

ATTACHMENT M2C

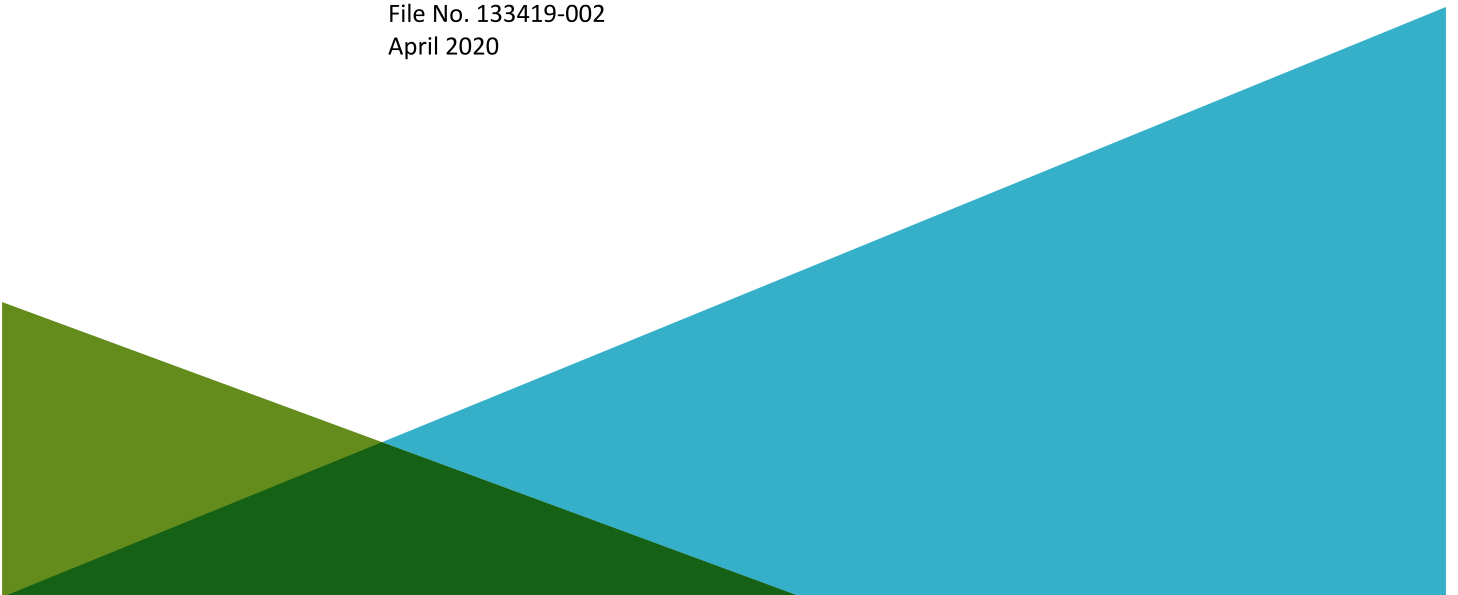
2020 SEDIMENT INVESTIGATION REPORT

ENVIRONMENTAL DATA REPORT
STATE PIER INFRASTRUCTURE IMPROVEMENTS
STATE PIER COMPLEX
NEW LONDON, CONNECTICUT

by
Haley & Aldrich, Inc.
Rocky Hill, Connecticut

for
Moffatt & Nichol
Newton, MA

File No. 133419-002
April 2020





HALEY & ALDRICH, INC.
100 Corporate Place
Suite 105
Rocky Hill CT 06067
860.290.9400

17 April 2020
File No. 133419-002

Moffatt & Nichol
180 Wells Avenue, Suite 302
Newton, MA 02459

Attention: Joshua Singer, P.E.
New England Regional Lead at Moffatt & Nichol

Subject: Environmental Data Report
State Pier Infrastructure Improvements
State Pier Complex
New London, Connecticut

Ladies and Gentlemen:

We are pleased to submit this Environmental Data Report (EDR) for the proposed State Pier Infrastructure Improvement at the State Pier Complex in New London, Connecticut. This report summarizes the results of recent subsurface explorations, subsurface conditions, and laboratory testing. Our services have been provided in accordance with our 15 March 2020 Agreement.

We appreciate this opportunity to provide these environmental services, and look forward to our continued association with you on this project. Please contact us if you have any questions or require additional information.

Sincerely yours,
HALEY & ALDRICH, INC.

Katrina T. Perez Mejia, P.E., LEED Green Associate
Senior Engineer

Chris Harriman, LEP
Associate

John G. DiGenova
Senior Project Manager

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Table of Contents

	Page
List of Figures	iii
1. Introduction	1
1.1 GENERAL	1
1.2 PURPOSE AND SCOPE	1
1.3 ELEVATION DATUM	1
1.4 SITE CONDITIONS AND PROJECT DESCRIPTION	1
1.5 LIMITATIONS	1
2. Test Boring Program and Subsurface Conditions	3
2.1 TEST BORING PROGRAM	3
2.2 GEOLOGIC CONDITIONS	3
2.3 SEA LEVEL CONDITIONS	3
3. Laboratory Testing	4
3.1 GEOTECHNICAL	4
3.2 CHEMICAL TESTING PROGRAM	4

Figures

Appendix A – Test Boring Logs

Appendix B – Photo Logs

Appendix C – Geotechnical Laboratory Test Results

Appendix D – Laboratory Soil Analytical Data Reports

List of Figures

Figure No.	Title
1	Project Locus
2	Exploration Location Plan

1. Introduction

1.1 GENERAL

This report summarizes subsurface information and environmental and geotechnical laboratory testing results for the proposed State Pier Infrastructure Improvement at the State Pier Complex in New London, Connecticut. The site location is shown on the Project Locus, Figure 1.

1.2 PURPOSE AND SCOPE

This investigation was undertaken to obtain supplemental information on subsurface soil and groundwater conditions at the project site. Our scope of services was based on a subsurface exploration and geotechnical and environmental laboratory testing program developed by AECOM that included:

- monitoring explorations on the Thames River and documenting subsurface conditions
- conducting a geotechnical and chemical laboratory testing program to assess soil management requirements during construction
- preparing this report

1.3 ELEVATION DATUM

Elevations in this report are in feet and refer to the North American Vertical Datum of 1988 (NAVD88).

1.4 SITE CONDITIONS AND PROJECT DESCRIPTION

The site is located in the Thames River east of the State Pier Complex, and includes the Delivery Berth, Installation Berth (East Berth), and Turning Basin. We understand that organic silt and sand will be dredged from these areas and that the dredged soils will be used to backfill between the State Pier and CVRR Pier.

The goal of the testing program is to environmentally characterize the proposed dredged material as well as the upper 2 ft of material that will be left in place in order to supplement previous sediment testing performed by AECOM. We understand that AECOM and CPA will use this information to support project permit-related efforts with the Connecticut Department of Energy and Environmental Protection (CTDEEP).

1.5 LIMITATIONS

This report has been prepared for specific application to the project in accordance with generally accepted geotechnical engineering practices. The data presented in this report are based in part upon information obtained from the subsurface explorations. The nature and extent of variations between the explorations may not become evident until construction. If significant variations appear, it will be necessary to reevaluate the information in this report.

This report is prepared for the exclusive use in connection with the geotechnical aspects of this project.

This report does not include an assessment for the presence of oil or hazardous material, nor any regulatory interaction and remedial activities with any contaminated soil, water, or materials that may exist along the proposed alignment.

2. Test Boring Program and Subsurface Conditions

2.1 TEST BORING PROGRAM

Haley & Aldrich monitored a subsurface exploration program developed by AECOM consisting of 12 test borings (Chem-1 through Chem-12). The borings were completed during the period 18 July through 24 March 2020 by TG&B Marine Services, Inc. of Monument Beach, Massachusetts and New England Boring Contractors of Derry, New Hampshire.

Test borings were advanced using a TG&B-BH-4 Pneumatic Vibracorer fitted with 3-in. dia. plastic liners, with the exception of Chem-7, which was advanced using a truck-mounted Mobile Drill B-48 drill rig using 4-in. dia. HW casing. Standard penetration tests were performed continuously at Chem-7, in general accordance with ASTM D1586 using either a 2 or 3-in. O.D. split-spoon sampler driven 24 in. (where possible) with a 140-lb automatic hammer falling 30 in. The borings ranged from about 3.5 to 37.0 ft below the mudline, and were terminated at target depths.

The borings were located in the field by Haley & Aldrich using a Trimble Geo7X GPS unit and are shown on Figure 2. Ground surface elevations were measured in the field and tide levels were accounted for by using measurements provided by the NOAA tide gauge station at the Northeast Bulkhead. Soils were classified according to the Unified Soil Classification System (USCS). A summary of the USCS description system is at the beginning of Appendix A. Logs of test borings are provided in Appendix A.

2.2 GEOLOGIC CONDITIONS

Test borings revealed the following materials, described below in order of increasing depth below ground surface.

Approximate Range

In Thickness (ft) of Strata Generalized Description

>3.5 to >37.0	ORGANIC DEPOSITS – Very soft ORGANIC SILT (OL/OH) with varying amounts sand and shells. This stratum was encountered in all the explorations.
>2.0 to >15.7	GLACIOFLUVIAL DEPOSITS – Dark gray-brown silty SAND with varying amounts of gravel (SM) and interbedded layers of SILT with varying amounts of sand (ML). This stratum was encountered at Chem-1 and Chem-12.

2.3 SEA LEVEL CONDITIONS

In the Thames River, the mean higher high water level (MHHW) is El. 1.21, and the mean lower low water level (MLLW) is El. -1.84.

3. Laboratory Testing

3.1 GEOTECHNICAL

Thirty one soil samples were obtained during the subsurface exploration program and submitted to GeoTesting Express of Acton, Massachusetts for grain size analysis (sieve and hydrometer) in accordance with ASTM D422 and moisture content in accordance with ASTM D2216. Copies of the results are provided in Appendix C.

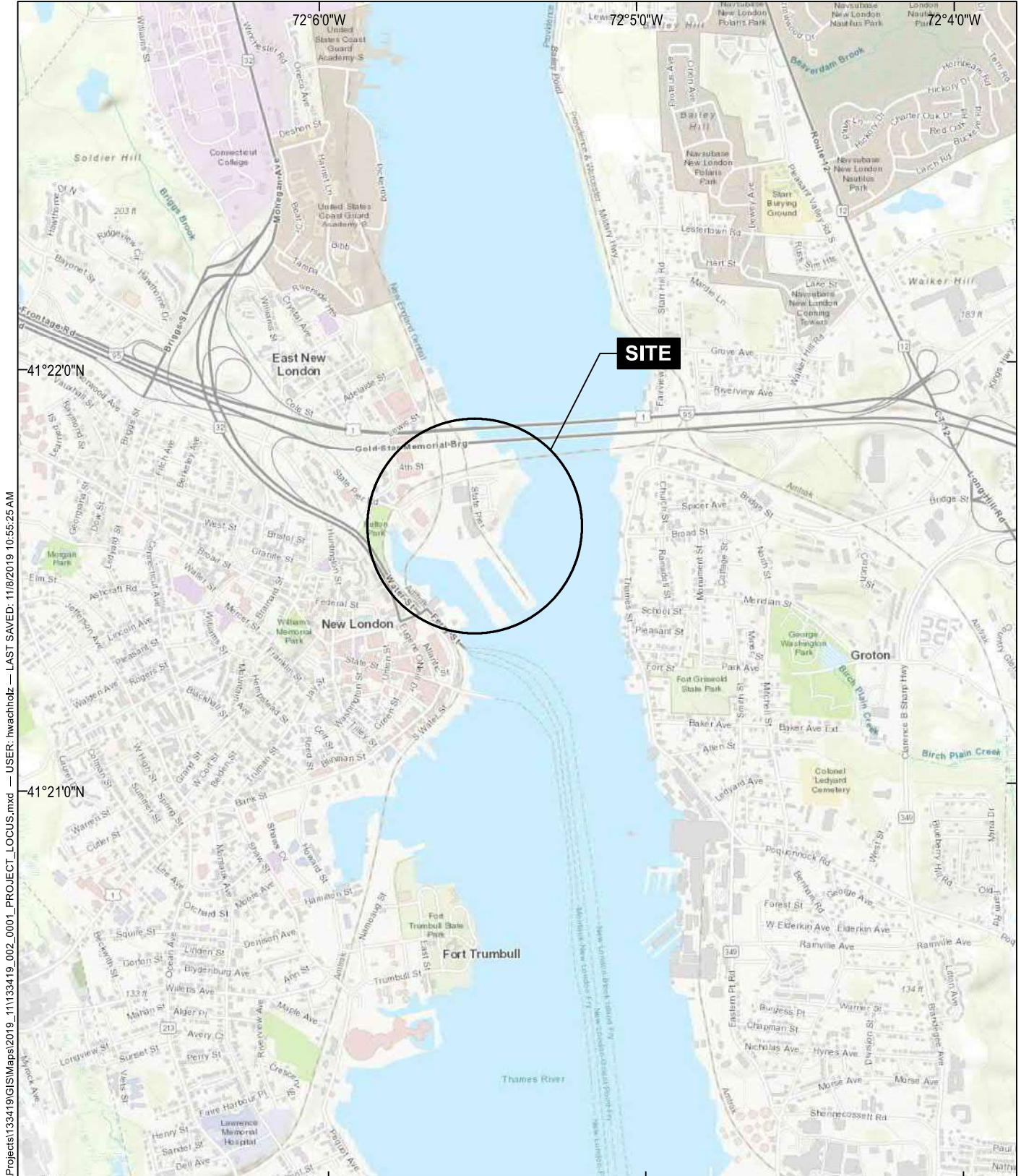
3.2 CHEMICAL TESTING PROGRAM

A laboratory chemical testing program was conducted in accordance with AECOM's Scope for H&A Environmental Testing (Revised 03/13/2020). Sample intervals were determined based on lithology encountered at each test boring. Additionally, where required, samples were collected from the uppermost 2-ft of material to remain after dredging.

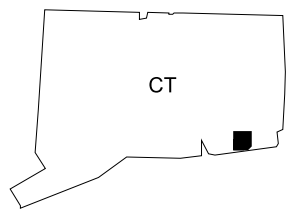
Twenty seven samples were collected and submitted to Alpha Analytical of Westborough, Massachusetts, a Connecticut state-certified laboratory, for chemical testing. Each sample was analyzed for one or more of the following, as applicable:

- Volatile Organic Compounds (VOCs) by SW-846/RCP EPA 8260
- Semi-volatile Organic Compounds (SVOCs) by SW 846/RCP Method 8270
- Polycyclic Aromatic Hydrocarbon (PAHs) by SW-846 Method 8270-SIM
- Connecticut Extractable Total Petroleum Hydrocarbons (CT ETPH) by CT DEEP Method
- Polychlorinated Biphenyls (PCBs) by SW-846/RCP Method 8082A
- Total Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Copper, Lead, Mercury, Nickel, Selenium, Silver, Thallium, Vanadium, and Zinc by SW-846/RCP Methods 6010 and 6020
- Chlorinated Pesticides by EPA Method 8081B
- Herbicides by SW-846/RCP 8151
- Gamma Spectroscopy for Cobalt-60 and Cesium-137 by DOE HASL 300, 4.5.2.3/Ga-01-R
- Total Organic Carbon by SW-846 9060A

Copies of the laboratory reports and chain-of-custody documentation are provided in Appendix D.



GIS FILE PATH: \\haleyaldrich.com\share\CF\Projects\133419\GIS\Maps\2019_11\133419_002_0001_PROJECT_LOCUS.mxd — USER: hwacholz — LAST SAVED: 11/8/2019 10:55:25 AM



MAP SOURCE: ESRI
 SITE COORDINATES: 41°21'37"N, 72°5'31"W

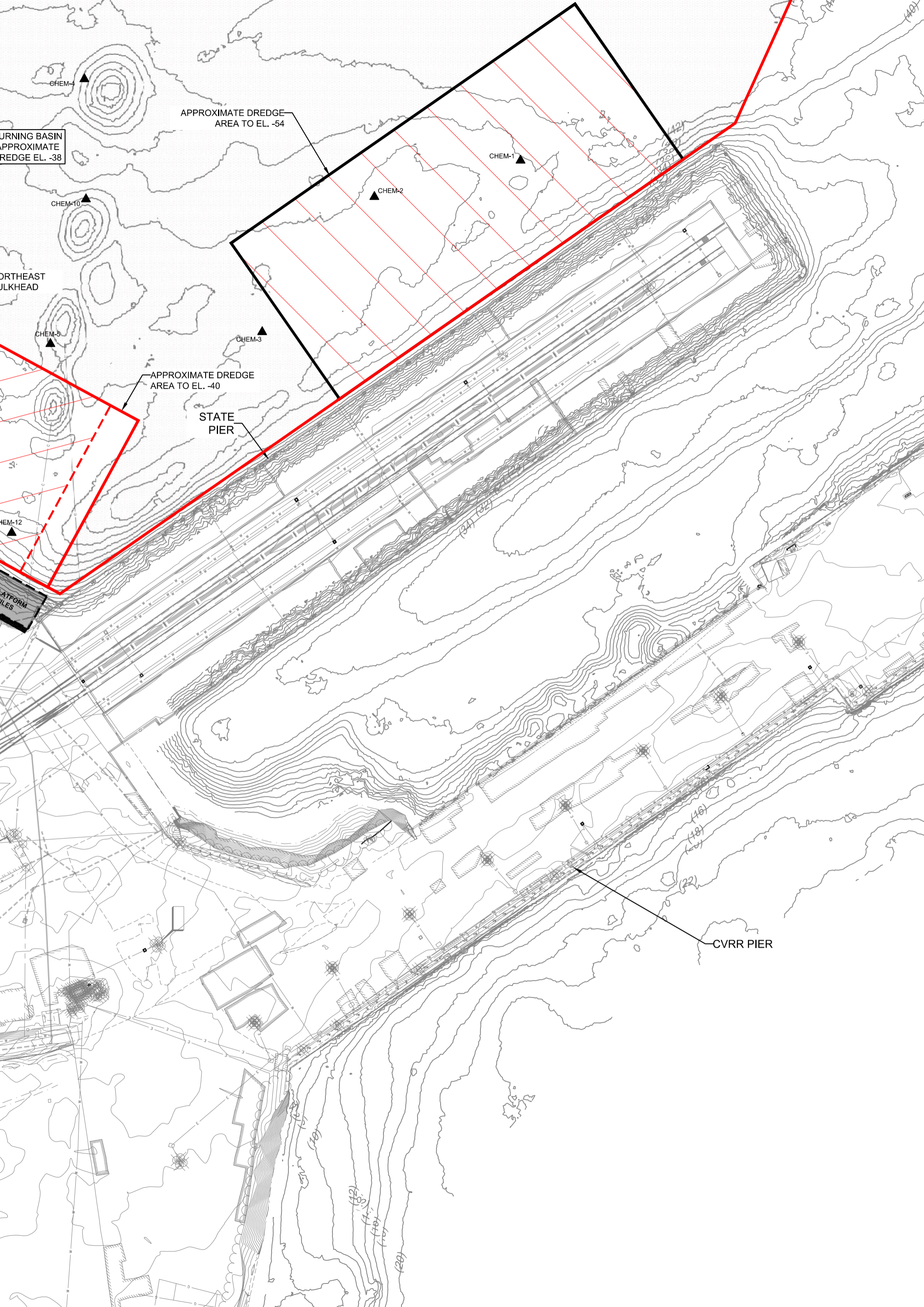
**HALEY
 ALDRICH**

STATE PIER INFRASTRUCTURE IMPROVEMENTS
 STATE PIER COMPLEX
 NEW LONDON, CONNECTICUT

PROJECT LOCUS

APPROXIMATE SCALE: 1 IN = 2000 FT
 APRIL 2020

FIGURE 1



TURNING BASIN
APPROXIMATE
DREDGE EL. -38

APPROXIMATE DREDGE
AREA TO EL. -54

CHEM-4

CHEM-10

NORTHEAST
BULKHEAD

CHEM-5

CHEM-3

CHEM-1

CHEM-2

APPROXIMATE DREDGE
AREA TO EL. -40

STATE
PIER

CHEM-12

PLATFORM
PILES

CVRR PIER

APPENDIX A

Test Borings Logs

Project State Pier Infrastructure Improvements, New London, CT
 Client Moffatt & Nichol
 Contractor TG&B Marine Services, Inc.

File No. 133419-002
 Sheet No. 1 of 1
 Start March 19, 2020
 Finish March 19, 2020
 Driller M. Avakian

Type	—	Vibracore	--	Rig Make & Model: TG&B-BH-4 Pneumatic Vibracorer	H&A Rep. M. van Noordenner
Inside Diameter (in.)	—	3.0	--	Bit Type: None	Elevation -39.3 (est.)
Hammer Weight (lb)	—	--	-	Drill Mud: None	Datum NAVD88
Hammer Fall (in.)	—	--	-	Casing: None	Location See Plan
				Hoist/Hammer: Winch N/A	N 691899
				PID Make & Model: MiniRAE 3000 11.8 eV	E 1181480

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size [†] , structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel		Sand			Field Test				
							% Coarse	% Fine	% Coarse	% Medium	% Fine	% Fines	Dilatancy	Toughness	Plasticity	Strength
0		V1 191	0.0 16.7		OL/OH	Black ORGANIC SILT (OL/OH), trace fine sand, organic odor, wet PID = 8.1 ppm Note: Sediment sample S1 collected for chemical testing from 0 to 8 ft. VOC sample collected at 1.8 ft (8.1 ppm).	-	-	-	-	5	95				
				-42.0 2.7	OL/OH	Gray ORGANIC SILT (OL/OH), little clay, trace fine sand, occasional shells, organic odor, wet PID = 1.8 ppm	-	-	-	-	5	95				
5					OL/OH	Similar to above PID = 0.7 ppm -ORGANIC DEPOSITS-	-	-	-	-	5	95				
					OL/OH	Gray ORGANIC SILT with sand (OL/OH), little clay, occasional shells, organic odor, wet PID = 0.4 ppm Note: Sediment sample S2 collected for chemical testing from 8 to 14.7 ft. VOC sample collected at 11.5 ft (1.3 ppm).	-	-	-	5	15	80				
				-50.3 11.0	OL/OH	Gray clayey ORGANIC SILT with sand (OL/OH), trace fine gravel, occasional shells, organic odor, wet PID = 1.3 ppm	-	5	-	-	15	80				
15				-54.0 14.7	SM	Gray silty SAND (SM), trace clay, occasional shells, organic odor, wet PID = 0.0 ppm Note: Sediment sample S3 collected for chemical testing from 14.7 to 16.7 ft. VOC sample collected at 15 ft (0.0 ppm). -GLACIOFLUVIAL DEPOSITS-	-	2	2	17	50	29				
				-56.0 16.7		BOTTOM OF EXPLORATION 16.7 FT										

Water Level Data						Sample ID	Well Diagram	Summary
Date	Time	Elapsed Time (hr.)	Depth (ft) to:			O - Open End Rod T - Thin Wall Tube U - Undisturbed Sample S - Split Spoon Sample		Overburden (ft) 16.7
			Bottom of Casing	Bottom of Hole	Water			Rock Cored (ft) 0.0
							Samples 1V	
							Boring No. CHEM-1	

Field Tests: Dilatancy: R - Rapid S - Slow N - None Plasticity: N - Nonplastic L - Low M - Medium H - High
 Toughness: L - Low M - Medium H - High Dry Strength: N - None L - Low M - Medium H - High V - Very High

[†]Note: Maximum particle size (mps) is determined by direct observation within the limitations of sampler size.
 Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

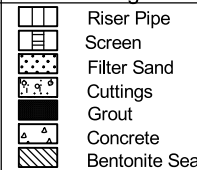
H&A-TEST BORING-09 HA-LIB09-BOS-HAR-GLB HA-TB-CORE+WELL-07-1.GDT \\HALEYALDRICH.COM\SHARE\CF\PROJECTS\133419\002_REVISIED DESIGN\GINT\133419-002-TB CHEM.GPJ Apr 17, 20

Project State Pier Infrastructure Improvements, New London, CT
 Client Moffatt & Nichol
 Contractor TG&B Marine Services, Inc.

File No. 133419-002
 Sheet No. 1 of 1
 Start March 19, 2020
 Finish March 19, 2020
 Driller M. Avakian

	Casing	Sampler	Barrel	Drilling Equipment and Procedures	H&A Rep. M. van Noordenner
Type	-	Vibracore	--	Rig Make & Model: TG&B-BH-4 Pneumatic Vibracorer	Elevation -37.4 (est.)
Inside Diameter (in.)	-	3.0	--	Bit Type: None	Datum NAVD88
Hammer Weight (lb)	-	--	-	Drill Mud: None	Location See Plan
Hammer Fall (in.)	-	--	-	Casing: None	N 692084
				Hoist/Hammer: Winch N/A	E 1181434
				PID Make & Model: MiniRAE 3000 11.8 eV	

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size [†] , structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel		Sand			Field Test				
							% Coarse	% Fine	% Coarse	% Medium	% Fine	% Fines	Dilatancy	Toughness	Plasticity	Strength
0		V1 219	0.0 18.6		OL/OH	Black ORGANIC SILT (OL/OH), trace fine sand, organic odor, wet PID = 4.0 ppm Note: Sediment sample S1 collected for chemical testing from 0 to 8.6 ft. VOC sample collected at 0.7 ft (4.0 ppm).	-	-	-	-	5	95				
				-40.3 2.9	OL/OH	Gray ORGANIC SILT with clay (OL/OH), trace fine sand, occasional shells, organic odor, wet PID = 0.0 ppm	-	-	-	-	5	95				
				-46.0 8.6	OL/OH	Gray ORGANIC SILT with clay (OL/OH), trace fine sand, occasional shells, organic odor, wet PID = 0.0 ppm Note: Sediment sample S2 collected for chemical testing from 8.6 to 16.6 ft. VOC sample collected at 9 ft (0.0 ppm). -ORGANIC DEPOSITS-	-	-	-	-	5	95				
				-54.0 16.6	OL/OH	Gray clayey ORGANIC SILT (OL/OH), trace fine sand and shells, organic odor, wet PID = 0.0 ppm Note: Sediment sample S3 collected for chemical testing from 16.6 to 18.6 ft. VOC sample collected at 17 ft (0.0 ppm). BOTTOM OF EXPLORATION 18.6 FT	-	-	-	-	5	95				

Water Level Data						Sample ID	Well Diagram	Summary
Date	Time	Elapsed Time (hr.)	Depth (ft) to:			O - Open End Rod T - Thin Wall Tube U - Undisturbed Sample S - Split Spoon Sample		Overburden (ft) 18.6
			Bottom of Casing	Bottom of Hole	Water			Rock Cored (ft) 0.0
								Samples 1V
							Boring No. CHEM-2	

Field Tests: Dilatancy: R - Rapid S - Slow N - None Plasticity: N - Nonplastic L - Low M - Medium H - High
 Toughness: L - Low M - Medium H - High Dry Strength: N - None L - Low M - Medium H - High V - Very High

[†]Note: Maximum particle size (mps) is determined by direct observation within the limitations of sampler size.
 Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

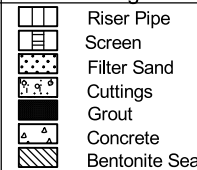
H&A-TEST BORING-09 HA-LIB09-BOS-HAR-GLB HA-TB-CORE+WELL-07-1.GDT \\HALEYALDRICH.COM\SHARE\CF\PROJECTS\133419\002_REVISIED DESIGN\GINT\133419-002-TB CHEM.GPJ Apr 17, 20

Project State Pier Infrastructure Improvements, New London, CT
 Client Moffatt & Nichol
 Contractor TG&B Marine Services, Inc.

File No. 133419-002
 Sheet No. 1 of 1
 Start March 18, 2020
 Finish March 18, 2020
 Driller M. Avakian

	Casing	Sampler	Barrel	Drilling Equipment and Procedures	H&A Rep.
Type	-	Vibracore	--	Rig Make & Model: TG&B-BH-4 Pneumatic Vibracorer	M. van Noordenner
Inside Diameter (in.)	-	3.0	--	Bit Type: None	Elevation -36.5 (est.)
Hammer Weight (lb)	-	--	-	Drill Mud: None	Datum NAVD88
Hammer Fall (in.)	-	--	-	Casing: None	Location See Plan
				Hoist/Hammer: Winch N/A	N 692226
				PID Make & Model: MiniRAE 3000 11.8 eV	E 1181263

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size [†] , structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel		Sand			Field Test				
							% Coarse	% Fine	% Coarse	% Medium	% Fine	% Fines	Dilatancy	Toughness	Plasticity	Strength
0		V1 42	0.0 3.5		OL/ OH	Black ORGANIC SILT (OL/OH), organic odor, wet PID = 0.4 ppm Note: Sediment sample S1 collected for chemical testing from 0 to 1.5 ft. VOC sample collected at 0.8 ft (0.4 ppm).	-	-	-	1	1	98				
				-38.0 1.5	OL/ OH	Similar to above PID = 0.5 ppm Note: Sediment sample S2 collected for chemical testing from 1.5 to 3.5 ft. VOC sample collected at 2.3 ft (0.5 ppm).	-	-	-	-	1	99				
				-40.0 3.5		-ORGANIC DEPOSITS- BOTTOM OF EXPLORATION 3.5 FT										

Water Level Data						Sample ID	Well Diagram	Summary
Date	Time	Elapsed Time (hr.)	Depth (ft) to:			O - Open End Rod T - Thin Wall Tube U - Undisturbed Sample S - Split Spoon Sample		Overburden (ft) 3.5
			Bottom of Casing	Bottom of Hole	Water			Rock Cored (ft) 0.0
							Samples 1V	
							Boring No. CHEM-3	

Field Tests: Dilatancy: R - Rapid S - Slow N - None Plasticity: N - Nonplastic L - Low M - Medium H - High
 Toughness: L - Low M - Medium H - High Dry Strength: N - None L - Low M - Medium H - High V - Very High

[†]Note: Maximum particle size (mps) is determined by direct observation within the limitations of sampler size.
 Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

TEST BORING REPORT

Boring No. CHEM-4

Project State Pier Infrastructure Improvements, New London, CT
 Client Moffatt & Nichol
 Contractor TG&B Marine Services, Inc.

