

HDD 19
Boring B130.8-1, K-130.9
Segment 3

CHPE Segment 3 - Package 2

HDD Soil Boring Coordinates and Elevations

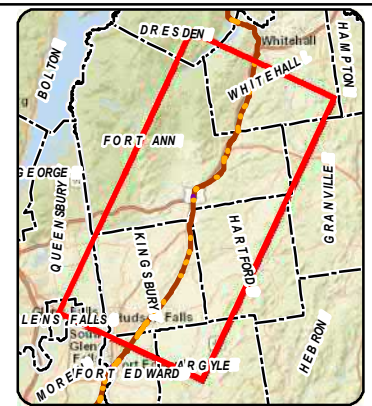
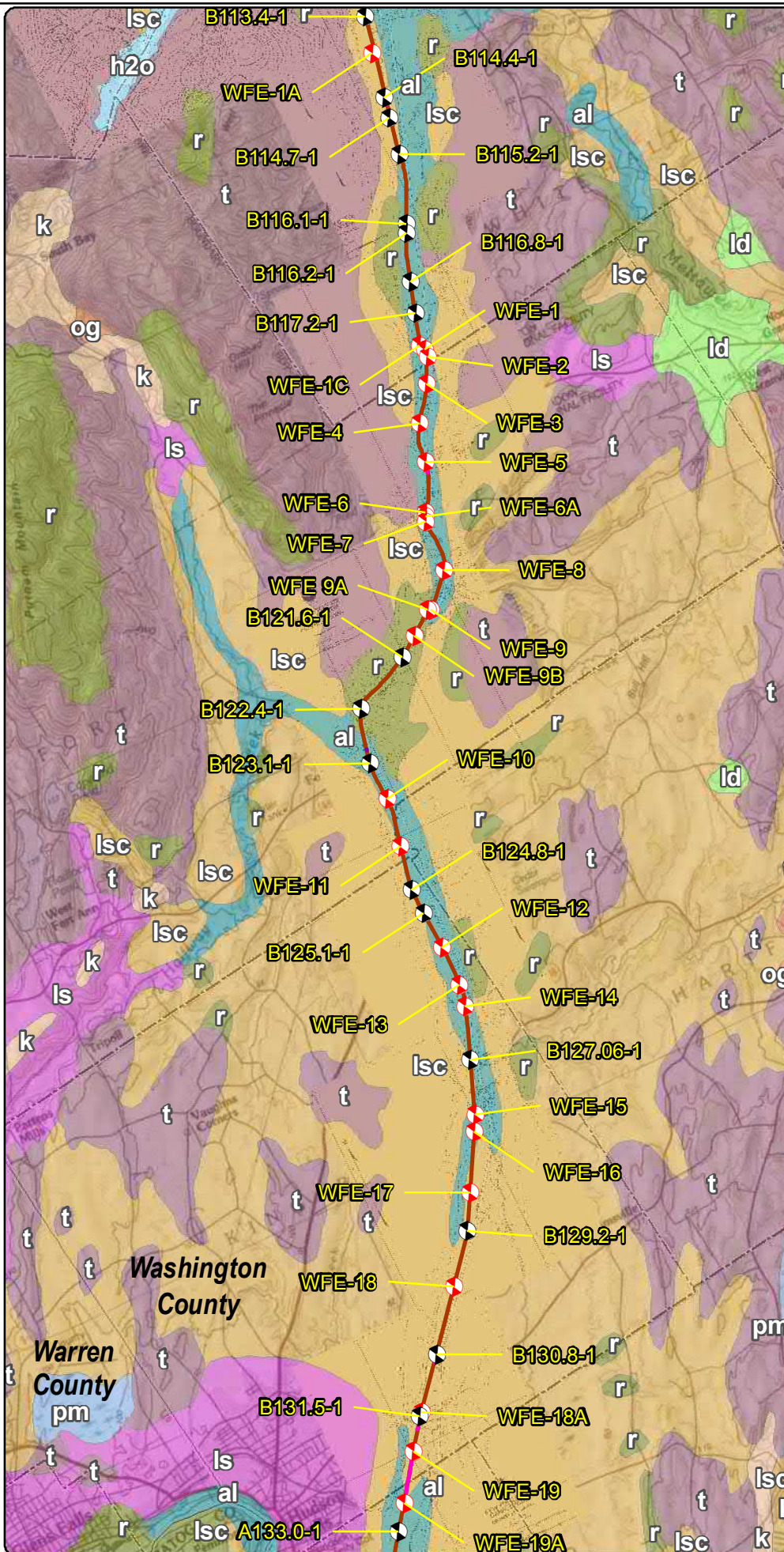
Firm	Boring	Northing (feet)	Easting (feet)	Ground Surface Elevation (feet)
TRC*	B122.4-1	1673988.1	762589.1	134.0
	B123.1-1	1670533.1	761581.7	134.0
	B127.6-1	1650236.9	759369.7	143.0
	B130.8-1	1633732.2	749229.1	144.0
	B131.5-1	1630565.5	746543.8	148.0
AECOM**	WFE-2	1693039.7	776227.9	125.9
	WFE-6	1683884.0	771830.6	128.7
	WFE-6A	1683645.5	771707.7	129.0
	WFE-7	1683295.0	771591.2	128.7
	WFE-9	1677994.3	769427.4	133.9
	WFE-9A	1678043.5	769246.8	140.2
	WFE-9B	1676842.4	767745.7	141.7
	WFE-12	1657680.6	760822.6	135.3
	WFE-16	1645866.1	757602.8	145.2
	WFE-18	1637293.5	752138.0	143.6
	WFE-18A	1630756.2	746790.9	144.9
	WFE-19	1628651.1	745226.2	139.1
	WFE-19A	1625848.4	743218.4	139.0

Notes:

- Northings and Eastings are provided in NAD83 New York State Plane East Zone.
- Elevations are referenced to the NAVD88 datum.
- * TRC boring coordinates as shown in Table 1-6 in AECOM report (reference below). Boring elevations estimated from November 2021 topographic survey by Williams Aerial.
- ** AECOM boring coordinates and elevations as shown in Table 1-6 in AECOM report.
- *** Kiewit boring coordinates and elevations are noted on the boring logs.

Reference:

AECOM, Geotechnical Data Report, Upland Segments: Putnam Station, Washington County, to Cementon, Green County, NY, Champlain Hudson Power Express, dated May 28, 2021.



LEGEND

- 2021 Boring Location
- Previous (2013) Boring Location
- Terrestrial Route HVDC
- Submarine Route HVDC
- Terrestrial Route HVAC
- Preliminary HDD Locations
- Preliminary Pipe Bridge Location
- Town Boundary
- County Boundary

Surfacial Geology

- al - Recent alluvium
- h2o - Water
- k - Kame deposits
- ld - Lacustrine delta
- ls - Lacustrine sand
- lsc - Lacustrine silt and clay
- og - Outwash sand and gravel
- pm - Swamp deposits
- r - Bedrock
- t - Till



1 0.5 0 1 Miles

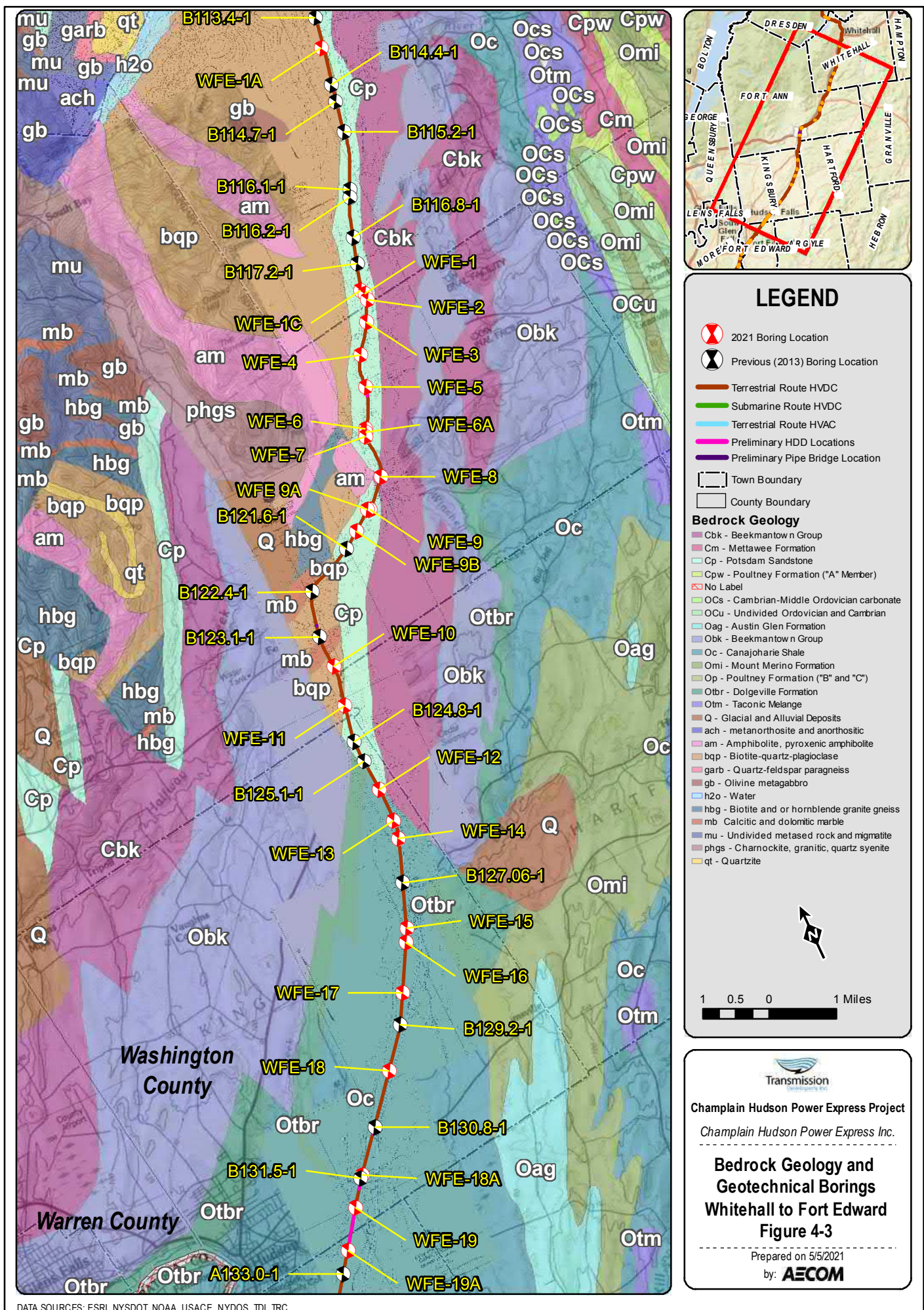


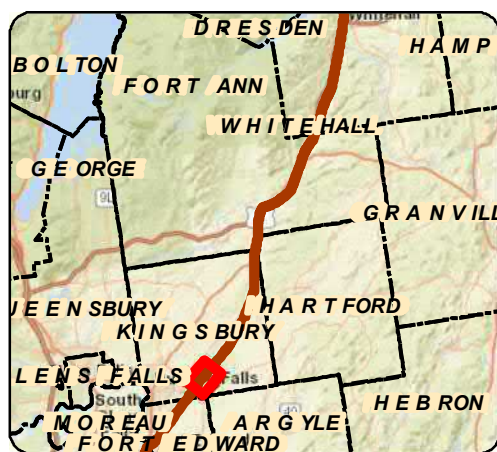
Champlain Hudson Power Express Project
Champlain Hudson Power Express Inc.

Surfacial Geology and Geotechnical Borings Whitehall to Fort Edward Figure 3-3

Prepared on 5/5/2021

by: **AECOM**





LEGEND

- 111.8 Certified Milepost - Tenths
- Certified Milepost
- 111.8 Preferred Alternative Milepost - Tenths
- 135 Preferred Alternative Milepost
- Terrestrial Route HVDC
- Submarine Route HVDC
- Terrestrial Route HVAC
- Preliminary HDD Locations
- Preliminary Pipe Bridge Location
- 2021 Boring Location
- Previous (2013) Boring Location
- Streams/Ditches
- Railroad ROW
- Deviation Zone
- Deviation Zone Outside ROW
- Preferred Alternative Deviation Zone
- Preferred Alternative Deviation Zone Outside ROW
- Town Boundary
- Village Boundary
- State Park (OPRHP)
- Parcel Ownership
- Road Name
- TOWN NAME
- Village Name


Transmission
Developers Inc.

Champlain Hudson Power Express Project
Champlain Hudson Power Express Inc.

BORING LOCATION PLAN
Whitehall to Fort Edward
Figure A-3
Sheet 15 of 16

Prepared by: **AECOM** 5/19/2021



TEST BORING LOG

PROJECT: TDI CHAMPLAIN HUDSON POWER EXPRESS

LOCATION: CP RAILROAD ROW, NY

BORING B130.8-1

G.S. ELEV. N/A

FILE 195651

SHEET 1 OF 1

GROUNDWATER DATA

FIRST ENCOUNTERED 9.0'

DEPTH	HOUR	DATE	ELAPSED TIME

METHOD OF ADVANCING BOREHOLE

a	FROM	0.0'	TO	10.0'
d	FROM	10.0'	TO	30.0'

DRILLER P. PLANTIER

HELPER M. NAGEY

INSPECTOR J. STAPLETON

DATE STARTED 01/23/2013

DATE COMPLETED 01/23/2013

DEPTH	A	B	C	DESCRIPTION	Wn	REMARKS
5	S-1	3 3 4 5		DARK BROWN ORGANIC CLAY, SM SILT, SM COBBLES (FILL)		
	S-2	2 2 2 3	4.0			
	S-3	2 3 2 3	6.0	BROWN CLAY AND SAND (FILL)		
	S-4	4 4 5 6			33.2	
10	S-5	3 3 3 7		OLIVE-BROWN CLAY, TR TO SM SILT		
			13.5			
15	S-6	2 2 3			45.7	
				OLIVE-BROWN CLAY, SM SILT		
20	S-7	3 3 4	23.5			
				GREEN-BROWN SILT, TR TO SM CLAY, TR F/ SAND		
25			28.5			
30	S-8	4 5 8	30.0	GREEN-BROWN F/M SAND, SM SILT, TR CLAY	23.8	
				END OF BORING AT 30'		
35						

NEWPROJECTS TEST BORING LOG 195651_TDI_CP.GPJ SITE BLAUVELT.GDT 3/27/13

DRN. JPB

CKD. PWK

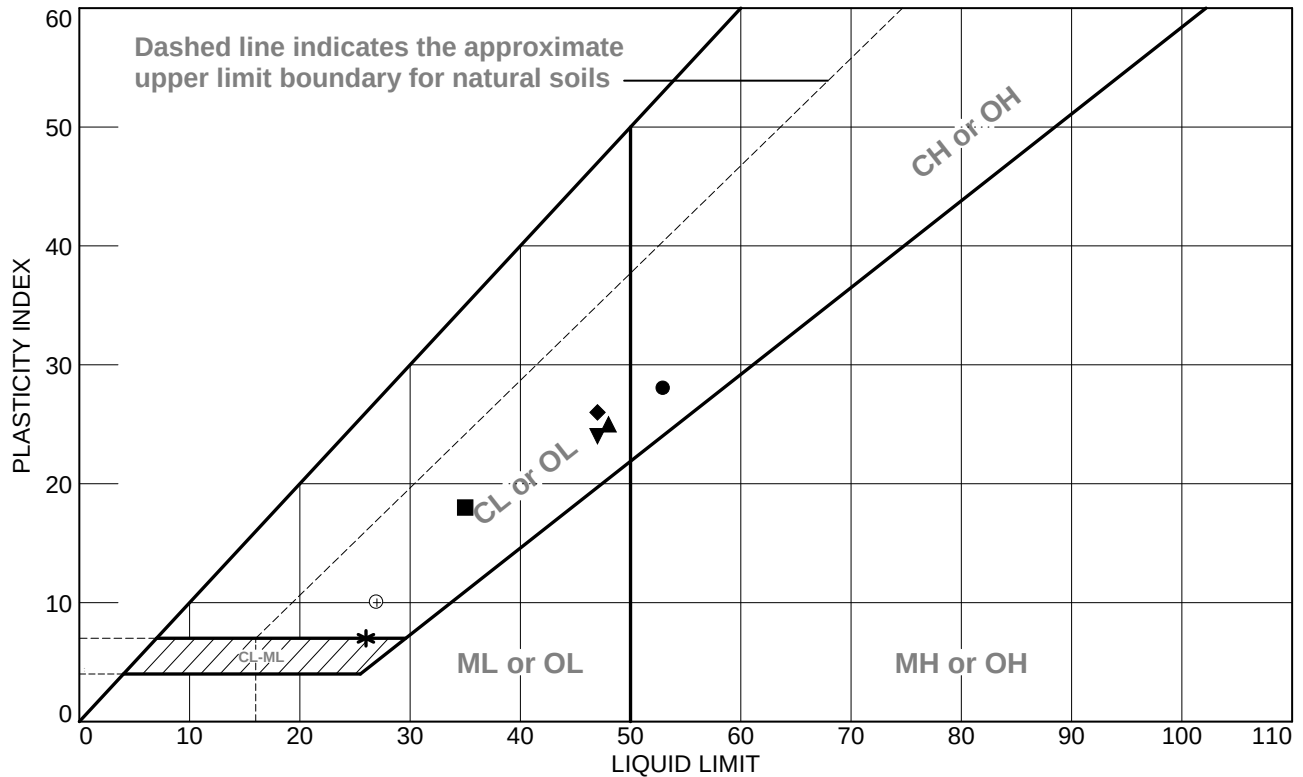


SUMMARY OF LABORATORY TEST DATA

Project Name: TDI Champlain Hudson Power Express – CP
 Client Name: Transmission Developers, Inc.
 TRC Project #: 195651

SAMPLE IDENTIFICATION			Soil Group (USCS System)	GRAIN SIZE DISTRIBUTION				PLASTICITY				Specific Gravity	Moisture Content (%)	Unit Weight (pcf)	Compressive Strength (tsf)	Organic Content (%)
Boring #	Sample #	Depth (ft)		Gravel (%)	Sand (%)	Silt (%)	Clay (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Liquidity Index					
	S-6	13.5-15.0	-	-	-	-	-	-	-	-	-	-	24.7	-	-	-
	S-8	23.5-25.0	-	-	-	-	-	-	-	-	-	-	61.2	-	-	-
B129.2-1	S-4	6.0-8.0	-	-	-	-	-	-	-	-	-	-	39.1	-	-	-
	S-5	8.0-10.0	-	-	-	-	-	-	-	-	-	-	62.5	60.1	-	-
	S-6	13.5-15.0	-	-	-	-	-	-	-	-	-	-	42.1	80.5	-	-
B130.8-1	S-4	6.0-8.0	-	-	-	-	-	-	-	-	-	-	33.2	-	-	-
	S-6	13.5-15.0	CL	-	-	-	-	35	17	18	1.6	-	45.7	-	-	-
	S-7	18.5-20.0		-	-	-	-	-	-	-	-	-	-	-	-	-
	S-8	23.5-25.0	-	-	-	-	-	-	-	-	-	-	23.8	-	-	-
B131.5-1	S-2	2.0-4.0	-	-	-	-	-	-	-	-	-	-	21.7	-	-	-
	S-3	4.0-6.0	CL	-	-	-	-	48	23	25	0.3	-	30.0	97.0	-	-
	S-5	8.0-10.0	-	0.0	14.2	85.8		-	-	-	-	-	34.7	-	-	-
	S-6	13.5-15.0	CL	0.0	15.7	41.0	43.3	47	21	26	0.2	2.74	25.5	-	-	-

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA

	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	B125.1-1	S-8	23.5-25.0 FT	29.1	25	53	28	CH
■	B130.8-1	S-6 & S-7	13.5-20.0 FT	45.7	17	35	18	CL
▲	B131.5-1	S-3	4.0-6.0 FT	30.0	23	48	25	CL
◆	B131.5-1	S-6	13.5-15.0 FT	25.5	21	47	26	CL
▼	B135.35-1	S-6	13.5-15.0 FT	38.2	23	47	24	CL
*	B135.35-1	S-11	38.5-40.0 FT	36.3	19	26	7	CL-ML
⊕	B143.59-1	S-8	23.5-25.0 FT	29.6	17	27	10	CL
⊕	B145.0-1	S-15	58.5-60.0 FT	23.7	20	18	NP	
⊗	B150.5-1	S-3	4.0-6.0 FT	21.5	NP	NV	NP	SM
⊗	B153.1-1	S-7	18.5-20.0 FT	22.8	20	19	NP	

TRC
Engineers, Inc.
Mt. Laurel, NJ

Client: TDI CHAMPLAIN HUDSON POWER EXPRESS - CP
Project: TRANSMISSION DEVELOPERS, INC.

Project No.: 195651

Figure 2



Boring Location Plans

Page 11 of 12

Drawn by:
ADW

Scale:
Not to scale

Project No.:
CD10279

Date:
March 2022

**Champlain Hudson Power Express
Design Package 2
Whitehall to Glens Falls, New York**

ATLANTIC TESTING LABORATORIES, Limited

Albany, NY
Poughkeepsie, NY

Binghamton,
NY
Syracuse, NY

Canton, NY
Rochester, NY

Elmira, NY
Utica, NY

Plattsburgh, NY
Watertown, NY

ATLANTIC TESTING LABORATORIES, Limited

Subsurface Investigation

Client: Kiewit Engineering (NY) Corp.
 Project: Subsurface Investigation
Champlain Hudson Power Express, Design Package 2
Various Locations, New York

Report No.: CD10279D-01-03-22
 Boring Location: See Boring Location Plan

Boring No.: K-130.9 Sheet 1 of 2

Coordinates
 Northing 748893.482
 Easting 1633324.323

Sampler Hammer
 Weight: 140 lbs.
 Fall: 30 in.
 Hammer Type: Automatic

Ground Elev.: 143.712 Boring Advance By: HW (4") Casing/3 7/8" Wet Rotary/NX Core

Start Date: 1/28/2022 Finish Date: 1/31/2022

Groundwater Observations
 Date Time Depth Casing
1/31/2022 PM *12.8' 10.0'

*May be affected by water utilized to advance the borehole.

ATL-LOG1 NE CD10279 KIEWIT INFRASTRUCTURE CO - VARIOUS LOCATIONS (PACKAGE 2);GPJ ATL4-08.GDT 4/12/22

DEPTH	METHOD OF ADVANCE	SAMPLE NO.	DEPTH OF SAMPLE		SAMPLE TYPE	BLOWS ON SAMPLER PER 6" 2" O.D. SAMPLER	DEPTH OF CHANGE	CLASSIFICATION OF MATERIAL	Recovery (Inches)
			From	To					
1	C A S I N G	1	0.0	2.0	SS	16 20 8 5	2.0	Blackish-Grey cmf GRAVEL; some cm SAND; trace SILT (frozen non-plastic) GW FILL	16
2		2	2.0	4.0	SS	4 7 7 4	4.0	Brownish-Grey mf SAND; some CLAY; trace SILT (moist, moderately plastic) SC	10
3									
4		3	4.0	6.0	SS	1 1 1 2		Dark Brown & Grey CLAY; little SILT; trace f SAND; trace ORGANIC MATERIAL (root hairs) (moist, plastic) CL	12
5									
6		4	6.0	8.0	SS	2 2 2 2		Grey CLAY; little SILT; little mf SAND (wet, plastic) CL w = 46.6%, LL = 39, PL = 18, PI = 21 % Fines = 85.8%	23
7									
8		5	8.0	10.0	SS	WH/24"		Brownish-Grey CLAY; little f GRAVEL; little mf SAND; trace SILT (saturated, plastic) CL	12
9									
10	WET R O T A R Y						12.0	Advanced casing to 10.0 feet and began advancing 3 7/8" tri-cone roller bit wet rotary open hole within the borehole.	
11									
12									
13									
14		6	14.0	16.0	SS	WH 1 1 3	17.0	Grey c-mf+ SAND; some SILT; trace CLAY (wet, very slightly plastic) SM w = 65.2% % Fines = 35.0%	24
15									
16									
17									
18									
19		7	19.0	20.0	SS	13 30 50/0"	20.0	Black cmf GRAVEL; some c-f SAND; little CLAY; trace SILT (moist, slightly plastic) Possible WEATHERED ROCK Fragments GC	12
20								Encountered possible WEATHERED ROCK at 20.0 feet.	
21								Advanced 3 7/8" tri-cone roller bit to 25.0 feet and began coring.	
22									
23									
24		8	24.0	24.0	SS	50/0"	25.0	NO RECOVERY	0
25									

SS Split Spoon Sample
 NX Rock Core
 SH Undisturbed Sample (Shelby Tube)
 Estimated Groundwater

Drillers: Jeffrey Donovan; John Trathen
 Inspector: James LaMarco (ATL)

ATLANTIC TESTING LABORATORIES, Limited

Subsurface Investigation

Boring No.: K-130.9Report No.: CD10279D-01-03-22Sheet 2 of 2

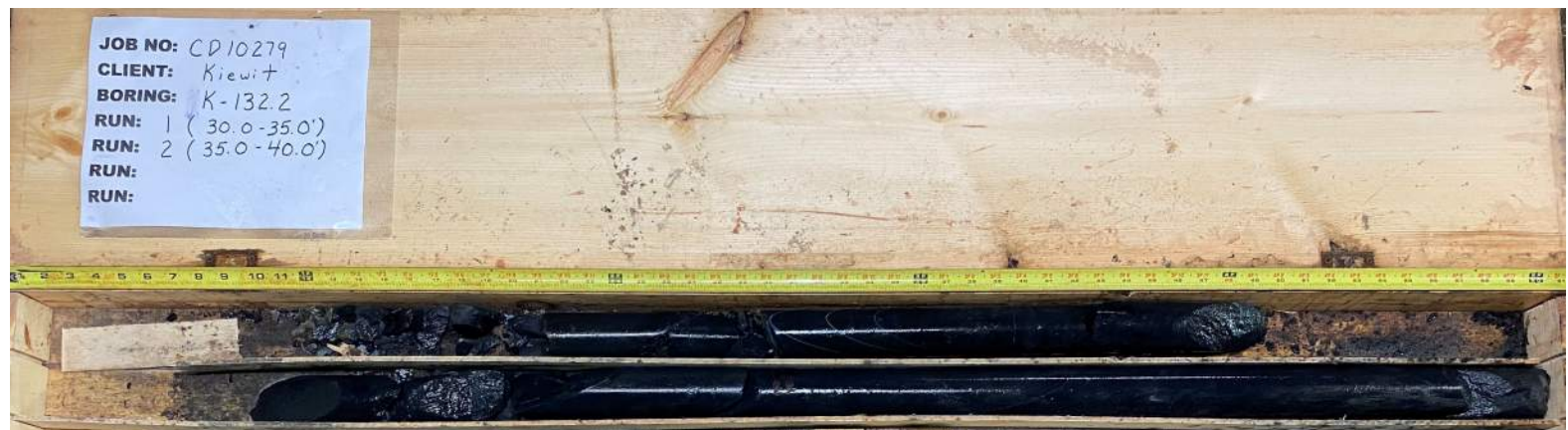
DEPTH	METHOD OF ADVANCE	SAMPLE NO.	DEPTH OF SAMPLE		SAMPLE TYPE	BLOWS ON SAMPLER PER 6" 2" O.D. SAMPLER	DEPTH OF CHANGE	CLASSIFICATION OF MATERIAL	RECOVERY (inches)
			From	To					
26	NX POCKET E (WET)		25.0	30.0	NX	RUN 1	30.0	Dark Grey SHALE 56" or 93% Recovery 8 Pieces (53") - 5% Chips and Fragments 6 Pieces longer than 4" (48") - RQD = 80%	56
27									
28									
29									
30			30.0	35.0	NX	RUN 2	35.0	Dark Grey SHALE 58" or 97% Recovery 10 Pieces (50") - 14% Chips and Fragments 6 Pieces longer than 4" (35") - RQD = 58%	58
31									
32									
33									
34					NX	RUN 3	40.0	Dark Grey SHALE 60" or 100% Recovery 5 Pieces (55") - 8% Chips and Fragments 5 Pieces longer than 4" (55") - RQD = 92%	60
35			35.0	40.0					
36									
37									
38							40.0	Boring terminated at 40.0 feet. Notes: 1. Borehole backfilled with cement-bentonite grout. 2. Soil classifications based on ATL Field Engineer's field classifications. 3. Borehole was advanced with ATL's Geoprobe 7822D7 (Rig Unit No. CDGV706) drill rig.	
39									
40									
41									
42									
43									
44									
45									
46									
47									
48									
49									
50									
51									
52									
53									
54									
55									
56									
57									
58									
59									
60									
61									
62									

ATL-LOG1 NE CD10279 KIEWIT INFRASTRUCTURE CO - VARIOUS LOCATIONS (PACKAGE 2).GPJ ATL4-08.GDT 4/12/22

K-130.9 - Runs 1 and 2



K-132.2 - Runs 1 and 2





ATLANTIC TESTING LABORATORIES

LABORATORY TEST SUMMARY TABLE

ATL No. CD10279: Kiewit Infrastructure Co. - Champlain Hudson Power Express

Boring ID	Sample No.	Sample Depth (ft.)	Soil/Rock Description	Percent Finer No. 200 Sieve	Moisture Content (%)	Atterburg Limits			Organic Content (%)	Water-Soluble Sulfate (ppm)	Water-Soluble Chloride (ppm)	pH	Resistivity (ohm-cm)	Rock Unconfined Compressive Strength (psi)	Rock Splitting Tensile Strength (psi)	Rock CERCHAR Abrasiveness Corrected CAI
						LL	PL	PI								
K-129.9B	S-4	6.0 - 8.0	Brown CLAY; some ORGANIC MATERIAL (root hairs); trace SILT	--	--	--	--	--	34.9	--	--	--	--	--	--	--
	S-6	14.0 - 16.0	Grey CLAY; little SILT; trace f SAND	--	88.0	96	49	47	--	--	--	--	--	--	--	--
	S-8	24.0 - 26.0	Grey c-mf SAND; trace SILT; trace f GRAVEL	7.0	18.3	--	--	--	--	--	--	--	--	--	--	--
	ST-1	27.0 - 29.0	Grey CLAY; trace SILT	100.0	51.2	55	20	35	--	--	--	--	--	--	--	--
	S-10	34.0 - 36.0	Grey CLAY; trace SILT	--	50.8	--	--	--	--	--	--	--	--	--	--	--
K-130.9	S-4	6.0 - 8.0	Grey CLAY; little SILT; little mf SAND	85.8	46.6	39	18	21	--	--	--	--	--	--	--	--
	S-6	14.0 - 16.0	Grey c-mf+ SAND; some SILT; trace CLAY	35.0	65.2	--	--	--	--	--	--	--	--	--	--	--
	RC-2	30.5 - 31.5	Dark Grey SHALE	--	--	--	--	--	--	--	--	--	--	--	1,153	2.75
	RC-2	31.5 - 31.8	Dark Grey SHALE	--	--	--	--	--	--	--	--	--	--	7,220	--	--
K-131.6	S-4	6.0 - 8.0	Grey CLAY; trace mf SAND; trace SILT	96.9	48.7	41	20	21	--	--	--	--	--	--	--	--
	S-7	19.0 - 21.0	Grey c-mf+ SAND; little SILT	15.0	22.6	--	--	--	--	--	--	--	--	--	--	--
	ST-1	35.0 - 37.0	Grey CLAY; trace f SAND; trace SILT	99.9	55.9	62	25	37	--	--	--	--	--	--	--	--
K-131.7A	S-3	4.0 - 6.0	Blackish-Brown cmf SAND; some mf GRAVEL; trace SILT	--	--	--	--	--	--	500	35	7.69	42,570	--	--	--
	S-4	6.0 - 8.0	Grey mf+ SAND; and SILT; trace CLAY	50.0	23.3	--	--	--	--	--	--	--	--	--	--	--
	S-7	19.0 - 21.0	Grey SILT; some CLAY; little f SAND; trace ORGANIC MATERIAL (root hairs, wood fragments)	78.3	43.6	53	21	32	--	--	--	--	--	--	--	--
	S-9	29.0 - 31.0	Grey CLAY; little SILT; trace f SAND	--	70.9	--	--	--	--	--	--	--	--	--	--	--
	ST-1	45.0 - 47.0	Grey CLAY; little mf SAND; trace SILT	86.6	66.4	53	25	28	--	--	--	--	--	--	--	--
K-131.7B	S-5	8.0 - 10.0	Brownish-Grey CLAY; little SILT; little ORGANIC MATERIAL (root hairs); trace mf SAND	--	--	--	--	--	10.5	--	--	--	--	--	--	--
	S-6	14.0 - 16.0	Black ORGANIC MATERIAL (peat, root hairs); trace SILT	3.1	178.4	NP	NP	NP	--	--	--	--	--	--	--	--
	S-9	29.0 - 31.0	Grey CLAY; trace SILT	--	60.9	--	--	--	--	--	--	--	--	--	--	--
	ST-1	45.0 - 47.0	Grey CLAY; trace SILT; trace f SAND	99.8	58.7	55	19	36	--	--	--	--	--	--	--	--
K-131.9	S-5	8.0 - 10.0	Black ORGANIC MATERIAL (peat, root hairs); trace mf SAND; trace SILT	2.0	411.1	NP	NP	NP	--	--	--	--	--	--	--	--
	S-8	24.0 - 36.0	Grey c-m SAND; trace CLAY; trace SILT	--	62.8	--	--	--	--	--	--	--	--	--	--	--



ATLANTIC TESTING LABORATORIES

WBE certified company

LABORATORY DETERMINATION OF MOISTURE CONTENT OF SOILS

ASTM D 2216

Page 1 of 2

PROJECT INFORMATION

Client: Kiewit Intrastructure Co.

