APPENDIX B: Geotechnical Boring Logs

GBA ENGINEERS ★ SURVEYORS

Boring Designation FD24-B-01

DRILLING LOG	DIVISION: North Atlantic Division	INSTALLATION: New England District	SHEET 1 OF 1 SHEETS
CONTRACT NO.: W912DS22D0017 TASK ORDER NO.: W912WJ24F0024 PROJECT NAME: Subsurface Exploration of New Haven Harbor		9. COORDINATE SYSTEM: State Plane - Connecticut; HORIZONTAL: NAD83; VERTICAL: MLLW 10. SIZE AND TYPE OF BIT: Mud Rotary (4" Tricone Roller)	
2. HOLE NUMBER: FD24-B-01	LOCATION COORDINATES: N 640196.5 E 956643.2	11. MANUFACTURER'S DESIGNATION OF DRILL: ADT-240, CME-55, autohammer efficiency 83.2% (08/30/23)	
3. DRILLING AGENCY: Aquifer Drilling & Testing (ADT)- A Cascade Company		12. TOTAL SAMPLES: DISTURBED 10; UNDISTURBED 0	
4. NAME OF DRILLER: Dominick Pepe		13. TOTAL NUMBER CORE BOXES: 0	
5. DIRECTION OF BORING: ☒ VERTICAL ☐ INCLINED	DEG FROM VERTICAL: --- BEARING:	14. ELEVATION GROUND WATER: See Remarks	
		15. DATE BORING: STARTED 7/22/24 COMPLETED 7/22/24	
6. THICKNESS OF OVERBURDEN: >20'		16. ELEVATION TOP OF BORING: -36.5' (Measured in field)	
7. DEPTH DRILLED INTO ROCK: 0'		17. TOTAL CORE RECOVERY FOR BORING: N/A	
8. TOTAL DEPTH OF BORING: 20'		18. SIGNATURE AND TITLE OF INSPECTOR: Loukas Rimanelli, Geologist	

ELEV	DEPTH	LEGEND	FIELD CLASSIFICATION OF MATERIALS (Description)	% REC	Samp No.	RQD %	REMARKS	Blows/ 0.5 ft	N-Value	
			POORLY GRADED SAND WITH SILT (SP-SM) (2.5Y 3/1), very dark gray, wet, very loose to loose, homogeneous, rapid dilatancy, medium to coarse sand, few shell fragments, Marine Sediments	75	SS-01		USCS - Gradation results and classification provided by CDM Smith Laboratory Autohammer, 140lbs, 30in drops, 2-inch diameter, 24 inches long split spoon used on all samples	6 6 2 2	8	0
				100	SS-02		Gravel: 0; Sand: 92; Fines: 8; MC: 18; SP-SM	3 4 5 3	9	3
-40.5	4.0		Some shell fragments	35	SS-03			0 0 0 1 WOH/1.5	0	
				100	SS-04			0 0 0 0 0 WOR/2.0	0	6
-46.5	10.0			40	SS-05			2 2 1 2	3	9
			SILTY SAND (SM) (2.5Y 3/1), very dark gray, wet, very loose, homogeneous, rapid dilatancy, fine to medium sand, few shell fragments	95	SS-06		Gravel: 3; Sand: 78; Fines: 18; MC: 31; SM	0 0 0 0 0 WOH/2.0	0	
-48.5	12.0									
			POORLY GRADED SAND (SP) (2.5Y 3/1), very dark gray, wet, very loose, homogeneous, rapid dilatancy, medium to coarse sand, some shell fragments	70	SS-07		Gravel: 0; Sand: 97; Fines: 3; MC: 24; SP	1 0 0 0 WOH/1.5	0	13
-50.5	14.0									
			ORGANIC SILT (OH) (2.5Y 3/1), very dark gray, wet, very soft, homogeneous, rapid dilatancy, trace fine sand, Organic Sediments	20	SS-08			3 0 0 1 WOH/1.0	0	
				75	SS-09		Gravel: 0; Sand: 4; Fines: 96; LL: 117; PI: 58; MC: 97; OH	0 0 0 0 0 WOH/2.0	0	16
				50	SS-10			4 1 1 1	2	
-56.5	20.0									19

BOTTOM OF BOREHOLE AT 20.0 ft
Boring terminated at EL -56.5' MLLW in ELASTIC SILT
Boring conducted from Northstar Marine Services, Inc. - Northstar L/B Vision

GBA ENGINEERS ★ SURVEYORS

Boring Designation FD24-B-02

DRILLING LOG	DIVISION: North Atlantic Division	INSTALLATION: New England District	SHEET 1 OF 1 SHEETS
CONTRACT NO.: W912DS22D0017 TASK ORDER NO.: W912WJ24F0024 PROJECT NAME: Subsurface Exploration of New Haven Harbor		9. COORDINATE SYSTEM: State Plane - Connecticut; HORIZONTAL: NAD83; VERTICAL: MLLW 10. SIZE AND TYPE OF BIT: Mud Rotary (4" Tricone Roller)	
2. HOLE NUMBER: FD24-B-02	LOCATION COORDINATES: N 643342.7 E 955065.9	11. MANUFACTURER'S DESIGNATION OF DRILL: ADT-240, CME-55, autohammer efficiency 83.2% (08/30/23)	
3. DRILLING AGENCY: Aquifer Drilling & Testing (ADT) - A Cascade Company		12. TOTAL SAMPLES: DISTURBED 13; UNDISTURBED 0	
4. NAME OF DRILLER: Dominick Pepe		13. TOTAL NUMBER CORE BOXES: 0	
5. DIRECTION OF BORING: ☒ VERTICAL ☐ INCLINED	DEG FROM VERTICAL: --- BEARING:	14. ELEVATION GROUND WATER: See Remarks	
		15. DATE BORING: STARTED 7/21/24 COMPLETED 7/21/24	
6. THICKNESS OF OVERBURDEN: >26'		16. ELEVATION TOP OF BORING: -33.3' (Measured in field)	
7. DEPTH DRILLED INTO ROCK: 0'		17. TOTAL CORE RECOVERY FOR BORING: N/A	
8. TOTAL DEPTH OF BORING: 26'		18. SIGNATURE AND TITLE OF INSPECTOR: Loukas Rimanelli, Geologist	

