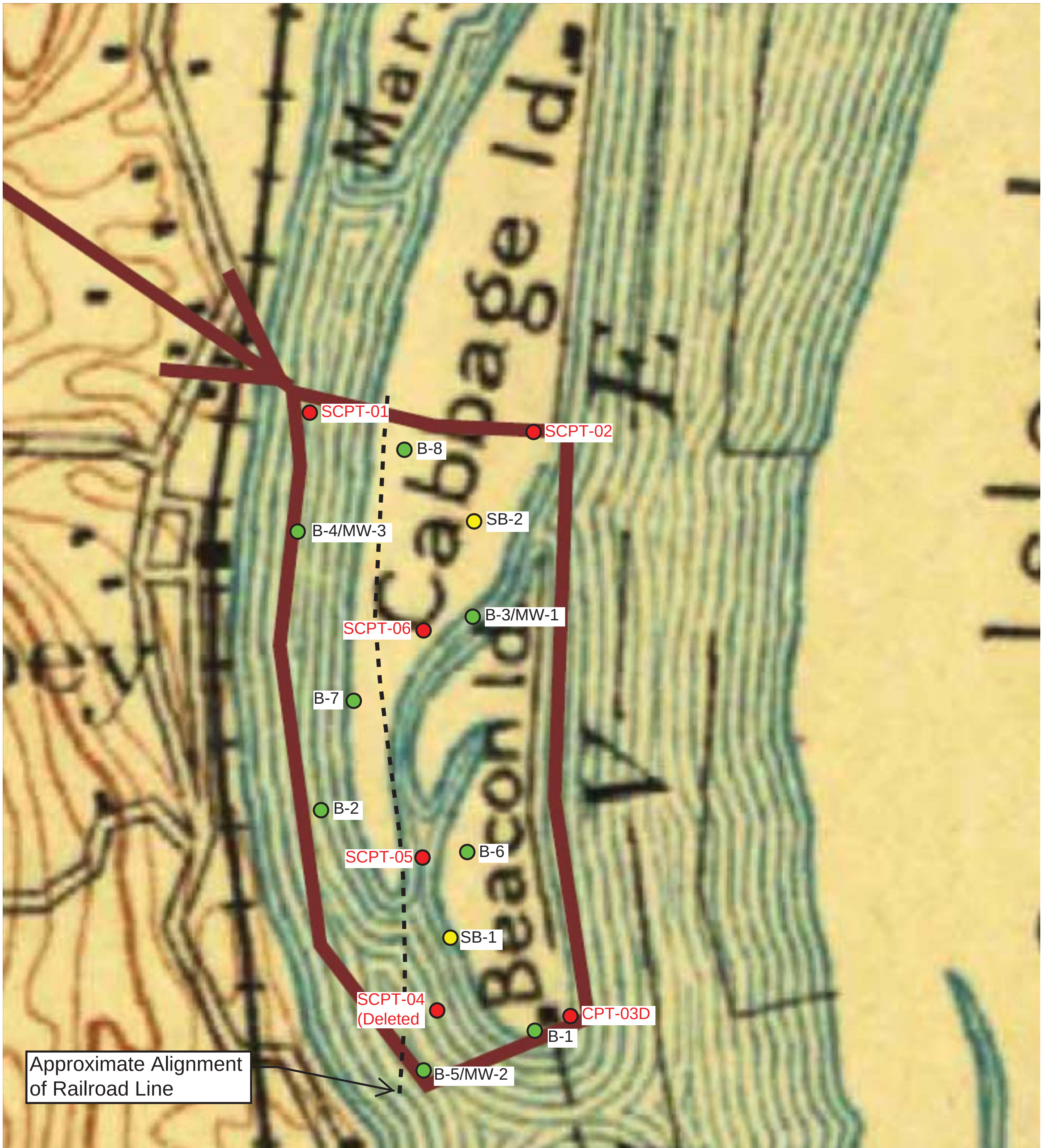
Scale: N.T.S.	**1893 HISTORICAL TOPO MAP** **Beacon Island Parcel** **Glenmont, New York**	**Drawn By: NA**
Dated: 7/07/2017		**Drawing No. 1**



LEGEND

- SB-1, Test Boring by Dente
- SCPT-02, Seismic Cone Penetrometer Test by ConeTec, CPT denotes cone test with no seismic testing.
- B-6, Test Boring by CME Associates, MW denotes well location.

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Beacon Island Parcel
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<tr><td>**Dated: 7/07/2017**</td><td>**Drawing No. 1**</td></tr>
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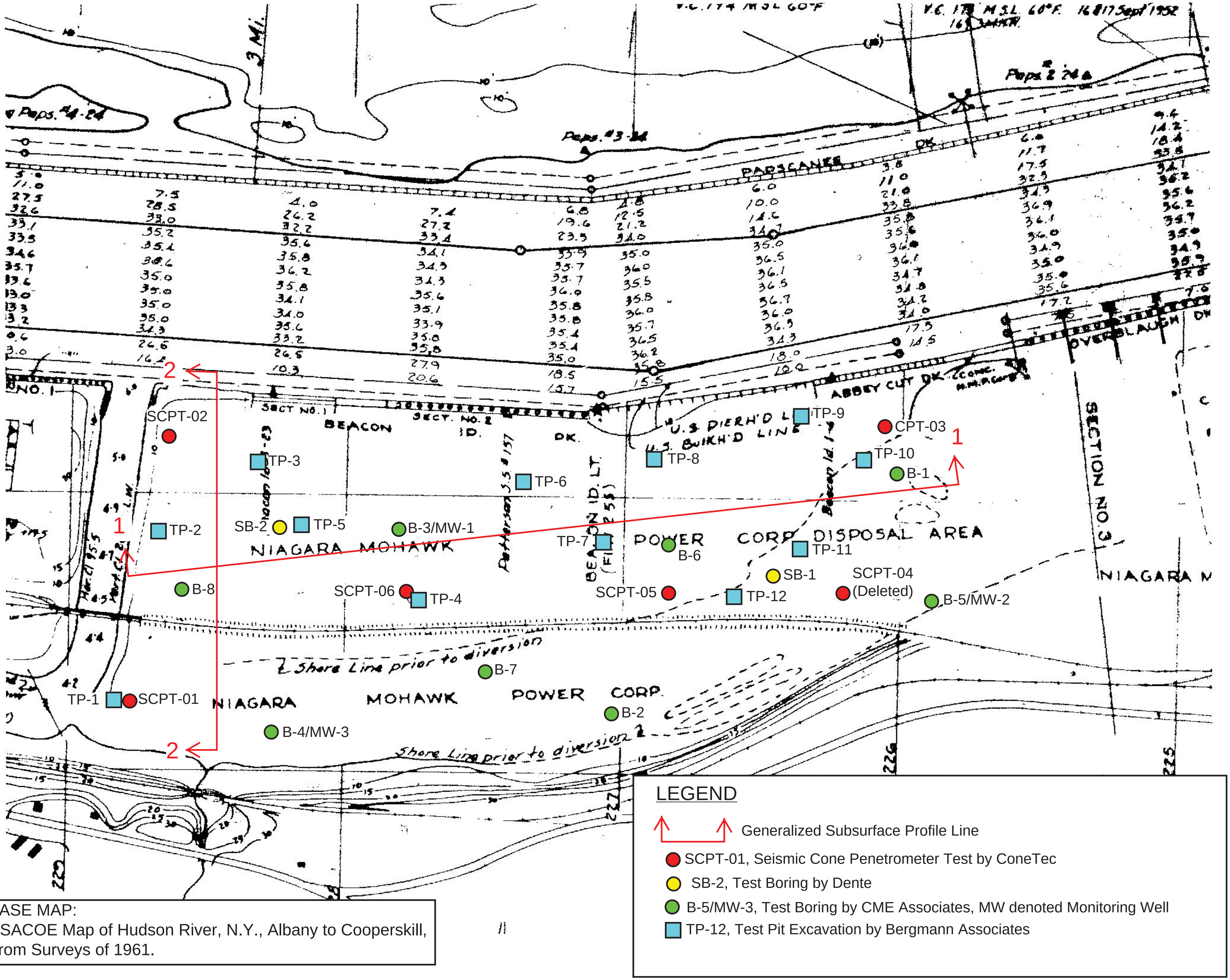
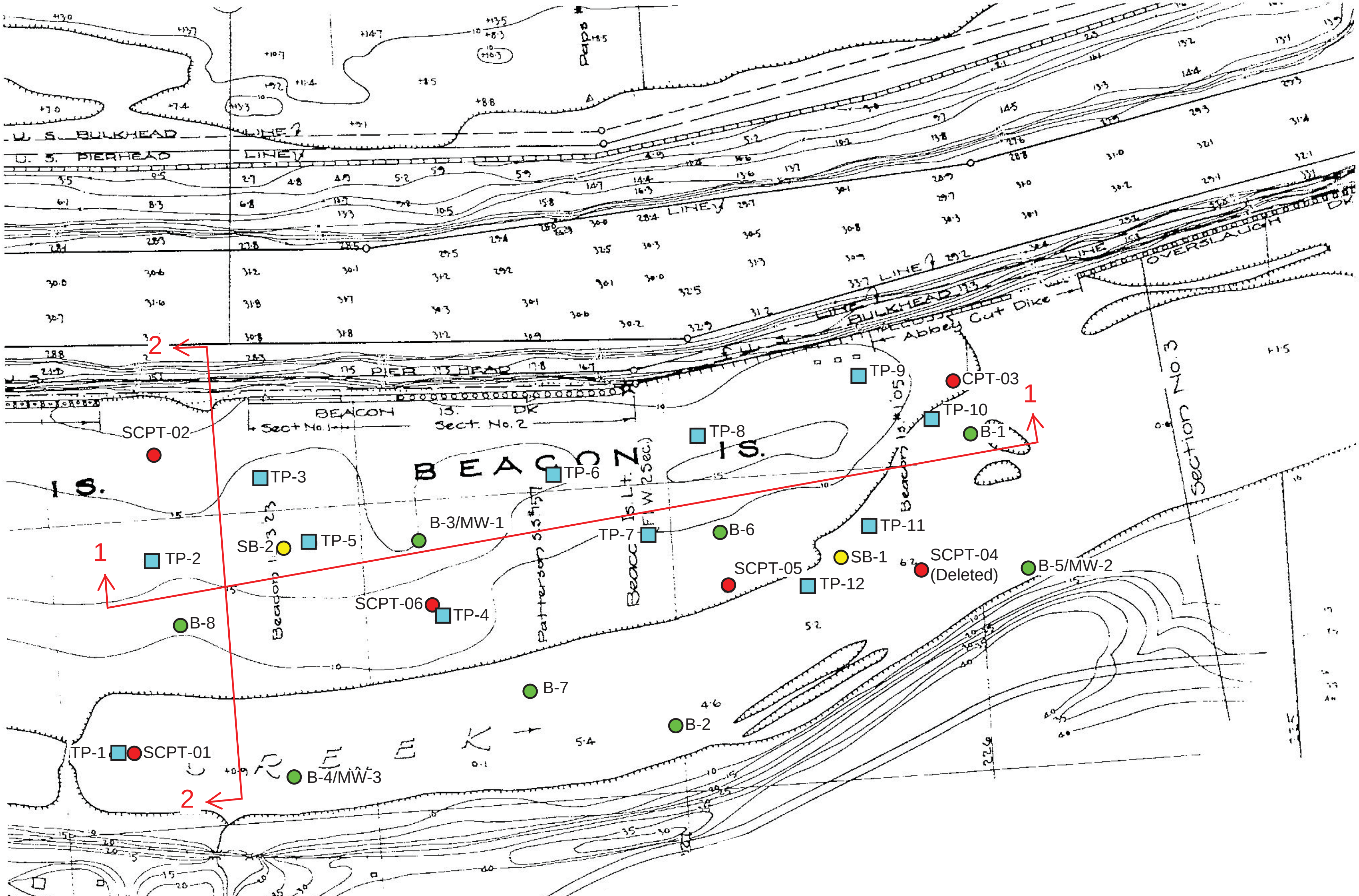
APPENDIX C
USACOE HUDSON RIVER MAPS
(1928, 1936, and 1961)

Beacon Island Parcel
Town of Bethlehem, NY



BASE MAP:
USACOE Map of Hudson River, N.Y., Albany to Cooperskill,
From Surveys of 1961.



LEGEND

Generalized Subsurface Profile Line

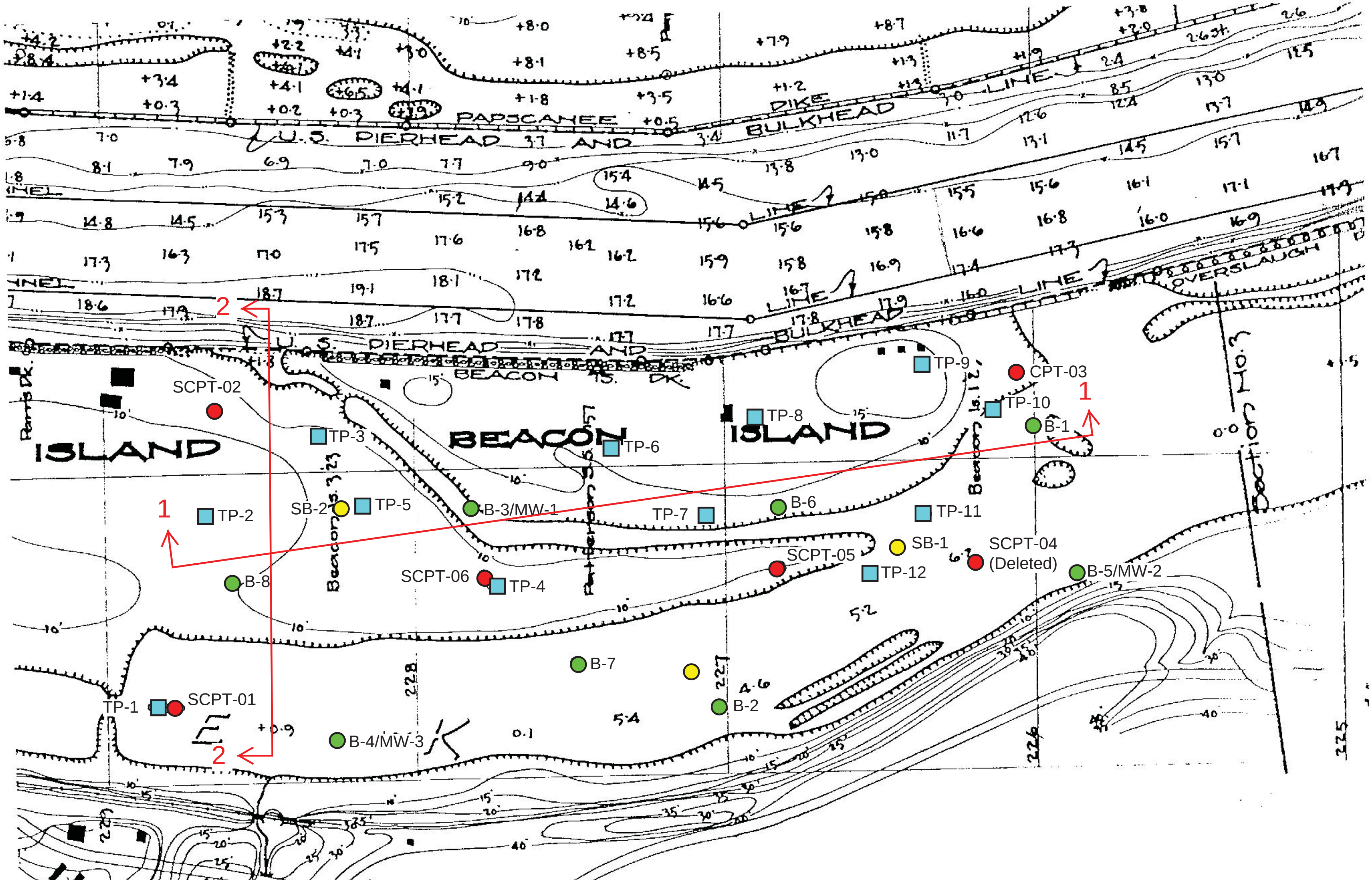
SCPT-01, Seismic Cone Penetrometer Test by ConeTec

SB-1, Test Boring by Dente

B-5/MW-2, Test boring by CME Associates, MW denotes Monitoring Well

TP-10, Test Pit Excavation by Bergmann Associates

BASE MAP:
USACOE Map of Hudson River, N.Y., Albany to Cooperskill,
From Surveys of 1936.



LEGEND

Generalized Subsurface Profile Line

SCPT-01, Seismic Cone Penetrometer Test by ConeTec

SB-1, Test Boring By Dente

B-3/MW-1, Test Boring By CME Associates, MW denotes Monitoring Well

TP-9, Test Pit Excavation by Bergmann Associates

BASE MAP:
USACOE Map of Hudson River, N.Y., Albany to Cooperskill,
From Surveys of 1928.

APPENDIX D
TEST BORING LOGS AND KEY

Beacon Island Parcel
Town of Bethlehem, NY

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 **SB-1.1**

PROJECT: Beacon Island Parcel | **DATE** START: 6/21/17 FINISH: 6/22/17

LOCATION: Town of Bethlehem, NY | **METHODS:** 4-1/4" I.D. Hollow Stem Augers with ASTM D1586 and D1587 Sampling

CLIENT: Bergmann Associates

JOB NUMBER: FDE-17-121 | **SURFACE ELEVATION:**

DRILL TYPE: CME 55 ATV Mounted Rig | **CLASSIFICATION:** E. Gravelle, PE

SAMPLE		BLOWS ON SAMPLER					CLASSIFICATION / OBSERVATIONS
DEPTH	#	6"	12"	18"	24"	N	
	1	WH	WH				**FILL:** Black Fly ASH
				1	1	1	**(MOIST, LOOSE)**
	2	WH	WH				Dark Gray SILT, trace decayed wood, Moist
				WH	WH	WH	
	3	WH	WH				Dark Gray and White Varved SILT, Wet
5'				WH	WH	WH	
	4	WR	WR				Gray SILT, trace fine sand and organic
				WH	WH	WH	matter, Wet
	5	WR	WR				Black Organic SILT, Very Moist
				WH	WH	WH	
10'	6	WH	WH				Grayish Brown SILT, trace clay, trace
				WH	WH	WH	organic matter, Wet
	7	WH	WH				Similar
				WH	WH	WH	**(MOIST TO WET, VERY SOFT / LOOSE)**
	8	WH	1				Grayish Brown Fine SAND, trace silt, Wet
15'				1	2	2	
	9	1	2				Similar
				3	4	5	**(WET, LOOSE)**
	10	WR	WH				Dark Gray Fine SAND and SILT, occasional
				1	1	1	decayed organic matter, Wet
20'	11	1	1				**(WET, LOOSE)**
				1	3	2	Gray F-M SAND, trace coarse sand and
							silt, Wet
25'	12	3	3				Grayish Brown F-M SAND, trace silt, Wet
				4		7	

DENTE GROUP, A TERRACON COMPANY	SUBSURFACE LOG **SB-1.2**

PROJECT: Beacon Island Parcel	**DATE**	START: 6/21/17	FINISH: 6/22/17

LOCATION: Town of Bethlehem, NY	**METHODS:** 4-1/4" I.D. Hollow Stem Augers
CLIENT: Bergmann Associates	with ASTM D1586 and D1587 Sampling
JOB NUMBER: FDE-17-121	**SURFACE ELEVATION:**
DRILL TYPE: CME 55 ATV Mounted Rig	**CLASSIFICATION:** E. Gravelle, PE

SAMPLE		BLOWS ON SAMPLER					CLASSIFICATION / OBSERVATIONS
DEPTH	#	6"	12"	18"	24"	N	
	13	1	1				Dark Gray F-M SAND, trace to Some
				2		3	Gravel, trace silt, Wet
							(WET, LOOSE)
35'	14	WH	WH				Gray Varved SILT and CLAY, Wet
				WH		WH	
	15	Tube Sample - 38' to 40' Recovery = 24"					
40'	16	WH	WH				Similar
				WH		WH	
45'	17	WR	WH				Similar
				WH		WH	
	18	Tube Sample - 48' to 50' Recovery = 20"					
50'	19	WR	WH				Similar
				WH		WH	
55'	20	WR	WH				Similar
				WH		WH	
	21	Tube Sample - 58' to 60' Recovery = 24"					

DENTE GROUP, A TERRACON COMPANY	SUBSURFACE LOG **SB-1.3**

PROJECT: Beacon Island Parcel	**DATE**	START: 6/21/17	FINISH: 6/22/17

LOCATION: Town of Bethlehem, NY	**METHODS:** 4-1/4" I.D. Hollow Stem Augers
CLIENT: Bergmann Associates	with ASTM D1586 and D1587 Sampling
JOB NUMBER: FDE-17-121	**SURFACE ELEVATION:**
DRILL TYPE: CME 55 ATV Mounted Rig	**CLASSIFICATION:** E. Gravelle, PE

SAMPLE		**BLOWS ON SAMPLER**					**CLASSIFICATION / OBSERVATIONS**
DEPTH	#	6"	12"	18"	24"	N	
	22	WH	WH				Gray Varved SILT and CLAY, Wet
				WH		WH	**(WET, VERY SOFT)**
							Boring Ended at 61.5'
							Groundwater at 10.1' below grade after
65'							leaving augers in place overnight at 20'.
70'							
75'							
80'							
85'							

DENTE GROUP, A TERRACON COMPANY	SUBSURFACE LOG **SB-2.1**

PROJECT: Beacon Island Parcel	**DATE**	START: 6/19/17	FINISH: 6/21/17

LOCATION: Town of Bethlehem, NY	**METHODS:** 4-1/4" I.D. Hollow Stem Augers
CLIENT: Bergmann Associates	with ASTM D1586 and D1587 Sampling
JOB NUMBER: FDE-17-121	**SURFACE ELEVATION:**
DRILL TYPE: CME 55 ATV Mounted Rig	**CLASSIFICATION:** E. Gravelle, PE

SAMPLE		**BLOWS ON SAMPLER**					**CLASSIFICATION / OBSERVATIONS**
DEPTH	#	6"	12"	18"	24"	N	
	1	2	3				**POSSIBLE FILL:** Grayish Brown SILT,
				3	4	6	Some Clay, Moist
	2	4	5				Brown Mottled SILT and CLAY with
				5	6	10	inclusions Gray SAND, SILT and GRAVEL
	3	2	4				Similar with occasional fragments decayed
5'				7	9	11	wood
	4	10	13				Gray SILT and CLAY with seams Gray F-M
				11	10	24	SAND, Little Silt, Moist
	5	2	5				Similar
				7	8	12	
10'	6	3	6				Similar
				6	8	12	
	7	8	6				Brown F-M SAND, trace silt
				6	4	12	
	8	3	4				**(MOIST, MEDIUM TO STIFF / FIRM)**
15'				3	3	7	Dark Gray to Brown SILT, trace clay, trace
	9	1	2				organic matter, Very Moist
				3	3	5	
	10	WH	WH				Similar, Wet
				WH	3	WH	
20'	11	WH	1/12"				Similar with seams Gray F-M SAND
				-	1	1	**(VERY MOIST TO WET, LOOSE)**
25'	12	2	3				Gray F-M SAND, trace silt, Wet
				3		6	

DENTE GROUP, A TERRACON COMPANY	SUBSURFACE LOG **SB-2.2**

PROJECT: Beacon Island Parcel	**DATE**	START: 6/19/17	FINISH: 6/21/17

LOCATION: Town of Bethlehem, NY	**METHODS:** 4-1/4" I.D. Hollow Stem Augers
CLIENT: Bergmann Associates	with ASTM D1586 and D1587 Sampling
JOB NUMBER: FDE-17-121	**SURFACE ELEVATION:**
DRILL TYPE: CME 55 ATV Mounted Rig	**CLASSIFICATION:** E. Gravelle, PE

SAMPLE		**BLOWS ON SAMPLER**					**CLASSIFICATION / OBSERVATIONS**
DEPTH	#	6"	12"	18"	24"	N	
	13	3	3				Dark Grayish Brown Fine SAND, Little Silt, with occasional thin seams decayed organic matter, Wet
				4		7	
35'	14	3	4				Gray Layered Fine and F-M SAND, trace silt, Wet
				6		10	
40'	15	2	2				Gray F-C SAND and Fine Gravel, trace silt, Wet
				4		6	
							(WET, LOOSE)
45'	16	1	1				Gray Varved SILT and CLAY, Wet
				2		3	
	17	Tube Sample - 48' to 50' Recovery = 24"					
50'	18	WH	WH				Similar
				WH		WH	
55'	19	WH	WH				Similar
				WH		WH	

DENTE GROUP, A TERRACON COMPANY	SUBSURFACE LOG **SB-2.3**

PROJECT: Beacon Island Parcel	**DATE**	START: 6/19/17	FINISH: 6/21/17

LOCATION: Town of Bethlehem, NY	**METHODS:** 4-1/4" I.D. Hollow Stem Augers
CLIENT: Bergmann Associates	with ASTM D1586 and D1587 Sampling
JOB NUMBER: FDE-17-121	**SURFACE ELEVATION:**
DRILL TYPE: CME 55 ATV Mounted Rig	**CLASSIFICATION:** E. Gravelle, PE

SAMPLE		BLOWS ON SAMPLER					CLASSIFICATION / OBSERVATIONS
DEPTH	#	6"	12"	18"	24"	N	
	20	WH	WH				Gray Varved SILT and CLAY, Wet
				WH		WH	
65'	21	WR	WH				Similar
				2		2	
	22	Tube Sample - 68' to 70' Recovery = 0"					
70'	23	WH	WH				Gray SILT, Little to trace clay, Wet
				WH		WH	**(WET, VERY SOFT)**
75'	24	14	28				Gray SILT, SAND and GRAVEL, trace clay,
				42		70	Wet
							(WET, VERY COMPACT)
80'	25	7	100/.3'			REF	2" SAND over Gray SHALE Fragments, Wet
							Boring Ended at 80.8' with Spoon Refusal
							Groundwater at 13.7' below grade after
							sample #9 was obtained.
85'							

APPENDIX E
CONETEC TEST REPORT

Beacon Island Parcel
Town of Bethlehem, NY

PRESENTATION OF SITE INVESTIGATION RESULTS

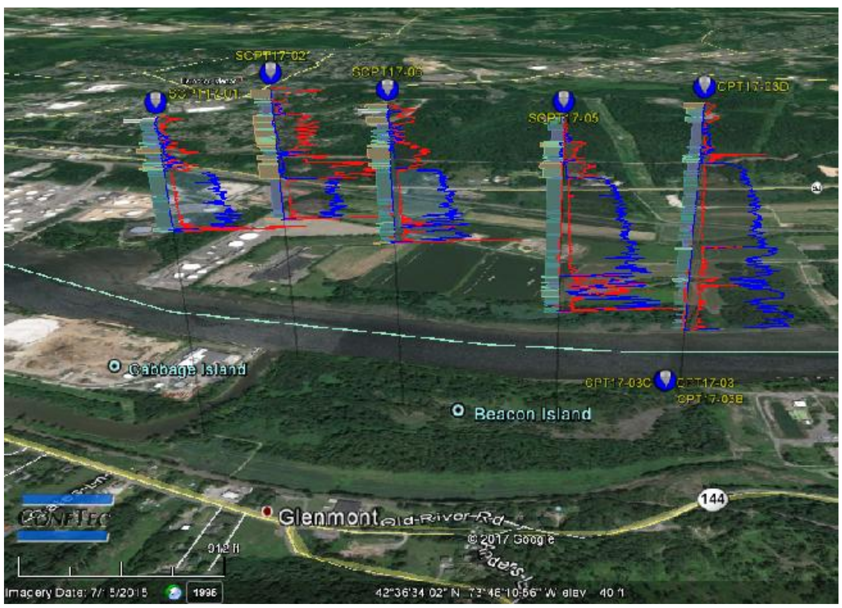
Port of Albany
Albany, New York

Prepared for:

Dente Engineering

ConeTec Job No: 17-53073

Project Start Date: 12-Jun-2017
Project End Date: 13-Jun-2017
Report Date: 14-Jun-2017



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Introduction

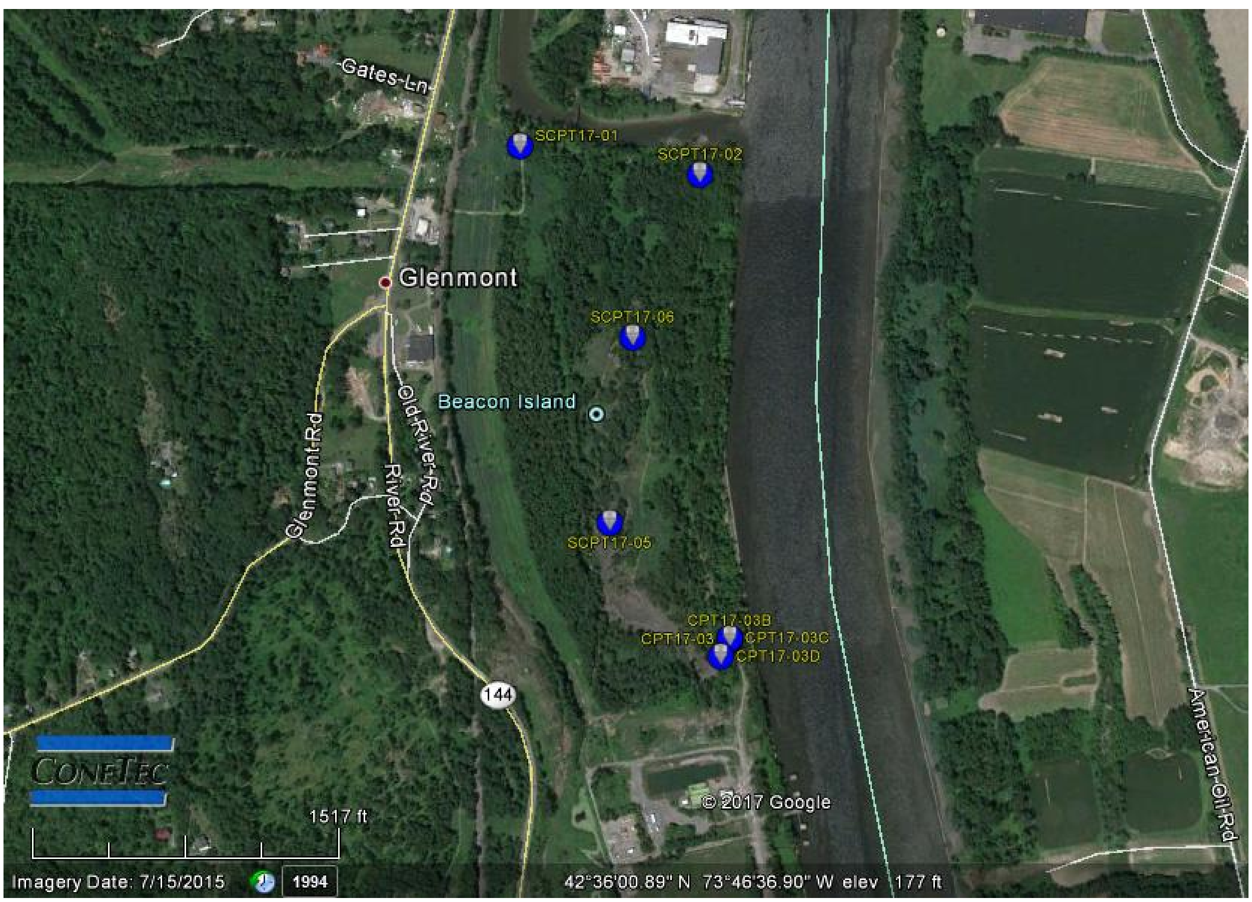
The enclosed report presents the results of a cone penetration testing (CPTU or CPT) and seismic piezocone penetration testing (SCPTu or SCPT) program carried out at the proposed new Port of Albany to be located in Albany, New York. The site investigation program was conducted by ConeTec Inc. (ConeTec), under contract to Dente Engineering (Dente) of Watervliet, New York.

A total of 4 cone penetration tests and 4 seismic cone penetration tests were completed at 5 locations (there were 3 shallow refusals that were offset and reattempted until target depth was achieved). The CPT and SCPT program was performed to evaluate the subsurface soil conditions. CPT and SCPT sounding locations were selected and numbered under supervision of Dente personnel (Mr. Ed Gravelle).

Project Information

Project	
Client	Dente Engineering
Project	Port of Albany, Albany, NY
ConeTec project number	17-53073

A map from Google earth including the CPT test locations is presented below.



Rig Description	Deployment System	Test Type
CPT Track Rig	20 ton track mounted (twin cylinders)	CPT and SCPT

Coordinates		
Test Type	Collection Method	EPSG Number
CPT and SCPT	GPS (GlobalSat MR-350)	32618 (WGS 84 / UTM North)

Cone Penetration Test (CPT)	
Depth reference	Ground surface at the time of the investigation.
Tip and sleeve data offset	0.1 meter. This has been accounted for in the CPT data files.
Pore pressure dissipation (PPD) tests	Five pore pressure dissipation tests were completed to determine the phreatic surface and the consolidation characteristics.
Additional Comments	Shear wave velocity tests were conducted at various depth intervals at four locations.

Cone Description	Cone Number	Cross Sectional Area (cm^2)	Sleeve Area (cm^2)	Tip Capacity (bar)	Sleeve Capacity (bar)	Pore Pressure Capacity (psi)
226:T1500F15U500	226	15	225	1500	15	500
469:T1500F15U500	469	15	225	1500	15	500

Limitations

This report has been prepared for the exclusive use of Dente Engineering (Client) for the project titled "Port of Albany, Albany, NY". The report's contents may not be relied upon by any other party without the express written permission of ConeTec. ConeTec has provided site investigation services, prepared the factual data reporting, and provided geotechnical parameter calculations consistent with current best practices. No other warranty, expressed or implied, is made.

The information presented in the report document and the accompanying data set pertain to the specific project, site conditions and objectives described to ConeTec by the Client. In order to properly understand the factual data, assumptions and calculations, reference must be made to the documents provided and their accompanying data sets, in their entirety.

The cone penetration tests (CPTu) are conducted using an integrated electronic piezocone penetrometer and data acquisition system manufactured by Adara Systems Ltd. of Richmond, British Columbia, Canada.

ConeTec's piezocone penetrometers are compression type designs in which the tip and friction sleeve load cells are independent and have separate load capacities. The piezocones use strain gauged load cells for tip and sleeve friction and a strain gauged diaphragm type transducer for recording pore pressure. The piezocones also have a platinum resistive temperature device (RTD) for monitoring the temperature of the sensors, an accelerometer type dual axis inclinometer and a geophone sensor for recording seismic signals. All signals are amplified down hole within the cone body and the analog signals are sent to the surface through a shielded cable.

ConeTec penetrometers are manufactured with various tip, friction and pore pressure capacities in both 10 cm^2 and 15 cm^2 tip base area configurations in order to maximize signal resolution for various soil conditions. The 15 cm^2 penetrometers do not require friction reducers as they have a diameter larger than the deployment rods. The 10 cm^2 piezocones use a friction reducer consisting of a rod adapter extension behind the main cone body with an enlarged cross sectional area (typically 44 mm diameter over a length of 32 mm with tapered leading and trailing edges) located at a distance of 585 mm above the cone tip.

The penetrometers are designed with equal end area friction sleeves, a net end area ratio of 0.8 and cone tips with a 60 degree apex angle.

All ConeTec piezocones can record pore pressure at various locations. Unless otherwise noted, the pore pressure filter is located directly behind the cone tip in the "u_2" position (ASTM Type 2). The filter is 6 mm thick, made of porous plastic (polyethylene) having an average pore size of 125 microns (90-160 microns). The function of the filter is to allow rapid movements of extremely small volumes of water needed to activate the pressure transducer while preventing soil ingress or blockage.

The piezocone penetrometers are manufactured with dimensions, tolerances and sensor characteristics that are in general accordance with the current ASTM D5778 standard. ConeTec's calibration criteria also meet or exceed those of the current ASTM D5778 standard. An illustration of the piezocone penetrometer is presented in Figure CPTu.

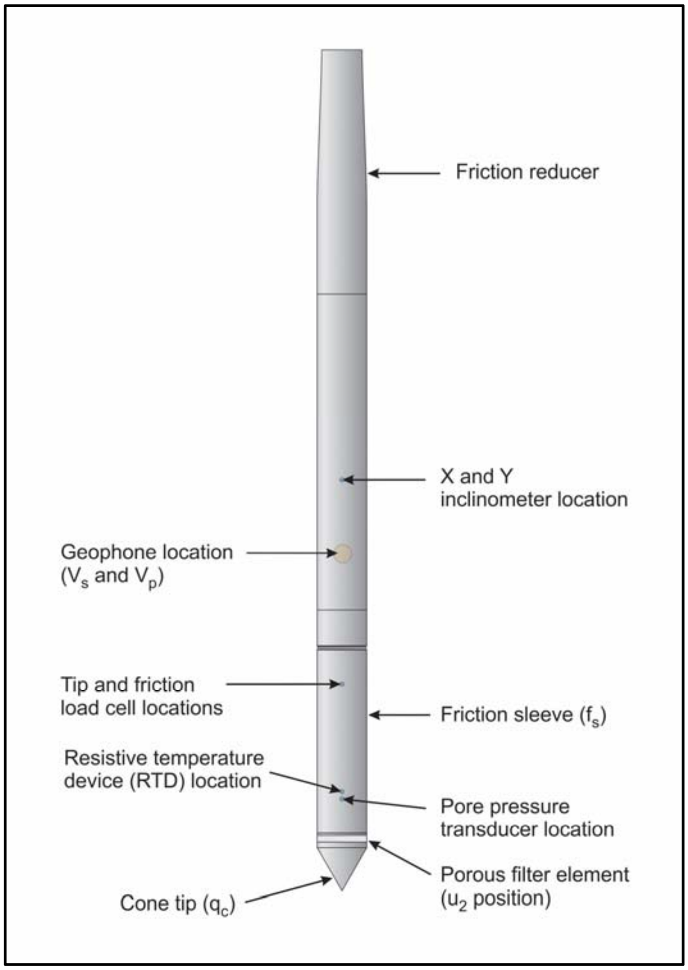


Figure CPTu. Piezocone Penetrometer (15 cm^2)

The ConeTec data acquisition systems consist of a Windows based computer and a signal conditioner and power supply interface box with a 16 bit (or greater) analog to digital (A/D) converter. The data is recorded at fixed depth increments using a depth wheel attached to the push cylinders or by using a spring loaded rubber depth wheel that is held against the cone rods. The typical recording intervals are either 2.5 cm or 5.0 cm depending on project requirements; custom recording intervals are possible. The system displays the CPTu data in real time and records the following parameters to a storage media during penetration:

- Depth
- Uncorrected tip resistance (q_c)
- Sleeve friction (f_s)
- Dynamic pore pressure (u)
- Additional sensors such as resistivity, passive gamma, ultra violet induced fluorescence, if applicable

All testing is performed in accordance to ConeTec's CPT operating procedures which are in general accordance with the current ASTM D5778 standard.

Prior to the start of a CPTu sounding a suitable cone is selected, the cone and data acquisition system are powered on, the pore pressure system is saturated with either glycerin or silicone oil and the baseline readings are recorded with the cone hanging freely in a vertical position.

The CPTu is conducted at a steady rate of 2 cm/s, within acceptable tolerances. Typically one meter length rods with an outer diameter of 1.5 inches are added to advance the cone to the sounding termination depth. After cone retraction final baselines are recorded.

Additional information pertaining to ConeTec's cone penetration testing procedures:

- Each filter is saturated in silicone oil or glycerin under vacuum pressure prior to use
- Recorded baselines are checked with an independent multi-meter
- Baseline readings are compared to previous readings
- Soundings are terminated at the client's target depth or at a depth where an obstruction is encountered, excessive rod flex occurs, excessive inclination occurs, equipment damage is likely to take place, or a dangerous working environment arises
- Differences between initial and final baselines are calculated to ensure zero load offsets have not occurred and to ensure compliance with ASTM standards

The interpretation of piezocone data for this report is based on the corrected tip resistance (q_t), sleeve friction (f_s) and pore water pressure (u). The interpretation of soil type is based on the correlations developed by Robertson (1990) and Robertson (2009). It should be noted that it is not always possible to accurately identify a soil type based on these parameters. In these situations, experience, judgment and an assessment of other parameters may be used to infer soil behavior type.

The recorded tip resistance (q_c) is the total force acting on the piezocone tip divided by its base area. The tip resistance is corrected for pore pressure effects and termed corrected tip resistance (q_t) according to the following expression presented in Robertson et al, 1986:

$$q_t = q_c + (1\text{-}a) \bullet u_2$$

where: q_t is the corrected tip resistance
q_c is the recorded tip resistance
u_2 is the recorded dynamic pore pressure behind the tip (u_2 position)
a is the Net Area Ratio for the piezocone (0.8 for ConeTec probes)

The sleeve friction (f_s) is the frictional force on the sleeve divided by its surface area. As all ConeTec piezocones have equal end area friction sleeves, pore pressure corrections to the sleeve data are not required.

The dynamic pore pressure (u) is a measure of the pore pressures generated during cone penetration. To record equilibrium pore pressure, the penetration must be stopped to allow the dynamic pore pressures to stabilize. The rate at which this occurs is predominantly a function of the permeability of the soil and the diameter of the cone.

The friction ratio (Rf) is a calculated parameter. It is defined as the ratio of sleeve friction to the tip resistance expressed as a percentage. Generally, saturated cohesive soils have low tip resistance, high friction ratios and generate large excess pore water pressures. Cohesionless soils have higher tip resistances, lower friction ratios and do not generate significant excess pore water pressure.

A summary of the CPTu soundings along with test details and individual plots are provided in the appendices. A set of interpretation files were generated for each sounding based on published correlations and are provided in Excel format in the data release folder. Information regarding the interpretation methods used is included in an appendix.

For additional information on CPTu interpretations, refer to Robertson et al. (1986), Lunne et al. (1997), Robertson (2009), Mayne (2013, 2014) and Mayne and Peuchen (2012).

References

ASTM D5778-12, 2012, "Standard Test Method for Performing Electronic Friction Cone and Piezocone Penetration Testing of Soils", ASTM, West Conshohocken, US.

Lunne, T., Robertson, P.K. and Powell, J. J. M., 1997, “Cone Penetration Testing in Geotechnical Practice”, Blackie Academic and Professional.

Mayne, P.W., 2013, “Evaluating yield stress of soils from laboratory consolidation and in-situ cone penetration tests”, Sound Geotechnical Research to Practice (Holtz Volume) GSP 230, ASCE, Reston/VA: 406-420.

Mayne, P.W. and Peuchen, J., 2012, “Unit weight trends with cone resistance in soft to firm clays”, Geotechnical and Geophysical Site Characterization *4,* Vol. 1 (Proc. ISC-4, Pernambuco), CRC Press, London: 903-910.

Mayne, P.W., 2014, “Interpretation of geotechnical parameters from seismic piezocone tests”, CPT’14 Keynote Address, Las Vegas, NV, May 2014.

Robertson, P.K., Campanella, R.G., Gillespie, D. and Greig, J., 1986, “Use of Piezometer Cone Data”, Proceedings of InSitu 86, ASCE Specialty Conference, Blacksburg, Virginia.

Robertson, P.K., 1990, “Soil Classification Using the Cone Penetration Test”, Canadian Geotechnical Journal, Volume 27: 151-158.

Robertson, P.K., 2009, “Interpretation of cone penetration tests – a unified approach”, Canadian Geotechnical Journal, Volume 46: 1337-1355.

Shear wave velocity testing is performed in conjunction with the piezocone penetration test (SCPTu) in order to collect interval velocities. For some projects seismic compression wave (Vp) velocity is also determined.

ConeTec's piezocone penetrometers are manufactured with a horizontally active geophone (28 hertz) that is rigidly mounted in the body of the cone penetrometer, 0.2 meters behind the cone tip.

Shear waves are typically generated by using an impact hammer horizontally striking a beam that is held in place by a normal load. In some instances an auger source or an imbedded impulsive source maybe used for both shear waves and compression waves. The hammer and beam act as a contact trigger that triggers the recording of the seismic wave traces. For impulsive devices an accelerometer trigger may be used. The traces are recorded using an up-hole integrated digital oscilloscope which is part of the SCPTu data acquisition system. An illustration of the shear wave testing configuration is presented in Figure SCPTu-1.

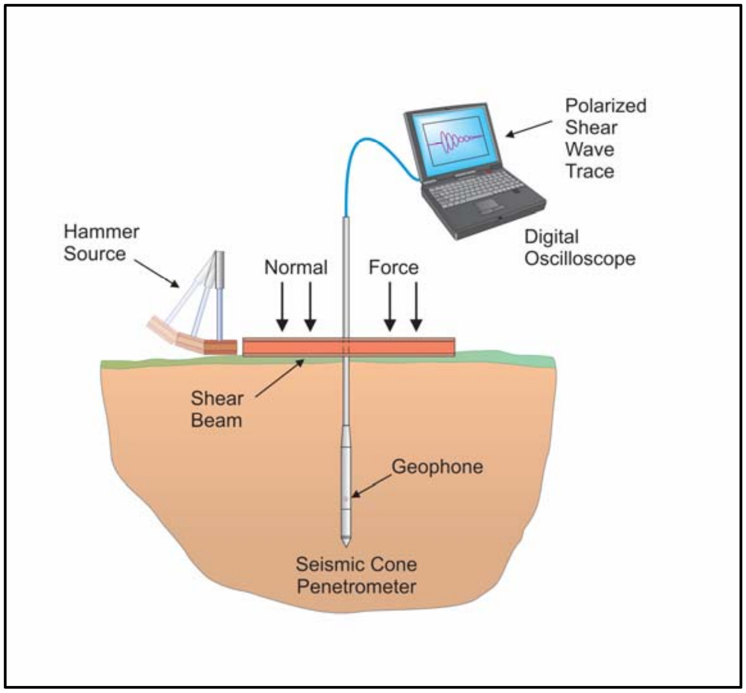


Figure SCPTu-1. Illustration of the SCPTu system

All testing is performed in accordance to ConeTec's SCPTu operating procedures.

Prior to the start of a SCPTu sounding, the procedures described in the Cone Penetration Test section are followed. In addition, the active axis of the geophone is aligned parallel to the beam (or source) and the horizontal offset between the cone and the source is measured and recorded.

Prior to recording seismic waves at each test depth, cone penetration is stopped and the rods are decoupled from the rig to avoid transmission of rig energy down the rods. Multiple wave traces are recorded for quality control purposes. After reviewing wave traces for consistency the cone is pushed to the next test depth (typically one meter intervals or as requested by the client). Figure SCPTu-2 presents an illustration of a SCPTu test.

For additional information on seismic cone penetration testing refer to Robertson et.al. (1986).

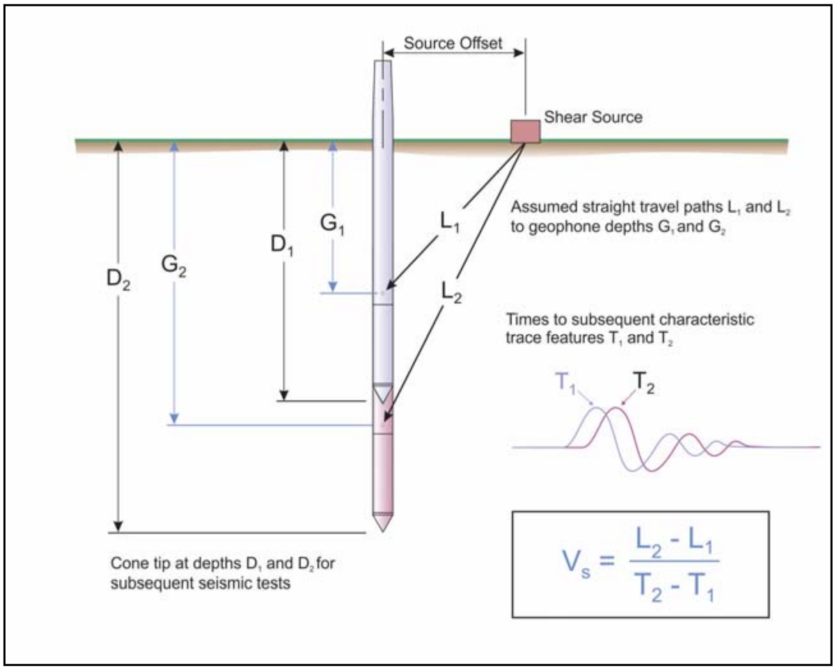


Figure SCPTu-2. Illustration of a seismic cone penetration test

Calculation of the interval velocities are performed by visually picking a common feature (e.g. the first characteristic peak, trough, or crossover) on all of the recorded wave sets and taking the difference in ray path divided by the time difference between subsequent features. Ray path is defined as the straight line distance from the seismic source to the geophone, accounting for beam offset, source depth and geophone offset from the cone tip.

The average shear wave velocity to a depth of 100 feet (30 meters) ($\bar{v}_s$) has been calculated and provided for all applicable soundings using the following equation presented in ASCE, 2010.

$$\bar{v}_s = \frac{\sum_{i=1}^{n} d_i}{\sum_{i=1}^{n} \frac{d_i}{v_{si}}}$$

where: $\bar{v}_s$ = average shear wave velocity ft/s (m/s)
d_i = the thickness of any layer between 0 and 100 ft (30 m)
v_{si} = the shear wave velocity in ft/s (m/s)
$\sum_{i=1}^{n} d_i$ = 100 ft (30 m)

Average shear wave velocity, $\bar{v}_s$ is also referenced to V_{s100} or V_{s30}.

The layer travel times refers to the travel times propagating in the vertical direction, not the measured travel times from an offset source.

Tabular results and SCPTu plots are presented in the relevant appendix.

References

American Society of Civil Engineers (ASCE), 2010, "Minimum Design Loads for Buildings and Other Structures", Standard ASCE/SEI 7-10, American Society of Civil Engineers, ISBN 978-0-7844-1085-1, Reston, Virginia.

Robertson, P.K., Campanella, R.G., Gillespie D and Rice, A., 1986, "Seismic CPT to Measure In-Situ Shear Wave Velocity", Journal of Geotechnical Engineering ASCE, Vol. 112, No. 8: 791-803.

The cone penetration test is halted at specific depths to carry out pore pressure dissipation (PPD) tests, shown in Figure PPD-1. For each dissipation test the cone and rods are decoupled from the rig and the data acquisition system measures and records the variation of the pore pressure (u) with time (t).

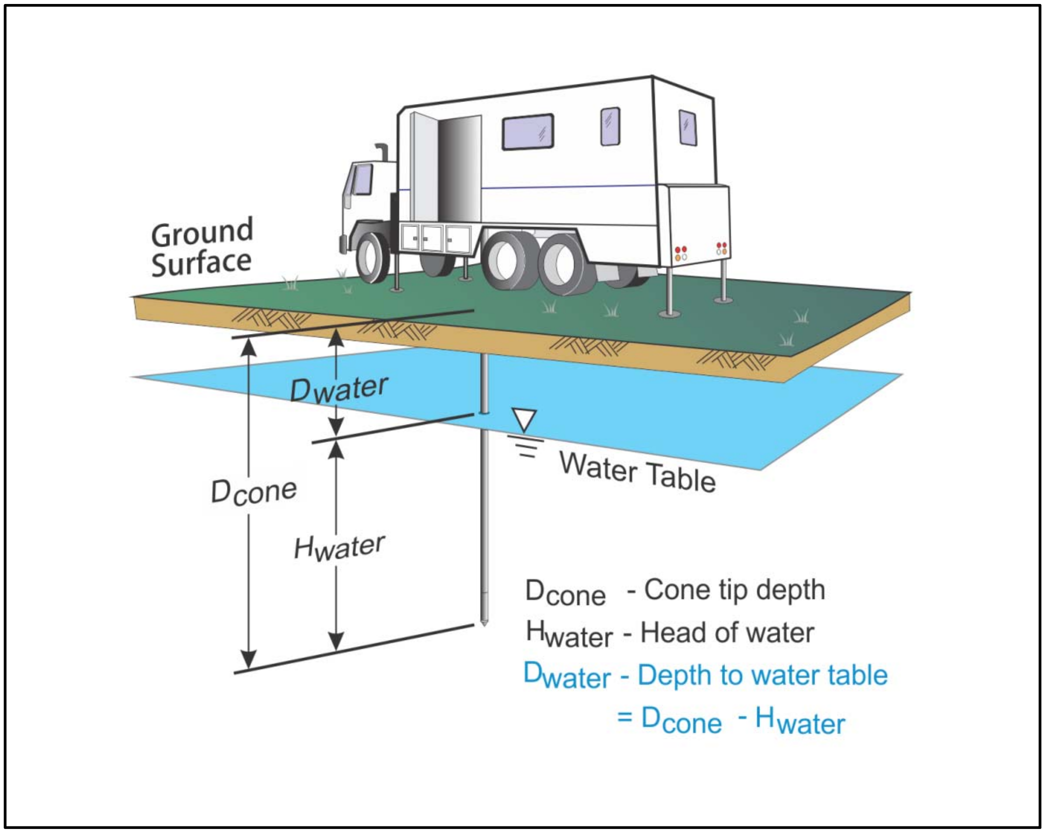


Figure PPD-1. Pore pressure dissipation test setup

Pore pressure dissipation data can be interpreted to provide estimates of ground water conditions, permeability, consolidation characteristics and soil behavior.

The typical shapes of dissipation curves shown in Figure PPD-2 are very useful in assessing soil type, drainage, in situ pore pressure and soil properties. A flat curve that stabilizes quickly is typical of a freely draining sand. Undrained soils such as clays will typically show positive excess pore pressure and have long dissipation times. Dilative soils will often exhibit dynamic pore pressures below equilibrium that then rise over time. Overconsolidated fine-grained soils will often exhibit an initial dilatory response where there is an initial rise in pore pressure before reaching a peak and dissipating.

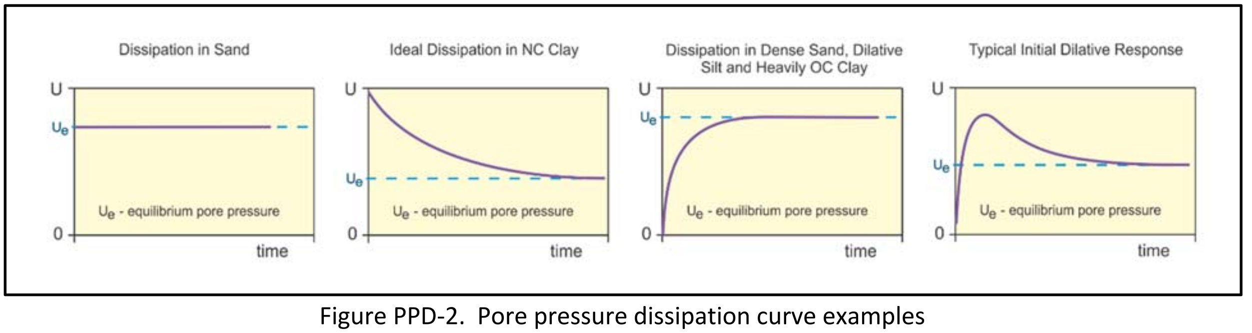


Figure PPD-2. Pore pressure dissipation curve examples

In order to interpret the equilibrium pore pressure (u_{eq}) and the apparent phreatic surface, the pore pressure should be monitored until such time as there is no variation in pore pressure with time as shown for each curve of Figure PPD-2.

In fine grained deposits the point at which 100% of the excess pore pressure has dissipated is known as t_{100}. In some cases this can take an excessive amount of time and it may be impractical to take the dissipation to t_{100}. A theoretical analysis of pore pressure dissipations by Teh and Houlsby (1991) showed that a single curve relating degree of dissipation versus theoretical time factor (T*) may be used to calculate the coefficient of consolidation (c_h) at various degrees of dissipation resulting in the expression for c_h shown below.

$$c_h = \frac{T^* \cdot a^2 \cdot \sqrt{I_r}}{t}$$

Where:

T* is the dimensionless time factor (Table Time Factor)

a is the radius of the cone

I_r is the rigidity index

t is the time at the degree of consolidation

Table Time Factor. T* versus degree of dissipation (Teh and Houlsby, 1991)

Degree of Dissipation (%)	20	30	40	50	60	70	80
T* (u_2)	0.038	0.078	0.142	0.245	0.439	0.804	1.60

The coefficient of consolidation is typically analyzed using the time (t_{50}) corresponding to a degree of dissipation of 50% (u_{50}). In order to determine t_{50}, dissipation tests must be taken to a pressure less than u_{50}. The u_{50} value is half way between the initial maximum pore pressure and the equilibrium pore pressure value, known as u_{100}. To estimate u_{50}, both the initial maximum pore pressure and u_{100} must be known or estimated. Other degrees of dissipations may be considered, particularly for extremely long dissipations.

At any specific degree of dissipation the equilibrium pore pressure (u at t_{100}) must be estimated at the depth of interest. The equilibrium value may be determined from one or more sources such as measuring the value directly (u_{100}), estimating it from other dissipations in the same profile, estimating the phreatic surface and assuming hydrostatic conditions, from nearby soundings, from client provided information, from site observations and/or past experience, or from other site instrumentation.

For calculations of c_h (Teh and Houlsby, 1991), t_{50} values are estimated from the corresponding pore pressure dissipation curve and a rigidity index (I_r) is assumed. For curves having an initial dilatory response in which an initial rise in pore pressure occurs before reaching a peak, the relative time from the peak value is used in determining t_{50}. In cases where the time to peak is excessive, t_{50} values are not calculated.

Due to possible inherent uncertainties in estimating I_r, the equilibrium pore pressure and the effect of an initial dilatory response on calculating t_{50}, other methods should be applied to confirm the results for c_h.

Additional published methods for estimating the coefficient of consolidation from a piezocone test are described in Burns and Mayne (1998, 2002), Jones and Van Zyl (1981), Robertson et al. (1992) and Sully et al. (1999).

A summary of the pore pressure dissipation tests and dissipation plots are presented in the relevant appendix.

References

Burns, S.E. and Mayne, P.W., 1998, "Monotonic and dilatory pore pressure decay during piezocone tests", Canadian Geotechnical Journal 26 (4): 1063-1073.

Burns, S.E. and Mayne, P.W., 2002, "Analytical cavity expansion-critical state model cone dissipation in fine-grained soils", Soils & Foundations, Vol. 42(2): 131-137.

Jones, G.A. and Van Zyl, D.J.A., 1981, "The piezometer probe: a useful investigation tool", Proceedings, 10th International Conference on Soil Mechanics and Foundation Engineering, Vol. 3, Stockholm: 489-495.

Robertson, P.K., Sully, J.P., Woeller, D.J., Lunne, T., Powell, J.J.M. and Gillespie, D.G., 1992, "Estimating coefficient of consolidation from piezocone tests", Canadian Geotechnical Journal, 29(4): 551-557.

Sully, J.P., Robertson, P.K., Campanella, R.G. and Woeller, D.J., 1999, "An approach to evaluation of field CPTU dissipation data in overconsolidated fine-grained soils", Canadian Geotechnical Journal, 36(2): 369-381.

Teh, C.I., and Houlsby, G.T., 1991, "An analytical study of the cone penetration test in clay", Geotechnique, 41(1): 17-34.

The appendices listed below are included in the report:

- Cone Penetration Test Summary and Standard Cone Penetration Test Plots
- Normalized Cone Penetration Test Plots
- Seismic Cone Penetration Test Plots
- Seismic Cone Penetration Test Tabular Results
- Pore Pressure Dissipation Summary and Pore Pressure Dissipation Plots

Cone Penetration Test Summary and

Standard Cone Penetration Test Plots

Job No:	17-53073
Client:	Dente Engineering
Project:	Port of Albany, Albany, NY
Start Date:	12-Jun-2017
End Date:	13-Jun-2017

CONE PENETRATION TEST SUMMARY

Sounding ID	File Name	Date	Cone	Assumed Phreatic Surface[1] (ft)	Final Depth (ft)	Shear Wave Velocity Tests	Northing[2] (m)	Easting (m)	Refer to Notation Number
SCPT17-01	17-53073_SP01	12-Jun-2017	469:T1500F15U500	6.6	61.84	12	4717928	601113	
SCPT17-02	17-53073_SP02	12-Jun-2017	226:T1500F15U500	14.1	84.65	8	4717882	601401	
CPT17-03	17-53073_CP03	12-Jun-2017	226:T1500F15U500		1.80		4717151	601458	4
CPT17-03B	17-53073_CP03B	12-Jun-2017	226:T1500F15U500		1.97		4717149	601458	4
CPT17-03C	17-53073_CP03C	12-Jun-2017	226:T1500F15U500		1.80		4717153	601458	4
CPT17-03D	17-53073_CP03D	12-Jun-2017	226:T1500F15U500	12.5	144.36		4717124	601444	3
SCPT17-05	17-53073_SP05	13-Jun-2017	226:T1500F15U500	8.7	112.53	22	4717333	601264	3
SCPT17-06	17-53073_SP06	13-Jun-2017	226:T1500F15U500	8.9	82.02	16	4717627	601297	
Totals	8 soundings				490.97	58			

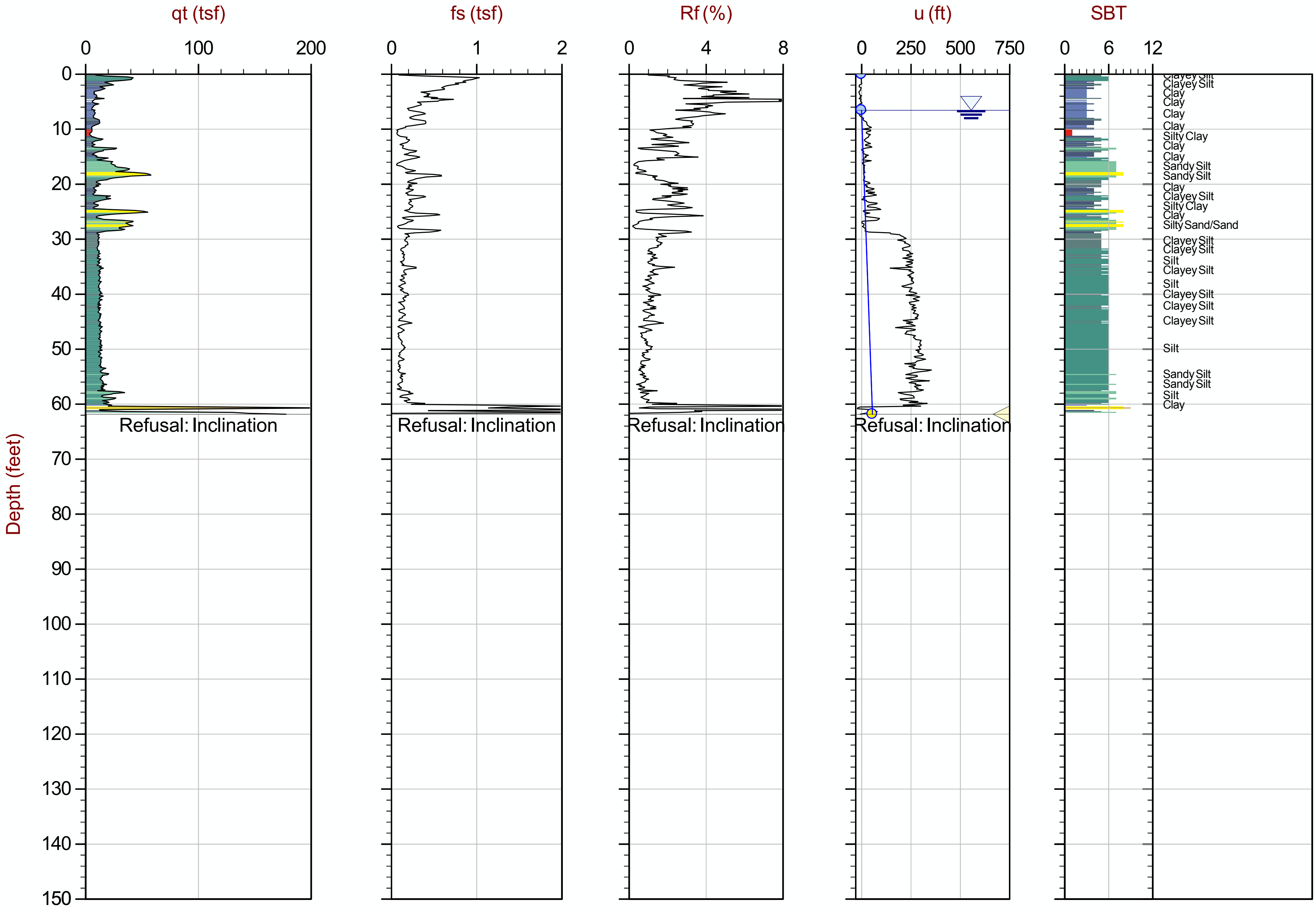
1. Assumed phreatic surface depths were determined from the pore pressure data unless otherwise noted. Hydrostatic data were used for calculated parameters.
2. Coordinates are WGS 84 / UTM Zone 18 and were collected using a MR-350 GlobalSat GPS Receiver.
3. Assumed phreatic surface estimated from the dynamic pore pressure response.
4. No phreatic surface detected

CONETEC

Dente Engineering

Job No: 17-53073
Date: 2017-06-12 11:11
Site: Port of Albany, Albany, NY

Sounding: SCPT17-01
Cone: 469:T1500F15U500



Max Depth: 18.850 m / 61.84 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: Every Point

File: 17-53073_SP01.COR

SBT: Robertson and Campanella, 1986
Coords: UTM Zone 18 N: 4717928m E: 601113m

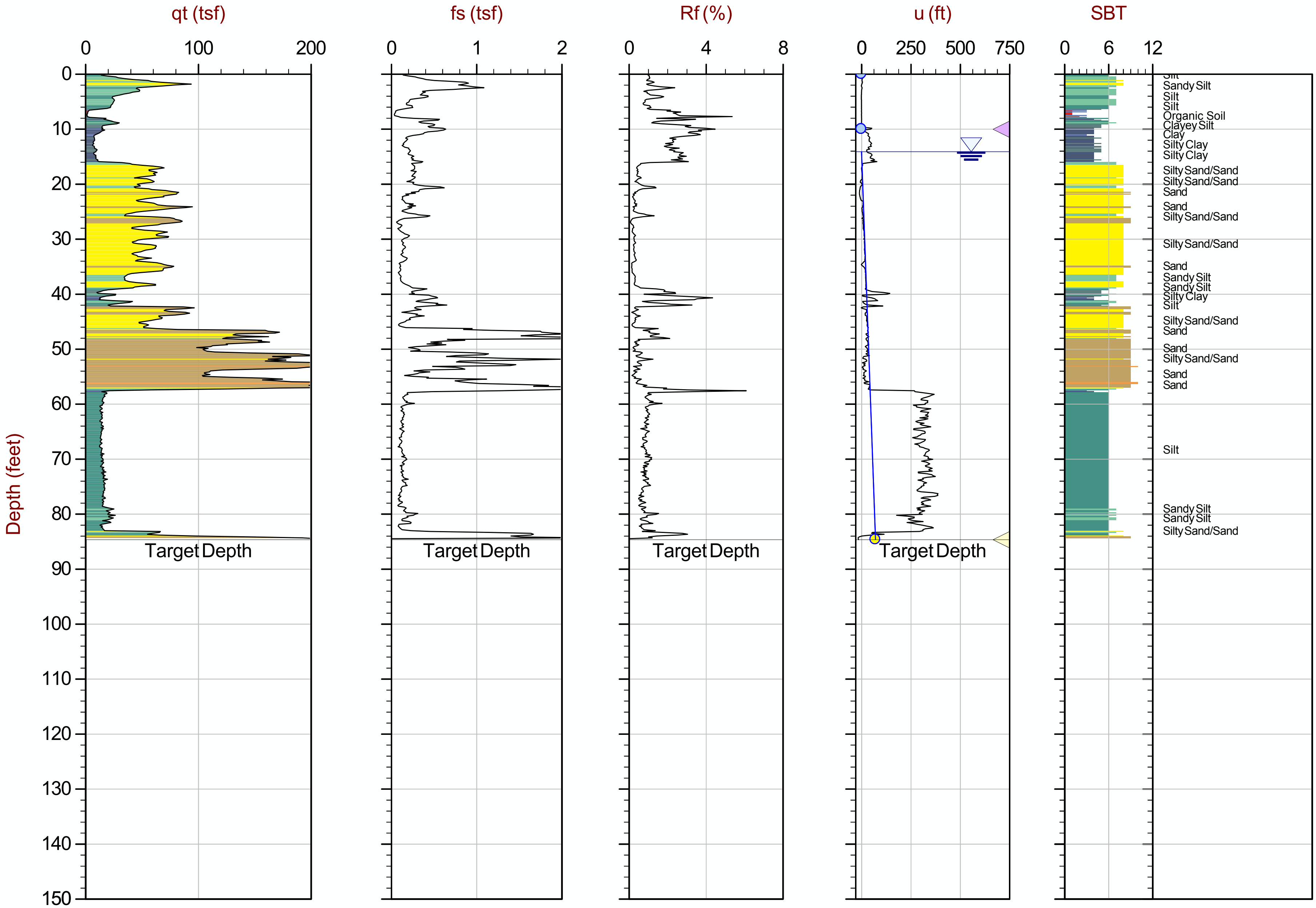
Hydrostatic Line Ueq Assumed Ueq PPD, Ueq achieved PPD, Ueq not achieved

The reported coordinates were acquired from consumer-grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.

CONETEC

Dente Engineering

Job No: 17-53073
Date: 2017-06-12 13:48
Site: Port of Albany, Albany, NY
Sounding: SCPT17-02
Cone: 226:T1500F15U500



Max Depth: 25.800 m / 84.64 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: Every Point

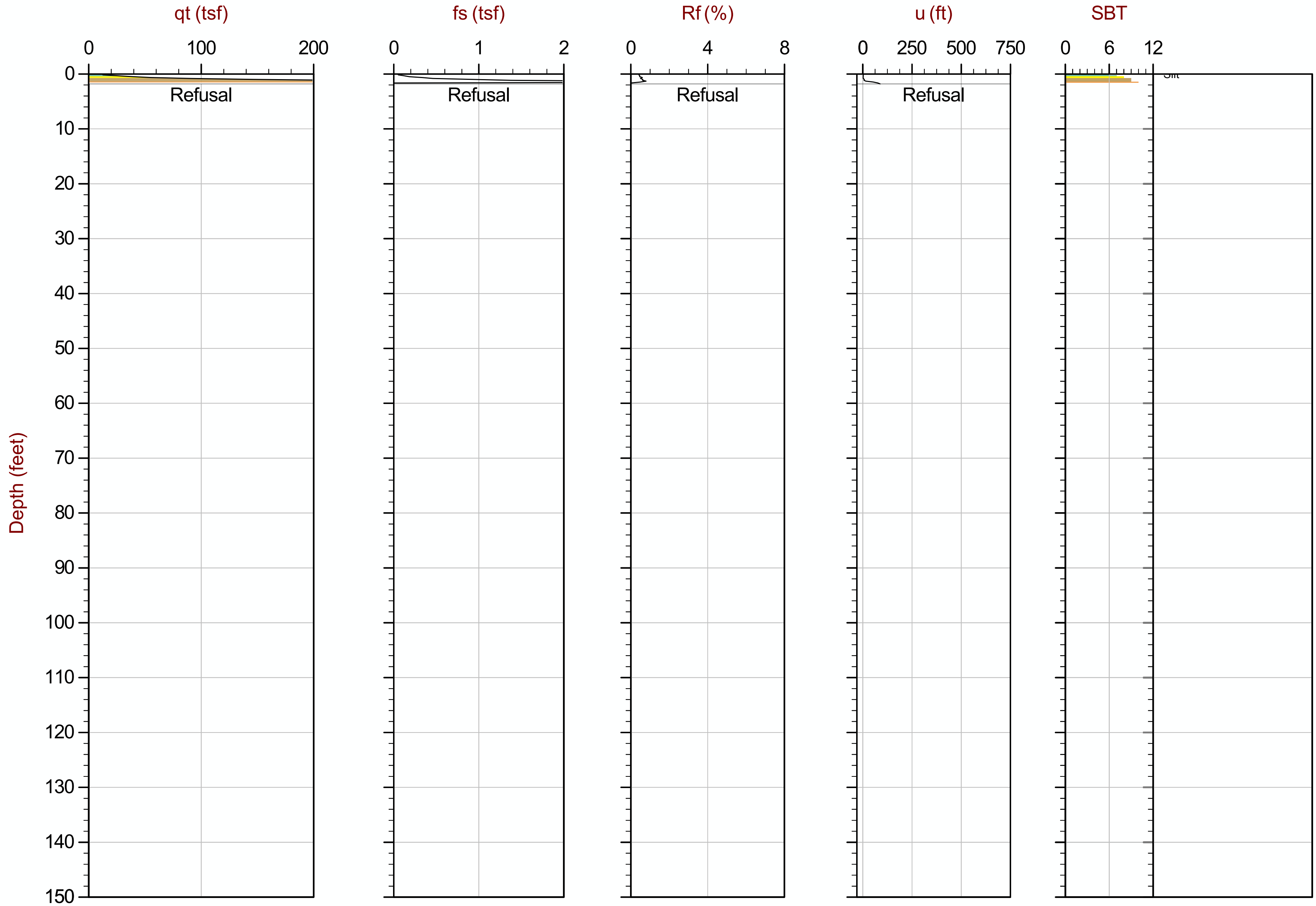
File: 17-53073_SP02.COR

SBT: Robertson and Campanella, 1986
Coords: UTM Zone 18 N: 4717882m E: 601401m

Hydrostatic Line   Ueq   Assumed Ueq   PPD, Ueq achieved   PPD, Ueq not achieved

The reported coordinates were acquired from consumer-grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.

Dente Engineering
Job No: 17-53073
Date: 2017-06-12 15:42
Site: Port of Albany, Albany, NY
Sounding: CPT17-03
Cone: 226:T1500F15U500



Max Depth: 0.550 m / 1.80 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: Every Point

File: 17-53073_CP03.COR

SBT: Robertson and Campanella, 1986
Coords: UTM Zone 18 N: 4717151m E: 601458m

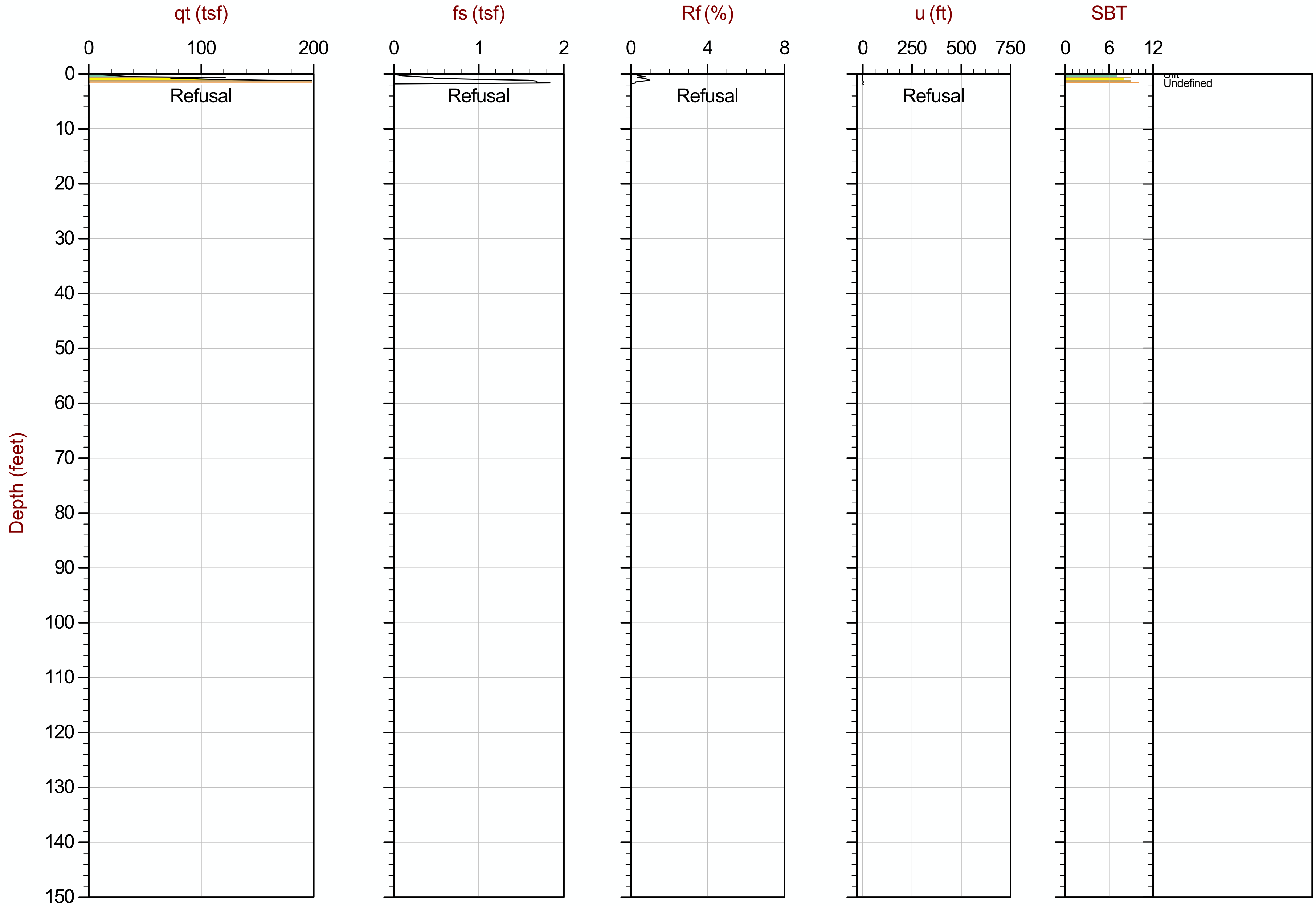
The reported coordinates were acquired from consumer-grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.

CONETEC

Dente Engineering

Job No: 17-53073
Date: 2017-06-12 15:58
Site: Port of Albany, Albany, NY

Sounding: CPT17-03B
Cone: 226:T1500F15U500



Max Depth: 0.600 m / 1.97 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: Every Point

File: 17-53073_CP03B.COR

SBT: Robertson and Campanella, 1986
Coords: UTM Zone 18 N: 4717149m E: 601458m

Hydrostatic Line Ueq Assumed Ueq PPD, Ueq achieved PPD, Ueq not achieved

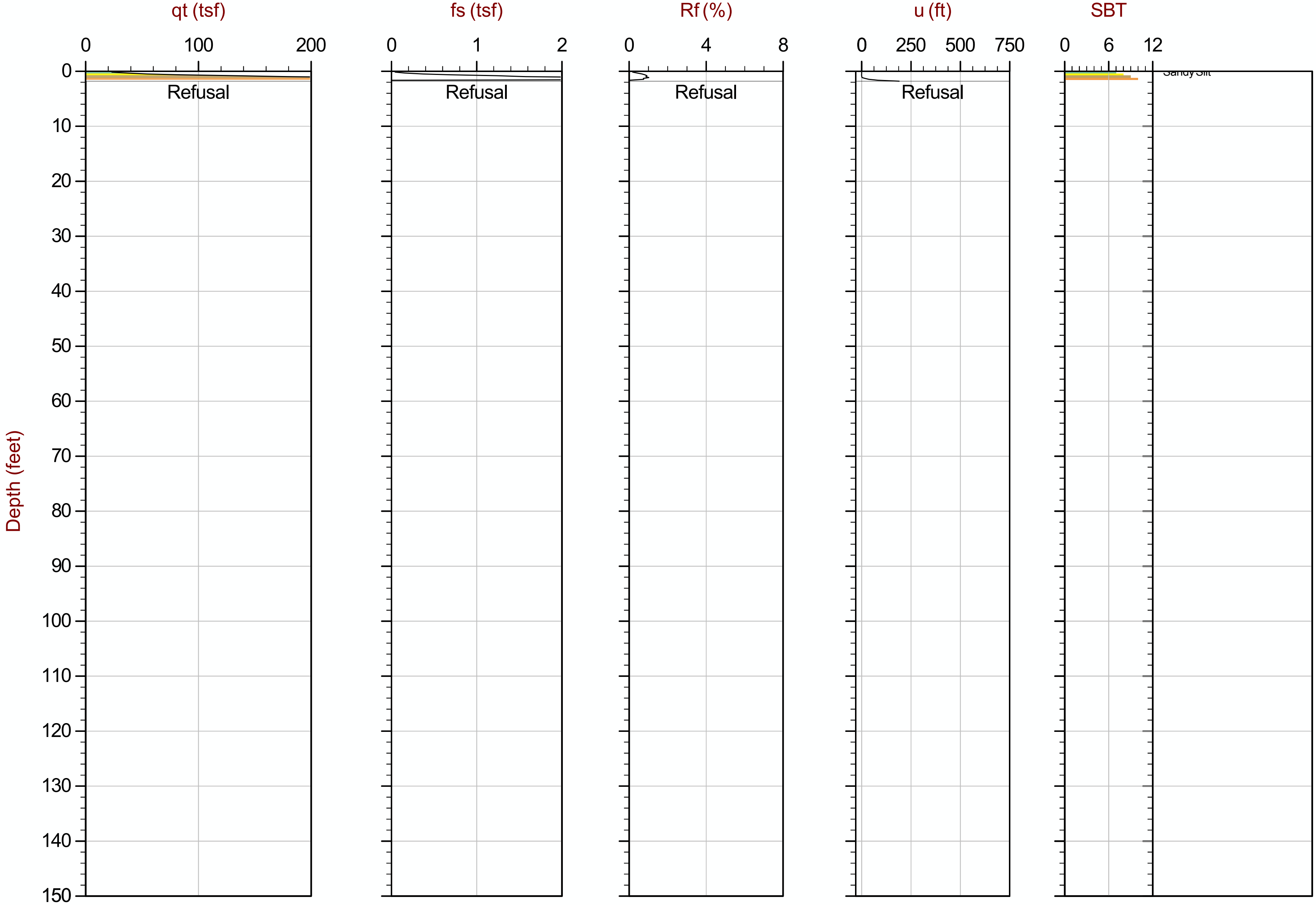
The reported coordinates were acquired from consumer-grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.

CONETEC

Dente Engineering

Job No: 17-53073
Date: 2017-06-12 16:09
Site: Port of Albany, Albany, NY

Sounding: CPT17-03C
Cone: 226:T1500F15U500



Max Depth: 0.550 m / 1.80 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: Every Point

File: 17-53073_CP03C.COR

SBT: Robertson and Campanella, 1986
Coords: UTM Zone 18 N: 4717153m E: 601458m

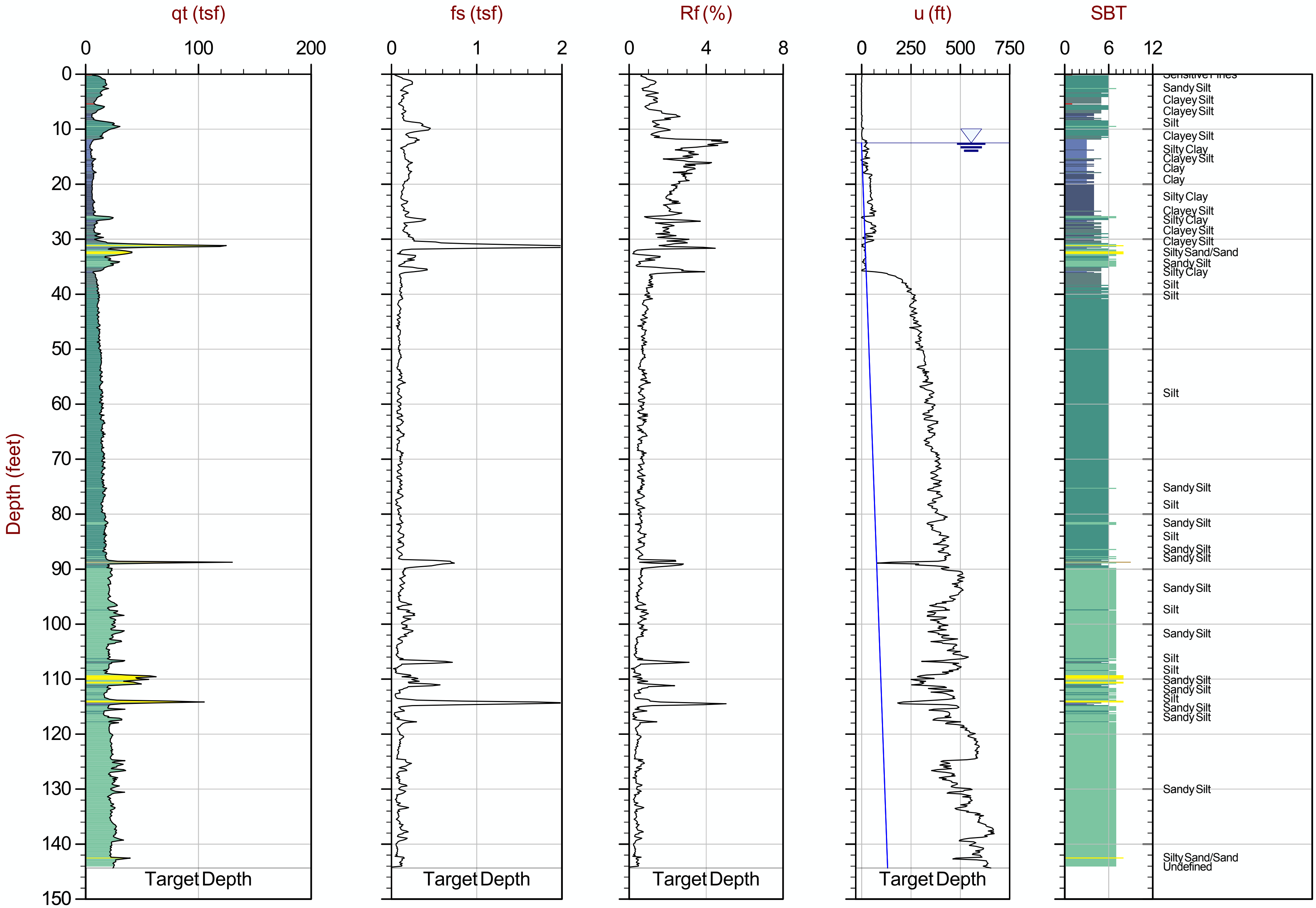
Hydrostatic Line   Ueq   Assumed Ueq   PPD, Ueq achieved   PPD, Ueq not achieved

The reported coordinates were acquired from consumer-grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.

ConeTec

Dente Engineering

Job No: 17-53073
Date: 2017-06-12 16:35
Site: Port of Albany, Albany, NY
Sounding: CPT17-03D
Cone: 226:T1500F15U500



Max Depth: 44.000 m / 144.36 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: Every Point

File: 17-53073_CP03D.COR

SBT: Robertson and Campanella, 1986
Coords: UTM Zone 18 N: 4717124m E: 601444m

Hydrostatic Line Ueq Assumed Ueq PPD, Ueq achieved PPD, Ueq not achieved

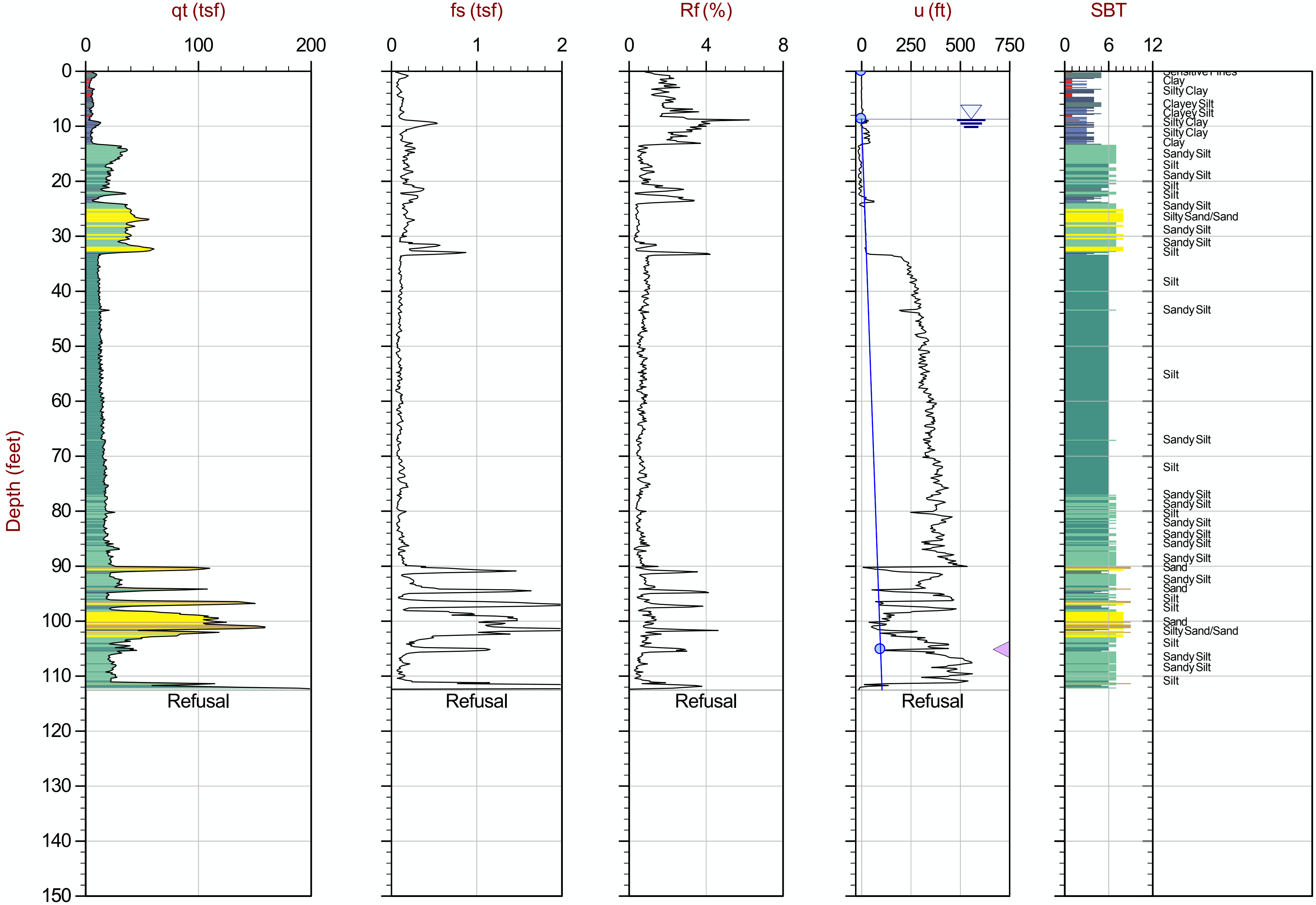
The reported coordinates were acquired from consumer-grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.

ConeTec

Dente Engineering

Job No: 17-53073
Date: 2017-06-13 08:48
Site: Port of Albany, Albany, NY

Sounding: SCPT17-05
Cone: 226:T1500F15U500



Max Depth: 34.300 m / 112.53 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: Every Point

File: 17-53073_SP05.COR

SBT: Robertson and Campanella, 1986
Coords: UTM Zone 18 N: 4717333m E: 601264m

Hydrostatic Line   Ueq   Assumed Ueq   PPD, Ueq achieved   PPD, Ueq not achieved

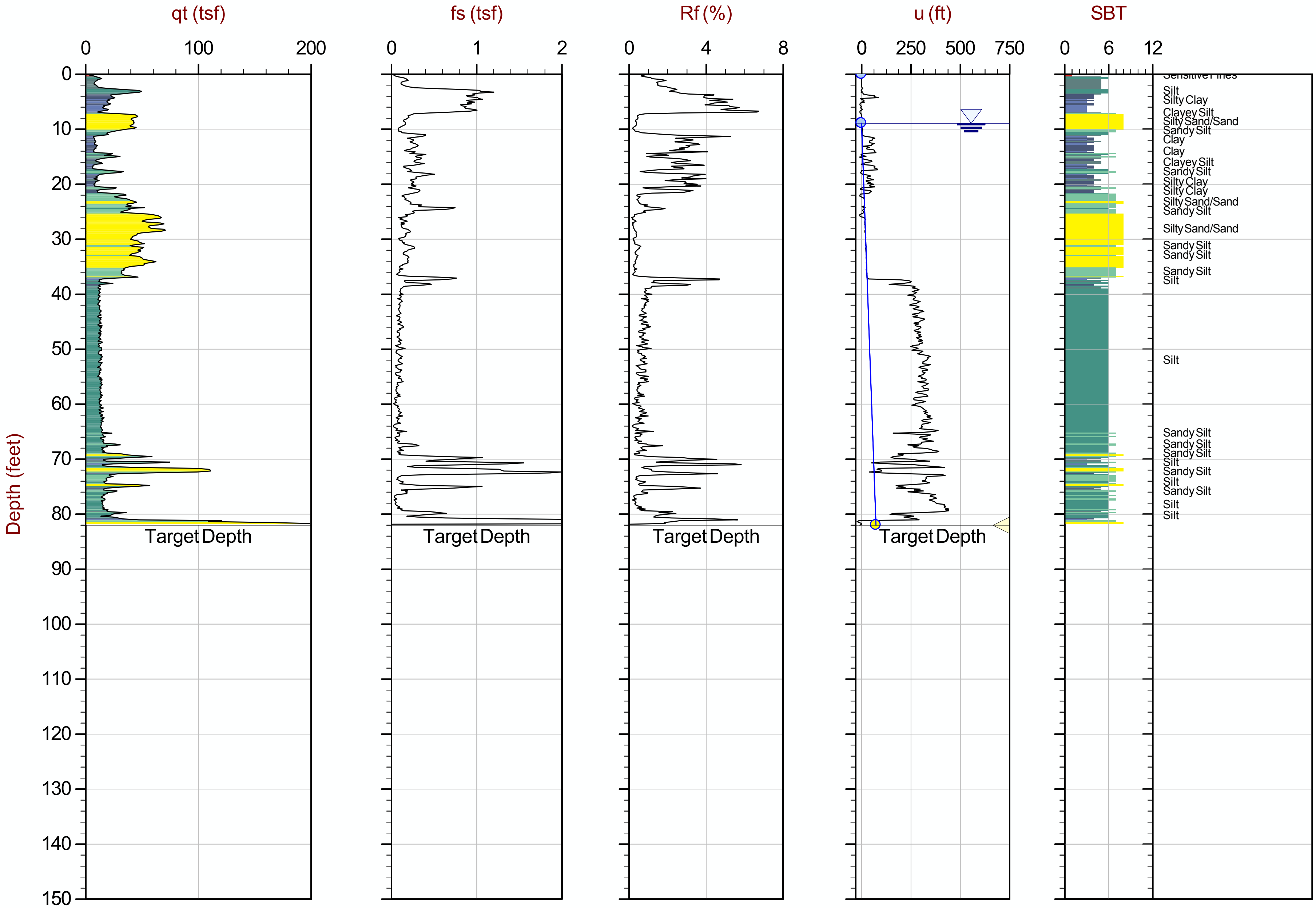
The reported coordinates were acquired from consumer-grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.

CONETEC

Dente Engineering

Job No: 17-53073
Date: 2017-06-13 10:49
Site: Port of Albany, Albany, NY

Sounding: SCPT17-06
Cone: 226:T1500F15U500



Max Depth: 25.000 m / 82.02 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: Every Point

File: 17-53073_SP06.COR

SBT: Robertson and Campanella, 1986
Coords: UTM Zone 18 N: 4717627m E: 601297m

Hydrostatic Line   Ueq   Assumed Ueq   PPD, Ueq achieved   PPD, Ueq not achieved

The reported coordinates were acquired from consumer-grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.

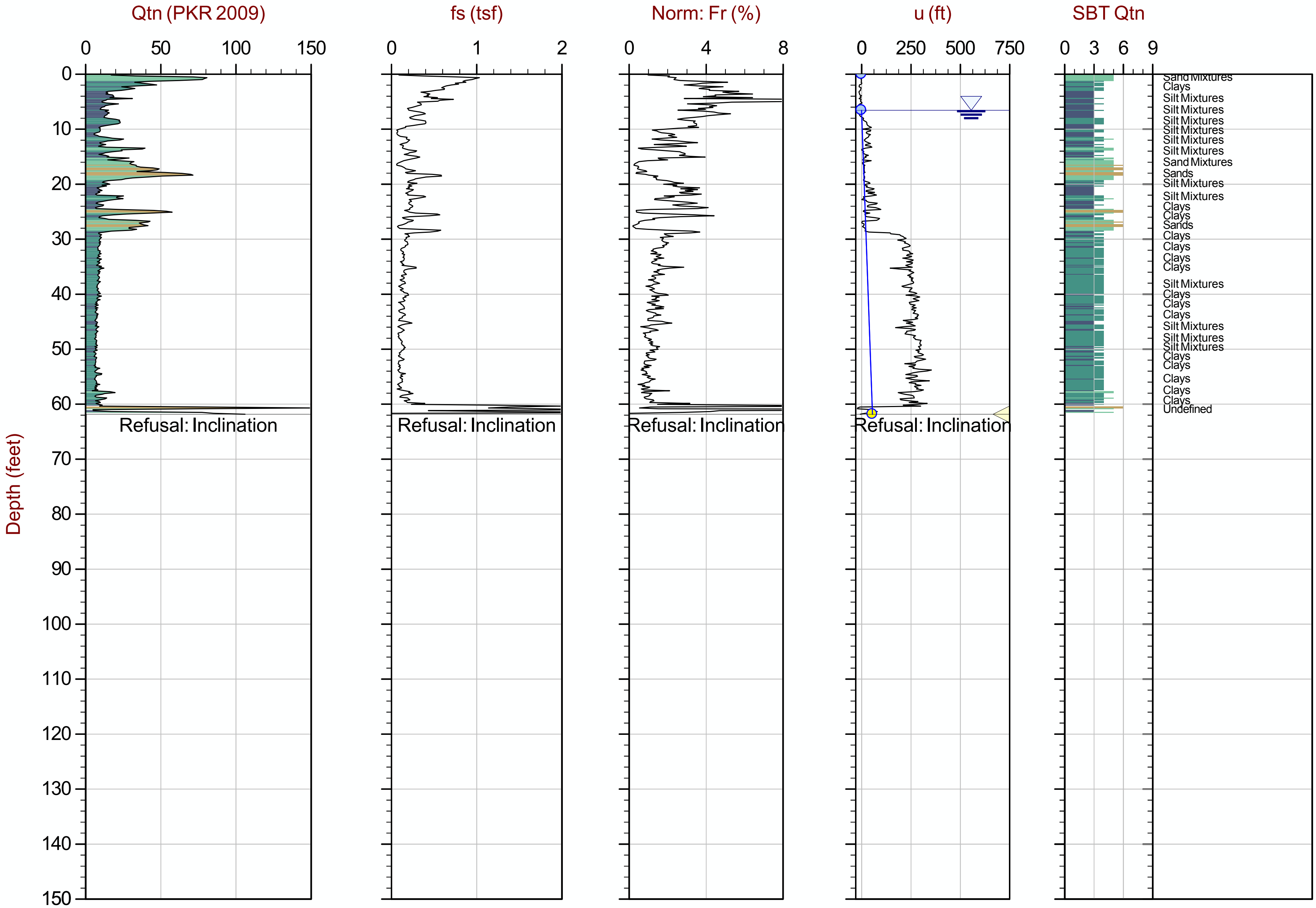
Normalized Cone Penetration Test Plots

ConeTec

Dente Engineering

Job No: 17-53073
Date: 2017-06-12 11:11
Site: Port of Albany, Albany, NY

Sounding: SCPT17-01
Cone: 469:T1500F15U500



Max Depth: 18.850 m / 61.84 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: Every Point

File: 17-53073_SP01.COR

SBT: Robertson, 2009 and 2010
Coords: UTM Zone 18 N: 4717928m E: 601113m

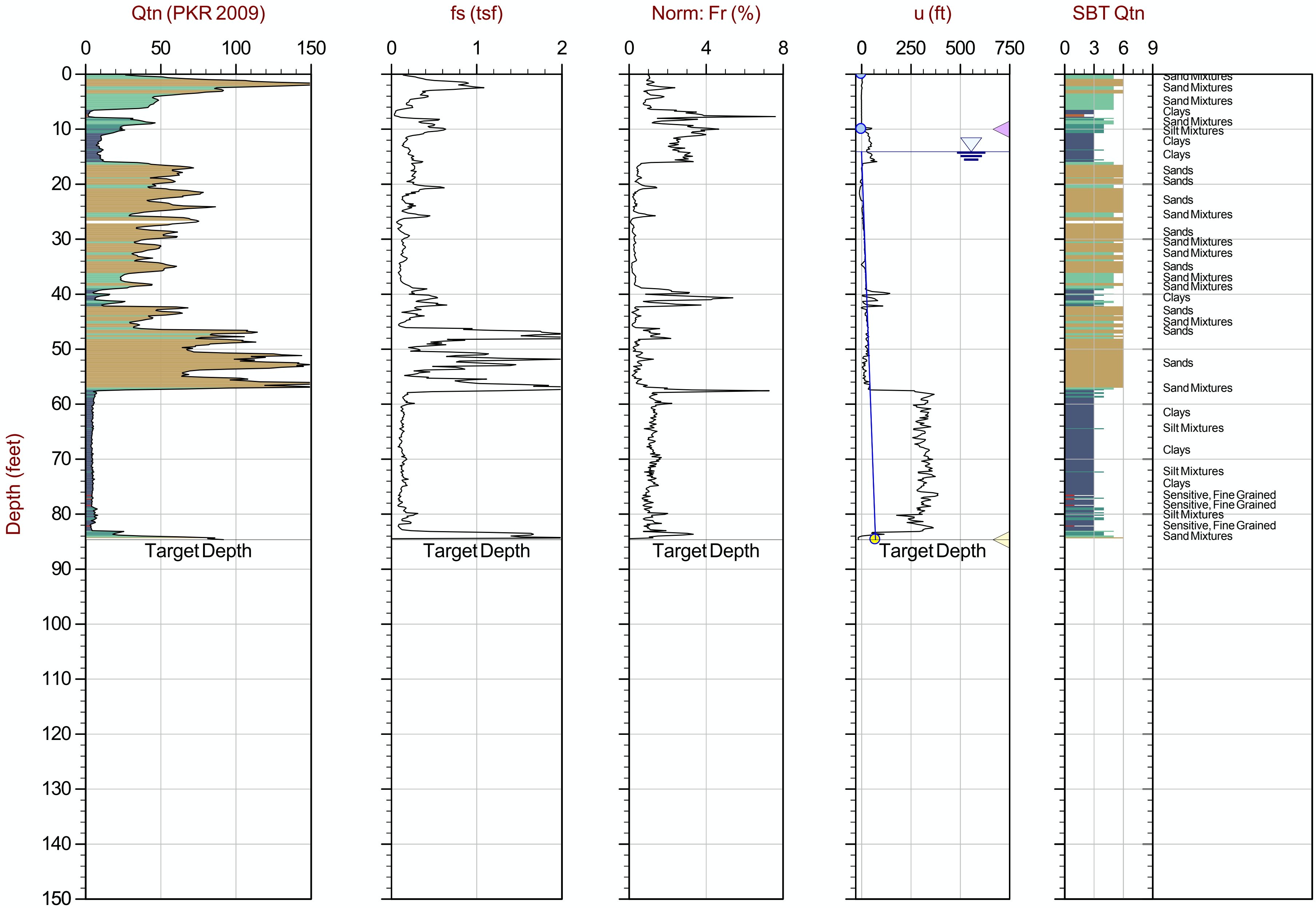
Hydrostatic Line · Ueq · Assumed Ueq · PPD, Ueq achieved · PPD, Ueq not achieved

The reported coordinates were acquired from consumer-grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.

CONETEC

Dente Engineering

Job No: 17-53073
Date: 2017-06-12 13:48
Site: Port of Albany, Albany, NY
Sounding: SCPT17-02
Cone: 226:T1500F15U500



Max Depth: 25.800 m / 84.64 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: Every Point

File: 17-53073_SP02.COR

SBT: Robertson, 2009 and 2010
Coords: UTM Zone 18 N: 4717882m E: 601401m

Hydrostatic Line   Ueq   Assumed Ueq   PPD, Ueq achieved   PPD, Ueq not achieved

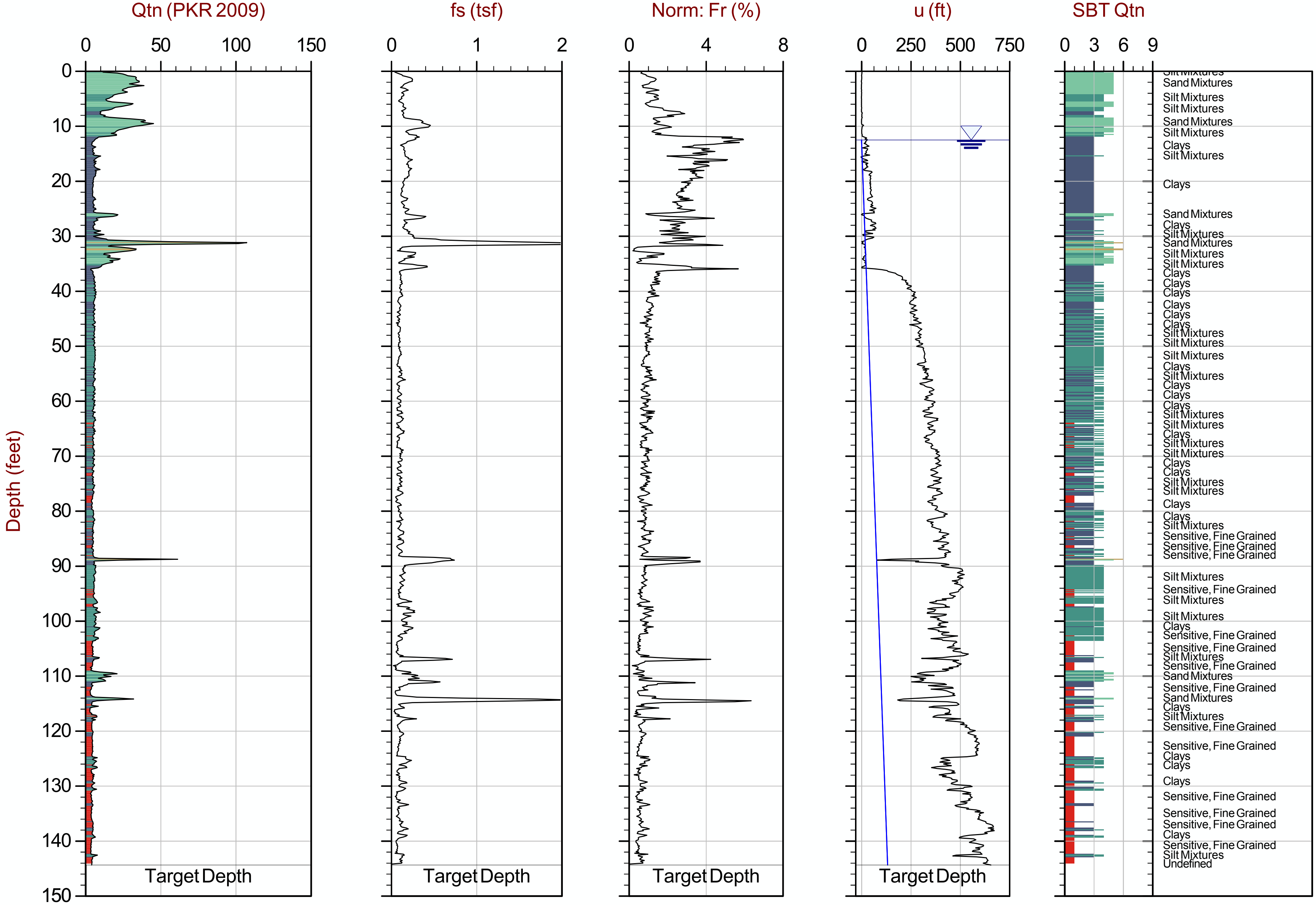
The reported coordinates were acquired from consumer-grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.

ConeTec

Dente Engineering

Job No: 17-53073
Date: 2017-06-12 16:35
Site: Port of Albany, Albany, NY

Sounding: CPT17-03D
Cone: 226:T1500F15U500



Max Depth: 44.000 m / 144.36 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: Every Point

File: 17-53073_CP03D.COR

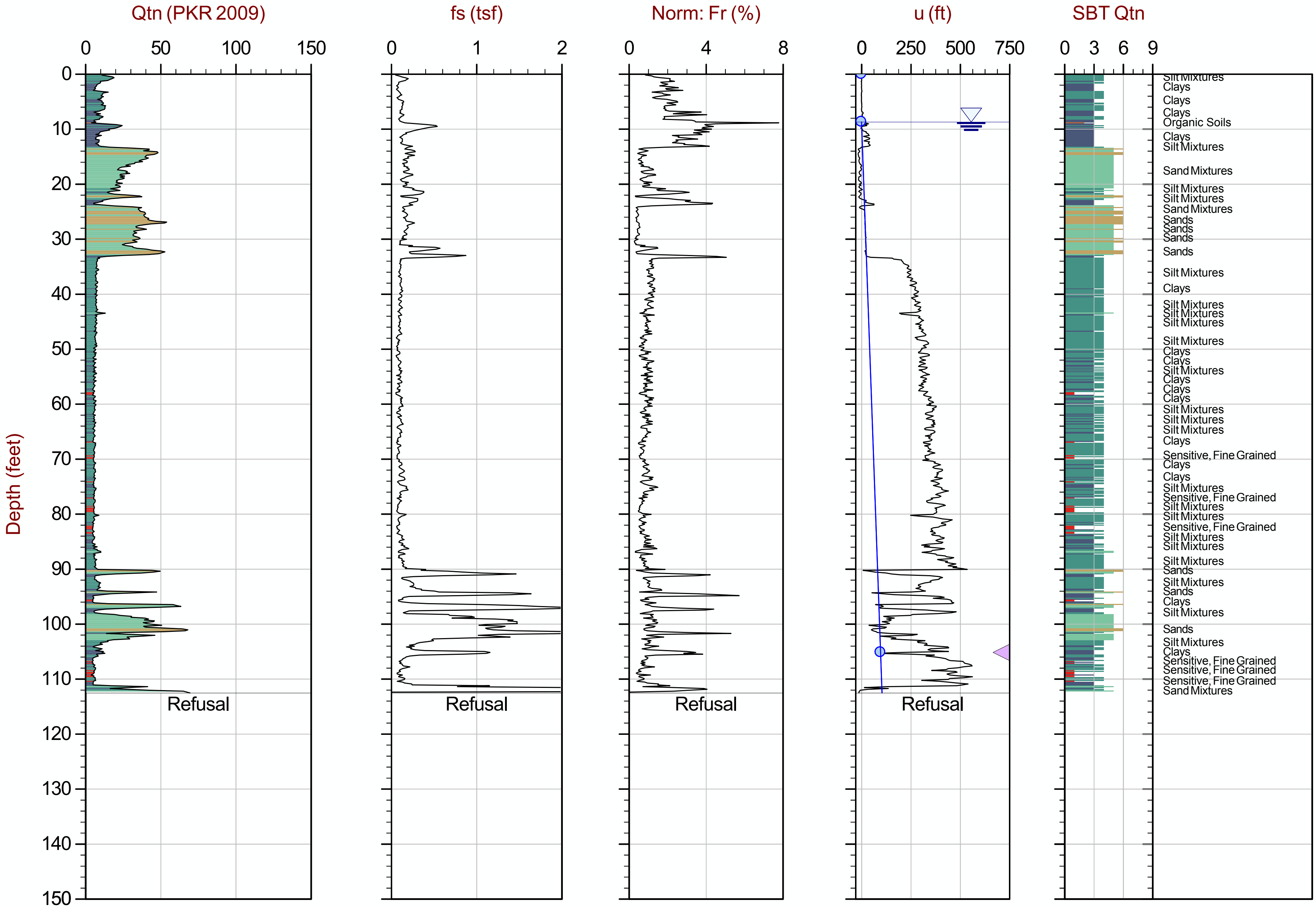
SBT: Robertson, 2009 and 2010
Coords: UTM Zone 18 N: 4717124m E: 601444m

Hydrostatic Line   Ueq   Assumed Ueq   PPD, Ueq achieved   PPD, Ueq not achieved

The reported coordinates were acquired from consumer-grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.

Dente Engineering

Job No: 17-53073
Date: 2017-06-13 08:48
Site: Port of Albany, Albany, NY
Sounding: SCPT17-05
Cone: 226:T1500F15U500



Max Depth: 34.300 m / 112.53 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: Every Point

File: 17-53073_SP05.COR

SBT: Robertson, 2009 and 2010
Coords: UTM Zone 18 N: 4717333m E: 601264m

Hydrostatic Line   Ueq   Assumed Ueq   PPD, Ueq achieved   PPD, Ueq not achieved

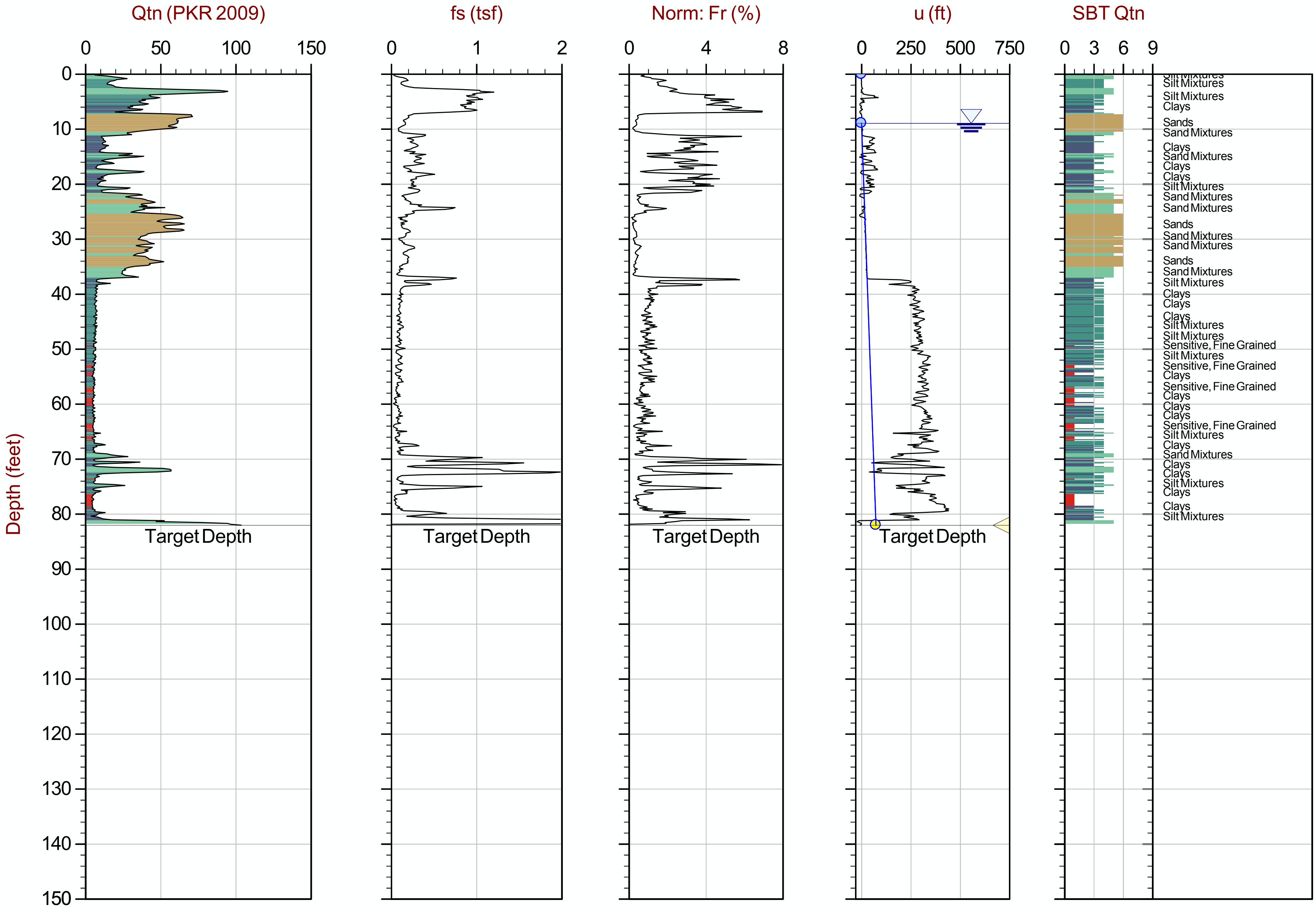
The reported coordinates were acquired from consumer-grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.

CONETEC

Dente Engineering

Job No: 17-53073
Date: 2017-06-13 10:49
Site: Port of Albany, Albany, NY

Sounding: SCPT17-06
Cone: 226:T1500F15U500



Max Depth: 25.000 m / 82.02 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: Every Point

File: 17-53073_SP06.COR

SBT: Robertson, 2009 and 2010
Coords: UTM Zone 18 N: 4717627m E: 601297m

Hydrostatic Line   Ueq   Assumed Ueq   PPD, Ueq achieved   PPD, Ueq not achieved

The reported coordinates were acquired from consumer-grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.

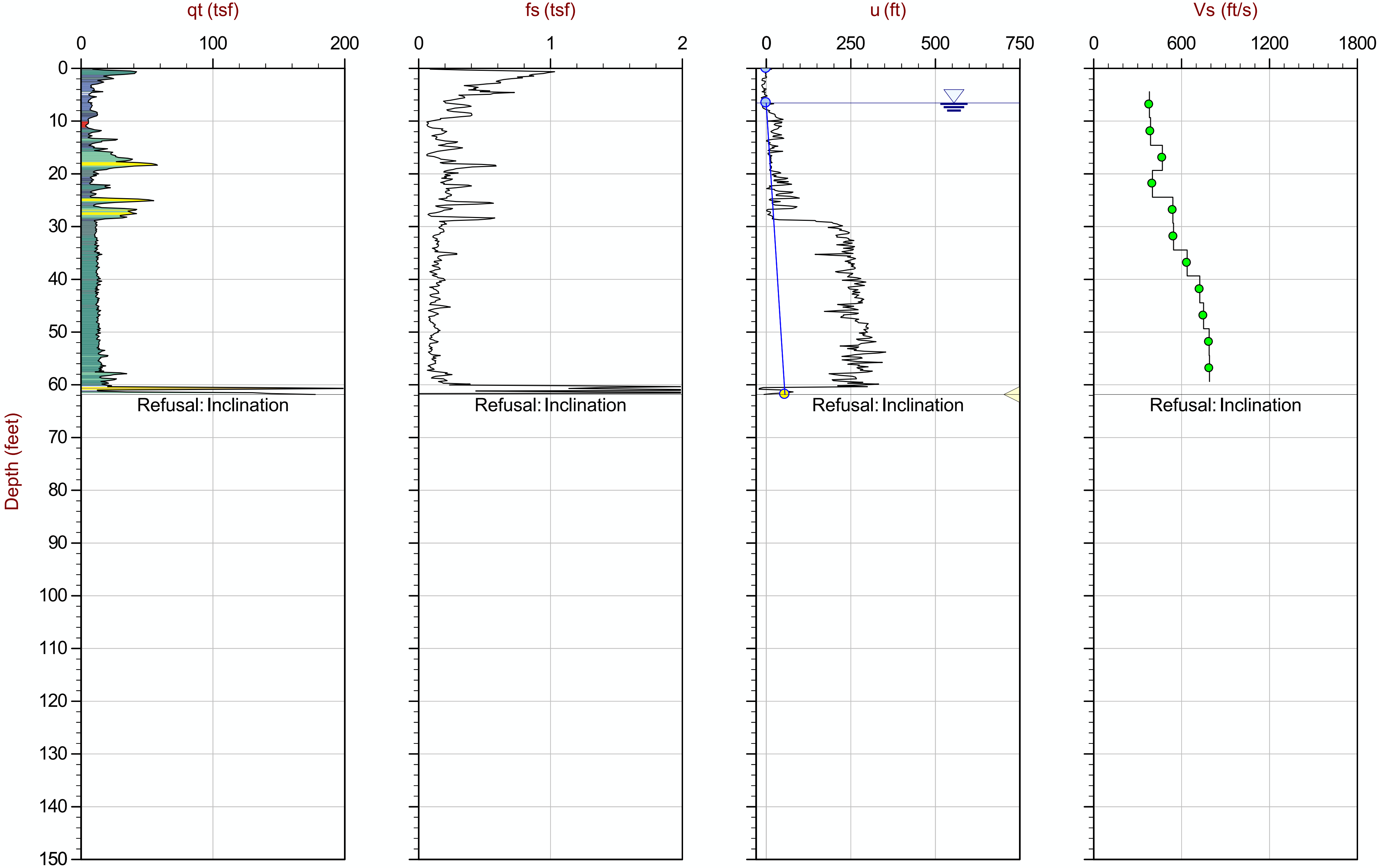
Seismic Cone Penetration Test Plots

ConeTec

Dente Engineering

Job No: 17-53073
Date: 2017-06-12 11:11
Site: Port of Albany, Albany, NY

Sounding: SCPT17-01
Cone: 469:T1500F15U500



Max Depth: 18.850 m / 61.84 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: Every Point

File: 17-53073_SP01.COR

SBT: Robertson and Campanella, 1986
Coords: UTM Zone 18 N: 4717928m E: 601113m

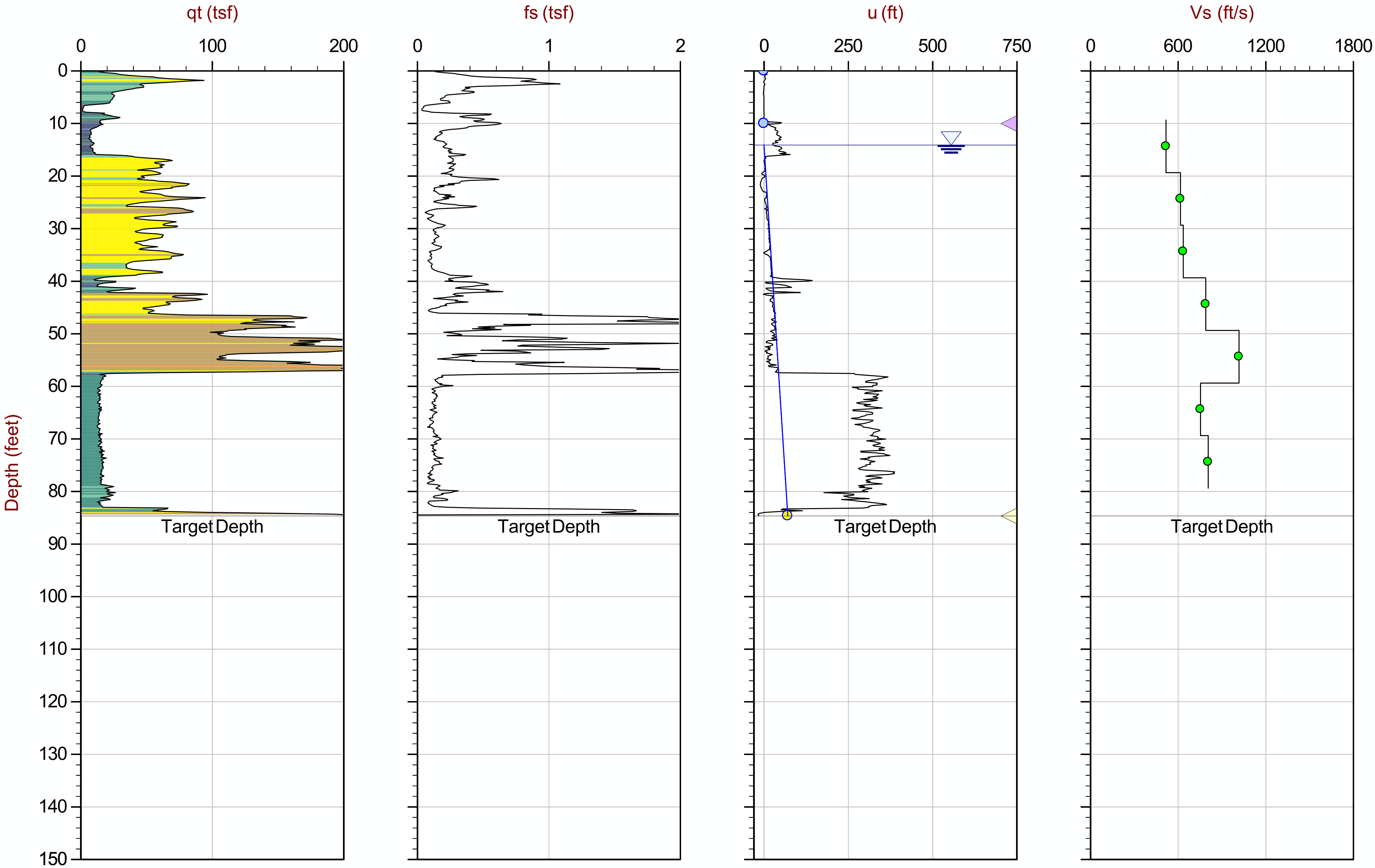
Hydrostatic Line   Ueq   Assumed Ueq   PPD, Ueq achieved   PPD, Ueq not achieved

The reported coordinates were acquired from consumer-grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.

ConeTec

Dente Engineering

Job No: 17-53073
Date: 2017-06-12 13:48
Site: Port of Albany, Albany, NY
Sounding: SCPT17-02
Cone: 226:T1500F15U500



Max Depth: 25.800 m / 84.64 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: Every Point
File: 17-53073_SP02.COR
SBT: Robertson and Campanella, 1986
Coords: UTM Zone 18 N: 4717882m E: 601401m

Hydrostatic Line Ueq Assumed Ueq PPD, Ueq achieved PPD, Ueq not achieved

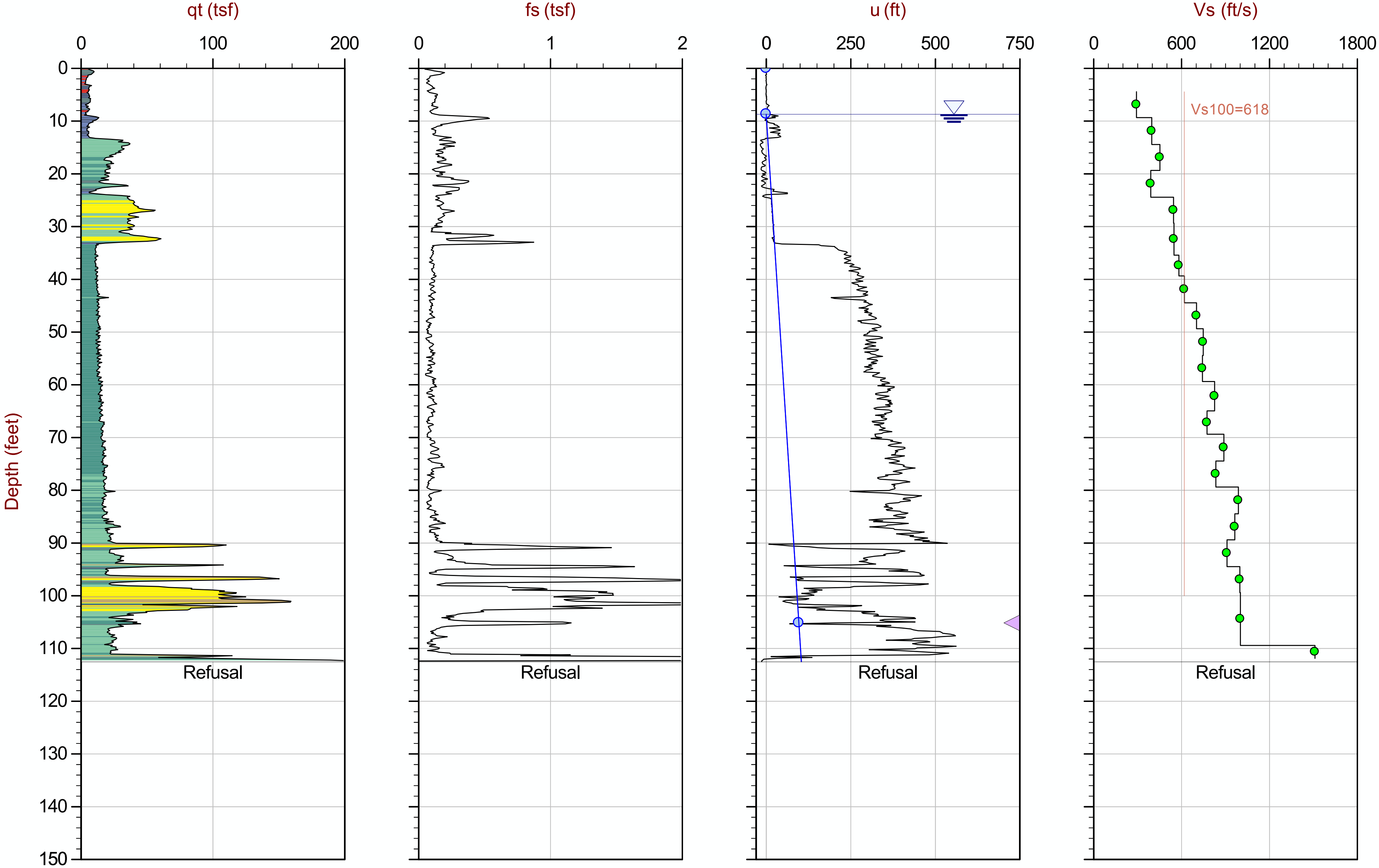
The reported coordinates were acquired from consumer-grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.