File No. 133419-002
 Sheet No. 1 of 1
 Start March 20, 2020
 Finish March 20, 2020
 Driller M. Avakian

	Casing	Sampler	Barrel	Drilling Equipment and Procedures	H&A Rep. M. van Noordenner
Type	-	Vibracore	--	Rig Make & Model: TG&B-BH-4 Pneumatic Vibracorer	Elevation -35.5 (est.)
Inside Diameter (in.)	-	3.0	--	Bit Type: None	Datum NAVD88
Hammer Weight (lb)	-	--	-	Drill Mud: None	Location See Plan
Hammer Fall (in.)	-	--	-	Casing: None	N 692451
				Hoist/Hammer: Winch N/A	E 1181583
				PID Make & Model: MiniRAE 3000 11.8 eV	

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size [†] , structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel			Sand			Field Test			
							% Coarse	% Fine	% Fines	% Coarse	% Medium	% Fine	% Fines	Dilatancy	Toughness	Plasticity
0		V1 54	0.0 4.5		OL/ OH	Black sandy ORGANIC SILT (OL/OH), trace fine sand, organic odor, wet PID = 49.7 ppm Note: Sediment sample S1 collected for chemical testing from 0 to 2.5 ft. VOC sample collected at 2.2 ft (49.7 ppm). -ORGANIC DEPOSITS-	-	-	-	2	3	95				
-38.0				2.5	OL/ OH	Similar to above, except dark gray, trace shells PID = 6.6 ppm Note: Sediment sample S2 collected for chemical testing from 2.5 to 4.5 ft. VOC sample collected at 3.6 ft (6.6 ppm).	-	-	-	-	5	95				
-39.3				3.8		Gray clayey ORGANIC SILT (OL/OH), trace gravel (mps 2.0 in.), trace fine sand, organic odor, wet PID = 0.0 ppm	5	5	-	-	5	85				
-40.0				4.5		BOTTOM OF EXPLORATION 4.5 FT										

Water Level Data						Sample ID		Well Diagram			Summary	
Date	Time	Elapsed Time (hr.)	Depth (ft) to:			O - Open End Rod	T - Thin Wall Tube	U - Undisturbed Sample	S - Split Spoon Sample		Overburden (ft)	4.5
			Bottom of Casing	Bottom of Hole	Water						Rock Cored (ft)	0.0
											Samples	1V
											Boring No. CHEM-4	

Field Tests: Dilatancy: R - Rapid S - Slow N - None Plasticity: N - Nonplastic L - Low M - Medium H - High
 Toughness: L - Low M - Medium H - High Dry Strength: N - None L - Low M - Medium H - High V - Very High

[†]Note: Maximum particle size (mps) is determined by direct observation within the limitations of sampler size.
 Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

HA-TEST BORING-09 HA-LIB09-BOS-HAR-GLB HA-TB-CORE+WELL-07-1.GDT \\HALEYALDRICH.COM\SHARE\CF\PROJECTS\133419\002_RE\REVISED DESIGN\GINT\133419-002-TB CHEM.GPJ Apr 17, 20

Project State Pier Infrastructure Improvements, New London, CT
 Client Moffatt & Nichol
 Contractor TG&B Marine Services, Inc.

File No. 133419-002
 Sheet No. 1 of 1
 Start March 19, 2020
 Finish March 19, 2020

	Casing	Sampler	Barrel	Drilling Equipment and Procedures	
Type	—	Vibracore	--	Rig Make & Model: TG&B-BH-4 Pneumatic Vibracorer	
Inside Diameter (in.)	—	3.0	--	Bit Type: None	
Hammer Weight (lb)	—	--	-	Drill Mud: None	
Hammer Fall (in.)	—	--	-	Casing: None	
				Hoist/Hammer: Winch N/A	
				PID Make & Model: MiniRAE 3000 11.8 eV	

H&A Rep. M. van Noordenner
 Elevation -36.2 (est.)
 Datum NAVD88
 Location See Plan
 N 692494
 E 1181248

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size [†] , structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel		Sand			Field Test				
							% Coarse	% Fine	% Coarse	% Medium	% Fine	% Fines	Dilatancy	Toughness	Plasticity	Strength
0		V1 43	0.0 3.8	-36.7 0.5	OL/ OH	Gray-brown ORGANIC SILT (OL/OH), trace fine sand, organic odor, wet PID = 2.6 ppm	-	-	-	-	5	95				
				-38.0 1.8	OL/ OH	Black ORGANIC SILT, trace fine sand, occasional shells, organic odor, wet Note: Sediment sample S1 collected for chemical testing from 0 to 1.8 ft. VOC sample collected at 1 ft (2.6 ppm).	9	-	1	1	1	88				
				-40.0 3.8	OL/ OH	Similar to above, except trace gravel Note: Sediment sample S2 collected for chemical testing from 1.8 to 3.8 ft. VOC sample collected at 2.6 ft (1.8 ppm). -ORGANIC DEPOSITS- PID = 1.8 ppm										
						BOTTOM OF EXPLORATION 3.8 FT										

Water Level Data						Sample ID		Well Diagram			Summary					
Date	Time	Elapsed Time (hr.)	Depth (ft) to:			O - Open End Rod	T - Thin Wall Tube	U - Undisturbed Sample	S - Split Spoon Sample	Riser Pipe	Screen	Filter Sand	Cuttings	Grout	Concrete	Bentonite Seal
			Bottom of Casing	Bottom of Hole	Water											
												Overburden (ft)	3.8			
												Rock Cored (ft)	0.0			
												Samples	1V			
												Boring No.	CHEM-5			

Field Tests: Dilatancy: R - Rapid S - Slow N - None Plasticity: N - Nonplastic L - Low M - Medium H - High
 Toughness: L - Low M - Medium H - High Dry Strength: N - None L - Low M - Medium H - High V - Very High

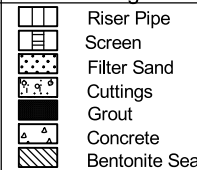
[†]Note: Maximum particle size (mps) is determined by direct observation within the limitations of sampler size.
 Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

Project State Pier Infrastructure Improvements, New London, CT
 Client Moffatt & Nichol
 Contractor TG&B Marine Services, Inc.

File No. 133419-002
 Sheet No. 1 of 1
 Start March 19, 2020
 Finish March 19, 2020
 Driller M. Avakian

Type	—	Vibracore	--	Rig Make & Model: TG&B-BH-4 Pneumatic Vibracorer	H&A Rep. M. van Noordenner
Inside Diameter (in.)	—	3.0	--	Bit Type: None	Elevation -35.0 (est.)
Hammer Weight (lb)	—	--	-	Drill Mud: None	Datum NAVD88
Hammer Fall (in.)	—	--	-	Casing: None	Location See Plan
				Hoist/Hammer: Winch N/A	N 692695
				PID Make & Model: MiniRAE 3000 11.8 eV	E 1181177

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size [†] , structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel		Sand			Field Test				
							% Coarse	% Fine	% Coarse	% Medium	% Fine	% Fines	Dilatancy	Toughness	Plasticity	Strength
0		V1 204	0.0 21.0	-35.5 0.5	OL/OH	Dark gray-brown ORGANIC SILT (OL/OH), trace fine sand, organic odor, wet PID = 2.9 ppm	-	-	-	-	5	95				
					OL/OH	Dark gray ORGANIC SILT (OL/OH), trace fine sand with occasional black silt lenses, organic odor, wet PID = 0.9 ppm					10	90				
						Note: Sediment sample S1 collected for chemical testing from 0 to 9 ft. VOC sample collected at 0.8 ft (2.9 ppm).										
				-42.0 7.0	SP	Gray-brown poorly-graded SAND (SP), trace silt, slight organic odor, wet PID = 0.0 ppm	-	-	-	-	95	5				
				-42.8 7.8												
				-45.0 10.0	OL/OH	Dark gray to black ORGANIC SILT with sand (OL/OH), occasional shells, organic odor, wet PID = 0.0 ppm	-	-	-	-	20	80				
					OL/OH	Black ORGANIC SILT (OL/OH), trace fine sand, occasional shells, organic odor, wet PID = 0.0 ppm	-	-	-	-	5	95				
						Note: Sediment sample S2 collected for chemical testing from 9 to 19 ft. VOC sample collected at 9.5 ft (0.0 ppm).										
				-48.0 13.0	OL/OH	Gray-brown clayey ORGANIC SILT (OL/OH), trace fine sand, occasional shells, organic odor, wet PID = 0.0 ppm	-	-	-	-	5	95				
				-52.5 17.5	OL/OH	Gray-brown sandy organic SILT (OL/OH), occasional shells, organic odor, wet PID = 0.0 ppm	-	-	2	5	43	50				
						Note: Sediment sample S3 collected for chemical testing from 19 to 21 ft. VOC sample collected at 19 ft (0.0 ppm).										
				-56.0 21.0		-ORGANIC DEPOSITS- BOTTOM OF EXPLORATION 21.0 FT										

Water Level Data						Sample ID		Well Diagram		Summary	
Date	Time	Elapsed Time (hr.)	Depth (ft) to:			O - Open End Rod T - Thin Wall Tube U - Undisturbed Sample S - Split Spoon Sample		Overburden (ft) 21.0		Rock Cored (ft) 0.0	
			Bottom of Casing	Bottom of Hole	Water			Samples 1V		Boring No. CHEM-6	

Field Tests: Dilatancy: R - Rapid S - Slow N - None Plasticity: N - Nonplastic L - Low M - Medium H - High
 Toughness: L - Low M - Medium H - High Dry Strength: N - None L - Low M - Medium H - High V - Very High

[†]Note: Maximum particle size (mps) is determined by direct observation within the limitations of sampler size.
 Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

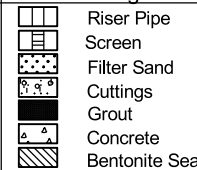
H&A-TEST BORING-09 HA-LIB09-BOS-HAR-GLB HA-TB-CORE+WELL-07-1.GDT \\HALEYALDRICH.COM\SHARE\CF\PROJECTS\133419\002_REVISIED DESIGN\GINT\133419-002-TB CHEM.GPJ Apr 17, 20

Project State Pier Infrastructure Improvements, New London, CT
 Client Moffatt & Nichol
 Contractor TG&B Marine Services, Inc.

File No. 133419-002
 Sheet No. 1 of 2
 Start March 20, 2020
 Finish March 24, 2020
 Driller N. Stoddard

	Casing	Sampler	Barrel	Drilling Equipment and Procedures	H&A Rep. G. Jacobsen
Type	HW	S	--	Rig Make & Model: Truck-mounted Diedrich D120	Elevation -19.3 (est.)
Inside Diameter (in.)	4.0	1 3/8	--	Bit Type: Roller Bit	Datum NAVD88
Hammer Weight (lb)	300	140	-	Drill Mud: None	Location See Plan
Hammer Fall (in.)	20	30	-	Casing: Driven	N 692921
				Hoist/Hammer: Winch Automatic Hammer	E 1181309
				PID Make & Model: MiniRAE 3000 11.8 eV	

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size [†] , structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel					Sand			Field Test			
							% Coarse	% Fine	% Coarse	% Medium	% Fine	% Fines	Dilatancy	Toughness	Plasticity	Strength		
0	WOR	S1 12	0.0 2.0	-22.3 3.0	OL/ OH	Very soft dark gray ORGANIC SILT, trace shells, slight organic odor, wet PID = 0.0 ppm Note: Sediment sample S1 collected for chemical testing from 0 to 16 ft. VOC sample collected at 0.8 ft (0.0 ppm).	-	5	-	-	-	95						
	WOR	S2 8	2.0 4.0		OL/ OH	Similar to above PID = 0.0 ppm	-	5	-	-	-	95						
	WOR	S3 14	4.0 6.0		OL/ OH	Very soft dark gray ORGANIC SILT (OL/OH) Similar to above PID = 0.0 ppm	-	5	-	-	-	95						
	WOR	S4 24	6.0 8.0		OL/ OH	Similar to above PID = 0.0 ppm	-	5	-	-	-	95						
	WOR	S5 18	8.0 10.0		OL/ OH	Similar to above PID = 0.0 ppm	-	5	-	-	-	95						
	WOR	S6 20	10.0 12.0		OL/ OH	Similar to above PID = 0.0 ppm	-	5	-	-	-	95						
	WOR	S7 24	12.0 14.0		OL/ OH	Similar to above PID = 0.0 ppm	-	5	-	-	-	95						
	WOR	S8 24	14.0 16.0		OL/ OH	Similar to above PID = 0.0 ppm	-	5	-	-	-	95						
	WOR	S9 7	16.0 18.0		OL/ OH	Similar to above, except with gravel PID = 0.0 ppm Note: Sediment sample S2 collected for chemical testing from 16 to 35 ft. VOC sample collected at 18 ft (0.3 ppm).	-	10	-	-	5	85						
	WOR	S10 24	18.0 20.0		OL/ OH	Similar to above PID = 0.3 ppm -ORGANIC DEPOSITS-	-	10	-	-	5	85						

Water Level Data						Sample ID		Well Diagram			Summary	
Date	Time	Elapsed Time (hr.)	Depth (ft) to:			O - Open End Rod T - Thin Wall Tube U - Undisturbed Sample S - Split Spoon Sample		Overburden (ft)		Rock Cored (ft)		
			Bottom of Casing	Bottom of Hole	Water							
								Samples		18S		
								Boring No.		CHEM-7		

Field Tests: Dilatancy: R - Rapid S - Slow N - None Plasticity: N - Nonplastic L - Low M - Medium H - High
 Toughness: L - Low M - Medium H - High Dry Strength: N - None L - Low M - Medium H - High V - Very High

[†]Note: Maximum particle size (mps) is determined by direct observation within the limitations of sampler size.
 Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

HA-TEST BORING-09 HA-LIB09-BOS-HAR.GLB HA-TB-CORE+WELL-07-1.GDT \\HALEYALDRICH.COM\SHARE\CF\PROJECTS\133419\002_REVISED DESIGN\GINT\133419-002-TB CHEM.GPJ Apr 17, 20



TEST BORING REPORT

Boring No. CHEM-7

File No. 133419-002
Sheet No. 2 of 2

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size [†] , structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel		Sand			Field Test					
							% Coarse	% Fine	% Coarse	% Medium	% Fine	% Fines	Dilatancy	Toughness	Plasticity	Strength	
20	W O R	S11 11	20.0 22.0		OL/ OH	Very loose dark gray ORGANIC SILT with gravel (OL/OH), trace shells, slight organic odor, wet PID = 0.1 ppm	-	10	-	-	5	85					
	W O R	S12 20	22.0 24.0		OL/ OH	Similar to above PID = 0.3 ppm	-	10	-	-	5	85					
	W O R	S13 24	24.0 26.0		OL/ OH	Similar to above PID = 0.0 ppm	-	10	-	-	5	85					
25	W O R	S14 24	26.0 28.0		OL/ OH	Similar to above PID = 0.0 ppm	-	10	-	-	5	85					
	W O R	S15 12	28.0 30.0		OL/ OH	Similar to above PID = 0.1 ppm	-	10	-	-	5	85					
	W O R	S16 24	30.0 32.0		OL/ OH	Similar to above PID = 0.1 ppm	-	10	-	-	5	85					
	W O R	S17 24	32.0 35.0		OL/ OH	Similar to above PID = 0.1 ppm	-	10	-	-	5	85					
	-ORGANIC DEPOSITS-																
35	WOR 1 1	S18 24	35.0 37.0		OL/ OH	Very loose dark gray ORGANIC SILT (OL/OH), trace shells, slight organic odor, wet PID = 0.0 ppm Note: Sediment sample S3 collected for chemical testing from 35 to 37 ft. VOC sample collected at 36 ft (0.0 ppm).	-	-	1	1	2	96					
				-56.3 37.0		BOTTOM OF EXPLORATION 37.0 FT											

H&A-TEST BORING-09 HA-LIB09-BOS-HAR.GLB HA-TB-CORE+WELL-07-1.GDT \\HALEYALDRICH.COM\SHARE\CF\PROJECTS\133419\002_RE\REVISED DESIGN\GINT1\33419-002-TB CHEM.GPJ Apr 17, 20

NOTE: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

Boring No. CHEM-7

Project State Pier Infrastructure Improvements, New London, CT
 Client Moffatt & Nichol
 Contractor TG&B Marine Services, Inc.

File No. 133419-002
 Sheet No. 1 of 1
 Start March 18, 2020
 Finish March 18, 2020
 Driller M. Avakian

	Casing	Sampler	Barrel	Drilling Equipment and Procedures	H&A Rep. M. van Noordenner
Type	—	Vibracore	--	Rig Make & Model: TG&B-BH-4 Pneumatic Vibracorer	Elevation -34.4 (est.)
Inside Diameter (in.)	—	3.0	--	Bit Type: None	Datum NAVD88
Hammer Weight (lb)	—	--	-	Drill Mud: None	Location See Plan
Hammer Fall (in.)	—	--	-	Casing: None	N 692745
				Hoist/Hammer: Winch N/A	E 1181518
				PID Make & Model: MiniRAE 3000 11.8 eV	

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size [†] , structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel		Sand			Field Test				
							% Coarse	% Fine	% Coarse	% Medium	% Fine	% Fines	Dilatancy	Toughness	Plasticity	Strength
0		V1 55	0.0 5.6		OL/ OH	Black ORGANIC SILT (OL/OH), trace fine sand, organic odor, wet PID = 0.3 ppm Note: Sediment sample S1 collected for chemical testing from 0 to 3.6 ft. VOC sample collected at 1.2 ft (0.5 ppm). -ORGANIC DEPOSITS-	-	-	-	-	1	99				
				-38.0 3.6	OL/ OH	Black ORGANIC SILT (OL/OH), trace sand, trace shells, organic odor, wet PID = 0.2 ppm Note: Sediment sample S2 collected for chemical testing from 3.6 to 5.6 ft. VOC sample collected at 3.8 ft (0.3 ppm).	-	-	1	-	2	97				
5				-40.0 5.6		BOTTOM OF EXPLORATION 5.6 FT										

Water Level Data						Sample ID		Well Diagram			Summary			
Date	Time	Elapsed Time (hr.)	Depth (ft) to:			O - Open End Rod	T - Thin Wall Tube	Filter Sand	Cuttings	Grout	Concrete	Bentonite Seal	Overburden (ft)	5.6
			Bottom of Casing	Bottom of Hole	Water								U - Undisturbed Sample	S - Split Spoon Sample
												Boring No. CHEM-8		

Field Tests: Dilatancy: R - Rapid S - Slow N - None Plasticity: N - Nonplastic L - Low M - Medium H - High
 Toughness: L - Low M - Medium H - High Dry Strength: N - None L - Low M - Medium H - High V - Very High

[†]Note: Maximum particle size (mps) is determined by direct observation within the limitations of sampler size.
 Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

HA-TEST BORING-09 HA-LIB09-BOS-HAR-GLB HA-TB-CORE+WELL-07-1.GDT \\HALEYALDRICH.COM\SHARE\CF\PROJECTS\133419\002_RE\REVISED DESIGN\GINT\133419-002-TB CHEM.GPJ Apr 17, 20

TEST BORING REPORT

Boring No. CHEM-9

Project State Pier Infrastructure Improvements, New London, CT
 Client Moffatt & Nichol
 Contractor TG&B Marine Services, Inc.

File No. 133419-002
 Sheet No. 1 of 1
 Start March 19, 2020
 Finish March 19, 2020
 Driller M. Avakian

	Casing	Sampler	Barrel	Drilling Equipment and Procedures	H&A Rep. M. van Noordenner
Type	-	Vibracore	--	Rig Make & Model: TG&B-BH-4 Pneumatic Vibracorer	Elevation -20.2 (est.)
Inside Diameter (in.)	-	3.0	--	Bit Type: None	Datum NAVD88
Hammer Weight (lb)	-	--	-	Drill Mud: None	Location See Plan
Hammer Fall (in.)	-	--	-	Casing: None	N 693029
				Hoist/Hammer: Winch N/A	E 1181415
				PID Make & Model: MiniRAE 3000 11.8 eV	

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size [†] , structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel					Sand			Field Test			
							% Coarse	% Fine	% Coarse	% Medium	% Fine	% Fines	Dilatancy	Toughness	Plasticity	Strength		
0		V1 238	0.0 21.8		OL/ OH	Dark gray ORGANIC SILT (OL/OH), trace fine sand, organic odor, wet PID = 2.7 ppm Note: Sediment sample S1 collected for chemical testing from 0 to 9 ft. VOC sample collected at 3.2 ft (2.7 ppm).	-	-	-	-	5	95						
				-23.7 3.5	OL/ OH	Gray ORGANIC SILT (OL/OH), little clay, trace fine sand, occasional shells, organic odor, wet PID = 0.3 ppm	-	-	-	-	5	95						
				-29.2 9.0	OL/ OH	Similar to above PID = 0.0 ppm Note: Sediment sample S2 collected for chemical testing from 9 to 19.8 ft. VOC sample collected at 12 ft (0.0 ppm).	-	-	-	-	5	95						
				-31.2 11.0	OL/ OH	Gray clayey ORGANIC SILT (OL/OH), trace fine sand, occasional shells, organic odor, wet PID = 0.0 ppm	-	-	-	-	5	95						
					OL/ OH	Similar to above PID = 0.0 ppm	-	-	-	-	5	95						
						-ORGANIC DEPOSITS-												
				-40.0														

Water Level Data						Sample ID		Well Diagram				Summary							
Date	Time	Elapsed Time (hr.)	Depth (ft) to:			O - Open End Rod	T - Thin Wall Tube	U - Undisturbed Sample	S - Split Spoon Sample	Riser Pipe	Screen	Filter Sand	Cuttings	Grout	Concrete	Bentonite Seal	Overburden (ft) 21.8	Rock Cored (ft) 0.0	Samples 1V
			Bottom of Casing	Bottom of Hole	Water														

Field Tests: Dilatancy: R - Rapid S - Slow N - None Plasticity: N - Nonplastic L - Low M - Medium H - High
 Toughness: L - Low M - Medium H - High Dry Strength: N - None L - Low M - Medium H - High V - Very High

[†]Note: Maximum particle size (mps) is determined by direct observation within the limitations of sampler size.
 Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

HA-TEST BORING-09 HA-LIB09-BOS-HAR-GLB HA-TB-CORE+WELL-07-1.GDT \\HALEYALDRICH.COM\SHARE\CF\PROJECTS\133419\002_REVISED DESIGN\GINT\133419-002-TB CHEM.GPJ Apr 17, 20



TEST BORING REPORT

Boring No. CHEM-9

File No. 133419-002
Sheet No. 2 of 1

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION <small>(Density/consistency, color, GROUP NAME, max. particle size[†], structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)</small>	Gravel		Sand			Field Test					
							% Coarse	% Fine	% Coarse	% Medium	% Fine	% Fines	Dilatancy	Toughness	Plasticity	Strength	
20				19.8	OL/OH	Similar to above PID = 0.0 ppm Note: Sediment sample S3 collected for chemical testing from 19.8 to 21.8 ft. VOC sample collected at 20 ft (0.0 ppm). -ORGANIC DEPOSITS- BOTTOM OF EXPLORATION 21.8 FT	-	-	-	-	5	95					
				42.0 21.8													

NOTE: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

Boring No. CHEM-9

TEST BORING REPORT

Boring No. CHEM-10

Project State Pier Infrastructure Improvements, New London, CT
 Client Moffatt & Nichol
 Contractor TG&B Marine Services, Inc.

File No. 133419-002
 Sheet No. 1 of 1
 Start March 18, 2020
 Finish March 18, 2020
 Driller M. Avakian

	Casing	Sampler	Barrel	Drilling Equipment and Procedures	H&A Rep. M. van Noordenner
Type	—	Vibracore	--	Rig Make & Model: TG&B-BH-4 Pneumatic Vibracorer	Elevation -36.3 (est.)
Inside Diameter (in.)	—	3.0	--	Bit Type: None	Datum NAVD88
Hammer Weight (lb)	—	--	-	Drill Mud: None	Location See Plan
Hammer Fall (in.)	—	--	-	Casing: None	N 692449
				Hoist/Hammer: Winch N/A	E 1181431
				PID Make & Model: MiniRAE 3000 11.8 eV	

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size [†] , structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel			Sand			Field Test			
							% Coarse	% Fine	% Coarse	% Medium	% Fine	% Fines	Dilatancy	Toughness	Plasticity	Strength
0		V1 43	0.0 3.7		OL/ OH	Black ORGANIC SILT (OL/OH), trace sand, trace shells, organic odor, wet PID = 0.6 ppm Note: Sediment sample S1 collected for chemical testing from 0 to 1.7 ft. VOC sample collected at 0.4 ft (0.6 ppm).	-	-	-	1	2	97				
				-38.0 1.7	OL/ OH	Similar to above PID = 1.6 ppm Note: Sediment sample S2 collected for chemical testing from 1.7 to 3.7 ft. VOC sample collected at 2.8 ft (2.6 ppm).	-	-	-	-	5	95				
				-39.8 3.5 -40.0 3.7	OL/ OH	-ORGANIC DEPOSITS- Gray ORGANIC SILT (OL/OH), trace fine sand, trace shells, organic odor, wet PID = 2.6 ppm BOTTOM OF EXPLORATION 3.7 FT	-	-	-	-	10	90				

Water Level Data						Sample ID		Well Diagram		Summary		
Date	Time	Elapsed Time (hr.)	Depth (ft) to:			O - Open End Rod	T - Thin Wall Tube	U - Undisturbed Sample	S - Split Spoon Sample		Overburden (ft)	3.7
			Bottom of Casing	Bottom of Hole	Water						Rock Cored (ft)	0.0
											Samples	1V
										Boring No.	CHEM-10	

Field Tests: Dilatancy: R - Rapid S - Slow N - None Plasticity: N - Nonplastic L - Low M - Medium H - High
 Toughness: L - Low M - Medium H - High Dry Strength: N - None L - Low M - Medium H - High V - Very High

[†]Note: Maximum particle size (mps) is determined by direct observation within the limitations of sampler size.
 Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

H&A-TEST BORING-09 HA-LIB09-BOS-HAR-GLB HA-TB-CORE+WELL-07-1.GDT \\HALEYALDRICH.COM\SHARE\CF\PROJECTS\133419\002_RE\REVISED DESIGN\GINT\133419-002-TB CHEM.GPJ Apr 17, 20

TEST BORING REPORT

Boring No. CHEM-11

Project State Pier Infrastructure Improvements, New London, CT
 Client Moffatt & Nichol
 Contractor TG&B Marine Services, Inc.

File No. 133419-002
 Sheet No. 1 of 1
 Start March 20, 2020
 Finish March 20, 2020
 Driller M. Avakian

	Casing	Sampler	Barrel	Drilling Equipment and Procedures	H&A Rep. M. van Noordenner
Type	--	Vibracore	--	Rig Make & Model: TG&B-BH-4 Pneumatic Vibracorer	Elevation -25.3 (est.)
Inside Diameter (in.)	--	3.0	--	Bit Type: None	Datum NAVD88
Hammer Weight (lb)	--	--	--	Drill Mud: None	Location See Plan
Hammer Fall (in.)	--	--	--	Casing: None	N 692871
				Hoist/Hammer: Winch N/A	E 1181524
				PID Make & Model: MiniRAE 3000 11.8 eV	

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size [†] , structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel		Sand			Field Test				
							% Coarse	% Fine	% Coarse	% Medium	% Fine	% Fines	Dilatancy	Toughness	Plasticity	Strength
0		V1 148	0.0 14.7		OL/OH	Dark gray ORGANIC SILT (OL/OH), trace fine sand, organic odor, wet PID = 3.4 ppm Note: Sediment sample S1 collected for chemical testing from 0 to 7 ft. VOC sample collected at 1.8 ft (3.4 ppm).	-	-	-	-	5	95				
				-28.1 2.8	OL/OH	Gray ORGANIC SILT (OL/OH), trace fine sand, organic odor, wet PID = 0.7 ppm	-	-	-	-	5	95				
5					OL/OH	Similar to above, except trace clay PID = 0.3 ppm	-	-	-	-	5	95				
				-32.3 7.0		-ORGANIC DEPOSITS-										
					OL/OH	Gray ORGANIC SILT (OL/OH), trace fine sand and clay, occasional brown silt bands (<2 in.) every 8 to 12 in., trace shells, organic odor, wet PID = 0.2 ppm Note: Sediment sample S2 collected for chemical testing from 7 to 12.7 ft. VOC sample collected at 9 ft (0.3 ppm).	-	-	-	-	5	95				
10				-38.0 12.7	OL/OH	Similar to above PID = 0.0 ppm Note: Sediment sample S3 collected for chemical testing from 12.7 to 14.7 ft. VOC sample collected at 13 ft (0.0 ppm).	-	-	-	-	5	95				
				-40.0 14.7		BOTTOM OF EXPLORATION 14.7 FT										

Water Level Data						Sample ID	Well Diagram	Summary
Date	Time	Elapsed Time (hr.)	Depth (ft) to:			O - Open End Rod T - Thin Wall Tube U - Undisturbed Sample S - Split Spoon Sample		Overburden (ft) 14.7
			Bottom of Casing	Bottom of Hole	Water			Rock Cored (ft) 0.0
							Samples 1V	
							Boring No. CHEM-11	

Field Tests: Dilatancy: R - Rapid S - Slow N - None Plasticity: N - Nonplastic L - Low M - Medium H - High
 Toughness: L - Low M - Medium H - High Dry Strength: N - None L - Low M - Medium H - High V - Very High

[†]Note: Maximum particle size (mps) is determined by direct observation within the limitations of sampler size.
 Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

H&A-TEST BORING-09 HA-LIB09-BOS-HAR-GLB HA-TB-CORE+WELL-07-1.GDT \\HALEYALDRICH.COM\SHARE\CF\PROJECTS\133419\002_REVISED DESIGN\GINT\133419-002-TB CHEM.GPJ Apr 17, 20

Project State Pier Infrastructure Improvements, New London, CT
 Client Moffatt & Nichol
 Contractor TG&B Marine Services, Inc.