ELEV	DEPTH	LEGEND	FIELD CLASSIFICATION OF MATERIALS (Description)	% REC	Samp No.	RQD %	REMARKS	Blows/ 0.5 ft	N-Value
			POORLY GRADED SAND WITH SILT (SP-SM) (2.5Y 3/1), very dark gray, wet, very loose to loose, homogeneous, rapid dilatancy, medium to coarse sand, subangular to subrounded, trace shell fragments, Marine Sediments	50	SS-01		USCS - Gradation results and classification provided by CDM Smith Laboratory Autohammer, 140lbs, 30in drops, 2-inch diameter, 24 inches long split spoon used on all samples Gravel: 0; Sand: 95; Fines: 6; MC: 26; SP-SM	6 6 2 4	8
				25	SS-02			2 3 1 1	4
				20	SS-03			2 2 3 3	5
				75	SS-04			3 2 4 3	6
				50	SS-05			5 1 1 1	2
-43.3	10.0								
			SILTY SAND (SM) (2.5Y 3/1), very dark gray, wet, loose to medium dense, homogeneous, rapid dilatancy, fine sand	100	SS-06		Gravel: 0; Sand: 86; Fines: 14; MC: 28; SM	1 5 5 9	10
			Trace shell fragments	70	SS-07			8 6 5 5	11
				90	SS-08			7 5 6 6	11
-49.3	16.0								
			POORLY GRADED SAND WITH SILT (SP-SM) (2.5Y 3/1), very dark gray, wet, very loose to medium dense, homogeneous, rapid dilatancy, fine sand, subangular to subrounded	100	SS-09			0 0 0 0 WOR/2.0	0
				100	SS-10		Gravel: 0; Sand: 89; Fines: 12; MC: 24; SP-SM	0 3 4 5 WOR/0.5	7
				90	SS-11			2 1 3 4	4
			Fine to medium sand	60	SS-12			4 5 4 4	9
				90	SS-13			6 9 9 10	18
-59.3	26.0								

BOTTOM OF BOREHOLE AT 26.0 ft
Boring terminated at EL -59.3' MLLW in POORLY GRADED SAND WITH SILT
Boring conducted from Northstar Marine Services, Inc. - Northstar L/B Vision

GBA ENGINEERS ★ SURVEYORS

Boring Designation FD24-B-03

DRILLING LOG

DIVISION: North Atlantic Division	INSTALLATION: New England District	SHEET 1 OF 1 SHEETS	
CONTRACT NO.: W912DS22D0017	9. COORDINATE SYSTEM: State Plane - Connecticut	HORIZONTAL: NAD83	VERTICAL: MLLW
TASK ORDER NO.: W912WJ24F0024	10. SIZE AND TYPE OF BIT: Mud Rotary (4" Tricone Roller)		
PROJECT NAME: Subsurface Exploration of New Haven Harbor			
2. HOLE NUMBER: FD24-B-03	LOCATION COORDINATES: N 644903.8 E 954968.8	11. MANUFACTURER'S DESIGNATION OF DRILL: ADT-240, CME-55, autohammer efficiency 83.2% (08/30/23)	
3. DRILLING AGENCY: Aquifer Drilling & Testing (ADT) - A Cascade Company		12. TOTAL SAMPLES	DISTURBED: 16 / UNDISTURBED: 0
4. NAME OF DRILLER: Dominick Pepe		13. TOTAL NUMBER CORE BOXES: 0	
5. DIRECTION OF BORING: ☒ VERTICAL ☐ INCLINED	DEG FROM VERTICAL: ---	BEARING	14. ELEVATION GROUND WATER: See Remarks
		15. DATE BORING	STARTED: 7/20/24 / COMPLETED: 7/20/24
6. THICKNESS OF OVERBURDEN: >32'		16. ELEVATION TOP OF BORING: -28.5' (Measured in field)	
7. DEPTH DRILLED INTO ROCK: 0'		17. TOTAL CORE RECOVERY FOR BORING: N/A	
8. TOTAL DEPTH OF BORING: 32'		18. SIGNATURE AND TITLE OF INSPECTOR: Loukas Rimanelli, Geologist	