CONETEC

Dente Engineering

Job No: 17-53073
Date: 2017-06-13 08:48
Site: Port of Albany, Albany, NY

Sounding: SCPT17-05
Cone: 226:T1500F15U500



Max Depth: 34.300 m / 112.53 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: Every Point

File: 17-53073_SP05.COR

SBT: Robertson and Campanella, 1986
Coords: UTM Zone 18 N: 4717333m E: 601264m

Hydrostatic Line   Ueq   Assumed Ueq   PPD, Ueq achieved   PPD, Ueq not achieved

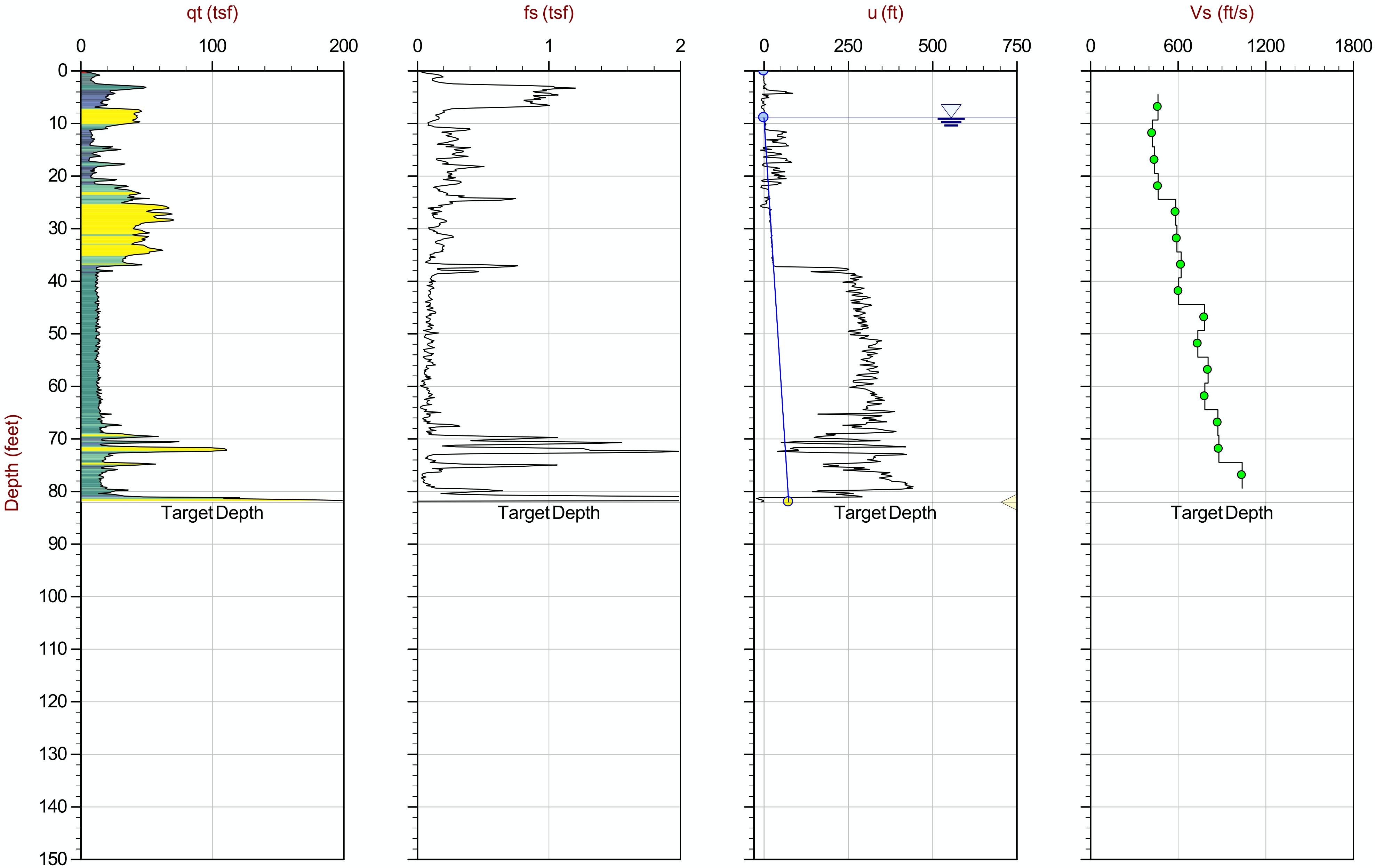
The reported coordinates were acquired from consumer-grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.

CONETEC

Dente Engineering

Job No: 17-53073
Date: 2017-06-13 10:49
Site: Port of Albany, Albany, NY

Sounding: SCPT17-06
Cone: 226:T1500F15U500



Max Depth: 25.000 m / 82.02 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: Every Point

File: 17-53073_SP06.COR

SBT: Robertson and Campanella, 1986
Coords: UTM Zone 18 N: 4717627m E: 601297m

Hydrostatic Line Ueq Assumed Ueq PPD, Ueq achieved PPD, Ueq not achieved

The reported coordinates were acquired from consumer-grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.

Seismic Cone Penetration Test Tabular Results (Vs)

CONETEC

Job No:	17-53073	
Client:	Dente Engineering	
Project:	Port of Albany, Albany, NY	
Sounding ID:	SCPT17-01	
Date:	12-May-2017	

Seismic Source:	Beam
Source Offset (ft):	1.00
Source Depth (ft):	0.00
Geophone Offset (ft):	0.66

SCPTu SHEAR WAVE VELOCITY TEST RESULTS - Vs

Tip Depth (ft)	Geophone Depth (ft)	Ray Path (ft)	Ray Path Difference (ft)	Travel Time Interval (ms)	Interval Velocity (ft/s)
5.08	4.43	4.54			
10.01	9.35	9.40	4.86	12.78	381
15.26	14.60	14.63	5.23	13.47	388
20.01	19.36	19.38	4.75	10.13	469
25.10	24.44	24.46	5.08	12.67	401
30.02	29.36	29.38	4.92	9.10	541
35.10	34.45	34.46	5.08	9.33	545
40.03	39.37	39.38	4.92	7.71	638
45.11	44.46	44.47	5.08	7.02	724
50.03	49.38	49.39	4.92	6.56	750
55.12	54.46	54.47	5.08	6.45	788
60.04	59.38	59.39	4.92	6.22	791

Job No:	17-53073
Client:	Dente Engineering
Project:	Port of Albany, Albany, NY
Sounding ID:	SCPT17-02
Date:	12-May-2017

Seismic Source:	Beam
Source Offset (ft):	1.00
Source Depth (ft):	0.00
Geophone Offset (ft):	0.66

SCPTu SHEAR WAVE VELOCITY TEST RESULTS - Vs

Tip Depth (ft)	Geophone Depth (ft)	Ray Path (ft)	Ray Path Difference (ft)	Travel Time Interval (ms)	Interval Velocity (ft/s)
10.01	9.35	9.40			
20.01	19.36	19.38	9.98	19.31	517
30.02	29.36	29.38	10.00	16.23	616
40.03	39.37	39.38	10.00	15.76	635
50.03	49.38	49.39	10.00	12.68	789
60.04	59.38	59.39	10.00	9.83	1017
70.05	69.39	69.40	10.01	13.28	753
80.05	79.40	79.40	10.01	12.42	806

Job No: 17-53073
Client: Dente Engineering
Project: Port of Albany, Albany, NY
Sounding ID: SCPT17-05
Date: 13-May-2017

Seismic Source: Beam
Source Offset (ft): 1.00
Source Depth (ft): 0.00
Geophone Offset (ft): 0.66

SCPTu SHEAR WAVE VELOCITY TEST RESULTS - Vs

Tip Depth (ft)	Geophone Depth (ft)	Ray Path (ft)	Ray Path Difference (ft)	Travel Time Interval (ms)	Interval Velocity (ft/s)
5.08	4.43	4.54			
10.01	9.35	9.40	4.86	16.64	292
15.09	14.44	14.47	5.07	12.75	397
20.01	19.36	19.38	4.91	10.87	452
25.10	24.44	24.46	5.08	13.02	390
30.02	29.36	29.38	4.92	9.02	545
36.09	35.43	35.45	6.07	11.07	548
40.03	39.37	39.38	3.94	6.76	582
45.11	44.46	44.47	5.08	8.22	619
50.03	49.38	49.39	4.92	7.01	702
55.12	54.46	54.47	5.08	6.80	748
60.04	59.38	59.39	4.92	6.62	743
65.62	64.96	64.97	5.58	6.75	826
70.05	69.39	69.40	4.43	5.72	774
75.13	74.47	74.48	5.08	5.72	889
80.05	79.40	79.40	4.92	5.90	834
85.14	84.48	84.49	5.09	5.15	988
90.06	89.40	89.41	4.92	5.10	964
95.14	94.49	94.49	5.09	5.59	910
100.07	99.41	99.41	4.92	4.93	998
110.07	109.42	109.42	10.01	9.99	1002
112.53	111.88	111.88	2.46	1.63	1511

Job No:	17-53073
Client:	Dente Engineering
Project:	Port of Albany, Albany, NY
Sounding ID:	SCPT17-06
Date:	13-May-2017

Seismic Source:	Beam
Source Offset (ft):	1.00
Source Depth (ft):	0.00
Geophone Offset (ft):	0.66

SCPTu SHEAR WAVE VELOCITY TEST RESULTS - Vs

Tip Depth (ft)	Geophone Depth (ft)	Ray Path (ft)	Ray Path Difference (ft)	Travel Time Interval (ms)	Interval Velocity (ft/s)
5.08	4.43	4.54			
10.01	9.35	9.40	4.86	10.52	462
15.09	14.44	14.47	5.07	11.99	423
20.18	19.52	19.55	5.08	11.57	439
25.10	24.44	24.46	4.92	10.62	463
30.02	29.36	29.38	4.92	8.44	583
35.10	34.45	34.46	5.08	8.58	592
40.03	39.37	39.38	4.92	7.92	621
45.11	44.46	44.47	5.08	8.42	604
50.03	49.38	49.39	4.92	6.30	780
55.12	54.46	54.47	5.08	6.92	735
60.04	59.38	59.39	4.92	6.11	805
65.12	64.47	64.48	5.08	6.49	783
70.05	69.39	69.40	4.92	5.64	872
75.13	74.47	74.48	5.08	5.78	879
80.05	79.40	79.40	4.92	4.74	1038

Pore Pressure Dissipation Summary and

Pore Pressure Dissipation Plots

Job No:	17-53073
Client:	Dente Engineering
Project:	Port of Albany, Albany, NY
Start Date:	12-Jun-2017
End Date:	13-Jun-2017

CPTu PORE PRESSURE DISSIPATION SUMMARY

Sounding ID	File Name	Cone Area (cm^2)	Duration (s)	Test Depth (ft)	Estimated Equilibrium Pore Pressure U_{eq} (ft)	Calculated Phreatic Surface (ft)	Estimated Phreatic Surface (ft)	t_{50}[a] (s)	Assumed Rigidity Index (I_r)	c_h[b] (cm^2/min)
SCPT17-01	17-53073_SP01.PPD	15	300	61.84	55.27	6.57				
SCPT17-02	17-53073_SP02.PPD	15	500	10.01	0.00		10.01	65	100	10.78
SCPT17-02	17-53073_SP02.PPD	15	400	84.64	70.54	14.10				
SCPT17-05	17-53073_SP05.PPD	15	165	105.15	96.45		8.70	16	100	42.86
SCPT17-06	17-53073_SP06.PPD	15	600	82.02	73.09	8.93				
Totals	5 dissipations		32.8 min							

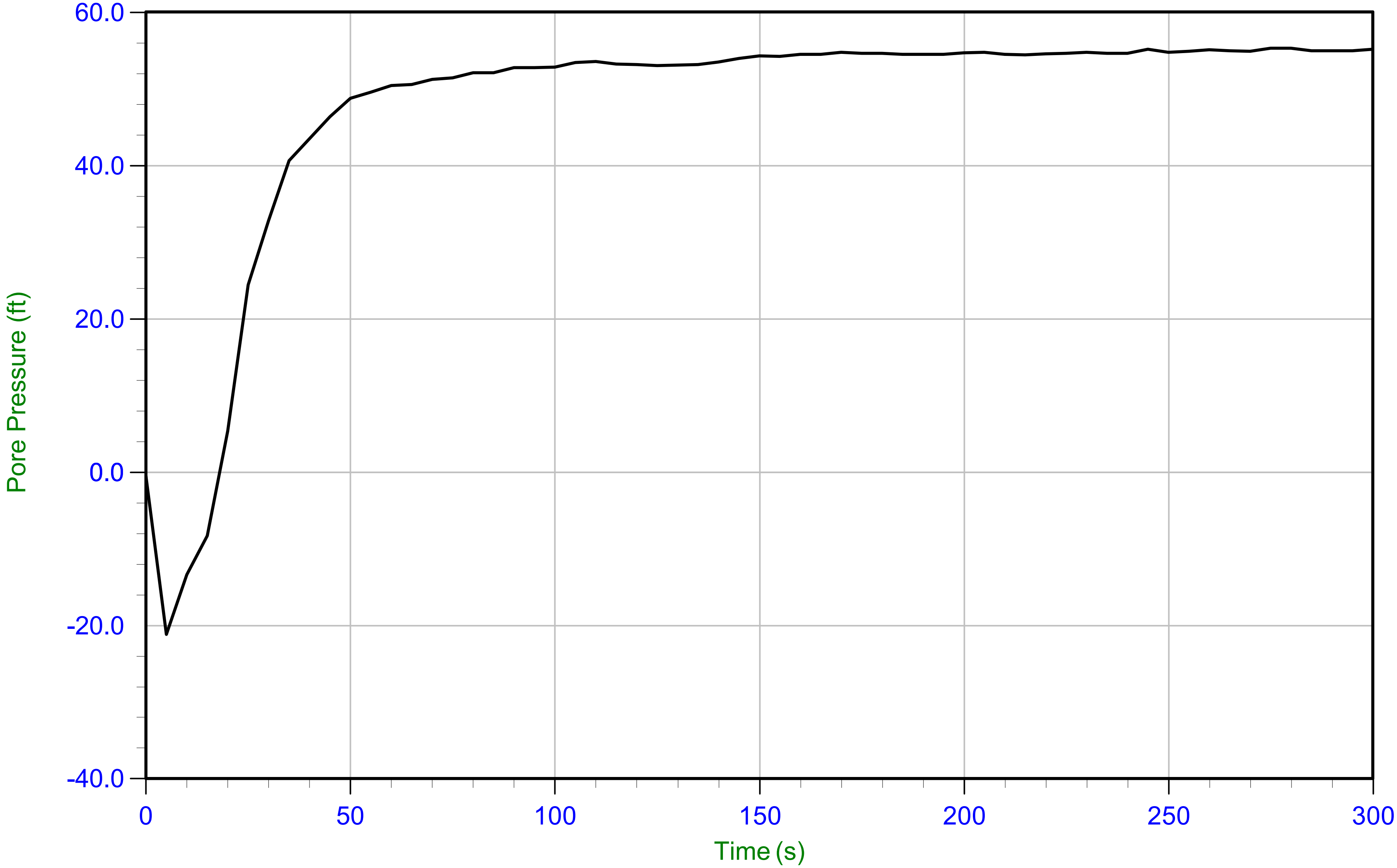
a. Time is relative to where umax occurred

b. Houlsby and Teh, 1991

Dente Engineering

Job No: 17-53073
Date: 06/12/2017 11:11
Site: Port of Albany, Albany, NY

Sounding: SCPT17-01
Cone: 469:T1500F15U500 Area=15 cm²



Trace Summary:

Filename: 17-53073_SP01.PPD
Depth: 18.850 m / 61.843 ft
Duration: 300.0 s

U Min: -21.2 ft
U Max: 55.3 ft

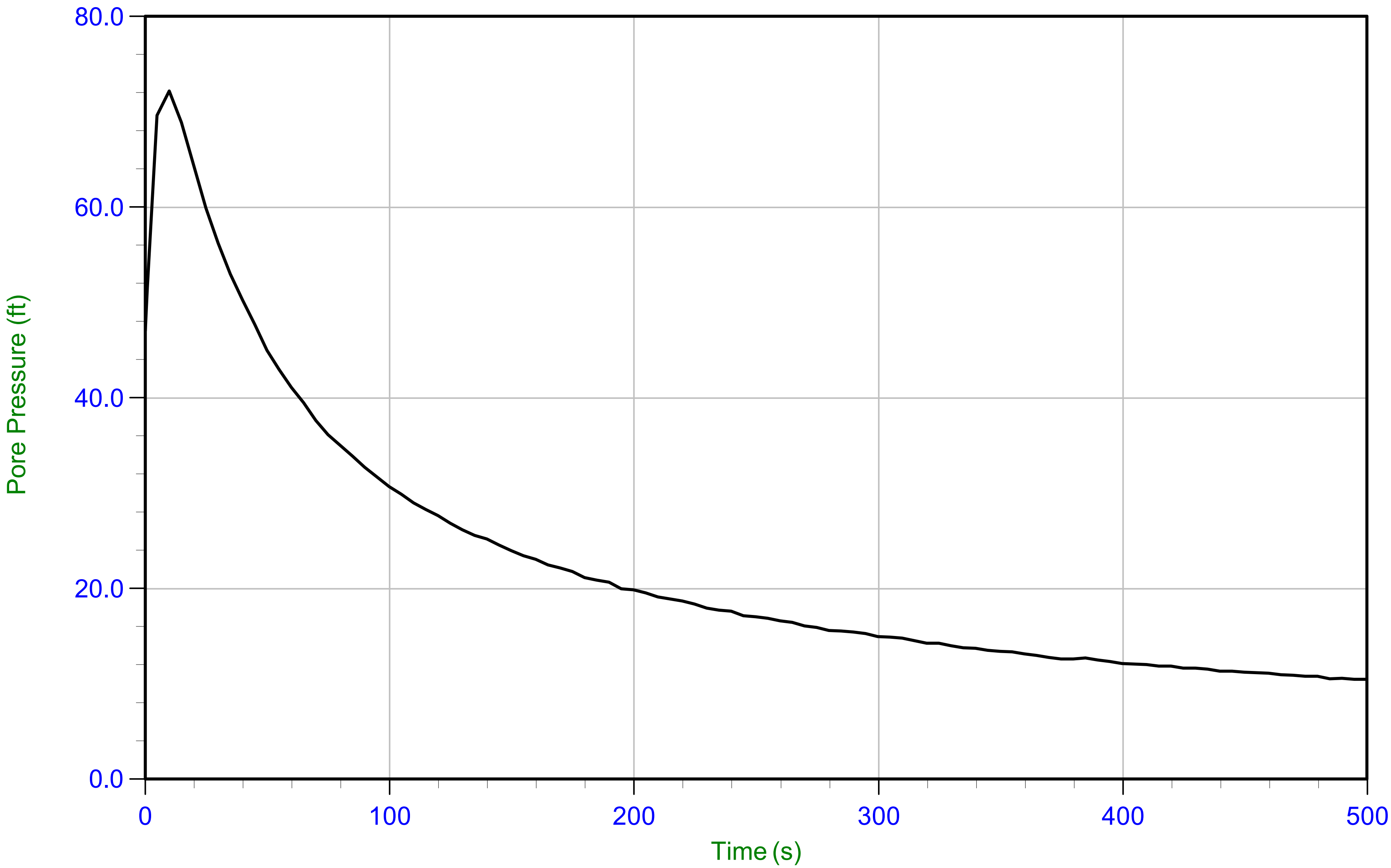
WT: 2.003 m / 6.571 ft
Ueq: 55.3 ft

CONETEC

Dente Engineering

Job No: 17-53073
Date: 06/12/2017 13:48
Site: Port of Albany, Albany, NY

Sounding: SCPT17-02
Cone: 226:T1500F15U500 Area=15 cm²



Trace Summary:

Filename: 17-53073_SP02.PPD
Depth: 3.050 m / 10.006 ft
Duration: 500.0 s

U Min: 10.5 ft
U Max: 72.2 ft

WT: 3.050 m / 10.006 ft
Ueq: 0.0 ft
U(50): 36.10 ft

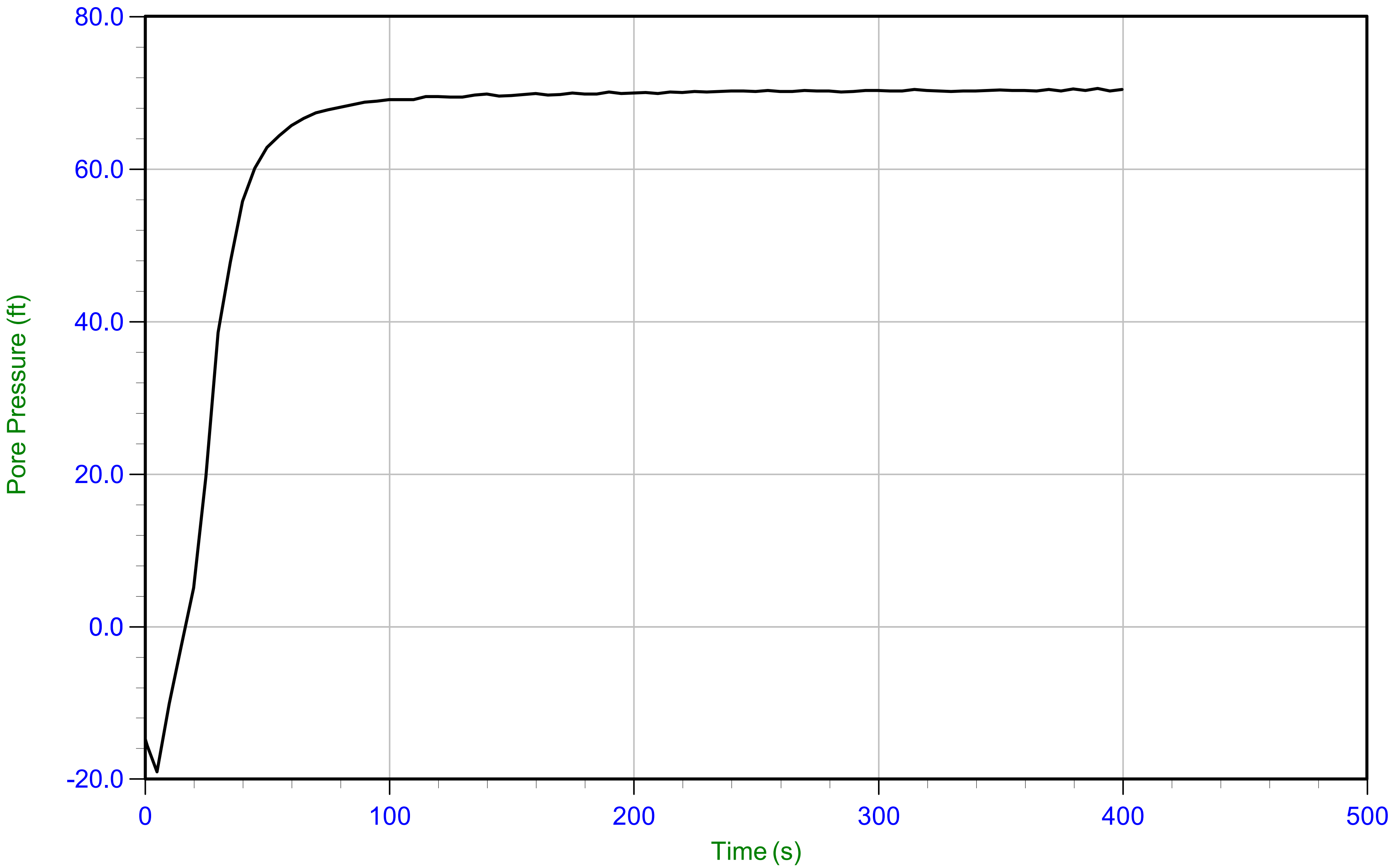
T(50): 65.1 s
Ir: 100
Ch: 10.8 sq cm/min

ConeTec

Dente Engineering

Job No: 17-53073
Date: 06/12/2017 13:48
Site: Port of Albany, Albany, NY

Sounding: SCPT17-02
Cone: 226:T1500F15U500 Area=15 cm²



Trace Summary:

Filename: 17-53073_SP02.PPD
Depth: 25.800 m / 84.645 ft
Duration: 400.0 s

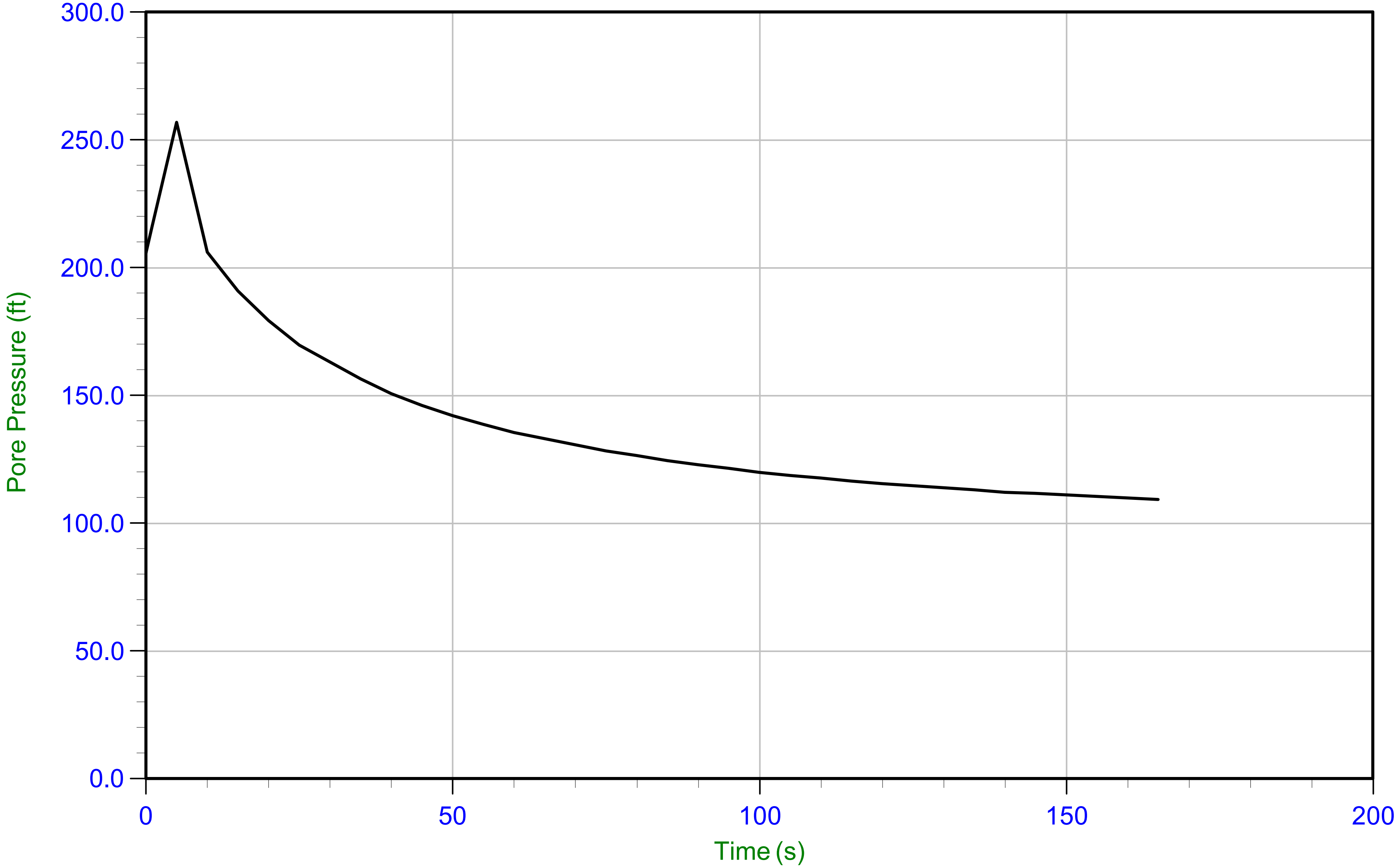
U Min: -19.0 ft
U Max: 70.6 ft

WT: 4.298 m / 14.100 ft
Ueq: 70.5 ft

Dente Engineering

Job No: 17-53073
Date: 06/13/2017 08:48
Site: Port of Albany, Albany, NY

Sounding: SCPT17-05
Cone: 226:T1500F15U500 Area=15 cm²



Trace Summary:

Filename: 17-53073_SP05.PPD
Depth: 32.050 m / 105.150 ft
Duration: 165.0 s

U Min: 109.3 ft
U Max: 257.0 ft

WT: 2.652 m / 8.700 ft
Ueq: 96.5 ft
U(50): 176.70 ft

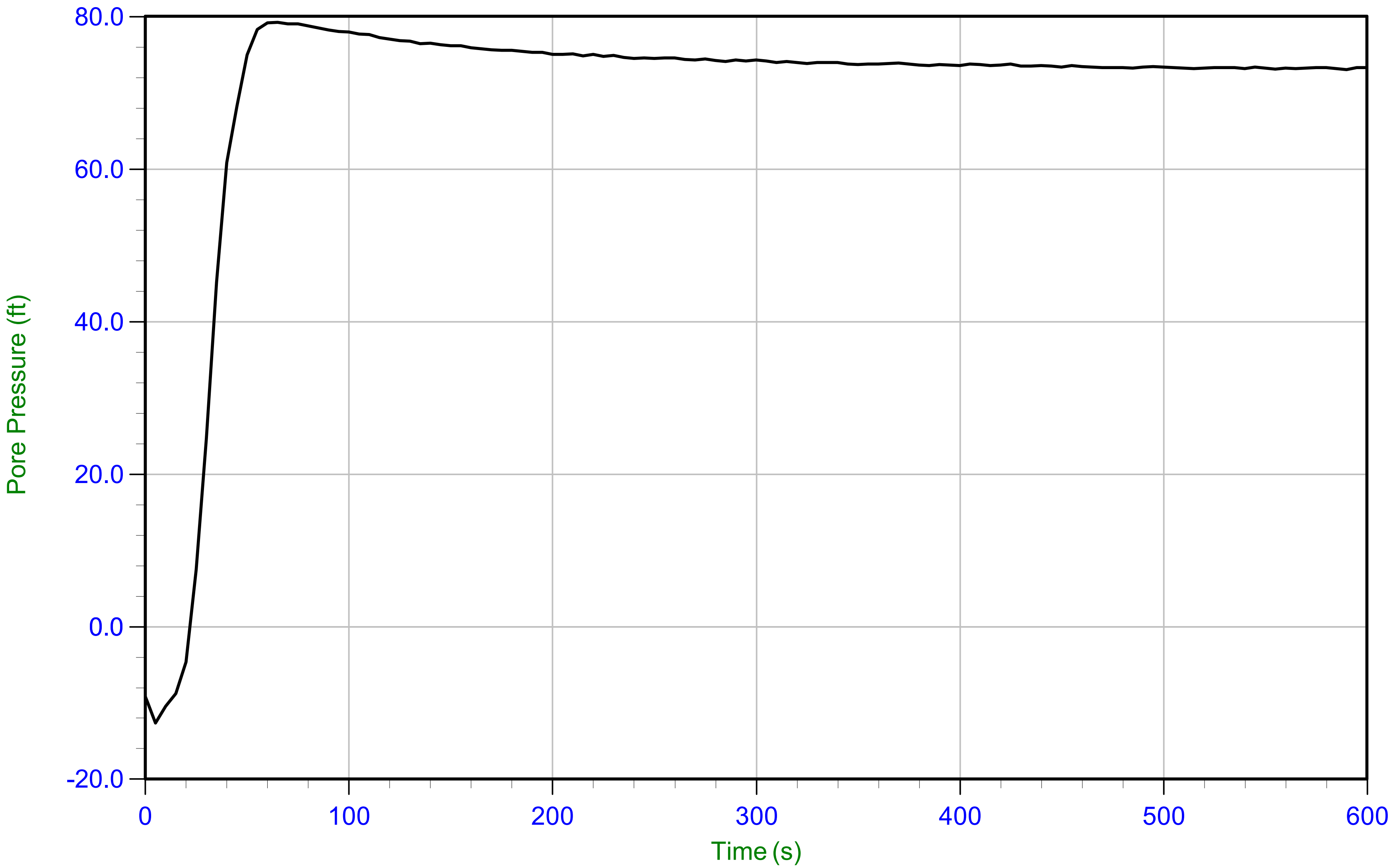
T(50): 16.4 s
Ir: 100
Ch: 42.9 sq cm/min

ConeTec

Dente Engineering

Job No: 17-53073
Date: 06/13/2017 10:49
Site: Port of Albany, Albany, NY

Sounding: SCPT17-06
Cone: 226:T1500F15U500 Area=15 cm²



Trace Summary:

Filename: 17-53073_SP06.PPD
Depth: 25.000 m / 82.020 ft
Duration: 600.0 s

U Min: -12.7 ft
U Max: 79.2 ft

WT: 2.722 m / 8.930 ft
Ueq: 73.1 ft

APPENDIX F
GEOTESTING EXPRESS
LABORATORY TEST REPORT

Beacon Island Parcel
Town of Bethlehem, NY

Client:	Dente Engineering				
Project:	Beacon Island Parcel				
Location:	Bethlehem, NY			Project No:	GTX-306651
Boring ID:	---	Sample Type:	---	Tested By:	md
Sample ID:	---	Test Date:	07/06/17	Checked By:	emm
Depth :	---	Test Id:	415613		

Moisture Content of Soil and Rock - ASTM D2216

Boring ID	Sample ID	Depth	Description	Moisture Content,%
SB-01	Tube	38-40 ft	Moist, dark gray clay	31.6
SB-01	Tube	58-60 ft	Moist, dark gray clay	25.6

Notes: Temperature of Drying : 110° Celsius

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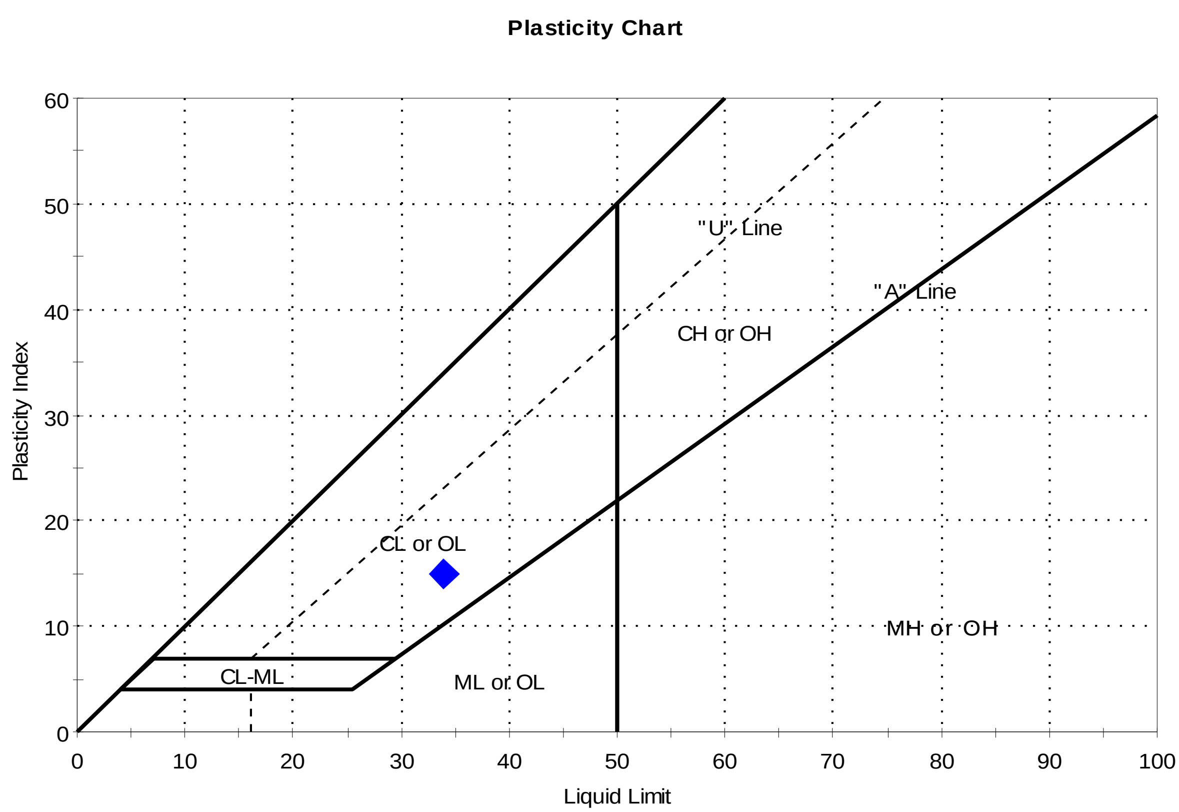
Client:	Dente Engineering				
Project:	Beacon Island Parcel				
Location:	Bethlehem, NY			Project No:	GTX-306651
Boring ID:	SB-01	Sample Type:	tube	Tested By:	cam
Sample ID:	Tube	Test Date:	07/05/17	Checked By:	emm
Depth :	38-40 ft	Test Id:	415610		

Test Comment: ---

Visual Description: Moist, dark gray clay

Sample Comment: ---

Atterberg Limits - ASTM D4318



Symbol	Sample ID	Boring	Depth	Natural Moisture Content,%	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	Tube	SB-01	38-40 ft	32	34	19	15	0.8	

Sample Prepared using the WET method

Dry Strength: VERY HIGH

Dilatancy: SLOW

Toughness: LOW

Client:	Dente Engineering				
Project:	Beacon Island Parcel				
Location:	Bethlehem, NY			Project No:	GTX-306651
Boring ID:	SB-01	Sample Type:	tube	Tested By:	cam
Sample ID:	Tube	Test Date:	07/06/17	Checked By:	emm
Depth :	58-60 ft	Test Id:	415611		

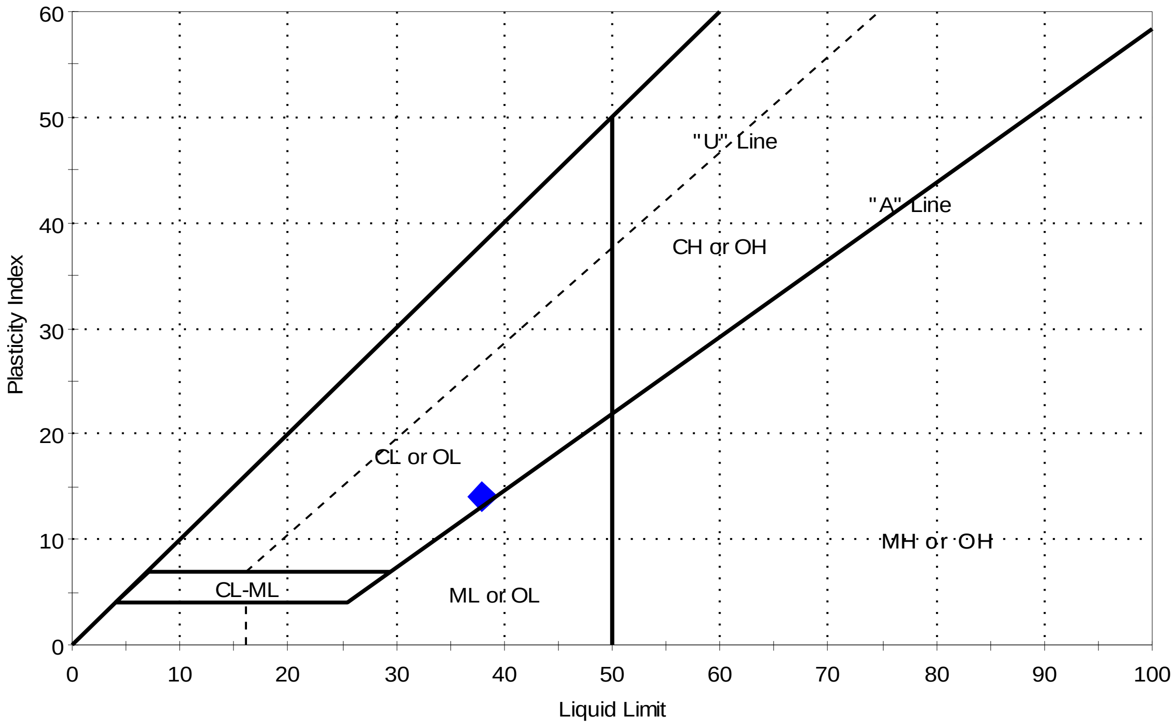
Test Comment: ---

Visual Description: Moist, dark gray clay

Sample Comment: ---

Atterberg Limits - ASTM D4318

Plasticity Chart



Symbol	Sample ID	Boring	Depth	Natural Moisture Content,%	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	Tube	SB-01	58-60 ft	26	38	24	14	0.1	

Sample Prepared using the WET method

Dry Strength: HIGH

Dilatancy: SLOW

Toughness: LOW

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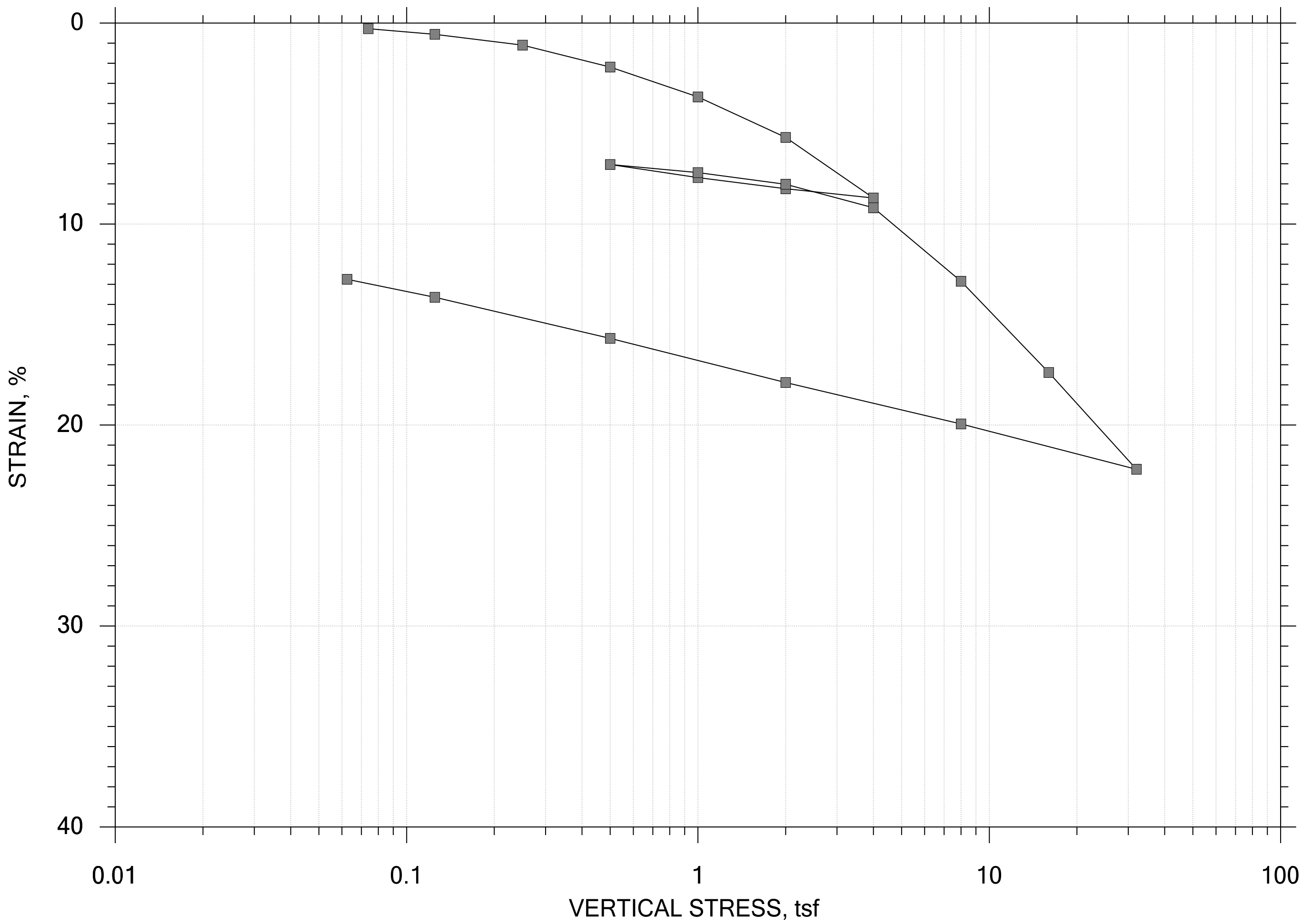
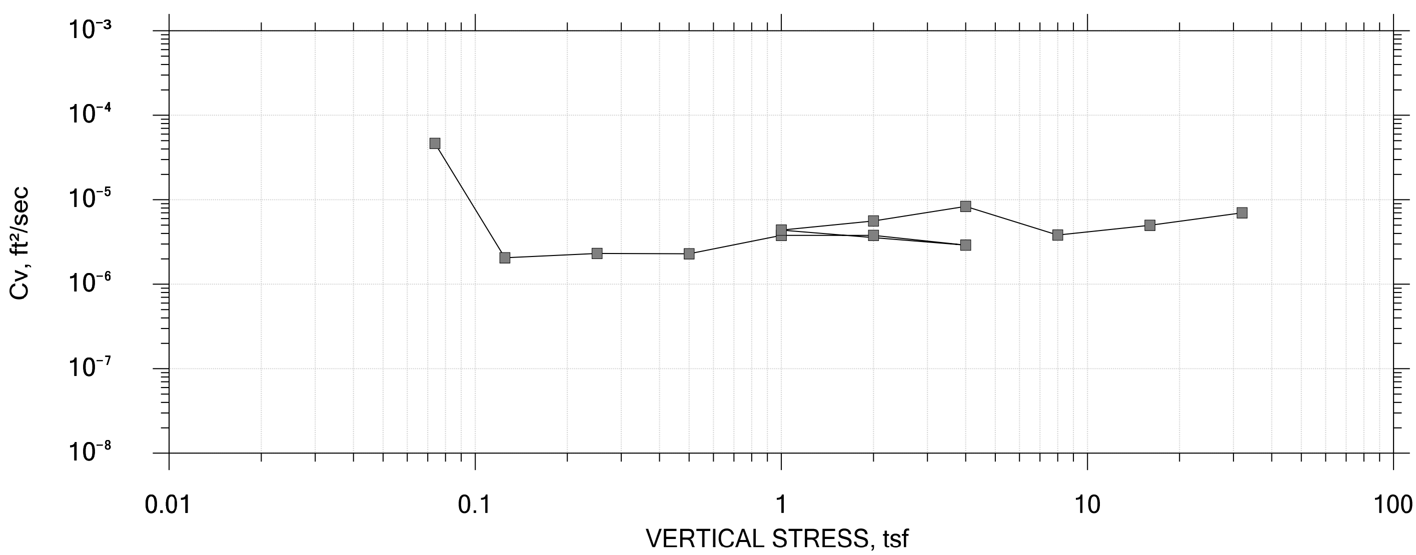
One-Dimensional Consolidation by ASTM D2435 - Method B

SUMMARY REPORT

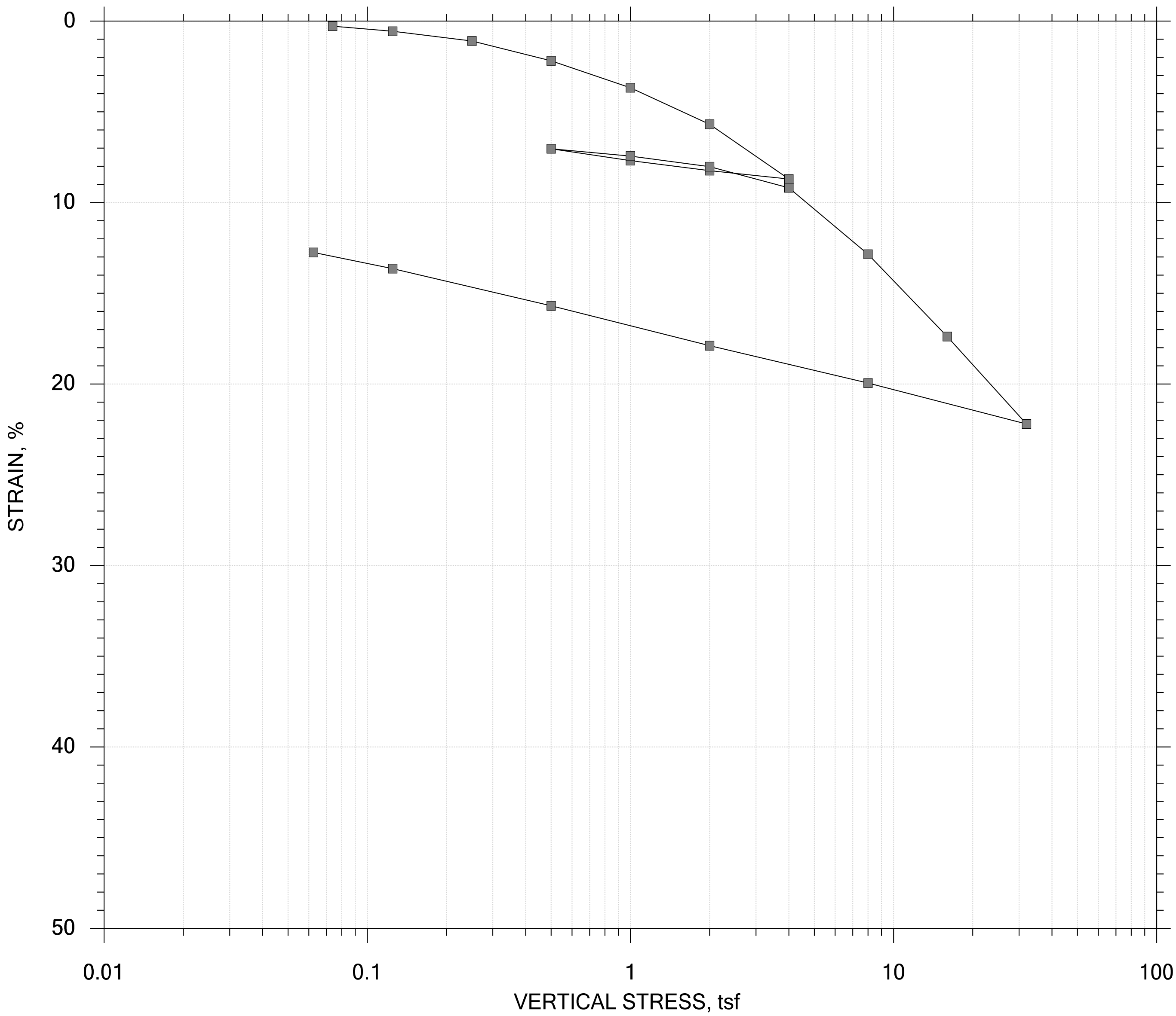




Project: Beacon Island Parcel	Location: Bethlehem, NY	Project No.: GTX-306651
Boring No.: SB-01	Tested By: md	Checked By: njh
Sample No.: Tube	Test Date: 06/27/17	Test No.: IP-1
Depth: 38-40 ft	Sample Type: intact	Elevation: ---
Description: Moist, dark gray clay		
Remarks: System JJ, Swell Pressure = 0.0739 tsf		
Displacement at End of Increment		

One-Dimensional Consolidation by ASTM D2435 - Method B

SUMMARY REPORT



					Before Test	After Test
Current Vertical Effective Stress: ---				Water Content, %	31.10	23.61
Preconsolidation Stress: ---				Dry Unit Weight, pcf	91.991	104.54
Compression Ratio: ---				Saturation, %	97.95	100.00
Diameter: 2.5 in		Height: 1 in		Void Ratio	0.88	0.65
LL: 34	PL: 19	PI: 15	GS: 2.77			

GeoTesting EXPRESS	Project: Beacon Island Parcel	Location: Bethlehem, NY	Project No.: GTX-306651
	Boring No.: SB-01	Tested By: md	Checked By: njh
	Sample No.: Tube	Test Date: 06/27/17	Test No.: IP-1
	Depth: 38-40 ft	Sample Type: intact	Elevation: ---
	Description: Moist, dark gray clay		
	Remarks: System JJ, Swell Pressure = 0.0739 tsf		
	Displacement at End of Increment		

One-Dimensional Consolidation by ASTM D2435 - Method B

Project: Beacon Island Parcel
Location: Bethlehem, NY
Project No.: GTX-306651
Boring No.: SB-01
Tested By: md
Checked By: njh
Sample No.: Tube
Test Date: 06/27/17
Depth: 38-40 ft
Test No.: IP-1
Sample Type: intact
Elevation: ---

Soil Description: Moist, dark gray clay
Remarks: System JJ, Swell Pressure = 0.0739 tsf

Estimated Specific Gravity: 2.77
Initial Void Ratio: 0.879
Final Void Ratio: 0.654
Liquid Limit: 34
Plastic Limit: 19
Plasticity Index: 15
Specimen Diameter: 2.50 in
Initial Height: 1.00 in
Final Height: 0.88 in

	Before Consolidation		After Consolidation	
	Trimmings	Specimen+Ring	Specimen+Ring	Trimmings
Container ID	C-431	RING		C-2025
Wt. Container + Wet Soil, gm	192.54	264.52	255.64	152.83
Wt. Container + Dry Soil, gm	148.36	227.65	227.65	125.24
Wt. Container, gm	8.3700	109.12	109.12	8.3900
Wt. Dry Soil, gm	139.99	118.53	118.53	116.85
Water Content, %	31.56	31.10	23.61	23.61
Void Ratio	---	0.879	0.654	---
Degree of Saturation, %	---	97.95	100.00	---
Dry Unit Weight, pcf	---	91.991	104.54	---

Note: Specific Gravity and Void Ratios are calculated assuming the degree of saturation equals 100% at the end of the test. Therefore, values may not represent actual values for the specimen.

One-Dimensional Consolidation by ASTM D2435 - Method B

Project: Beacon Island Parcel
Location: Bethlehem, NY
Project No.: GTX-306651
Boring No.: SB-01
Tested By: md
Checked By: njh
Sample No.: Tube
Test Date: 06/27/17
Depth: 38-40 ft
Test No.: IP-1
Sample Type: intact
Elevation: ---

Soil Description: Moist, dark gray clay
Remarks: System JJ, Swell Pressure = 0.0739 tsf

Displacement at End of Increment

	Applied Stress tsf	Final Displacement in	Void Ratio	Strain at End %	Sq.Rt T90 min	Cv ft²/sec	Mv 1/tsf	k ft/day
1	0.0739	0.002769	0.874	0.277	143.978	1.70e-007	3.75e-002	1.72e-005
2	0.125	0.005539	0.869	0.554	13.854	1.76e-006	5.42e-002	2.57e-004
3	0.250	0.01093	0.859	1.09	12.000	2.01e-006	4.31e-002	2.34e-004
4	0.500	0.02186	0.838	2.19	9.956	2.38e-006	4.37e-002	2.81e-004
5	1.00	0.03668	0.811	3.67	5.368	4.31e-006	2.96e-002	3.44e-004
6	2.00	0.05685	0.773	5.68	6.223	3.58e-006	2.02e-002	1.95e-004
7	4.00	0.08702	0.716	8.70	6.422	3.29e-006	1.51e-002	1.34e-004
8	2.00	0.08235	0.725	8.24	0.515	3.99e-005	2.33e-003	2.51e-004
9	1.00	0.07686	0.735	7.69	3.269	6.36e-006	5.49e-003	9.41e-005
10	0.500	0.07035	0.747	7.04	5.048	4.17e-006	1.30e-002	1.47e-004
11	1.00	0.07439	0.740	7.44	4.932	4.28e-006	8.07e-003	9.31e-005
12	2.00	0.08022	0.729	8.02	3.156	6.62e-006	5.83e-003	1.04e-004
13	4.00	0.09188	0.707	9.19	2.311	8.87e-006	5.83e-003	1.39e-004
14	8.00	0.1284	0.638	12.8	5.154	3.77e-006	9.13e-003	9.29e-005
15	16.0	0.1738	0.553	17.4	2.899	6.10e-006	5.68e-003	9.34e-005
16	32.0	0.2220	0.462	22.2	2.114	7.47e-006	3.01e-003	6.06e-005
17	8.00	0.1994	0.505	19.9	0.373	4.10e-005	9.41e-004	1.04e-004
18	2.00	0.1788	0.543	17.9	5.164	3.12e-006	3.43e-003	2.89e-005
19	0.500	0.1568	0.585	15.7	13.675	1.24e-006	1.47e-002	4.92e-005
20	0.125	0.1364	0.623	13.6	63.158	2.83e-007	5.44e-002	4.15e-005
21	0.0625	0.1274	0.640	12.7	126.947	1.46e-007	1.44e-001	5.65e-005

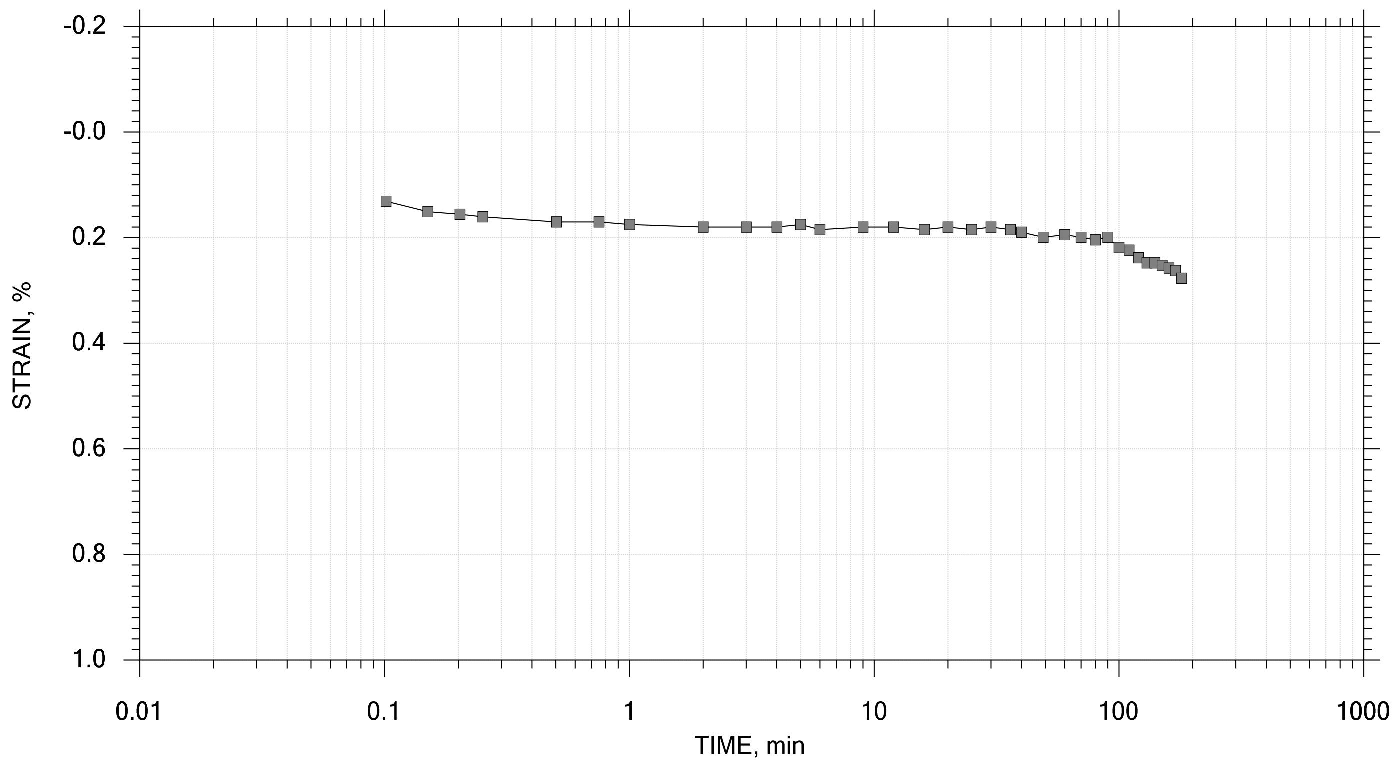
	Applied Stress tsf	Final Displacement in	Void Ratio	Strain at End %	Log T50 min	Cv ft²/sec	Mv 1/tsf	k ft/day	Ca %
1	0.0739	0.002769	0.874	0.277	0.000	0.00e+000	3.75e-002	0.00e+000	0.00e+000
2	0.125	0.005539	0.869	0.554	0.000	0.00e+000	5.42e-002	0.00e+000	0.00e+000
3	0.250	0.01093	0.859	1.09	2.163	2.59e-006	4.31e-002	3.02e-004	0.00e+000
4	0.500	0.02186	0.838	2.19	2.274	2.43e-006	4.37e-002	2.86e-004	0.00e+000
5	1.00	0.03668	0.811	3.67	1.489	3.61e-006	2.96e-002	2.88e-004	0.00e+000
6	2.00	0.05685	0.773	5.68	1.329	3.90e-006	2.02e-002	2.12e-004	0.00e+000
7	4.00	0.08702	0.716	8.70	1.896	2.59e-006	1.51e-002	1.05e-004	0.00e+000
8	2.00	0.08235	0.725	8.24	0.000	0.00e+000	2.33e-003	0.00e+000	0.00e+000
9	1.00	0.07686	0.735	7.69	0.000	0.00e+000	5.49e-003	0.00e+000	0.00e+000
10	0.500	0.07035	0.747	7.04	0.000	0.00e+000	1.30e-002	0.00e+000	0.00e+000
11	1.00	0.07439	0.740	7.44	0.000	0.00e+000	8.07e-003	0.00e+000	0.00e+000
12	2.00	0.08022	0.729	8.02	0.000	0.00e+000	5.83e-003	0.00e+000	0.00e+000
13	4.00	0.09188	0.707	9.19	0.533	8.93e-006	5.83e-003	1.40e-004	0.00e+000
14	8.00	0.1284	0.638	12.8	1.272	3.55e-006	9.13e-003	8.74e-005	0.00e+000
15	16.0	0.1738	0.553	17.4	0.943	4.36e-006	5.68e-003	6.67e-005	0.00e+000
16	32.0	0.2220	0.462	22.2	0.579	6.33e-006	3.01e-003	5.14e-005	0.00e+000
17	8.00	0.1994	0.505	19.9	0.000	0.00e+000	9.41e-004	0.00e+000	0.00e+000
18	2.00	0.1788	0.543	17.9	0.000	0.00e+000	3.43e-003	0.00e+000	0.00e+000
19	0.500	0.1568	0.585	15.7	0.000	0.00e+000	1.47e-002	0.00e+000	0.00e+000
20	0.125	0.1364	0.623	13.6	0.000	0.00e+000	5.44e-002	0.00e+000	0.00e+000
21	0.0625	0.1274	0.640	12.7	30.648	1.40e-007	1.44e-001	5.44e-005	0.00e+000

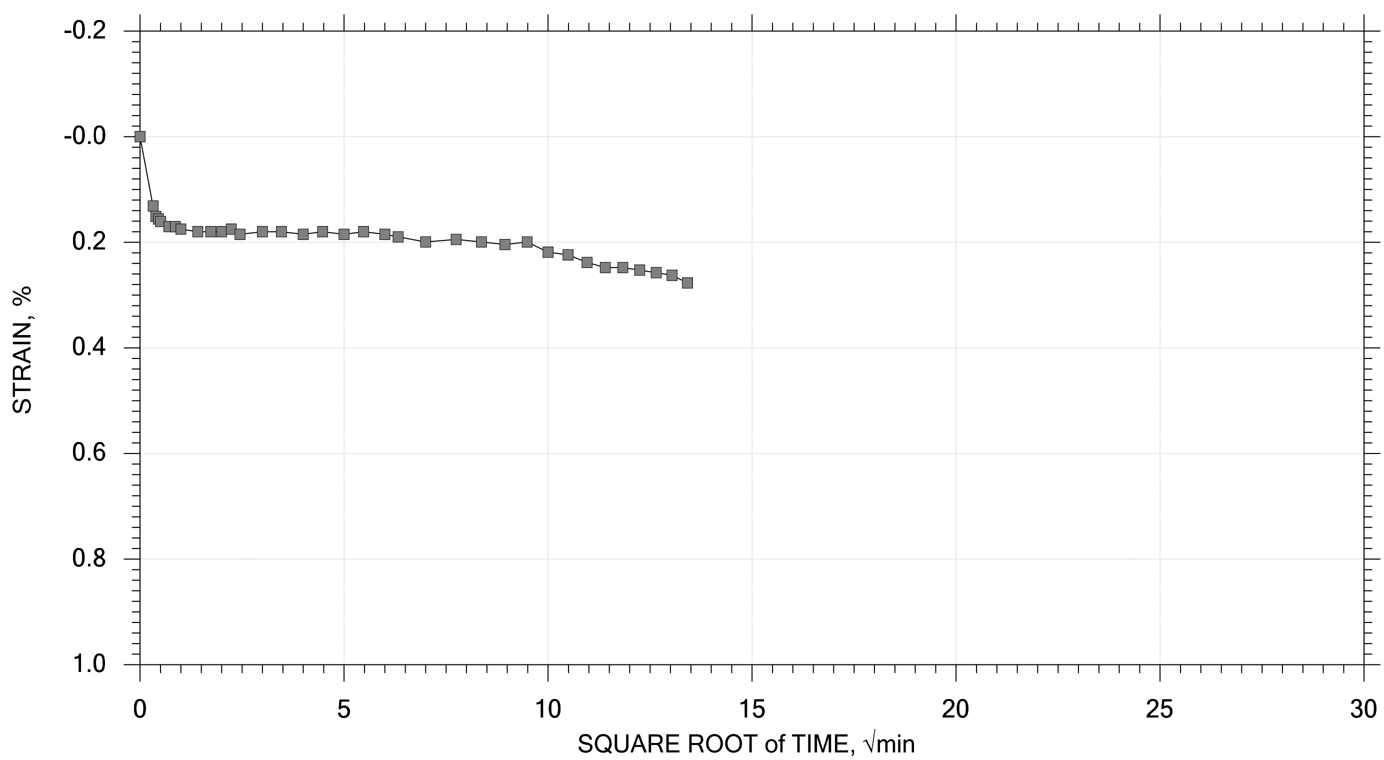
One-Dimensional Consolidation by ASTM D2435 - Method B

TIME CURVES

Constant Volume Step 1 of 21

Stress: 0.073882 tsf





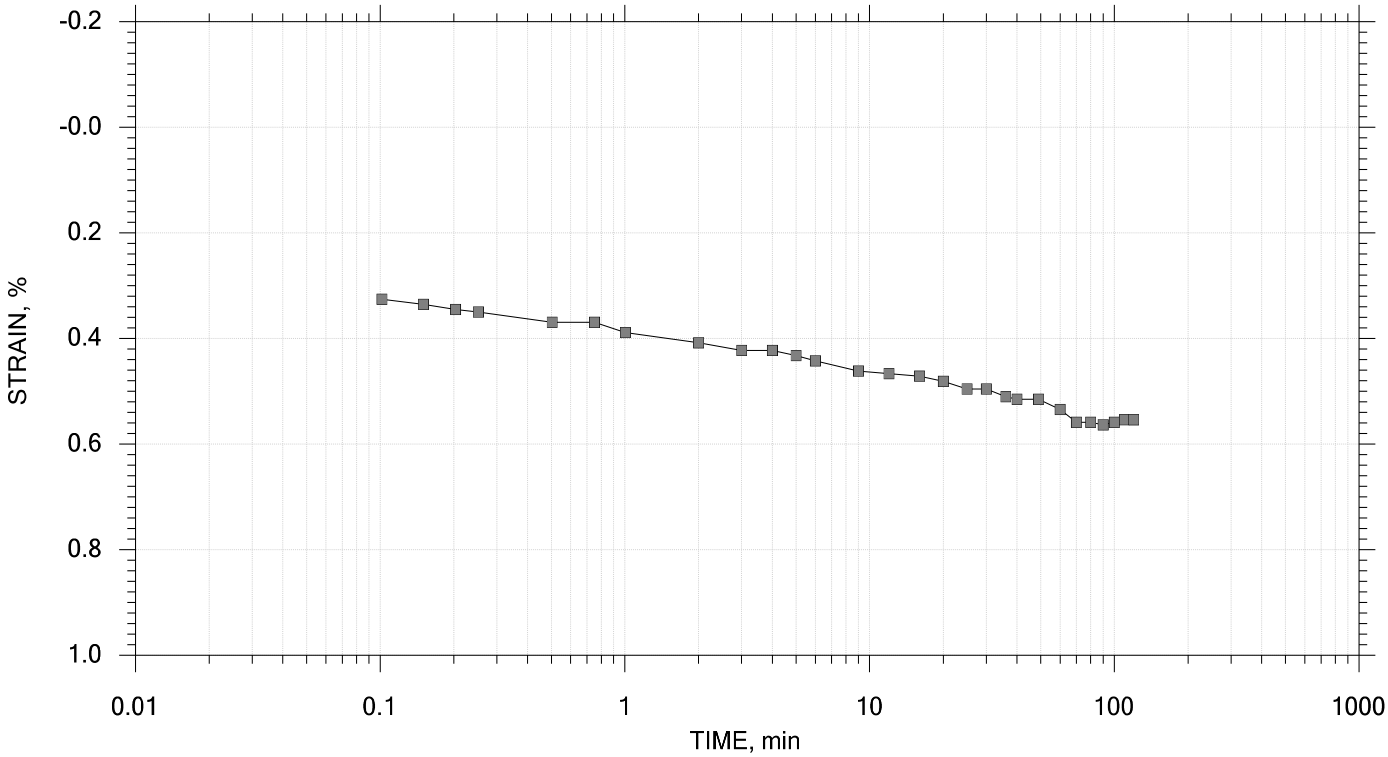
Project: Beacon Island Parcel	Location: Bethlehem, NY	Project No.: GTX-306651
Boring No.: SB-01	Tested By: md	Checked By: njh
Sample No.: Tube	Test Date: 06/27/17	Test No.: IP-1
Depth: 38-40 ft	Sample Type: intact	Elevation: ---
Description: Moist, dark gray clay		
Remarks: System JJ, Swell Pressure = 0.0739 tsf		

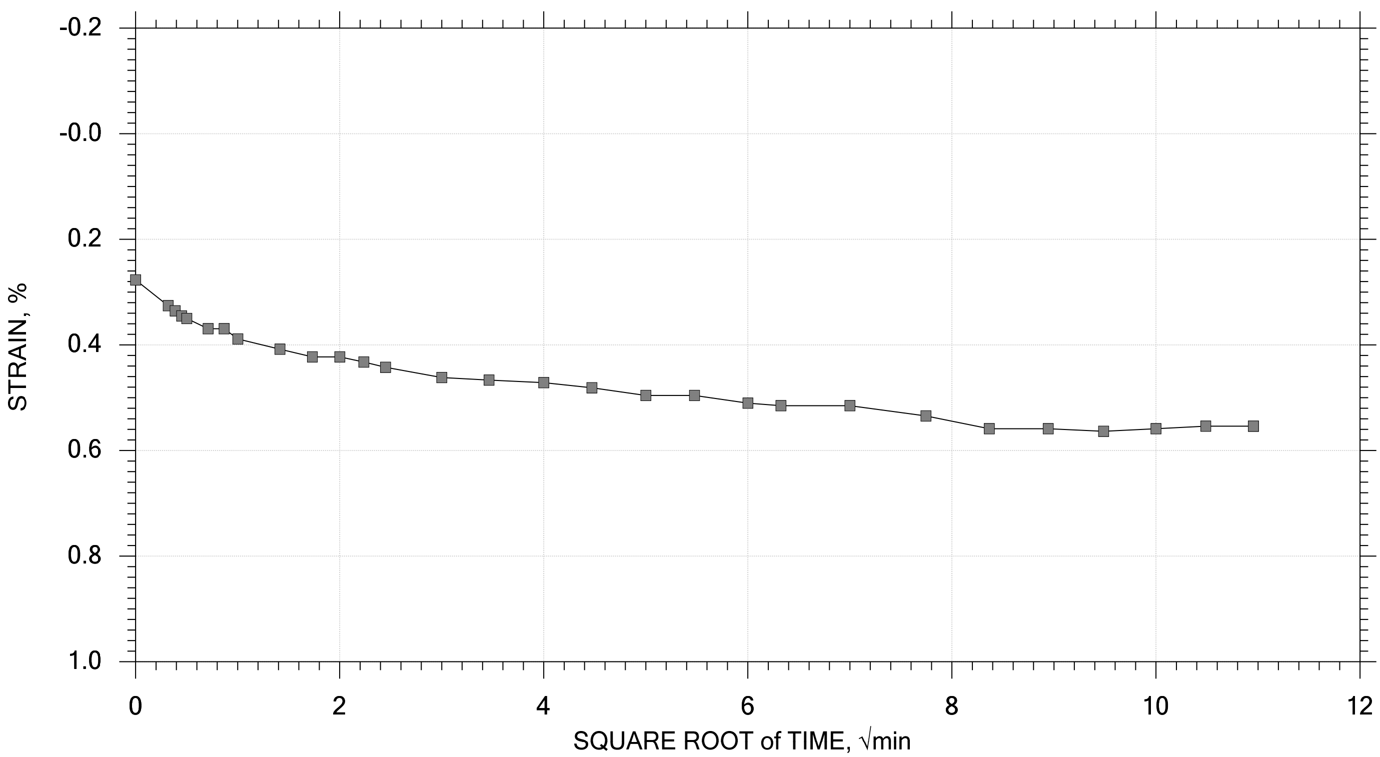
One-Dimensional Consolidation by ASTM D2435 - Method B

TIME CURVES

Constant Load Step 2 of 21

Stress: 0.125 tsf





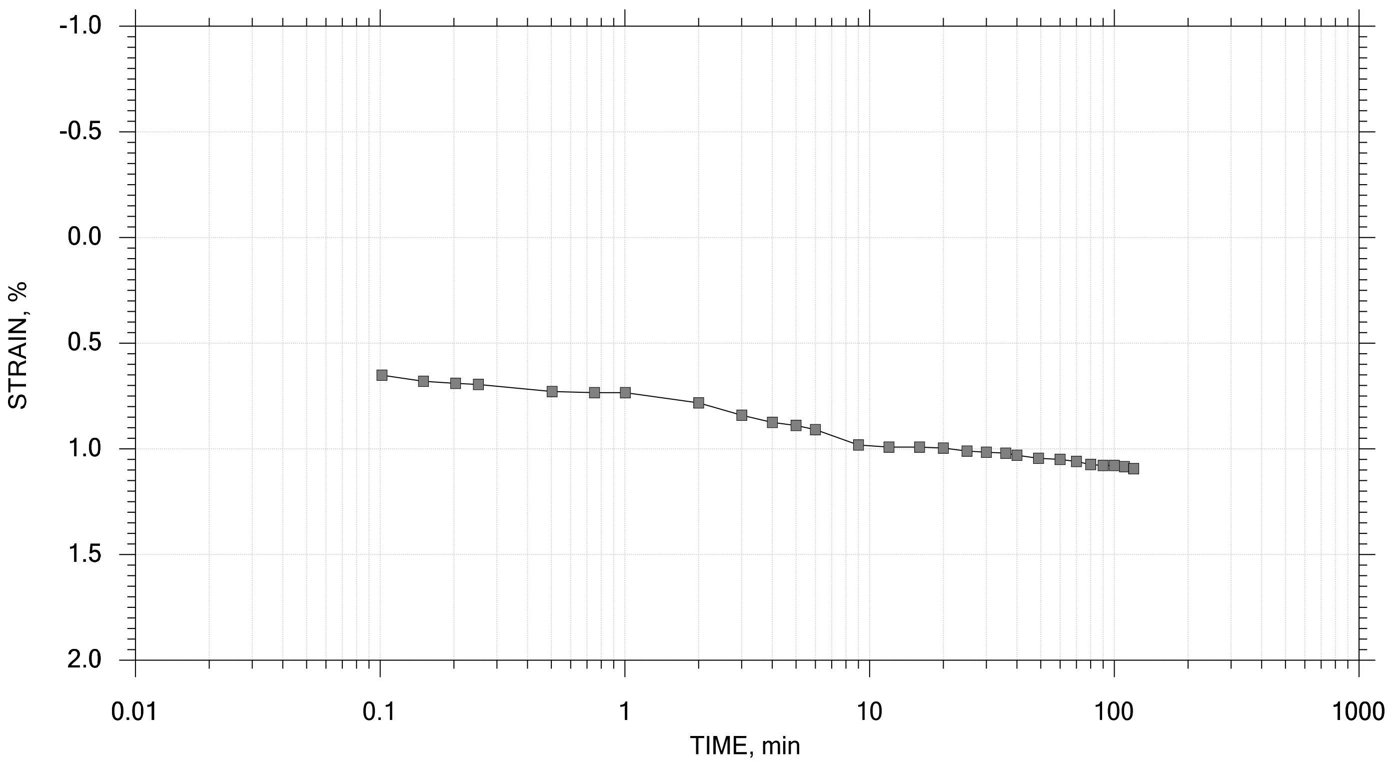
GeoTesting EXPRESS	Project: Beacon Island Parcel	Location: Bethlehem, NY	Project No.: GTX-306651
	Boring No.: SB-01	Tested By: md	Checked By: njh
	Sample No.: Tube	Test Date: 06/27/17	Test No.: IP-1
	Depth: 38-40 ft	Sample Type: intact	Elevation: ---
	Description: Moist, dark gray clay		
	Remarks: System JJ, Swell Pressure = 0.0739 tsf		

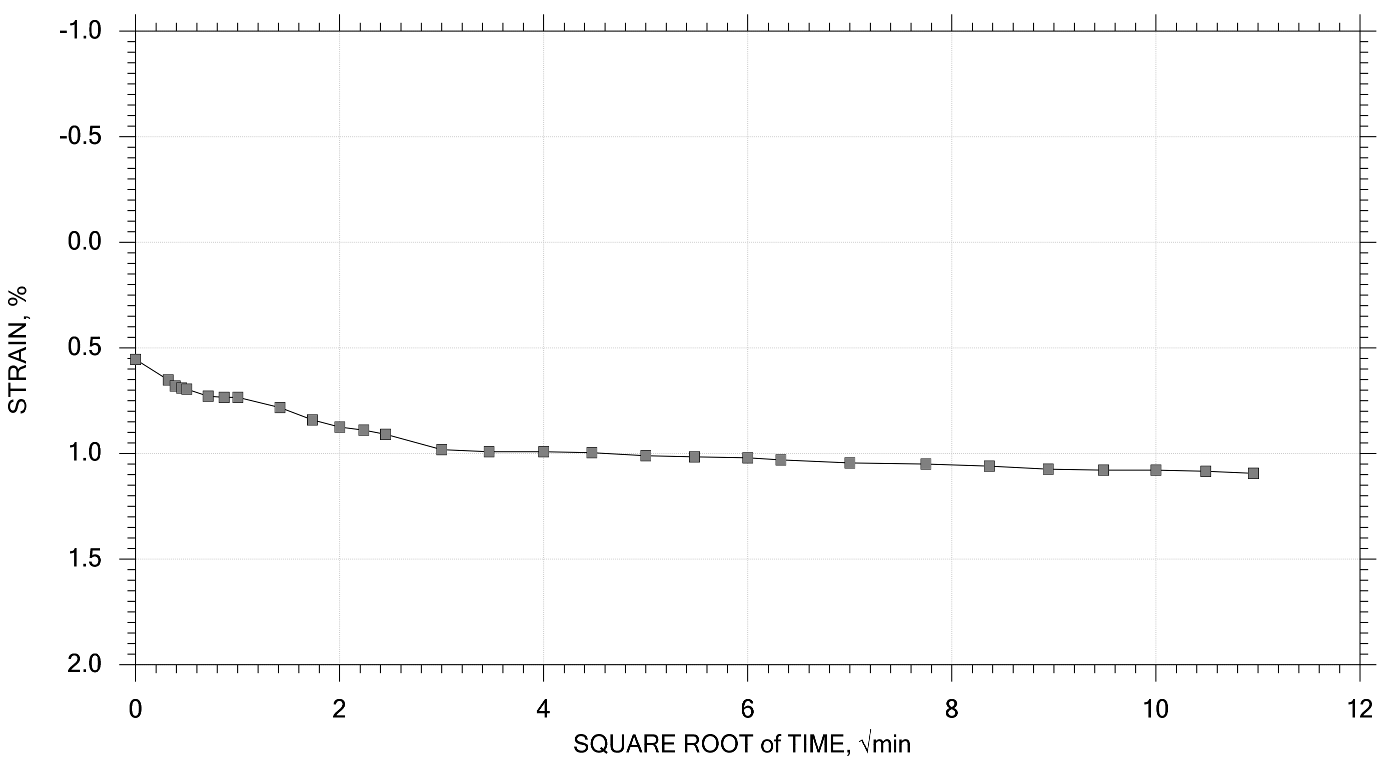
One-Dimensional Consolidation by ASTM D2435 - Method B

TIME CURVES

Constant Load Step 3 of 21

Stress: 0.25 tsf





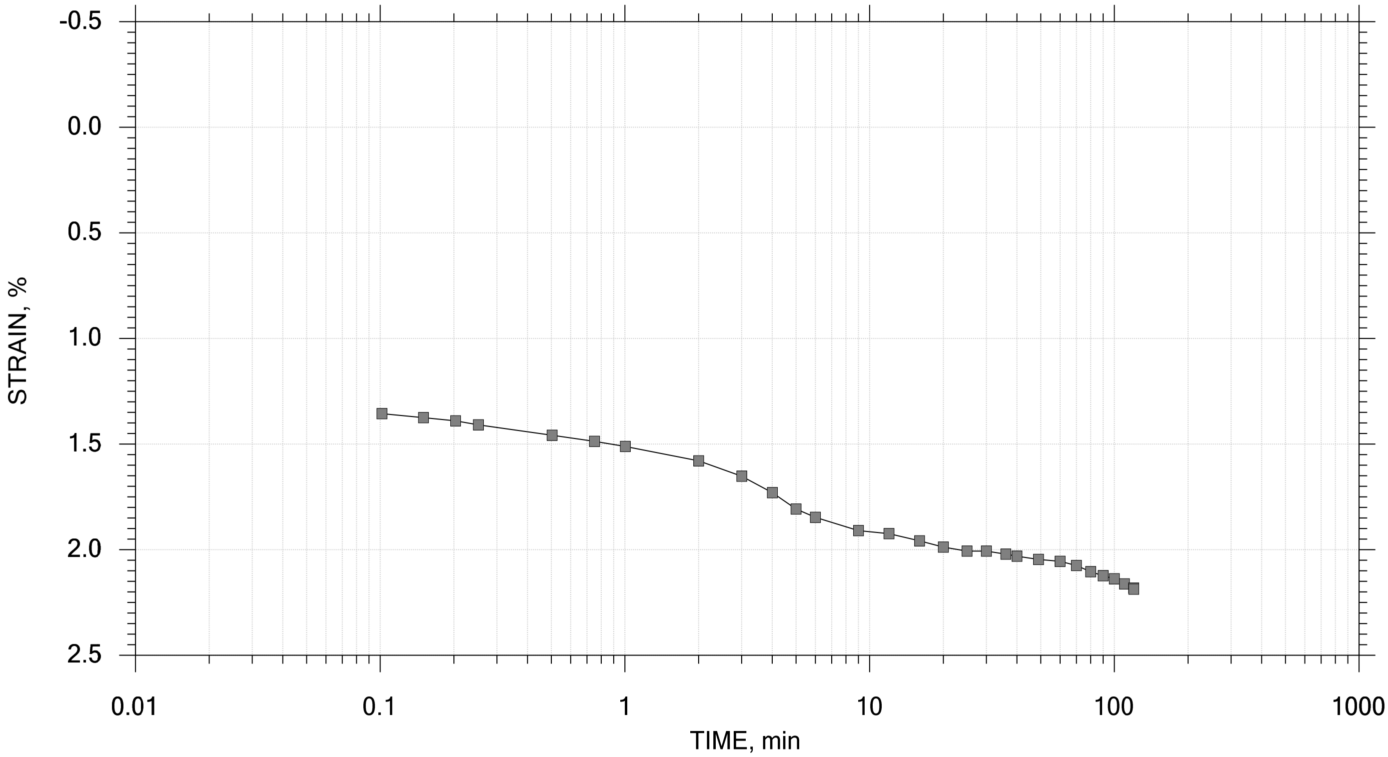
GeoTesting EXPRESS	Project: Beacon Island Parcel	Location: Bethlehem, NY	Project No.: GTX-306651
	Boring No.: SB-01	Tested By: md	Checked By: njh
	Sample No.: Tube	Test Date: 06/27/17	Test No.: IP-1
	Depth: 38-40 ft	Sample Type: intact	Elevation: ---
	Description: Moist, dark gray clay		
	Remarks: System JJ, Swell Pressure = 0.0739 tsf		

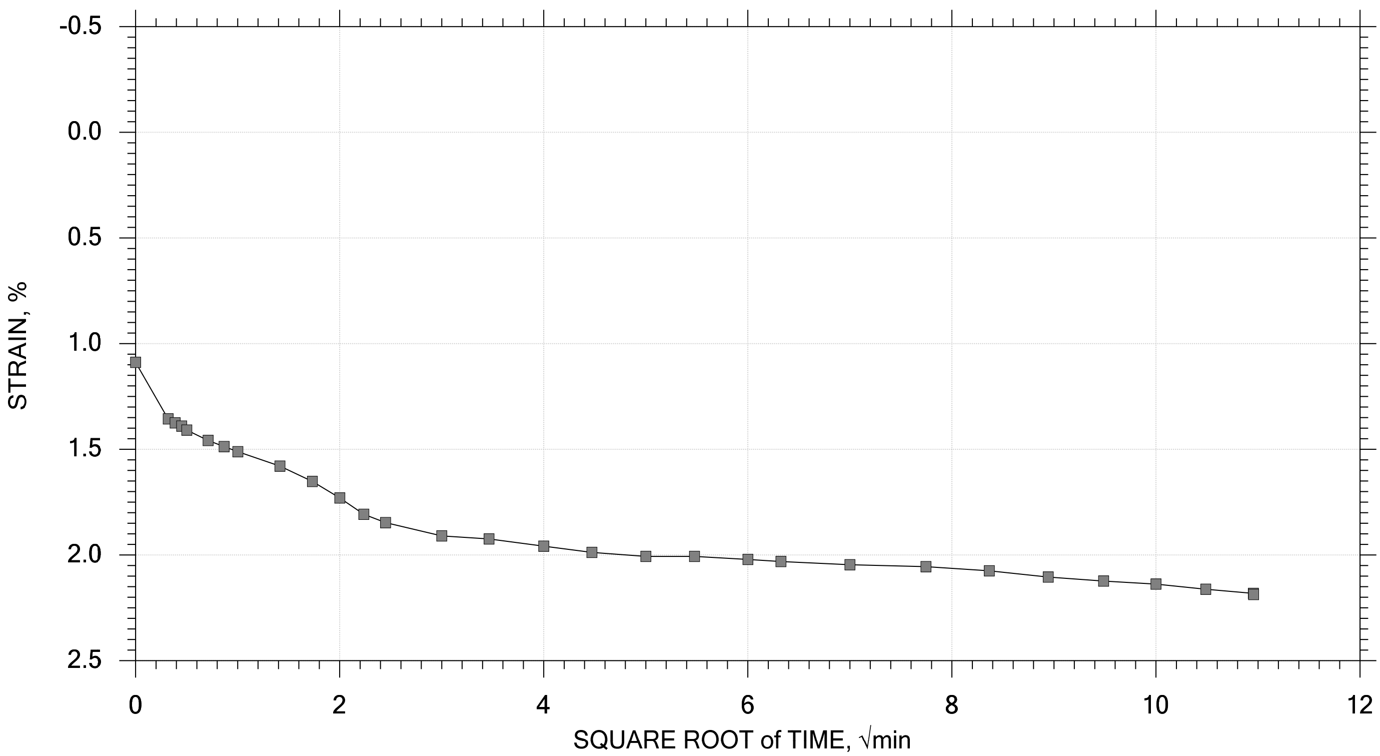
One-Dimensional Consolidation by ASTM D2435 - Method B

TIME CURVES

Constant Load Step 4 of 21

Stress: 0.5 tsf





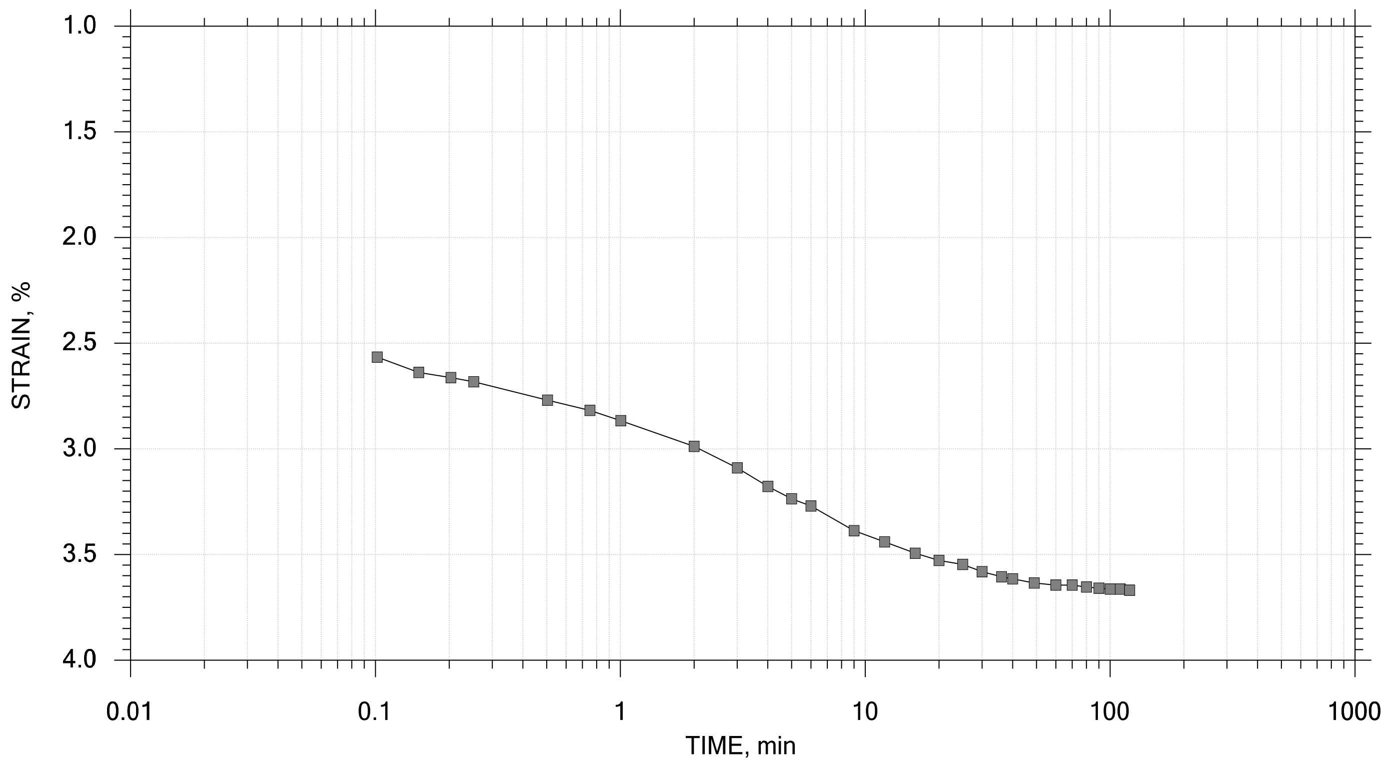
GeoTesting EXPRESS	Project: Beacon Island Parcel	Location: Bethlehem, NY	Project No.: GTX-306651
	Boring No.: SB-01	Tested By: md	Checked By: njh
	Sample No.: Tube	Test Date: 06/27/17	Test No.: IP-1
	Depth: 38-40 ft	Sample Type: intact	Elevation: ---
	Description: Moist, dark gray clay		
	Remarks: System JJ, Swell Pressure = 0.0739 tsf		

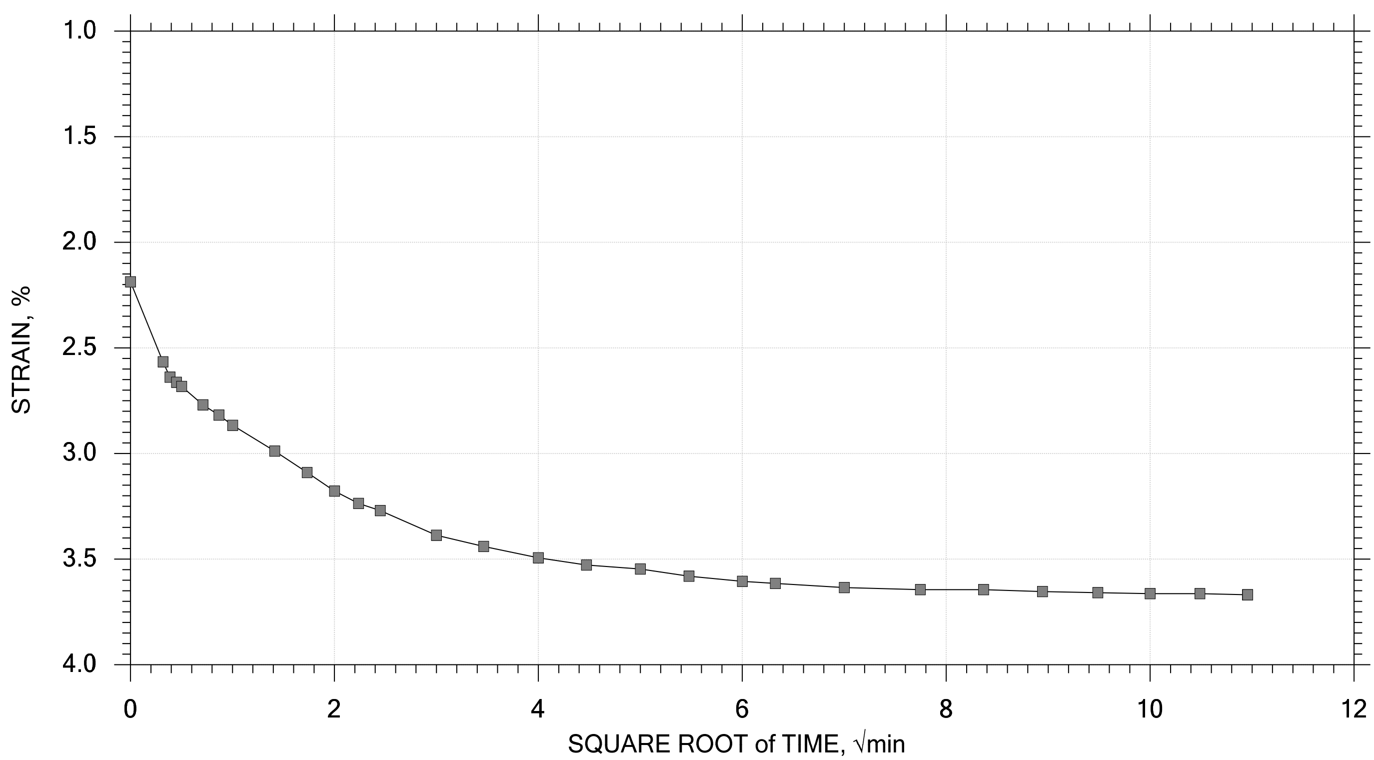
One-Dimensional Consolidation by ASTM D2435 - Method B

TIME CURVES

Constant Load Step 5 of 21

Stress: 1 tsf





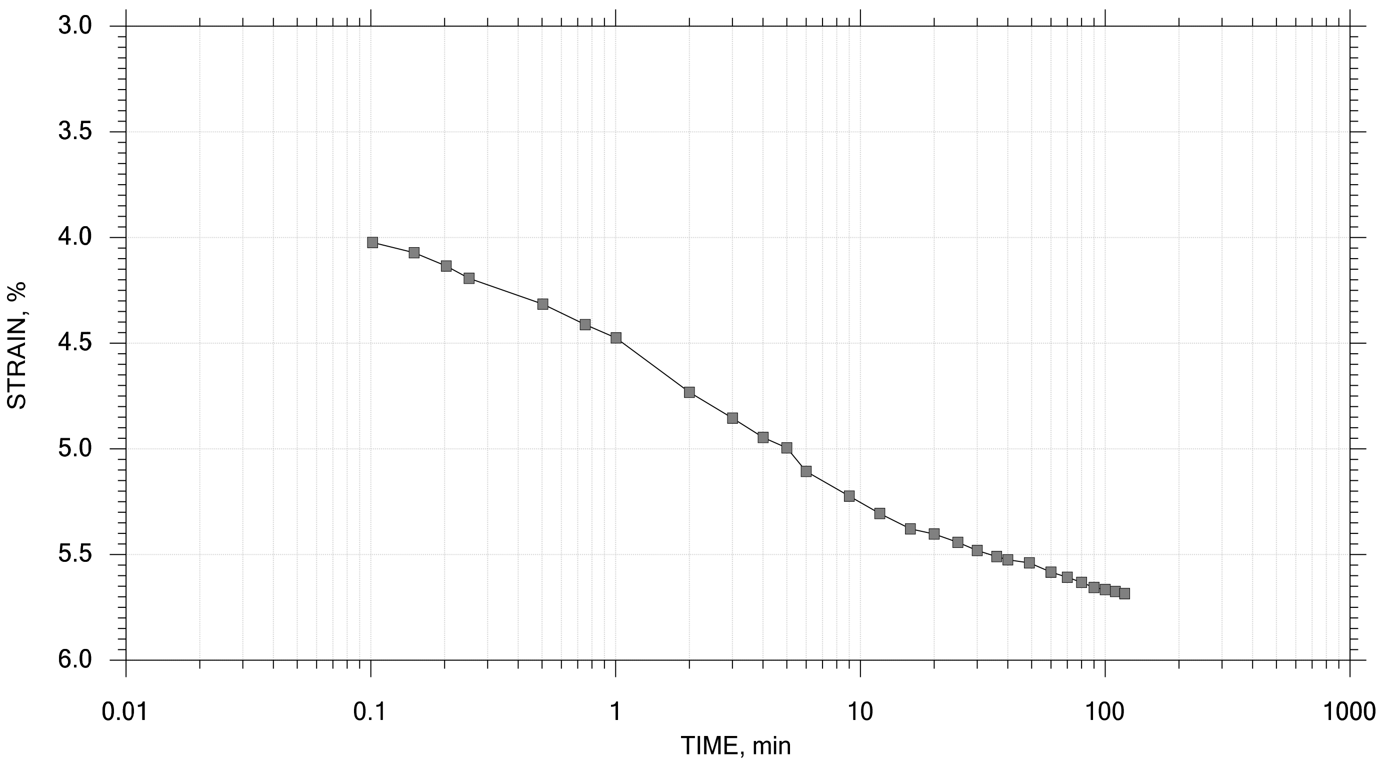
GeoTesting EXPRESS			
	Project: Beacon Island Parcel	Location: Bethlehem, NY	Project No.: GTX-306651
	Boring No.: SB-01	Tested By: md	Checked By: njh
	Sample No.: Tube	Test Date: 06/27/17	Test No.: IP-1
	Depth: 38-40 ft	Sample Type: intact	Elevation: ---
	Description: Moist, dark gray clay		
	Remarks: System JJ, Swell Pressure = 0.0739 tsf		

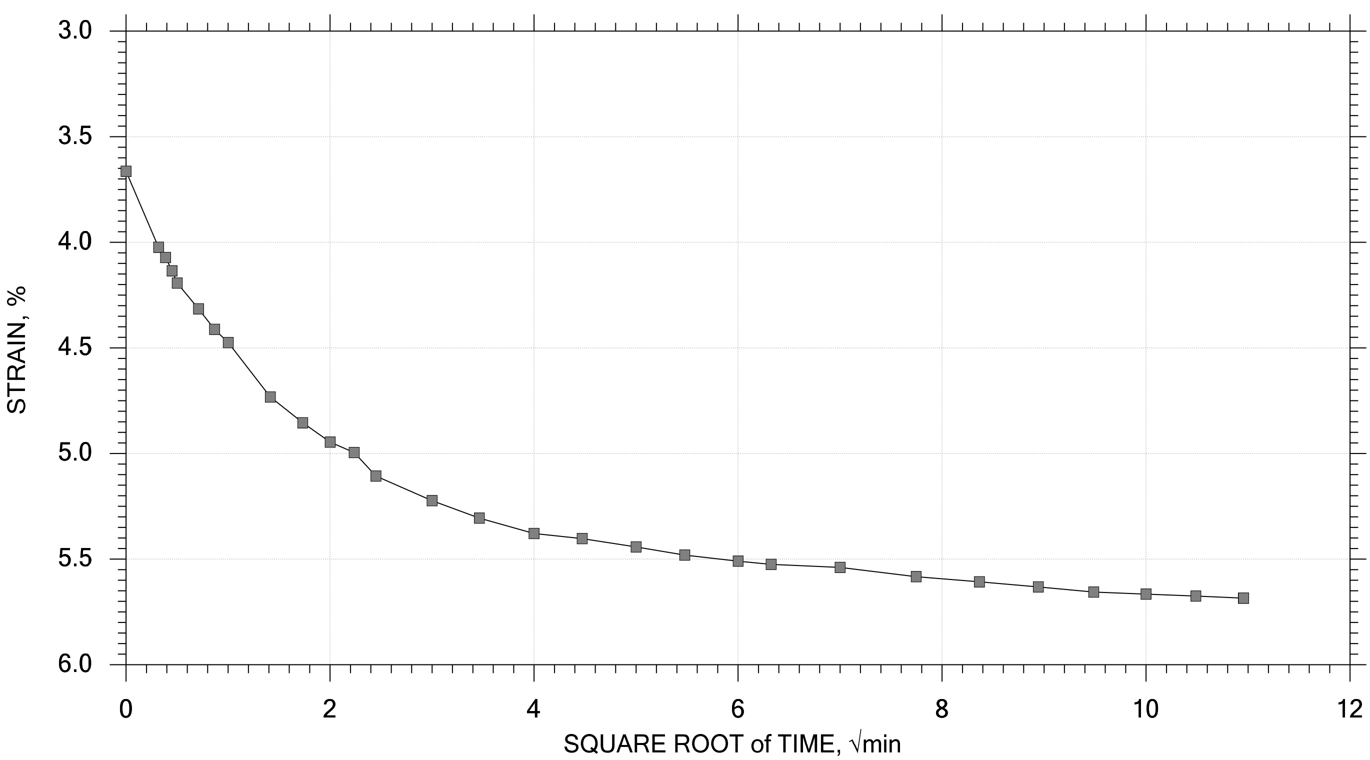
One-Dimensional Consolidation by ASTM D2435 - Method B

TIME CURVES

Constant Load Step 6 of 21

Stress: 2 tsf





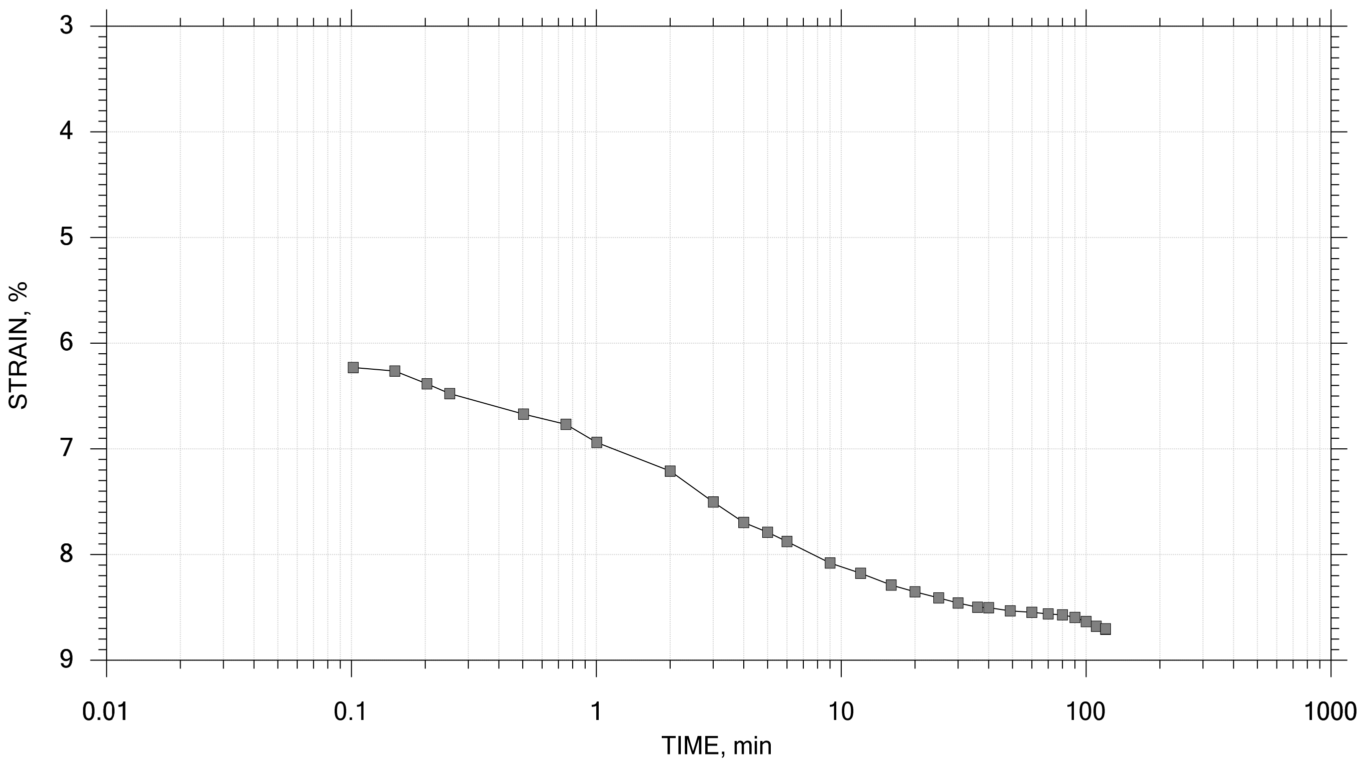
GeoTesting EXPRESS	Project: Beacon Island Parcel	Location: Bethlehem, NY	Project No.: GTX-306651
	Boring No.: SB-01	Tested By: md	Checked By: njh
	Sample No.: Tube	Test Date: 06/27/17	Test No.: IP-1
	Depth: 38-40 ft	Sample Type: intact	Elevation: ---
	Description: Moist, dark gray clay		
	Remarks: System JJ, Swell Pressure = 0.0739 tsf		

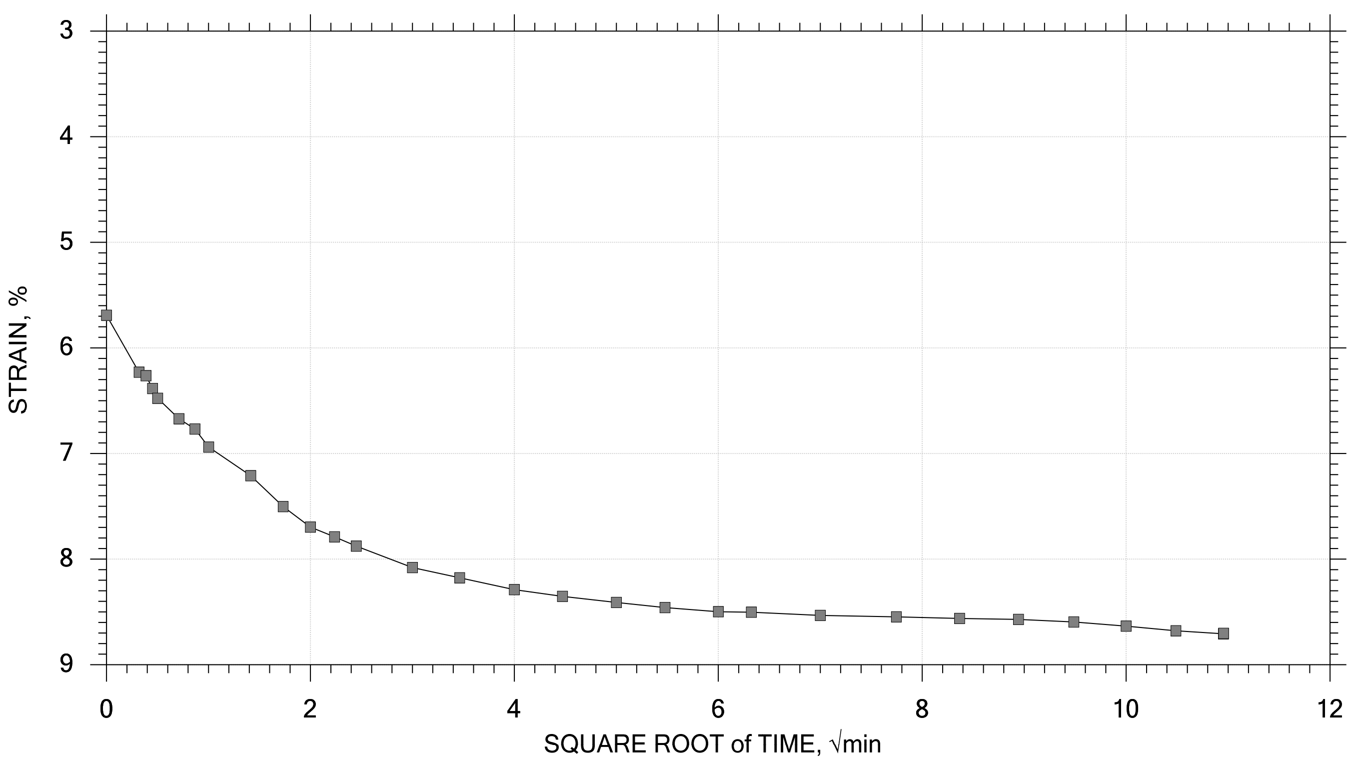
One-Dimensional Consolidation by ASTM D2435 - Method B

TIME CURVES

Constant Load Step 7 of 21

Stress: 4 tsf





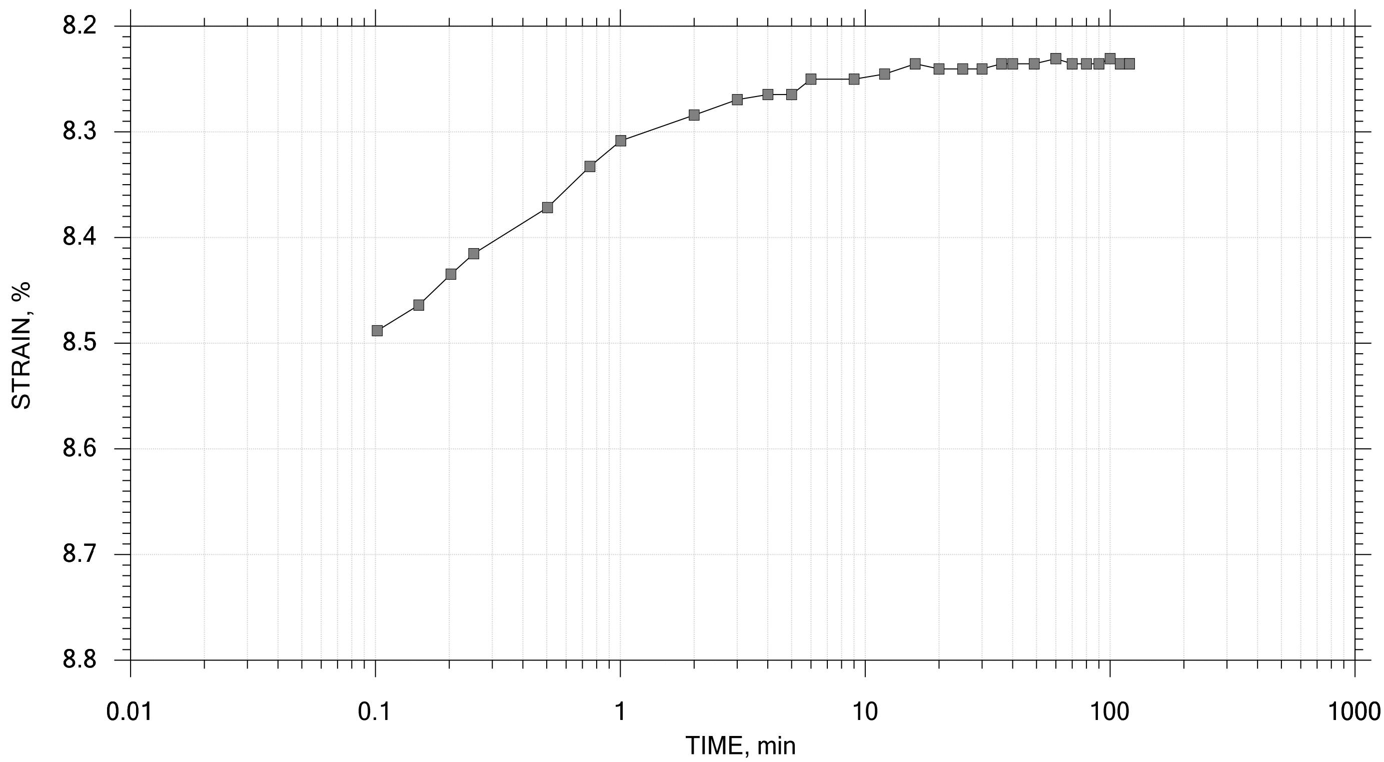
GeoTesting EXPRESS	Project: Beacon Island Parcel	Location: Bethlehem, NY	Project No.: GTX-306651
	Boring No.: SB-01	Tested By: md	Checked By: njh
	Sample No.: Tube	Test Date: 06/27/17	Test No.: IP-1
	Depth: 38-40 ft	Sample Type: intact	Elevation: ---
	Description: Moist, dark gray clay		
	Remarks: System JJ, Swell Pressure = 0.0739 tsf		

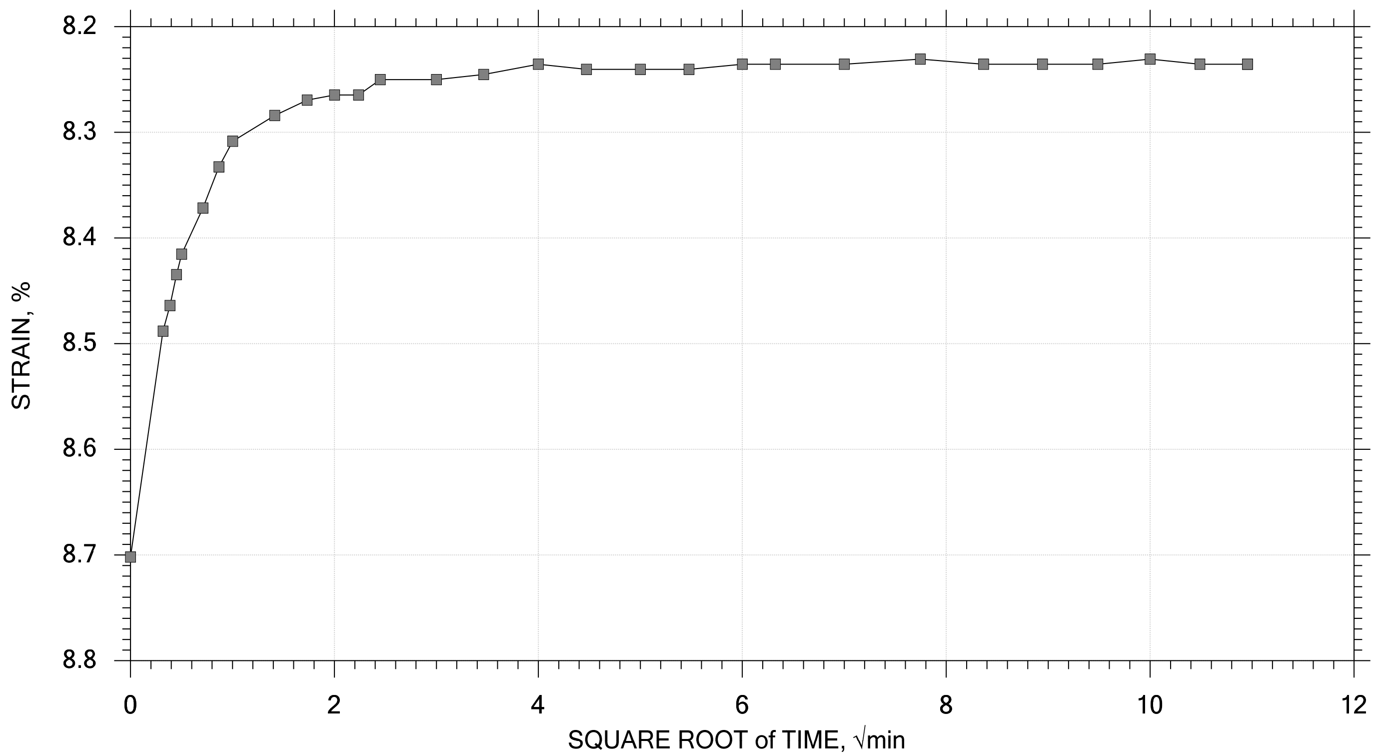
One-Dimensional Consolidation by ASTM D2435 - Method B

TIME CURVES

Constant Load Step 8 of 21

Stress: 2 tsf





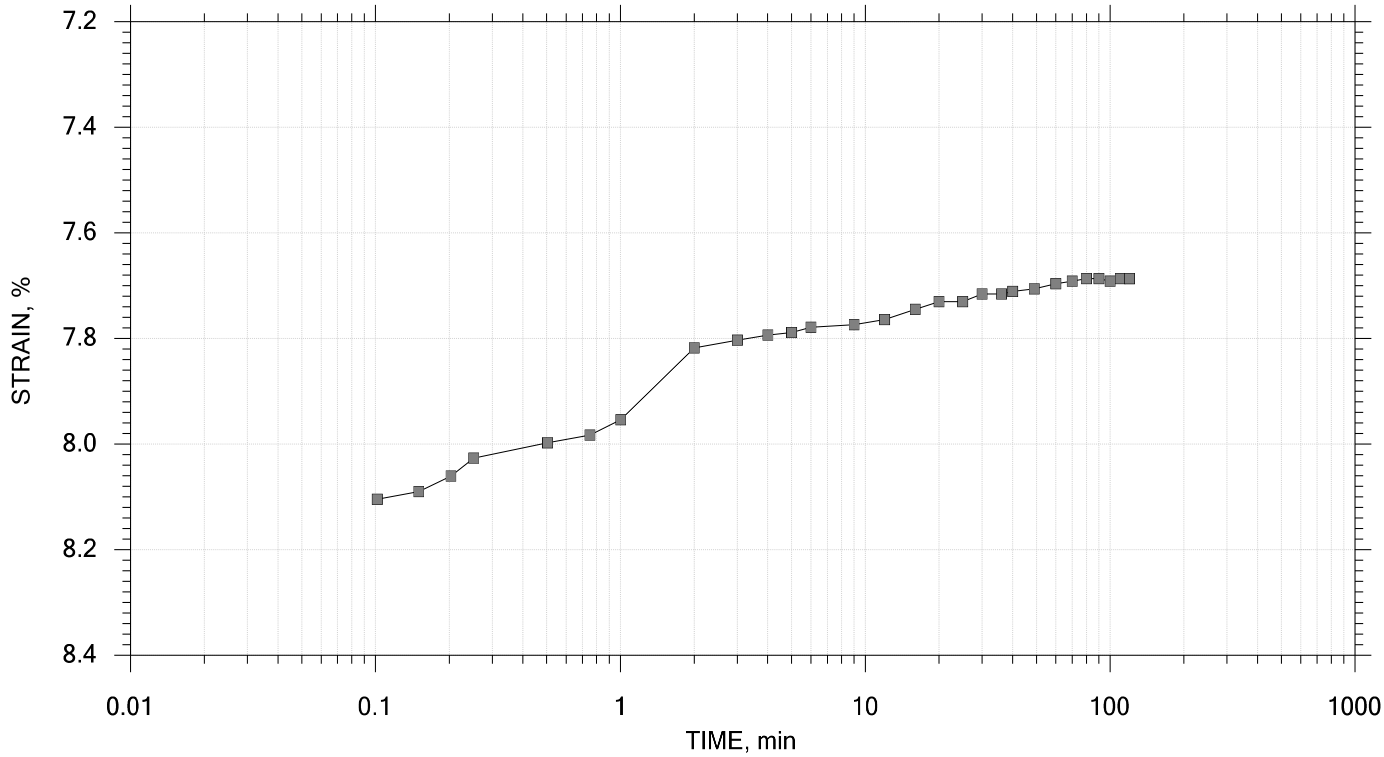
GeoTesting EXPRESS	Project: Beacon Island Parcel	Location: Bethlehem, NY	Project No.: GTX-306651
	Boring No.: SB-01	Tested By: md	Checked By: njh
	Sample No.: Tube	Test Date: 06/27/17	Test No.: IP-1
	Depth: 38-40 ft	Sample Type: intact	Elevation: ---
	Description: Moist, dark gray clay		
	Remarks: System JJ, Swell Pressure = 0.0739 tsf		

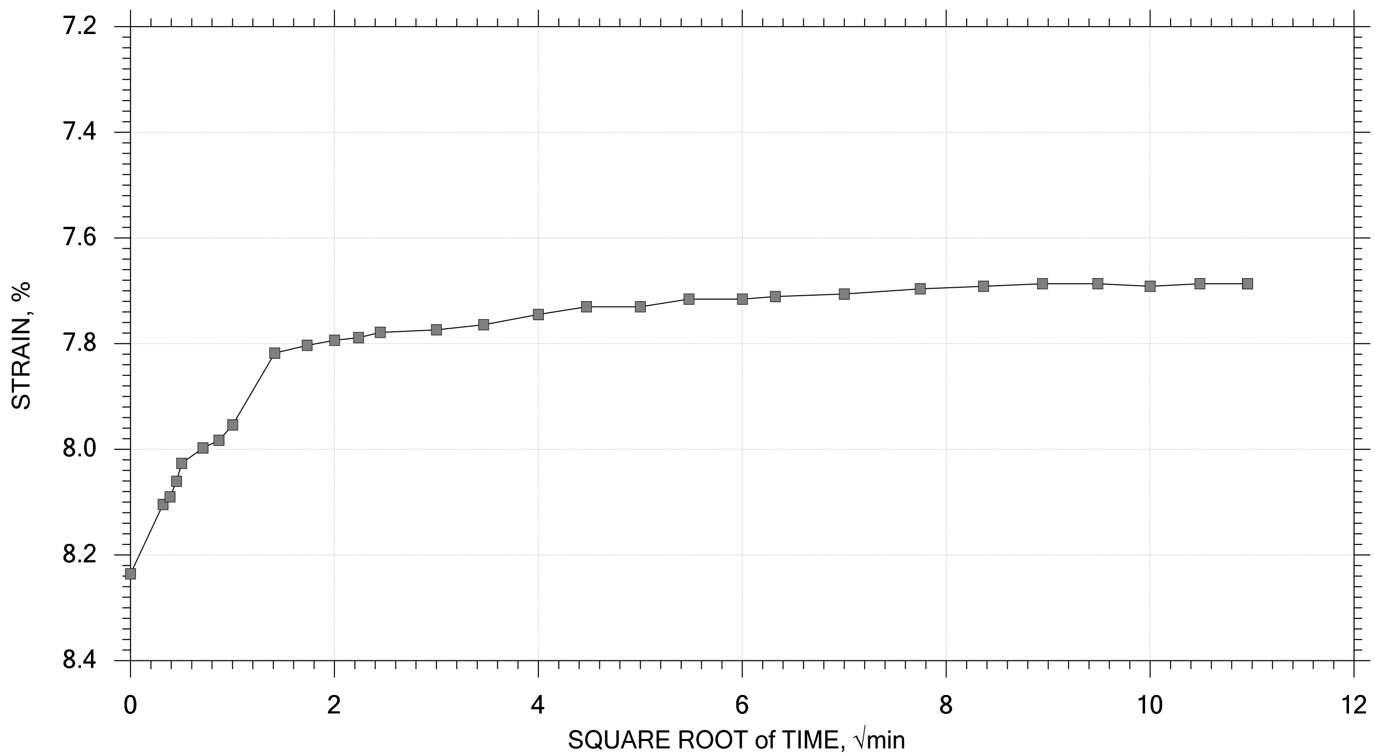
One-Dimensional Consolidation by ASTM D2435 - Method B