File No. 133419-002
 Sheet No. 1 of 2
 Start March 20, 2020
 Finish March 20, 2020
 Driller M. Avakian

	Casing	Sampler	Barrel	Drilling Equipment and Procedures	H&A Rep. M. van Noordenner
Type	-	Vibracore	--	Rig Make & Model: TG&B-BH-4 Pneumatic Vibracorer	Elevation -31.3 (est.)
Inside Diameter (in.)	-	3.0	--	Bit Type: None	Datum NAVD88
Hammer Weight (lb)	-	--	-	Drill Mud: None	Location See Plan
Hammer Fall (in.)	-	--	-	Casing: None	N 692543
				Hoist/Hammer: Winch N/A	E 1181009
				PID Make & Model: MiniRAE 3000 11.8 eV	

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size [†] , structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel			Sand			Field Test			
							% Coarse	% Fine	% Coarse	% Medium	% Fine	% Fines	Dilatancy	Toughness	Plasticity	Strength
0		V1 296	0.0 24.7		OL/OH	Black ORGANIC SILT (OL/OH), trace fine sand, organic odor, wet PID = 3.6 ppm Note: Sediment sample S1 collected for chemical testing from 0 to 9 ft. VOC sample collected at 4.6 ft (99.7 ppm).	-	-	-	5	20	75				
				-33.6 2.3	OL/OH	Dark gray ORGANIC SILT (OL/OH), trace fine sand, trace shells, organic odor, wet PID = 5.2 ppm -ORGANIC DEPOSITS-	-	-	-	5	20	75				
5					OL/OH	Similar to above PID = 99.7 ppm	-	-	-	5	20	75				
					OL/OH	Similar to above PID = 96.7 ppm	-	-	-	5	20	75				
					OL/OH	Similar to above PID = 9.6 ppm	-	-	-	5	20	75				
					OL/OH	Similar to above PID = 4.1 ppm	-	-	-	5	20	75				
10				-40.3 9.0	SM	Dark gray-brown silty SAND (SM), slight organic / petroleum-like odor, wet, trace gravel PID = 2.6 ppm Note: Sediment sample S2 collected for chemical testing from 9 to 22.7 ft. VOC sample collected at 9.3 ft (2.6 ppm).	5	-	-	5	75	15				
15				-46.3 15.0	SM	Similar to above PID = 1.8 ppm -GLACIOFLUVIAL DEPOSITS-	5	-	-	5	75	15				

Water Level Data						Sample ID		Well Diagram			Summary								
Date	Time	Elapsed Time (hr.)	Depth (ft) to:			O - Open End Rod	T - Thin Wall Tube	U - Undisturbed Sample	S - Split Spoon Sample	Riser Pipe	Screen	Filter Sand	Cuttings	Grout	Concrete	Bentonite Seal	Overburden (ft)	Rock Cored (ft)	Samples
			Bottom of Casing	Bottom of Hole	Water														
																	24.7	0.0	1V
																Boring No. CHEM-12			

Field Tests: Dilatancy: R - Rapid S - Slow N - None Plasticity: N - Nonplastic L - Low M - Medium H - High
 Toughness: L - Low M - Medium H - High Dry Strength: N - None L - Low M - Medium H - High V - Very High

[†]Note: Maximum particle size (mps) is determined by direct observation within the limitations of sampler size.
 Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

HA-TEST BORING-09 HA-LIB09-BOS-HAR-GLB HA-TB-CORE+WELL-07-1.GDT \\HALEYALDRICH.COM\SHARE\CF\PROJECTS\133419\002_REVISIED DESIGN\GINT\133419-002-TB CHEM.GPJ Apr 17, 20

TEST BORING REPORT

Boring No. CHEM-12

File No. 133419-002
Sheet No. 2 of 2

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION <small>(Density/consistency, color, GROUP NAME, max. particle size[†], structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)</small>	Gravel		Sand			Field Test							
							% Coarse	% Fine	% Coarse	% Medium	% Fine	% Fines	Dilatancy	Toughness	Plasticity	Strength			
20						-GLACIOFLUVIAL DEPOSITS-													
				-54.0 22.7	ML	Dark gray-brown sandy SILT (ML), slight organic / petroleum-like odor, wet PID = 0.2 ppm Note: Sediment sample S3 collected for chemical testing from 22.7 to 24.7 ft. VOC sample collected at 23.7 ft (0.2 ppm).	-	-	2	5	40	53							
				-56.0 24.7		BOTTOM OF EXPLORATION 24.7 FT													

NOTE: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

Boring No. CHEM-12

APPENDIX B

Photo Logs

State Pier Infrastructure Improvements
New London State Pier
New London, Connecticut
File No. 133419-002
Date Photograph Taken: 19 March 2020



Photo 1: View of Chem-1. Top run from left to right from 0 to 8 ft, bottom run from left to right 8 ft to 16.7 ft.

State Pier Infrastructure Improvements
New London State Pier
New London, Connecticut
File No. 133419-002
Date Photograph Taken: 19 March 2020



Photo 1: View of Chem-2. Top run from left to right from 0 to 7.2 ft, middle run from left to right 7.2 to 14.8 ft, bottom run from left to right 14.8 to 18.6 ft.

State Pier Infrastructure Improvements
New London State Pier
New London, Connecticut
File No. 133419-002
Date Photograph Taken: 18 March 2020



Photo 1: View of Chem-3. Run from left to right, 0 to 3.5 ft.

State Pier Infrastructure Improvements
New London State Pier
New London, Connecticut
File No. 133419-002
Date Photograph Taken: 20 March 2020



Photo 1: View of Chem-4. Run from left to right, 0 to 4.5 ft.

State Pier Infrastructure Improvements
New London State Pier
New London, Connecticut
File No. 133419-002
Date Photograph Taken: 19 March 2020



Photo 1: View of Chem-5. Run from left to right, 0 to 3.8 ft.

State Pier Infrastructure Improvements
New London State Pier
New London, Connecticut
File No. 133419-002
Date Photograph Taken: 19 March 2020



Photo 1: View of Chem-6. Top run from left to right from 0 to 10.2 ft, bottom run from left to right 10.2 ft to 21 ft.

State Pier Infrastructure Improvements
New London State Pier
New London, Connecticut
File No. 133419-002
Date Photographs Taken: 20 and 24 March 2020



Photo 1: View of Chem-7 from 0 to 2 ft.

State Pier Infrastructure Improvements
New London State Pier
New London, Connecticut
File No. 133419-002
Date Photographs Taken: 20 and 24 March 2020



Photo 2: View of Chem-7 from 2 to 4 ft.

State Pier Infrastructure Improvements
New London State Pier
New London, Connecticut
File No. 133419-002
Date Photographs Taken: 20 and 24 March 2020



Photo 3: View of Chem-7 from 4 to 6 ft.

State Pier Infrastructure Improvements
New London State Pier
New London, Connecticut
File No. 133419-002
Date Photographs Taken: 20 and 24 March 2020



Photo 4: View of Chem-7 from 6 to 8 ft.

State Pier Infrastructure Improvements
New London State Pier
New London, Connecticut
File No. 133419-002
Date Photographs Taken: 20 and 24 March 2020



Photo 5: View of Chem-7 from 8 to 10 ft.

State Pier Infrastructure Improvements
New London State Pier
New London, Connecticut
File No. 133419-002
Date Photographs Taken: 20 and 24 March 2020



Photo 6: View of Chem-7 from 10 to 12 ft.

State Pier Infrastructure Improvements
New London State Pier
New London, Connecticut
File No. 133419-002
Date Photographs Taken: 20 and 24 March 2020



Photo 7: View of Chem-7 from 12 to 14 ft.

State Pier Infrastructure Improvements
New London State Pier
New London, Connecticut
File No. 133419-002
Date Photographs Taken: 20 and 24 March 2020



Photo 8: View of Chem-7 from 14 to 16 ft.

State Pier Infrastructure Improvements
New London State Pier
New London, Connecticut
File No. 133419-002
Date Photographs Taken: 20 and 24 March 2020



Photo 9: View of Chem-7 from 16 to 18 ft.

State Pier Infrastructure Improvements
New London State Pier
New London, Connecticut
File No. 133419-002
Date Photographs Taken: 20 and 24 March 2020



Photo 10: View of Chem-7 from 18 to 20 ft.

State Pier Infrastructure Improvements
New London State Pier
New London, Connecticut
File No. 133419-002
Date Photographs Taken: 20 and 24 March 2020



Photo 11: View of Chem-7 from 20 to 22 ft.

State Pier Infrastructure Improvements
New London State Pier
New London, Connecticut
File No. 133419-002
Date Photographs Taken: 20 and 24 March 2020



Photo 12: View of Chem-7 from 22 to 24 ft.

State Pier Infrastructure Improvements
New London State Pier
New London, Connecticut
File No. 133419-002
Date Photographs Taken: 20 and 24 March 2020



Photo 13: View of Chem-7 from 24 to 26 ft.

State Pier Infrastructure Improvements
New London State Pier
New London, Connecticut
File No. 133419-002
Date Photographs Taken: 20 and 24 March 2020



Photo 14: View of Chem-7 from 26 to 28 ft.

State Pier Infrastructure Improvements
New London State Pier
New London, Connecticut
File No. 133419-002
Date Photographs Taken: 20 and 24 March 2020



Photo 15: View of Chem-7 from 28 to 30 ft.

State Pier Infrastructure Improvements
New London State Pier
New London, Connecticut
File No. 133419-002
Date Photographs Taken: 20 and 24 March 2020



Photo 16: View of Chem-7 from 30 to 32 ft.

State Pier Infrastructure Improvements
New London State Pier
New London, Connecticut
File No. 133419-002
Date Photographs Taken: 20 and 24 March 2020



Photo 17: View of Chem-7 from 32 to 35 ft.

State Pier Infrastructure Improvements
New London State Pier
New London, Connecticut
File No. 133419-002
Date Photographs Taken: 20 and 24 March 2020



Photo 18: View of Chem-7 from 35 to 37 ft.

State Pier Infrastructure Improvements
New London State Pier
New London, Connecticut
File No. 133419-002
Date Photograph Taken: 18 March 2020



Photo 1: View of Chem-8. Run from left to right, 0 to 5.6 ft.

State Pier Infrastructure Improvements
New London State Pier
New London, Connecticut
File No. 133419-002
Date Photograph Taken: 19 March 2020



Photo 1: View of Chem-9. Top run from left to right from 0 to 12.6 ft, bottom run from left to right 12.6 ft to 21.8 ft.

State Pier Infrastructure Improvements
New London State Pier
New London, Connecticut
File No. 133419-002
Date Photograph Taken: 18 March 2020



Photo 1: View of Chem-10. From left to right, 0 to 3.7 ft.

State Pier Infrastructure Improvements
New London State Pier
New London, Connecticut
File No. 133419-002
Date Photographs Taken: 20 March 2020



Photo 1: View of Chem-11. Top run from left to right, 0 ft to 7.0 ft.

State Pier Infrastructure Improvements
New London State Pier
New London, Connecticut
File No. 133419-002
Date Photographs Taken: 20 March 2020



Photo 2: View of Chem-11. Bottom run from left to right, 7.0 to 14.7 ft.

State Pier Infrastructure Improvements
New London State Pier
New London, Connecticut
File No. 133419-002
Date Photograph Taken: 20 March 2020



Photo 1: View of Chem-12. Run from left to right, 0 ft to 24.7 ft.

APPENDIX C

Geotechnical Laboratory Test Results



Client:	Haley & Aldrich, Inc.		
Project:	New London State Pier		
Location:	New London, CT	Project No:	GTX-311544
Boring ID:	---	Sample Type:	---
Sample ID:	---	Test Date:	04/10/20
Depth :	---	Tested By:	ckg
		Checked By:	bfs
		Test Id:	552998

Moisture Content of Soil and Rock - ASTM D2216

Boring ID	Sample ID	Depth	Description	Moisture Content, %
CHEM-1	CHEM- 1 S1 (0-8)	0-8 ft	Moist, dark olive brown silt	87.9
CHEM-1	CHEM- 1 S2 (8-14.7)	8-14.7 ft	Moist, dark gray silt with sand	79.0
CHEM-1	CHEM- 1 S3 (14.7-16.7)	14.7-16.7 ft	Moist, very dark gray silty sand	33.4
CHEM-2	CHEM- 2 S1 (0-8.6)	0-8.6 ft	Moist, dark gray silt	91.2
CHEM-2	CHEM- 2 S2 (8.6-16.6)	8.6-16.6 ft	Moist, very dark gray silt	84.0
CHEM-2	CHEM- 2 S3 (16.6-18.6)	16.6-18.6 ft	Moist, dark gray silt	80.8
CHEM-3	CHEM- 3 S1 (0-1.5)	0-1.5 ft	Moist, very dark gray silt	138.8
CHEM-3	CHEM- 3 S2 (1.5-3.5)	1.5-3.5 ft	Moist, dark grayish brown silt	114.5
CHEM-4	CHEM- 4 S1 (0-2.5)	0-2.5 ft	Moist, dark grayish brown silt	155.7
CHEM-4	CHEM- 4 S2 (2.5-4.5)	2.5-4.5 ft	Moist, very dark gray silt	101.7

Notes: Temperature of Drying : 110° Celsius



Client:	Haley & Aldrich, Inc.		
Project:	New London State Pier		
Location:	New London, CT	Project No:	GTX-311544
Boring ID:	---	Sample Type:	---
Sample ID:	---	Test Date:	04/10/20
Depth :	---	Test Id:	553008
		Tested By:	ckg
		Checked By:	bfs

Moisture Content of Soil and Rock - ASTM D2216

Boring ID	Sample ID	Depth	Description	Moisture Content, %
CHEM-5	CHEM- 5 S1 (0-1.8)	0-1.8 ft	Moist, dark gray silt	116.3
CHEM-5	CHEM- 5 S2 (1.8-3.8)	1.8-3.8 ft	Moist, dark grayish brown silt	129.5
CHEM-6	CHEM- 6 S1 (0-9)	0-9 ft	Moist grayish brown silt with sand	120.0
CHEM-6	CHEM- 6 S2 (9-19)	9-19 ft	Moist, very dark grayish brown silt	116.2
CHEM-6	CHEM- 6 S3 (19-21)	19-21 ft	Moist, dark gray sandy silt	44.0
CHEM-7	CHEM- 7 S1 (0-16)	0-16 ft	Moist, dark gray silt	93.2
CHEM-7	CHEM- 7 S2 (16-35)	16-35 ft	Moist, dark olive gray silt with sand	107.2
CHEM-7	CHEM- 7 S3 (35-37)	35-37 ft	Moist, very dark gray silt	88.0
CHEM-8	CHEM- 8 S1 (0-3.6)	0-3.6 ft	Moist, very dark gray silt	103.2
CHEM-8	CHEM- 8 S2 (3.6-5.6)	3.6-5.6 ft	Moist, olive brown silt	105.0

Notes: Temperature of Drying : 110° Celsius



Client:	Haley & Aldrich, Inc.		
Project:	New London State Pier		
Location:	New London, CT	Project No:	GTX-311544
Boring ID:	---	Sample Type:	---
Sample ID:	---	Test Date:	04/10/20
Depth :	---	Test Id:	553016
		Tested By:	ckg
		Checked By:	bfs

Moisture Content of Soil and Rock - ASTM D2216

Boring ID	Sample ID	Depth	Description	Moisture Content, %
CHEM-9	CHEM- 9 S1 (0-9)	0-9 ft	Moist, dark olive gray silt	124.1
CHEM-9	CHEM- 9 S2 (9-19.8)	9-19.8 ft	Moist, very dark gray silt	92.6
CHEM-9	CHEM- 9 S3 (19.8-21.8)	19.8-21.8 ft	Moist, dark gray silt	87.0
CHEM-10	CHEM- 10 S1 (0-1.7)	0-1.7 ft	Moist, olive brown silt	101.5
CHEM-10	CHEM- 10 S2 (1.7-3.7)	1.7-3.7 ft	Moist, dark grayish brown silt	122.1
CHEM-11	CHEM- 11 S1 (0-7)	0-7 ft	Moist, very dark gray silt	99.7
CHEM-11	CHEM- 11 S2 (7-12.7)	7-12.7 ft	Moist, very dark gray silt	97.6
CHEM-11	CHEM- 11 S3 (12.7-14.7)	12.7-14.7 ft	Moist, dark gray silt	91.2

Notes: Temperature of Drying : 110° Celsius



Client:	Haley & Aldrich, Inc.		
Project:	New London State Pier		
Location:	New London, CT	Project No:	GTX-311544
Boring ID:	---	Sample Type:	---
Sample ID:	---	Test Date:	04/10/20
Depth :	---	Test Id:	553019
		Tested By:	ckg
		Checked By:	bfs

Moisture Content of Soil and Rock - ASTM D2216

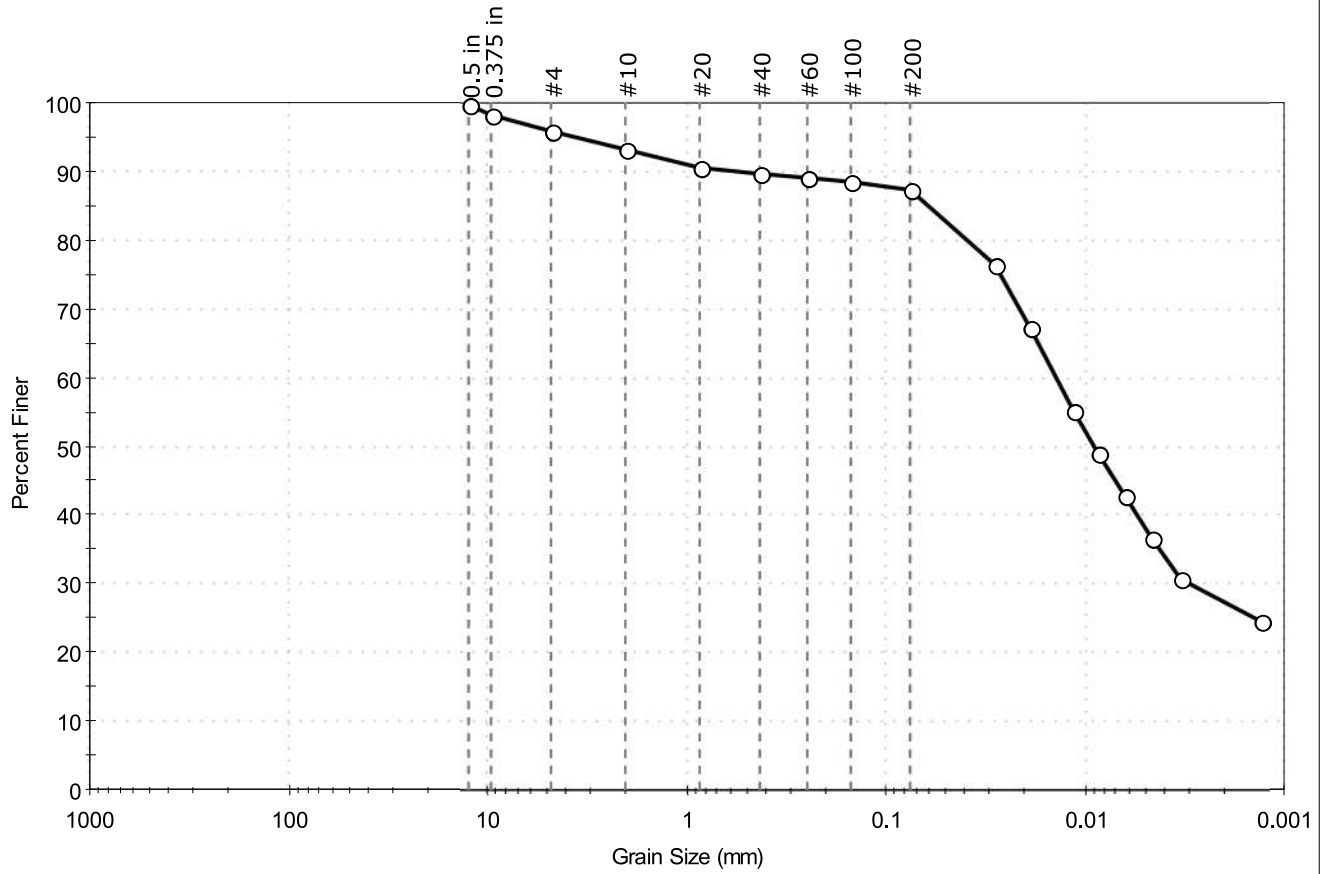
Boring ID	Sample ID	Depth	Description	Moisture Content, %
CHEM-12	CHEM- 12 S1 (0-9)	0-9 ft	Moist, very dark grayish brown silt with sand	107.8
CHEM-12	CHEM- 12 S2 (9-22.7)	9-22.7 ft	Moist, grayish brown silty sand	31.7
CHEM-12	CHEM- 12 S3 (22.7-24.7)	22.7-24.7 ft	Moist, very dark gray sandy silt	58.1

Notes: Temperature of Drying : 110° Celsius



Client: Haley & Aldrich, Inc.
 Project: New London State Pier
 Location: New London, CT
 Project No: GTX-311544
 Boring ID: CHEM-1
 Sample Type: bag
 Tested By: ckg
 Sample ID: CHEM-1 S1 (0-8)
 Test Date: 04/10/20
 Checked By: bfs
 Depth: 0-8 ft
 Test Id: 552960
 Test Comment: ---
 Visual Description: Moist, dark olive brown silt
 Sample Comment: ---

Particle Size Analysis - ASTM D422



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	4.0	8.6	87.4

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
0.5 in	12.50	100		
0.375 in	9.50	98		
#4	4.75	96		
#10	2.00	93		
#20	0.85	91		
#40	0.42	90		
#60	0.25	89		
#100	0.15	89		
#200	0.075	87		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0286	76		
---	0.0187	67		
---	0.0114	55		
---	0.0085	49		
---	0.0063	43		
---	0.0046	37		
---	0.0033	31		
---	0.0013	24		

Coefficients

D ₈₅ = 0.0606 mm	D ₃₀ = 0.0030 mm
D ₆₀ = 0.0139 mm	D ₁₅ = N/A
D ₅₀ = 0.0089 mm	D ₁₀ = N/A
C _u = N/A	C _c = N/A

Classification

ASTM	N/A
AASHTO	Silty Soils (A-4 (0))

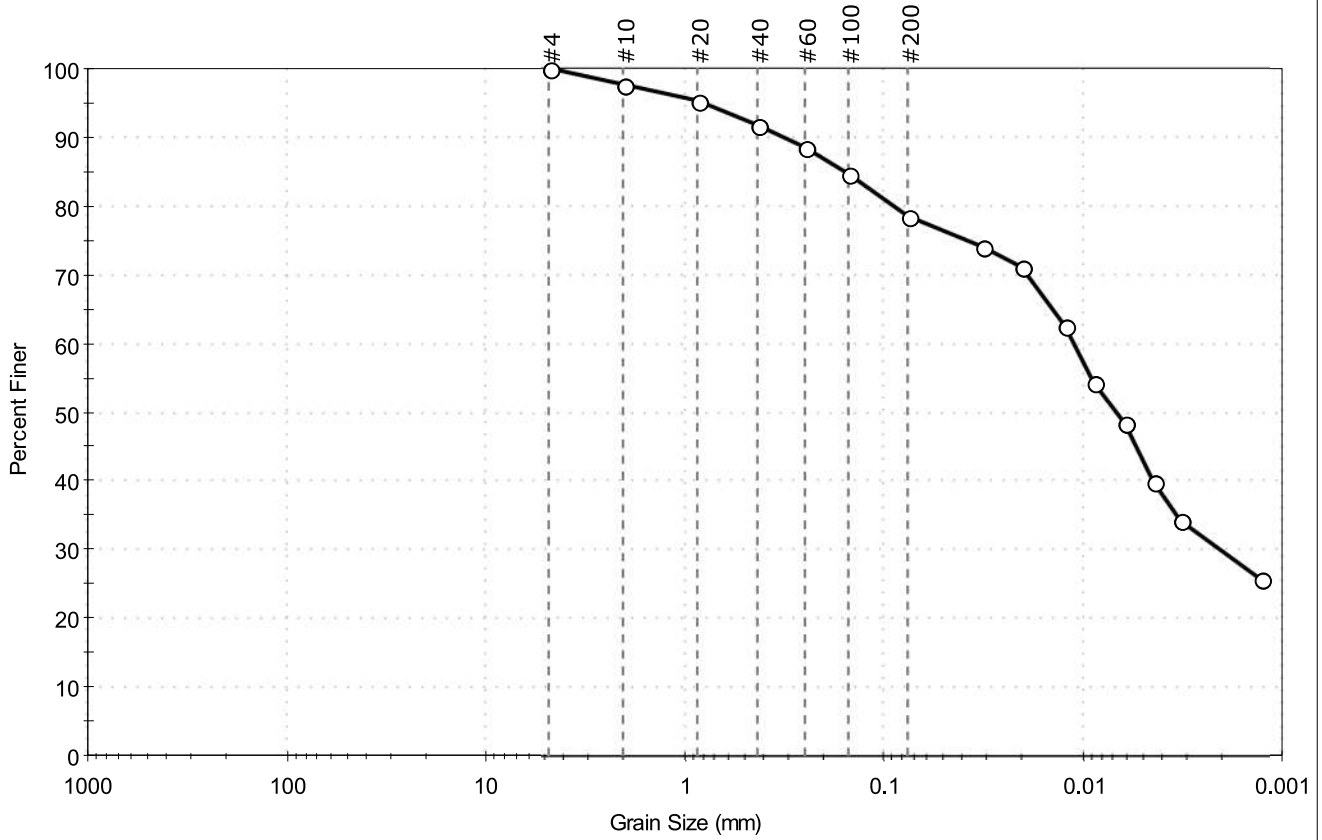
Sample/Test Description

Sand/Gravel Particle Shape	: ANGULAR
Sand/Gravel Hardness	: HARD
Dispersion Device	: Apparatus A - Mech Mixer
Dispersion Period	: 1 minute
Est. Specific Gravity	: 2.65
Separation of Sample	: #200 Sieve



Client: Haley & Aldrich, Inc.	Project: New London State Pier	Location: New London, CT	Project No: GTX-311544
Boring ID: CHEM-1	Sample Type: bag	Tested By: ckg	Checked By: bfs
Sample ID: CHEM-1 S2 (8-14.7)	Test Date: 04/10/20	Test Id: 552961	
Depth: 8-14.7 ft			
Test Comment: ---	Visual Description: Moist, dark gray silt with sand	Sample Comment: ---	

Particle Size Analysis - ASTM D422



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	21.5	78.5

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	98		
#20	0.85	95		
#40	0.42	92		
#60	0.25	88		
#100	0.15	85		
#200	0.075	78		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0317	74		
---	0.0201	71		
---	0.0121	63		
---	0.0087	54		
---	0.0062	48		
---	0.0044	40		
---	0.0032	34		
---	0.0013	26		

<u>Coefficients</u>	
D ₈₅ = 0.1564 mm	D ₃₀ = 0.0020 mm
D ₆₀ = 0.0109 mm	D ₁₅ = N/A
D ₅₀ = 0.0068 mm	D ₁₀ = N/A
C _u = N/A	C _c = N/A