ELEV	DEPTH	LEGEND	FIELD CLASSIFICATION OF MATERIALS (Description)	% REC	Samp No.	RQD %	REMARKS	Blows/ 0.5 ft	N-Value
			SILTY SAND (SM) (10YR 3/1), very dark gray, saturated, very loose to medium dense, homogeneous, medium to coarse sand, subangular to subrounded, some shell fragments, Marine Sediments	75	SS-01		USCS - Gradation results and classification provided by CDM Smith Laboratory Autohammer, 140lbs, 30in drops, 2-inch diameter, 24 inches long split spoon used on all samples Gravel: 1; Sand: 84; Fines: 15; MC: 34; SM	4 3 0 0 WOH/1.0	3
				75	SS-02			0 0 0 0 WOR/1.0 WOH/1.0	0
				25	SS-03			0 0 0 0 WOH/2.0	0
				45	SS-04			0 0 0 0 WOR/2.0	0
				30	SS-05			0 0 0 0 WOH/2.0	0
				30	SS-06			0 0 0 0 WOH/2.0	0
-42.5	14.0			80	SS-07			0 0 0 0 WOR/2.0	0
			Fine to medium sand, little fine gravel	100	SS-08		Gravel: 11; Sand: 75; Fines: 14; MC: 30; SM	0 1 2 1 WOH/0.5	3
-46.5	18.0			100	SS-09			0 0 0 0 WOR/2.0	0
-48.5	20.0		Few shell fragments, no fine gravel	45	SS-10			3 4 0 0	4
-50.5	22.0		Medium to coarse sand	100	SS-11			2 4 1 2	5
-52.5	24.0		Trace gravel	25	SS-12		drive casing	6 5 4 6	9
-54.5	26.0		Few gravel	25	SS-13			7 4 4 2	8
-57.4	28.9		(10YR 4/2), dark grayish brown	25	SS-14			7 7 7 7	14
-58.1	29.6		WELL GRADED GRAVEL WITH SAND (GW) (10YR 4/2), dark grayish brown, dense, fine gravel	85	SS-15			17 19 26 49	45
-60.5	32.0		POORLY GRADED SAND (SP) (10YR 4/2), dark grayish brown, dense, fine to medium sand, subangular to subrounded, some gravel	90	SS-16			15 16 31 45	47

BOTTOM OF BOREHOLE AT 32.0 ft

Boring terminated at EL -60.5' MLLW in POORLY GRADED SAND

Boring conducted from Northstar Marine Services, Inc. - Northstar L/B Vision

GBA ENGINEERS ★ SURVEYORS

Boring Designation FD24-B-04

DRILLING LOG	DIVISION: North Atlantic Division	INSTALLATION: New England District	SHEET 1 OF 1 SHEETS
CONTRACT NO.: W912DS22D0017 TASK ORDER NO.: W912WJ24F0024 PROJECT NAME: Subsurface Exploration of New Haven Harbor		9. COORDINATE SYSTEM: State Plane - Connecticut; HORIZONTAL: NAD83; VERTICAL: MLLW 10. SIZE AND TYPE OF BIT: Mud Rotary (4" Tricone Roller)	
2. HOLE NUMBER: FD24-B-04	LOCATION COORDINATES: N 646663.5 E 953725.5	11. MANUFACTURER'S DESIGNATION OF DRILL: ADT-240, CME-55, autohammer efficiency 83.2% (08/30/23)	
3. DRILLING AGENCY: Aquifer Drilling & Testing (ADT) - A Cascade Company		12. TOTAL SAMPLES: DISTURBED 19; UNDISTURBED 0	
4. NAME OF DRILLER: Dominick Pepe		13. TOTAL NUMBER CORE BOXES: 0	
5. DIRECTION OF BORING: ☒ VERTICAL ☐ INCLINED	DEG FROM VERTICAL: --- BEARING:	14. ELEVATION GROUND WATER: See Remarks	
		15. DATE BORING: STARTED 7/19/24 COMPLETED 7/19/24	
6. THICKNESS OF OVERBURDEN: >38'		16. ELEVATION TOP OF BORING: -24.4' (Est. from GBA April '24 Bathy)	
7. DEPTH DRILLED INTO ROCK: 0'		17. TOTAL CORE RECOVERY FOR BORING: N/A	
8. TOTAL DEPTH OF BORING: 38'		18. SIGNATURE AND TITLE OF INSPECTOR: Loukas Rimanelli, Geologist	

ELEV	DEPTH	LEGEND	FIELD CLASSIFICATION OF MATERIALS (Description)	% REC	Samp No.	RQD %	REMARKS	Blows/ 0.5 ft	N-Value
			POORLY GRADED SAND WITH SILT (SP-SM) (10YR 3/1), very dark gray, wet, medium dense to very dense, homogeneous, medium to coarse sand, subangular to subrounded, some shell fragments, Marine Sediments		SS-01		USCS - Gradation results and classification provided by CDM Smith Laboratory Autohammer, 140lbs, 30in drops, 2-inch diameter, 24 inches long split spoon used on all samples Gravel: 1; Sand: 92; Fines: 7; MC: 19; SP-SM	3 6 10 4	16
-26.4	2.0				SS-02			14 28 46 32	74
			(2.5YR 4/3), reddish brown, fine to medium sand, few gravel		SS-03			0 2 2 4	4
-28.4	4.0								
			(2.5YR 5/2), weak red, very loose to loose, fine to coarse sand, subangular to subrounded, few shell fragments		SS-04			5 5 5 7	10
-30.4	6.0								
			(7.5YR 5/3), brown		SS-05		Gravel: 0; Sand: 59; Fines: 41; MC: 25; SM	4 2 2 3	4
-32.4	8.0		SILTY SAND (SM) (5YR 3/4), dark reddish brown / moderate brown, wet, loose to medium dense, homogeneous, rapid dilatancy, fine sand		SS-06			3 3 5 7	8
					SS-07			8 7 6 7	13
					SS-08			10 11 10 13	21
-40.4	16.0				SS-09		Gravel: 0; Sand: 24; Fines: 77; MC: 28; ML	16 19 14 13	33
			SILT (ML) (5YR 3/4), dark reddish brown / moderate brown, wet, soft to very stiff, homogeneous, low plasticity, rapid dilatancy	60	SS-10			4 5 5 5	10
				100	SS-11			3 5 6 7	11
				40	SS-12			3 0 4 3 WOH/0.5	4
				100	SS-13			5 5 7 13	12
				100	SS-14			3 3 4 5	7
-52.4	28.0								
			ELASTIC SILT (MH) (7.5YR 4/2), brown , wet, soft to stiff, homogeneous, medium plasticity, rapid dilatancy	100	SS-15		Gravel: 0; Sand: 3; Fines: 97; MC: 37; MH	4 5 4 5	9
				100	SS-16			2 2 3 3	5
				100	SS-17			5 5 5 6	10
				100	SS-18			2 2 2 3	4
				100	SS-19			2 4 4 5	8
-62.4	38.0								