TIME CURVES

Constant Load Step 9 of 21

Stress: 1 tsf





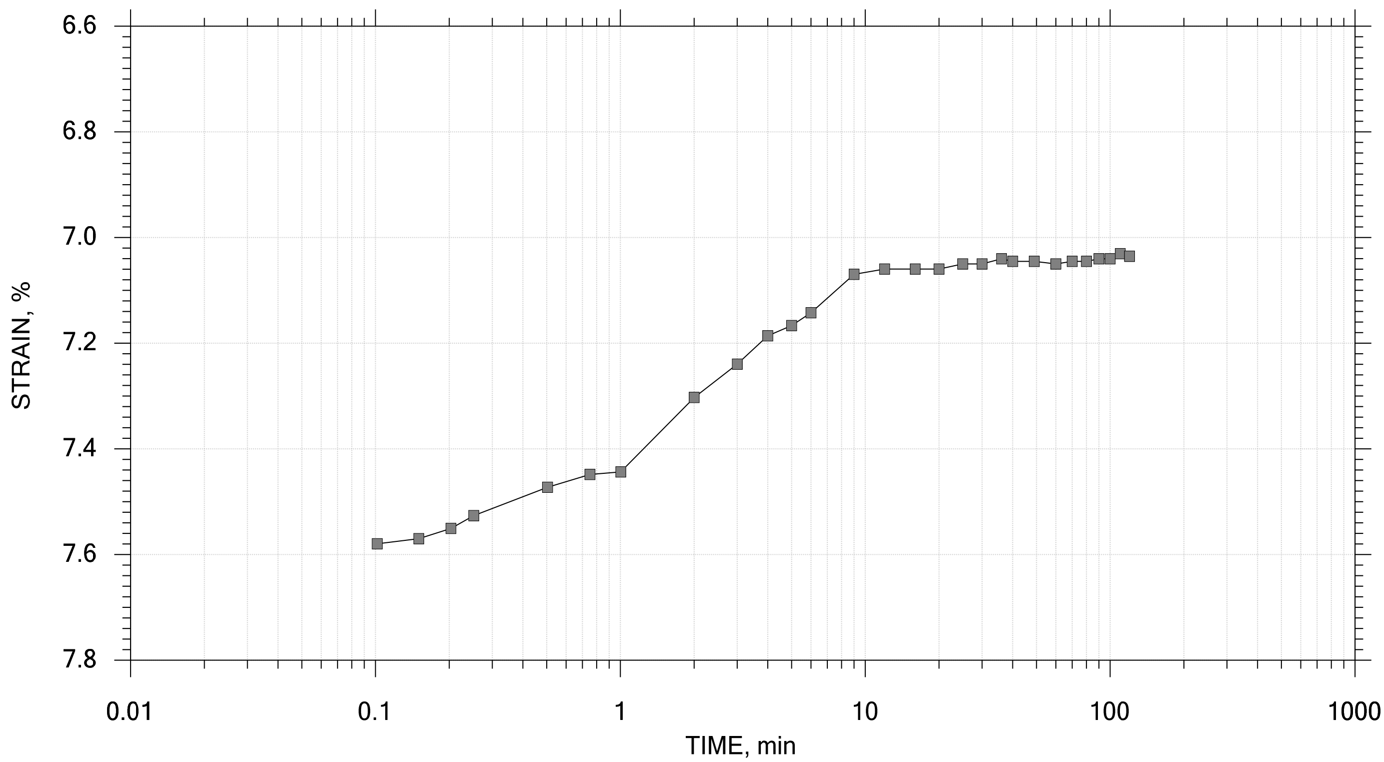
GeoTesting EXPRESS	Project: Beacon Island Parcel	Location: Bethlehem, NY	Project No.: GTX-306651
	Boring No.: SB-01	Tested By: md	Checked By: njh
	Sample No.: Tube	Test Date: 06/27/17	Test No.: IP-1
	Depth: 38-40 ft	Sample Type: intact	Elevation: ---
	Description: Moist, dark gray clay		
	Remarks: System JJ, Swell Pressure = 0.0739 tsf		

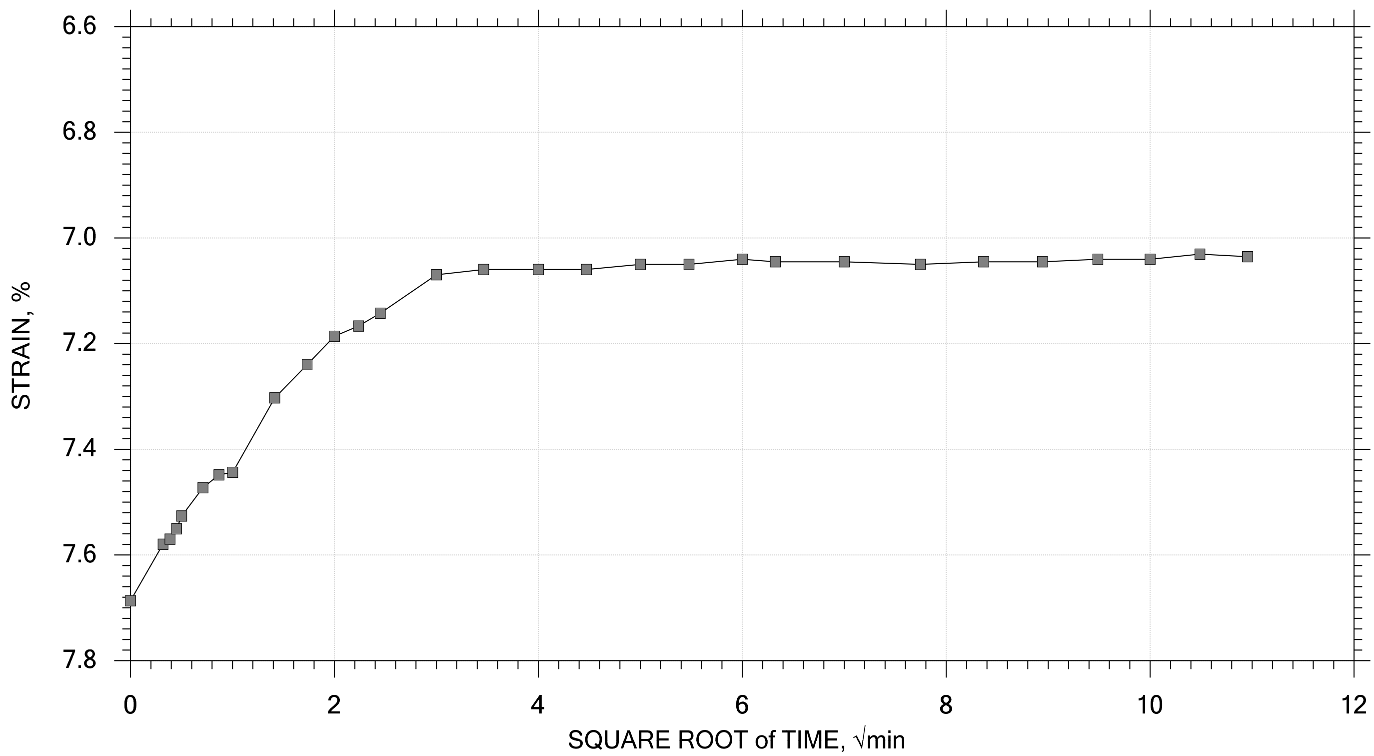
One-Dimensional Consolidation by ASTM D2435 - Method B

TIME CURVES

Constant Load Step 10 of 21

Stress: 0.5 tsf





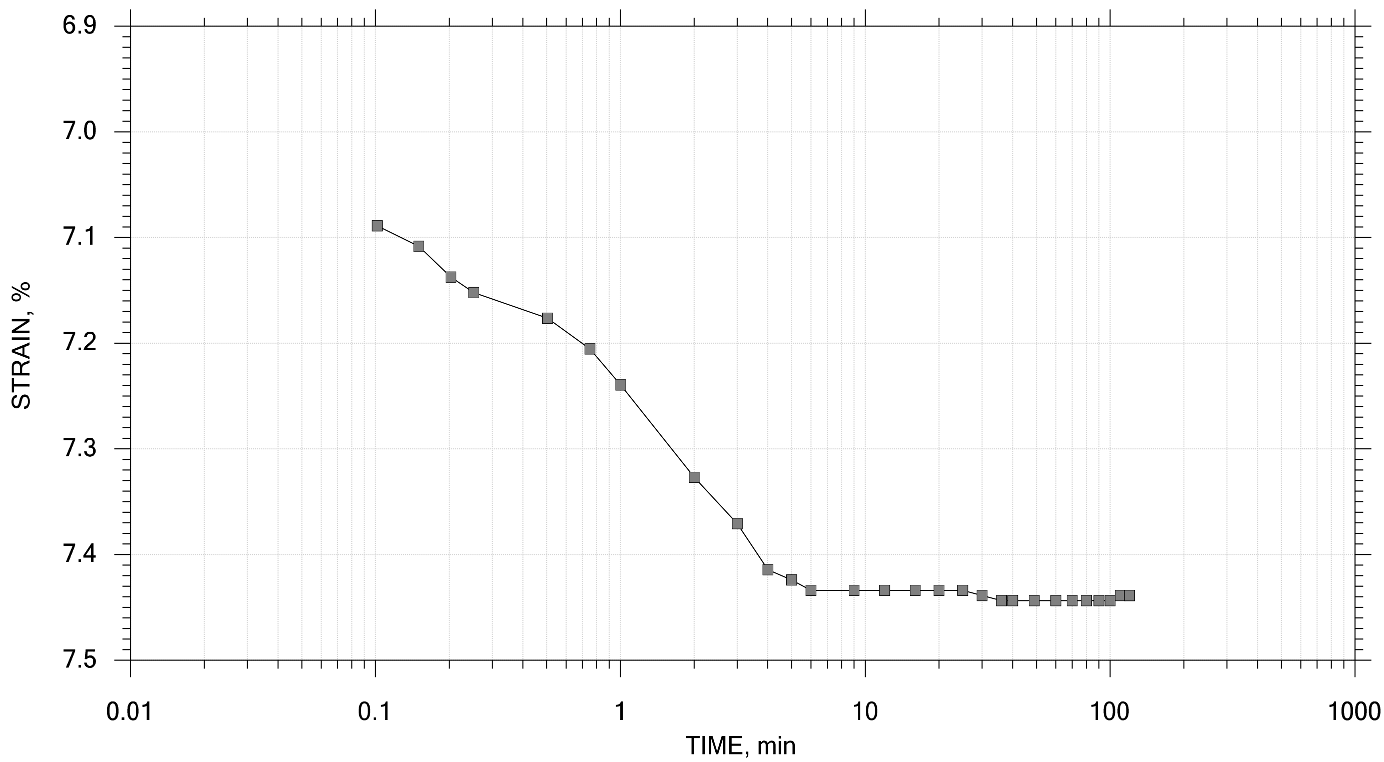
GeoTesting EXPRESS			
	Project: Beacon Island Parcel	Location: Bethlehem, NY	Project No.: GTX-306651
	Boring No.: SB-01	Tested By: md	Checked By: njh
	Sample No.: Tube	Test Date: 06/27/17	Test No.: IP-1
	Depth: 38-40 ft	Sample Type: intact	Elevation: ---
	Description: Moist, dark gray clay		
	Remarks: System JJ, Swell Pressure = 0.0739 tsf		

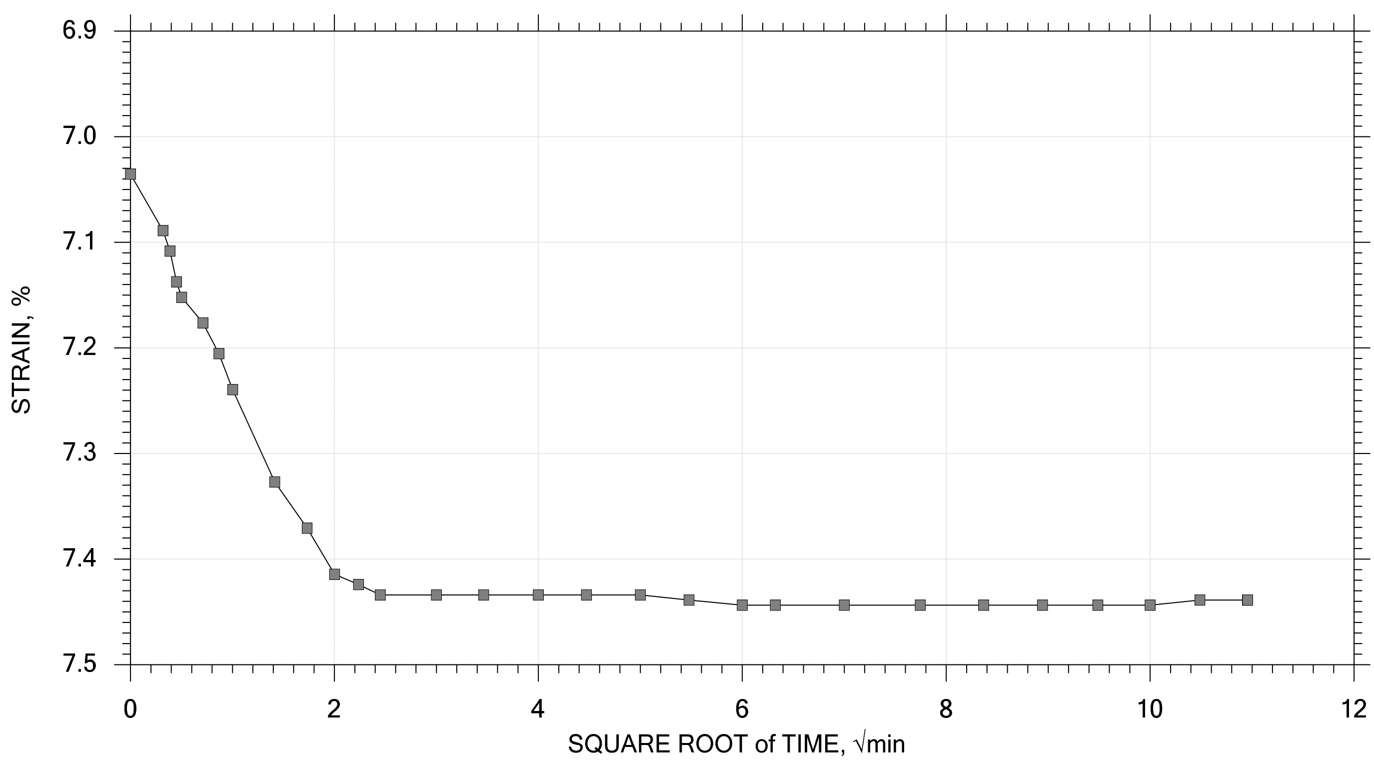
One-Dimensional Consolidation by ASTM D2435 - Method B

TIME CURVES

Constant Load Step 11 of 21

Stress: 1 tsf





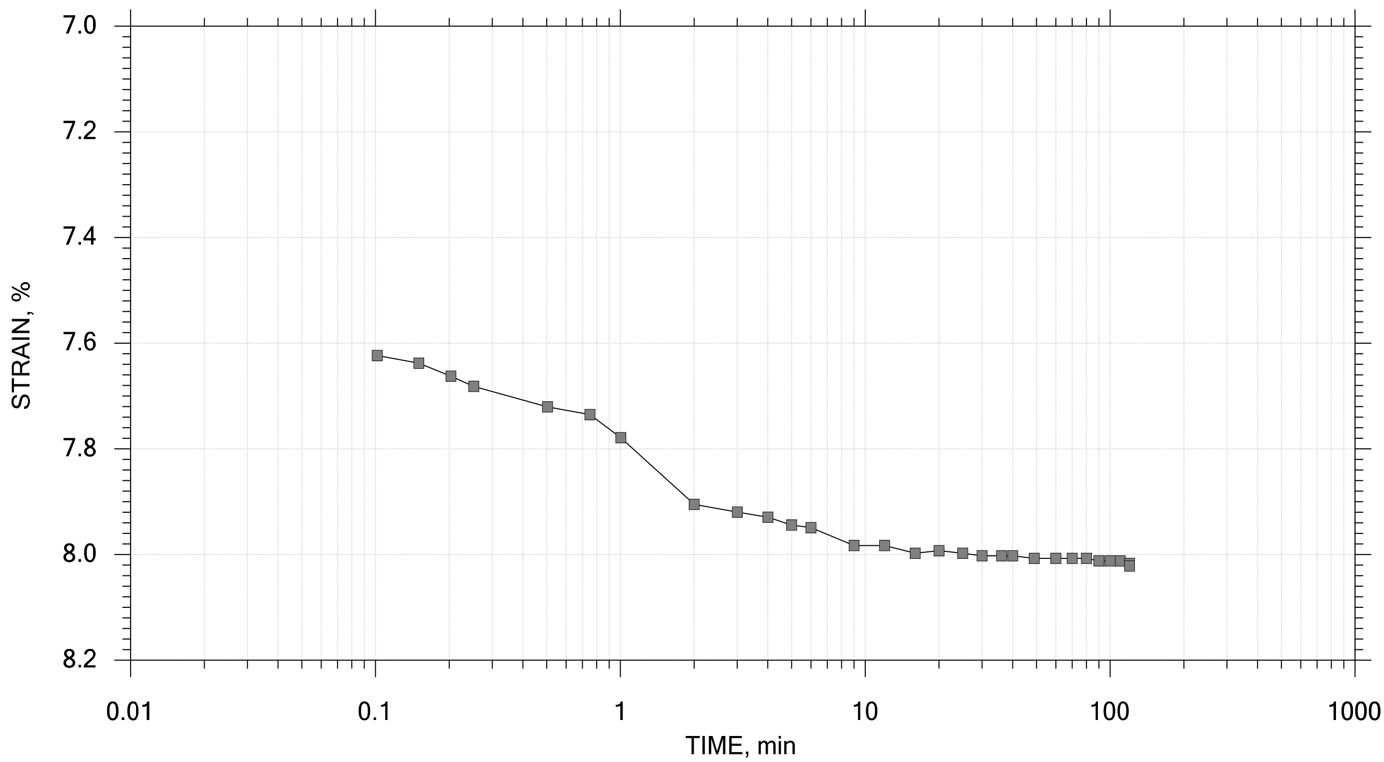
GeoTesting EXPRESS	Project: Beacon Island Parcel	Location: Bethlehem, NY	Project No.: GTX-306651
	Boring No.: SB-01	Tested By: md	Checked By: njh
	Sample No.: Tube	Test Date: 06/27/17	Test No.: IP-1
	Depth: 38-40 ft	Sample Type: intact	Elevation: ---
	Description: Moist, dark gray clay		
	Remarks: System JJ, Swell Pressure = 0.0739 tsf		

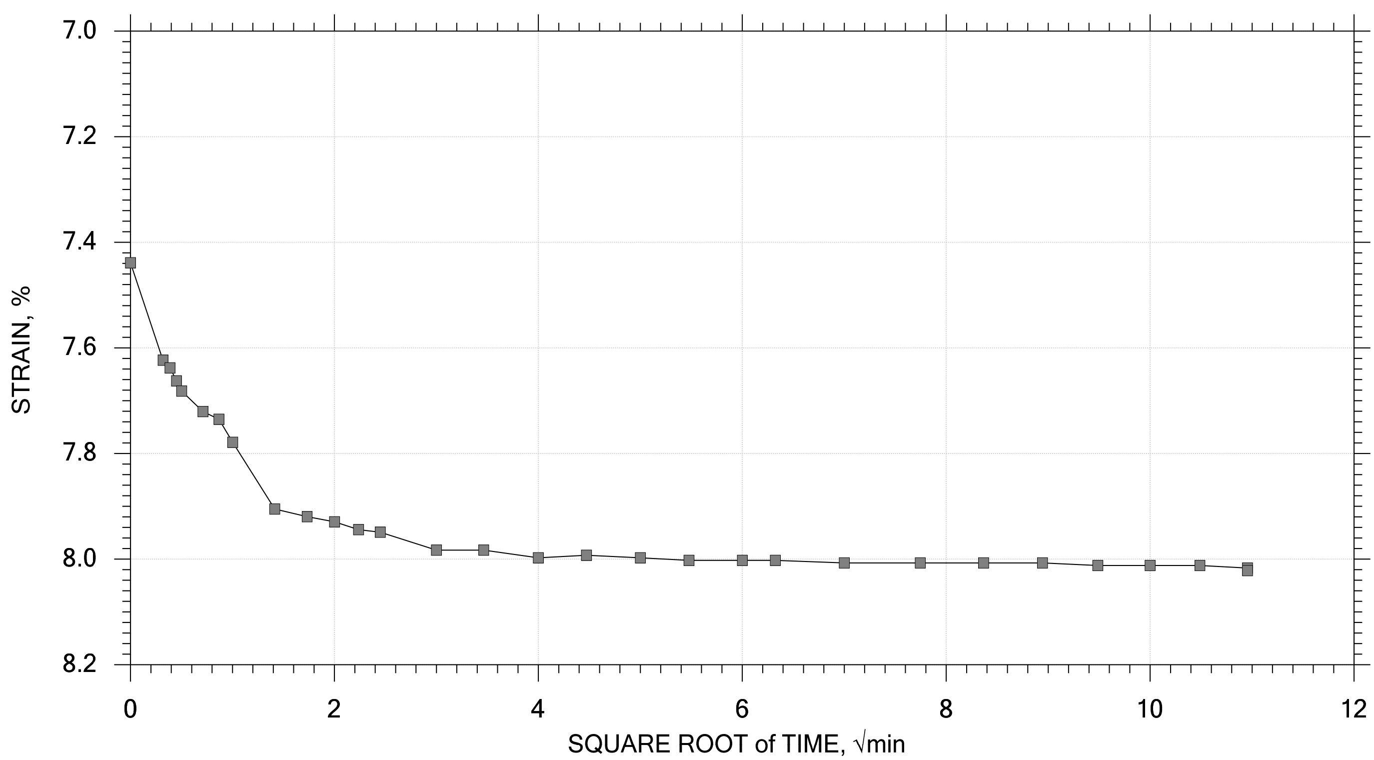
One-Dimensional Consolidation by ASTM D2435 - Method B

TIME CURVES

Constant Load Step 12 of 21

Stress: 2 tsf





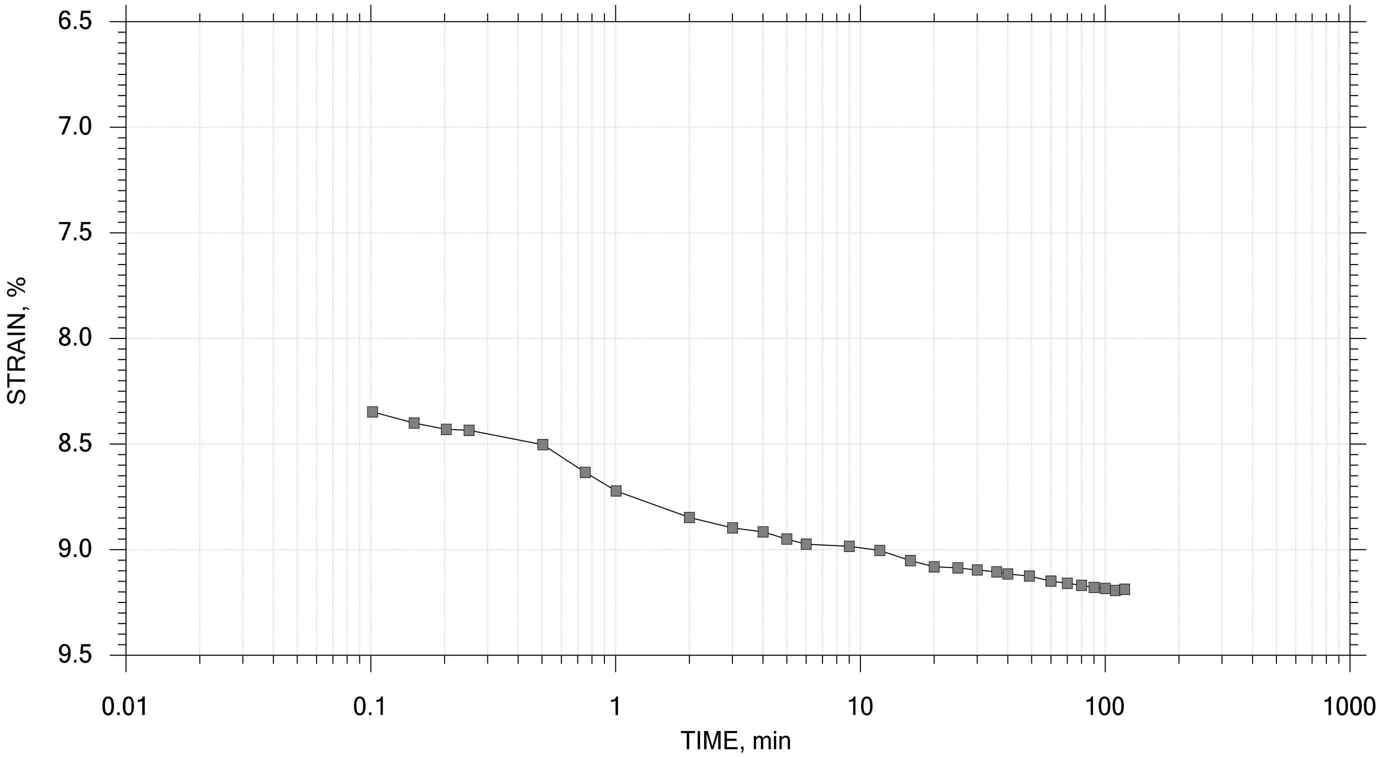
GeoTesting EXPRESS	Project: Beacon Island Parcel	Location: Bethlehem, NY	Project No.: GTX-306651
	Boring No.: SB-01	Tested By: md	Checked By: njh
	Sample No.: Tube	Test Date: 06/27/17	Test No.: IP-1
	Depth: 38-40 ft	Sample Type: intact	Elevation: ---
	Description: Moist, dark gray clay		
	Remarks: System JJ, Swell Pressure = 0.0739 tsf		

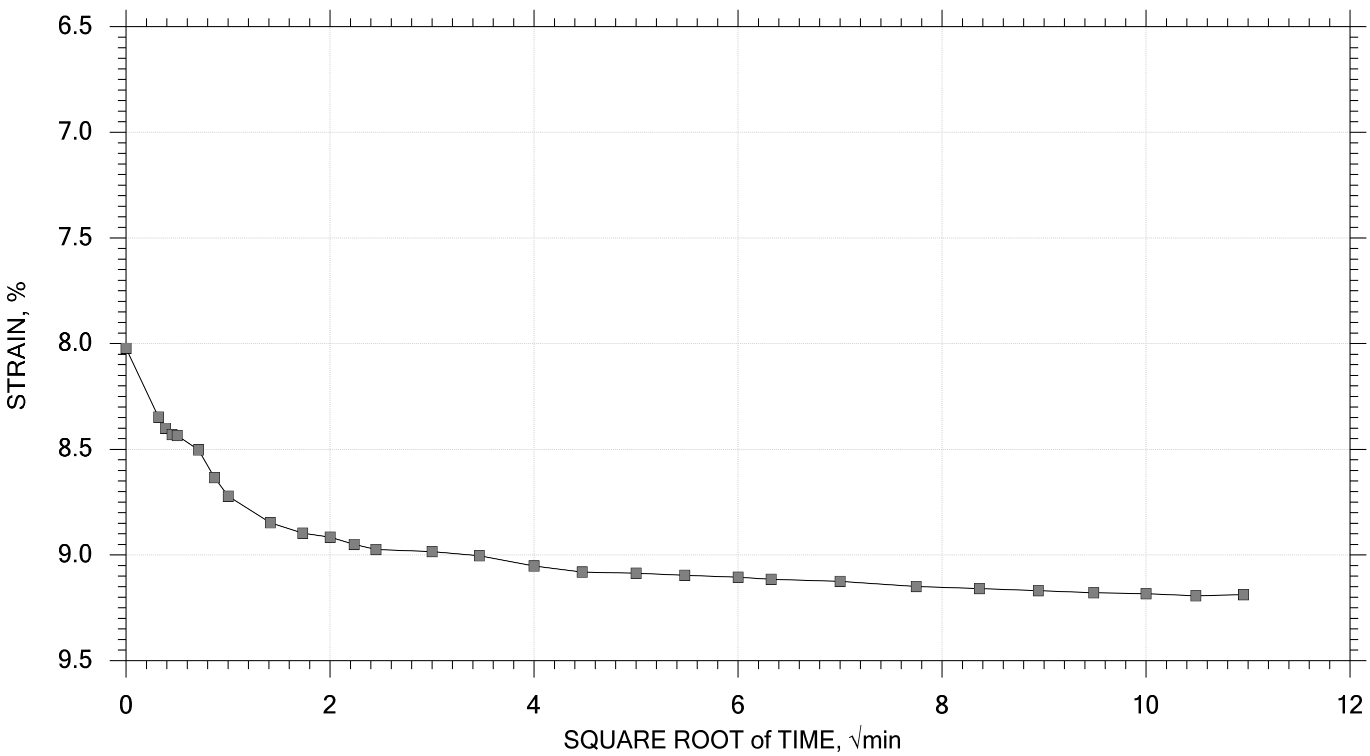
One-Dimensional Consolidation by ASTM D2435 - Method B

TIME CURVES

Constant Load Step 13 of 21

Stress: 4 tsf





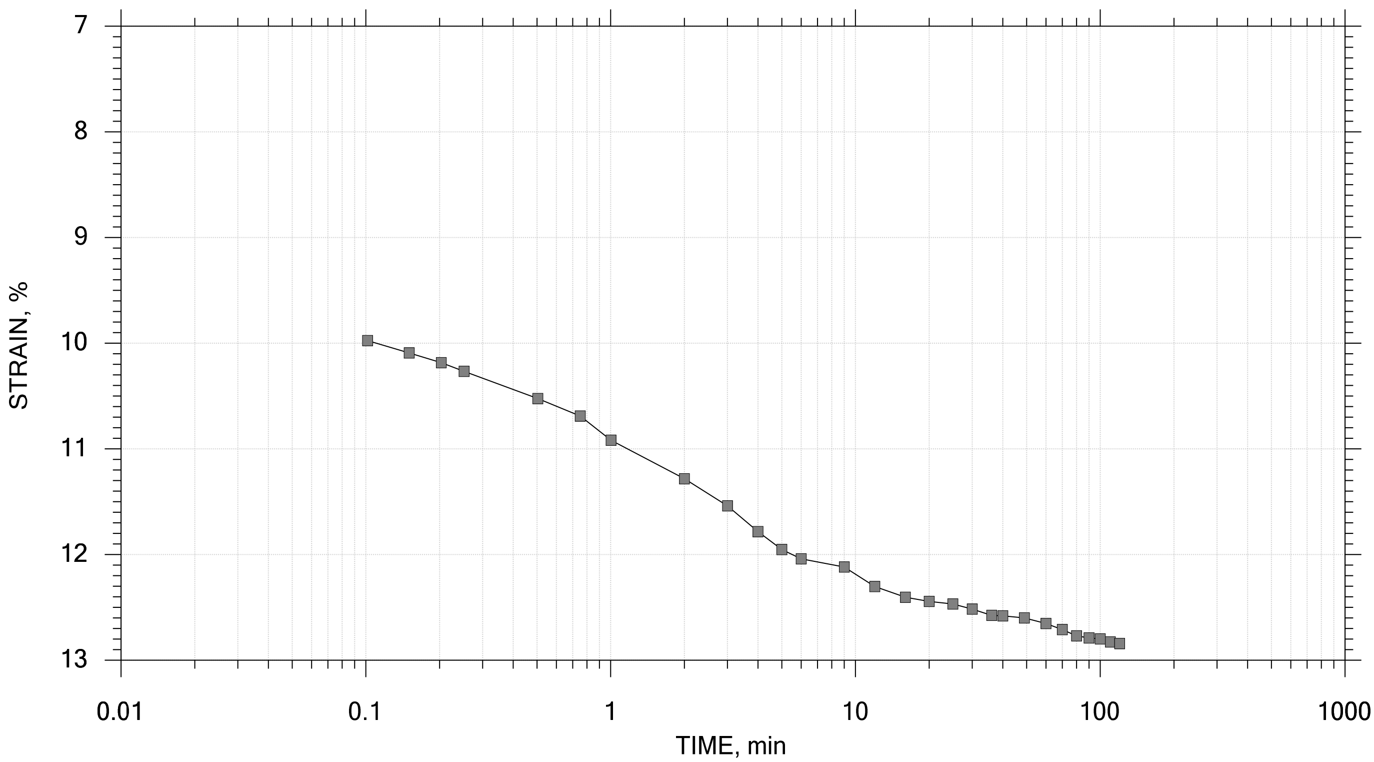
GeoTesting EXPRESS			
	Project: Beacon Island Parcel	Location: Bethlehem, NY	Project No.: GTX-306651
	Boring No.: SB-01	Tested By: md	Checked By: njh
	Sample No.: Tube	Test Date: 06/27/17	Test No.: IP-1
	Depth: 38-40 ft	Sample Type: intact	Elevation: ---
	Description: Moist, dark gray clay		
	Remarks: System JJ, Swell Pressure = 0.0739 tsf		

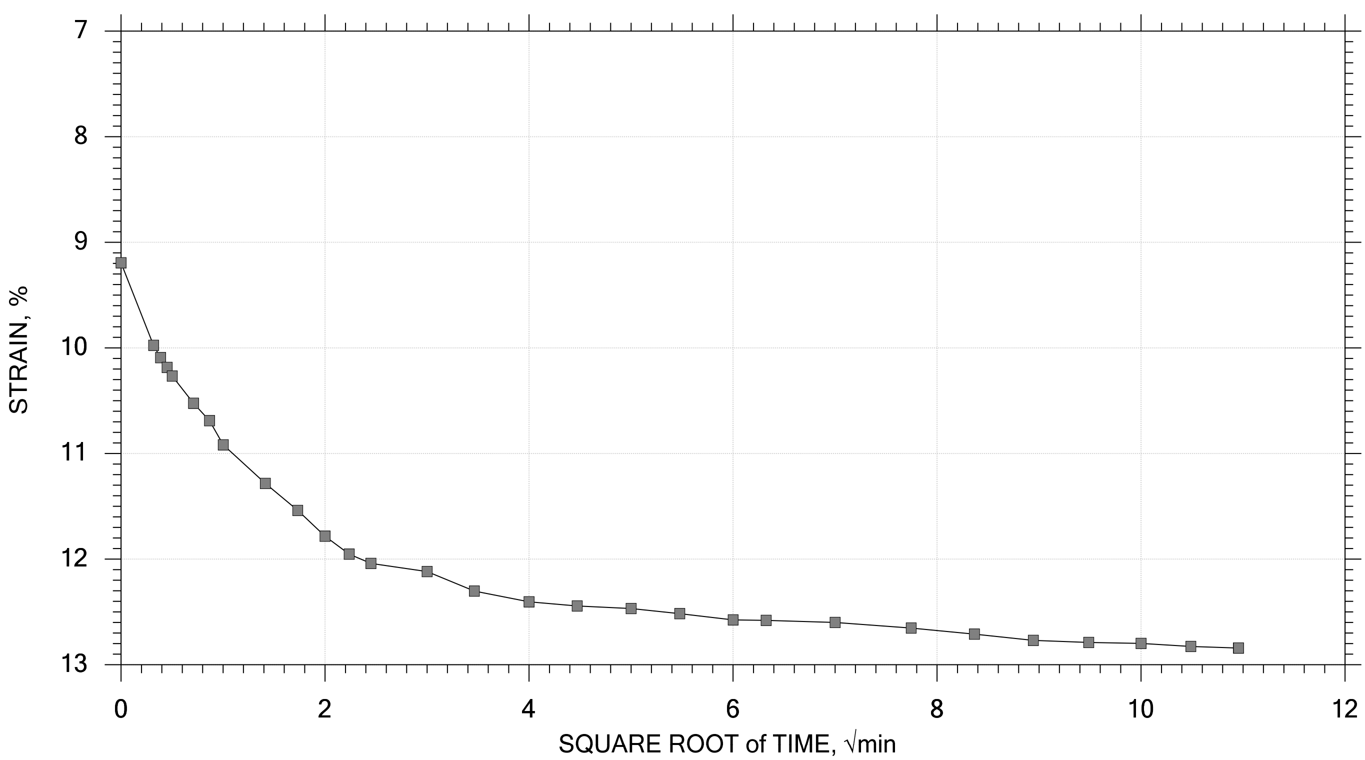
One-Dimensional Consolidation by ASTM D2435 - Method B

TIME CURVES

Constant Load Step 14 of 21

Stress: 8 tsf





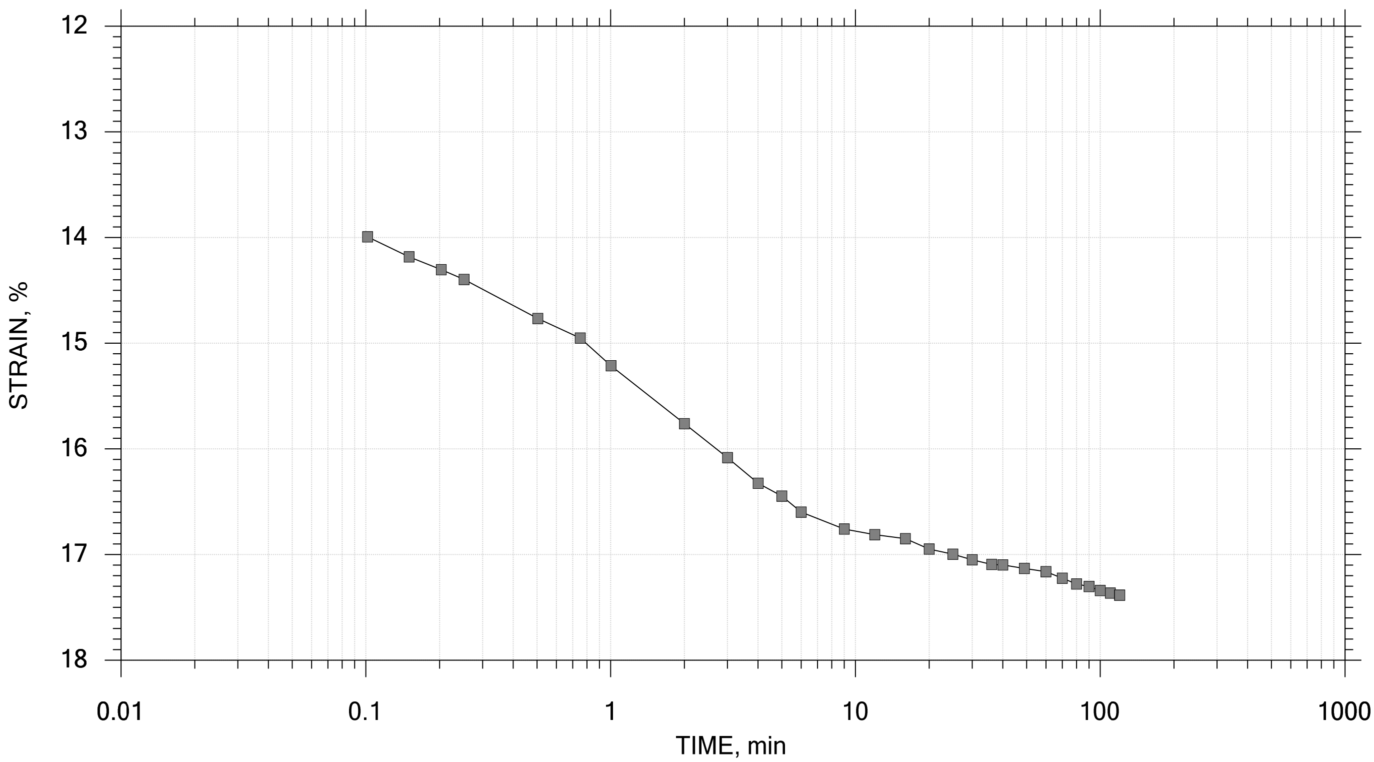
GeoTesting EXPRESS	Project: Beacon Island Parcel	Location: Bethlehem, NY	Project No.: GTX-306651
	Boring No.: SB-01	Tested By: md	Checked By: njh
	Sample No.: Tube	Test Date: 06/27/17	Test No.: IP-1
	Depth: 38-40 ft	Sample Type: intact	Elevation: ---
	Description: Moist, dark gray clay		
	Remarks: System JJ, Swell Pressure = 0.0739 tsf		

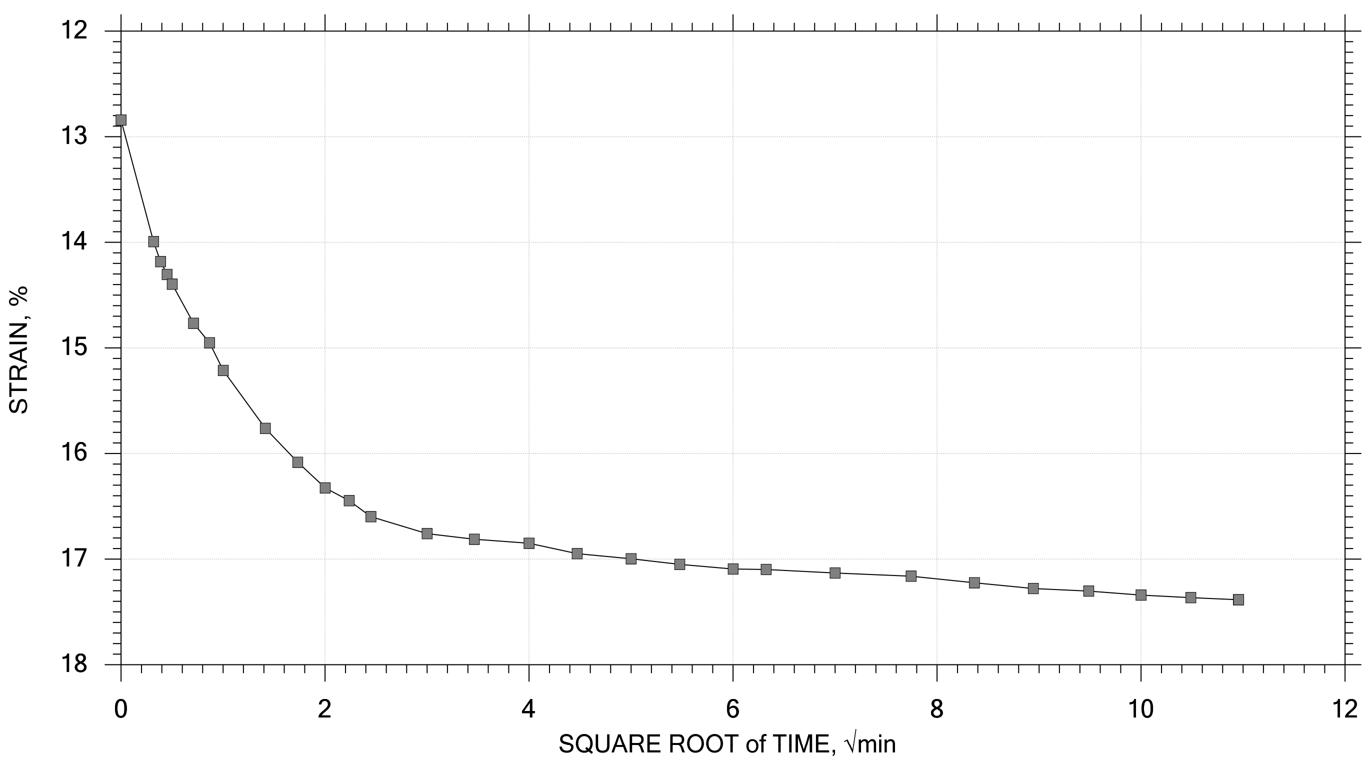
One-Dimensional Consolidation by ASTM D2435 - Method B

TIME CURVES

Constant Load Step 15 of 21

Stress: 16 tsf





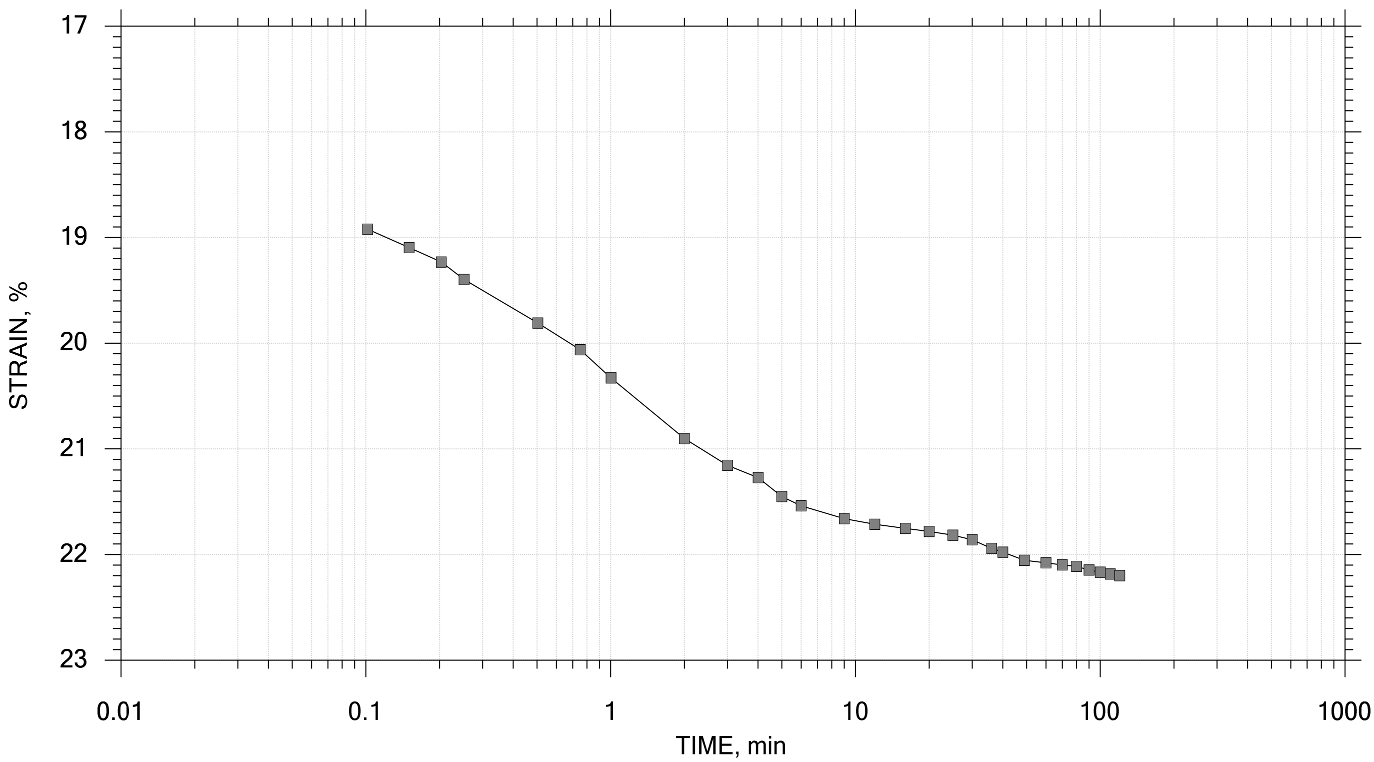
GeoTesting EXPRESS	Project: Beacon Island Parcel	Location: Bethlehem, NY	Project No.: GTX-306651
	Boring No.: SB-01	Tested By: md	Checked By: njh
	Sample No.: Tube	Test Date: 06/27/17	Test No.: IP-1
	Depth: 38-40 ft	Sample Type: intact	Elevation: ---
	Description: Moist, dark gray clay		
	Remarks: System JJ, Swell Pressure = 0.0739 tsf		

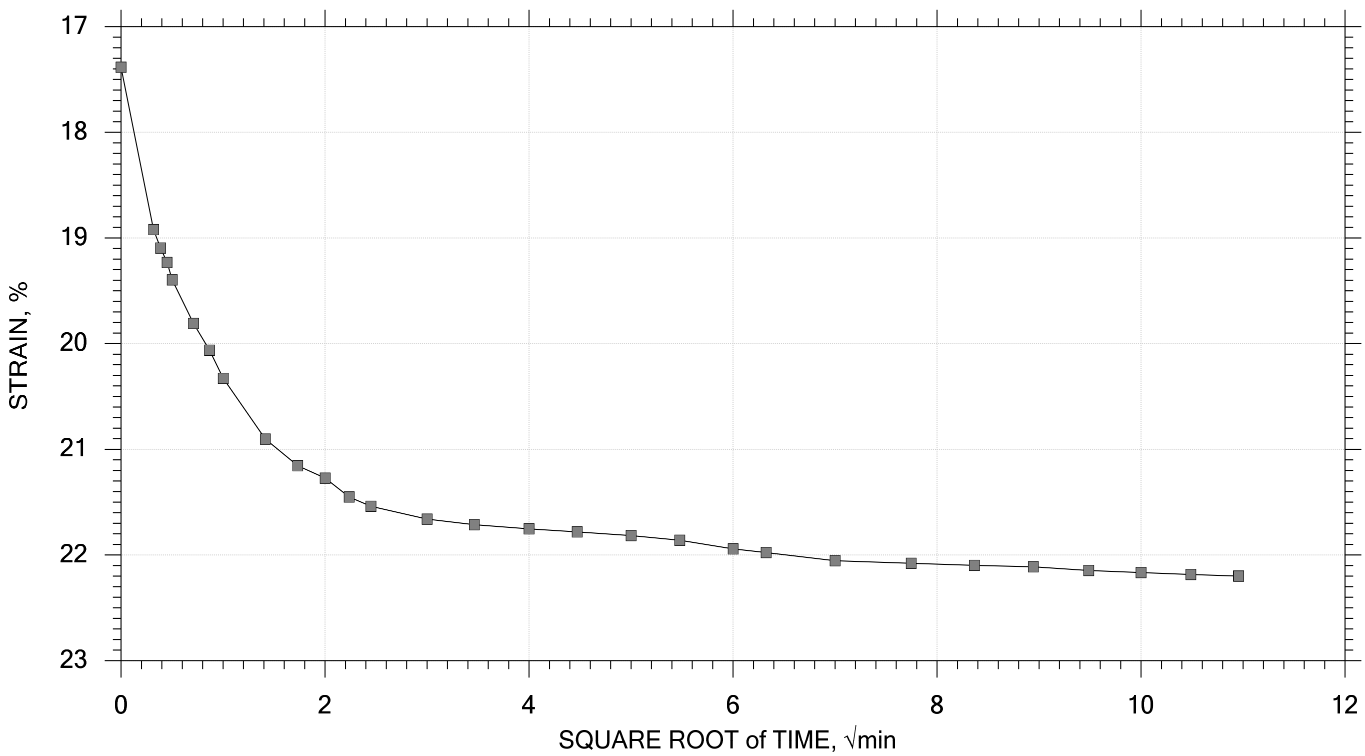
One-Dimensional Consolidation by ASTM D2435 - Method B

TIME CURVES

Constant Load Step 16 of 21

Stress: 32 tsf





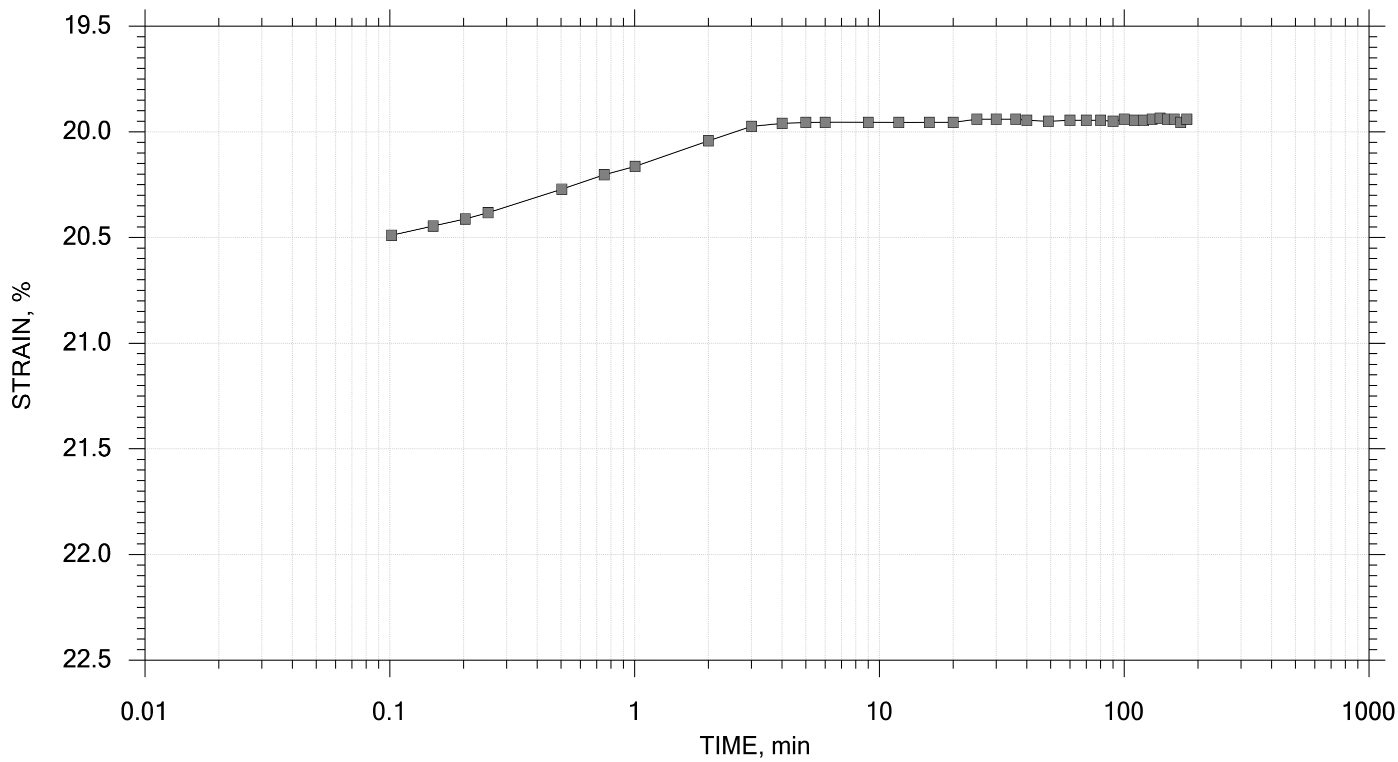
GeoTesting EXPRESS	Project: Beacon Island Parcel	Location: Bethlehem, NY	Project No.: GTX-306651
	Boring No.: SB-01	Tested By: md	Checked By: njh
	Sample No.: Tube	Test Date: 06/27/17	Test No.: IP-1
	Depth: 38-40 ft	Sample Type: intact	Elevation: ---
	Description: Moist, dark gray clay		
	Remarks: System JJ, Swell Pressure = 0.0739 tsf		

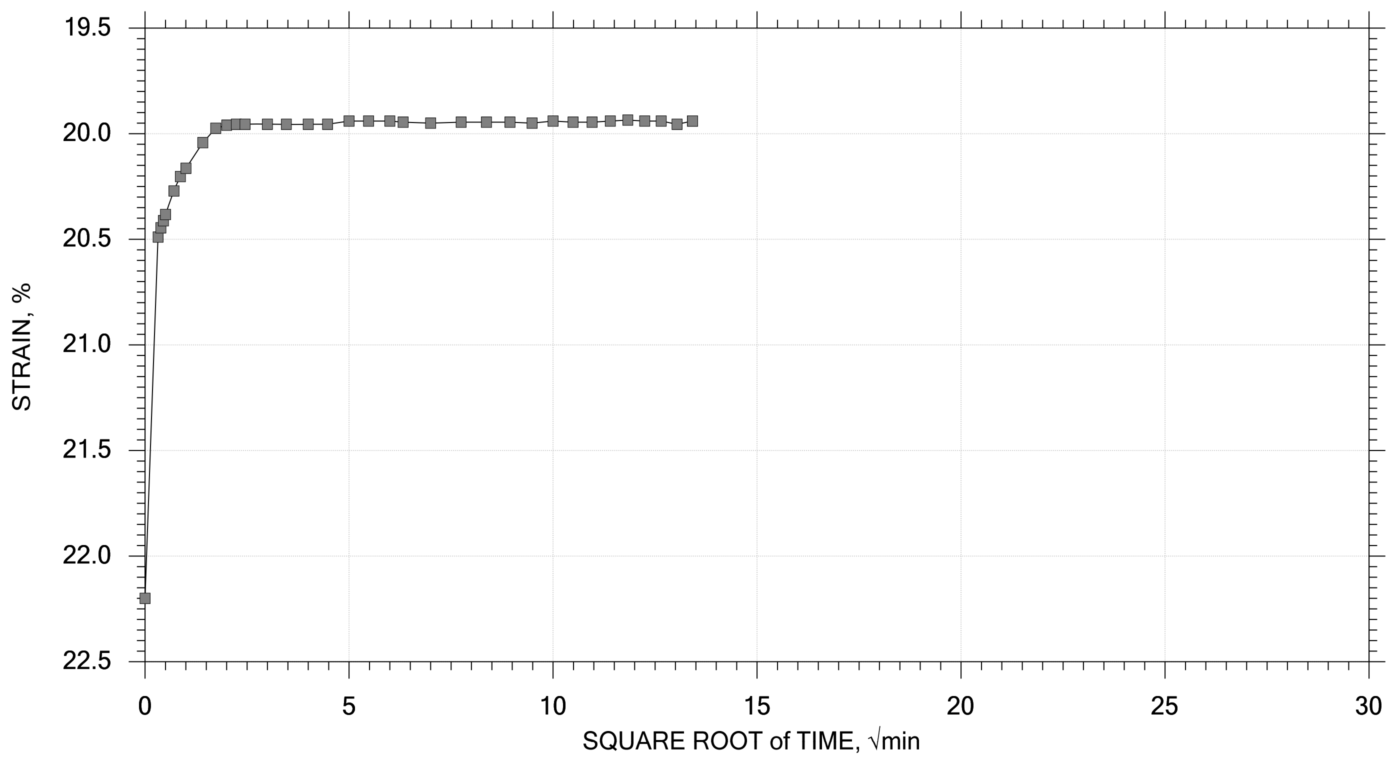
One-Dimensional Consolidation by ASTM D2435 - Method B

TIME CURVES

Constant Load Step 17 of 21

Stress: 8 tsf





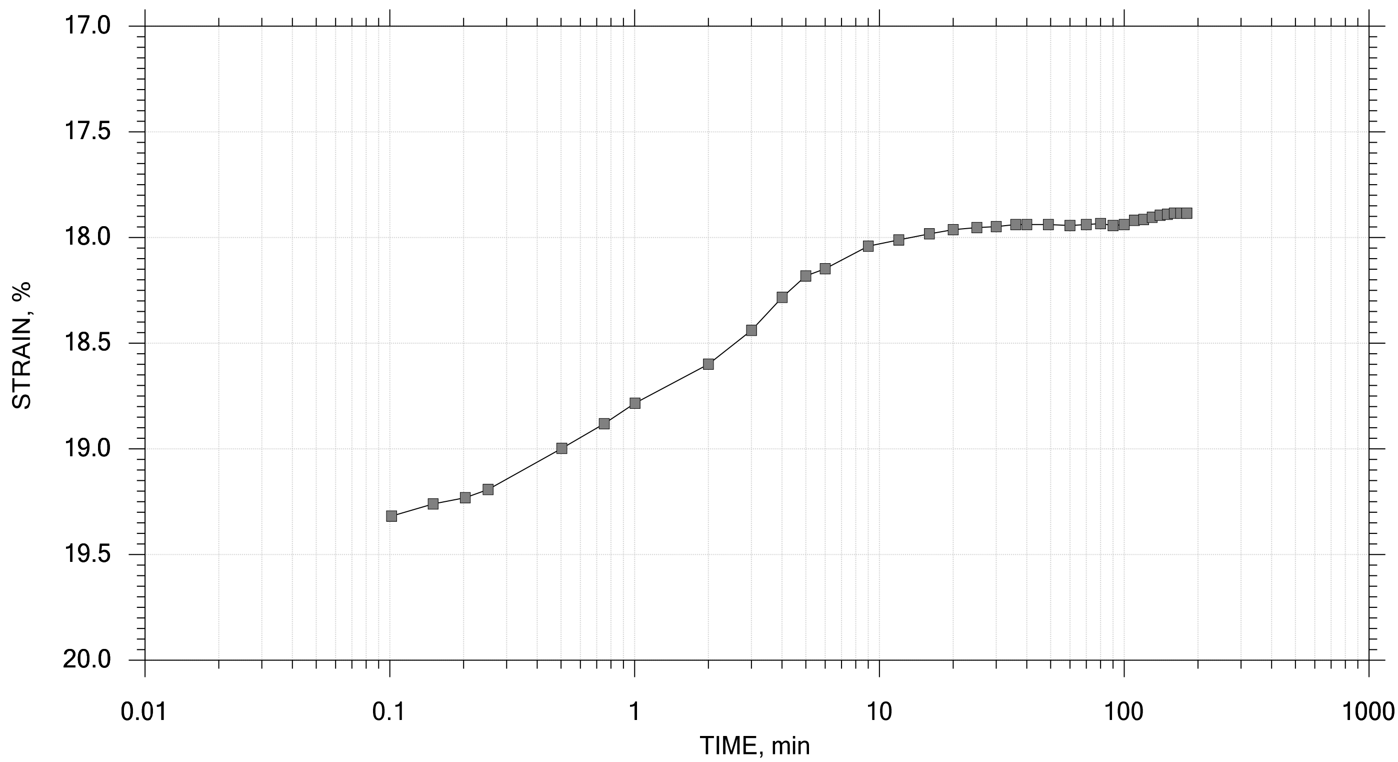
GeoTesting EXPRESS	Project: Beacon Island Parcel	Location: Bethlehem, NY	Project No.: GTX-306651
	Boring No.: SB-01	Tested By: md	Checked By: njh
	Sample No.: Tube	Test Date: 06/27/17	Test No.: IP-1
	Depth: 38-40 ft	Sample Type: intact	Elevation: ---
	Description: Moist, dark gray clay		
	Remarks: System JJ, Swell Pressure = 0.0739 tsf		

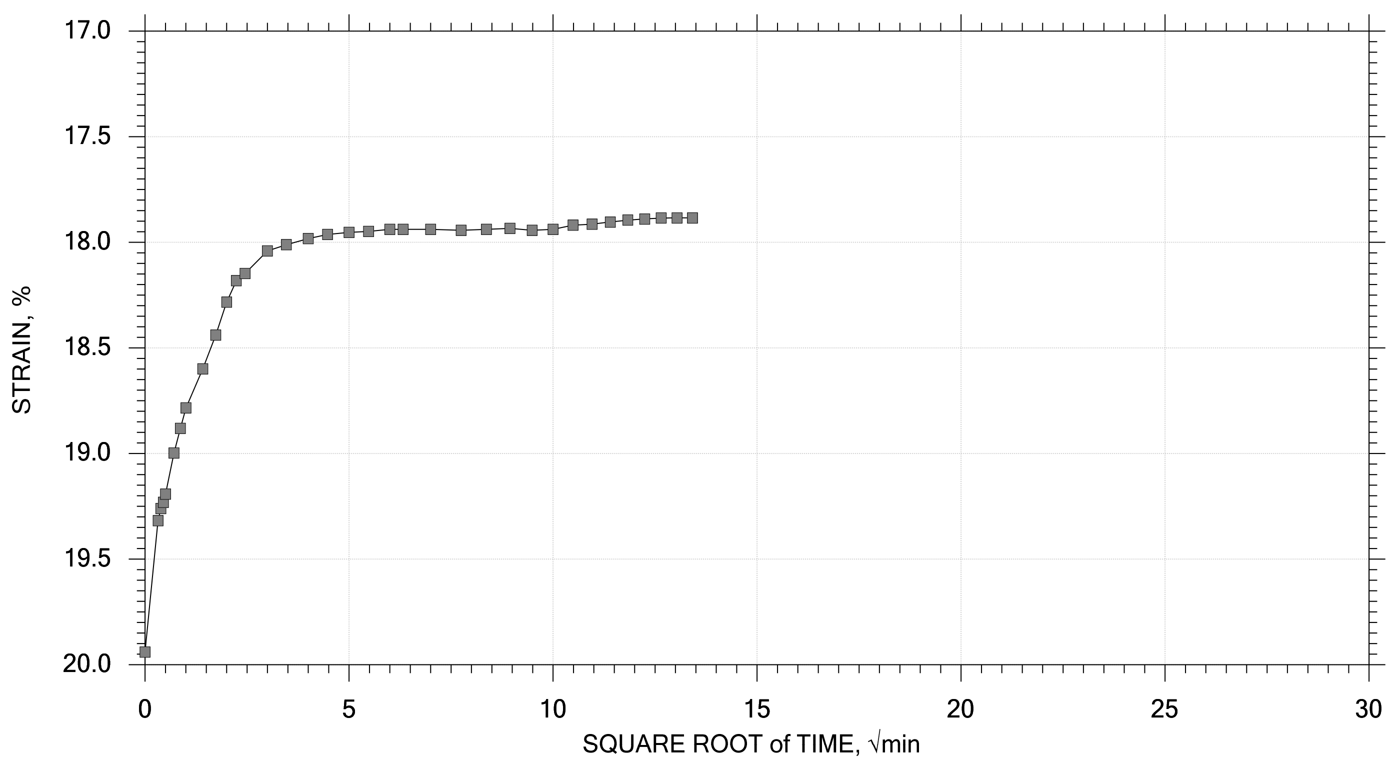
One-Dimensional Consolidation by ASTM D2435 - Method B

TIME CURVES

Constant Load Step 18 of 21

Stress: 2 tsf





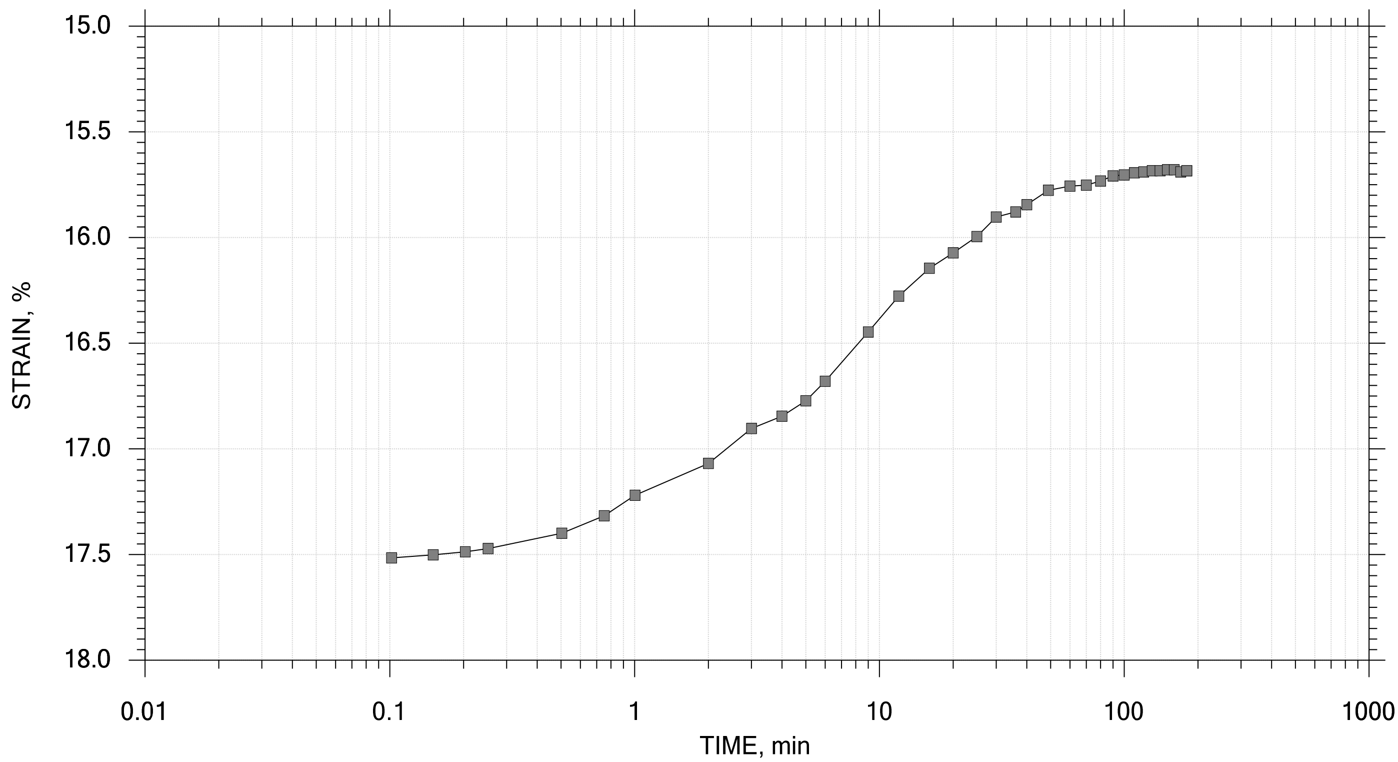
GeoTesting EXPRESS	Project: Beacon Island Parcel	Location: Bethlehem, NY	Project No.: GTX-306651
	Boring No.: SB-01	Tested By: md	Checked By: njh
	Sample No.: Tube	Test Date: 06/27/17	Test No.: IP-1
	Depth: 38-40 ft	Sample Type: intact	Elevation: ---
	Description: Moist, dark gray clay		
	Remarks: System JJ, Swell Pressure = 0.0739 tsf		

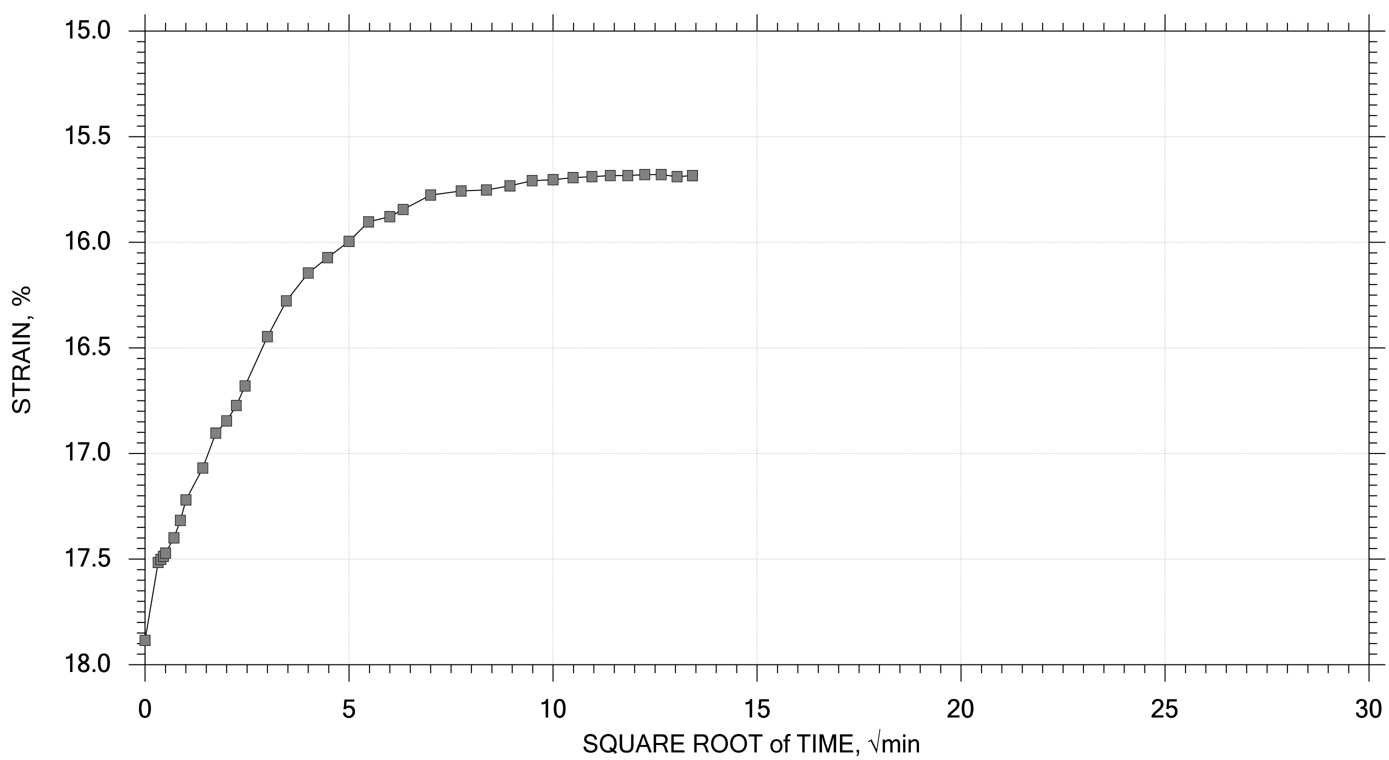
One-Dimensional Consolidation by ASTM D2435 - Method B

TIME CURVES

Constant Load Step 19 of 21

Stress: 0.5 tsf





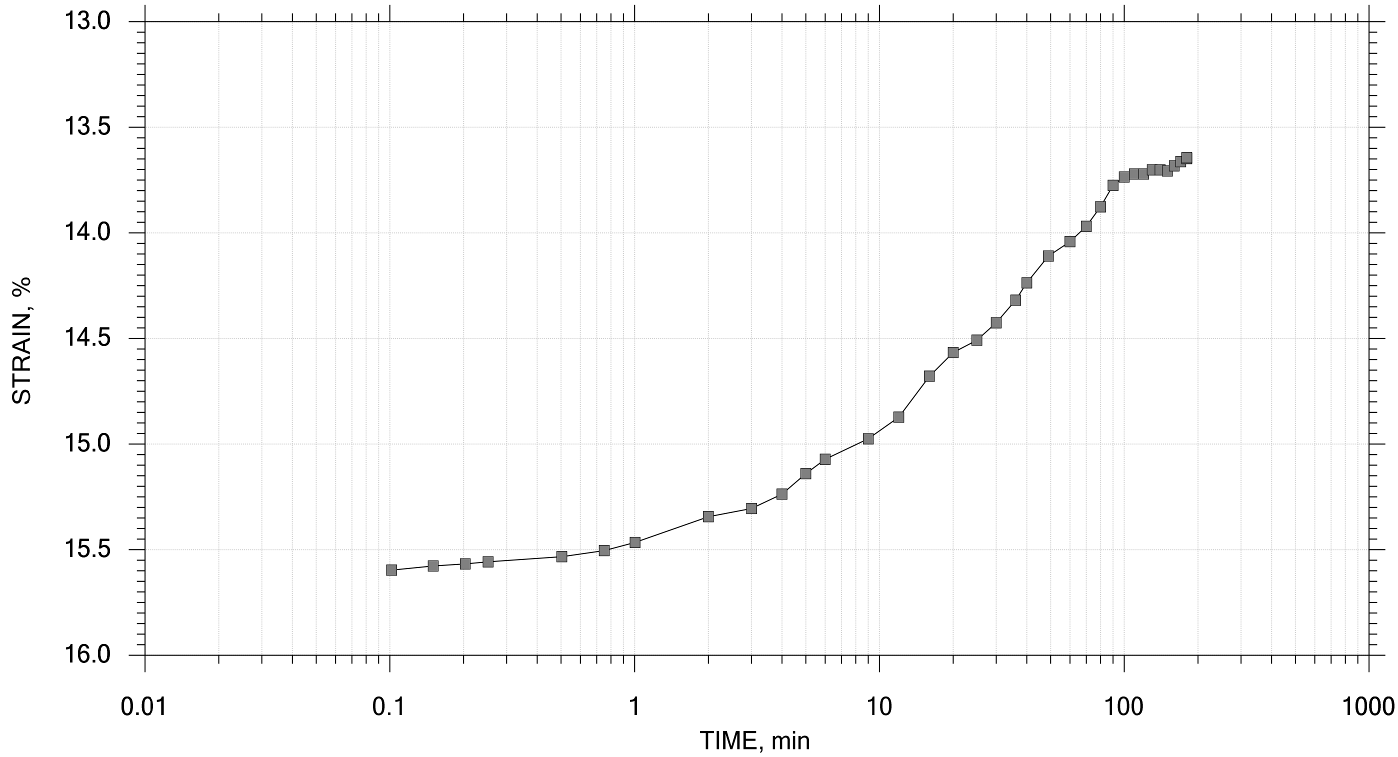
GeoTesting EXPRESS	Project: Beacon Island Parcel	Location: Bethlehem, NY	Project No.: GTX-306651
	Boring No.: SB-01	Tested By: md	Checked By: njh
	Sample No.: Tube	Test Date: 06/27/17	Test No.: IP-1
	Depth: 38-40 ft	Sample Type: intact	Elevation: ---
	Description: Moist, dark gray clay		
	Remarks: System JJ, Swell Pressure = 0.0739 tsf		

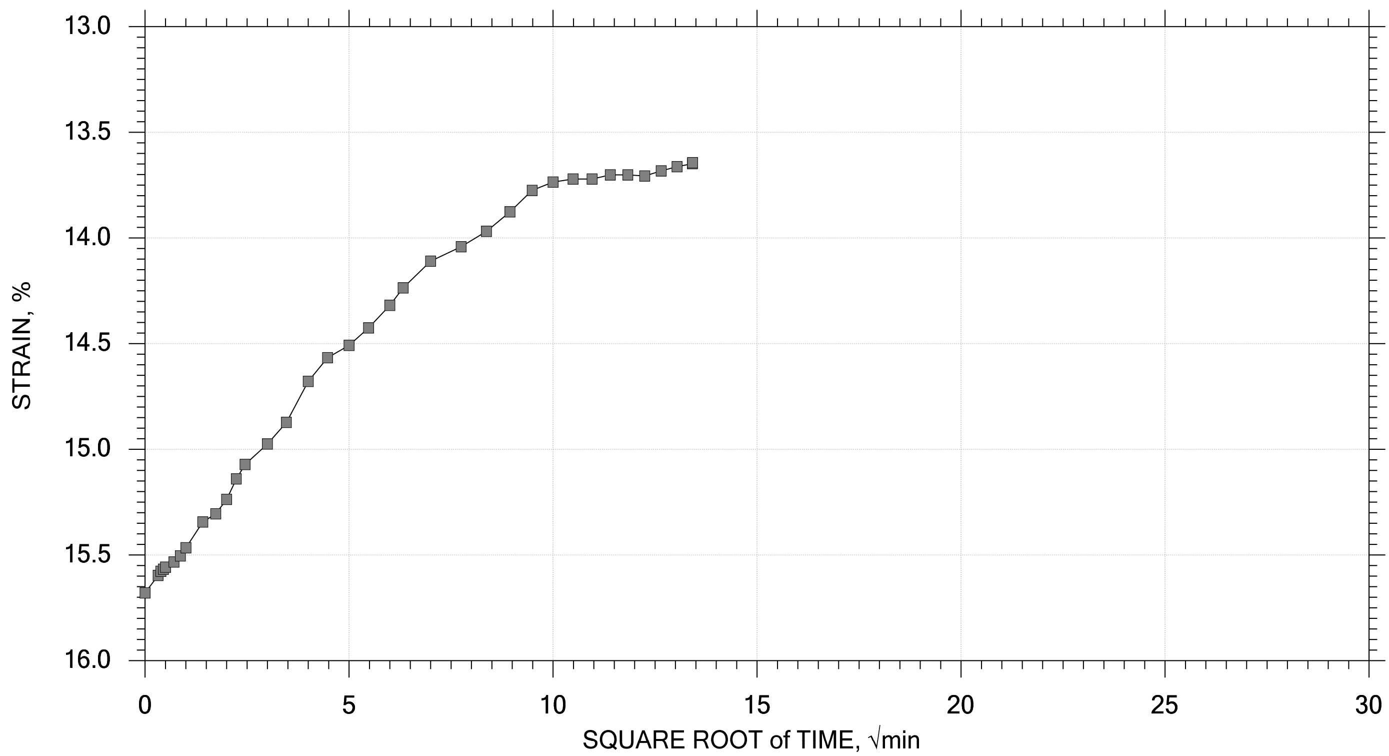
One-Dimensional Consolidation by ASTM D2435 - Method B

TIME CURVES

Constant Load Step 20 of 21

Stress: 0.125 tsf





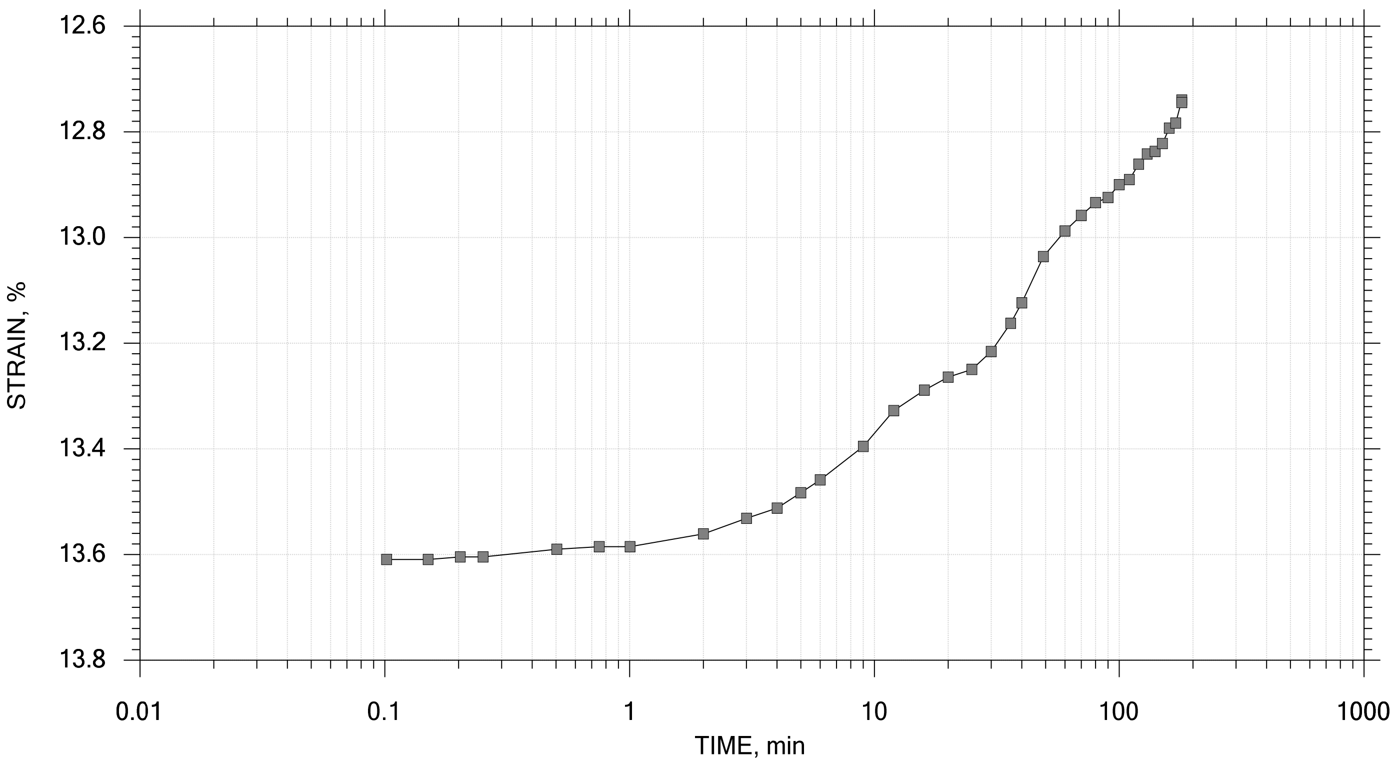
GeoTesting EXPRESS	Project: Beacon Island Parcel	Location: Bethlehem, NY	Project No.: GTX-306651
	Boring No.: SB-01	Tested By: md	Checked By: njh
	Sample No.: Tube	Test Date: 06/27/17	Test No.: IP-1
	Depth: 38-40 ft	Sample Type: intact	Elevation: ---
	Description: Moist, dark gray clay		
	Remarks: System JJ, Swell Pressure = 0.0739 tsf		

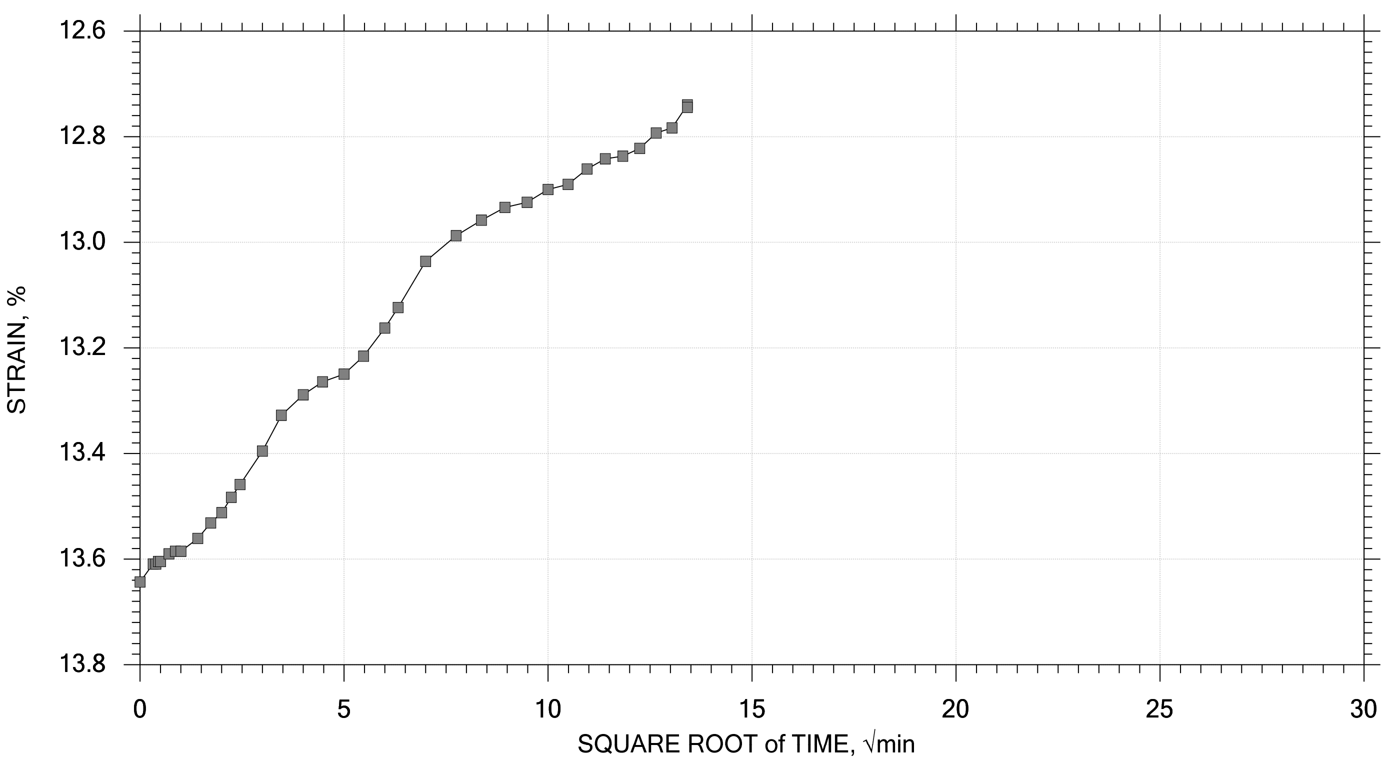
One-Dimensional Consolidation by ASTM D2435 - Method B

TIME CURVES

Constant Load Step 21 of 21

Stress: 0.0625 tsf

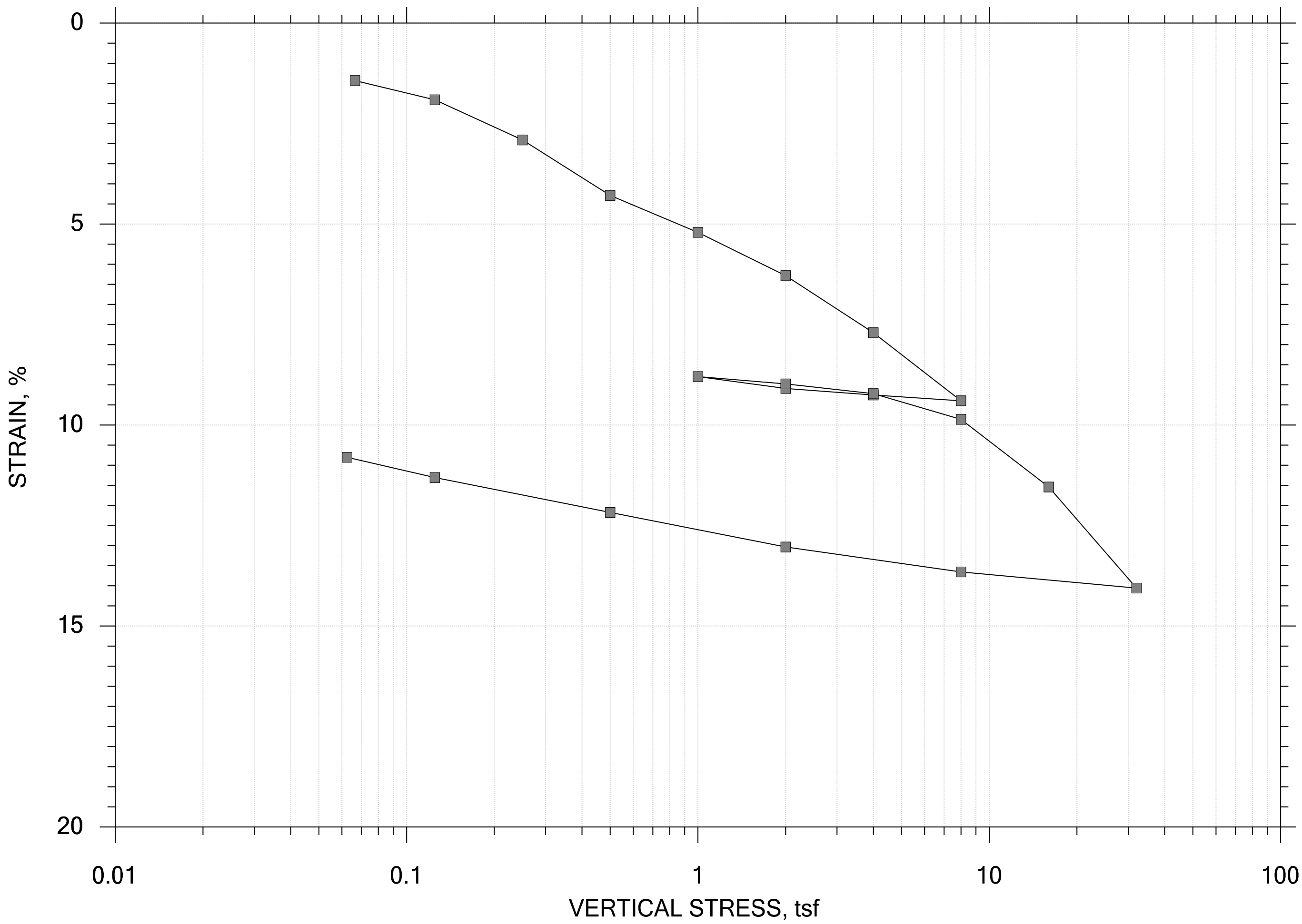


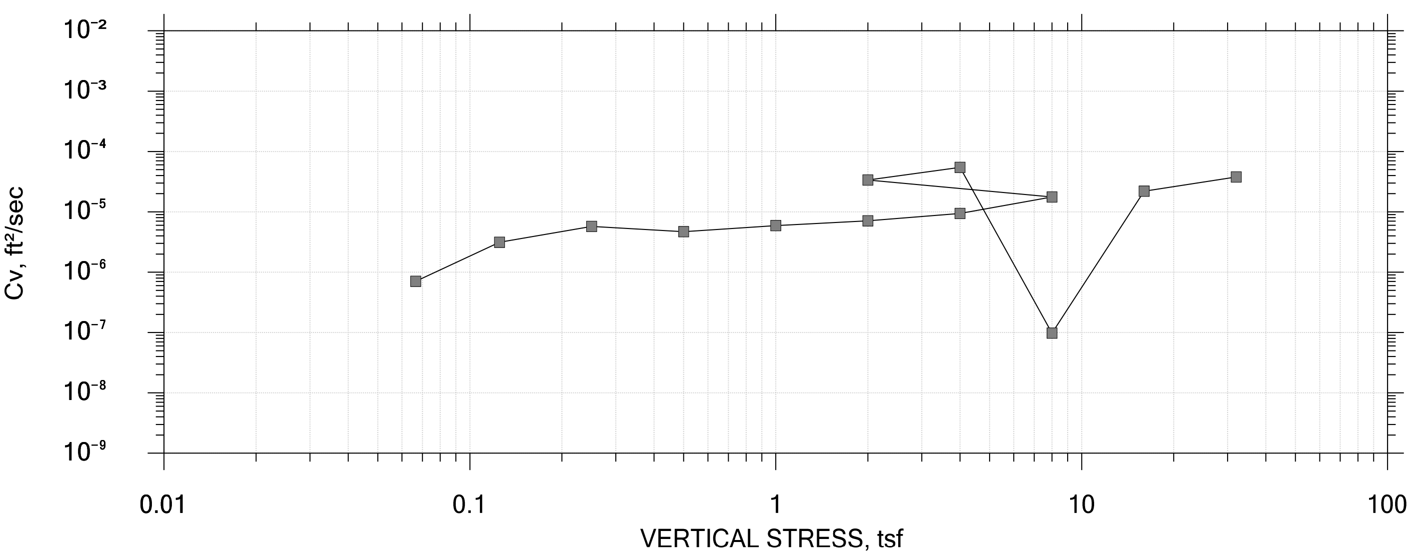


GeoTesting EXPRESS	Project: Beacon Island Parcel	Location: Bethlehem, NY	Project No.: GTX-306651
	Boring No.: SB-01	Tested By: md	Checked By: njh
	Sample No.: Tube	Test Date: 06/27/17	Test No.: IP-1
	Depth: 38-40 ft	Sample Type: intact	Elevation: ---
	Description: Moist, dark gray clay		
	Remarks: System JJ, Swell Pressure = 0.0739 tsf		

One-Dimensional Consolidation by ASTM D2435 - Method B

SUMMARY REPORT

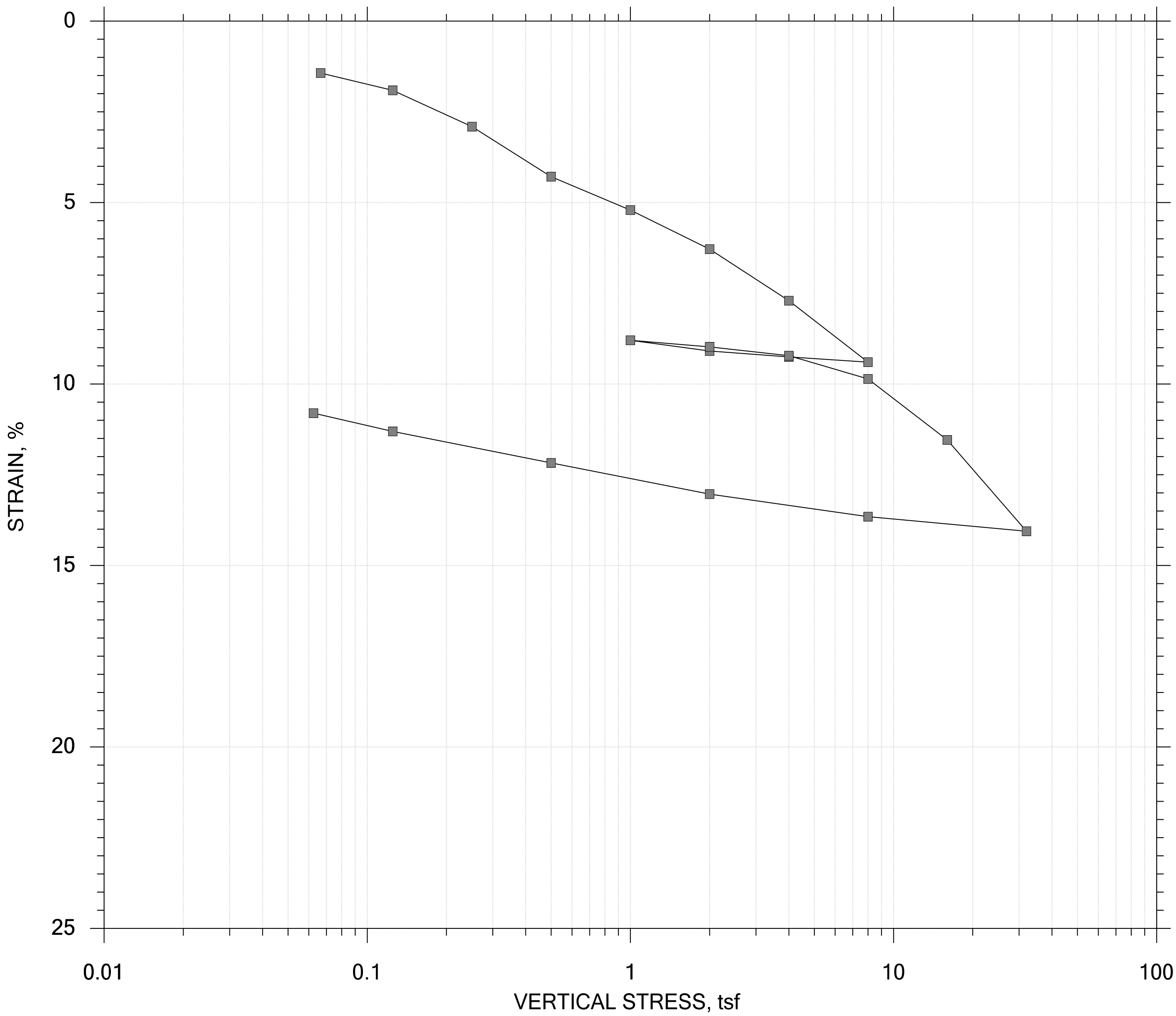




GeoTesting EXPRESS	Project: Beacon Island Parcel	Location: Bethlehem, NY	Project No.: GTX-306651
	Boring No.: SB-01	Tested By: md	Checked By: njh
	Sample No.: Tube	Test Date: 06/27/17	Test No.: IP-2
	Depth: 58-60 ft	Sample Type: intact	Elevation: ---
	Description: Moist, dark gray clay		
	Remarks: System S, Swell Pressure = 0.0665 tsf		
	Displacement at End of Increment		

One-Dimensional Consolidation by ASTM D2435 - Method B

SUMMARY REPORT



					Before Test	After Test
Current Vertical Effective Stress: ---				Water Content, %	25.13	19.01
Preconsolidation Stress: ---				Dry Unit Weight, pcf	102.02	113.35
Compression Ratio: ---				Saturation, %	99.99	100.00
Diameter: 2.5 in		Height: 1 in		Void Ratio	0.70	0.53
LL: 38	PL: 24	PI: 14	GS: 2.77			

GeoTesting EXPRESS	Project: Beacon Island Parcel	Location: Bethlehem, NY	Project No.: GTX-306651
	Boring No.: SB-01	Tested By: md	Checked By: njh
	Sample No.: Tube	Test Date: 06/27/17	Test No.: IP-2
	Depth: 58-60 ft	Sample Type: intact	Elevation: ---
	Description: Moist, dark gray clay		
	Remarks: System S, Swell Pressure = 0.0665 tsf		
	Displacement at End of Increment		

One-Dimensional Consolidation by ASTM D2435 - Method B

Project: Beacon Island Parcel
Location: Bethlehem, NY
Project No.: GTX-306651
Boring No.: SB-01
Tested By: md
Checked By: njh
Sample No.: Tube
Test Date: 06/27/17
Depth: 58-60 ft
Test No.: IP-2
Sample Type: intact
Elevation: ---

Soil Description: Moist, dark gray clay
Remarks: System S, Swell Pressure = 0.0665 tsf

Estimated Specific Gravity: 2.77
Liquid Limit: 38
Specimen Diameter: 2.50 in
Initial Void Ratio: 0.697
Plastic Limit: 24
Initial Height: 1.00 in
Final Void Ratio: 0.527
Plasticity Index: 14
Final Height: 0.90 in

	Before Consolidation		After Consolidation	
	Trimmings	Specimen+Ring	Specimen+Ring	Trimmings
Container ID	C-1789	RING		C-1091
Wt. Container + Wet Soil, gm	221.53	275.93	267.89	163.39
Wt. Container + Dry Soil, gm	178.06	242.89	242.89	138.61
Wt. Container, gm	8.3200	111.44	111.44	8.2900
Wt. Dry Soil, gm	169.74	131.45	131.45	130.32
Water Content, %	25.61	25.13	19.01	19.01
Void Ratio	---	0.697	0.527	---
Degree of Saturation, %	---	99.99	100.00	---
Dry Unit Weight, pcf	---	102.02	113.35	---

Note: Specific Gravity and Void Ratios are calculated assuming the degree of saturation equals 100% at the end of the test. Therefore, values may not represent actual values for the specimen.

One-Dimensional Consolidation by ASTM D2435 - Method B

Project: Beacon Island Parcel
Location: Bethlehem, NY
Project No.: GTX-306651
Boring No.: SB-01
Tested By: md
Checked By: njh
Sample No.: Tube
Test Date: 06/27/17
Depth: 58-60 ft
Test No.: IP-2
Sample Type: intact
Elevation: ---

Soil Description: Moist, dark gray clay
Remarks: System S, Swell Pressure = 0.0665 tsf

Displacement at End of Increment

	Applied Stress tsf	Final Displacement in	Void Ratio	Strain at End %	Sq.Rt T90 min	Cv ft²/sec	Mv 1/tsf	k ft/day
1	0.0665	0.01430	0.673	1.43	30.414	7.95e-007	2.15e-001	4.61e-004
2	0.125	0.01907	0.665	1.91	8.731	2.72e-006	8.14e-002	5.97e-004
3	0.250	0.02909	0.648	2.91	4.351	5.37e-006	8.01e-002	1.16e-003
4	0.500	0.04284	0.624	4.28	4.292	5.31e-006	5.50e-002	7.89e-004
5	1.00	0.05208	0.609	5.21	4.057	5.49e-006	1.85e-002	2.73e-004
6	2.00	0.06283	0.590	6.28	2.754	7.92e-006	1.07e-002	2.29e-004
7	4.00	0.07705	0.566	7.70	2.052	1.03e-005	7.11e-003	1.98e-004
8	8.00	0.09396	0.538	9.40	1.424	1.44e-005	4.23e-003	1.64e-004
9	4.00	0.09250	0.540	9.25	0.504	4.01e-005	3.66e-004	3.95e-005
10	2.00	0.09090	0.543	9.09	0.583	3.47e-005	7.99e-004	7.49e-005
11	1.00	0.08793	0.548	8.79	1.188	1.71e-005	2.97e-003	1.37e-004
12	2.00	0.08976	0.545	8.98	0.659	3.09e-005	1.83e-003	1.52e-004
13	4.00	0.09218	0.541	9.22	0.477	4.25e-005	1.21e-003	1.39e-004
14	8.00	0.09858	0.530	9.86	198.401	1.01e-007	1.60e-003	4.37e-007
15	16.0	0.1154	0.501	11.5	1.126	1.74e-005	2.10e-003	9.85e-005
16	32.0	0.1406	0.459	14.1	0.603	3.09e-005	1.57e-003	1.31e-004
17	8.00	0.1365	0.465	13.7	0.383	4.75e-005	1.68e-004	2.15e-005
18	2.00	0.1303	0.476	13.0	0.592	3.12e-005	1.04e-003	8.71e-005
19	0.500	0.1217	0.490	12.2	4.327	4.33e-006	5.73e-003	6.69e-005
20	0.125	0.1130	0.505	11.3	17.272	1.11e-006	2.32e-002	6.92e-005
21	0.0625	0.1080	0.514	10.8	32.445	5.98e-007	8.05e-002	1.30e-004

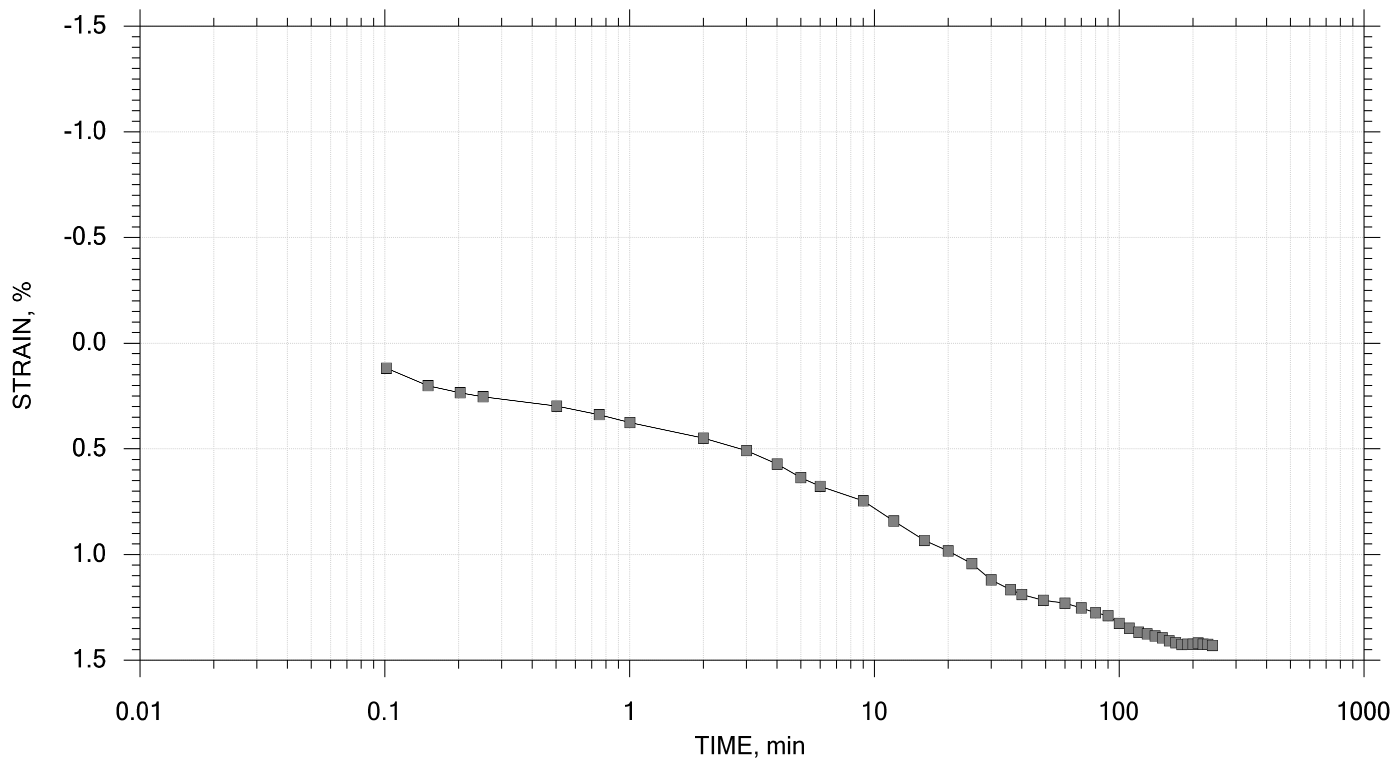
	Applied Stress tsf	Final Displacement in	Void Ratio	Strain at End %	Log T50 min	Cv ft²/sec	Mv 1/tsf	k ft/day	Ca %
1	0.0665	0.01430	0.673	1.43	8.932	6.29e-007	2.15e-001	3.65e-004	0.00e+000
2	0.125	0.01907	0.665	1.91	1.716	3.21e-006	8.14e-002	7.05e-004	0.00e+000
3	0.250	0.02909	0.648	2.91	0.000	0.00e+000	8.01e-002	0.00e+000	0.00e+000
4	0.500	0.04284	0.624	4.28	0.000	0.00e+000	5.50e-002	0.00e+000	0.00e+000
5	1.00	0.05208	0.609	5.21	0.871	5.94e-006	1.85e-002	2.96e-004	0.00e+000
6	2.00	0.06283	0.590	6.28	0.778	6.51e-006	1.07e-002	1.89e-004	0.00e+000
7	4.00	0.07705	0.566	7.70	0.615	8.02e-006	7.11e-003	1.54e-004	0.00e+000
8	8.00	0.09396	0.538	9.40	0.229	2.08e-005	4.23e-003	2.37e-004	0.00e+000
9	4.00	0.09250	0.540	9.25	0.000	0.00e+000	3.66e-004	0.00e+000	0.00e+000
10	2.00	0.09090	0.543	9.09	0.000	0.00e+000	7.99e-004	0.00e+000	0.00e+000
11	1.00	0.08793	0.548	8.79	0.000	0.00e+000	2.97e-003	0.00e+000	0.00e+000
12	2.00	0.08976	0.545	8.98	0.000	0.00e+000	1.83e-003	0.00e+000	0.00e+000
13	4.00	0.09218	0.541	9.22	0.000	0.00e+000	1.21e-003	0.00e+000	0.00e+000
14	8.00	0.09858	0.530	9.86	0.000	0.00e+000	1.60e-003	0.00e+000	0.00e+000
15	16.0	0.1154	0.501	11.5	0.191	2.38e-005	2.10e-003	1.35e-004	0.00e+000
16	32.0	0.1406	0.459	14.1	0.109	3.96e-005	1.57e-003	1.68e-004	0.00e+000
17	8.00	0.1365	0.465	13.7	0.000	0.00e+000	1.68e-004	0.00e+000	0.00e+000
18	2.00	0.1303	0.476	13.0	0.000	0.00e+000	1.04e-003	0.00e+000	0.00e+000
19	0.500	0.1217	0.490	12.2	1.216	3.58e-006	5.73e-003	5.53e-005	0.00e+000
20	0.125	0.1130	0.505	11.3	3.019	1.47e-006	2.32e-002	9.19e-005	0.00e+000
21	0.0625	0.1080	0.514	10.8	10.661	4.23e-007	8.05e-002	9.18e-005	0.00e+000

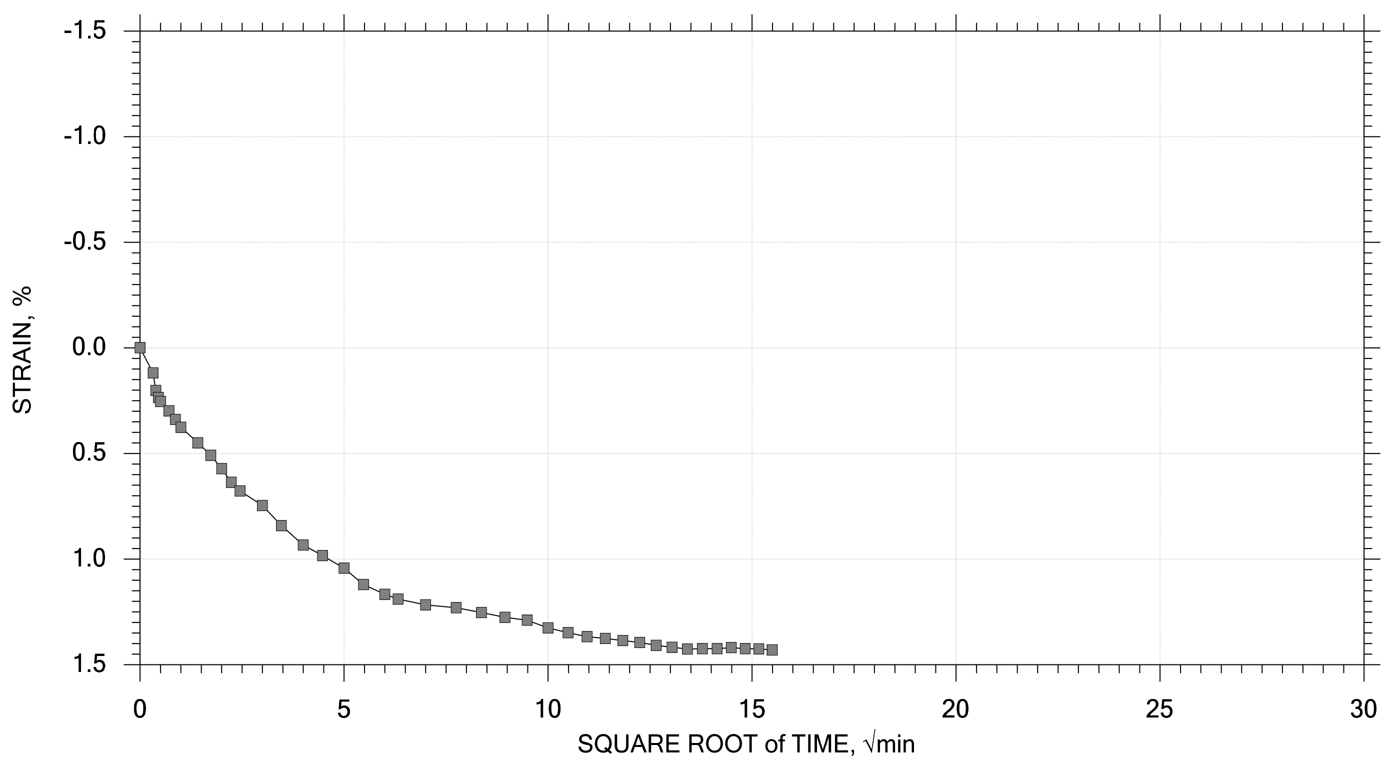
One-Dimensional Consolidation by ASTM D2435 - Method B

TIME CURVES

Constant Volume Step 1 of 21

Stress: 0.066485 tsf





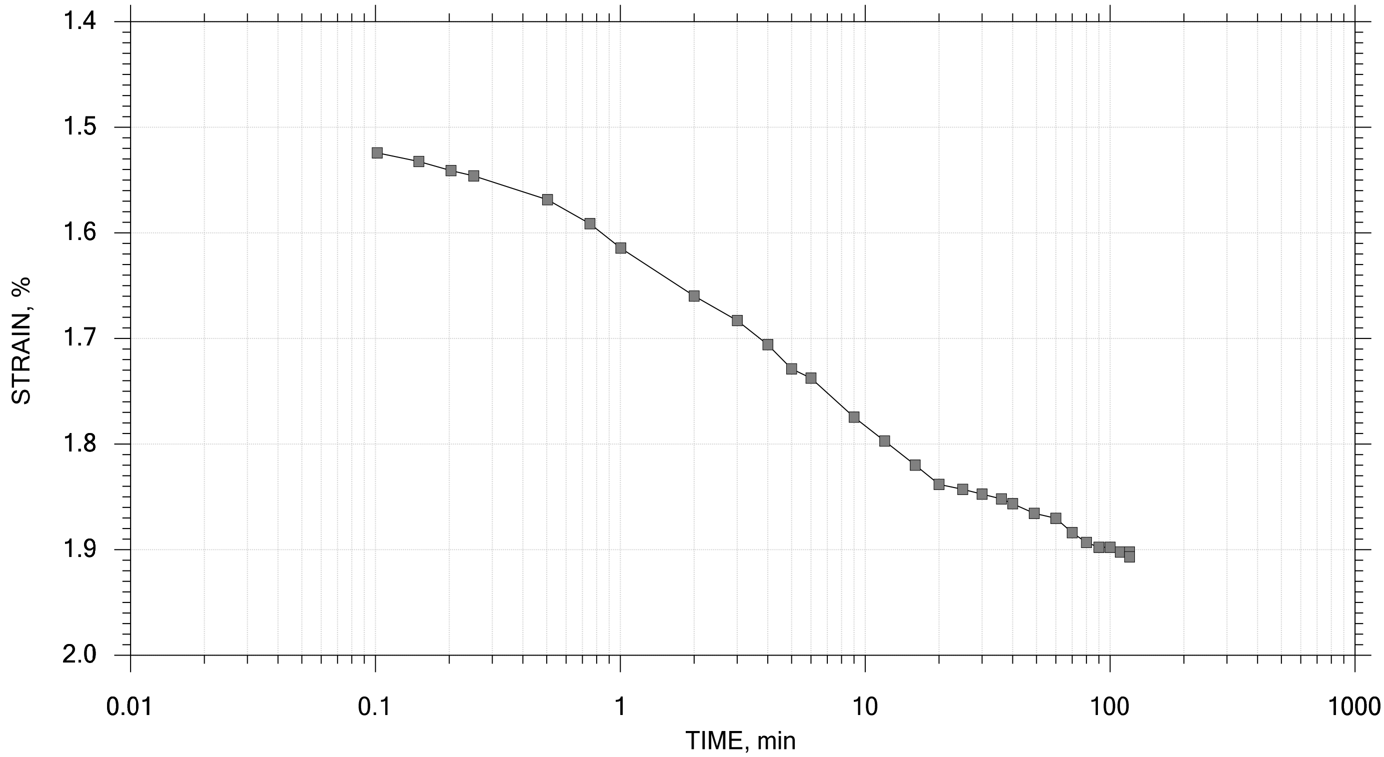
GeoTesting EXPRESS	Project: Beacon Island Parcel	Location: Bethlehem, NY	Project No.: GTX-306651
	Boring No.: SB-01	Tested By: md	Checked By: njh
	Sample No.: Tube	Test Date: 06/27/17	Test No.: IP-2
	Depth: 58-60 ft	Sample Type: intact	Elevation: ---
	Description: Moist, dark gray clay		
	Remarks: System S, Swell Pressure = 0.0665 tsf		

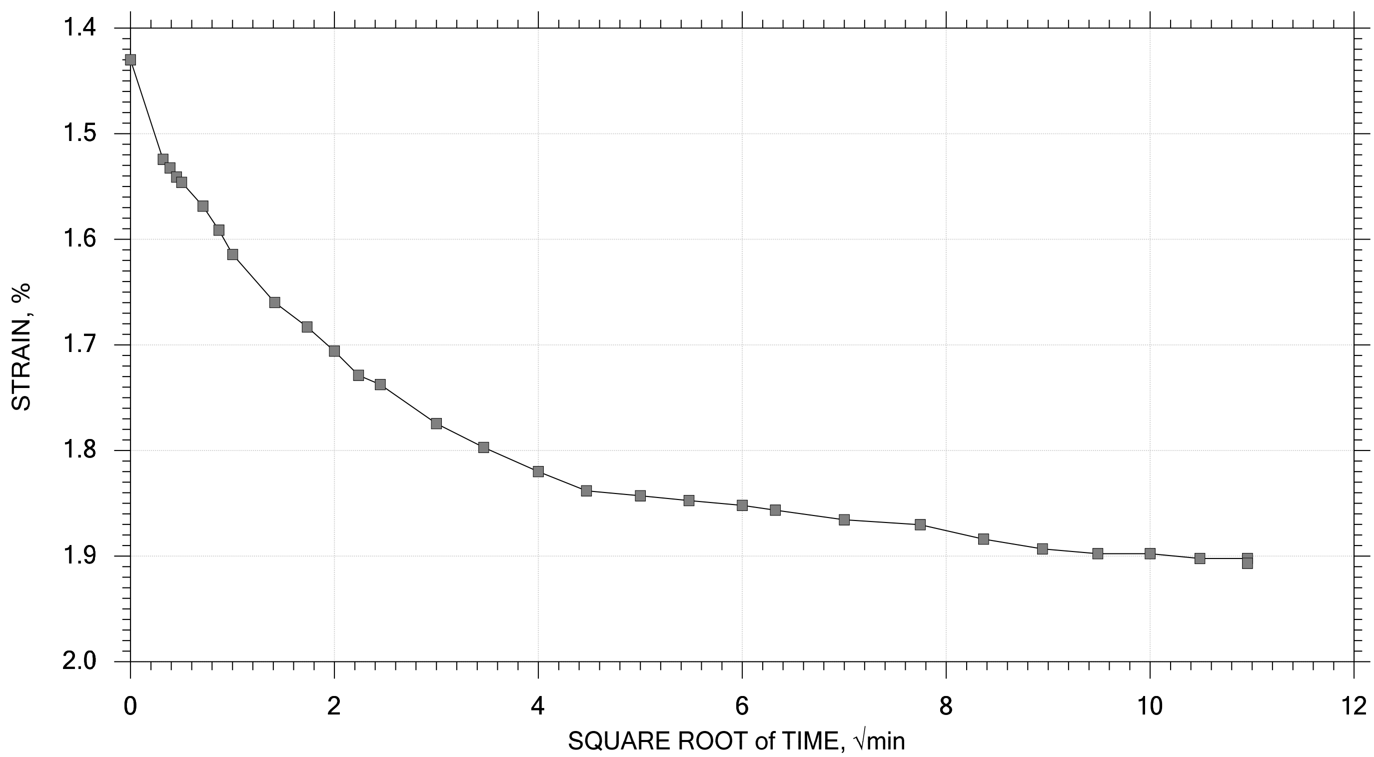
One-Dimensional Consolidation by ASTM D2435 - Method B

TIME CURVES

Constant Load Step 2 of 21

Stress: 0.125 tsf





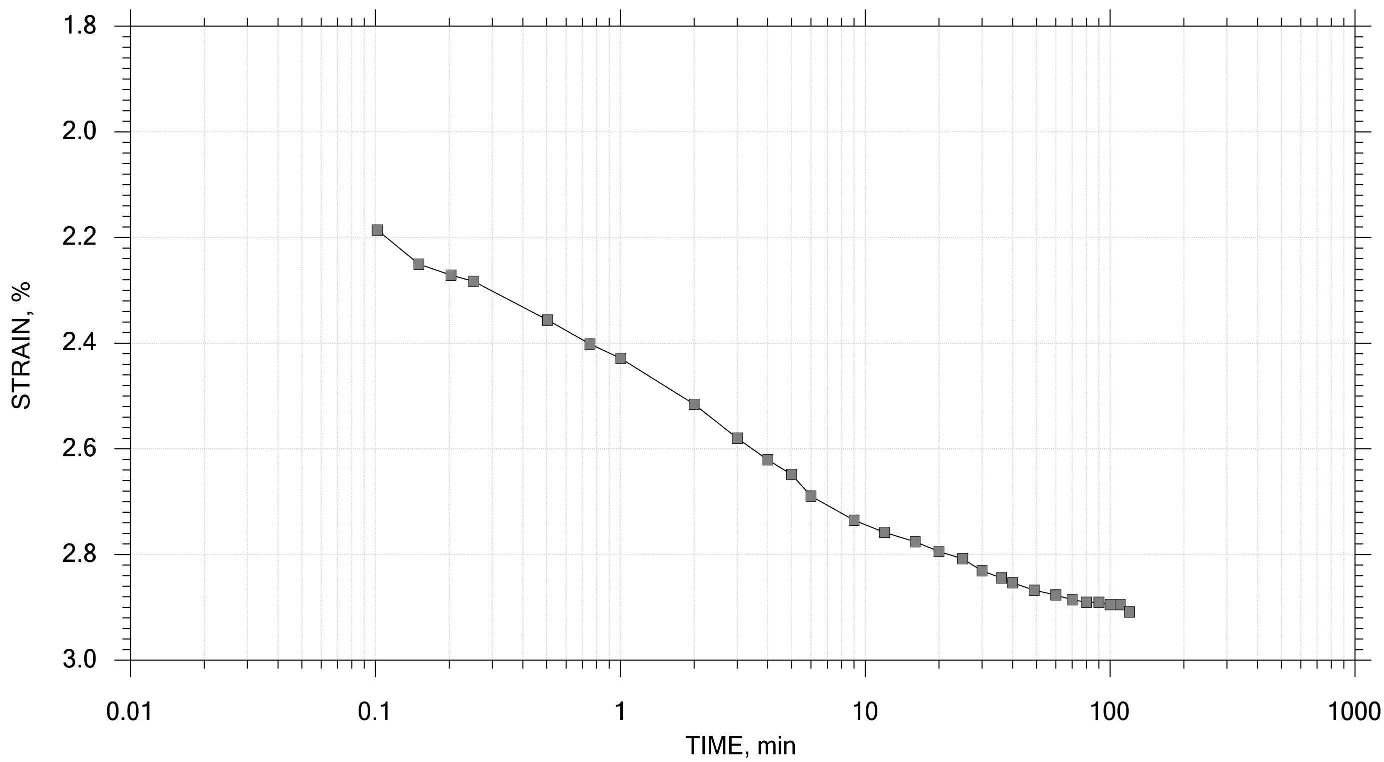
GeoTesting EXPRESS	Project: Beacon Island Parcel	Location: Bethlehem, NY	Project No.: GTX-306651
	Boring No.: SB-01	Tested By: md	Checked By: njh
	Sample No.: Tube	Test Date: 06/27/17	Test No.: IP-2
	Depth: 58-60 ft	Sample Type: intact	Elevation: ---
	Description: Moist, dark gray clay		
	Remarks: System S, Swell Pressure = 0.0665 tsf		

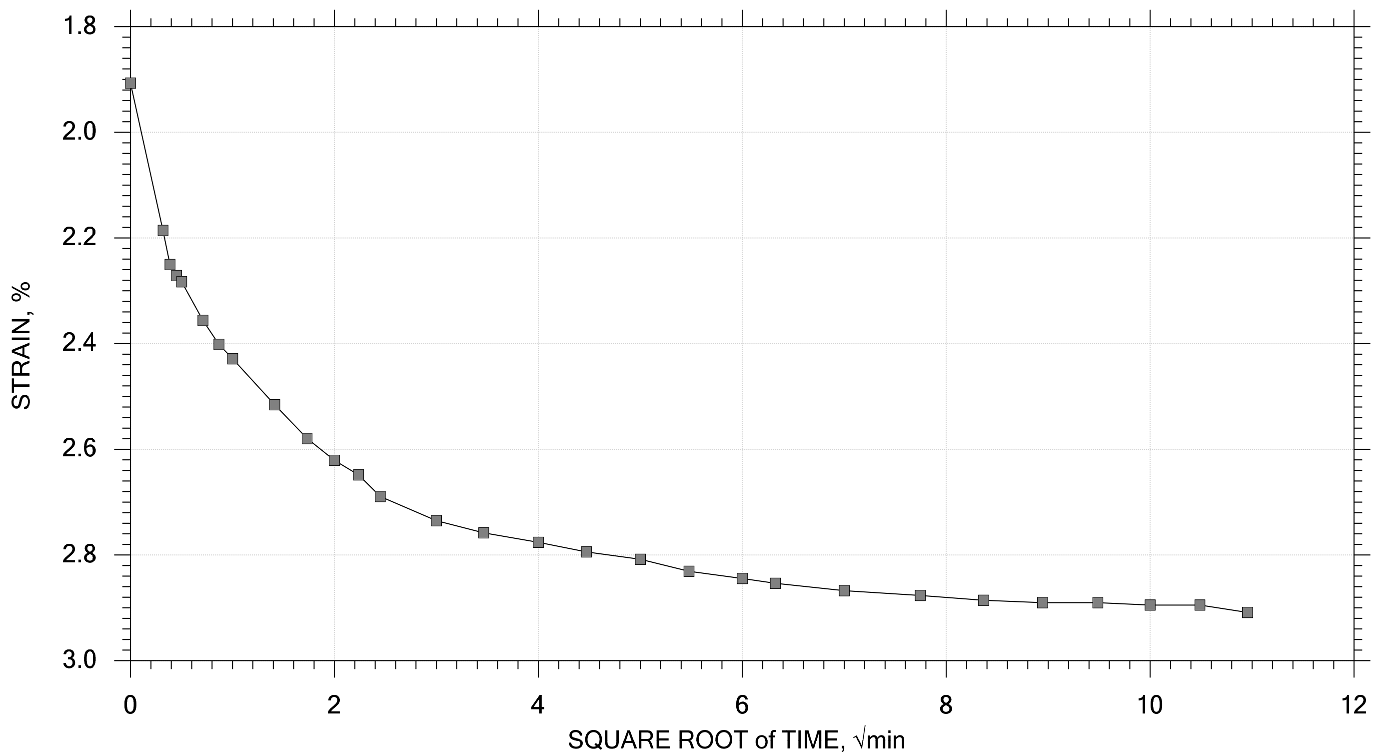
One-Dimensional Consolidation by ASTM D2435 - Method B