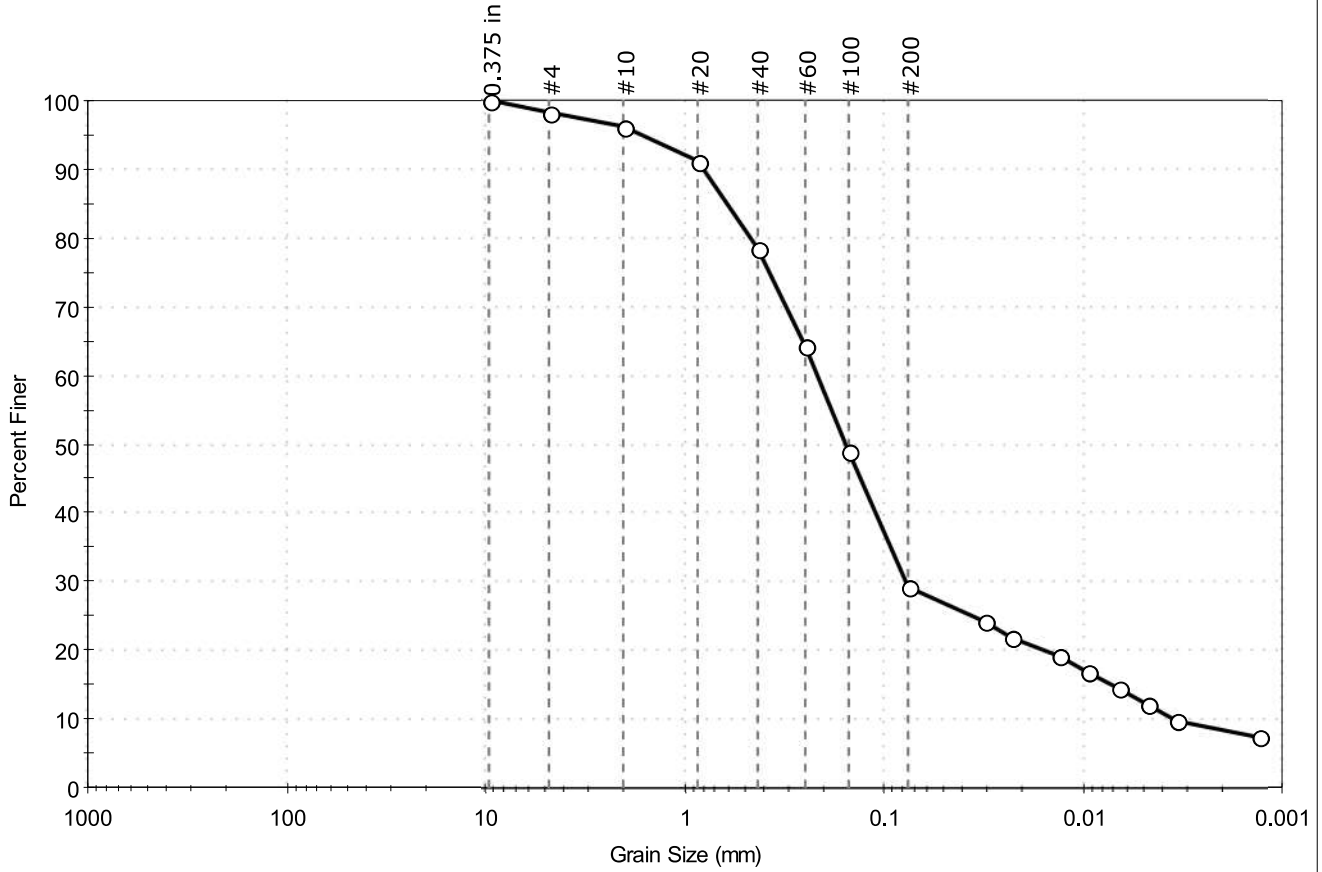
<u>Classification</u>	
ASTM	N/A
AASHTO	Silty Soils (A-4 (0))

<u>Sample/Test Description</u>
Sand/Gravel Particle Shape : ---
Sand/Gravel Hardness : ---
Dispersion Device : Apparatus A - Mech Mixer
Dispersion Period : 1 minute
Est. Specific Gravity : 2.65
Separation of Sample: #200 Sieve



Client: Haley & Aldrich, Inc.	Project: New London State Pier	Location: New London, CT	Project No: GTX-311544
Boring ID: CHEM-1	Sample Type: bag	Tested By: ckg	Checked By: bfs
Sample ID: CHEM-1 S3 (14.7-16.7)	Test Date: 04/10/20	Test Id: 552962	
Depth: 14.7-16.7 ft			
Test Comment: ---	Visual Description: Moist, very dark gray silty sand	Sample Comment: ---	

Particle Size Analysis - ASTM D422



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	1.6	69.2	29.2

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
0.375 in	9.50	100		
#4	4.75	98		
#10	2.00	96		
#20	0.85	91		
#40	0.42	79		
#60	0.25	64		
#100	0.15	49		
#200	0.075	29		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0314	24		
---	0.0226	22		
---	0.0131	19		
---	0.0094	17		
---	0.0066	14		
---	0.0047	12		
---	0.0034	10		
---	0.0013	7		

Coefficients	
D ₈₅ = 0.6044 mm	D ₃₀ = 0.0772 mm
D ₆₀ = 0.2164 mm	D ₁₅ = 0.0071 mm
D ₅₀ = 0.1557 mm	D ₁₀ = 0.0035 mm
C _u = 61.829	C _c = 7.869

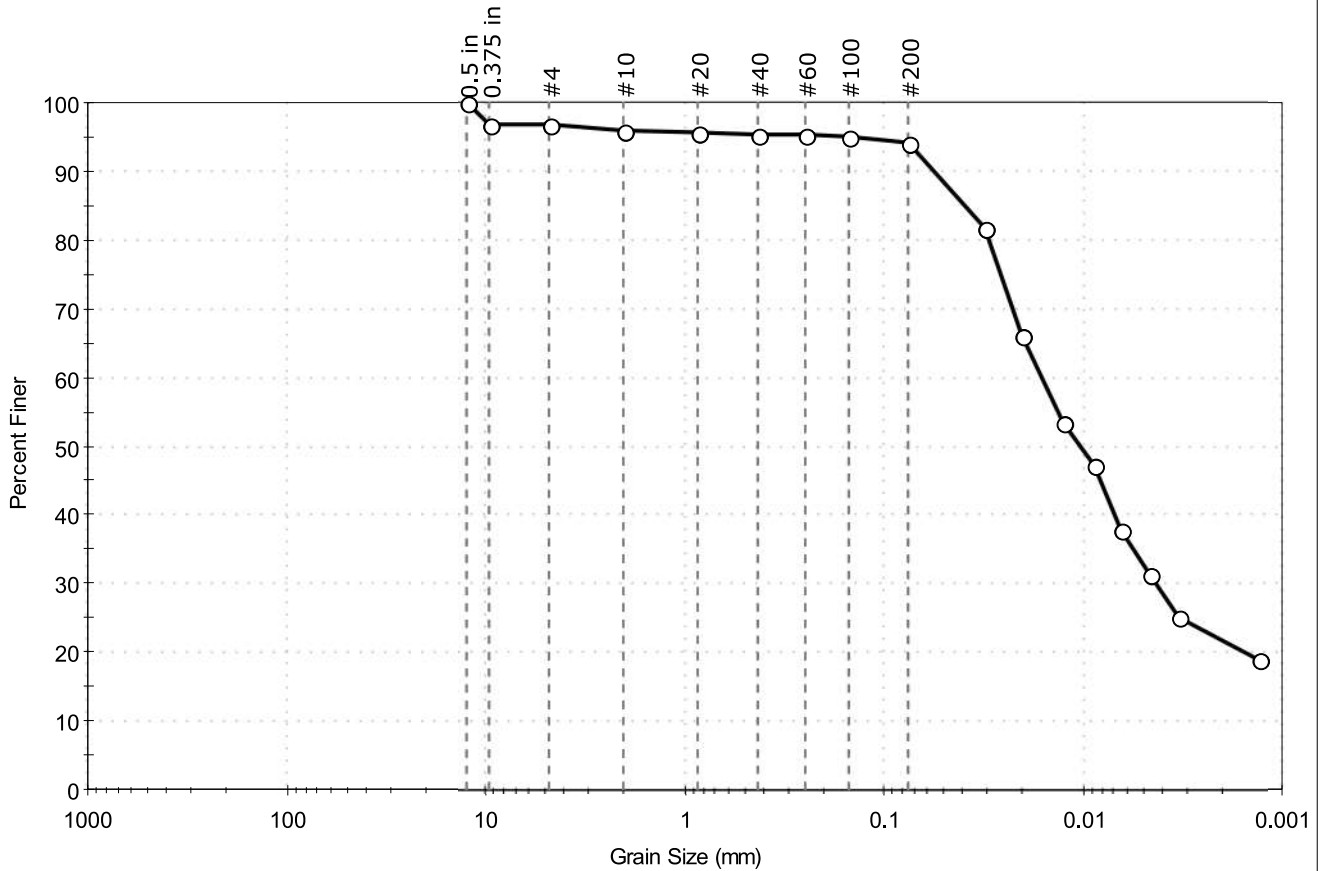
Classification	
ASTM	N/A
AASHTO	Silty Gravel and Sand (A-2-4 (0))

Sample/Test Description
Sand/Gravel Particle Shape : ---
Sand/Gravel Hardness : ---
Dispersion Device : Apparatus A - Mech Mixer
Dispersion Period : 1 minute
Est. Specific Gravity : 2.65
Separation of Sample: #200 Sieve



Client: Haley & Aldrich, Inc.
 Project: New London State Pier
 Location: New London, CT
 Project No: GTX-311544
 Boring ID: CHEM-2
 Sample Type: bag
 Tested By: ckg
 Sample ID: CHEM-2 S1 (0-8.6)
 Test Date: 04/10/20
 Checked By: bfs
 Depth: 0-8.6 ft
 Test Id: 552963
 Test Comment: ---
 Visual Description: Moist, dark gray silt
 Sample Comment: ---

Particle Size Analysis - ASTM D422



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	3.1	2.7	94.2

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
0.5 in	12.50	100		
0.375 in	9.50	97		
#4	4.75	97		
#10	2.00	96		
#20	0.85	96		
#40	0.42	95		
#60	0.25	95		
#100	0.15	95		
#200	0.075	94		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0311	82		
---	0.0200	66		
---	0.0125	53		
---	0.0087	47		
---	0.0064	38		
---	0.0046	31		
---	0.0033	25		
---	0.0013	19		

Coefficients

D ₈₅ = 0.0394 mm	D ₃₀ = 0.0042 mm
D ₆₀ = 0.0160 mm	D ₁₅ = N/A
D ₅₀ = 0.0103 mm	D ₁₀ = N/A
C _u = N/A	C _c = N/A

Classification

ASTM	N/A
AASHTO	Silty Soils (A-4 (0))

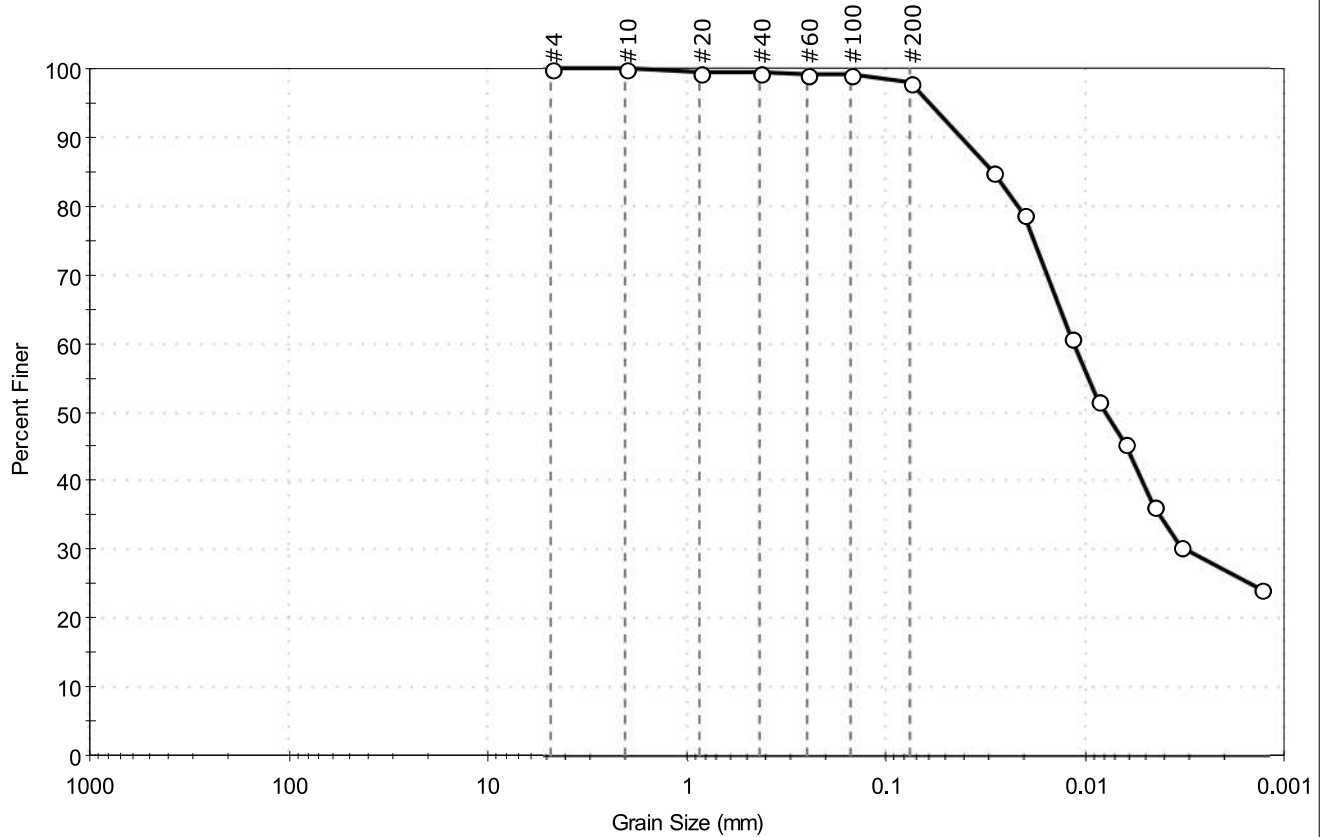
Sample/Test Description

Sand/Gravel Particle Shape	---
Sand/Gravel Hardness	---
Dispersion Device	Apparatus A - Mech Mixer
Dispersion Period	1 minute
Est. Specific Gravity	2.65
Separation of Sample	#200 Sieve



Client: Haley & Aldrich, Inc.	Project: New London State Pier	Location: New London, CT	Project No: GTX-311544
Boring ID: CHEM-2	Sample Type: bag	Tested By: ckg	Checked By: bfs
Sample ID: CHEM-2 S2 (8.6-16.6)	Test Date: 04/10/20	Test Id: 552964	
Depth: 8.6-16.6 ft			
Test Comment: ---	Visual Description: Moist, very dark gray silt		
Sample Comment: ---			

Particle Size Analysis - ASTM D422



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	1.9	98.1

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	100		
#40	0.42	99		
#60	0.25	99		
#100	0.15	99		
#200	0.075	98		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0286	85		
---	0.0202	79		
---	0.0118	61		
---	0.0086	52		
---	0.0062	45		
---	0.0045	36		
---	0.0033	30		
---	0.0013	24		

<u>Coefficients</u>	
D ₈₅ = 0.0288 mm	D ₃₀ = 0.0031 mm
D ₆₀ = 0.0115 mm	D ₁₅ = N/A
D ₅₀ = 0.0079 mm	D ₁₀ = N/A
C _u = N/A	C _c = N/A

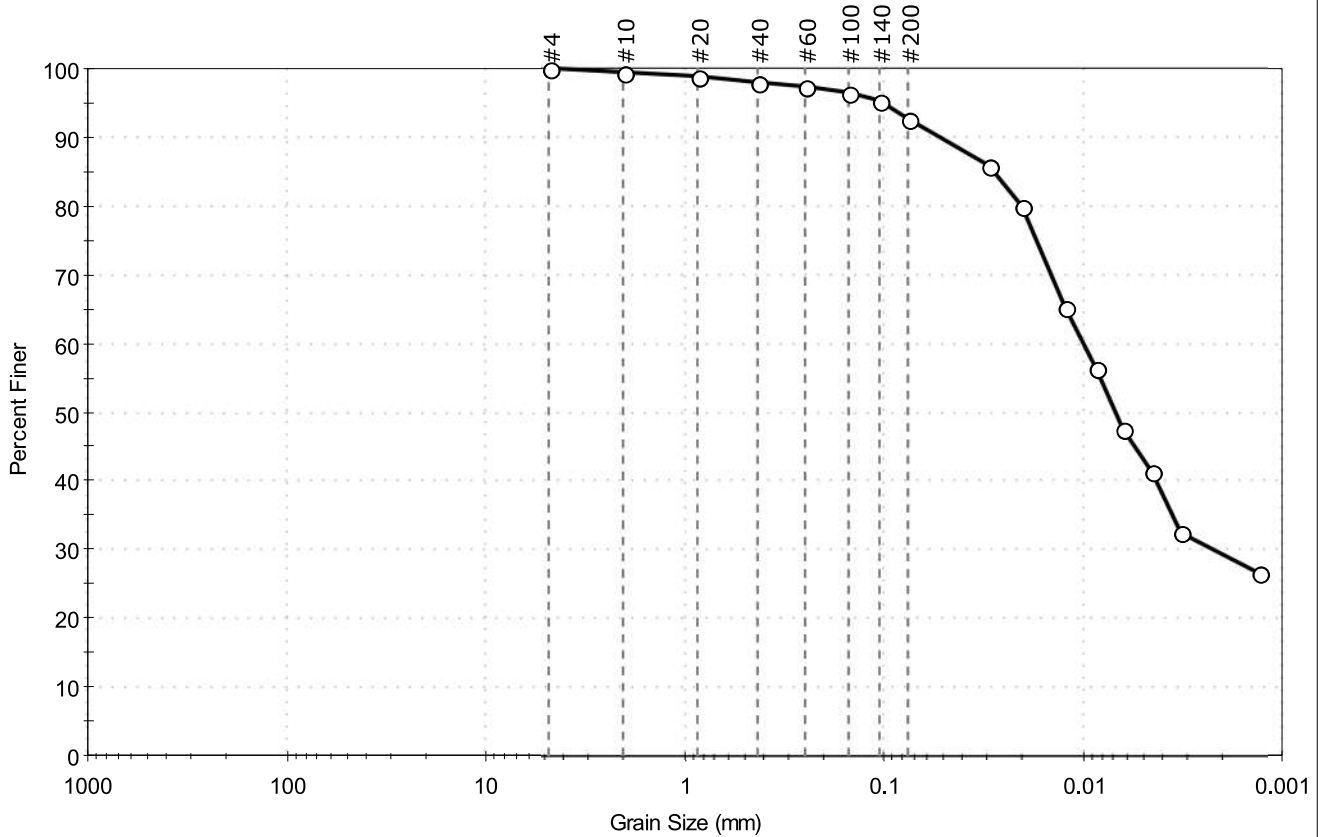
<u>Classification</u>	
ASTM	N/A
AASHTO	Silty Soils (A-4 (0))

<u>Sample/Test Description</u>
Sand/Gravel Particle Shape : ---
Sand/Gravel Hardness : ---
Dispersion Device : Apparatus A - Mech Mixer
Dispersion Period : 1 minute
Est. Specific Gravity : 2.65
Separation of Sample: #200 Sieve



Client: Haley & Aldrich, Inc.
 Project: New London State Pier
 Location: New London, CT
 Project No: GTX-311544
 Boring ID: CHEM-2
 Sample Type: bag
 Tested By: ckg
 Sample ID: CHEM-2 S3 (16.6-18.6)
 Test Date: 04/10/20
 Checked By: bfs
 Depth: 16.6-18.6 ft
 Test Id: 552965
 Test Comment: ---
 Visual Description: Moist, dark gray silt
 Sample Comment: ---

Particle Size Analysis - ASTM D422



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	7.3	92.7

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	99		
#20	0.85	99		
#40	0.42	98		
#60	0.25	97		
#100	0.15	97		
#140	0.11	95		
#200	0.075	93		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0295	86		
---	0.0202	80		
---	0.0121	65		
---	0.0086	56		
---	0.0063	47		
---	0.0045	41		
---	0.0032	33		
---	0.0013	27		

Coefficients	
D ₈₅ = 0.0280 mm	D ₃₀ = 0.0022 mm
D ₆₀ = 0.0100 mm	D ₁₅ = N/A
D ₅₀ = 0.0069 mm	D ₁₀ = N/A
C _u = N/A	C _c = N/A

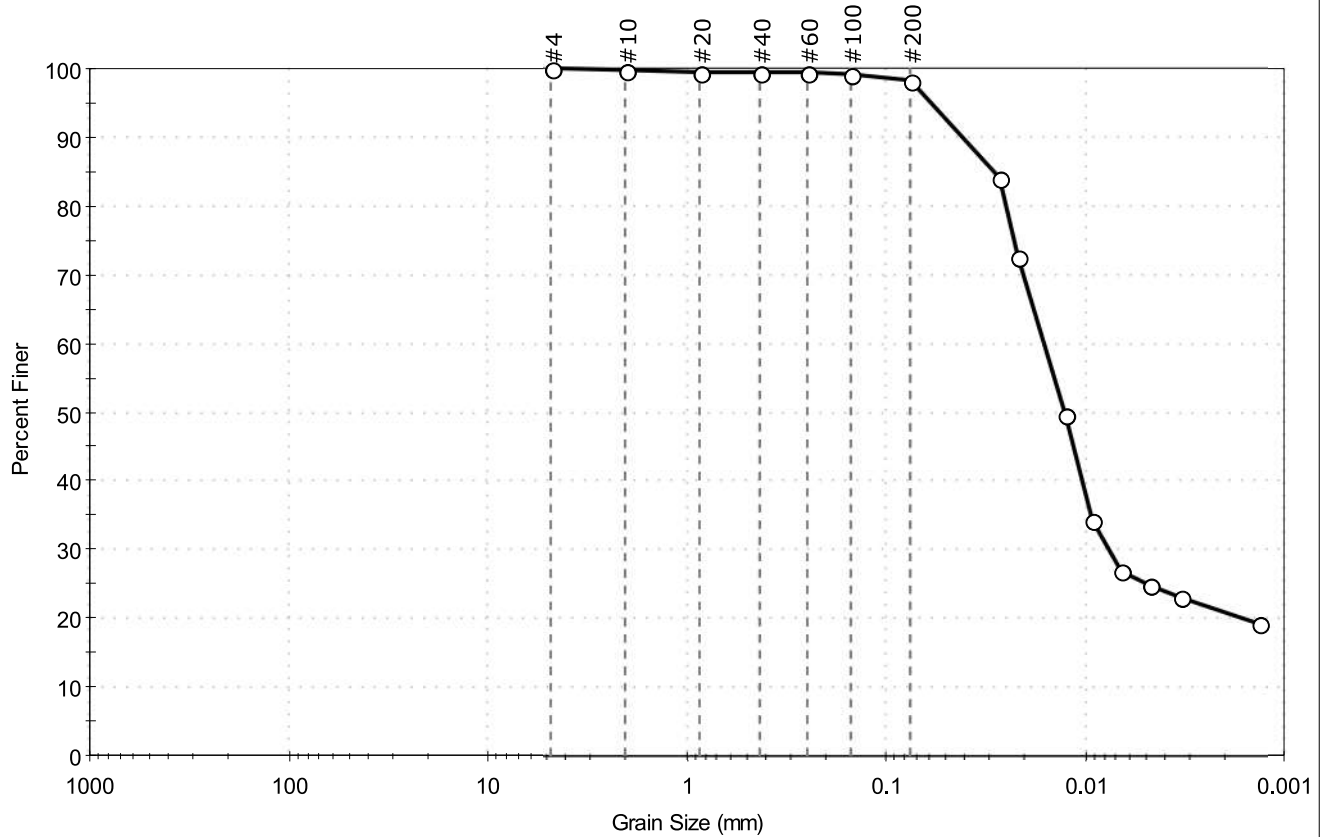
Classification	
ASTM	N/A
AASHTO	Silty Soils (A-4 (0))

Sample/Test Description
Sand/Gravel Particle Shape : ---
Sand/Gravel Hardness : ---
Dispersion Device : Apparatus A - Mech Mixer
Dispersion Period : 1 minute
Est. Specific Gravity : 2.65
Separation of Sample: #200 Sieve



Client: Haley & Aldrich, Inc.	Project: New London State Pier	Location: New London, CT	Project No: GTX-311544
Boring ID: CHEM-3	Sample Type: bag	Tested By: ckg	Checked By: bfs
Sample ID: CHEM-3 S1 (0-1.5)	Test Date: 04/10/20	Test Id: 552958	
Depth: 0-1.5 ft			
Test Comment: ---	Visual Description: Moist, very dark gray silt	Sample Comment: ---	

Particle Size Analysis - ASTM D422



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	1.8	98.2

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	100		
#40	0.42	99		
#60	0.25	99		
#100	0.15	99		
#200	0.075	98		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0272	84		
---	0.0215	73		
---	0.0127	50		
---	0.0092	34		
---	0.0066	27		
---	0.0047	25		
---	0.0033	23		
---	0.0013	19		

<u>Coefficients</u>	
D ₈₅ = 0.0293 mm	D ₃₀ = 0.0076 mm
D ₆₀ = 0.0161 mm	D ₁₅ = N/A
D ₅₀ = 0.0128 mm	D ₁₀ = N/A
C _u = N/A	C _c = N/A

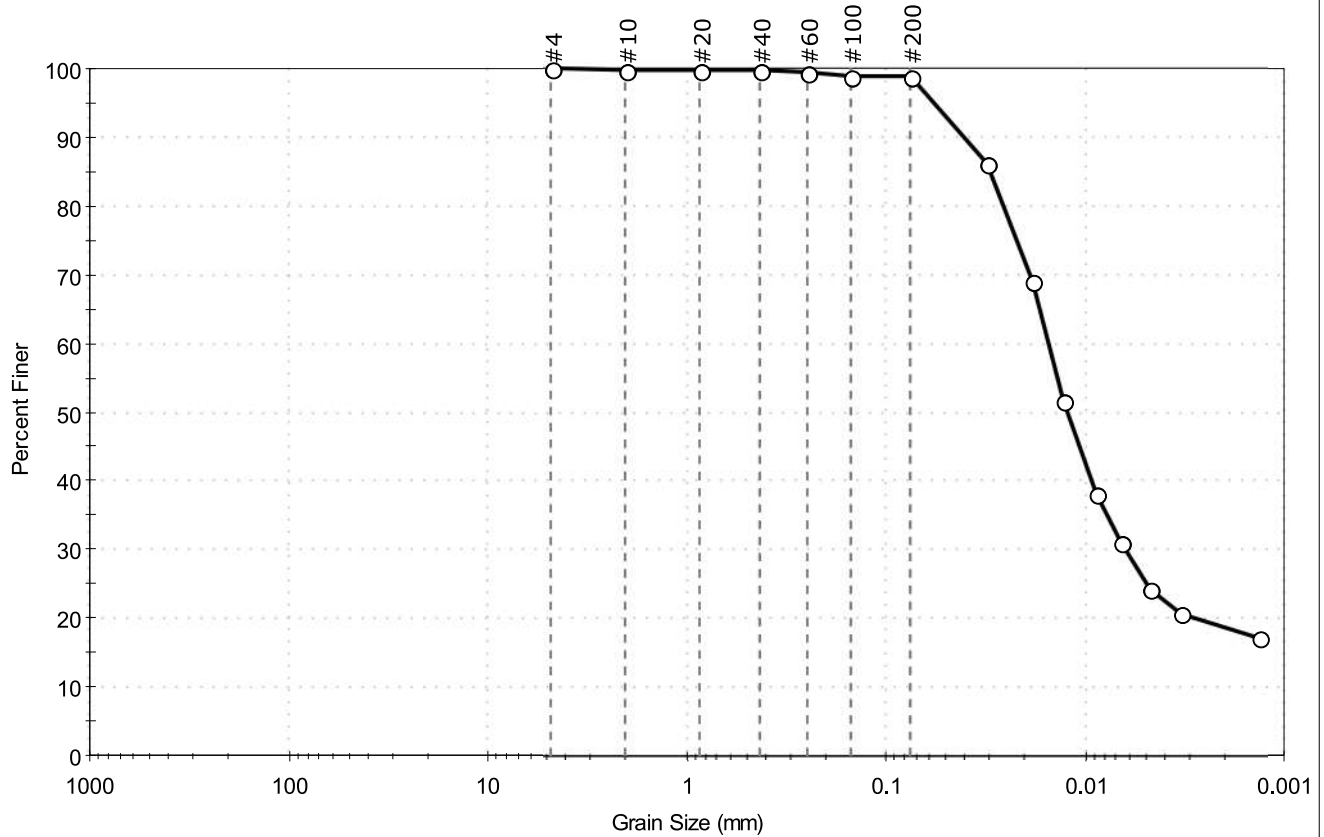
<u>Classification</u>	
ASTM	N/A
AASHTO	Silty Soils (A-4 (0))

<u>Sample/Test Description</u>
Sand/Gravel Particle Shape : ---
Sand/Gravel Hardness : ---
Dispersion Device : Apparatus A - Mech Mixer
Dispersion Period : 1 minute
Est. Specific Gravity : 2.65
Separation of Sample: #200 Sieve



Client: Haley & Aldrich, Inc.	Project: New London State Pier	Location: New London, CT	Project No: GTX-311544
Boring ID: CHEM-3	Sample Type: bag	Tested By: ckg	Checked By: bfs
Sample ID: CHEM-3 S2 (1.5-3.5)	Test Date: 04/10/20	Test Id: 552959	
Depth: 1.5-3.5 ft			
Test Comment: ---	Visual Description: Moist, dark grayish brown silt		
Sample Comment: ---			