BOTTOM OF BOREHOLE AT 38.0 ft
Boring terminated at EL -62.4' MLLW in ELASTIC SILT
Boring conducted from Northstar Marine Services, Inc. - Northstar L/B Vision

GBA ENGINEERS ★ SURVEYORS

Boring Designation FD24-B-05

DRILLING LOG	DIVISION: North Atlantic Division	INSTALLATION: New England District	SHEET 1 OF 1 SHEETS
CONTRACT NO.: W912DS22D0017 TASK ORDER NO.: W912WJ24F0024 PROJECT NAME: Subsurface Exploration of New Haven Harbor		9. COORDINATE SYSTEM: State Plane - Connecticut; HORIZONTAL: NAD83; VERTICAL: MLLW 10. SIZE AND TYPE OF BIT: Mud Rotary (4" Tricone Roller)	
2. HOLE NUMBER: FD24-B-05	LOCATION COORDINATES: N 648476.7 E 954065.8	11. MANUFACTURER'S DESIGNATION OF DRILL: ADT-240, CME-55, autohammer efficiency 83.2% (08/30/23)	
3. DRILLING AGENCY: Aquifer Drilling & Testing (ADT) - A Cascade Company		12. TOTAL SAMPLES: DISTURBED 12; UNDISTURBED 0	
4. NAME OF DRILLER: Dominick Pepe		13. TOTAL NUMBER CORE BOXES: 0	
5. DIRECTION OF BORING: ☒ VERTICAL ☐ INCLINED	DEG FROM VERTICAL: --- BEARING:	14. ELEVATION GROUND WATER: See Remarks	
		15. DATE BORING: STARTED 7/24/24 COMPLETED 7/24/24	
6. THICKNESS OF OVERBURDEN: >24'		16. ELEVATION TOP OF BORING: -36.1' (Measured in field)	
7. DEPTH DRILLED INTO ROCK: 0'		17. TOTAL CORE RECOVERY FOR BORING: N/A	
8. TOTAL DEPTH OF BORING: 24'		18. SIGNATURE AND TITLE OF INSPECTOR: Loukas Rimanelli, Geologist	

ELEV	DEPTH	LEGEND	FIELD CLASSIFICATION OF MATERIALS (Description)	% REC	Samp No.	RQD %	REMARKS	Blows/ 0.5 ft	N-Value	
			POORLY GRADED SAND WITH SILT (SP-SM) (7.5YR 3/1), very dark gray , wet, very loose to medium dense, rapid dilatancy, medium to coarse sand, some shell fragments, Marine Sediments	70	SS-01		USCS - Gradation results and classification provided by CDM Smith Laboratory Autohammer, 140lbs, 30in drops, 2-inch diameter, 24 inches long split spoon used on all samples Gravel: 2; Sand: 91; Fines: 7; MC: 21; SP-SM	1 2 1 2	3	0
				90	SS-02			3 4 7 4	11	
-40.1	4.0		Few shell fragments							4
				25	SS-03			4 5 3 5	8	
-42.1	6.0									
			POORLY GRADED SAND (SP) (7.5YR 3/1), very dark gray , wet, loose, rapid dilatancy, medium to coarse sand, trace gravel	25	SS-04		Gravel: 1; Sand: 97; Fines: 1; MC: 19; SP	5 1 1 2	2	
				60	SS-05			5 3 2 1	5	8
-46.1	10.0									
			POORLY GRADED SAND WITH SILT (SP-SM) (7.5YR 3/1), very dark gray , wet, loose, rapid dilatancy, fine sand	40	SS-06			5 3 2 1	5	
-48.1	12.0									11
			WELL GRADED SAND (SW) (7.5YR 3/1), very dark gray , wet, very loose, rapid dilatancy, medium to coarse sand, with trace gravel	60	SS-07			2 2 1 0	3	
-50.1	14.0									
			POORLY GRADED SAND WITH SILT (SP-SM) (7.5YR 3/1), very dark gray , wet, very loose to loose, rapid dilatancy, fine sand	100	SS-08			1 1 2 3	3	
				25	SS-09			4 4 3 3	7	15
-54.1	18.0									
			POORLY GRADED SAND (SP) (5YR 4/1), dark gray / brownish gray, wet, medium dense, rapid dilatancy, fine to medium sand	60	SS-10			6 8 9 8	17	
				100	SS-11			2 5 11 11	16	19
				100	SS-12			7 7 9 15	16	
-60.1	24.0									23

BOTTOM OF BOREHOLE AT 24.0 ft
Boring terminated at EL -60.1' MLLW in POORLY GRADED SAND
Boring conducted from Northstar Marine Services, Inc. - Northstar L/B Vision