TIME CURVES

Constant Load Step 3 of 21

Stress: 0.25 tsf





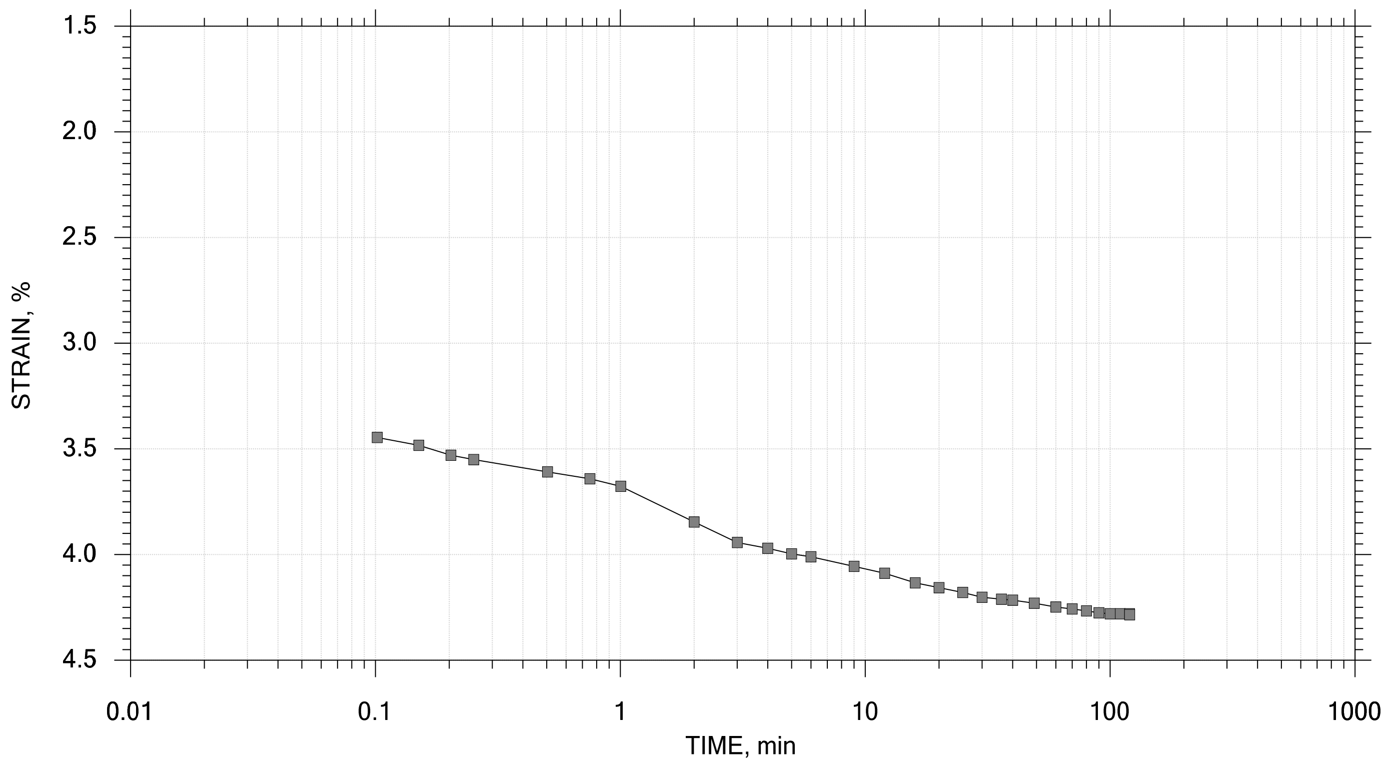
GeoTesting EXPRESS	Project: Beacon Island Parcel	Location: Bethlehem, NY	Project No.: GTX-306651
	Boring No.: SB-01	Tested By: md	Checked By: njh
	Sample No.: Tube	Test Date: 06/27/17	Test No.: IP-2
	Depth: 58-60 ft	Sample Type: intact	Elevation: ---
	Description: Moist, dark gray clay		
	Remarks: System S, Swell Pressure = 0.0665 tsf		

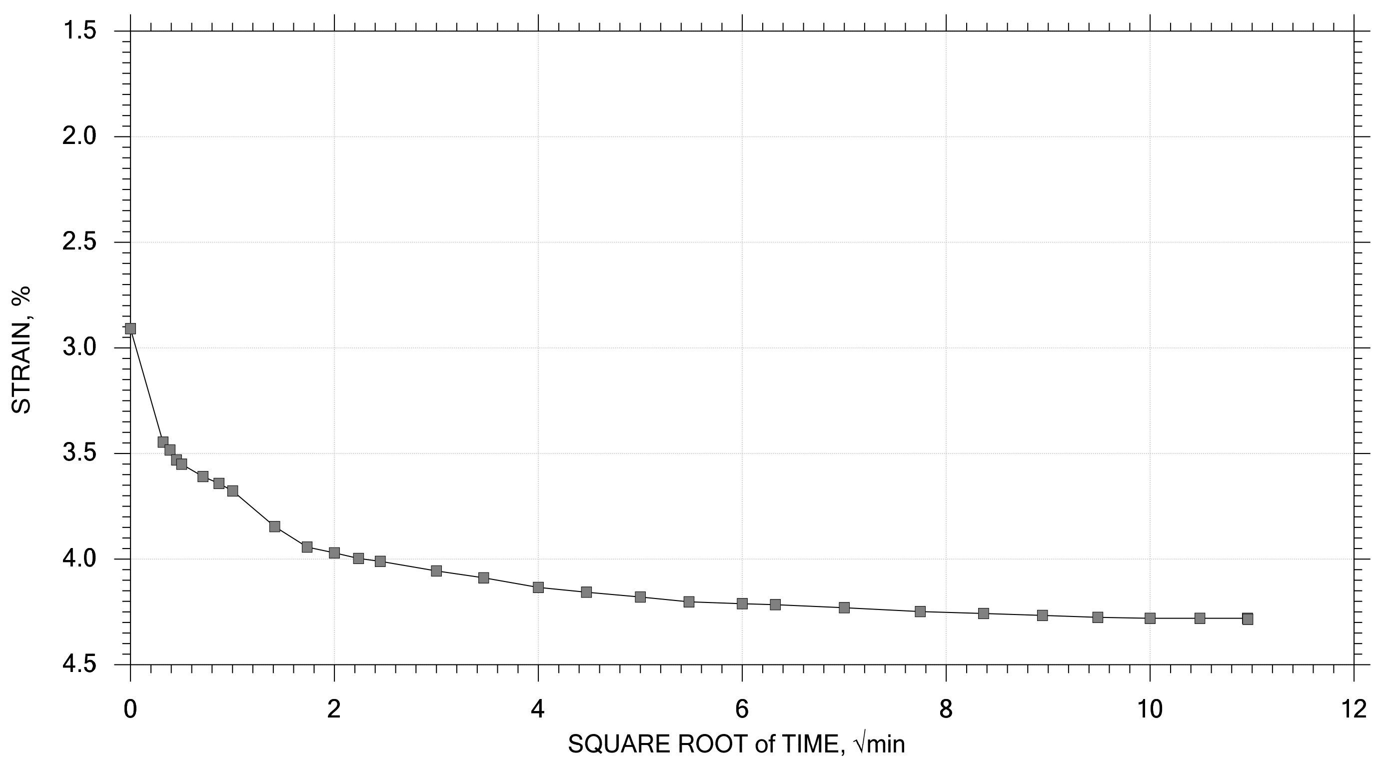
One-Dimensional Consolidation by ASTM D2435 - Method B

TIME CURVES

Constant Load Step 4 of 21

Stress: 0.5 tsf





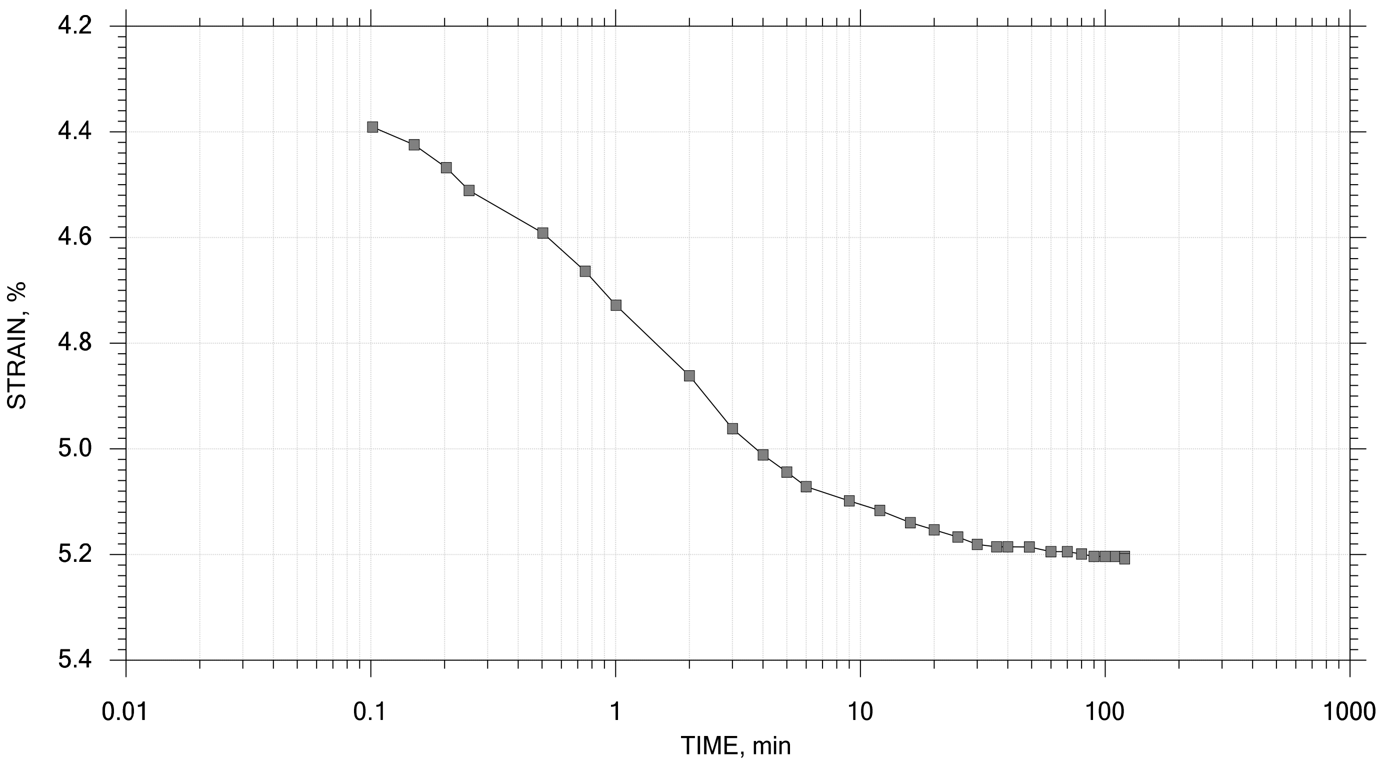
GeoTesting EXPRESS			
	Project: Beacon Island Parcel	Location: Bethlehem, NY	Project No.: GTX-306651
	Boring No.: SB-01	Tested By: md	Checked By: njh
	Sample No.: Tube	Test Date: 06/27/17	Test No.: IP-2
	Depth: 58-60 ft	Sample Type: intact	Elevation: ---
	Description: Moist, dark gray clay		
	Remarks: System S, Swell Pressure = 0.0665 tsf		

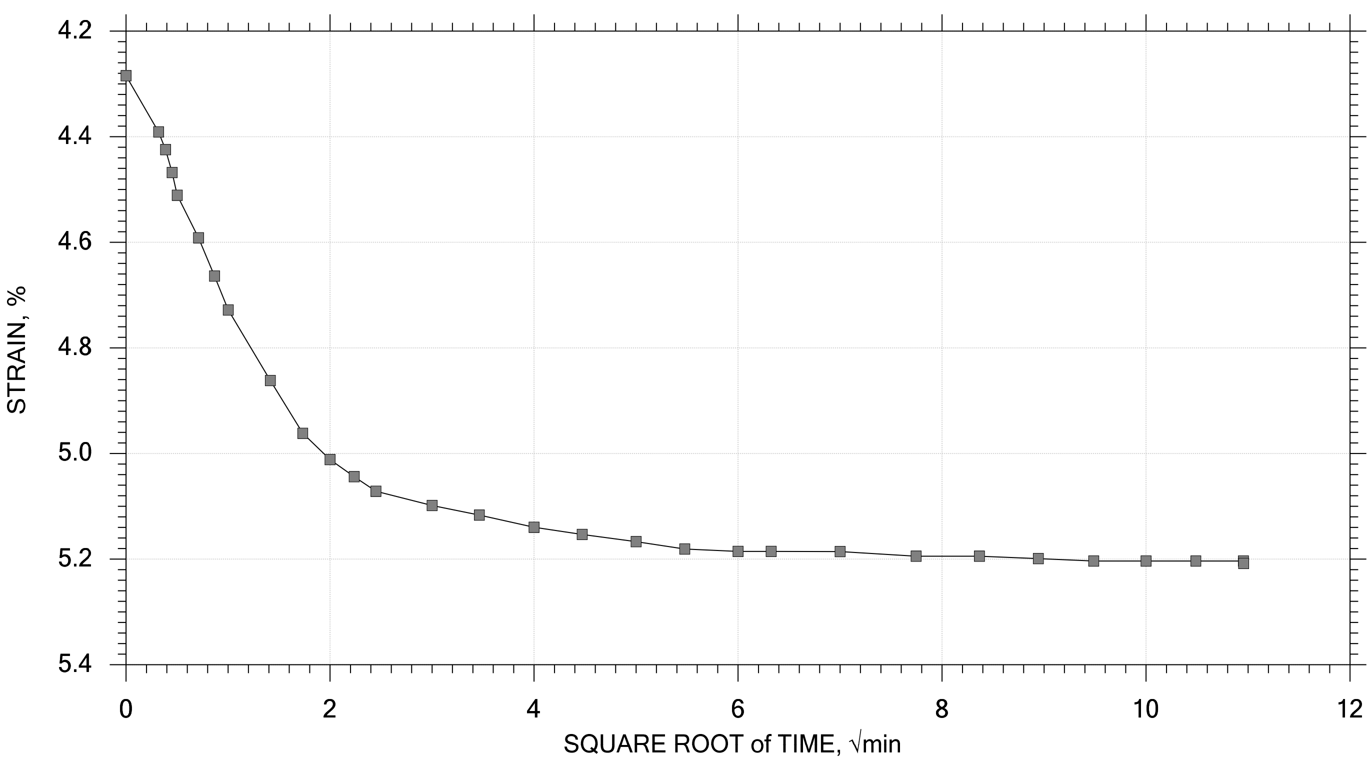
One-Dimensional Consolidation by ASTM D2435 - Method B

TIME CURVES

Constant Load Step 5 of 21

Stress: 1 tsf





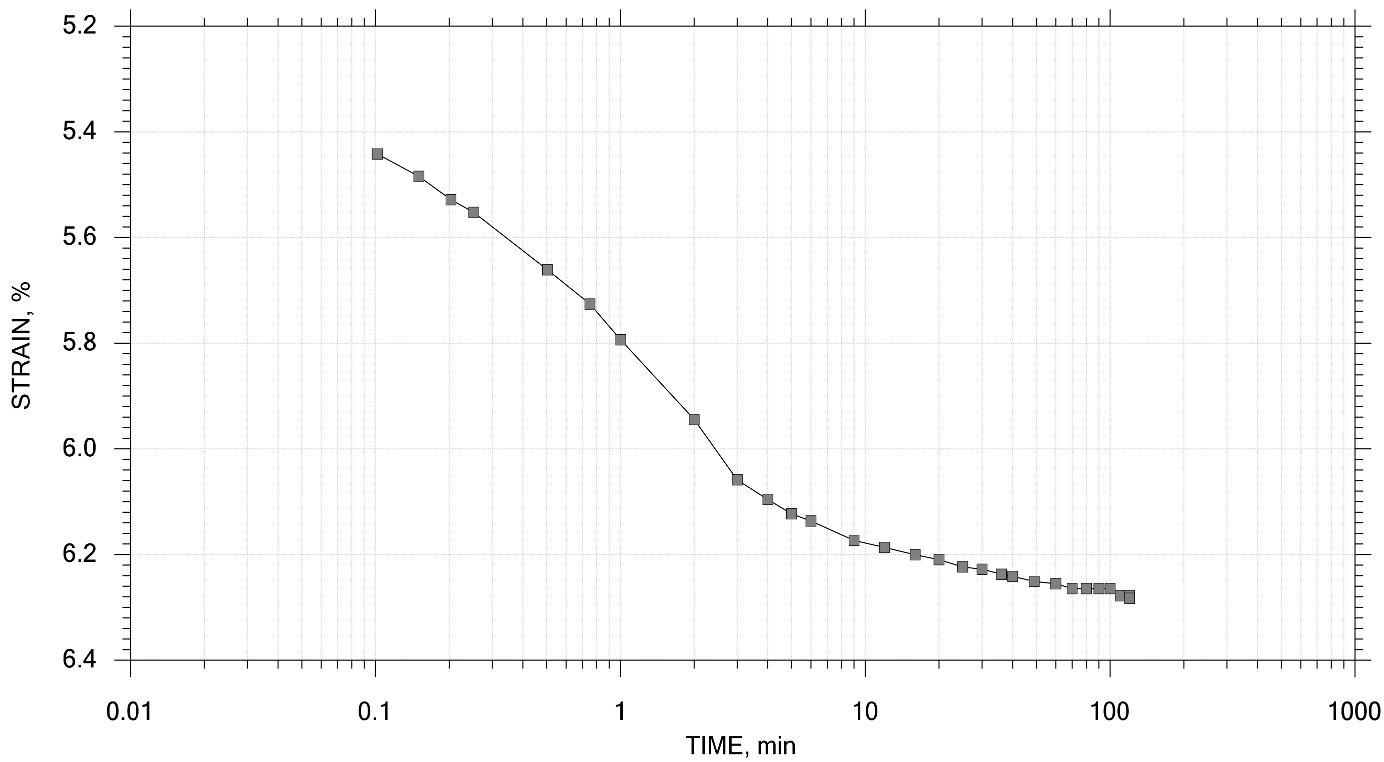
GeoTesting EXPRESS	Project: Beacon Island Parcel	Location: Bethlehem, NY	Project No.: GTX-306651
	Boring No.: SB-01	Tested By: md	Checked By: njh
	Sample No.: Tube	Test Date: 06/27/17	Test No.: IP-2
	Depth: 58-60 ft	Sample Type: intact	Elevation: ---
	Description: Moist, dark gray clay		
	Remarks: System S, Swell Pressure = 0.0665 tsf		

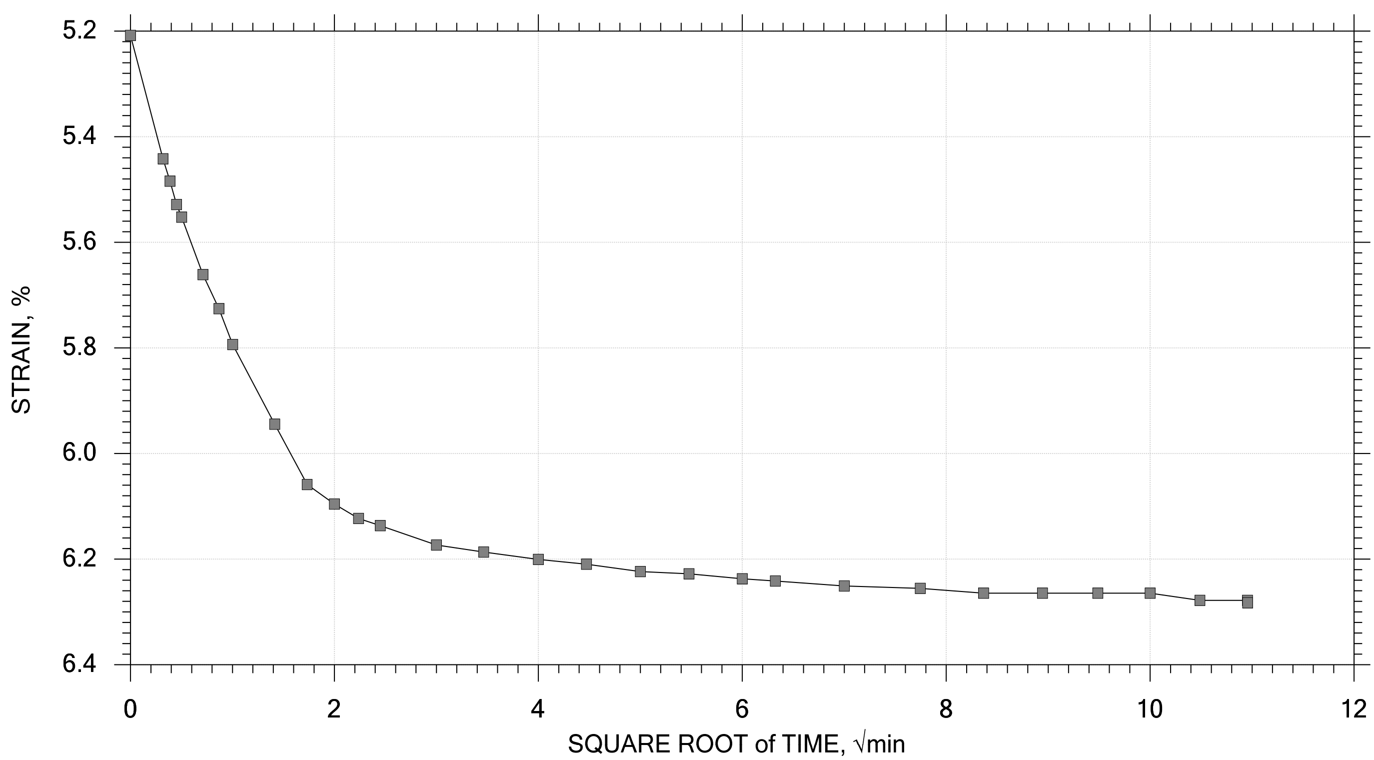
One-Dimensional Consolidation by ASTM D2435 - Method B

TIME CURVES

Constant Load Step 6 of 21

Stress: 2 tsf





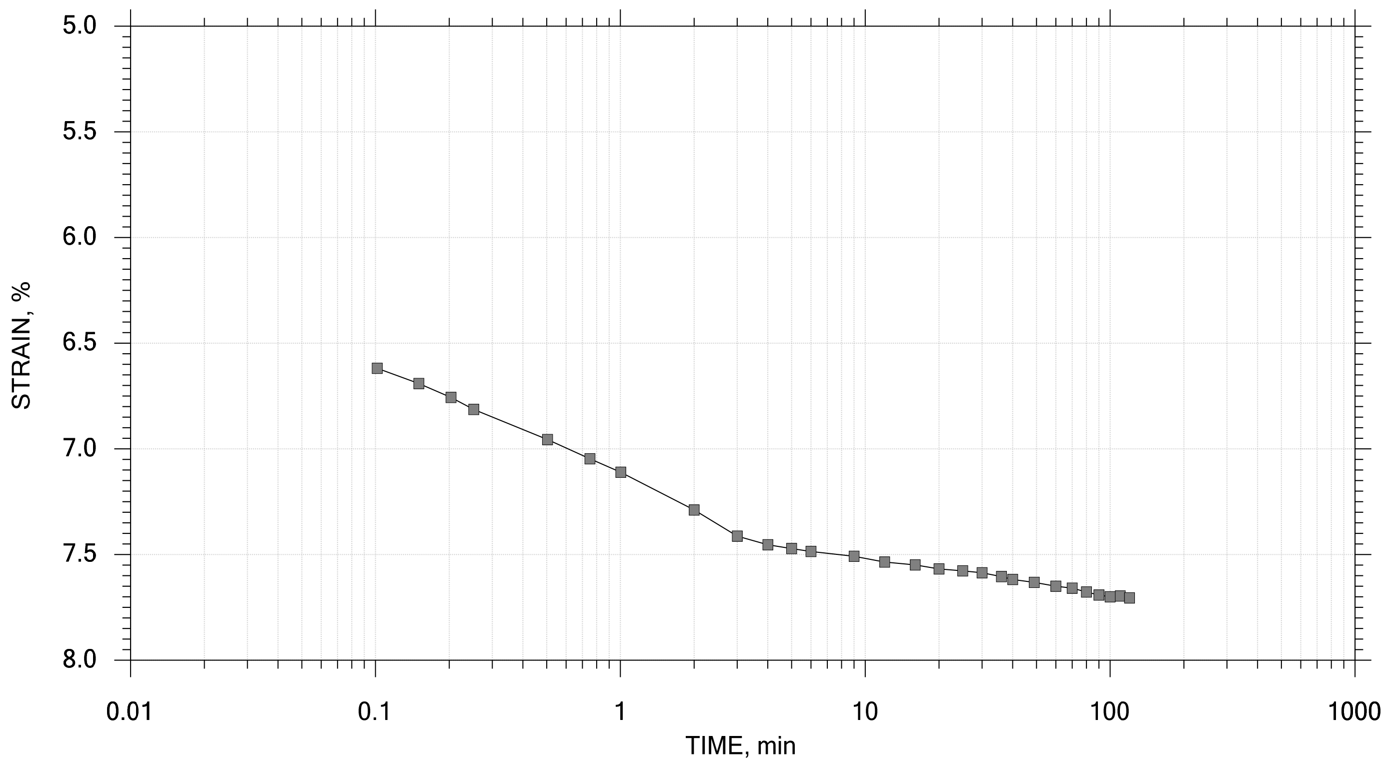
GeoTesting EXPRESS	Project: Beacon Island Parcel	Location: Bethlehem, NY	Project No.: GTX-306651
	Boring No.: SB-01	Tested By: md	Checked By: njh
	Sample No.: Tube	Test Date: 06/27/17	Test No.: IP-2
	Depth: 58-60 ft	Sample Type: intact	Elevation: ---
	Description: Moist, dark gray clay		
	Remarks: System S, Swell Pressure = 0.0665 tsf		

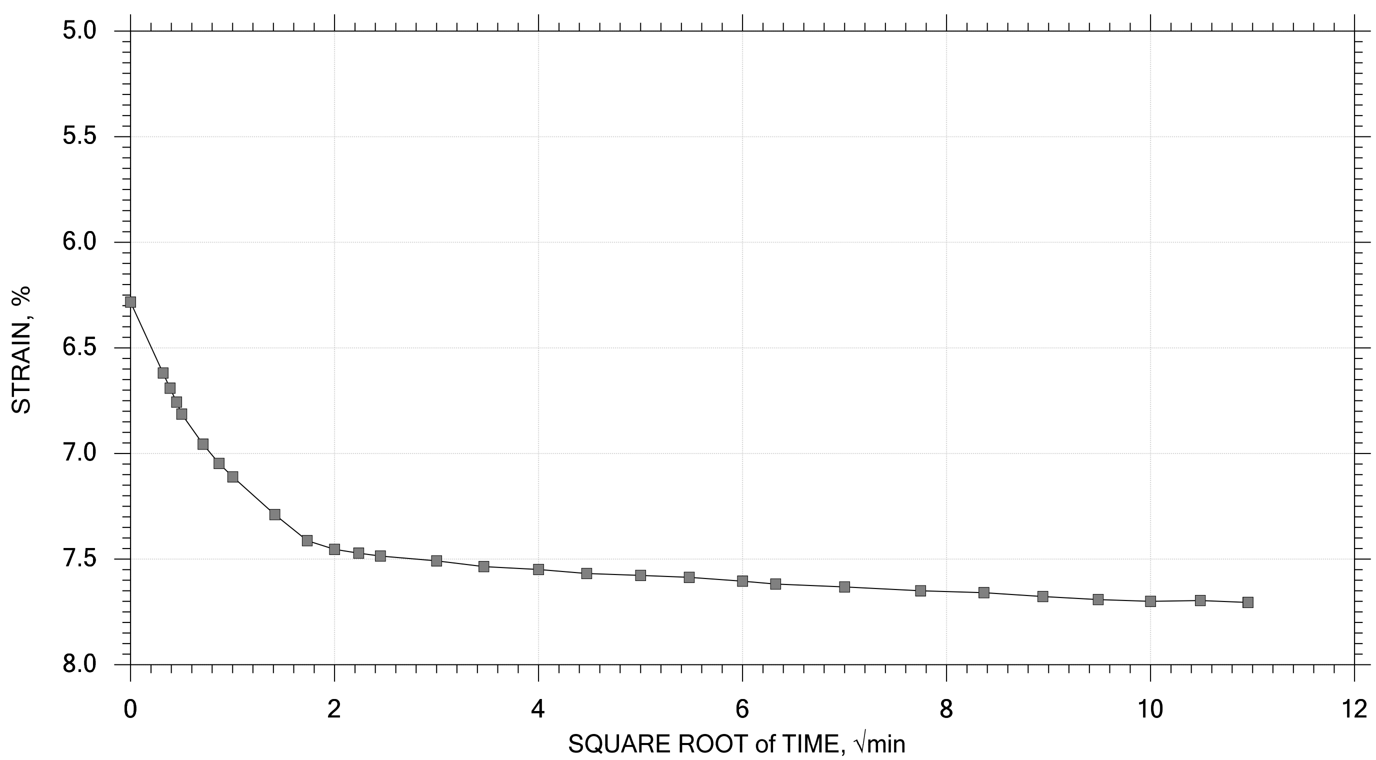
One-Dimensional Consolidation by ASTM D2435 - Method B

TIME CURVES

Constant Load Step 7 of 21

Stress: 4 tsf





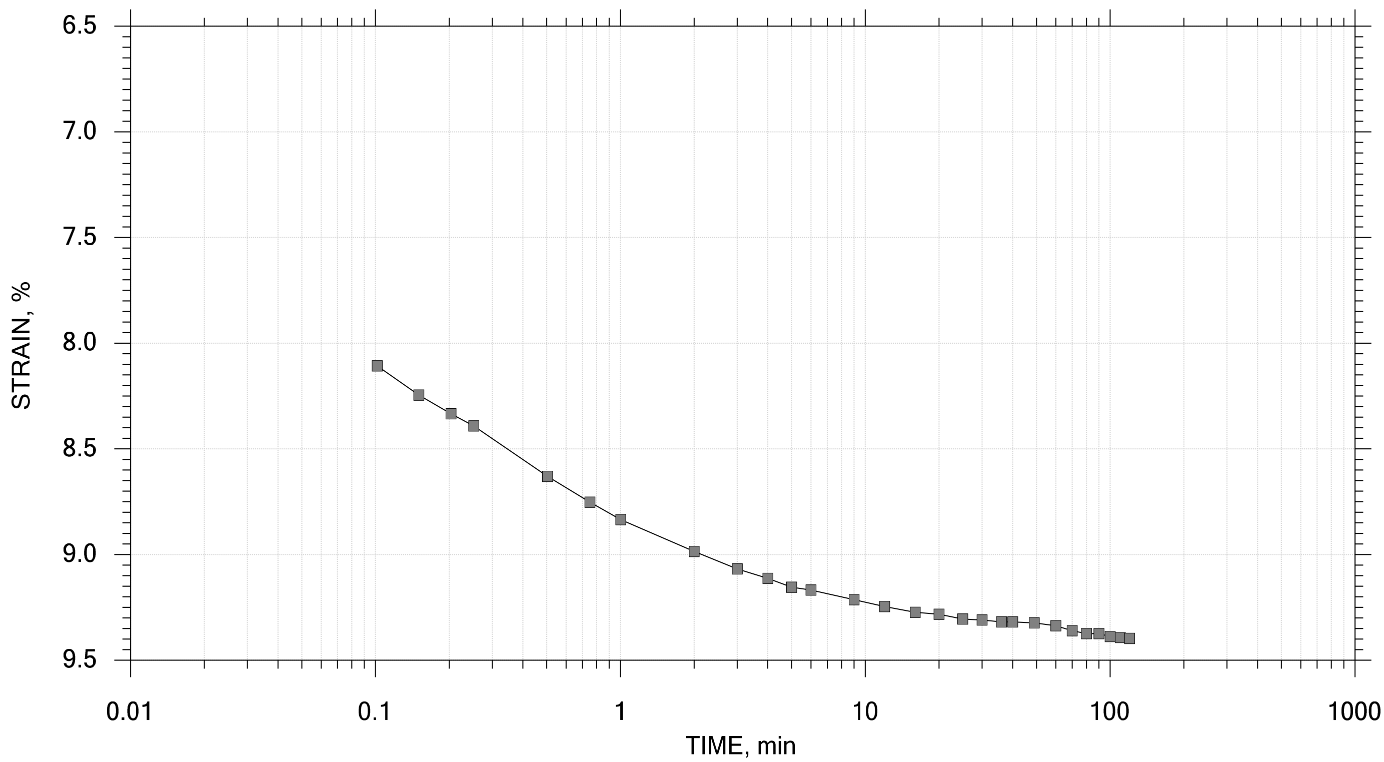
GeoTesting EXPRESS	Project: Beacon Island Parcel	Location: Bethlehem, NY	Project No.: GTX-306651
	Boring No.: SB-01	Tested By: md	Checked By: njh
	Sample No.: Tube	Test Date: 06/27/17	Test No.: IP-2
	Depth: 58-60 ft	Sample Type: intact	Elevation: ---
	Description: Moist, dark gray clay		
	Remarks: System S, Swell Pressure = 0.0665 tsf		

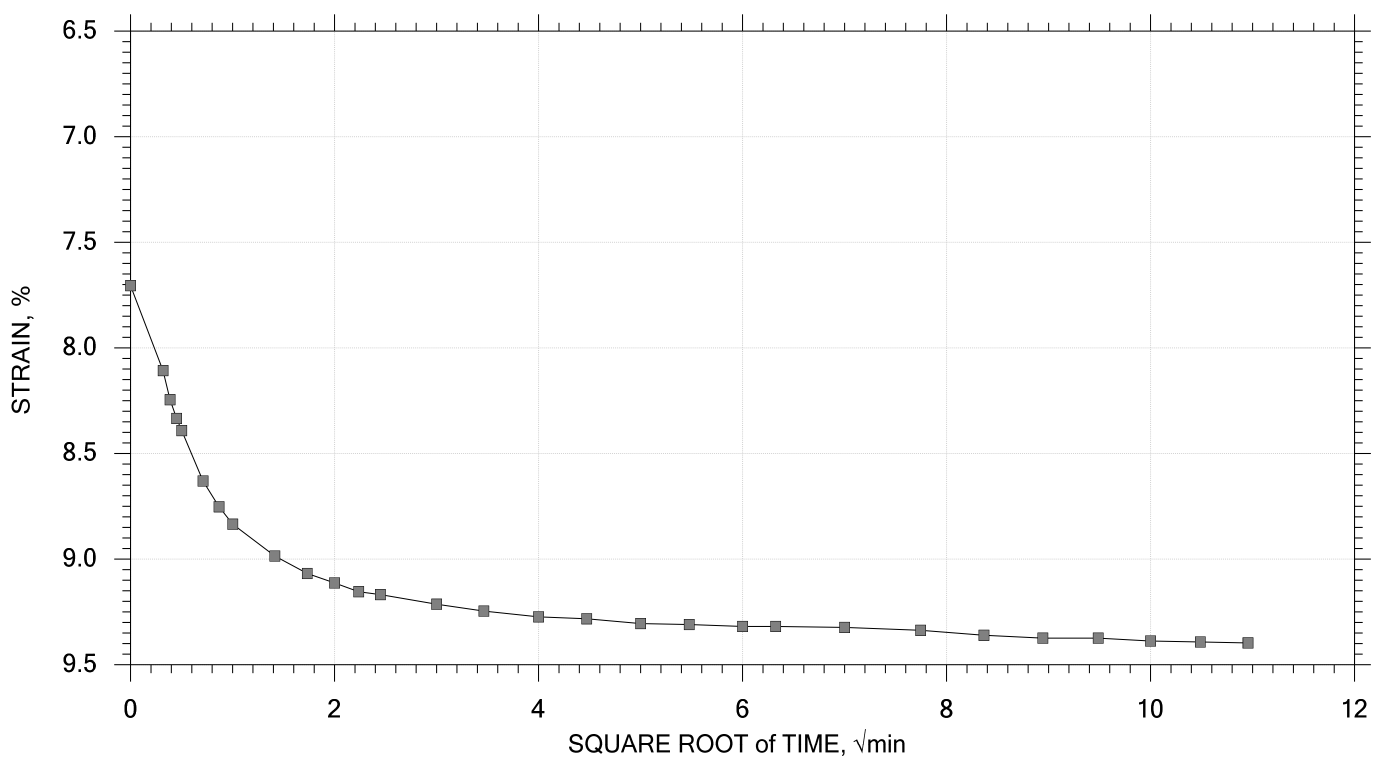
One-Dimensional Consolidation by ASTM D2435 - Method B

TIME CURVES

Constant Load Step 8 of 21

Stress: 8 tsf





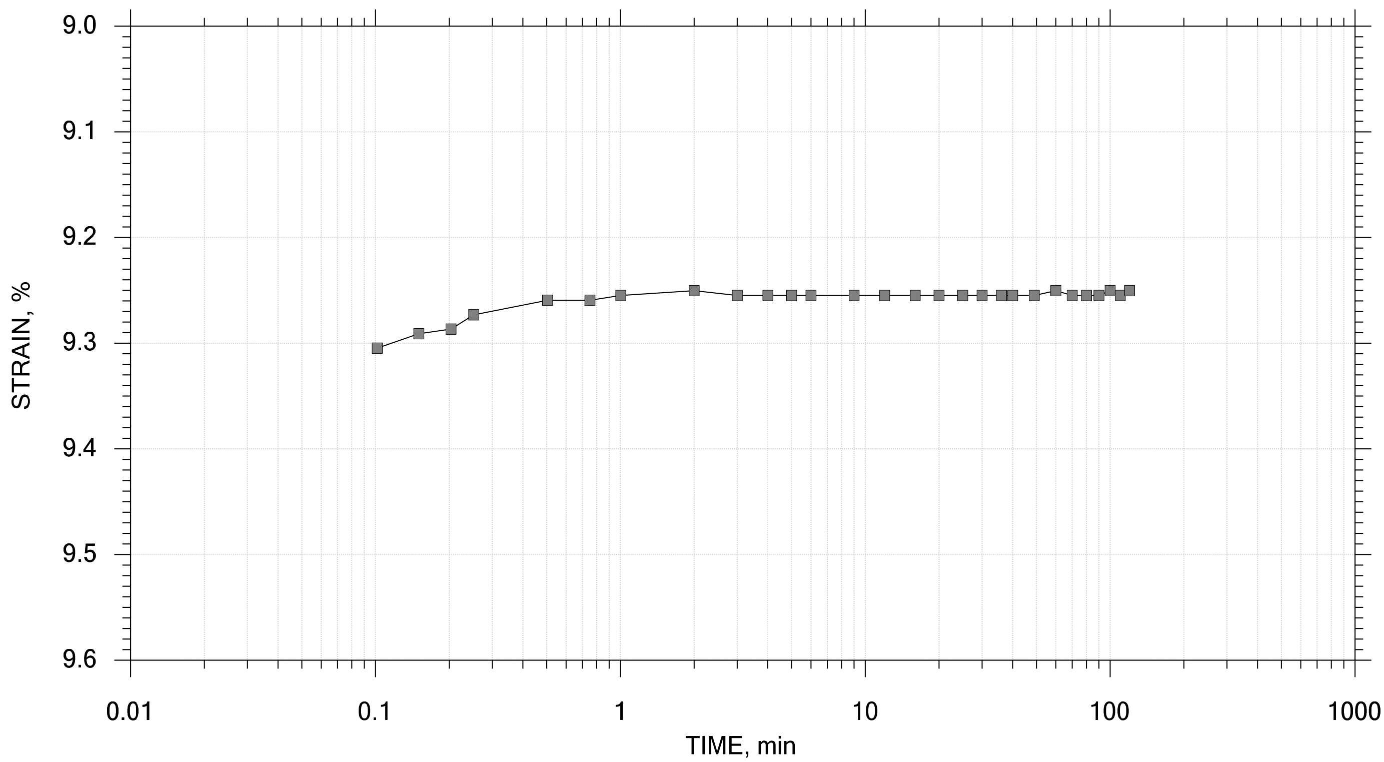
GeoTesting EXPRESS	Project: Beacon Island Parcel	Location: Bethlehem, NY	Project No.: GTX-306651
	Boring No.: SB-01	Tested By: md	Checked By: njh
	Sample No.: Tube	Test Date: 06/27/17	Test No.: IP-2
	Depth: 58-60 ft	Sample Type: intact	Elevation: ---
	Description: Moist, dark gray clay		
	Remarks: System S, Swell Pressure = 0.0665 tsf		

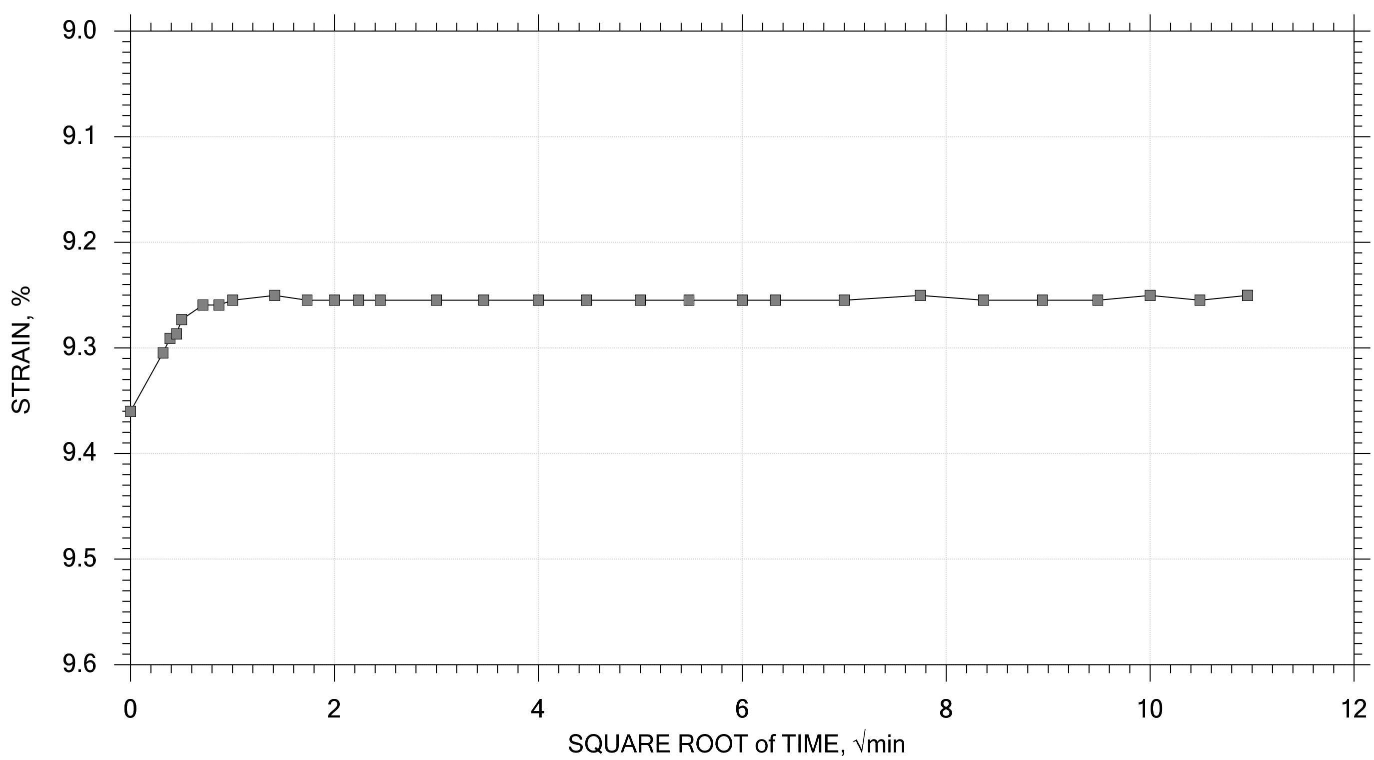
One-Dimensional Consolidation by ASTM D2435 - Method B

TIME CURVES

Constant Load Step 9 of 21

Stress: 4 tsf





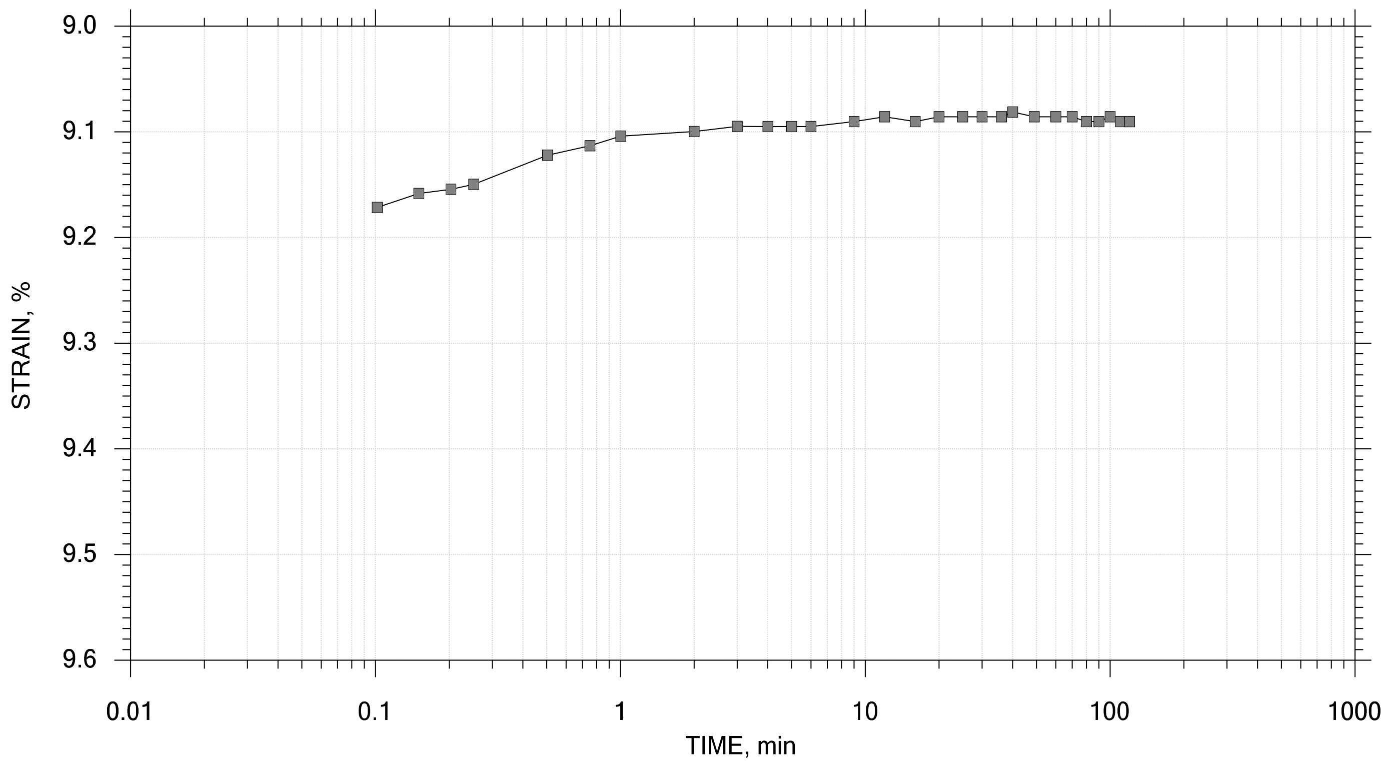
GeoTesting EXPRESS			
	Project: Beacon Island Parcel	Location: Bethlehem, NY	Project No.: GTX-306651
	Boring No.: SB-01	Tested By: md	Checked By: njh
	Sample No.: Tube	Test Date: 06/27/17	Test No.: IP-2
	Depth: 58-60 ft	Sample Type: intact	Elevation: ---
	Description: Moist, dark gray clay		
	Remarks: System S, Swell Pressure = 0.0665 tsf		

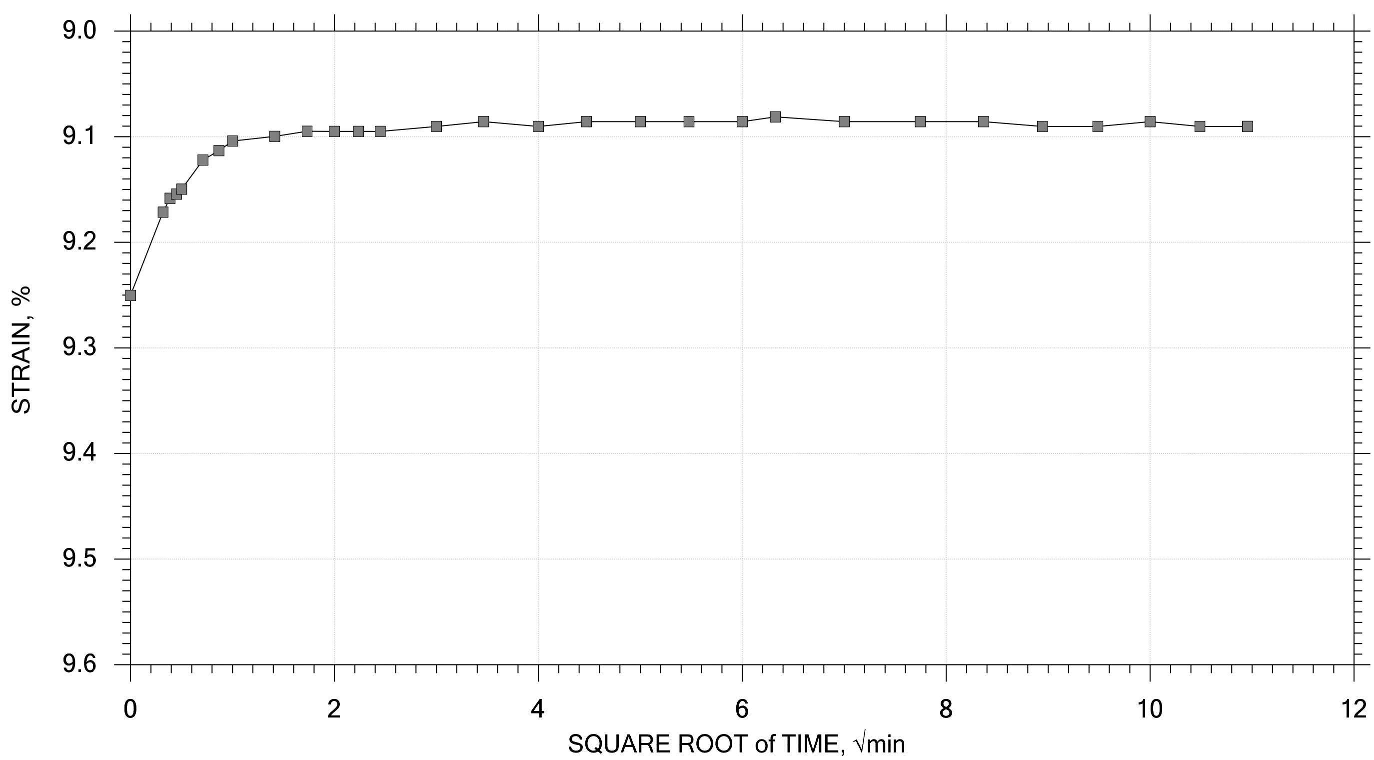
One-Dimensional Consolidation by ASTM D2435 - Method B

TIME CURVES

Constant Load Step 10 of 21

Stress: 2 tsf





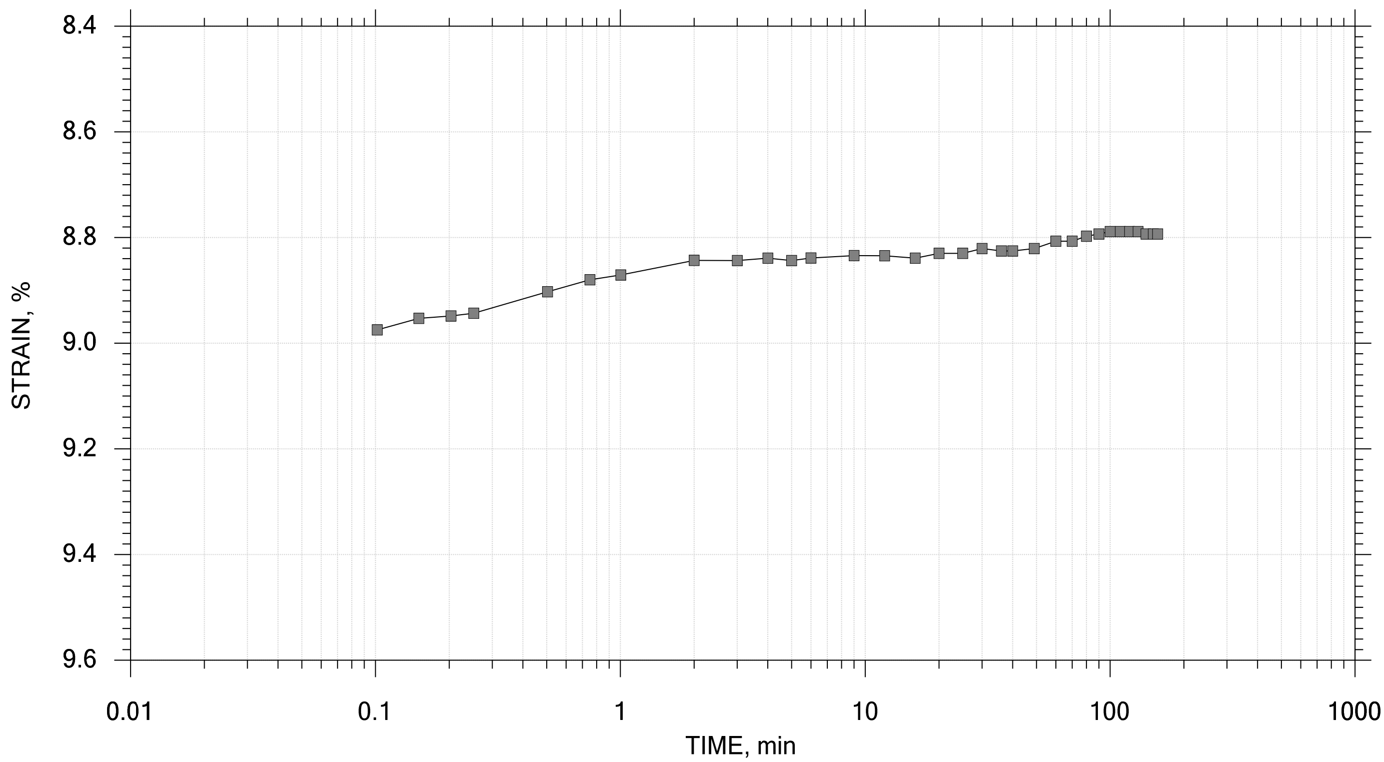
GeoTesting EXPRESS	Project: Beacon Island Parcel	Location: Bethlehem, NY	Project No.: GTX-306651
	Boring No.: SB-01	Tested By: md	Checked By: njh
	Sample No.: Tube	Test Date: 06/27/17	Test No.: IP-2
	Depth: 58-60 ft	Sample Type: intact	Elevation: ---
	Description: Moist, dark gray clay		
	Remarks: System S, Swell Pressure = 0.0665 tsf		

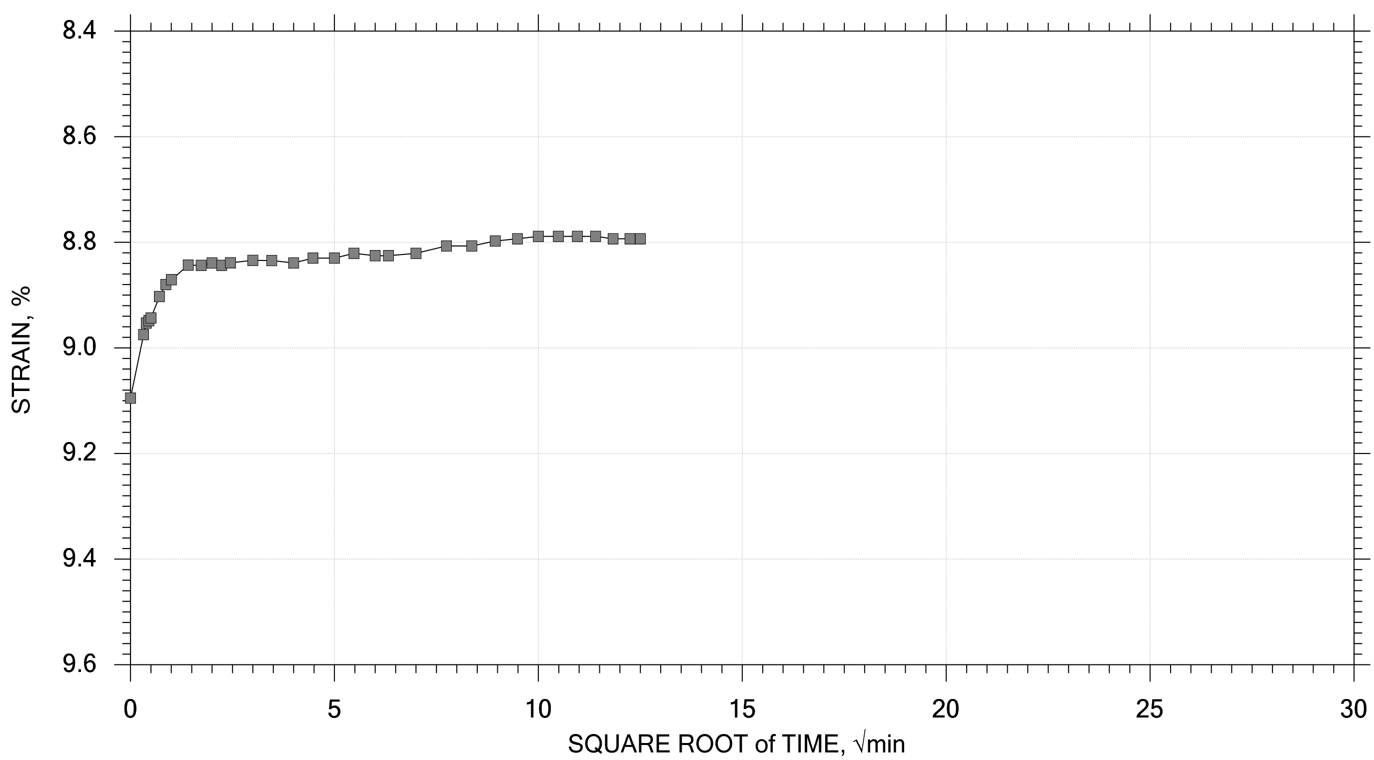
One-Dimensional Consolidation by ASTM D2435 - Method B

TIME CURVES

Constant Load Step 11 of 21

Stress: 1 tsf





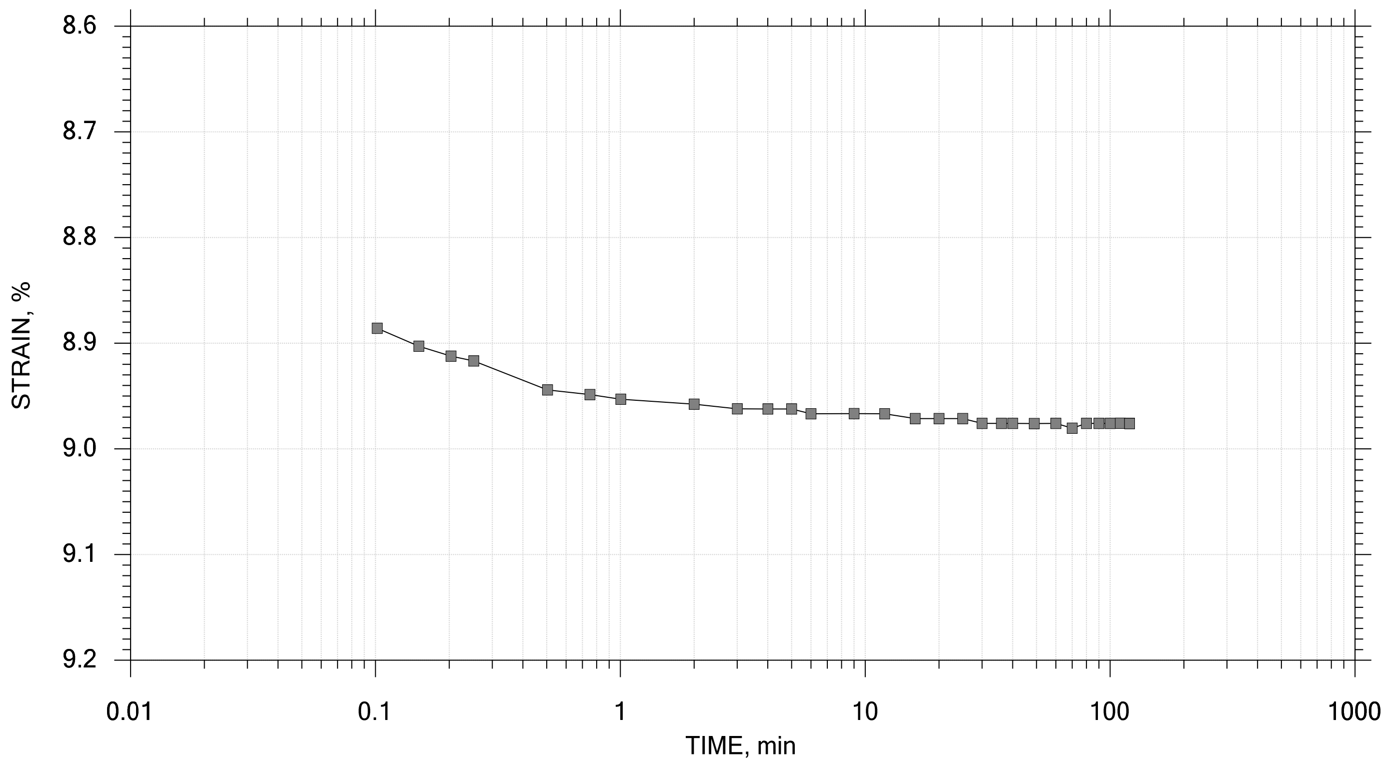
GeoTesting EXPRESS	Project: Beacon Island Parcel	Location: Bethlehem, NY	Project No.: GTX-306651
	Boring No.: SB-01	Tested By: md	Checked By: njh
	Sample No.: Tube	Test Date: 06/27/17	Test No.: IP-2
	Depth: 58-60 ft	Sample Type: intact	Elevation: ---
	Description: Moist, dark gray clay		
	Remarks: System S, Swell Pressure = 0.0665 tsf		

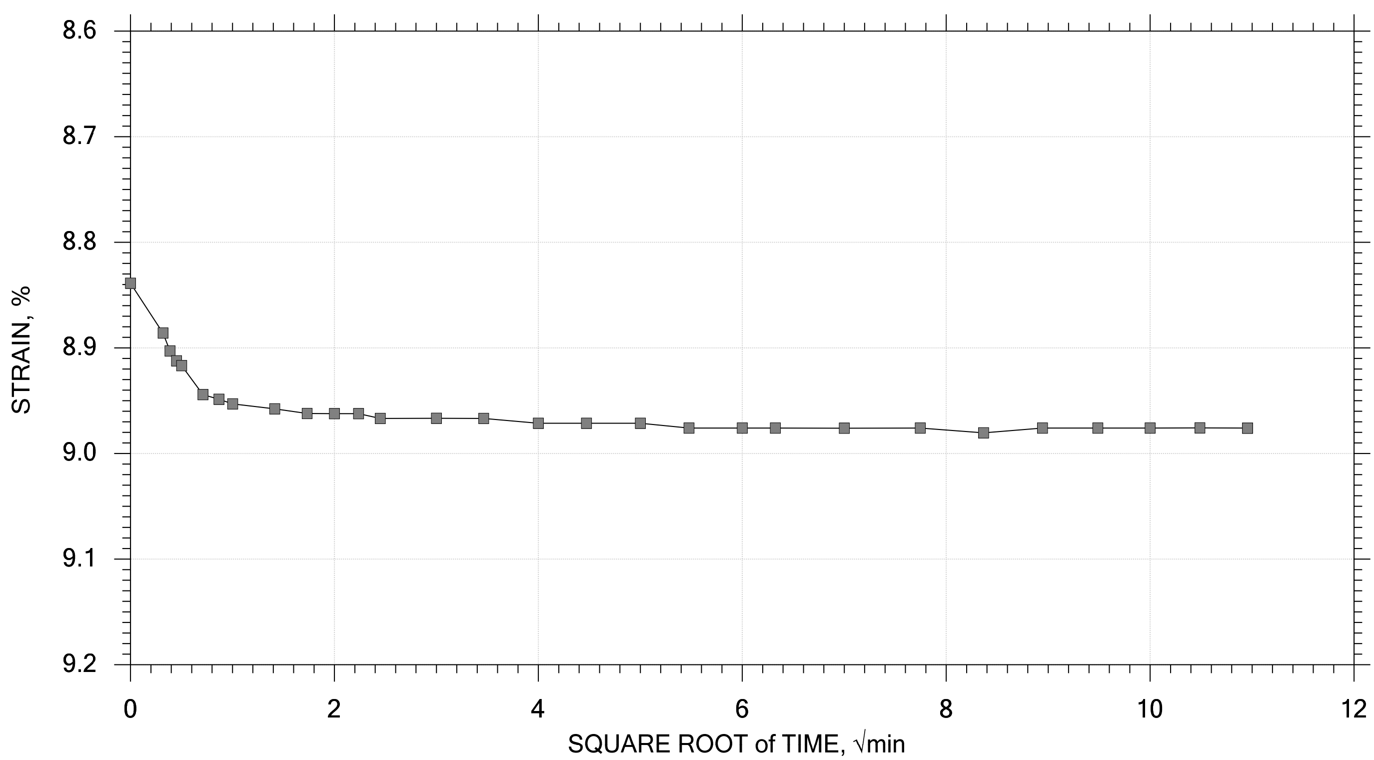
One-Dimensional Consolidation by ASTM D2435 - Method B

TIME CURVES

Constant Load Step 12 of 21

Stress: 2 tsf





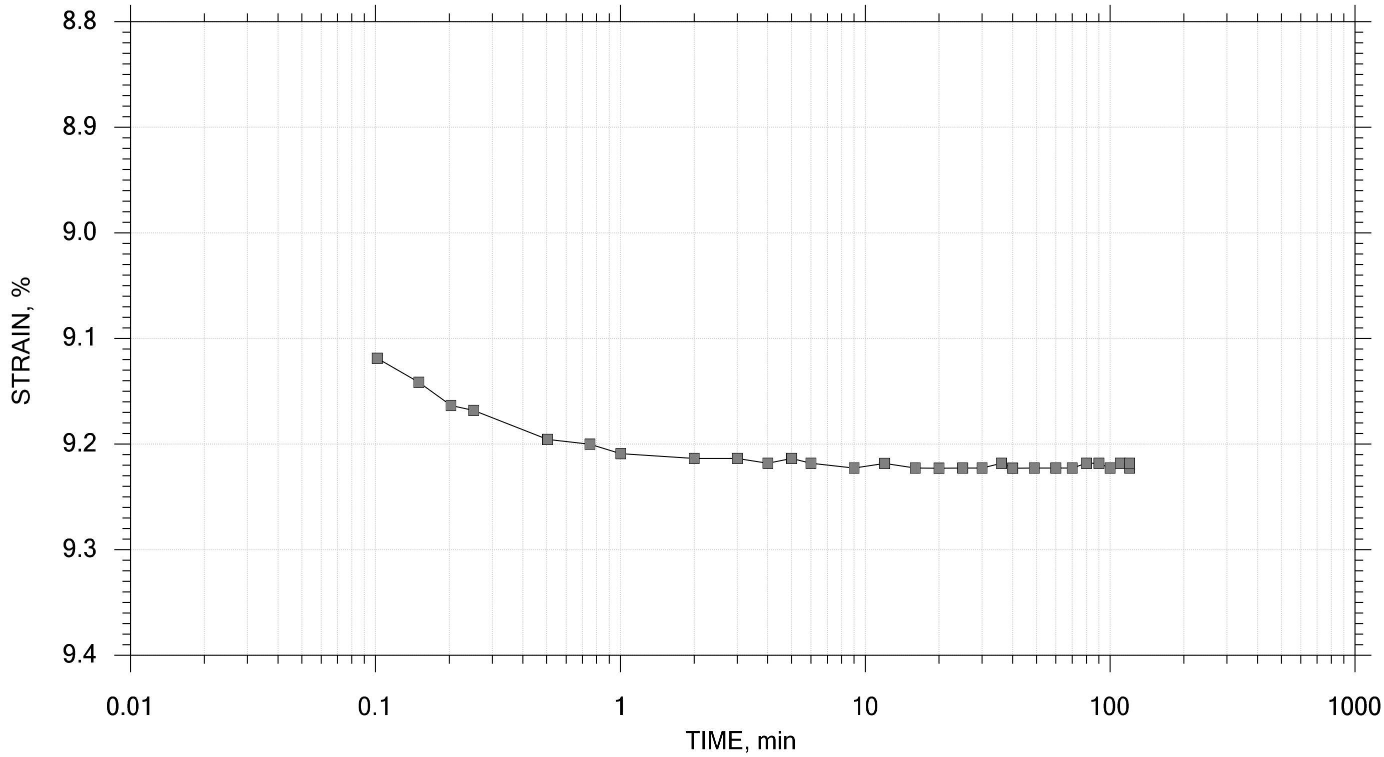
GeoTesting EXPRESS	Project: Beacon Island Parcel	Location: Bethlehem, NY	Project No.: GTX-306651
	Boring No.: SB-01	Tested By: md	Checked By: njh
	Sample No.: Tube	Test Date: 06/27/17	Test No.: IP-2
	Depth: 58-60 ft	Sample Type: intact	Elevation: ---
	Description: Moist, dark gray clay		
	Remarks: System S, Swell Pressure = 0.0665 tsf		

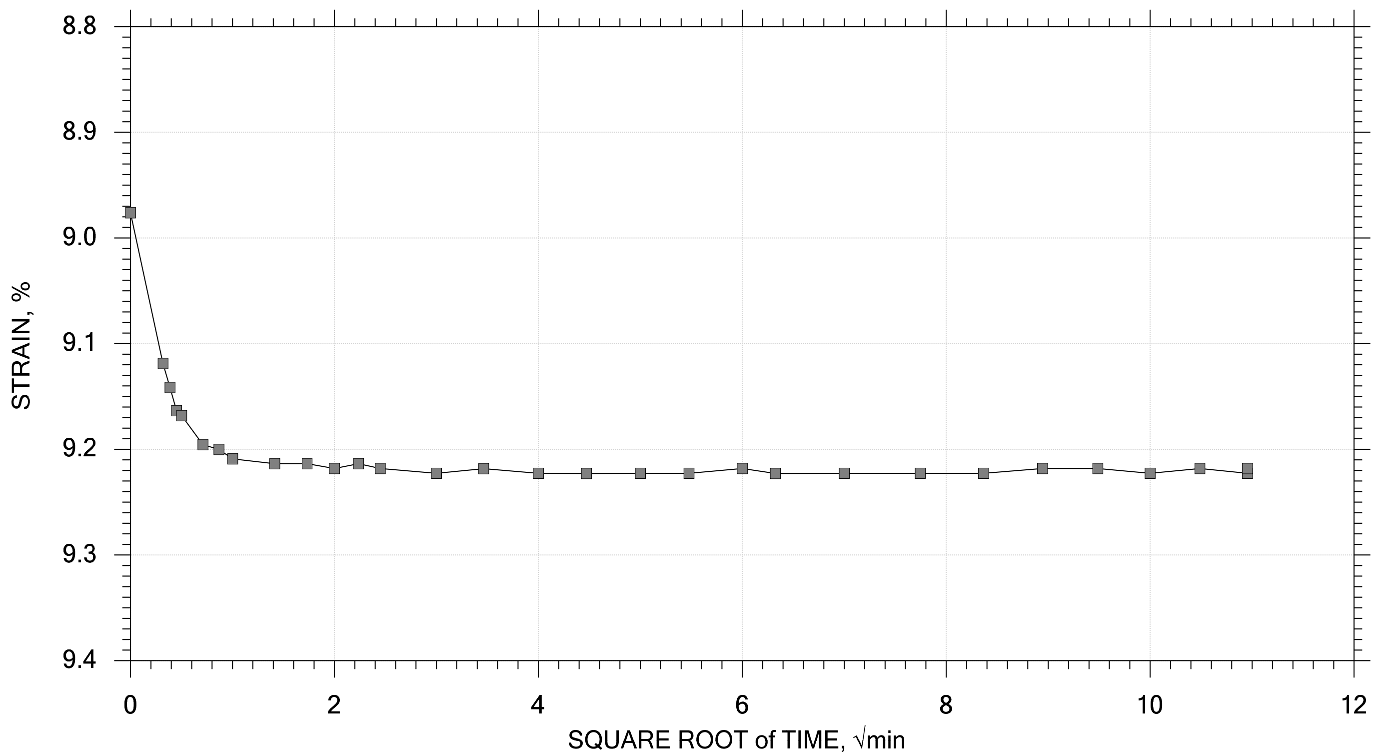
One-Dimensional Consolidation by ASTM D2435 - Method B

TIME CURVES

Constant Load Step 13 of 21

Stress: 4 tsf





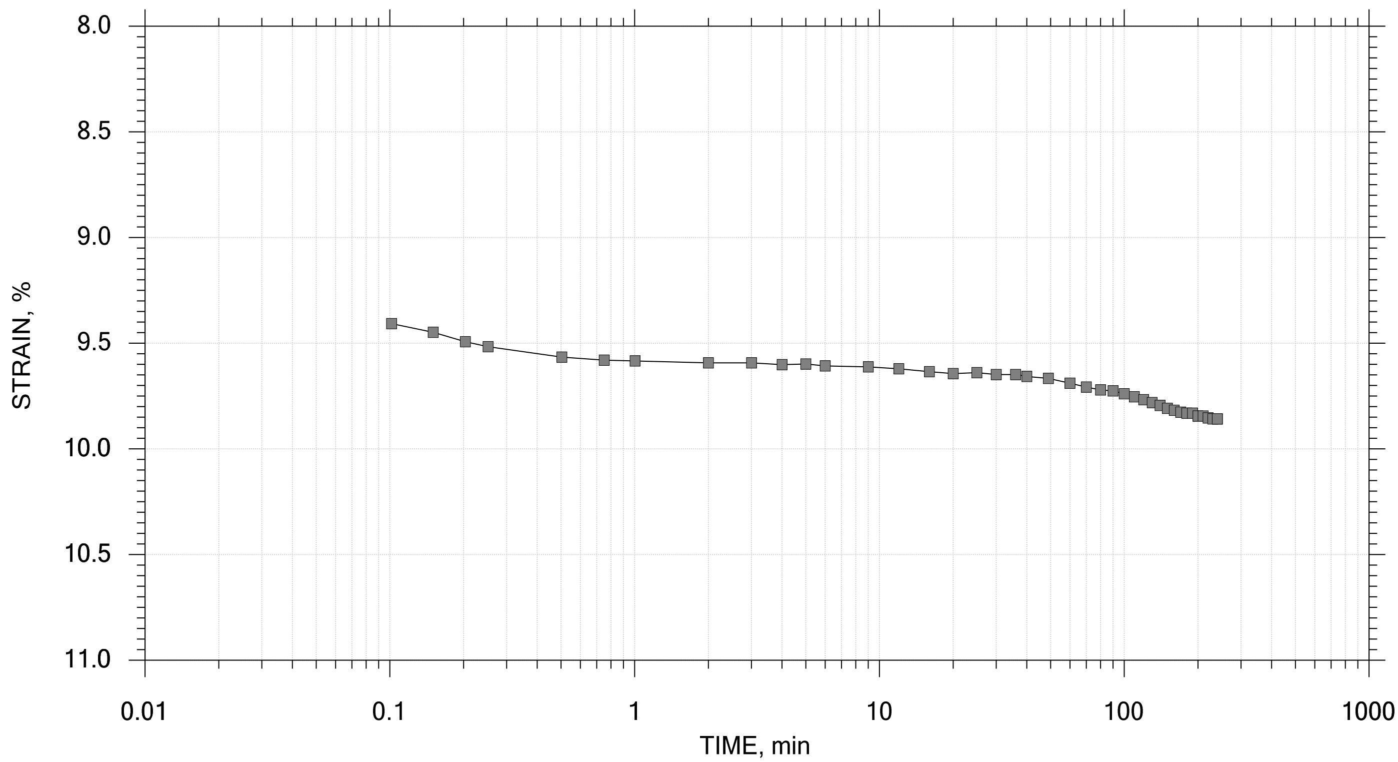
GeoTesting EXPRESS	Project: Beacon Island Parcel	Location: Bethlehem, NY	Project No.: GTX-306651
	Boring No.: SB-01	Tested By: md	Checked By: njh
	Sample No.: Tube	Test Date: 06/27/17	Test No.: IP-2
	Depth: 58-60 ft	Sample Type: intact	Elevation: ---
	Description: Moist, dark gray clay		
	Remarks: System S, Swell Pressure = 0.0665 tsf		

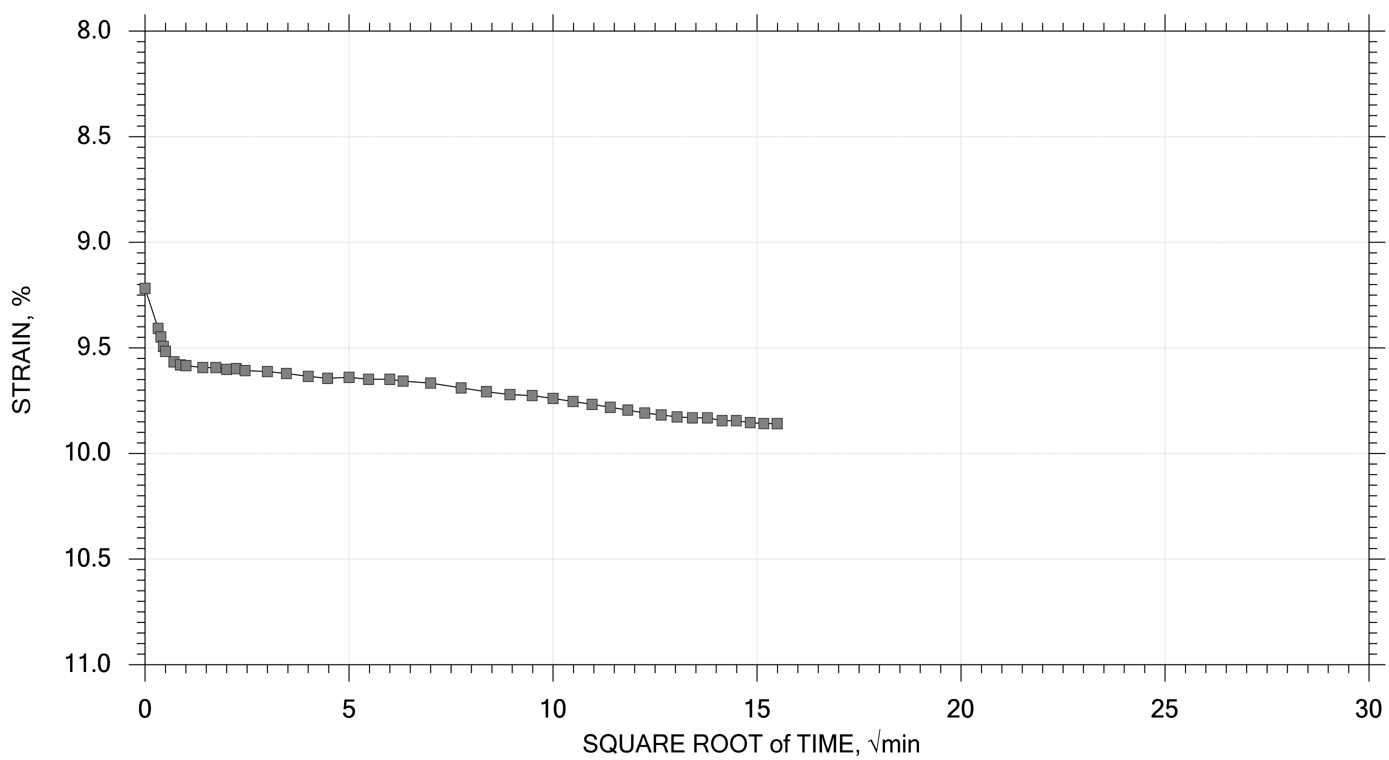
One-Dimensional Consolidation by ASTM D2435 - Method B

TIME CURVES

Constant Load Step 14 of 21

Stress: 8 tsf





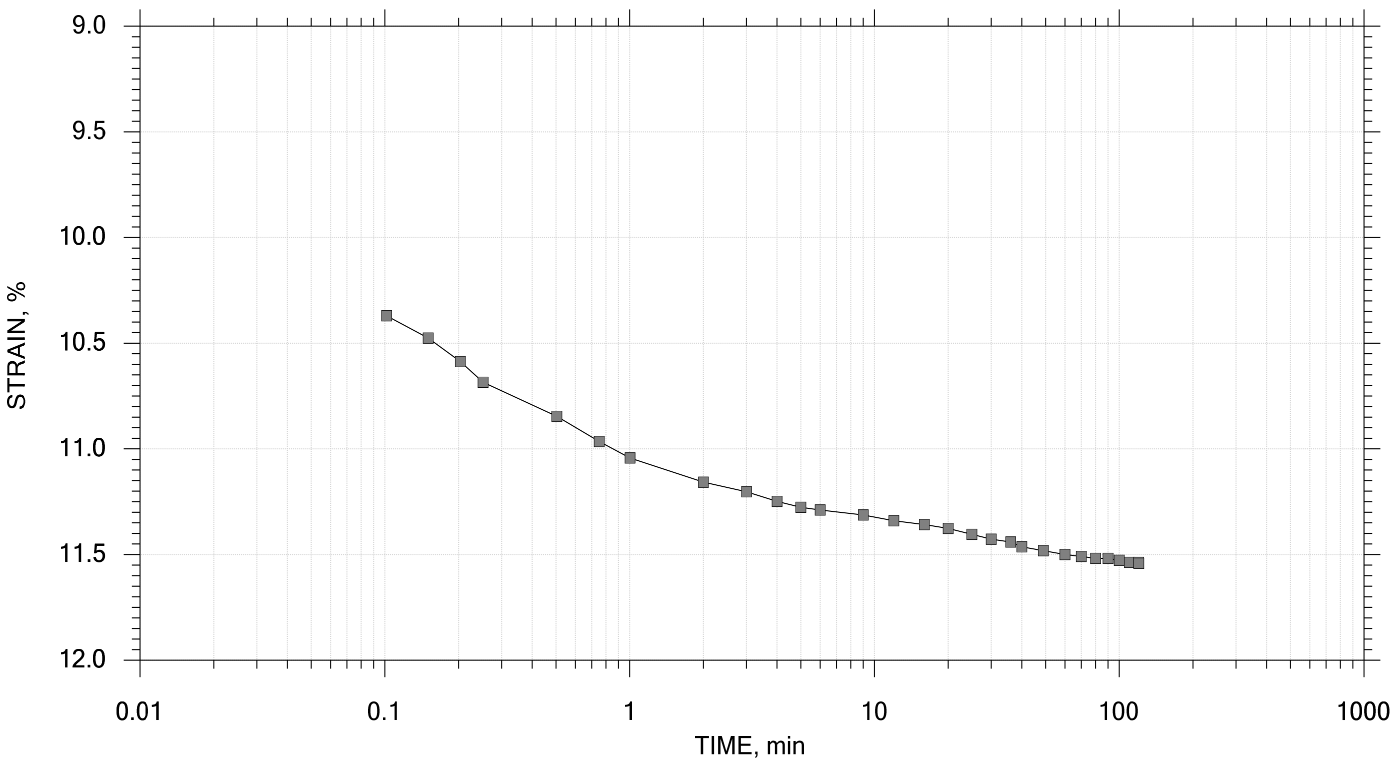
GeoTesting EXPRESS	Project: Beacon Island Parcel	Location: Bethlehem, NY	Project No.: GTX-306651
	Boring No.: SB-01	Tested By: md	Checked By: njh
	Sample No.: Tube	Test Date: 06/27/17	Test No.: IP-2
	Depth: 58-60 ft	Sample Type: intact	Elevation: ---
	Description: Moist, dark gray clay		
	Remarks: System S, Swell Pressure = 0.0665 tsf		

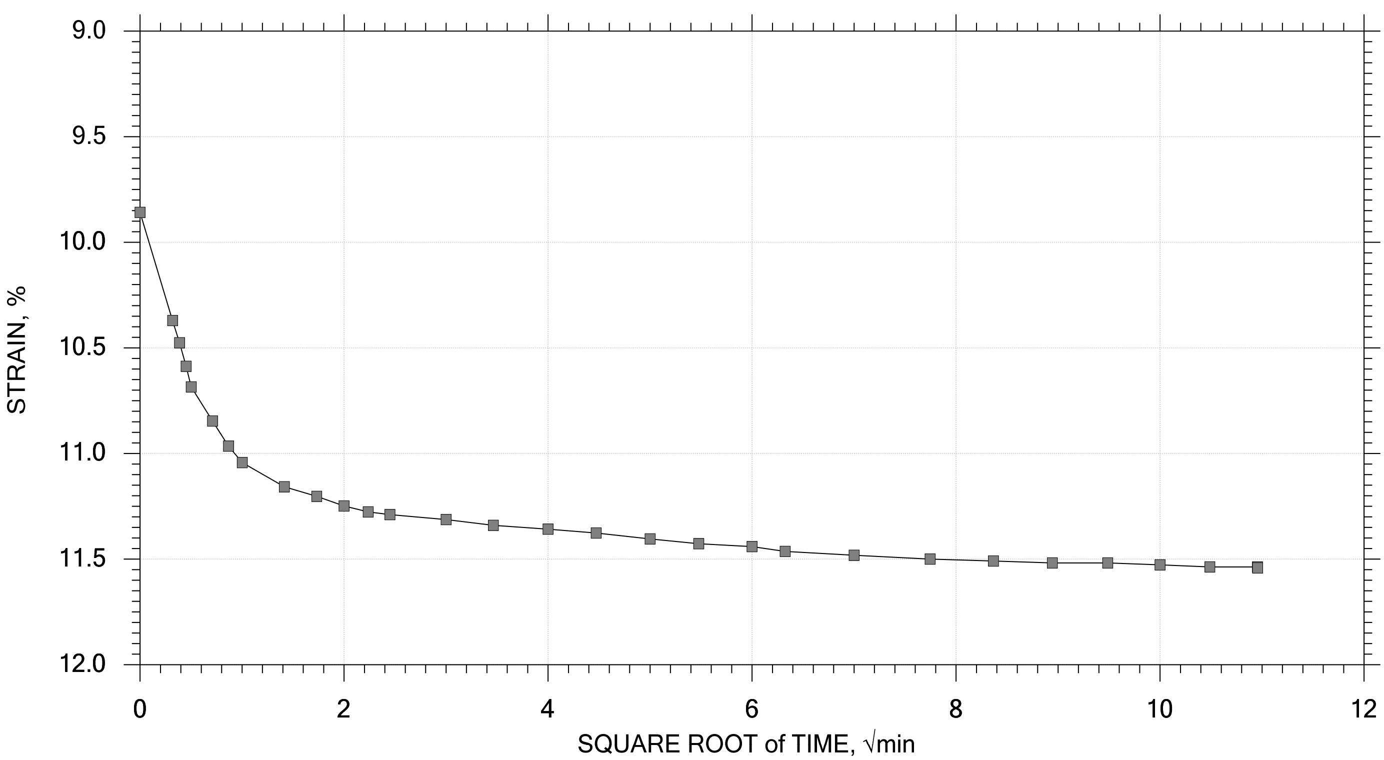
One-Dimensional Consolidation by ASTM D2435 - Method B

TIME CURVES

Constant Load Step 15 of 21

Stress: 16 tsf





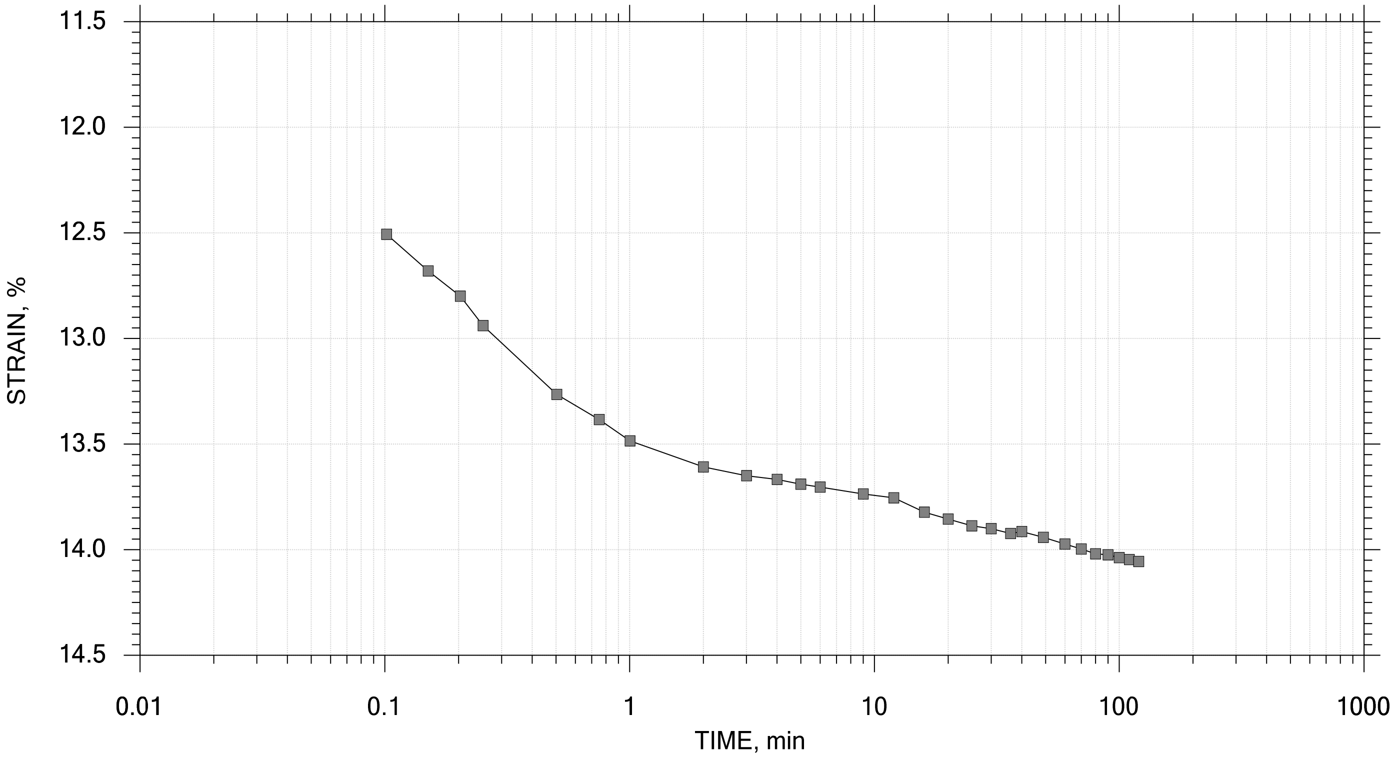
GeoTesting EXPRESS	Project: Beacon Island Parcel	Location: Bethlehem, NY	Project No.: GTX-306651
	Boring No.: SB-01	Tested By: md	Checked By: njh
	Sample No.: Tube	Test Date: 06/27/17	Test No.: IP-2
	Depth: 58-60 ft	Sample Type: intact	Elevation: ---
	Description: Moist, dark gray clay		
	Remarks: System S, Swell Pressure = 0.0665 tsf		

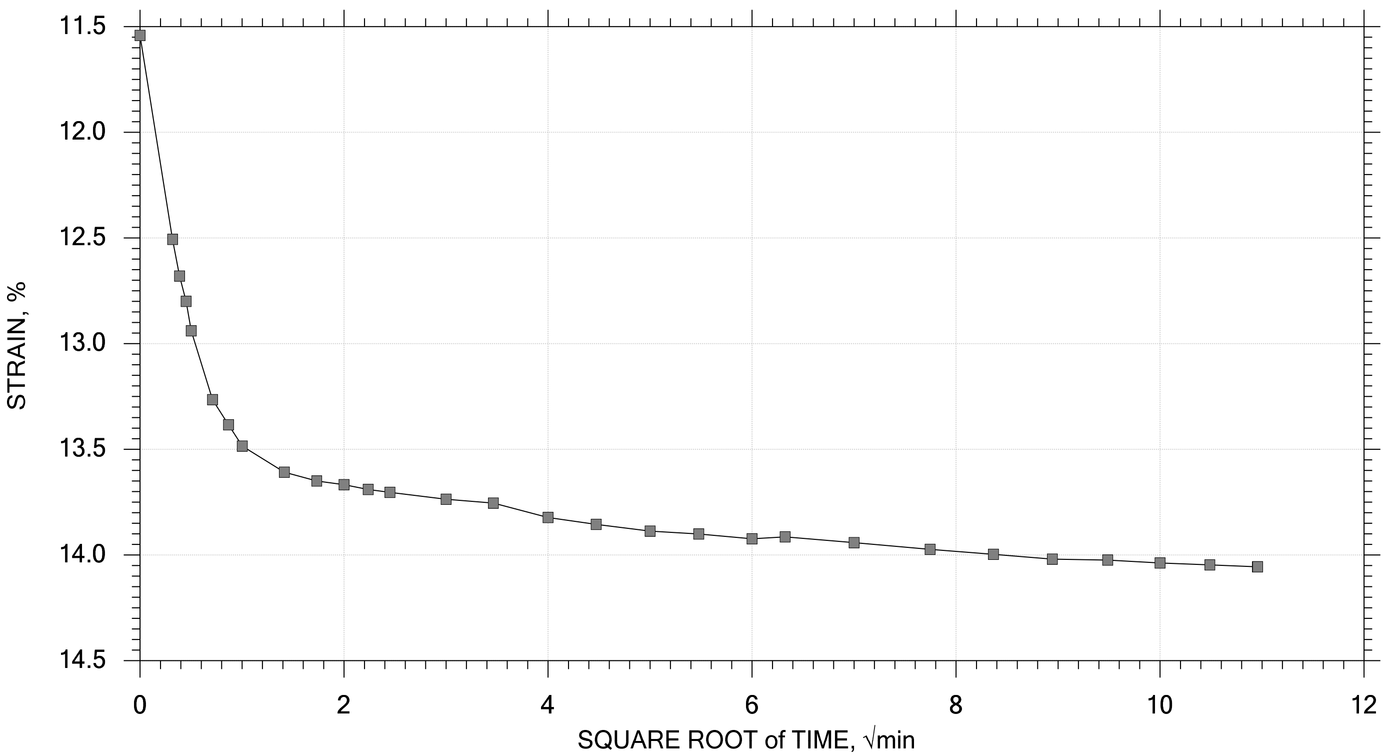
One-Dimensional Consolidation by ASTM D2435 - Method B

TIME CURVES

Constant Load Step 16 of 21

Stress: 32 tsf





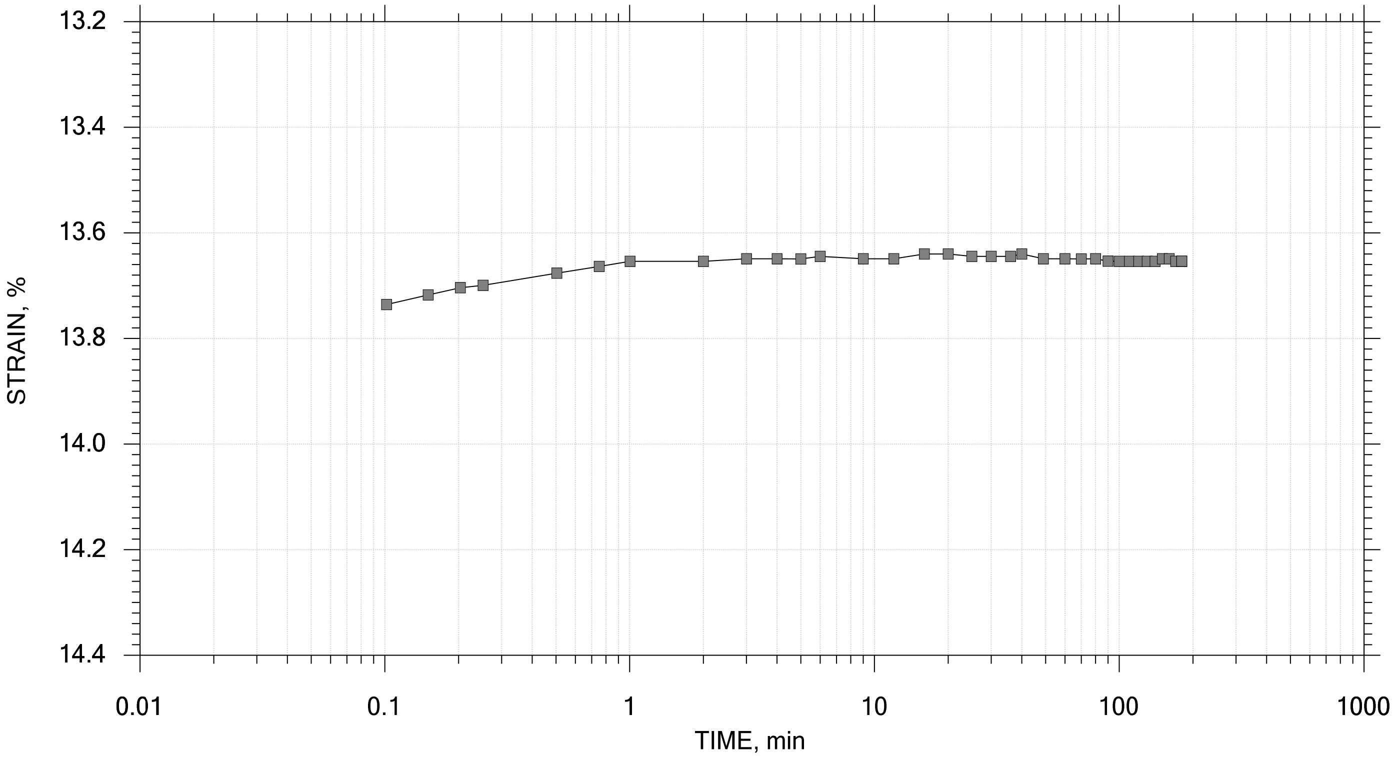
	Project: Beacon Island Parcel	Location: Bethlehem, NY	Project No.: GTX-306651
	Boring No.: SB-01	Tested By: md	Checked By: njh
GeoTesting EXPRESS	Sample No.: Tube	Test Date: 06/27/17	Test No.: IP-2
	Depth: 58-60 ft	Sample Type: intact	Elevation: ---
	Description: Moist, dark gray clay		
	Remarks: System S, Swell Pressure = 0.0665 tsf		

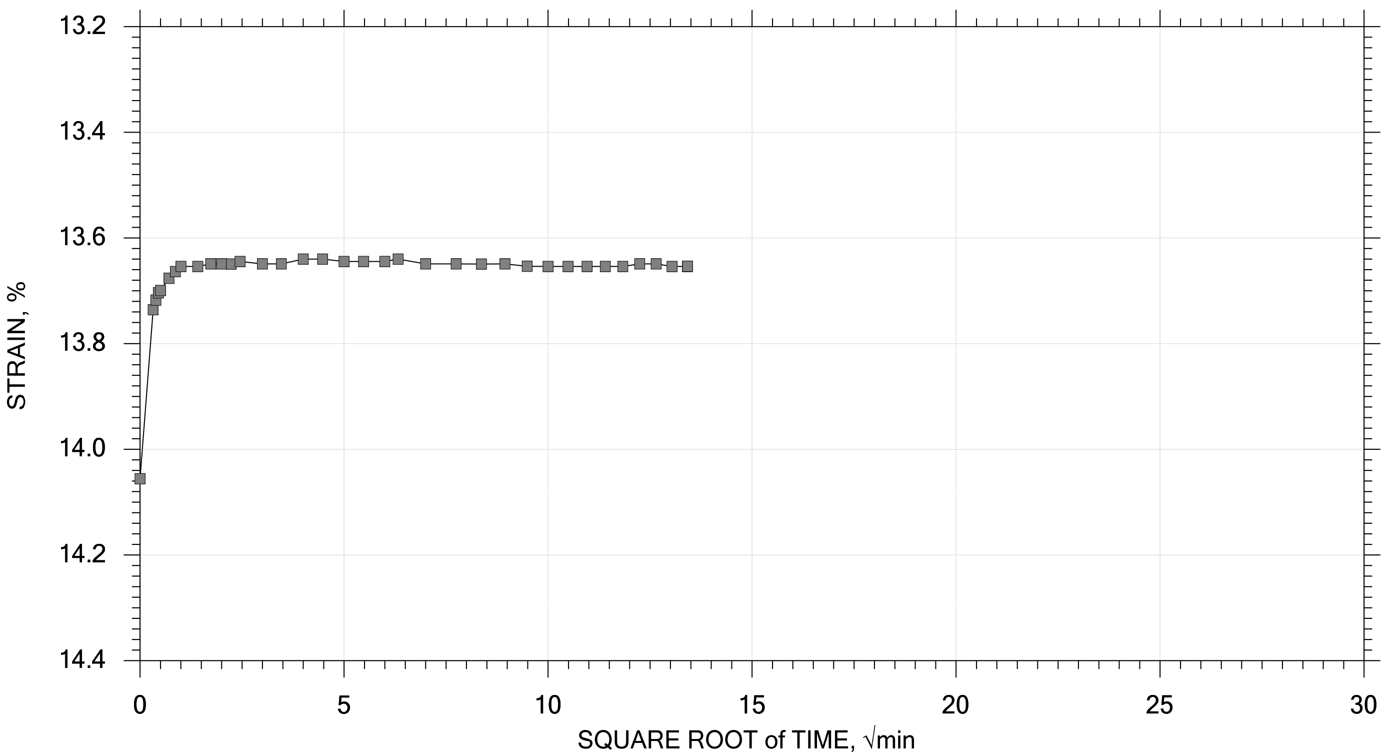
One-Dimensional Consolidation by ASTM D2435 - Method B

TIME CURVES

Constant Load Step 17 of 21

Stress: 8 tsf





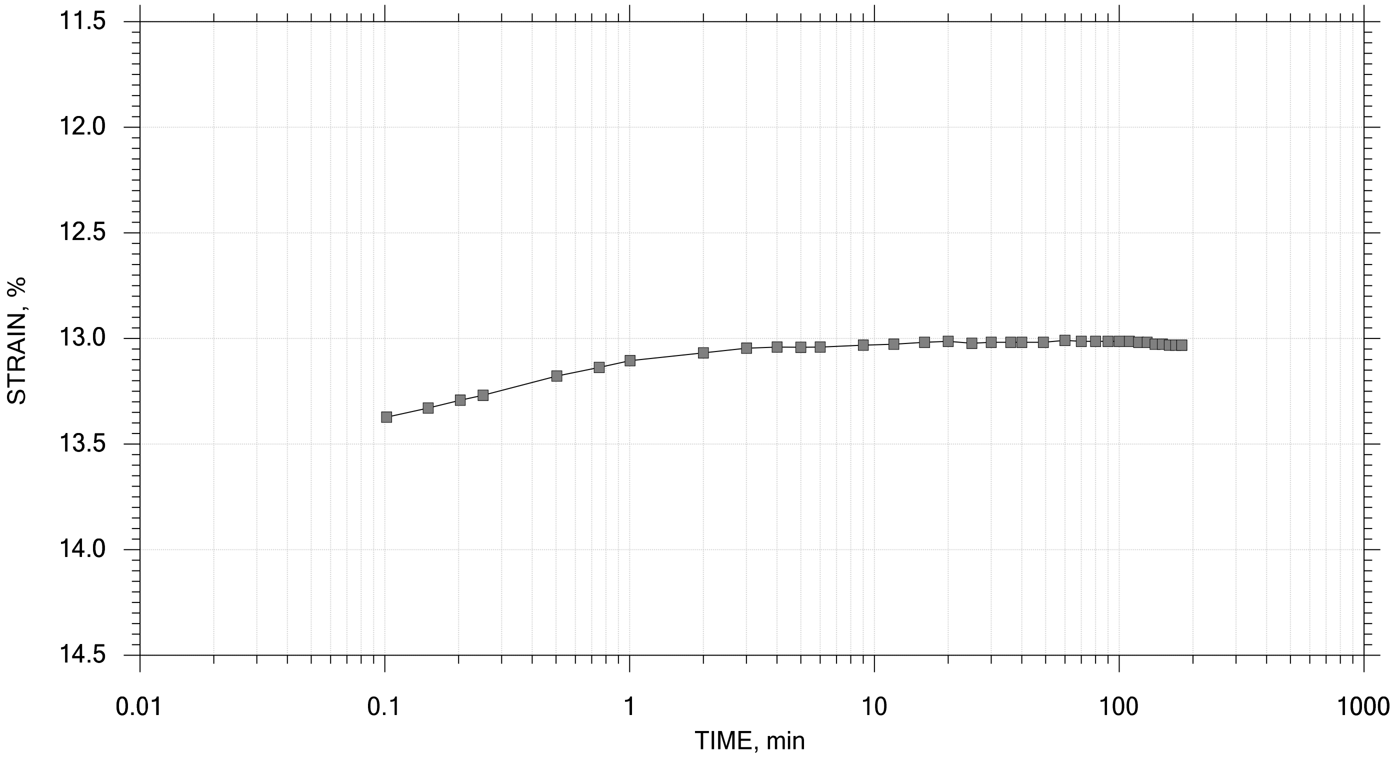
GeoTesting EXPRESS			
	Project: Beacon Island Parcel	Location: Bethlehem, NY	Project No.: GTX-306651
	Boring No.: SB-01	Tested By: md	Checked By: njh
	Sample No.: Tube	Test Date: 06/27/17	Test No.: IP-2
	Depth: 58-60 ft	Sample Type: intact	Elevation: ---
	Description: Moist, dark gray clay		
	Remarks: System S, Swell Pressure = 0.0665 tsf		

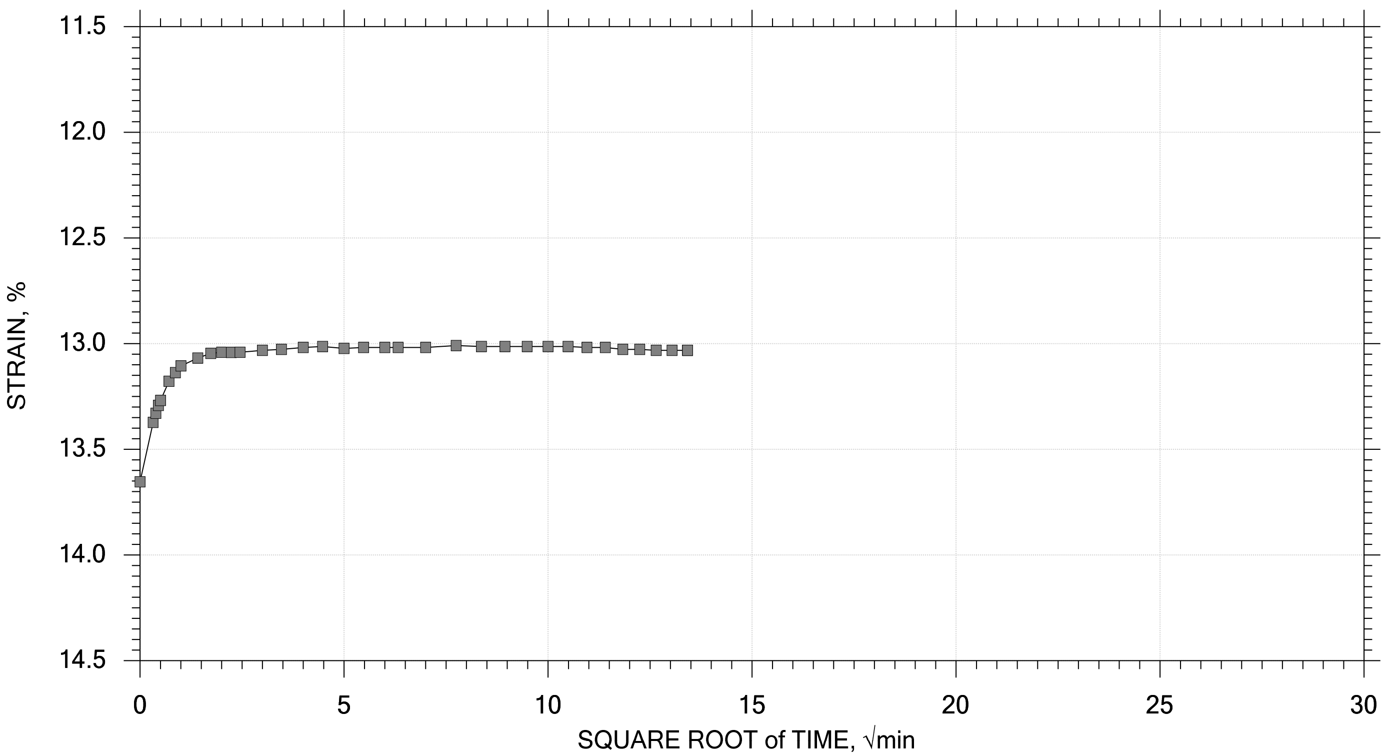
One-Dimensional Consolidation by ASTM D2435 - Method B

TIME CURVES

Constant Load Step 18 of 21

Stress: 2 tsf





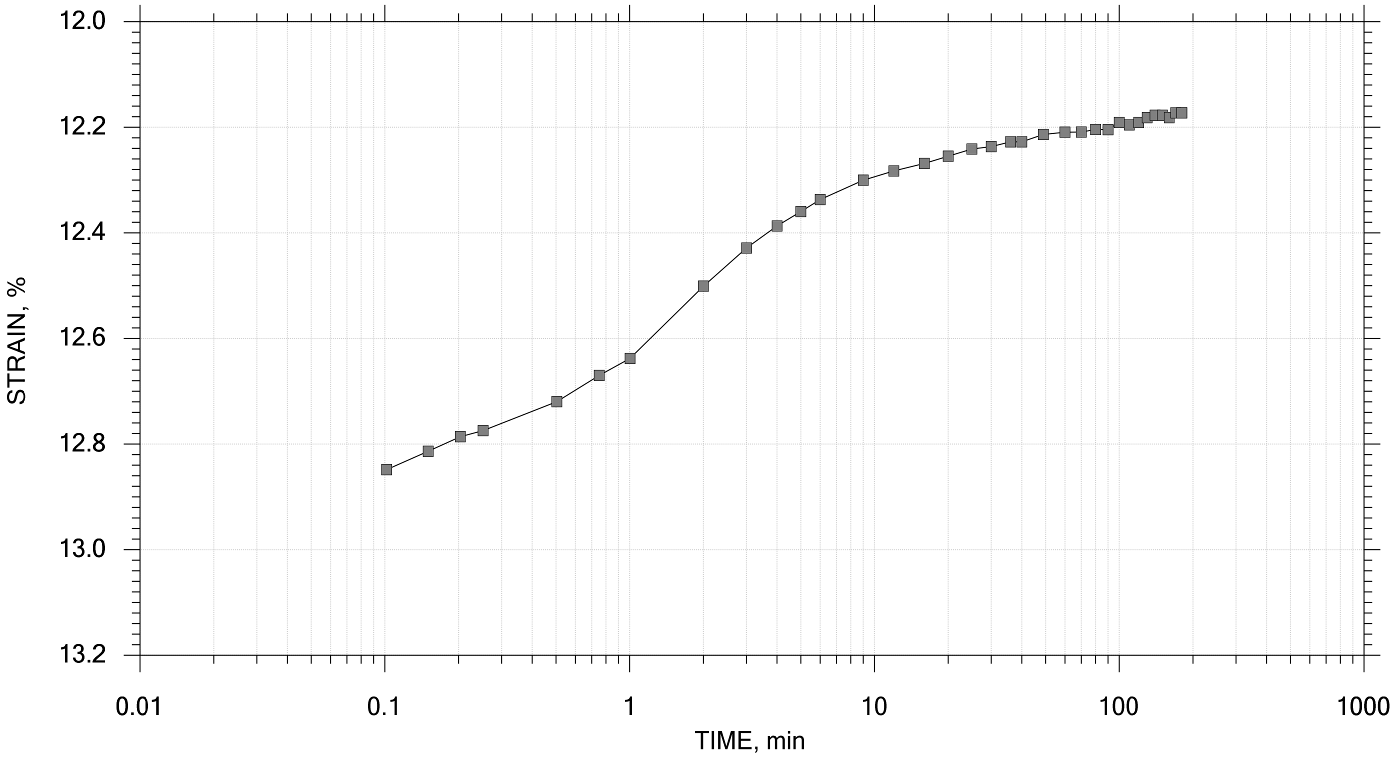
Project: Beacon Island Parcel	Location: Bethlehem, NY	Project No.: GTX-306651
Boring No.: SB-01	Tested By: md	Checked By: njh
Sample No.: Tube	Test Date: 06/27/17	Test No.: IP-2
Depth: 58-60 ft	Sample Type: intact	Elevation: ---
Description: Moist, dark gray clay		
Remarks: System S, Swell Pressure = 0.0665 tsf		

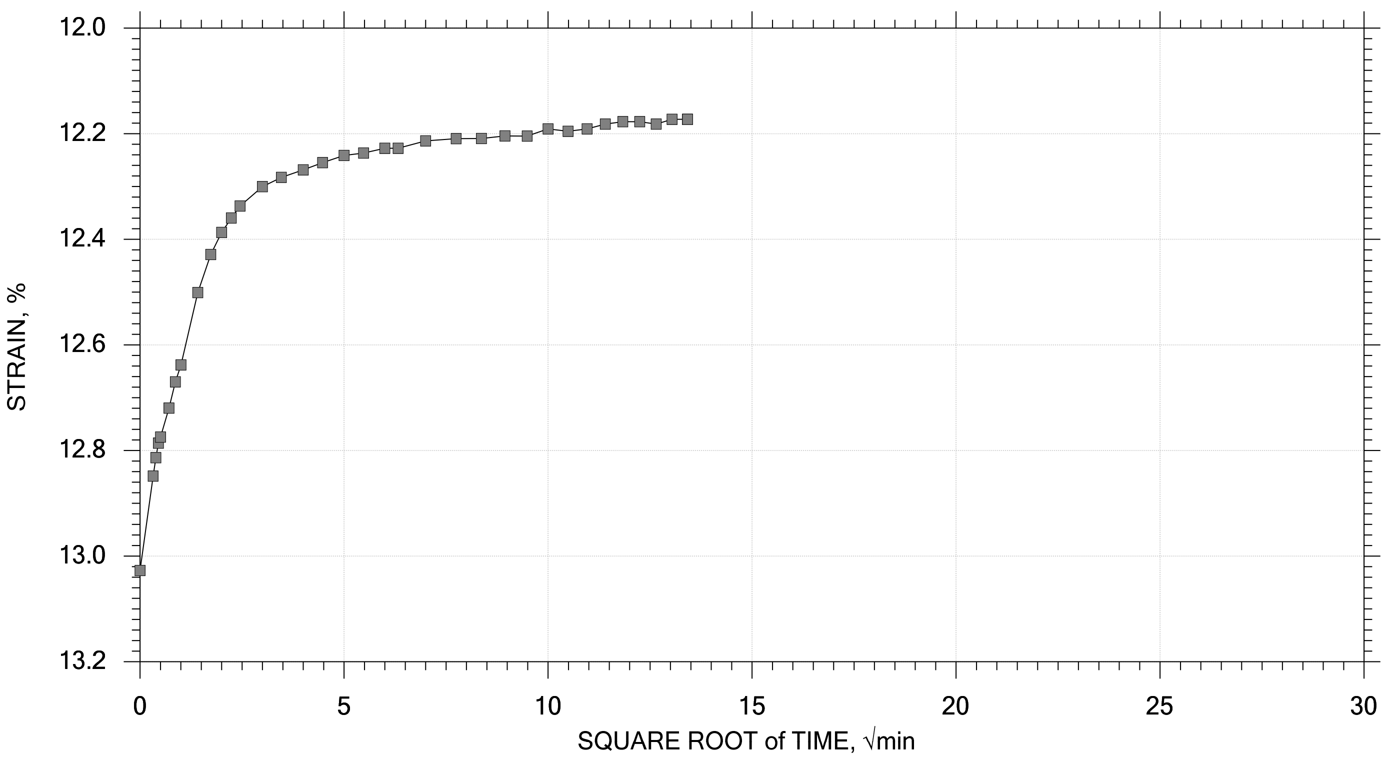
One-Dimensional Consolidation by ASTM D2435 - Method B

TIME CURVES

Constant Load Step 19 of 21

Stress: 0.5 tsf





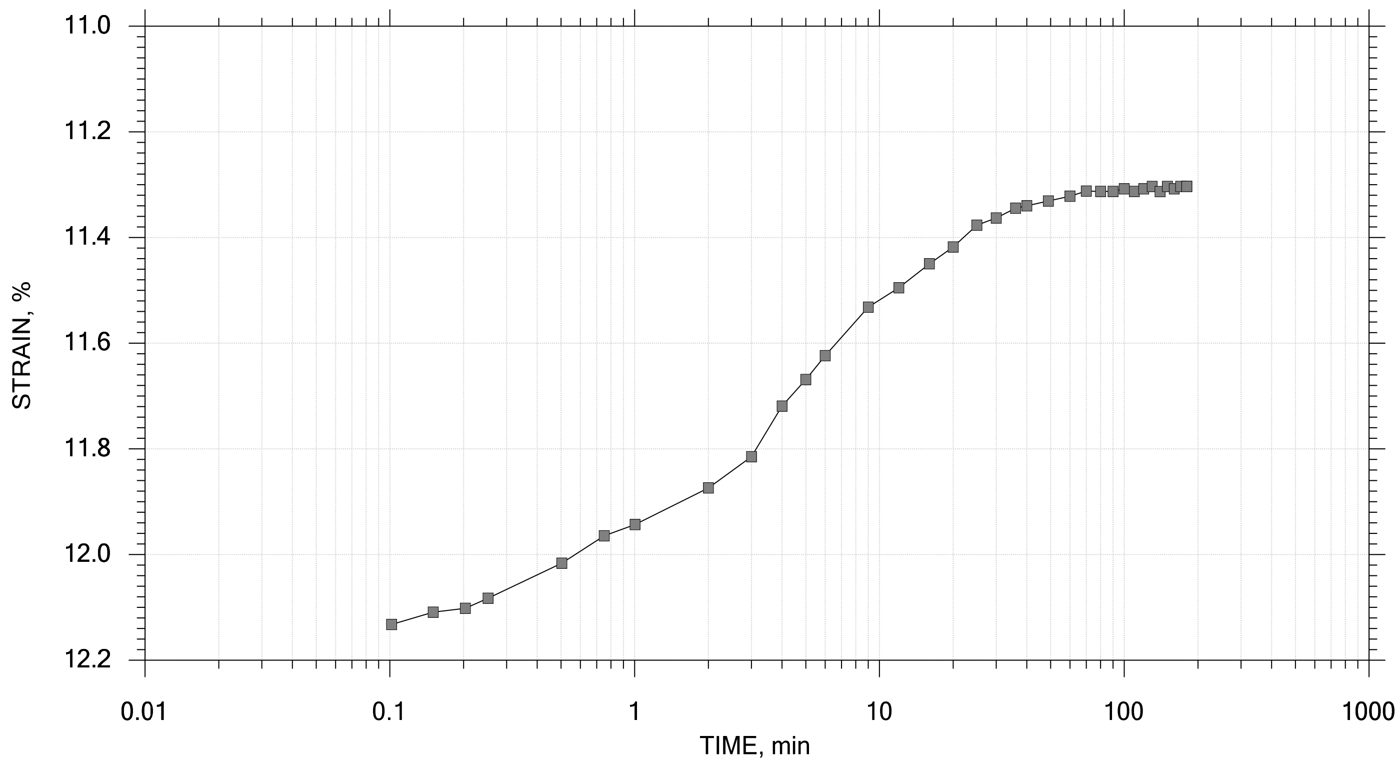
GeoTesting EXPRESS	Project: Beacon Island Parcel	Location: Bethlehem, NY	Project No.: GTX-306651
	Boring No.: SB-01	Tested By: md	Checked By: njh
	Sample No.: Tube	Test Date: 06/27/17	Test No.: IP-2
	Depth: 58-60 ft	Sample Type: intact	Elevation: ---
	Description: Moist, dark gray clay		
	Remarks: System S, Swell Pressure = 0.0665 tsf		

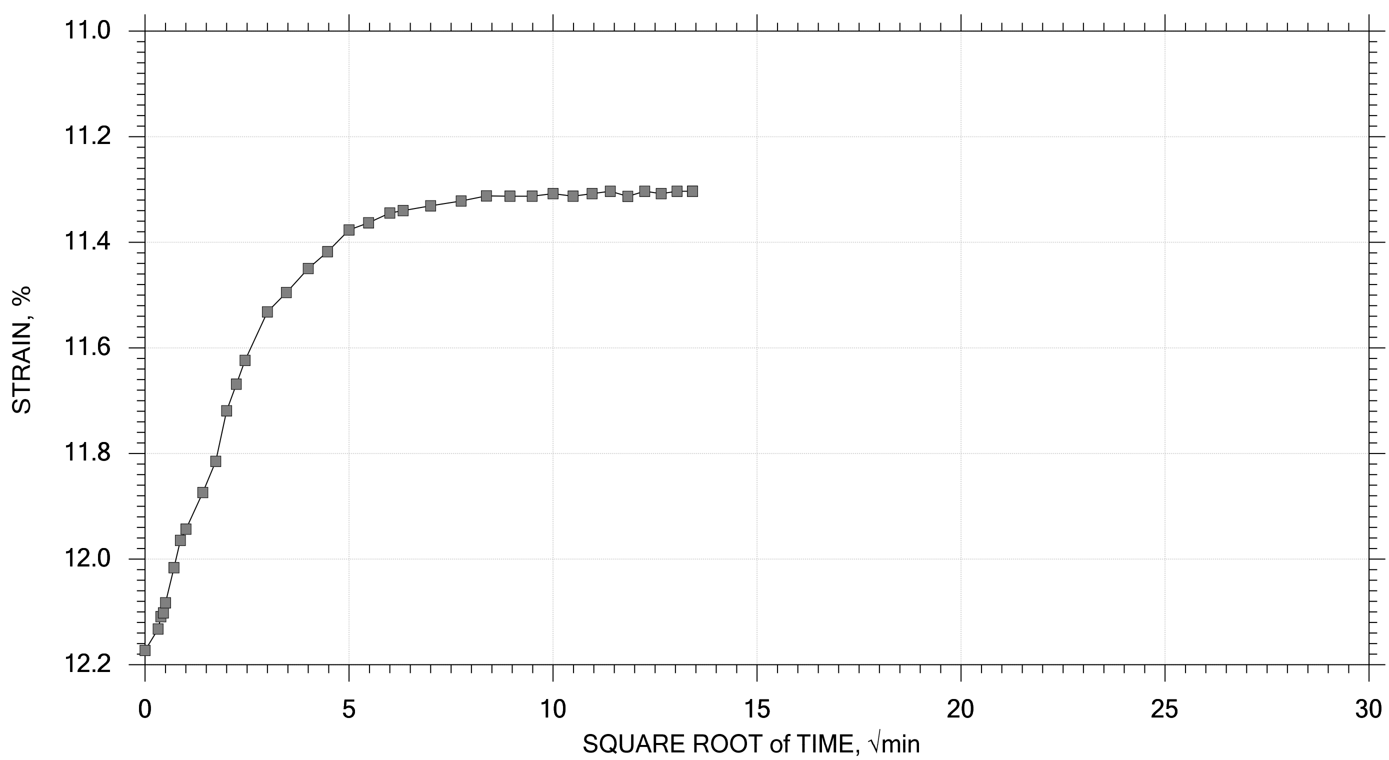
One-Dimensional Consolidation by ASTM D2435 - Method B

TIME CURVES

Constant Load Step 20 of 21

Stress: 0.125 tsf





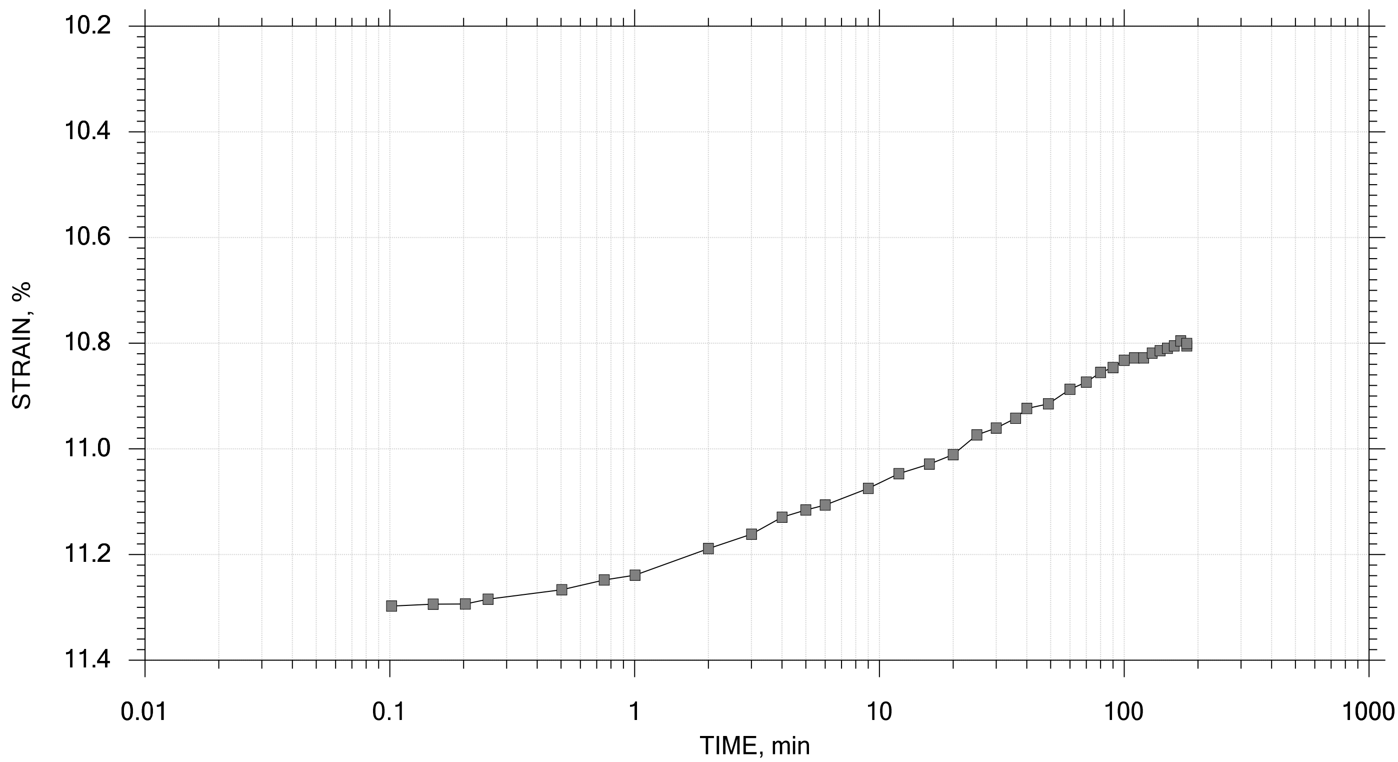
GeoTesting EXPRESS	Project: Beacon Island Parcel	Location: Bethlehem, NY	Project No.: GTX-306651
	Boring No.: SB-01	Tested By: md	Checked By: njh
	Sample No.: Tube	Test Date: 06/27/17	Test No.: IP-2
	Depth: 58-60 ft	Sample Type: intact	Elevation: ---
	Description: Moist, dark gray clay		
	Remarks: System S, Swell Pressure = 0.0665 tsf		

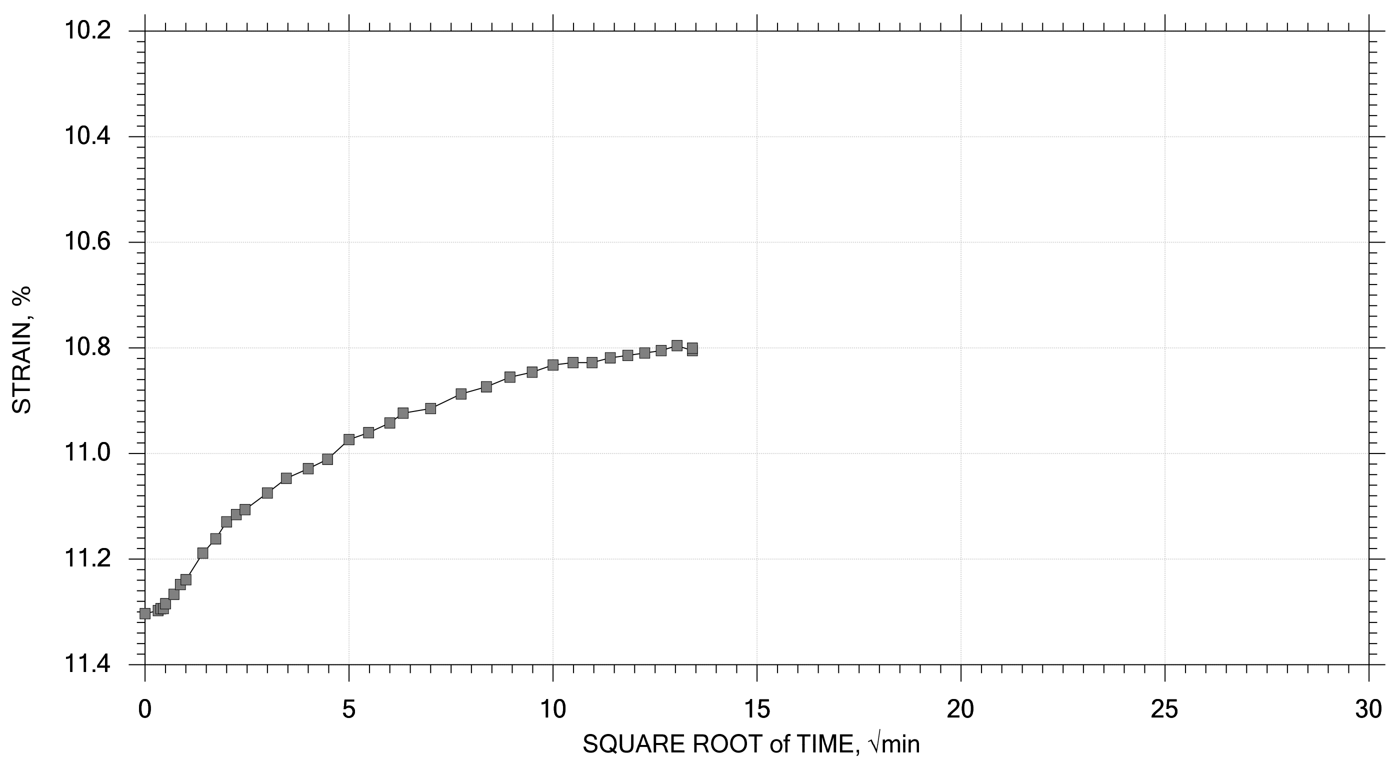
One-Dimensional Consolidation by ASTM D2435 - Method B

TIME CURVES

Constant Load Step 21 of 21

Stress: 0.0625 tsf





GeoTesting EXPRESS	Project: Beacon Island Parcel	Location: Bethlehem, NY	Project No.: GTX-306651
	Boring No.: SB-01	Tested By: md	Checked By: njh
	Sample No.: Tube	Test Date: 06/27/17	Test No.: IP-2
	Depth: 58-60 ft	Sample Type: intact	Elevation: ---
	Description: Moist, dark gray clay		
	Remarks: System S, Swell Pressure = 0.0665 tsf		

APPENDIX G
EVERGREEN TESTING
LABORATORY TEST REPORT

Beacon Island Parcel
Town of Bethlehem, NY

Beacon Island Parcel

Town of Bethlehem, NY

Moisture Content Results - ASTM D2216

Boring No.	SB-1 / S-3	SB-1 / S-5	SB-1 / S-7	SB-1 / S-14	SB-1 / S-17	SB-1 / S-19
Sample No.	992	993	994	995	996	997
Sample Depth	4'-6'	8'-10'	12'-14'	35'-36.5'	45'-46.5'	50'-51.5'
Tare Weight	265.10	267.80	264.50	261.90	260.70	259.40
W_S + Tare	474.50	455.60	391.90	476.20	506.50	544.80
W_D + Tare	414.10	396.10	327.70	416.20	437.60	481.60
W_{WATER}	60.40	59.50	64.20	60.00	68.90	63.20
$W_{DRY\ SOIL}$	149.00	128.30	63.20	154.30	176.90	222.20
% Moisture (W_W / W_D)	40.5	46.4	101.6	38.9	38.9	28.4

Boring No.	SB-1 / S-20	SB-1 / S-21				
Sample No.	998	999				
Sample Depth	55'-56.5'	60'-61.5'				
Tare Weight	256.60	259.70				
W_S + Tare	500.20	482.90				
W_D + Tare	429.30	433.70				
W_{WATER}	70.90	49.20				
$W_{DRY\ SOIL}$	172.70	174.00				
% Moisture (W_W / W_D)	41.1	28.3				

Boring No.						
Sample No.						
Sample Depth						
Tare Weight						
W_S + Tare						
W_D + Tare						
W_{WATER}						
$W_{DRY\ SOIL}$						
% Moisture (W_W / W_D)						

DENTE ENGINEERING
594 Broadway
Watervliet, NY 12189
Ph. 518-266-0310
Fax 518-266-9238

Client: Bergmann Associates
File No. FDE-17-121
Date: June 23, 2017

Beacon Island Parcel

Town of Bethlehem, NY

Organic Content Results ASTM D2974

Boring No.	SB-1 / S-3	SB-1 / S-5	SB-1 / S-7			
Sample No.	992	993	994			
Sample Depth	4'-6'	8'-10'	12'-14'			
Tare Weight	138.10	135.20	139.80			
W_S + Tare	154.60	162.80	163.50			
W_A + Tare	153.70	160.80	159.00			
W_S	16.50	27.60	23.70			
W_A	15.60	25.60	19.20			
%ASH = W_A / W_S	94.5	92.8	81.0			
%ORGANICS	5.5	7.2	19.0			

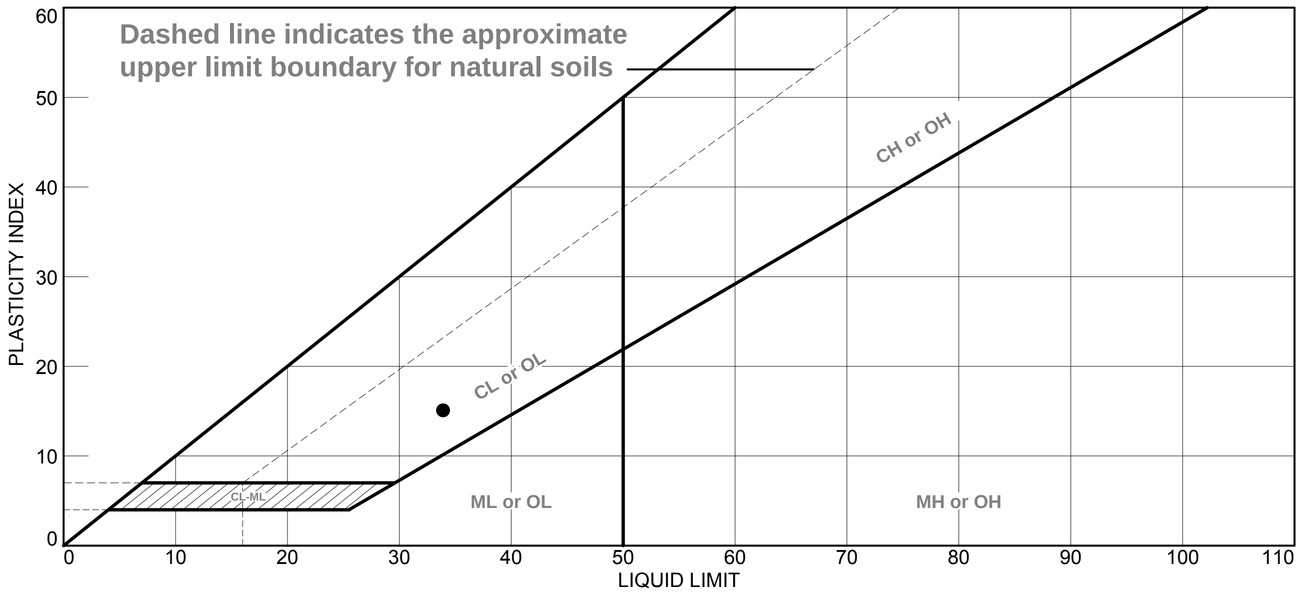
Boring No.						
Sample No.						
Sample Depth						
Tare Weight						
W_S + Tare						
W_A + Tare						
W_S						
W_A						
%ASH = W_A / W_S						
%ORGANICS						

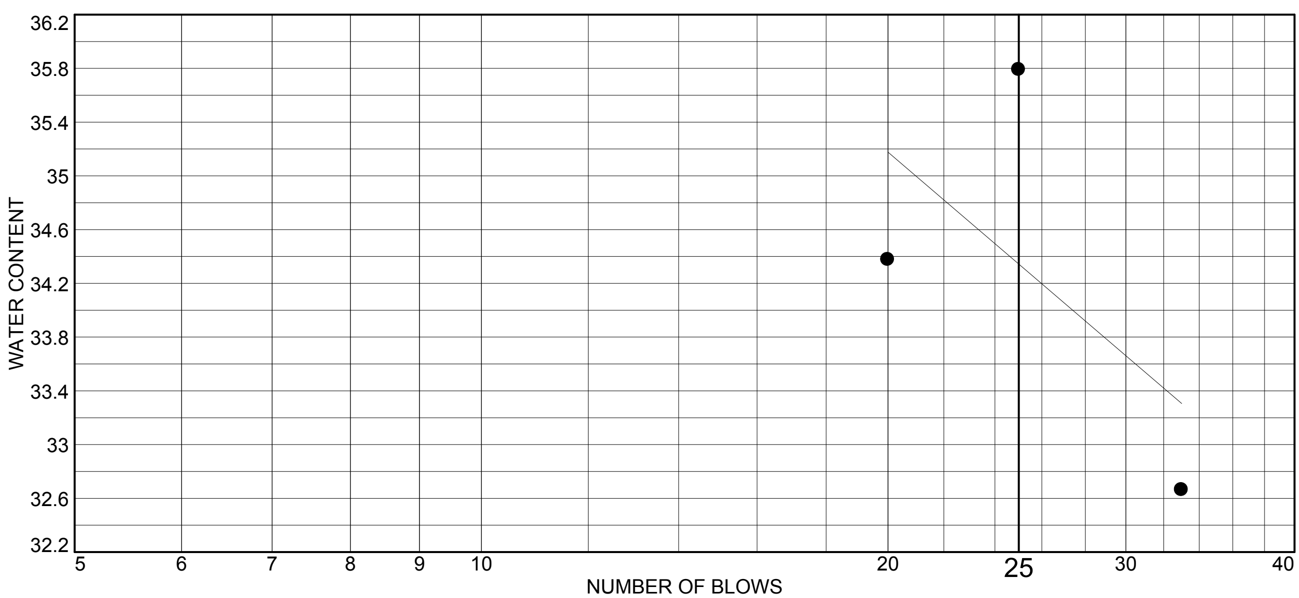
Boring No.						
Sample No.						
Sample Depth						
Tare Weight						
W_S + Tare						
W_A + Tare						
W_S						
W_A						
%ASH = W_A / W_S						
%ORGANICS						

DENTE ENGINEERING
594 Broadway
Watervliet, NY 12189
Ph. 518-266-0310
Fax 518-266-9238

Client: Bergmann Associates
File No. FDE-17-121
Date: June 23, 2017

LIQUID AND PLASTIC LIMITS TEST REPORT





	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Lean Clay	34	19	15			

Project No. FDE-17-121 **Client:** Bergmann Associates

Project: Beacon Island Parcel

Town of Bethlehem, NY

Source of Sample: Soil Borings **Depth:** 45'-46.5'

Sample Number: 996 SB-1/S-17

Remarks:

●Per ASTM D4318

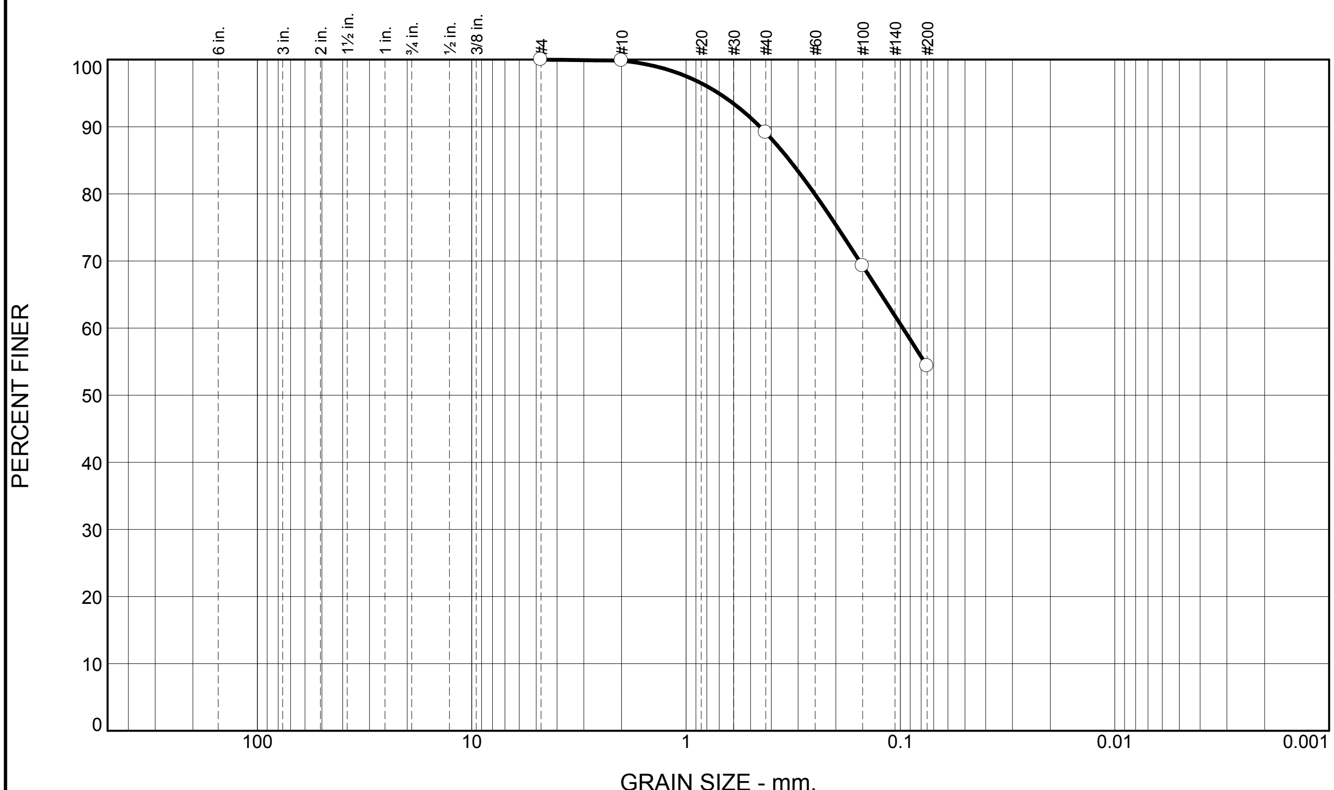
EVERGREEN TESTING, INC.