ATL Report No.: CD10279E-03-02-22

Project: Champlain Hudson Power Express
United Cable Installation
Various Locations, New York

Report Date: February 18, 2022

Date Received: February 7, 2022

TEST DATA

Boring No.	Sample No.	Depth (ft)	Moisture Content (%)
K-117.6-0.2	S-4	6-8	25.3
	S-7 ¹	19-21	18.3
	S-9	28-30	55.0
K-117.6-2.1	S-4	6-8	15.4
	S-6	14-16	47.9
	S-9	29-31	16.4
	S-11 ¹	38-40	16.4
K-117.6-2.3	S-4 ¹	6-8	13.7
K-130.9	S-4	6-8	46.6
	S-6	14-16	65.2
K-131.6	S-4	6-8	48.7
	S-7	19-21	22.6
	ST-1	35-37	55.9
K-131.7A	S-4	6-8	23.3
	S-7	19-21	43.6
	S-9	29-31	70.9
	ST-1	45-47	66.4
K-131.7B	S-6	14-16	178.4
	S-9	29-31	60.9
	ST-1	45-47	58.7



Particle Size Distribution Report

Project: Champlain Hudson Power Express United Cable Install **Report No.:** CD10279E-03-02-22

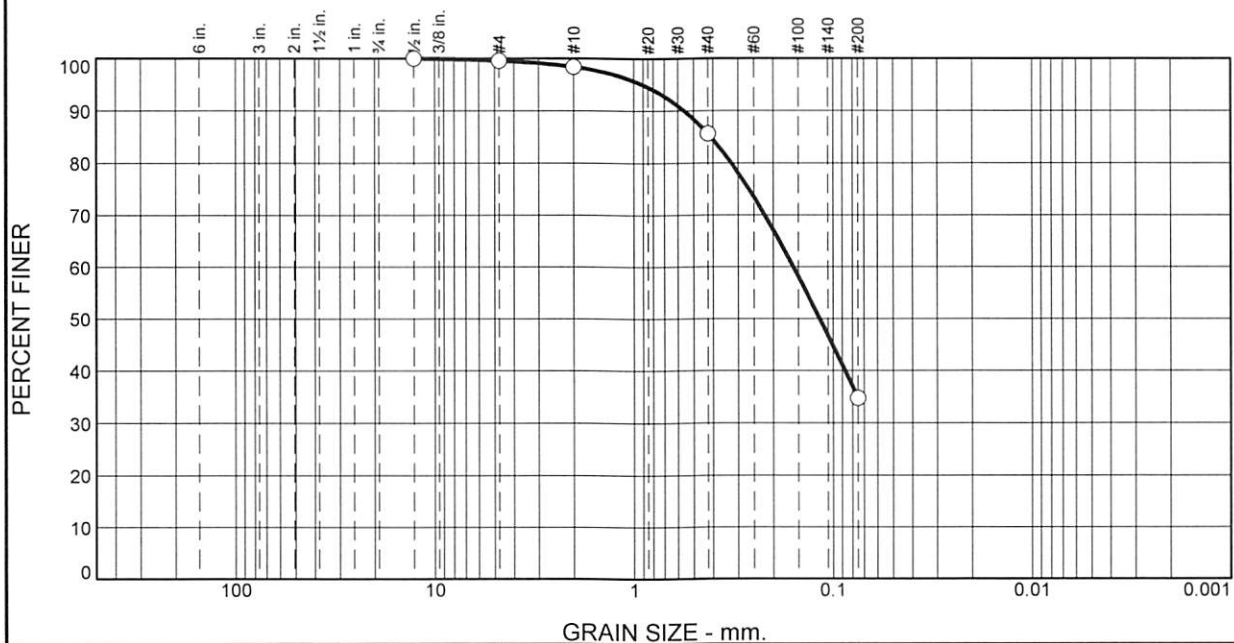
Client: Kiewit Infrastructure Co.

Date: 02/18/22

Sample No: K-130.9, S-6 **Source of Sample:** Boring Sample

Location: In-place

Elev./Depth: 14-16'



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	2	12	51	35	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	OUT OF SPEC. (X)
1/2"	100		
#4	100		
#10	98		
#40	86		
#200	35		

* (no specification provided)

Soil Description

Grey c-mf+ SAND; some SILT; trace CLAY

Atterberg Limits

PL= --

LL= --

PI= --

Coefficients

D₈₅= 0.4113

D₆₀= 0.1585

D₅₀= 0.1168

D₃₀=

D₁₅=

D₁₀=

C_u=

C_c=

Classification

USCS=

AASHTO=

Remarks

Moisture Content= 65.2%

Figure

ATLANTIC TESTING LABORATORIES, LIMITED

Reviewed by:

Date: 02/18/22



ATLANTIC TESTING LABORATORIES

WBE certified company

AMOUNT OF MATERIAL IN SOILS FINER THAN THE NO. 200 SIEVE
ASTM D 1140

PROJECT INFORMATION

Client: Kiewit Infrastructure Co.
Project: Champlain Hudson Power Express
United Cable Installation
Various Locations, New York

ATL Report No.: CD10279E-03-02-22
Report Date: February 18, 2022
Test Date: February 11, 2022
Performed By: A. Rivers

TEST DATA

Boring No.	Sample No.	Depth (ft)	Method (A or B)	Soak Time (min)	Initial Dry Weight (g)	% Finer than #200
K-117.6-0.2	S-4	6-8	A	10	205.83	41.7
K-117.6-0.2	S-7	19-21	A	10	220.45	23.5
K-117.6-0.2	S-9	28-30	A	10	273.37	99.7
K-117.6-2.1	S-6	14-16	A	10	163.54	57.2
K-130.9	S-4	6-8	A	10	144.29	85.8
K-131.6	S-4	6-8	A	10	138.58	96.9
K-131.6	ST-1	35-37	A	10	227.62	99.9
K-131.7A	S-7	19-21	A	10	175.90	78.3
K-131.7A	ST-1	45-47	A	10	221.28	86.6
K-131.7B	S-6	14-16	A	10	147.24	3.1
K-131.7B	ST-1	45-47	A	10	239.55	99.8
K-131.9	S-5	8-10	A	10	133.26	2.0
K-131.9	ST-1	35-37	A	10	194.65	99.0
K-132.1	S-6	14-16	A	10	202.17	44.3
K-132.1	ST-1	35-37	A	10	299.54	99.4

Reviewed By:

Date: February 18, 2022



ATLANTIC TESTING LABORATORIES

WBE certified company

Page 1 of 2

LIQUID LIMIT, PLASTIC LIMIT, AND PLASTICITY INDEX OF SOIL ASTM D 4318

PROJECT INFORMATION

Client: Kiewit Infrastructure Co.
Project: Champlain Hudson Power Express
United Cable Installation
Various Locations, New York

ATL Report No.: CD10279E-03-02-22
Report Date: February 18, 2022
Date Received: February 7, 2022

TEST DATA

Boring No.	Sample No.	LL	PL	PI
K-117.6-0.2	S-4	NP	NP	NP
K-117.6-0.2	S-7	NP	NP	NP
K-117.6-0.2	S-9	65	26	39
K-117.6-2.1	S-6	41	19	22
K-130.9	S-4	39	18	21
K-131.6	S-4	41	20	21
K-131.6	ST-1	62	25	37
K-131.7A	S-7	53	21	32
K-131.7A	ST-1	53	25	28
K-131.7B	S-6	NP	NP	NP
K-131.7B	ST-1	55	19	36
K-131.9	S-5	NP	NP	NP
K-131.9	ST-1	51	20	31
K-132.1	S-6	NP	NP	NP
K-132.1	ST-1	44	19	25

SAMPLE INFORMATION

Boring No.	Sample No.	Maximum Grain Size (mm)	Estimated Amount of Sample Retained on No. 40 Sieve (%)	As Received Moisture Content (%)
K-117.6-0.2	S-4	6.35	15	25.3
K-117.6-0.2	S-7	2.38	30	18.3
K-117.6-0.2	S-9	0.595	1	55.0
K-117.6-2.1	S-6	2	5	47.9
K-130.9	S-4	2	5	46.6
K-131.6	S-4	0.595	2	48.7
K-131.6	ST-1	0.841	1	55.9
K-131.7A	S-7	2	2	43.6
K-131.7A	ST-1	9.51	10	66.4
K-131.7B	S-6	9.51	30	178.4
K-131.7B	ST-1	0.595	1	58.7
K-131.9	S-5	4.76	20	411.1
K-131.9	ST-1	2	1	70.9
K-132.1	S-6	4.76	10	121.0
K-132.1	ST-1	2	1	37.7

Client: Kiewit Infrastructure Co.
Project: Champlain Hudson Power Express

ATL Report No. CD10279E-03-02-22
Date: February 18, 2022
Page 2 of 2

PREPARATION INFORMATION

Boring No.	Sample No.	Preparation	Method of Removing Oversized Material
K-117.6-0.2	S-4	Air Dry	Pulverizing and Screening
K-117.6-0.2	S-7	Air Dry	Pulverizing and Screening
K-117.6-0.2	S-9	Air Dry	Pulverizing and Screening
K-117.6-2.1	S-6	Air Dry	Pulverizing and Screening
K-130.9	S-4	Air Dry	Pulverizing and Screening
K-131.6	S-4	Air Dry	Pulverizing and Screening
K-131.6	ST-1	Air Dry	Pulverizing and Screening
K-131.7A	S-7	Air Dry	Pulverizing and Screening
K-131.7A	ST-1	Air Dry	Pulverizing and Screening
K-131.7B	S-6	Air Dry	Pulverizing and Screening
K-131.7B	ST-1	Air Dry	Pulverizing and Screening
K-131.9	S-5	Air Dry	Pulverizing and Screening
K-131.9	ST-1	Air Dry	Pulverizing and Screening
K-132.1	S-6	Air Dry	Pulverizing and Screening
K-132.1	ST-1	Air Dry	Pulverizing and Screening

EQUIPMENT INFORMATION

Liquid Limit Procedure:	Multipoint - Method A	☒	Single Point - Method B	☐
Liquid Limit Apparatus:	Manual	☒	Motor Driven	☐
Liquid Limit Grooving Tool Material:	Plastic	☒	Metal	☐
Liquid Limit Grooving Tool Shape:	Flat	☒	Curved (AASHTO Only)	☐
Plastic Limit:	Hand Rolled	☒	Mechanical Rolling Device	☐

Reviewed By: 

Date: 02/18/22



ATLANTIC TESTING LABORATORIES

WBE certified company

Page 1 of 1

PROJECT INFORMATION

Client: Kiewit Infrastructure Co.
Project: Champlain Hudson Power Express
United Cable Installation
Various Locations, New York

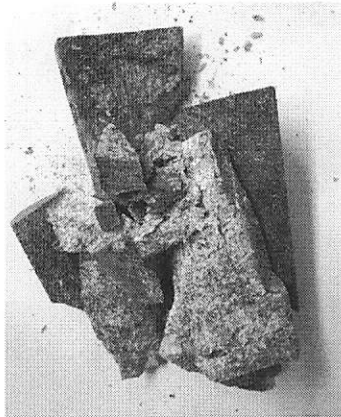
ATL Report No.: CD10279E-03-02-22
Report Date: February 18, 2022
Date Received: February 7, 2022

UNCONFINED COMPRESSIVE STRENGTH OF INTACT ROCK CORE SPECIMENS ASTM D 7012, Method C

Boring No.	Sample No.	Depth (ft)	Diameter (in)	Length (in)	Load Rate (lbs/sec)	Total Load (lbs)	Area (in ²)	Compressive Strength (psi)
K-117.6-2.3	RC-4	32.7-33.0	1.98	4.01	300	62,970	3.08	20,440
K-130.9	RC-2	31.5-31.8	1.98	4.04	280	22,240	3.08	7,220

Failure Pictures

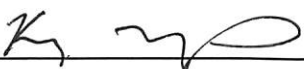
K-117.6-2.3, RC-4, 32.7-33.0'



K-130.9, RC-2, 31.5-31.8'



Reviewed By:



Date: February 18, 2022

DATE: September 23, 2022

TO: Antonio Marruso, P.E.; CHA Consulting, Inc.

FROM: Matthew Hawley, P.E.; Kiewit Engineering (NY) Corp. **mkH**
Jaren Knighton; Kiewit Engineering (NY) Corp.

SUBJECT: Geotechnical Data: Segment 3 - Package 2 - HDD Crossing 20 and 20.A – Revision 1
Champlain Hudson Power Express Project
Fort Ann, New York

Kiewit Engineering is providing the attached geotechnical data for use in the horizontal direction drill (HDD) design for the Champlain Hudson Power Express project in Upstate New York. This HDD crossing is located south of Fort Ann, New York. The approximate station for the start of HDD crossing Number 20 is STA 20737+00 (43.305488° N, 73.543174° W). The approximate station for the start of HDD crossing Number 20.A is STA 20741+00 (43.304324° N, 73.544558° W).

The geotechnical data at this HDD crossing is attached. The available data is from the previous investigation by AECOM and TRC and the recent investigation by Atlantic Testing Laboratories, referenced below.

- AECOM, Geotechnical Data Report, Upland Segments, Champlain Hudson Power Express, dated May 28, 2021.
- TRC, Geotechnical Data Report, Champlain Hudson Power Express, Canadian Pacific Railway Borings MP 113.1-177.1, dated March 29, 2013.
- Atlantic Testing Laboratories, Subsurface Investigation Services, Champlain Hudson Power Express, Design Package 2, Whitehall to Glens Falls, New York, dated June 15, 2022.

Contact us if you have questions or require additional information.

HDD 20, 20.A
Borings WFE-18A, B131.5-1,
K-131.6, K-131.7A, K-131.7B
Segment 3

CHPE Segment 3 - Package 2

HDD Soil Boring Coordinates and Elevations

Firm	Boring	Northing (feet)	Easting (feet)	Ground Surface Elevation (feet)
TRC*	B122.4-1	1673988.1	762589.1	134.0
	B123.1-1	1670533.1	761581.7	134.0
	B127.6-1	1650236.9	759369.7	143.0
	B130.8-1	1633732.2	749229.1	144.0
	B131.5-1	1630565.5	746543.8	148.0
AECOM**	WFE-2	1693039.7	776227.9	125.9
	WFE-6	1683884.0	771830.6	128.7
	WFE-6A	1683645.5	771707.7	129.0
	WFE-7	1683295.0	771591.2	128.7
	WFE-9	1677994.3	769427.4	133.9
	WFE-9A	1678043.5	769246.8	140.2
	WFE-9B	1676842.4	767745.7	141.7
	WFE-12	1657680.6	760822.6	135.3
	WFE-16	1645866.1	757602.8	145.2
	WFE-18	1637293.5	752138.0	143.6
	WFE-18A	1630756.2	746790.9	144.9
	WFE-19	1628651.1	745226.2	139.1
	WFE-19A	1625848.4	743218.4	139.0

Notes:

- Northings and Eastings are provided in NAD83 New York State Plane East Zone.

- Elevations are referenced to the NAVD88 datum.

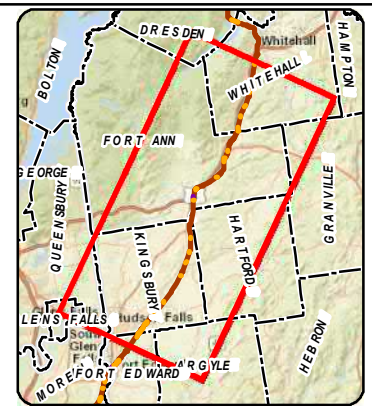
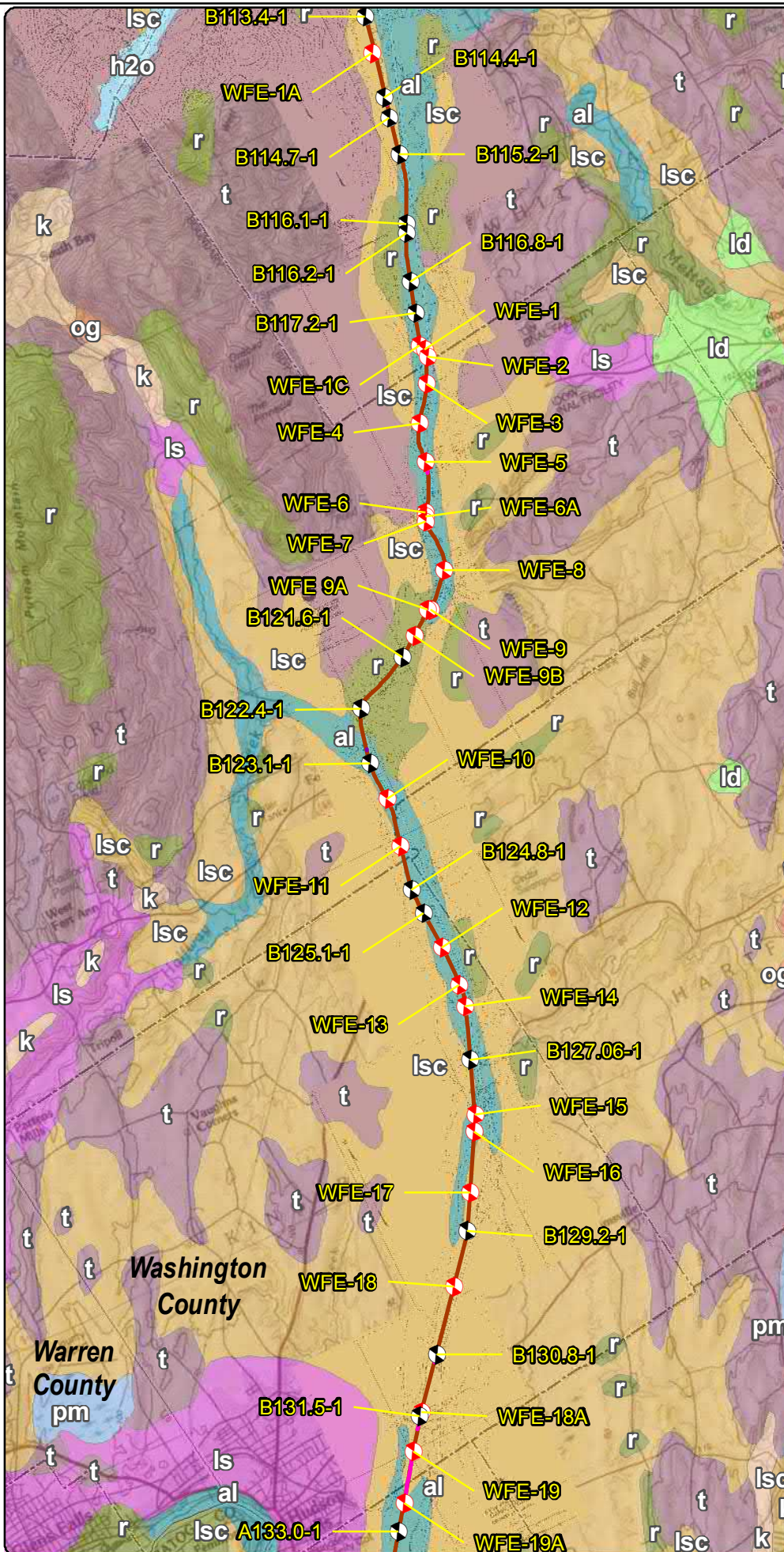
* TRC boring coordinates as shown in Table 1-6 in AECOM report (reference below). Boring elevations estimated from November 2021 topographic survey by Williams Aerial.

** AECOM boring coordinates and elevations as shown in Table 1-6 in AECOM report.

*** Kiewit boring coordinates and elevations are noted on the boring logs.

Reference:

AECOM, Geotechnical Data Report, Upland Segments: Putnam Station, Washington County, to Cementon, Green County, NY, Champlain Hudson Power Express, dated May 28, 2021.



LEGEND

- 2021 Boring Location
- Previous (2013) Boring Location
- Terrestrial Route HVDC
- Submarine Route HVDC
- Terrestrial Route HVAC
- Preliminary HDD Locations
- Preliminary Pipe Bridge Location
- Town Boundary
- County Boundary

Surfacial Geology

- al - Recent alluvium
- h2o - Water
- k - Kame deposits
- ld - Lacustrine delta
- ls - Lacustrine sand
- lsc - Lacustrine silt and clay
- og - Outwash sand and gravel
- pm - Swamp deposits
- r - Bedrock
- t - Till



1 0.5 0 1 Miles

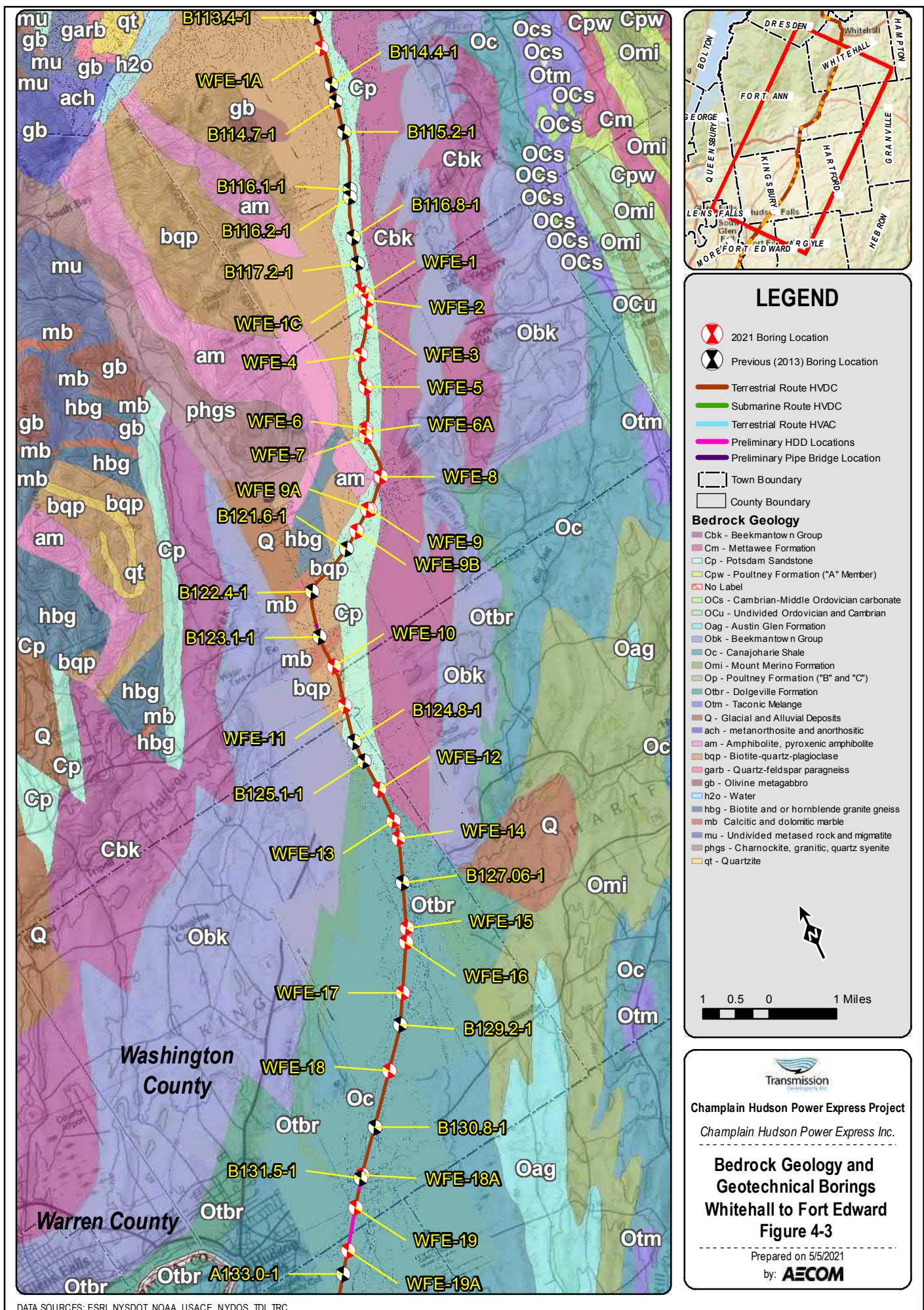


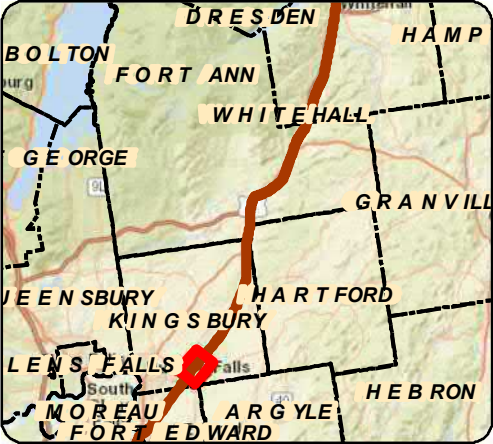
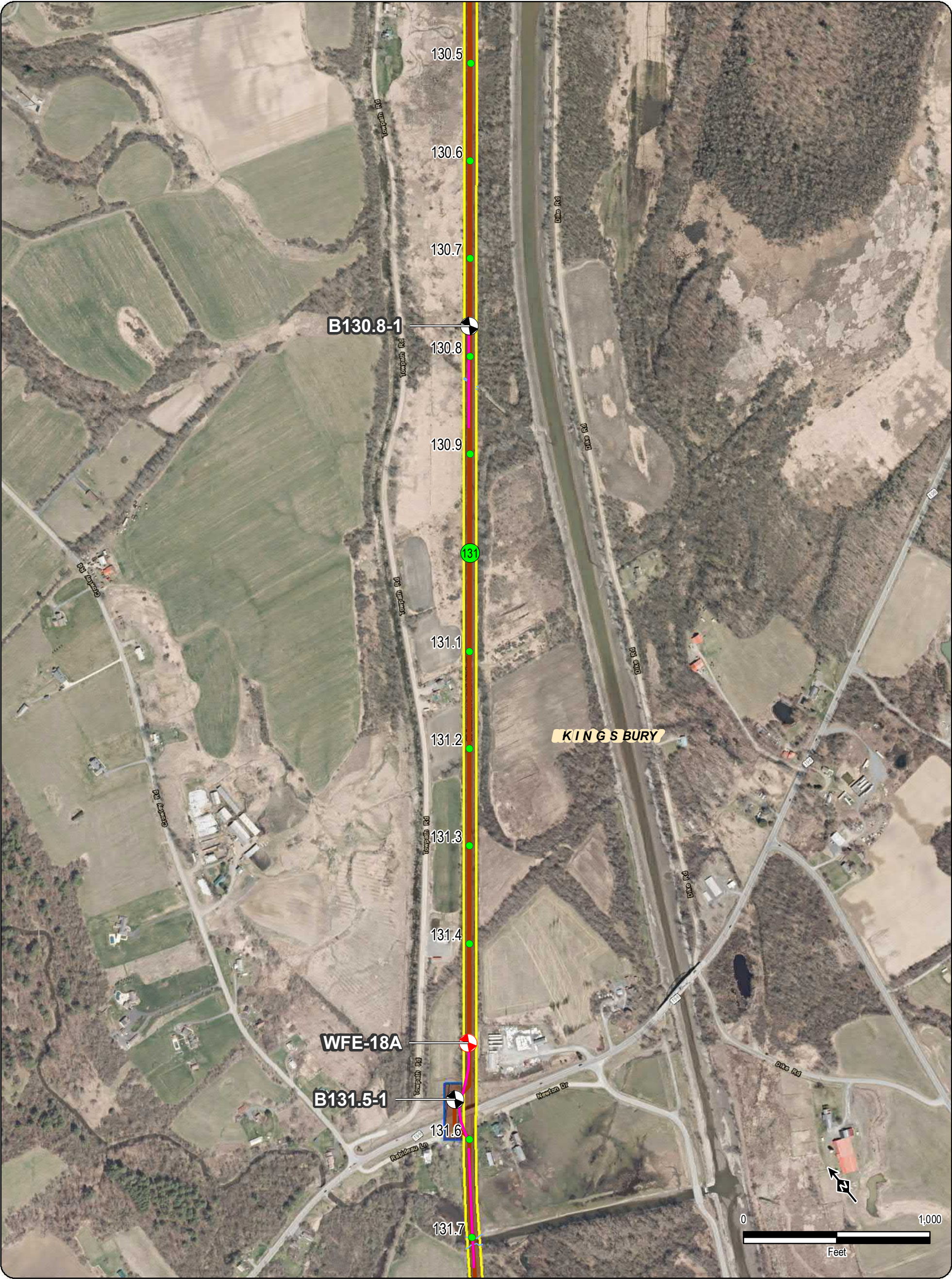
Champlain Hudson Power Express Project
Champlain Hudson Power Express Inc.