GBA ENGINEERS ★ SURVEYORS

Boring Designation FD24-B-06

DRILLING LOG

DIVISION	North Atlantic Division
INSTALLATION	New England District
SHEET	1 OF 1 SHEETS
CONTRACT NO.:	W912DS22D0017
TASK ORDER NO.:	W912WJ24F0024
PROJECT NAME:	Subsurface Exploration of New Haven Harbor
9. COORDINATE SYSTEM	State Plane - Connecticut
HORIZONTAL	NAD83
VERTICAL	MLLW
10. SIZE AND TYPE OF BIT	Mud Rotary (4" Tricone Roller)
2. HOLE NUMBER	FD24-B-06
LOCATION COORDINATES	N 650187.6 E 954731.2
11. MANUFACTURER'S DESIGNATION OF DRILL	ADT-240, CME-55, autohammer efficiency 83.2% (08/30/23)
3. DRILLING AGENCY	Aquifer Drilling & Testing (ADT) - A Cascade Company
12. TOTAL SAMPLES	DISTURBED 9 / UNDISTURBED 0
4. NAME OF DRILLER	Nick Marmolejo
13. TOTAL NUMBER CORE BOXES	0
5. DIRECTION OF BORING	☒ VERTICAL ☐ INCLINED; DEG FROM VERTICAL: ---; BEARING:
14. ELEVATION GROUND WATER	See Remarks
15. DATE BORING	STARTED 8/10/24 / COMPLETED 8/10/24
6. THICKNESS OF OVERBURDEN	>18.6'
16. ELEVATION TOP OF BORING	-30.5' (Measured in field)
7. DEPTH DRILLED INTO ROCK	0'
17. TOTAL CORE RECOVERY FOR BORING	N/A
8. TOTAL DEPTH OF BORING	18.6'
18. SIGNATURE AND TITLE OF INSPECTOR	Lindsay Pugh, PG, Geologist

ELEV	DEPTH	LEGEND	FIELD CLASSIFICATION OF MATERIALS (Description)	% REC	Samp No.	RQD %	REMARKS	Blows/ 0.5 ft	N-Value
			ORGANIC SILT (OH) (5Y 2.5/1), black , saturated, very soft, homogeneous, medium plasticity, rapid dilatancy, Organic Sediments	25	SS-01		USCS - Gradation results and classification provided by CDM Smith Laboratory Autohammer, 140lbs, 30in drops, 2-inch diameter, 24 inches long split spoon used on all samples torvane (1.0) (uncorrected): 0.0 kg/cm² pocket penetrometer (uncorrected): 0.0 tsf	0 0 0 0 WOR/2.0	0
				60	SS-02			0 0 0 0 WOR/2.0	0
				100	SS-03		Gravel: 0; Sand: 1; Fines: 99; LL: 106; PI: 59; MC: 102; OH	0 0 0 0 WOR/2.0	0
				100	SS-04			0 0 0 0 WOR/2.0	0
				100	SS-05			0 0 0 0 WOR/2.0	0
				100	SS-06			0 0 0 0 WOR/2.0	0
-43.1	12.6		ORGANIC CLAY (OH) (5Y 4/1), dark gray / olive gray, rapid dilatancy	100	SS-07		Gravel: 0; Sand: 2; Fines: 98; LL: 132; PI: 83; MC: 115; OH	0 0 0 0 WOR/2.0	0
				100	SS-08			0 0 0 0 WOR/2.0	0
				100	SS-09			0 0 0 0 WOR/2.0	0
-49.1	18.6								

0 3 6 9 12 15 18

BOTTOM OF BOREHOLE AT 18.6 ft

Boring terminated at -49.1' MLLW in ORGANIC CLAY

Boring conducted from Northstar Marine Services, Inc. - Northstar L/B Vision

GBA ENGINEERS ★ SURVEYORS

Boring Designation FD24-B-07

DRILLING LOG	DIVISION: North Atlantic Division	INSTALLATION: New England District	SHEET 1 OF 1 SHEETS
CONTRACT NO.: W912DS22D0017		9. COORDINATE SYSTEM: State Plane - Connecticut	HORIZONTAL: NAD83 / VERTICAL: MLLW
TASK ORDER NO.: W912WJ24F0024		10. SIZE AND TYPE OF BIT: Mud Rotary (4" Tricone Roller)	
PROJECT NAME: Subsurface Exploration of New Haven Harbor		11. MANUFACTURER'S DESIGNATION OF DRILL: ADT-240, CME-55, autohammer efficiency 83.2% (08/30/23)	
2. HOLE NUMBER: FD24-B-07	LOCATION COORDINATES: N 651713.3 E 954490.3	12. TOTAL SAMPLES	DISTURBED: 14 / UNDISTURBED: 0
3. DRILLING AGENCY: Aquifer Drilling & Testing (ADT) - A Cascade Company		13. TOTAL NUMBER CORE BOXES: 0	
4. NAME OF DRILLER: Jullian		14. ELEVATION GROUND WATER: See Remarks	
5. DIRECTION OF BORING: ☒ VERTICAL ☐ INCLINED	DEG FROM VERTICAL: --- / BEARING	15. DATE BORING	STARTED: 7/10/24 / COMPLETED: 7/10/24
6. THICKNESS OF OVERBURDEN: >29.5'		16. ELEVATION TOP OF BORING: -31' (Measured in field)	
7. DEPTH DRILLED INTO ROCK: 0'		17. TOTAL CORE RECOVERY FOR BORING: N/A	
8. TOTAL DEPTH OF BORING: 29.5'		18. SIGNATURE AND TITLE OF INSPECTOR: Lindsay Pugh, PG, Geologist	