Watervliet, NY

Figure 996

Tested By: AB **Checked By:** EG

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	10.8	34.8	54.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	99.9		
#40	89.1		
#100	69.3		
#200	54.3		

* (no specification provided)

Material Description

SILT and F-M-C SAND

Atterberg Limits

PL= NP LL= NP PI= NP

Coefficients

D_{90}= 0.4518 D_{85}= 0.3288 D_{60}= 0.0975
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= ML AASHTO= A-4(0)

Remarks

Per ASTM D422 Washed

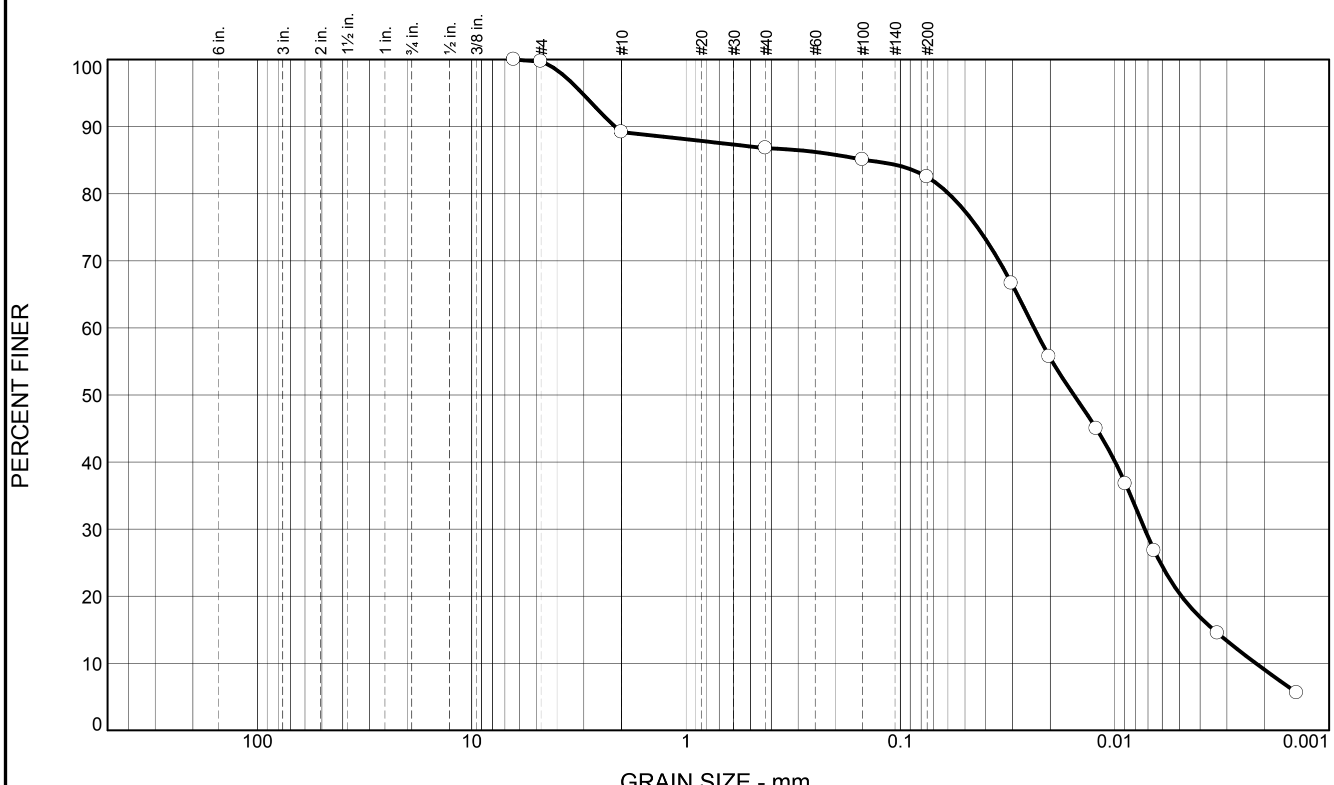
Source of Sample: Soil Borings **Depth:** 4'-6'
Sample Number: 992 SB-1/S-3 **Date:** 6-23-17

EVERGREEN TESTING, INC. Watervliet, NY

Client: Bergmann Associates
Project: Beacon Island Parcel
Town of Bethlehem, NY
Project No: FDE-17-121 **Figure** 992

Tested By: AB **Checked By:** EG

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.3	10.5	2.4	4.3	62.1	20.4

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
0.25"	100.0		
#4	99.7		
#10	89.2		
#40	86.8		
#100	85.1		
#200	82.5		

* (no specification provided)

Material Description

SILT, Some Clay, Little C-F-M Sand, trace fine gravel

Atterberg Limits

PL= NP LL= NP PI= NP

Coefficients

D_{90}= 2.1427 D_{85}= 0.1453 D_{60}= 0.0238
D_{50}= 0.0155 D_{30}= 0.0072 D_{15}= 0.0035
D_{10}= 0.0022 C_u= 10.82 C_c= 1.00

Classification

USCS= ML AASHTO= A-4(0)

Remarks

Per ASTM D422 Washed

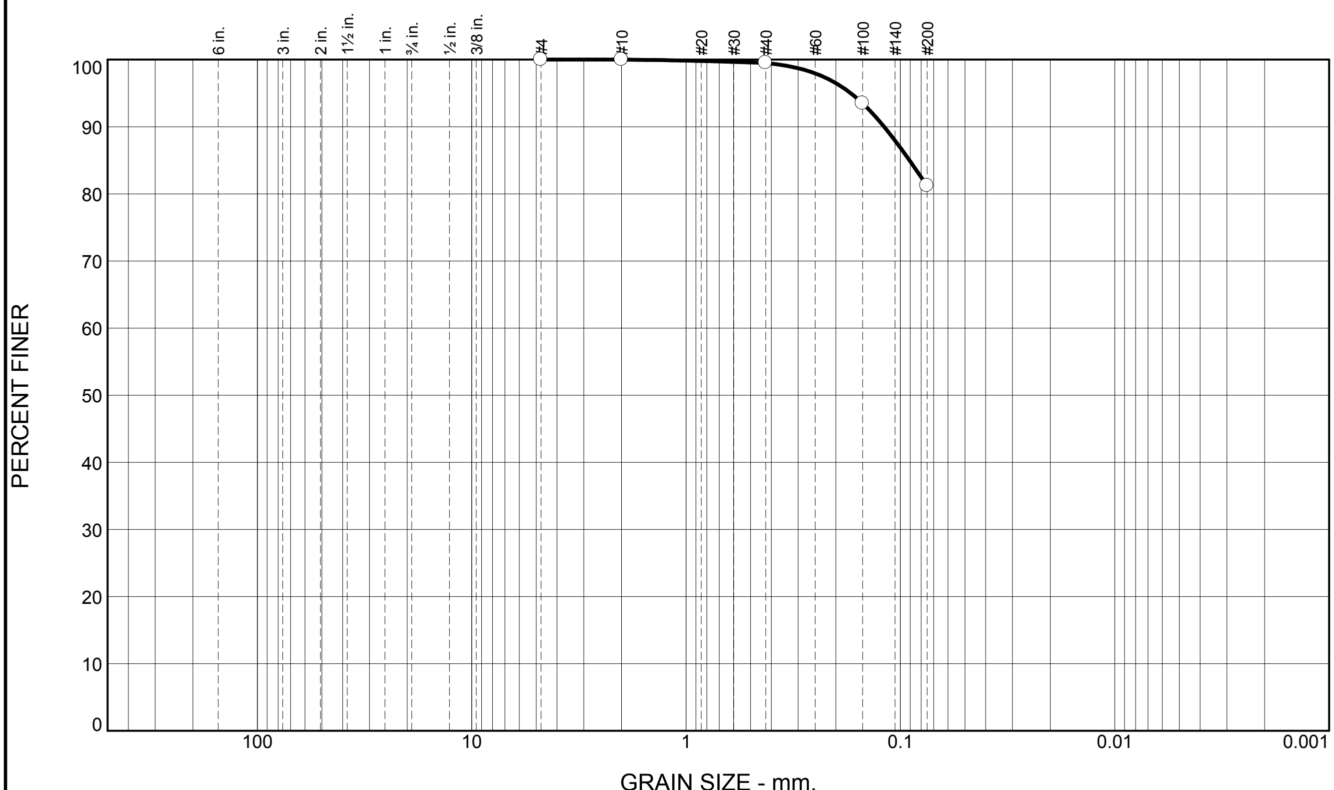
Source of Sample: Soil Borings **Depth:** 8'-10'
Sample Number: 993 SB-1/S-5 **Date:** 6-23-17

EVERGREEN TESTING, INC. Watervliet, NY

Client: Bergmann Associates
Project: Beacon Island Parcel
Town of Bethlehem, NY
Project No: FDE-17-121 **Figure** 993

Tested By: AB **Checked By:** EG

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.5	18.3	81.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	100.0		
#40	99.5		
#100	93.5		
#200	81.2		

* (no specification provided)

Material Description

SILT, Little F-M Sand

Atterberg Limits

PL= NP LL= NP PI= NP

Coefficients

D_{90}= 0.1192 D_{85}= 0.0908 D_{60}=
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= ML AASHTO= A-4(0)

Remarks

Per ASTM D422 Washed

Source of Sample: Soil Borings **Depth:** 12'-14'
Sample Number: 994 SB-1/S-7 **Date:** 6-23-17

EVERGREEN TESTING, INC.
Watervliet, NY

Client: Bergmann Associates
Project: Beacon Island Parcel
Town of Bethlehem, NY
Project No: FDE-17-121 **Figure** 994

Tested By: AB **Checked By:** EG

APPENDIX F

HUDSON RIVER DREDGING REPORT

ATLANTIC TESTING LABORATORIES

WBE certified company

Canton
6431 U.S. Highway 11
P.O. Box 29
Canton, NY 13617
315-386-4578 (T)
atlantictesting.com

July 15, 2019

Albany Port District Commission
100 Smith Boulevard
Albany, New York 12202

Attn: Richard J. Hendrick

Re: Sediment Sampling and Analysis
Beacon Island Project
Glenmont, Albany County, New York
ATL Report No. CD4644CE-01-07-19

Ladies/Gentlemen:

Enclosed is a copy of the Sediment Sampling and Analysis report prepared for the referenced site. This project was completed in accordance with the scope of work outlined in Atlantic Testing Laboratories, Limited (ATL) contract number CD998-034X-01-19, dated January 29, 2019, and authorized by Richard J. Hendrick, representing the Albany Port District Commission.

Please contact our office should you have any questions, or if we may be of further assistance.

Sincerely,
ATLANTIC TESTING LABORATORIES, Limited

Cheyenne J. Dashnaw, PE
Senior Engineer

CJD/cjd

Enclosures

cc: Steve Boisvert, PE, McFarland Johnson (sboisvert@mjinc.com)
Turner Bradford, McFarland Johnson (tbradford@mjinc.com)
Ashley Erdmann, McFarland Johnson (aerdmann@mjinc.com)

SEDIMENT SAMPLING AND ANALYSIS
BEACON ISLAND PROJECT
GLENMONT, ALBANY COUNTY, NEW YORK

PREPARED FOR:

Albany Port District Commission
100 Smith Boulevard
Albany, New York 12202

PREPARED BY:

Atlantic Testing Laboratories, Limited
6431 U.S. Highway 11
Canton, New York 13617

ATL REPORT NO. CD4644CE-01-07-19

JULY 15, 2019

TABLE OF CONTENTS

APPENDICES

1.0 INTRODUCTION

In accordance with Atlantic Testing Laboratories, Limited contract number CD998-034X-01-19, dated January 29, 2019, sediment sampling and analysis were performed for the Beacon Island Project, Glenmont, Albany County, New York. The sampling services were provided on June 13, 2019. The purpose of the sediment sampling and analysis was to provide a preliminary indication of the sediment quality in the area of a proposed wharf wall.

2.0 SITE DESCRIPTION

The project site is located on the Hudson River, adjacent to Beacon Island in Glenmont, Albany County, New York. The site is intersected by 42º36”12’N latitude and 73º45”47’W longitude. A Core Location Plan, depicting the approximate location of the subject site and core locations, is contained in Appendix A.

3.0 SEDIMENT SAMPLING

3.1 Sampling Locations

The locations of the sediment cores were selected to obtain representative samples for sediment material in the vicinity of a proposed wharf wall. The Core Location Plan, contained in Appendix A, depicts the approximate core locations.

3.2 Sampling Methodologies

The sediment cores were advanced to depths of 10 feet below the surface of the sediment. All cores were advanced utilizing a Rossfelder P-3 Vibracore with 4-inch diameter core tubes. Sediment samples were collected continuously at each core location. 4-inch cellulose acetate butyrate (CAB) liners were utilized to extract the samples.

Recovered sediment material was field classified, in general accordance with ASTM D 2488, and representative material throughout the depth of each core was containerized for subsequent laboratory analysis. Core Logs, containing a description of the subsurface stratigraphy encountered at each core location, are contained in Appendix B.

4.0 LABORATORY ANALYSIS

4.1 Laboratory Samples

Sediment samples requiring laboratory analysis were collected in clean laboratory glassware, with Teflon-lined lids, in accordance with industry standard protocol. Disposable sampling equipment (i.e., nitrile gloves) was utilized to collect these samples, and the samples were stored in a cooler, with ice, and maintained at approximately 4°C during storage and delivery to the laboratory.

A total of 5 samples were collected for laboratory analysis and submitted to Alpha Analytical, located in Westborough, Massachusetts, a New York State Department of Health (NYSDOH) Environmental Laboratory Approval Program (ELAP) approved laboratory (ELAP No. 11148). The samples were laboratory analyzed for arsenic, cadmium, copper, lead, and mercury, in accordance with EPA Methods 6010B and 7470; benzene, toluene, ethylbenzene, and xylenes, in accordance with EPA Method 8260; total polycyclic aromatic hydrocarbon (PAH), in accordance with EPA Method 8270; mirex, chlordane, dieldrin, and sum of DDT + DDD +DDE, in accordance with EPA Method 8081A; total polychlorinated biphenyls (PCB), in accordance with EPA Method 8082; and cyanide, in accordance with EPA Method 9010.

4.2 Summary of Laboratory Data

A copy of the laboratory reports and associated sample custody documentation for the referenced samples are contained in Appendix C. A summary of the analytical results for is provided in Table D-1, contained in Appendix D.

5.0 SUMMARY OF FINDINGS

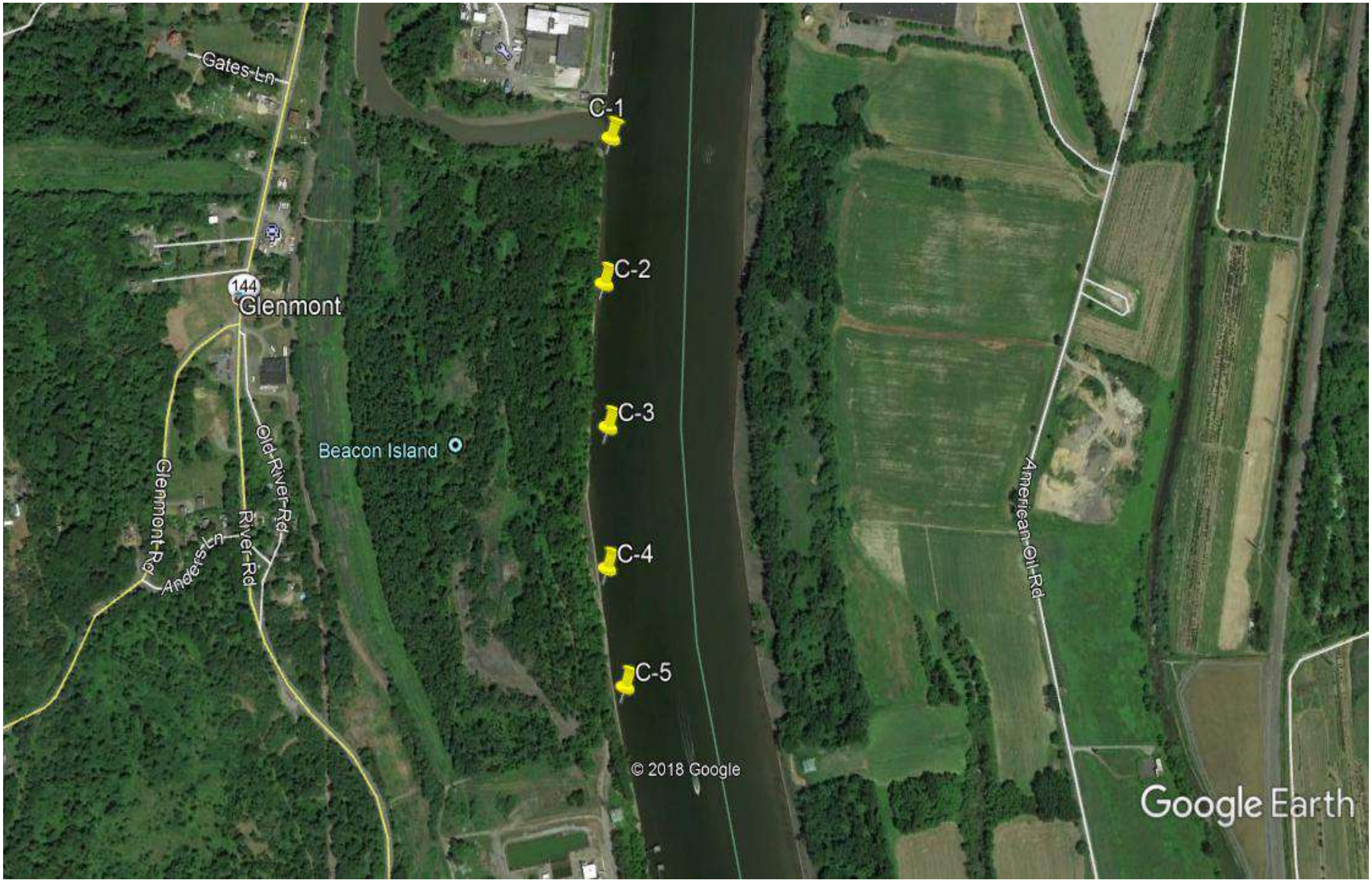
The following is a summary of findings from the sediment sampling and analysis performed by ATL. Recommendations for further investigation activities are also provided, as warranted.

Based on the information collected during the subsurface investigation in cores C-1 through C-5, it appears the detected concentrations of pesticides and PCB in 1 of the 5 selected core locations (core C-2) would warrant dredging management option Class B pursuant to the NYSDEC Division of Water Technical & Operational Guidance Document Series (TOGS) 5.1.9. Class B management option suggests the use of a closed bucket or other method to meet environmental objectives during dredging activity. Additionally, disposal criteria for removed Class B sediments require further evaluation.

The sampling and analysis were performed as a preliminary evaluation of sediment in the area of proposed wharf wall construction. Further evaluation may be necessary dependent upon the actual design plans for site redevelopment. Sediment sampling and analysis data and proposed dredging plans should be reviewed with the NYSDEC to verify acceptability.

APPENDIX A

CORE LOCATION PLAN



Gates Ln
C-1
C-2
144
Glenmont
C-3
Beacon Island
Glenmont Rd
Old River Rd
River Rd
Anders Ln
C-4
C-5
American Oil Rd
© 2018 Google
Google Earth

APPENDIX B

CORE LOGS

ATLANTIC TESTING LABORATORIES

SEDIMENT CORE NUMBER:	**C-1**
METHOD OF CORE ADVANCEMENT:	Vibracore
ADVANCEMENT DATE:	June 13, 2019
NORTHING:	1375609.822
EASTING:	690526.583
SEDIMENT SAMPLING CREW:	Tim Parker
	Mark Childs
	Kevin Jones

Beacon Island Project
Glenmont, Albany County, New York
ATL Report No. CD4644D-01-07-19

Depth (feet)	Recovery (in.)	Depth (feet)	Classification of Material*
0	37"	0.0-10.0	Brown cmf SAND; little SILT
2			
4			
6			
8			
10			Core terminated at 10.0 feet.

NOTES:

Sample of Core sediment composited for laboratory analysis.

Water depth measured at 14'4".

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ATLANTIC TESTING LABORATORIES

SEDIMENT CORE NUMBER:	**C-2**
METHOD OF CORE ADVANCEMENT:	Vibracore
ADVANCEMENT DATE:	June 13, 2019
NORTHING:	1374929.407
EASTING:	690498.44
SEDIMENT SAMPLING CREW:	Tim Parker
	Mark Childs
	Kevin Jones

Beacon Island Project
Glenmont, Albany County, New York
ATL Report No. CD4644D-01-07-19

Depth (feet)	Recovery (in.)	Depth (feet)	Classification of Material*
0	37"	0.0-10.0	Brown cmf SAND
2			
4			
6			
8			
10			Core terminated at 10.0 feet.

NOTES:

Sample of Core sediment composited for laboratory analysis.

Water depth measured at 6'2".

ATLANTIC TESTING LABORATORIES

SEDIMENT CORE NUMBER:	**C-3**
METHOD OF CORE ADVANCEMENT:	Vibracore
ADVANCEMENT DATE:	June 13, 2019
NORTHING:	1374258.273
EASTING:	690523.641
SEDIMENT SAMPLING CREW:	Tim Parker
	Mark Childs
	Kevin Jones

Beacon Island Project
Glenmont, Albany County, New York
ATL Report No. CD4644D-01-07-19

Depth (feet)	Recovery (in.)	Depth (feet)	Classification of Material*
0	29"	0.0-10.0	Brown cmf SAND
2			
4			
6			
8			
10			Core terminated at 10.0 feet.

NOTES:

Sample of Core sediment composited for laboratory analysis.

Water depth measured at 12'.

ATLANTIC TESTING LABORATORIES

SEDIMENT CORE NUMBER:	**C-4**
METHOD OF CORE ADVANCEMENT:	Vibracore
ADVANCEMENT DATE:	June 13, 2019
NORTHING:	1373595.753
EASTING:	690523.641
SEDIMENT SAMPLING CREW:	Tim Parker
	Mark Childs
	Kevin Jones

Beacon Island Project
Glenmont, Albany County, New York
ATL Report No. CD4644D-01-07-19

Depth (feet)	Recovery (in.)	Depth (feet)	Classification of Material*
0	26"	0.0-10.0	Brown cmf SAND; some SILT
2			
4			
6			
8			
10			Core terminated at 10.0 feet.

NOTES:

Sample of Core sediment composited for laboratory analysis.

Water depth measured at 11'8".

ATLANTIC TESTING LABORATORIES

Beacon Island Project
Glenmont, Albany County, New York
ATL Report No. CD4644D-01-07-19

SEDIMENT CORE NUMBER:	**C-5**
METHOD OF CORE ADVANCEMENT:	Vibracore
ADVANCEMENT DATE:	June 13, 2019
NORTHING:	1373042.121
EASTING:	690620.728
SEDIMENT SAMPLING CREW:	Tim Parker
	Mark Childs
	Kevin Jones

Depth (feet)	Recovery (in.)	Depth (feet)	Classification of Material*
0	42"	0.0-10.0	Brown cmf SAND; some SILT
2			
4			
6			
8			
10			Core terminated at 10.0 feet.

NOTES:

Sample of Core sediment composited for laboratory analysis.

Water depth measured at 12".

APPENDIX C

LABORATORY REPORTS AND SAMPLE CUSTODY DOCUMENTATION

ANALYTICAL REPORT

Lab Number:	L1925812
Client:	Atlantic Testing Laboratories, Limited 6431 US Highway 11 PO Box 29 Canton, NY 13617
ATTN:	Tim S. Parker
Phone:	(315) 386-4578
Project Name:	BEACON ISLAND PROJECT
Project Number:	CD4644
Report Date:	07/12/19

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name: BEACON ISLAND PROJECT
Project Number: CD4644

Lab Number: L1925812
Report Date: 07/12/19

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1925812-01	B-1	SEDIMENT	PORT OF ALBANY	06/13/19 15:10	06/14/19
L1925812-02	B-2	SEDIMENT	PORT OF ALBANY	06/13/19 15:40	06/14/19
L1925812-03	B-3	SEDIMENT	PORT OF ALBANY	06/13/19 16:15	06/14/19
L1925812-04	B-4	SEDIMENT	PORT OF ALBANY	06/13/19 16:45	06/14/19
L1925812-05	B-5	SEDIMENT	PORT OF ALBANY	06/13/19 17:10	06/14/19

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Project Name:	BEACON ISLAND PROJECT	**Lab Number:**	L1925812
Project Number:	CD4644	**Report Date:**	07/12/19

Case Narrative (continued)

Report Submission

July 12, 2019: This final report includes the results of all requested analyses.

July 08, 2019: This is a preliminary report.

July 02, 2019: This is a preliminary report.

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Volatile Organics

Any reported concentrations that are below 200 ug/kg may be biased low due to the sample not being collected according to 5035-L/5035A-L low-level specifications.

Pesticides

L1925812-01 through -05: The samples were frozen upon receipt in order to arrest the holding time.

Total Metals

L1925812-01 through -05: The sample has elevated detection limits for all elements, with the exception of mercury, due to the dilution required by the high concentrations of target and non-target elements.

Cyanide, Total

The WG1249185-2 LCS recovery (74%), associated with L1925812-02 through -04, is outside our in-house acceptance criteria, but within the vendor-certified acceptance limits. The results of the original analyses are reported.

The WG1249186-2 LCS recovery (74%), associated with L1925812-01 and -05, is outside our in-house acceptance criteria, but within the vendor-certified acceptance limits. The results of the original analyses are reported.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Melissa Sturgis Melissa Sturgis

Title: Technical Director/Representative

Date: 07/12/19

ORGANICS

VOLATILES

Project Name: BEACON ISLAND PROJECT **Lab Number:** L1925812
Project Number: CD4644 **Report Date:** 07/12/19

SAMPLE RESULTS

Lab ID:	L1925812-01	Date Collected:	06/13/19 15:10
Client ID:	B-1	Date Received:	06/14/19
Sample Location:	PORT OF ALBANY	Field Prep:	Not Specified

Sample Depth:
Matrix: Sediment
Analytical Method: 1,8260C
Analytical Date: 06/26/19 14:11
Analyst: JC
Percent Solids: 78%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Benzene	ND		ug/kg	0.73	0.24	1
Toluene	ND		ug/kg	1.5	0.80	1
Ethylbenzene	ND		ug/kg	1.5	0.21	1
p/m-Xylene	ND		ug/kg	2.9	0.82	1
o-Xylene	ND		ug/kg	1.5	0.43	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	105		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	103		70-130
Dibromofluoromethane	101		70-130

Project Name:	BEACON ISLAND PROJECT	**Lab Number:**	L1925812
Project Number:	CD4644	**Report Date:**	07/12/19

SAMPLE RESULTS

Lab ID:	L1925812-02	Date Collected:	06/13/19 15:40
Client ID:	B-2	Date Received:	06/14/19
Sample Location:	PORT OF ALBANY	Field Prep:	Not Specified

Sample Depth:
Matrix: Sediment
Analytical Method: 1,8260C
Analytical Date: 06/26/19 11:33
Analyst: JC
Percent Solids: 73%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Benzene	ND		ug/kg	0.52	0.17	1
Toluene	ND		ug/kg	1.0	0.56	1
Ethylbenzene	ND		ug/kg	1.0	0.15	1
p/m-Xylene	ND		ug/kg	2.1	0.58	1
o-Xylene	ND		ug/kg	1.0	0.30	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	103		70-130
Toluene-d8	107		70-130
4-Bromofluorobenzene	109		70-130
Dibromofluoromethane	100		70-130

Project Name: BEACON ISLAND PROJECT **Lab Number:** L1925812

Project Number: CD4644 **Report Date:** 07/12/19

SAMPLE RESULTS

Lab ID:	L1925812-03	Date Collected:	06/13/19 16:15
Client ID:	B-3	Date Received:	06/14/19
Sample Location:	PORT OF ALBANY	Field Prep:	Not Specified

Sample Depth:
Matrix: Sediment
Analytical Method: 1,8260C
Analytical Date: 06/26/19 12:13
Analyst: JC
Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Benzene	ND		ug/kg	0.55	0.18	1
Toluene	ND		ug/kg	1.1	0.60	1
Ethylbenzene	ND		ug/kg	1.1	0.16	1
p/m-Xylene	ND		ug/kg	2.2	0.62	1
o-Xylene	ND		ug/kg	1.1	0.32	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	108		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	105		70-130
Dibromofluoromethane	102		70-130

Project Name:	BEACON ISLAND PROJECT	**Lab Number:**	L1925812
Project Number:	CD4644	**Report Date:**	07/12/19

SAMPLE RESULTS

Lab ID:	L1925812-04	Date Collected:	06/13/19 16:45
Client ID:	B-4	Date Received:	06/14/19
Sample Location:	PORT OF ALBANY	Field Prep:	Not Specified

Sample Depth:
Matrix: Sediment
Analytical Method: 1,8260C
Analytical Date: 06/26/19 12:52
Analyst: JC
Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Benzene	ND		ug/kg	0.62	0.20	1
Toluene	ND		ug/kg	1.2	0.67	1
Ethylbenzene	ND		ug/kg	1.2	0.17	1
p/m-Xylene	ND		ug/kg	2.5	0.69	1
o-Xylene	ND		ug/kg	1.2	0.36	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	110		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	103		70-130
Dibromofluoromethane	103		70-130

Project Name: BEACON ISLAND PROJECT **Lab Number:** L1925812

Project Number: CD4644 **Report Date:** 07/12/19

SAMPLE RESULTS

Lab ID:	L1925812-05	Date Collected:	06/13/19 17:10
Client ID:	B-5	Date Received:	06/14/19
Sample Location:	PORT OF ALBANY	Field Prep:	Not Specified

Sample Depth:
Matrix: Sediment
Analytical Method: 1,8260C
Analytical Date: 06/26/19 13:31
Analyst: JC
Percent Solids: 61%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Benzene	ND		ug/kg	0.66	0.22	1
Toluene	ND		ug/kg	1.3	0.72	1
Ethylbenzene	ND		ug/kg	1.3	0.19	1
p/m-Xylene	ND		ug/kg	2.6	0.74	1
o-Xylene	ND		ug/kg	1.3	0.38	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	106		70-130
Toluene-d8	106		70-130
4-Bromofluorobenzene	107		70-130
Dibromofluoromethane	103		70-130

Project Name:	BEACON ISLAND PROJECT	**Lab Number:**	L1925812
Project Number:	CD4644	**Report Date:**	07/12/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 06/26/19 09:35
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 01-05 Batch: WG1253412-5					
Benzene	ND		ug/kg	0.50	0.17
Toluene	ND		ug/kg	1.0	0.54
Ethylbenzene	ND		ug/kg	1.0	0.14
p/m-Xylene	ND		ug/kg	2.0	0.56
o-Xylene	ND		ug/kg	1.0	0.29

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	106		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	100		70-130
Dibromofluoromethane	100		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: BEACON ISLAND PROJECT
Lab Number: L1925812
Project Number: CD4644
Report Date: 07/12/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 01-05 Batch: WG1253412-3 WG1253412-4								
Benzene	100		103		70-130	3		30
Toluene	97		98		70-130	1		30
Ethylbenzene	101		104		70-130	3		30
p/m-Xylene	100		103		70-130	3		30
o-Xylene	101		104		70-130	3		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	105		102		70-130
Toluene-d8	103		103		70-130
4-Bromofluorobenzene	98		99		70-130
Dibromofluoromethane	97		99		70-130

SEMIVOLATILES

Project Name: BEACON ISLAND PROJECT
Lab Number: L1925812
Project Number: CD4644
Report Date: 07/12/19

SAMPLE RESULTS

Lab ID:	L1925812-01	Date Collected:	06/13/19 15:10
Client ID:	B-1	Date Received:	06/14/19
Sample Location:	PORT OF ALBANY	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Sediment	Extraction Method:	EPA 3570
Analytical Method:	1,8270D-SIM	Extraction Date:	06/24/19 10:37
Analytical Date:	06/26/19 15:02	Cleanup Method:	EPA 3630
Analyst:	PS	Cleanup Date:	06/25/19
Percent Solids:	78%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PAHs by GC/MS-SIM - Mansfield Lab						
Naphthalene	ND		ug/kg	4.97	1.95	1
1,4-Dichlorobenzene	ND		ug/kg	4.97	2.54	1
Acenaphthylene	ND		ug/kg	4.97	1.95	1
Acenaphthene	ND		ug/kg	4.97	1.93	1
Fluorene	ND		ug/kg	4.97	2.94	1
Phenanthrene	ND		ug/kg	4.97	3.20	1
Anthracene	ND		ug/kg	4.97	3.40	1
Fluoranthene	2.83	J	ug/kg	4.97	2.29	1
Pyrene	ND		ug/kg	4.97	2.74	1
Benz(a)anthracene	ND		ug/kg	4.97	2.44	1
Chrysene	ND		ug/kg	4.97	1.80	1
Benzo(b)fluoranthene	ND		ug/kg	4.97	2.38	1
Benzo(k)fluoranthene	ND		ug/kg	4.97	1.42	1
Benzo(e)Pyrene	ND		ug/kg	4.97	2.73	1
Benzo(a)pyrene	ND		ug/kg	4.97	1.44	1
Indeno(1,2,3-cd)Pyrene	ND		ug/kg	4.97	1.42	1
Dibenz(a,h)anthracene	ND		ug/kg	4.97	2.94	1
Benzo(ghi)perylene	ND		ug/kg	4.97	3.20	1
2-Methylnaphthalene	ND		ug/kg	4.97	2.16	1
1-Methylnaphthalene	ND		ug/kg	4.97	2.24	1
Dibenzothiophene	ND		ug/kg	4.97	1.56	1
2-Chloronaphthalene	ND		ug/kg	4.97	1.81	1
Biphenyl	ND		ug/kg	4.97	1.74	1
2,6-Dimethylnaphthalene	ND		ug/kg	4.97	1.86	1
2,3,5-Trimethylnaphthalene	ND		ug/kg	4.97	1.77	1
1-Methylphenanthrene	ND		ug/kg	4.97	2.05	1
Perylene	25.9		ug/kg	4.97	1.68	1

Project Name:	BEACON ISLAND PROJECT	**Lab Number:**	L1925812
Project Number:	CD4644	**Report Date:**	07/12/19

SAMPLE RESULTS

Lab ID:	L1925812-01	Date Collected:	06/13/19 15:10
Client ID:	B-1	Date Received:	06/14/19
Sample Location:	PORT OF ALBANY	Field Prep:	Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PAHs by GC/MS-SIM - Mansfield Lab						

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Methylnaphthalene-d10	51		30-130
Pyrene-d10	57		30-130
Benzo(b)fluoranthene-d12	52		30-130

Project Name: BEACON ISLAND PROJECT **Lab Number:** L1925812

Project Number: CD4644 **Report Date:** 07/12/19

SAMPLE RESULTS

Lab ID:	L1925812-02	Date Collected:	06/13/19 15:40
Client ID:	B-2	Date Received:	06/14/19
Sample Location:	PORT OF ALBANY	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Sediment	Extraction Method:	EPA 3570
Analytical Method:	1,8270D-SIM	Extraction Date:	06/24/19 10:37
Analytical Date:	06/26/19 15:37	Cleanup Method:	EPA 3630
Analyst:	PS	Cleanup Date:	06/25/19
Percent Solids:	73%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PAHs by GC/MS-SIM - Mansfield Lab						
Naphthalene	8.93		ug/kg	5.13	2.01	1
1,4-Dichlorobenzene	ND		ug/kg	5.13	2.63	1
Acenaphthylene	5.70		ug/kg	5.13	2.01	1
Acenaphthene	6.92		ug/kg	5.13	2.00	1
Fluorene	9.52		ug/kg	5.13	3.03	1
Phenanthrene	55.9		ug/kg	5.13	3.31	1
Anthracene	13.9		ug/kg	5.13	3.51	1
Fluoranthene	126		ug/kg	5.13	2.37	1
Pyrene	102		ug/kg	5.13	2.83	1
Benz(a)anthracene	52.5		ug/kg	5.13	2.53	1
Chrysene	73.1		ug/kg	5.13	1.86	1
Benzo(b)fluoranthene	61.1		ug/kg	5.13	2.46	1
Benzo(k)fluoranthene	51.2		ug/kg	5.13	1.47	1
Benzo(e)Pyrene	50.8		ug/kg	5.13	2.82	1
Benzo(a)pyrene	55.9		ug/kg	5.13	1.49	1
Indeno(1,2,3-cd)Pyrene	50.0		ug/kg	5.13	1.46	1
Dibenz(a,h)anthracene	11.5		ug/kg	5.13	3.04	1
Benzo(ghi)perylene	49.9		ug/kg	5.13	3.31	1
2-Methylnaphthalene	7.10		ug/kg	5.13	2.23	1
1-Methylnaphthalene	4.23	J	ug/kg	5.13	2.32	1
Dibenzothiophene	4.97	J	ug/kg	5.13	1.61	1
2-Chloronaphthalene	ND		ug/kg	5.13	1.87	1
Biphenyl	3.93	J	ug/kg	5.13	1.80	1
2,6-Dimethylnaphthalene	6.67		ug/kg	5.13	1.92	1
2,3,5-Trimethylnaphthalene	3.78	J	ug/kg	5.13	1.83	1
1-Methylphenanthrene	5.44		ug/kg	5.13	2.12	1
Perylene	203		ug/kg	5.13	1.74	1

Project Name:	BEACON ISLAND PROJECT	**Lab Number:**	L1925812
Project Number:	CD4644	**Report Date:**	07/12/19

SAMPLE RESULTS

Lab ID:	L1925812-02	Date Collected:	06/13/19 15:40
Client ID:	B-2	Date Received:	06/14/19
Sample Location:	PORT OF ALBANY	Field Prep:	Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PAHs by GC/MS-SIM - Mansfield Lab						

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Methylnaphthalene-d10	43		30-130
Pyrene-d10	50		30-130
Benzo(b)fluoranthene-d12	49		30-130

Project Name:	BEACON ISLAND PROJECT	**Lab Number:**	L1925812
Project Number:	CD4644	**Report Date:**	07/12/19

SAMPLE RESULTS

Lab ID:	L1925812-03	Date Collected:	06/13/19 16:15
Client ID:	B-3	Date Received:	06/14/19
Sample Location:	PORT OF ALBANY	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Sediment	Extraction Method:	EPA 3570
Analytical Method:	1,8270D-SIM	Extraction Date:	06/24/19 10:37
Analytical Date:	06/26/19 16:13	Cleanup Method:	EPA 3630
Analyst:	PS	Cleanup Date:	06/25/19
Percent Solids:	80%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PAHs by GC/MS-SIM - Mansfield Lab						
Naphthalene	ND		ug/kg	4.67	1.83	1
1,4-Dichlorobenzene	ND		ug/kg	4.67	2.39	1
Acenaphthylene	ND		ug/kg	4.67	1.83	1
Acenaphthene	ND		ug/kg	4.67	1.82	1
Fluorene	ND		ug/kg	4.67	2.76	1
Phenanthrene	ND		ug/kg	4.67	3.00	1
Anthracene	ND		ug/kg	4.67	3.19	1
Fluoranthene	ND		ug/kg	4.67	2.15	1
Pyrene	ND		ug/kg	4.67	2.58	1
Benz(a)anthracene	ND		ug/kg	4.67	2.30	1
Chrysene	ND		ug/kg	4.67	1.69	1
Benzo(b)fluoranthene	ND		ug/kg	4.67	2.24	1
Benzo(k)fluoranthene	ND		ug/kg	4.67	1.34	1
Benzo(e)Pyrene	ND		ug/kg	4.67	2.56	1
Benzo(a)pyrene	ND		ug/kg	4.67	1.35	1
Indeno(1,2,3-cd)Pyrene	ND		ug/kg	4.67	1.33	1
Dibenz(a,h)anthracene	ND		ug/kg	4.67	2.77	1
Benzo(ghi)perylene	ND		ug/kg	4.67	3.00	1
2-Methylnaphthalene	ND		ug/kg	4.67	2.03	1
1-Methylnaphthalene	ND		ug/kg	4.67	2.11	1
Dibenzothiophene	ND		ug/kg	4.67	1.46	1
2-Chloronaphthalene	ND		ug/kg	4.67	1.70	1
Biphenyl	ND		ug/kg	4.67	1.63	1
2,6-Dimethylnaphthalene	ND		ug/kg	4.67	1.74	1
2,3,5-Trimethylnaphthalene	ND		ug/kg	4.67	1.67	1
1-Methylphenanthrene	ND		ug/kg	4.67	1.93	1
Perylene	49.7		ug/kg	4.67	1.58	1

Project Name: BEACON ISLAND PROJECT **Lab Number:** L1925812

Project Number: CD4644 **Report Date:** 07/12/19

SAMPLE RESULTS

Lab ID:	L1925812-03	Date Collected:	06/13/19 16:15
Client ID:	B-3	Date Received:	06/14/19
Sample Location:	PORT OF ALBANY	Field Prep:	Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PAHs by GC/MS-SIM - Mansfield Lab						

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Methylnaphthalene-d10	33		30-130
Pyrene-d10	54		30-130
Benzo(b)fluoranthene-d12	54		30-130

Project Name:	BEACON ISLAND PROJECT	**Lab Number:**	L1925812
Project Number:	CD4644	**Report Date:**	07/12/19

SAMPLE RESULTS

Lab ID:	L1925812-04	Date Collected:	06/13/19 16:45
Client ID:	B-4	Date Received:	06/14/19
Sample Location:	PORT OF ALBANY	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Sediment	Extraction Method:	EPA 3570
Analytical Method:	1,8270D-SIM	Extraction Date:	06/24/19 10:37
Analytical Date:	06/26/19 16:49	Cleanup Method:	EPA 3630
Analyst:	PS	Cleanup Date:	06/25/19
Percent Solids:	83%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PAHs by GC/MS-SIM - Mansfield Lab						
Naphthalene	4.00	J	ug/kg	4.63	1.82	1
1,4-Dichlorobenzene	ND		ug/kg	4.63	2.37	1
Acenaphthylene	ND		ug/kg	4.63	1.82	1
Acenaphthene	2.16	J	ug/kg	4.63	1.80	1
Fluorene	3.49	J	ug/kg	4.63	2.74	1
Phenanthrene	5.20		ug/kg	4.63	2.98	1
Anthracene	3.63	J	ug/kg	4.63	3.17	1
Fluoranthene	8.38		ug/kg	4.63	2.14	1
Pyrene	8.32		ug/kg	4.63	2.56	1
Benz(a)anthracene	4.17	J	ug/kg	4.63	2.28	1
Chrysene	3.31	J	ug/kg	4.63	1.68	1
Benzo(b)fluoranthene	2.75	J	ug/kg	4.63	2.22	1
Benzo(k)fluoranthene	2.15	J	ug/kg	4.63	1.33	1
Benzo(e)Pyrene	ND		ug/kg	4.63	2.54	1
Benzo(a)pyrene	3.03	J	ug/kg	4.63	1.34	1
Indeno(1,2,3-cd)Pyrene	2.25	J	ug/kg	4.63	1.32	1
Dibenz(a,h)anthracene	ND		ug/kg	4.63	2.75	1
Benzo(ghi)perylene	ND		ug/kg	4.63	2.98	1
2-Methylnaphthalene	ND		ug/kg	4.63	2.02	1
1-Methylnaphthalene	ND		ug/kg	4.63	2.09	1
Dibenzothiophene	ND		ug/kg	4.63	1.45	1
2-Chloronaphthalene	ND		ug/kg	4.63	1.69	1
Biphenyl	ND		ug/kg	4.63	1.62	1
2,6-Dimethylnaphthalene	ND		ug/kg	4.63	1.73	1
2,3,5-Trimethylnaphthalene	ND		ug/kg	4.63	1.65	1
1-Methylphenanthrene	ND		ug/kg	4.63	1.91	1
Perylene	11.3		ug/kg	4.63	1.57	1

Project Name: BEACON ISLAND PROJECT **Lab Number:** L1925812

Project Number: CD4644 **Report Date:** 07/12/19

SAMPLE RESULTS

Lab ID:	L1925812-04	Date Collected:	06/13/19 16:45
Client ID:	B-4	Date Received:	06/14/19
Sample Location:	PORT OF ALBANY	Field Prep:	Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PAHs by GC/MS-SIM - Mansfield Lab						

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Methylnaphthalene-d10	38		30-130
Pyrene-d10	54		30-130
Benzo(b)fluoranthene-d12	49		30-130

Project Name: BEACON ISLAND PROJECT **Lab Number:** L1925812

Project Number: CD4644 **Report Date:** 07/12/19

SAMPLE RESULTS

Lab ID: L1925812-05
Client ID: B-5
Sample Location: PORT OF ALBANY

Date Collected: 06/13/19 17:10
Date Received: 06/14/19
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment
Analytical Method: 1,8270D-SIM
Analytical Date: 06/26/19 17:24
Analyst: PS
Percent Solids: 61%

Extraction Method: EPA 3570
Extraction Date: 06/24/19 10:37
Cleanup Method: EPA 3630
Cleanup Date: 06/25/19

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PAHs by GC/MS-SIM - Mansfield Lab						
Naphthalene	35.0		ug/kg	6.13	2.40	1
1,4-Dichlorobenzene	ND		ug/kg	6.13	3.14	1
Acenaphthylene	ND		ug/kg	6.13	2.40	1
Acenaphthene	17.8		ug/kg	6.13	2.38	1
Fluorene	28.2		ug/kg	6.13	3.62	1
Phenanthrene	51.9		ug/kg	6.13	3.95	1
Anthracene	16.6		ug/kg	6.13	4.19	1
Fluoranthene	17.7		ug/kg	6.13	2.83	1
Pyrene	19.6		ug/kg	6.13	3.38	1
Benz(a)anthracene	9.70		ug/kg	6.13	3.02	1
Chrysene	14.3		ug/kg	6.13	2.22	1
Benzo(b)fluoranthene	5.75	J	ug/kg	6.13	2.94	1
Benzo(k)fluoranthene	3.73	J	ug/kg	6.13	1.76	1
Benzo(e)Pyrene	5.56	J	ug/kg	6.13	3.36	1
Benzo(a)pyrene	5.92	J	ug/kg	6.13	1.78	1
Indeno(1,2,3-cd)Pyrene	4.00	J	ug/kg	6.13	1.75	1
Dibenz(a,h)anthracene	ND		ug/kg	6.13	3.64	1
Benzo(ghi)perylene	4.36	J	ug/kg	6.13	3.95	1
2-Methylnaphthalene	26.5		ug/kg	6.13	2.67	1
1-Methylnaphthalene	12.6		ug/kg	6.13	2.77	1
Dibenzothiophene	9.61		ug/kg	6.13	1.92	1
2-Chloronaphthalene	ND		ug/kg	6.13	2.24	1
Biphenyl	7.95		ug/kg	6.13	2.14	1
2,6-Dimethylnaphthalene	20.5		ug/kg	6.13	2.29	1
2,3,5-Trimethylnaphthalene	7.91		ug/kg	6.13	2.19	1
1-Methylphenanthrene	9.69		ug/kg	6.13	2.53	1
Perylene	134		ug/kg	6.13	2.08	1

Project Name: BEACON ISLAND PROJECT **Lab Number:** L1925812

Project Number: CD4644 **Report Date:** 07/12/19

SAMPLE RESULTS

Lab ID:	L1925812-05	Date Collected:	06/13/19 17:10
Client ID:	B-5	Date Received:	06/14/19
Sample Location:	PORT OF ALBANY	Field Prep:	Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PAHs by GC/MS-SIM - Mansfield Lab						

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Methylnaphthalene-d10	52		30-130
Pyrene-d10	56		30-130
Benzo(b)fluoranthene-d12	51		30-130

Project Name:	BEACON ISLAND PROJECT	**Lab Number:**	L1925812
Project Number:	CD4644	**Report Date:**	07/12/19

Method Blank Analysis
Batch Quality Control

Analytical Method:	1,8270D-SIM	Extraction Method:	EPA 3570
Analytical Date:	06/26/19 12:44	Extraction Date:	06/24/19 10:37
Analyst:	PS	Cleanup Method:	EPA 3630
		Cleanup Date:	06/25/19

Parameter	Result	Qualifier	Units	RL	MDL
PAHs by GC/MS-SIM - Mansfield Lab for sample(s): 01-05 Batch: WG1252199-1					
Naphthalene	ND		ug/kg	4.00	1.57
1,4-Dichlorobenzene	ND		ug/kg	4.00	2.05
Acenaphthylene	ND		ug/kg	4.00	1.57
Acenaphthene	ND		ug/kg	4.00	1.56
Fluorene	ND		ug/kg	4.00	2.36
Phenanthrene	ND		ug/kg	4.00	2.58
Anthracene	ND		ug/kg	4.00	2.74
Fluoranthene	ND		ug/kg	4.00	1.84
Pyrene	ND		ug/kg	4.00	2.21
Benz(a)anthracene	ND		ug/kg	4.00	1.97
Chrysene	ND		ug/kg	4.00	1.45
Benzo(b)fluoranthene	ND		ug/kg	4.00	1.92
Benzo(k)fluoranthene	ND		ug/kg	4.00	1.15
Benzo(e)Pyrene	ND		ug/kg	4.00	2.20
Benzo(a)pyrene	ND		ug/kg	4.00	1.16
Indeno(1,2,3-cd)Pyrene	ND		ug/kg	4.00	1.14
Dibenz(a,h)anthracene	ND		ug/kg	4.00	2.37
Benzo(ghi)perylene	ND		ug/kg	4.00	2.58
2-Methylnaphthalene	ND		ug/kg	4.00	1.74
1-Methylnaphthalene	ND		ug/kg	4.00	1.81
Dibenzothiophene	ND		ug/kg	4.00	1.26
2-Chloronaphthalene	ND		ug/kg	4.00	1.46
Biphenyl	ND		ug/kg	4.00	1.40
2,6-Dimethylnaphthalene	ND		ug/kg	4.00	1.50
2,3,5-Trimethylnaphthalene	ND		ug/kg	4.00	1.43
1-Methylphenanthrene	ND		ug/kg	4.00	1.65
Perylene	ND		ug/kg	4.00	1.36

Project Name: BEACON ISLAND PROJECT **Lab Number:** L1925812
Project Number: CD4644 **Report Date:** 07/12/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270D-SIM
Analytical Date: 06/26/19 12:44
Analyst: PS

Extraction Method: EPA 3570
Extraction Date: 06/24/19 10:37
Cleanup Method: EPA 3630
Cleanup Date: 06/25/19

Parameter	Result	Qualifier	Units	RL	MDL
PAHs by GC/MS-SIM - Mansfield Lab for sample(s): 01-05 Batch: WG1252199-1					

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Methylnaphthalene-d10	46		30-130
Pyrene-d10	57		30-130
Benzo(b)fluoranthene-d12	54		30-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: BEACON ISLAND PROJECT
Project Number: CD4644
Lab Number: L1925812
Report Date: 07/12/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
PAHs by GC/MS-SIM - Mansfield Lab Associated sample(s): 01-05 Batch: WG1252199-2 WG1252199-3								
Naphthalene	41		46		40-140	11		30
1,4-Dichlorobenzene	41		48		40-140	16		30
Acenaphthylene	47		51		40-140	8		30
Acenaphthene	48		52		40-140	8		30
Fluorene	52		56		40-140	7		30
Phenanthrene	54		56		40-140	4		30
Anthracene	53		56		40-140	6		30
Fluoranthene	61		63		40-140	3		30
Pyrene	51		52		40-140	2		30
Benz(a)anthracene	58		57		40-140	2		30
Chrysene	56		58		40-140	4		30
Benzo(b)fluoranthene	62		58		40-140	7		30
Benzo(k)fluoranthene	44		48		40-140	9		30
Benzo(e)Pyrene	58		57		40-140	2		30
Benzo(a)pyrene	55		57		40-140	4		30
Indeno(1,2,3-cd)Pyrene	70		68		40-140	3		30
Dibenz(a,h)anthracene	66		66		40-140	0		30
Benzo(ghi)perylene	67		67		40-140	0		30
2-Methylnaphthalene	44		50		40-140	13		30
1-Methylnaphthalene	44		49		40-140	11		30
Dibenzothiophene	51		55		40-140	8		30
2-Chloronaphthalene	42		46		40-140	9		30
Biphenyl	44		48		40-140	9		30

Lab Control Sample Analysis
Batch Quality Control

Project Name: BEACON ISLAND PROJECT
Lab Number: L1925812
Project Number: CD4644
Report Date: 07/12/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
PAHs by GC/MS-SIM - Mansfield Lab Associated sample(s): 01-05 Batch: WG1252199-2 WG1252199-3								
2,6-Dimethylnaphthalene	45		49		40-140	9		30
1-Methylphenanthrene	57		58		40-140	2		30
Perylene	53		53		40-140	0		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Methylnaphthalene-d10	47		50		30-130
Pyrene-d10	56		55		30-130
Benzo(b)fluoranthene-d12	54		52		30-130

PCBS

Project Name: BEACON ISLAND PROJECT **Lab Number:** L1925812
Project Number: CD4644 **Report Date:** 07/12/19

SAMPLE RESULTS

Lab ID: L1925812-01
Client ID: B-1
Sample Location: PORT OF ALBANY

Date Collected: 06/13/19 15:10
Date Received: 06/14/19
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment
Analytical Method: 1,8082A
Analytical Date: 07/08/19 10:58
Analyst: DP
Percent Solids: 78%

Extraction Method: EPA 3570
Extraction Date: 06/24/19 11:27
Cleanup Method: EPA 3640A
Cleanup Date: 06/25/19

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Polychlorinated Biphenyls by GC - Mansfield Lab							
Aroclor 1016	ND		ug/kg	3.13	1.15	1	A
Aroclor 1221	ND		ug/kg	3.13	1.54	1	A
Aroclor 1232	ND		ug/kg	3.13	1.48	1	A
Aroclor 1242	ND		ug/kg	3.13	1.06	1	A
Aroclor 1248	ND		ug/kg	3.13	1.33	1	A
Aroclor 1254	ND		ug/kg	3.13	1.32	1	A
Aroclor 1260	ND		ug/kg	3.13	1.33	1	A
Aroclor 1262	ND		ug/kg	3.13	1.21	1	A
Aroclor 1268	ND		ug/kg	3.13	1.04	1	A
PCBs, Total	ND		ug/kg	3.13	1.04	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
Tetrachloro-meta-Xylene	51		30-150	B
Decachlorobiphenyl	97		30-150	B
Tetrachloro-meta-Xylene	57		30-150	A
Decachlorobiphenyl	47		30-150	A

Project Name: BEACON ISLAND PROJECT **Lab Number:** L1925812
Project Number: CD4644 **Report Date:** 07/12/19

SAMPLE RESULTS

Lab ID: L1925812-02 D
Client ID: B-2
Sample Location: PORT OF ALBANY
Date Collected: 06/13/19 15:40
Date Received: 06/14/19
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment
Analytical Method: 1,8082A
Analytical Date: 07/08/19 16:34
Analyst: DP
Percent Solids: 73%
Extraction Method: EPA 3570
Extraction Date: 06/24/19 11:27
Cleanup Method: EPA 3640A
Cleanup Date: 06/25/19

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Polychlorinated Biphenyls by GC - Mansfield Lab							
Aroclor 1016	ND		ug/kg	6.72	2.47	2	A
Aroclor 1221	ND		ug/kg	6.72	3.32	2	A
Aroclor 1232	ND		ug/kg	6.72	3.17	2	A
Aroclor 1242	151.	P	ug/kg	6.72	2.28	2	B
Aroclor 1248	ND		ug/kg	6.72	2.85	2	A
Aroclor 1254	ND		ug/kg	6.72	2.83	2	A
Aroclor 1260	27.1	P	ug/kg	6.72	2.85	2	B
Aroclor 1262	ND		ug/kg	6.72	2.60	2	A
Aroclor 1268	ND		ug/kg	6.72	2.24	2	A
PCBs, Total	178.		ug/kg	6.72	2.24	2	B

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
Tetrachloro-meta-Xylene	39		30-150	B
Decachlorobiphenyl	78		30-150	B
Tetrachloro-meta-Xylene	44		30-150	A
Decachlorobiphenyl	**29**	Q	30-150	A

Project Name: BEACON ISLAND PROJECT **Lab Number:** L1925812

Project Number: CD4644 **Report Date:** 07/12/19

SAMPLE RESULTS

Lab ID: L1925812-03
Client ID: B-3
Sample Location: PORT OF ALBANY

Date Collected: 06/13/19 16:15
Date Received: 06/14/19
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment
Analytical Method: 1,8082A
Analytical Date: 07/08/19 11:21
Analyst: DP
Percent Solids: 80%

Extraction Method: EPA 3570
Extraction Date: 06/24/19 11:27
Cleanup Method: EPA 3640A
Cleanup Date: 06/25/19

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Polychlorinated Biphenyls by GC - Mansfield Lab							
Aroclor 1016	ND		ug/kg	3.02	1.11	1	A
Aroclor 1221	ND		ug/kg	3.02	1.49	1	A
Aroclor 1232	ND		ug/kg	3.02	1.42	1	A
Aroclor 1242	3.10		ug/kg	3.02	1.02	1	B
Aroclor 1248	ND		ug/kg	3.02	1.28	1	A
Aroclor 1254	ND		ug/kg	3.02	1.27	1	A
Aroclor 1260	1.44	JP	ug/kg	3.02	1.28	1	B
Aroclor 1262	ND		ug/kg	3.02	1.17	1	A
Aroclor 1268	ND		ug/kg	3.02	1.00	1	A
PCBs, Total	4.54	J	ug/kg	3.02	1.00	1	B

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
Tetrachloro-meta-Xylene	41		30-150	B
Decachlorobiphenyl	81		30-150	B
Tetrachloro-meta-Xylene	38		30-150	A
Decachlorobiphenyl	31		30-150	A

Project Name: BEACON ISLAND PROJECT **Lab Number:** L1925812
Project Number: CD4644 **Report Date:** 07/12/19

SAMPLE RESULTS

Lab ID:	L1925812-04	Date Collected:	06/13/19 16:45
Client ID:	B-4	Date Received:	06/14/19
Sample Location:	PORT OF ALBANY	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Sediment	Extraction Method:	EPA 3570
Analytical Method:	1,8082A	Extraction Date:	06/24/19 11:27
Analytical Date:	07/08/19 11:33	Cleanup Method:	EPA 3640A
Analyst:	DP	Cleanup Date:	06/25/19
Percent Solids:	83%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Polychlorinated Biphenyls by GC - Mansfield Lab							
Aroclor 1016	ND		ug/kg	2.94	1.08	1	A
Aroclor 1221	ND		ug/kg	2.94	1.45	1	A
Aroclor 1232	ND		ug/kg	2.94	1.39	1	A
Aroclor 1242	19.3	P	ug/kg	2.94	0.995	1	B
Aroclor 1248	ND		ug/kg	2.94	1.24	1	A
Aroclor 1254	ND		ug/kg	2.94	1.24	1	A
Aroclor 1260	3.49	P	ug/kg	2.94	1.24	1	B
Aroclor 1262	ND		ug/kg	2.94	1.14	1	A
Aroclor 1268	ND		ug/kg	2.94	0.979	1	A
PCBs, Total	22.8		ug/kg	2.94	0.979	1	B

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
Tetrachloro-meta-Xylene	48		30-150	B
Decachlorobiphenyl	94		30-150	B
Tetrachloro-meta-Xylene	50		30-150	A
Decachlorobiphenyl	39		30-150	A

Project Name: BEACON ISLAND PROJECT **Lab Number:** L1925812
Project Number: CD4644 **Report Date:** 07/12/19

SAMPLE RESULTS

Lab ID: L1925812-05
Client ID: B-5
Sample Location: PORT OF ALBANY

Date Collected: 06/13/19 17:10
Date Received: 06/14/19
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment
Analytical Method: 1,8082A
Analytical Date: 07/08/19 11:45
Analyst: DP
Percent Solids: 61%

Extraction Method: EPA 3570
Extraction Date: 06/24/19 11:27
Cleanup Method: EPA 3640A
Cleanup Date: 06/25/19

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Polychlorinated Biphenyls by GC - Mansfield Lab							
Aroclor 1016	ND		ug/kg	4.02	1.48	1	A
Aroclor 1221	ND		ug/kg	4.02	1.98	1	A
Aroclor 1232	ND		ug/kg	4.02	1.90	1	A
Aroclor 1242	8.04		ug/kg	4.02	1.36	1	B
Aroclor 1248	ND		ug/kg	4.02	1.70	1	A
Aroclor 1254	ND		ug/kg	4.02	1.69	1	A
Aroclor 1260	1.99	JP	ug/kg	4.02	1.70	1	B
Aroclor 1262	ND		ug/kg	4.02	1.55	1	A
Aroclor 1268	ND		ug/kg	4.02	1.34	1	A
PCBs, Total	10.3	J	ug/kg	4.02	1.34	1	B

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
Tetrachloro-meta-Xylene	60		30-150	B
Decachlorobiphenyl	119		30-150	B
Tetrachloro-meta-Xylene	67		30-150	A
Decachlorobiphenyl	44		30-150	A

Project Name:	BEACON ISLAND PROJECT	**Lab Number:**	L1925812
Project Number:	CD4644	**Report Date:**	07/12/19

Method Blank Analysis
Batch Quality Control

Analytical Method:	1,8082A	Extraction Method:	EPA 3570
Analytical Date:	07/08/19 10:22	Extraction Date:	06/24/19 11:27
Analyst:	DP	Cleanup Method:	EPA 3640A
		Cleanup Date:	06/25/19

Parameter	Result	Qualifier	Units	RL	MDL	Column
Polychlorinated Biphenyls by GC - Mansfield Lab for sample(s): 01-05 Batch: WG1252253-1						
Aroclor 1016	ND		ug/kg	2.50	0.920	A
Aroclor 1221	ND		ug/kg	2.50	1.23	A
Aroclor 1232	ND		ug/kg	2.50	1.18	A
Aroclor 1242	ND		ug/kg	2.50	0.847	A
Aroclor 1248	ND		ug/kg	2.50	1.06	A
Aroclor 1254	ND		ug/kg	2.50	1.05	A
Aroclor 1260	ND		ug/kg	2.50	1.06	A
Aroclor 1262	ND		ug/kg	2.50	0.967	A
Aroclor 1268	ND		ug/kg	2.50	0.833	A
PCBs, Total	ND		ug/kg	2.50	0.833	A

Surrogate	%Recovery	Qualifier	Acceptance Criteria	Column
Tetrachloro-meta-Xylene	50		30-150	B
Decachlorobiphenyl	92		30-150	B
Tetrachloro-meta-Xylene	47		30-150	A
Decachlorobiphenyl	52		30-150	A

Lab Control Sample Analysis
Batch Quality Control

Project Name: BEACON ISLAND PROJECT
Project Number: CD4644

Lab Number: L1925812
Report Date: 07/12/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Polychlorinated Biphenyls by GC - Mansfield Lab Associated sample(s): 01-05 Batch: WG1252253-2 WG1252253-3									
Aroclor 1016	50		60		40-140	18		50	A
Aroclor 1260	57		68		40-140	18		50	A

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria	Column
Tetrachloro-meta-Xylene	44		51		30-150	B
Decachlorobiphenyl	81		97		30-150	B
Tetrachloro-meta-Xylene	54		62		30-150	A
Decachlorobiphenyl	47		55		30-150	A

PESTICIDES

Project Name: BEACON ISLAND PROJECT **Lab Number:** L1925812
Project Number: CD4644 **Report Date:** 07/12/19

SAMPLE RESULTS

Lab ID: L1925812-01
Client ID: B-1
Sample Location: PORT OF ALBANY

Date Collected: 06/13/19 15:10
Date Received: 06/14/19
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment
Analytical Method: 1,8081B
Analytical Date: 07/12/19 11:05
Analyst: GP
Percent Solids: 78%

Extraction Method: EPA 3570
Extraction Date: 07/10/19 14:49
Cleanup Method: EPA 3630
Cleanup Date: 07/11/19

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Organochlorine Pesticides by GC - Mansfield Lab							
Alpha-BHC	ND		ug/kg	0.042	0.042	1	A
Hexachlorobenzene	ND		ug/kg	0.085	0.085	1	A
Beta-BHC	ND		ug/kg	0.042	0.042	1	A
gamma-BHC	ND		ug/kg	0.042	0.042	1	A
Delta-BHC	ND		ug/kg	0.042	0.042	1	A
Heptachlor	ND		ug/kg	0.042	0.042	1	A
Aldrin	ND		ug/kg	0.042	0.042	1	A
Chloropyrifos[1]	ND		ug/kg	0.042	0.042	1	A
Heptachlor epoxide	ND		ug/kg	0.085	0.085	1	B
Oxychlordane	ND		ug/kg	0.085	0.085	1	B
trans-Chlordane	ND		ug/kg	0.042	0.042	1	A
2,4'-DDE	ND		ug/kg	0.042	0.042	1	A
Endosulfan I	ND		ug/kg	0.042	0.042	1	A
cis-Chlordane	ND		ug/kg	0.042	0.042	1	A
trans-Nonachlor	ND		ug/kg	0.042	0.042	1	A
4,4'-DDE	ND		ug/kg	0.042	0.042	1	A
Dieldrin	ND		ug/kg	0.042	0.042	1	A
2,4'-DDD	ND		ug/kg	0.042	0.042	1	A
Endrin	ND		ug/kg	0.042	0.042	1	A
Endosulfan II	ND		ug/kg	0.042	0.042	1	A
4,4'-DDD	ND		ug/kg	0.042	0.042	1	B
2,4'-DDT	ND		ug/kg	0.042	0.042	1	A
cis-Nonachlor	ND		ug/kg	0.042	0.042	1	A
Endrin aldehyde	ND		ug/kg	0.128	0.128	1	A
Endosulfan sulfate	ND		ug/kg	0.042	0.042	1	B
4,4'-DDT	ND		ug/kg	0.042	0.042	1	B
Endrin ketone	ND		ug/kg	0.042	0.042	1	A
Methoxychlor	ND		ug/kg	0.426	0.426	1	A

Project Name:	BEACON ISLAND PROJECT	**Lab Number:**	L1925812
Project Number:	CD4644	**Report Date:**	07/12/19

SAMPLE RESULTS

Lab ID:	L1925812-01	Date Collected:	06/13/19 15:10
Client ID:	B-1	Date Received:	06/14/19
Sample Location:	PORT OF ALBANY	Field Prep:	Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Organochlorine Pesticides by GC - Mansfield Lab							
Mirex	ND		ug/kg	0.042	0.042	1	A
Toxaphene	ND		ug/kg	2.14	2.14	1	A
Chlordane	ND		ug/kg	2.14	2.14	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
Tetrachloro-meta-Xylene	91		30-150	A
Decachlorobiphenyl	89		30-150	A
Tetrachloro-meta-Xylene	83		30-150	B
Decachlorobiphenyl	87		30-150	B

Project Name: BEACON ISLAND PROJECT | **Lab Number:** L1925812
Project Number: CD4644 | **Report Date:** 07/12/19

SAMPLE RESULTS

Lab ID: L1925812-02
Client ID: B-2
Sample Location: PORT OF ALBANY
Date Collected: 06/13/19 15:40
Date Received: 06/14/19
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment
Analytical Method: 1,8081B
Analytical Date: 07/12/19 11:39
Analyst: GP
Percent Solids: 73%
Extraction Method: EPA 3570
Extraction Date: 07/10/19 14:49
Cleanup Method: EPA 3630
Cleanup Date: 07/11/19

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Organochlorine Pesticides by GC - Mansfield Lab							
Alpha-BHC	ND		ug/kg	0.045	0.045	1	A
Hexachlorobenzene	ND		ug/kg	0.090	0.090	1	A
Beta-BHC	ND		ug/kg	0.045	0.045	1	A
gamma-BHC	ND		ug/kg	0.045	0.045	1	A
Delta-BHC	ND		ug/kg	0.045	0.045	1	A
Heptachlor	ND		ug/kg	0.045	0.045	1	A
Aldrin	ND		ug/kg	0.045	0.045	1	A
Chloropyrifos[1]	ND		ug/kg	0.045	0.045	1	A
Heptachlor epoxide	ND		ug/kg	0.090	0.090	1	B
Oxychlordane	2.60		ug/kg	0.090	0.090	1	B
trans-Chlordane	2.51		ug/kg	0.045	0.045	1	A
2,4'-DDE	ND		ug/kg	0.045	0.045	1	A
Endosulfan I	ND		ug/kg	0.045	0.045	1	A
cis-Chlordane	0.220		ug/kg	0.045	0.045	1	B
trans-Nonachlor	ND		ug/kg	0.045	0.045	1	A
4,4'-DDE	1.72		ug/kg	0.045	0.045	1	A
Dieldrin	ND		ug/kg	0.045	0.045	1	A
2,4'-DDD	0.671		ug/kg	0.045	0.045	1	A
Endrin	ND		ug/kg	0.045	0.045	1	A
Endosulfan II	ND		ug/kg	0.045	0.045	1	A
4,4'-DDD	1.24		ug/kg	0.045	0.045	1	A
2,4'-DDT	ND		ug/kg	0.045	0.045	1	A
cis-Nonachlor	ND		ug/kg	0.045	0.045	1	A
Endrin aldehyde	ND		ug/kg	0.135	0.135	1	A
Endosulfan sulfate	ND		ug/kg	0.045	0.045	1	B
4,4'-DDT	ND		ug/kg	0.045	0.045	1	B
Endrin ketone	ND		ug/kg	0.045	0.045	1	A
Methoxychlor	ND		ug/kg	0.451	0.451	1	A

Project Name: BEACON ISLAND PROJECT **Lab Number:** L1925812
Project Number: CD4644 **Report Date:** 07/12/19

SAMPLE RESULTS

Lab ID: L1925812-02
Client ID: B-2
Sample Location: PORT OF ALBANY

Date Collected: 06/13/19 15:40
Date Received: 06/14/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Organochlorine Pesticides by GC - Mansfield Lab							
Mirex	ND		ug/kg	0.045	0.045	1	A
Toxaphene	ND		ug/kg	2.26	2.26	1	A
Chlordane	ND		ug/kg	2.26	2.26	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
Tetrachloro-meta-Xylene	89		30-150	A
Decachlorobiphenyl	97		30-150	A
Tetrachloro-meta-Xylene	67		30-150	B
Decachlorobiphenyl	95		30-150	B

Project Name: BEACON ISLAND PROJECT **Lab Number:** L1925812
Project Number: CD4644 **Report Date:** 07/12/19

SAMPLE RESULTS

Lab ID: L1925812-03
Client ID: B-3
Sample Location: PORT OF ALBANY

Date Collected: 06/13/19 16:15
Date Received: 06/14/19
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment
Analytical Method: 1,8081B
Analytical Date: 07/12/19 12:13
Analyst: GP
Percent Solids: 80%

Extraction Method: EPA 3570
Extraction Date: 07/10/19 14:49
Cleanup Method: EPA 3630
Cleanup Date: 07/11/19

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Organochlorine Pesticides by GC - Mansfield Lab							
Alpha-BHC	ND		ug/kg	0.041	0.041	1	A
Hexachlorobenzene	ND		ug/kg	0.082	0.082	1	A
Beta-BHC	ND		ug/kg	0.041	0.041	1	A
gamma-BHC	ND		ug/kg	0.041	0.041	1	A
Delta-BHC	ND		ug/kg	0.041	0.041	1	A
Heptachlor	ND		ug/kg	0.041	0.041	1	A
Aldrin	ND		ug/kg	0.041	0.041	1	A
Chloropyrifos[1]	ND		ug/kg	0.041	0.041	1	A
Heptachlor epoxide	ND		ug/kg	0.082	0.082	1	B
Oxychlordane	0.108		ug/kg	0.082	0.082	1	B
trans-Chlordane	0.074		ug/kg	0.041	0.041	1	A
2,4'-DDE	ND		ug/kg	0.041	0.041	1	A
Endosulfan I	ND		ug/kg	0.041	0.041	1	A
cis-Chlordane	ND		ug/kg	0.041	0.041	1	B
trans-Nonachlor	ND		ug/kg	0.041	0.041	1	A
4,4'-DDE	0.081		ug/kg	0.041	0.041	1	A
Dieldrin	ND		ug/kg	0.041	0.041	1	A
2,4'-DDD	ND		ug/kg	0.041	0.041	1	A
Endrin	ND		ug/kg	0.041	0.041	1	A
Endosulfan II	ND		ug/kg	0.041	0.041	1	A
4,4'-DDD	0.086		ug/kg	0.041	0.041	1	A
2,4'-DDT	ND		ug/kg	0.041	0.041	1	A
cis-Nonachlor	ND		ug/kg	0.041	0.041	1	A
Endrin aldehyde	ND		ug/kg	0.123	0.123	1	A
Endosulfan sulfate	ND		ug/kg	0.041	0.041	1	B
4,4'-DDT	ND		ug/kg	0.041	0.041	1	B
Endrin ketone	ND		ug/kg	0.041	0.041	1	A
Methoxychlor	ND		ug/kg	0.411	0.411	1	A

Project Name:	BEACON ISLAND PROJECT	**Lab Number:**	L1925812
Project Number:	CD4644	**Report Date:**	07/12/19

SAMPLE RESULTS

Lab ID:	L1925812-03	Date Collected:	06/13/19 16:15
Client ID:	B-3	Date Received:	06/14/19
Sample Location:	PORT OF ALBANY	Field Prep:	Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Organochlorine Pesticides by GC - Mansfield Lab							
Mirex	ND		ug/kg	0.041	0.041	1	A
Toxaphene	ND		ug/kg	2.06	2.06	1	A
Chlordane	ND		ug/kg	2.06	2.06	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
Tetrachloro-meta-Xylene	96		30-150	A
Decachlorobiphenyl	96		30-150	A
Tetrachloro-meta-Xylene	92		30-150	B
Decachlorobiphenyl	97		30-150	B

Project Name: BEACON ISLAND PROJECT **Lab Number:** L1925812
Project Number: CD4644 **Report Date:** 07/12/19

SAMPLE RESULTS

Lab ID:	L1925812-04	Date Collected:	06/13/19 16:45
Client ID:	B-4	Date Received:	06/14/19
Sample Location:	PORT OF ALBANY	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Sediment	Extraction Method:	EPA 3570
Analytical Method:	1,8081B	Extraction Date:	07/10/19 14:49
Analytical Date:	07/12/19 12:47	Cleanup Method:	EPA 3630
Analyst:	GP	Cleanup Date:	07/11/19
Percent Solids:	83%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Organochlorine Pesticides by GC - Mansfield Lab							
Alpha-BHC	ND		ug/kg	0.039	0.039	1	A
Hexachlorobenzene	ND		ug/kg	0.079	0.079	1	A
Beta-BHC	ND		ug/kg	0.039	0.039	1	A
gamma-BHC	ND		ug/kg	0.039	0.039	1	A
Delta-BHC	ND		ug/kg	0.039	0.039	1	A
Heptachlor	ND		ug/kg	0.039	0.039	1	A
Aldrin	ND		ug/kg	0.039	0.039	1	A
Chloropyrifos[1]	ND		ug/kg	0.039	0.039	1	A
Heptachlor epoxide	ND		ug/kg	0.079	0.079	1	B
Oxychlordane	ND		ug/kg	0.079	0.079	1	A
trans-Chlordane	ND		ug/kg	0.039	0.039	1	A
2,4'-DDE	ND		ug/kg	0.039	0.039	1	A
Endosulfan I	ND		ug/kg	0.039	0.039	1	A
cis-Chlordane	ND		ug/kg	0.039	0.039	1	A
trans-Nonachlor	ND		ug/kg	0.039	0.039	1	A
4,4'-DDE	0.128		ug/kg	0.039	0.039	1	A
Dieldrin	ND		ug/kg	0.039	0.039	1	A
2,4'-DDD	ND		ug/kg	0.039	0.039	1	A
Endrin	ND		ug/kg	0.039	0.039	1	A
Endosulfan II	ND		ug/kg	0.039	0.039	1	A
4,4'-DDD	0.149		ug/kg	0.039	0.039	1	A
2,4'-DDT	ND		ug/kg	0.039	0.039	1	A
cis-Nonachlor	ND		ug/kg	0.039	0.039	1	A
Endrin aldehyde	ND		ug/kg	0.119	0.119	1	A
Endosulfan sulfate	ND		ug/kg	0.039	0.039	1	B
4,4'-DDT	ND		ug/kg	0.039	0.039	1	B
Endrin ketone	ND		ug/kg	0.039	0.039	1	A
Methoxychlor	ND		ug/kg	0.396	0.396	1	A

Project Name: BEACON ISLAND PROJECT **Lab Number:** L1925812
Project Number: CD4644 **Report Date:** 07/12/19

SAMPLE RESULTS

Lab ID: L1925812-04 Date Collected: 06/13/19 16:45
Client ID: B-4 Date Received: 06/14/19
Sample Location: PORT OF ALBANY Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Organochlorine Pesticides by GC - Mansfield Lab							
Mirex	ND		ug/kg	0.039	0.039	1	A
Toxaphene	ND		ug/kg	1.99	1.99	1	A
Chlordane	ND		ug/kg	1.99	1.99	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
Tetrachloro-meta-Xylene	92		30-150	A
Decachlorobiphenyl	96		30-150	A
Tetrachloro-meta-Xylene	82		30-150	B
Decachlorobiphenyl	93		30-150	B

Project Name: BEACON ISLAND PROJECT **Lab Number:** L1925812

Project Number: CD4644 **Report Date:** 07/12/19

SAMPLE RESULTS

Lab ID: L1925812-05
Client ID: B-5
Sample Location: PORT OF ALBANY

Date Collected: 06/13/19 17:10
Date Received: 06/14/19
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment
Analytical Method: 1,8081B
Analytical Date: 07/12/19 13:21
Analyst: GP
Percent Solids: 61%

Extraction Method: EPA 3570
Extraction Date: 07/10/19 14:49
Cleanup Method: EPA 3630
Cleanup Date: 07/11/19

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Organochlorine Pesticides by GC - Mansfield Lab							
Alpha-BHC	ND		ug/kg	0.054	0.054	1	A
Hexachlorobenzene	ND		ug/kg	0.108	0.108	1	A
Beta-BHC	ND		ug/kg	0.054	0.054	1	A
gamma-BHC	ND		ug/kg	0.054	0.054	1	A
Delta-BHC	ND		ug/kg	0.054	0.054	1	A
Heptachlor	ND		ug/kg	0.054	0.054	1	A
Aldrin	ND		ug/kg	0.054	0.054	1	A
Chloropyrifos[1]	ND		ug/kg	0.054	0.054	1	A
Heptachlor epoxide	ND		ug/kg	0.108	0.108	1	B
Oxychlordane	ND		ug/kg	0.108	0.108	1	A
trans-Chlordane	ND		ug/kg	0.054	0.054	1	A
2,4'-DDE	ND		ug/kg	0.054	0.054	1	A
Endosulfan I	ND		ug/kg	0.054	0.054	1	A
cis-Chlordane	ND		ug/kg	0.054	0.054	1	A
trans-Nonachlor	ND		ug/kg	0.054	0.054	1	A
4,4'-DDE	0.086		ug/kg	0.054	0.054	1	A
Dieldrin	ND		ug/kg	0.054	0.054	1	A
2,4'-DDD	0.658		ug/kg	0.054	0.054	1	A
Endrin	ND		ug/kg	0.054	0.054	1	A
Endosulfan II	ND		ug/kg	0.054	0.054	1	A
4,4'-DDD	0.131		ug/kg	0.054	0.054	1	B
2,4'-DDT	ND		ug/kg	0.054	0.054	1	A
cis-Nonachlor	ND		ug/kg	0.054	0.054	1	A
Endrin aldehyde	ND		ug/kg	0.162	0.162	1	A
Endosulfan sulfate	ND		ug/kg	0.054	0.054	1	B
4,4'-DDT	ND		ug/kg	0.054	0.054	1	B
Endrin ketone	ND		ug/kg	0.054	0.054	1	A
Methoxychlor	ND		ug/kg	0.541	0.541	1	A

Project Name: BEACON ISLAND PROJECT **Lab Number:** L1925812
Project Number: CD4644 **Report Date:** 07/12/19

SAMPLE RESULTS

Lab ID:	L1925812-05	Date Collected:	06/13/19 17:10
Client ID:	B-5	Date Received:	06/14/19
Sample Location:	PORT OF ALBANY	Field Prep:	Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Organochlorine Pesticides by GC - Mansfield Lab							
Mirex	ND		ug/kg	0.054	0.054	1	A
Toxaphene	ND		ug/kg	2.72	2.72	1	A
Chlordane	ND		ug/kg	2.72	2.72	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
Tetrachloro-meta-Xylene	101		30-150	A
Decachlorobiphenyl	98		30-150	A
Tetrachloro-meta-Xylene	88		30-150	B
Decachlorobiphenyl	91		30-150	B

Project Name: BEACON ISLAND PROJECT **Lab Number:** L1925812
Project Number: CD4644 **Report Date:** 07/12/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8081B
Analytical Date: 07/12/19 09:22
Analyst: GP

Extraction Method: EPA 3570
Extraction Date: 07/10/19 14:49
Cleanup Method: EPA 3630
Cleanup Date: 07/11/19

Parameter	Result	Qualifier	Units	RL	MDL	Column
Organochlorine Pesticides by GC - Mansfield Lab for sample(s): 01-05 Batch: WG1258153-1						
Alpha-BHC	ND		ug/kg	0.033	0.033	A
Hexachlorobenzene	ND		ug/kg	0.066	0.066	A
Beta-BHC	ND		ug/kg	0.033	0.033	A
gamma-BHC	ND		ug/kg	0.033	0.033	A
Delta-BHC	ND		ug/kg	0.033	0.033	A
Heptachlor	ND		ug/kg	0.033	0.033	A
Aldrin	ND		ug/kg	0.033	0.033	A
Chloropyrifos[1]	ND		ug/kg	0.033	0.033	A
trans-Chlordane	ND		ug/kg	0.033	0.033	A
2,4'-DDE	ND		ug/kg	0.033	0.033	A
Endosulfan I	ND		ug/kg	0.033	0.033	A
cis-Chlordane	ND		ug/kg	0.033	0.033	A
trans-Nonachlor	ND		ug/kg	0.033	0.033	A
4,4'-DDE	ND		ug/kg	0.033	0.033	A
Dieldrin	ND		ug/kg	0.033	0.033	A
2,4'-DDD	ND		ug/kg	0.033	0.033	A
Endrin	ND		ug/kg	0.033	0.033	A
Endosulfan II	ND		ug/kg	0.033	0.033	A
4,4'-DDD	ND		ug/kg	0.033	0.033	A
2,4'-DDT	ND		ug/kg	0.033	0.033	A
cis-Nonachlor	ND		ug/kg	0.033	0.033	A
Endrin aldehyde	ND		ug/kg	0.100	0.100	A
Endrin ketone	ND		ug/kg	0.033	0.033	A
Methoxychlor	ND		ug/kg	0.333	0.333	A
Mirex	ND		ug/kg	0.033	0.033	A
Toxaphene	ND		ug/kg	1.67	1.67	A
Chlordane	ND		ug/kg	1.67	1.67	A
Heptachlor epoxide	ND		ug/kg	0.066	0.066	B
Oxychlordane	ND		ug/kg	0.066	0.066	B

Project Name: BEACON ISLAND PROJECT
Project Number: CD4644

Lab Number: L1925812
Report Date: 07/12/19

Method Blank Analysis
Batch Quality Control

Analytical Method:	1,8081B
Analytical Date:	07/12/19 09:22
Analyst:	GP

Extraction Method:	EPA 3570
Extraction Date:	07/10/19 14:49
Cleanup Method:	EPA 3630
Cleanup Date:	07/11/19

Parameter	Result	Qualifier	Units	RL	MDL	Column
Organochlorine Pesticides by GC - Mansfield Lab for sample(s): 01-05 Batch: WG1258153-1						
Endosulfan sulfate	ND		ug/kg	0.033	0.033	B
4,4'-DDT	ND		ug/kg	0.033	0.033	B

Surrogate	%Recovery	Qualifier	Acceptance Criteria	Column
Tetrachloro-meta-Xylene	86		30-150	A
Decachlorobiphenyl	85		30-150	A
Tetrachloro-meta-Xylene	79		30-150	B
Decachlorobiphenyl	83		30-150	B

Lab Control Sample Analysis
Batch Quality Control

Project Name: BEACON ISLAND PROJECT
Project Number: CD4644

Lab Number: L1925812
Report Date: 07/12/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Organochlorine Pesticides by GC - Mansfield Lab Associated sample(s): 01-05 Batch: WG1258153-2 WG1258153-3									
Alpha-BHC	93		100		40-140	7		50	A
Hexachlorobenzene	78		87		40-140	11		50	A
Beta-BHC	85		94		40-140	10		50	A
gamma-BHC	90		97		40-140	7		50	A
Delta-BHC	96		103		40-140	7		50	A
Heptachlor	82		89		40-140	8		50	A
Aldrin	83		91		40-140	9		50	A
trans-Chlordane	89		96		40-140	8		50	A
2,4'-DDE	76		81		40-140	6		50	A
Endosulfan I	88		94		40-140	7		50	A
cis-Chlordane	82		88		40-140	7		50	A
trans-Nonachlor	84		91		40-140	8		50	A
4,4'-DDE	91		98		40-140	7		50	A
Dieldrin	90		97		40-140	7		50	A
2,4'-DDD	91		98		40-140	7		50	A
Endrin	87		93		40-140	7		50	A
Endosulfan II	85		93		40-140	9		50	A
4,4'-DDD	95		103		40-140	8		50	A
2,4'-DDT	91		99		40-140	8		50	A
cis-Nonachlor	87		94		40-140	8		50	A
Endrin aldehyde	74		82		40-140	10		50	A
Endosulfan sulfate	98		109		40-140	11		50	A
4,4'-DDT	99		109		40-140	10		50	A

Lab Control Sample Analysis
Batch Quality Control

Project Name: BEACON ISLAND PROJECT
Project Number: CD4644
Lab Number: L1925812
Report Date: 07/12/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	
Organochlorine Pesticides by GC - Mansfield Lab Associated sample(s): 01-05 Batch: WG1258153-2 WG1258153-3									
Endrin ketone	96		109		40-140	13		50	A
Methoxychlor	52		63		40-140	19		50	A
Mirex	68		74		40-140	8		50	A

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria	Column
Tetrachloro-meta-Xylene	82		94		30-150	A
Decachlorobiphenyl	81		94		30-150	A
Tetrachloro-meta-Xylene	75		84		30-150	B
Decachlorobiphenyl	81		93		30-150	B

Lab Control Sample Analysis
Batch Quality Control

Project Name: BEACON ISLAND PROJECT

Project Number: CD4644

Lab Number: L1925812

Report Date: 07/12/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Organochlorine Pesticides by GC - Mansfield Lab Associated sample(s): 01-05 Batch: WG1258153-2 WG1258153-3									
Heptachlor epoxide	85		92		40-140	8		50	B
Oxychlordane	91		99		40-140	8		50	B

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria	Column
Tetrachloro-meta-Xylene	82		94		30-150	A
Decachlorobiphenyl	81		94		30-150	A
Tetrachloro-meta-Xylene	75		84		30-150	B
Decachlorobiphenyl	81		93		30-150	B

METALS

Project Name:	BEACON ISLAND PROJECT	**Lab Number:**	L1925812
Project Number:	CD4644	**Report Date:**	07/12/19

SAMPLE RESULTS

Lab ID:	L1925812-01	Date Collected:	06/13/19 15:10
Client ID:	B-1	Date Received:	06/14/19
Sample Location:	PORT OF ALBANY	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Sediment		
Percent Solids:	78%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Arsenic, Total	2.19		mg/kg	0.619	0.082	10	06/26/19 17:10	06/28/19 16:52	EPA 3050B	1,6020B	AM
Cadmium, Total	0.042	J	mg/kg	0.248	0.033	10	06/26/19 17:10	06/28/19 16:52	EPA 3050B	1,6020B	AM
Copper, Total	3.70		mg/kg	2.48	0.240	10	06/26/19 17:10	06/28/19 16:52	EPA 3050B	1,6020B	AM
Lead, Total	4.08		mg/kg	0.743	0.181	10	06/26/19 17:10	06/28/19 16:52	EPA 3050B	1,6020B	AM
Mercury, Total	0.004	J	mg/kg	0.016	0.002	5	06/26/19 13:39	06/27/19 11:31	EPA 7474	1,7474	CD

Project Name: BEACON ISLAND PROJECT **Lab Number:** L1925812
Project Number: CD4644 **Report Date:** 07/12/19

SAMPLE RESULTS

Lab ID: L1925812-02 Date Collected: 06/13/19 15:40
Client ID: B-2 Date Received: 06/14/19
Sample Location: PORT OF ALBANY Field Prep: Not Specified

Sample Depth:
Matrix: Sediment
Percent Solids: 73%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Arsenic, Total	3.96		mg/kg	0.647	0.085	10	06/26/19 17:10	06/28/19 16:56	EPA 3050B	1,6020B	AM
Cadmium, Total	0.306		mg/kg	0.259	0.034	10	06/26/19 17:10	06/28/19 16:56	EPA 3050B	1,6020B	AM
Copper, Total	17.6		mg/kg	2.59	0.251	10	06/26/19 17:10	06/28/19 16:56	EPA 3050B	1,6020B	AM
Lead, Total	18.9		mg/kg	0.776	0.189	10	06/26/19 17:10	06/28/19 16:56	EPA 3050B	1,6020B	AM
Mercury, Total	0.041		mg/kg	0.018	0.002	5	06/26/19 13:39	06/27/19 11:33	EPA 7474	1,7474	CD

Project Name:	BEACON ISLAND PROJECT	**Lab Number:**	L1925812
Project Number:	CD4644	**Report Date:**	07/12/19

SAMPLE RESULTS

Lab ID:	L1925812-03	Date Collected:	06/13/19 16:15
Client ID:	B-3	Date Received:	06/14/19
Sample Location:	PORT OF ALBANY	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Sediment		
Percent Solids:	80%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Arsenic, Total	4.47		mg/kg	0.587	0.078	10	06/26/19 17:10	06/28/19 17:00	EPA 3050B	1,6020B	AM
Cadmium, Total	0.045	J	mg/kg	0.235	0.031	10	06/26/19 17:10	06/28/19 17:00	EPA 3050B	1,6020B	AM
Copper, Total	4.03		mg/kg	2.35	0.228	10	06/26/19 17:10	06/28/19 17:00	EPA 3050B	1,6020B	AM
Lead, Total	3.48		mg/kg	0.704	0.171	10	06/26/19 17:10	06/28/19 17:00	EPA 3050B	1,6020B	AM
Mercury, Total	0.007	J	mg/kg	0.018	0.002	5	06/26/19 13:39	06/27/19 11:36	EPA 7474	1,7474	CD

Project Name:	BEACON ISLAND PROJECT	**Lab Number:**	L1925812
Project Number:	CD4644	**Report Date:**	07/12/19

SAMPLE RESULTS

Lab ID:	L1925812-04	Date Collected:	06/13/19 16:45
Client ID:	B-4	Date Received:	06/14/19
Sample Location:	PORT OF ALBANY	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Sediment		
Percent Solids:	83%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Arsenic, Total	4.13		mg/kg	0.580	0.077	10	06/26/19 17:10	06/28/19 17:05	EPA 3050B	1,6020B	AM
Cadmium, Total	0.047	J	mg/kg	0.232	0.031	10	06/26/19 17:10	06/28/19 17:05	EPA 3050B	1,6020B	AM
Copper, Total	5.00		mg/kg	2.32	0.225	10	06/26/19 17:10	06/28/19 17:05	EPA 3050B	1,6020B	AM
Lead, Total	5.29		mg/kg	0.696	0.169	10	06/26/19 17:10	06/28/19 17:05	EPA 3050B	1,6020B	AM
Mercury, Total	0.011	J	mg/kg	0.015	0.002	5	06/26/19 13:39	06/27/19 11:38	EPA 7474	1,7474	CD

Project Name: BEACON ISLAND PROJECT **Lab Number:** L1925812
Project Number: CD4644 **Report Date:** 07/12/19

SAMPLE RESULTS

Lab ID: L1925812-05 Date Collected: 06/13/19 17:10
Client ID: B-5 Date Received: 06/14/19
Sample Location: PORT OF ALBANY Field Prep: Not Specified

Sample Depth:
Matrix: Sediment
Percent Solids: 61%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Arsenic, Total	4.75		mg/kg	0.784	0.104	10	06/26/19 17:10	06/28/19 17:09	EPA 3050B	1,6020B	AM
Cadmium, Total	0.091	J	mg/kg	0.314	0.041	10	06/26/19 17:10	06/28/19 17:09	EPA 3050B	1,6020B	AM
Copper, Total	6.52		mg/kg	3.14	0.304	10	06/26/19 17:10	06/28/19 17:09	EPA 3050B	1,6020B	AM
Lead, Total	5.56		mg/kg	0.941	0.229	10	06/26/19 17:10	06/28/19 17:09	EPA 3050B	1,6020B	AM
Mercury, Total	0.008	J	mg/kg	0.019	0.002	5	06/26/19 13:39	06/27/19 11:41	EPA 7474	1,7474	CD

Project Name: BEACON ISLAND PROJECT **Lab Number:** L1925812
Project Number: CD4644 **Report Date:** 07/12/19

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01-05 Batch: WG1253364-1										
Arsenic, Total	ND		mg/kg	0.500	0.066	10	06/26/19 17:10	06/28/19 15:50	1,6020B	AM
Cadmium, Total	ND		mg/kg	0.200	0.026	10	06/26/19 17:10	06/28/19 15:50	1,6020B	AM
Copper, Total	ND		mg/kg	2.00	0.194	10	06/26/19 17:10	06/28/19 15:50	1,6020B	AM
Lead, Total	ND		mg/kg	0.600	0.146	10	06/26/19 17:10	06/28/19 15:50	1,6020B	AM

Prep Information

Digestion Method: EPA 3050B

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01-05 Batch: WG1253366-1										
Mercury, Total	ND		mg/kg	0.013	0.002	5	06/26/19 13:39	06/27/19 10:07	1,7474	CD

Prep Information

Digestion Method: EPA 7474

Lab Control Sample Analysis
Batch Quality Control

Project Name: BEACON ISLAND PROJECT

Project Number: CD4644

Lab Number: L1925812

Report Date: 07/12/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-05 Batch: WG1253364-2 SRM Lot Number: D105-540								
Arsenic, Total	110		-		70-130	-		20
Cadmium, Total	109		-		75-125	-		20
Copper, Total	100		-		75-125	-		20
Lead, Total	98		-		71-128	-		20
Total Metals - Mansfield Lab Associated sample(s): 01-05 Batch: WG1253366-2 SRM Lot Number: D105-540								
Mercury, Total	84		-		60-141	-		20

Matrix Spike Analysis
Batch Quality Control

Project Name: BEACON ISLAND PROJECT
Project Number: CD4644
Lab Number: L1925812
Report Date: 07/12/19

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-05 QC Batch ID: WG1253364-3 QC Sample: L1925766-05 Client ID: MS Sample												
Arsenic, Total	244	22.4	267	102		-	-		75-125	-		20
Cadmium, Total	15.0	9.53	25.0	105		-	-		75-125	-		20
Copper, Total	724	46.7	770	98		-	-		75-125	-		20
Lead, Total	757	95.3	874	123		-	-		75-125	-		20
Total Metals - Mansfield Lab Associated sample(s): 01-05 QC Batch ID: WG1253366-3 QC Sample: L1925766-05 Client ID: MS Sample												
Mercury, Total	5.44	1.37	7.37	**141**	Q	-	-		80-120	-		20

Lab Duplicate Analysis
Batch Quality Control

Project Name: BEACON ISLAND PROJECT
Project Number: CD4644

Lab Number: L1925812
Report Date: 07/12/19

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-05 QC Batch ID: WG1253364-4 QC Sample: L1925766-05 Client ID: DUP Sample						
Arsenic, Total	244	220	mg/kg	10		20
Cadmium, Total	15.0	13.8	mg/kg	8		20
Copper, Total	724	646	mg/kg	11		20
Lead, Total	757	703	mg/kg	7		20
Total Metals - Mansfield Lab Associated sample(s): 01-05 QC Batch ID: WG1253366-4 QC Sample: L1925766-05 Client ID: DUP Sample						
Mercury, Total	5.44	5.58	mg/kg	3		20

INORGANICS
&
MISCELLANEOUS

Project Name: BEACON ISLAND PROJECT
Lab Number: L1925812
Project Number: CD4644
Report Date: 07/12/19

SAMPLE RESULTS

Lab ID: L1925812-01
Date Collected: 06/13/19 15:10
Client ID: B-1
Date Received: 06/14/19
Sample Location: PORT OF ALBANY
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Cyanide, Total	ND		mg/kg	1.2	0.26	1	06/16/19 13:35	06/17/19 13:30	1,9010C/9012B	LH
General Chemistry - Mansfield Lab										
Solids, Total	78.1		%	0.100	0.100	1	-	06/19/19 00:41	121,2540G	CC

Project Name: BEACON ISLAND PROJECT
Project Number: CD4644

Lab Number: L1925812
Report Date: 07/12/19

SAMPLE RESULTS

Lab ID: L1925812-02
Client ID: B-2
Sample Location: PORT OF ALBANY

Date Collected: 06/13/19 15:40
Date Received: 06/14/19
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Cyanide, Total	ND		mg/kg	1.3	0.27	1	06/16/19 13:35	06/17/19 13:33	1,9010C/9012B	LH
General Chemistry - Mansfield Lab										
Solids, Total	73.4		%	0.100	0.100	1	-	06/19/19 00:41	121,2540G	CC

Project Name:	BEACON ISLAND PROJECT	**Lab Number:**	L1925812
Project Number:	CD4644	**Report Date:**	07/12/19

SAMPLE RESULTS

Lab ID:	L1925812-03	Date Collected:	06/13/19 16:15
Client ID:	B-3	Date Received:	06/14/19
Sample Location:	PORT OF ALBANY	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Sediment		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Cyanide, Total	ND		mg/kg	1.2	0.26	1	06/16/19 13:35	06/17/19 13:57	1,9010C/9012B	LH
General Chemistry - Mansfield Lab										
Solids, Total	80.3		%	0.100	0.100	1	-	06/19/19 00:41	121,2540G	CC

Project Name: BEACON ISLAND PROJECT
Lab Number: L1925812
Project Number: CD4644
Report Date: 07/12/19

SAMPLE RESULTS

Lab ID: L1925812-04
Date Collected: 06/13/19 16:45
Client ID: B-4
Date Received: 06/14/19
Sample Location: PORT OF ALBANY
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Cyanide, Total	ND		mg/kg	1.2	0.24	1	06/16/19 13:35	06/17/19 13:35	1,9010C/9012B	LH
General Chemistry - Mansfield Lab										
Solids, Total	82.9		%	0.100	0.100	1	-	06/19/19 00:41	121,2540G	CC

Project Name: BEACON ISLAND PROJECT
Lab Number: L1925812
Project Number: CD4644
Report Date: 07/12/19

SAMPLE RESULTS

Lab ID:	L1925812-05	Date Collected:	06/13/19 17:10
Client ID:	B-5	Date Received:	06/14/19
Sample Location:	PORT OF ALBANY	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Sediment		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Cyanide, Total	ND		mg/kg	1.6	0.34	1	06/16/19 13:35	06/17/19 13:39	1,9010C/9012B	LH
General Chemistry - Mansfield Lab										
Solids, Total	61.3		%	0.100	0.100	1	-	06/19/19 00:41	121,2540G	CC

Project Name: BEACON ISLAND PROJECT **Lab Number:** L1925812

Project Number: CD4644 **Report Date:** 07/12/19

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab for sample(s): 02-04 Batch: WG1249185-1										
Cyanide, Total	ND		mg/kg	0.86	0.18	1	06/16/19 13:35	06/17/19 13:15	1,9010C/9012B	LH
General Chemistry - Westborough Lab for sample(s): 01,05 Batch: WG1249186-1										
Cyanide, Total	ND		mg/kg	0.86	0.18	1	06/16/19 13:35	06/17/19 13:16	1,9010C/9012B	LH

Lab Control Sample Analysis
Batch Quality Control

Project Name: BEACON ISLAND PROJECT
Project Number: CD4644

Lab Number: L1925812
Report Date: 07/12/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 02-04 Batch: WG1249185-2 WG1249185-3								
Cyanide, Total	**74**	Q	85		80-120	2		35
General Chemistry - Westborough Lab Associated sample(s): 01,05 Batch: WG1249186-2 WG1249186-3								
Cyanide, Total	**74**	Q	84		80-120	4		35

Matrix Spike Analysis
Batch Quality Control

Project Name: BEACON ISLAND PROJECT
Project Number: CD4644

Lab Number: L1925812
Report Date: 07/12/19

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 02-04 QC Batch ID: WG1249185-4 WG1249185-5 QC Sample: L1925787-01 Client ID: MS Sample												
Cyanide, Total	ND	10	8.9	88		9.9	98		75-125	11		35
General Chemistry - Westborough Lab Associated sample(s): 01,05 QC Batch ID: WG1249186-4 WG1249186-5 QC Sample: L1925812-01 Client ID: B-1												
Cyanide, Total	ND	12	11	92		11	90		75-125	0		35

Lab Duplicate Analysis

Batch Quality Control

Project Name: BEACON ISLAND PROJECT

Project Number: CD4644

Lab Number: L1925812

Report Date: 07/12/19

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Mansfield Lab Associated sample(s): 01-05 QC Batch ID: WG1250161-1 QC Sample: L1925766-03 Client ID: DUP Sample						
Solids, Total	50.1	48.6	%	3		10

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1925812-01A	Glass 120ml/4oz unpreserved	A	NA		3.5	Y	Absent		NYTCL-8260-BTEX(14)
L1925812-01B	Glass 120ml/4oz unpreserved	A	NA		3.5	Y	Absent		TCN-9010(14)
L1925812-01C	Glass 120ml/4oz unpreserved	A	NA		3.5	Y	Absent		A2-PB-6020T(180),A2-HG-7474T(28),HOLD-1613(365),A2-TS(7),A2-AS-6020T(180),A2-PEST-8081-LOW(14),A2-CD-6020T(180),A2-HGPREP-AF(28),A2-PCB-8082-LOW(14),A2-PREP-3050:2T(180),A2-CU-6020T(180),A2-PAH-8270SIM-FULL(14),A2-PREP-3050:1T(180)
L1925812-01D	Glass 120ml/4oz unpreserved	A	NA		3.5	Y	Absent		A2-PB-6020T(180),A2-HG-7474T(28),HOLD-1613(365),A2-TS(7),A2-AS-6020T(180),A2-PEST-8081-LOW(14),A2-CD-6020T(180),A2-HGPREP-AF(28),A2-PCB-8082-LOW(14),A2-PREP-3050:2T(180),A2-CU-6020T(180),A2-PAH-8270SIM-FULL(14),A2-PREP-3050:1T(180)
L1925812-01E	Glass 120ml/4oz unpreserved	A	NA		3.5	Y	Absent		A2-PB-6020T(180),A2-HG-7474T(28),HOLD-1613(365),A2-TS(7),A2-AS-6020T(180),A2-PEST-8081-LOW(14),A2-CD-6020T(180),A2-HGPREP-AF(28),A2-PCB-8082-LOW(14),A2-PREP-3050:2T(180),A2-CU-6020T(180),A2-PAH-8270SIM-FULL(14),A2-PREP-3050:1T(180)
L1925812-01F	Glass 250ml/8oz unpreserved	A	NA		3.5	Y	Absent		A2-PB-6020T(180),A2-HG-7474T(28),HOLD-1613(365),A2-TS(7),A2-AS-6020T(180),A2-PEST-8081-LOW(14),A2-CD-6020T(180),A2-HGPREP-AF(28),A2-PCB-8082-LOW(14),A2-PREP-3050:2T(180),A2-CU-6020T(180),A2-PAH-8270SIM-FULL(14),A2-PREP-3050:1T(180)
L1925812-01X	Vial MeOH preserved split	A	NA		3.5	Y	Absent		NYTCL-8260-BTEX(14)
L1925812-01Y	Vial Water preserved split	A	NA		3.5	Y	Absent	**24-JUN-19 12:30**	NYTCL-8260-BTEX(14)
L1925812-01Z	Vial Water preserved split	A	NA		3.5	Y	Absent	**24-JUN-19 12:30**	NYTCL-8260-BTEX(14)
L1925812-02A	Glass 120ml/4oz unpreserved	A	NA		3.5	Y	Absent		NYTCL-8260-BTEX(14)
L1925812-02B	Glass 120ml/4oz unpreserved	A	NA		3.5	Y	Absent		TCN-9010(14)

*Values in parentheses indicate holding time in days

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1925812-02C	Glass 120ml/4oz unpreserved	A	NA		3.5	Y	Absent		A2-PB-6020T(180),A2-HG-7474T(28),HOLD-1613(365),A2-TS(7),A2-AS-6020T(180),A2-PEST-8081-LOW(14),A2-CD-6020T(180),A2-HGPREP-AF(28),A2-PCB-8082-LOW(14),A2-PREP-3050:2T(180),A2-CU-6020T(180),A2-PAH-8270SIM-FULL(14),A2-PREP-3050:1T(180)
L1925812-02D	Glass 120ml/4oz unpreserved	A	NA		3.5	Y	Absent		A2-PB-6020T(180),A2-HG-7474T(28),HOLD-1613(365),A2-TS(7),A2-AS-6020T(180),A2-PEST-8081-LOW(14),A2-CD-6020T(180),A2-HGPREP-AF(28),A2-PCB-8082-LOW(14),A2-PREP-3050:2T(180),A2-CU-6020T(180),A2-PAH-8270SIM-FULL(14),A2-PREP-3050:1T(180)
L1925812-02E	Glass 120ml/4oz unpreserved	A	NA		3.5	Y	Absent		A2-PB-6020T(180),A2-HG-7474T(28),HOLD-1613(365),A2-TS(7),A2-AS-6020T(180),A2-PEST-8081-LOW(14),A2-CD-6020T(180),A2-HGPREP-AF(28),A2-PCB-8082-LOW(14),A2-PREP-3050:2T(180),A2-CU-6020T(180),A2-PAH-8270SIM-FULL(14),A2-PREP-3050:1T(180)
L1925812-02F	Glass 250ml/8oz unpreserved	A	NA		3.5	Y	Absent		A2-PB-6020T(180),A2-HG-7474T(28),HOLD-1613(365),A2-TS(7),A2-AS-6020T(180),A2-PEST-8081-LOW(14),A2-CD-6020T(180),A2-HGPREP-AF(28),A2-PCB-8082-LOW(14),A2-PREP-3050:2T(180),A2-CU-6020T(180),A2-PAH-8270SIM-FULL(14),A2-PREP-3050:1T(180)
L1925812-02X	Vial MeOH preserved split	A	NA		3.5	Y	Absent		NYTCL-8260-BTEX(14)
L1925812-02Y	Vial Water preserved split	A	NA		3.5	Y	Absent	**24-JUN-19 12:30**	NYTCL-8260-BTEX(14)
L1925812-02Z	Vial Water preserved split	A	NA		3.5	Y	Absent	**24-JUN-19 12:30**	NYTCL-8260-BTEX(14)
L1925812-03A	Glass 120ml/4oz unpreserved	A	NA		3.5	Y	Absent		NYTCL-8260-BTEX(14)
L1925812-03B	Glass 120ml/4oz unpreserved	A	NA		3.5	Y	Absent		TCN-9010(14)
L1925812-03C	Glass 120ml/4oz unpreserved	A	NA		3.5	Y	Absent		A2-PB-6020T(180),A2-HG-7474T(28),HOLD-1613(365),A2-TS(7),A2-AS-6020T(180),A2-PEST-8081-LOW(14),A2-CD-6020T(180),A2-HGPREP-AF(28),A2-PCB-8082-LOW(14),A2-PREP-3050:2T(180),A2-CU-6020T(180),A2-PAH-8270SIM-FULL(14),A2-PREP-3050:1T(180)
L1925812-03D	Glass 120ml/4oz unpreserved	A	NA		3.5	Y	Absent		A2-PB-6020T(180),A2-HG-7474T(28),HOLD-1613(365),A2-TS(7),A2-AS-6020T(180),A2-PEST-8081-LOW(14),A2-CD-6020T(180),A2-HGPREP-AF(28),A2-PCB-8082-LOW(14),A2-PREP-3050:2T(180),A2-CU-6020T(180),A2-PAH-8270SIM-FULL(14),A2-PREP-3050:1T(180)

*Values in parentheses indicate holding time in days

Project Name: BEACON ISLAND PROJECT
Project Number: CD4644

Lab Number: L1925812
Report Date: 07/12/19

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1925812-03E	Glass 120ml/4oz unpreserved	A	NA		3.5	Y	Absent		A2-PB-6020T(180),A2-HG-7474T(28),HOLD-1613(365),A2-TS(7),A2-AS-6020T(180),A2-PEST-8081-LOW(14),A2-CD-6020T(180),A2-HGPREP-AF(28),A2-PCB-8082-LOW(14),A2-PREP-3050:2T(180),A2-CU-6020T(180),A2-PAH-8270SIM-FULL(14),A2-PREP-3050:1T(180)
L1925812-03F	Glass 250ml/8oz unpreserved	A	NA		3.5	Y	Absent		A2-PB-6020T(180),A2-HG-7474T(28),HOLD-1613(365),A2-TS(7),A2-AS-6020T(180),A2-PEST-8081-LOW(14),A2-CD-6020T(180),A2-HGPREP-AF(28),A2-PCB-8082-LOW(14),A2-PREP-3050:2T(180),A2-CU-6020T(180),A2-PAH-8270SIM-FULL(14),A2-PREP-3050:1T(180)
L1925812-03X	Vial MeOH preserved split	A	NA		3.5	Y	Absent		NYTCL-8260-BTEX(14)
L1925812-03Y	Vial Water preserved split	A	NA		3.5	Y	Absent	**24-JUN-19 12:30**	NYTCL-8260-BTEX(14)
L1925812-03Z	Vial Water preserved split	A	NA		3.5	Y	Absent	**24-JUN-19 12:30**	NYTCL-8260-BTEX(14)
L1925812-04A	Glass 120ml/4oz unpreserved	A	NA		3.5	Y	Absent		NYTCL-8260-BTEX(14)
L1925812-04B	Glass 120ml/4oz unpreserved	A	NA		3.5	Y	Absent		TCN-9010(14)
L1925812-04C	Glass 120ml/4oz unpreserved	A	NA		3.5	Y	Absent		A2-PB-6020T(180),A2-HG-7474T(28),HOLD-1613(365),A2-TS(7),A2-AS-6020T(180),A2-PEST-8081-LOW(14),A2-CD-6020T(180),A2-HGPREP-AF(28),A2-PCB-8082-LOW(14),A2-PREP-3050:2T(180),A2-CU-6020T(180),A2-PAH-8270SIM-FULL(14),A2-PREP-3050:1T(180)
L1925812-04D	Glass 120ml/4oz unpreserved	A	NA		3.5	Y	Absent		A2-PB-6020T(180),A2-HG-7474T(28),HOLD-1613(365),A2-TS(7),A2-AS-6020T(180),A2-PEST-8081-LOW(14),A2-CD-6020T(180),A2-HGPREP-AF(28),A2-PCB-8082-LOW(14),A2-PREP-3050:2T(180),A2-CU-6020T(180),A2-PAH-8270SIM-FULL(14),A2-PREP-3050:1T(180)
L1925812-04E	Glass 120ml/4oz unpreserved	A	NA		3.5	Y	Absent		A2-PB-6020T(180),A2-HG-7474T(28),HOLD-1613(365),A2-TS(7),A2-AS-6020T(180),A2-PEST-8081-LOW(14),A2-CD-6020T(180),A2-HGPREP-AF(28),A2-PCB-8082-LOW(14),A2-PREP-3050:2T(180),A2-CU-6020T(180),A2-PAH-8270SIM-FULL(14),A2-PREP-3050:1T(180)
L1925812-04F	Glass 250ml/8oz unpreserved	A	NA		3.5	Y	Absent		A2-PB-6020T(180),A2-HG-7474T(28),HOLD-1613(365),A2-TS(7),A2-AS-6020T(180),A2-PEST-8081-LOW(14),A2-CD-6020T(180),A2-HGPREP-AF(28),A2-PCB-8082-LOW(14),A2-PREP-3050:2T(180),A2-CU-6020T(180),A2-PAH-8270SIM-FULL(14),A2-PREP-3050:1T(180)

*Values in parentheses indicate holding time in days

Project Name: BEACON ISLAND PROJECT
Project Number: CD4644

Lab Number: L1925812
Report Date: 07/12/19

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1925812-04X	Vial MeOH preserved split	A	NA		3.5	Y	Absent		NYTCL-8260-BTEX(14)
L1925812-04Y	Vial Water preserved split	A	NA		3.5	Y	Absent	**24-JUN-19 12:30**	NYTCL-8260-BTEX(14)
L1925812-04Z	Vial Water preserved split	A	NA		3.5	Y	Absent	**24-JUN-19 12:30**	NYTCL-8260-BTEX(14)
L1925812-05A	Glass 120ml/4oz unpreserved	A	NA		3.5	Y	Absent		NYTCL-8260-BTEX(14)
L1925812-05B	Glass 120ml/4oz unpreserved	A	NA		3.5	Y	Absent		TCN-9010(14)
L1925812-05C	Glass 120ml/4oz unpreserved	A	NA		3.5	Y	Absent		A2-PB-6020T(180),A2-HG-7474T(28),HOLD-1613(365),A2-TS(7),A2-AS-6020T(180),A2-PEST-8081-LOW(14),A2-CD-6020T(180),A2-HGPREP-AF(28),A2-PCB-8082-LOW(14),A2-PREP-3050:2T(180),A2-CU-6020T(180),A2-PAH-8270SIM-FULL(14),A2-PREP-3050:1T(180)
L1925812-05D	Glass 120ml/4oz unpreserved	A	NA		3.5	Y	Absent		A2-PB-6020T(180),A2-HG-7474T(28),HOLD-1613(365),A2-TS(7),A2-AS-6020T(180),A2-PEST-8081-LOW(14),A2-CD-6020T(180),A2-HGPREP-AF(28),A2-PCB-8082-LOW(14),A2-PREP-3050:2T(180),A2-CU-6020T(180),A2-PAH-8270SIM-FULL(14),A2-PREP-3050:1T(180)
L1925812-05E	Glass 120ml/4oz unpreserved	A	NA		3.5	Y	Absent		A2-PB-6020T(180),A2-HG-7474T(28),HOLD-1613(365),A2-TS(7),A2-AS-6020T(180),A2-PEST-8081-LOW(14),A2-CD-6020T(180),A2-HGPREP-AF(28),A2-PCB-8082-LOW(14),A2-PREP-3050:2T(180),A2-CU-6020T(180),A2-PAH-8270SIM-FULL(14),A2-PREP-3050:1T(180)
L1925812-05F	Glass 250ml/8oz unpreserved	A	NA		3.5	Y	Absent		A2-PB-6020T(180),A2-HG-7474T(28),HOLD-1613(365),A2-TS(7),A2-AS-6020T(180),A2-PEST-8081-LOW(14),A2-CD-6020T(180),A2-HGPREP-AF(28),A2-PCB-8082-LOW(14),A2-PREP-3050:2T(180),A2-CU-6020T(180),A2-PAH-8270SIM-FULL(14),A2-PREP-3050:1T(180)
L1925812-05X	Vial MeOH preserved split	A	NA		3.5	Y	Absent		NYTCL-8260-BTEX(14)
L1925812-05Y	Vial Water preserved split	A	NA		3.5	Y	Absent	**24-JUN-19 12:30**	NYTCL-8260-BTEX(14)
L1925812-05Z	Vial Water preserved split	A	NA		3.5	Y	Absent	**24-JUN-19 12:30**	NYTCL-8260-BTEX(14)

*Values in parentheses indicate holding time in days

Project Name: BEACON ISLAND PROJECT **Lab Number:** L1925812
Project Number: CD4644 **Report Date:** 07/12/19

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Footnotes

Report Format: DU Report with 'J' Qualifiers

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. If a 'Total' result is requested, the results of its individual components will also be reported.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

A - Spectra identified as "Aldol Condensation Product".