Surfacial Geology and Geotechnical Borings Whitehall to Fort Edward Figure 3-3

Prepared on 5/5/2021

by: **AECOM**





111.8

Certified Milepost - Tenths

131

Certified Milepost

111.8

Preferred Alternative Milepost - Tenths

135

Preferred Alternative Milepost

Terrestrial Route HVDC

Submarine Route HVDC

Terrestrial Route HVAC

Preliminary HDD Locations

Preliminary Pipe Bridge Location

2021 Boring Location

Previous (2013) Boring Location

Streams/Ditches

Railroad ROW

Deviation Zone

Deviation Zone Outside ROW

Preferred Alternative Deviation Zone

Preferred Alternative Deviation Zone Outside ROW

Town Boundary

Village Boundary

State Park (OPRHP)

Parcel Ownership

TOWN NAME

Road Name

Village Name

Transmission

Developers Inc.

Champlain Hudson Power Express Project

Champlain Hudson Power Express Inc.

BORING LOCATION PLAN

Whitehall to Fort Edward

Figure A-3

Sheet 15 of 16

Prepared by:

AECOM

5/19/2021

DATA SOURCES: ESRI, NETWORK MAPPING 2010, NYSDOT, OPRHP, TDI, TRC

Y:\Projects\CHPE\Route\Consensus_Alternative_Routes\MXD\Alt.5_Routes_DZ_201909\Boring_Locations\Maps_for_May_2021_Report\Whitehall_to_Fort_Edward_Boring_Locations_Mapset_May_2021_Report.mxd



TEST BORING LOG

PROJECT: TDI CHAMPLAIN HUDSON POWER EXPRESS

LOCATION: CP RAILROAD ROW, NY

BORING B131.5-1

G.S. ELEV. N/A

FILE 195651

SHEET 1 OF 1

GROUNDWATER DATA

FIRST ENCOUNTERED NR

DEPTH	HOUR	DATE	ELAPSED TIME
16.6'	9:30	11/17	0 HR

METHOD OF ADVANCING BOREHOLE

a	FROM	0.0'	TO	10.0'
d	FROM	10.0'	TO	20.0'

DRILLER R. CARUSO

HELPER C. SMART

INSPECTOR C. POPPE

DATE STARTED 11/17/2012

DATE COMPLETED 11/17/2012

DEPTH	A	B	C	DESCRIPTION	Wn	REMARKS
	S-1	4 9 10 12		GRAY SILT, SM F/M SAND, TR CLAY		
	S-2	16 9 11 11	4.0		21.7	
5	S-3	9 12 14 7			30.0	
	S-4	6 5 6 8				
10	S-5	6 7 6 7		GRAY SILTY CLAY, TR TO SM F/M SAND	34.7	
15	S-6	3 2 3			25.5	
20	S-7	WOH	18.5	GRAY F/M SANDY SILT, TR CLAY		
			20.0	END OF BORING AT 20'		
25						
30						
35						

NEW PROJECTS TEST BORING LOG 195651_TDI_CP.GPJ SITE BLAUVELT.GDT 3/27/13

DRN. TBT
CKD. PWK

BORING CONTRACTOR: ADT						AECOM								SHEET 1 OF 2				
DRILLER: Chris Chaillou														PROJECT NAME: CHPE -				
SOILS ENGINEER/GEOLOGIST: Chris French						BORING LOG								PROJECT NO.: 60323056				
														HOLE NO.: WFE-18A				
														START DATE: 1/12/21				
LOCATION: M.P. - 131.5 (CP Rail)														FINISH DATE: 1/12/21				
														OFFSET: N/A				
GROUND WATER OBSERVATIONS								CASING		SAMPLER		DRILL BIT		CORE BARREL		DRILL RIG: CME LC-55		
11' (inferred)						TYPE		Flush Joint Steel		California Modified		Tricone Roller Bit				BORING TYPE: SPT		
						SIZE I.D.		4"		2.5"		--				BORING O.D.: 4.5"		
						SIZE O.D.		4.5"		3"		3 7/8"				SURFACE ELEV.:		
						HAMMER WT.		140 lbs		140 lbs						LONGITUDE:		
						HAMMER FALL		30"		30"						LATITUDE:		
D E P T H	CORING RATE MIN/FT	S A M P L E			PEN. in	REC. in	BLOWS PER 6 in ON SAMPLER (ROCK QUALITY DESIGNATION)				N Corr. ⁽²⁾	USCS CLASS.	STRAT. CHNG. DEPTH	FIELD IDENTIFICATION OF SOILS				
1.0		0'-5'					Hand Cleared							0.0'-1.5'; Black fine-coarse SAND, little silt, little subangular gravel; loose, moist (0'-0.5' frozen)				
2.0												ML		1.5'-4.0'; Gray SILT, some fine sand (Brown), trace clay; medium stiff, moist				
3.0																		
4.0		3'-5'		S-1									SM		TR-1; (3.0'-5.0')			
5.0														4.0'-5.0'; Brown fine SAND, some silt, trace clay; loose, saturated				
6.0		5'-7'		S-2	24"	24"	4	5	5	8	7	ML		Silty SAND	Gray SILT, little clay, red-brown mottling; medium stiff, moist			
7.0																		
8.0		7'-9'		S-3	24"	14"	3	3	3	2	4	ML			SAA TR-2; (8.0'-8.5')			
9.0																		
10.0		9'-11'		S-4	24"	24"	WOH	WOH	4	5	3	SM			Gray fine SAND, little silt; medium dense, moist-wet			
11.0																		
12.0		11'-13'		S-5	24"	24"	8	18	21	30	25	SP			Brown fine SAND, little medium sand; loose saturated			
13.0																		
14.0		13'-15'		S-6	24"	18"	33	24	26	22	33	SP			SAA			
15.0																		
16.0		15'-17'		S-7	24"	18"	32	23	27	25	33	SP		SAND	Gray fine SAND, some medium sand; very loose, saturated			
17.0															TR-3; (16.0'-16.5')			
18.0																		
19.0																		
20.0																		
NOTES: (1) Thick-wall ring lined drive sampler (California sampler) used for SPT samples. Rings dimensions = 2-1/2" O.D. by 2-7/16" I.D. by 6" length. (2) Correction factor: N _{corr} =N*(2.0 ² -1.375 ²)in./(3.0 ² -2.4 ²)in. = N*0.65. Soil description represents a field identification after D.M. Burmister unless otherwise noted.													The information contained on this log is not warranted to show the actual subsurface condition. The contractor agrees that he will make no claims against AECOM if he finds that the actual conditions do not conform to those indicated by this log.					
SAMPLE TYPE:		S= SPLIT SPOON		U=SHELBY TUBE		R=ROCK CORE												
PROPORTIONS:		TRACE=1-10%		LITTLE=10-20%		SOME=20-35%		AND=35-50%										

BORING CONTRACTOR: ADT		AECOM										SHEET 2 OF 2	
DRILLER: Chris Chaillou												PROJECT NAME: CHPE -	
SOILS ENGINEER: Chris French												PROJECT NO.: 60323056	
												HOLE NO.: WFE-18A	
LOCATION: M.P. - 131.5 (CP Rail)										BORING LOG		START DATE: 1/12/21	
												FINISH DATE: 1/12/21	
												OFFSET: N/A	
DEPTH	CORING RATE MIN/FT	DEPTHS FROM - TO (FEET)	TYPE AND NO.	PEN. in	REC. in	BLOWS PER 6 in ON SAMPLER (ROCK QUALITY DESIGNATION)				N Corr.	USCS CLASS.	STRAT. CHNG. DEPTH	FIELD IDENTIFICATION OF SOILS
21.0		20'-22'	S-8	24"	14"	19	17	23	27	26	SP	SAND	Gray fine-medium SAND; loose, saturated
22.0										21	SP		Gray fine-medium SAND, little coarse sand, trace subangular gravel; very loose, saturated TR-4; (26.0'-26.5')
23.0													
24.0													
25.0													
26.0		25'-27'	S-9	24"	12"	14	15	18	18				
27.0												0	
28.0													
29.0													
30.0													
31.0		30'-32'	S-10	24"	24"	WOH	WOH	WOH	3				
32.0										1	CH		Silty CLAY
33.0													
34.0													
35.0													
36.0		35'-37'	S-11	24"	24"	WOH	WOH	2	2				
37.0												2	
38.0													
39.0		38'-40'	S-12	24"	24"	WOH	WOH	3	4				
40.0													
41.0													
42.0													
43.0													WFE-18A terminated at 40', grouted to surface
44.0													
45.0													
NOTES:												The information contained on this log is not warranted to show the actual subsurface condition. The contractor agrees that he will make no claims against AECOM if he finds that the actual conditions do not conform to those indicated by this log.	
Soil description represents a field identification after D.M. Burmister unless otherwise noted.													
SAMPLE TYPE:		S= SPLIT SPOON		U=SHELBY TUBE		R=ROCK CORE							
PROPORTIONS:		TRACE=1-10%		LITTLE=10-20%		SOME=20-35%		AND=35-50%					

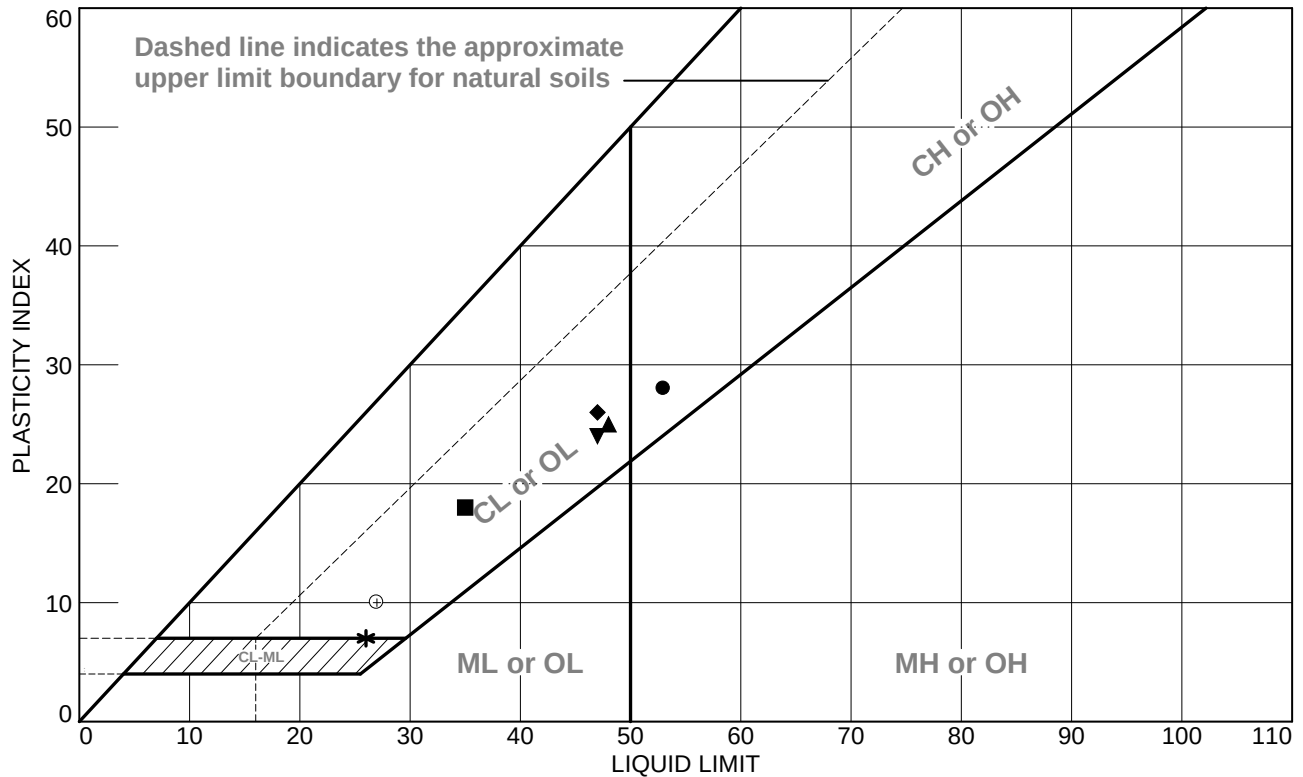


SUMMARY OF LABORATORY TEST DATA

Project Name: TDI Champlain Hudson Power Express – CP
 Client Name: Transmission Developers, Inc.
 TRC Project #: 195651

SAMPLE IDENTIFICATION			Soil Group (USCS System)	GRAIN SIZE DISTRIBUTION				PLASTICITY				Specific Gravity	Moisture Content (%)	Unit Weight (pcf)	Compressive Strength (tsf)	Organic Content (%)
Boring #	Sample #	Depth (ft)		Gravel (%)	Sand (%)	Silt (%)	Clay (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Liquidity Index					
	S-6	13.5-15.0	-	-	-	-	-	-	-	-	-	-	24.7	-	-	-
	S-8	23.5-25.0	-	-	-	-	-	-	-	-	-	-	61.2	-	-	-
B129.2-1	S-4	6.0-8.0	-	-	-	-	-	-	-	-	-	-	39.1	-	-	-
	S-5	8.0-10.0	-	-	-	-	-	-	-	-	-	-	62.5	60.1	-	-
	S-6	13.5-15.0	-	-	-	-	-	-	-	-	-	-	42.1	80.5	-	-
B130.8-1	S-4	6.0-8.0	-	-	-	-	-	-	-	-	-	-	33.2	-	-	-
	S-6	13.5-15.0	CL	-	-	-	-	35	17	18	1.6	-	45.7	-	-	-
	S-7	18.5-20.0		-	-	-	-	-	-	-	-	-	23.8	-	-	-
	S-8	23.5-25.0	-	-	-	-	-	-	-	-	-	-	23.8	-	-	-
B131.5-1	S-2	2.0-4.0	-	-	-	-	-	-	-	-	-	-	21.7	-	-	-
	S-3	4.0-6.0	CL	-	-	-	-	48	23	25	0.3	-	30.0	97.0	-	-
	S-5	8.0-10.0	-	0.0	14.2	85.8		-	-	-	-	-	34.7	-	-	-
	S-6	13.5-15.0	CL	0.0	15.7	41.0	43.3	47	21	26	0.2	2.74	25.5	-	-	-

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA

	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	B125.1-1	S-8	23.5-25.0 FT	29.1	25	53	28	CH
■	B130.8-1	S-6 & S-7	13.5-20.0 FT	45.7	17	35	18	CL
▲	B131.5-1	S-3	4.0-6.0 FT	30.0	23	48	25	CL
◆	B131.5-1	S-6	13.5-15.0 FT	25.5	21	47	26	CL
▼	B135.35-1	S-6	13.5-15.0 FT	38.2	23	47	24	CL
*	B135.35-1	S-11	38.5-40.0 FT	36.3	19	26	7	CL-ML
⊕	B143.59-1	S-8	23.5-25.0 FT	29.6	17	27	10	CL
⊕	B145.0-1	S-15	58.5-60.0 FT	23.7	20	18	NP	
⊗	B150.5-1	S-3	4.0-6.0 FT	21.5	NP	NV	NP	SM
⊗	B153.1-1	S-7	18.5-20.0 FT	22.8	20	19	NP	

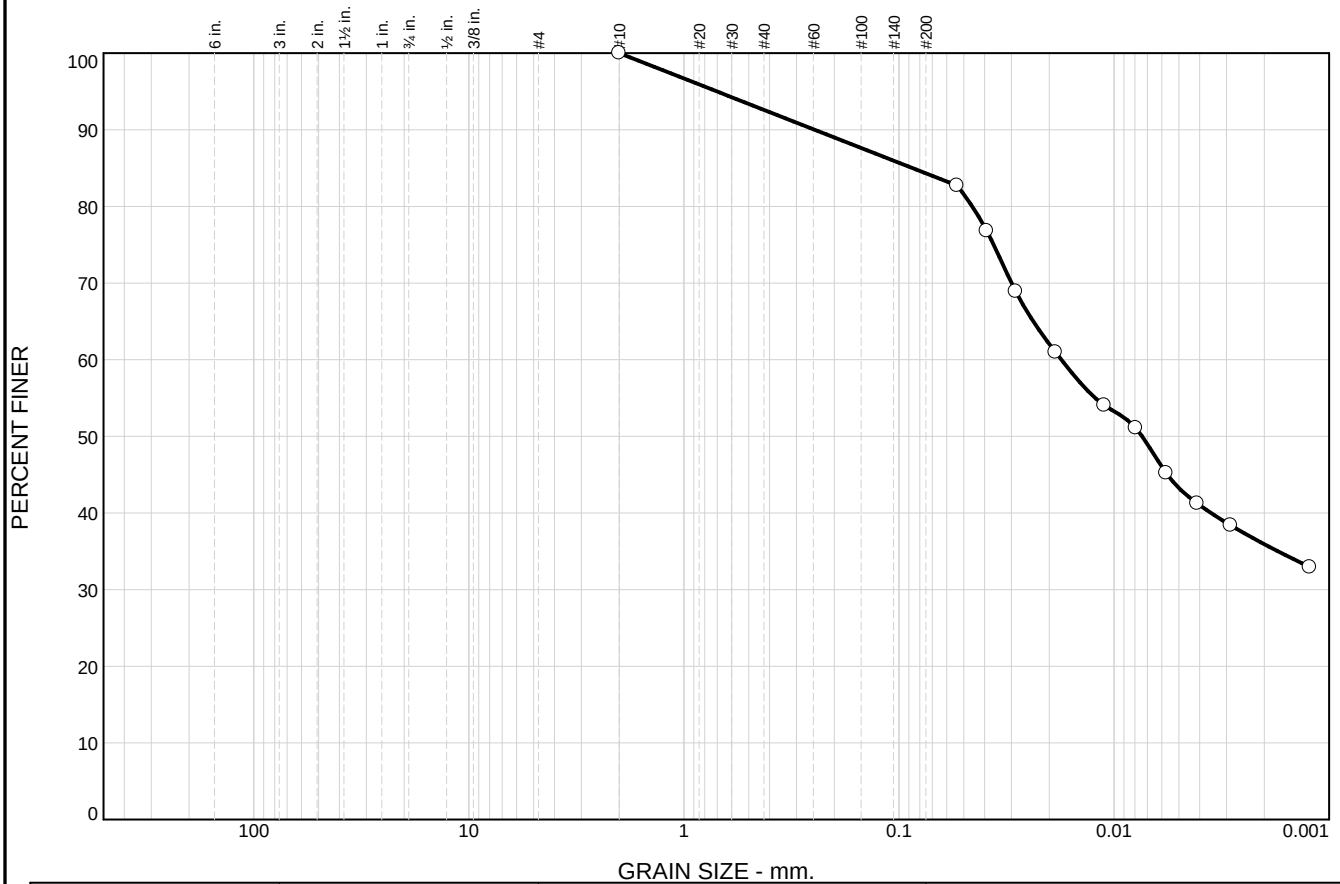
TRC
Engineers, Inc.
Mt. Laurel, NJ

Client: TDI CHAMPLAIN HUDSON POWER EXPRESS - CP
Project: TRANSMISSION DEVELOPERS, INC.

Project No.: 195651

Figure 2

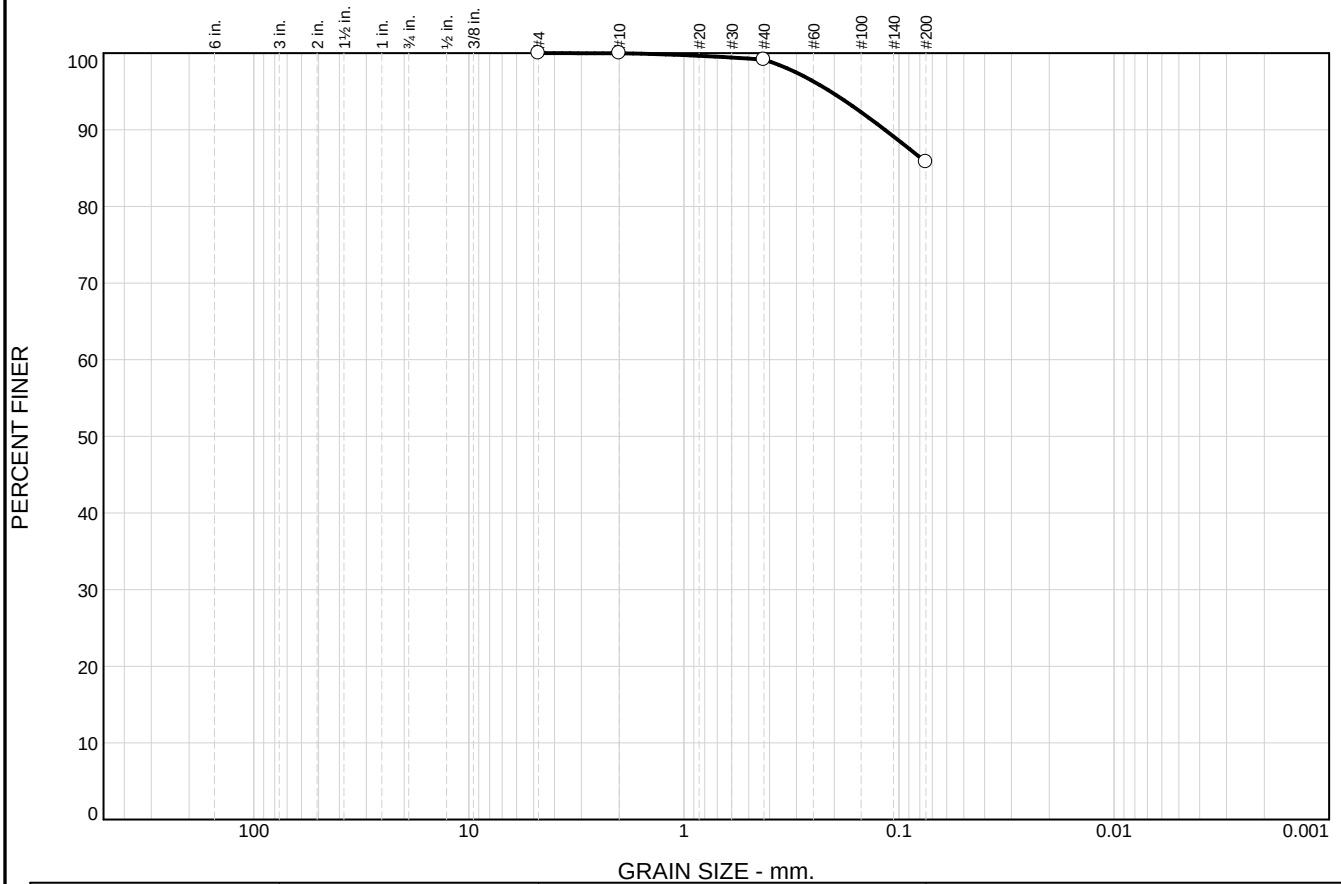
Particle Size Distribution Report



GRAIN SIZE - mm.										
% +3"		% Gravel		% Sand			% Fines			
		Coarse	Fine	Coarse	Medium	Fine	Silt		Clay	
○	0.0	0.0	0.0	0.0	7.4	8.3	41.0		43.3	
×	LL	PL	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
○	47	21	0.0865	0.0176	0.0074					
Material Description								USCS		AASHTO
○ BROWN SILT AND CLAY, SM F/M SAND								CL		A-7-6(23)
Project No. 195651 Client: TDI CHAMPLAIN HUDSON POWER EXPRESS - CP Project: TRANSMISSION DEVELOPERS, INC.								Remarks: ○SAMPLE DESCRIPTION BASED ON VISUAL IDENTIFICATION AND LABORATORY ANALYSIS		
○ Source of Sample: B131.5-1 Depth: 13.5-15.0 FT Sample Number: S-6										
TRC Engineers, Inc.										
Mt. Laurel, NJ								Figure 27		

Tested By: TBT 12/20/12 Checked By: _____

Particle Size Distribution Report



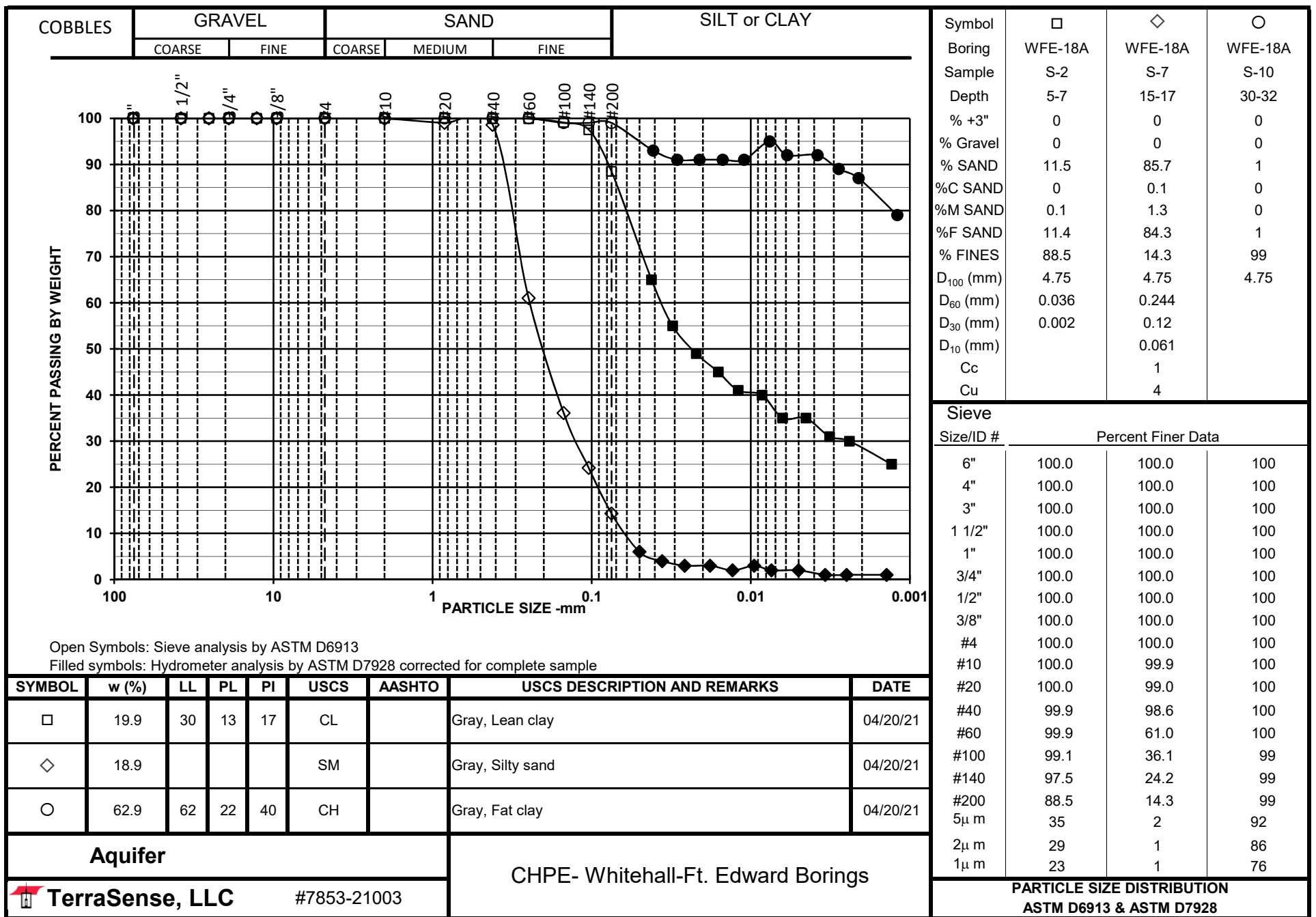
GRAIN SIZE - mm.										
% +3"		% Gravel		% Sand			% Fines			
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay		
☐	0.0	0.0	0.0	0.0	0.8	13.4	85.8			
☒	LL	PL	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
☐										
Material Description								USCS	AASHTO	
○ BROWN SILTY CLAY, TR TO SM F/ SAND										
Project No. 195651		Client: TDI CHAMPLAIN HUDSON POWER EXPRESS - CP								
Project: TRANSMISSION DEVELOPERS, INC.										
○ Source of Sample: B131.5-1		Depth: 8.0-10.0 FT		Sample Number: S-5						
TRC Engineers, Inc.										
Mt. Laurel, NJ										
Remarks: ○ SAMPLE DESCRIPTION BASED ON VISUAL IDENTIFICATION AND LABORATORY ANALYSIS										
Figure 28										

Tested By: TBT 12/18/12 Checked By: _____

Aquifer
CHPE- Whitehall-Ft. Edward Borings
LABORATORY SOIL TESTING DATA SUMMARY

BORING NO.	SAMPLE NO.	DEPTH (ft)	IDENTIFICATION TESTS								REMARKS
			WATER CONTENT (%)	LIQUID LIMIT (-)	PLASTIC LIMIT (-)	PLAS. INDEX (-)	USCS SYMB. (1)	SIEVE MINUS NO. 200 (%)	HYDROMETER % MINUS 2 μ m (%)	ORGANIC CONTENT (burnoff) (%)	
WFE-1A	S-2	5-7	24.4	44	17	27	CL	93	39		
WFE-1A	S-5	11-13	43.0	68	23	45	CH	99.8	84		
WFE-1C	S-3	7-9	44.5				CH	99.3	86		
WFE-1C	S-7	15-17	44.5	78	27	51	CH	100	94		
WFE-1C	S-10	30-32	45.7	61	23	38	CH	100	87		
WFE-2	S-2	5-7	7.3				SW-SM	10.7	3		
WFE-2	S-7	15-17	26.0				SC	28.5	13		
WFE-2	S-9	25-27	66.0	71	26	45	CH	100	90		
WFE-4	S-2	5-7	18.0				SC	34	13		
WFE-4	S-4	9-11	18.3				SM	17	5		
WFE-5	S-2	5-7	19.9				SM	19	3		
WFE-5	S-4	9-11	18.6	28	15	13	CL	91	28		
WFE-6A	S-2	5-7	13.6				SP-SC	9	3		
WFE-6A	S-4	9-11	17.4				SP-SM	7	2		
WFE-8	S-3	6-8	24.9				SC	48.5	12		
WFE-8	S-4	8-10	88.5	128	53	75	MH	94	43		
WFE-10	S-2	5-7	38.0	71	24	47	CH	94	76		
WFE-10	S-4	9-11	22.5				CL	83.9	32		
WFE-12	S-2	5-7	23.5	49	20	29	CL	62.5	35		
WFE-12	S-4	9-11	28.3				CL	95.8	37		
WFE-14	S-3	7-9	25.7				CL	75.7	44		
WFE-14	S-5	13-15	22.5				ML	53.9	17		
WFE-16	S-3	7-9	36.7	75	25	50	CH	100	90		
WFE-16	S-9	25-27	37.1	73	24	49	CH	100	80		
WFE-18	S-3	7-9	229.7	293	93	200	OH	58	43	34.1	
WFE-18	S-8	20-22	34.3	30	21	9	CL	95	26		
WFE-18	S-10	30-32	64.3	56	21	35	CH	100	87		
WFE-18A	S-2	5-7	19.9	30	13	17	CL	88.5	29		
WFE-18A	S-7	15-17	18.9				SM	14.3	1		
WFE-18A	S-10	30-32	62.9	62	22	40	CH	99	86		
WFE-19A	S-3	7-9	38.1				SP-SM	8	3		
WFE-19A	S-8	20-22	31.8				SP-SM	8.3	2		
WFE-19A	S-10	30-32	17.6				SW-SM	8	1		

Note: (1) USCS symbol based on visual observation and Sieve and Atterberg limits reported.