ELEV	DEPTH	LEGEND	FIELD CLASSIFICATION OF MATERIALS (Description)	% REC	Samp No.	RQD %	REMARKS	Blows/ 0.5 ft	N-Value	
										0
-33.0	2.0		ORGANIC SILT (OH) (5Y 4/1), dark gray / olive gray, wet, very soft, homogeneous, some fine sand, and shell fragments, Organic Sediments	100	SS-01		USCS - Gradation results and classification provided by CDM Smith Laboratory Autohammer, 140lbs, 30in drops, 2-inch diameter, 24 inches long split spoon used on all samples Gravel: 0; Sand: 10; Fines: 90; LL: 106; PI: 58; MC: 114; OH	0 0 0 0 0 WOR/2.0	0	
			Little fine sand, and shell fragments	100	SS-02			0 0 0 0 0 WOR/2.0	0	
										5
				100	SS-03			0 0 0 0 0 WOR/2.0	0	
-40.2	9.2			100	SS-04			0 0 0 0 0 WOR/2.0	0	
			Some fine sand	100	SS-05			0 0 0 0 0 WOR/2.0	0	9
				100	SS-06			0 0 0 0 0 WOR/2.0	0	
							Switched from drag rotary bit to tricone roller bit,			
-46.5	15.5			100	SS-07			0 0 0 0 0 WOR/2.0	0	14
-48.9	17.9		SILTY SAND (SM) very loose, some shell fragments	100	SS-08		Gravel: 0; Sand: 56; Fines: 44; LL: 33; PI: 9; MC: 39; SM	0 0 0 0 0 WOR/2.0	0	
-50.5	19.5		POORLY GRADED SAND (SP) (7.5YR 3/2), dark brown , saturated, loose to medium dense, homogeneous, medium to coarse sand, trace fine sand, Marine Sediments	75	SS-09			4 4 7 7	11	19
-52.5	21.5		Fine to coarse sand	55	SS-10			1 3 7 7	10	
-54.5	23.5		Fine to medium sand	95	SS-11		drive 3ft of casing Gravel: 1; Sand: 96; Fines: 4; MC: 24; SP	2 3 5 6	8	
-56.5	25.5		Trace coarse sand	100	SS-12			3 4 5 6	9	23
-60.5	29.5		Fine to coarse sand, trace fine gravel	100	SS-13			6 6 7 7	13	
				100	SS-14			5 6 6 7	12	28

BOTTOM OF BOREHOLE AT 29.5 ft
Boring terminated at EL -60.5' MLLW in POORLY GRADED SAND
Boring conducted from Northstar Marine Services, Inc. - Northstar L/B Vision

GBA ENGINEERS ★ SURVEYORS

Boring Designation FD24-B-08

DRILLING LOG	DIVISION: North Atlantic Division	INSTALLATION: New England District	SHEET 1 OF 1 SHEETS
CONTRACT NO.: W912DS22D0017 TASK ORDER NO.: W912WJ24F0024 PROJECT NAME: Subsurface Exploration of New Haven Harbor		9. COORDINATE SYSTEM: State Plane - Connecticut; HORIZONTAL: NAD83; VERTICAL: MLLW	
		10. SIZE AND TYPE OF BIT: Mud Rotary (4" Tricone Roller)	
2. HOLE NUMBER: FD24-B-08	LOCATION COORDINATES: N 653153.8 E 955163.2	11. MANUFACTURER'S DESIGNATION OF DRILL: ADT-240, CME-55, autohammer efficiency 83.2% (08/30/23)	
3. DRILLING AGENCY: Aquifer Drilling & Testing (ADT) - A Cascade Company		12. TOTAL SAMPLES: DISTURBED 22; UNDISTURBED 0	
4. NAME OF DRILLER: Dominick Pepe		13. TOTAL NUMBER CORE BOXES: 0	
5. DIRECTION OF BORING: ☒ VERTICAL ☐ INCLINED	DEG FROM VERTICAL: --- BEARING:	14. ELEVATION GROUND WATER: See Remarks	
		15. DATE BORING: STARTED 7/23/24 COMPLETED 7/23/24	
6. THICKNESS OF OVERBURDEN: >44'		16. ELEVATION TOP OF BORING: -25.2' (Est. from GBA April '24 Bathy)	
7. DEPTH DRILLED INTO ROCK: 0'		17. TOTAL CORE RECOVERY FOR BORING: N/A	
8. TOTAL DEPTH OF BORING: 44'		18. SIGNATURE AND TITLE OF INSPECTOR: Loukas Rimanelli, Geologist	

ELEV	DEPTH	LEGEND	FIELD CLASSIFICATION OF MATERIALS (Description)	% REC	Samp No.	RQD %	REMARKS	Blows/ 0.5 ft	N-Value	
			ORGANIC SILT (OH) (GLEY1 3/5G_/1), very dark greenish gray, very dark greenish gray, wet, very soft, homogeneous, rapid dilatancy, Organic Sediments	100	SS-01		USCS - Gradation results and classification provided by CDM Smith Laboratory Autohammer, 140lbs, 30in drops, 2-inch diameter, 24 inches long split spoon used on all samples Gravel: 0; Sand: 11; Fines: 89; LL: 88; PI: 49; MC: 91; OH	0 0 0 0 0 WOR/2.0	0	0
				100	SS-02			0 0 0 0 0 WOH/2.0	0	
				40	SS-03			0 0 0 0 0 WOR/2.0	0	
-32.8	7.6			100	SS-04			0 0 1 3 WOR/1.0	1	7
			POORLY GRADED SAND WITH SILT (SP-SM) (2.5YR 3/2), dusky red, wet, medium dense, homogeneous, rapid dilatancy, medium to coarse sand, Marine Sediments	500	SS-05			4 5 6 6	11	
-37.2	12.0			70	SS-06		Gravel: 0; Sand: 92; Fines: 7; MC: 17; SP-SM	7 7 8 10	15	
			Some gravel	85	SS-07			8 10 12 12	22	14
-39.2	14.0									
-41.2	16.0		WELL GRADED GRAVEL (GW) (2.5YR 3/2), dusky red, wet, medium dense, homogeneous, fine gravel	35	SS-08			5 6 7 6	13	
-43.2	18.0		POORLY GRADED SAND WITH GRAVEL (SP) (2.5YR 3/2), dusky red, wet, medium dense, homogeneous, medium to coarse sand	35	SS-09		Gravel: 27; Sand: 70; Fines: 4; MC: 13; SP	8 8 10 16	18	
			SILTY SAND (SM) (5YR 3/3), dark reddish brown , wet, loose to medium dense, homogeneous, fine sand	35	SS-10			4 4 6 6	10	
				30	SS-11		Gravel: 0; Sand: 79; Fines: 21; MC: 25; SM	2 2 3 2	5	21
				80	SS-12			6 9 7 11	16	
				35	SS-13			5 5 6 7	11	
				75	SS-14			6 9 7 7	16	
-55.2	30.0			65	SS-15			4 6 6 6	12	28
-57.2	32.0		SANDY SILT (ML) (5YR 3/3), dark reddish brown , wet, very stiff, homogeneous, no dilatancy, fine sand	100	SS-16			4 8 11 13	19	
			SILTY SAND (SM) (5YR 3/3), dark reddish brown , wet, medium dense, homogeneous, slow dilatancy, fine sand	100	SS-17		Gravel: 0; Sand: 52; Fines: 48; MC: 25; SM	7 7 8 10	15	
				100	SS-18			6 8 9 11	17	35
				75	SS-19			5 7 7 9	14	
				75	SS-20			6 7 10 10	17	
				70	SS-21			6 8 9 10	17	41
-69.2	44.0			100	SS-22			11 8 12 24	20	