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

ND - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

Report Format: DU Report with 'J' Qualifiers

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - IV, 2007.

121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene
EPA 8260C: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), Methyl methacrylate, 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.

EPA 6860: SCM: Perchlorate

SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

ATLANTIC TESTING LABORATORIES

NO: 12602

L1925812

Environmental Chain-Of-Custody Record

Albany 22 Corporate Drive, Clifton Park, NY 12065, 518/383-9144 (T), 518/383-9166 (F), labsAT@atlantictesting.com
Binghamton 126 Park Avenue, Binghamton, NY 13903, 607/773-1812 (T), 607/773-1835 (F), labsET@atlantictesting.com
Canton 6431 U.S. Highway 11, Canton, NY 13617, 315/386-4578 (T), 315/386-1012 (F), labsCT@atlantictesting.com
Elmira 2330 Route 352, Elmira, NY 14903, 607/737-0700 (T), 607/737-0714 (F), labsHT@atlantictesting.com
Plattsburgh 130 Arizona Ave, Plattsburgh, NY 12903, 518/563-5878 (T), 518/562-1321 (F), labsPL@atlantictesting.com
Poughkeepsie 251 Upper North Road, Highland, NY 12528, 845/691-6098 (T), 845/691-6099 (F), labsPT@atlantictesting.com
Rochester 3495 Winton Place, Rochester, NY 14623, 585/427-9020 (T), 585/427-9021 (F), labsRT@atlantictesting.com
Syracuse 6085 Court Street Road, Syracuse, NY 13206, 315/699-5281 (T), 315/699-3374 (F), labsST@atlantictesting.com
Utica 301 St. Anthony Street, Utica, NY 13501, 315/735-3309 (T), 315/735-0742 (F), labsUT@atlantictesting.com
Watertown 26581 NYS Route 283, Watertown, NY 13601, 315/786-7887 (T), 315/786-2022 (F), labsWT@atlantictesting.com

Project No.: CD4644 — Page 1 of 1
Client Name: McFarland Johnson
Project Contact: Timothy Parker
Project Name: Beacon Island Project
QA/QC Code: ☐ NYSDEC ☐ SW-846 ☐ NYSDOH ☐ CLP ☐ Other
Project Location: Port of Albany

Report Distribution:
Dates Required: 5-DAY TAT
Send Report To: tparker@ Labs CT@
E-mail Results: @atlantictesting.com

Parameters: EPA 8082-PCB; Dioxin ☆; EPA 8081 - Pesticides; Benzene; BTEX's; EPA 8270 Total PAH; Ar, Cd, Cu, Pb, Hg; Cyanide

Date	Time	Field Sample No.	Sample Location	Sample Type	No. of Containers	EPA 8082-PCB	Dioxin ☆	EPA 8081 - Pesticides	Benzene	BTEX's	EPA 8270 Total PAH	Ar, Cd, Cu, Pb, Hg	Cyanide	Notes	Laboratory Sample ID No.
6/13/19	1510	—	B-1	C, Sd	6	X	X	X	X	X	X	X	X	☆ HOLD analysis till Dioxin)	
6/13/19	1540	—	B-2	C, Sd	6	X	X	X	X	X	X	X	X		
6/13/19	1615	—	B-3	C, Sd	6	X	X	X	X	X	X	X	X		
6/13/19	1645	—	B-4	C, Sd	6	X	X	X	X	X	X	X	X		
6/13/19	1710	—	B-5	C, Sd	6	X	X	X	X	X	X	X	X		

TP

Samplers Name: Timothy Parker — Date: 6/13/19 — Time: 1800
Samplers Signature:
Received for Name: H. Hicks — Laboratory Signature: H. Hicks — Date: 6/14 — Time: 12:30
Shipment Rec'd Intact? ☑ YES ☐ NO

Samples Relinquished By:			Samples Received By:		
Name: Timothy Parker	Date: 6/14/19		Name: Al Sommer	Date: 6/14/19	
Signature:	Time:		Signature: Al Sommer	Time: 11:20	
Name: Al Sommer	Date: 6/14/19		Name: H. Hicks	Date: 6/14	
Signature: Al Sommer	Time: 11:55		Signature: H. Hicks	Time: 16:35	

H. Hicks 6-14-19 16:35

Sample Type Code Key:
Description: C Composite; G Grab; Q QA/QC; O Other
Matrix: DW Drinking Water; GW Groundwater; WW Wastewater; SM Stormwater; O Oil; L Liquid; S Soil; SL Sludge; WS Solid Waste; B Bulk; WP Wipe; A Air

Laboratory Remarks:

Think Quality

Distribution: White with Samples, Yellow to Laboratory, Pink to ATL Files

ENV-001B
pdrive:Forms\Environmental\OfficeForms\Environmental Chain-Of-Custody Record rev 4: 05/16

APPENDIX D

SUMMARY OF ANALYTICAL RESULTS

Table D-1
Summary of Laboratory Analysis Results

Sample Number	B-1	B-2	B-3	B-4	B-5	NYSDEC TOGS 5.1.9 Sediment Quality Threshold Values		
Core Number	C-1	C-2	C-3	C-4	C-5			
Depth of Sample	0-10’	0-10’	0-10’	0-10’	0-10’			
Date Collected	06/13/19	06/13/19	06/13/19	06/13/19	06/13/19	Class A	Class B	Class C
Metals (mg/kg)								
Arsenic	2.19	3.96	4.47	4.13	4.75	<14	14 - 53	>53
Cadmium	0.042	0.306	0.045	0.047	0.091	<1.2	1.2 - 9.5	>9.5
Copper	3.70	17.6	4.03	5.00	6.52	<33	33 - 207	>207
Lead	4.08	18.9	3.48	5.29	5.56	<33	33 - 166	>166
Mercury	0.004	0.041	0.007	0.011	0.008	<0.17	0.17 - 1.6	>1.6
PAH and Petroleum-Related Compounds (mg/kg)								
Benzene	<0.00024	<0.00017	<0.00018	<0.00020	<0.00022	<0.59	0.59 - 2.16	>2.16
Total BTX	ND	ND	ND	ND	ND	<0.96	0.96 - 5.9	>5.9
Total PAH	0.0287	1.024	0.0497	00641	0.469	<4	4 - 35	>35
Pesticides (mg/kg)								
Sum of DDT+DDE+DDD	<0.000042	*0.00363*	0.000167	0.000277	0.000875	<0.003	0.003 - 0.03	>0.03
Dieldrin	<0.000042	<0.000045	<0.000041	<0.000039	<0.000054	<0.11	0.11 - 0.48	>0.48
Mirex	<0.000042	<0.000045	<0.000041	<0.000039	<0.000054	<0.0014	0.0014 - 0.014	>0.014
Chlordane	<0.00214	<0.00226	<0.00206	<0.00199	<0.00272	<0.003	0.003 - 0.036	>0.036
Sum of Chlordane Isomers	ND	*0.00533*	0.000182	ND	ND			
PCB (mg/kg)								
PCB (sum of aroclors)	<0.00104	*0.178*	0.00454	0.028	0.0103	<0.1	0.1 - 1	>1
Cyanide (mg/kg)								
Cyanide	<0.00026	<0.00027	<0.00026	<0.00024	<0.00034	--	--	--

Notes: Samples collected by representatives of ATL and analyzed by Alpha Analytical (NYSDOH No. 11148).

Laboratory reports and sample custody documentation are contained in Appendix C.

All laboratory results are expressed in units indicated.

ND = Not detected above the laboratory method detection limit

NYSDEC = New York State Department of Environmental Conservation

TOGS 5.1.9 = Technical and Operation Guidance Series 5.1.9, “In-Water and Riparian Management of Sediment and Dredged Material”

APPENDIX G

ENDANGERED SPECIES REPORTS

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Division of Fish and Wildlife, New York Natural Heritage Program
625 Broadway, Fifth Floor, Albany, NY 12233-4757
P: (518) 402-8935 | F: (518) 402-8925
www.dec.ny.gov

February 11, 2019

Thomas Wirickx
McFarland Johnson, Inc.
49 Court Street, P.O. Box 1980
Binghamton, NY 13902

Re: Port of Albany Development Project
County: Albany Town/City: Bethlehem

Dear Mr. Wirickx:

In response to your recent request, we have reviewed the New York Natural Heritage Program database with respect to the above project.

Enclosed is a report of rare or state-listed animals and plants, and significant natural communities that our database indicates occur in the vicinity of the project site.

For most sites, comprehensive field surveys have not been conducted; the enclosed report only includes records from our database. We cannot provide a definitive statement as to the presence or absence of all rare or state-listed species or significant natural communities. Depending on the nature of the project and the conditions at the project site, further information from on-site surveys or other sources may be required to fully assess impacts on biological resources.

Our database is continually growing as records are added and updated. If this proposed project is still under development one year from now, we recommend that you contact us again so that we may update this response with the most current information.

The presence of the plants and animals identified in the enclosed report may result in this project requiring additional review or permit conditions. For further guidance, and for information regarding other permits that may be required under state law for regulated areas or activities (e.g., regulated wetlands), please contact the NYS DEC Region 4 Office, Division of Environmental Permits at dep.r4@dec.ny.gov, 518-357-2449.

Sincerely,

Heidi J. Krahling

Heidi Krahling
Environmental Review Specialist
New York Natural Heritage Program

The following state-listed animals have been documented at or in the vicinity of the project site.

The following list includes animals that are listed by NYS as Endangered, Threatened, or Special Concern; and/or that are federally listed or are candidates for federal listing.

For information about any permit considerations for your project, please contact the Permits staff at the NYSDEC Region 4 Office at dep.r4@dec.ny.gov, 518-357-2449.

The following species has been documented at the project site.

COMMON NAME	*SCIENTIFIC NAME*	*NY STATE LISTING*	*FEDERAL LISTING*	
Birds				
Bald Eagle *Breeding*	*Haliaeetus leucocephalus*	Threatened		13817

The following species has been documented in the Hudson River and so could occur near the project site.

COMMON NAME	*SCIENTIFIC NAME*	*NY STATE LISTING*	*FEDERAL LISTING*	
Fish				
Shortnose Sturgeon	*Acipenser brevirostrum*	Endangered	Endangered	1091

This report only includes records from the NY Natural Heritage database.

If any rare plants or animals are documented during site visits, we request that information on the observations be provided to the New York Natural Heritage Program so that we may update our database.

Information about many of the listed animals in New York, including habitat, biology, identification, conservation, and management, are available online in Natural Heritage's Conservation Guides at www.guides.nynhp.org, and from NYSDEC at www.dec.ny.gov/animals/7494.html.

The following rare plants and rare animals have been documented at the project site, or in its vicinity.

We recommend that potential impacts of the proposed project on these species or communities be addressed as part of any environmental assessment or review conducted as part of the planning, permitting and approval process, such as reviews conducted under SEQR. Field surveys of the project site may be necessary to determine the status of a species at the site, particularly for sites that are currently undeveloped and may still contain suitable habitat. Final requirements of the project to avoid, minimize, or mitigate potential impacts are determined by the lead permitting agency or the government body approving the project.

The following animals, while not listed by New York State as Endangered or Threatened, are rare in New York and are of conservation concern.

COMMON NAME	*SCIENTIFIC NAME*	*NY STATE LISTING*	*HERITAGE CONSERVATION STATUS*	
Dragonflies and Damselflies				
Cobra Clubtail	*Gomphurus vastus*	Unlisted	Critically Imperiled in NYS	
Documented at the project site where the Norman's Kill meets Island Creek. 2008-07-03.				13447
Umber Shadowdragon	*Neurocordulia obsoleta*	Unlisted	Critically Imperiled in NYS	
Documented at the project site where the Norman's Kill meets Island Creek. 2008-07-03.				14511
Freshwater Mussels				
Alewife Floater	*Anodonta implicata*	Unlisted	Critically Imperiled in NYS	
Documented in the Hudson River from Troy to Albany and so could occur near the project site. Autumn 1984.				9713

The following plants are listed as Endangered or Threatened by New York State, and/or are rare in New York State, and so are a vulnerable natural resource of conservation concern.

COMMON NAME	*SCIENTIFIC NAME*	*NY STATE LISTING*	*HERITAGE CONSERVATION STATUS*	
Vascular Plants				
Side-oats Grama	*Bouteloua curtipendula var. curtipendula*	Endangered	Imperiled in NYS	
Documented within 80 yards west of the southern section of the project site. 1996-09-12: The plants are on the lower slope of a red cedar rocky summit along an old road and railroad cut.				11033
Violet Wood Sorrel	*Oxalis violacea*	Threatened	Imperiled in NYS	
Documented within 0.25 mile southwest of the project site. 2004-06-03: The plants are in Appalachian Oak Hickory Forest along the trail.				3602

This report only includes records from the NY Natural Heritage database. For most sites, comprehensive field surveys have not been conducted, and we cannot provide a definitive statement as to the presence or absence of all rare or state-listed species. Depending on the nature of the project and the conditions at the project site, further information from on-site surveys or other sources may be required to fully assess impacts on biological resources.

If any rare plants or animals are documented during site visits, we request that information on the observations be provided to the New York Natural Heritage Program so that we may update our database.

Information about many of the rare animals and plants in New York, including habitat, biology, identification, conservation, and management, are available online in Natural Heritage's Conservation Guides at www.guides.nynhp.org, from NatureServe Explorer at www.natureserve.org/explorer, and from USDA's Plants Database at http://plants.usda.gov/index.html (for plants).

The following rare plant has historical records in the vicinity of the project site.

The following rare plant was documented in the vicinity of the project site at one time, but has not been documented there since 1979 or earlier, and/or there is uncertainty regarding its continued presence. There is no recent information on this plant in the vicinity of the project site and its current status there is unknown. In most cases the precise location of the plant in this vicinity at the time it was last documented is also unknown.

If suitable habitat for this plant is present in the vicinity of the project site, it is possible that it may still occur there. We recommend that any field surveys to the site include a search for this species, particularly at sites that are currently undeveloped and may still contain suitable habitat.

COMMON NAME	SCIENTIFIC NAME	NYS LISTING	HERITAGE CONSERVATION STATUS
Vascular Plants			
Small's Knotweed	*Polygonum buxiforme*	Endangered	Critically Imperiled in NYS
1974-07-25: Albany Port. Railroad yards.			3838

This report only includes records from the NY Natural Heritage database. For most sites, comprehensive field surveys have not been conducted, and we cannot provide a definitive statement as to the presence or absence of all rare or state-listed species. Depending on the nature of the project and the conditions at the project site, further information from on-site surveys or other sources may be required to fully assess impacts on biological resources.

If any rare plants or animals are documented during site visits, we request that information on the observations be provided to the New York Natural Heritage Program so that we may update our database.

Information about many of the rare animals and plants in New York, including habitat, biology, identification, conservation, and management, are available online in Natural Heritage's Conservation Guides at www.guides.nynhp.org, from NatureServe Explorer at www.natureserve.org/explorer, and from USDA's Plants Database at http://plants.usda.gov/index.html (for plants).

United States Department of the Interior

FISH AND WILDLIFE SERVICE
New York Ecological Services Field Office
3817 Luker Road
Cortland, NY 13045-9385
Phone: (607) 753-9334 Fax: (607) 753-9699
http://www.fws.gov/northeast/nyfo/es/section7.htm

In Reply Refer To: February 11, 2019
Consultation Code: 05E1NY00-2019-SLI-0954
Event Code: 05E1NY00-2019-E-02979
Project Name: Port of Albany Expansion Project

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531 *et seq.*). This list can also be used to determine whether listed species may be present for projects without federal agency involvement. New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list.

Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the ESA, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC site at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list. If listed, proposed, or candidate species were identified as potentially occurring in the project area, coordination with our office is encouraged. Information on the steps involved with assessing potential impacts from projects can be found at: http://www.fws.gov/northeast/nyfo/es/section7.htm

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/

eagle_guidance.html). Additionally, wind energy projects should follow the Services wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http://www.towerkill.com; and http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the ESA. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

New York Ecological Services Field Office
3817 Luker Road
Cortland, NY 13045-9385
(607) 753-9334

Project Summary

Consultation Code: 05E1NY00-2019-SLI-0954

Event Code: 05E1NY00-2019-E-02979

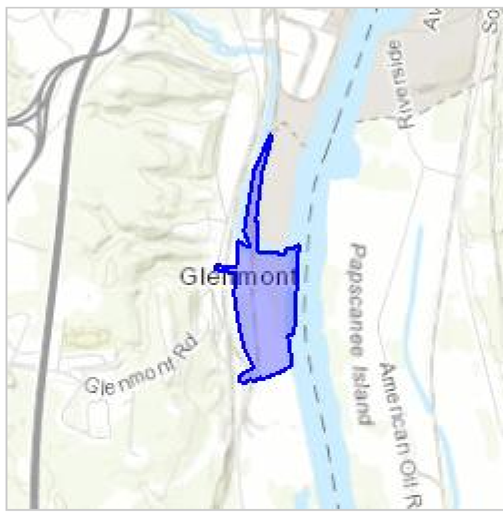
Project Name: Port of Albany Expansion Project

Project Type: DEVELOPMENT

Project Description: Development project

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/42.60686064736401N73.76491263396812W



Counties: Albany, NY

Endangered Species Act Species

There is a total of 1 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

---

1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
Northern Long-eared Bat *Myotis septentrionalis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Threatened

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

Drawn Action Area & overlapping S7 Consultation Areas

Area of Interest (AOI) Information

Area : 4,045.63 acres

Jan 15 2019 11:43:41 Eastern Standard Time

Summary

Name	Count	Area(acres)	Length(mi)
Atlantic Sturgeon	5	1,560.19	N/A
Shortnose Sturgeon	6	1,872.24	N/A
Atlantic Salmon	0	0	N/A
Sea Turtles	0	0	N/A
Atlantic Large Whales	0	0	N/A
In or Near Critical Habitat	1	310.82	N/A

Atlantic Sturgeon

#	Feature ID	Species	Life Stage	Behavior	Zone
1	ANS_HUD_JUV_MAF	Atlantic sturgeon	Juvenile	Migrating & Foraging	Hudson River
2	ANS_HUD_SUB_MAF	Atlantic sturgeon	Subadult	Migrating & Foraging	Hudson River
3	ANS_HUD_ADU_MAF	Atlantic sturgeon	Adult	Migrating & Foraging	Hudson River
4	ANS_HUD_ADU_SPN	Atlantic sturgeon	Adult	Spawning	Hudson River
5	ANS_HUD_EYL_NON	Atlantic sturgeon	Eggs and Yolk-sac Larvae	N/A	Hudson River

#	From	Until	From (2)	Until (2)	Area(acres)
1	1/1	12/31	N/A	N/A	312.04
2	4/1	11/30	N/A	N/A	312.04
3	4/1	11/30	N/A	N/A	312.04
4	4/15	8/31	N/A	N/A	312.04
5	4/15	9/30	N/A	N/A	312.04

Shortnose Sturgeon

#	Feature ID	Species	Life Stage	Behavior	Zone
1	SNS_HUD_YOY_MAF	Shortnose sturgeon	Young of year	Migrating & Foraging	Hudson River
2	SNS_HUD_ADU_SPN	Shortnose sturgeon	Adult	Spawning	Hudson River
3	SNS_HUD_EYL_NON	Shortnose sturgeon	Eggs and Yolk-sac Larvae	N/A	Hudson River
4	SNS_HUD_JUV_MAF	Shortnose sturgeon	Juvenile	Migrating & Foraging	Hudson River
5	SNS_HUD_PYL_MAF	Shortnose sturgeon	Post Yolk-sac Larvae	Migrating & Foraging	Hudson River
6	SNS_HUD_ADU_MAF	Shortnose sturgeon	Adult	Migrating & Foraging	Hudson River

#	From	Until	From (2)	Until (2)	Area(acres)
1	01/01	12/31	N/A	N/A	312.04
2	03/15	05/15	N/A	N/A	312.04
3	03/15	06/15	N/A	N/A	312.04
4	01/01	12/31	N/A	N/A	312.04
5	03/15	07/15	N/A	N/A	312.04
6	01/01	12/31	N/A	N/A	312.04

In or Near Critical Habitat

#	Species	In or near Critical Habitat Unit	Area(acres)
1	Atlantic Sturgeon	New York Bight Unit 3: Hudson River	310.82

General distribution: Atlantic Ocean waters and associated bays, estuaries, and coastal river systems from Hamilton Inlet, Labrador, Canada, to Cape Canaveral, Florida; only subadult and adult lifestages occur in marine waters, where they are typically found in waters 5-50 meters in depth (Stein et al. 2004; ASMFC TC 2007); subadults and adults may travel long distances in marine waters, aggregate in both ocean and estuarine areas at certain times of the year, and exhibit seasonal coastal movements in the spring and fall; distribution in rivers and inshore bays typically occurs from the estuary or river mouth generally up to the first impassible barrier (e.g., a dam or falls); Atlantic sturgeon generally use the deepest habitats available to them in rivers, but they have also been collected over shallow (2.5 meters), tidally influenced flats and substrates ranging from mud to sand and mixed rubble and cobble (Savoy and Pacileo 2003)

Disclaimer: the best available information on Atlantic sturgeon presence within coastal rivers, estuaries, and bays of the Greater Atlantic Region is presented below; waterbodies highlighted below are ones where we have information specific to Atlantic sturgeon use of the area that would be helpful for action agencies reviewing proposed actions and their potential effects on Atlantic sturgeon; however, they may occur in other watersheds within this range for which we do not currently have specific information; note: individuals from any of the five listed DPSs (Gulf of Maine, New York Bight, Chesapeake Bay, Carolina, and South Atlantic) may occur in any of the areas identified throughout the species' range; a description of Atlantic sturgeon life history stages are included at the end of the table below

Body of Water (State)	**Distribution/Range in Watershed**	**Life Stages Present**	**Use of the Watershed**	**References**
Cobscook Bay/St. Croix River (ME)	Up to the Milltown Dam at Calais, ME (RKM 16)	subadults and adults	**Foraging** - assumed to occur wherever suitable forage is present[1]	[1] Zydlewski (UMaine) pers. comm., September 21, 2015
Penobscot River (ME)	Up to the Milford Dam (RKM 62)	subadults and adults (potentially eggs, larvae, YOY, and juveniles)	**Spawning** - undocumented, but 12 km of suitable spawning habitat is accessible[2] **Foraging -** wherever suitable forage is present, documented in the lower river (RKM 21-24.5)[1]	[1] Fernandes et al. 2010; [2] Wippelhauser et al. 2017
Damariscotta River (ME)	Up to Damariscotta Lake Dam (RKM 30.3)	subadults and adults	**Foraging** - assumed to occur wherever suitable forage is present; tag detections indicate that usage of the river is for short periods during coastal migrations[1]	[1] Picard and Zydlewski 2014
Sheepscot River (ME)	Up to the head-of-tide dam (RKM 35)	subadults and adults	**Foraging** - assumed to occur wherever suitable forage is present; may occur in Montsweag Bay as shortnose sturgeon foraging has been documented there[1]; subadults have been captured in the river[2]	[1] Fried and McCleave 1973; [2] ASSRT 2007
Kennebec River (ME)	Up to the Lockwood Dam (RKM 102), also includes the entirety of the Back and Sasanoa Rivers	eggs, larvae, YOY, juveniles, subadults, and adults	**Spawning** - May-August[4]; documented via captures of spawning condition adults and larvae (RKM 52.8-76)[1][4]; potentially occurs as far upstream as the Lockwood Dam in the restored spawning habitat (RKM 87-102)[4] **Rearing -** ELS have been documented near the spawning grounds[4]; juveniles have also been documented in the river[3] **Foraging** - assumed to occur wherever suitable forage is present (documented from RKM 0-42)[4]; also documented in the Sasanoa and Back Rivers[2][3]	[1] Wippelhauser 2011; [2] Wippelhauser 2012; [3] Wippelhauser and Squiers 2015; [4] Wippelhauser et al. 2017

Androscoggin River (ME)	Up to the Brunswick Dam (RKM 8.4)	eggs, larvae, YOY, juveniles, subadults, and adults	**Spawning** - May-August[2]; capture of a ripe male[2] in the summer below the Brunswick Dam (RKM 7.7-8.4)[1] indicates that spawning is likely occurring **Rearing** - Juveniles likely present throughout the river year-round **Foraging** - assumed to occur wherever suitable forage is present	[1] Wippelhauser and Squiers 2015; [2] Wippelhauser et al. 2017
Presumpscot River (ME)	Up to Presumpscot Falls (RKM 3)	subadults and adults	**Foraging** - assumed to occur wherever suitable forage is present; an Atlantic sturgeon was caught below Presumpscot Falls[1]	[1] Yoder et al. 2009
Scarborough River (ME)	Throughout the entire river	subadults and adults	**Foraging** - assumed to occur wherever suitable forage is present[1]	[1] Wippelhauser et al. 2017
Saco River (ME)	Up to Cataract Dam (RKM 10)	juveniles, subadults, and adults	**Foraging** - assumed to occur wherever suitable forage is present[1]	[1] Novak et al. 2017
Piscataqua River Watershed including Salmon Falls and Cocheco tributaries (NH)	Up to the confluence with the Salmon Falls and Cocheco Rivers (RKM 15) and including Great Bay; Salmon Falls River – up to the Route 4/South Berswick Dam (RKM 7); Cocheco River – up to the Cocheco Falls Dam (RKM 6)	subadults and adults (eggs, larvae, YOY, and juveniles possible)	**Spawning** - potentially occurs in the Salmon Falls and Cocheco rivers based on the presence of features necessary to support reproduction and recruitment as well as the capture of an adult female Atlantic sturgeon in spawning condition in 1990[1][3] **Rearing** - Juveniles potentially present throughout the river year-round **Foraging** - used seasonally for foraging and resting during spring and fall migrations; tagging data indicates that use by individual sturgeon is limited to days or weeks[2]	[1] ASSRT 2007; [2] Kieffer and Trefry 2017 pers. comm.; [3] NMFS 2017
Merrimack River (MA)	Up to the Essex Dam (RKM 46); often found around the lower islands reach (RKM 3-12) and the mouth of the river	subadults and adults (potentially eggs, larvae, YOY, and juveniles)	**Spawning** - potentially occurs due to the presence of features necessary to support reproduction and recruitment[4] **Rearing** - data suggests it is used as a nursery area for juveniles[3] **Foraging** - mouth of the river and the lower islands area (RKM 0-12); subadults use RKM 7-12[1][2]	[1] Kieffer and Kynard 1993; [2] Kynard et al. 2000; [3] ASSRT 2007; [4] NMFS 2017
Charles River (MA)	Up to Charles River Locks (RKM 5.5)	subadults and adults	**Foraging** - assumed to occur wherever suitable forage is present[1]	[1] Boston.com February 20, 2012 (http://archive.boston.com/news/science/articles/2012/02/20/from_depths_of_the_charles_an_ancient_species/)
North River (MA)	Up to Dam #1 on the Indian Head Reservoir at Luddam's Ford (RKM 21)	subadults and adults	**Foraging** - assumed to occur wherever suitable forage is present; an adult was found in the North River, 4 miles from the mouth in 2012[1]	[1] The Patriot Ledger June 1, 2012 (http://www.patriotledger.com/article/20120601/NEWS/306019786)
Taunton River (MA)	Up to the convergence of the Town River and Matfield River	subadults and adults	**Foraging** - assumed to occur wherever suitable forage is present[1][2]	[1] Buerkett and Kynard 1993; [2] ASSRT 2007

Narragansett Bay (RI)	Throughout the bay	subadults and adults	**Foraging** - assumed to occur wherever suitable forage is present[1]	[1] ASSRT 2007
Thames River (CT)	Up to the Yantic Dam in the Yantic River and up to the Greenville Dam in the Shetucket River	subadults and adults	**Foraging** - assumed to occur wherever suitable forage is present[1][2][3]	[1] Whitworth 1996; [2] ASSRT 2007; [3] The Day June 17, 2016 (http://www.theday.com/article/20160617/NWS01/160619212)
Connecticut River (CT/MA)	Up to the Holyoke Dam (RKM 140); mainly stay in the summer range of the salt wedge (RKM 0-26)	eggs, larvae, YOY, juveniles, subadults, and adults	**Spawning/Rearing** - captures of pre-migratory juvenile sturgeon in the river strongly suggests that spawning is occurring in this river[3] **Foraging** - assumed to occur wherever suitable forage is present[1][2]	[1] Savoy and Shake 1993; [2] Savoy and Pacileo 2003; [3] Savoy et al. 2017
Quinnipiac River (CT)	Up to bridge at Quinnipiac Street and River Road in Wallingford (RKM 27)	subadults and adults	**Foraging** - assumed to occur wherever suitable forage is present[1]	[1] Hartford Courant September 30, 1994 (http://articles.courant.com/1994-09-30/news/9409300111_1_sturgeon-fish-story-giant-fish)
Housatonic River (CT)	Up to the Derby Dam (RKM 23.5)	subadults and adults (potentially eggs, larvae, YOY, and juveniles)	**Spawning** - not documented; potentially occurs due to the presence of features necessary to support reproduction and recruitment[3] **Foraging** - assumed to occur wherever suitable forage is present[1][2]	[1] Whitworth 1996; [2] ASSRT 2007; [3] NMFS 2017
Long Island Sound (NY/CT)	All of Long Island Sound	subadults and adults	**Foraging** - where suitable forage is present; 85% of Atlantic sturgeon caught in Long Island Sound are over mud/transitional bottoms of 27-37 meters deep in the central basin[1]	[1] Savoy and Pacileo 2003
East River (NY)	full length of the East River	subadults and adults	**Migration** - subadults and adults have been documented using this waterbody to move between the Hudson River and western Long Island Sound[1][2] **Foraging** - assumed to occur wherever suitable forage is present, but forage is limited[1][2]	[1] Savoy and Pacileo 2003; [2] Tomichek et al. 2014

Hudson River (NY/NJ)	up to the Troy Dam (approximately RKM 246)	eggs, larvae, YOY, juveniles, subadults, and adults	**Spawning** - late April through August[1][6], notably around Hyde Park (RKM 129-135) [4] and Catskill (RKM 182)[2], as well as throughout RKM 113-184[4]; evidence strongly suggests that there is also spawning further upstream of RKM 193[6] **Rearing** - larvae and YOY - RKM 60-148[1] [3]; remain upstream of the salt wedge[2]; juveniles - RKM 63-140[1][3]; utilize the estuary up through Kingston (RKM 148)[1]; Newburgh and Haverstraw Bays (RKM 55-61) are areas of known juvenile concentrations[5] **Foraging** - assumed to occur wherever suitable forage is present **Overwintering** - juveniles - RKM 19-74 from fall through winter[1]; some juveniles were recorded in Esopus Meadows (RKM 134)[3]	[1] Dovel and Berggren 1983; [2] Van Eenennaam et al. 1996; [3] Bain 1997; [4] Bain et al. 1998; [5] Sweka et al. 2006; [6] Dewayne Fox, DSU, and Kathy Hattala, NYDEC, personal communication April 2014
Delaware River (NJ/DE/PA)	Up to the fall line near Trenton, NJ (RKM 211)	eggs, larvae, YOY, juveniles, subadults, and adults	**Spawning** - documented and/or potential spawning habitat in April through July from the Marcus Hook Bar to the fall line at Trenton, NJ (RKM 125-211)[2][3][5] **Rearing** - YOY/juveniles - Deepwater to Roebling, NJ (RKM 105-199)[4] with most of the detections in the Marcus Hook Area (RKM 127-129)[7] **Foraging** - where suitable forage and appropriate habitat conditions are present **Overwintering** - juveniles - move between lower (RKM 100-150) and upper (RKM 185-199) tidal areas[6]; may overwinter in tidal fresh water[1]	[1] Lazzari et al. 1986; [2] Simpson and Fox 2006; [3] Simpson 2008; [4] Calvo et al. 2010; [5] Breece et al. 2013; [6] Stetzar et al. 2015; [7] Hale et al. 2016
C&D Canal (DE/MD)	Used at least occasionally to move from Chesapeake Bay to the Delaware River	juveniles, subadults, and adults	**Foraging** - Assumed to occur in areas with suitable forage [1][2]	[1] Simpson 2008; [2] Brundage and O'Herron 2009
Chesapeake Bay (MD/VA)	Throughout the bay typically in spring through fall	juveniles, subadults, and adults	**Migration** - April-November for adults[5] and subadults[1]; year round for juveniles[2] [3]; these lifestages wander among coastal and estuarine habitats[5] **Foraging** - typically in areas where suitable forage and appropriate habitat conditions are present; typically tidally influenced flats and mud, sand and mixed cobble substrates[4]	[1] Dovel and Berggren 1983; [2] Secor et al. 2000; [3] Welsh et al. 2002; [4] Stein et al. 2004; [5] Horne and Stence 2016
Susquehanna River (MD)	Up to the Conowingo Dam (RKM 16)	subadults and adults (potentially eggs, larvae, YOY, and juveniles)	**Foraging** - where suitable forage and appropriate habitat conditions are present [1]	[1] ASSRT 2007

Choptank River (MD)	Range not confirmed, but they have been documented in this river (likely up to the dam at RKM 102)	subadults and adults (potentially eggs, larvae, YOY, and juveniles)	**Foraging -** where suitable forage and appropriate habitat conditions are present [2] **Spawning** - not documented, but a gravid female was caught at the mouth of the river near Tilghman Island[1]	[1] The Baltimore Sun June 13, 2007 (http://articles.baltimoresun.com/2007-06-13/news/0706130110_1_sturgeon-chesapeake-bay-university-of-maryland); [2] ASSRT 2007
Nanticoke River, including Marshyhope Creek and Broad Creek tributaries (MD)	Range not confirmed, but they have been documented in the Nanticoke River up to the mouth of Broad Creek; they have also been found up to Federalsburg, MD in Marshyhope Creek and up to Laurel, DE in Broad Creek[2]	subadults and adults (potentially eggs, larvae, YOY, and juveniles)	**Spawning -** potential for spawning due to the presence of features necessary to support reproduction and recruitment in one of its tributaries (in Marshyhope Creek, spawn ready adults have been captured)[2] **Rearing** - may be used as a nursery for juveniles[1] **Foraging** - assumed to occur wherever suitable forage is present[1]	[1] ASSRT 2007; [2] Horne and Stence 2016
Pocomoke River (MD)	To the limit of tidal influence where Whiton Crossing Road crosses the river	subadults and adults	**Foraging** - assumed to occur wherever suitable forage is present[1]	[1] Horne and Stence 2016
Potomac River (MD/VA)	Up to Little Falls Dam (RKM 189)	juveniles, subadults, and adults (potentially eggs, larvae, and YOY)	**Spawning** - potentially occurs as three small juveniles[3] and a large mature female[2] have been captured and due to the presence of features necessary to support reproduction and recruitment[1][2] **Rearing** - three juveniles have been captured[3] **Foraging** - where suitable forage and appropriate habitat conditions are present [2]	[1] Niklitschek and Secor 2005; [2] ASSRT 2007; [3] Kynard et al. 2007
Rappahannock River (VA)	Range not confirmed, but they have been documented in this river (likely throughout the entire river)	subadults and adults (potentially eggs, larvae, YOY, and juveniles)	**Spawning** - potentially occurs due to the capture of a male sturgeon in spawning condition in September 2015 and the presence of features necessary to support reproduction and recruitment[1][3] **Rearing** - may be used as a nursery for juveniles[2] **Foraging** - where suitable forage and appropriate habitat conditions are present [2]	[1] Bushnoe et al. 2005; [2] ASSRT 2007; [3] NMFS 2016

York River, including Mattaponi and Pamunkey River tributaries (VA)	York River - up to confluence with the Mattaponi and Pamunkey Rivers (RKM 55); Pamunkey River - up to RKM 150; Mattaponi River - up to RKM 120	eggs, larvae, YOY, juveniles, subadults, and adults	**Spawning** - potential for fall spawning due to the presence of features necessary to support reproduction in its tributaries (Mattaponi and Pamunkey Rivers) and recruitment in both the York River and its tributaries[1]; documented in the Pamunkey River through the capture of an adult female sturgeon in post-spawning condition in the fall and the presence of features necessary to support reproduction and recruitment[3]; may occur in the Pamunkey River as far upstream as RKM 150[4] **Rearing** - in freshwater reaches downstream of spawning sites; four age-0 Atlantic sturgeon were captured in the York River[2]; Juveniles likely present throughout the river year-round **Foraging** - where suitable forage and appropriate habitat conditions are present [1]	[1] Bushnoe et al. 2005; [2] Balazik et al. 2012; [3] Hager et al. 2014; [4] Kahn et al. 2014
James River (VA)	Up to Boshers Dam (RKM 182.3)	eggs, larvae, YOY, juveniles, subadults, and adults	**Staging** - likely done by fall spawners, during summer and fall in brackish water before and after the fall spawn (RKM 22-107)[4] **Spawning** - both a spring (likely at RKM 90-95)[4] and fall spawning event (likely between RKM 105 and the fall line near Richmond, VA at RKM 155)[3] **Rearing** - freshwater reaches downstream of spawning locations[1][2]; Juveniles likely present throughout the river year-round **Foraging** - where suitable forage and appropriate habitat conditions are present [2]	[1] Florida Museum of Natural History 2004; [2] ASSRT 2007; [3] Balazik et al. 2012; [4] Balazik and Musick 2015
Appomattox River (VA), tributary of the James River	Range not confirmed, but they have been documented in this river (likely up to Battersea Dam, RKM 21)	subadults and adults	**Foraging** - where suitable forage and appropriate habitat conditions are present [1]	[1] The Hopewell News 2013

Listing rules: 77 FR 5880 and 77 FR 5914, February 6, 2012; **Recovery plan**: none published

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Body of Water (State)	**Distribution/Range in Watershed**	**Life Stages Present**	**Use of the Watershed**	**References**
Narraguagus River (ME)	Up to Cherryfield Dam (RKM 10.6)	adults	**Foraging** - May be used for foraging; tag detections indicate that usage of the river is for short periods during coastal migrations[1]	[1] Dionne et al. 2013
Penobscot River (ME)	Up to Milford Dam (RKM 62)	adults documented; other life stages assumed but unknown	**Spawning** - Not documented to date; suitable spawning habitat is accessible[3] **Foraging** - Foraging concentrations from RKM 10-24.5 during the summer months as well as throughout the lower and middle estuary; RKM 21-45 by mid-July and August[1] **Overwintering** - Aggregations located from RKM 36.5-42 from mid-August to mid-April[2]	[1] Fernandes et al. 2010; [2] Lachapelle 2013; [3] Johnston 2016
St. George River (ME)	Up to RKM 39 in lower estuary	adults	**Foraging** - May be used for foraging; tag detections indicate that usage of the river is for short periods during coastal migrations[1][2]	[1] Zydlewski et al. 2011; [2] Dionne et al. 2013
Medomak River (ME)	Up to RKM 17.5	adults	**Foraging** - May be used for foraging; tag detections indicate that usage of the river is for short periods during coastal migrations[1][2][3]	[1] Zydlewski et al. 2011; [2] Dionne et al. 2013; [3] Johnston 2016
Damariscotta River (ME)	Up to Damariscotta Lake Dam (RKM 30.3)	adults	**Foraging** - May be used for foraging; tag detections indicate that usage of the river is for short periods during coastal migrations[1][2]	[1] Zydlewski et al. 2011; [2] Dionne et al. 2013
Sheepscot River (ME)	Up to Head Tide Dam (RKM 35)	adults	**Foraging** - Montsweag Bay during the summer [1] **Overwintering** - Suspected to occur in the estuary[2]	[1] Fried and McCleave 1973; [2] SSSRT 2010

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Body of Water (State)	Distribution/Range in Watershed	Life Stages Present	Use of the Watershed	References
Kennebec River (ME)	Up to Lockwood Dam (RKM 103), also includes Merrymeeting Bay, Sagadahoc Bay, and the entirety of the Back, Sasanoa, Eastern, and Cathance Rivers	eggs, larvae, YOY, juveniles, and adults	**Spawning** - Occurs at two sites: below the former Edwards Dam[7] (RKM 58-74) and downstream of the Lockwood Dam[8] (RKM 87-103) **Rearing** - Eggs and larvae occur in freshwater reaches below the spawning sites[8] **Foraging** - Throughout the lower estuary to the mouth of the river[4][5][8] (below RKM 70) with concentration areas near Bath[3][5][8] (RKM 16-29) including Sagadahoc Bay[6] and the Back and Sasanoa Rivers[1][5][8] **Overwintering** - Majority in Merrymeeting Bay [5][7] (RKM 37-40 and 40-42), also Bluff Head [2][5] (RKM 15), and in the lower portions of the Eastern and Cathance Rivers (tributaries to Merrymeeting Bay)[2]	[1] McCleave et al. 1977; [2] Squiers and Robillard 1997; [3] Squiers 2003; [4] Fernandes et al. 2010; [5] SSSRT 2010; [6] Fire et al. 2012; [7] Wippelhauser and Squiers 2015; [8] Wippelhauser et al. 2015
Androscoggin River (ME)	Up to Brunswick Dam (RKM 8.4)	eggs, larvae, YOY, juveniles, and adults	**Spawning** - Below Brunswick Dam to the Rt. 201 Bridge(RKM 7.7-8.4)[2] **Rearing** - Eggs and larvae occur in freshwater reaches below the spawning sites[3] **Foraging** - Montsweag Bay during the summer [1]	[1] McCleave et al. 1977; [2] Wippelhauser and Squiers 2015; [3] Wippelhauser et al. 2015
Presumpscot River (ME)	Up to Presumpscot Falls (RKM 4)	adults	**Foraging** - May be used for foraging[1]	[1] Yoder et al. 2009
Saco River (ME)	Up to Cataract Dam (RKM 10)	adults	**Foraging** - Used seasonally May-November[1]	[1] Little et al. 2013; [2] Hodgdon et al. 2018
Piscataqua River (NH)	Entirety of Piscataqua River including Cocheco River from its confluence with Piscataqua River upstream to Cocheco Falls Dam and waters of Salmon Falls River from its confluence with Piscataqua River upstream to the Route 4 Dam	adults	**Foraging** - Used seasonally for foraging and resting during spring and fall migrations; tracking data indicates that use by individual sturgeon is limited to days or weeks[1]	[1] Kieffer and Trefry, pers. comm., April 18, 2017

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Body of Water (State)	Distribution/Range in Watershed	Life Stages Present	Use of the Watershed	References
Merrimack River (MA)	Up to Essex Dam (RKM 46)	eggs, larvae, YOY, juveniles, and adults	**Spawning** - Near Haverhill[2] (RKM 30-32) **Rearing** - Eggs and larvae present in spawning grounds four weeks after spawning occurs, following which they would begin to move downstream continuing their development in the freshwater reach of the river[1] (RKM 16-32) **Foraging** - Lower river with concentrations near Amesbury and the lower islands[1][3] (RKM 6-24) **Overwintering** - Late fall to early spring[1]; multiple overwintering sites from RKM 15-29 in freshwater reaches beyond the maximum salt penetration[4]	[1] Kieffer and Kynard 1993; [2] Kieffer and Kynard 1996; [3] Kynard et al. 2000; [4] Wippelhauser et al. 2015
Narragansett Bay (RI)	Throughout the bay	adults	**Foraging** - Potentially occurs where suitable forage is present[1]	[1] NMFS 1998
Thames River (CT)	Up to the Greenville Dam (RKM 28)	adults undocumented, but assumed based on documented occurrences of Atlantic sturgeon in the river	**Foraging** - Assumed to occur where suitable forage is present[1]	[1] The Day June 17, 2016 (http://www.theday.com/article/20160617/NWS01/160619212)

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Body of Water (State)	Distribution/Range in Watershed	Life Stages Present	Use of the Watershed	References
Connecticut River (CT/MA)	Up to Turners Falls Dam, MA (RKM 198)	eggs, larvae, YOY, juveniles, and adults	**Spawning** - Below Turners Falls Dam/Cabot Station at two locations depending on river conditions[3] (RKM 193-194); limited spawning may occasionally occur below Holyoke Dam[3] (RKM 139-140) **Rearing** - Eggs and larvae spawned upstream documented up to 20 km downstream of the spawning site[3]; if spawning is successful downstream of Holyoke, early life stages would be present in downstream freshwater reaches [1][3] (RKM 13-194) **Foraging** - Concentrations above the Holyoke Dam in the Deerfield Concentration Area[3] (RKM 144-192), Agawam Concentration Area [1] (RKM 114-119), and the lower Connecticut Concentration Area[3] (RKM 0-110) **Overwintering** - Concentrations above the Holyoke Dam in the Deerfield Concentration Area[3] (RKM 144-192); below the Holyoke Dam concentrations near Holyoke[2] (RKM 137-140), Agawam[3] (RKM 114-119), Hartford [2] (RKM 82-86), Portland, CT[3] (RKM 46), and the lower river[2] (RKM 0-25)	[1] Buckley and Kynard 1983; [2] Buckley and Kynard 1985; [3] Kynard et al. 2012
Deerfield River (MA), tributary of the Connecticut River	Up to Deerfield No. 2 at Shelburne Falls (RKM 22.5)	adults documented in lower 3 km; larvae spawned in Connecticut River may be present during certain flow conditions	**Rearing** - Water flow could potentially draw migrating larvae into unfavorable habitat in the Deerfield River[1]; potential refuge area during high flows[2] **Foraging** - Spring through fall in lower river[2] (RKM 0-3.5) **Overwintering** - May be used as an overwintering area potential pre-spawning staging area for adults[1]	[1] Kieffer and Kynard 1992; [2] Kynard et al. 2012

General distribution: Atlantic Ocean waters and associated bays, estuaries, and coastal river systems from Minas Basin, Nova Scotia, Canada, to the St. Johns River, Florida; only adults occur in marine waters, with some adults making coastal migrations between river systems (e.g., Penobscot River to Merrimack River via the Gulf of Maine; Merrimack River to Connecticut River via the Gulf of Maine and Long Island Sound; Connecticut River to Hudson River via Long Island Sound and the East River); typically, distribution in rivers and inshore bays occurs from the estuary or river mouth up to the first impassible barrier (e.g., a dam or falls); comprehensive information on species biology and distribution is available in the Shortnose Sturgeon Status Review Team's Biological Asessment (SSSRT 2010; available at: http://www.nmfs.noaa.gov/pr/pdfs/species/ shortnosesturgeon_biological_assessment2010.pdf)

Disclaimer: the best available information on shortnose sturgeon presence within the Greater Atlantic Region is presented below; waterbodies included are ones where we have information specific to shortnose sturgeon use of the area that would be helpful for action agencies reviewing proposed actions and their potential effects on shortnose sturgeon; for waterbodies not listed below, we have no data on usage by shortnose sturgeon; however, we expect the species may be present in other coastal waters in the Gulf of Maine and along the U.S. Atlantic coast between the Merrimack and Hudson Rivers; bracketed footnotes are provided in the table to match up "Use of the Watershed" information to the specific reference(s) from which it came; a description of shortnose sturgeon life history stages are included at the end of the table below

Body of Water (State)	**Distribution/Range in Watershed**	**Life Stages Present**	**Use of the Watershed**	**References**
Westfield River (MA), tributary of the Connecticut River	Up to DSI Dam (RKM 9.5)	adults	**Foraging** - Assumed to occur where suitable forage is present[1]	[1] USFWS 2007 in SSSRT 2010
Quinnipiac River (CT)	Up to Wallace Dam (RKM 27)	adults undocumented, but assumed based on documented occurrences of Atlantic sturgeon in the river	**Foraging** - Assumed to occur where suitable forage is present[1]	[1] Hartford Courant September 30, 1994 (http://articles.courant.com/1994-09-30/news/9409300111_1_sturgeon-fish-story-giant-fish)
Housatonic River (CT)	Up to Derby Dam (RKM 23.5)	adults	**Spawning** - Historical spawning occurred above the Derby Dam, none known to occur currently[1] **Foraging** - Potentially occurs where suitable forage is present[1]	[1] Savoy and Benway 2006 in SSSRT 2010
Long Island Sound (CT/NY)	Full length of Long Island Sound in nearshore coastal waters	adults	**Foraging** - Potentially occurs where suitable forage is present[1]	[1] Savoy 2004 in SSSRT 2010
East River (NY)	Full length of the East River	transient adults undocumented, but assumed based on detections of Atlantic sturgeon and occasional movements of shortnose sturgeon from Hudson River to Connecticut River	**Foraging** - Potentially occurs where suitable forage is present[1]	[1] Savoy 2004 in SSSRT 2010

General distribution: Atlantic Ocean waters and associated bays, estuaries, and coastal river systems from Minas Basin, Nova Scotia, Canada, to the St. Johns River, Florida; only adults occur in marine waters, with some adults making coastal migrations between river systems (e.g., Penobscot River to Merrimack River via the Gulf of Maine; Merrimack River to Connecticut River via the Gulf of Maine and Long Island Sound; Connecticut River to Hudson River via Long Island Sound and the East River); typically, distribution in rivers and inshore bays occurs from the estuary or river mouth up to the first impassible barrier (e.g., a dam or falls); comprehensive information on species biology and distribution is available in the Shortnose Sturgeon Status Review Team's Biological Asessment (SSSRT 2010; available at: http://www.nmfs.noaa.gov/pr/pdfs/species/shortnosesturgeon_biological_assessment2010.pdf)

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Body of Water (State)	Distribution/Range in Watershed	Life Stages Present	Use of the Watershed	References
Hudson River (NY/NJ)	Up to Troy Dam, NY (approximately RKM 246)	eggs, larvae, YOY, juveniles, and adults	**Spawning** - Documented from late March to early May when water temperatures reach 10° -18°C[1] from Coxsackie to below the Federal Dam at Troy[1][3] (RKM 190-246) **Rearing** - Eggs on the spawning grounds; larvae downstream to at least RKM 104; YOY downstream to at least RKM 64[1] **Foraging** - Throughout the Hudson River (RKM 38-175) [3][4] with concentrations in Haverstraw Bay[1] (RKM 56-64) **Overwintering** - Late fall to early spring[3]; largest area (mainly spawning adults) near Kingston[2] (RKM 137-149); smaller overwintering areas are located from Saugerties to Hyde Park[2] (RKM 123-170) and in the Croton-Haverstraw Bay area[2] (RKM 54-61); many juveniles overwinter in the lower river[1] (RKM 0-64)	[1] Dovel et al. 1992; [2] Geoghegan et al. 1992; [3] Bain 1997; [4] Pendleton et al. 2018

General distribution: Atlantic Ocean waters and associated bays, estuaries, and coastal river systems from Minas Basin, Nova Scotia, Canada, to the St. Johns River, Florida; only adults occur in marine waters, with some adults making coastal migrations between river systems (e.g., Penobscot River to Merrimack River via the Gulf of Maine; Merrimack River to Connecticut River via the Gulf of Maine and Long Island Sound; Connecticut River to Hudson River via Long Island Sound and the East River); typically, distribution in rivers and inshore bays occurs from the estuary or river mouth up to the first impassible barrier (e.g., a dam or falls); comprehensive information on species biology and distribution is available in the Shortnose Sturgeon Status Review Team's Biological Asessment (SSSRT 2010; available at: http://www.nmfs.noaa.gov/pr/pdfs/species/ shortnosesturgeon_biological_assessment2010.pdf)

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Body of Water (State)	Distribution/Range in Watershed	Life Stages Present	Use of the Watershed	References
Delaware River and Bay (NJ/DE/PA)	Up to Lambertville, PA (RKM 240)	eggs, larvae, YOY, juveniles, and adults	**Spawning** - Documented from late March through late May; water temperatures 6-18°C; between Trenton and Lambertville[6] (RKM 214-238) **Rearing** - Eggs and larvae between Trenton and Lambertville[6] (RKM 214-238); juveniles located upstream of the salt wedge from Wilmington to Philadelphia[3] (RKM 114-148) **Foraging** - Throughout the river, between the vicinity of Trenton south to Artificial Island[7] (RKM 79) **Overwintering** - November to March[1]; overwinter when waters reach 10°C (typically mid-November)[2]; many adults concentrate from RKM 190-212[1][4], but occur downstream below Wilmington[4] (RKM 116); juveniles overwinter from Philadelphia to below Artificial Island[5] (RKM 70-154); variety of behaviors from sedentary to active[6]	[1] O'Herron et al. 1993; [2] USGS gauge at Philadelphia (01467200) during the 2003-2008 time period; [3] Burton et al. 2005; [4] ERC 2006; [5] Brundage and O'Herron 2009; [6] ERC 2009; [7] SSSRT 2010
Schuylkill River (PA), tributary of the Delaware River	Up to Fairmount Dam (RKM 13.6)	juveniles and adults	**Foraging** - Potentially occurs where suitable forage is present[1]	[1] Philadelphia Water Department November 7, 2014 (http://www.phillywatersheds.org/endangered-shortnose-sturgeon-returns-schuylkill)
C&D Canal (DE/MD)	Used at least occasionally to move from Chesapeake Bay to the Delaware River	adults	**Foraging** - Assumed to occur in areas with suitable forage[1]	[1] Welsh et al. 2002
Chesapeake Bay (MD/VA)	Maryland and Virigina waters of mainstem bay and tidal tributaries including those specifically listed below.	adults documented; other life stage presence unknown	**Foraging, Resting, and Overwintering** - Assumed to occur in areas with suitable forage [1][2]	[1] SSSRT 2010; [2] Balazik 2017

General distribution: Atlantic Ocean waters and associated bays, estuaries, and coastal river systems from Minas Basin, Nova Scotia, Canada, to the St. Johns River, Florida; only adults occur in marine waters, with some adults making coastal migrations between river systems (e.g., Penobscot River to Merrimack River via the Gulf of Maine; Merrimack River to Connecticut River via the Gulf of Maine and Long Island Sound; Connecticut River to Hudson River via Long Island Sound and the East River); typically, distribution in rivers and inshore bays occurs from the estuary or river mouth up to the first impassible barrier (e.g., a dam or falls); comprehensive information on species biology and distribution is available in the Shortnose Sturgeon Status Review Team's Biological Asessment (SSSRT 2010; available at: http://www.nmfs.noaa.gov/pr/pdfs/species/shortnosesturgeon_biological_assessment2010.pdf)

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Body of Water (State)	**Distribution/Range in Watershed**	**Life Stages Present**	**Use of the Watershed**	**References**
Susquehanna River (MD)	Up to Conowingo Dam (RKM 16)	adults documented; other life stages assumed but unknown	**Spawning** - Historically occurred; currently unknown as suitability of habitat is likely impacted by dam operations[1] **Foraging** - Assumed to occur in areas with suitable forage[2] **Overwintering** - Not documented but assumed based on anecdotal reports of aggregations of sturgeon in deep holes near Lapidum and Perrysville[2]	[1] Litwiler 2001; [2] SSSRT 2010
Potomac River (MD/VA)	Up to Little Falls Dam (RKM 189)	adults documented; other life stages assumed but unknown	**Spawning** - Historically occurred; current spawning not documented but assumed based on presence of pre-spawning females and suitable habitat at RKM 185-187[1] **Rearing** - Eggs expected at RKM 185-187, larvae would be present downstream in freshwater[1] **Foraging** - Mainly in the deepwater channel from RKM 63-141[1][2] **Overwintering** - Near Mattawoman Creek; saltwater/freshwater reach near Craney Island [1][2] (RKM 63-141)	[1] Kynard et al. 2007; [2] Kynard et al. 2009
Rappahannock River (VA)	Range not confirmed, but they have been documented in this river (likely throughout the entire river)	adults	**Foraging** - Potentially occurs where suitable forage is present; one was captured in May 1998[1]	[1] Spells 1998
York River (VA)	Range unknown (potentially throughout the river and tributaries)	adults	**Foraging** - Potentially occurs where suitable forage is present [1]	[1] Balazik, pers. comm., June 7, 2018

General distribution: Atlantic Ocean waters and associated bays, estuaries, and coastal river systems from Minas Basin, Nova Scotia, Canada, to the St. Johns River, Florida; only adults occur in marine waters, with some adults making coastal migrations between river systems (e.g., Penobscot River to Merrimack River via the Gulf of Maine; Merrimack River to Connecticut River via the Gulf of Maine and Long Island Sound; Connecticut River to Hudson River via Long Island Sound and the East River); typically, distribution in rivers and inshore bays occurs from the estuary or river mouth up to the first impassible barrier (e.g., a dam or falls); comprehensive information on species biology and distribution is available in the Shortnose Sturgeon Status Review Team's Biological Asessment (SSSRT 2010; available at: http://www.nmfs.noaa.gov/pr/pdfs/species/shortnosesturgeon_biological_assessment2010.pdf)

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Body of Water (State)	Distribution/Range in Watershed	Life Stages Present	Use of the Watershed	References
James River (VA)	Range not confirmed, but likely up to Boshers Dam (RKM 182.3)	adults	**Foraging/Spawning** - Foraging potentially occurs where suitable forage is present; a sturgeon, possibly from the Potomac or Delaware River, was captured on March 13, 2016, at RKM 48[1]; on February 2018, a second sturgeon (a confirmed gravid female) was captured near RKM 48[2] (genetics results not yet available); spawning area unknown; the salinity at RKM 48 is usually low (brackish).	[1] Balazik 2017; [2] Balazik, pers. comm., February 10, 2018

Listing rule: 32 FR 4001, March 11, 1967; **Recovery plan**: NMFS 1998. Available online: http://www.nmfs.noaa.gov/pr/pdfs/recovery/sturgeon_shortnose.pdf

Terrestrial Environmental Specialists, Inc.
23 COUNTY ROUTE 6, SUITE A, PHOENIX, NY 13135
(315) 695-7228 fax: (315) 695-3277 www.tesenvironmental.com

June 11, 2019

Mr. Thomas C. Wirickx, CSE, PWS, QAWB
Senior Environmentalist
McFarland Johnson
49 Court Street PO Box 198
Binghamton, New York 13902

RE: Endangered Species Investigation, Port of Albany, Town of Bethlehem, Albany County,NY
TES File No 4441

Dear Mr Wirickx:

Terrestrial Environmental Specialists, Inc. (TES) contracted with McFarland Johnson to conduct an endangered plant survey at the Port of Albany located in the Town of Bethlehem, Albany County, New York. The study area is approximately 94.75 acres and is located in two sections, north and south of where the Normanskill enters the Hudson River (Figure 1). Based on your contact with the New York Natural Heritage program, three state-listed plant species with potential to occur were located in close proximity to the project site. These three plants subject to this investigation are side-oats grama (*Bouteloua curtipendula var. curtipendula*), violet wood sorrel (*Oxalis violacea*), and Small's knotweed (*Polygonum buxiforme*).

TES performed three tasks relative to these species. First, TES reviewed available background information relative to the site and the natural history information for these plant species. Second, two TES botanists conducted a field review on May 10, 2019 to examine the site for the presence of these species and to conduct a habitat evaluation. The third task was for TES to prepare this report documenting our findings.

Background Information and Natural History Information

The project site is approximately 94.75 acres located in the Town of Bethlehem, Albany County, New York (Figure 1) and is divided into a northern and southern section that is separated by the Normanskill. The northern-most portion of the site is bounded by Normanskill Street and industrial uses of the Port of Albany to the east and by the Normanskill to the west and south. The southern portion of the site is bounded by River Road and the rail line to the west, the Hudson River to the east and the Normanskill to the north. South of the site is the former Albany steam plant. The shoreline of the Hudson River has bulkheads along the entire length of the southern portion of the study area and is subject to tidal fluctuations.

Based on a review of soil information provided by McFarland Johnson, the original soil within the study area is Wayland silt loam, a hydric soil. However much of the site is covered with bottom ash and fly ash of varying depths.

TES reviewed an aerial photograph of the site prior to the field review which indicated that the site was primarily forested with several open areas in the southern portion of the study area (Figure 2).

Side-oats grama (*Bouteloua curtipendula var. curtipendula*)

Side-oats grama is listed as endangered in New York State. Side-oats grama is a perennial grass with stems up to 1 meter tall but typically less than 1 meter. The large spikes are well-spaced along a 1-sided raceme. It is most distinct during flowering in mid-summer or fruiting stage from mid-July through the fall, although the stalks may be seen in winter (Gleason & Cronquist 1991). Side-oats grama is a dominant species of the central grasslands of North America and its core range is found west of the Mississippi River and in the southwestern United States (Flora of North America 2003).

Side-oats grama can be found in rich, loamy,and well-drained prairie soils, specifically dry limestone-derived soils (Gleason & Cronquist 1991, Fernald 1951). It is most often found in disturbed areas, as well as open habitats. Habitats include riverside bluffs, shale cliffs and barrens, cedar glades, and limestone pavements, including abandoned sandpits and pastures, railroads, powerlines, dry hills and plains, and dry woods (NYNHP 2009).

Side-oats grama is found primarily scattered from Long Island and the Hudson Valley, as well as alvar and limestone areas in Western New York. It is found throughout most of the U.S. (NYNHP, 2009). Transport on rail car is thought to be the dispersal mechanism that introduced this species into the Port of Albany (S. Young NY Heritage botanist personal communication).

Violet wood sorrel (*Oxalis violacea*)

Violet wood sorrel is listed as threatened in New York State. It has a bulbous base and 3-parted (clover-like), glabrous leaves with purple undersides (Gleason & Cronquist 1991). There are several 5-petaled, purplish (rarely white) flowers per leafless flowering stalk. Flowering occurs from May to mid-June and the fruit persists to mid-July.

Violet wood sorrel is found primarily on steep rocky slopes and open summits, primarily on rich soils. The typical surrounding forest type is Appalachian oak-hickory forest. Many populations are located along trails, ledges, or other openings. Other habitats where it can be found include dry upland woods, shaded slopes, gravelly banks, and prairies (Gleason & Cronquist 1991, Fernald 1950).

Violet wood sorrel is currently found from the Hudson Valley to Columbia County to the south, but it can also be found on Long Island. Historic records include Cattaraugus, Chemung, and Tioga counties in the western part of the state (NYNHP 2008).

Small's knotweed (*Polygonum buxiforme*)

Small's knotweed is listed as endangered in New York State. Small's knotweed is a bluish or grayish green annual herb. The fruit is dark brown with 3-sided achenes (Mitchell & Dean 1978). It can be identified when it is flowering. However, it can only be reliably separated from other closely related *Polygonums* by the presence of small pouches on the outer tepals. Flowering begins in July and the fruits will persist until the first frost (NYNHP 2012).

Small's knotweed can be found on packed, non-drifting sandy beaches in both maritime and inland habitats (Mitchell & Dean 1978). It can also occur on pebbly and gravelly beaches (Gleason & Cronquist 1991). It is currently found scattered throughout New York State in dry open habitats that can be either natural or human-disturbed. Most are located in rocky beach areas of far eastern Long Island. Many of the upstate locations are on roadsides, fields, and railroad yards. It is widespread across the U.S. (NYNHP, 2012).

Field Review

TES botanists, Bernard Carr and Elizabeth MacEwen conducted a field survey for the three listed plant species on May 10, 2019. TES examined the entire site looking for appropriate habitat for the three-state listed plant species. At the time of this field investigation, only violet wood sorrel would be expected to be in flower. Both side-oats grama and Small's knotweed would be found flowering later in the growing season.

The majority of the study area site consisted of a dense forest similar to a "dredge spoil forest" which is found on highly-disturbed sites along the Hudson River in Albany and Rensselaer County. This forest classification is not officially listed in the Ecological Communities of New York State (Edinger 2002). TES also found several wetlands area, a barren area with fly ash and a few open areas within the study area.

Wooded areas in the study area were dominated by Eastern cottonwood (*Populus deltoides*), box elder (*Acer negundo*), and American elm (*Ulmus americana*). Buckthorn (*Rhamnus cathartica*) was a dominant understory tree throughout the site. The study area had extensive stands of common reed grass (*Phragmites australis*), an invasive non-native species.

Other invasive plants such as garlic mustard *(Alliaria petiolata*), oriental bittersweet (*Celastrus orbiculatus*), and Japanese barberry (*Berberis thunbergii*) were dominant and extensive throughout the site.

TES search efforts were concentrated in finding habitat and plant communities that would support violet wood sorrel, side-oats grama, and Small's knotweed.

Violet wood sorrel would be expected to be in leaf or in flower during the time of the field survey. TES concentrated our effort in all of the forested areas on the project site. There was no habitat on the project site which met the requirements of violet wood sorrel. TES did not locate any areas of Appalachian oak-hickory forest (Edinger 2002).

Side-oats grama is a western species that is often found in association with railroad ballast in the eastern United States. This grass prefers to be located in areas of full sun and occasionally can be found in areas of moderate light intensity. TES noted one area in the southwest corner of the southern parcel next to the property fence that had the required open condition (Figure 2). TES found a variety of herbaceous plant species but did not locate side-oats grama. If further field investigations were necessary, this area would be the only portion of the site that would require further review. TES also noted an open area of fly ash in the southern-central portion of the site. This area was almost completely depauperate of all plant species with the exception of the invasive common reed grass. Side-oats grama would not be able to tolerate the soil conditions in this area.

Small's knotweed is a species that is considered state historical as its last sighting was in 1974. This species is most often known in New York State from sandy areas near the coast. TES did notice one small patch of *Polygonum sp*. immediately next to Normanskill Road edge (Figure 2). This was the only area with full sun where this species could occur. While this area could require further investigation, it is most likely that that this species is the common doorweed (*Polgyonum aviculare).*

Summary

McFarland Johnson contracted with TES to assist with a field investigation of an approximately 94.75 acre study area located at the Port of Albany. The study area consisted of two parcels both located west of River Road in the Town of Bethlehem, New York. The primary study area to the south is bounded by the Normanskill to the north, the Hudson River to the east, and a rail line and River Road to the west. South of the site is the former Albany steam plant. The majority of the project site was covered by fly ash and the forested areas have the characteristics of a "dredge spoil forest".

TES conducted a field investigation to determine whether two New York State listed endangered species: side-oats grama and Small's Knotweed and a state threatened species: violet wood sorrel occur on a site at the Port of Albany located in the Town of Bethlehem, Albany County, New York.

Based on our review, there was no potential for Violet wood sorrel on the site because its preferred habitat does not occur. In addition, the dense understory with non-native species does not provide any opportunity for this species to grow. While side-oats grama and Small's knotweed would not be in flower at the time of the field investigation, TES only found two very limited areas with potential for these species to occur. Based on our professional opinion, it is unlikely that side-oats grama or Small's knotweed occur on the site.

Sincerely,
TERRESTRIAL ENVIRONMENTAL SPECIALISTS, INC.

Bernard P. Carr
Principal Environmental Scientist

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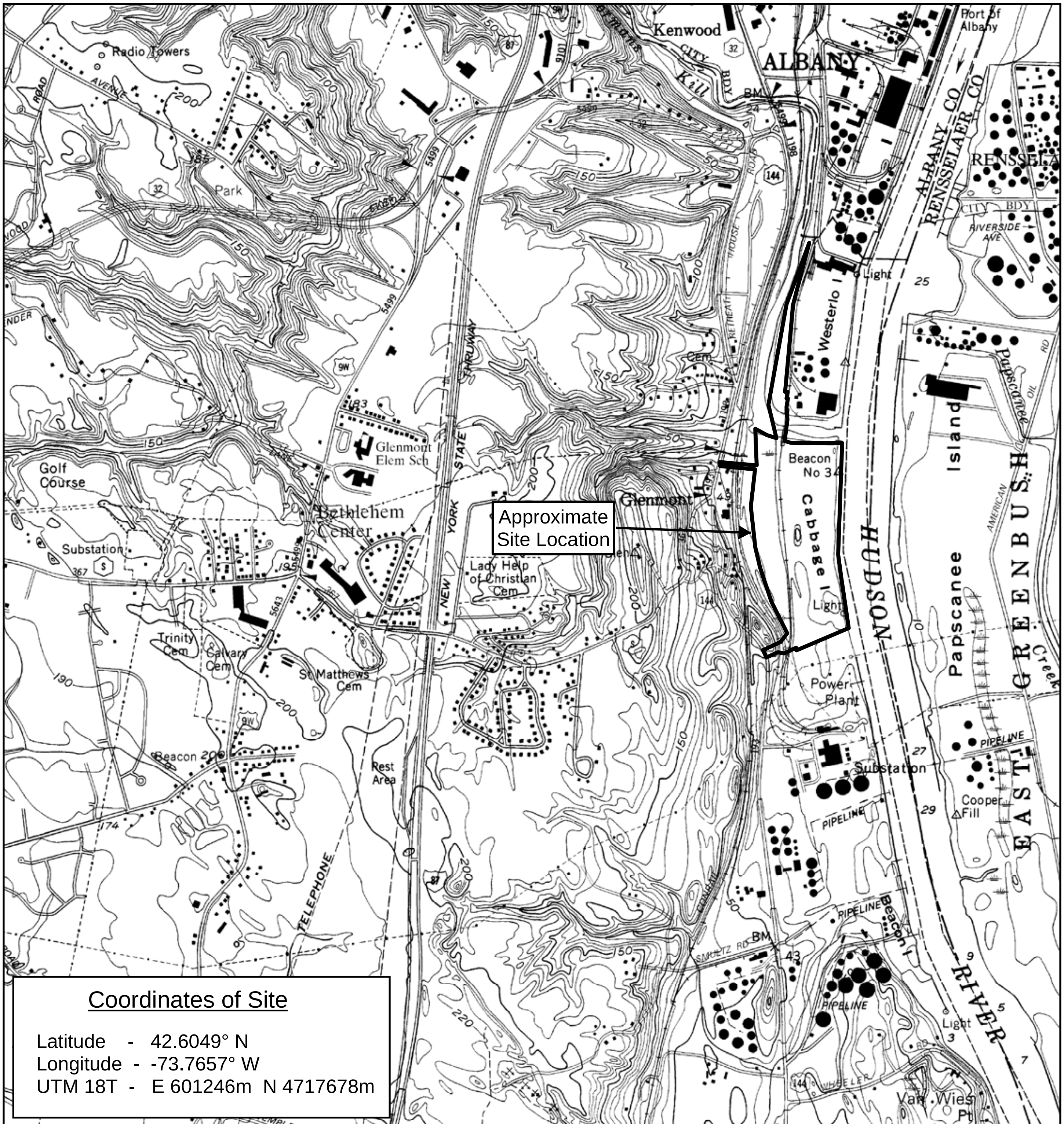
New York Natural Heritage Program. 2008. Violet Wood Sorrel Guide. Available online at: https://guides.nynhp.org/violet-wood-sorrel/.



Coordinates of Site

Latitude - 42.6049° N
Longitude - -73.7657° W
UTM 18T - E 601246m N 4717678m

0 2,000 Feet

1 inch = 2,000 feet

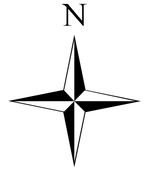


Figure 1. NYS DOT Topographic Map

Site Location

Delmar Quadrangle
1993

Prepared by TERRESTRIAL ENVIRONMENTAL SPECIALISTS, Inc.

TES File: MJI-4441\4441-Fig1.mxd\6-7-2019

N

0 500 Feet

1 inch = 500 feet

Aerial Photograph obtained from NYS GIS Clearinghouse 2017

Figure Prepared by Terrestrial Environmental Specialists, Inc.

Figure 2

Aerial Photograph of Site

TES File: MJI-4441\4441-Aerial.mxd\5-12-2019

APPENDIX H

WETLAND DELINEATION REPORT

WETLANDS AND SURFACES WATERS DELINEATION REPORT

PORT OF ALBANY EXPANSION PROJECT
TOWN OF BETHLEHEM, ALBANY COUNTY, NEW YORK

JUNE 2019

PREPARED FOR

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PREPARED BY

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Table of Contents

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1 PROJECT BACKGROUND

1.1 INTRODUCTION

McFarland Johnson, Inc. was retained by Albany Port District Commission to provide environmental services for the Port of Albany Development Project in the Town of Bethlehem, Albany Country, New York. A portion of these services included conducting wetlands and surface waters delineations of the proposed area of potential effect (Project Study Area).

The Project Study Area is as shown on the attached site figures and plans included in Appendix A and Appendix B.

2 METHODS

2.1 AGENCY RESOURCE INFORMATION

Prior to a field delineation survey of the Project Study Area (PSA), aerial photographs and various mapping resources were reviewed, including the following:

a) US Geological Survey (USGS) Topographic Map (Delmar USGS 7.5 Minute Quadrangles) (Appendix A- Figure 1)

b) New York Department of Environmental Conservation (NYSDEC) Freshwater Wetlands Map (Digitized New York State Regulatory Freshwater Wetlands for Albany County) (Appendix A- Figure 2)

c) New York Department of Environmental Conservation (NYSDEC) Tidal Wetlands Map (Digitized New York State Tidal Wetlands - Upper Hudson River Estuary) (Appendix A- Figure 3)

d) National Wetlands Inventory (NWI) Map prepared by the Fish and Wildlife Service (USFWS) (Appendix A- Figure 4)

e) Natural Resources Conservation Service (NRCS) Web Soil Survey Maps (Appendix A- Figure 5)

f) Federal Emergency Management Agency (FEMA) Floodplain Map (Appendix A- Figure 6)

2.2 FIELD DATA COLLECTION

The delineations of the wetlands within the 94.75-acre PSA were performed by McFarland Johnson on April 3-5 and April 11-12, 2019.

The wetland delineations were determined through field investigations of vegetation, soils and hydrology performed in accordance with the 1987 *USACE Wetlands Delineation Manual* (1987 USACE Manual), and *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region* (Regional Supplement), dated January 2012.

The wetland boundaries were surveyed using a hand-held Trimble GPS Geo7X unit with decimeter (10 cm/ 4 inch) post processing accuracy. USACE Wetland Determination Data Forms and photographs were also compiled. Further descriptions of the identified wetlands within the PSA are described in the subsequent subsections and on the Wetland Determination Data Forms.

3 RESULTS

3.1 AGENCY RESOURCES INFORMATION

A review of the most recent USGS topographic mapping of the PSA (Appendix A-Figure 1) indicated the presence of portions of the Normans Kill and Hudson River within and adjacent the PSA.

The New York State Freshwater Wetland mapping of the project (Appendix A-Figure 2) indicated the presence of NYSDEC mapped freshwater wetland FWW D-102 is located at its nearest limit approximately 435 feet east of the PSA, along the eastern bank of the Hudson River. No NYSDEC regulated freshwater wetlands are identified within 100 feet of the PSA.

Review of New York State Tidal Wetland mapping of the project area (Appendix A- Figure 3) indicated the presence of several small NYSDEC mapped tidal wetlands along the eastern shore of the Hudson River in the vicinity of the project area. No NYSDEC regulated tidal wetlands are identified within 300 feet of the PSA.

The NWI mapping of the project site (Appendix A- Figure 4) shows most of the PSA south of the Normans Kill mapped as emergent, scrub-shrub, and/or forested wetland.

Based on soils information provided by the NRCS (Appendix A- Figure 5), most of the PSA is mapped as Wayland Soils Complex (Wo) and Udorthents- loamy (Ug) soils. Wo soils have a 90% hydric soil presence rating, while Ug soils and all other soils mapped within the PSA have 0% hydric soil presence ratings.

Floodplain mapping of the project area (Appendix A- Figure 6) indicates the majority of PSA is mapped within a FEMA designated 100-year floodplain.

3.2 WETLANDS

A total of eight freshwater wetlands were identified and delineated within the 94.75-acre PSA. These wetlands are hereafter referred to as Wetlands 1, 3, 4, 5, 6, 7, 8, and 9. The boundaries of the wetlands are identified on the Wetlands and Surfaces Waters Delineation Plans (Appendix B). Additional information can be found in Appendix C- Wetland Determination Data Forms, and Appendix D- Wetland Photographs.

Wetlands 3, 4, 5, 6, 7, and 9 are predominately palustrine emergent (PEM) wetlands, while Wetlands 1 and 8, consist of PEM and palustrine forested (PFO) wetland cover types. Furthermore, Wetlands 3 and 4 are directly subject to tidal influences. Further information regarding the delineated wetlands is presented in the following table.

Wetlands within 94.75-Acre PSA				
Feature I.D.	**Feature Type**	**Acres**	**NYSDEC Jurisdiction**	**USACE Jurisdiction**
Wetland 1	PEM	0.67	No	Yes
	PFO	0.59	No	Yes
Wetland 3	PEM	0.19	No	Yes
Wetland 4	PEM	0.04	No	Yes
Wetland 5	PEM	0.01	No	Yes
Wetland 6	PEM	0.01	No	Yes
Wetland 7	PEM	0.02	No	Yes
Wetland 8	PEM	0.19	No	Yes
	PFO	0.57	No	Yes
Wetland 9	PEM	0.04	No	Yes

3.2.1 NYSDEC Jurisdiction

Based on the NYSDEC Freshwater Wetlands Map (Appendix A- Figure 2) and NYSDEC Tidal Wetlands Map (Appendix A- Figure 3), there are no NYSDEC regulated wetlands in the vicinity of the PSA. Based on this information, none of the delineated wetlands are regulated by the NYSDEC under Articles 24 or 25 of the Environmental Conservation Law (ECL).

3.2.2 USACE Jurisdiction

The United States Army Corps of Engineers regulates activities in wetlands that have a significant hydrological and ecological to traditional navigable waters (TNWs), interstate waters, and territorial seas under Section 404 of the Clean Water Act (CWA) and Sections 9 and 10 of the Rivers and Harbors Act (RHA) as defined under the Clean Water Rule (CWR).

All eight delineated wetlands are located within the FEMA mapped 100-year floodplains of the Normans Kill and Hudson, both Section 10 TNWs. Based on the guidance promulgated under the CWR, all eight delineated wetlands should be regulated by the USACE under Section 404 of the CWA.

3.3 SURFACE WATERS

Two streams were identified within the PSA. These streams are referred to as Stream 1 (Hudson River) and Stream 2 (Normans Kill). Further information regarding the identified streams is presented in the following table.

Surface Waters within 94.75-Acre PSA				
Feature I.D.	**Feature Type**	**Linear Feet**	**NYSDEC Jurisdiction**	**USACE Jurisdiction**
Stream 1 (Hudson River)	Perennial Tidal River	2,814	Yes	Yes
Stream 2 (Normans Kill)	Perennial Tidal Stream	1,297	Yes	Yes

3.3.1 NYSDEC Jurisdiction

The portions of the Hudson River and Normans Kill within the project area have NYSDEC water classifications of Class C. Based on this information, these sections of waterbodies are not considered to be "Protected Streams" under Article 15 of the Environmental Conservation Law. However, the sections of the Hudson River and Normans Kill within the project area are considered to be "Navigable Waters of the State" under Article 15 of the Environmental Conservation Law.

NYSDEC Article 15 Jurisdictional Limits for "Navigable Waters of the State" are defined by the “mean high water” (MHW). The MHW is defined as the approximate average high water level for a given body of water at a given location, that distinguishes between predominantly aquatic and predominantly terrestrial habitat as determined, in order of use, by the following:

> (l) available hydrologic data, calculations, and other relevant information concerning water levels (e.g. discharge, storage, tidal, and other recurrent water elevation data);

(2) vegetative characteristics (e.g., location, presence, absence or destruction of terrestrial or aquatic vegetation);
(3) physical characteristics (e.g., clear natural line impressed on a bank, scouring, shelving, or the presence of sediments, litter or debris); and
(4) other appropriate means that consider the characteristics of the surrounding area."

The NYSDEC calculated MHW for the reaches of the Hudson River and Normans Kill present within the PSA based on data from NOAA Station 8518995- Albany Hudson River, located at latitude 42°39.0' and longitude 73°44.8', for the most current NOAA National Tidal Datum Epoch (1983-2001) is 4.16' NGVD29.

3.3.2 USACE Jurisdiction

The sections of the Hudson River and Normans Kill within the PSA area are considered to be Waters of the US (WOUS) under Section 404 of the Clean Water Act and Navigable Waters of the US under Section 10 of the Rivers and Harbors Act.

USACE Section 404 jurisdictional limits are defined by the "high tide line" (MHT) elevation. The "high tide line" is defined as the line of intersection of the land with the water's surface at the maximum height reached by a rising tide. The high tide line may be determined, in the absence of actual data, by a line of oil or scum along shore objects, a more or less continuous deposit of fine shell or debris on the foreshore or berm, other physical markings or characteristics, vegetation lines, tidal gages, or other suitable means that delineate the general height reached by a rising tide. The line encompasses spring high tides and other high tides that occur with periodic frequency but does not include storm surges in which there is a departure from the normal or predicted reach of the tide due to the piling up of water against a coast by strong winds such as those accompanying a hurricane or other intense storm. USACE guidelines allow for use of available hydrologic data, calculations, and other relevant information concerning water levels (e.g. discharge, storage, tidal, and other recurrent water elevation data) in defining the MHT elevations.

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USACE Section 10 jurisdictional limits are defined by the "ordinary high water" (OHW). The OHW is defined as the line on the shore established by the fluctuations of water and indicated by physical characteristics such as clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas. USACE guidelines allow for use of available hydrologic data, calculations, and other relevant information concerning water levels (e.g. discharge, storage, tidal, and other recurrent water elevation data) in defining the OHW elevations. The previously discussed MHT elevation is considered to be the more restrictive (higher) regulative elevation limit in regard to USACE regulated activities, and due to similarities in definition and overlapping regulations, the USACE takes this precedence when defining regulatory limits under Section 10 of the CWA.

Based on publicly available data from United States Geological Survey (USGS) Station 01359139- Hudson River at Albany, located at latitude 42°38'46" and longitude 73°44'51", and the average of the highest recorded water elevations per day from April 1 to May 31 for years 2013 to 2017, the calculated MHT is 4.26' NGVD29. The USACE reserves the right to request field interpretations and inspections to define site specific MHT elevations.

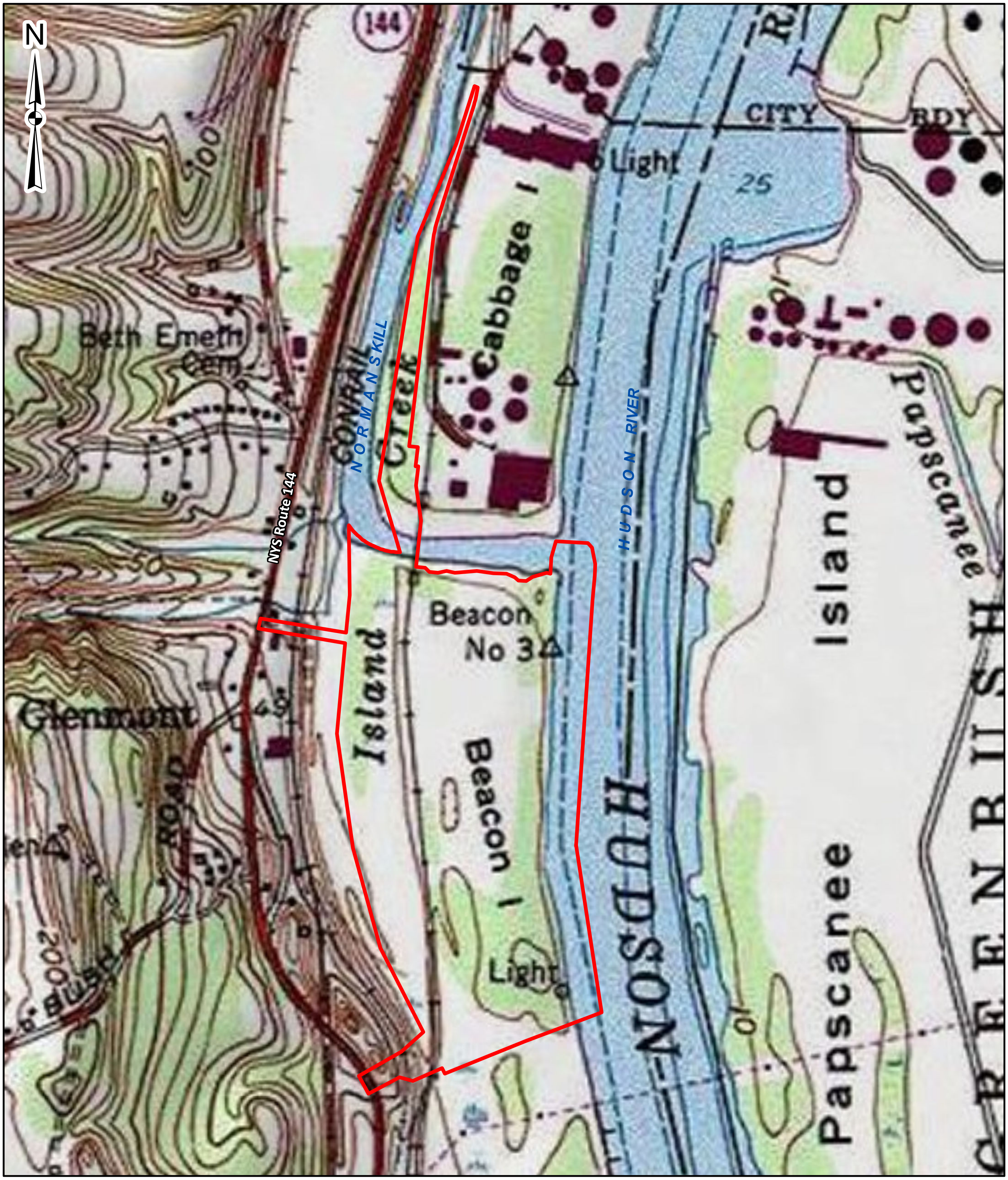
4 SUMMARY

Based on the wetland delineation performed by McFarland Johnson, eight freshwater wetlands were identified and delineated within the 94.75-acre PSA. All eight delineated wetlands are located within the FEMA mapped 100-year floodplains of the Normans Kill and Hudson, both Section 10 TNWs. Based on guidance under the CWR, all eight delineated wetlands should be regulated by the USACE under Section 404 of the CWA. There are no NYSDEC regulated freshwater or tidal wetlands in the vicinity of the PSA, therefore none of the eight delineated wetlands should be regulated by the NYSDEC under Articles 24 or 25 of the ECL.

Two streams were identified within the PSA. The identified streams, Stream 1 (Hudson River) and Stream 2 (Normans Kill), are considered to be "Navigable Waters of the State" and regulated by the NYSDEC under Article 15 of the

Environmental Conservation Law. The sections of the Hudson River and Normans Kill within the PSA are considered to be WOUS under Section 404 of the Clean Water Act and Navigable Waters of the US under Section 10 of the Rivers and Harbors Act, and thereby regulated by the USACE.

APPENDIX A



Legend

Project Area

0 800 1,600

Feet

Service Layer Credits: Copyright:© 2013 National Geographic Society, i-cubed

Soil Type provided by USDA
Bodies of Water provided by NYS GIS Clearinghouse
Project Area created by McFarland Johnson

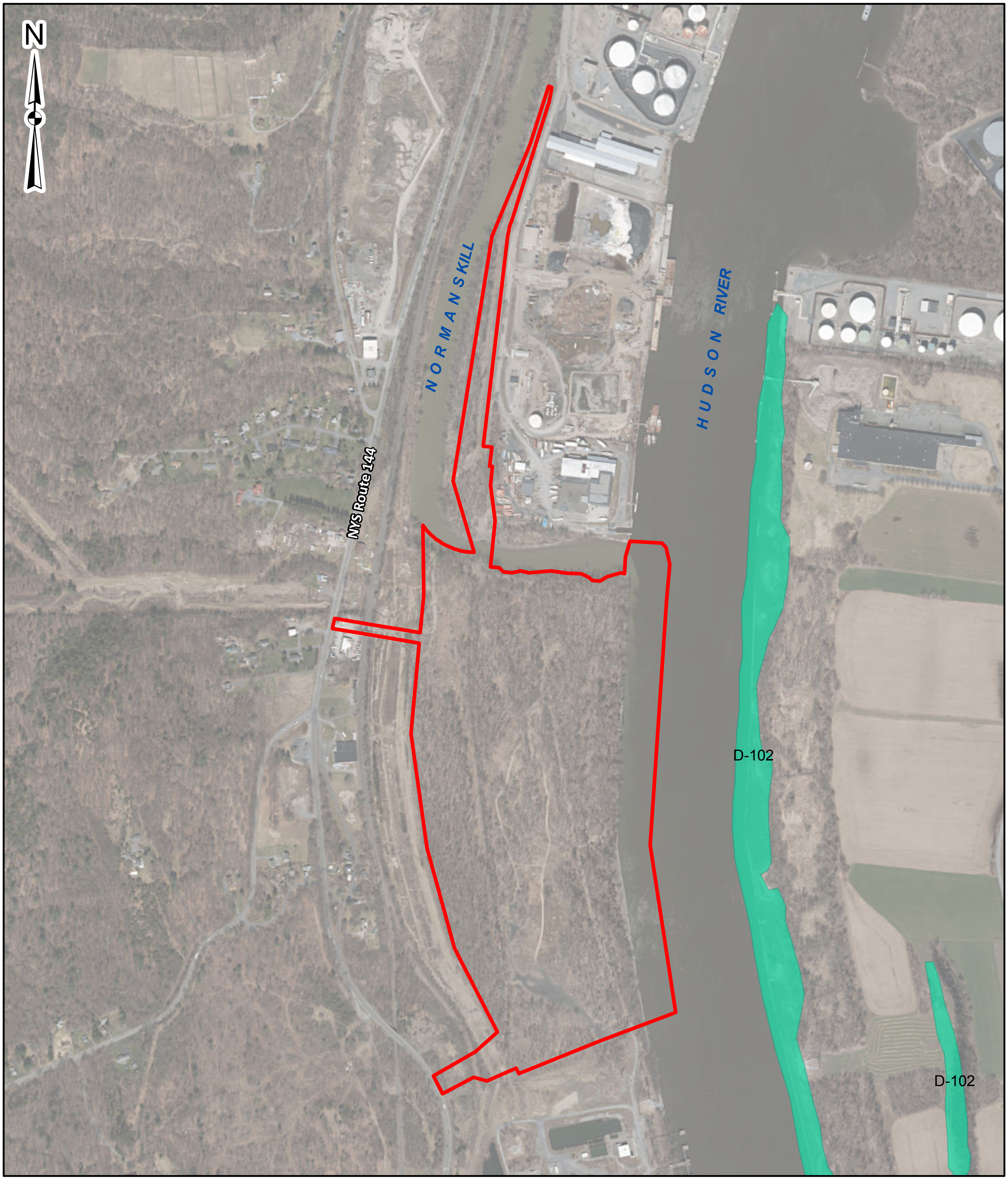
PORT OF ALBANY EXPANSION PROJECT
TOWN OF BETHLEHEM, ALBANY COUNTY, NEW YORK

USGS TOPOGRAPHIC MAP

SCALE :	DATE :	FIGURE :
AS SHOWN	JUNE 2019	1

McFarland Johnson

N:\18437.00 Port of Albany\Draw\GIS\WDR-Figure 1.mxd



Legend

- Project Area
- NYSDEC Freshwater Wetlands

0 800 1,600
Feet

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

NYSDEC Wetlands and Checkzones provided by CUGIR and NYSDEC
Bodies of Water and Tidal Wetlands provided by NYS GIS Clearinghouse
Project Area created by McFarland Johnson

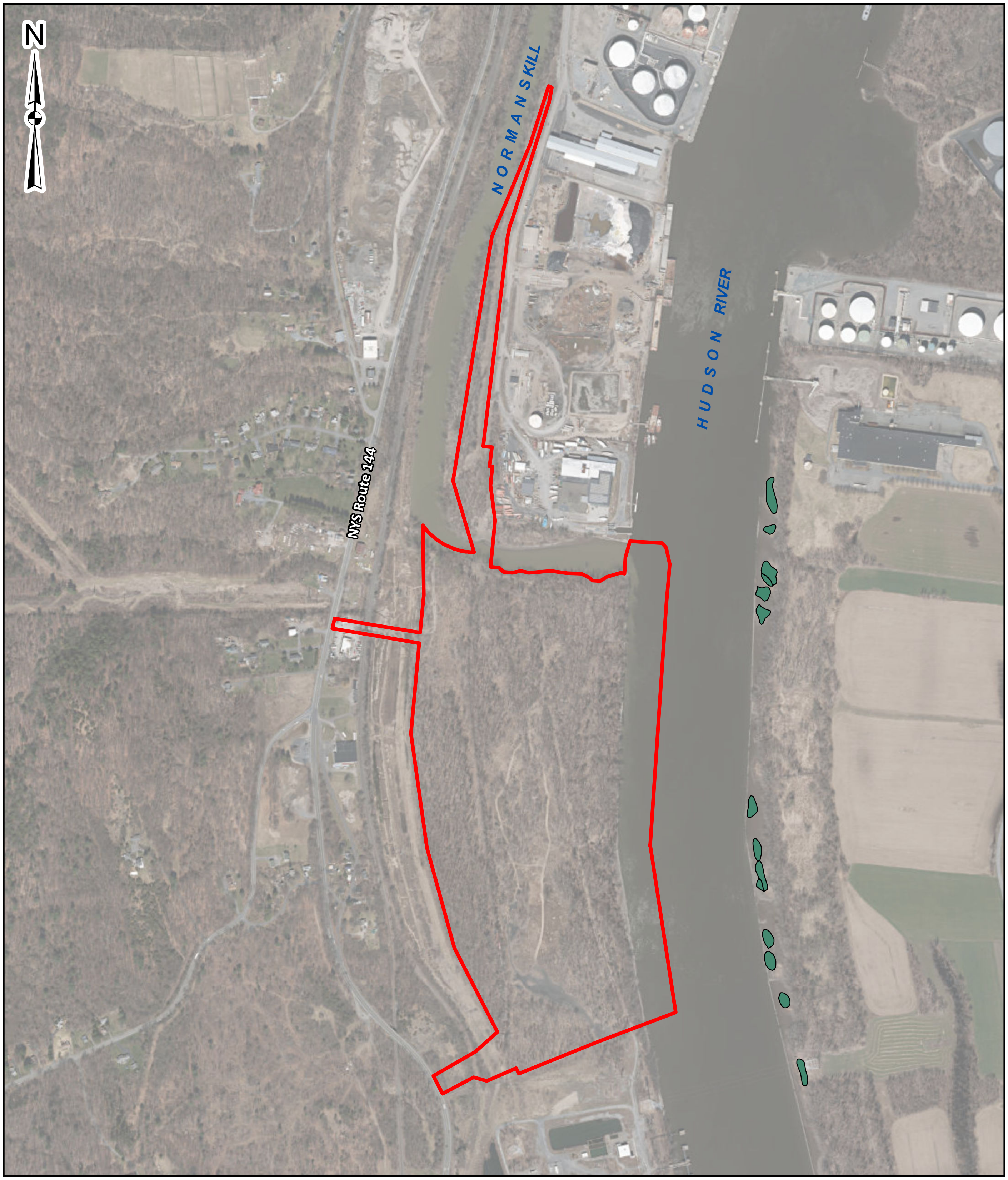
PORT OF ALBANY EXPANSION PROJECT
TOWN OF BETHLEHEM, ALBANY COUNTY, NEW YORK

NYSDEC FRESHWATER WETLANDS MAP

SCALE :	DATE :	FIGURE :
AS SHOWN	JUNE 2019	2

McFarland Johnson

N:\18437.00 Port of Albany\Draw\GIS\WDR-Figure 2A.mxd



Legend

- Project Area
- NYSDEC Tidal Wetlands

0 800 1,600
Feet

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

NYSDEC Wetlands and Checkzones provided by CUGIR and NYSDEC
Bodies of Water and Tidal Wetlands provided by NYS GIS Clearinghouse
Project Area created by McFarland Johnson

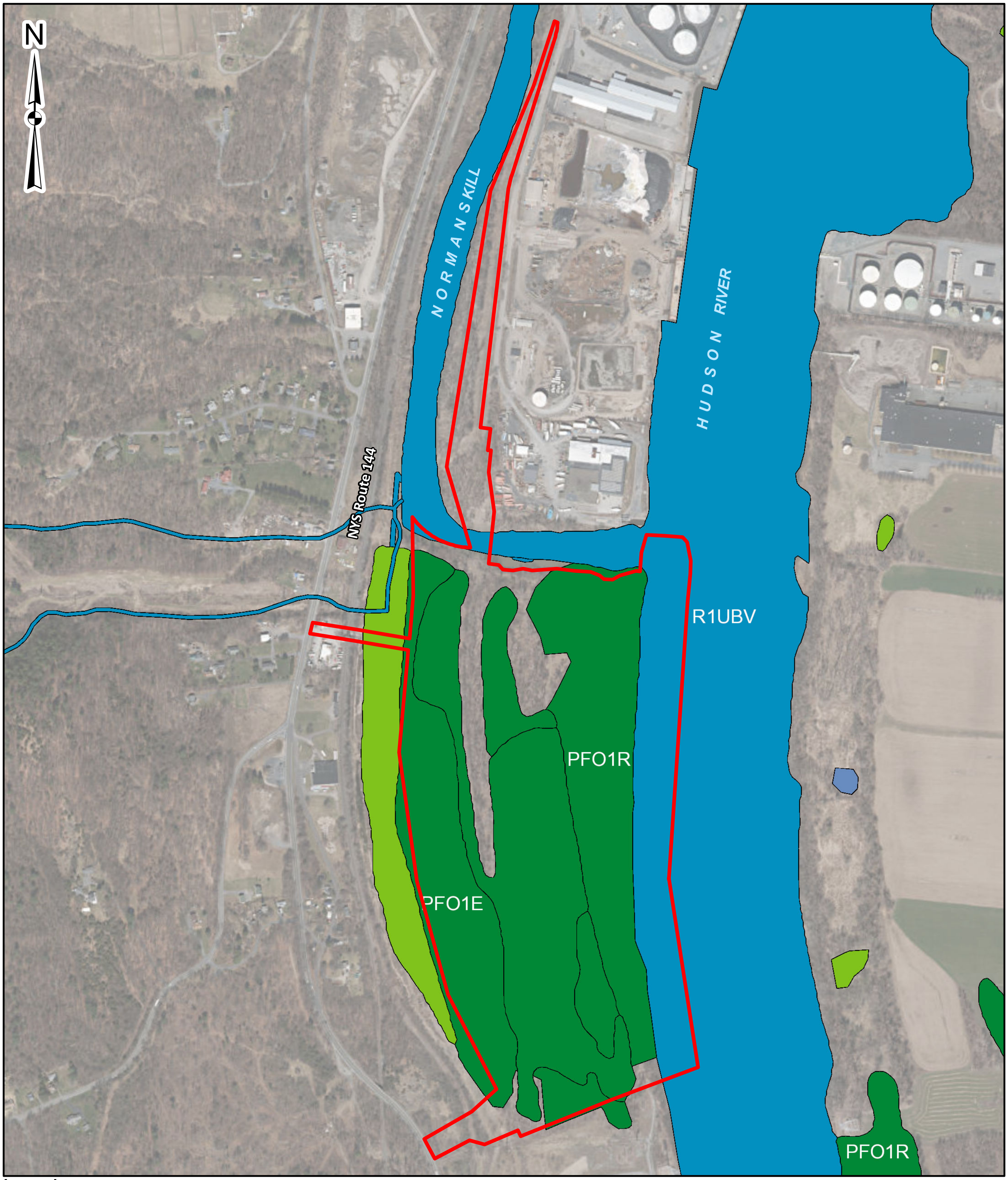
PORT OF ALBANY EXPANSION PROJECT
TOWN OF BETHLEHEM, ALBANY COUNTY, NEW YORK

NYSDEC TIDAL WETLANDS MAP

SCALE :	DATE :	FIGURE :
AS SHOWN	JUNE 2019	3

McFarland Johnson

N:\18437.00 Port of Albany\Draw\GIS\WDR-Figure 3.mxd



Legend

Project Area

Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

0 710 1,420
Feet

Service Layer Credits: U.S. Fish and Wildlife Service, National Standards and Support Team, wetlands_team@fws.gov
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
NYSDEC Wetlands and Checkzones provided by CUGIR and NYSDEC
Bodies of Water and Tidal Wetlands provided by NYS GIS Clearinghouse
Project Area created by McFarland Johnson

PORT OF ALBANY EXPANSION PROJECT
TOWN OF BETHLEHEM, ALBANY COUNTY, NEW YORK

NWI WETLANDS MAP

SCALE :	DATE :	FIGURE :
AS SHOWN	JUNE 2019	4

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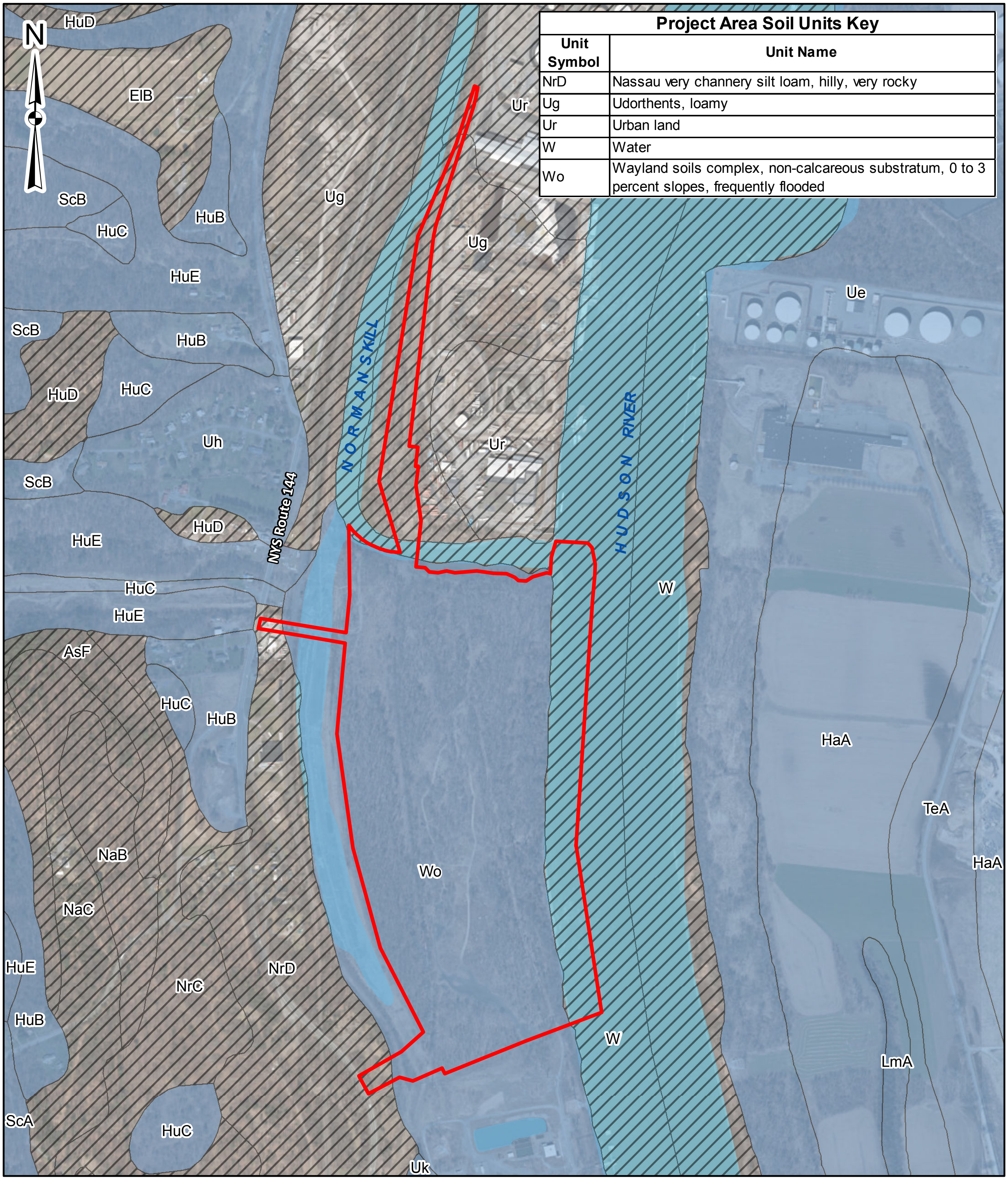
N:\18437.00 Port of Albany\Draw\GIS\WDR-Figure 4.mxd



Project Area Soil Units Key

Unit Symbol	Unit Name
NrD	Nassau very channery silt loam, hilly, very rocky
Ug	Udorthents, loamy
Ur	Urban land
W	Water
Wo	Wayland soils complex, non-calcareous substratum, 0 to 3 percent slopes, frequently flooded

Legend

Soil Type

- Not Hydric
- Partially Hydric
- All Hydric
- Project Area
- Bodies of Water

0 800 1,600
Feet

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
Soil Type provided by USDA
Bodies of Water provided by NYS GIS Clearinghouse
Project Area created by McFarland Johnson

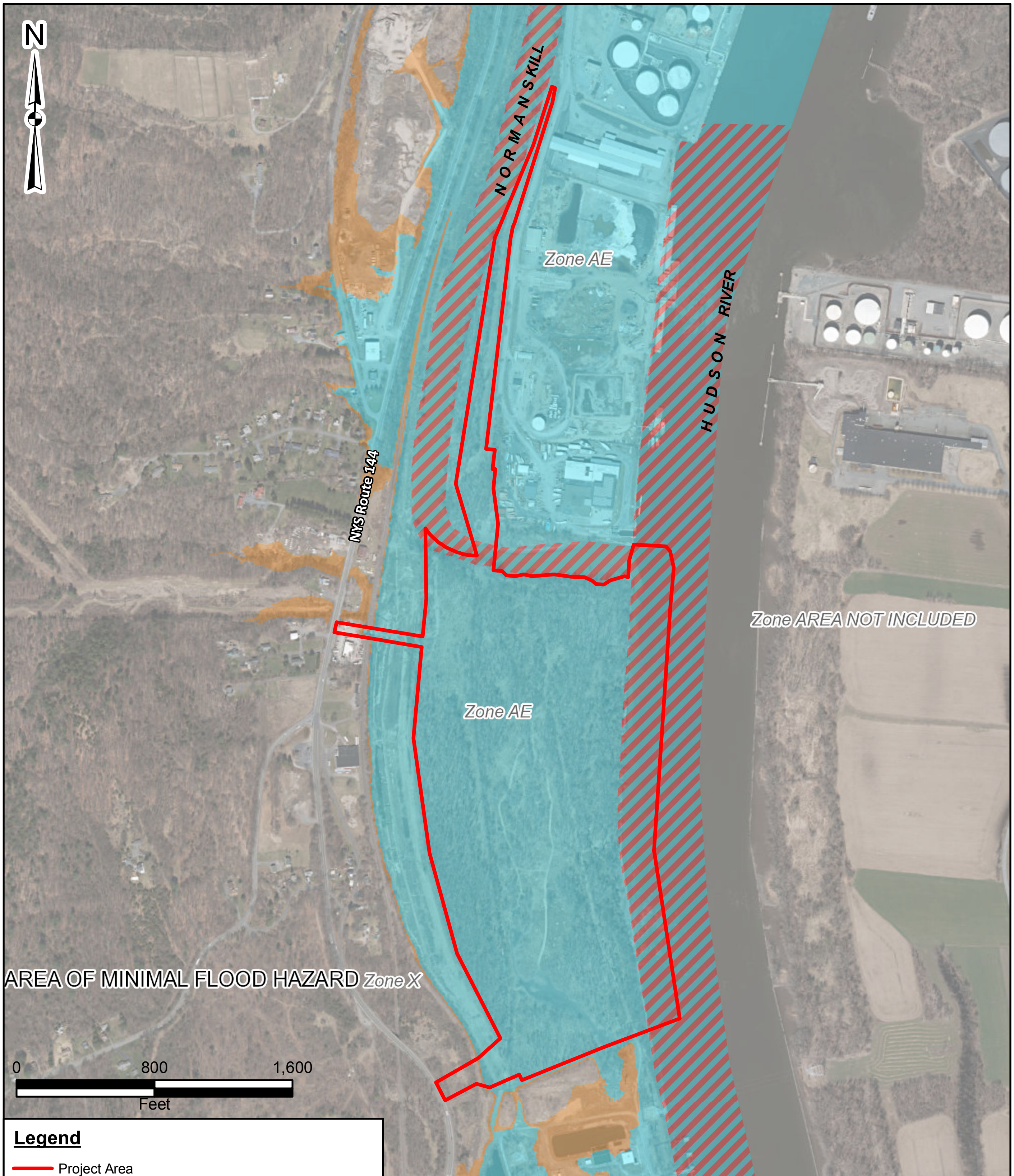
PORT OF ALBANY EXPANSION PROJECT
TOWN OF BETHLEHEM, ALBANY COUNTY, NEW YORK

USDA SOILS MAP

SCALE :	DATE :	FIGURE :
AS SHOWN	JUNE 2019	5

McFarland Johnson

N:\18437.00 Port of Albany\Draw\GIS\WDR-Figure 5.mxd



Legend

- Project Area

Flood Hazard Zones

Zone Type

- 1% Annual Chance Flood Hazard
- Regulatory Floodway
- Special Floodway
- Area of Undetermined Flood Hazard
- 0.2% Annual Chance Flood Hazard
- Future Conditions 1% Annual Chance Flood Hazard
- Area with Reduced Risk Due to Levee

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
Flood Hazard Zones provided by FEMA ArcGIS Online Map Service
Project Area created by McFarland Johnson

PORT OF ALBANY EXPANSION PROJECT
TOWN OF BETHLEHEM, ALBANY COUNTY, NEW YORK

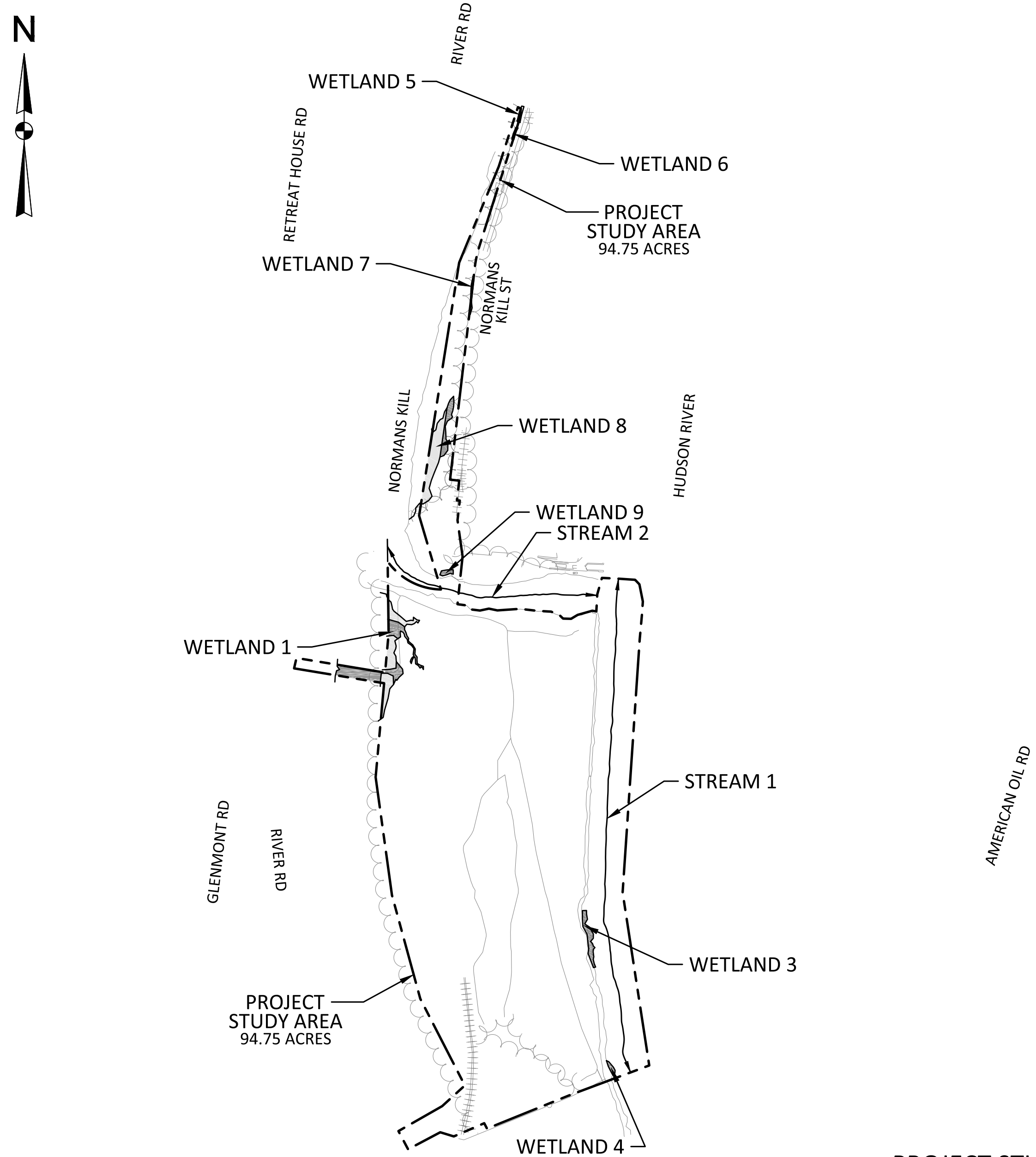
FEMA FLOODPLAIN MAP

SCALE :	DATE :	FIGURE :
AS SHOWN	JUNE 2019	6

McFarland Johnson

N:\18437.00 Port of Albany\Draw\GIS\WDR-Figure 6.mxd

APPENDIX B



WETLANDS WITHIN 94.75 PROJECT STUDY AREA				
FEATURE ID	FEATURE TYPE	ACRES	NYSDEC REGULATED	USACE REGULATED
WETLAND 1	PEM	0.67	NO	YES
	PFO	0.59	NO	YES
WETLAND 3	PEM	0.19	NO	YES
WETLAND 4	PEM	0.04	NO	YES
WETLAND 5	PEM	0.01	NO	YES
WETLAND 6	PEM	0.01	NO	YES
WETLAND 7	PEM	0.02	NO	YES
WETLAND 8	PEM	0.19	NO	YES
	PFO	0.57	NO	YES
WETLAND 9	PEM	0.04	NO	YES

SURFACE WATERS WITHIN 94.75 PROJECT STUDY AREA				
FEATURE ID	FEATURE TYPE	LINEAR FEET	NYSDEC REGULATED[1]	USACE REGULATED[2]
STREAM 1 (HUDSON RIVER)	PERRENIAL TIDAL RIVER	2,814	YES	YES
STREAM 2 (NORMANS KILL)	PERRENIAL TIDAL STREAM	1,297	YES	YES

1. CALCULATED MHW: 4.16’ NGVD29
2. CALCULATED MHT: 4.26’ NGVD29

SCALE
0 1000 2000
FEET

NOTES:
1. WETLAND BOUNDARIES DELINEATED AND SURVEYED VIA GPS BY MCFARLAND JOHNSON, INC., APRIL 2019.

PROJECT STUDY AREA
PEM WETLAND IN PSA
PFO WETLAND IN PSA

PORT OF ALBANY EXPANSION
ALBANY, NEW YORK

WETLANDS AND SURFACE WATERS DELINEATION PLAN

OVERALL PLAN

SCALE: 1" = 1,000'	DATE: MAY 2019	FIGURE: WDP-1

McFarland Johnson

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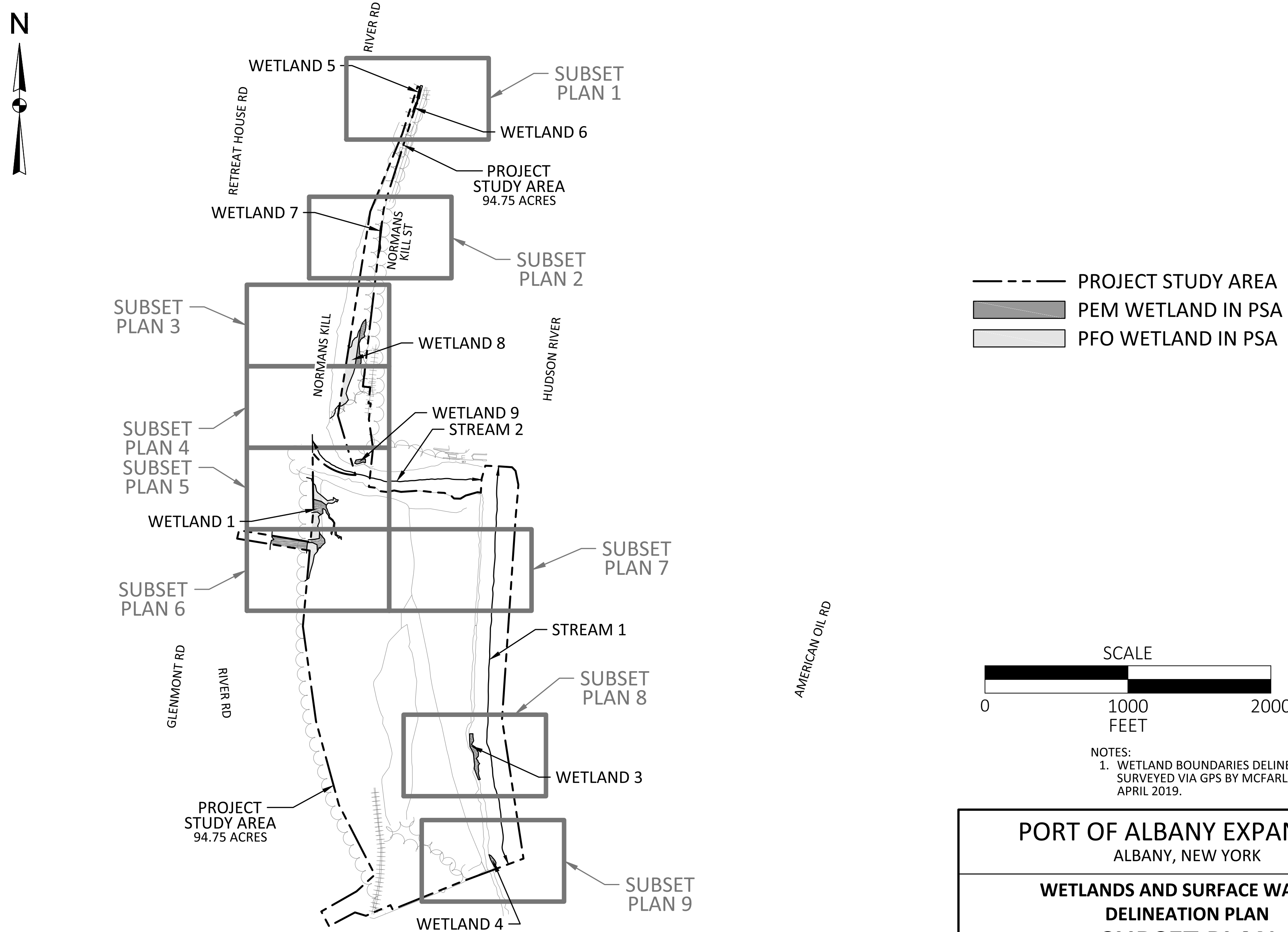

NOTES:
1. WETLAND BOUNDARIES DELINEATED AND SURVEYED VIA GPS BY MCFARLAND JOHNSON, INC., APRIL 2019.

PORT OF ALBANY EXPANSION

ALBANY, NEW YORK

WETLANDS AND SURFACE WATERS DELINEATION PLAN

SUBSET PLAN

SCALE: 1" = 1,000'	DATE: MAY 2019	FIGURE: WDP-2

McFarland Johnson

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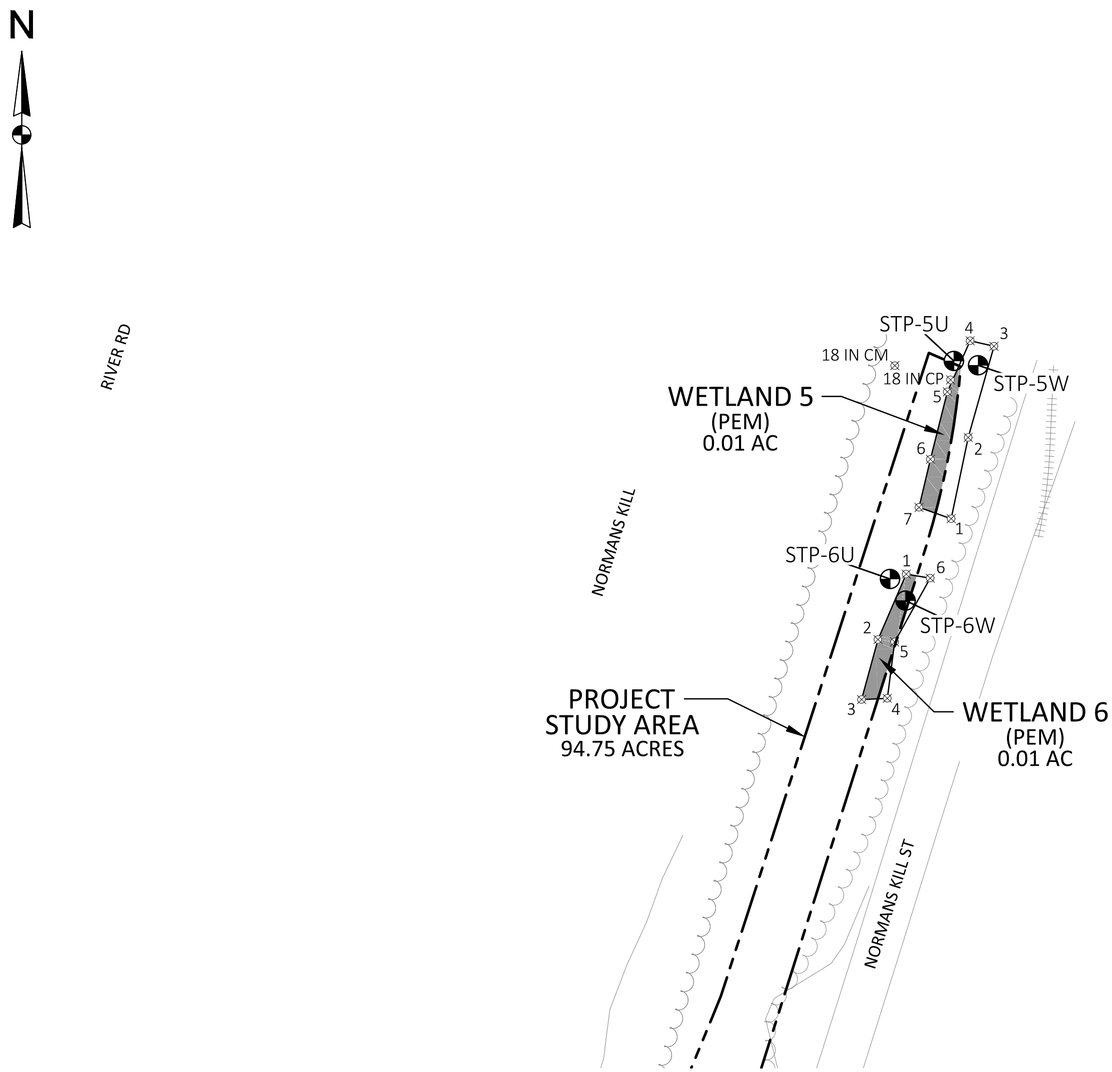

PROJECT STUDY AREA
FLAG
DATA POINT
PEM WETLAND IN PSA
PFO WETLAND IN PSA

SCALE
0 100 200
FEET

NOTES:
1. WETLAND BOUNDARIES DELINEATED AND SURVEYED VIA GPS BY MCFARLAND JOHNSON, INC., APRIL 2019.