Particle Size Analysis - ASTM D422



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.1	1.1	98.8

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	100		
#40	0.42	100		
#60	0.25	100		
#100	0.15	99		
#200	0.075	99		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0308	86		
---	0.0183	69		
---	0.0127	52		
---	0.0088	38		
---	0.0065	31		
---	0.0047	24		
---	0.0033	21		
---	0.0013	17		

<u>Coefficients</u>	
D ₈₅ = 0.0298 mm	D ₃₀ = 0.0062 mm
D ₆₀ = 0.0152 mm	D ₁₅ = N/A
D ₅₀ = 0.0122 mm	D ₁₀ = N/A
C _u = N/A	C _c = N/A

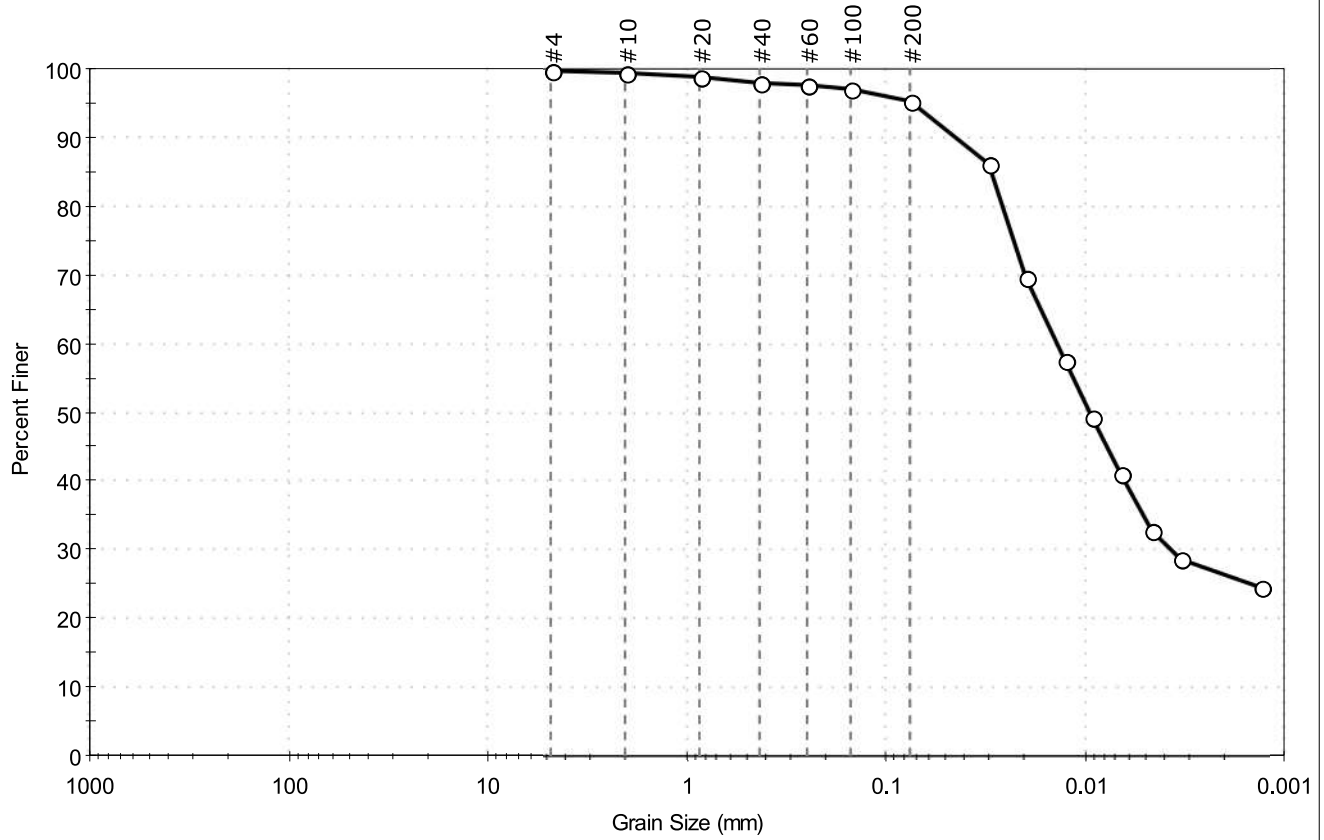
<u>Classification</u>	
ASTM	N/A
AASHTO	Silty Soils (A-4 (0))

<u>Sample/Test Description</u>
Sand/Gravel Particle Shape : ---
Sand/Gravel Hardness : ---
Dispersion Device : Apparatus A - Mech Mixer
Dispersion Period : 1 minute
Est. Specific Gravity : 2.65
Separation of Sample: #200 Sieve



Client: Haley & Aldrich, Inc.
 Project: New London State Pier
 Location: New London, CT
 Project No: GTX-311544
 Boring ID: CHEM-4
 Sample Type: bag
 Tested By: ckg
 Sample ID: CHEM-4 S1 (0-2.5)
 Test Date: 04/10/20
 Checked By: bfs
 Depth: 0-2.5 ft
 Test Id: 552966
 Test Comment: ---
 Visual Description: Moist, dark grayish brown silt
 Sample Comment: ---

Particle Size Analysis - ASTM D422



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.2	4.4	95.4

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	99		
#40	0.42	98		
#60	0.25	98		
#100	0.15	97		
#200	0.075	95		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0305	86		
---	0.0197	70		
---	0.0126	57		
---	0.0091	49		
---	0.0065	41		
---	0.0046	33		
---	0.0033	29		
---	0.0013	25		

Coefficients

D ₈₅ = 0.0296 mm	D ₃₀ = 0.0037 mm
D ₆₀ = 0.0138 mm	D ₁₅ = N/A
D ₅₀ = 0.0094 mm	D ₁₀ = N/A
C _u = N/A	C _c = N/A

Classification

ASTM	N/A
AASHTO	Silty Soils (A-4 (0))

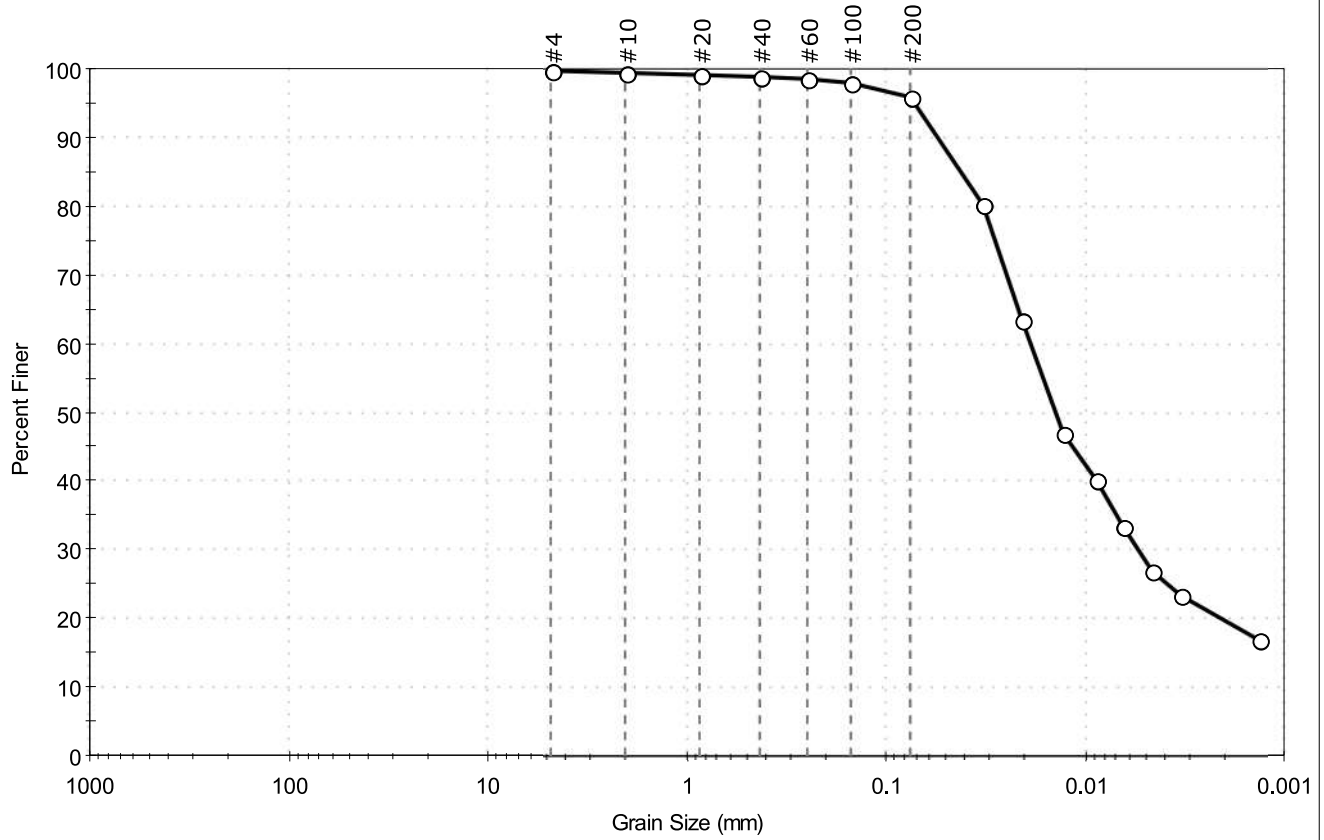
Sample/Test Description

Sand/Gravel Particle Shape : ---
 Sand/Gravel Hardness : ---
 Dispersion Device : Apparatus A - Mech Mixer
 Dispersion Period : 1 minute
 Est. Specific Gravity : 2.65
 Separation of Sample: #200 Sieve



Client:	Haley & Aldrich, Inc.		
Project:	New London State Pier		
Location:	New London, CT	Project No:	GTX-311544
Boring ID:	CHEM-4	Sample Type:	bag
Sample ID:	CHEM-4 S2 (2.5-4.5)	Test Date:	04/10/20
Depth:	2.5-4.5 ft	Checked By:	bfs
		Test Id:	552967
Test Comment:	---		
Visual Description:	Moist, very dark gray silt		
Sample Comment:	---		

Particle Size Analysis - ASTM D422



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.2	4.1	95.7

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	99		
#20	0.85	99		
#40	0.42	99		
#60	0.25	99		
#100	0.15	98		
#200	0.075	96		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0324	80		
---	0.0206	63		
---	0.0127	47		
---	0.0087	40		
---	0.0065	33		
---	0.0046	27		
---	0.0033	23		
---	0.0013	17		

<u>Coefficients</u>	
D ₈₅ = 0.0420 mm	D ₃₀ = 0.0054 mm
D ₆₀ = 0.0186 mm	D ₁₅ = N/A
D ₅₀ = 0.0140 mm	D ₁₀ = N/A
C _u = N/A	C _c = N/A

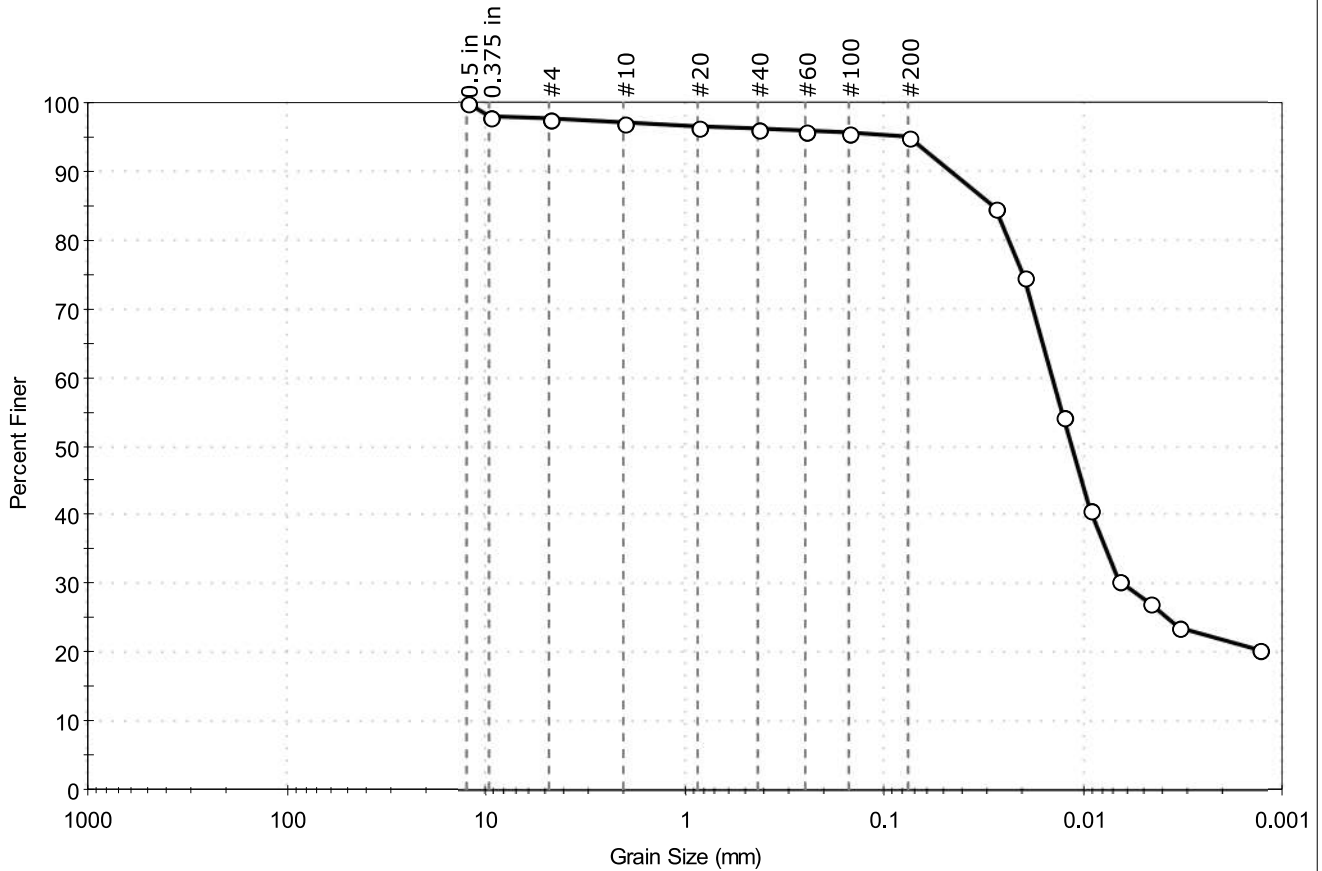
<u>Classification</u>	
ASTM	N/A
AASHTO	Silty Soils (A-4 (0))

<u>Sample/Test Description</u>
Sand/Gravel Particle Shape : ---
Sand/Gravel Hardness : ---
Dispersion Device : Apparatus A - Mech Mixer
Dispersion Period : 1 minute
Est. Specific Gravity : 2.65
Separation of Sample: #200 Sieve



Client: Haley & Aldrich, Inc.	Project No: GTX-311544
Project: New London State Pier	
Location: New London, CT	
Boring ID: CHEM-5	Sample Type: bag
Sample ID: CHEM-5 S1 (0-1.8)	Test Date: 04/10/20
Depth: 0-1.8 ft	Test Id: 552968
Test Comment: ---	Tested By: ckg
Visual Description: Moist, dark gray silt	Checked By: bfs
Sample Comment: ---	

Particle Size Analysis - ASTM D422



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	2.2	2.9	94.9

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
0.5 in	12.50	100		
0.375 in	9.50	98		
#4	4.75	98		
#10	2.00	97		
#20	0.85	96		
#40	0.42	96		
#60	0.25	96		
#100	0.15	96		
#200	0.075	95		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0278	85		
---	0.0199	74		
---	0.0127	54		
---	0.0091	41		
---	0.0065	30		
---	0.0047	27		
---	0.0033	24		
---	0.0013	20		

<u>Coefficients</u>	
D ₈₅ = 0.0287 mm	D ₃₀ = 0.0062 mm
D ₆₀ = 0.0144 mm	D ₁₅ = N/A
D ₅₀ = 0.0114 mm	D ₁₀ = N/A
C _u = N/A	C _c = N/A

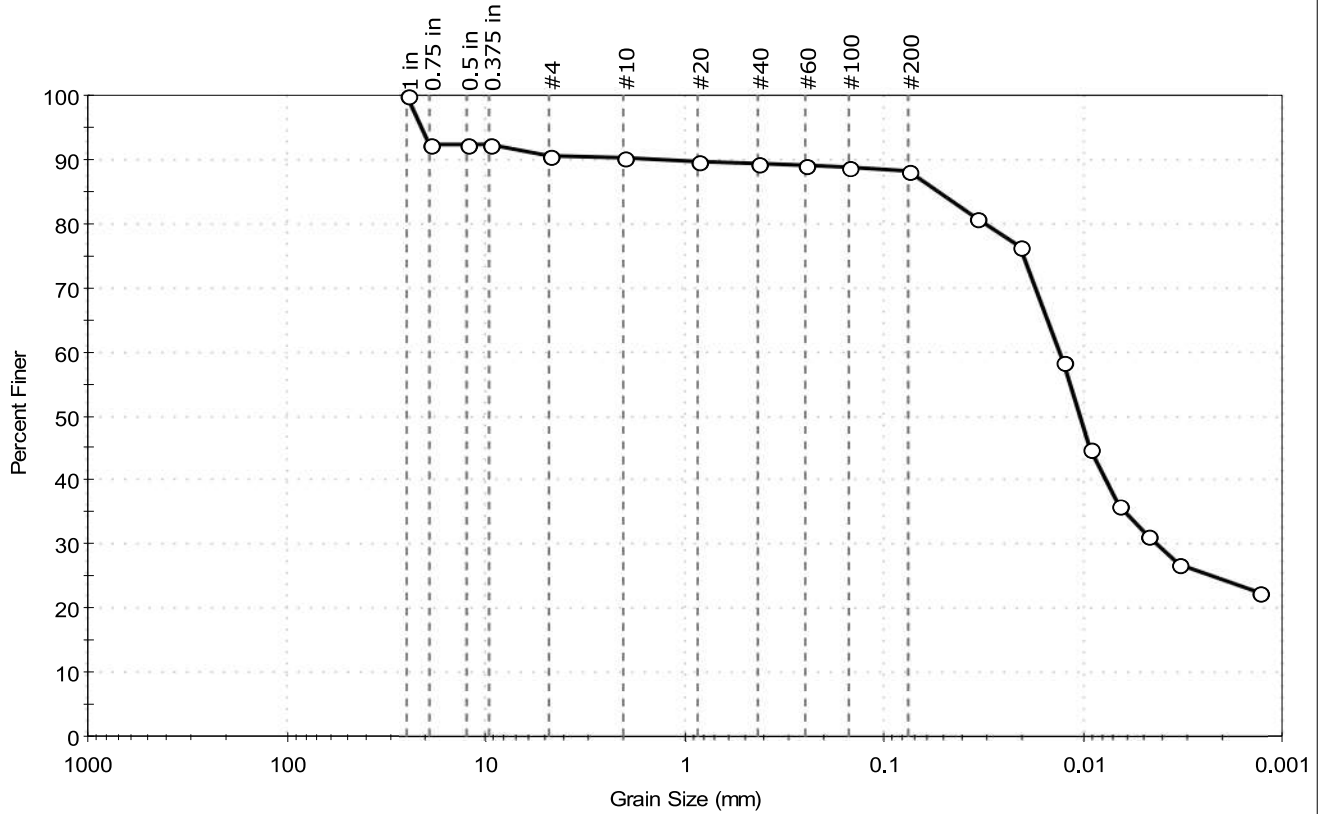
<u>Classification</u>	
ASTM	N/A
AASHTO	Silty Soils (A-4 (0))

<u>Sample/Test Description</u>
Sand/Gravel Particle Shape : ---
Sand/Gravel Hardness : ---
Dispersion Device : Apparatus A - Mech Mixer
Dispersion Period : 1 minute
Est. Specific Gravity : 2.65
Separation of Sample: #200 Sieve



Client: Haley & Aldrich, Inc.
 Project: New London State Pier
 Location: New London, CT
 Project No: GTX-311544
 Boring ID: CHEM-5
 Sample Type: bag
 Tested By: ckg
 Sample ID: CHEM-5 S2 (1.8-3.8)
 Test Date: 04/10/20
 Checked By: bfs
 Depth: 1.8-3.8 ft
 Test Id: 552969
 Test Comment: ---
 Visual Description: Moist, dark grayish brown silt
 Sample Comment: ---

Particle Size Analysis - ASTM D422



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	9.4	2.4	88.2

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
1 in	25.00	100		
0.75 in	19.00	92		
0.5 in	12.50	92		
0.375 in	9.50	92		
#4	4.75	91		
#10	2.00	90		
#20	0.85	90		
#40	0.42	89		
#60	0.25	89		
#100	0.15	89		
#200	0.075	88		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0339	81		
---	0.0208	76		
---	0.0126	58		
---	0.0092	45		
---	0.0066	36		
---	0.0047	31		
---	0.0033	27		
---	0.0013	22		

<u>Coefficients</u>	
D ₈₅ = 0.0532 mm	D ₃₀ = 0.0042 mm
D ₆₀ = 0.0132 mm	D ₁₅ = N/A
D ₅₀ = 0.0104 mm	D ₁₀ = N/A
C _u = N/A	C _c = N/A

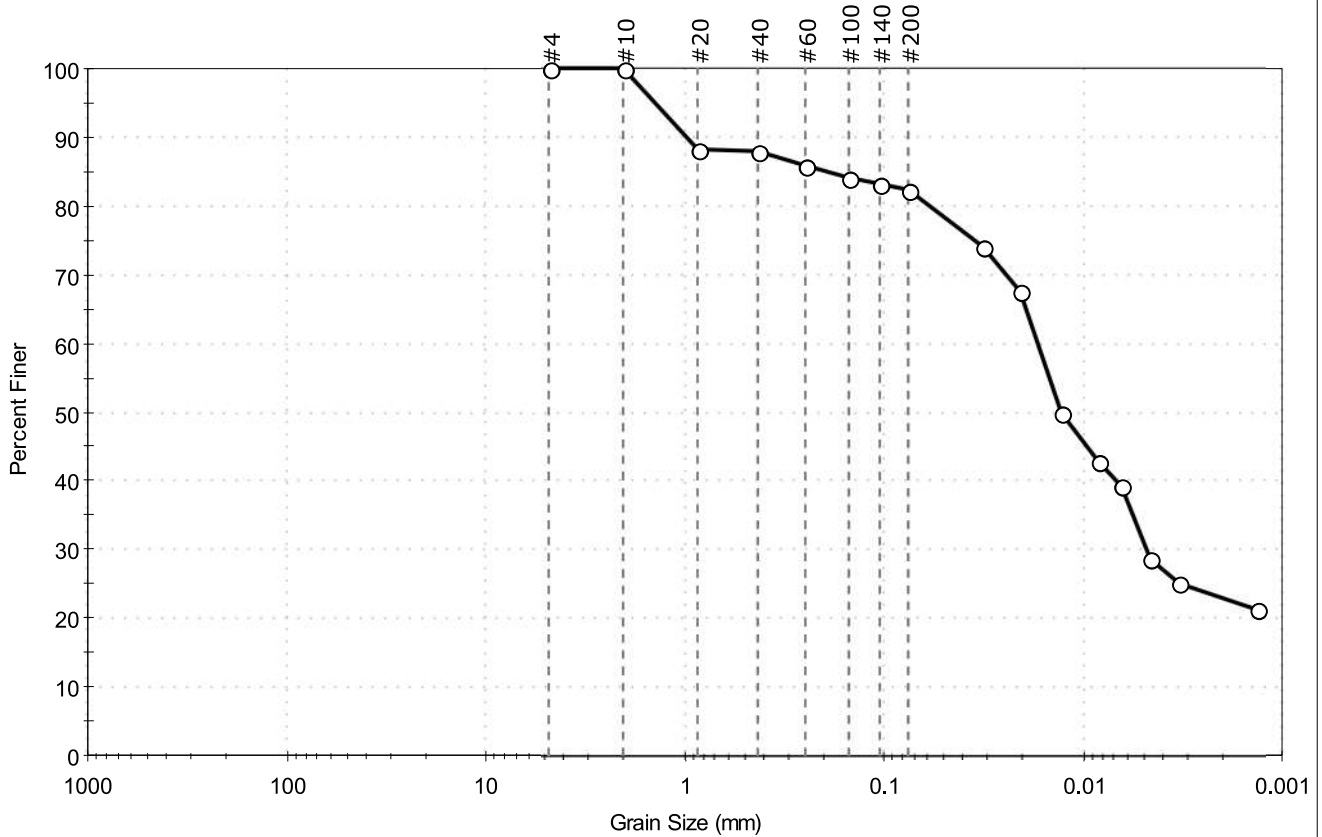
<u>Classification</u>	
<u>ASTM</u>	N/A
<u>AASHTO</u>	Silty Soils (A-4 (0))

<u>Sample/Test Description</u>
Sand/Gravel Particle Shape : ANGULAR
Sand/Gravel Hardness : HARD
Dispersion Device : Apparatus A - Mech Mixer
Dispersion Period : 1 minute
Est. Specific Gravity : 2.65
Separation of Sample: #200 Sieve



Client: Haley & Aldrich, Inc.	Project: New London State Pier	Location: New London, CT	Project No: GTX-311544
Boring ID: CHEM-6	Sample Type: bag	Tested By: ckg	Checked By: bfs
Sample ID: CHEM-6 S1 (0-9)	Test Date: 04/10/20	Test Id: 552970	
Depth: 0-9 ft			
Test Comment: ---	Visual Description: Moist grayish brown silt with sand		
Sample Comment: ---			

Particle Size Analysis - ASTM D422



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	17.6	82.4

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	88		
#40	0.425	88		
#60	0.25	86		
#100	0.15	84		
#140	0.11	83		
#200	0.075	82		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0318	74		
---	0.0205	68		
---	0.0127	50		
---	0.0083	43		
---	0.0064	39		
---	0.0046	28		
---	0.0033	25		
---	0.0013	21		

<u>Coefficients</u>	
D ₈₅ = 0.1909 mm	D ₃₀ = 0.0048 mm
D ₆₀ = 0.0167 mm	D ₁₅ = N/A
D ₅₀ = 0.0128 mm	D ₁₀ = N/A
C _u = N/A	C _c = N/A

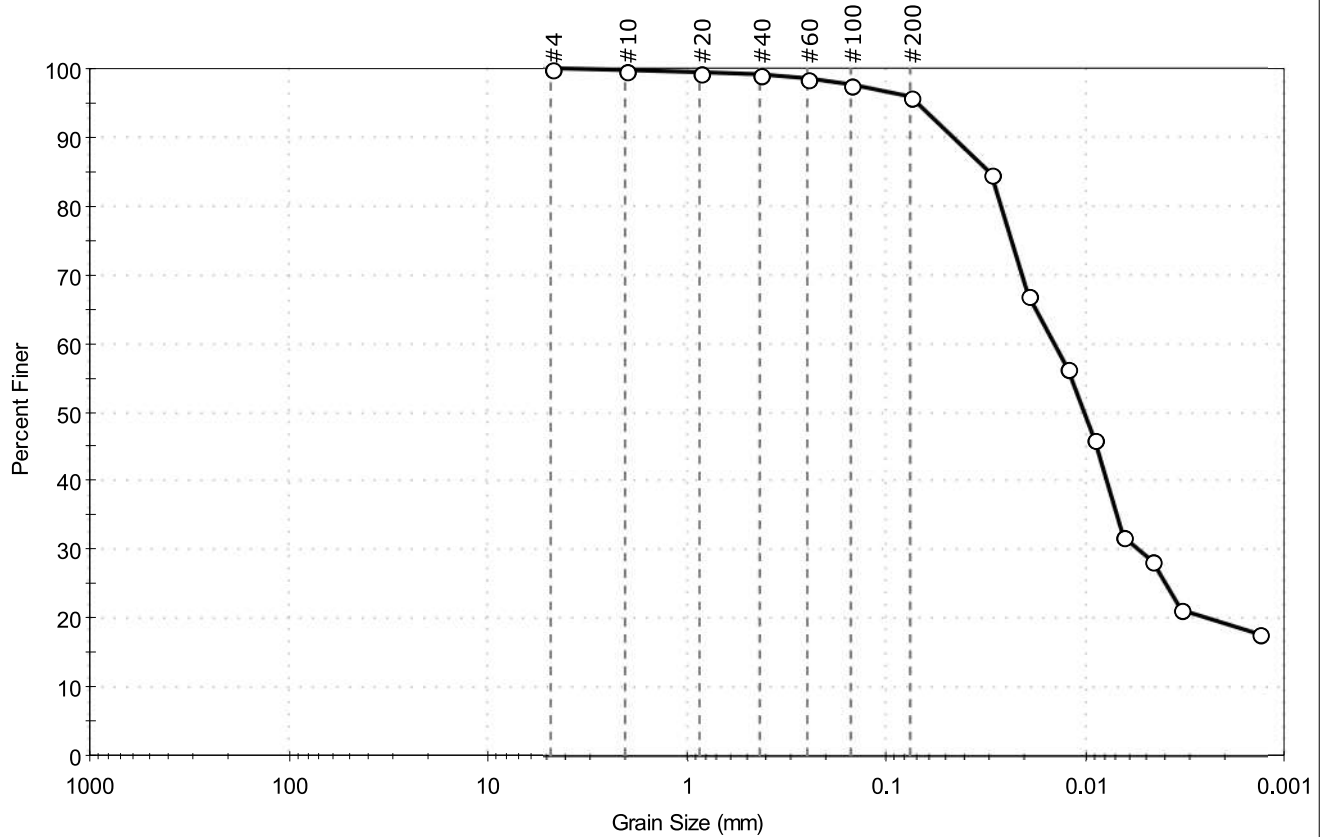
<u>Classification</u>	
ASTM	N/A
AASHTO	Silty Soils (A-4 (0))