BOTTOM OF BOREHOLE AT 44.0 ft
Boring terminated at EL -69.16' MLLW in SILTY SAND
Boring conducted from Northstar Marine Services, Inc. - Northstar L/B Vision

GBA ENGINEERS ★ SURVEYORS

Boring Designation FD24-B-09

DRILLING LOG

DIVISION: North Atlantic Division		INSTALLATION: New England District	SHEET 1 OF 1 SHEETS
CONTRACT NO.: W912DS22D0017		9. COORDINATE SYSTEM: State Plane - Connecticut	HORIZONTAL: NAD83 / VERTICAL: MLLW
TASK ORDER NO.: W912WJ24F0024		10. SIZE AND TYPE OF BIT: Mud Rotary (4" Tricone Roller)	
PROJECT NAME: Subsurface Exploration of New Haven Harbor		11. MANUFACTURER'S DESIGNATION OF DRILL: ADT-240, CME-55, autohammer efficiency 83.2% (08/30/23)	
2. HOLE NUMBER: FD24-B-09	LOCATION COORDINATES: N 654693.6 E 954858.9	12. TOTAL SAMPLES	DISTURBED: 16 / UNDISTURBED: 0
3. DRILLING AGENCY: Aquifer Drilling & Testing (ADT) - A Cascade Company		13. TOTAL NUMBER CORE BOXES: 0	
4. NAME OF DRILLER: Nick Marmolejo		14. ELEVATION GROUND WATER: See Remarks	
5. DIRECTION OF BORING: ☒ VERTICAL ☐ INCLINED	DEG FROM VERTICAL: --- / BEARING	15. DATE BORING	STARTED: 7/12/24 / COMPLETED: 7/12/24
6. THICKNESS OF OVERBURDEN: >32.1'		16. ELEVATION TOP OF BORING: -28.6' (Measured in field)	
7. DEPTH DRILLED INTO ROCK: 0'		17. TOTAL CORE RECOVERY FOR BORING: N/A	
8. TOTAL DEPTH OF BORING: 32.1'		18. SIGNATURE AND TITLE OF INSPECTOR: Lindsay Pugh, PG, Geologist	

ELEV	DEPTH	FIELD CLASSIFICATION OF MATERIALS (Description)	% REC	Samp No.	RQD %	REMARKS	Blows/ 0.5 ft	N-Value
		ORGANIC CLAY (OH) (2.5Y 2.5/1), black, saturated, very soft, homogeneous, rapid dilatancy, trace shell fragments, and fine sand, Organic Sediments	100	SS-01		USCS - Gradation results and classification provided by CDM Smith Laboratory Autohammer, 140lbs, 30in drops, 2-inch diameter, 24 inches long split spoon used on all samples	0 0 0 0 0 WOR/2.0	0
			100	SS-02			0 0 0 0 0 WOR/1.8	0 /4
			100	SS-03		Gravel: 0; Sand: 9; Fines: 92; LL: 102; PI: 60; MC: 107; OH	0 0 0 0 0 WOR/2.0	0
			100	SS-04			0 0 0 0 0 WOR/2.0	0
			100	SS-05			0 0 0 0 0 WOR/2.0	0
-38.4	9.8	(5Y 4/1), dark gray / olive gray, wet to saturated, homogeneous, slow dilatancy, trace shell fragments, and fine sand	100	SS-06		Gravel: 0; Sand: 13; Fines: 87; LL: 77; PI: 43; MC: 72; OH	0 0 0 0 0 WOR/2.0	0
			100	SS-07			0 0 0 0 0 WOR/2.0	0
			100	SS-08			0 0 0 0 0 WOR/2.0	0
			100	SS-09			0 0 0 0 0 WOR/2.0	0
-47.7	19.1		100	SS-10			0 3 8 5 WOR/0.5	11
-48.7	20.1	SILTY SAND (SM) (2.5YR 3/3), dark reddish brown, wet, medium dense, homogeneous, rapid dilatancy, fine sand, Marine Sediments	10	SS-11		Switched from drag rotary bit to tricone roller bit,	6 8 6 6	14
		POORLY GRADED SAND WITH SILT (SP-SM) (2.5YR 3/3), dark reddish brown, saturated, medium dense, homogeneous, rapid dilatancy, fine to medium sand, trace coarse sand, and silt, subangular to subrounded	45	SS-12		drive 5ft of casing	6 6 8 8	14
-52.7	24.1	Fine to coarse sand	55	SS-13		Gravel: 0; Sand: 93; Fines: 7; MC: 17; SP-SM	13 8 10 8	18
-54.7	26.1	Trace fine gravel	55	SS-14			6 7 7 8	14
			55	SS-15			5 7 8 8	15
-60.4	31.8		75	SS-16			6 5 6 7	11
-60.7	32.1	SILTY SAND (SM) (2.5YR 3/3), dark reddish brown, saturated, medium dense, homogeneous, rapid dilatancy, fine sand, little mica						