Boring Location Plans

Page 11 of 12

Drawn by:
ADW

Scale:
Not to scale

Project No.:
CD10279

Date:
March 2022

**Champlain Hudson Power Express
Design Package 2
Whitehall to Glens Falls, New York**

ATLANTIC TESTING LABORATORIES, Limited

Albany, NY
Poughkeepsie, NY

Binghamton,
NY
Syracuse, NY

Canton, NY
Rochester, NY

Elmira, NY
Utica, NY

Plattsburgh, NY
Watertown, NY

ATLANTIC TESTING LABORATORIES, Limited

Subsurface Investigation

Client: Kiewit Engineering (NY) Corp.
 Project: Subsurface Investigation
Champlain Hudson Power Express, Design Package 2
Various Locations, New York

Report No.: CD10279D-01-03-22
 Boring Location: See Boring Location Plan

Boring No.: K-131.6 Sheet 1 of 2
 Coordinates
 Northing 746435.732 Sampler Hammer
 Easting 1630320.22 Weight: 140 lbs.
 Fall: 30 in.
 Hammer Type: Automatic
 Ground Elev.: 145.25 Boring Advance By:
HW (4") Casing/3 7/8" Wet Rotary

Start Date: 2/1/2022 Finish Date: 2/1/2022
 Groundwater Observations
 Date Time Depth Casing
2/1/2022 PM DRY 10.0'

DEPTH	METHOD OF ADVANCE	SAMPLE NO.	DEPTH OF SAMPLE		SAMPLE TYPE	BLOWS ON SAMPLER PER 6" 2" O.D. SAMPLER	DEPTH OF CHANGE	CLASSIFICATION OF MATERIAL f - fine m - medium c - coarse and - 35-50% some - 20-35% little - 10-20% trace - 0-10%	Recovery (Inches)
			From	To					
1	C	1	0.0	2.0	SS	16 49 30 6	2.0	Grey and White cmf GRAVEL; and cmf SAND; trace SILT (frozen, non-plastic) GW FILL	18
2	A								
3	S	2	2.0	4.0	SS	5 8 16 8	12.0	Grey CLAY; little f SAND; trace SILT (moist, plastic) CL	14
4	N								
5	G	3	4.0	6.0	SS	2 2 1 2		Similar Soil (moist, plastic) CL	22
6									
7		4	6.0	8.0	SS	WH/12" 2 1		Grey CLAY; trace mf SAND; trace SILT (moist, plastic) CL w = 48.7%, LL = 41, PL = 20, PI = 21 % Fines = 96.9%	23
8									
9		5	8.0	10.0	SS	1 2 3 3		Grey CLAY; trace mf SAND; trace SILT (moist, plastic) CL	14
10									
11	WET							Advanced casing to 10.0 feet and began advancing 3 7/8" tri-cone roller bit wet rotary open hole within the borehole.	
12	R								
13	O						17.0		
14	T								
15	A	6	14.0	16.0	SS	WH/18" 2		Grey f SAND; some CLAY; little SILT (moist, moderately plastic) SC-SM	24
16	R								
17	O								
18	T								
19	A								
20	R	7	19.0	21.0	SS	7 5 8 9		Grey c-mf+ SAND; little SILT (wet, non-plastic) SM w = 22.6% % Fines = 15.0%	14
21	O								
22	T								
23	A								
24	R	8	24.0	26.0	SS	5 7 8 10		Similar Soil (wet, non-plastic) SM	12
25	O								

SS Split Spoon Sample
 NX Rock Core
 SH Undisturbed Sample (Shelby Tube)
 Estimated Groundwater

Drillers: Jeffrey Donovan; John Trathen
 Inspector: James LaMarco (ATL)

ATL-LOG1 NE CD10279 KIEWIT INFRASTRUCTURE CO - VARIOUS LOCATIONS (PACKAGE 2),GPJ ATL4-08.GDT 4/12/22

ATLANTIC TESTING LABORATORIES, Limited

Subsurface Investigation

Boring No.: K-131.6Report No.: CD10279D-01-03-22Sheet 2 of 2

DEPTH	METHOD OF ADVANCE	SAMPLE NO.	DEPTH OF SAMPLE		SAMPLE TYPE	BLOWS ON SAMPLER PER 6" 2" O.D. SAMPLER	DEPTH OF CHANGE	CLASSIFICATION OF MATERIAL	RECOVERY (inches)
			From	To					
26							27.0	f - fine m - medium c - coarse and - 35-50% some - 20-35% little - 10-20% trace - 0-10% Grey CLAY; trace f SAND; trace SILT (wet, plastic) CH	
27									
28									
29		9	29.0	31.0	SS	WH/24"			24
30									
31									
32									
33									
34									
35		ST-1	35.0	37.0	SS	WH/12" 1 2		24	
36							40.0	(3" Brass Lined Split Spoon) Grey CLAY; trace f SAND; trace SILT (wet, plastic) CH w = 55.9%, LL = 62, PL = 25, PI = 37 % Fines = 99.9% Similar Soil (wet, plastic) CH	
37									
38		10	38.0	40.0	SS	WH 1 2 3			24
39									
40									
41									
42							Boring terminated at 40.0 feet. Notes: 1. Borehole backfilled with cement-bentonite grout. 2. Soil classifications based on ATL Field Engineer's field classifications. 3. Borehole was advanced with ATL's Geoprobe 7822D7 (Rig Unit No. CDGV706) drill rig.		
43									
44									
45									
46									
47									
48									
49									
50									
51									
52									
53									
54									
55									
56									
57									
58									
59									
60									
61									
62									

ATL-LOG1 NE CD10279 KIEWIT INFRASTRUCTURE CO - VARIOUS LOCATIONS (PACKAGE 2).GPJ ATL4-08.GDT 4/12/22

ATLANTIC TESTING LABORATORIES, Limited

Subsurface Investigation

Client: Kiewit Engineering (NY) Corp.
 Project: Subsurface Investigation
Champlain Hudson Power Express, Design Package 2
Various Locations, New York

Report No.: CD10279D-01-03-22
 Boring Location: See Boring Location Plan

Boring No.: K-131.7A Sheet 1 of 2
 Coordinates
 Northing 746175.646
 Easting 1629988.338
 Sampler Hammer
 Weight: 140 lbs.
 Fall: 30 in.
 Hammer Type: Automatic
 Ground Elev.: 144.641 Boring Advance By: HW (4") Casing/3 7/8" Wet Rotary

Start Date: 2/1/2022 Finish Date: 2/2/2022
 Groundwater Observations
 Date Time Depth Casing
2/2/2022 AM *5.7' 10.0'
 *May be affected by water utilized to advance the borehole.

DEPTH	METHOD OF ADVANCE	SAMPLE NO.	DEPTH OF SAMPLE		SAMPLE TYPE	BLOWS ON SAMPLER PER 6" 2" O.D. SAMPLER	DEPTH OF CHANGE	CLASSIFICATION OF MATERIAL	Recovery (Inches)
			From	To					
1	C A S I N G	1	0.0	2.0	SS	29 30 13 4	2.0	Black cmf GRAVEL; and cmf SAND; trace SILT (moist, non-plastic) GW FILL	12
2		2	2.0	4.0	SS	3 7 9 6		Blackish-Brown cmf SAND; some mf GRAVEL; trace SILT (moist, non-plastic) SW Possible FILL	10
3									
4		3	4.0	6.0	SS	3 2 2 2	6.0	Similar Soil (moist, non-plastic) SW Possible FILL	6
5									
6		4	6.0	8.0	SS	1 1 1 1	8.0	Grey mf+ SAND; and SILT; trace CLAY (moist, very slightly plastic) SM w = 23.3% % Fines = 50.0%	16
7									
8		5	8.0	10.0	SS	1 1 1 1		Grey CLAY; trace f SAND; trace SILT (wet, plastic) CH	24
9									
10	WET R O T A R Y						12.0	Advanced casing to 10.0 feet and began advancing 3 7/8" tri-cone roller bit wet rotary open hole within the borehole.	
11									
12									
13									
14		6	14.0	16.0	SS	WH/24"	17.0	Grey c-mf SAND; some SILT; trace CLAY (moist, very slightly plastic) SM	24
15									
16									
17									
18									
19		7	19.0	21.0	SS	WH/24"		Grey SILT; some CLAY; little f SAND; trace ORGANIC MATERIAL (root hairs, wood fragments) (moist, moderately plastic) MH/CH w = 43.6%, LL = 53, PL = 21, PI = 32 % Fines = 78.3%	24
20									
21									
22									
23									
24		8	24.0	26.0	SS	WH 1 1 1		NO RECOVERY - COBBLE fragment in split spoon shoe	0
25									

SS Split Spoon Sample
 NX Rock Core
 SH Undisturbed Sample (Shelby Tube)
 Estimated Groundwater

Drillers: Jeffrey Donovan; John Trathen
 Inspector: James LaMarco (ATL)

ATL-LOG1 NE CD10279 KIEWIT INFRASTRUCTURE CO - VARIOUS LOCATIONS (PACKAGE 2).GPJ ATL4-08.GDT 4/12/22

ATLANTIC TESTING LABORATORIES, Limited

Subsurface Investigation

Boring No.: K-131.7A

Report No.: CD10279D-01-03-22

Sheet 2 of 2

DEPTH	METHOD OF ADVANCE	SAMPLE NO.	DEPTH OF SAMPLE		SAMPLE TYPE	BLOWS ON SAMPLER PER 6" 2" O.D. SAMPLER	DEPTH OF CHANGE	CLASSIFICATION OF MATERIAL	RECOVERY (inches)
			From	To					
26							27.0	f - fine m - medium c - course and - 35-50% some - 20-35% little - 10-20% trace - 0-10%	
27									
28									
29		9	29.0	31.0	SS	WH/24"			24
30									
31									
32									
33									
34		10	34.0	36.0	SS	WH/24"			24
35									
36							50.0	Grey CLAY; little SILT; trace f SAND (wet, plastic) CH w = 70.9% Similar Soil (wet, plastic) CH Grey CLAY; little mf SAND; trace SILT (wet, plastic) CH (3" Brass Lined Split Spoon) Grey CLAY; little mf SAND; trace SILT (wet, plastic) CH w = 66.4%, LL = 53, PL = 25, PI = 28 % Fines = 86.6% Grey CLAY; little f SAND; trace SILT (wet, plastic) CH	
37									
38									
39		11	39.0	41.0	SS	WH/24"			24
40									
41									
42									
43									
44									
45		ST-1	45.0	47.0	SS	WH/24"			24
46									
47									
48		12	48.0	50.0	SS	WH/24"			24
49									
50									
51							Boring terminated at 50.0 feet.	Notes: 1. Borehole backfilled with cement-bentonite grout. 2. Soil classifications based on ATL Field Engineer's field classifications. 3. Borehole was advanced with ATL's Geoprobe 7822D7 (Rig Unit No. CDGV706) drill rig.	
52									
53									
54									
55									
56									
57									
58									
59									
60									
61									
62									

ATL-LOG1 NE CD10279 KIEWIT INFRASTRUCTURE CO - VARIOUS LOCATIONS (PACKAGE 2).GPJ ATL4-08.GDT 4/12/22

ATLANTIC TESTING LABORATORIES, Limited

Subsurface Investigation

Client: Kiewit Engineering (NY) Corp. Report No.: CD10279D-01-03-22

Project: Subsurface Investigation Boring Location: See Boring Location Plan

Champlain Hudson Power Express, Design Package 2

Various Locations, New York

Boring No.: K-131.7B Sheet 1 of 2

Coordinates: Northing 746022.808 Easting 1629771.027

Sampler Hammer: Weight: 140 lbs. Fall: 30 in. Hammer Type: Automatic

Ground Elev.: 143.464 Boring Advance By: *May be affected by water utilized to advance the borehole.

Start Date: 2/2/2022 Finish Date: 2/2/2022

Groundwater Observations

Date	Time	Depth	Casing
<u>2/2/2022</u>	<u>PM</u>	<u>*11.7'</u>	<u>10.0'</u>

DEPTH	METHOD OF ADVANCE	SAMPLE NO.	DEPTH OF SAMPLE		SAMPLE TYPE	BLOWS ON SAMPLER PER 6" 2" O.D. SAMPLER	DEPTH OF CHANGE	CLASSIFICATION OF MATERIAL	Recovery (Inches)
			From	To					
1	C	1	0.0	2.0	SS	17 20 20 10	2.0	Brown cmf SAND; some mf GRAVEL; trace SILT (moist, non-plastic) SW Possible FILL	20
2	A	2	2.0	4.0	SS	8 10 7 6		Greyish-Brown CLAY; and f SAND; trace SILT (moist, plastic) CL	14
3	N								
4	G	3	4.0	6.0	SS	8 5 6 5		Brownish-Grey CLAY; some f SAND; trace SILT (moist, plastic) CL	20
5									
6		4	6.0	8.0	SS	6 5 6 4		Brownish-Grey CLAY; little SILT; trace f SAND (moist, plastic) CL	24
7									
8		5	8.0	10.0	SS	4 3 3 1		Brownish-Grey CLAY; little SILT; little ORGANIC MATERIAL (root hairs); trace mf SAND (moist, plastic) OH OC = 10.5%	24
9									
10	WET						12.0	Advanced casing to 10.0 feet and began advancing 3 7/8" tri-cone roller bit wet rotary open hole within the borehole.	
11	R								
12	O								
13	T								
14	A								
15	R	6	14.0	16.0	SS	WH/24"	17.0	Black ORGANIC MATERIAL (peat, root hairs); trace SILT (saturated, non-plastic) PT w = 178.4%, LL = NP, PL = NP, PI = NP % Fines = 3.1%	24
16	O								
17	T								
18	A								
19	R								
20	Y	7	19.0	21.0	SS	WH/24"		Grey CLAY; little SILT; trace mf SAND; trace ORGANIC MATERIAL (root hairs) (moist, plastic) OH	24
21									
22									
23									
24		8	24.0	26.0	SS	WH/24"		Grey CLAY; trace SILT (wet, plastic) CH	24
25									

SS Split Spoon Sample
 NX Rock Core
 SH Undisturbed Sample (Shelby Tube)
 Estimated Groundwater

Drillers: Jeffrey Donovan; John Trathen
 Inspector: James LaMarco (ATL)

ATL-LOG1 NE CD10279 KIEWIT INFRASTRUCTURE CO - VARIOUS LOCATIONS (PACKAGE 2).GPJ ATL4-08.GDT 4/12/22

ATLANTIC TESTING LABORATORIES, Limited

Subsurface Investigation

Boring No.: **K-131.7B**

Report No.: **CD10279D-01-03-22**

Sheet **2** of **2**

DEPTH	METHOD OF ADVANCE	SAMPLE NO.	DEPTH OF SAMPLE		SAMPLE TYPE	BLOWS ON SAMPLER PER 6" 2" O.D. SAMPLER	DEPTH OF CHANGE	CLASSIFICATION OF MATERIAL	RECOVERY (inches)
			From	To					
26									
27									
28									
29		9	29.0	31.0	SS	WH/24"		Similar Soil (wet, plastic) CH w = 60.9%	24
30									
31									
32									
33									
34		10	34.0	36.0	SS	WH/24"		Similar Soil (wet, plastic) CH	24
35									
36									
37									
38									
39		11	39.0	41.0	SS	WH/24"		Similar Soil (wet, plastic) CH	24
40									
41									
42									
43									
44									
45		ST-1	45.0	47.0	SS	WH/24"		(3" Brass Lined Split Spoon) Grey CLAY; trace SILT; trace f SAND (wet, plastic) CH w = 58.7%, LL = 55, PL = 19, PI = 36 % Fines = 99.8%	24
46									
47									
48		12	48.0	50.0	SS	WH/24"		Similar Soil (wet, plastic) CH	24
49									
50							50.0		
51								Boring terminated at 50.0 feet.	
52									
53								Notes:	
54								1. Borehole backfilled with cement-bentonite grout.	
55								2. Soil classifications based on ATL Field Engineer's field classifications.	
56								3. Borehole was advanced with ATL's Geoprobe 7822D7 (Rig Unit No. CDGV706) drill rig.	
57									
58									
59									
60									
61									
62									

ATL-LOG1 NE CD10279 KIEWIT INFRASTRUCTURE CO - VARIOUS LOCATIONS (PACKAGE 2).GPJ ATL4-08.GDT 4/12/22



ATLANTIC TESTING LABORATORIES

LABORATORY TEST SUMMARY TABLE

ATL No. CD10279: Kiewit Infrastructure Co. - Champlain Hudson Power Express

Boring ID	Sample No.	Sample Depth (ft.)	Soil/Rock Description	Percent Finer No. 200 Sieve	Moisture Content (%)	Atterburg Limits			Organic Content (%)	Water-Soluble Sulfate (ppm)	Water-Soluble Chloride (ppm)	pH	Resistivity (ohm-cm)	Rock Unconfined Compressive Strength (psi)	Rock Splitting Tensile Strength (psi)	Rock CERCHAR Abrasiveness Corrected CAI
						LL	PL	PI								
K-129.9B	S-4	6.0 - 8.0	Brown CLAY; some ORGANIC MATERIAL (root hairs); trace SILT	--	--	--	--	--	34.9	--	--	--	--	--	--	--
	S-6	14.0 - 16.0	Grey CLAY; little SILT; trace f SAND	--	88.0	96	49	47	--	--	--	--	--	--	--	--
	S-8	24.0 - 26.0	Grey c-mf SAND; trace SILT; trace f GRAVEL	7.0	18.3	--	--	--	--	--	--	--	--	--	--	--
	ST-1	27.0 - 29.0	Grey CLAY; trace SILT	100.0	51.2	55	20	35	--	--	--	--	--	--	--	--
	S-10	34.0 - 36.0	Grey CLAY; trace SILT	--	50.8	--	--	--	--	--	--	--	--	--	--	--
K-130.9	S-4	6.0 - 8.0	Grey CLAY; little SILT; little mf SAND	85.8	46.6	39	18	21	--	--	--	--	--	--	--	--
	S-6	14.0 - 16.0	Grey c-mf+ SAND; some SILT; trace CLAY	35.0	65.2	--	--	--	--	--	--	--	--	--	--	--
	RC-2	30.5 - 31.5	Dark Grey SHALE	--	--	--	--	--	--	--	--	--	--	--	1,153	2.75
	RC-2	31.5 - 31.8	Dark Grey SHALE	--	--	--	--	--	--	--	--	--	--	7,220	--	--
K-131.6	S-4	6.0 - 8.0	Grey CLAY; trace mf SAND; trace SILT	96.9	48.7	41	20	21	--	--	--	--	--	--	--	--
	S-7	19.0 - 21.0	Grey c-mf+ SAND; little SILT	15.0	22.6	--	--	--	--	--	--	--	--	--	--	--
	ST-1	35.0 - 37.0	Grey CLAY; trace f SAND; trace SILT	99.9	55.9	62	25	37	--	--	--	--	--	--	--	--
K-131.7A	S-3	4.0 - 6.0	Blackish-Brown cmf SAND; some mf GRAVEL; trace SILT	--	--	--	--	--	--	500	35	7.69	42,570	--	--	--
	S-4	6.0 - 8.0	Grey mf+ SAND; and SILT; trace CLAY	50.0	23.3	--	--	--	--	--	--	--	--	--	--	--
	S-7	19.0 - 21.0	Grey SILT; some CLAY; little f SAND; trace ORGANIC MATERIAL (root hairs, wood fragments)	78.3	43.6	53	21	32	--	--	--	--	--	--	--	--
	S-9	29.0 - 31.0	Grey CLAY; little SILT; trace f SAND	--	70.9	--	--	--	--	--	--	--	--	--	--	--
	ST-1	45.0 - 47.0	Grey CLAY; little mf SAND; trace SILT	86.6	66.4	53	25	28	--	--	--	--	--	--	--	--
K-131.7B	S-5	8.0 - 10.0	Brownish-Grey CLAY; little SILT; little ORGANIC MATERIAL (root hairs); trace mf SAND	--	--	--	--	--	10.5	--	--	--	--	--	--	--
	S-6	14.0 - 16.0	Black ORGANIC MATERIAL (peat, root hairs); trace SILT	3.1	178.4	NP	NP	NP	--	--	--	--	--	--	--	--
	S-9	29.0 - 31.0	Grey CLAY; trace SILT	--	60.9	--	--	--	--	--	--	--	--	--	--	--
	ST-1	45.0 - 47.0	Grey CLAY; trace SILT; trace f SAND	99.8	58.7	55	19	36	--	--	--	--	--	--	--	--
K-131.9	S-5	8.0 - 10.0	Black ORGANIC MATERIAL (peat, root hairs); trace mf SAND; trace SILT	2.0	411.1	NP	NP	NP	--	--	--	--	--	--	--	--
	S-8	24.0 - 36.0	Grey c-m SAND; trace CLAY; trace SILT	--	62.8	--	--	--	--	--	--	--	--	--	--	--



ATLANTIC TESTING LABORATORIES

WBE certified company

LABORATORY DETERMINATION OF MOISTURE CONTENT OF SOILS

ASTM D 2216

Page 1 of 2

PROJECT INFORMATION

Client: Kiewit Intrastructure Co.

ATL Report No.: CD10279E-03-02-22

Project: Champlain Hudson Power Express

Report Date: February 18, 2022

United Cable Installation

Date Received: February 7, 2022

Various Locations, New York

TEST DATA

Boring No.	Sample No.	Depth (ft)	Moisture Content (%)
K-117.6-0.2	S-4	6-8	25.3
	S-7 ¹	19-21	18.3
	S-9	28-30	55.0
K-117.6-2.1	S-4	6-8	15.4
	S-6	14-16	47.9
	S-9	29-31	16.4
	S-11 ¹	38-40	16.4
K-117.6-2.3	S-4 ¹	6-8	13.7
K-130.9	S-4	6-8	46.6
	S-6	14-16	65.2
K-131.6	S-4	6-8	48.7
	S-7	19-21	22.6
	ST-1	35-37	55.9
K-131.7A	S-4	6-8	23.3
	S-7	19-21	43.6
	S-9	29-31	70.9
	ST-1	45-47	66.4
K-131.7B	S-6	14-16	178.4
	S-9	29-31	60.9
	ST-1	45-47	58.7



Particle Size Distribution Report

Project: Champlain Hudson Power Express United Cable Install **Report No.:** CD10279E-03-02-22

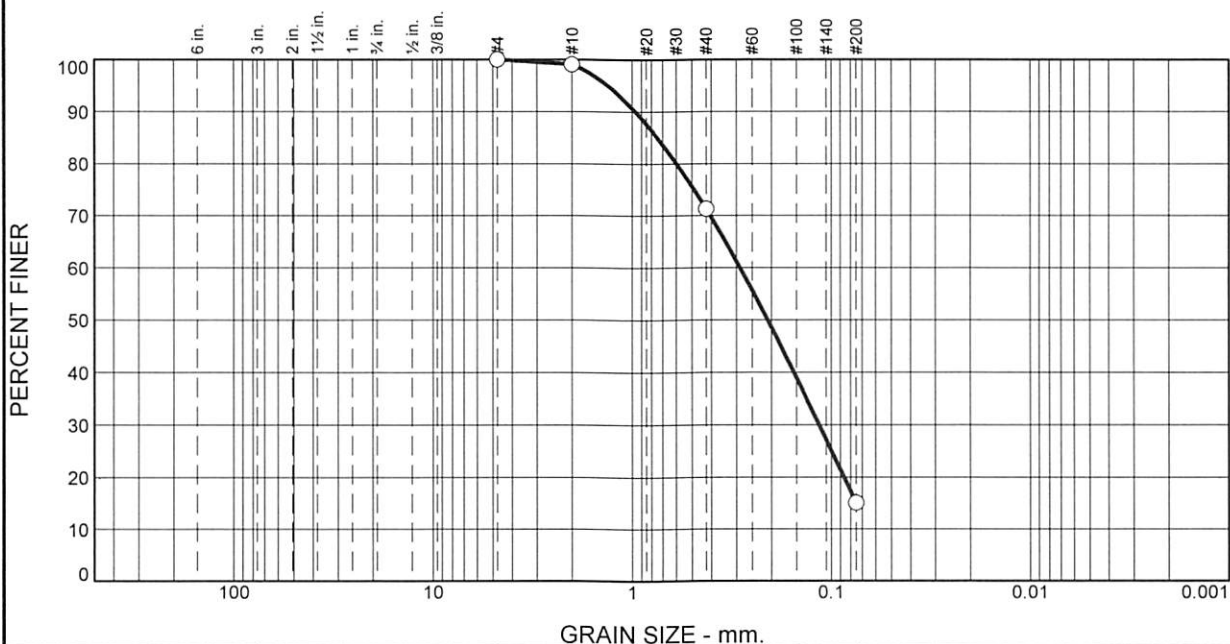
Client: Kiewit Infrastructure Co.