<u>Sample/Test Description</u>
Sand/Gravel Particle Shape : ---
Sand/Gravel Hardness : ---
Dispersion Device : Apparatus A - Mech Mixer
Dispersion Period : 1 minute
Est. Specific Gravity : 2.65
Separation of Sample: #200 Sieve



Client: Haley & Aldrich, Inc.	Project: New London State Pier	Location: New London, CT	Project No: GTX-311544
Boring ID: CHEM-6	Sample Type: bag	Tested By: ckg	Checked By: bfs
Sample ID: CHEM-6 S2 (9-19)	Test Date: 04/10/20	Test Id: 552971	
Depth: 9-19 ft			
Test Comment: ---	Visual Description: Moist, very dark grayish brown silt		
Sample Comment: ---			

Particle Size Analysis - ASTM D422



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.1	3.9	96.0

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	99		
#40	0.42	99		
#60	0.25	98		
#100	0.15	98		
#200	0.075	96		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0297	85		
---	0.0191	67		
---	0.0123	56		
---	0.0090	46		
---	0.0065	32		
---	0.0046	28		
---	0.0033	21		
---	0.0013	18		

Coefficients

D ₈₅ = 0.0304 mm	D ₃₀ = 0.0055 mm
D ₆₀ = 0.0142 mm	D ₁₅ = N/A
D ₅₀ = 0.0102 mm	D ₁₀ = N/A
C _u = N/A	C _c = N/A

Classification

ASTM	N/A
AASHTO	Silty Soils (A-4 (0))

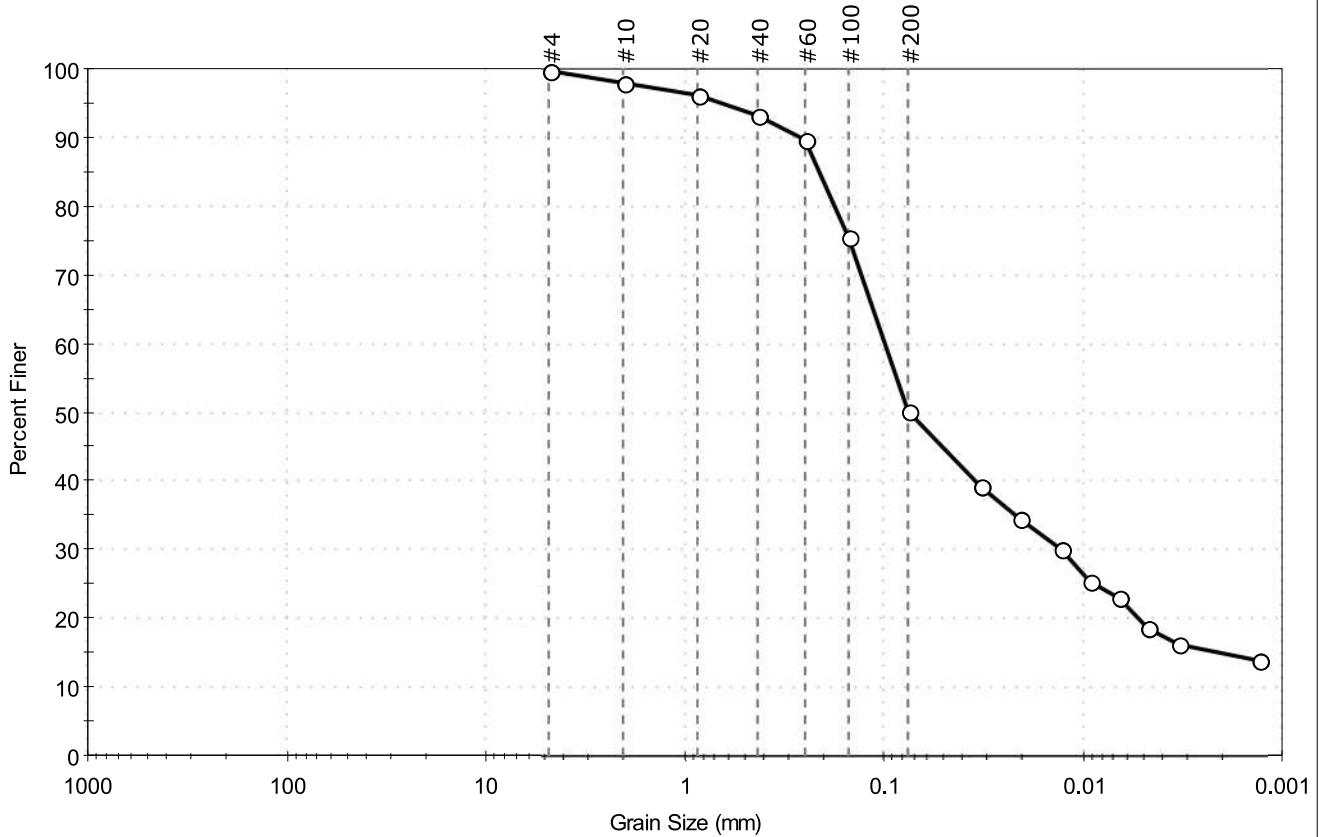
Sample/Test Description

Sand/Gravel Particle Shape : ---
 Sand/Gravel Hardness : ---
 Dispersion Device : Apparatus A - Mech Mixer
 Dispersion Period : 1 minute
 Est. Specific Gravity : 2.65
 Separation of Sample: #200 Sieve



Client: Haley & Aldrich, Inc.
 Project: New London State Pier
 Location: New London, CT
 Project No: GTX-311544
 Boring ID: CHEM-6
 Sample Type: bag
 Tested By: ckg
 Sample ID: CHEM-6 S3 (19-21)
 Test Date: 04/10/20
 Checked By: bfs
 Depth: 19-21 ft
 Test Id: 552972
 Test Comment: ---
 Visual Description: Moist, dark gray sandy silt
 Sample Comment: ---

Particle Size Analysis - ASTM D422



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.3	49.7	50.0

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	98		
#20	0.85	96		
#40	0.42	93		
#60	0.25	90		
#100	0.15	76		
#200	0.075	50		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0326	39		
---	0.0207	35		
---	0.0128	30		
---	0.0091	25		
---	0.0065	23		
---	0.0047	18		
---	0.0033	16		
---	0.0013	14		

Coefficients

D ₈₅ = 0.2107 mm	D ₃₀ = 0.0128 mm
D ₆₀ = 0.0983 mm	D ₁₅ = 0.0021 mm
D ₅₀ = 0.0747 mm	D ₁₀ = N/A
C _u = N/A	C _c = N/A

Classification

ASTM N/A

AASHTO Silty Soils (A-4 (0))

Sample/Test Description

Sand/Gravel Particle Shape : ---

Sand/Gravel Hardness : ---

Dispersion Device : Apparatus A - Mech Mixer

Dispersion Period : 1 minute

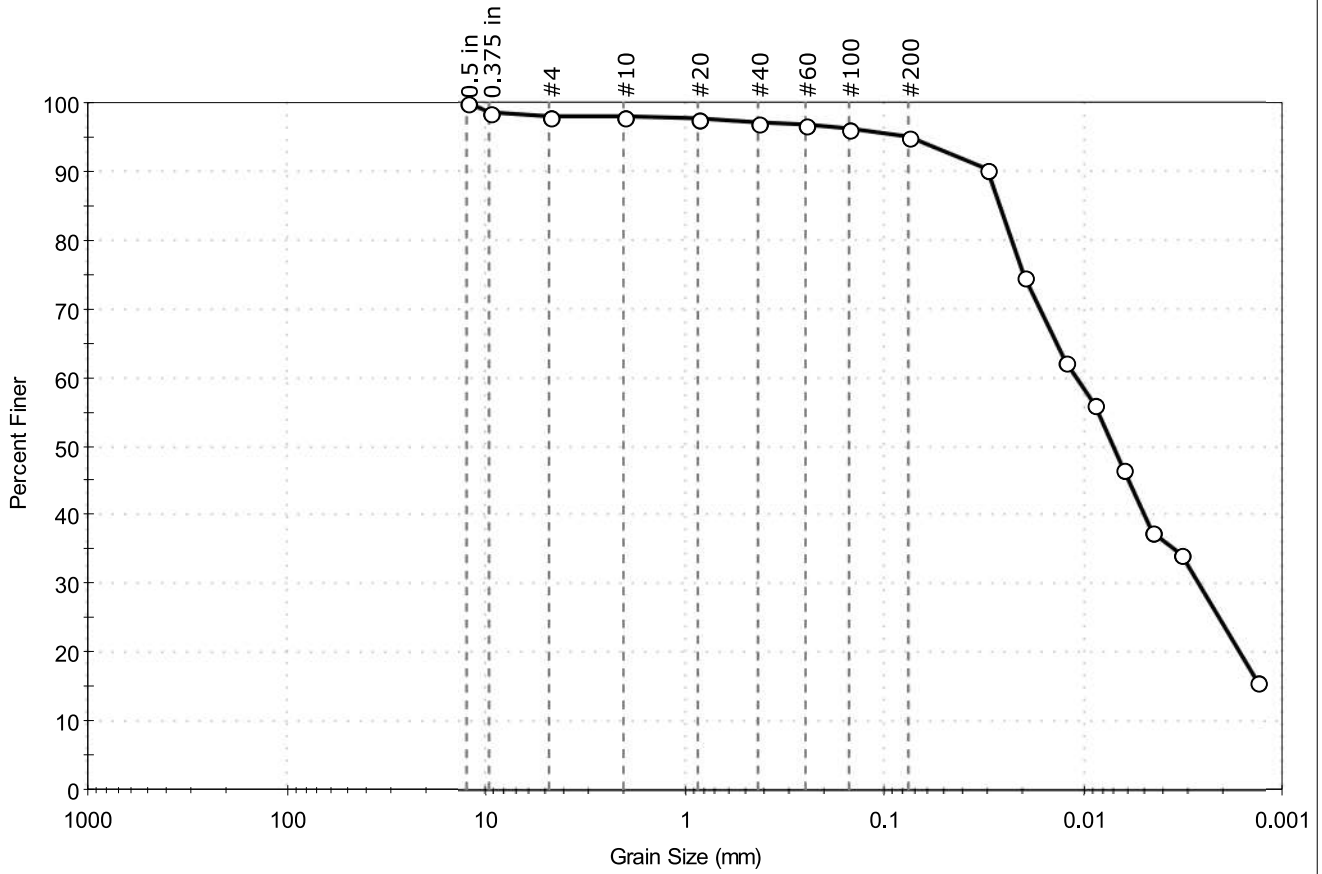
Est. Specific Gravity : 2.65

Separation of Sample: #200 Sieve



Client: Haley & Aldrich, Inc.
 Project: New London State Pier
 Location: New London, CT
 Project No: GTX-311544
 Boring ID: CHEM-7
 Sample Type: bag
 Tested By: ckg
 Sample ID: CHEM-7 S1 (0-16)
 Test Date: 04/10/20
 Checked By: bfs
 Depth: 0-16 ft
 Test Id: 552973
 Test Comment: ---
 Visual Description: Moist, dark gray silt
 Sample Comment: ---

Particle Size Analysis - ASTM D422



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	1.9	3.0	95.1

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
0.5 in	12.50	100		
0.375 in	9.50	98		
#4	4.75	98		
#10	2.00	98		
#20	0.85	98		
#40	0.42	97		
#60	0.25	97		
#100	0.15	96		
#200	0.075	95		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0301	90		
---	0.0198	75		
---	0.0121	62		
---	0.0087	56		
---	0.0063	47		
---	0.0045	37		
---	0.0032	34		
---	0.0013	16		

Coefficients

D ₈₅ = 0.0261 mm	D ₃₀ = 0.0026 mm
D ₆₀ = 0.0107 mm	D ₁₅ = N/A
D ₅₀ = 0.0071 mm	D ₁₀ = N/A
C _u = N/A	C _c = N/A

Classification

ASTM N/A

AASHTO Silty Soils (A-4 (0))

Sample/Test Description

Sand/Gravel Particle Shape : ---

Sand/Gravel Hardness : ---

Dispersion Device : Apparatus A - Mech Mixer

Dispersion Period : 1 minute

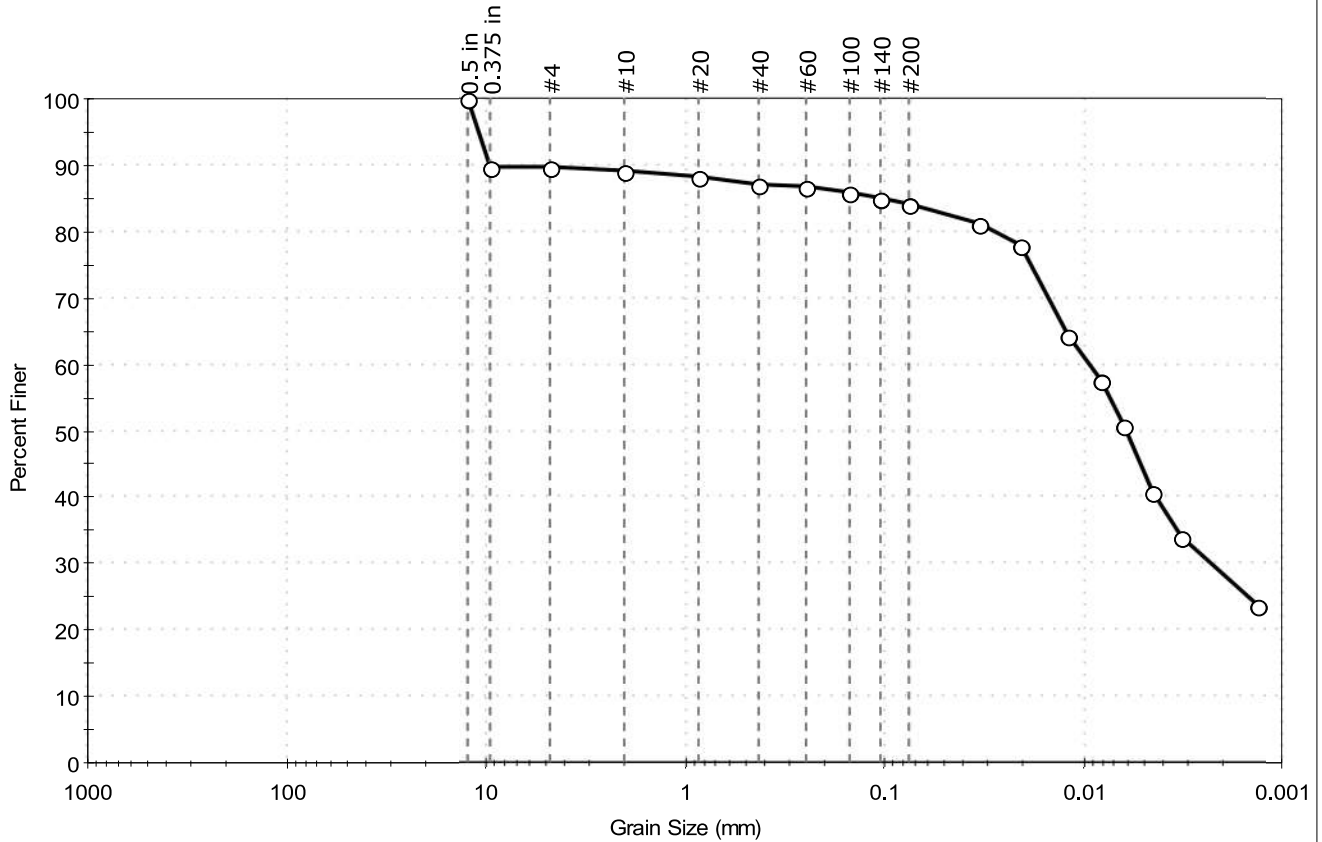
Est. Specific Gravity : 2.65

Separation of Sample: #200 Sieve



Client: Haley & Aldrich, Inc.
 Project: New London State Pier
 Location: New London, CT
 Project No: GTX-311544
 Boring ID: CHEM-7
 Sample Type: bag
 Tested By: ckg
 Sample ID: CHEM-7 S2 (16-35)
 Test Date: 04/10/20
 Checked By: bfs
 Depth: 16-35 ft
 Test Id: 552974
 Test Comment: ---
 Visual Description: Moist, dark olive gray silt with sand
 Sample Comment: ---

Particle Size Analysis - ASTM D422



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	10.3	5.6	84.1

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
0.5 in	12.50	100		
0.375 in	9.50	90		
#4	4.75	90		
#10	2.00	89		
#20	0.85	88		
#40	0.42	87		
#60	0.25	87		
#100	0.15	86		
#140	0.11	85		
#200	0.075	84		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0337	81		
---	0.0209	78		
---	0.0121	64		
---	0.0081	57		
---	0.0062	51		
---	0.0045	41		
---	0.0032	34		
---	0.0013	24		

<u>Coefficients</u>	
D ₈₅ = 0.1071 mm	D ₃₀ = 0.0023 mm
D ₆₀ = 0.0094 mm	D ₁₅ = N/A
D ₅₀ = 0.0061 mm	D ₁₀ = N/A
C _u = N/A	C _c = N/A

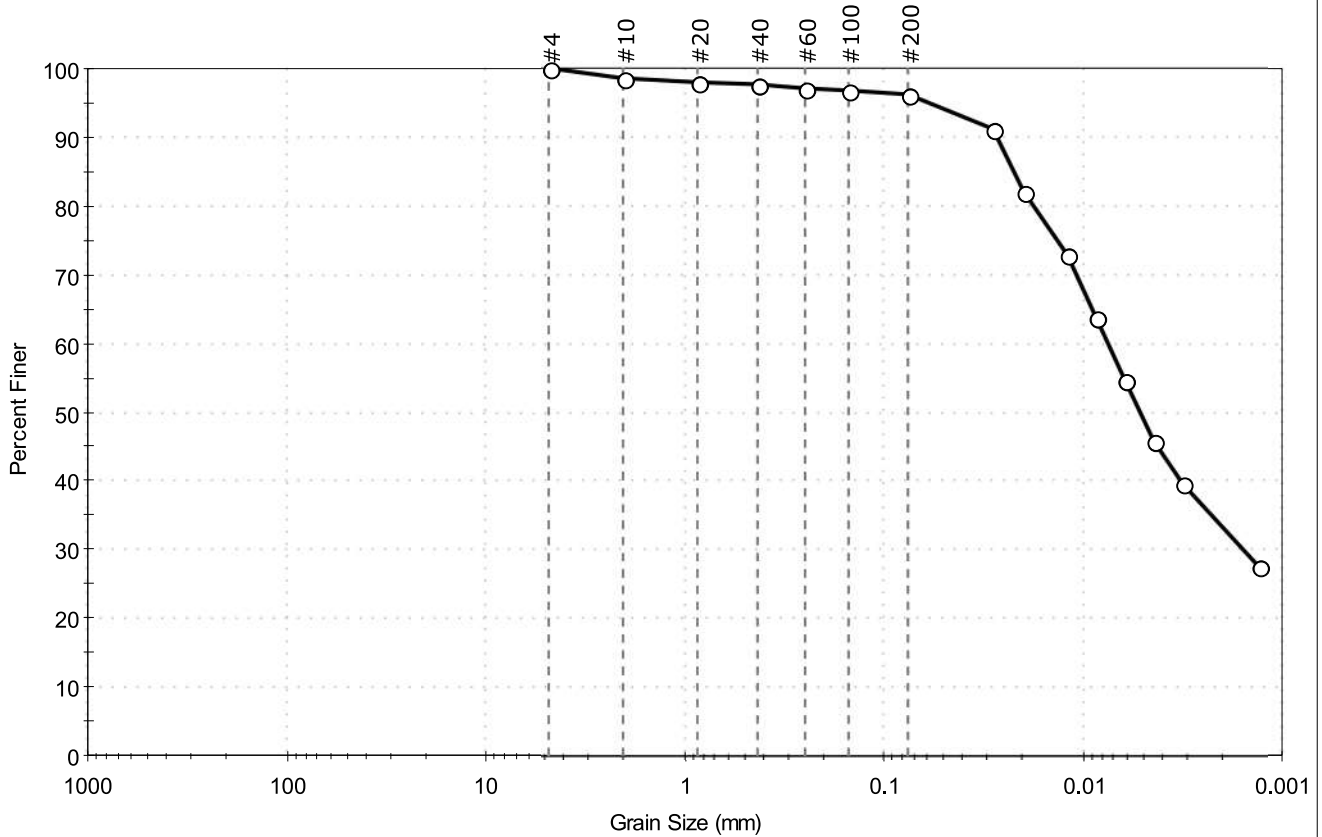
<u>Classification</u>	
<u>ASTM</u>	N/A
<u>AASHTO</u>	Silty Soils (A-4 (0))

<u>Sample/Test Description</u>
Sand/Gravel Particle Shape : ANGULAR
Sand/Gravel Hardness : HARD
Dispersion Device : Apparatus A - Mech Mixer
Dispersion Period : 1 minute
Est. Specific Gravity : 2.65
Separation of Sample: #200 Sieve



Client: Haley & Aldrich, Inc.
 Project: New London State Pier
 Location: New London, CT
 Project No: GTX-311544
 Boring ID: CHEM-7
 Sample Type: bag
 Tested By: ckg
 Sample ID: CHEM-7 S3 (35-37)
 Test Date: 04/10/20
 Checked By: bfs
 Depth: 35-37 ft
 Test Id: 552975
 Test Comment: ---
 Visual Description: Moist, very dark gray silt
 Sample Comment: ---

Particle Size Analysis - ASTM D422



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	3.9	96.1

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	99		
#20	0.85	98		
#40	0.42	98		
#60	0.25	97		
#100	0.15	97		
#200	0.075	96		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0284	91		
---	0.0199	82		
---	0.0119	73		
---	0.0085	64		
---	0.0062	55		
---	0.0044	46		
---	0.0032	40		
---	0.0013	27		

Coefficients

D ₈₅ = 0.0223 mm	D ₃₀ = 0.0016 mm
D ₆₀ = 0.0074 mm	D ₁₅ = N/A
D ₅₀ = 0.0052 mm	D ₁₀ = N/A
C _u = N/A	C _c = N/A

Classification

ASTM	N/A
AASHTO	Silty Soils (A-4 (0))

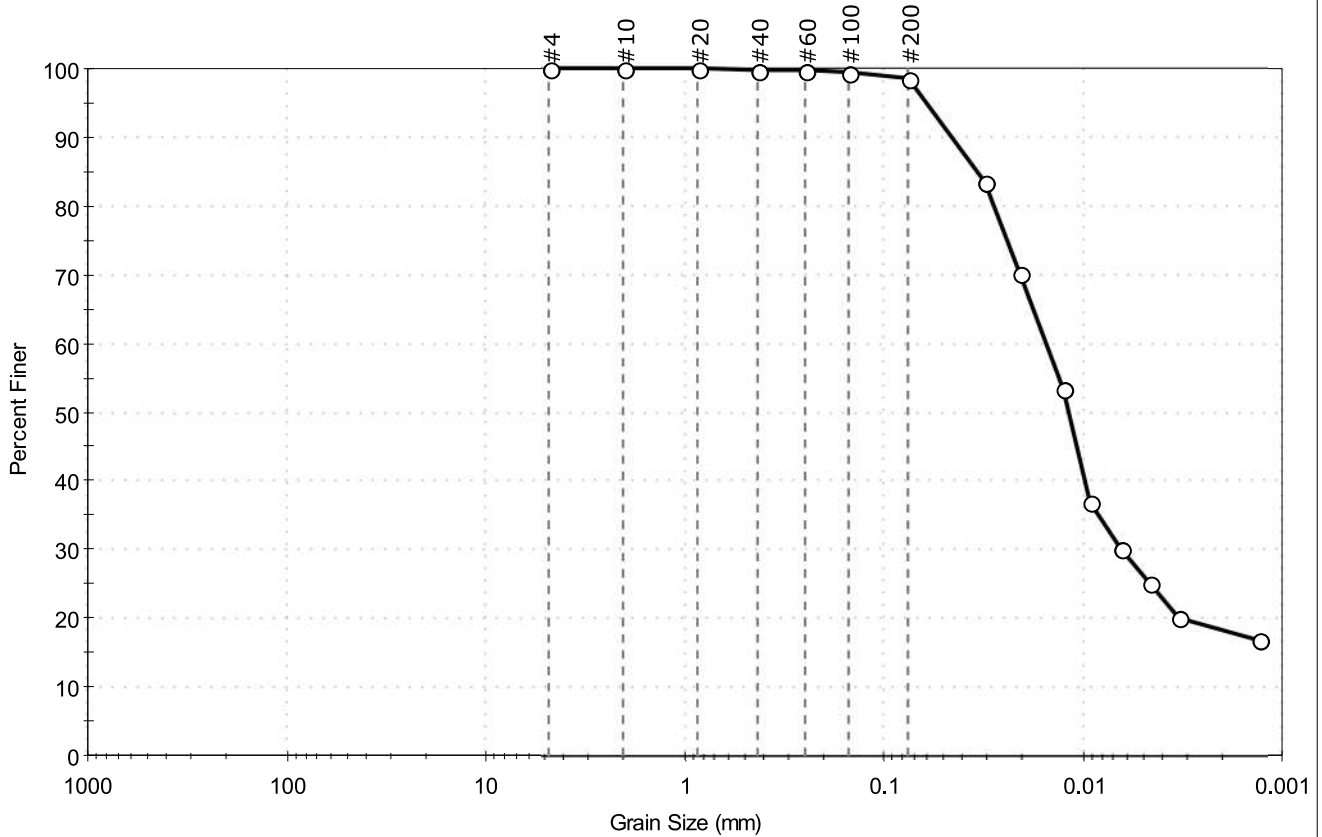
Sample/Test Description

Sand/Gravel Particle Shape	: ---
Sand/Gravel Hardness	: ---
Dispersion Device	: Apparatus A - Mech Mixer
Dispersion Period	: 1 minute
Est. Specific Gravity	: 2.65
Separation of Sample	: #200 Sieve



Client: Haley & Aldrich, Inc.	Project: New London State Pier	Location: New London, CT	Project No: GTX-311544
Boring ID: CHEM-8	Sample Type: bag	Tested By: ckg	Checked By: bfs
Sample ID: CHEM-8 S1 (0-3.6)	Test Date: 04/10/20	Test Id: 552976	
Depth: 0-3.6 ft			
Test Comment: ---	Visual Description: Moist, very dark gray silt	Sample Comment: ---	

Particle Size Analysis - ASTM D422



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	1.4	98.6

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	100		
#40	0.42	100		
#60	0.25	100		
#100	0.15	99		
#200	0.075	99		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0310	83		
---	0.0209	70		
---	0.0126	53		
---	0.0091	37		
---	0.0065	30		
---	0.0046	25		
---	0.0033	20		
---	0.0013	17		

Coefficients	
D ₈₅ = 0.0338 mm	D ₃₀ = 0.0065 mm
D ₆₀ = 0.0154 mm	D ₁₅ = N/A
D ₅₀ = 0.0118 mm	D ₁₀ = N/A
C _u = N/A	C _c = N/A

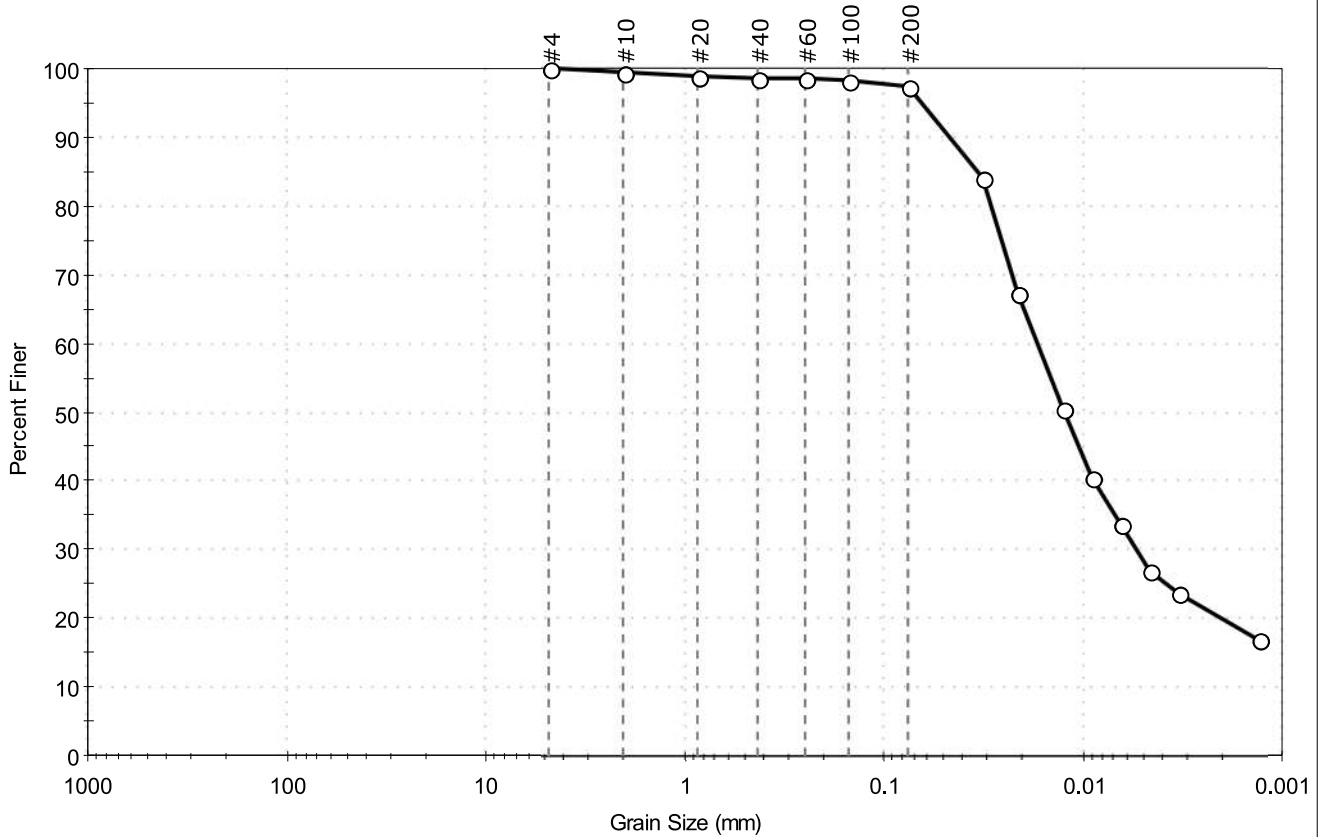
Classification	
ASTM	N/A
AASHTO	Silty Soils (A-4 (0))