PORT OF ALBANY EXPANSION
ALBANY, NEW YORK

WETLANDS AND SURFACE WATERS DELINEATION PLAN

SUBSET PLAN 1

SCALE:	DATE:	FIGURE:
1" = 100'	MAY 2019	WDP-3

McFarland Johnson

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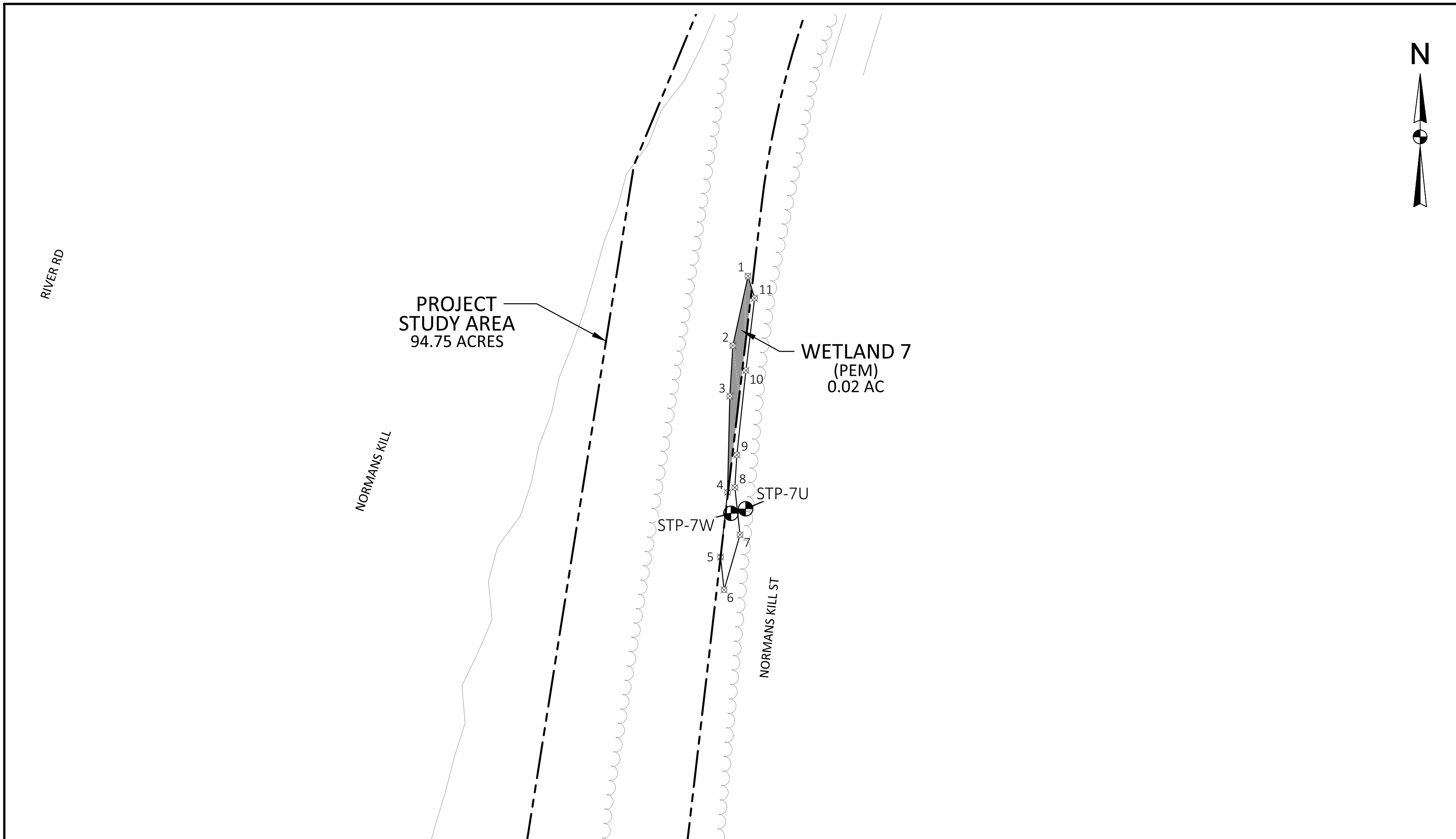


- PROJECT STUDY AREA
- FLAG
- DATA POINT
- PEM WETLAND IN PSA
- PFO WETLAND IN PSA

SCALE

0 100 200

FEET

NOTES:
1. WETLAND BOUNDARIES DELINEATED AND SURVEYED VIA GPS BY MCFARLAND JOHNSON, INC., APRIL 2019.

PORT OF ALBANY EXPANSION

ALBANY, NEW YORK

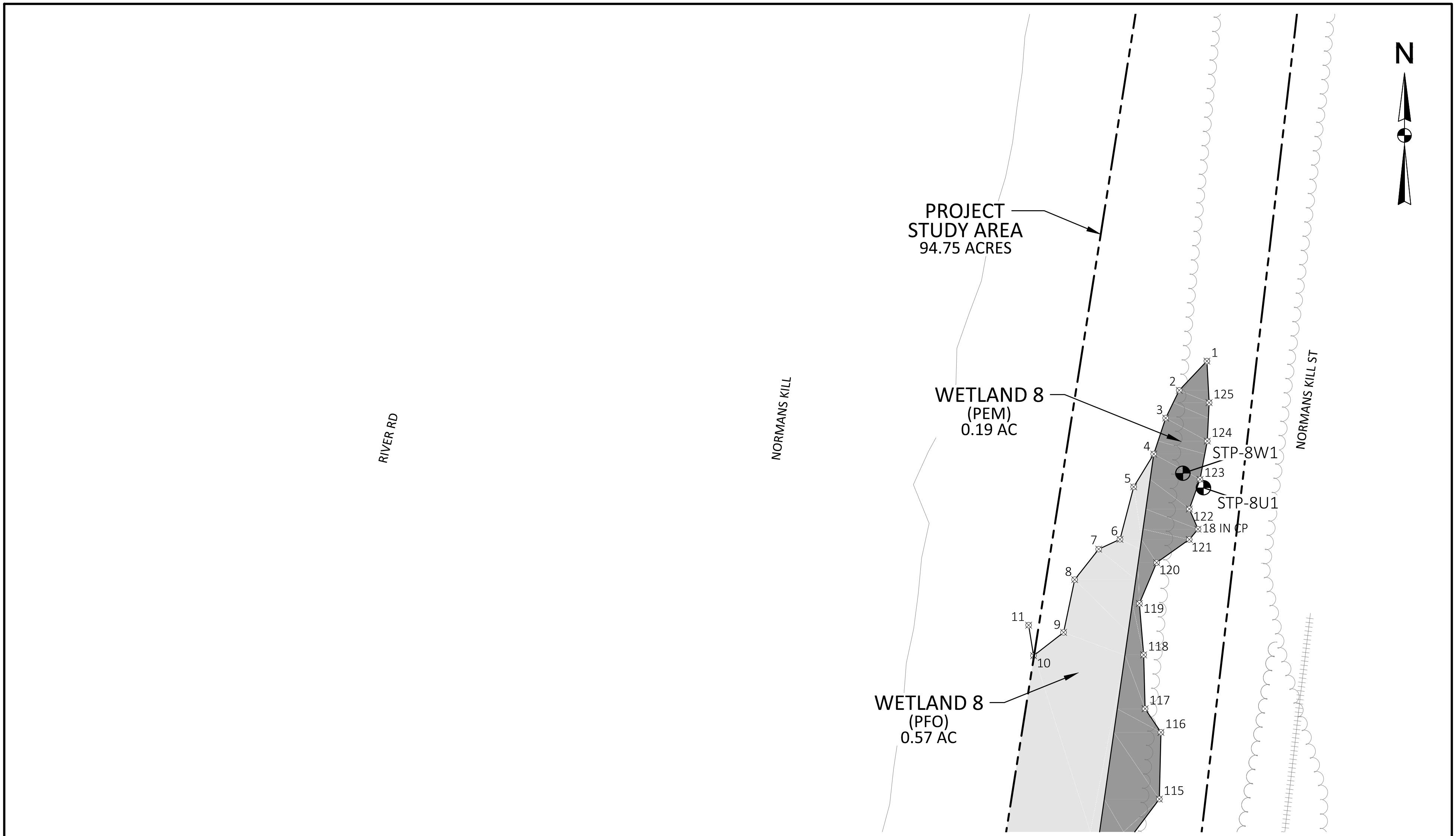
WETLANDS AND SURFACE WATERS DELINEATION PLAN

SUBSET PLAN 2

SCALE: 1" = 100'	DATE: MAY 2019	FIGURE: WDP-4

McFarland Johnson

N:\18437.00 Port of Albany\Draw\Drawings\Figures\18437.00-WETLAND DELINEATION.dwg



PROJECT STUDY AREA
FLAG
DATA POINT
PEM WETLAND IN PSA
PFO WETLAND IN PSA

SCALE
0 100 200
FEET

NOTES:
1. WETLAND BOUNDARIES DELINEATED AND SURVEYED VIA GPS BY MCFARLAND JOHNSON, INC., APRIL 2019.

PORT OF ALBANY EXPANSION
ALBANY, NEW YORK

WETLANDS AND SURFACE WATERS DELINEATION PLAN

SUBSET PLAN 3

SCALE: 1" = 100'	DATE: MAY 2019	FIGURE: WDP-5

McFarland Johnson

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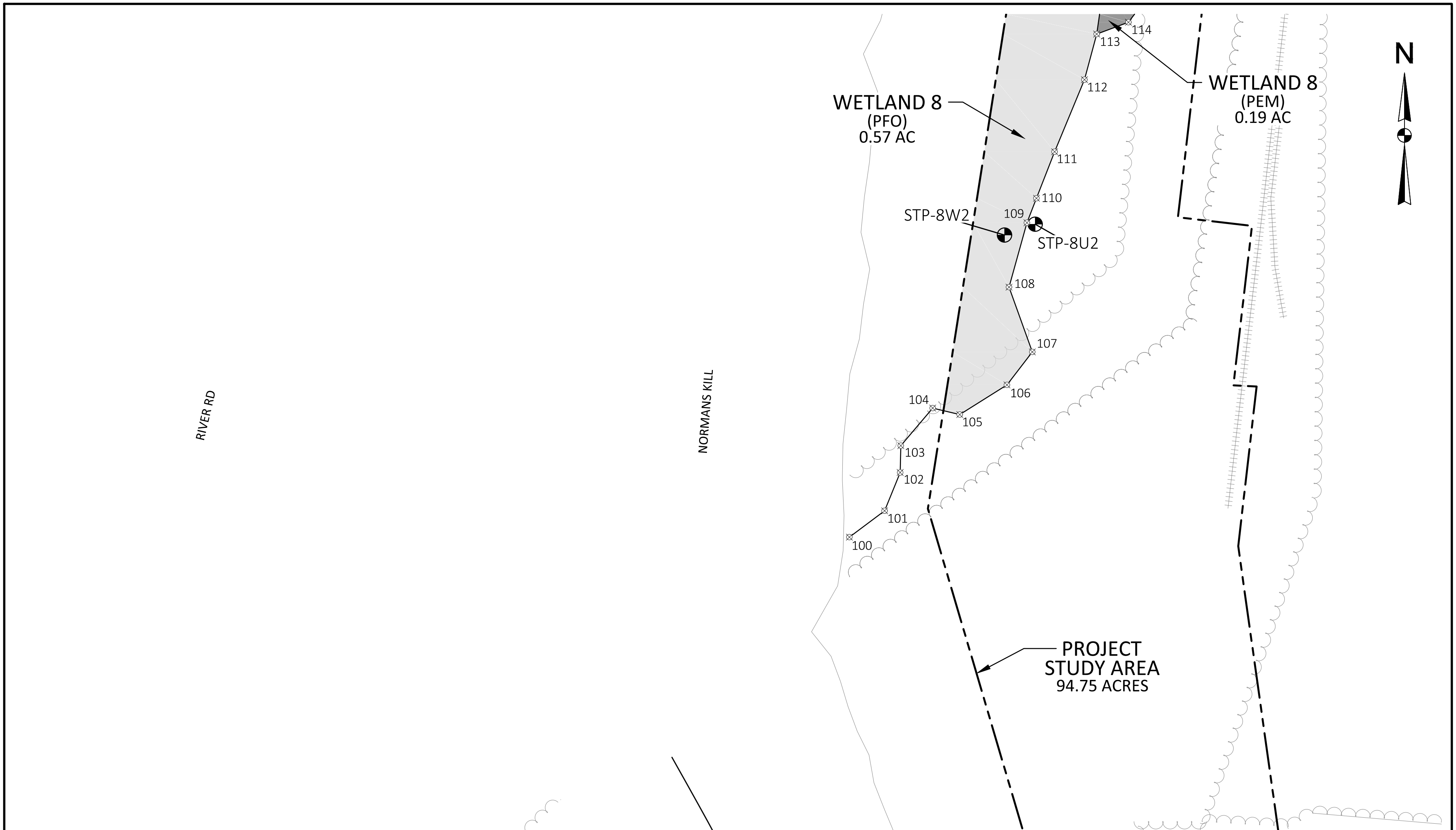


SCALE

0 100 200
FEET

PROJECT STUDY AREA
FLAG
DATA POINT
PEM WETLAND IN PSA
PFO WETLAND IN PSA

NOTES:
1. WETLAND BOUNDARIES DELINEATED AND SURVEYED VIA GPS BY MCFARLAND JOHNSON, INC., APRIL 2019.

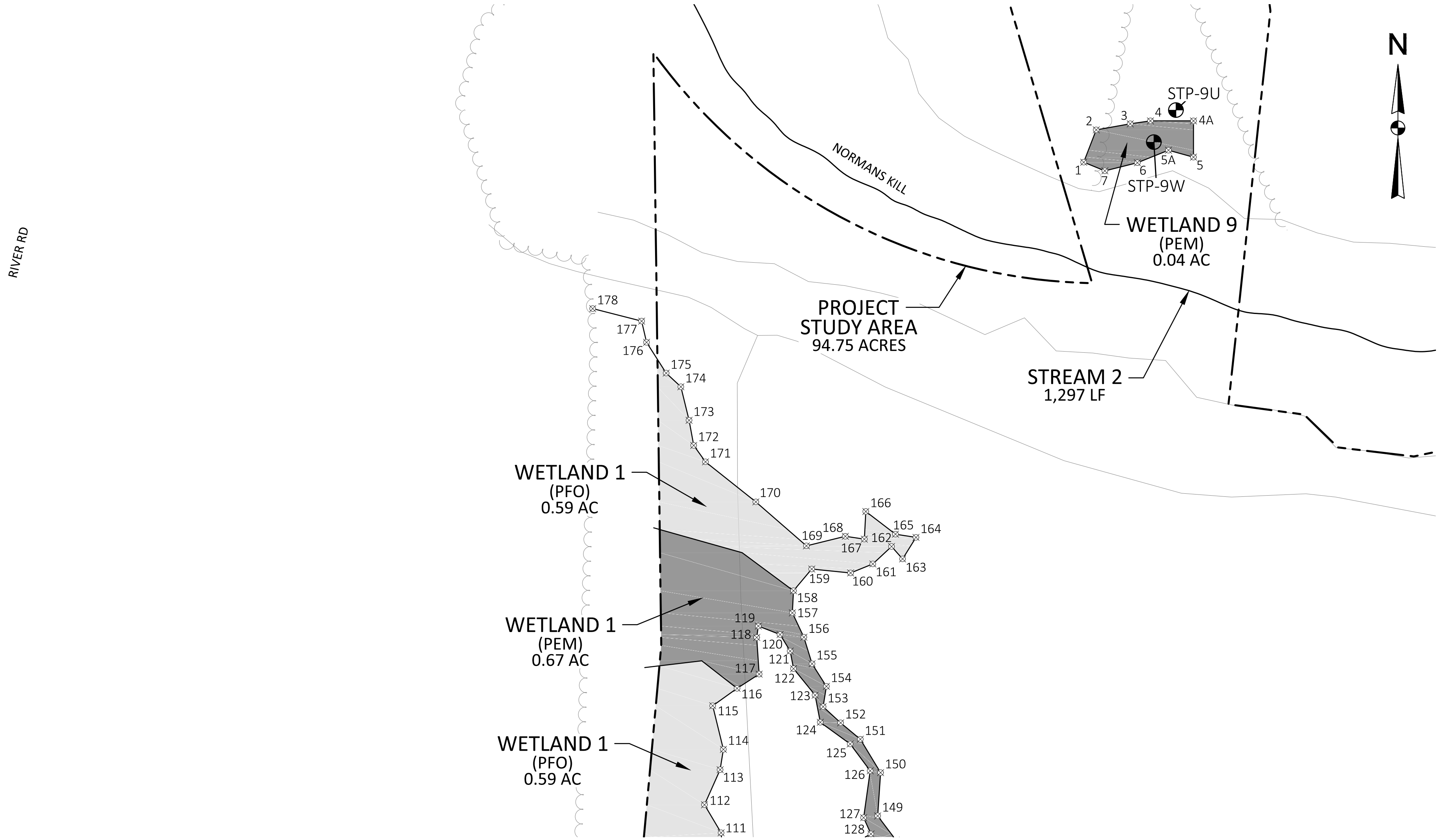
PORT OF ALBANY EXPANSION
ALBANY, NEW YORK

WETLANDS AND SURFACE WATERS DELINEATION PLAN

SUBSET PLAN 4

SCALE:	DATE:	FIGURE:
1" = 100'	MAY 2019	WDP-6

McFarland Johnson



SCALE

0 100 200

FEET

PROJECT STUDY AREA

FLAG

DATA POINT

PEM WETLAND IN PSA

PFO WETLAND IN PSA

NOTES:
1. WETLAND BOUNDARIES DELINEATED AND SURVEYED VIA GPS BY MCFARLAND JOHNSON, INC., APRIL 2019.

PORT OF ALBANY EXPANSION

ALBANY, NEW YORK

WETLANDS AND SURFACE WATERS DELINEATION PLAN

SUBSET PLAN 5

SCALE: 1" = 100'	DATE: MAY 2019	FIGURE: WDP-7

McFarland Johnson

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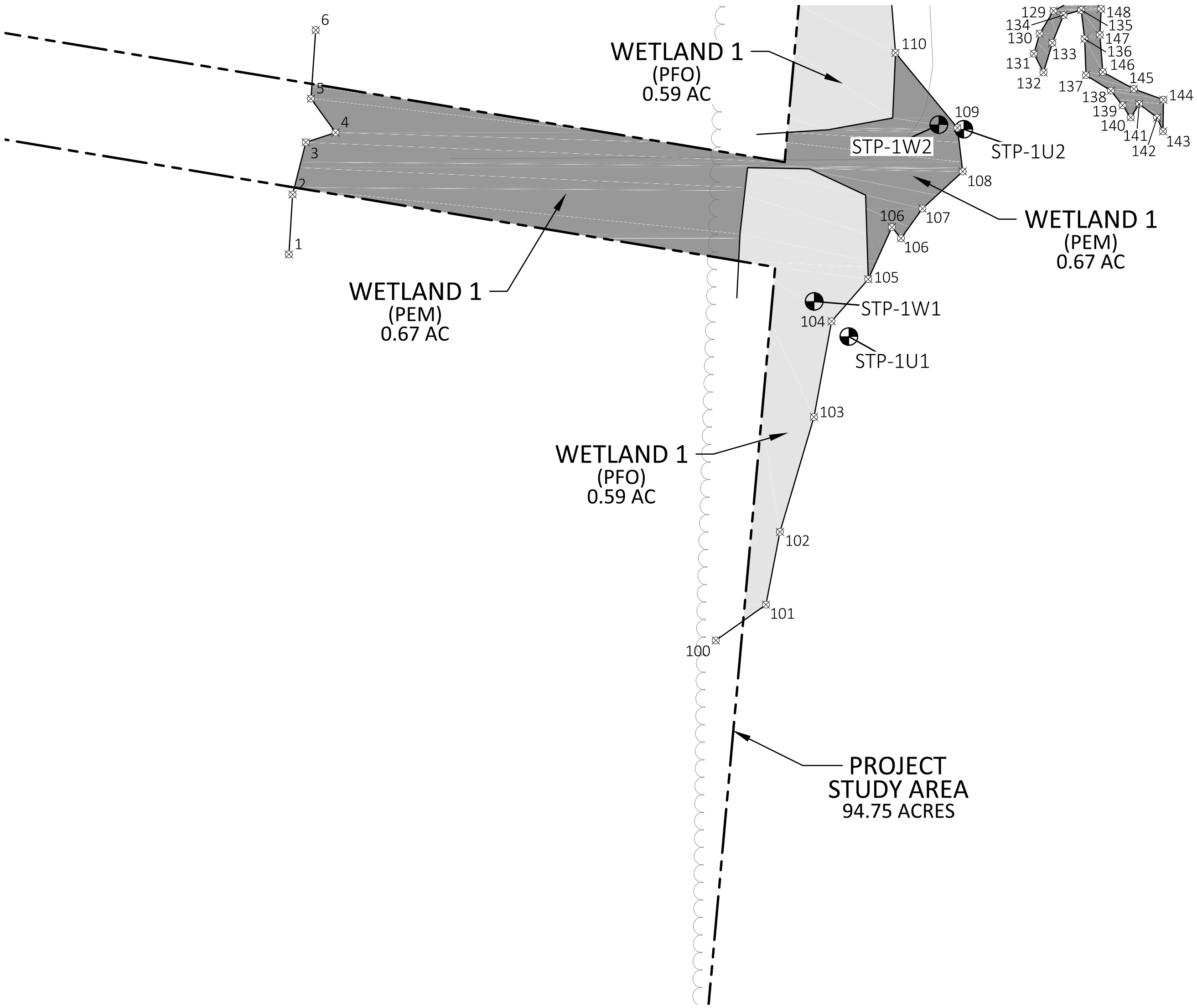

PROJECT STUDY AREA
FLAG
DATA POINT
PEM WETLAND IN PSA
PFO WETLAND IN PSA

SCALE
0 100 200
FEET

NOTES:
1. WETLAND BOUNDARIES DELINEATED AND SURVEYED VIA GPS BY MCFARLAND JOHNSON, INC., APRIL 2019.

PORT OF ALBANY EXPANSION
ALBANY, NEW YORK

WETLANDS AND SURFACE WATERS DELINEATION PLAN

SUBSET PLAN 6

SCALE: 1" = 100'	DATE: MAY 2019	FIGURE: WDP-8

McFarland Johnson

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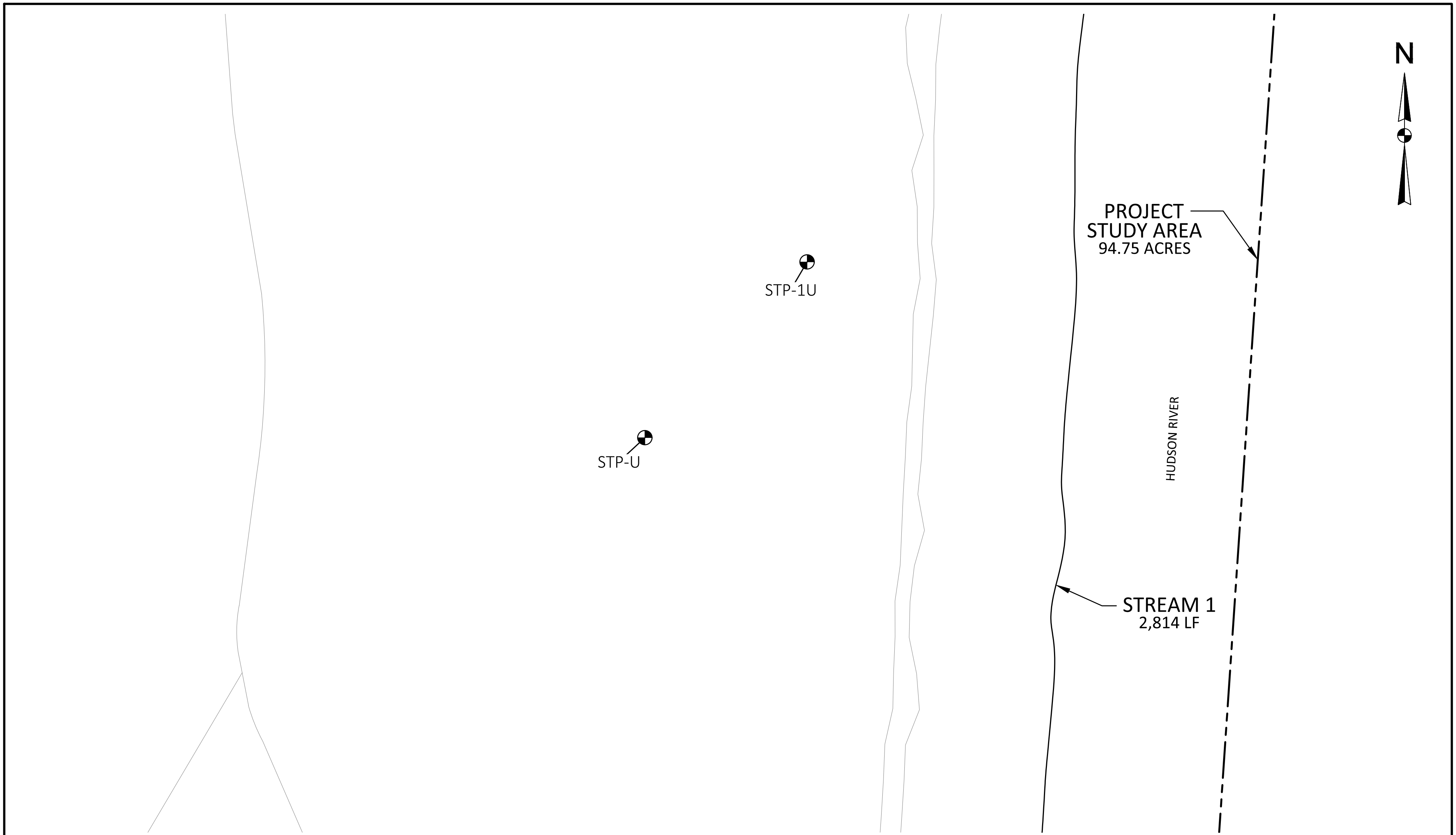


PROJECT STUDY AREA
FLAG
DATA POINT
PEM WETLAND IN PSA
PFO WETLAND IN PSA

SCALE
0 100 200
FEET

NOTES:
1. WETLAND BOUNDARIES DELINEATED AND SURVEYED VIA GPS BY MCFARLAND JOHNSON, INC., APRIL 2019.

PORT OF ALBANY EXPANSION
ALBANY, NEW YORK

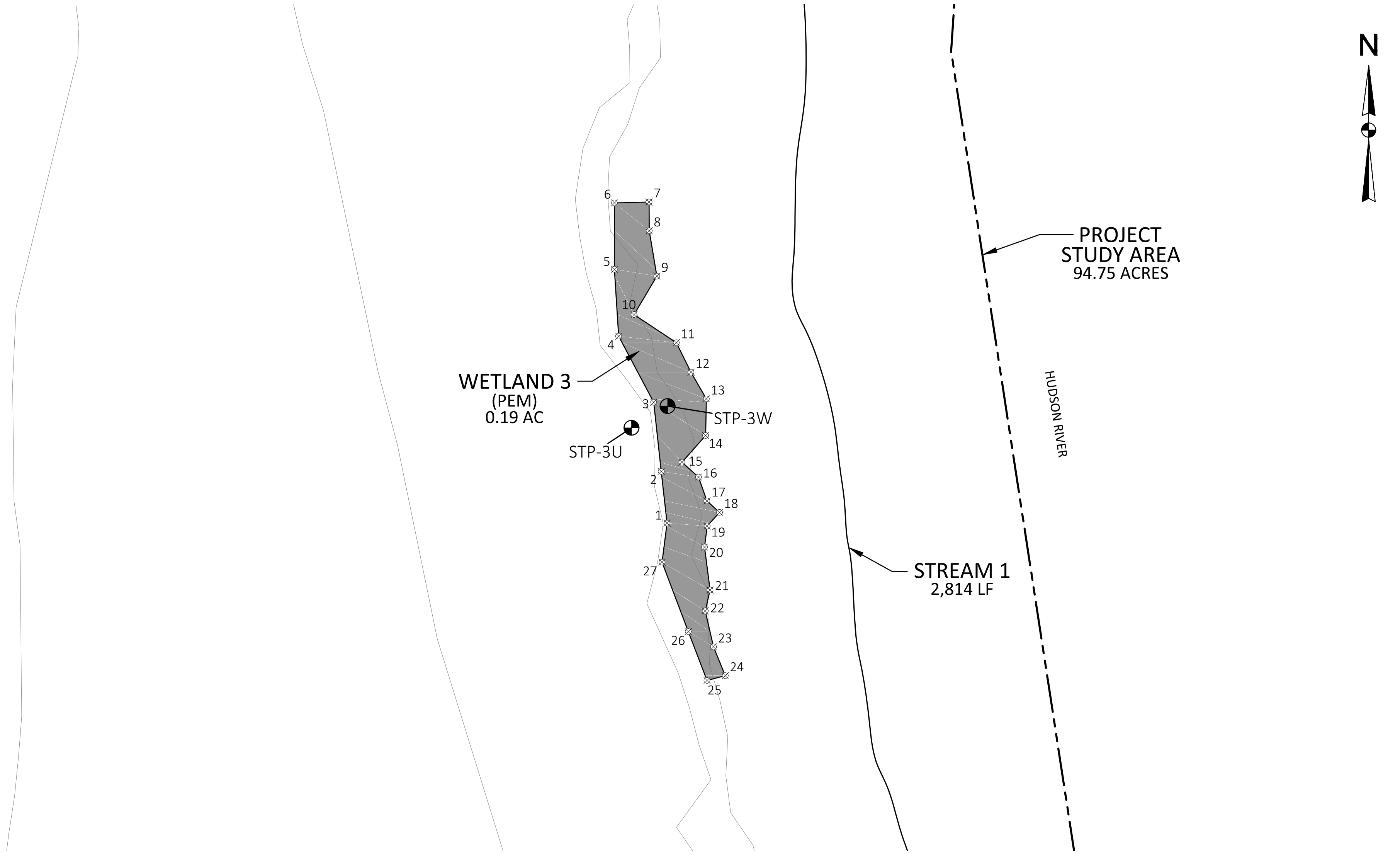
WETLANDS AND SURFACE WATERS DELINEATION PLAN

SUBSET PLAN 7

SCALE: 1" = 100'	DATE: MAY 2019	FIGURE: WDP-9

McFarland Johnson

N:\18437.00 Port of Albany\Draw\Drawings\Figures\18437.00-WETLAND DELINEATION.dwg



- — - — PROJECT STUDY AREA
- ⊠ FLAG
- ◒ DATA POINT
- PEM WETLAND IN PSA
- PFO WETLAND IN PSA

SCALE

0 100 200

FEET

NOTES:
1. WETLAND BOUNDARIES DELINEATED AND SURVEYED VIA GPS BY MCFARLAND JOHNSON, INC., APRIL 2019.

PORT OF ALBANY EXPANSION

ALBANY, NEW YORK

WETLANDS AND SURFACE WATERS DELINEATION PLAN

SUBSET PLAN 8

SCALE: 1" = 100'	DATE: MAY 2019	FIGURE: WDP-10

McFarland Johnson

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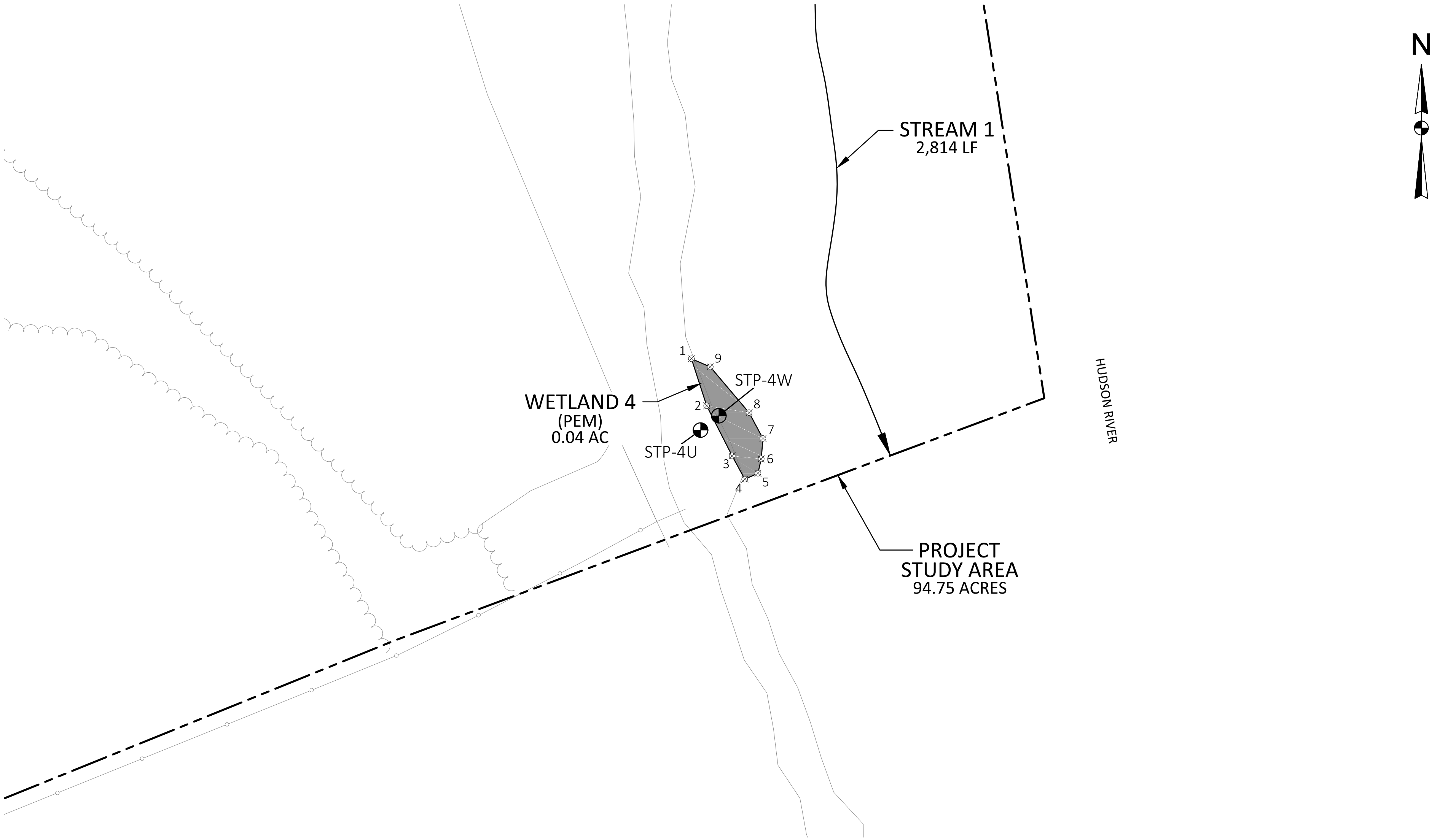

SCALE

0 100 200
FEET

PROJECT STUDY AREA
FLAG
DATA POINT
PEM WETLAND IN PSA
PFO WETLAND IN PSA

NOTES:
1. WETLAND BOUNDARIES DELINEATED AND SURVEYED VIA GPS BY MCFARLAND JOHNSON, INC., APRIL 2019.

PORT OF ALBANY EXPANSION
ALBANY, NEW YORK

WETLANDS AND SURFACE WATERS DELINEATION PLAN

SUBSET PLAN 9

SCALE: 1" = 100'	DATE: MAY 2019	FIGURE: WDP-11

McFarland Johnson

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APPENDIX C

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Port of Albany Expansion Project City/County: Glenmont/ Albany Sampling Date: 4/5/19

Applicant/Owner: Albany Port Authority State: NY Sampling Point: STP-1U1

Investigator(s): T. Wirickx Section, Township, Range: Bethlehem

Landform (hillside, terrace, etc.): Floodplain Local relief (concave, convex, none): None Slope %: <1

Subregion (LRR or MLRA): LRR R, MLRA 144A Lat: ____ Long: ____ Datum: NAD 83

Soil Map Unit Name: Wayland soils complex (Wo) NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ___ (If no, explain in Remarks.)

Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes X No ___

Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ___	No X
Hydric Soil Present?	Yes ___	No X
Wetland Hydrology Present?	Yes ___	No X

Is the Sampled Area within a Wetland? **Yes** ___ **No** X

If yes, optional Wetland Site ID: ____

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches): ___
Water Table Present?	Yes X	No ___	Depth (inches): 15
Saturation Present? (includes capillary fringe)	Yes X	No ___	Depth (inches): 13

Wetland Hydrology Present? **Yes** ___ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point: STP-1U1

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Rhus typhina*	10	Yes	UPL
2. *Populus tremuloides*	5	Yes	FACU
3.			
4.			
5.			
6.			
7.			
	15	=Total Cover	

Sapling/Shrub Stratum (Plot size: 15')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Lonicera tatarica*	2	Yes	FACU
2. *Populus tremuloides*	2	Yes	FACU
3. *Fraxinus pennsylvanica*	1	Yes	FACW
4.			
5.			
6.			
7.			
	5	=Total Cover	

Herb Stratum (Plot size: 5')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Phragmites australis*	90	Yes	FACW
2. *Poa pratensis*	10	No	FACU
3. *Solidago rugosa*	5	No	FAC
4. *Setaria pumila*	2	No	FAC
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	107	=Total Cover	

Woody Vine Stratum (Plot size: 15')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Celastrus orbiculatus*	2	No	UPL
2. *Vitis riparia*	2	No	FAC
3.			
4.			
	4	=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33.3% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	91	x 2 =	182
FAC species	9	x 3 =	27
FACU species	19	x 4 =	76
UPL species	12	x 5 =	60
Column Totals:	131 (A)		345 (B)

Prevalence Index = B/A = 2.63

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ___ **No** X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point STP-1U1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 2/2	100					Loamy/Clayey	
2-12	10YR 2/1	100					Sandy	Black: 10YR 2-/1-
12-16	10YR 2/1	100					Sandy	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
___ High Chroma Sands (S11) (**LRR K, L)**
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)
___ Marl (F10) (**LRR K, L**)

Indicators for Problematic Hydric Soils[3]:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (F22)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: ______

Depth (inches): ______

Hydric Soil Present? **Yes** ___ **No** X

Remarks:
This data form is revised from Northcentral and Northeast Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 7.0, 2015 Errata. (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx)

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Port of Albany Expansion Project City/County: Glenmont/ Albany Sampling Date: 4/5/19

Applicant/Owner: Albany Port Authority State: NY Sampling Point: STP-1W1

Investigator(s): T. Wirickx Section, Township, Range: Bethlehem

Landform (hillside, terrace, etc.): Floodplain Local relief (concave, convex, none): None Slope %: <1

Subregion (LRR or MLRA): LRR R, MLRA 144A Lat: ____ Long: ____ Datum: NAD 83

Soil Map Unit Name: Wayland soils complex (Wo) NWI classification: PFO

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ___ (If no, explain in Remarks.)

Are Vegetation ___, Soil X, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes X No ___

Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No ___	**Is the Sampled Area**
Hydric Soil Present?	Yes X No ___	**within a Wetland?** **Yes** X **No** ___
Wetland Hydrology Present?	Yes X No ___	If yes, optional Wetland Site ID: Wetland 1

Remarks: (Explain alternative procedures here or in a separate report.)
Fill material (fly ash and bottom ash)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

___ Surface Water (A1)	___ Water-Stained Leaves (B9)	
X High Water Table (A2)	___ Aquatic Fauna (B13)	
X Saturation (A3)	___ Marl Deposits (B15)	
___ Water Marks (B1)	___ Hydrogen Sulfide Odor (C1)	
___ Sediment Deposits (B2)	___ Oxidized Rhizospheres on Living Roots (C3)	
___ Drift Deposits (B3)	___ Presence of Reduced Iron (C4)	
___ Algal Mat or Crust (B4)	___ Recent Iron Reduction in Tilled Soils (C6)	
___ Iron Deposits (B5)	___ Thin Muck Surface (C7)	
___ Inundation Visible on Aerial Imagery (B7)	___ Other (Explain in Remarks)	
___ Sparsely Vegetated Concave Surface (B8)		

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches): ___
Water Table Present?	Yes X	No ___	Depth (inches): 8
Saturation Present? (includes capillary fringe)	Yes X	No ___	Depth (inches): 7

Wetland Hydrology Present? **Yes** X **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point: STP-1W1

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Populus tremuloides*	60	Yes	FACU
2. *Fraxinus pennsylvanica*	20	Yes	FACW
3.			
4.			
5.			
6.			
7.			
	80	=Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1. *Lonicera morrowii*	20	Yes	FACU
2. *Rhamnus cathartica*	2	No	FAC
3. *Populus tremuloides*	2	No	FACU
4. *Lindera benzoin*	2	No	FACW
5.			
6.			
7.			
	26	=Total Cover	
Herb Stratum (Plot size: 5')			
1. *Phragmites australis*	20	Yes	FACW
2. *Onoclea sensibilis*	10	Yes	FACW
3. *Solidago rugosa*	5	No	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	35	=Total Cover	
Woody Vine Stratum (Plot size: 15')			
1. *Celastrus orbiculatus*	2	No	UPL
2.			
3.			
4.			
	2	=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 60.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	52	x 2 =	104
FAC species	7	x 3 =	21
FACU species	82	x 4 =	328
UPL species	2	x 5 =	10
Column Totals:	143 (A)		463 (B)

Prevalence Index = B/A = 3.24

Hydrophytic Vegetation Indicators:

__ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

__ 3 - Prevalence Index is ≤3.0[1]

__ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

__ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** X **No** __

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point STP-1W1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 2/2	100					Loamy/Clayey	
2-14	10YR 2/1	100					Sandy	Black: 10YR 2-/1-
14-16	10YR 2/1	100					Sandy	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7)

___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
___ High Chroma Sands (S11) (**LRR K, L)**
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)
___ Marl (F10) (**LRR K, L**)

Indicators for Problematic Hydric Soils[3]:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (F22)
X Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: ______

Depth (inches): ______

Hydric Soil Present? **Yes** ___ **No** ___

Remarks:

This data form is revised from Northcentral and Northeast Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 7.0, 2015 Errata. (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx)

Fill material (fly ash and bottom ash) functioning as hydric soil

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Port of Albany Expansion Project City/County: Glenmont/ Albany Sampling Date: 4/5/19

Applicant/Owner: Albany Port Authority State: NY Sampling Point: STP-1U2

Investigator(s): T. Wirickx Section, Township, Range: Bethlehem

Landform (hillside, terrace, etc.): Floodplain Local relief (concave, convex, none): None Slope %: <1

Subregion (LRR or MLRA): LRR R, MLRA 144A Lat: ____ Long: ____ Datum: NAD 83

Soil Map Unit Name: Wayland soils complex (Wo) NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ___ (If no, explain in Remarks.)

Are Vegetation ___, Soil X, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes X No ___

Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ___ No X	**Is the Sampled Area within a Wetland?** **Yes** ___ **No** X
Hydric Soil Present?	Yes ___ No ___	
Wetland Hydrology Present?	Yes ___ No X	If yes, optional Wetland Site ID: ____

Remarks: (Explain alternative procedures here or in a separate report.)
Fill materials (fly ash and bottom ash)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches): ___
Water Table Present?	Yes X	No ___	Depth (inches): 15
Saturation Present? (includes capillary fringe)	Yes X	No ___	Depth (inches): 14

Wetland Hydrology Present? **Yes** ___ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants. Sampling Point: STP-1U2

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
		=Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1. *Rhus typhina*	5	Yes	UPL
2.			
3.			
4.			
5.			
6.			
7.			
	5	=Total Cover	
Herb Stratum (Plot size: 5')			
1. *Phragmites australis*	100	Yes	FACW
2. *Impatiens capensis*	10	No	FACW
3. *Solidago rugosa*	5	No	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	115	=Total Cover	
Woody Vine Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
		=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	110	x 2 =	220
FAC species	5	x 3 =	15
FACU species	0	x 4 =	0
UPL species	5	x 5 =	25
Column Totals:	120 (A)		260 (B)

Prevalence Index = B/A = 2.17

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ___ **No** X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point STP-1U2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 2/2	100					Loamy/Clayey	
3-9	10YR 2/1	100					Sandy	
9-16	10YR 2/1	100					Sandy	Black: 10YR 2-/1-

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
___ High Chroma Sands (S11) (**LRR K, L)**
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)
___ Marl (F10) (**LRR K, L**)

Indicators for Problematic Hydric Soils[3]:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (F22)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: ____________

Depth (inches): ____________

Hydric Soil Present? Yes ___ No ___

Remarks:

This data form is revised from Northcentral and Northeast Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 7.0, 2015 Errata. (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx)

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Port of Albany Expansion Project City/County: Glenmont/ Albany Sampling Date: 4/5/19

Applicant/Owner: Albany Port Authority State: NY Sampling Point: STP-1W2

Investigator(s): T. Wirickx Section, Township, Range: Bethlehem

Landform (hillside, terrace, etc.): Floodplain Local relief (concave, convex, none): None Slope %: <1

Subregion (LRR or MLRA): LRR R, MLRA 144A Lat: ____ Long: ____ Datum: NAD 83

Soil Map Unit Name: Wayland soils complex (Wo) NWI classification: PEM

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ___ (If no, explain in Remarks.)

Are Vegetation ___, Soil X, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes X No ___

Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No ___	**Is the Sampled Area within a Wetland?** **Yes** X **No** ___
Hydric Soil Present?	Yes X No ___	
Wetland Hydrology Present?	Yes X No ___	If yes, optional Wetland Site ID: Wetland 1

Remarks: (Explain alternative procedures here or in a separate report.)
Fill material (fly ash and bottom ash)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- X High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches): ___
Water Table Present?	Yes X	No ___	Depth (inches): 8
Saturation Present? (includes capillary fringe)	Yes X	No ___	Depth (inches): 8

Wetland Hydrology Present? **Yes** X **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point: STP-1W2

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
		=Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1. *Fraxinus pennsylvanica*	1	No	FACW
2.			
3.			
4.			
5.			
6.			
7.			
	1	=Total Cover	
Herb Stratum (Plot size: 5')			
1. *Phragmites australis*	100	Yes	FACW
2. *Lythrum salicaria*	20	No	OBL
3. *Solidago canadensis*	2	No	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	122	=Total Cover	
Woody Vine Stratum (Plot size: 15')			
1. *Celastrus orbiculatus*	2	No	UPL
2. *Vitis riparia*	2	No	FAC
3.			
4.			
	4	=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	20	x 1 =	20
FACW species	101	x 2 =	202
FAC species	2	x 3 =	6
FACU species	2	x 4 =	8
UPL species	2	x 5 =	10
Column Totals:	127 (A)		246 (B)

Prevalence Index = B/A = 1.94

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** X **No** ___

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point STP-1W2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 2/2	100					Loamy/Clayey	
2-14	10YR 2/1	100					Sandy	Black: 10YR 2-/1-
14-16	10YR 2/1	100					Sandy	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ High Chroma Sands (S11) (**LRR K, L)**
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) (**LRR K, L**)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- X Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: ______

Depth (inches): ______

Hydric Soil Present? **Yes** X **No** ___

Remarks:
This data form is revised from Northcentral and Northeast Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 7.0, 2015 Errata. (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx)

Fill material (fly ash and bottom ash) functioning as hydric soil

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Port of Albany Expansion Project City/County: Glenmont/ Albany Sampling Date: 4/12/19

Applicant/Owner: Albany Port Authority State: NY Sampling Point: STP-3U

Investigator(s): T. Wirickx Section, Township, Range: Bethlehem

Landform (hillside, terrace, etc.): Floodplain Local relief (concave, convex, none): None Slope %: <1

Subregion (LRR or MLRA): LRR R, MLRA 144A Lat: ____ Long: ____ Datum: NAD 83

Soil Map Unit Name: Wayland soils complex (Wo) NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ___ (If no, explain in Remarks.)

Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes X No ___

Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No ___	**Is the Sampled Area within a Wetland?** **Yes** ___ **No** X
Hydric Soil Present?	Yes ___ No X	If yes, optional Wetland Site ID: ____
Wetland Hydrology Present?	Yes ___ No X	

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1)
___ Sediment Deposits (B2)
___ Drift Deposits (B3)
___ Algal Mat or Crust (B4)
___ Iron Deposits (B5)
___ Inundation Visible on Aerial Imagery (B7)
___ Sparsely Vegetated Concave Surface (B8)
___ Water-Stained Leaves (B9)
___ Aquatic Fauna (B13)
___ Marl Deposits (B15)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres on Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Thin Muck Surface (C7)
___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

___ Surface Soil Cracks (B6)
___ Drainage Patterns (B10)
___ Moss Trim Lines (B16)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Stunted or Stressed Plants (D1)
___ Geomorphic Position (D2)
___ Shallow Aquitard (D3)
___ Microtopographic Relief (D4)
___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches): ___
Water Table Present?	Yes ___	No X	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (inches): ___

Wetland Hydrology Present? **Yes** ___ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants. Sampling Point: STP-3U

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer negundo*	40	Yes	FAC
2. *Acer saccharinum*	20	Yes	FACW
3. *Rhamnus cathartica*	5	No	FAC
4.			
5.			
6.			
7.			
	65	=Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1. *Rhamnus cathartica*	20	Yes	FAC
2. *Lonicera morrowii*	5	No	FACU
3. *Fraxinus pennsylvanica*	2	No	FACW
4.			
5.			
6.			
7.			
	27	=Total Cover	
Herb Stratum (Plot size: 5')			
1. *Alliaria petiolata*	30	Yes	FACU
2. *Leersia virginica*	30	Yes	FACW
3. *Hackelia virginiana*	10	No	FACU
4. *Ageratina altissima*	10	No	FACU
5. *Rubus occidentalis*	2	No	UPL
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	82	=Total Cover	
Woody Vine Stratum (Plot size: 15')			
1. *Celastrus orbiculatus*	20	Yes	UPL
2.			
3.			
4.			
	20	=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.7% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	52	x 2 =	104
FAC species	65	x 3 =	195
FACU species	55	x 4 =	220
UPL species	22	x 5 =	110
Column Totals:	194 (A)		629 (B)

Prevalence Index = B/A = 3.24

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** X **No** ___

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point STP-3U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 2/2	100					Loamy/Clayey	
2-16	10YR 3/1	100					Loamy/Clayey	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
___ High Chroma Sands (S11) (**LRR K, L)**
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)
___ Marl (F10) (**LRR K, L**)

Indicators for Problematic Hydric Soils[3]:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (F22)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: ______

Depth (inches): ______

Hydric Soil Present? **Yes** ___ **No** X

Remarks:
This data form is revised from Northcentral and Northeast Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 7.0, 2015 Errata. (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx)

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Port of Albany Expansion Project City/County: Glenmont/ Albany Sampling Date: 4/5/19

Applicant/Owner: Albany Port Authority State: NY Sampling Point: STP-3W

Investigator(s): T. Wirickx Section, Township, Range: Bethlehem

Landform (hillside, terrace, etc.): Floodplain Local relief (concave, convex, none): None Slope %: <1

Subregion (LRR or MLRA): LRR R, MLRA 144A Lat: ____ Long: ____ Datum: NAD 83

Soil Map Unit Name: Wayland soils complex (Wo) NWI classification: PEM

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ___ (If no, explain in Remarks.)

Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes X No ___

Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No ___	**Is the Sampled Area**
Hydric Soil Present?	Yes X No ___	**within a Wetland? Yes** X **No** ___
Wetland Hydrology Present?	Yes X No ___	If yes, optional Wetland Site ID: Wetland 3

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

___ Surface Water (A1)	___ Water-Stained Leaves (B9)	
X High Water Table (A2)	___ Aquatic Fauna (B13)	
X Saturation (A3)	___ Marl Deposits (B15)	
___ Water Marks (B1)	___ Hydrogen Sulfide Odor (C1)	
___ Sediment Deposits (B2)	___ Oxidized Rhizospheres on Living Roots (C3)	
___ Drift Deposits (B3)	___ Presence of Reduced Iron (C4)	
___ Algal Mat or Crust (B4)	___ Recent Iron Reduction in Tilled Soils (C6)	
___ Iron Deposits (B5)	___ Thin Muck Surface (C7)	
___ Inundation Visible on Aerial Imagery (B7)	___ Other (Explain in Remarks)	
___ Sparsely Vegetated Concave Surface (B8)		

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches): ___
Water Table Present?	Yes X	No ___	Depth (inches): 12
Saturation Present? (includes capillary fringe)	Yes X	No ___	Depth (inches): 6

Wetland Hydrology Present? Yes X **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point: STP-3W

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
		=Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
		=Total Cover	
Herb Stratum (Plot size: 5')			
1. *Lythrum salicaria*	30	Yes	OBL
2. *Typha angustifolia*	20	Yes	OBL
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	50	=Total Cover	
Woody Vine Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
		=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	50	x 1 =	50
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	50 (A)		50 (B)

Prevalence Index = B/A = 1.00

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** X **No** ___

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point STP-3W

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 3/1	90	7.5YR 3/4	10	C	M	Loamy/Clayey	Prominent redox concentrations

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7)

___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
___ High Chroma Sands (S11) (**LRR K, L)**
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
X Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)
___ Marl (F10) (**LRR K, L**)

Indicators for Problematic Hydric Soils[3]:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (F22)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** ___ **No** ___

Remarks:
This data form is revised from Northcentral and Northeast Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 7.0, 2015 Errata. (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx)

Fill material (fly ash and bottom ash) functioning as hydric soil

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Port of Albany Expansion Project City/County: Glenmont/ Albany Sampling Date: 4/5/19

Applicant/Owner: Albany Port Authority State: NY Sampling Point: STP-4U

Investigator(s): T. Wirickx Section, Township, Range: Bethlehem

Landform (hillside, terrace, etc.): Floodplain Local relief (concave, convex, none): None Slope %: <1

Subregion (LRR or MLRA): LRR R, MLRA 144A Lat: ______ Long: ______ Datum: NAD 83

Soil Map Unit Name: Wayland soils complex (Wo) NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ___ (If no, explain in Remarks.)

Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes X No ___

Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No ___	**Is the Sampled Area**
Hydric Soil Present?	Yes ___ No X	**within a Wetland?** **Yes** ___ **No** X
Wetland Hydrology Present?	Yes ___ No X	If yes, optional Wetland Site ID: ______

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches): ___
Water Table Present?	Yes ___	No X	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (inches): ___

Wetland Hydrology Present? **Yes** ___ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point: STP-4U

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Fraxinus pennsylvanica*	30	Yes	FACW
2. *Acer saccharinum*	20	Yes	FACW
3. *Betula populifolia*	5	No	FAC
4. *Rhamnus cathartica*	2	No	FAC
5.			
6.			
7.			
	57	=Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
		=Total Cover	
Herb Stratum (Plot size: 5')			
1. *Phragmites australis*	5	Yes	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	5	=Total Cover	
Woody Vine Stratum (Plot size: 15')			
1. *Celastrus orbiculatus*	20	Yes	UPL
2.			
3.			
4.			
	20	=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 75.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	55	x 2 =	110
FAC species	7	x 3 =	21
FACU species	0	x 4 =	0
UPL species	20	x 5 =	100
Column Totals:	82 (A)		231 (B)

Prevalence Index = B/A = 2.82

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** X **No** ___

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point STP-4U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features				Texture	Remarks
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]		
0-2	10YR 2/2	100					Loamy/Clayey	
2-16	10YR 3/1	100					Loamy/Clayey	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
___ High Chroma Sands (S11) (**LRR K, L)**
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)
___ Marl (F10) (**LRR K, L**)

Indicators for Problematic Hydric Soils[3]:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (F22)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):
Type: ______
Depth (inches): ______

Hydric Soil Present? **Yes** ___ **No** X

Remarks:
This data form is revised from Northcentral and Northeast Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 7.0, 2015 Errata. (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx)

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Port of Albany Expansion Project City/County: Glenmont/ Albany Sampling Date: 4/5/19

Applicant/Owner: Albany Port Authority State: NY Sampling Point: STP-4W

Investigator(s): T. Wirickx Section, Township, Range: Bethlehem

Landform (hillside, terrace, etc.): Floodplain Local relief (concave, convex, none): None Slope %: <1

Subregion (LRR or MLRA): LRR R, MLRA 144A Lat: ______ Long: ______ Datum: NAD 83

Soil Map Unit Name: Wayland soils complex (Wo) NWI classification: PEM

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ___ (If no, explain in Remarks.)

Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes X No ___

Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No ___	**Is the Sampled Area within a Wetland?** **Yes** X **No** ___
Hydric Soil Present?	Yes X No ___	
Wetland Hydrology Present?	Yes X No ___	If yes, optional Wetland Site ID: Wetland 4

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

___ Surface Water (A1)	___ Water-Stained Leaves (B9)	
X High Water Table (A2)	___ Aquatic Fauna (B13)	
X Saturation (A3)	___ Marl Deposits (B15)	
___ Water Marks (B1)	___ Hydrogen Sulfide Odor (C1)	
___ Sediment Deposits (B2)	___ Oxidized Rhizospheres on Living Roots (C3)	
___ Drift Deposits (B3)	___ Presence of Reduced Iron (C4)	
___ Algal Mat or Crust (B4)	___ Recent Iron Reduction in Tilled Soils (C6)	
___ Iron Deposits (B5)	___ Thin Muck Surface (C7)	
___ Inundation Visible on Aerial Imagery (B7)	___ Other (Explain in Remarks)	
___ Sparsely Vegetated Concave Surface (B8)		

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches): ___
Water Table Present?	Yes X	No ___	Depth (inches): 1
Saturation Present? (includes capillary fringe)	Yes X	No ___	Depth (inches): 0

Wetland Hydrology Present? **Yes** X **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants. Sampling Point: STP-4W

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
		=Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1. *Salix nigra*	5	Yes	OBL
2.			
3.			
4.			
5.			
6.			
7.			
	5	=Total Cover	
Herb Stratum (Plot size: 5')			
1. *Phragmites australis*	90	Yes	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	90	=Total Cover	
Woody Vine Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
		=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	5	x 1 =	5
FACW species	90	x 2 =	180
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	95 (A)		185 (B)

Prevalence Index = B/A = 1.95

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** X **No** ___

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point STP-4W

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 4/1	100					Sandy	
6-16	10YR 3/1	85	10YR 3/4	15	C	M	Loamy/Clayey	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7)

___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
___ High Chroma Sands (S11) (**LRR K, L)**
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
X Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)
___ Marl (F10) (**LRR K, L**)

Indicators for Problematic Hydric Soils[3]:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (F22)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** ___ **No** ___

Remarks:
This data form is revised from Northcentral and Northeast Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 7.0, 2015 Errata. (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx)

Fill material (fly ash and bottom ash) functioning as hydric soil

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Port of Albany Expansion Project City/County: Glenmont/ Albany Sampling Date: 4/12/19

Applicant/Owner: Albany Port Authority State: NY Sampling Point: STP-5U

Investigator(s): T. Wirickx Section, Township, Range: Bethlehem

Landform (hillside, terrace, etc.): Floodplain Local relief (concave, convex, none): None Slope %: <1

Subregion (LRR or MLRA): LRR R, MLRA 144A Lat: ______ Long: ______ Datum: NAD 83

Soil Map Unit Name: Urban land (Ur) NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ___ (If no, explain in Remarks.)

Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes X No ___

Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ___ No X	**Is the Sampled Area within a Wetland?** **Yes** ___ **No** X
Hydric Soil Present?	Yes ___ No X	
Wetland Hydrology Present?	Yes ___ No X	If yes, optional Wetland Site ID: ______

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches): ___
Water Table Present?	Yes ___	No X	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (inches): ___

Wetland Hydrology Present? **Yes** ___ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point: STP-5U

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
		=Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1. *Lonicera morrowii*	70	Yes	FACU
2.			
3.			
4.			
5.			
6.			
7.			
	70	=Total Cover	
Herb Stratum (Plot size: 5')			
1. *Solidago candensis*	5	Yes	FACU
2. *Allium vineale*	2	Yes	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	7	=Total Cover	
Woody Vine Stratum (Plot size: 15')			
1. *Vitis riparia*	2	No	FAC
2. *Celastrus orbiculatus*	2	No	UPL
3.			
4.			
	4	=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	2	x 3 =	6
FACU species	77	x 4 =	308
UPL species	2	x 5 =	10
Column Totals:	81 (A)		324 (B)

Prevalence Index = B/A = 4.00

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ___ **No** X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point STP-5U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features				Texture	Remarks
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]		
0-7	10YR 3/1	100					Loamy/Clayey	
7-16	10YR 3/2	100					Loamy/Clayey	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7)

___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
___ High Chroma Sands (S11) (**LRR K, L)**
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)
___ Marl (F10) (**LRR K, L**)

Indicators for Problematic Hydric Soils[3]:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (F22)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: ______

Depth (inches): ______

Hydric Soil Present? **Yes** ___ **No** X

Remarks:
This data form is revised from Northcentral and Northeast Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 7.0, 2015 Errata. (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx)

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Port of Albany Expansion Project City/County: Glenmont/ Albany Sampling Date: 4/5/19

Applicant/Owner: Albany Port Authority State: NY Sampling Point: STP-5W

Investigator(s): T. Wirickx Section, Township, Range: Bethlehem

Landform (hillside, terrace, etc.): Floodplain Local relief (concave, convex, none): Concave Slope %: <1

Subregion (LRR or MLRA): LRR R, MLRA 144A Lat: ____ Long: ____ Datum: NAD 83

Soil Map Unit Name: Urban land (Ur) NWI classification: PEM

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ___ (If no, explain in Remarks.)

Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes X No ___

Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No ___	**Is the Sampled Area within a Wetland?** **Yes** X **No** ___
Hydric Soil Present?	Yes X No ___	
Wetland Hydrology Present?	Yes X No ___	If yes, optional Wetland Site ID: Wetland 5

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

___ Surface Water (A1)	X Water-Stained Leaves (B9)
X High Water Table (A2)	___ Aquatic Fauna (B13)
X Saturation (A3)	___ Marl Deposits (B15)
___ Water Marks (B1)	___ Hydrogen Sulfide Odor (C1)
___ Sediment Deposits (B2)	___ Oxidized Rhizospheres on Living Roots (C3)
___ Drift Deposits (B3)	___ Presence of Reduced Iron (C4)
___ Algal Mat or Crust (B4)	___ Recent Iron Reduction in Tilled Soils (C6)
___ Iron Deposits (B5)	___ Thin Muck Surface (C7)
___ Inundation Visible on Aerial Imagery (B7)	___ Other (Explain in Remarks)
___ Sparsely Vegetated Concave Surface (B8)	

Secondary Indicators (minimum of two required)

___ Surface Soil Cracks (B6)
___ Drainage Patterns (B10)
___ Moss Trim Lines (B16)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Stunted or Stressed Plants (D1)
X Geomorphic Position (D2)
___ Shallow Aquitard (D3)
___ Microtopographic Relief (D4)
X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches): ___
Water Table Present?	Yes X	No ___	Depth (inches): 1
Saturation Present? (includes capillary fringe)	Yes X	No ___	Depth (inches): 0

Wetland Hydrology Present? **Yes** X **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point: STP-5W

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
		=Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
		=Total Cover	
Herb Stratum (Plot size: 5')			
1. *Typha angustifolia*	100	Yes	OBL
2. *Lythrum salicaria*	10	No	OBL
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	110	=Total Cover	
Woody Vine Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
		=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	110	x 1 =	110
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	110 (A)		110 (B)

Prevalence Index = B/A = 1.00

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** X **No** ___

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point STP-5W

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 3/1	100					Loamy/Clayey	
5-16	10YR 4/1	90	10YR 4/6	10	C	M	Loamy/Clayey	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
X Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7)

___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
___ High Chroma Sands (S11) (**LRR K, L)**
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
X Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)
___ Marl (F10) (**LRR K, L**)

Indicators for Problematic Hydric Soils[3]:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (F22)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: ________

Depth (inches): ________

Hydric Soil Present? Yes ___ **No** ___

Remarks:

This data form is revised from Northcentral and Northeast Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 7.0, 2015 Errata. (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx)

Fill material (fly ash and bottom ash) functioning as hydric soil

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Port of Albany Expansion Project City/County: Glenmont/ Albany Sampling Date: 4/12/19

Applicant/Owner: Albany Port Authority State: NY Sampling Point: STP-6U

Investigator(s): T. Wirickx Section, Township, Range: Bethlehem

Landform (hillside, terrace, etc.): Floodplain Local relief (concave, convex, none): None Slope %: <1

Subregion (LRR or MLRA): LRR R, MLRA 144A Lat: ____ Long: ____ Datum: NAD 83

Soil Map Unit Name: Urban land (Ur) NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ___ (If no, explain in Remarks.)

Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes X No ___

Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ___	No X
Hydric Soil Present?	Yes ___	No X
Wetland Hydrology Present?	Yes ___	No X

Is the Sampled Area within a Wetland? **Yes** ___ **No** X

If yes, optional Wetland Site ID: ____

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

___ Surface Water (A1)	___ Water-Stained Leaves (B9)	
___ High Water Table (A2)	___ Aquatic Fauna (B13)	
___ Saturation (A3)	___ Marl Deposits (B15)	
___ Water Marks (B1)	___ Hydrogen Sulfide Odor (C1)	
___ Sediment Deposits (B2)	___ Oxidized Rhizospheres on Living Roots (C3)	
___ Drift Deposits (B3)	___ Presence of Reduced Iron (C4)	
___ Algal Mat or Crust (B4)	___ Recent Iron Reduction in Tilled Soils (C6)	
___ Iron Deposits (B5)	___ Thin Muck Surface (C7)	
___ Inundation Visible on Aerial Imagery (B7)	___ Other (Explain in Remarks)	
? Sparsely Vegetated Concave Surface (B8)		

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches): ___
Water Table Present?	Yes ___	No X	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (inches): ___

Wetland Hydrology Present? **Yes** ___ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point: STP-6U

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		

Sapling/Shrub Stratum (Plot size: 15')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Lonicera morrowii*	100	Yes	FACU
2.			
3.			
4.			
5.			
6.			
7.			
	100 =Total Cover		

Herb Stratum (Plot size: 5')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Allium vineale*	2	No	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	2 =Total Cover		

Woody Vine Stratum (Plot size: 15')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	=Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	102	x 4 =	408
UPL species	0	x 5 =	0
Column Totals:	102 (A)		408 (B)

Prevalence Index = B/A = 4.00

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation
___ 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤3.0[1]
___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ___ **No** X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point STP-6U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features				Texture	Remarks
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]		
0-7	10YR 3/1	100					Loamy/Clayey	
7-16	10YR 3/2	100					Loamy/Clayey	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7)

___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
___ High Chroma Sands (S11) (**LRR K, L)**
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)
___ Marl (F10) (**LRR K, L**)

Indicators for Problematic Hydric Soils[3]:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (F22)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: ______

Depth (inches): ______

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

This data form is revised from Northcentral and Northeast Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 7.0, 2015 Errata. (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx)

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Port of Albany Expansion Project City/County: Glenmont/ Albany Sampling Date: 4/5/19

Applicant/Owner: Albany Port Authority State: NY Sampling Point: STP-6W

Investigator(s): T. Wirickx Section, Township, Range: Bethlehem

Landform (hillside, terrace, etc.): Floodplain Local relief (concave, convex, none): Concave Slope %: <1

Subregion (LRR or MLRA): LRR R, MLRA 144A Lat: ____ Long: ____ Datum: NAD 83

Soil Map Unit Name: Urban land (Ur) NWI classification: PEM

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ___ (If no, explain in Remarks.)

Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes X No ___

Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No ___	**Is the Sampled Area within a Wetland?**	**Yes** X **No** ___
Hydric Soil Present?	Yes X No ___		
Wetland Hydrology Present?	Yes X No ___	If yes, optional Wetland Site ID:	Wetland 6

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

___ Surface Water (A1)	X Water-Stained Leaves (B9)
X High Water Table (A2)	___ Aquatic Fauna (B13)
X Saturation (A3)	___ Marl Deposits (B15)
___ Water Marks (B1)	___ Hydrogen Sulfide Odor (C1)
___ Sediment Deposits (B2)	___ Oxidized Rhizospheres on Living Roots (C3)
___ Drift Deposits (B3)	___ Presence of Reduced Iron (C4)
___ Algal Mat or Crust (B4)	___ Recent Iron Reduction in Tilled Soils (C6)
___ Iron Deposits (B5)	___ Thin Muck Surface (C7)
___ Inundation Visible on Aerial Imagery (B7)	___ Other (Explain in Remarks)
___ Sparsely Vegetated Concave Surface (B8)	

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches): ___
Water Table Present?	Yes X	No ___	Depth (inches): 1
Saturation Present? (includes capillary fringe)	Yes X	No ___	Depth (inches): 0

Wetland Hydrology Present? **Yes** X **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point: STP-6W

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
		=Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
		=Total Cover	
Herb Stratum (Plot size: 5')			
1. *Lythrum salicaria*	80	Yes	OBL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	80	=Total Cover	
Woody Vine Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
		=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	80	x 1 =	80
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	80 (A)		80 (B)

Prevalence Index = B/A = 1.00

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** X **No** ___

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point STP-6W

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 3/1	100					Loamy/Clayey	
3-12	10YR 4/1	95	10YR 3/4	5	C	M	Loamy/Clayey	
12-16	10YR 4/1	90	10YR 4/4	10	C	M	Loamy/Clayey	Distinct redox concentrations

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
X Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7)

___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
___ High Chroma Sands (S11) (**LRR K, L)**
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
X Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)
___ Marl (F10) (**LRR K, L**)

Indicators for Problematic Hydric Soils[3]:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (F22)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: ______

Depth (inches): ______

Hydric Soil Present? **Yes** ____ **No** ____

Remarks:

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Fill material (fly ash and bottom ash) functioning as hydric soil

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Port of Albany Expansion Project City/County: Glenmont/ Albany Sampling Date: 4/12/19

Applicant/Owner: Albany Port Authority State: NY Sampling Point: STP-7U

Investigator(s): T. Wirickx Section, Township, Range: Bethlehem

Landform (hillside, terrace, etc.): Floodplain Local relief (concave, convex, none): None Slope %: <1

Subregion (LRR or MLRA): LRR R, MLRA 144A Lat: ______ Long: ______ Datum: NAD 83

Soil Map Unit Name: Udorthents, loamy (Ug) NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ___ (If no, explain in Remarks.)

Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes X No ___

Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ___ No X	**Is the Sampled Area within a Wetland?**	**Yes** ___ **No** X
Hydric Soil Present?	Yes ___ No X		
Wetland Hydrology Present?	Yes ___ No X	If yes, optional Wetland Site ID:	______

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1)
___ Sediment Deposits (B2)
___ Drift Deposits (B3)
___ Algal Mat or Crust (B4)
___ Iron Deposits (B5)
___ Inundation Visible on Aerial Imagery (B7)
___ Sparsely Vegetated Concave Surface (B8)
___ Water-Stained Leaves (B9)
___ Aquatic Fauna (B13)
___ Marl Deposits (B15)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres on Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Thin Muck Surface (C7)
___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

___ Surface Soil Cracks (B6)
___ Drainage Patterns (B10)
___ Moss Trim Lines (B16)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Stunted or Stressed Plants (D1)
___ Geomorphic Position (D2)
___ Shallow Aquitard (D3)
___ Microtopographic Relief (D4)
___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches): ___
Water Table Present?	Yes ___	No X	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (inches): ___

Wetland Hydrology Present? **Yes** ___ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point: STP-7U

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
		=Total Cover	

Sapling/Shrub Stratum (Plot size: 15')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Lonicera morrowii*	20	Yes	FACU
2. *Ribes americanum*	10	Yes	FACW
3. *Rhamnus cathartica*	2	No	FAC
4.			
5.			
6.			
7.			
	32	=Total Cover	

Herb Stratum (Plot size: 5')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Allium vineale*	80	Yes	FACU
2. *Ambrosia artemisiifolia*	30	Yes	FACU
3. *Phragmites australis*	5	No	FACW
4. *Setaria pumila*	2	No	FAC
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	117	=Total Cover	

Woody Vine Stratum (Plot size: 15')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
		=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 25.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	15	x 2 =	30
FAC species	4	x 3 =	12
FACU species	130	x 4 =	520
UPL species	0	x 5 =	0
Column Totals:	149 (A)		562 (B)

Prevalence Index = B/A = 3.77

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ___ **No** X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point STP-7U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 2/1	100					Loamy/Clayey	
4-8	10YR 3/1	100					Sandy	
8-16	10YR 3/2	100					Sandy	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
___ High Chroma Sands (S11) (**LRR K, L)**
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)
___ Marl (F10) (**LRR K, L**)

Indicators for Problematic Hydric Soils[3]:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (F22)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: ______

Depth (inches): ______

Hydric Soil Present? **Yes** ___ **No** X

Remarks:
This data form is revised from Northcentral and Northeast Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 7.0, 2015 Errata. (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx)

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Port of Albany Expansion Project City/County: Glenmont/ Albany Sampling Date: 4/5/19

Applicant/Owner: Albany Port Authority State: NY Sampling Point: STP-7W

Investigator(s): T. Wirickx Section, Township, Range: Bethlehem

Landform (hillside, terrace, etc.): Floodplain Local relief (concave, convex, none): Concave Slope %: <1

Subregion (LRR or MLRA): LRR R, MLRA 144A Lat: ____ Long: ____ Datum: NAD 83

Soil Map Unit Name: Udorthents, loamy (Ug) NWI classification: PEM

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ___ (If no, explain in Remarks.)

Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes X No ___

Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes X No ___	**Is the Sampled Area**
Hydric Soil Present? Yes X No ___	**within a Wetland? Yes** X **No** ___
Wetland Hydrology Present? Yes X No ___	If yes, optional Wetland Site ID: Wetland 7

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

___ Surface Water (A1)	X Water-Stained Leaves (B9)
___ High Water Table (A2)	___ Aquatic Fauna (B13)
___ Saturation (A3)	___ Marl Deposits (B15)
___ Water Marks (B1)	___ Hydrogen Sulfide Odor (C1)
___ Sediment Deposits (B2)	___ Oxidized Rhizospheres on Living Roots (C3)
___ Drift Deposits (B3)	___ Presence of Reduced Iron (C4)
___ Algal Mat or Crust (B4)	___ Recent Iron Reduction in Tilled Soils (C6)
___ Iron Deposits (B5)	___ Thin Muck Surface (C7)
___ Inundation Visible on Aerial Imagery (B7)	___ Other (Explain in Remarks)
___ Sparsely Vegetated Concave Surface (B8)	

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches): ___
Water Table Present?	Yes ___	No X	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (inches): ___

Wetland Hydrology Present? Yes X **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point: STP-7W

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
Herb Stratum (Plot size: 5')			
1. *Phragmites australis*	100	Yes	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	100 =Total Cover		
Woody Vine Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
	=Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	100	x 2 =	200
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	100 (A)		200 (B)

Prevalence Index = B/A = 2.00

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** X **No** ___

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point STP-7W

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR 3/1	95	10YR 3/4	5	C	M	Loamy/Clayey	Distinct redox concentrations
10-16	10YR 3/1	85	10YR 4/6	15	C	M	Loamy/Clayey	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
___ High Chroma Sands (S11) (**LRR K, L)**
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
X Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)
___ Marl (F10) (**LRR K, L**)

Indicators for Problematic Hydric Soils[3]:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (F22)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: ______

Depth (inches): ______

Hydric Soil Present? **Yes** ___ **No** ___

Remarks:
This data form is revised from Northcentral and Northeast Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 7.0, 2015 Errata. (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx)

Fill material (fly ash and bottom ash) functioning as hydric soil

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Port of Albany Expansion Project City/County: Glenmont/ Albany Sampling Date: 4/12/19

Applicant/Owner: Albany Port Authority State: NY Sampling Point: STP-8U1

Investigator(s): T. Wirickx Section, Township, Range: Bethlehem

Landform (hillside, terrace, etc.): Floodplain Local relief (concave, convex, none): None Slope %: <1

Subregion (LRR or MLRA): LRR R, MLRA 144A Lat: ____ Long: ____ Datum: NAD 83

Soil Map Unit Name: Udorthents, loamy (Ug) NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ___ (If no, explain in Remarks.)

Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes X No ___

Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ___	No X	**Is the Sampled Area within a Wetland?** **Yes** ___ **No** X
Hydric Soil Present?	Yes ___	No X	
Wetland Hydrology Present?	Yes ___	No X	If yes, optional Wetland Site ID: ____

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

___ Surface Water (A1)	___ Water-Stained Leaves (B9)
___ High Water Table (A2)	___ Aquatic Fauna (B13)
___ Saturation (A3)	___ Marl Deposits (B15)
___ Water Marks (B1)	___ Hydrogen Sulfide Odor (C1)
___ Sediment Deposits (B2)	___ Oxidized Rhizospheres on Living Roots (C3)
___ Drift Deposits (B3)	___ Presence of Reduced Iron (C4)
___ Algal Mat or Crust (B4)	___ Recent Iron Reduction in Tilled Soils (C6)
___ Iron Deposits (B5)	___ Thin Muck Surface (C7)
___ Inundation Visible on Aerial Imagery (B7)	___ Other (Explain in Remarks)
___ Sparsely Vegetated Concave Surface (B8)	

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches): ___
Water Table Present?	Yes ___	No X	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (inches): ___

Wetland Hydrology Present? **Yes** ___ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point: STP-8U1

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
Sapling/Shrub Stratum (Plot size: 15')			
1. *Lonicera morrowii*	20	Yes	FACU
2. *Ribes americanum*	10	Yes	FACW
3. *Rhamnus cathartica*	2	No	FAC
4.			
5.			
6.			
7.			
	32 =Total Cover		
Herb Stratum (Plot size: 5')			
1. *Solidago canadensis*	50	Yes	FACU
2. *Lysimachia nummularia*	10	No	FACW
3. *Lythrum salicaria*	2	No	OBL
4. *Allium vineale*	2	No	FACU
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	64 =Total Cover		
Woody Vine Stratum (Plot size: 15')			
1. *Celastrus orbiculatus*	2	No	UPL
2. *Vitis sp.*	2	No	UPL
3.			
4.			
	4 =Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33.3% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	2	x 1 =	2
FACW species	20	x 2 =	40
FAC species	2	x 3 =	6
FACU species	72	x 4 =	288
UPL species	4	x 5 =	20
Column Totals:	100 (A)		356 (B)

Prevalence Index = B/A = 3.56

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ___ **No** X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point STP-8U1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 3/1	100					Loamy/Clayey	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
___ High Chroma Sands (S11) (**LRR K, L)**
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)
___ Marl (F10) (**LRR K, L**)

Indicators for Problematic Hydric Soils[3]:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (F22)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: ______

Depth (inches): ______

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

This data form is revised from Northcentral and Northeast Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 7.0, 2015 Errata. (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx)

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Port of Albany Expansion Project City/County: Glenmont/ Albany Sampling Date: 4/12/19

Applicant/Owner: Albany Port Authority State: NY Sampling Point: STP-8W1

Investigator(s): T. Wirickx Section, Township, Range: Bethlehem

Landform (hillside, terrace, etc.): Floodplain Local relief (concave, convex, none): concave Slope %: <1

Subregion (LRR or MLRA): LRR R, MLRA 144A Lat: ____ Long: ____ Datum: NAD 83

Soil Map Unit Name: Udorthents, loamy (Ug) NWI classification: PEM

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ___ (If no, explain in Remarks.)

Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes X No ___

Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes X No ___	**Is the Sampled Area**
Hydric Soil Present? Yes X No ___	**within a Wetland? Yes** X **No** ___
Wetland Hydrology Present? Yes X No ___	If yes, optional Wetland Site ID: Wetland 8

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

___ Surface Water (A1)	X Water-Stained Leaves (B9)	
X High Water Table (A2)	___ Aquatic Fauna (B13)	
X Saturation (A3)	___ Marl Deposits (B15)	
___ Water Marks (B1)	___ Hydrogen Sulfide Odor (C1)	
___ Sediment Deposits (B2)	___ Oxidized Rhizospheres on Living Roots (C3)	
___ Drift Deposits (B3)	___ Presence of Reduced Iron (C4)	
___ Algal Mat or Crust (B4)	___ Recent Iron Reduction in Tilled Soils (C6)	
___ Iron Deposits (B5)	___ Thin Muck Surface (C7)	
___ Inundation Visible on Aerial Imagery (B7)	___ Other (Explain in Remarks)	
___ Sparsely Vegetated Concave Surface (B8)		

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches): ___
Water Table Present?	Yes X	No ___	Depth (inches): 12
Saturation Present? (includes capillary fringe)	Yes X	No ___	Depth (inches): 8

Wetland Hydrology Present? Yes X **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point: STP-8W1

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
		=Total Cover	

Sapling/Shrub Stratum (Plot size: 15')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
		=Total Cover	

Herb Stratum (Plot size: 5')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Phragmites australis*	50	Yes	FACW
2. *Lythrum salicaria*	50	Yes	FACW
3. *Geum rivale*	10	No	OBL
4. *Lysimachia nummularia*	2	No	FACW
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	112	=Total Cover	

Woody Vine Stratum (Plot size: 15')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
		=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	10	x 1 =	10
FACW species	102	x 2 =	204
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	112 (A)		214 (B)

Prevalence Index = B/A = 1.91

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** X **No** ___

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point STP-8W1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 3/2	95	10YR 3/4	5	C	M	Loamy/Clayey	Distinct redox concentrations
8-16	2.5Y 3/2	90	7.5YR 3/4	10	C	M	Loamy/Clayey	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7)

___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
___ High Chroma Sands (S11) (**LRR K, L)**
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
_X_ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)
___ Marl (F10) (**LRR K, L**)

Indicators for Problematic Hydric Soils[3]:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (F22)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: ____________

Depth (inches): ____________

Hydric Soil Present? **Yes** ___ **No** ___

Remarks:

This data form is revised from Northcentral and Northeast Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 7.0, 2015 Errata. (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx)

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Port of Albany Expansion Project City/County: Glenmont/ Albany Sampling Date: 4/12/19

Applicant/Owner: Albany Port Authority State: NY Sampling Point: STP-8U2

Investigator(s): T. Wirickx Section, Township, Range: Bethlehem

Landform (hillside, terrace, etc.): Floodplain Local relief (concave, convex, none): None Slope %: <1

Subregion (LRR or MLRA): LRR R, MLRA 144A Lat: ____ Long: ____ Datum: NAD 83

Soil Map Unit Name: Udorthents, loamy (Ug) NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ___ (If no, explain in Remarks.)

Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes X No ___

Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No ___	**Is the Sampled Area**
Hydric Soil Present?	Yes ___ No X	**within a Wetland?** **Yes** ___ **No** X
Wetland Hydrology Present?	Yes ___ No X	If yes, optional Wetland Site ID: ____

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches): ___
Water Table Present?	Yes ___	No X	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (inches): ___

Wetland Hydrology Present? **Yes** ___ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point: STP-8U2

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Rhamnus cathartica*	40	Yes	FAC
2. *Fraxinus pennsylvanica*	10	No	FACW
3. *Acer saccharinum*	10	No	FACW
4. *Ulmus americana*	10	No	FACW
5.			
6.			
7.			
	70	=Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1. *Fraxinus pennsylvanica*	5	Yes	FACW
2. *Lindera benzoin*	3	Yes	FACW
3. *Lonicera morrowii*	2	Yes	FACU
4.			
5.			
6.			
7.			
	10	=Total Cover	
Herb Stratum (Plot size: 5')			
1. *Leersia virginica*	10	Yes	FACW
2. *Solidago canadensis*	10	Yes	FACU
3. *Danthonia spicata*	10	Yes	UPL
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	30	=Total Cover	
Woody Vine Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
		=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 57.1% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	48	x 2 =	96
FAC species	40	x 3 =	120
FACU species	12	x 4 =	48
UPL species	10	x 5 =	50
Column Totals:	110 (A)		314 (B)

Prevalence Index = B/A = 2.85

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** X **No** ___

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point STP-8U2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR 3/1	100					Loamy/Clayey	
10-16	10YR 3/2	100					Sandy	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ High Chroma Sands (S11) (**LRR K, L)**
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) (**LRR K, L**)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: ______

Depth (inches): ______

Hydric Soil Present? **Yes** ___ **No** X

Remarks:
This data form is revised from Northcentral and Northeast Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 7.0, 2015 Errata. (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx)

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Port of Albany Expansion Project City/County: Glenmont/ Albany Sampling Date: 4/12/19

Applicant/Owner: Albany Port Authority State: NY Sampling Point: STP-8W2

Investigator(s): T. Wirickx Section, Township, Range: Bethlehem

Landform (hillside, terrace, etc.): Floodplain Local relief (concave, convex, none): None Slope %: <1

Subregion (LRR or MLRA): LRR R, MLRA 144A Lat: ____ Long: ____ Datum: NAD 83

Soil Map Unit Name: Udorthents, loamy (Ug) NWI classification: PFO

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ___ (If no, explain in Remarks.)

Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes X No ___

Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No ___	**Is the Sampled Area within a Wetland?** **Yes** X **No** ___
Hydric Soil Present?	Yes X No ___	
Wetland Hydrology Present?	Yes X No ___	If yes, optional Wetland Site ID: Wetland 8

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches): ___
Water Table Present?	Yes X	No ___	Depth (inches): 6
Saturation Present? (includes capillary fringe)	Yes X	No ___	Depth (inches): 0

Wetland Hydrology Present? **Yes** X **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point: STP-8W2

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer saccharinum*	30	Yes	FACW
2. *Fraxinus pennsylvanica*	20	Yes	FACW
3. *Rhamnus cathartica*	10	No	FAC
4.			
5.			
6.			
7.			
	60	=Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1. *Cornus amomum*	15	Yes	FACW
2. *Lindera benzoin*	5	Yes	FACW
3. *Fraxinus pennsylvanica*	2	No	FACW
4.			
5.			
6.			
7.			
	22	=Total Cover	
Herb Stratum (Plot size: 5')			
1. *Carex sp.*	30	Yes	FACW
2. *Geum rivale*	5	No	FACW
3. *Lysimachia nummularia*	5	No	FACW
4. *Iris versicolor*	5	No	OBL
5. *Lythrum salicaria*	2	No	OBL
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	47	=Total Cover	
Woody Vine Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
		=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	7	x 1 =	7
FACW species	112	x 2 =	224
FAC species	10	x 3 =	30
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	129 (A)		261 (B)

Prevalence Index = B/A = 2.02

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** X **No** ___

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point STP-8W2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-9	10YR 3/1	90	10YR 3/4	10	C	M	Loamy/Clayey	Distinct redox concentrations
9-16	10YR 4/1	85	7.5YR 3/4	15	C	M	Loamy/Clayey	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
X Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7)

___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
___ High Chroma Sands (S11) (**LRR K, L)**
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
X Depleted Matrix (F3)
X Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)
___ Marl (F10) (**LRR K, L**)

Indicators for Problematic Hydric Soils[3]:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (F22)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: ________

Depth (inches): ________

Hydric Soil Present? **Yes** ____ **No** ____

Remarks:
This data form is revised from Northcentral and Northeast Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 7.0, 2015 Errata. (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx)

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Port of Albany Expansion Project City/County: Glenmont/ Albany Sampling Date: 4/12/19

Applicant/Owner: Albany Port Authority State: NY Sampling Point: STP-9U

Investigator(s): T. Wirickx Section, Township, Range: Bethlehem

Landform (hillside, terrace, etc.): Floodplain Local relief (concave, convex, none): None Slope %: <1

Subregion (LRR or MLRA): LRR R, MLRA 144A Lat: ____ Long: ____ Datum: NAD 83

Soil Map Unit Name: Wayland soils complex (Wo) NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ___ (If no, explain in Remarks.)

Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes X No ___

Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

	Yes	No
Hydrophytic Vegetation Present?		X
Hydric Soil Present?	X	
Wetland Hydrology Present?		X

Is the Sampled Area within a Wetland? **Yes** ___ **No** X

If yes, optional Wetland Site ID: ____

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

	Yes	No	Depth (inches)
Surface Water Present?		X	
Water Table Present?		X	
Saturation Present? (includes capillary fringe)		X	

Wetland Hydrology Present? **Yes** ___ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point: STP-9U

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
		=Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
		=Total Cover	
Herb Stratum (Plot size: 5')			
1. *Poa pratensis*	20	Yes	FACU
2. *Solidago canadensis*	10	Yes	FACU
3. *Lythrum salicaria*	2	No	OBL
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	32	=Total Cover	
Woody Vine Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
		=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	2	x 1 = 2
FACW species	0	x 2 = 0
FAC species	0	x 3 = 0
FACU species	30	x 4 = 120
UPL species	0	x 5 = 0
Column Totals:	32 (A)	122 (B)

Prevalence Index = B/A = 3.81

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ___ **No** X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point STP-9U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features				Texture	Remarks
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]		
0-6	10YR 3/1	100					Sandy	
6-16	10YR 3/1	90	7.5YR 3/4	10	C	M	Loamy/Clayey	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ High Chroma Sands (S11) (**LRR K, L)**
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) (**LRR K, L**)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: ______

Depth (inches): ______

Hydric Soil Present? **Yes** X **No** ___

Remarks:
This data form is revised from Northcentral and Northeast Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 7.0, 2015 Errata. (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx)

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Port of Albany Expansion Project City/County: Glenmont/ Albany Sampling Date: 4/12/19

Applicant/Owner: Albany Port Authority State: NY Sampling Point: STP-9W

Investigator(s): T. Wirickx Section, Township, Range: Bethlehem

Landform (hillside, terrace, etc.): Floodplain Local relief (concave, convex, none): None Slope %: <1

Subregion (LRR or MLRA): LRR R, MLRA 144A Lat: ____ Long: ____ Datum: NAD 83

Soil Map Unit Name: Wayland soils complex (Wo) NWI classification: PEM

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ___ (If no, explain in Remarks.)

Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes X No ___

Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No ___	**Is the Sampled Area within a Wetland?** **Yes** X **No** ___
Hydric Soil Present?	Yes X No ___	
Wetland Hydrology Present?	Yes X No ___	If yes, optional Wetland Site ID: Wetland 9

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches): ___
Water Table Present?	Yes X	No ___	Depth (inches): 8
Saturation Present? (includes capillary fringe)	Yes X	No ___	Depth (inches): 6

Wetland Hydrology Present? **Yes** X **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point: STP-9W

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
		=Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
		=Total Cover	
Herb Stratum (Plot size: 5')			
1. *Lythrum salicaria*	30	Yes	OBL
2. *Salix sp.*	10	Yes	FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	40	=Total Cover	
Woody Vine Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
		=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	30	x 1 =	30
FACW species	10	x 2 =	20
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	40 (A)		50 (B)

Prevalence Index = B/A = 1.25

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** X **No** ___

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point STP-9W

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 3/1	85	10YR 3/4	15	C	M	Sandy	Distinct redox concentrations
4-16	2.5Y 3/1	90	7.5YR 3/4	10	C	M	Loamy/Clayey	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- X Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ High Chroma Sands (S11) (**LRR K, L)**
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) (**LRR K, L**)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** ___ **No** ___

Remarks:
This data form is revised from Northcentral and Northeast Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 7.0, 2015 Errata. (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx)

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Port of Albany Expansion Project City/County: Glenmont/ Albany Sampling Date: 4/12/19

Applicant/Owner: Albany Port Authority State: NY Sampling Point: UPL-U

Investigator(s): T. Wirickx Section, Township, Range: Bethlehem

Landform (hillside, terrace, etc.): Floodplain Local relief (concave, convex, none): None Slope %: <1

Subregion (LRR or MLRA): LRR R, MLRA 144A Lat: ____ Long: ____ Datum: NAD 83

Soil Map Unit Name: Wayland soils complex (Wo) NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ___ (If no, explain in Remarks.)

Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes X No ___

Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No ___	**Is the Sampled Area within a Wetland?** **Yes** ___ **No** X
Hydric Soil Present?	Yes ___ No X	
Wetland Hydrology Present?	Yes ___ No X	If yes, optional Wetland Site ID: ____

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches): ____
Water Table Present?	Yes ___	No X	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (inches): ____

Wetland Hydrology Present? **Yes** ___ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point: UPL-U

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Populus deltoides*	10	Yes	FAC
2. *Acer saccharinum*	10	Yes	FACW
3. *Fraxinus pennsylvanica*	5	No	FACW
4. *Rhamnus cathartica*	2	No	FAC
5.			
6.			
7.			
	27	=Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1. *Lonicera morrowii*	5	Yes	FACU
2. *Lindera benzoin*	2	Yes	FACW
3.			
4.			
5.			
6.			
7.			
	7	=Total Cover	
Herb Stratum (Plot size: 5')			
1. *Alliaria petiolata*	30	Yes	FACU
2. *Leersia virginica*	30	Yes	FACW
3. *Hackelia virginiana*	10	No	FACU
4. *Ageratina altissima*	10	No	FACU
5. *Rubus occidentalis*	2	No	UPL
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	82	=Total Cover	
Woody Vine Stratum (Plot size: 15')			
1. *Celastrus orbiculatus*	20	Yes	UPL
2.			
3.			
4.			
	20	=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 57.1% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	47	x 2 =	94
FAC species	12	x 3 =	36
FACU species	55	x 4 =	220
UPL species	22	x 5 =	110
Column Totals:	136 (A)		460 (B)

Prevalence Index = B/A = 3.38

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** X **No** ___

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point UPL-U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 3/1	100					Loamy/Clayey	
3-26	10YR 2/1	100					Loamy/Clayey	Black 10YR 2-/1-

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
___ High Chroma Sands (S11) (**LRR K, L)**
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)
___ Marl (F10) (**LRR K, L**)

Indicators for Problematic Hydric Soils[3]:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (F22)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: ______

Depth (inches): ______

Hydric Soil Present? **Yes** ___ **No** X

Remarks:
This data form is revised from Northcentral and Northeast Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 7.0, 2015 Errata. (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx)

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Port of Albany Expansion Project City/County: Glenmont/ Albany Sampling Date: 4/12/19

Applicant/Owner: Albany Port Authority State: NY Sampling Point: UPL-U1

Investigator(s): T. Wirickx Section, Township, Range: Bethlehem

Landform (hillside, terrace, etc.): Floodplain Local relief (concave, convex, none): None Slope %: <1

Subregion (LRR or MLRA): LRR R, MLRA 144A Lat: ______ Long: ______ Datum: NAD 83

Soil Map Unit Name: Wayland soils complex (Wo) NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ___ (If no, explain in Remarks.)

Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes X No ___

Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ___	No X
Hydric Soil Present?	Yes ___	No X
Wetland Hydrology Present?	Yes ___	No X

Is the Sampled Area within a Wetland? **Yes** ___ **No** X

If yes, optional Wetland Site ID: ______

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

___ Surface Water (A1)	___ Water-Stained Leaves (B9)
___ High Water Table (A2)	___ Aquatic Fauna (B13)
___ Saturation (A3)	___ Marl Deposits (B15)
___ Water Marks (B1)	___ Hydrogen Sulfide Odor (C1)
___ Sediment Deposits (B2)	___ Oxidized Rhizospheres on Living Roots (C3)
___ Drift Deposits (B3)	___ Presence of Reduced Iron (C4)
___ Algal Mat or Crust (B4)	___ Recent Iron Reduction in Tilled Soils (C6)
___ Iron Deposits (B5)	___ Thin Muck Surface (C7)
___ Inundation Visible on Aerial Imagery (B7)	___ Other (Explain in Remarks)
___ Sparsely Vegetated Concave Surface (B8)	

Secondary Indicators (minimum of two required)

___ Surface Soil Cracks (B6)
___ Drainage Patterns (B10)
___ Moss Trim Lines (B16)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Stunted or Stressed Plants (D1)
___ Geomorphic Position (D2)
___ Shallow Aquitard (D3)
___ Microtopographic Relief (D4)
___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches): ___
Water Table Present?	Yes ___	No X	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (inches): ___

Wetland Hydrology Present? **Yes** ___ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point: UPL-U1

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Populus deltoides*	15	Yes	FAC
2. *Acer saccharinum*	2	No	FACW
3.			
4.			
5.			
6.			
7.			
	17	=Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1. *Lindera benzoin*	20	Yes	FACW
2.			
3.			
4.			
5.			
6.			
7.			
	20	=Total Cover	
Herb Stratum (Plot size: 5')			
1. *Hackelia virginiana*	20	Yes	FACU
2. *Ageratina altissima*	20	Yes	FACU
3. *Solidago canadensis*	10	No	FACU
4. *Alliaria petiolata*	5	No	FACU
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	55	=Total Cover	
Woody Vine Stratum (Plot size: 15')			
1. *Celastrus orbiculatus*	30	Yes	UPL
2.			
3.			
4.			
	30	=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 40.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	22	x 2 =	44
FAC species	15	x 3 =	45
FACU species	55	x 4 =	220
UPL species	30	x 5 =	150
Column Totals:	122 (A)		459 (B)

Prevalence Index = B/A = 3.76

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ___ **No** X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point UPL-U1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 3/1	100					Loamy/Clayey	
2-26	10YR 2/1	100					Loamy/Clayey	Black 10YR 2-/1-

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7)

___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
___ High Chroma Sands (S11) (**LRR K, L)**
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)
___ Marl (F10) (**LRR K, L**)

Indicators for Problematic Hydric Soils[3]:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (F22)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: ____________

Depth (inches): ____________

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

This data form is revised from Northcentral and Northeast Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 7.0, 2015 Errata. (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx)

APPENDIX D

Photograph of Wetland 1 near STP-1W1

Photograph of Wetland 1 near STP-1W2

Photograph of Wetland 3 near STP-3W1

Photograph of Wetland 4 near STP-4W1

PORT OF ALBANY EXPANSION PROJECT
WETLANDS AND WATERWAYS DELINEATION PHOTOGRAPHS

Photograph of Wetland 5 near STP-5W1

Photograph of Wetland 6 near STP-6W1

PORT OF ALBANY EXPANSION PROJECT
WETLANDS AND WATERWAYS DELINEATION PHOTOGRAPHS

Photograph of Wetland 7 near STP-7W1

Photograph of Wetland 8 near STP-8W1

PORT OF ALBANY EXPANSION PROJECT
WETLANDS AND WATERWAYS DELINEATION PHOTOGRAPHS

Photograph of Wetland 8 near STP-8W2

Photograph of Wetland 9 near STP-9W1

Photograph of upland area UPL-U

Photograph of upland area UPL-U1

Photograph of Stream 1 (Hudson River) in vicinity of PSA

Photograph of Stream 2 (Normans Kill) in vicinity of PSA

APPENDIX I

TRAFFIC IMPACT STUDY

TRAFFIC IMPACT STUDY

FOR THE

PORT OF ALBANY EXPANSION PROJECT

ALBANY, NEW YORK

MAY 14, 2019
(Revised June 28, 2019)

PREPARED FOR:

PORT OF ALBANY

PREPARED BY:

McFarland Johnson

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MJ Project No. 18437.00

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APPENDIX C	**SYNCHRO ANALYSIS PRINTOUTS**
APPENDIX D	**SIGNAL WARRANT WORKSHEETS**

INTRODUCTION

McFarland Johnson, Inc. (MJ) has prepared the following Traffic Impact Study (TIS) for the proposed development on the property known as Beacon Island in the Town of Bethlehem, Albany County, New York. The proposed industrial development is the expansion of the Port of Albany and will be constructed along the east side of River Road/NYS Route 144 along the Hudson River, south of the existing Port of Albany site. See Figure 1 for the Project Location Map.

The proposed project will be developed on approximately 77 acres within 81.6 acres of vacant, undeveloped land in the Heavy Industrial (I) zoning district. At this time, a specific tenant or end user is unknown and therefore, in order to satisfy the State Environmental Quality Review Act (SEQRA), a concept plan was developed that represents the maximum worst-case scenario from a traffic standpoint was used as the basis for this TIS. This concept plan consists of a single 1,130,000 GSF, two-level distribution center/warehouse with associated internal driveways, parking areas, landscaped areas, utilities and stormwater infrastructure. For the purposes of this study, the project's traffic impact was analyzed in three-phases of development, with Phase I consisting of a 300,000 GSF of building space, Phase II consisting of a 600,000 GSF and Phase III representing the Full Build scenario of 1,130,000 GSF. The project's concept site plan, as depicted in Figure 2, shows two access points to the site. A 2-lane entrance driveway to the site from River Road for employees and car traffic, and truck and rail access from the north via South Port Road by way of two separate proposed bridges crossing Normans kill Creek. One bridge for vehicles and one for rail cars connect to the on-site roadway and rail network respectively. It has been assumed that the maximum build of the 1,130,000 square feet could occur over a ten-year period.

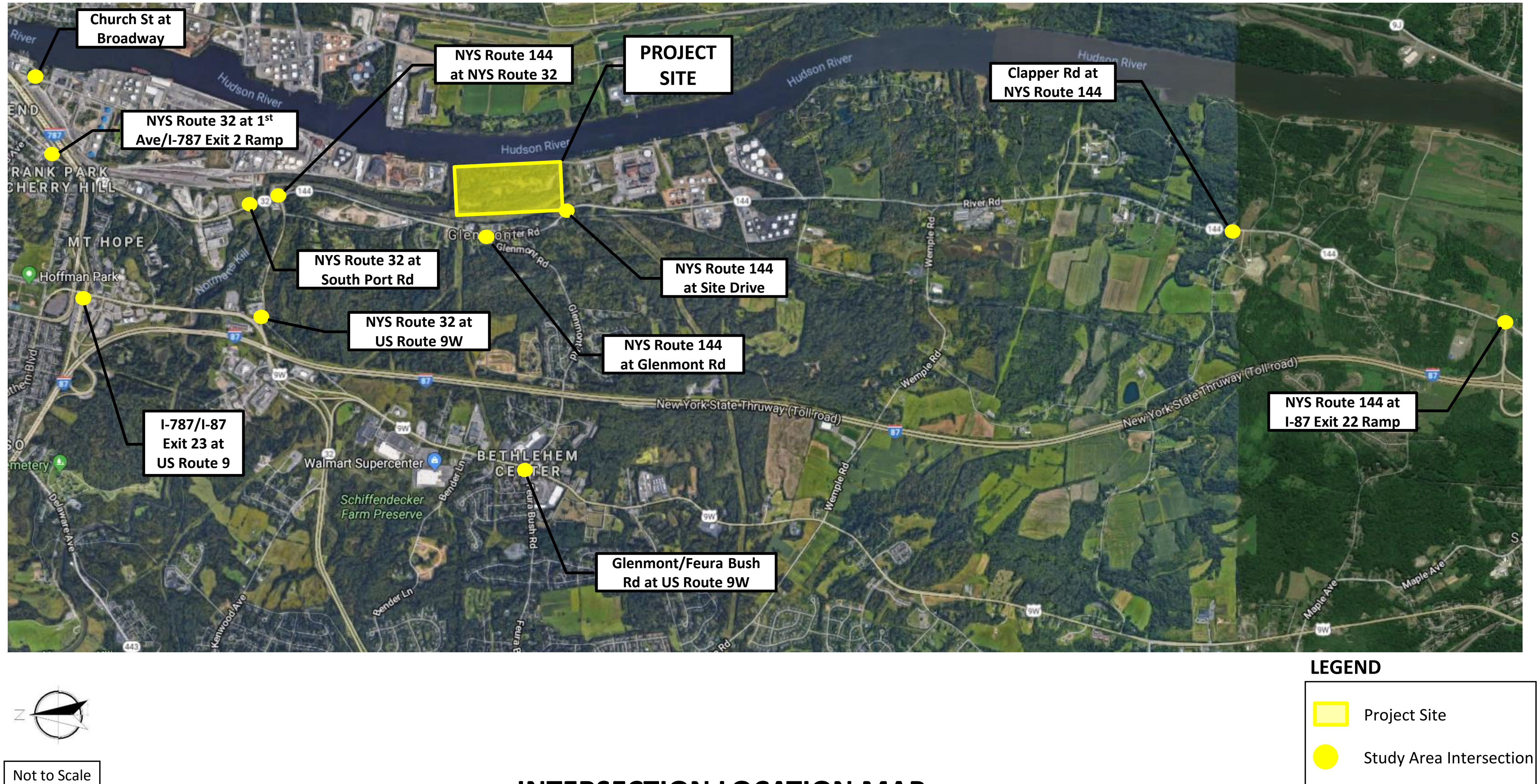
Scope of the Study

The purpose of this study is to evaluate existing and the maximum worst-case scenario future traffic operations within the study area. The analysis completed by MJ evaluated traffic operations within the Study Area during weekday morning and evening peak hours for 2019 Existing Conditions as well as the 2029 Full Build and phased development that includes Background Conditions.

Build Conditions were analyzed to determine the impacts, if any, associated with the proposed distribution center/ warehouse. Based on initial project scoping discussions with the Town of Bethlehem Planning Board and the New York State Department of Transportation, the traffic study area includes the following intersections:

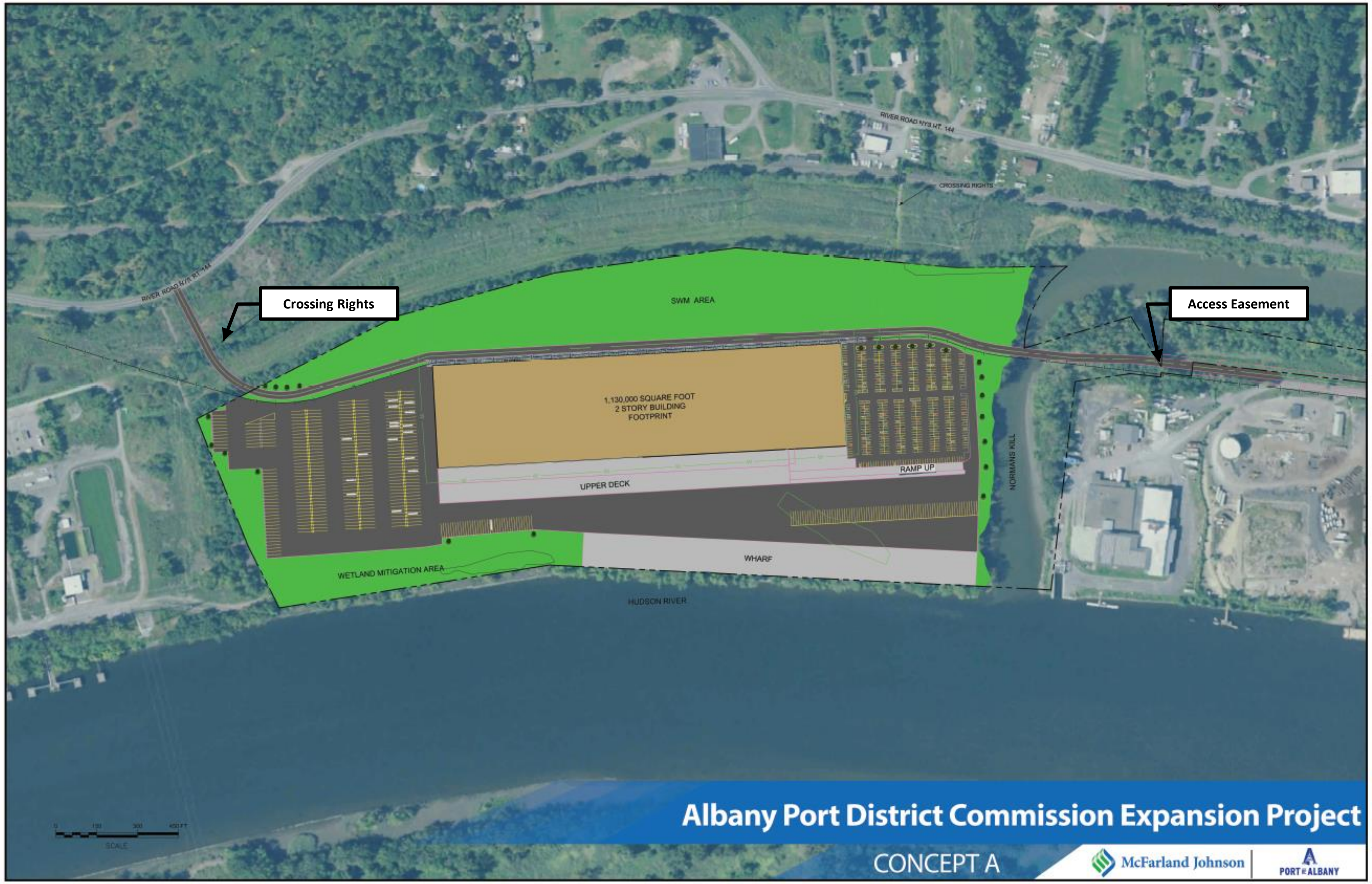
- NYS Route 32 at First Avenue/I-787 Exit 2 Ramp *(Signalized)*
- NYS Route 32 at US Route 9W *(Signalized)*
- NYS Route 32 at South Port Road *(Signalized)*
- NYS Route 144 at I-87 Exit 22 Ramp *(Un-Signalized)*
- NYS Route 144 at Glenmont Road *(Un-Signalized)*
- NYS Route 144 at NYS Route 32 *(Un-Signalized)*
- Church Street at Broadway *(Un-signalized)*
- Glenmont/Feura Bush Road at US Route 9W *(Signalized)*
- Clapper Road at NYS Route 144 *(Un-signalized)*
- I-787/I-87 Exit 23 Interchange at US Route 9W (*Signalized)*

Descriptions of the existing physical conditions within the roadway corridor are presented in the following narratives.



INTERSECTION LOCATION MAP

Not to Scale



Conceptual Site Layout Plan

EXISTING CONDITIONS

Evaluation of the existing and future traffic conditions within the Study Area requires an understanding of the existing transportation system. Data such as roadway geometrics, traffic signal timings and peak hour traffic volumes provide the basis for a thorough understanding of existing conditions, and the requisite data necessary to provide projections of future traffic conditions typical under the Build scenarios.

Existing Roadway Network

The project is located on the east side of River Road/NYS Route 144 along the Hudson River, south of the existing Port of Albany. River Road/NYS Route 144 is a state-maintained urban minor arterial providing north-south access from the City of Albany to land parcels along the west side of the Hudson River. Land use in the immediate vicinity is primarily industrial to the north and south of the site. There are a higher percentage of truck traffic that utilize this road due to the land uses along the roadway corridor. Figure 3 show the geometry and traffic control type for the existing study area intersections and descriptions of these intersections are below.

<u>No. 1 – NYS Route 32 (S. Pearl Street) at 1st Avenue/I-787 Exit 2 Ramp</u>

This intersection is an offset 4-way intersection operating under an actuated traffic signal. The northbound and southbound NYS Route 32 approaches and the eastbound 1st Avenue approach each consist of a single 12' lane for shared travel movements. No shoulder is present. The westbound I-787 Exit 2 Ramp approach consists of a 16' exclusive left-turn lane and a 16' shared through/right-turn lane with 6' shoulders and split signal timing with 1st Street. The posted speed limit is 25 mph for the north, south, and eastbound approaches. No speed limit signs are posted for the westbound approach. All approaches include curbed sidewalks, push-button operated pedestrian signal poles, and crosswalk striping.

<u>No. 2 – NYS Route 32 (Corning Hill Road) at US Route 9W</u>

This intersection is a 3-legged, intersection operating under an actuated traffic signal. The northbound US Route 9W approach consists of two 12' through lanes with a 6' shoulder and a yield-controlled slip right-turn lane, while the southbound US Route 9W approach consists of a 12' exclusive permissive-protected left-turn lane and two 12' through lanes with a 7' shoulder. The westbound NYS Route 32 approach consists of an exclusive left-turn lane and a separate yield-controlled slip right-turn lane. Both slip right-turn lanes are 18' wide with 5' shoulders. US Route 9W and NYS Route 32 both have a posted speed limit of 45 mph. This intersection does not have accommodations for pedestrians.

No. 3 – NYS Route 32 at South Port Road

This intersection is a 'T' type, 3-legged intersection operating under a semi-actuated traffic signal. The northbound and southbound NYS Route 32 approaches and the westbound South Port Road approach each consist of a single 12' lane for shared travel movements. The posted speed limit is 30 mph for each approach. This intersection does not have accommodations for pedestrians and has enlarged shoulder radii to accommodate the high percentage of truck traffic.

No. 4 – NYS Route 144 (River Road) at I-87 Exit 22 Ramp

This is a 'T' type, 3-legged intersection operating under stop sign control for the eastbound I-87 Exit 22 Ramp approach. The northbound NYS Route 144 approach consists of a single lane for shared travel movements while the southbound approach consists of a through lane and a yield-controlled slip right-turn lane. The eastbound I-87 Exit 22 Ramp approach consists of a left-turn lane and a stop sign controlled slip right-turn lane. The posted speed limit for NYS Route 144 is 55 mph. There is no speed limit posted for the I-87 Exit 22 Ramp. There are no accommodations for pedestrians. All lanes feature 12' lanes and 6' shoulders except the slip right-turn lanes, which have 22' lanes with a 12' shoulder.

No. 5 – NYS Route 144 (River Road) at Glenmont Road

This is a four-way intersection operating under stop sign control on the eastbound Glenmont Road approach and on the westbound Old River Road Approach. All approaches consist of a single lane for shared travel movements. The posted speed limit is 55 mph on NYS Route 144 and 40 mph on Glenmont Road. Old River Road is a low volume road runs that parallel to River Road and has a sharp 90-degree bend at the

intersection. No volumes were recorded for Old River Road. For the purposes of this traffic study, the intersection was treated as a 3-legged intersection. The intersection does not provide accommodations for pedestrians. The eastbound approach consists of a 10' lane with a 5' shoulder, while the north and southbound approaches have a 12' lane with a 5' shoulder.

<u>No. 6 – NYS Route 144 (River Road) at NYS Route 32 (Corning Hill Road)</u>

This intersection is a 'T' type, 3-legged intersection with the eastbound approach being stop sign-controlled and the north and southbound approaches being free flow. The northbound and southbound approaches consist of a single lane for shared travel movements while the eastbound approach consists of separate left and right-turn lanes. The posted speed limit is 45 mph for the NYS Route 32 and 55 mph for NYS Route 144. There are no accommodations for pedestrians at this intersection. All approaches consist of a 12' travel lane with 9' shoulders at the intersection.

<u>No. 7 – Church Street at Broadway</u>

This is a 'T' type, 3-legged intersection operating under stop sign control for the westbound Broadway approach. The northbound Church Street approach consists of a single lane for shared through and right-turn movements while the southbound Church Street approach provides an exclusive left-turn lane and a separate through lane. The westbound Broadway approach consists of a left-turn lane and a yield-controlled slip right-turn lane. The posted speed limit is 30 mph and the intersection does not have accommodations for pedestrians. All approaches have 12' lanes with 4' shoulders except the slip right-turn lane, which features a 20' travel lane with a 5' shoulder.

<u>No. 8 – Glenmont/Feura Bush Road at US Route 9W</u>

This intersection is a 4-legged intersection operating under an actuated, uncoordinated traffic signal. The northbound and westbound approaches each consist of a single lane for all movements, while the southbound approach has a dedicated right-turn lane and a shared lane for through and left-turn movements. The eastbound approach consists of a dedicated left-turn lane and a shared lane for through and right-turn movements. Both the northbound and westbound approach include curbed sidewalks, push-button operated pedestrian signal poles, and crosswalk striping. It should be noted that this signalized intersection will be converted to a hybrid 2-lane roundabout, with construction estimated to be complete by the Spring of 2021.

No. 9 – Clapper Road at NYS Route 144 (River Road)

This is a 'T' type, 3-legged intersection consisting of a stop sign controlled eastbound approach for Clapper Road and free flow for NYS Route 144. There is a residential driveway opposite Clapper Road. Clapper Road is a local road running east-west between NYS Route 144 and US Route 9W. The posted speed limit for Clapper Road is 30 mph and 55 mph for NYS Route 144. The north and southbound approaches feature a 12' travel lane with a 6' shoulder, while Clapper Road lacks pavement striping and dedicated travel lanes.

No. 10 – I-787/I-87 Exit 23 Interchange at US Route 9W

This is a four-phase actuated signalized interchange for traffic entering and exiting I-87 to US Route 9W via exit 23. This interchange consists of two signalized intersections which run on a single signal controller, with one three-legged intersection at the I-87 westbound on-ramp and the other at the I-87 eastbound off-ramp. The first intersection consists of a westbound enter only on-ramp, a northbound approach providing both left-through and through only lanes, and a southbound approach with a right-through and through only lane. The second intersection consists of the exit only off ramp with a yield controlled channelized right turn lane and dedicated left turn lane onto US Route 9W northbound. Both the northbound and southbound approaches provide two through only lanes. There are no accommodations for pedestrians. The north and southbound approaches, as well as the eastbound left-turn movement, feature 12' travel lanes with a 4' shoulder, while the off ramp's channelized right turn lane consists of a 16' travel lane with a 4' shoulder.

Traffic Data Collection

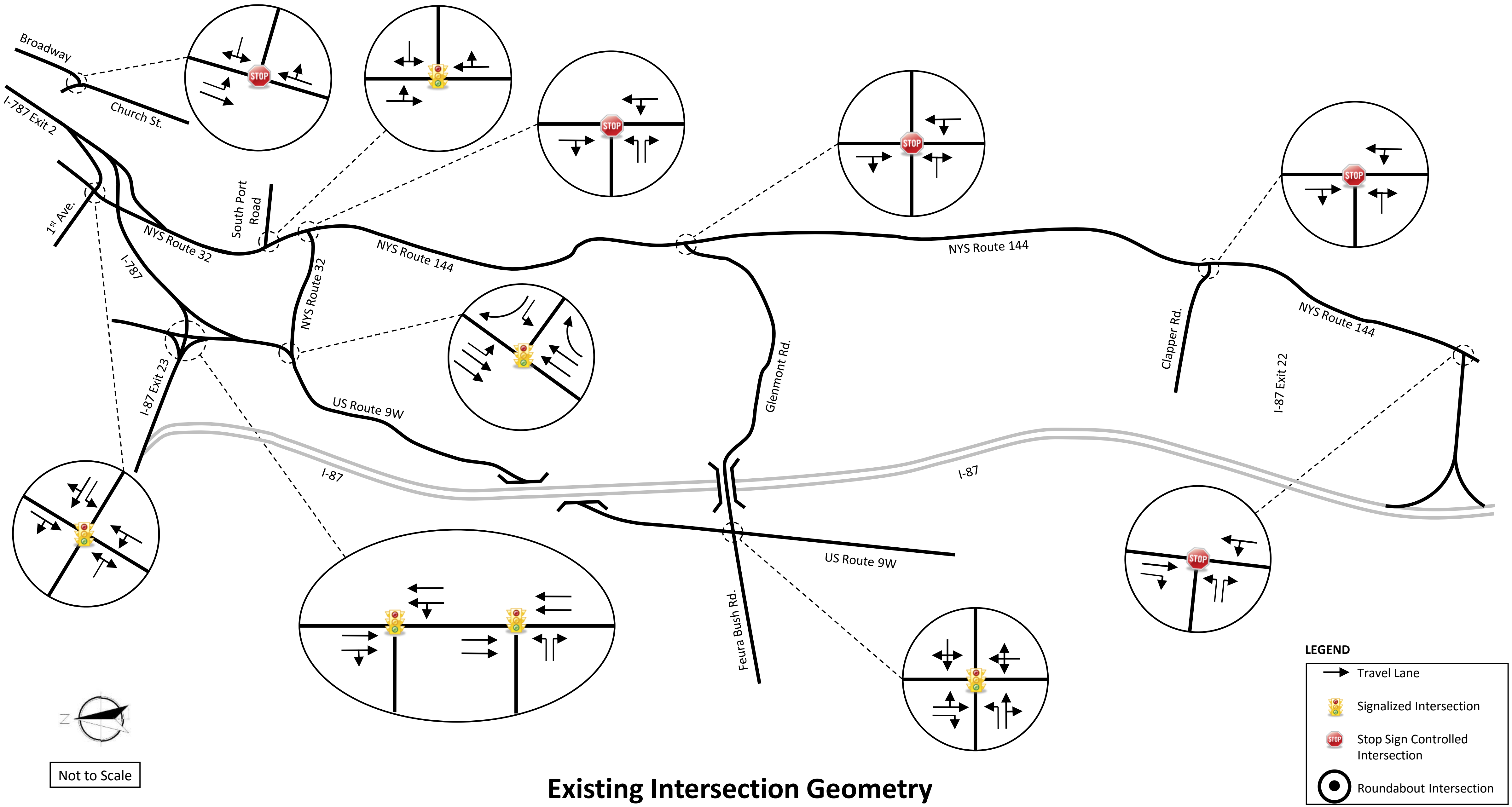
Existing traffic volumes for the study area intersections were established for this project by performing manual turning movement counts (TMC). Traffic counts were video recorded from 7:00 to 9:00 AM and 4:00 to 6:00 PM on Tuesday, February 5, 2019. Additional data was recorded during the same time frames on Tuesday, February 26, 2019. In addition to this data, an automatic traffic recorder was placed on NYS Route 144 (River Road) near the proposed project site from Monday-Friday to continuously collect directional traffic volumes, vehicle classifications, and vehicle speed data. This information was used to verify the peak hours recorded from the TMC data and is included in Appendix A. Because of the varied distance between study intersections, the peak hour of traffic was taken from the TMC data for each individual intersection that was counted to ensure the peak volumes were analyzed at each intersection. These volumes were used to compute the 2019 Existing Conditions for the traffic study and the TMC summary data sheets are included in Appendix A.

In addition to the TMC data, a field review was conducted of the proposed study area. During the visit, information regarding signal timings, peak hour queue lengths, existing pedestrian signage, and auxiliary pedestrian safety devices was recorded and used to more accurately model the existing conditions for the traffic study.

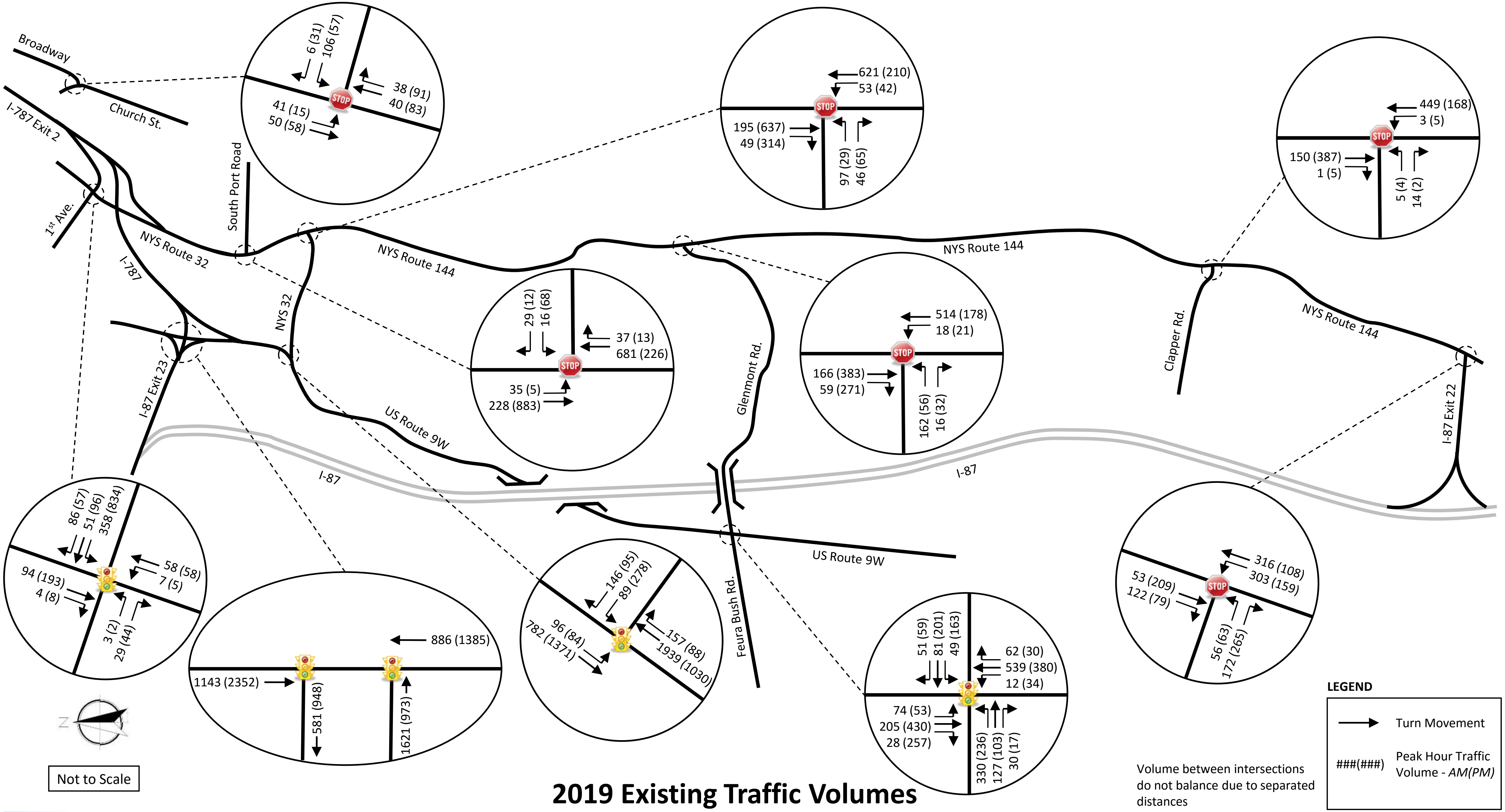
2019 Existing Traffic Volumes

The 2019 traffic volumes in the study area were established, verified for accuracy, and are shown in Figure 4. To determine if the TMCs required adjustment due to seasonal variation, a seasonal adjustment factor data was obtained from the New York State Department of Transportation - Highway Data Services Bureau (NYSDOT). NYSDOT has developed seasonal adjustment factors based on three land-use classifications, urban, suburban and recreational. The study area for this proposed development is classified as urban and a factor of 0.944 was used to adjust the collected data to represent an average day for both the AM and PM peak hours, resulting in a 6% increase in the counted traffic. Available historic count data from NYSDOT and previously completed traffic studies in the area were reviewed to confirm this seasonal adjustment was appropriate. These volumes, 2019 Existing Traffic Volumes (see Figure 4) were analyzed and are included in the appendix.

Analysis of the base condition allows the TIS to develop a comparison to future conditions and enables the study to calibrate the traffic model to mimic the present real-life operations that are observed.



Existing Intersection Geometry



2019 Existing Traffic Volumes

FIGURE 4

NO-BUILD CONDITIONS

The 2019 existing traffic volumes were grown by an annual background growth rate of 0.5% per year for a total growth of 5.0% to create the 2029 Background traffic volumes. The growth rate was established by regression analysis and comparing average annual daily traffic data published by NYSDOT for various years within the project study area. This analysis showed that the area's traffic volumes have been relatively flat with 0-0.5% annual growth over the past 10-15 years; therefore, a 0.5% annual growth rate was applied that will accurately model future traffic in the area. The regression analysis calculations are included in Appendix B and the background growth rate will be sent to the NYSDOT for review.

The Town of Bethlehem and NYSDOT were contacted to determine if additional background traffic from any other developments and/or roadway projects within the study area currently under review or approved should be included in the study. The town noted the following potential future developments in the area: the Gateway Commerce Center, the Beacon Heights Senior Community, a convenience store/gas station to be built at 194 River Road, the Wiggand/Grady Conservation Subdivision, Kenwood Commons along Route 9W, and a commercial shopping plaza across from the NYS Thruway Authority Building. Of these, only the Gateway Commerce Center has had a traffic study competed and received site plan approval from the town.

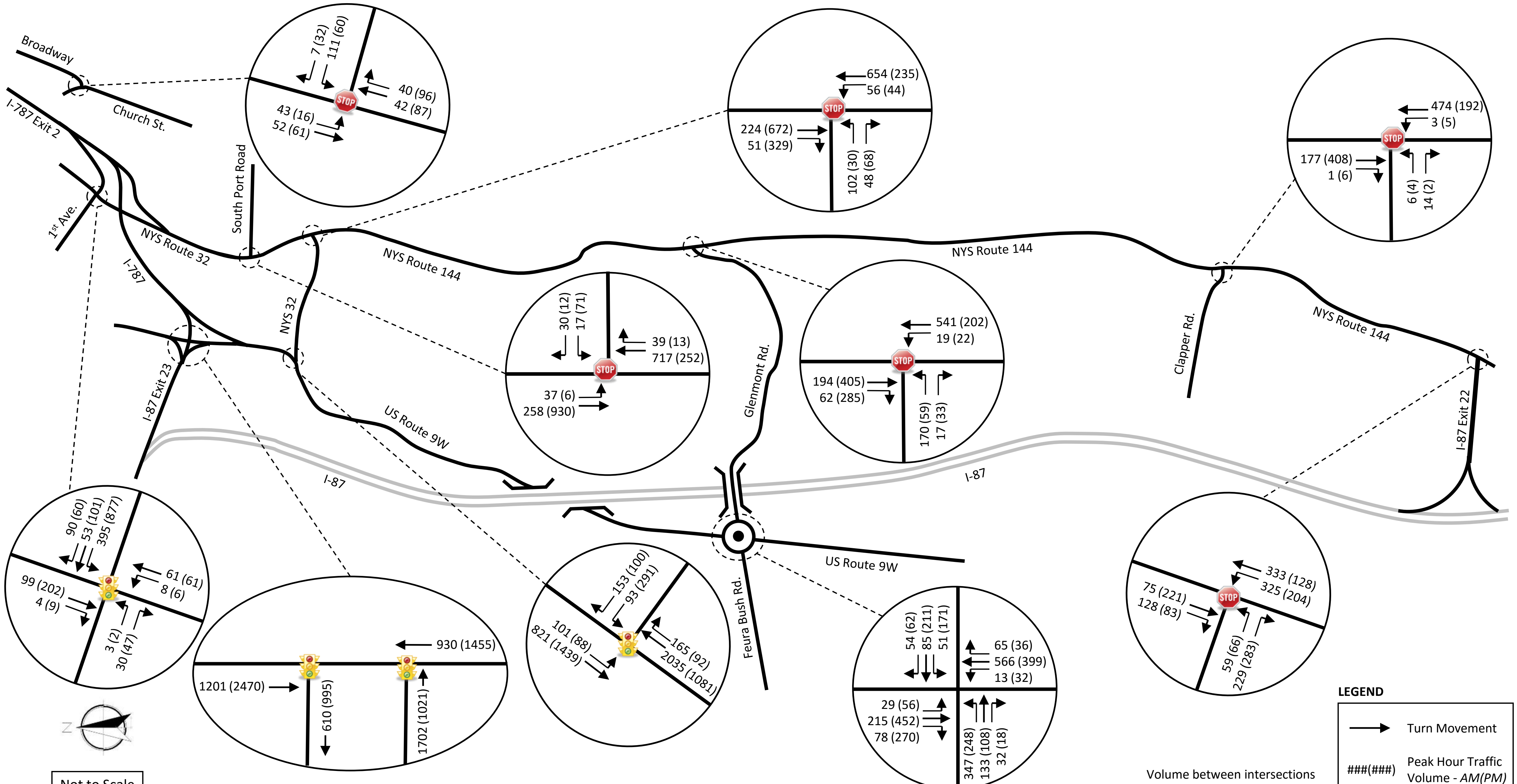
The traffic impact study for the Gateway Commerce Center were used to incorporate the anticipated traffic generated by this site within the study area. Included in Appendix B is the trip generation figures from the Traffic Impact Study completed by CME.