Date: 02/18/22

Sample No: K-131.6, S-7 **Source of Sample:** Boring Sample

Location: In-place

Elev./Depth: 19-21'



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	1	28	56	15	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	OUT OF SPEC. (X)
#4	100		
#10	99		
#40	71		
#200	15		

* (no specification provided)

Soil Description

Grey c-mf+ SAND; little SILT

Atterberg Limits

PL= --

LL= --

PI= --

Coefficients

D₈₅= 0.7456

D₆₀= 0.2874

D₅₀= 0.2089

D₃₀= 0.1151

D₁₅=

D₁₀=

C_u=

C_c=

Classification

USCS=

AASHTO=

Remarks

Moisture Content= 22.6%

Figure

ATLANTIC TESTING LABORATORIES, LIMITED

Reviewed by: K 3

Date: 02/18/22



Particle Size Distribution Report

Project: Champlain Hudson Power Express United Cable Install **Report No.:** CD10279E-03-02-22

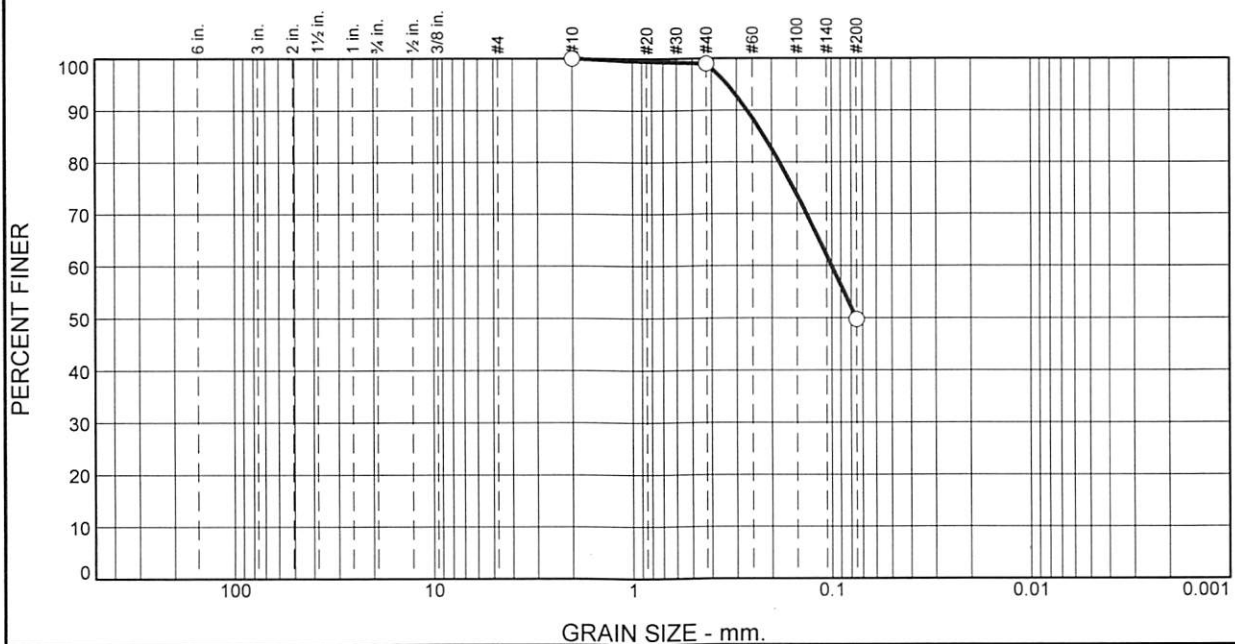
Client: Kiewit Infrastructure Co.

Date: 02/18/22

Sample No: K-131.7A, S-4 **Source of Sample:** Boring Sample

Location: In-place

Elev./Depth: 6-8'



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	0	1	49	50	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	OUT OF SPEC. (X)
#10	100		
#40	99		
#200	50		

* (no specification provided)

Soil Description

Grey mf+ SAND; and SILT; trace CLAY

Atterberg Limits

PL= --

LL= --

PI= --

Coefficients

D₈₅= 0.2188

D₆₀= 0.1001

D₅₀= 0.0756

D₃₀=

D₁₅=

D₁₀=

C_u=

C_c=

Classification

USCS=

AASHTO=

Remarks

Moisture Content= 23.3%

Figure

ATLANTIC TESTING LABORATORIES, LIMITED

Reviewed by:

Date: 02/18/22



ATLANTIC TESTING LABORATORIES

WBE certified company

AMOUNT OF MATERIAL IN SOILS FINER THAN THE NO. 200 SIEVE
ASTM D 1140

PROJECT INFORMATION

Client: Kiewit Infrastructure Co.
Project: Champlain Hudson Power Express
United Cable Installation
Various Locations, New York

ATL Report No.: CD10279E-03-02-22
Report Date: February 18, 2022
Test Date: February 11, 2022
Performed By: A. Rivers

TEST DATA

Boring No.	Sample No.	Depth (ft)	Method (A or B)	Soak Time (min)	Initial Dry Weight (g)	% Finer than #200
K-117.6-0.2	S-4	6-8	A	10	205.83	41.7
K-117.6-0.2	S-7	19-21	A	10	220.45	23.5
K-117.6-0.2	S-9	28-30	A	10	273.37	99.7
K-117.6-2.1	S-6	14-16	A	10	163.54	57.2
K-130.9	S-4	6-8	A	10	144.29	85.8
K-131.6	S-4	6-8	A	10	138.58	96.9
K-131.6	ST-1	35-37	A	10	227.62	99.9
K-131.7A	S-7	19-21	A	10	175.90	78.3
K-131.7A	ST-1	45-47	A	10	221.28	86.6
K-131.7B	S-6	14-16	A	10	147.24	3.1
K-131.7B	ST-1	45-47	A	10	239.55	99.8
K-131.9	S-5	8-10	A	10	133.26	2.0
K-131.9	ST-1	35-37	A	10	194.65	99.0
K-132.1	S-6	14-16	A	10	202.17	44.3
K-132.1	ST-1	35-37	A	10	299.54	99.4

Reviewed By: _____

Date: February 18, 2022



ATLANTIC TESTING LABORATORIES

WBE certified company

Page 1 of 2

LIQUID LIMIT, PLASTIC LIMIT, AND PLASTICITY INDEX OF SOIL ASTM D 4318

PROJECT INFORMATION

Client: Kiewit Infrastructure Co.
Project: Champlain Hudson Power Express
United Cable Installation
Various Locations, New York

ATL Report No.: CD10279E-03-02-22
Report Date: February 18, 2022
Date Received: February 7, 2022

TEST DATA

Boring No.	Sample No.	LL	PL	PI
K-117.6-0.2	S-4	NP	NP	NP
K-117.6-0.2	S-7	NP	NP	NP
K-117.6-0.2	S-9	65	26	39
K-117.6-2.1	S-6	41	19	22
K-130.9	S-4	39	18	21
K-131.6	S-4	41	20	21
K-131.6	ST-1	62	25	37
K-131.7A	S-7	53	21	32
K-131.7A	ST-1	53	25	28
K-131.7B	S-6	NP	NP	NP
K-131.7B	ST-1	55	19	36
K-131.9	S-5	NP	NP	NP
K-131.9	ST-1	51	20	31
K-132.1	S-6	NP	NP	NP
K-132.1	ST-1	44	19	25

SAMPLE INFORMATION

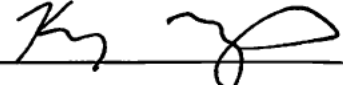
Boring No.	Sample No.	Maximum Grain Size (mm)	Estimated Amount of Sample Retained on No. 40 Sieve (%)	As Received Moisture Content (%)
K-117.6-0.2	S-4	6.35	15	25.3
K-117.6-0.2	S-7	2.38	30	18.3
K-117.6-0.2	S-9	0.595	1	55.0
K-117.6-2.1	S-6	2	5	47.9
K-130.9	S-4	2	5	46.6
K-131.6	S-4	0.595	2	48.7
K-131.6	ST-1	0.841	1	55.9
K-131.7A	S-7	2	2	43.6
K-131.7A	ST-1	9.51	10	66.4
K-131.7B	S-6	9.51	30	178.4
K-131.7B	ST-1	0.595	1	58.7
K-131.9	S-5	4.76	20	411.1
K-131.9	ST-1	2	1	70.9
K-132.1	S-6	4.76	10	121.0
K-132.1	ST-1	2	1	37.7

PREPARATION INFORMATION

Boring No.	Sample No.	Preparation	Method of Removing Oversized Material
K-117.6-0.2	S-4	Air Dry	Pulverizing and Screening
K-117.6-0.2	S-7	Air Dry	Pulverizing and Screening
K-117.6-0.2	S-9	Air Dry	Pulverizing and Screening
K-117.6-2.1	S-6	Air Dry	Pulverizing and Screening
K-130.9	S-4	Air Dry	Pulverizing and Screening
K-131.6	S-4	Air Dry	Pulverizing and Screening
K-131.6	ST-1	Air Dry	Pulverizing and Screening
K-131.7A	S-7	Air Dry	Pulverizing and Screening
K-131.7A	ST-1	Air Dry	Pulverizing and Screening
K-131.7B	S-6	Air Dry	Pulverizing and Screening
K-131.7B	ST-1	Air Dry	Pulverizing and Screening
K-131.9	S-5	Air Dry	Pulverizing and Screening
K-131.9	ST-1	Air Dry	Pulverizing and Screening
K-132.1	S-6	Air Dry	Pulverizing and Screening
K-132.1	ST-1	Air Dry	Pulverizing and Screening

EQUIPMENT INFORMATION

Liquid Limit Procedure:	Multipoint - Method A	☒	Single Point - Method B	☐
Liquid Limit Apparatus:	Manual	☒	Motor Driven	☐
Liquid Limit Grooving Tool Material:	Plastic	☒	Metal	☐
Liquid Limit Grooving Tool Shape:	Flat	☒	Curved (AASHTO Only)	☐
Plastic Limit:	Hand Rolled	☒	Mechanical Rolling Device	☐

Reviewed By: 

Date: 02/18/22

DATE: September 26, 2022

TO: Antonio Marruso, P.E.; CHA Consulting, Inc.

FROM: Matthew Hawley, P.E.; Kiewit Engineering (NY) Corp.
Jaren Knighton; Kiewit Engineering (NY) Corp.

SUBJECT: Geotechnical Data: Segment 3 - Package 2 - HDD Crossings 21 and 21A – Revision 1
Champlain Hudson Power Express Project
Fort Ann, New York

Kiewit Engineering is providing the attached geotechnical data for use in the horizontal direction drill (HDD) design for the Champlain Hudson Power Express project in Upstate New York. HDD crossings 21 and 21A are located south of Fort Ann, New York. The approximate station for the start of HDD crossing Number 21 is STA 20756+00 (43.30114° N, 73.54818° W). The approximate station for the start of HDD crossing Number 21A is STA 20779+50 (43.2975° N, 73.5545° W).

The geotechnical data at this HDD crossing is attached. The available data is from the previous investigation by AECOM, the recent investigations by Atlantic Testing Laboratories and Terracon, and a geophysical investigation by Schnabel Engineering, referenced below. This document will be updated when the final report from Terracon is available.

- AECOM, Geotechnical Data Report, Upland Segments: Putnam Station, Washington County, to Cementon, Green County, NY, Champlain Hudson Power Express, dated May 28, 2021.
- Atlantic Testing Laboratories, Subsurface Investigation Services, Champlain Hudson Power Express, Design Package 2, Whitehall to Glens Falls, New York, dated June 15, 2022.
- Schnabel Engineering, Geophysical Services Report, Champlain Hudson Power Express Upland Cable Installation Project, Wetland Crossing, Near Hudson Falls (HDD21), Whitehall, Washington County, New York, dated June 14, 2022.
- Terracon Draft Boring Logs and Laboratory Data, September 2022.

Contact us if you have questions or require additional information.

HDD 21 and 21A
Borings WFE-19, WFE-19A,
K-131.9, K-132.1, K-132.2,
K-132.4, K-132.5, K-132.6,
KB-132.1A, KB-132.3A, KB-132.5A
Package 2 - Segment 3

CHPE Segment 3 - Package 2

HDD Soil Boring Coordinates and Elevations

Firm	Boring	Northing (feet)	Easting (feet)	Ground Surface Elevation (feet)
TRC*	B122.4-1	1673988.1	762589.1	134.0
	B123.1-1	1670533.1	761581.7	134.0
	B127.6-1	1650236.9	759369.7	143.0
	B130.8-1	1633732.2	749229.1	144.0
	B131.5-1	1630565.5	746543.8	148.0
AECOM**	WFE-2	1693039.7	776227.9	125.9
	WFE-6	1683884.0	771830.6	128.7
	WFE-6A	1683645.5	771707.7	129.0
	WFE-7	1683295.0	771591.2	128.7
	WFE-9	1677994.3	769427.4	133.9
	WFE-9A	1678043.5	769246.8	140.2
	WFE-9B	1676842.4	767745.7	141.7
	WFE-12	1657680.6	760822.6	135.3
	WFE-16	1645866.1	757602.8	145.2
	WFE-18	1637293.5	752138.0	143.6
	WFE-18A	1630756.2	746790.9	144.9
	WFE-19	1628651.1	745226.2	139.1
	WFE-19A	1625848.4	743218.4	139.0

Notes:

- Northings and Eastings are provided in NAD83 New York State Plane East Zone.

- Elevations are referenced to the NAVD88 datum.

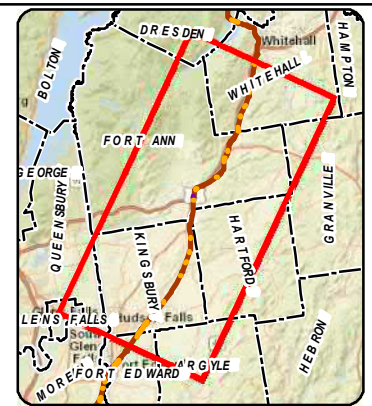
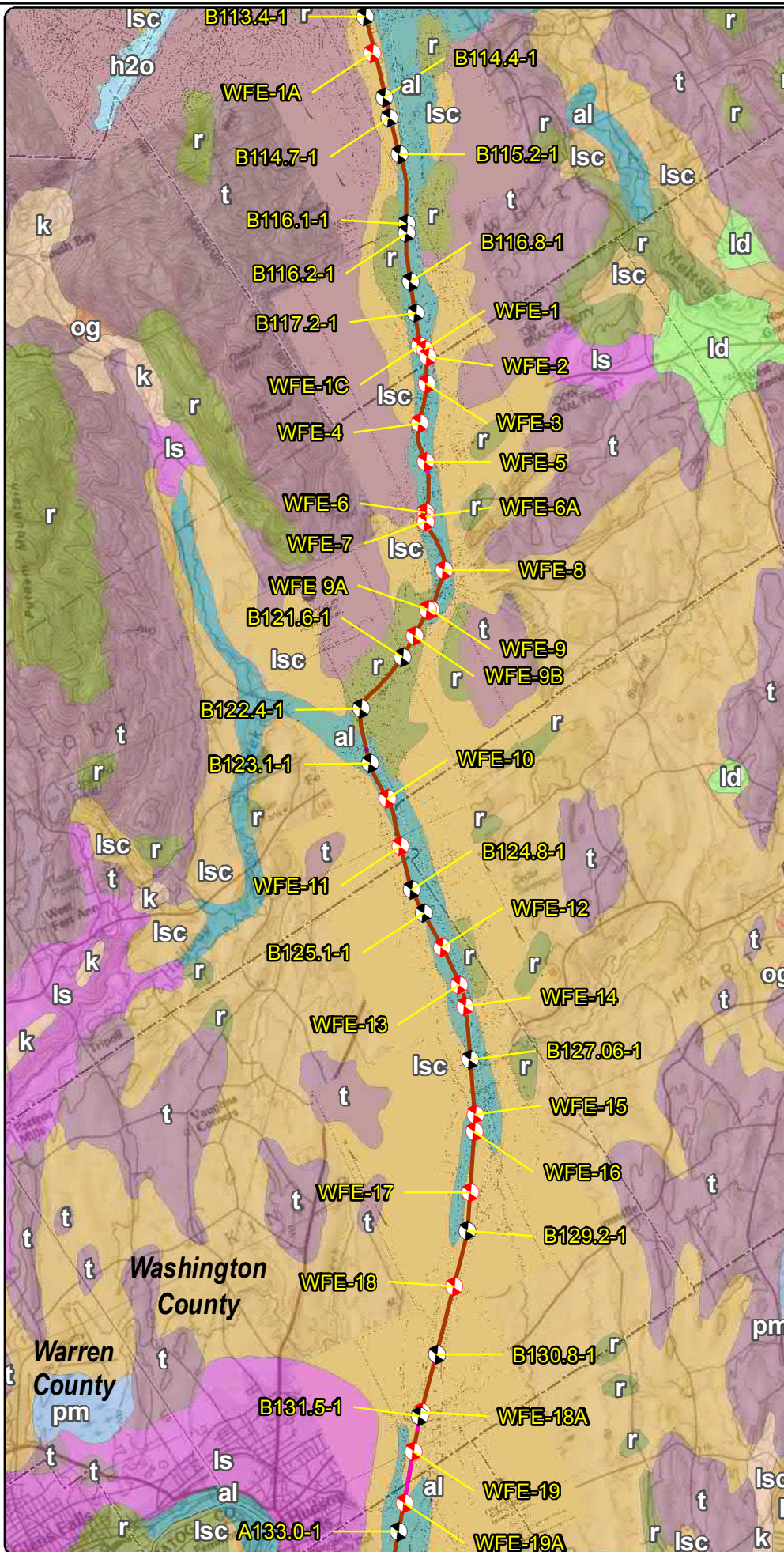
* TRC boring coordinates as shown in Table 1-6 in AECOM report (reference below). Boring elevations estimated from November 2021 topographic survey by Williams Aerial.

** AECOM boring coordinates and elevations as shown in Table 1-6 in AECOM report.

*** Kiewit boring coordinates and elevations are noted on the boring logs.

Reference:

AECOM, Geotechnical Data Report, Upland Segments: Putnam Station, Washington County, to Cementon, Green County, NY, Champlain Hudson Power Express, dated May 28, 2021.



LEGEND

- 2021 Boring Location
- Previous (2013) Boring Location
- Terrestrial Route HVDC
- Submarine Route HVDC
- Terrestrial Route HVAC
- Preliminary HDD Locations
- Preliminary Pipe Bridge Location
- Town Boundary
- County Boundary

Surfacial Geology

- al - Recent alluvium
- h2o - Water
- k - Kame deposits
- ld - Lacustrine delta
- ls - Lacustrine sand
- lsc - Lacustrine silt and clay
- og - Outwash sand and gravel
- pm - Swamp deposits
- r - Bedrock
- t - Till



1 0.5 0 1 Miles

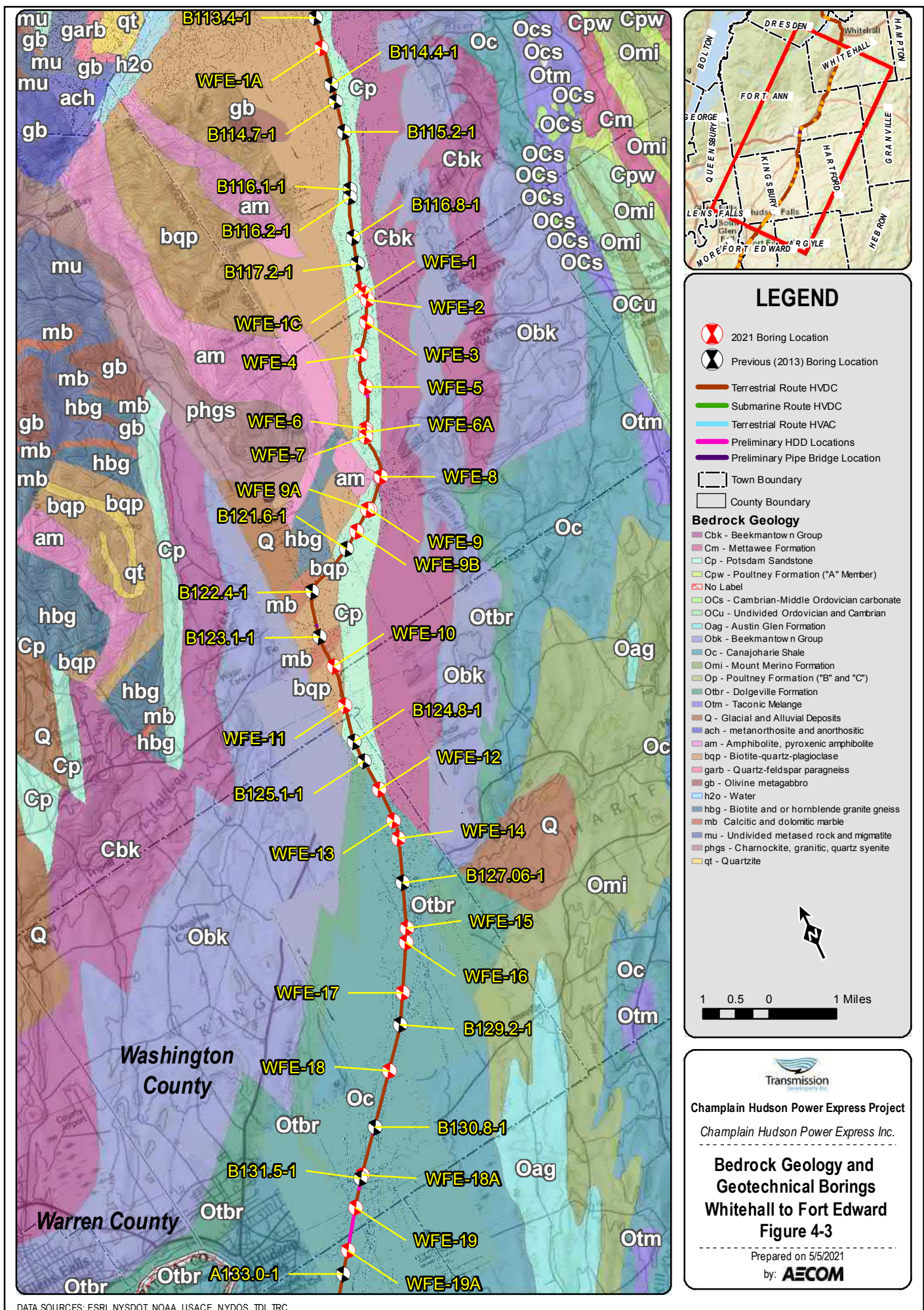


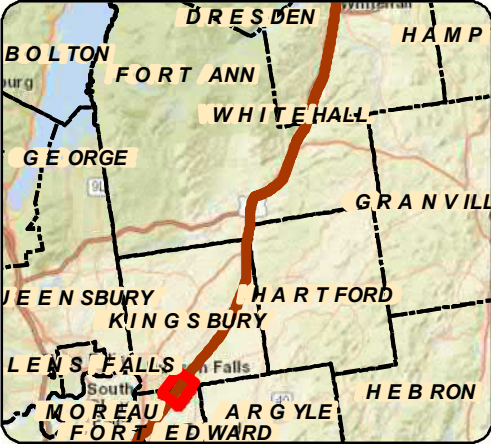
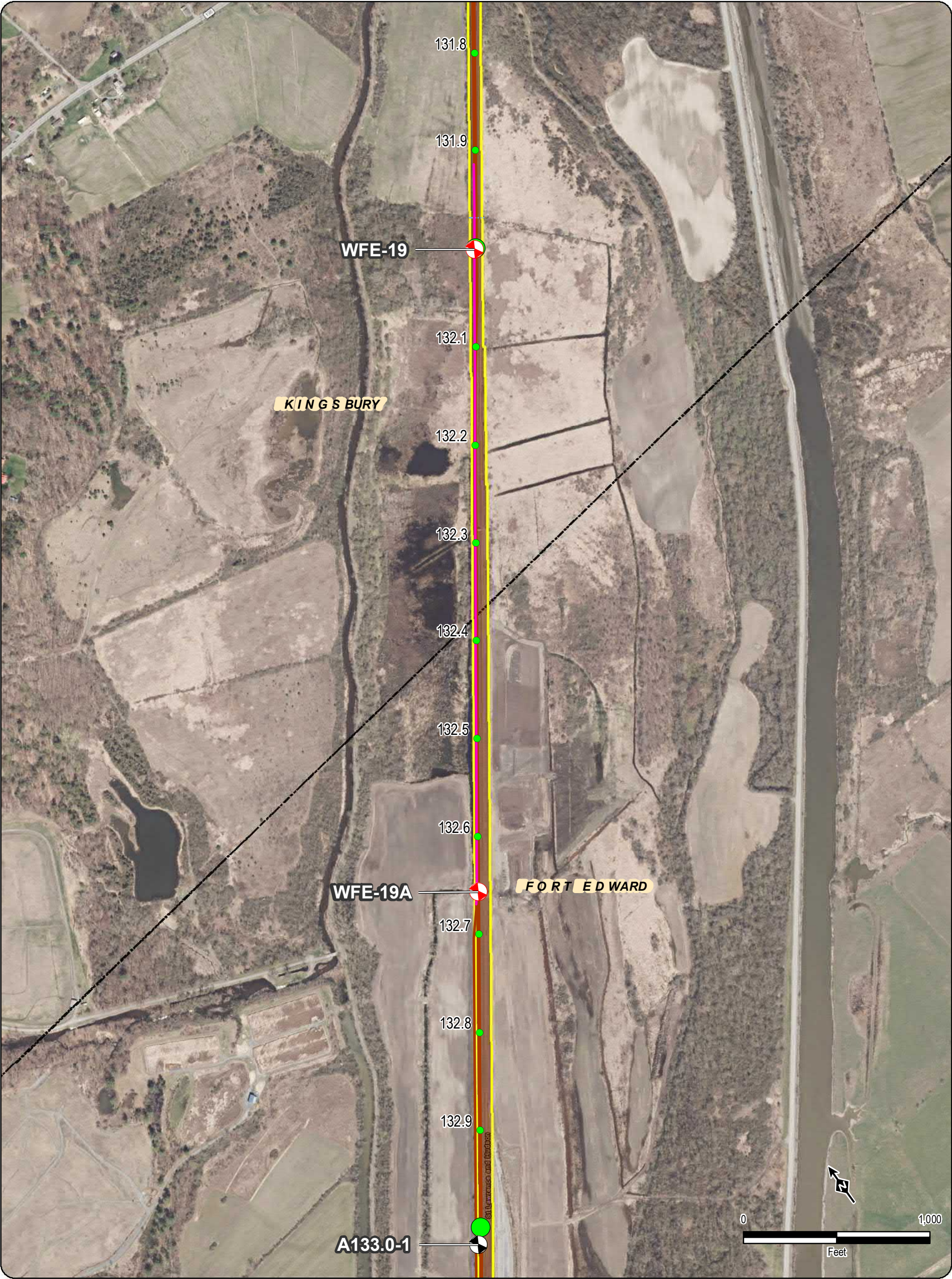
Champlain Hudson Power Express Project
Champlain Hudson Power Express Inc.

Surfacial Geology and Geotechnical Borings Whitehall to Fort Edward Figure 3-3

Prepared on 5/5/2021

by: **AECOM**





111.8

Certified Milepost - Tenths

135

Preferred Alternative Milepost

Preferred Alternative Milepost - Tenths

Terrestrial Route HVDC

Submarine Route HVDC

Terrestrial Route HVAC

Preliminary HDD Locations

Preliminary Pipe Bridge Location

2021 Boring Location

Previous (2013) Boring Location

LEGEND

Streams/Ditches

Railroad ROW

Deviation Zone

Deviation Zone Outside ROW

Preferred Alternative Deviation Zone

Preferred Alternative Deviation Zone Outside ROW

Town Boundary

Village Boundary

State Park (OPRHP)

Parcel Ownership

Road Name

Village Name

TOWN NAME

Transmission

Developers Inc.

Champlain Hudson Power Express Project

Champlain Hudson Power Express Inc.