Sample/Test Description
Sand/Gravel Particle Shape : ---
Sand/Gravel Hardness : ---
Dispersion Device : Apparatus A - Mech Mixer
Dispersion Period : 1 minute
Est. Specific Gravity : 2.65
Separation of Sample: #200 Sieve



Client: Haley & Aldrich, Inc.
 Project: New London State Pier
 Location: New London, CT
 Project No: GTX-311544
 Boring ID: CHEM-8
 Sample Type: bag
 Tested By: ckg
 Sample ID: CHEM-8 S2 (3.6-5.6)
 Test Date: 04/10/20
 Checked By: bfs
 Depth: 3.6-5.6 ft
 Test Id: 552977
 Test Comment: ---
 Visual Description: Moist, olive brown silt
 Sample Comment: ---

Particle Size Analysis - ASTM D422



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.1	2.7	97.2

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	99		
#20	0.85	99		
#40	0.42	99		
#60	0.25	98		
#100	0.15	98		
#200	0.075	97		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0315	84		
---	0.0212	67		
---	0.0125	50		
---	0.0090	40		
---	0.0065	34		
---	0.0046	27		
---	0.0033	24		
---	0.0013	17		

Coefficients

D ₈₅ = 0.0334 mm	D ₃₀ = 0.0054 mm
D ₆₀ = 0.0168 mm	D ₁₅ = N/A
D ₅₀ = 0.0123 mm	D ₁₀ = N/A
C _u = N/A	C _c = N/A

Classification

ASTM N/A

AASHTO Silty Soils (A-4 (0))

Sample/Test Description

Sand/Gravel Particle Shape : ---

Sand/Gravel Hardness : ---

Dispersion Device : Apparatus A - Mech Mixer

Dispersion Period : 1 minute

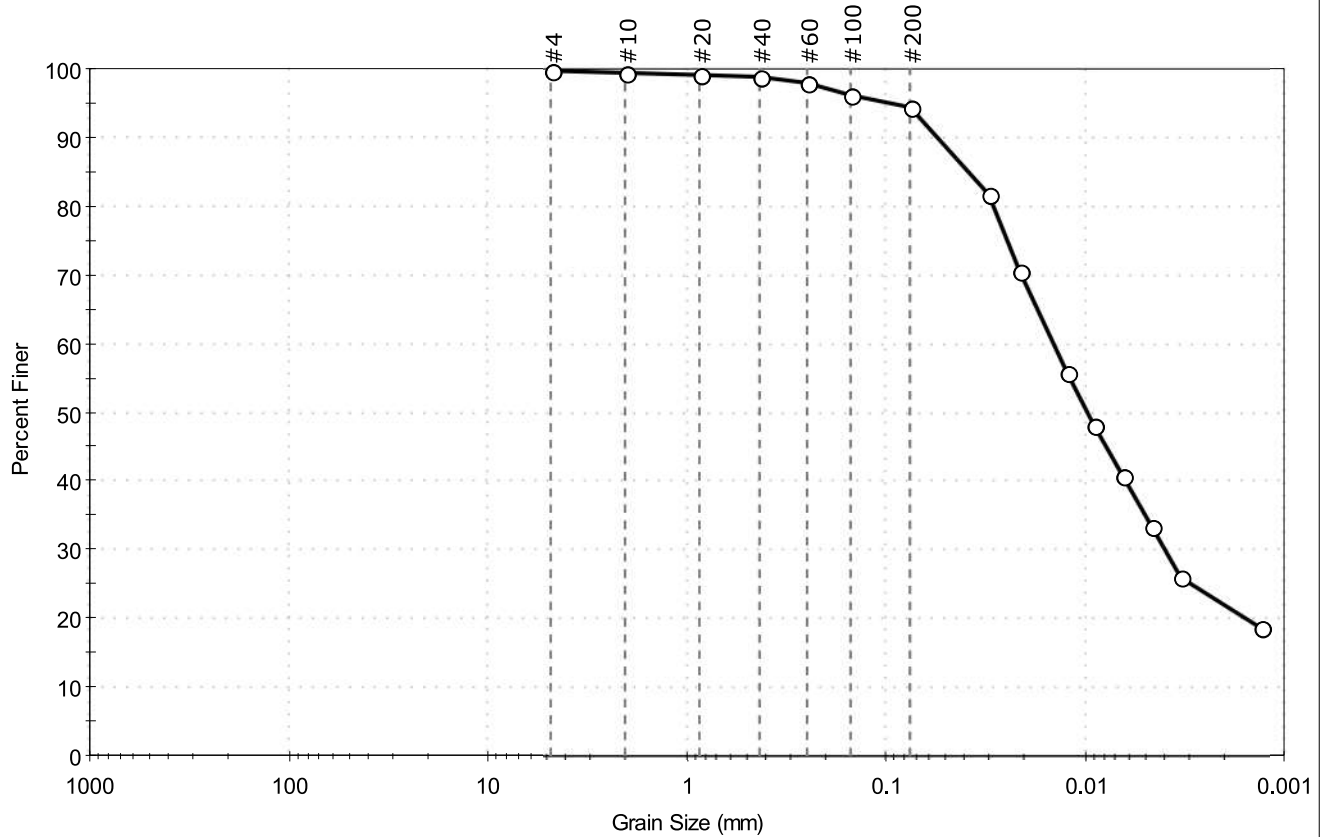
Est. Specific Gravity : 2.65

Separation of Sample: #200 Sieve



Client: Haley & Aldrich, Inc.	Project: New London State Pier	Location: New London, CT	Project No: GTX-311544
Boring ID: CHEM-9	Sample Type: bag	Tested By: ckg	Checked By: bfs
Sample ID: CHEM-9 S1 (0-9)	Test Date: 04/10/20	Test Id: 552978	
Depth: 0-9 ft			
Test Comment: ---			
Visual Description: Moist, dark olive gray silt			
Sample Comment: ---			

Particle Size Analysis - ASTM D422



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.2	5.5	94.3

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	99		
#40	0.42	99		
#60	0.25	98		
#100	0.15	96		
#200	0.075	94		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0305	82		
---	0.0212	70		
---	0.0124	56		
---	0.0090	48		
---	0.0065	41		
---	0.0046	33		
---	0.0033	26		
---	0.0013	19		

Coefficients	
D ₈₅ = 0.0388 mm	D ₃₀ = 0.0040 mm
D ₆₀ = 0.0145 mm	D ₁₅ = N/A
D ₅₀ = 0.0097 mm	D ₁₀ = N/A
C _u = N/A	C _c = N/A

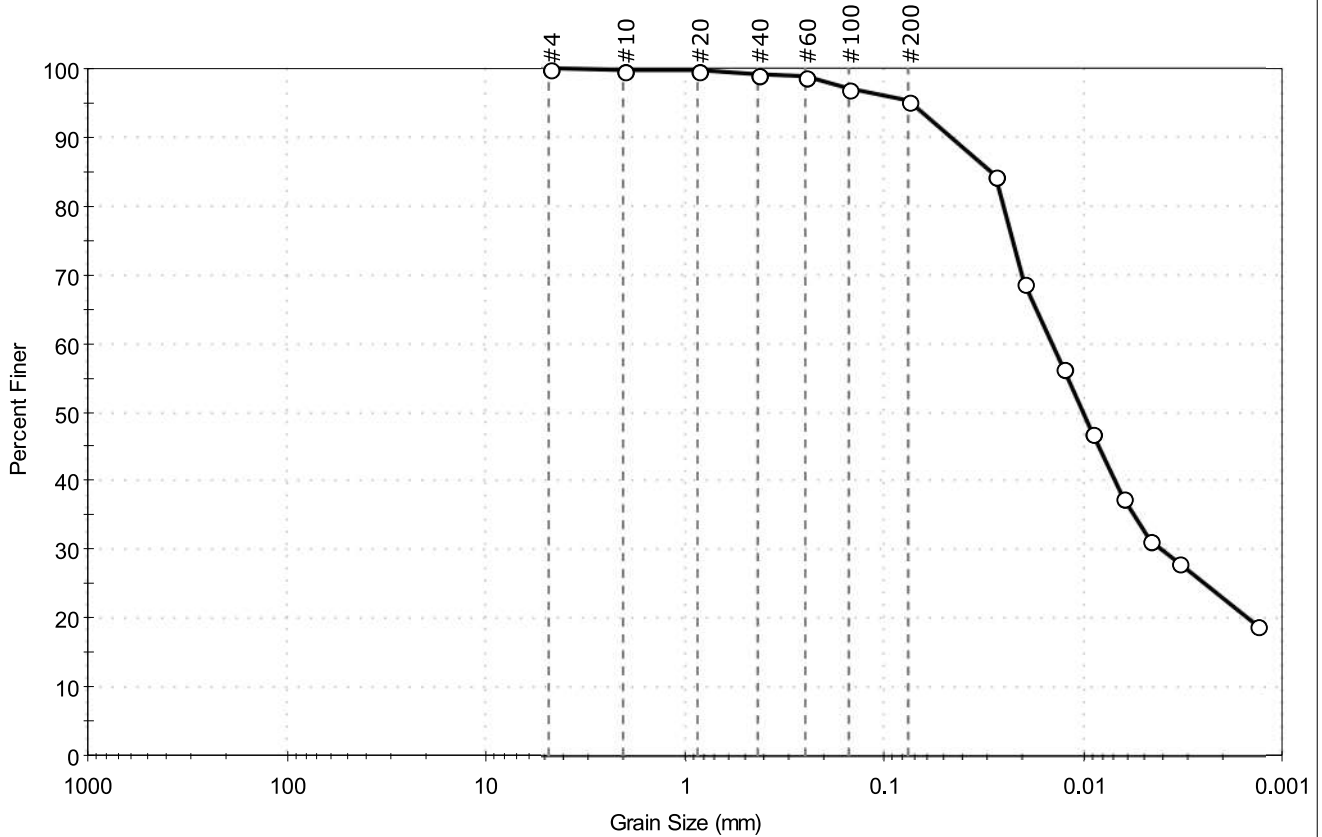
Classification	
ASTM	N/A
AASHTO	Silty Soils (A-4 (0))

Sample/Test Description
Sand/Gravel Particle Shape : ---
Sand/Gravel Hardness : ---
Dispersion Device : Apparatus A - Mech Mixer
Dispersion Period : 1 minute
Est. Specific Gravity : 2.65
Separation of Sample: #200 Sieve



Client: Haley & Aldrich, Inc.	Project: New London State Pier	Location: New London, CT	Project No: GTX-311544
Boring ID: CHEM-9	Sample Type: bag	Tested By: ckg	
Sample ID: CHEM-9 S2 (9-19.8)	Test Date: 04/10/20	Checked By: bfs	
Depth: 9-19.8 ft	Test Id: 552979		
Test Comment: ---			
Visual Description: Moist, very dark gray silt			
Sample Comment: ---			

Particle Size Analysis - ASTM D422



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	4.6	95.4

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	100		
#40	0.42	99		
#60	0.25	99		
#100	0.15	97		
#200	0.075	95		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0277	84		
---	0.0199	69		
---	0.0125	56		
---	0.0089	47		
---	0.0063	38		
---	0.0046	31		
---	0.0033	28		
---	0.0013	19		

<u>Coefficients</u>	
D ₈₅ = 0.0292 mm	D ₃₀ = 0.0040 mm
D ₆₀ = 0.0143 mm	D ₁₅ = N/A
D ₅₀ = 0.0100 mm	D ₁₀ = N/A
C _u = N/A	C _c = N/A

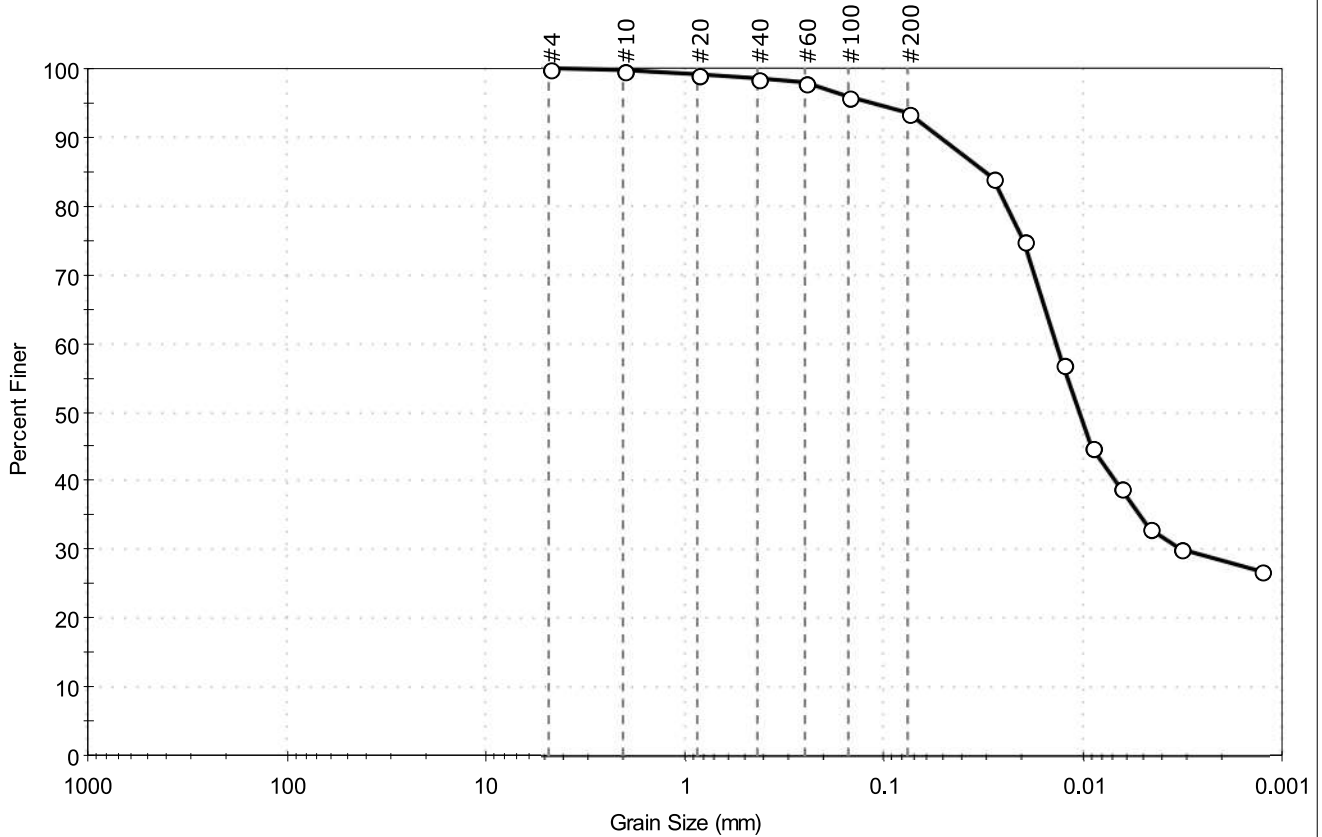
<u>Classification</u>	
ASTM	N/A
AASHTO	Silty Soils (A-4 (0))

<u>Sample/Test Description</u>
Sand/Gravel Particle Shape : ---
Sand/Gravel Hardness : ---
Dispersion Device : Apparatus A - Mech Mixer
Dispersion Period : 1 minute
Est. Specific Gravity : 2.65
Separation of Sample: #200 Sieve



Client: Haley & Aldrich, Inc.
 Project: New London State Pier
 Location: New London, CT
 Project No: GTX-311544
 Boring ID: CHEM-9
 Sample Type: bag
 Tested By: ckg
 Sample ID: CHEM-9 S3 (19.8-21.8)
 Test Date: 04/10/20
 Checked By: bfs
 Depth: 19.8-21.8 ft
 Test Id: 552980
 Test Comment: ---
 Visual Description: Moist, dark gray silt
 Sample Comment: ---

Particle Size Analysis - ASTM D422



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.1	6.3	93.6

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	99		
#40	0.42	99		
#60	0.25	98		
#100	0.15	96		
#200	0.075	94		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0281	84		
---	0.0199	75		
---	0.0124	57		
---	0.0090	45		
---	0.0064	39		
---	0.0046	33		
---	0.0032	30		
---	0.0013	27		

Coefficients

D ₈₅ = 0.0312 mm	D ₃₀ = 0.0032 mm
D ₆₀ = 0.0134 mm	D ₁₅ = N/A
D ₅₀ = 0.0103 mm	D ₁₀ = N/A
C _u = N/A	C _c = N/A

Classification

ASTM N/A

AASHTO Silty Soils (A-4 (0))

Sample/Test Description

Sand/Gravel Particle Shape : ---

Sand/Gravel Hardness : ---

Dispersion Device : Apparatus A - Mech Mixer

Dispersion Period : 1 minute

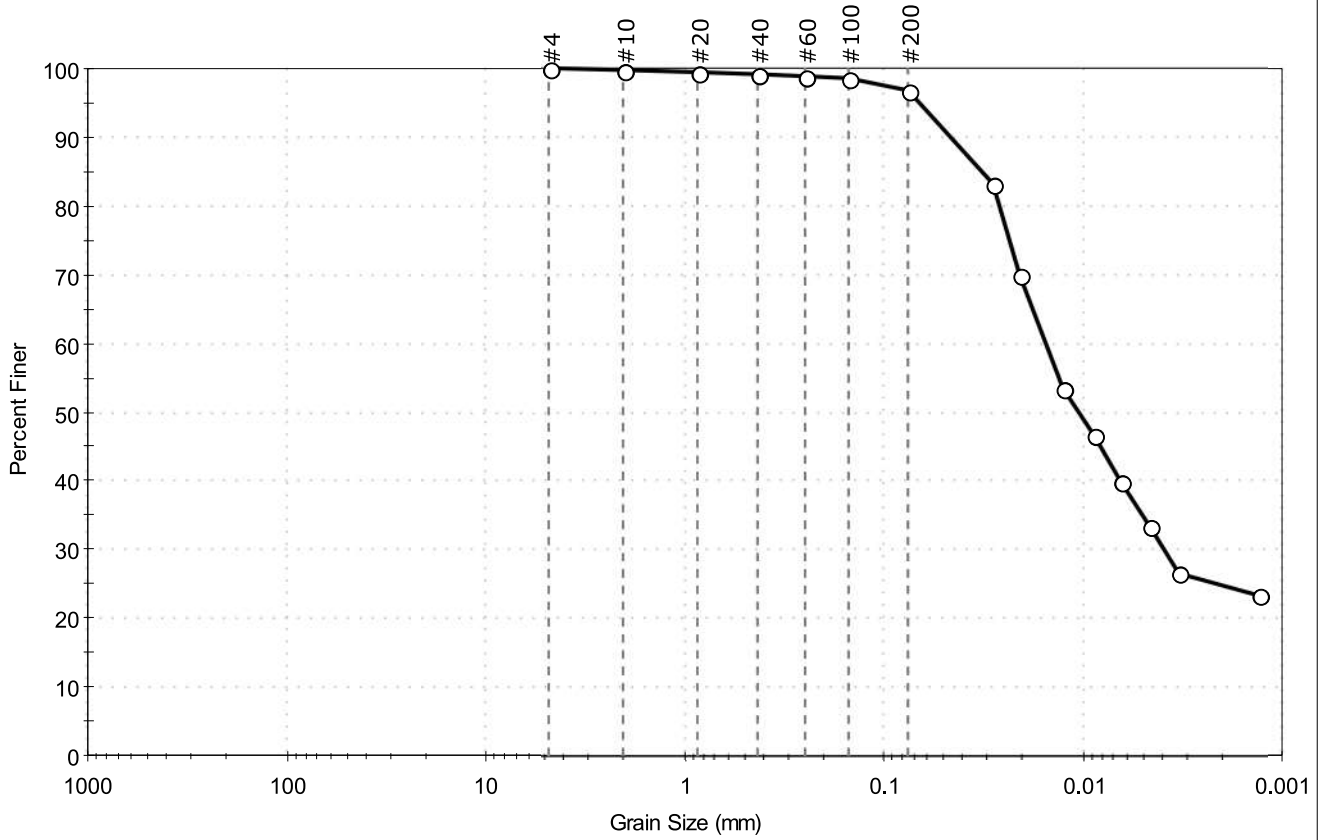
Est. Specific Gravity : 2.65

Separation of Sample: #200 Sieve



Client: Haley & Aldrich, Inc.
 Project: New London State Pier
 Location: New London, CT
 Project No: GTX-311544
 Boring ID: CHEM-10
 Sample Type: bag
 Tested By: ckg
 Sample ID: CHEM-10 S1 (0-1.7)
 Test Date: 04/10/20
 Checked By: bfs
 Depth: 0-1.7 ft
 Test Id: 552981
 Test Comment: ---
 Visual Description: Moist, olive brown silt
 Sample Comment: ---

Particle Size Analysis - ASTM D422



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.1	3.2	96.7

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	99		
#40	0.42	99		
#60	0.25	99		
#100	0.15	99		
#200	0.075	97		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0284	83		
---	0.0207	70		
---	0.0126	53		
---	0.0088	47		
---	0.0065	40		
---	0.0046	33		
---	0.0033	27		
---	0.0013	23		

Coefficients

D ₈₅ = 0.0322 mm	D ₃₀ = 0.0039 mm
D ₆₀ = 0.0154 mm	D ₁₅ = N/A
D ₅₀ = 0.0106 mm	D ₁₀ = N/A
C _u = N/A	C _c = N/A

Classification

ASTM	N/A
AASHTO	Silty Soils (A-4 (0))

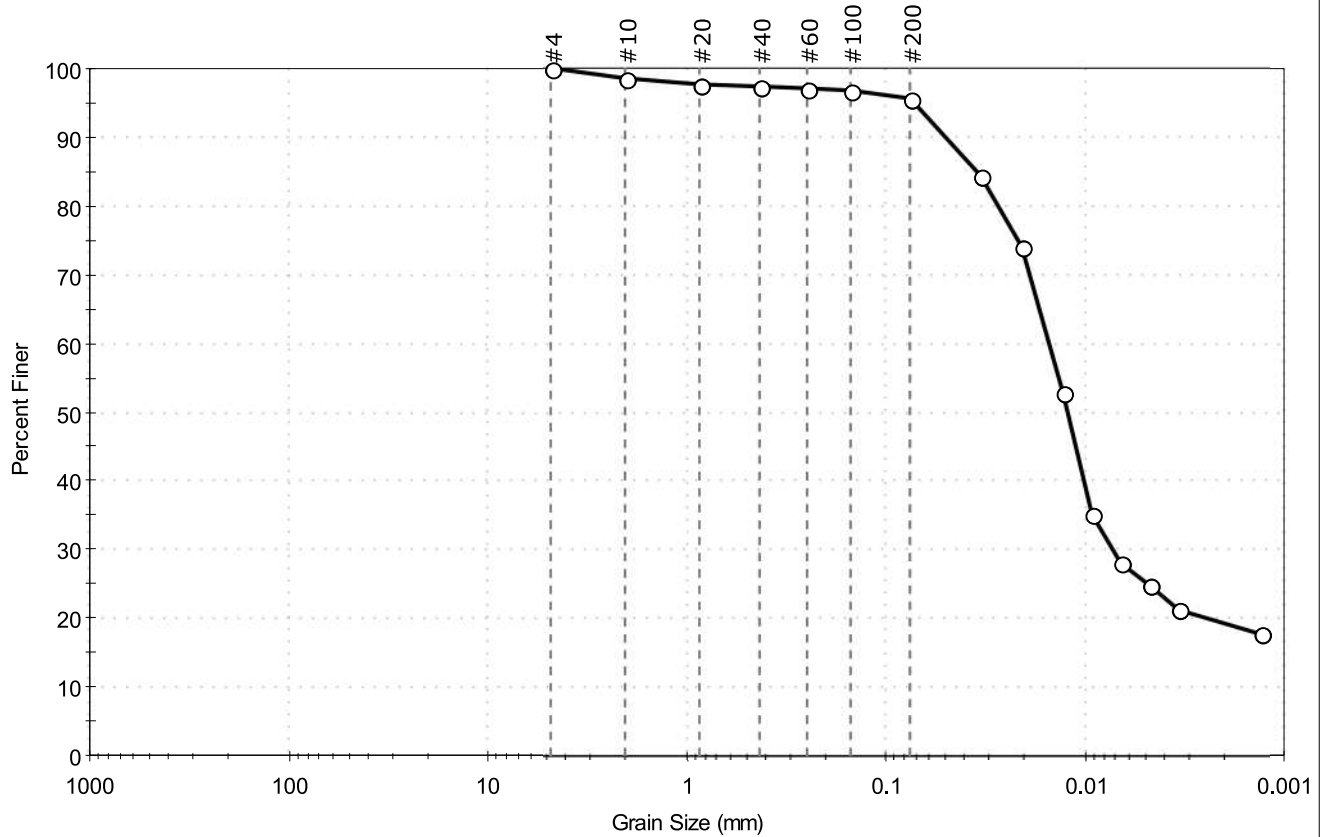
Sample/Test Description

Sand/Gravel Particle Shape : ---
 Sand/Gravel Hardness : ---
 Dispersion Device : Apparatus A - Mech Mixer
 Dispersion Period : 1 minute
 Est. Specific Gravity : 2.65
 Separation of Sample: #200 Sieve



Client: Haley & Aldrich, Inc.	Project: New London State Pier	Location: New London, CT	Project No: GTX-311544
Boring ID: CHEM-10	Sample Type: bag	Tested By: ckg	Checked By: bfs
Sample ID: CHEM-10 S2 (1.7-3.7)	Test Date: 04/10/20	Test Id: 552982	
Depth: 1.7-3.7 ft			
Test Comment: ---	Visual Description: Moist, dark grayish brown silt		
Sample Comment: ---			

Particle Size Analysis - ASTM D422



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.1	4.3	95.6

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	99		
#20	0.85	98		
#40	0.42	97		
#60	0.25	97		
#100	0.15	97		
#200	0.075	96		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0336	84		
---	0.0205	74		
---	0.0127	53		
---	0.0092	35		
---	0.0066	28		
---	0.0047	25		
---	0.0034	21		
---	0.0013	18		

<u>Coefficients</u>	
D ₈₅ = 0.0350 mm	D ₃₀ = 0.0072 mm
D ₆₀ = 0.0150 mm	D ₁₅ = N/A
D ₅₀ = 0.0121 mm	D ₁₀ = N/A
C _u = N/A	C _c = N/A