The Beacon Heights Senior Community project will be located off of River Road, Anders Lane and Glenmont Road, consisting of a two-story 89,000 square foot, 72 unit assisted living facility with parking. A two-story, 20,000 square foot commercial building with additional parking is also proposed. Due to the conceptual state of the project and the minimal traffic generated by this type of development, it was determined that the existing background growth rate will accommodate any nominal traffic associated with this project should this development be constructed and operational by 2029.

The convenience store/gas station located at 194 River Road will consist of a roughly 2,300 square foot mixed-use building, with a total of 8 gas pumps. This project will likely have minimal to no impact on traffic as the majority of the traffic would be pass-by traffic, and it is assumed that a traffic analysis was not required for the project, and as such does not warrant inclusion in this study.

Due to the location, type of development, and conceptual state of these project without any traffic studies completed at this time, it was determined that the existing background growth rate will accommodate any nominal traffic associated with the remaining projects noted (Wiggand/Grady Conservation Subdivision, Kenwood Commons along Route 9W, and a commercial shopping plaza across from the NYS Thruway Authority Building) should some of these developments be constructed and operational by 2029.

The 2029 Background traffic volumes shown in Figure 5 include existing traffic data, the proposed traffic volumes from the Gateway Commerce Center and annual background traffic growth. These "Background" traffic volumes are used as a base upon which to add the proposed development's traffic.



2029 Background Traffic Volumes

BUILD CONDITIONS

Trip Distribution

The projected trip distribution model for this proposed project was established for all vehicles based on distributions from the existing Port of Albany site and taking into consideration the proposed new southern driveway onto NYS Route 144. This distribution was reviewed by the Town's Consultant Engineer and compared with the previous study completed for the site (Beacon Harbor 2009) to compare the proposed traffic distributions, which were relatively consistent. Figure 6 shows the calculated trip distribution percentages for the proposed development's access drive onto NYS Route 144 during the weekday morning and evening peak hours. These trip distribution percentages were used to assign the trips generated by the proposed project.

Trip Generation

The proposed development is scheduled to be completed by 2029 over three phases. For analysis purposes, site generated traffic was based on the current Port of Albany's traffic generation. A traffic generation rate was calculated for the existing Port on a peak hour trip per building square foot basis. That site-specific rate was applied to the proposed build-out of the site for Phase I, II and III scenarios. The proposed trip generation volumes are comparable to the Institute of Transportation Engineer's (ITE) Trip Generation manual, 10th edition (ITE's) established rates for an Industrial Park land use, at 463 morning and 452 evening trips, higher than the Warehousing land use, at 249 morning and 271 evening trips, and less than the Manufacturing land use, at 915 morning and 893 evening trips. Utilizing the current traffic generation for the Port of Albany is the most accurate representation of proposed land use and tenants likely for the new development site. Based on the nature of the development no multi-use trips or pass-by trips were assumed in this study.

For all three redevelopment phases, the 2029 Background traffic volumes were used as the base volume for consistency and to be conservative.

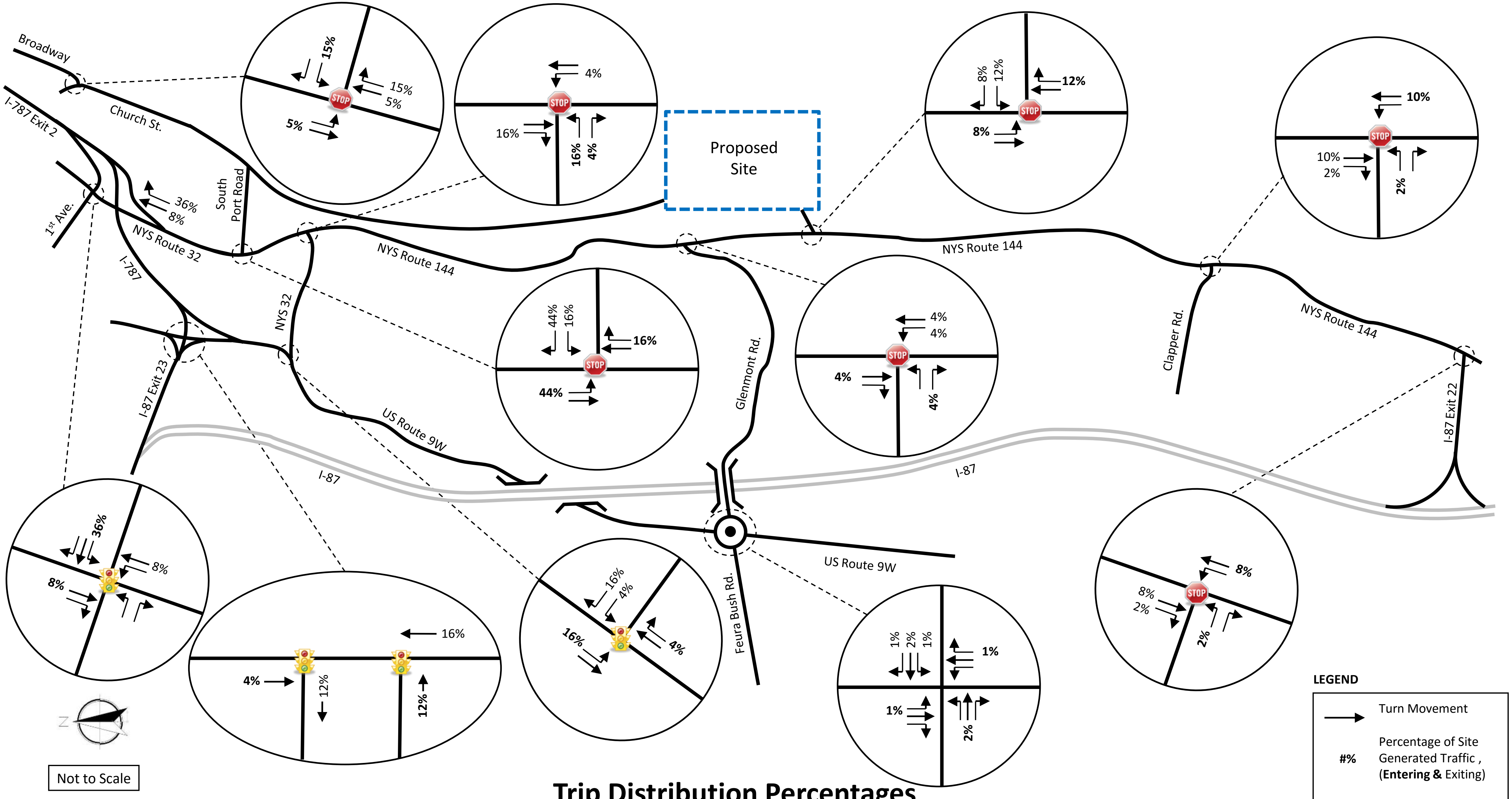
Shown in Table 1 are the resulting trip generation volumes calculated for the proposed project.

Table 1 – Trip Generation Table

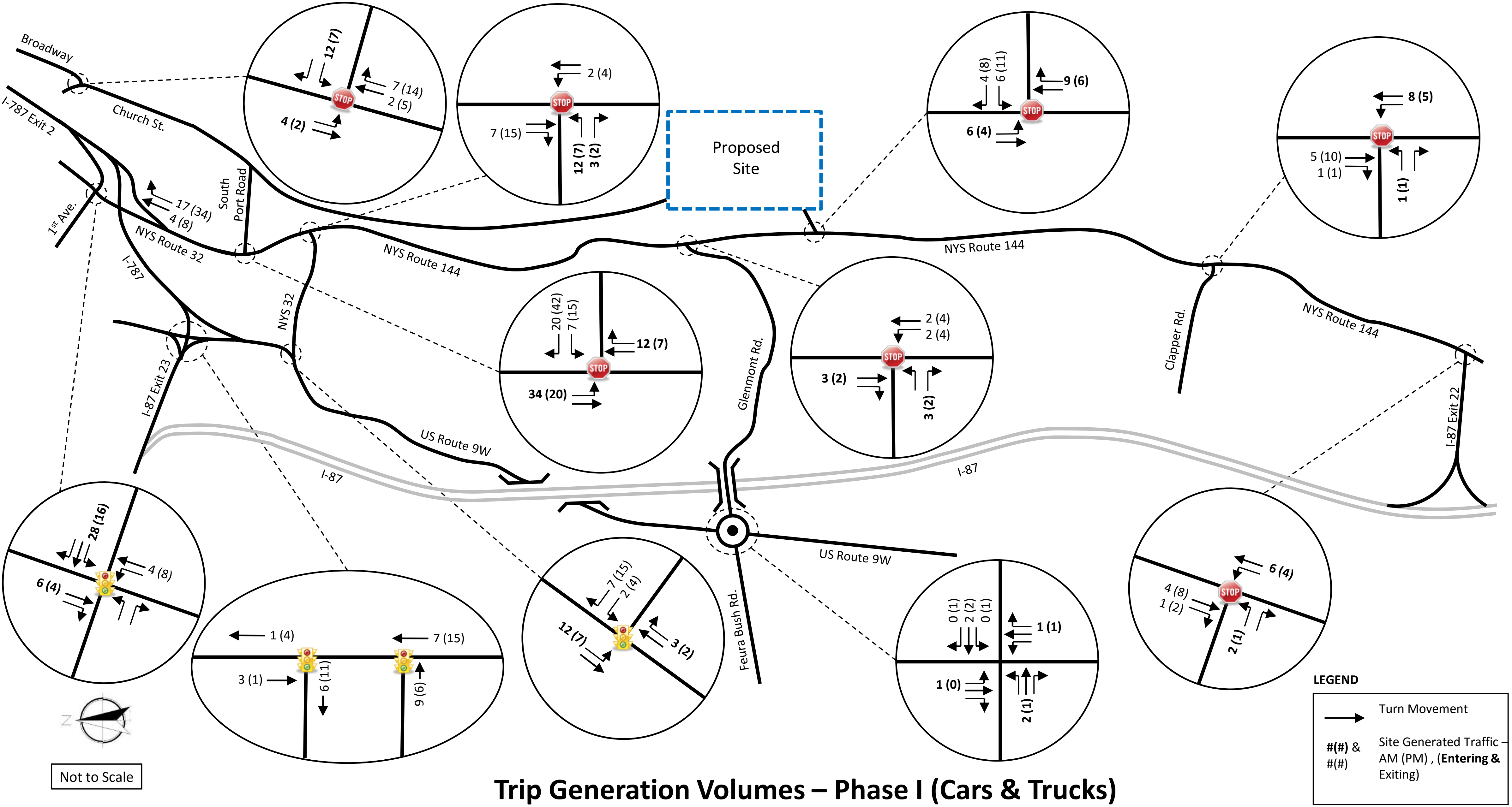
Type of Land Use	ITE Code*	Unit		Weekday Morning Peak			Weekday Evening Peak		
				Enter	Exit	Total	Enter	Exit	Total
2029 Build - Phase I	NA	300	1000 SF	Generation Rate =		0.41	Generation Rate =		0.47
				62%	38%	100%	33%	67%	100%
				77	46	124	46	95	141
			Total Projected Trips	**77**	**46**	**124**	**46**	**95**	**141**
Type of Land Use	ITE Code*	Unit		Weekday Morning Peak			Weekday Evening Peak		
				Enter	Exit	Total	Enter	Exit	Total
2029 Build - Phase II	NA	600	1000 SF	Generation Rate =		0.41	Generation Rate =		0.47
				62%	38%	100%	33%	67%	100%
				154	93	247	92	189	281
			Total Projected Trips	**154**	**93**	**247**	**92**	**189**	**281**
Type of Land Use	ITE Code*	Unit		Weekday Morning Peak			Weekday Evening Peak		
				Enter	Exit	Total	Enter	Exit	Total
2029 Build - Phase III	NA	1,130	1000 SF	Generation Rate =		0.41	Generation Rate =		0.47
				62%	38%	100%	33%	67%	100%
				291	175	465	173	355	529
			Total Projected Trips	**291**	**175**	**465**	**173**	**355**	**529**

Figures 7,8 and 9 show the trips generated by the proposed development distributed within the study area intersections for the Build Phases I, II and III.

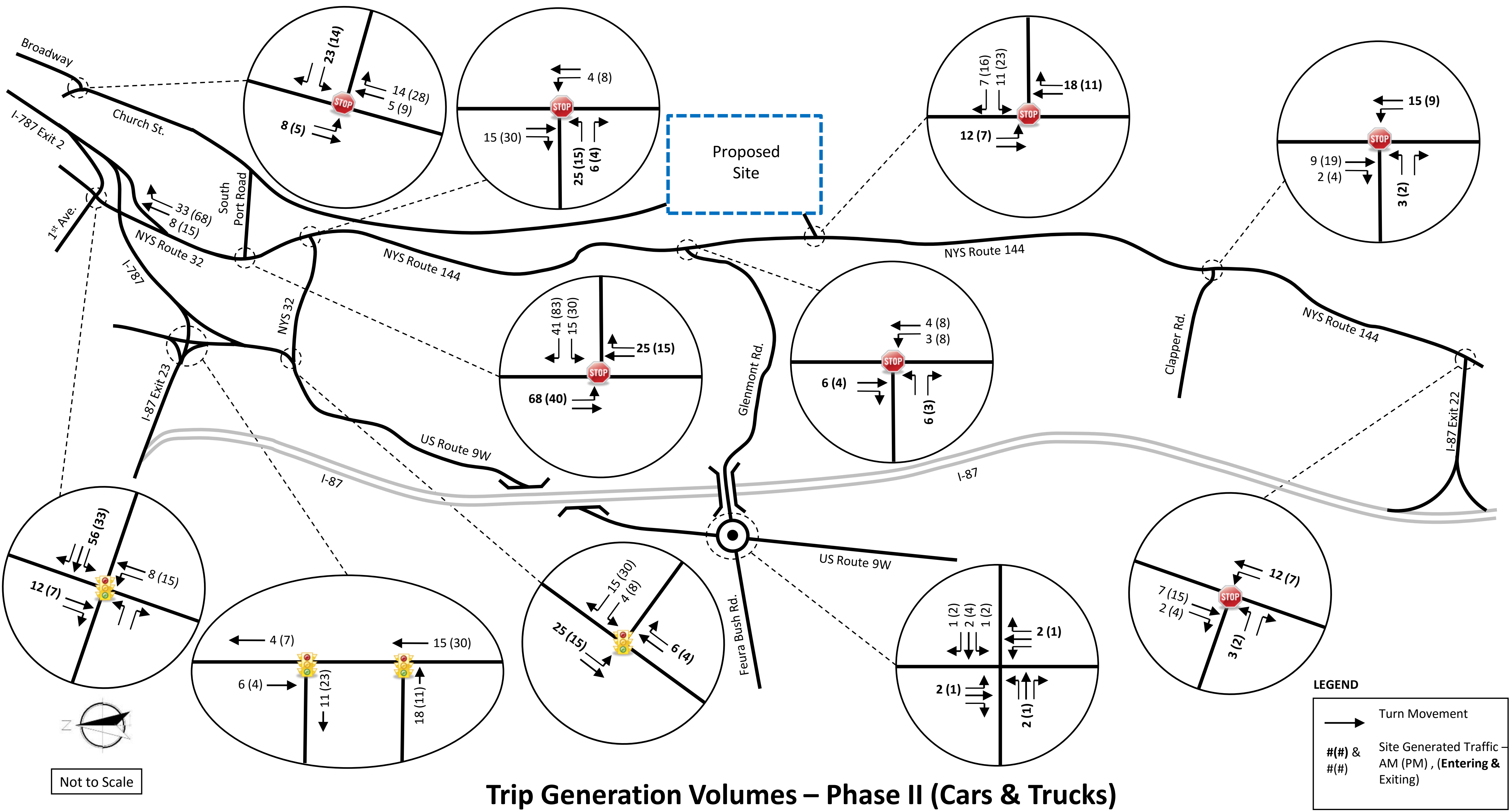
Additional data and calculation sheets used to develop the trip generations rates are included in Appendix B, including a breakdown of projected traffic associated with comparable ITE land uses.



Trip Distribution Percentages



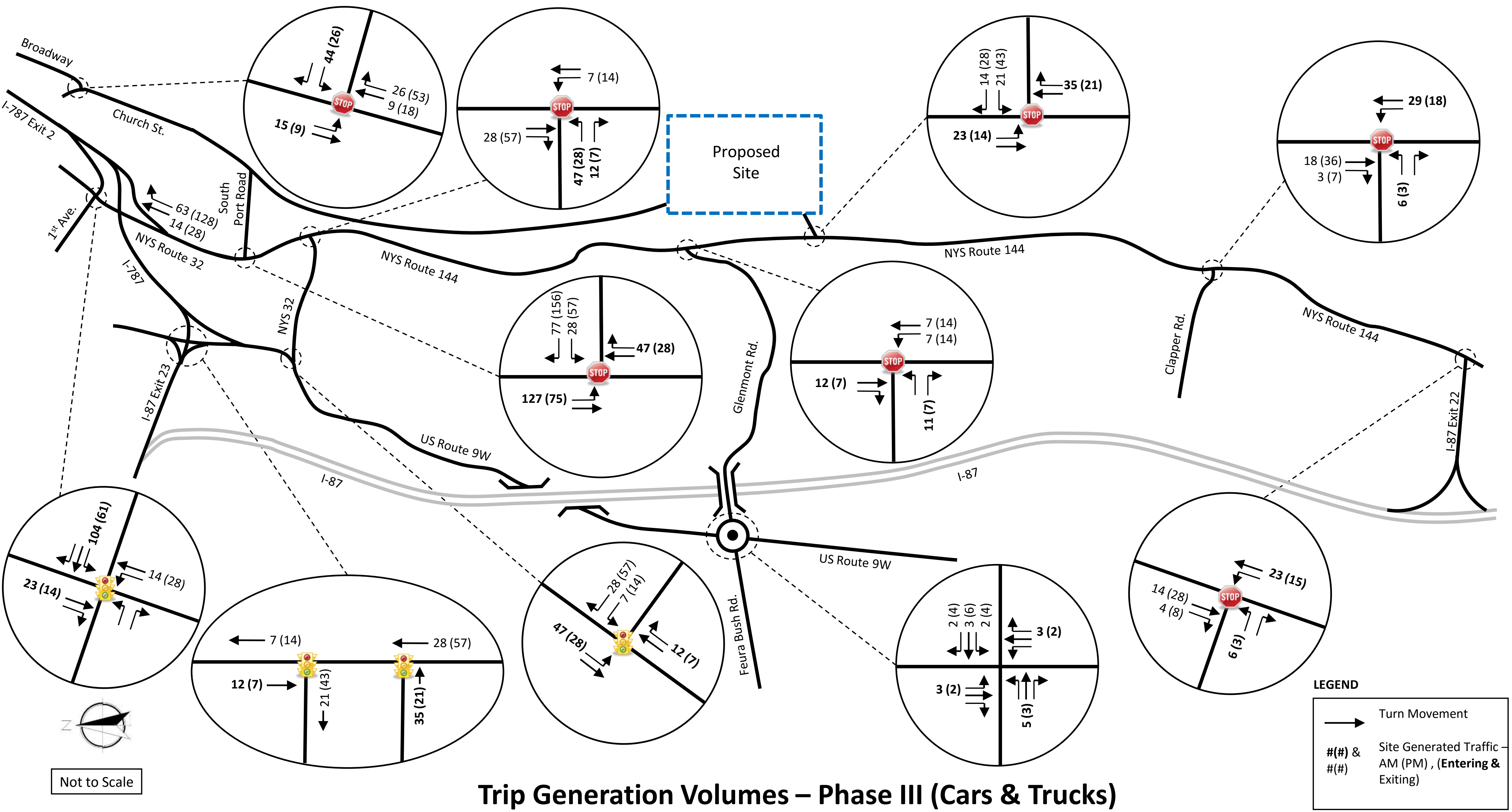
Trip Generation Volumes – Phase I (Cars & Trucks)



Trip Generation Volumes – Phase II (Cars & Trucks)

McFarland Johnson

FIGURE 8



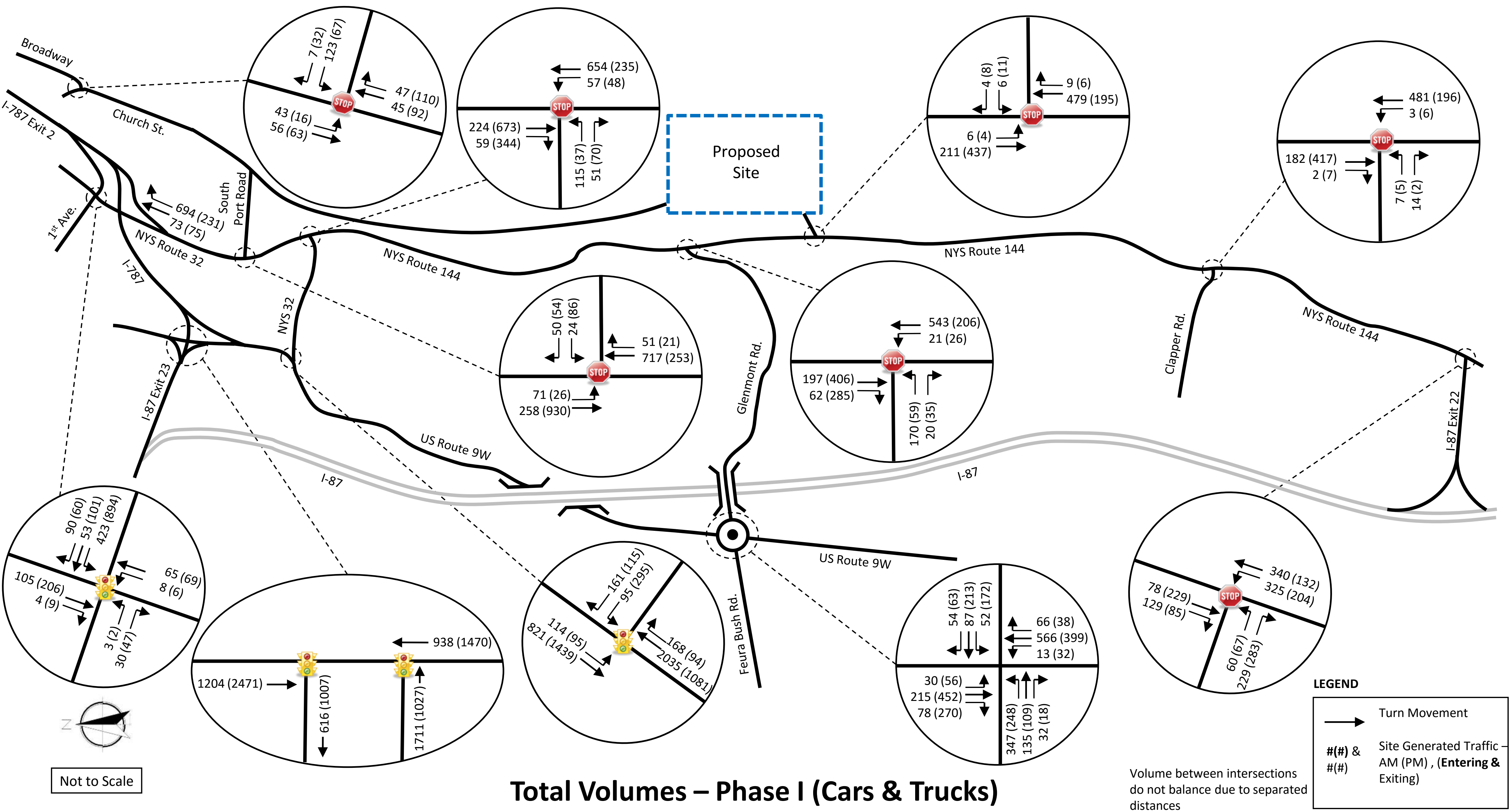
Trip Generation Volumes – Phase III (Cars & Trucks)

McFarland Johnson

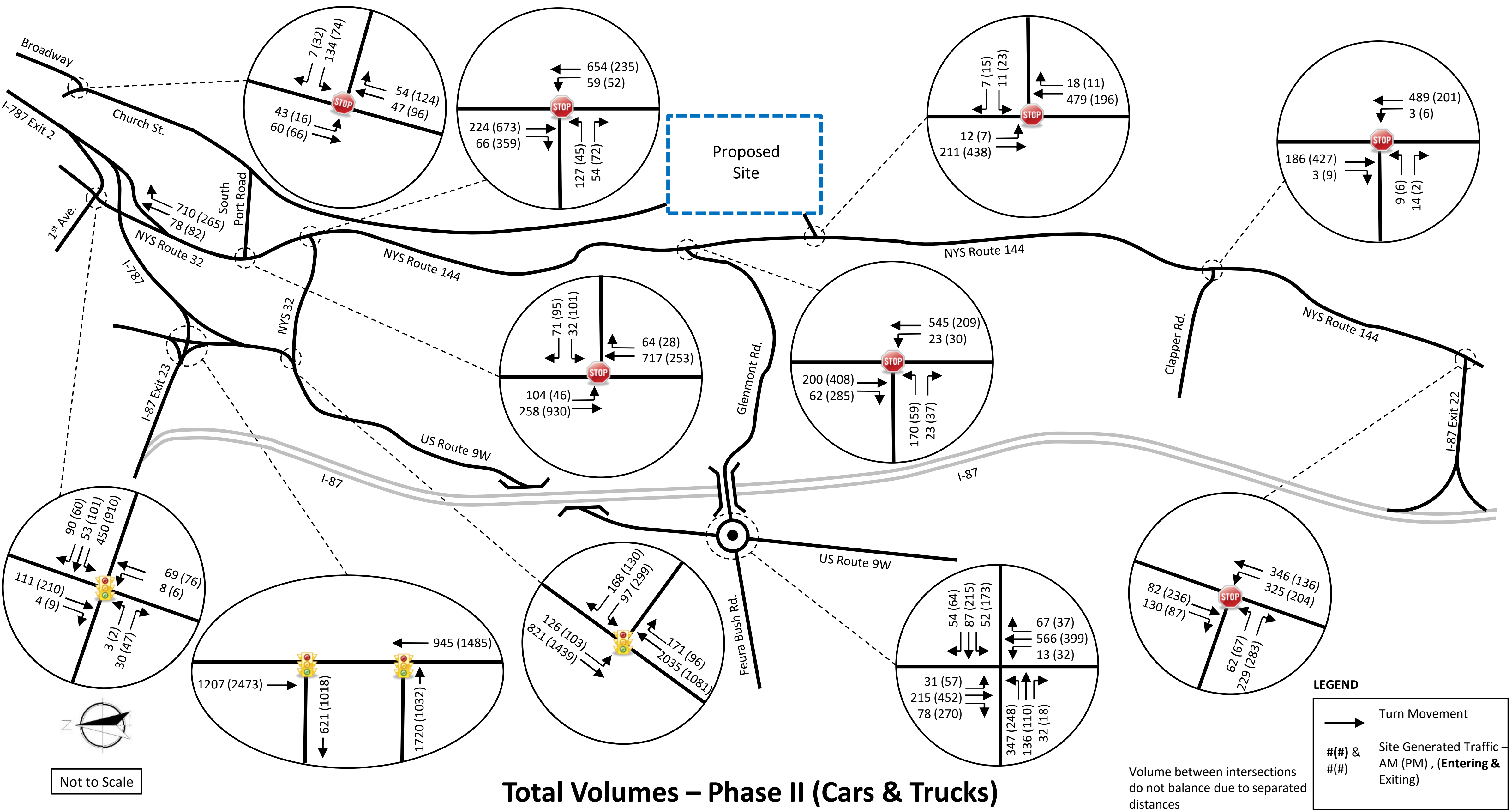
FIGURE 9

2029 Build Traffic Volumes

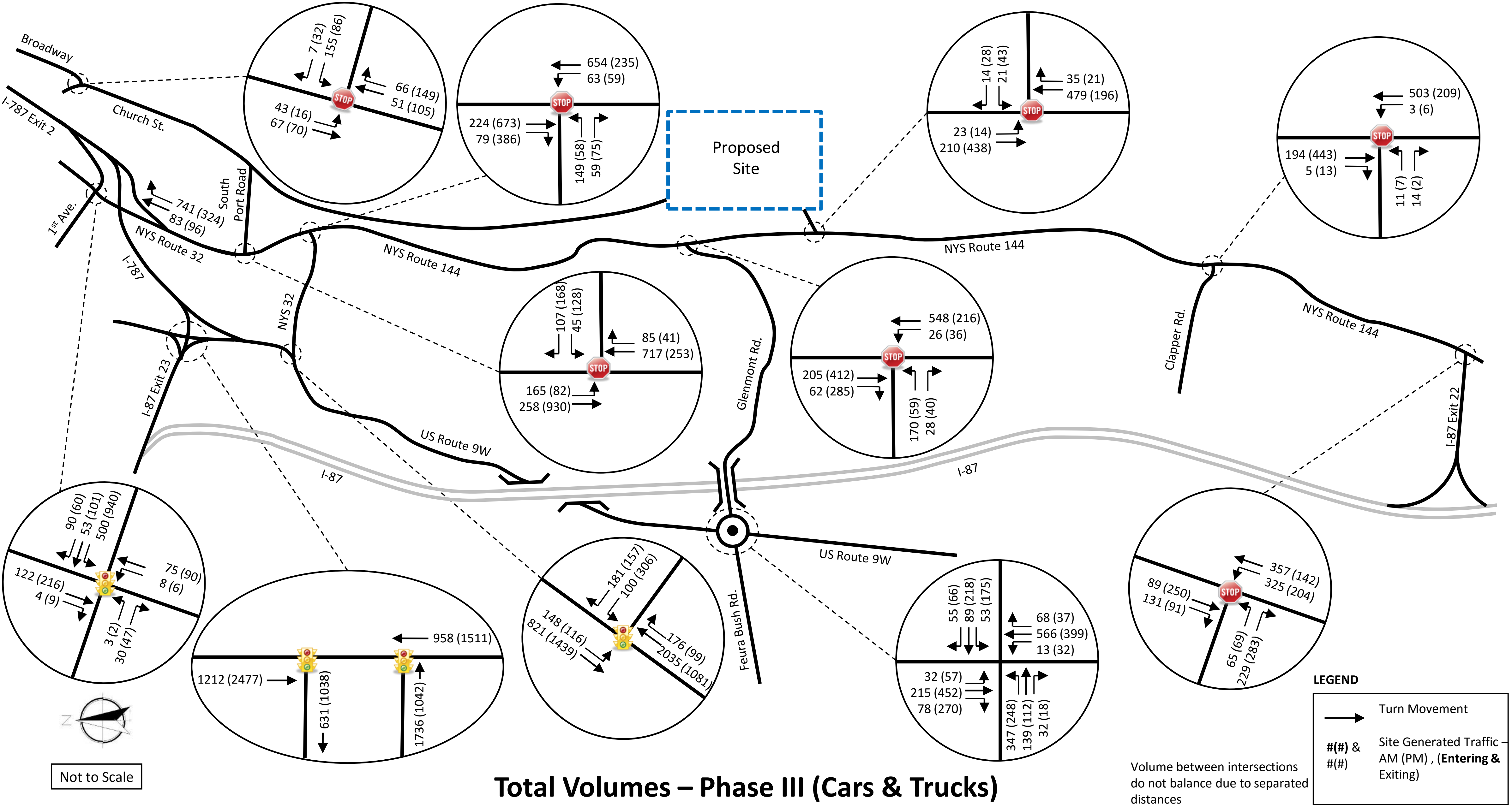
Figures 10, 11 and 12 show the proposed weekday morning and evening peak hour traffic volumes associated with the 2029 Build conditions for build Phases I, II and III. These volumes represent the 2019 Existing volumes combined with the 2029 Background annual traffic growth and the addition of the estimated trips generated by the proposed project for each respective build phase.



Total Volumes – Phase I (Cars & Trucks)



Total Volumes – Phase II (Cars & Trucks)



Total Volumes – Phase III (Cars & Trucks)

TRAFFIC OPERATIONS

Intersection Capacity – Unsignalized Intersections

Level of service (LOS) is a term used to characterize the operational conditions of a traffic facility at a particular point in time. Numerous factors contribute to a facility's LOS including travel delay and speed, congestion, driver discomfort, convenience, and safety based on a comparison of the facility's capacity to the facility's demand. Alphabetic designations A through F define the six levels of service. LOS A represents very good traffic operating conditions with minimal delays while LOS F depicts poor traffic operating conditions with excessive delays and queues.

Operating levels of service are calculated using the procedures defined in the 2010 Highway Capacity Manual, published by the Transportation Research Board. The operating LOS of two-way stop-controlled (TWSC), all-way stop-controlled (AWSC) and roundabout intersections is the computed or measured delay. The intersection delay is based upon the quality of service for the vehicles turning into and out of minor approaches, i.e.; approaches that are stop/yield controlled. The availability of sufficient gaps in the traffic stream on the major street/roundabout controls the capacity for movements to and from the minor approaches, thus resulting in delays for the minor approaches. The criteria, or the delays associated with corresponding levels of service for TWSC, AWSC and roundabout intersections, as specified by the 2010 Highway Capacity Manual and are shown in Table 2 below.

Table 2
Unsignalized/Roundabout Intersection Level of Service Criteria

Level of Service	Controlled Delay (sec/veh) TWSC, AWSC and Roundabout Intersections
A	≤ 10
B	> 10 and ≤ 15
C	> 15 and ≤ 25
D	> 25 and ≤ 35
E	> 35 and ≤ 50
F	> 50

Intersection Capacity – Signalized Intersections

The operating Level of Service (LOS) of a signalized intersection is based on the average control delay per vehicle. The control delay per vehicle is estimated for each lane group, combined for each approach and the intersection as a whole. The criteria, i.e., the delays associated with corresponding levels of service for signalized intersections, as specified by the 2010 Highway Capacity Manual are shown in Table 3.

Table 3
Signalized Intersection Level of Service Criteria

Level of Service	Controlled Delay (sec/veh) Signalized Intersections
A	≤ 10
B	> 10 and ≤ 20
C	> 20 and ≤ 35
D	> 35 and ≤ 55
E	> 55 and ≤ 80
F	> 80

Presented in Table 4 are the results of the analysis for the 2019 Existing, 2029 Background and 2029 Build Phases I, II, and III scenarios for the intersections located within the study area. The traffic modeling software Synchro, Ver. 10.0, which utilizes the methodologies of the 2010 Highway Capacity Manual for unsignalized and signalized intersection, was used for the analysis portion of this study. The full analysis results printouts from the Synchro software are available in Appendix C.

As shown in Table 4, the proposed development will not have any noticeable effects on the traffic operations within the study area when the recommended mitigation is implemented. Described below is a detailed breakdown of the impacts, if any, on the study area intersections' operations as a result of traffic from the proposed development.

No. 1 – NYS Route 32 at 1st Avenue/I-787 Exit 2 Ramp

This signalized intersection is operating at an overall LOS 'B' for the morning peak hour and an overall LOS 'C' for the evening peak hour. During the Phase III Build scenario, the intersection will see an increase in delay resulting in the overall LOS to degrade to 'C' during the morning peak hour and 'D' during the evening peak hour. With minor signal timing modifications, the background LOS can be maintained for the Phase III full build scenario. These timing modifications include shifting time to the Off-ramp phase in the morning peak hour and shifting time to the NYS Route 32 phase during the evening peak hour. The traffic signal cycle length was changed from 105 seconds to 75 seconds in the morning and 95 seconds in the evening to optimize the LOS for the intersection. It is recommended that the signal timings at this intersection be monitored as development occurs in the area to ensure the timings are optimized for the current traffic volumes.

No. 2 – NYS Route 32 at US Route 9W

This 3-legged actuated signalized intersection operates with an overall LOS 'C' during both the weekday morning and evening peak hours. It will continue to operate at the same overall LOS with the proposed development during the evening peak hour, while some individual movement LOS will see negligible increases and decreases in delay. During the morning peak hour, the overall LOS will drop from a 'C' to a 'D'; however signal timing changes by shifting 2 seconds from the NYS Route 32 phase to the US Route 9W phase approach will maintain existing levels of service for the all build conditions. It should be noted that the northbound thru movement has a volume to capacity (v/c) ratio greater than 1.0 for both the background and build scenarios. It is recommended that NYSDOT continue to monitor the intersection to optimize the signal timings to the current traffic volumes.

No. 3 – NYS Route 32 at South Port Road

This 3-way signalized intersection operates efficiently today with an overall LOS 'A' during the morning and evening peak hour. However, the southbound left operation for the morning peak hour will start to degrade from a LOS 'B' during the Phase II Build scenario to LOS 'F' for Phase III and degrade from a LOS 'B' during the Phase I build scenario to LOS 'C' and 'E' for Phases II and III, respectively for the evening peak hour. This movement will be a point of entry for a high volume of traffic entering the proposed development including proposed truck traffic; therefore, it is recommended that a dedicated left turn lane for the southbound approach be installed. A new right turn lane pocket for the westbound approach is also recommended to split the traffic exiting the Port to allow better use of the westbound green time from the signal. These roadway improvements along with upgrading the existing traffic signal system to provide a protected southbound left turn movement with a right turn overlap phase for the new travel lanes will allow the intersection to maintain adequate levels of service through the Phase III (Full Build) conditions.

With the recommended improvements, the westbound South Port Road approach will have a LOS 'D' during the morning peak hour and a LOS 'C' for the evening peak hour from the 2029 Background to 2029 Phase III conditions. The overall intersection operations indicate that these improvements will spread delay to all approaches in order to maximize intersection efficiency and improve the overall delay during both peak hours. It is recommended that a follow up traffic study be completed prior to the start of the Phase II construction to determine if the proposed mitigation improvements are warranted as this intersection will serve as a primary access point from NYS Route 32 for both truck and vehicle traffic.

No. 4 – NYS Route 144 at I-87 Exit 22 Ramp

This 3-legged unsignalized intersection is operating at an overall LOS 'A' for both the morning and evening peak hour currently and will continue to do so for all three build scenarios. Despite the addition of the proposed development's traffic, all intersection movements will continue to operate at the same LOS as the 2029 Background scenario for both the morning and evening peak hours. No proposed mitigation is recommended at this intersection as a result of the proposed development.

No. 5 – NYS Route 144 at Glenmont Road

This unsignalized intersection is currently operating well today during the evening peak hour. During the morning peak hour, the eastbound left-turn movement is operating with a LOS of 'F' for the background conditions due to the high number of left turn vehicles combined with the heavy northbound traffic on NYS Route 144. This existing condition will continue to operate at similar levels of service for the Build scenarios as well. These vehicles will continue to have some delay as they wait for an acceptable gap in the NYS Route 144 traffic flow (see the Gap Analysis section for additional details). Despite this, the overall LOS for the intersection for the build scenario is a LOS 'B' and LOS 'A' during the morning and evening peak hour, respectively for the high volume of free-flow traffic. The traffic volumes at this intersection will see minor increases from the proposed development in comparison to the Background volumes. No mitigation is recommended at this intersection as the proposed development will not noticeably impact the operations at this intersection. This is further justified later in the signal warrant analysis and gap analysis report sections.

No. 6 – NYS Route 144 at NYS Route 32

This intersection is currently operating with an overall LOS 'A' during the morning and evening peak hour. The eastbound left movement will be exceeding/approaching capacity under the 2029 background condition, where it is projected to operate at a LOS 'F' for the morning peak hour and a LOS 'E' for the evening peak hour. Through Phase I of the development there will be a negligible impact on the operating conditions; however, to maintain adequate levels of service from Phase II through the full build scenario, it is recommended that a traffic signal be installed at this intersection (see the Signal Warrant section of this report for additional details). After installation of a new signal, under the Phase III conditions the eastbound left operation is raised from a LOS 'F' to LOS 'C' for both morning and evening peak hours.

The installation of the traffic signal should be considered for the initial phase of construction for the development since this intersection is experiencing poor operating conditions without additional traffic from the proposed project site. It is recommended that the traffic signal should be installed prior to initiating Phase II.

No. 7 – Church Street at Broadway

This stop sign controlled 'T' intersection operates well today with an overall LOS 'A' in the morning and evening peak hour. The intersection will continue to operate well with the additional proposed development traffic, with no individual movement falling below LOS 'C'. No mitigation is recommended at this intersection.

No. 8 – Glenmont/Feura Bush Road at US Route 9W

This current signalized intersection is in the design stage to be converted to a roundabout by Spring 2021. After correspondence with the engineering firm designing the roundabout, CME Associates, Inc., it was found that the minimal amount of site generated traffic entering this intersection has already been incorporated into the background traffic analysis during the analysis and design of the new roundabout. A detailed traffic analysis of the existing intersection is not warranted, given the conversion to a roundabout.

No. 9 – Clapper Road at NYS Route 144

This unsignalized intersection is currently operating at an overall LOS 'A' for both morning and evening peak hour and will continue to do so for all three build scenarios. The eastbound left movement will see an increase in delay from Phase II to Phase III, changing from a LOS 'B' to LOS 'C' for both morning and evening peak hours; however, this is considered an acceptable level of service. Because of the low volume of existing and site-generated traffic anticipated to use Clapper Road, the remaining intersection movements will continue to operate at the same LOS as the existing conditions for both morning and evening peak hours. No proposed mitigation is recommended at this intersection as a result of the proposed development.

No. 10 – I-787/I-87 Exit 23 Interchange at US Route 9W

The latest directional traffic count data available from NYSDOT was obtained and used to evaluate this interchange. The existing intersection volumes were compared with the proposed traffic generated by the development during the morning and evening peak hours. The project's proposed traffic generation at the interchange intersections represents an increase in traffic of 2.2% in the morning and evening. This is below the typical daily fluctuation at this type of urban high-volume intersection which will typically be around ±10%. The available NYSDOT count data showed that the fluctuation at this interchange varies as much as 5.3% to 13.3% for weekday peak hour volumes. The proposed development will have a negligible impact on this interchange, and no proposed mitigation is recommended.

No. 11 – NYS Route 144 at Proposed Site Driveway

The proposed site access drive was modeled as two lane road with single entering and exiting lanes, under stop sign control for the exiting traffic. The driveway will be restricted to car traffic only as all truck traffic will be directed to South Port Road and Church Street. The proposed driveway will have a negligible impact to the traveling public on NYS Route 144 as this will be a free movement. The level of service summary shows that this intersection will operate efficiently for all three phases of development, with an overall LOS 'A' for both morning and evening peak hours. In addition, no movement at this intersection will operate below a LOS 'C' for the morning and evening peak hour. A signal was not warranted for build phase I, II, or III, which is detailed later in the signal warrant report section.

TABLE 4 - INTERSECTION LEVEL OF SERVICE TABLE

Study Intersection	Approach and Movement		MORNING PEAK HOUR											
			2019 EXISTING		2029 BACKGROUND		2029 BUILD-PHASE I		2029 BUILD-PHASE II		2029 BUILD-PHASE III		2029 BUILD- PHASE III - MITIGATION	
			Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
NYS Route 32 at First Avenue/I-787 Exit 2 Ramp (*Signalized*)	Eastbound	L-T-R	8.4	A	8.4	A	8.4	A	8.4	A	8.4	A	2.4	A
	Westbound	L	9.7	A	9.4	A	10.5	B	11.3	B	13.1	B	17.0	B
		T-R	3.4	A	3.4	A	3.5	A	3.6	A	3.8	A	4.7	A
	Northbound	L-T	45.1	D	45.1	D	44.7	D	44.5	D	43.4	D	29.2	C
	Southbound	T-R	54.5	D	54.5	D	54.6	D	54.7	D	54.8	D	36.1	D
	OVERALL		**18.5**	**B**	**18.6**	**B**	**19.1**	**B**	**19.7**	**B**	**20.8**	**C**	**18.6**	**B**
NYS Route 32 at US Route 9W (*Signalized*)	Westbound	L	55.1	E	56.5	E	57.7	E	58.9	E	61.0	E	72.0	E
		R	12.7	B	12.8	B	12.8	B	13.0	B	13.1	B	14.9	B
	Northbound	T	35.8	D	49.3	D	52.1	D	54.9	D	60.0	E	48.8	D
		R	4.7	A	5.1	A	5.2	A	5.3	A	5.6	A	4.9	A
	Southbound	L	34.3	C	36.0	D	40.6	D	44.8	D	52.9	D	52.2	D
		T	4.7	A	4.8	A	4.7	A	4.7	A	4.7	A	4.0	A
	OVERALL		**25.7**	**C**	**33.7**	**C**	**35.6**	**D**	**37.3**	**D**	**40.6**	**D**	**34.4**	**C**
NYS Route 32 at South Port Road (*Un-Signalized)*	Westbound	L	22.1	C	22.3	C	21.5	C	22.8	C	21.8	C	47.7	D
		R											18.4	B
	Northbound	T-R	5.7	A	6.3	A	8.9	A	14.7	B	15.4	B	19.2	B
	Southbound	L	3.7	A	4.0	A	6.4	A	18.5	B	158.1	F	13.5	B
		T											2.5	A
	OVERALL		**6.0**	**A**	**6.5**	**A**	**9.1**	**A**	**16.5**	**B**	**59.5**	**E**	**16.4**	**B**
NYS Route 144 at I-87 Exit 22 Ramp (*Un-Signalized)*	Northbound	T-L	8.1	A	8.3	A	8.3	A	8.3	A	8.3	A		
	Eastbound	L	14.5	B	16.3	C	17.2	C	18.4	C	21.1	C		
	OVERALL		**5.6**	**A**	**6.4**	**A**	**6.6**	**A**	**6.8**	**A**	**7.5**	**A**		
NYS Route 144 at Glenmont Road (*Un-Signalized)*	Eastbound	L-R	39.6	E	56.2	F	59.3	F	62.7	F	68.7	F		
	Northbound	T-L	7.9	A	8.0	A	8.0	A	8.0	A	8.0	A		
	OVERALL		**7.7**	**A**	**10.6**	**B**	**11.3**	**B**	**12.0**	**B**	**13.3**	**F**		
NYS Route 144 at NYS Route 32 (*Un-Signalized/Signalized)*	Northbound	T-L	8.2	A	8.3	A	8.3	A	8.3	A	8.4	A	14.8	B
	Eastbound	L	41.0	E	54.3	F	64.5	F	73.7	F	119.9	F	31.1	C
		R	10.3	B	10.6	B	10.6	B	10.5	B	10.8	B	8.0	A
	Southbound	T-R											5.5	A
	OVERALL		**4.6**	**A**	**5.8**	**A**	**7.3**	**A**	**9.0**	**A**	**15.5**	**C**	**14.2**	**B**
Church Street at Broadway (*Un-Signalized)*	Westbound	L	12.7	B	13.0	B	13.6	B	14.2	B	15.5	C		
		R	8.8	A	8.8	A	8.9	A	8.9	A	9.0	A		
	Southbound	L	7.5	A	7.5	A	7.5	A	7.6	A	7.6	A		
	OVERALL		**6.4**	**A**	**6.6**	**A**	**6.8**	**A**	**7.0**	**A**	**7.6**	**A**		
Clapper Road at NYS Route 144 (River Road) (*Un-Signalized)*	Northbound	L	7.5	A	7.6	A	7.6	A	7.6	A	7.7	A		
	Eastbound	L	11.9	B	12.8	B	13.4	B	14.2	B	15.1	C		
	OVERALL		**0.4**	**A**	**0.5**	**A**	**0.5**	**A**	**0.6**	**A**	**0.7**	**A**		
NYS Route 144 at Proposed Site Driveway (*Un-Signalized)*	Westbound	L					13.9	B	14.5	B	15.5	C		
	Southbound	L					8.5	A	8.6	A	8.7	A		
	OVERALL						**0.3**	**A**	**0.6**	**A**	**1.1**	**A**		

TABLE 4 - INTERSECTION LEVEL OF SERVICE TABLE

Study Intersection	Approach and Movement		EVENING PEAK HOUR											
			2019 EXISTING		2029 BACKGROUND		2029 BUILD-PHASE I		2029 BUILD-PHASE II		2029 BUILD- PHASE III		2029 BUILD-PHASE III - MITIGATION	
			Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
NYS Route 32 at First Avenue/I-787 Exit 2 Ramp (*Signalized*)	Eastbound	L-T-R	17.6	B	19.1	B	19.1	B	19.1	B	19.1	B	31.8	C
	Westbound	L	26.5	C	31.8	C	34.2	C	36.9	D	44.0	D	34.8	C
		T-R	7.6	A	8.0	A	8.1	A	8.1	A	8.3	A	5.7	A
	Northbound	L-T	37.9	D	37.4	D	37.9	D	38.4	D	38.9	D	37.2	D
	Southbound	T-R	53.7	D	53.3	D	53.6	D	53.8	D	53.5	D	54.1	D
	OVERALL		**28.6**	**C**	**32.0**	**C**	**33.7**	**C**	**35.5**	**D**	**40.2**	**D**	**34.6**	**C**
NYS Route 32 at US Route 9W (*Signalized*)	Westbound	L	33.6	C	36.7	D	37.2	D	38.6	D	39.6	D		
		R	16.2	B	17.8	B	17.8	B	18.1	B	18.9	B		
	Northbound	T	26.6	C	26.5	C	26.6	C	29.1	C	29.3	C		
		R	4.8	A	4.8	A	4.8	A	4.9	A	4.9	A		
	Southbound	L	14.9	B	16.1	B	17.6	B	21.2	C	24.4	C		
		T	18.3	B	18.6	B	18.5	B	17.9	B	17.8	B		
	OVERALL		**22.1**	**C**	**22.6**	**C**	**22.7**	**C**	**23.5**	**C**	**23.7**	**C**		
NYS Route 32 at South Port Road (*Signalized*)	Westbound	L	28.6	C	28.8	C	24.9	C	25.6	C	30.7	C	31.8	C
		R											1.3	A
	Northbound	T-R	4.0	A	4.2	A	5.5	A	6.7	A	8.5	A	5.7	A
	Southbound	L	9.5	A	11.1	B	17.4	B	26.1	C	65.2	E	4.6	A
		T											13.7	B
	OVERALL		**9.5**	**A**	**10.6**	**B**	**15.3**	**B**	**21.4**	**C**	**46.0**	**D**	**11.6**	**B**
NYS Route 144 at I-87 Exit 22 Ramp (*Un-Signalized)*	Northbound	T-L	8.4	A	8.6	A	8.7	A	8.7	A	8.8	A		
	Eastbound	L	11.9	B	12.6	B	12.7	B	12.9	B	13.2	B		
	OVERALL		**6.0**	**A**	**6.3**	**A**	**6.3**	**A**	**6.2**	**A**	**6.2**	**A**		
NYS Route 144 at Glenmont Road (*Un-Signalized)*	Eastbound	L-R	20.3	C	22.8	C	23.5	C	24.2	C	25.6	D		
	Northbound	T-L	9.5	A	9.7	A	9.7	A	9.7	A	9.8	A		
	OVERALL		**2.2**	**A**	**2.3**	**A**	**2.5**	**A**	**2.6**	**A**	**2.8**	**A**		
NYS Route 144 at NYS Route 32 (*Un-Signalized/Signalized)*	Northbound	T-L	11.1	B	11.5	B	11.6	B	11.8	B	12.1	B	5.9	A
	Eastbound	L	32.3	D	37.2	E	41.5	E	47.0	E	60.0	F	30.3	C
		R	18.7	C	20.1	C	20.5	C	20.8	C	21.5	C	10.2	B
	Southbound	T-R											16.9	B
	OVERALL		**2.0**	**A**	**2.1**	**A**	**2.5**	**A**	**2.9**	**A**	**3.9**	**A**	**14.8**	**B**
Church Street at Broadway (*Un-Signalized)*	Westbound	L	11.0	B	11.2	B	11.5	B	11.8	B	12.3	B		
		R	9.3	A	9.4	A	9.5	A	9.5	A	9.7	A		
	Southbound	L	7.7	A	7.7	A	7.7	A	7.8	A	7.9	A		
	OVERALL		**3.1**	**A**	**3.1**	**A**	**3.2**	**A**	**3.2**	**A**	**3.3**	**A**		
Clapper Road at NYS Route 144 (River Road) (*Un-Signalized)*	Northbound	L	8.3	A	8.3	A	8.4	A	8.4	A	8.5	A		
	Eastbound	L	13.0	B	13.6	B	14.0	B	14.5	B	15.1	C		
	OVERALL		**0.4**	**A**	**0.4**	**A**	**0.5**	**A**	**0.5**	**A**	**0.5**	**A**		
NYS Route 144 at Proposed Site Driveway (*Un-Signalized)*	Westbound	L					12.5	B	13.1	B	14.3	B		
	Southbound	L					7.7	A	7.7	A	7.8	A		
	OVERALL						**0.5**	**A**	**0.9**	**A**	**1.6**	**A**		

Truck Impact Analysis

Due to the nature of the proposed development, a separate review of the proposed truck traffic was assessed. Truck traffic in the area was analyzed separately from the total traffic volumes as the truck peak period in the study area is relatively consistent between the hours of 9:00 AM and 1:00 PM which do not coincide with the overall peak hour volumes on the roadway network.

Truck access to the site will be restricted to the northern truck/rail entrance via a bridge crossing Normans Kill and connecting to the existing Normanskill St before turning onto NYS Route 32 at South Port Road. This restriction was proposed by the Town of Bethlehem as it would allow all trucks that require access onto NYS Route 32 to have a signalized entrance for safety reasons and to further discourage trucks from utilizing Glenmont Road and other primarily residential side roads to the south and west.

An alternative truck distribution scenario was analyzed to assess the possibility of allowing trucks to utilize the southern driveway. This alternative analysis assumed that 15% of trucks would enter and exit the southern driveway from the south, while 5% would enter and exit from the north. As shown in Figure 14a and 15a, included in Appendix B, allowing trucks to use the southern driveway reduces truck traffic on NYS Route 144 between the north and south driveways by roughly 3 trucks during the AM peak hour, 2 trucks during the PM peak hour, and 4 trucks during the Midday peak hour, while increasing truck traffic on NYS Route 32 by approximately 3 trucks during the AM peak hour, as many as 3 trucks during the PM peak hour, and as many as 5 trucks during the Midday peak hour. There is no change in truck traffic on Glenmont Road, as both distribution scenarios assumed no site-generated trucks would use this route.

Because of the small variations in truck volumes between the two distribution scenarios, there would be a negligible difference in impact on the existing roadway network, from an intersection capacity standpoint. Other factors besides intersection capacity play a role in determining if a full access southern driveway is feasible. Because of the 55 mph posted speed limit along NYS Route 144, a sight distance of 930 ft is required for a truck to perform a left-turn out of the driveway. The required sight distance exceeds the available sight distance of 900 ft which is restricted by a horizontal curve of NYS Route 144 to the south. Without enough available sight distance, trucks exiting the site do not have enough time to safely perform the left turn.

<u>Truck Volume Assessment</u>

The projected truck trip distribution was established based on distributions from the existing Port of Albany site and given the proposed new southern driveway onto NYS Route 144 will have a truck restriction. This distribution was compared with other truck studies recently completed in the area, including South Albany Truck Traffic completed by Creighton Manning dated January 16, 2017 and The City of Albany S. Pearl Heavy Vehicle Travel Pattern Study completed by the Capital District Transportation Committee dated May 2018 to ensure the proposed traffic distributions were consistent with the results of these studies. These trip distribution percentages were used to assign the trips generated by the proposed project. See Figure 14 – Truck Trip Distribution Percentages. Data from other traffic studies provided by the town including the Albany South End Community Air Quality Screening, completed by the New York State Department of Environmental Conservation (NYSDEC), dated August 14, 2014, and the Albany South End Study Progress Update, also completed by NYSDEC dating January 10, 2018 were not used as the information presented was either not relevant to this study, or was too old to be useful.

As with the total traffic, the number of site-generated trucks was based on the current Port of Albany's truck generation. A truck generation rate was calculated for the existing Port on a peak hour trip per building square foot basis and was analyzed for the Phase III (Full Build) scenario to assess the overall projects impact on truck traffic volumes.

Shown in Table 5 and Figure 15 are the resulting truck trip generation volumes calculated for the proposed project.

Table 5 – Truck Trip Generation

Type of Land Use	ITE Code*	Unit		Weekday Morning Peak			Weekday Evening Peak			Mid-Day Peak		
				Enter	Exit	Total	Enter	Exit	Total	Enter	Exit	Total
Based on Existing Port of Albany Truck Traffic Generation	NA	1,130	1000 SF	Generation Rate =		0.13	Generation Rate =		0.07	Generation Rate =		0.13
				51%	49%	100%	56%	44%	100%	52%	48%	100%
				75	72	147	42	33	75	78	73	151
			Total Projected Trips	**75**	**72**	**147**	**42**	**33**	**75**	**78**	**73**	**151**

The midday peak was established using the truck peak hour data from the previously referenced South Albany Truck Traffic report. The peak truck traffic will be on the road during the midday hours where overall traffic volumes are significantly less than the morning and evening commuter peak hours. As a result, a capacity analysis for the truck peak hours is not useful as the roadway network has the capacity during the midday. Table 6 shows from a qualitative standpoint, the anticipated impact from the proposed development related to the volume of trucks during the midday peak timeframe.

Table 6 – Project Truck Increases

MID-DAY PEAK HOUR

ROAD SEGMENT	Existing Truck Volume		Proposed Truck Volume		% Increase	
NYS Route 32 from NYS Route 144 to US Route 9W (East/West)	34	32	42	39	21.1%	19.7%
Glenmont Rd. from NYS Route 144 to US Route 9W (East/West)	3	6	3	6	0.0%	0.0%
NYS Route 32 from 1st Ave. to South Port Rd. (North/South)	83	86	109	111	27.1%	25.4%
NYS Route 144 from NYS Route 32 to Glenmont Rd. (North/South)	68	79	76	86	11.1%	8.5%
NYS Route 144 from Glenmont Rd. to Clapper Rd. (North/South)	67	75	75	82	11.3%	8.9%
NYS Route 144 from Clapper Rd. to I-87 Exit 22 (North/South)	67	75	75	82	11.3%	8.9%

Based on this information the proposed development will increase the number of trucks on the surrounding roadway network from 8% to 27% during the peak truck timeframe (Midday), while no increase in trucks is anticipated on Glenmont Road.

As shown in Figure 14, 40% of trucks entering and exiting the proposed development will utilize the Broadway/Church Street intersection to the north. This route provides free access to and from I-787 with minimal disturbance to the surrounding area, as it is fronted by several industrial and commercial businesses. The remaining 40% of trucks entering and exiting from the north, as well as the 10% of trucks entering and exiting from the west and south, respectively, will pass through residential areas. In order to minimize truck noise along these routes, it is recommended that signage be installed restricting the use of compression braking within these residential areas. Other signage clarifying the intended truck routes should be installed to prevent heavy vehicles from accidentally or intentionally using neighborhood streets to access the site, as outlined in the Albany County Commercial Transportation Access Study, completed by Creighton Manning dated April 5, 2002. To further reduce truck impacts on the traveling public, oversized load transports should follow the procedures outlined in the Traffic Control Plan for Superload Transport, prepared by CHA, Inc. Any oversized loads destined for the Port of Albany will require a separate traffic control plan for the intended route, coordinated with and approved by both NYSDOT and the Town.

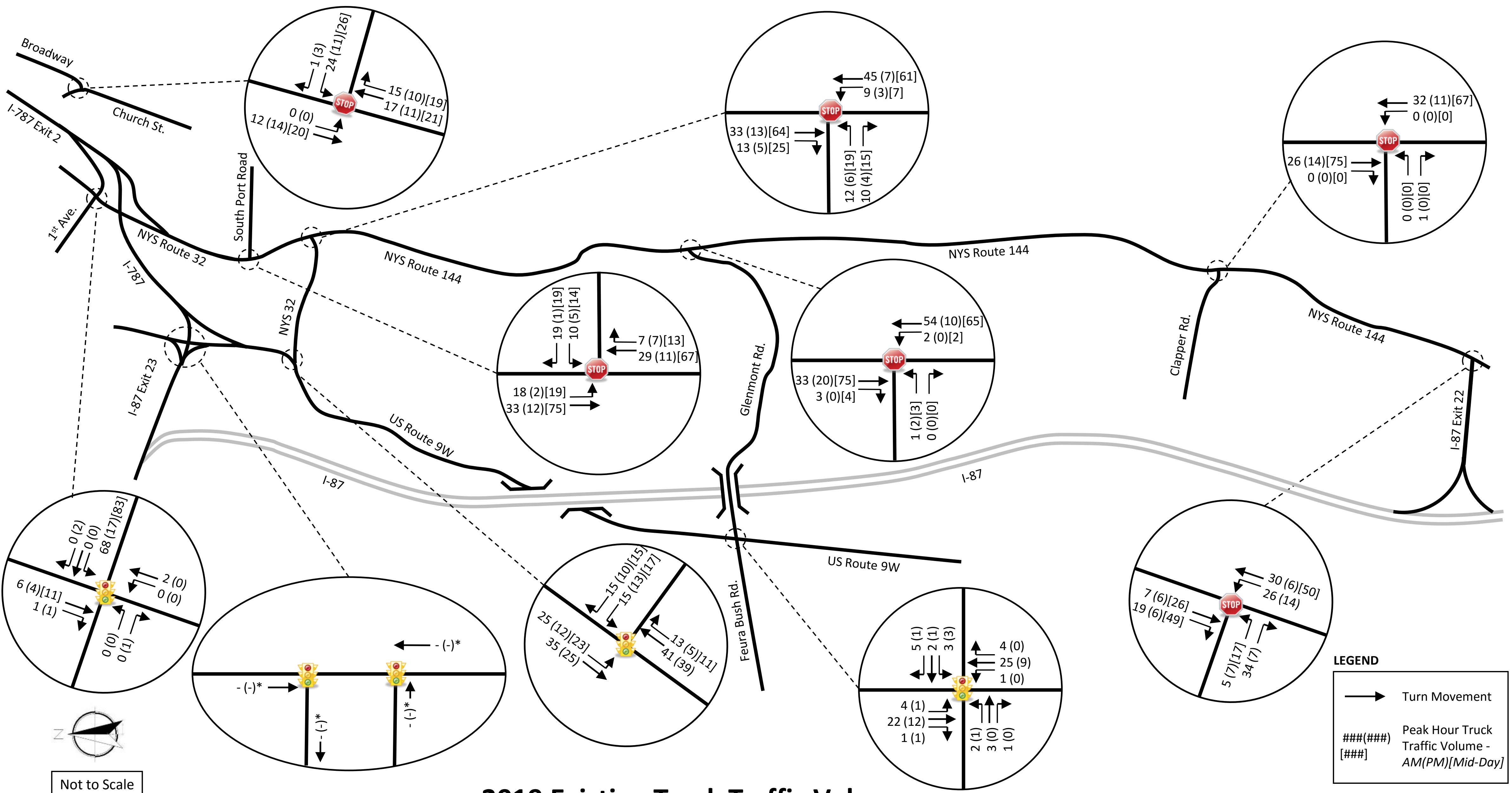
Truck Sensitivity Analysis

To assess the impact of the increased truck traffic on the surrounding roadway network to an extreme scenario assuming a single tenant with a single shipping/receiving location, a sensitivity analysis was performed assuming 100% of the trucks entering and exiting the site would take one of three routes. A north/eastbound route via I-787 at Broadway, a westbound route via I-87 Interchange 23, and a southbound route, traveling via NYS Route 144 to I-87 Interchange 22. These routes were modeled in the traffic software Synchro Ver. 10.0, and their LOS compared against the 2029 Phase III LOS, assuming all recommended mitigation efforts were in place. The results table and the synchro printouts of this analysis are included in Appendix B.

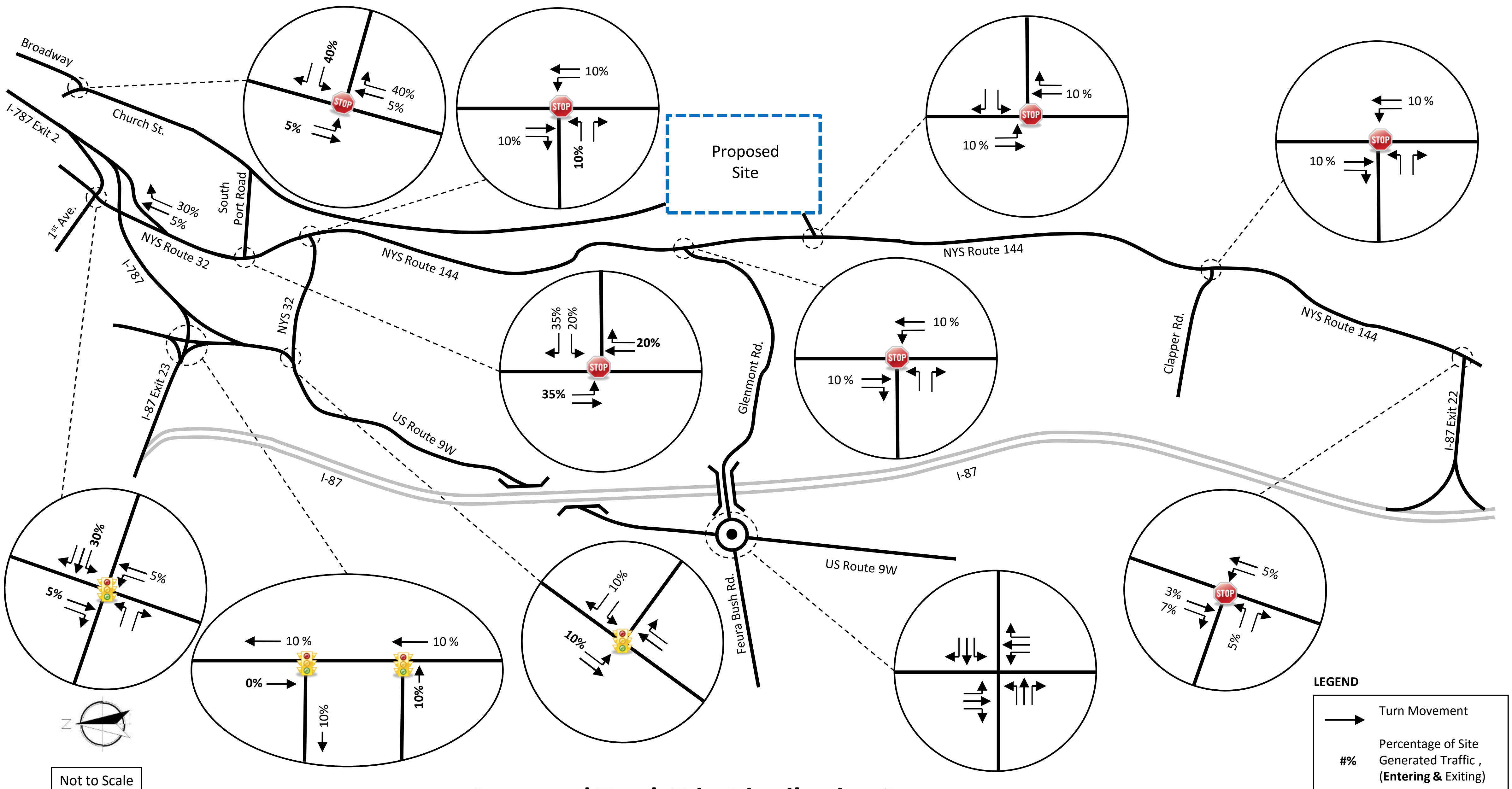
When assuming 100% of the site-generated trucks traveling to/from the north/east via I-787 at Broadway, there is only a slight degradation of service during the morning peak hour, dropping from a LOS ‘A’ to LOS ‘B’, while all other approaches will experience negligible increases in delay. This is the recommended truck route, should the tenant utilize a single trucking route.

For the southbound route, 100% of trucks travel to/from South Port Road along NYS Route 32/144 to the I-87 Interchange 22. Along this route the unsignalized intersection approaches onto NYS Route 144 would have an increase in delay as the available gaps in traffic would decrease do the increase in volume. Should this unlikely scenario develop in the future, the only additional recommendation would be for an updated signal warrant analysis to be completed at the Glenmont Road/NYS Route 144 and I-87 Interchange 22 intersection with NYS Route 144 for further consideration of traffic signals at these locations.

The westbound route is assuming the worst-case scenario that all truck travel to the I-87 Interchange via NYS Route 32 and US Route 9W; however, access to this interchange is also available via Church Street to the Green Street slip ramp onto I-787. Nevertheless, as an extreme scenario, when all trucks utilize this route, additional recommended mitigation includes a follow up review of the US Route 9W intersection with NYS Route 32 as the intersection is projected to degrade from a LOS ‘C’ to a LOS ‘D’ in the morning peak hour with the analysis showing failing operations for the southbound left turn movement. With 10 of the 75 total site-generated trucks making this turn, the movement can maintain the same level of service as the Build Phase III-Mitigation scenario. When 50 of the 75 total site-generated trucks make this turn, the movement reaches failing levels of service, degrading from a LOS ‘E’ to a LOS ‘F’ for the morning peak hour. With this extreme situation, the potential recommended mitigation to consider would be to extend the existing southbound left turn lane to ensure the additional trucks making the left turn do not queue back into the southbound through lanes.



2019 Existing Truck Traffic Volumes

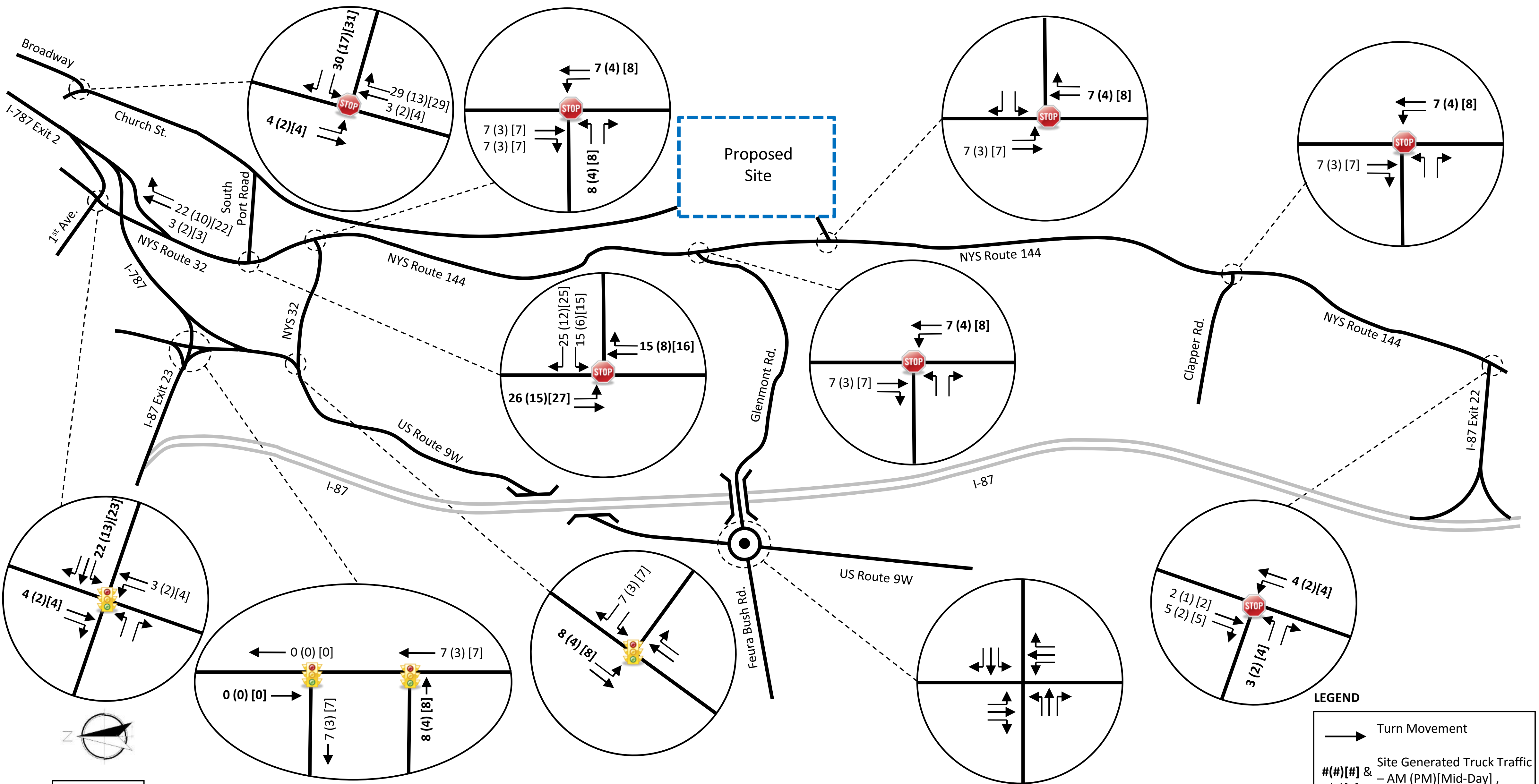


Proposed Truck Trip Distribution Percentages

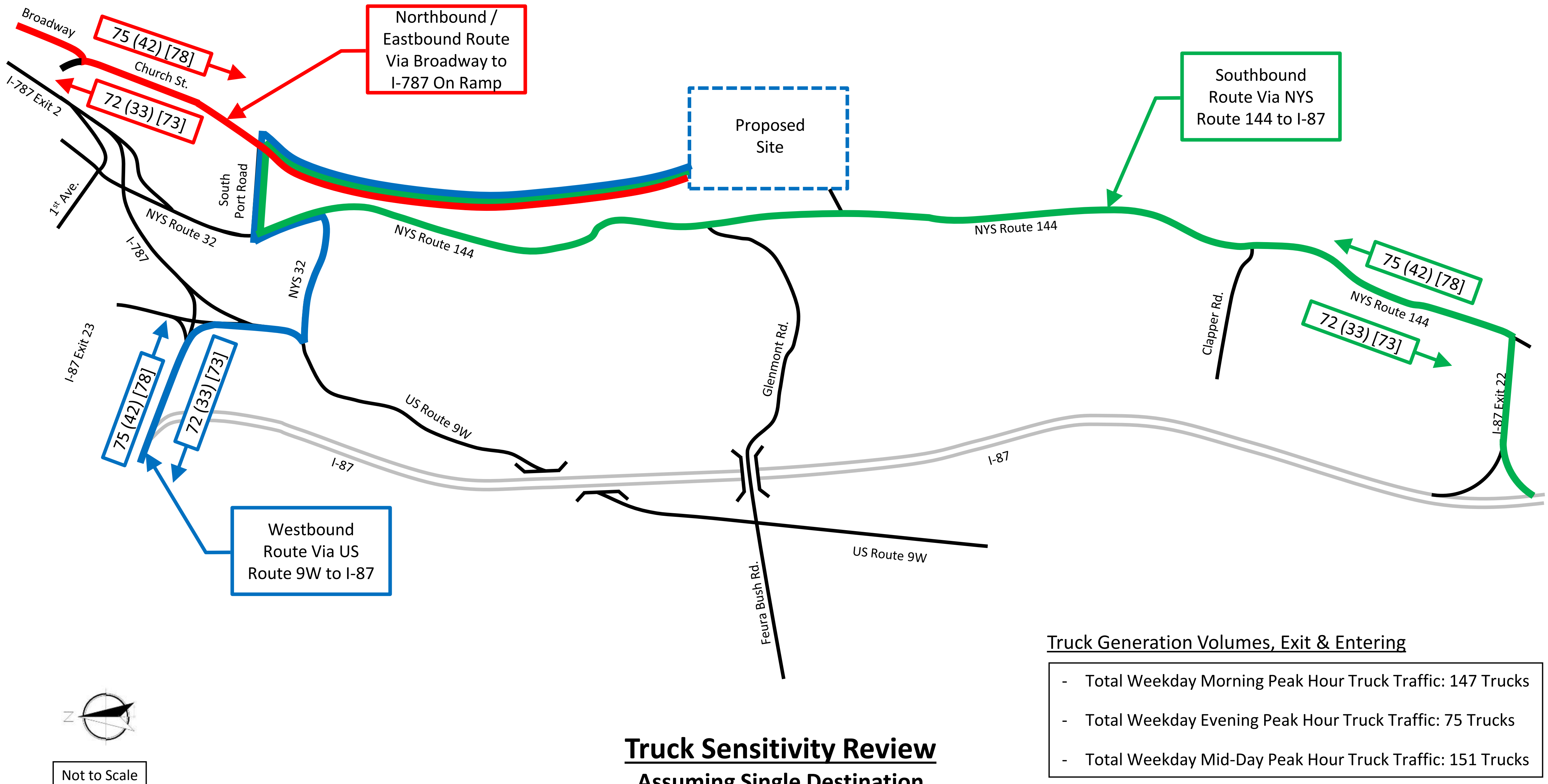
LEGEND

Turn Movement

#% Percentage of Site Generated Traffic , (**Entering &** Exiting)



Trip Generation Truck Volumes – Phase III



Truck Sensitivity Review

Assuming Single Destination

Truck Generation Volumes, Exit & Entering

- Total Weekday Morning Peak Hour Truck Traffic: 147 Trucks
- Total Weekday Evening Peak Hour Truck Traffic: 75 Trucks
- Total Weekday Mid-Day Peak Hour Truck Traffic: 151 Trucks

Gap Analysis

A gap analysis was completed to determine if there were sufficient gaps in traffic to accommodate the existing and projected traffic volumes at the Glenmont Road approach to NYS Route 144 during the critical morning peak hour. The number of gaps from 7:00 AM to 8:15 AM were recorded in conjunction with the traffic volumes and are included under Appendix B. Critical Gaps and Follow Up Times for the left and right turn movements were calculated in Synchro based on intersection geometry, heavy vehicle percentages and speed limit. This critical gap represents the minimum amount of time between vehicles traveling on the NYS Route 144 corridor for a car from Glenmont Road to enter the traffic flow. Follow Up Times indicate the time span between the departure of one vehicle from Glenmont Road and the following vehicle pulling up to the intersection. Table 6 below summarizes the result of the data collected and the gap analysis performed:

Table 7 - Gap Analysis

AM PEAK HOUR

Study Intersection	Approach & Movement	CRITICAL GAP	FOLLOW UP TIME	AVAILABLE TURN MOVEMENT GAPS	2029 BACKGROUND VOLUME	2029 FULL BUILD VOLUME
NYS Route 144 at Glenmont Road *(Un-Signalized)*	Northbound Left	4.1	2.2	331	19	26
	Eastbound Left	6.5	3.6	222	170	170
	Eastbound Right	6.3	3.4	191	17	28

The 'Available Turn Movement Gaps' column represents the total number of gaps available during the morning peak hour. The 2029 Background and Full Build Volume's represents the number of vehicles turning at Glenmont Road during the peak hour. As shown in the table, there are sufficient available gaps for all the traffic movements at the proposed intersection. The eastbound left-turn vehicles will experience delay as they wait for an acceptable gap. During gap data collection the maximum queue length was 6-7 vehicles; however, the queue cleared out on a regular basis, as the NYS Route 144 traffic came in waves.

Signal Warrant Analysis

Signal warrants were reviewed for the study area un-signalized intersections in accordance with the Federal Highway Administrations; Manual of Uniform Traffic Control Devices, 2009 edition. The un-signalized intersections of NYS Route 144 at Glenmont Road as well as NYS Route 144 at NYS Route 32 were reviewed using 2019 existing volumes due to the operating conditions at both intersections during the morning peak hour. These intersections were also reviewed using the 2029 Build Phase III volumes to see if the proposed developments traffic distribution would result in a signal to be warranted.

The detailed signal warrant analysis worksheets for the existing and proposed conditions for both intersections are provided in Appendix D. This analysis showed that the NYS Route 144 and Glenmont Road intersection meets one of the MUTCD signal warrants for the existing condition and two of the MUTCD signal warrants for the proposed Build conditions. Warrant 3B, the peak hour warrant is met for the existing morning peak hour while Warrant 2, the four-hour warrant and warrant 3B, the peak hour warrant is met for the morning peak hour for the Build scenario. Despite meeting a signal warrant using existing traffic volumes, the gap analysis that was performed (see previous section of this report for more details) showed that there are gaps available for vehicles to turn onto NYS Route 144 during the morning peak hour.

The NYS Route 144/NYS Route 32 intersection met warrant 1B using the existing traffic volumes, and met both warrant 2, the four-hour warrant and warrants 3A and B, the peak hour warrants using the Full Build volumes. Based on these warrants being met, a traffic signal was assessed for this intersection to determine what impacts it would have both positive and negative.

From a capacity standpoint, the signal will elevate the failing operations of the NYS Route 144 and NYS Route 32 stop sign controlled intersection and provide adequate levels of operations with minor increases in delay over the 2029 Background levels of operation. As a result of this assessment, a traffic signal is recommended at this intersection as a mitigation measure for the development project.

Site Distance Analysis

The sight distance at the proposed site entrance was measured to determine if the available intersection sight distances meet the AASHTO recommended values. As shown in the follow Table 7, adequate sight distance is available at the proposed site driveway onto NYS Route 144. Despite the available sight distance, it is recommended that the vegetation along NYS Route 144 in the vicinity of the proposed drive be cleared at least 15-feet back from the edge of the travel way to maximize intersection sight distance. No additional intersection sight distance mitigation is necessary at the proposed access drive.

Table 8 – Sight Distance Summary Table

SIGHT DISTANCE CALCULATIONS					
Location	Speed Limit	Direction	AASHTO Recommended Sight Distance	Available Sight Distance	Visual Restriction
Proposed Access Drive at NYS Route 144	55 mph	Looking Left	525 feet	>1000 feet	None
	55 mph	Looking Right	687 feet	900 feet	Horizontal Curve

Maritime Analysis

The Port of Albany consists of multiple deep-water facilities located on both the Albany (west) and Rensselaer (east) side of the Hudson River, which has a navigable width in the project area of approximately 400'. The river is utilized for recreational boating traffic and locations for ingress/egress/docking operations in the area are shown in Table 9. Based on previous Annual Reports for the Port of Albany and historic growth trends, it is estimated that the Port currently receives roughly 100 ships/barges per year, projected to reach 210 by 2029, equating to approximately 4 ships per week. In a worst-case scenario, the end-user would require the construction of an additional wharf, increasing maritime traffic at the Port by approximately 10%, or 21 ships/barges per year. These additional ships/barges are not projected to have a significant impact on the existing Hudson River maritime commercial or recreational traffic.

Within the project area, Normanskill Creek is currently used by law enforcement and emergency services for training purposes, and by the public, in a recreational capacity. The proposed development will not add any additional maritime traffic to this waterway, regardless of the end user. The proposed bridge over Normanskill Creek will be designed with adequate freeboard to accommodate the existing usage.

Table 9 – Recreational Maritime Traffic Summary Table

FACILITY	DESCRIPTION	CAPACITY
Albany Yacht Club	Private boating club located approximately 2 miles north of Normanskill on the Rensselaer side of the Hudson River, providing dockage services	± 75 Slips
Springers Marina	Commerical Business located approximately 2 miles north of Normanskill, providing dockage services	± 45 Slips
Captain JP Cruises	Commercial Business operating out of Troy, providing chartered and weekly cruises along the Hudson River	4-Deck Cruise Ship
Corning Preserve Launch	Public concrete boat launch located 3.5 miles north of Normanskill on the Albany side of the Hudson River	Parking for 15 Cars and Trailers
Normans Kill Launch	Public hand launch located in small urban park off New Scotland Road, 0.4 miles east of Maher Road exit of Route 85	Parking for 5 Cars, no Trailers

Rail Analysis

An existing railroad track owned by CSX runs north/south from the Port of Albany along the east side of NYS Route 32/144 and terminates at the Albany Port Railroad, a separate, short-line entity co-owned and operated by CSX and Canadian Pacific. As noted in the previous DGEIS from 2010, a railroad track and bridge had run through the proposed site, over and across the Normans Kill, connecting the proposed site with the Port of Albany Railroad. The track and bridge were used to transport coal through the Port but have not been in operation since 1975, with the bridge being removed, as it had collapsed and was in a state of disrepair. The track has been abandoned and any rights, easements, or ownership have been abandoned with it. A new rail bridge will be constructed to again connect the proposed site to the existing rail line.

The bulk of the daily rail activity at the existing Port of Albany site occurs within the confines of the Port on private property, thus limiting its impact on the general public. Over the last 5 years, approximately 11,000 railroad cars annually pass through the Albany Port Railroad, with 80 % continuing past the Town of Bethlehem to CSX's Selkirk Yard, located approximately 8 miles south of the City of Albany. Currently, the only impact to the public is through CSX trains that run to and from the Port on a secondary line connected to Selkirk Yard. The CSX operations to the Port conservatively consist of one train per day that arrives at the Port sometime between midnight and 6:00 AM and leaves between 6:00 AM and noon. The Port also gets unit trains on a random, as needed basis about 4 times a month. usually consisting of approximately one-unit train per week, that run on the same schedule. When a unit train is scheduled to come to the Port, that day could include two trains traveling to the Port from Selkirk. When the unit train is unloaded, two trains could be leaving the Port back to Selkirk that day. These unit trains follow the same time schedule as the daily trains, arriving sometime between midnight and 6:00 AM and leaving between 6:00 AM and noon.

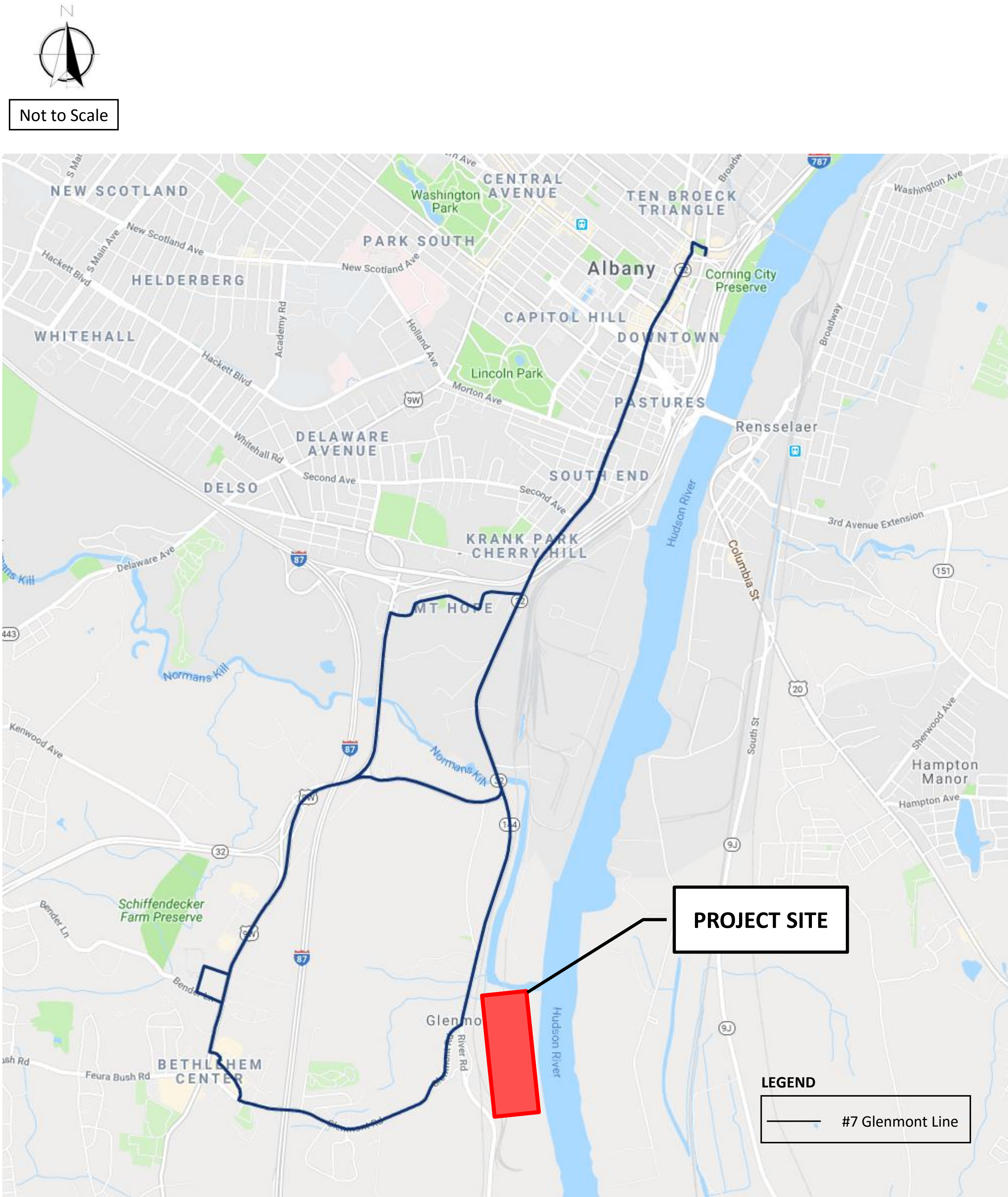
The proposed developments impact on rail operation will be dependent on the tenant/end user. Regardless of the tenant, the only impact to the public will continue to be through the CSX train running on the secondary line to the Selkirk Rail Yard. The projected worst-case scenario operations consist of the current one train-per-day arriving at the Port with an additional 4-5 cars, assuming a multi-tenant makeup of the proposed additional 1.3 million square feet and/or the number of unit trains could potentially increase to 6 times per month should a single large material-producing tenant occupy the new developable area. These worst-case scenarios will not result in an increase in idling trains in the study area.

Noticeable impacts to the public from increased rail operation are not anticipated as a result of the proposed development.

Public Transportation Analysis

Transit service available in the study area is provided by the Capital District Transportation Authority (CDTA). One CDTA line currently travels past the project site on NYS Route 144 and stops at the NYS Route 144/NYS Route 32 intersection. The Glenmont line (#7) starts from Broadway in the City of Albany and travels past the site on NYS Route 144 to the Walmart located on US Route 9W. No impacts on the public transportation are expected as a result of the proposed development. Figure 16 shows the available transit service in the immediate project area. The Port estimates that roughly 5-7% of their employees commute to work via transportation methods other than passenger cars. As a result, there is not expected to be any noticeable changes to the public transportation operations in the study area as a similar high utilization of passenger cars is anticipated for the employees of the proposed expansion project.

Not to Scale



CDTA Transit Routes

Pedestrian and Bicycle Transportation Analysis

A review of the existing road network in the study area shows crosswalks with pedestrian push buttons and countdown timers provided at the NY Route 32/1st Avenue/I-787 Exit 2 Ramp intersection and that a crosswalk is provided on Broadway approximately 265-feet east of Church Street. Sidewalks are also provided in the vicinity of the NY Route 32 /1st Avenue/I-787 Exit 2 Ramp intersection and the Broadway/Church Street intersection which are located within the City of Albany. The existing signalized Glenmont/Feura Bush Road/US Route 9W intersection currently provides sidewalks, crosswalks, pushbuttons and countdown timers and will make accommodations for pedestrians when it is converted to a roundabout design. There are no pedestrian accommodations provided at the remaining intersections in the study area. There are no State Bike Routes posted in the project area; however, the northern portion of the existing Port of Albany starting at Dunham Street is located within a Tier 2 Pedestrian district of the Bike Pedestrian Priority Network. Based on the number of pedestrians counted during the peak hours, the traffic generated by the proposed project will have a negligible impact on the Bike Pedestrian Priority Network.

Table 10 shows a summary of the peak hour pedestrian and bicycle activity observed during the traffic data collection. As shown, the NY Route 32/1st Avenue/I-787 Exit 2 Ramp intersection located in the City of Albany currently has pedestrian accommodations and experiences the most pedestrian traffic. Minimal pedestrian activity was observed at the Glenmont/Feura Bush Road/US Route 9W and NYS Route 32/1st Avenue/I-787 Exit 2 Ramp intersections with pedestrian facilities. The remaining study area intersections experience no pedestrian and bicycle activity with the exception of one pedestrian at the I-87 interchange ramps.

Based on the number of pedestrians and bicycles recorded during the peak hour at the NYS Route 32 /South Port Road and Church Street/Broadway intersections during the AM and PM peak hours, it can be assumed that few if any Albany Port employees currently walk and/or ride a bicycle to get to work. The Port estimates that roughly 5-7% of their employees commute to work via transportation methods other than passenger cars. As a result, there is not expected to be any noticeable changes to pedestrian and bicycle activity in the study area as a similar high utilization of passenger cars is anticipated for the employees of the proposed expansion project and no additional pedestrian accommodations are planned.

Table 10 – Pedestrian/Bicycle Traffic

INTERSECTION	AM PEAK HOUR		PM PEAK HOUR	
	Bicycle	Pedestrian	Bicycle	Pedestrian
Glenmont/Feura Bush Road at US Route 9W	0	4	0	1
NYS Route 32 at US Route 9W	0	0	0	0
Clapper Road at NYS Route 144	0	0	0	0
NYS Route 32 at 1st Avenue/I-787 Exit 2 Ramp	0	19	1	28
Church Street at Broadway	0	3	0	0
NYS Route 144 at Glenmont Road	0	0	0	0
NYS Route 32 at South Port Road	0	0	0	0
NYS Route 144 at NYS Route 32	0	0	0	0
NYS Route 144 at I-87 Exit 22 Ramp	0	0	0	1

CONCLUSIONS AND RECOMMENDATIONS

MJ has evaluated the traffic operations within the study area near the proposed Port of Albany project in Albany, NY. Results from the 2029 Build conditions indicate that the proposed project will have negligible impacts with no noticeable increase in delay to the traveling public within the existing study area intersections for the proposed build phases once the recommended mitigation measures are implemented. Access into and out of the proposed development can be provided in a safe and efficient manner with the existing two points of access along with the proposed new driveway configuration and the proposed signal mitigation outlined in this report.

Based on the traffic analysis results, MJ offers the following conclusion and recommendations:

- The development's detailed site plan is not finalized; however, the most traffic intensive alternative was analyzed in this Traffic Impact Study to review the worst-case scenario. This alternative consists of the development of a 1,130,000 SF, two-level warehouse on approximately 69 acres with full build-out of the project estimated by 2029.

- Access to the site is proposed via one new access drive restricted to car traffic only, located on NYS Route 144 and via a new vehicular bridge that will span Normanskill Creek which will provide access to Normanskill Street and the existing intersections of NYS Route 32/South Port Road and Church Street/Broadway.

- It is anticipated that the proposed project as outlined will generate a maximum of 465 trips during the AM peak hour and 529 trips during the PM peak hour.

- The capacity analysis indicates that the following study area intersections will operate adequately with the improvements outlined for the full build-out of the proposed development.

    1. NYS Route 32 at US Route 9W:
        a. Traffic signal timing changes *(Monitor for all Phases, timing changes assumed for Phase III)*
    2. NYS Route 32 at 1st Ave/I-787 Exit 2 Ramp:
        a. Traffic signal timing changes *(Monitor for all Phases, timing changes assumed for Phase III)*
    3. NYS Route 32 at South Port Road:
        a. Monitor signal timings (During Phase I)
        b. Follow up traffic study to assess signal operations *(Prior to Phase II)*
        c. Construct a dedicated 200' long southbound left-turn lane *(Prior to Phase III)*
        d. Construction a dedicated 200' long westbound right turn lane *(Prior to Phase III)*
        e. Install new traffic signal equipment to provide a permissive/protected southbound left turn phase and a westbound right turn lane overlap phase. Potentially coordinate the controller should a traffic signal be installed at NYS Route 144/NYS Route 32 intersection. *(Prior to Phase III)*
    4. NYS Route 144 at NYS Route 32

a. Consider installation of a traffic signal based on site the proposed site plan (Initial project approval)
b. Signal should be installed and be coordinated with the traffic signal at South Port Road. *(Prior to Phase II)*

- It is recommended that the proposed access drive operate under stop sign control and provide a single approach lane onto NYS Route 144 for left and right turn movement as a single entrance lane.

- A sight distance evaluation indicates that adequate intersection and stopping sight distance will be provided at the proposed access drive on NYS Route 144 for passenger cars with the clearing of existing vegetation located to the north of the intersection. No additional sight distance improvements are necessary.

- The proposed truck traffic will not have a noticeable impact on the traveling public as the increase in truck traffic is only a fraction of the existing truck traffic within the study area. Based on the results of the sensitivity analysis, should the end tenant require a single shipping and receiving route for all truck activities, it is recommended that this route be via Church Street to the North to minimize impacts to the traveling public.

- The proposed impacts to the rail operations will have a negligible, if any, impact to the general public.

- The proposed project will not have any noticeable impacts to the existing pedestrian and bicycle activities in the study area.

- In general, the existing roadway infrastructure within the study area has adequate capacity to accommodate the proposed traffic anticipated by the development after implementing the recommended mitigation improvements.

REFERENCES:

- Trip Generation, 10th Edition. Institute of Transportation Engineers. Washington, D.C. 2017.
- Trip Generation Handbook, Second Edition. Institute of Transportation Engineers. Washington, D.C. June 2004.
- Highway Capacity Manual 2010, Fifth Edition. Transportation Research Board. National Research Council, Washington, D.C. 2010.
- Manual on Uniform Traffic Control Devices for Streets and Highways (MUTCD). Federal Highway Administration. 2009.
- "South Albany Truck Traffic" Creighton Manning. 2017.
- "S. Pearl St. Heavy Vehicle Travel Pattern Study". Capital District Transportation Committee. 2018.
- "Albany County Commercial Transportation Access Study" Creighton Manning. 2002.
- "Albany South End Community Air Quality Screening" NYSDEC. 2014.
- "Albany South End Study Progress Update" NYSDEC. 2018.
- "Traffic Control Plan for Superload Transport" CHA, Inc. 2018.

APPENDIX A

TRAFFIC COUNT DATA

- Intersection Turn Movement Counts
    - Tuesday (02/05/2019)
    - Tuesday (02/26/2019)

- Automatic Traffic Recorder Data
    - Monday (06/17/2019) to Friday (6/21/2019)

- NYSDOT Tube Count Data
    - 9W on Ramp to I-787 (02/01/2010)
    - 9W at Mt Hope Drive (10/06/2015)
    - I-787 Off-Ramp (05/01/2014)
    - I-787 On-Ramp (02/01/2010)
    - Glenmont at NYS Route 144 (05/06/2014)
    - NYS Route 32 at NYS Route 144 (04/06/2014)
    - NYS Route 32 Off-Ramp (04/06/2015)
    - NYS Route 32 On-Ramp (03/25/2009)
    - S Pearl Near Port Road (11/03/2010)
    - S Pearl Near Exit 22 (11/03/2010)

TRI-STATE TRAFFIC DATA

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Port of Albany, NY
Broadway/Church St
Tuesday, February 26, 2019
Location: 42.636505, -73.755367

Count Name: Broadway/Church St
Site Code: Albany, New York
Start Date: 02/26/2019

Turning Movement Data

Start Time	Broadway Westbound					Church St Northbound					Church St Southbound					
	Left	Right	U-Turn	Peds	App. Total	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	Int. Total
7:30 AM	28	3	0	0	31	9	9	0	0	18	6	14	0	0	20	69
7:45 AM	41	0	0	0	41	14	8	0	1	22	18	16	1	0	35	98
Hourly Total	69	3	0	0	72	23	17	0	1	40	24	30	1	0	55	167
8:00 AM	12	2	0	1	14	10	10	0	0	20	8	4	0	0	12	46
8:15 AM	19	1	0	0	20	5	9	0	1	14	7	13	0	0	20	54
8:30 AM	14	0	0	0	14	5	18	0	0	23	9	16	0	0	25	62
8:45 AM	19	3	0	1	22	14	14	0	0	28	4	14	0	0	18	68
Hourly Total	64	6	0	2	70	34	51	0	1	85	28	47	0	0	75	230
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4:00 PM	11	9	0	0	20	18	27	0	0	45	4	15	0	0	19	84
4:15 PM	12	3	0	0	15	15	28	0	0	43	0	10	0	0	10	68
4:30 PM	19	4	0	0	23	21	6	0	0	27	5	17	0	0	22	72
4:45 PM	12	13	0	0	25	24	25	0	0	49	5	13	0	0	18	92
Hourly Total	54	29	0	0	83	78	86	0	0	164	14	55	0	0	69	316
5:00 PM	21	2	0	0	23	10	40	0	0	50	3	7	0	0	10	83
5:15 PM	19	6	0	2	25	14	17	0	0	31	4	6	0	0	10	66
5:30 PM	11	5	0	0	16	10	14	0	0	24	3	9	0	0	12	52
5:45 PM	2	1	0	0	3	5	5	0	0	10	1	8	0	0	9	22
Hourly Total	53	14	0	2	67	39	76	0	0	115	11	30	0	0	41	223
Grand Total	240	52	0	4	292	174	230	0	2	404	77	162	1	0	240	936
Approach %	82.2	17.8	0.0	-	-	43.1	56.9	0.0	-	-	32.1	67.5	0.4	-	-	-
Total %	25.6	5.6	0.0	-	31.2	18.6	24.6	0.0	-	43.2	8.2	17.3	0.1	-	25.6	-
Lights	170	48	0	-	218	112	177	0	-	289	75	108	1	-	184	691
% Lights	70.8	92.3	-	-	74.7	64.4	77.0	-	-	71.5	97.4	66.7	100.0	-	76.7	73.8
Buses	9	0	0	-	9	19	3	0	-	22	2	15	0	-	17	48
% Buses	3.8	0.0	-	-	3.1	10.9	1.3	-	-	5.4	2.6	9.3	0.0	-	7.1	5.1
Trucks	61	4	0	-	65	43	50	0	-	93	0	39	0	-	39	197
% Trucks	25.4	7.7	-	-	22.3	24.7	21.7	-	-	23.0	0.0	24.1	0.0	-	16.3	21.0
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	0.0	-	-	-	-	0.0	-	-	-	-	-	-	-
Pedestrians	-	-	-	4	-	-	-	-	2	-	-	-	-	0	-	-
% Pedestrians	-	-	-	100.0	-	-	-	-	100.0	-	-	-	-	-	-	-

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Port of Albany, NY
Broadway/Church St
Tuesday, February 26, 2019
Location: 42.636505, -73.755367

Count Name: Broadway/Church St
Site Code: Albany, New York
Start Date: 02/26/2019
Page No: 2

Church St [SB]

Out	In	Total
161	184	345
19	17	36
47	39	86
0	0	0
0	0	0
227	**240**	**467**

T	L	U	P
108	75	1	0
15	2	0	0
39	0	0	0
0	0	0	0
0	0	0	0
162	**77**	**1**	**0**

Broadway [WB]

Out	In	Total
252	218	470
5	9	14
50	65	115
0	0	0
0	0	0
307	**292**	**599**

R	L	U	P
48	170	0	0
0	9	0	0
4	61	0	0
0	0	0	0
0	0	0	4
52	**240**	**0**	**4**

02/26/2019 7:30 AM
Ending At
02/26/2019 6:00 PM

Lights
Buses
Trucks
Bicycles on Crosswalk
Pedestrians

U	T	R	P
0	112	177	0
0	19	3	0
0	43	50	0
0	0	0	0
0	0	0	2
0	**174**	**230**	**2**

Out	In	Total
278	289	567
24	22	46
100	93	193
0	0	0
0	0	0
402	**404**	**806**

Church St [NB]

Turning Movement Data Plot

TRI-STATE TRAFFIC DATA

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Port of Albany, NY
Broadway/Church St
Tuesday, February 26, 2019
Location: 42.636505, -73.755367

Count Name: Broadway/Church St
Site Code: Albany, New York
Start Date: 02/26/2019

Turning Movement Peak Hour Data (7:30 AM)

Start Time	Broadway Westbound					Church St Northbound					Church St Southbound					
	Left	Right	U-Turn	Peds	App. Total	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	Int. Total
7:30 AM	28	3	0	0	31	9	9	0	0	18	6	14	0	0	20	69
7:45 AM	41	0	0	0	41	14	8	0	1	22	18	16	1	0	35	98
8:00 AM	12	2	0	1	14	10	10	0	0	20	8	4	0	0	12	46
8:15 AM	19	1	0	0	20	5	9	0	1	14	7	13	0	0	20	54
Total	100	6	0	1	106	38	36	0	2	74	39	47	1	0	87	267
Approach %	94.3	5.7	0.0	-	-	51.4	48.6	0.0	-	-	44.8	54.0	1.1	-	-	-
Total %	37.5	2.2	0.0	-	39.7	14.2	13.5	0.0	-	27.7	14.6	17.6	0.4	-	32.6	-
PHF	0.610	0.500	0.000	-	0.646	0.679	0.900	0.000	-	0.841	0.542	0.734	0.250	-	0.621	0.681
Lights	75	5	0	-	80	22	21	0	-	43	39	35	1	-	75	198
% Lights	75.0	83.3	-	-	75.5	57.9	58.3	-	-	58.1	100.0	74.5	100.0	-	86.2	74.2
Buses	2	0	0	-	2	0	1	0	-	1	0	1	0	-	1	4
% Buses	2.0	0.0	-	-	1.9	0.0	2.8	-	-	1.4	0.0	2.1	0.0	-	1.1	1.5
Trucks	23	1	0	-	24	16	14	0	-	30	0	11	0	-	11	65
% Trucks	23.0	16.7	-	-	22.6	42.1	38.9	-	-	40.5	0.0	23.4	0.0	-	12.6	24.3
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	0.0	-	-	-	-	0.0	-	-	-	-	-	-	-
Pedestrians	-	-	-	1	-	-	-	-	2	-	-	-	-	0	-	-
% Pedestrians	-	-	-	100.0	-	-	-	-	100.0	-	-	-	-	-	-	-

Port of Albany, NY
Broadway/Church St
Tuesday, February 26, 2019
Location: 42.636505, -73.755367

Count Name: Broadway/Church St
Site Code: Albany, New York
Start Date: 02/26/2019

Church St [SB]

Out	In	Total
28	75	103
0	1	1
17	11	28
0	0	0
0	0	0
45	**87**	**132**

T	L	U	P
35	39	1	0
1	0	0	0
11	0	0	0
0	0	0	0
0	0	0	0
47	**39**	**1**	**0**

Peak Hour Data

02/26/2019 7:30 AM
Ending At
02/26/2019 8:30 AM

Lights
Buses
Trucks
Bicycles on Crosswalk
Pedestrians

Broadway [WB]

R	L	U	P
5	75	0	0
0	2	0	0
1	23	0	0
0	0	0	0
0	0	0	1
6	**100**	**0**	**1**

Out	In	Total
60	80	140
1	2	3
14	24	38
0	0	0
0	0	0
75	**106**	**181**

U	T	R	P
0	22	21	0
0	0	1	0
0	16	14	0
0	0	0	0
0	0	0	2
0	**38**	**36**	**2**

Out	In	Total
110	43	153
3	1	4
34	30	64
0	0	0
0	0	0
147	**74**	**221**

Church St [NB]

Turning Movement Peak Hour Data Plot (7:30 AM)

Port of Albany, NY
Broadway/Church St
Tuesday, February 26, 2019
Location: 42.636505, -73.755367

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Count Name: Broadway/Church St
Site Code: Albany, New York
Start Date: 02/26/2019

Turning Movement Peak Hour Data (4:00 PM)

Start Time	Broadway Westbound					Church St Northbound					Church St Southbound					
	Left	Right	U-Turn	Peds	App. Total	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	Int. Total
4:00 PM	11	9	0	0	20	18	27	0	0	45	4	15	0	0	19	84
4:15 PM	12	3	0	0	15	15	28	0	0	43	0	10	0	0	10	68
4:30 PM	19	4	0	0	23	21	6	0	0	27	5	17	0	0	22	72
4:45 PM	12	13	0	0	25	24	25	0	0	49	5	13	0	0	18	92
Total	54	29	0	0	83	78	86	0	0	164	14	55	0	0	69	316
Approach %	65.1	34.9	0.0	-	-	47.6	52.4	0.0	-	-	20.3	79.7	0.0	-	-	-
Total %	17.1	9.2	0.0	-	26.3	24.7	27.2	0.0	-	51.9	4.4	17.4	0.0	-	21.8	-
PHF	0.711	0.558	0.000	-	0.830	0.813	0.768	0.000	-	0.837	0.700	0.809	0.000	-	0.784	0.859
Lights	40	26	0	-	66	59	75	0	-	134	14	35	0	-	49	249
% Lights	74.1	89.7	-	-	79.5	75.6	87.2	-	-	81.7	100.0	63.6	-	-	71.0	78.8
Buses	3	0	0	-	3	10	0	0	-	10	0	7	0	-	7	20
% Buses	5.6	0.0	-	-	3.6	12.8	0.0	-	-	6.1	0.0	12.7	-	-	10.1	6.3
Trucks	11	3	0	-	14	9	11	0	-	20	0	13	0	-	13	47
% Trucks	20.4	10.3	-	-	16.9	11.5	12.8	-	-	12.2	0.0	23.6	-	-	18.8	14.9
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Port of Albany, NY
Broadway/Church St
Tuesday, February 26, 2019
Location: 42.636505, -73.755367

Count Name: Broadway/Church St
Site Code: Albany, New York
Start Date: 02/26/2019
Page No: 6

Church St [SB]

Out	In	Total
85	49	134
10	7	17
12	13	25
0	0	0
0	0	0
107	**69**	**176**

T	L	U	P
35	14	0	0
7	0	0	0
13	0	0	0
0	0	0	0
0	0	0	0
55	**14**	**0**	**0**

Peak Hour Data

02/26/2019 4:00 PM
Ending At
02/26/2019 5:00 PM

Lights
Buses
Trucks
Bicycles on Crosswalk
Pedestrians

Broadway [WB]

R	L	U	P
26	40	0	0
0	3	0	0
3	11	0	0
0	0	0	0
0	0	0	0
29	**54**	**0**	**0**

Out	In	Total
89	66	155
0	3	3
11	14	25
0	0	0
0	0	0
100	**83**	**183**

U	T	R	P
0	59	75	0
0	10	0	0
0	9	11	0
0	0	0	0
0	0	0	0
0	**78**	**86**	**0**

Out	In	Total
75	134	209
10	10	20
24	20	44
0	0	0
0	0	0
109	**164**	**273**

Church St [NB]

Turning Movement Peak Hour Data Plot (4:00 PM)

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Albany, NY
NY 32/Green St/1st Ave
Tuesday, February 5, 2019
Location: 42.635373, -73.762017

Count Name: NY 32 / Green St / 1st Ave
Site Code: Albany, New York
Start Date: 02/05/2019
Page No: 1

Turning Movement Data

	1st Ave Eastbound							Green St Westbound							NY 32 Northbound							NY 32 Southbound							
Start Time	Left	Thru	Right	Right on Red	U-Turn	Peds	App. Total	Left	Thru	Right	Right on Red	U-Turn	Peds	App. Total	Left	Thru	Right	Right on Red	U-Turn	Peds	App. Total	Left	Thru	Right	Right on Red	U-Turn	Peds	App. Total	Int. Total
7:00 AM	1	0	2	0	0	5	3	80	19	12	0	0	0	111	0	8	0	0	0	0	8	0	9	0	1	1	0	11	133
7:15 AM	0	0	13	0	0	3	13	75	26	11	0	0	0	112	1	16	0	0	0	0	17	0	18	0	1	0	0	19	161
7:30 AM	0	0	13	1	0	8	14	77	18	8	1	0	0	104	5	18	0	0	0	0	23	0	17	0	0	0	0	17	158
7:45 AM	2	0	7	2	0	6	11	86	18	18	0	0	0	122	3	12	0	0	0	0	15	0	27	0	0	0	0	27	175
Hourly Total	3	0	35	3	0	22	41	318	81	49	1	0	0	449	9	54	0	0	0	0	63	0	71	0	2	1	0	74	627
8:00 AM	0	0	10	1	0	6	11	75	7	11	1	0	0	94	2	15	0	0	0	0	17	0	12	2	0	0	0	14	136
8:15 AM	1	0	7	2	0	4	10	99	12	19	2	0	0	132	2	13	0	0	0	0	15	0	21	1	0	0	0	22	179
8:30 AM	0	0	3	1	0	3	4	78	11	33	0	0	0	122	0	15	0	0	0	0	15	0	29	1	0	0	0	30	171
8:45 AM	3	0	4	0	0	3	7	68	2	9	1	0	0	80	0	20	0	0	0	0	20	0	23	1	2	0	0	26	133
Hourly Total	4	0	24	4	0	16	32	320	32	72	4	0	0	428	4	63	0	0	0	0	67	0	85	5	2	0	0	92	619
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4:00 PM	1	0	20	1	0	2	22	170	25	14	0	0	0	209	2	17	0	0	0	1	19	0	41	0	0	0	0	41	291
4:15 PM	2	0	18	5	0	2	25	168	16	7	1	0	0	192	2	14	0	0	0	0	16	0	40	2	0	0	0	42	275
4:30 PM	1	0	12	0	0	8	13	183	15	16	0	0	0	214	0	14	0	0	0	0	14	0	40	2	0	0	0	42	283
4:45 PM	0	0	7	0	0	5	7	206	34	14	0	0	0	254	1	12	0	0	0	4	13	0	44	3	1	0	0	48	322
Hourly Total	4	0	57	6	0	17	67	727	90	51	1	0	0	869	5	57	0	0	0	5	62	0	165	7	1	0	0	173	1171
5:00 PM	1	0	8	0	0	3	9	178	16	12	0	0	1	206	1	17	0	0	0	3	18	0	49	1	0	0	0	50	283
5:15 PM	0	0	15	0	0	5	15	220	26	12	0	0	0	258	3	12	0	0	0	0	15	0	49	2	1	0	0	52	340
5:30 PM	1	0	12	2	0	6	15	128	18	12	0	0	0	158	3	18	0	0	0	0	21	0	34	3	0	0	0	37	231
5:45 PM	1	0	10	2	0	5	13	126	10	19	2	0	0	157	0	10	0	0	0	0	10	0	33	3	0	0	0	36	216
Hourly Total	3	0	45	4	0	19	52	652	70	55	2	0	1	779	7	57	0	0	0	3	64	0	165	9	1	0	0	175	1070
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	14	0	161	17	0	74	192	2017	273	227	8	0	1	2525	25	231	0	0	0	8	256	0	486	21	6	1	0	514	3487
Approach %	7.3	0.0	83.9	8.9	0.0	-	-	79.9	10.8	9.0	0.3	0.0	-	-	9.8	90.2	0.0	0.0	0.0	-	-	0.0	94.6	4.1	1.2	0.2	-	-	-
Total %	0.4	0.0	4.6	0.5	0.0	-	5.5	57.8	7.8	6.5	0.2	0.0	-	72.4	0.7	6.6	0.0	0.0	0.0	-	7.3	0.0	13.9	0.6	0.2	0.0	-	14.7	-
Lights	13	0	146	17	0	-	176	1792	268	221	7	0	-	2288	24	193	0	0	0	-	217	0	432	18	6	1	-	457	3138
% Lights	92.9	-	90.7	100.0	-	-	91.7	88.8	98.2	97.4	87.5	-	-	90.6	96.0	83.5	-	-	-	-	84.8	-	88.9	85.7	100.0	100.0	-	88.9	90.0
Buses	0	0	14	0	0	-	14	71	5	4	0	0	-	80	1	31	0	0	0	-	32	0	42	1	0	0	-	43	169
% Buses	0.0	-	8.7	0.0	-	-	7.3	3.5	1.8	1.8	0.0	-	-	3.2	4.0	13.4	-	-	-	-	12.5	-	8.6	4.8	0.0	0.0	-	8.4	4.8
Trucks	1	0	1	0	0	-	2	154	0	2	1	0	-	157	0	7	0	0	0	-	7	0	12	2	0	0	-	14	180
% Trucks	7.1	-	0.6	0.0	-	-	1.0	7.6	0.0	0.9	12.5	-	-	6.2	0.0	3.0	-	-	-	-	2.7	-	2.5	9.5	0.0	0.0	-	2.7	5.2
Bicycles on Crosswalk	-	-	-	-	-	2	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	2.7	-	-	-	-	-	-	0.0	-	-	-	-	-	-	0.0	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	-	72	-	-	-	-	-	-	1	-	-	-	-	-	-	8	-	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	97.3	-	-	-	-	-	-	100.0	-	-	-	-	-	-	100.0	-	-	-	-	-	-	-	-	-

Albany, NY
NY 32/Green St/1st Ave
Tuesday, February 5, 2019
Location: 42.635373, -73.762017

Count Name: NY 32 / Green St / 1st Ave
Site Code: Albany, New York
Start Date: 02/05/2019

NY 32 [SB]

Out	In	Total
435	457	892
35	43	78
11	14	25
0	0	0
0	0	0
481	**514**	**995**

24	432	0	1	0
1	42	0	0	0
2	12	0	0	0
0	0	0	0	0
0	0	0	0	0
27	**486**	**0**	**1**	**0**
R	T	L	U	P

1st Ave [EB]

Total	492	21	4	0	0	**517**
In	176	14	2	0	0	**192**
Out	316	7	2	0	0	**325**

U	0	0	0	0	0	**0**
L	13	0	1	0	0	**14**
T	0	0	0	0	0	**0**
R	163	14	1	0	0	**178**
P	0	0	0	2	72	**74**

02/05/2019 7:00 AM
Ending At
02/05/2019 6:15 PM

Lights
Buses
Trucks
Bicycles on Crosswalk
Pedestrians

Green St [WB]

R	228	4	3	0	0	**235**
T	268	5	0	0	0	**273**
L	1792	71	154	0	0	**2017**
U	0	0	0	0	0	**0**
P	0	0	0	0	1	**1**

Out	0	0	0	0	0	**0**
In	2288	80	157	0	0	**2525**
Total	2288	80	157	0	0	**2525**

U	L	T	R	P
0	24	193	0	0
0	1	31	0	0
0	0	7	0	0
0	0	0	0	0
0	0	0	0	8
0	**25**	**231**	**0**	**8**

2387	217	2604
127	32	159
167	7	174
0	0	0
0	0	0
2681	**256**	**2937**
Out	In	Total

NY 32 [NB]

Turning Movement Data Plot

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Albany, NY
NY 32/Green St/1st Ave
Tuesday, February 5, 2019
Location: 42.635373, -73.762017

Count Name: NY 32 / Green St / 1st Ave
Site Code: Albany, New York
Start Date: 02/05/2019
Page No: 3

Turning Movement Peak Hour Data (7:45 AM)

	1st Ave Eastbound							Green St Westbound							NY 32 Northbound							NY 32 Southbound							
Start Time	Left	Thru	Right	Right on Red	U-Turn	Peds	App. Total	Left	Thru	Right	Right on Red	U-Turn	Peds	App. Total	Left	Thru	Right	Right on Red	U-Turn	Peds	App. Total	Left	Thru	Right	Right on Red	U-Turn	Peds	App. Total	Int. Total
7:45 AM	2	0	7	2	0	6	11	86	18	18	0	0	0	122	3	12	0	0	0	0	15	0	27	0	0	0	0	27	175
8:00 AM	0	0	10	1	0	6	11	75	7	11	1	0	0	94	2	15	0	0	0	0	17	0	12	2	0	0	0	14	136
8:15 AM	1	0	7	2	0	4	10	99	12	19	2	0	0	132	2	13	0	0	0	0	15	0	21	1	0	0	0	22	179
8:30 AM	0	0	3	1	0	3	4	78	11	33	0	0	0	122	0	15	0	0	0	0	15	0	29	1	0	0	0	30	171
Total	3	0	27	6	0	19	36	338	48	81	3	0	0	470	7	55	0	0	0	0	62	0	89	4	0	0	0	93	661
Approach %	8.3	0.0	75.0	16.7	0.0	-	-	71.9	10.2	17.2	0.6	0.0	-	-	11.3	88.7	0.0	0.0	0.0	-	-	0.0	95.7	4.3	0.0	0.0	-	-	-
Total %	0.5	0.0	4.1	0.9	0.0	-	5.4	51.1	7.3	12.3	0.5	0.0	-	71.1	1.1	8.3	0.0	0.0	0.0	-	9.4	0.0	13.5	0.6	0.0	0.0	-	14.1	-
PHF	0.375	0.000	0.675	0.750	0.000	-	0.818	0.854	0.667	0.614	0.375	0.000	-	0.890	0.583	0.917	0.000	0.000	0.000	-	0.912	0.000	0.767	0.500	0.000	0.000	-	0.775	0.923
Lights	3	0	25	6	0	-	34	256	48	80	2	0	-	386	6	47	0	0	0	-	53	0	73	3	0	0	-	76	549
% Lights	100.0	-	92.6	100.0	-	-	94.4	75.7	100.0	98.8	66.7	-	-	82.1	85.7	85.5	-	-	-	-	85.5	-	82.0	75.0	-	-	-	81.7	83.1
Buses	0	0	2	0	0	-	2	19	0	1	0	0	-	20	1	6	0	0	0	-	7	0	11	0	0	0	-	11	40
% Buses	0.0	-	7.4	0.0	-	-	5.6	5.6	0.0	1.2	0.0	-	-	4.3	14.3	10.9	-	-	-	-	11.3	-	12.4	0.0	-	-	-	11.8	6.1
Trucks	0	0	0	0	0	-	0	63	0	0	1	0	-	64	0	2	0	0	0	-	2	0	5	1	0	0	-	6	72
% Trucks	0.0	-	0.0	0.0	-	-	0.0	18.6	0.0	0.0	33.3	-	-	13.6	0.0	3.6	-	-	-	-	3.2	-	5.6	25.0	-	-	-	6.5	10.9
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	-	19	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

![TRI-STATE TRAFFIC DATA]

www.TSTData.com
184 Baker Rd

Coatesville, Pennsylvania, United States 19320
610-466-1469
Serving Transportation Professionals Since 1995

Albany, NY
NY 32/Green St/1st Ave
Tuesday, February 5, 2019
Location: 42.635373, -73.762017

Count Name: NY 32 / Green St / 1st Ave
Site Code: Albany, New York
Start Date: 02/05/2019
Page No: 4

Peak Hour Data

02/05/2019 7:45 AM
Ending At
02/05/2019 8:45 AM

Lights
Buses
Trucks
Bicycles on Crosswalk
Pedestrians

NY 32 [SB]

Out	In	Total
132	76	208
7	11	18
3	6	9
0	0	0
0	0	0
142	**93**	**235**

R	T	L	U	P
3	73	0	0	0
0	11	0	0	0
1	5	0	0	0
0	0	0	0	0
0	0	0	0	0
4	**89**	**0**	**0**	**0**

1st Ave [EB]

Out	In	Total
57	34	91
1	2	3
1	0	1
0	0	0
0	0	0
59	**36**	**95**

U	L	T	R	P
0	3	0	31	0
0	0	0	2	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	19
0	**3**	**0**	**33**	**19**

Green St [WB]

Out	In	Total
0	386	386
0	20	20
0	64	64
0	0	0
0	0	0
0	**470**	**470**

R	T	L	U	P
82	48	256	0	0
1	0	19	0	0
1	0	63	0	0
0	0	0	0	0
0	0	0	0	0
84	**48**	**338**	**0**	**0**

NY 32 [NB]

U	L	T	R	P
0	6	47	0	0
0	1	6	0	0
0	0	2	0	0
0	0	0	0	0
0	0	0	0	0
0	**7**	**55**	**0**	**0**

Out	In	Total
360	53	413
32	7	39
68	2	70
0	0	0
0	0	0
460	**62**	**522**

Turning Movement Peak Hour Data Plot (7:45 AM)

Albany, NY
NY 32/Green St/1st Ave
Tuesday, February 5, 2019
Location: 42.635373, -73.762017

www.TSTData.com
184 Baker Rd

Coatesville, Pennsylvania, United States 19320
610-466-1469
Serving Transportation Professionals Since 1995

Count Name: NY 32 / Green St / 1st Ave
Site Code: Albany, New York
Start Date: 02/05/2019

Turning Movement Peak Hour Data (4:30 PM)

Start Time	1st Ave Eastbound							Green St Westbound							NY 32 Northbound							NY 32 Southbound							
	Left	Thru	Right	Right on Red	U-Turn	Peds	App. Total	Left	Thru	Right	Right on Red	U-Turn	Peds	App. Total	Left	Thru	Right	Right on Red	U-Turn	Peds	App. Total	Left	Thru	Right	Right on Red	U-Turn	Peds	App. Total	Int. Total
4:30 PM	1	0	12	0	0	8	13	183	15	16	0	0	0	214	0	14	0	0	0	0	14	0	40	2	0	0	0	42	283
4:45 PM	0	0	7	0	0	5	7	206	34	14	0	0	0	254	1	12	0	0	0	4	13	0	44	3	1	0	0	48	322
5:00 PM	1	0	8	0	0	3	9	178	16	12	0	0	1	206	1	17	0	0	0	3	18	0	49	1	0	0	0	50	283
5:15 PM	0	0	15	0	0	5	15	220	26	12	0	0	0	258	3	12	0	0	0	0	15	0	49	2	1	0	0	52	340
Total	2	0	42	0	0	21	44	787	91	54	0	0	1	932	5	55	0	0	0	7	60	0	182	8	2	0	0	192	1228
Approach %	4.5	0.0	95.5	0.0	0.0	-	-	84.4	9.8	5.8	0.0	0.0	-	-	8.3	91.7	0.0	0.0	0.0	-	-	0.0	94.8	4.2	1.0	0.0	-	-	-
Total %	0.2	0.0	3.4	0.0	0.0	-	3.6	64.1	7.4	4.4	0.0	0.0	-	75.9	0.4	4.5	0.0	0.0	0.0	-	4.9	0.0	14.8	0.7	0.2	0.0	-	15.6	-
PHF	0.500	0.000	0.700	0.000	0.000	-	0.733	0.894	0.669	0.844	0.000	0.000	-	0.903	0.417	0.809	0.000	0.000	0.000	-	0.833	0.000	0.929	0.667	0.500	0.000	-	0.923	0.903
Lights	2	0	39	0	0	-	41	750	91	51	0	0	-	892	5	48	0	0	0	-	53	0	167	7	2	0	-	176	1162
% Lights	100.0	-	92.9	-	-	-	93.2	95.3	100.0	94.4	-	-	-	95.7	100.0	87.3	-	-	-	-	88.3	-	91.8	87.5	100.0	-	-	91.7	94.6
Buses	0	0	2	0	0	-	2	21	0	1	0	0	-	22	0	7	0	0	0	-	7	0	12	0	0	0	-	12	43
% Buses	0.0	-	4.8	-	-	-	4.5	2.7	0.0	1.9	-	-	-	2.4	0.0	12.7	-	-	-	-	11.7	-	6.6	0.0	0.0	-	-	6.3	3.5
Trucks	0	0	1	0	0	-	1	16	0	2	0	0	-	18	0	0	0	0	0	-	0	0	3	1	0	0	-	4	23
% Trucks	0.0	-	2.4	-	-	-	2.3	2.0	0.0	3.7	-	-	-	1.9	0.0	0.0	-	-	-	-	0.0	-	1.6	12.5	0.0	-	-	2.1	1.9
Bicycles on Crosswalk	-	-	-	-	-	1	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	4.8	-	-	-	-	-	-	0.0	-	-	-	-	-	-	0.0	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	-	20	-	-	-	-	-	-	1	-	-	-	-	-	-	7	-	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	95.2	-	-	-	-	-	-	100.0	-	-	-	-	-	-	100.0	-	-	-	-	-	-	-	-	-