BORING LOCATION PLAN

Whitehall to Fort Edward

Figure A-3

Sheet 16 of 16

Prepared by:

AECOM

5/19/2021

DATA SOURCES: ESRI, NETWORK MAPPING 2010, NYSDOT, OPRHP, TDI, TRC

Y:\Projects\CHPE\Route\Consensus_Alternative_Routes\MXD\Alt.5_Routes_DZ_201909\Boring_Locations\Maps_for_May_2021_Report\Whitehall_to_Fort_Edward_Boring_Locations_Mapset_May_2021_Report.mxd

BORING CONTRACTOR: ADT												SHEET 1 OF 2		
DRILLER: Chris Chaillou												PROJECT NAME: CHPE -		
SOILS ENGINEER/GEOLOGIST: Chris French												PROJECT NO.: 60323056		
												HOLE NO.: WFE-19		
BORING LOG												START DATE: 1/12/21		
LOCATION: M.P. - 132.0 (CP Rail)												FINISH DATE: 1/12/21		
GROUND WATER OBSERVATIONS												OFFSET: N/A		
7' (inferred)		TYPE		Casing		Sampler		Drill Bit		Core Barrel		Drill Rig: CME LC-55		
		SIZE I.D.		4"		2.5"		--				BORING TYPE: SPT		
		SIZE O.D.		4.5"		3"		3 7/8"				BORING O.D.: 4.5"		
		HAMMER WT.		140 lbs		140 lbs						SURFACE ELEV.:		
		HAMMER FALL		30"		30"						LONGITUDE:		
D E P T H	CORING RATE MIN/FT	S A M P L E		PEN. in	REC. in	BLOWS PER 6 in ON SAMPLER (ROCK QUALITY DESIGNATION)				N Corr. ⁽²⁾	USCS CLASS.	STRAT. CHNG. DEPTH	FIELD IDENTIFICATION OF SOILS	
		DEPTHS FROM - TO (FEET)	TYPE AND NO.											
1.0		0'-5'				Hand Cleared				16	SP	SAND and Silt	0.0'-1.0'; Black fine-coarse SAND, some angular gravel, little silt; frozen 0'-0.5', loost, moist 0.5'-1' 1.0'-5.0'; Dark gray fine-coarse SAND, little subrounded gravel; very loose, moist TR-1; (3.0'-5.0')	
2.0														
3.0														
4.0		3'-5'		S-1										
5.0														
6.0		5'-7'		S-2	24"	2"	15	14	11	12	8	ML	SAND and Silt	Gray SILT, some fine-coarse sand; stiff, moist TR-2; (8.0'-8.5')
7.0														
8.0		7'-9'		S-3	24"	12"	4	6	6	7				
9.0														
10.0		9'-11'		S-4	24"	18"	9	7	8	8				
11.0										14	OL	SILT, with organics	Brown organic SILT and decomposing organics; loose, moist TR-3; (10.0'-10.5') SAA	
12.0														
13.0														
14.0		13'-15'		S-6	24"	18"	13	11	12					13
15.0														
16.0		15'-17'		S-7	24"	10"	5	2	2	3	3	OL	SILT, with organics	SAA
17.0														
18.0														
19.0														
20.0														
NOTES: (1) Thick-wall ring lined drive sampler (California sampler) used for SPT samples. Rings dimensions = 2-1/2" O.D. by 2-7/16" I.D. by 6" length. (2) Correction factor: $N_{corr} = N \cdot (2.0^2 - 1.375^2) \text{ in.} / (3.0^2 - 2.4^2) \text{ in.} = N \cdot 0.65$. Soil description represents a field identification after D.M. Burmister unless otherwise noted.												The information contained on this log is not warranted to show the actual subsurface condition. The contractor agrees that he will make no claims against AECOM if he finds that the actual conditions do not conform to those indicated by this log.		
SAMPLE TYPE: S= SPLIT SPOON U=SHELBY TUBE R=ROCK CORE PROPORTIONS: TRACE=1-10% LITTLE=10-20% SOME=20-35% AND=35-50%														

BORING CONTRACTOR: ADT			AECOM										SHEET 2 OF 2			
DRILLER: Chris Chaillou													PROJECT NAME: CHPE -			
SOILS ENGINEER: Chris French													PROJECT NO.: 60323056			
													HOLE NO.: WFE-19			
			BORING LOG										START DATE: 1/12/21			
													FINISH DATE: 1/12/21			
LOCATION: M.P. - 132.0 (CP Rail)													OFFSET: N/A			
DEPTH	CORING RATE MIN/FT	DEPTHS FROM - TO (Feet)	TYPE AND NO.	PEN. in	REC. in	BLOWS PER 6 in ON SAMPLER (ROCK QUALITY DESIGNATION)				N Corr.	USCS CLASS.	STRAT. CHNG. DEPTH	FIELD IDENTIFICATION OF SOILS			
21.0		20'-22'	S-8	24"	18"	1	2	3	2	3	OL	SILT, with organics	SAA 23.5' (inferred)			
22.0																
23.0																
24.0																
25.0										12	SP	SAND & Gravel	Gray fine-coarse SAND, little angular-subrounded gravel; very loose, saturated 28.5' (inferred)			
26.0		25'-27'	S-9	24"	8"	9	11	8	6							
27.0																
28.0																
29.0										0	CH	Silty CLAY	Gray silty CLAY; very soft, wet TR-4; (31.0'-31.5')			
30.0																
31.0		30'-32'	S-10	24"	24"	WOH	WOH	WOH	3							
32.0																
33.0										3	CH	Silty CLAY	SAA			
34.0																
35.0																
36.0		35'-37'	S-11	24"	24"	1	2	3	2							
37.0										1	CH	Silty CLAY	SAA TR-5; (39.0'-39.5')			
38.0																
39.0		38'-40'	S-12	24"	24"	WOR	WOH	2	3							
40.0																
41.0													WFE-19 terminated at 40', grouted to surface			
42.0																
43.0																
44.0																
45.0																
NOTES:													The information contained on this log is not warranted to show the actual subsurface condition. The contractor agrees that he will make no claims against AECOM if he finds that the actual conditions do not conform to those indicated by this log.			
Soil description represents a field identification after D.M. Burmister unless otherwise noted.																
SAMPLE TYPE:		S= SPLIT SPOON				U=SHELBY TUBE				R=ROCK CORE						
PROPORTIONS:		TRACE=1-10%				LITTLE=10-20%				SOME=20-35%				AND=35-50%		

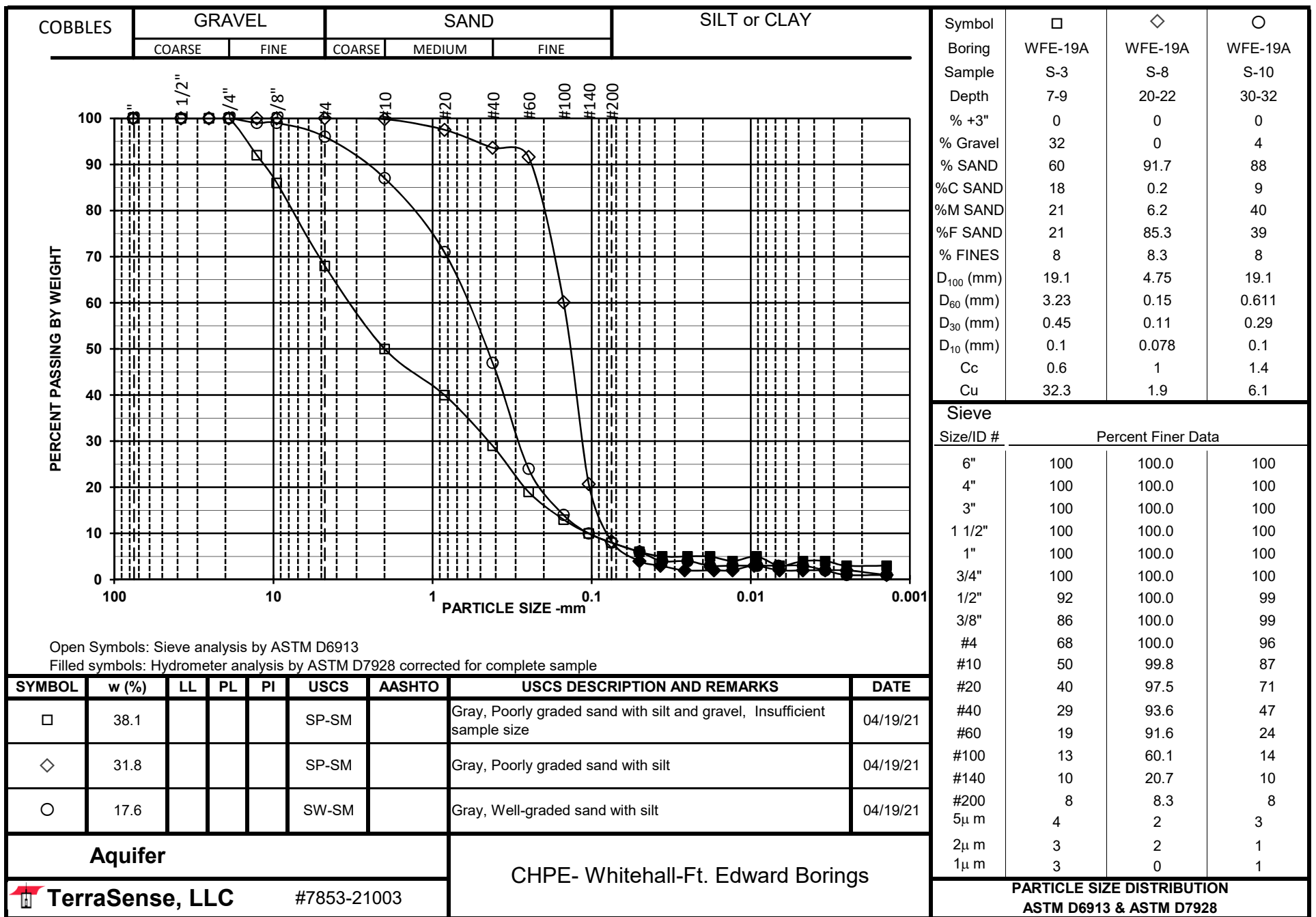
BORING CONTRACTOR:		AECOM										SHEET 1 OF 2					
ADT												PROJECT NAME: CHPE -					
DRILLER:												PROJECT NO.: 60323056					
Chris Chaillou												HOLE NO.: WFE-19A					
SOILS ENGINEER/GEOLOGIST:		BORING LOG										START DATE: 1/13/21					
Chris French												FINISH DATE: 1/13/21					
LOCATION: M.P. - 132.49 (CP Rail)												OFFSET: N/A					
GROUND WATER OBSERVATIONS						CASING		SAMPLER		DRILL BIT		CORE BARREL		DRILL RIG: CME LC-55			
Water at 7' (inferred)				TYPE		Flush Joint Steel		California Modified		Tricone Roller Bit				BORING TYPE: SPT			
				SIZE I.D.		4"		2.5"		--				BORING O.D.: 4.5"			
				SIZE O.D.		4.5"		3"		3 7/8"				SURFACE ELEV.:			
				HAMMER WT.		140 lbs		140 lbs						LONGITUDE:			
				HAMMER FALL		30"		30"						LATITUDE:			
DEPTH	CORING RATE MIN/FT	SAMPLE		PEN. in	REC. in	BLOWS PER 6 in ON SAMPLER (ROCK QUALITY DESIGNATION)				N Corr. (2)	USCS CLASS.	STRAT. CHNG. DEPTH	FIELD IDENTIFICATION OF SOILS				
		DEPTHS FROM - TO (FEET)	TYPE AND NO.														
1.0		0'-5'				Hand Cleared				5		SP	0.0'-5.0'; Black fine-coarse SAND, little gravel (subrounded subangular), trace silt; loose (0'-1' frozen), moist TR-1; (3.0'-5.0') SAA (minimal recovery)				
2.0																	
3.0																	
4.0		3'-5'		S-1													
5.0																	
6.0		5'-7'		S-2	24"	4"	4	3	4	4	5		SP	Dark brown fine-coarse SAND, some silt, little subangular gravel; very loose, saturated			
7.0																	
8.0		7'-9'		S-3	24"	5"	4	3	4	5							
9.0																	
10.0		9'-11'		S-4	24"	8"	7	11	12	16							
11.0										21		SP	Gray fine-medium SAND, trace silt; loose, saturated No Recovery				
12.0		11'-13'		S-5	24"	0"	16	14	18						20		
13.0																	
14.0		13'-15'		S-6	24"	19"	15	16	17						16		
15.0																	
16.0		15'-17'		S-7	24"	0"	10	9	12	5	14		SP	Gray fine SAND, some medium sand, trace silt; loose, saturated TR-2; (14.0'-14.5') No Recovery			
17.0																	
18.0																	
19.0																	
20.0																	
NOTES:												The information contained on this log is not warranted to show the actual subsurface condition. The contractor agrees that he will make no claims against AECOM if he finds that the actual conditions do not conform to those indicated by this log.					
(1) Thick-wall ring lined drive sampler (California sampler) used for SPT samples. Rings dimensions = 2-1/2" O.D. by 2-7/16" I.D. by 6" length.																	
(2) Correction factor: Ncorr=N*(2.0 ² -1.375 ²)in./(3.0 ² -2.4 ²)in. = N*0.65.																	
Soil description represents a field identification after D.M. Burmister unless otherwise noted.																	
SAMPLE TYPE:		S= SPLIT SPOON				U=SHELBY TUBE				R=ROCK CORE							
PROPORTIONS:		TRACE=1-10%				LITTLE=10-20%				SOME=20-35%				AND=35-50%			

BORING CONTRACTOR: ADT				AECOM										SHEET 2 OF 2		
DRILLER: Chris Chaillou														PROJECT NAME: CHPE -		
SOILS ENGINEER: Chris French														PROJECT NO.: 60323056		
														HOLE NO.: WFE-19A		
LOCATION: M.P. - 132.49 (CP Rail)										BORING LOG			START DATE: 1/13/21			
													FINISH DATE: 1/13/21			
													OFFSET: N/A			
DEPTH	CORING RATE MIN/FT	DEPTHS FROM - TO (FEET)	TYPE AND NO.	PEN. in	REC. in	BLOWS PER 6 in ON SAMPLER (ROCK QUALITY DESIGNATION)				N Corr.	USCS CLASS.	STRAT. CHNG. DEPTH	FIELD IDENTIFICATION OF SOILS			
						18	9	10	12							
21.0		20'-22'	S-8	24"	15"	18	9	10	12	12	SP	SAND	Gray fine SAND, trace silt, trace medium sand; very loose, saturated TR-3; (21.0'-21.5')			
22.0																
23.0																
24.0																
25.0																
26.0		25'-27'	S-9	24"	13"	10	11	12	12	15	SP			Gray fine-medium SAND, trace silt; very loose, saturated		
27.0																
28.0																
29.0																
30.0																
31.0		30'-32'	S-10	24"	16"	13	16%	14	14	20	SP		Dark Gray medium-coarse SAND, some fine sand, trace subrounded gravel; very loose, saturated TR-4; (31.0'-31.5')			
32.0																
33.0													33.5' (inferred)			
34.0																
35.0																
36.0		35'-37'	S-11	24"	24"	WOH	3	5	8	5	CH	Silty CLAY	Gray silty CLAY; soft, moist-wet			
37.0																
38.0																
39.0		38'-40'	S-12	24"	24"	WOH	WOH	3	4	2	CH			SAA TR-5; (39.0'-39.5')		
40.0																
41.0													WFE-19A terminated at 40', grouted to surface			
42.0																
43.0																
44.0																
45.0																
NOTES:												The information contained on this log is not warranted to show the actual subsurface condition. The contractor agrees that he will make no claims against AECOM if he finds that the actual conditions do not conform to those indicated by this log.				
Soil description represents a field identification after D.M. Burmister unless otherwise noted.																
SAMPLE TYPE: S= SPLIT SPOON U=SHELBY TUBE R=ROCK CORE PROPORTIONS: TRACE=1-10% LITTLE=10-20% SOME=20-35% AND=35-50%																

Aquifer
CHPE- Whitehall-Ft. Edward Borings
LABORATORY SOIL TESTING DATA SUMMARY

BORING NO.	SAMPLE NO.	DEPTH (ft)	IDENTIFICATION TESTS								REMARKS
			WATER CONTENT (%)	LIQUID LIMIT (-)	PLASTIC LIMIT (-)	PLAS. INDEX (-)	USCS SYMB. (1)	SIEVE MINUS NO. 200 (%)	HYDROMETER % MINUS 2 μ m (%)	ORGANIC CONTENT (burnoff) (%)	
WFE-1A	S-2	5-7	24.4	44	17	27	CL	93	39		
WFE-1A	S-5	11-13	43.0	68	23	45	CH	99.8	84		
WFE-1C	S-3	7-9	44.5				CH	99.3	86		
WFE-1C	S-7	15-17	44.5	78	27	51	CH	100	94		
WFE-1C	S-10	30-32	45.7	61	23	38	CH	100	87		
WFE-2	S-2	5-7	7.3				SW-SM	10.7	3		
WFE-2	S-7	15-17	26.0				SC	28.5	13		
WFE-2	S-9	25-27	66.0	71	26	45	CH	100	90		
WFE-4	S-2	5-7	18.0				SC	34	13		
WFE-4	S-4	9-11	18.3				SM	17	5		
WFE-5	S-2	5-7	19.9				SM	19	3		
WFE-5	S-4	9-11	18.6	28	15	13	CL	91	28		
WFE-6A	S-2	5-7	13.6				SP-SC	9	3		
WFE-6A	S-4	9-11	17.4				SP-SM	7	2		
WFE-8	S-3	6-8	24.9				SC	48.5	12		
WFE-8	S-4	8-10	88.5	128	53	75	MH	94	43		
WFE-10	S-2	5-7	38.0	71	24	47	CH	94	76		
WFE-10	S-4	9-11	22.5				CL	83.9	32		
WFE-12	S-2	5-7	23.5	49	20	29	CL	62.5	35		
WFE-12	S-4	9-11	28.3				CL	95.8	37		
WFE-14	S-3	7-9	25.7				CL	75.7	44		
WFE-14	S-5	13-15	22.5				ML	53.9	17		
WFE-16	S-3	7-9	36.7	75	25	50	CH	100	90		
WFE-16	S-9	25-27	37.1	73	24	49	CH	100	80		
WFE-18	S-3	7-9	229.7	293	93	200	OH	58	43	34.1	
WFE-18	S-8	20-22	34.3	30	21	9	CL	95	26		
WFE-18	S-10	30-32	64.3	56	21	35	CH	100	87		
WFE-18A	S-2	5-7	19.9	30	13	17	CL	88.5	29		
WFE-18A	S-7	15-17	18.9				SM	14.3	1		
WFE-18A	S-10	30-32	62.9	62	22	40	CH	99	86		
WFE-19A	S-3	7-9	38.1				SP-SM	8	3		
WFE-19A	S-8	20-22	31.8				SP-SM	8.3	2		
WFE-19A	S-10	30-32	17.6				SW-SM	8	1		

Note: (1) USCS symbol based on visual observation and Sieve and Atterberg limits reported.





Boring Location Plans

Page 12 of 12

Drawn by:
ADW

Scale:
Not to scale

Project No.:
CD10279

Date:
March 2022

**Champlain Hudson Power Express
Design Package 2
Whitehall to Glens Falls, New York**

ATLANTIC TESTING LABORATORIES, Limited

Albany, NY	Binghamton, NY	Canton, NY	Elmira, NY	Plattsburgh, NY
Poughkeepsie, NY	Syracuse, NY	Rochester, NY	Utica, NY	Watertown, NY

ATLANTIC TESTING LABORATORIES, Limited

Subsurface Investigation

Client: Kiewit Engineering (NY) Corp.
 Project: Subsurface Investigation
Champlain Hudson Power Express, Design Package 2
Various Locations, New York

Report No.: CD10279D-01-03-22

Boring Location: See Boring Location Plan

Boring No.: K-131.9 Sheet 1 of 2

Coordinates
 Northing 745460.937
 Easting 1628984.873

Sampler Hammer
 Weight: 140 lbs.
 Fall: 30 in.
 Hammer Type: Automatic

Start Date: 2/3/2022 Finish Date: 2/3/2022

Date	Time	Depth	Casing
<u>2/3/2022</u>	<u>AM</u>	<u>*11.2'</u>	<u>10.0'</u>

Ground Elev.: 140.11 Boring Advance By: *May be affected by water utilized to advance the
HW (4") Casing/3 7/8" Wet Rotary borehole.

DEPTH	METHOD OF ADVANCE	SAMPLE NO.	DEPTH OF SAMPLE		SAMPLE TYPE	BLOWS ON SAMPLER PER 6" 2" O.D. SAMPLER	DEPTH OF CHANGE	CLASSIFICATION OF MATERIAL f - fine m - medium c - coarse and - 35-50% some - 20-35% little - 10-20% trace - 0-10%	Recovery (Inches)
			From	To					
1	C A S I N G	1	0.0	2.0	SS	17 16 10 6	4.0	Blackish-Grey cmf GRAVEL; and cmf SAND; trace CLAY; trace SILT (moist, very slightly plastic) GW FILL	14
2		2	2.0	4.0	SS	3 3 3 4		Grey cmf GRAVEL; some cmf SAND; trace CLAY; trace SILT (moist, very slightly plastic) GW FILL	6
3									
4		3	4.0	6.0	SS	1 1 2 1		Grey c-m SAND; little mf GRAVEL; trace SILT; trace CLAY (moist, very slightly plastic) SP Possible FILL	6
5							6.0		
6		4	6.0	8.0	SS	3 1 1 1		Black-Dark Grey SILT; little ORGANIC MATERIAL (peat, root hairs); little mf SAND (moist, non-plastic) OH	10
7									
8		5	8.0	10.0	SS	1 WH/12" 1		Black ORGANIC MATERIAL (peat, root hairs); trace mf SAND; trace SILT (saturated, non-plastic) PT w = 411.1% LL = NP, PL = NP, PI = NP % Fines = 2.0%	16
9	WET R O T A R Y						22.0	Advanced casing to 10.0 feet and began advancing 3 7/8" tri-cone roller bit wet rotary open hole within the borehole.	
10									
11									
12									
13									
14		6	14.0	16.0	SS	WH/24"		NO RECOVERY	0
15							22.0		
16									
17									
18									
19		7	19.0	21.0	SS	WH/24"		Black ORGANIC MATERIAL (peat, root hairs); little mf SAND; little SILT (wet, non-plastic) PT	1
20									
21							22.0		
22									
23									
24		8	24.0	26.0	SS	6 6 7 9		Grey c-m SAND; trace CLAY; trace SILT (moist, very slightly	10
25									

SS Split Spoon Sample
 NX Rock Core
 SH Undisturbed Sample (Shelby Tube)
 Estimated Groundwater

Drillers: Jeffrey Donovan; John Trathen

Inspector: James LaMarco (ATL)

ATL-LOG1 NE CD10279 KIEWIT INFRASTRUCTURE CO - VARIOUS LOCATIONS (PACKAGE 2).GPJ ATL4-08.GDT 4/12/22

ATLANTIC TESTING LABORATORIES, Limited

Subsurface Investigation

Boring No.: K-131.9

Report No.: CD10279D-01-03-22

Sheet 2 of 2

DEPTH	METHOD OF ADVANCE	SAMPLE NO.	DEPTH OF SAMPLE		SAMPLE TYPE	BLOWS ON SAMPLER PER 6" 2" O.D. SAMPLER	DEPTH OF CHANGE	CLASSIFICATION OF MATERIAL	RECOVERY (inches)
			From	To					
26								plastic) SC w = 62.8%	
27							27.0		
28									
29		9	29.0	31.0	SS	WH/24"		Grey CLAY; trace SILT; trace f SAND (wet, plastic) CH	24
30									
31									
32									
33									
34									
35		ST-1	35.0	37.0	SS	WH/24"		(3" Brass Lined Split Spoon) Grey CLAY; trace SILT; trace f SAND (wet, plastic) CH w = 70.9%, LL = 51, PL = 20, PI = 31 % Fines = 99.0%	24
36									
37									
38		10	38.0	40.0	SS	WH/24"		Similar Soil (wet, plastic) CH	24
39							40.0		
40									
41								Boring terminated at 40.0 feet.	
42									
43								Notes:	
44								1. Borehole backfilled with cement-bentonite grout.	
45								2. Soil classifications based on ATL Field Engineer's field classifications.	
46								3. Borehole was advanced with ATL's Geoprobe 7822D7 (Rig Unit No. CDGV706) drill rig.	
47									
48									
49									
50									
51									
52									
53									
54									
55									
56									
57									
58									
59									
60									
61									
62									

ATL-LOG1 NE CD10279 KIEWIT INFRASTRUCTURE CO - VARIOUS LOCATIONS (PACKAGE 2).GPJ ATL4-08.GDT 4/12/22

ATLANTIC TESTING LABORATORIES, Limited

Subsurface Investigation

Client: Kiewit Engineering (NY) Corp.
 Project: Subsurface Investigation
Champlain Hudson Power Express, Design Package 2
Various Locations, New York

Report No.: CD10279D-01-03-22

Boring Location: See Boring Location Plan

Boring No.: K-132.1 Sheet 1 of 2

Coordinates
 Northing 744949.351
 Easting 1628269.008
 Sampler Hammer
 Weight: 140 lbs.
 Fall: 30 in.
 Hammer Type: Automatic

Ground Elev.: 138.278 Boring Advance By: HW (4") Casing/3 7/8" Wet Rotary

Start Date: 2/3/2022 Finish Date: 2/3/2022

Groundwater Observations
 Date Time Depth Casing
2/3/2022 PM *6.9' 10.0'

*May be affected by water utilized to advance the borehole.

DEPTH	METHOD OF ADVANCE	SAMPLE NO.	DEPTH OF SAMPLE		SAMPLE TYPE	BLOWS ON SAMPLER PER 6" 2" O.D. SAMPLER	DEPTH OF CHANGE	CLASSIFICATION OF MATERIAL f - fine m - medium c - coarse and - 35-50% some - 20-35% little - 10-20% trace - 0-10%	Recovery (Inches)
			From	To					
1	C A S I N G	1	0.0	2.0	SS	15 22 13 6	6.0	Blackish-Greyish-Brown cmf GRAVEL; some cmf SAND; trace CLAY; trace SILT (moist, very slightly plastic) GW-GC FILL	20
2		2	2.0	4.0	SS	3 5 6 7		Blackish-Grey cmf SAND; and cmf GRAVEL; trace CLAY; trace SILT (moist, very slightly plastic) SW-SC Possible FILL	10
3									
4		3	4.0	6.0	SS	2 2 1 1		Grey cmf GRAVEL; little CLAY; little m-f SAND; trace SILT (moist, slightly plastic) GW-GC Possible FILL	6
5							8.0		
6		4	6.0	8.0	SS	1 1 1 1		Greyish-Brown CLAY; and mf SAND; little ORGANIC MATERIAL (peat, root hairs), trace SILT (moist, plastic) OH OC = 14.1%	4
7									
8		5	8.0	10.0	SS	1 WH/18"		Black ORGANIC MATERIAL (peat, root hairs); trace mf SAND; trace SILT (wet, non-plastic) PT	24
9	WET R O T A R Y						12.0	Advanced casing to 10.0 feet and began advancing 3 7/8" tri-cone roller bit wet rotary open hole within the borehole.	
10									
11									
12									
13									
14		6	14.0	16.0	SS	WH/24"		Black/Dark Brown mf SAND; and SILT; little ORGANIC MATERIAL (peat, root hairs) (saturated, non-plastic) SM w = 121.0%, LL = NP, PL = NP, PI = NP % Fines = 44.3%	8
15									
16									
17									
18									
19		7	19.0	21.0	SS	7 6 6 4		NO RECOVERY	0
20							22.0		
21									
22									
23									
24		8	24.0	26.0	SS	4 1 1 1		Grey CLAY; little cmf SAND; trace SILT; trace ORGANIC	12
25									

SS Split Spoon Sample
 NX Rock Core
 SH Undisturbed Sample (Shelby Tube)
 Estimated Groundwater

Drillers: Jeffrey Donovan; John Trathen

Inspector: James LaMarco (ATL)

ATL-LOG1 NE CD10279 KIEWIT INFRASTRUCTURE CO - VARIOUS LOCATIONS (PACKAGE 2);GPJ ATL4-08.GDT 4/12/22

ATLANTIC TESTING LABORATORIES, Limited

Subsurface Investigation

Boring No.: K-132.1

Report No.: CD10279D-01-03-22

Sheet 2 of 2

DEPTH	METHOD OF ADVANCE	SAMPLE NO.	DEPTH OF SAMPLE		SAMPLE TYPE	BLOWS ON SAMPLER PER 6" 2" O.D. SAMPLER	DEPTH OF CHANGE	CLASSIFICATION OF MATERIAL	RECOVERY (inches)
			From	To					
26								MATERIAL (root hairs) (wet, plastic) OH w = 44.8%	
27									
28									
29		9	29.0	31.0	SS	WH/24"		Grey CLAY; little cmf SAND; trace SILT (wet, plastic) CL	24
30									
31									
32									
33									
34									
35		ST-1	35.0	37.0	SS	WH/24"		(3" Brass Lined Split Spoon) Grey CLAY; trace SILT; trace f SAND (wet, plastic) CL w = 37.7%, LL = 44, PL = 19, PI = 25 % Fines = 99.4%	24
36									
37									
38		10	38.0	40.0	SS	WH/24"		Grey CLAY; little SILT; trace f SAND (wet, plastic) CL	24
39									
40							40.0		
41								Boring terminated at 40.0 feet.	
42									
43								Notes:	
44								1. Borehole backfilled with cement-bentonite grout.	
45								2. Soil classifications based on ATL Field Engineer's field classifications.	
46								3. Borehole was advanced with ATL's Geoprobe 7822D7 (Rig Unit No. CDGV706) drill rig.	
47									
48									
49									
50									
51									
52									
53									
54									
55									
56									
57									
58									
59									
60									
61									
62									

ATL-LOG1 NE CD10279 KIEWIT INFRASTRUCTURE CO - VARIOUS LOCATIONS (PACKAGE 2).GPJ ATL4-08.GDT 4/12/22

ATLANTIC TESTING LABORATORIES, Limited

Subsurface Investigation

Client: Kiewit Engineering (NY) Corp.
 Project: Subsurface Investigation
Champlain Hudson Power Express, Design Package 2
Various Locations, New York

Report No.: CD10279D-01-03-22
 Boring Location: See Boring Location Plan

Boring No.: K-132.2 Sheet 1 of 2

Start Date: 2/4/2022 Finish Date: 2/4/2022

Coordinates
 Northing 744717.276
 Easting 1627946.6
 Sampler Hammer
 Weight: 140 lbs.
 Fall: 30 in.
 Hammer Type: Automatic

Groundwater Observations
 Date Time Depth Casing
2/4/2022 PM *12.1' 10.0'

Ground Elev.: 138.045 Boring Advance By: *May be affected by water utilized to advance the
HW (4") Casing/3 7/8" Wet Rotary/NX Core borehole.