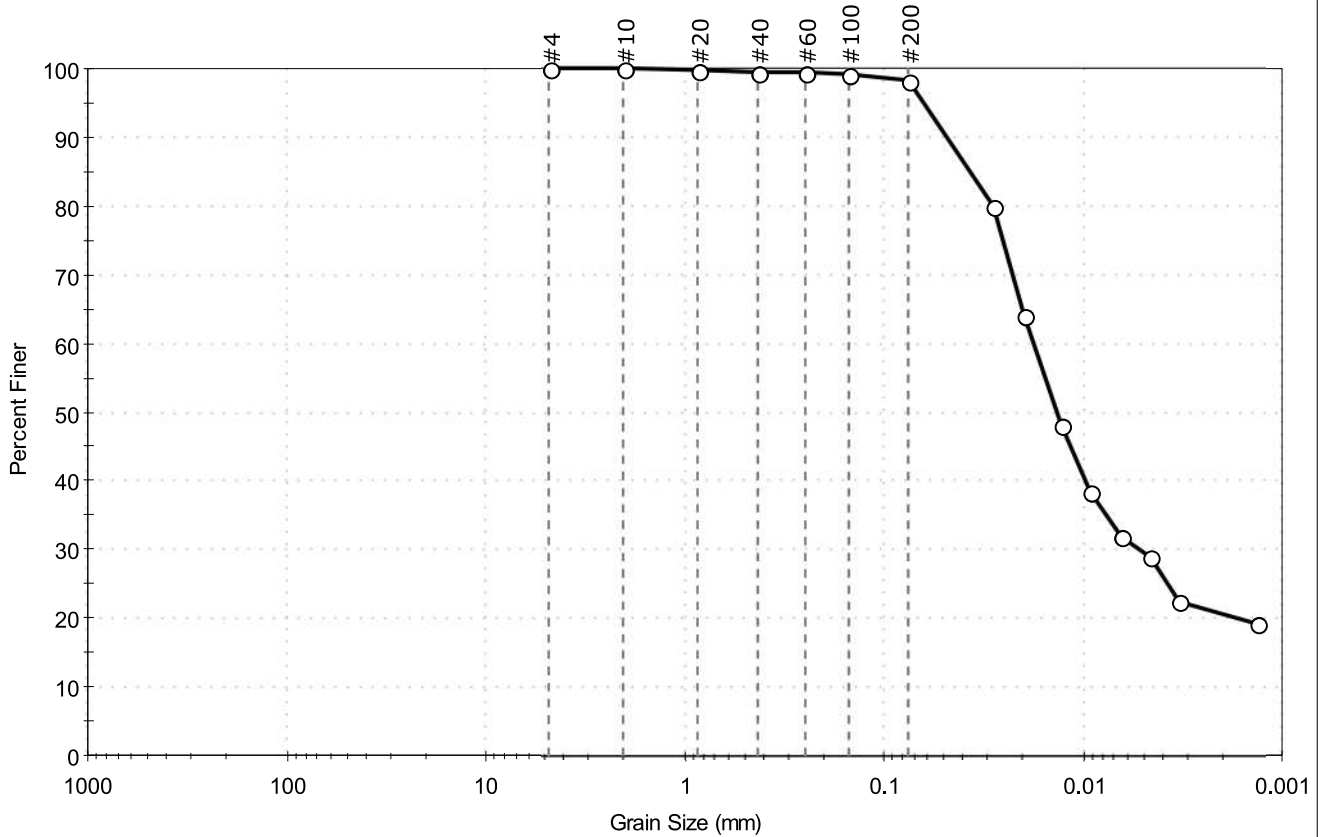
<u>Classification</u>	
ASTM	N/A
AASHTO	Silty Soils (A-4 (0))

<u>Sample/Test Description</u>
Sand/Gravel Particle Shape : ---
Sand/Gravel Hardness : ---
Dispersion Device : Apparatus A - Mech Mixer
Dispersion Period : 1 minute
Est. Specific Gravity : 2.65
Separation of Sample: #200 Sieve



Client: Haley & Aldrich, Inc.
 Project: New London State Pier
 Location: New London, CT
 Project No: GTX-311544
 Boring ID: CHEM-11
 Sample Type: bag
 Tested By: ckg
 Sample ID: CHEM-11 S1 (0-7)
 Test Date: 04/10/20
 Checked By: bfs
 Depth: 0-7 ft
 Test Id: 552983
 Test Comment: ---
 Visual Description: Moist, very dark gray silt
 Sample Comment: ---

Particle Size Analysis - ASTM D422



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	1.8	98.2

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	100		
#40	0.42	100		
#60	0.25	99		
#100	0.15	99		
#200	0.075	98		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0284	80		
---	0.0198	64		
---	0.0127	48		
---	0.0091	38		
---	0.0064	32		
---	0.0046	29		
---	0.0033	22		
---	0.0013	19		

Coefficients

D ₈₅ = 0.0371 mm	D ₃₀ = 0.0052 mm
D ₆₀ = 0.0177 mm	D ₁₅ = N/A
D ₅₀ = 0.0134 mm	D ₁₀ = N/A
C _u = N/A	C _c = N/A

Classification

ASTM N/A

AASHTO Silty Soils (A-4 (0))

Sample/Test Description

Sand/Gravel Particle Shape : ---

Sand/Gravel Hardness : ---

Dispersion Device : Apparatus A - Mech Mixer

Dispersion Period : 1 minute

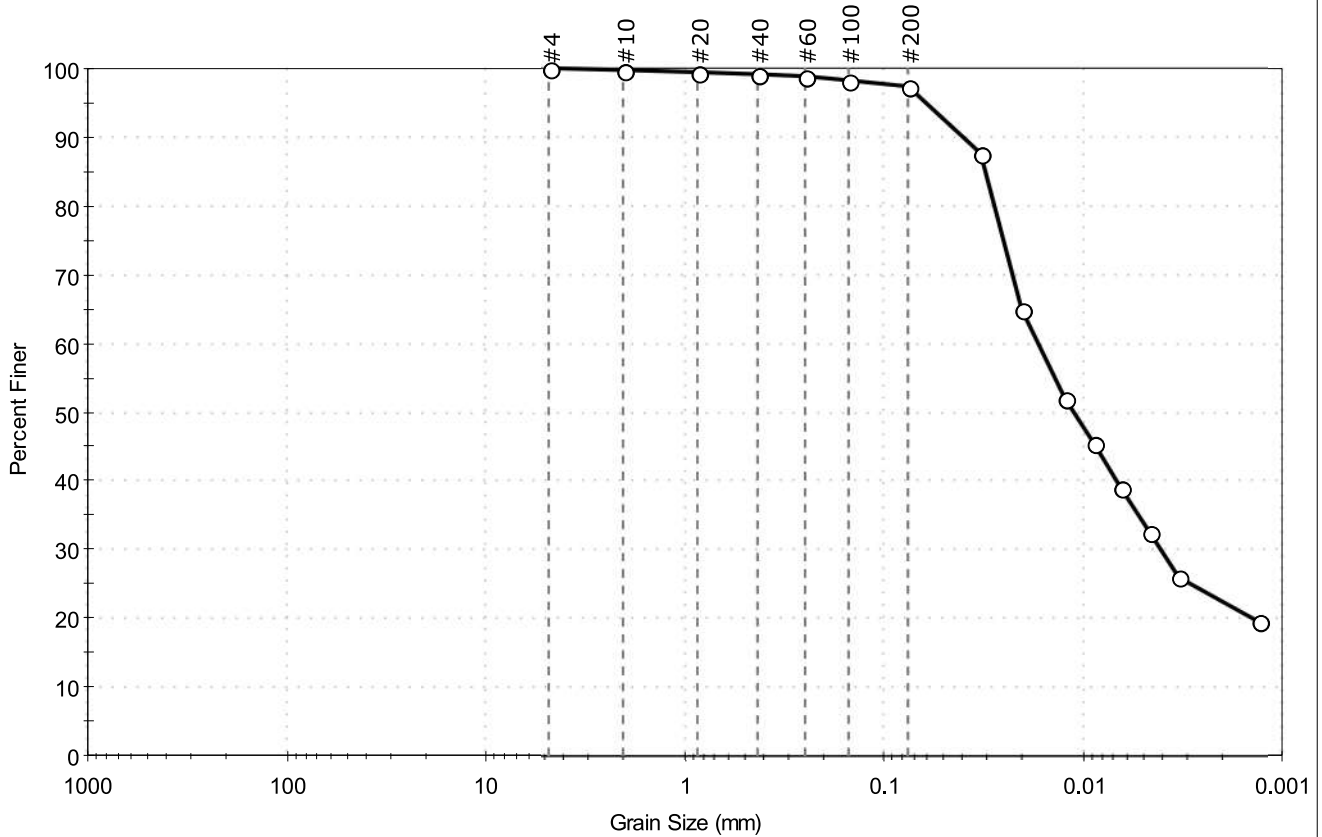
Est. Specific Gravity : 2.65

Separation of Sample: #200 Sieve



Client: Haley & Aldrich, Inc.
 Project: New London State Pier
 Location: New London, CT
 Project No: GTX-311544
 Boring ID: CHEM-11
 Sample Type: bag
 Tested By: ckg
 Sample ID: CHEM-11 S2 (7-12.7)
 Test Date: 04/10/20
 Checked By: bfs
 Depth: 7-12.7 ft
 Test Id: 552984
 Test Comment: ---
 Visual Description: Moist, very dark gray silt
 Sample Comment: ---

Particle Size Analysis - ASTM D422



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	2.7	97.3

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	99		
#40	0.42	99		
#60	0.25	99		
#100	0.15	98		
#200	0.075	97		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0325	88		
---	0.0203	65		
---	0.0123	52		
---	0.0087	45		
---	0.0064	39		
---	0.0046	32		
---	0.0033	26		
---	0.0013	19		

Coefficients

D ₈₅ = 0.0308 mm	D ₃₀ = 0.0040 mm
D ₆₀ = 0.0169 mm	D ₁₅ = N/A
D ₅₀ = 0.0111 mm	D ₁₀ = N/A
C _u = N/A	C _c = N/A

Classification

ASTM	N/A
AASHTO	Silty Soils (A-4 (0))

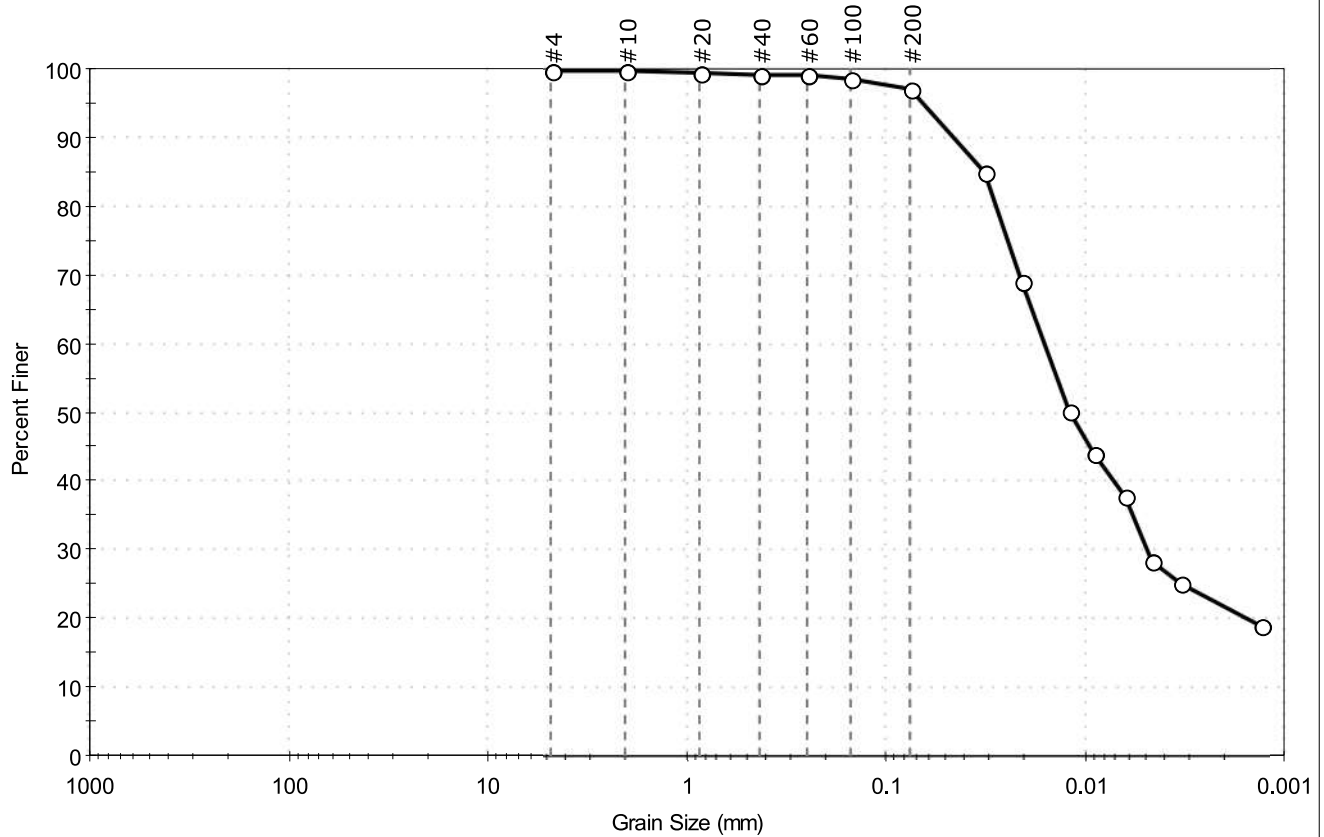
Sample/Test Description

Sand/Gravel Particle Shape : ---
 Sand/Gravel Hardness : ---
 Dispersion Device : Apparatus A - Mech Mixer
 Dispersion Period : 1 minute
 Est. Specific Gravity : 2.65
 Separation of Sample: #200 Sieve



Client: Haley & Aldrich, Inc.
 Project: New London State Pier
 Location: New London, CT
 Project No: GTX-311544
 Boring ID: CHEM-11
 Sample Type: bag
 Tested By: ckg
 Sample ID: CHEM-11 S3 (12.7-14.7)
 Test Date: 04/10/20
 Checked By: bfs
 Depth: 12.7-14.7 ft
 Test Id: 552985
 Test Comment: ---
 Visual Description: Moist, dark gray silt
 Sample Comment: ---

Particle Size Analysis - ASTM D422



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.2	2.8	97.0

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	99		
#40	0.42	99		
#60	0.25	99		
#100	0.15	98		
#200	0.075	97		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0317	85		
---	0.0208	69		
---	0.0120	50		
---	0.0090	44		
---	0.0064	38		
---	0.0046	28		
---	0.0033	25		
---	0.0013	19		

Coefficients

D ₈₅ = 0.0320 mm	D ₃₀ = 0.0049 mm
D ₆₀ = 0.0160 mm	D ₁₅ = N/A
D ₅₀ = 0.0119 mm	D ₁₀ = N/A
C _u = N/A	C _c = N/A

Classification

ASTM N/A

AASHTO Silty Soils (A-4 (0))

Sample/Test Description

Sand/Gravel Particle Shape : ---

Sand/Gravel Hardness : ---

Dispersion Device : Apparatus A - Mech Mixer

Dispersion Period : 1 minute

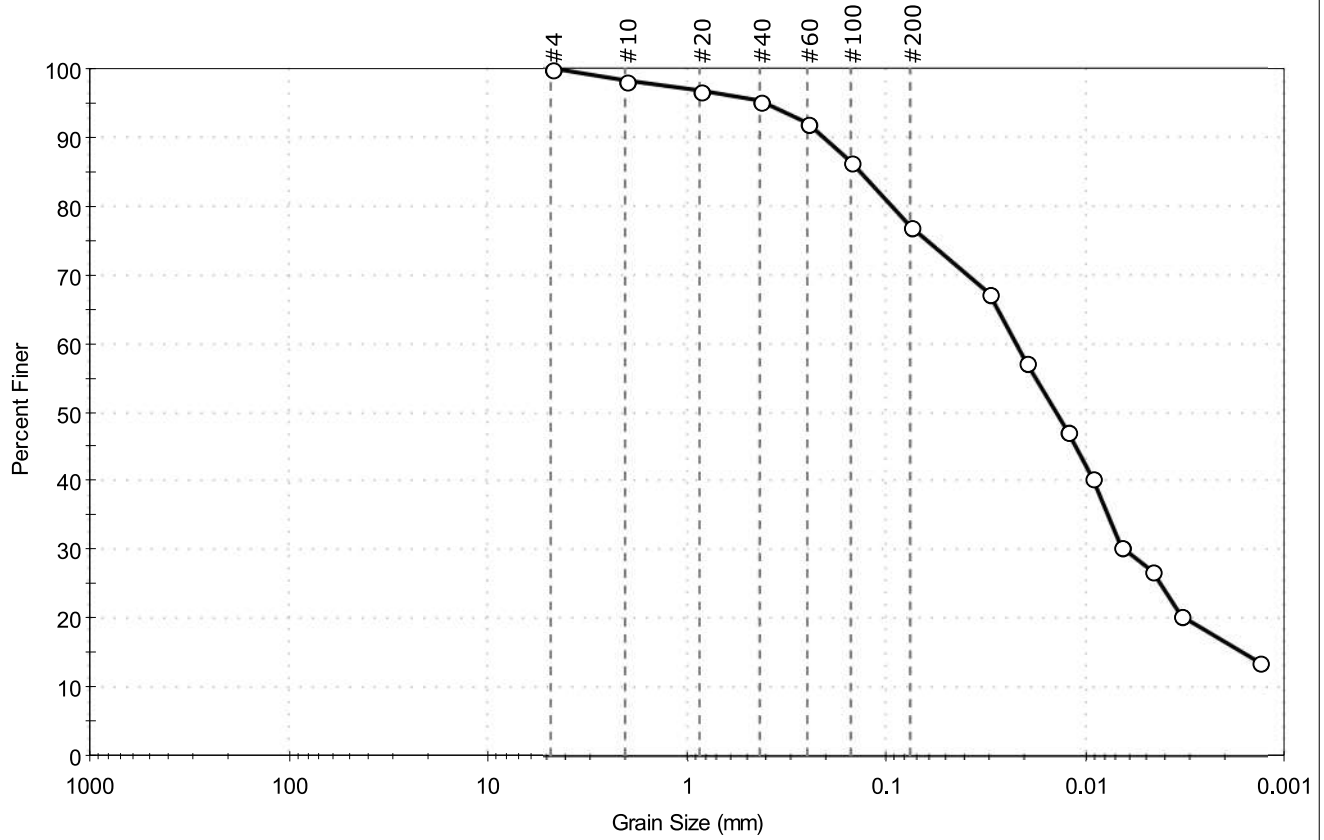
Est. Specific Gravity : 2.65

Separation of Sample: #200 Sieve



Client: Haley & Aldrich, Inc.	Project: New London State Pier	Location: New London, CT	Project No: GTX-311544
Boring ID: CHEM-12	Sample Type: bag	Tested By: ckg	
Sample ID: CHEM-12 S1 (0-9)	Test Date: 04/10/20	Checked By: bfs	
Depth: 0-9 ft	Test Id: 552986		
Test Comment: ---			
Visual Description: Moist, very dark grayish brown silt with sand			
Sample Comment: ---			

Particle Size Analysis - ASTM D422



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	23.0	77.0

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	98		
#20	0.85	97		
#40	0.42	95		
#60	0.25	92		
#100	0.15	87		
#200	0.075	77		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0306	67		
---	0.0199	57		
---	0.0123	47		
---	0.0091	40		
---	0.0065	30		
---	0.0046	27		
---	0.0033	20		
---	0.0013	13		

Coefficients	
D ₈₅ = 0.1342 mm	D ₃₀ = 0.0063 mm
D ₆₀ = 0.0223 mm	D ₁₅ = 0.0016 mm
D ₅₀ = 0.0141 mm	D ₁₀ = N/A
C _u = N/A	C _c = N/A

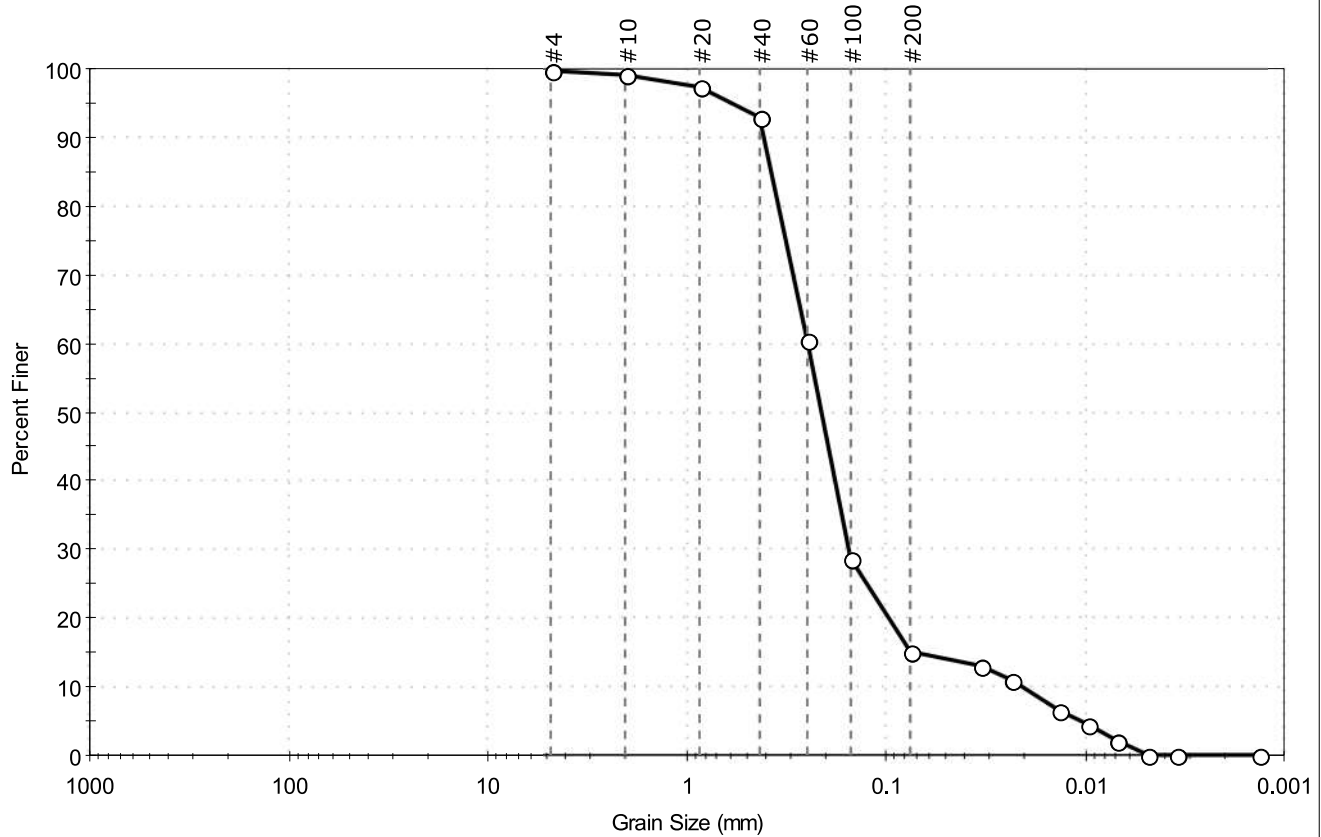
Classification	
ASTM	N/A
AASHTO	Silty Soils (A-4 (0))

Sample/Test Description
Sand/Gravel Particle Shape : ---
Sand/Gravel Hardness : ---
Dispersion Device : Apparatus A - Mech Mixer
Dispersion Period : 1 minute
Est. Specific Gravity : 2.65
Separation of Sample: #200 Sieve



Client: Haley & Aldrich, Inc.	Project: New London State Pier	Location: New London, CT	Project No: GTX-311544
Boring ID: CHEM-12	Sample Type: bag	Tested By: ckg	Checked By: bfs
Sample ID: CHEM-12 S2 (9-22.7)	Test Date: 04/10/20	Test Id: 552987	
Depth: 9-22.7 ft			
Test Comment: ---	Visual Description: Moist, grayish brown silty sand	Sample Comment: ---	

Particle Size Analysis - ASTM D422



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.1	84.8	15.1

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	99		
#20	0.85	97		
#40	0.42	93		
#60	0.25	60		
#100	0.15	29		
#200	0.075	15		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0333	13		
---	0.0233	11		
---	0.0134	6		
---	0.0096	4		
---	0.0069	2		
---	0.0049	0		
---	0.0034	0		
---	0.0013	0		

<u>Coefficients</u>	
D ₈₅ = 0.3742 mm	D ₃₀ = 0.1536 mm
D ₆₀ = 0.2485 mm	D ₁₅ = 0.0725 mm
D ₅₀ = 0.2117 mm	D ₁₀ = 0.0211 mm
C _u = 11.777	C _c = 4.500

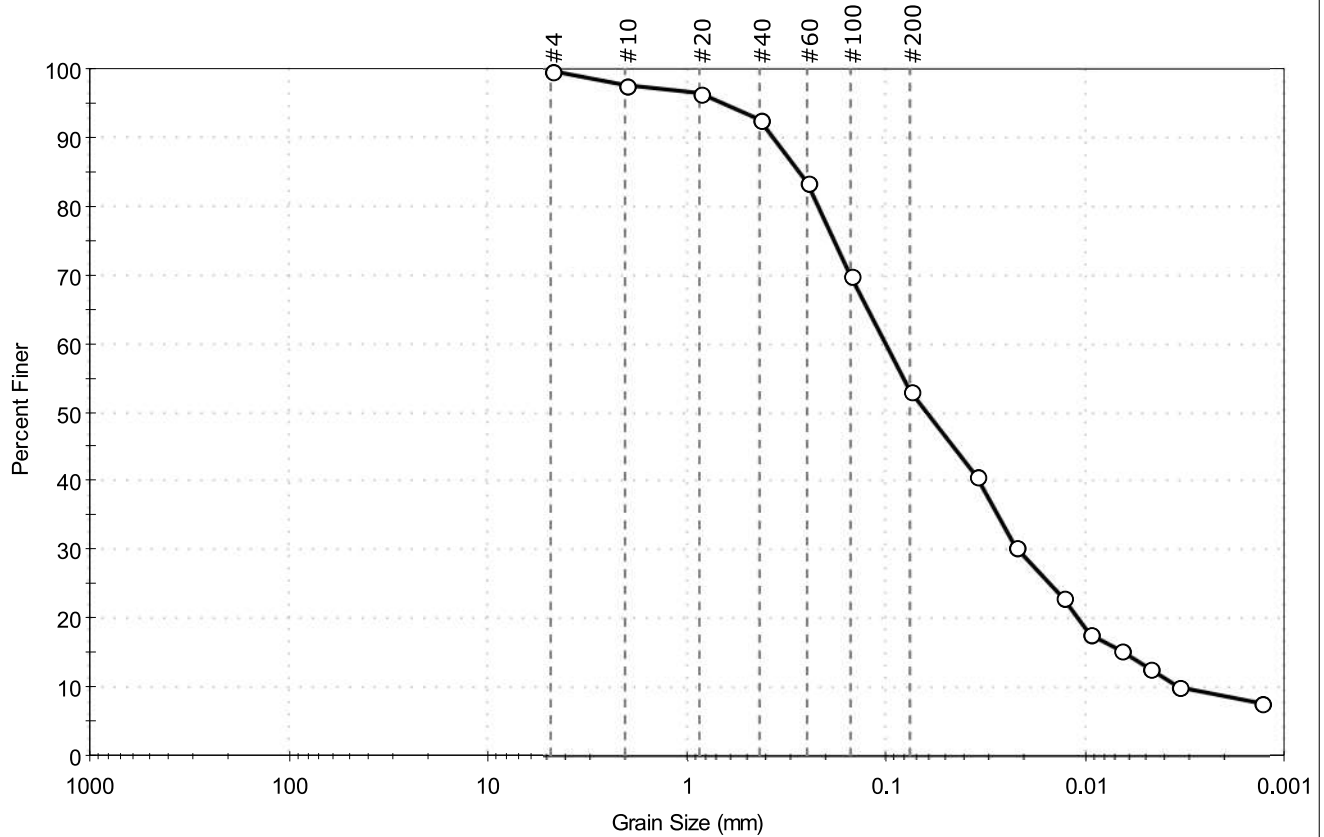
<u>Classification</u>	
ASTM	N/A
AASHTO	Silty Gravel and Sand (A-2-4 (0))

<u>Sample/Test Description</u>
Sand/Gravel Particle Shape : ---
Sand/Gravel Hardness : ---
Dispersion Device : Apparatus A - Mech Mixer
Dispersion Period : 1 minute
Est. Specific Gravity : 2.65
Separation of Sample: #200 Sieve



Client:	Haley & Aldrich, Inc.		
Project:	New London State Pier		
Location:	New London, CT	Project No:	GTX-311544
Boring ID:	CHEM-12	Sample Type:	bag
Sample ID:	CHEM-12 S3 (22.7-24.7)	Test Date:	04/10/20
Depth :	22.7-24.7 ft	Test Id:	552988
Test Comment:	---		
Visual Description:	Moist, very dark gray sandy silt		
Sample Comment:	---		

Particle Size Analysis - ASTM D422



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.2	46.6	53.2

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	98		
#20	0.85	97		
#40	0.42	93		
#60	0.25	83		
#100	0.15	70		
#200	0.075	53		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0348	41		
---	0.0220	31		
---	0.0129	23		
---	0.0094	18		
---	0.0066	15		
---	0.0047	13		
---	0.0034	10		
---	0.0013	8		

<u>Coefficients</u>	
D ₈₅ = 0.2730 mm	D ₃₀ = 0.0213 mm
D ₆₀ = 0.0994 mm	D ₁₅ = 0.0064 mm
D ₅₀ = 0.0616 mm	D ₁₀ = 0.0032 mm
C _u = 31.062	C _c = 1.426

<u>Classification</u>	
ASTM	N/A
AASHTO	Silty Soils (A-4 (0))

<u>Sample/Test Description</u>
Sand/Gravel Particle Shape : ---
Sand/Gravel Hardness : ---
Dispersion Device : Apparatus A - Mech Mixer
Dispersion Period : 1 minute
Est. Specific Gravity : 2.65
Separation of Sample: #200 Sieve

APPENDIX D

Laboratory Soil Analytical Data Reports

JPA Attachment M2C. Appendix D – Laboratory Soil Analytical Data Reports

Haley & Aldrich report entitled *Environmental Data Report: State Pier Infrastructure Improvements; State Pier Complex; New London, Connecticut* (April 2020) has been provided to DEEP and USACE electronically, under separate cover.

To limit document size, Appendix D of this Haley & Aldrich Report (Laboratory Results: ~700 pages) is excluded from this JPA. Report copies are available upon request.