DEPTH	METHOD OF ADVANCE	SAMPLE NO.	DEPTH OF SAMPLE		SAMPLE TYPE	BLOWS ON SAMPLER PER 6" 2" O.D. SAMPLER	DEPTH OF CHANGE	CLASSIFICATION OF MATERIAL	Recovery (Inches)
			From	To					
1	C A S I N G	1	0.0	2.0	SS	30 18 8 3	6.0	Black/Light Brown cmf SAND; and cmf GRAVEL; little SILT (frozen, non-plastic) SW-SM FILL	14
2		2	2.0	4.0	SS	2 1 4 5		Grey cmf SAND; little mf GRAVEL; trace SILT; trace CLAY (moist, very slightly plastic) SW-SC FILL	8
3									
4		3	4.0	6.0	SS	1 1 1 1		Grey mf GRAVEL; and c-m SAND; trace SILT (moist, non-plastic) GP FILL	2
5							8.0		
6		4	6.0	8.0	SS	1 1 1/12"		Brown ORGANIC MATERIAL (peat); trace CLAY; trace f SAND; trace SILT (moist, very slightly plastic) PT OC = 90.7%	12
7									
8		5	8.0	10.0	SS	1 1 1 2		Grey CLAY; some f SAND; trace SILT (moist, plastic) CL	14
9							12.0		
10	WET R O T A R Y							Advanced casing to 10.0 feet and began advancing 3 7/8" tri-cone roller bit wet rotary open hole within the borehole.	
11									
12									
13									
14		6	14.0	16.0	SS	3 4 3 3		Grey c-mf SAND; trace SILT (wet, non-plastic) SP-SM w = 22.7% % Fines = 6.0%	10
15									
16									
17									
18									
19		7	19.0	21.0	SS	4 5 4 5		Grey mf GRAVEL; trace mf SAND; trace SILT; trace CLAY (wet, very slightly plastic) GP-GC	1
20									
21									
22									
23									
24		8	24.0	26.0	SS	3 4 5 7		Grey cm+f SAND; trace mf GRAVEL; trace SILT (moist,	10
25									

SS Split Spoon Sample
 NX Rock Core
 SH Undisturbed Sample (Shelby Tube)
 Estimated Groundwater

Drillers: Jeffrey Donovan; John Trathen
 Inspector: James LaMarco (ATL)

ATL-LOG1 NE CD10279 KIEWIT INFRASTRUCTURE CO - VARIOUS LOCATIONS (PACKAGE 2).GPJ ATL4-08.GDT 4/12/22

ATLANTIC TESTING LABORATORIES, Limited

Subsurface Investigation

Boring No.: K-132.2Report No.: CD10279D-01-03-22Sheet 2 of 2

DEPTH	METHOD OF ADVANCE	SAMPLE NO.	DEPTH OF SAMPLE		SAMPLE TYPE	BLOWS ON SAMPLER PER 6" 2" O.D. SAMPLER	DEPTH OF CHANGE	CLASSIFICATION OF MATERIAL f - fine m - medium c - coarse and - 35-50% some - 20-35% little - 10-20% trace - 0-10%	RECOVERY (inches)
			From	To					
26								non-plastic) SW-SM w = 17.0% % Fines = 8.0%	
27									
28									
29									
30	NX Borehole E (WET)		30.0	35.0	NX	RUN 1	30.0	Advanced 3 7/8" tri-cone roller bit to 30.0 feet and began coring.	
31								Dark Grey SHALE 60" or 100% Recovery 5 Pieces (55") - 8% Chips and Fragments 5 Pieces longer than 4" (55") - RQD = 92%	60
32									
33									
34									
35			35.0	40.0	NX	RUN 2	35.0	Dark Grey SHALE 60" or 100% Recovery 4 Pieces (48") - 20% Chips and Fragments 3 Pieces longer than 4" (43") - RQD = 72%	60
36									
37									
38									
39									
40							40.0		
41								Boring terminated at 40.0 feet.	
42								Notes:	
43								1. Borehole backfilled with cement-bentonite grout.	
44								2. Soil classifications based on ATL Field Engineer's field classification.	
45								3. Borehole was advanced with ATL's Geoprobe 7822D7 (Rig Unit No. CDGV706) drill rig.	
46									
47									
48									
49									
50									
51									
52									
53									
54									
55									
56									
57									
58									
59									
60									
61									
62									

ATL-LOG1 NE CD10279 KIEWIT INFRASTRUCTURE CO - VARIOUS LOCATIONS (PACKAGE 2).GPJ ATL4-08.GDT 4/12/22

ATLANTIC TESTING LABORATORIES, Limited

Subsurface Investigation

Client: Kiewit Engineering (NY) Corp.
 Project: Subsurface Investigation
Champlain Hudson Power Express, Design Package 2
Various Locations, New York

Report No.: CD10279D-01-03-22
 Boring Location: See Boring Location Plan

Boring No.: K-132.4 Sheet 1 of 2

Coordinates
 Northing 1626953.45
 Easting 744108.1

Sampler Hammer
 Weight: 140 lbs.
 Fall: 30 in.

Hammer Type: Automatic

Ground Elev.: 139.6 Boring Advance By: HW (4") Casing/3 7/8" Wet Rotary

Start Date: 4/11/2022 Finish Date: 4/12/2022

Date	Time	Depth	Casing
<u>4/11/2022</u>	<u>PM</u>	<u>*8.1'</u>	<u>10.0'</u>
<u>4/12/2022</u>	<u>AM</u>	<u>*5.7'</u>	<u>10.0'</u>
<u>4/12/2022</u>	<u>PM</u>	<u>*10.7'</u>	<u>15.0'</u>

*May be affected by water utilized to advance the borehole.

DEPTH	METHOD OF ADVANCE	SAMPLE NO.	DEPTH OF SAMPLE		SAMPLE TYPE	BLOWS ON SAMPLER PER 6" 2" O.D. SAMPLER				DEPTH OF CHANGE	CLASSIFICATION OF MATERIAL	Recovery (Inches)
			From	To								
1	C A S I N G	1	0.0	2.0	SS	1	2	4	2	4.0	Black cmf SAND; some mf GRAVEL; trace ORGANIC MATERIAL (moist, non-plastic) FILL SP	15
2		2	2.0	4.0	SS	3	3	3	7		Brown mf SAND; little mf GRAVEL; trace ORGANIC MATERIAL (moist, non-plastic) OC = 6.7% SP	2
3												
4		3	4.0	6.0	SS	7	5	6	12		Brown mf SAND; trace CLAY; trace ORGANIC MATERIAL (moist, very slightly plastic) COBBLE in split spoon shoe SC	1
5										8.0	Similar Soil (wet, very slightly plastic) COBBLE in split spoon shoe SC	3
6		4	6.0	8.0	SS	9	8	6	7			
7												
8		5	8.0	10.0	SS	8	9	6	5		Brown cmf+ SAND; some SILT; little f GRAVEL (moist, non-plastic) w = 18.3% SM	18
9	WET R O T A R Y									12.0	Advanced casing to 10.0 feet and began advancing 3 7/8" tri-cone roller bit wet rotary open hole within the borehole.	
10												
11												
12												
13												
14		6	14.0	16.0	SS	1	1	1			Brownish-Grey mf SAND; little SILT (wet, non-plastic) SM	5
15												
16												
17												
18												
19		7	19.0	21.0	SS	4	3	3	2		Grey cmf SAND; trace SILT (wet, non-plastic) SM	
20												
21												
22												
23												
24		8	24.0	25.0	SS	5	5	4	5		Similar Soil (wet, non-plastic) SM	
25												

SS Split Spoon Sample
 NX Rock Core
 SH Undisturbed Sample (Shelby Tube)
 Estimated Groundwater

Drillers: Jeffrey Donovan; Chase Bertrand
 Inspector: James LaMarco (ATL)

ATL-LOG1 NE CD10279 KIEWIT INFRASTRUCTURE CO - VARIOUS LOCATIONS (PACKAGE 2).GPJ ATL4-08.GDT 6/15/22

ATLANTIC TESTING LABORATORIES, Limited

Subsurface Investigation

Boring No.: K-132.4

Report No.: CD10279D-01-03-22

Sheet 2 of 2

DEPTH	METHOD OF ADVANCE	SAMPLE NO.	DEPTH OF SAMPLE		SAMPLE TYPE	BLOWS ON SAMPLER PER 6" 2" O.D. SAMPLER	DEPTH OF CHANGE	CLASSIFICATION OF MATERIAL	RECOVERY (inches)
			From	To					
26							27.0	f - fine m - medium c - coarse and - 35-50% some - 20-35% little - 10-20% trace - 0-10%	
27									
28									
29		9	29.0	31.0	SS	WH/24"			24
30									
31		TR-1	31.0	33.0	SS	1 1 1 1			24
32									
33									
34		10	34.0	36.0	SS	WH/24"			24
35									
36							41.0	Grey CLAY; trace f SAND; trace SILT (wet, plastic) CH (3" Brass Lined Split Spoon) Grey CLAY; trace f SAND; trace SILT (wet, plastic) w = 43.4%, LL = 45, PL = 19, PI = 26, % Fines = 93.3% CH Similar Soil (wet, plastic) CH Similar Soil (wet, plastic) w = 31.3%, LL = 39, PL = 18, PI = 21, % Fines = 98.7% CH	
37									
38									
39		11	39.0	41.0	SS	WH/24"			24
40									
41									
42									
43									
44									
45									
46									
47									
48									
49									
50									
51									
52									
53									
54									
55									
56									
57									
58									
59									
60									
61									
62									

ATL-LOG1 NE CD10279 KIEWIT INFRASTRUCTURE CO - VARIOUS LOCATIONS (PACKAGE 2).GPJ ATL4-08.GDT 6/15/22

Boring terminated at 41.0 feet.

Notes:

1. Borehole backfilled with cement-bentonite grout.
2. Soil classifications based on ATL Field Engineer's field classification.
3. Borehole was advanced with ATL's Geoprobe 7822D7 (Rig Unit No. CDGV706) drill rig.

ATLANTIC TESTING LABORATORIES, Limited

Subsurface Investigation

Client: Kiewit Engineering (NY) Corp.
 Project: Subsurface Investigation
Champlain Hudson Power Express, Design Package 2
Various Locations, New York

Report No.: CD10279D-01-03-22
 Boring Location: See Boring Location Plan

Boring No.: K-132.5 Sheet 1 of 2

Coordinates
 Northing 1626455.08
 Easting 743760.08

Sampler Hammer
 Weight: 140 lbs.
 Fall: 30 in.
 Hammer Type: Automatic

Ground Elev.: 141.3 Boring Advance By: HW (4") Casing/3 7/8" Wet Rotary

Start Date: 4/12/2022 Finish Date: 4/12/2022

Date	Time	Depth	Casing
<u>4/12/2022</u>	<u>AM</u>	<u>*6.1'</u>	<u>10.0'</u>
<u>4/12/2022</u>	<u>PM</u>	<u>*8.8'</u>	<u>10.0'</u>

Groundwater Observations

*May be affected by water utilized to advance the borehole.

DEPTH	METHOD OF ADVANCE	SAMPLE NO.	DEPTH OF SAMPLE		SAMPLE TYPE	BLOWS ON SAMPLER PER 6" 2" O.D. SAMPLER				DEPTH OF CHANGE	CLASSIFICATION OF MATERIAL	Recovery (Inches)
			From	To								
1	C A S I N G	1	0.0	2.0	SS	6	6	7	8	4.0	Brown cmf SAND; little mf GRAVEL; little SILT (moist, non-plastic) SM	18
2		2	2.0	4.0	SS	5	8	9	9		Similar Soil (moist, non-plastic) SM	12
3												
4		3	4.0	6.0	SS	6	11	13	16		Brown cmf SAND; some SILT (moist, non-plastic) SM	18
5	W E T R O T A R Y									12.0	Brown cmf SAND; little mf GRAVEL; little SILT (moist, non-plastic) SM	24
6		4	6.0	8.0	SS	10	33	36	29		Brown c-mf+ SAND; some SILT (moist, non-plastic) w = 19.6% SM	18
7											Advanced casing to 10.0 feet and began advancing 3 7/8" tri-cone roller bit wet rotary open hole within the borehole.	
8		5	8.0	10.0	SS	18	16	21	17			
9												
10												
11												
12												
13												
14		6	14.0	16.0	SS	5	4	4	6		Grey cmf SAND; trace SILT (wet, non-plastic) SM	7
15												
16												
17												
18												
19		7	19.0	21.0	SS	5	6	6	5		Grey cmf SAND; little SILT; trace mf GRAVEL (wet, non-plastic) SM	8
20												
21												
22												
23												
24		8	24.0	26.0	SS	4	6	6	5		Grey cmf SAND; little SILT (wet, non-plastic) w = 24.3% SM	10
25												

SS Split Spoon Sample
 NX Rock Core
 SH Undisturbed Sample (Shelby Tube)
 Estimated Groundwater

Drillers: Jeffrey Donovan; Chase Bertrand
 Inspector: James LaMarco (ATL)

ATL-LOG1 NE CD10279 KIEWIT INFRASTRUCTURE CO - VARIOUS LOCATIONS (PACKAGE 2).GPJ ATL4-08.GDT 6/15/22

ATLANTIC TESTING LABORATORIES, Limited

Subsurface Investigation

Boring No.: K-132.5

Report No.: CD10279D-01-03-22

Sheet 2 of 2

DEPTH	METHOD OF ADVANCE	SAMPLE NO.	DEPTH OF SAMPLE		SAMPLE TYPE	BLOWS ON SAMPLER PER 6" 2" O.D. SAMPLER	DEPTH OF CHANGE	CLASSIFICATION OF MATERIAL	RECOVERY (inches)
			From	To					
26									
27									
28									
29		9	29.0	31.0	SS	3 3 5 6	31.0	Similar Soil (wet, non-plastic) SM	7
30									
31									
32									
33		ST-1	33.0	35.0	SS	WH/12" 1 2		(3" Brass Lined Split Spoon) Grey CLAY; trace f SAND; trace SILT (wet, plastic) w = 61.3%, LL = 62, PL = 21, PI = 41, % Fines = 95% CH	24
34									
35									
36									
37									
38		10	38.0	40.0	SS	WH/18" 1	40.0	Similar Soil (wet, plastic) CH	24
39									
40									
41								Boring terminated at 40.0 feet.	
42									
43								Notes:	
44								1. Borehole backfilled with cement-bentonite grout.	
45								2. Soil classifications based on ATL Field Engineer's field classification.	
46								3. Borehole was advanced with ATL's Geoprobe 7822D7 (Rig Unit No. CDGV706) drill rig.	
47									
48									
49									
50									
51									
52									
53									
54									
55									
56									
57									
58									
59									
60									
61									
62									

ATL-LOG1 NE CD10279 KIEWIT INFRASTRUCTURE CO - VARIOUS LOCATIONS (PACKAGE 2).GPJ ATL4-08.GDT 6/15/22

ATLANTIC TESTING LABORATORIES, Limited

Subsurface Investigation

Client: Kiewit Engineering (NY) Corp.
 Project: Subsurface Investigation
Champlain Hudson Power Express, Design Package 2
Various Locations, New York

Report No.: CD10279D-01-03-22
 Boring Location: See Boring Location Plan

Boring No.: K-132.6 Sheet 1 of 2

Start Date: 4/13/2022 Finish Date: 4/13/2022

Coordinates
 Northing 1626102.85
 Easting 743497.62
 Sampler Hammer
 Weight: 140 lbs.
 Fall: 30 in.
 Hammer Type: Automatic

Groundwater Observations
 Date Time Depth Casing
4/13/2022 PM *10.7' 10.0'

Ground Elev.: 140.3 Boring Advance By: *May be affected by water utilized to advance the borehole.
HW (4") Casing/3 7/8" Wet Rotary

DEPTH	METHOD OF ADVANCE	SAMPLE NO.	DEPTH OF SAMPLE		SAMPLE TYPE	BLOWS ON SAMPLER PER 6" 2" O.D. SAMPLER				DEPTH OF CHANGE	CLASSIFICATION OF MATERIAL	Recovery (Inches)
			From	To								
1	C	1	0.0	2.0	SS	4	5	6	11	2.0	Brown cmf SAND; some SILT (moist, non-plastic) SM	24
2	A											
3	S	2	2.0	4.0	SS	10	12	8	9	12.0	Brown cm SAND; little mf GRAVEL; little SILT (moist, non-plastic) SM	14
4	I											
5	N	3	4.0	6.0	SS	8	10	7	26		Brown c SAND; little mf GRAVEL; little SILT (moist, non-plastic) SM	12
6	G											
7		4	6.0	8.0	SS	24	19	16	15		Grey cmf SAND; some SILT; some mf GRAVEL (moist, non-plastic) w = 8.5% SM	18
8												
9		5	8.0	10.0	SS	17	15	13	12		Grey mf SAND; some mf GRAVEL; little SILT (moist, non-plastic) SM	12
10												
11	WET										Advanced casing to 10.0 feet and began advancing 3 7/8" tri-cone roller bit wet rotary open hole within the borehole.	
12	R											
13	O											
14	T											
15	A	6	14.0	16.0	SS	6	4	3	6		Grey cmf SAND; trace SILT; trace f GRAVEL (wet, non-plastic) SM	12
16	R											
17	O											
18	T											
19	A											
20	R	7	19.0	21.0	SS	5	4	3	5		Grey c-mf SAND; trace SILT; trace f GRAVEL (wet, non-plastic) w = 18.6% SM	10
21	O											
22	T											
23	A											
24	R	TR-1	23.0	25.0	SS	4	9	13	19		(3" Brass Lined Split Spoon) Grey cmf SAND; little SILT; trace f GRAVEL (wet, non-plastic) SM	18
25	O											

SS Split Spoon Sample
 NX Rock Core
 SH Undisturbed Sample (Shelby Tube)
 Estimated Groundwater

Drillers: Jeffrey Donovan; Chase Bertrand
 Inspector: James LaMarco (ATL)

ATL-LOG1 NE CD10279 KIEWIT INFRASTRUCTURE CO - VARIOUS LOCATIONS (PACKAGE 2).GPJ ATL4-08.GDT 6/15/22

ATLANTIC TESTING LABORATORIES, Limited

Subsurface Investigation

Boring No.: K-132.6

Report No.: CD10279D-01-03-22

Sheet 2 of 2

DEPTH	METHOD OF ADVANCE	SAMPLE NO.	DEPTH OF SAMPLE		SAMPLE TYPE	BLOWS ON SAMPLER PER 6" 2" O.D. SAMPLER				DEPTH OF CHANGE	CLASSIFICATION OF MATERIAL	RECOVERY (inches)
			From	To								
26		TR-1	25.0	27.0	SS	6	10	12	13		(3" Brass Lined Split Spoon) Similar Soil (wet, non-plastic) SM	14
27												
28		8	28.0	30.0	SS	6	7	10	7		Similar Soil (wet, non-plastic) SM	12
29												
30										30.0		
31											Boring terminated at 30.0 feet.	
32												
33											Notes:	
34											1. Borehole backfilled with cement-bentonite grout.	
35											2. Soil classifications based on ATL Field Engineer's field classification.	
36											3. Borehole was advanced with ATL's Geoprobe 7822D7 (Rig Unit No. CDGV706) drill rig.	
37												
38												
39												
40												
41												
42												
43												
44												
45												
46												
47												
48												
49												
50												
51												
52												
53												
54												
55												
56												
57												
58												
59												
60												
61												
62												

ATL-LOG1 NE CD10279 KIEWIT INFRASTRUCTURE CO - VARIOUS LOCATIONS (PACKAGE 2).GPJ ATL4-08.GDT 6/15/22



ATLANTIC TESTING LABORATORIES

LABORATORY TEST SUMMARY TABLE

ATL No. CD10279: Kiewit Infrastructure Co. - Champlain Hudson Power Express

Boring ID	Sample No.	Sample Depth (ft.)	Soil/Rock Description	Percent Finer No. 200 Sieve	Moisture Content (%)	Atterburg Limits			Organic Content (%)	Water-Soluble Sulfate (ppm)	Water-Soluble Chloride (ppm)	pH	Resistivity (ohm-cm)	Rock Unconfined Compressive Strength (psi)	Rock Splitting Tensile Strength (psi)	Rock CERCHAR Abrasiveness Corrected CAI
						LL	PL	PI								
K-129.9B	S-4	6.0 - 8.0	Brown CLAY; some ORGANIC MATERIAL (root hairs); trace SILT	--	--	--	--	--	34.9	--	--	--	--	--	--	--
	S-6	14.0 - 16.0	Grey CLAY; little SILT; trace f SAND	--	88.0	96	49	47	--	--	--	--	--	--	--	--
	S-8	24.0 - 26.0	Grey c-mf SAND; trace SILT; trace f GRAVEL	7.0	18.3	--	--	--	--	--	--	--	--	--	--	--
	ST-1	27.0 - 29.0	Grey CLAY; trace SILT	100.0	51.2	55	20	35	--	--	--	--	--	--	--	--
	S-10	34.0 - 36.0	Grey CLAY; trace SILT	--	50.8	--	--	--	--	--	--	--	--	--	--	--
K-130.9	S-4	6.0 - 8.0	Grey CLAY; little SILT; little mf SAND	85.8	46.6	39	18	21	--	--	--	--	--	--	--	--
	S-6	14.0 - 16.0	Grey c-mf+ SAND; some SILT; trace CLAY	35.0	65.2	--	--	--	--	--	--	--	--	--	--	--
	RC-2	30.5 - 31.5	Dark Grey SHALE	--	--	--	--	--	--	--	--	--	--	--	1,153	2.75
	RC-2	31.5 - 31.8	Dark Grey SHALE	--	--	--	--	--	--	--	--	--	--	7,220	--	--
K-131.6	S-4	6.0 - 8.0	Grey CLAY; trace mf SAND; trace SILT	96.9	48.7	41	20	21	--	--	--	--	--	--	--	--
	S-7	19.0 - 21.0	Grey c-mf+ SAND; little SILT	15.0	22.6	--	--	--	--	--	--	--	--	--	--	--
	ST-1	35.0 - 37.0	Grey CLAY; trace f SAND; trace SILT	99.9	55.9	62	25	37	--	--	--	--	--	--	--	--
K-131.7A	S-3	4.0 - 6.0	Blackish-Brown cmf SAND; some mf GRAVEL; trace SILT	--	--	--	--	--	--	500	35	7.69	42,570	--	--	--
	S-4	6.0 - 8.0	Grey mf+ SAND; and SILT; trace CLAY	50.0	23.3	--	--	--	--	--	--	--	--	--	--	--
	S-7	19.0 - 21.0	Grey SILT; some CLAY; little f SAND; trace ORGANIC MATERIAL (root hairs, wood fragments)	78.3	43.6	53	21	32	--	--	--	--	--	--	--	--
	S-9	29.0 - 31.0	Grey CLAY; little SILT; trace f SAND	--	70.9	--	--	--	--	--	--	--	--	--	--	--
	ST-1	45.0 - 47.0	Grey CLAY; little mf SAND; trace SILT	86.6	66.4	53	25	28	--	--	--	--	--	--	--	--
K-131.7B	S-5	8.0 - 10.0	Brownish-Grey CLAY; little SILT; little ORGANIC MATERIAL (root hairs); trace mf SAND	--	--	--	--	--	10.5	--	--	--	--	--	--	--
	S-6	14.0 - 16.0	Black ORGANIC MATERIAL (peat, root hairs); trace SILT	3.1	178.4	NP	NP	NP	--	--	--	--	--	--	--	--
	S-9	29.0 - 31.0	Grey CLAY; trace SILT	--	60.9	--	--	--	--	--	--	--	--	--	--	--
	ST-1	45.0 - 47.0	Grey CLAY; trace SILT; trace f SAND	99.8	58.7	55	19	36	--	--	--	--	--	--	--	--
K-131.9	S-5	8.0 - 10.0	Black ORGANIC MATERIAL (peat, root hairs); trace mf SAND; trace SILT	2.0	411.1	NP	NP	NP	--	--	--	--	--	--	--	--
	S-8	24.0 - 36.0	Grey c-m SAND; trace CLAY; trace SILT	--	62.8	--	--	--	--	--	--	--	--	--	--	--



ATLANTIC TESTING LABORATORIES

LABORATORY TEST SUMMARY TABLE

ATL No. CD10279: Kiewit Infrastructure Co. - Champlain Hudson Power Express

Boring ID	Sample No.	Sample Depth (ft.)	Soil/Rock Description	Percent Finer No. 200 Sieve	Moisture Content (%)	Atterburg Limits			Organic Content (%)	Water-Soluble Sulfate (ppm)	Water-Soluble Chloride (ppm)	pH	Resistivity (ohm-cm)	Rock Unconfined Compressive Strength (psi)	Rock Splitting Tensile Strength (psi)	Rock CERCHAR Abrasiveness Corrected CAI
						LL	PL	PI								
	ST-1	35.0 - 37.0	Grey CLAY; trace SILT; trace f SAND	99.0	70.9	51	20	31	--	--	--	--	--	--	--	--
K-132.1	S-4	6.0 - 8.0	Greyish-Brown CLAY; and mf SAND; little ORGANIC MATERIAL (peat, root hairs), trace SILT	--	--	--	--	--	14.1	--	--	--	--	--	--	--
	S-6	14.0 - 16.0	Black/Dark Brown mf SAND; and SILT; little ORGANIC MATERIAL (peat, root hairs)	44.3	121.0	NP	NP	NP	--	--	--	--	--	--	--	--
	S-8	24.0 - 26.0	Grey CLAY; little cmf SAND; trace SILT; trace ORGANIC MATERIAL (root hairs) (wet, plastic)	--	44.8	--	--	--	--	--	--	--	--	--	--	--
	ST-1	35.0 - 37.0	Grey CLAY; trace SILT; trace f SAND	99.4	37.7	44	19	25	--	--	--	--	--	--	--	--
K-132.2	S-4	6.0 - 8.0	Brown ORGANIC MATERIAL (peat); trace CLAY; trace f SAND; trace SILT	--	--	--	--	--	90.7	--	--	--	--	--	--	--
	S-6	14.0 - 16.0	Grey c-mf SAND; trace SILT	6.0	22.7	--	--	--	--	--	--	--	--	--	--	--
	S-8	24.0 - 26.0	Grey cm+f SAND; trace mf GRAVEL; trace SILT	8.0	17.0	--	--	--	--	--	--	--	--	--	--	--
	R-1	31.73	Dark Grey SHALE	--	--	--	--	--	--	--	--	--	--	--	898	1.33
	R-1	33.0 - 33.3	Dark Grey SHALE	--	--	--	--	--	--	--	--	--	--	7,920	--	--
K-132.4	S-2	2.0-4.0	Brown mf SAND; little m GRAVEL; trace OM	--	--	--	--	--	6.7	--	--	--	--	--	--	--
	S-5	8.0-10.0	Brown cmf+ SAND; some SILT; little f GRAVEL	24.0	18.3	--	--	--	--	--	--	--	--	--	--	--
	TR-1	31.0-33.0	Grey CLAY; trace f SAND; trace SILT	93.3	43.4	45	19	26	--	--	--	--	--	--	--	--
	S-11	39.0-41.0	Grey CLAY; trace f SAND; trace SILT	98.7	31.3	39	18	21	--	--	--	--	--	--	--	--
K-132.5	S-3	4.0-6.0	Brown cmf SAND; some SILT	--	--	--	--	--	--	7600	35.0	11.5	5,805	--	--	--
	S-5	8.0-10.0	Brown c-mf+ SAND; some SILT	35.0	19.6	--	--	--	--	--	--	--	--	--	--	--
	S-8	24.0-26.0	Grey cmf SAND; little SILT	--	24.3	--	--	--	--	--	--	--	--	--	--	--
	ST-1	33.0-35.0	Grey CLAY; trace f SAND; trace SILT	95	61.3	62	21	41	--	--	--	--	--	--	--	--
K-132.6	S-4	6.0-8.0	Grey cmf SAND; some SILT; some mf GRAVEL	27.0	8.5	--	--	--	--	--	--	--	--	--	--	--
	S-7	19.0-21.0	Grey c-mf SAND; trace SILT; trace f GRAVEL	8.5	18.6	--	--	--	--	--	--	--	--	--	--	--

TEST DATA (continued)

Boring No.	Sample No.	Depth (ft)	Moisture Content (%)
K-131.9	S-5	8-10	411.1
	S-8	24-26	62.8
	ST-1	35-37	70.9
K-132.1	S-6	14-16	121.0
	S-8	24-26	44.8
	ST-1	35-37	37.7

1. Sample mass was less than the minimum mass outlined in the referenced test method.

Reviewed By:



Date: 02/18/22

[illegible]



ATLANTIC TESTING LABORATORIES

WBE certified company

LABORATORY DETERMINATION OF MOISTURE CONTENT OF SOILS

ASTM D 2216

Page 1 of 1

PROJECT INFORMATION

Client: Kiewit Infrastructure Co.
Project: Champlain Hudson Power Express
United Cable Installation
Various Locations, New York

ATL Report No.: CD10279E-13-04-22
Report Date: April 26, 2022
Date Received: April 18, 2022

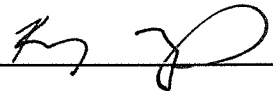
TEST DATA

Boring No.	Sample No.	Depth (ft)	Moisture Content (%)
K-132.4	S-5	8-10	18.3
	TR-1 ¹	31-33	43.4
	S-11	39-41	31.3
K-132.5	S-5	8-10	19.6
	S-8	24-26	24.3
	ST-1	33-35	61.3
K-132.6	S-4 ¹	6-8	8.5
	S-7	19-21	18.6

Remarks

1. Sample mass was less than the minimum mass outlined in the referenced test method.

Reviewed By:



Date: 04/26/22



Particle Size Distribution Report

Project: Champlain Hudson Power Express United Cable Install **Report No.:** CD10279E-04-03-22

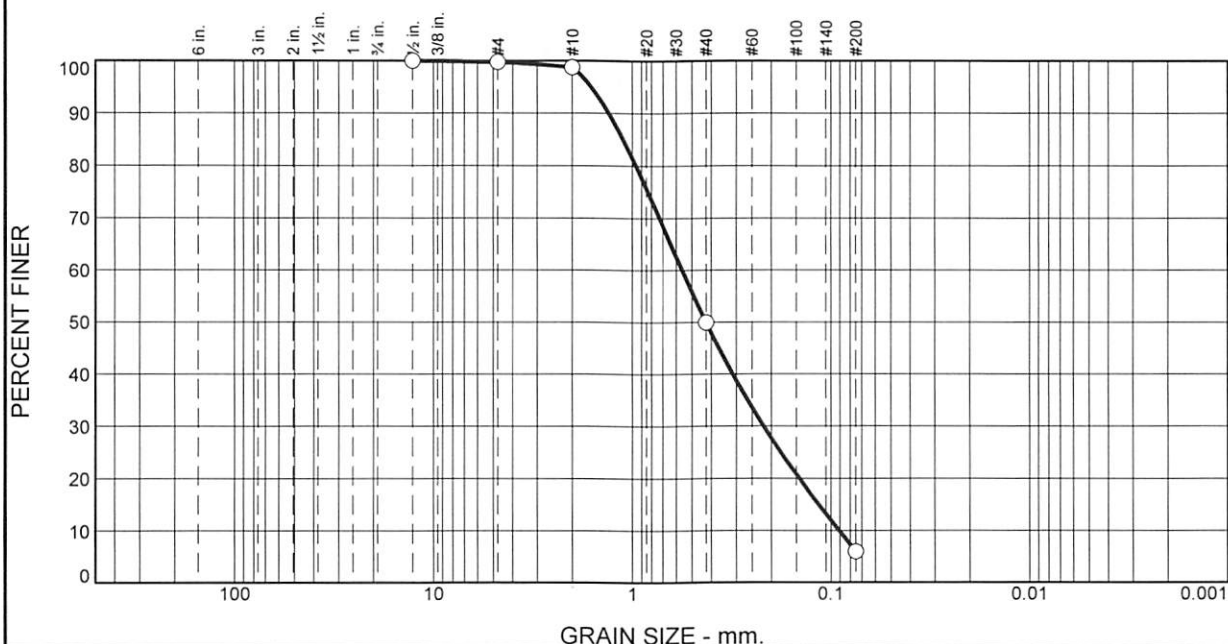
Client: Kiewit Infrastructure Co.

Date: 03/01/22

Sample No: K-132.2, S-6 **Source of Sample:** Boring Sample

Location: In-place

Elev./Depth: 14-16'



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	1	49	44	6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	OUT OF SPEC. (X)
1/2"	100		
#4	100		
#10	99		
#40	50		
#200	6.0		

<u>Soil Description</u>		
Grey c-mf SAND; trace SILT		
<u>Atterberg Limits</u>		
PL= --	LL= --	PI= --
<u>Coefficients</u>		
D ₈₅ = 1.1130	D ₆₀ = 0.5603	D ₅₀ = 0.4258
D ₃₀ = 0.2186	D ₁₅ = 0.1152	D ₁₀ = 0.0909
C _u = 6.16	C _c = 0.94	
<u>Classification</u>		
USCS=	AASHTO=	
<u>Remarks</u>		
Moisture Content= 22.7%		

* (no specification provided)

ATLANTIC TESTING LABORATORIES, LIMITED

Figure

Reviewed by: KJ 3P

Date: 03/01/22



Particle Size Distribution Report

Project: Champlain Hudson Power Express United Cable Install **Report No.:** CD10279E-13-04-22

Client: Kiewit Infrastructure Co.

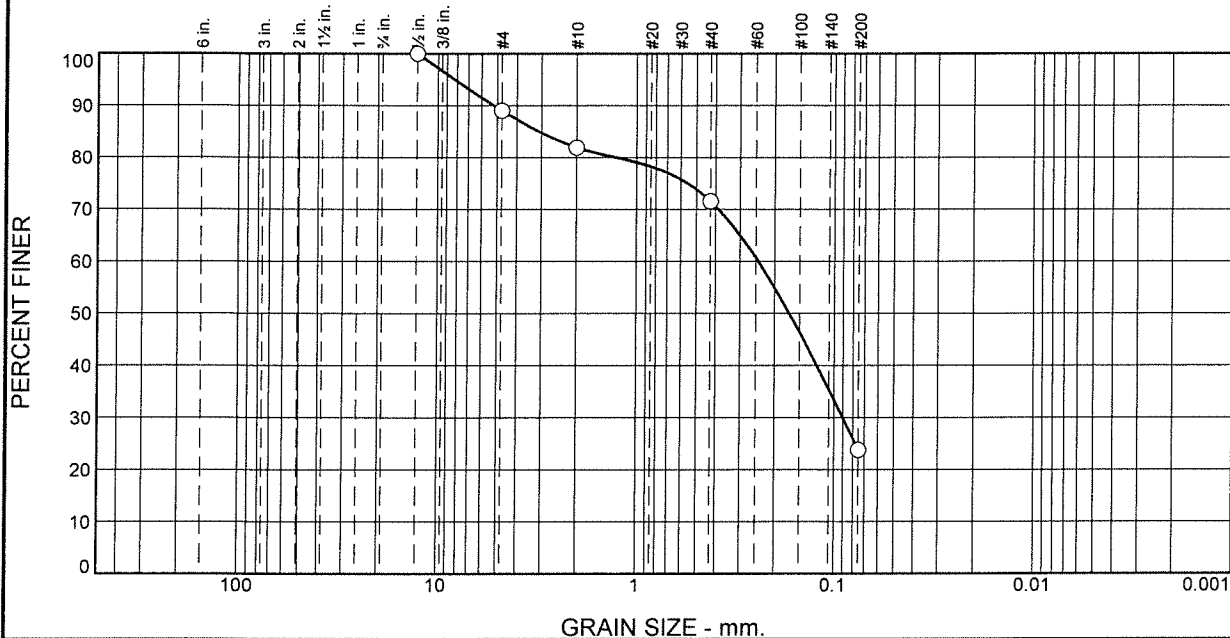
Date: 04/26/22

Sample No: K-132.4, S-5

Source of Sample: Boring Sample

Location: In-place

Elev./Depth: 8-10'



GRAIN SIZE - mm.

% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	11	7	10	48	24	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	OUT OF SPEC. (X)
1/2"	100		
#4	89		
#10	82		
#40	72		
#200	24		

Soil Description

Brown cmf+ SAND; some SILT; little f GRAVEL

Atterberg Limits

PL= --

LL= --

PI= --

Coefficients

D₈₅= 3.0960

D₃₀= 0.0902

C_u=

D₆₀= 0.2428

D₁₅=

C_c=

D₅₀= 0.1689

D₁₀=

Classification

USCS=

AASHTO=

Remarks

Moisture Content= 18.3%

* (no specification provided)

ATLANTIC TESTING LABORATORIES, LIMITED

Figure

Reviewed by:

Date: 04/26/22



ATLANTIC TESTING LABORATORIES

Particle Size Distribution Report

Project: Champlain Hudson Power Express United Cable Install **Report No.:** CD10279E-13-04-22

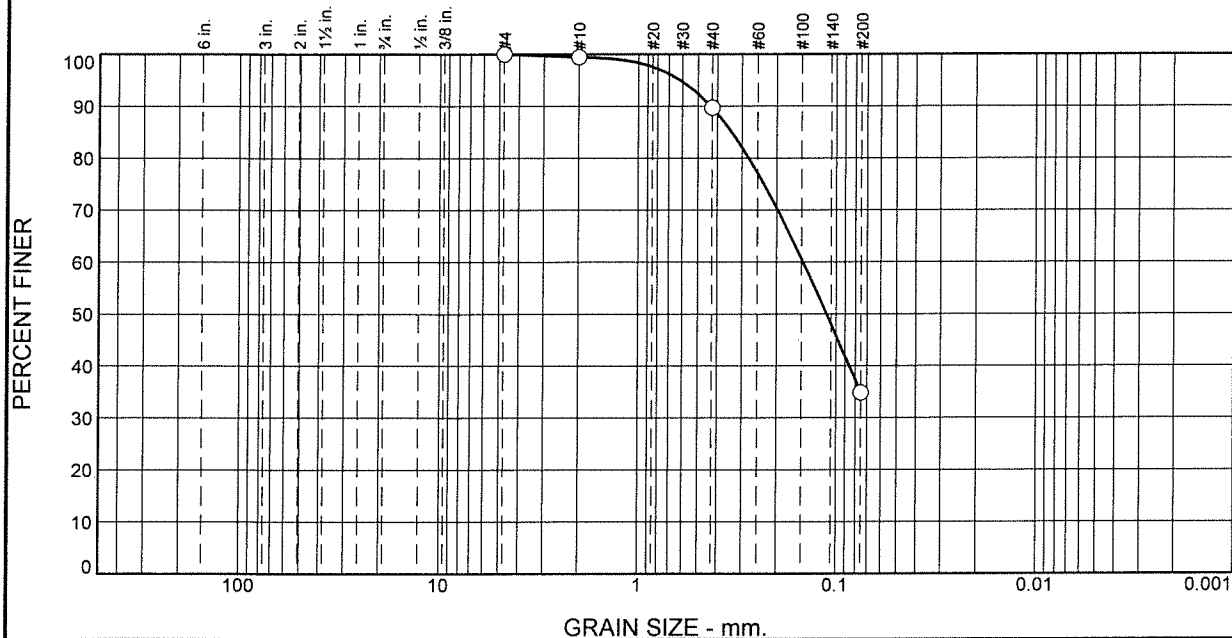
Client: Kiewit Infrastructure Co.

Date: 04/26/22

Sample No: K-132.5, S-5 **Source of Sample:** Boring Sample

Location: In-place

Elev./Depth: 8-10'



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	1	9	55	35	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	OUT OF SPEC. (X)
#4	100		
#10	99		
#40	90		
#200	35		

Soil Description

Brown c-mf+ SAND; some SILT

Atterberg Limits

PL= -- LL= -- PI= --

Coefficients

D₈₅= 0.3389 D₆₀= 0.1472 D₅₀= 0.1119
D₃₀= D₁₅=
C_u= C_c=

Classification

USCS= AASHTO=

Remarks

Moisture Content= 19.6%

* (no specification provided)

ATLANTIC TESTING LABORATORIES, LIMITED

Figure

Reviewed by:

Date: 04/26/22



Particle Size Distribution Report

Project: Champlain Hudson Power Express United Cable Install **Report No.:** CD10279E-13-04-22

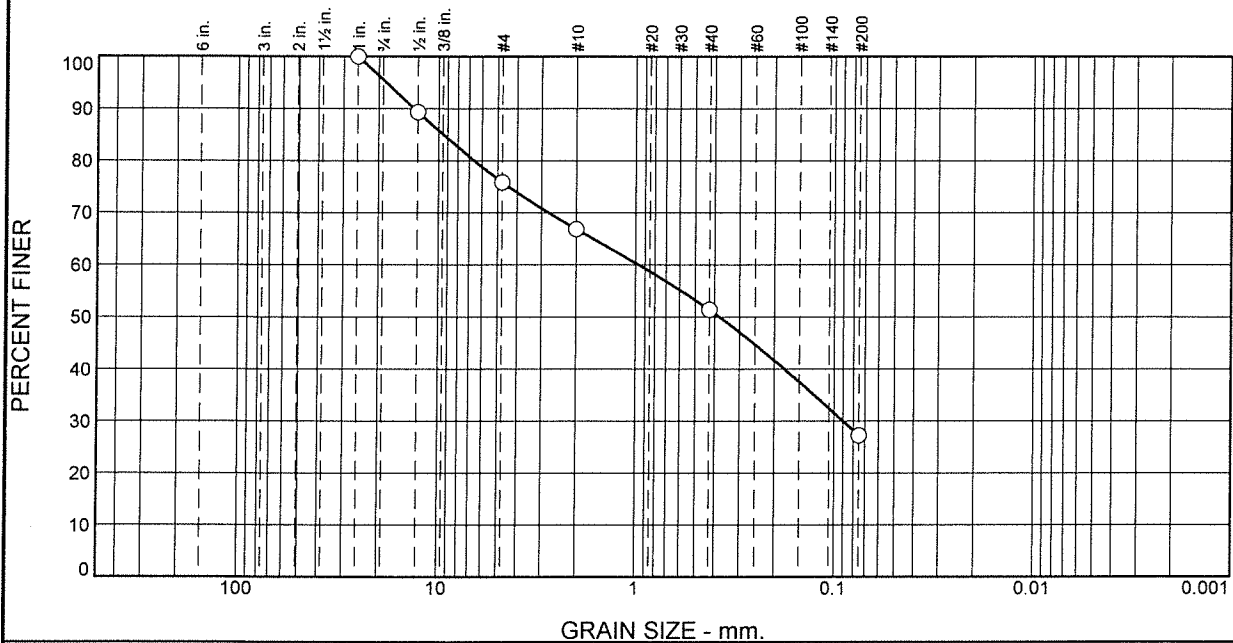
Client: Kiewit Infrastructure Co.

Date: 04/26/22

Sample No: K-132.6, S-4 **Source of Sample:** Boring Sample

Location: In-place

Elev./Depth: 6-8'



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	4	20	9	16	24	27	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	OUT OF SPEC. (X)
1"	100		
1/2"	89		
#4	76		
#10	67		
#40	51		
#200	27		

Soil Description

Grey cmf SAND; some SILT; some mf GRAVEL

Atterberg Limits

PL= -- LL= -- PI= --

Coefficients

D₈₅= 9.4554 D₆₀= 0.9677 D₅₀= 0.3787
D₃₀= 0.0900 D₁₅=
C_u= C_c= D₁₀=

Classification

USCS= AASHTO=

Remarks

Moisture Content= 8.5%

* (no specification provided)

ATLANTIC TESTING LABORATORIES, LIMITED

Figure

Reviewed by:

Date: 04/26/22



ATLANTIC TESTING LABORATORIES

Particle Size Distribution Report

Project: Champlain Hudson Power Express United Cable Install **Report No.:** CD10279E-13-04-22

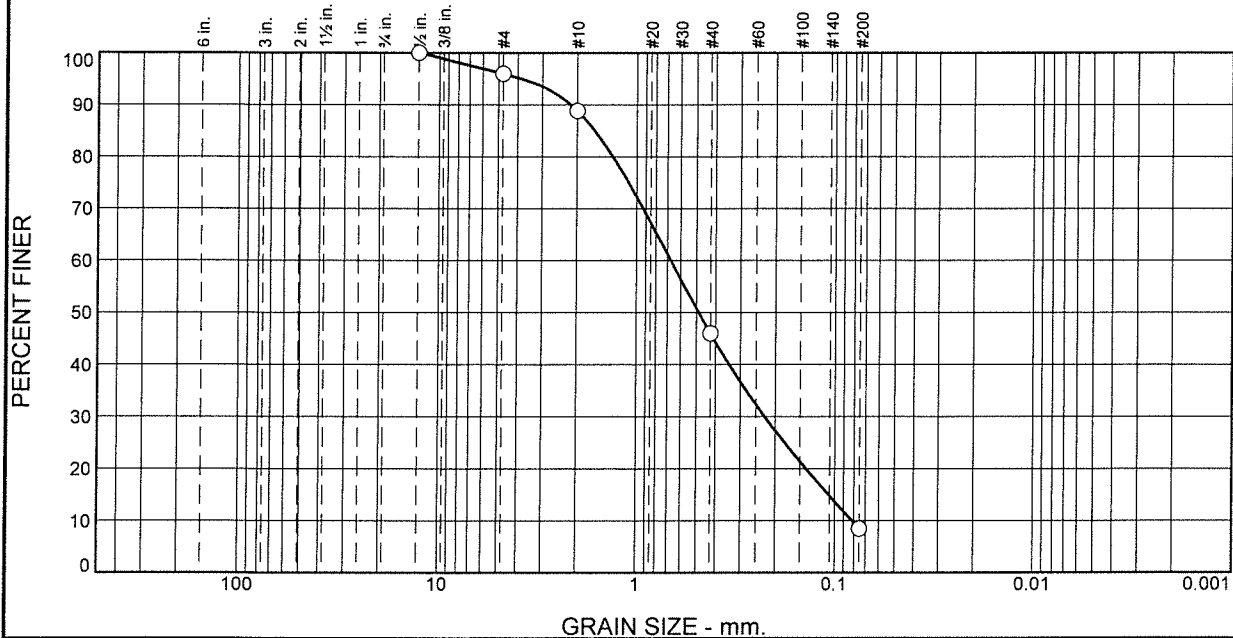
Client: Kiewit Infrastructure Co.

Date: 04/26/22

Sample No: K-132.6, S-7 **Source of Sample:** Boring Sample

Location: In-place

Elev./Depth: 19-21'



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	4	7	43	38	8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	OUT OF SPEC. (X)
1/2"	100		
#4	96		
#10	89		
#40	46		
#200	8.5		

Soil Description

Grey c-mf SAND; trace SILT; trace f GRAVEL

Atterberg Limits

PL= -- LL= -- PI= --

Coefficients

D₈₅= 1.6359 D₆₀= 0.6735 D₅₀= 0.4878
D₃₀= 0.2260 D₁₅= 0.1072 D₁₀= 0.0816
C_u= 8.26 C_c= 0.93

Classification

USCS= AASHTO=

Remarks

Moisture Content= 18.6%

* (no specification provided)

ATLANTIC TESTING LABORATORIES, LIMITED

Figure

Reviewed by:

Date: 04/26/22



ATLANTIC TESTING LABORATORIES

WBE certified company

AMOUNT OF MATERIAL IN SOILS FINER THAN THE NO. 200 SIEVE ASTM D 1140

PROJECT INFORMATION

Client: Kiewit Infrastructure Co.
Project: Champlain Hudson Power Express
United Cable Installation
Various Locations, New York

ATL Report No.: CD10279E-03-02-22
Report Date: February 18, 2022
Test Date: February 11, 2022
Performed By: A. Rivers

TEST DATA

Boring No.	Sample No.	Depth (ft)	Method (A or B)	Soak Time (min)	Initial Dry Weight (g)	% Finer than #200
K-117.6-0.2	S-4	6-8	A	10	205.83	41.7
K-117.6-0.2	S-7	19-21	A	10	220.45	23.5
K-117.6-0.2	S-9	28-30	A	10	273.37	99.7
K-117.6-2.1	S-6	14-16	A	10	163.54	57.2
K-130.9	S-4	6-8	A	10	144.29	85.8
K-131.6	S-4	6-8	A	10	138.58	96.9
K-131.6	ST-1	35-37	A	10	227.62	99.9
K-131.7A	S-7	19-21	A	10	175.90	78.3
K-131.7A	ST-1	45-47	A	10	221.28	86.6
K-131.7B	S-6	14-16	A	10	147.24	3.1
K-131.7B	ST-1	45-47	A	10	239.55	99.8
K-131.9	S-5	8-10	A	10	133.26	2.0
K-131.9	ST-1	35-37	A	10	194.65	99.0
K-132.1	S-6	14-16	A	10	202.17	44.3
K-132.1	ST-1	35-37	A	10	299.54	99.4

Reviewed By: _____

Date: February 18, 2022



ATLANTIC TESTING LABORATORIES

WBE certified company

AMOUNT OF MATERIAL IN SOILS FINER THAN THE NO. 200 SIEVE
ASTM D 1140

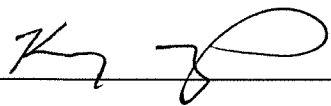
PROJECT INFORMATION

Client: Kiewit Infrastructure Co.
Project: Champlain Hudson Power Express
United Cable Installation
Various Locations, New York

ATL Report No.: CD10279E-13-04-22
Report Date: April 26, 2022
Test Date: April 22, 2022
Performed By: E. Hannon

TEST DATA

Boring No.	Sample No.	Depth (ft)	Method (A or B)	Soak Time (min)	Initial Dry Weight (g)	% Finer than #200
K-132.4	TR-1	31-33	A	10	92.01	93.3
K-132.4	S-11	39-41	A	10	44.75	98.7
K-132.5	ST-1	33-35	A	10	161.78	95.0

Reviewed By: 

Date: 04/26/22



ATLANTIC TESTING LABORATORIES

WBE certified company

Page 1 of 2

LIQUID LIMIT, PLASTIC LIMIT, AND PLASTICITY INDEX OF SOIL ASTM D 4318

PROJECT INFORMATION

Client: Kiewit Infrastructure Co.
Project: Champlain Hudson Power Express
United Cable Installation
Various Locations, New York

ATL Report No.: CD10279E-03-02-22
Report Date: February 18, 2022
Date Received: February 7, 2022

TEST DATA

Boring No.	Sample No.	LL	PL	PI
K-117.6-0.2	S-4	NP	NP	NP
K-117.6-0.2	S-7	NP	NP	NP
K-117.6-0.2	S-9	65	26	39
K-117.6-2.1	S-6	41	19	22
K-130.9	S-4	39	18	21
K-131.6	S-4	41	20	21
K-131.6	ST-1	62	25	37
K-131.7A	S-7	53	21	32
K-131.7A	ST-1	53	25	28
K-131.7B	S-6	NP	NP	NP
K-131.7B	ST-1	55	19	36
K-131.9	S-5	NP	NP	NP
K-131.9	ST-1	51	20	31
K-132.1	S-6	NP	NP	NP
K-132.1	ST-1	44	19	25

SAMPLE INFORMATION

Boring No.	Sample No.	Maximum Grain Size (mm)	Estimated Amount of Sample Retained on No. 40 Sieve (%)	As Received Moisture Content (%)
K-117.6-0.2	S-4	6.35	15	25.3
K-117.6-0.2	S-7	2.38	30	18.3
K-117.6-0.2	S-9	0.595	1	55.0
K-117.6-2.1	S-6	2	5	47.9
K-130.9	S-4	2	5	46.6
K-131.6	S-4	0.595	2	48.7
K-131.6	ST-1	0.841	1	55.9
K-131.7A	S-7	2	2	43.6
K-131.7A	ST-1	9.51	10	66.4
K-131.7B	S-6	9.51	30	178.4
K-131.7B	ST-1	0.595	1	58.7
K-131.9	S-5	4.76	20	411.1
K-131.9	ST-1	2	1	70.9
K-132.1	S-6	4.76	10	121.0
K-132.1	ST-1	2	1	37.7

Client: Kiewit Infrastructure Co.
Project: Champlain Hudson Power Express

ATL Report No. CD10279E-03-02-22
Date: February 18, 2022
Page 2 of 2

PREPARATION INFORMATION

Boring No.	Sample No.	Preparation	Method of Removing Oversized Material
K-117.6-0.2	S-4	Air Dry	Pulverizing and Screening
K-117.6-0.2	S-7	Air Dry	Pulverizing and Screening
K-117.6-0.2	S-9	Air Dry	Pulverizing and Screening
K-117.6-2.1	S-6	Air Dry	Pulverizing and Screening
K-130.9	S-4	Air Dry	Pulverizing and Screening
K-131.6	S-4	Air Dry	Pulverizing and Screening
K-131.6	ST-1	Air Dry	Pulverizing and Screening
K-131.7A	S-7	Air Dry	Pulverizing and Screening
K-131.7A	ST-1	Air Dry	Pulverizing and Screening
K-131.7B	S-6	Air Dry	Pulverizing and Screening
K-131.7B	ST-1	Air Dry	Pulverizing and Screening
K-131.9	S-5	Air Dry	Pulverizing and Screening
K-131.9	ST-1	Air Dry	Pulverizing and Screening
K-132.1	S-6	Air Dry	Pulverizing and Screening
K-132.1	ST-1	Air Dry	Pulverizing and Screening

EQUIPMENT INFORMATION

Liquid Limit Procedure:	Multipoint - Method A	☒	Single Point - Method B	☐
Liquid Limit Apparatus:	Manual	☒	Motor Driven	☐
Liquid Limit Grooving Tool Material:	Plastic	☒	Metal	☐
Liquid Limit Grooving Tool Shape:	Flat	☒	Curved (AASHTO Only)	☐
Plastic Limit:	Hand Rolled	☒	Mechanical Rolling Device	☐

Reviewed By: 

Date: 02/18/22



ATLANTIC TESTING LABORATORIES

Page 1 of 1

WBE certified company

LIQUID LIMIT, PLASTIC LIMIT, AND PLASTICITY INDEX OF SOIL ASTM D 4318

PROJECT INFORMATION

Client: Kiewit Infrastructure Co.
Project: Champlain Hudson Power Express
United Cable Installation
Various Locations, New York

ATL Report No.: CD10279E-13-04-22
Report Date: April 26, 2022
Date Received: April 18, 2022

TEST DATA

Boring No.	Sample No.	LL	PL	PI
K-132.4	TR-1	45	19	26
K-132.4	S-11	39	18	21
K-132.5	ST-1	62	21	41

SAMPLE INFORMATION

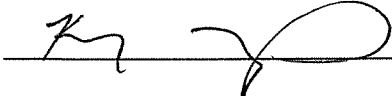
Boring No.	Sample No.	Maximum Grain Size (mm)	Estimated Amount of Sample Retained on No. 40 Sieve (%)	As Received Moisture Content (%)
K-132.4	TR-1	4.76	1	43.4
K-132.4	S-11	0.25	0	31.3
K-132.5	ST-1	4.76	2	61.3

PREPARATION INFORMATION

Boring No.	Sample No.	Preparation	Method of Removing Oversized Material
K-132.4	TR-1	Air Dry	Pulverizing and Screening
K-132.4	S-11	Air Dry	Not Necessary
K-132.5	ST-1	Air Dry	Pulverizing and Screening

EQUIPMENT INFORMATION

Liquid Limit Procedure:	Multipoint - Method A	☒	Single Point - Method B	☐
Liquid Limit Apparatus:	Manual	☒	Motor Driven	☐
Liquid Limit Grooving Tool Material:	Plastic	☒	Metal	☐
Liquid Limit Grooving Tool Shape:	Flat	☒	Curved (AASHTO Only)	☐
Plastic Limit:	Hand Rolled	☒	Mechanical Rolling Device	☐

Reviewed By: 

Date: 04/26/22



ATLANTIC TESTING LABORATORIES

WBE certified company

PROJECT INFORMATION

Client: Kiewit Infrastructure Co.
Project: Champlain Hudson Power Express
United Cable Installation
Various Locations, New York

ATL Report No.: CD10279E-03-02-22
Report Date: February 18, 2022
Date Received: February 7, 2022

PERCENT ORGANICS, ASH CONTENT, AND MOISTURE CONTENT ASTM D 2974

Boring No.	Sample No.	Organics (%)	Ash (%)	Moisture (%)	Test Method	Furnace Temperature (°C)
K-131.7B	S-5	10.5	89.5	97.7	A	440
K-132.1	S-4	14.1	85.9	84.6	A	440

Reviewed By: 

Date: 02/18/22



ATLANTIC TESTING LABORATORIES

WBE certified company

PROJECT INFORMATION

Client: Kiewit Infrastructure Co.
Project: Champlain Hudson Power Express
United Cable Installation
Various Locations, New York

ATL Report No.: CD10279E-04-03-22
Report Date: March 1, 2022
Date Received: February 18, 2022

PERCENT ORGANICS, ASH CONTENT, AND MOISTURE CONTENT

ASTM D 2974

Boring No.	Sample No.	Organics (%)	Ash (%)	Moisture (%)	Test Method	Furnace Temperature (°C)
K-132.2	S-4	90.7	9.3	633.7	A	440

Reviewed By:

Date: 03/01/22



ATLANTIC TESTING LABORATORIES

WBE certified company

PROJECT INFORMATION

Client: Kiewit Infrastructure Co.

ATL Report No.: CD10279E-13-04-22

Project: Champlain Hudson Power Express
United Cable Installation
Various Locations, New York

Report Date: April 26, 2022

Date Received: April 18, 2022

PERCENT ORGANICS, ASH CONTENT, AND MOISTURE CONTENT

ASTM D 2974

Boring No.	Sample No.	Organics (%)	Ash (%)	Moisture (%)	Test Method	Furnace Temperature (°C)
K-132.4	S-2	6.7	93.3	15.2	A	440

Reviewed By: _____

Date: 04/26/22



ATLANTIC TESTING LABORATORIES

CORROSION ANALYSIS SUITE

Client: Kiewit Infrastructure Co.
Project: Champlain Hudson Power Express
United Cable Installation
Location: Various Locations, New York

ATL Report No. CD10279E-13-04-22
Report Date: April 26, 2022
Date Received: April 18, 2022

Sample: K-132.5, S-3

Depth (ft): 4-6

MEASURING pH OF SOIL FOR USE IN CORROSION TESTING ASTM G 51

Type of Test	Soil Temperature (°C)	pH Readings			Average
Laboratory	22.5	11.44	11.45	11.45	11.45

pH of calibration standards used: 7.00

MEASUREMENT OF SOIL RESISTIVITY USING THE TWO-ELECTRODE SOIL BOX METHOD ASTM G 187 (LABORATORY)

Test Date: 04/18/22
Meter Used: Miller 400A

Performed by: E. Hannon
Soil Box Factor: 1.29

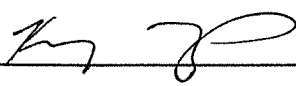
Date Collected	Temperature at Collection (°C)	Measured Resistance (Ω)	Calculated Resistivity (Ω/cm)
Not Provided	Not Provided	4,500	5,805

WATER-SOLUBLE CHLORIDE ION CONTENT IN SOIL AASHTO T 291, Method A

Chloride by Mass of Soil (mg/kg)
35

WATER-SOLUBLE SULFATE IN SOIL ASTM C 1580

Sulfate by Mass of Sample (%)	Sulfate by Mass of Sample (mg/kg)
0.76	7600

Reviewed By: 

Date: 04/26/22



ATLANTIC TESTING LABORATORIES

WBE certified company

Page 1 of 1

PROJECT INFORMATION

Client: Kiewit Infrastructure Co.
Project: Champlain Hudson Power Express
United Cable Installation
Various Locations, New York

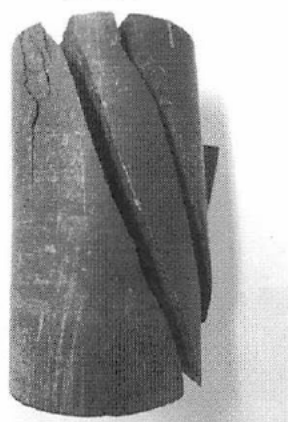
ATL Report No.: CD10279E-04-03-22
Report Date: March 1, 2022
Date Received: February 18, 2022

UNCONFINED COMPRESSIVE STRENGTH OF INTACT ROCK CORE SPECIMENS ASTM D 7012, Method C

Boring No.	Sample No.	Depth (ft)	Diameter (in)	Length (in)	Load Rate (lbs/sec)	Total Load (lbs)	Area (in ²)	Compressive Strength (psi)
K-132.2	R-1	33.0-33.3	1.98	4.04	300	24,410	3.08	7,920

Failure Pictures

K-132.2, R-1, 33.0-33.3'



Reviewed By:

Date: March 1, 2022

K-130.9 - Runs 1 and 2



K-132.2 - Runs 1 and 2