BOTTOM OF BOREHOLE AT 32.1 ft
Boring terminated at EL -60.7' MLLW in SILTY SAND

Boring conducted from Northstar Marine Services, Inc. - Northstar L/B Vision

GBA ENGINEERS ★ SURVEYORS

Boring Designation FD24-B-10

DRILLING LOG

DIVISION: North Atlantic Division

INSTALLATION: New England District

SHEET 1 OF 1 SHEETS

CONTRACT NO.: W912DS22D0017
TASK ORDER NO.: W912WJ24F0024
PROJECT NAME: Subsurface Exploration of New Haven Harbor

9. COORDINATE SYSTEM: State Plane - Connecticut | HORIZONTAL: NAD83 | VERTICAL: MLLW

10. SIZE AND TYPE OF BIT: Mud Rotary (4" Tricone Roller)

2. HOLE NUMBER: FD24-B-10 | LOCATION COORDINATES: N 657343.8 E 955679.3

11. MANUFACTURER'S DESIGNATION OF DRILL: ADT-240, CME-55, autohammer efficiency 83.2% (08/30/23)

3. DRILLING AGENCY: Aquifer Drilling & Testing (ADT) - A Cascade Company

12. TOTAL SAMPLES | DISTURBED: 21 | UNDISTURBED: 0

4. NAME OF DRILLER: Nick Marmolejo

13. TOTAL NUMBER CORE BOXES: 0

5. DIRECTION OF BORING: ☒ VERTICAL ☐ INCLINED | DEG FROM VERTICAL: --- | BEARING:

14. ELEVATION GROUND WATER: See Remarks

15. DATE BORING | STARTED: 7/11/24 | COMPLETED: 7/11/24

6. THICKNESS OF OVERBURDEN: >42.5'

16. ELEVATION TOP OF BORING: -17.5' (Measured in field)

7. DEPTH DRILLED INTO ROCK: 0'

17. TOTAL CORE RECOVERY FOR BORING: N/A

8. TOTAL DEPTH OF BORING: 42.5'

18. SIGNATURE AND TITLE OF INSPECTOR: Lindsay Pugh, PG, Geologist

ELEV	DEPTH	LEGEND	FIELD CLASSIFICATION OF MATERIALS (Description)	% REC	Samp No.	RQD %	REMARKS	Blows/ 0.5 ft	N-Value
			ORGANIC SILT (OH) (5Y 4/1), dark gray / olive gray, wet, very soft, homogeneous, some shell fragments, little fine sand, Organic Sediments	100	SS-01		USCS - Gradation results and classification provided by CDM Smith Laboratory Autohammer, 140lbs, 30in drops, 2-inch diameter, 24 inches long split spoon used on all samples Gravel: 0; Sand: 8; Fines: 92; LL: 92; PI: 50; MC: 92; OH	0 0 0 0 WOR/2.0	0
				100	SS-02			0 0 0 0 WOR/2.0	0
				100	SS-03			0 0 0 0 WOR/2.0	0
-25.7	8.2			65	SS-04			0 0 0 0 WOR/2.0	0
			(OH) medium plasticity, trace shell fragments, and fine sand	100	SS-05		Gravel: 0; Sand: 3; Fines: 97; LL: 108; PI: 64; MC: 127; OH	0 0 0 0 WOR/2.0	0
				100	SS-06			0 0 0 0 WOR/2.0	0
				100	SS-07			0 0 0 0 WOR/2.0	0
				100	SS-08			0 0 0 0 WOR/2.0	0
				100	SS-09			0 0 0 0 WOR/2.0	0
				100	SS-10			0 0 0 0 WOR/2.0	0
				100	SS-11			0 0 0 0 WOR/2.0	0
-40.9	23.4			70	SS-12			0 3 4 7 WOR/0.5	7
-42.0	24.5		POORLY GRADED SAND WITH SILT (SP-SM) (5YR 3/3), dark reddish brown , saturated, loose to medium dense, homogeneous, fine to medium sand, trace coarse sand, subangular to subrounded, Marine Sediments	100	SS-13		Switched from drag rotary bit to tricone roller bit,; Gravel: 0; Sand: 90; Fines: 11; LL: NP; PI: NP; MC: 21; SP-SM	17 9 7 5	16
-46.0	28.5		Trace fine gravel	70	SS-14			2 6 10 10	16
			POORLY GRADED SAND (SP) (5YR 3/3), dark reddish brown, medium to coarse sand, little fine gravel, trace fine sand	50	SS-15			6 7 6 8	13
-50.0	32.5			50	SS-16		Gravel: 11; Sand: 86; Fines: 4; MC: 15; SP	5 6 5 5	11
			Trace fine gravel	45	SS-17			6 5 5 7	10
-53.1	35.6			75	SS-18			12 20 21 32	41
-56.0	38.5		SILTY SAND (SM) (5YR 4/3), reddish brown , wet, dense to medium dense, homogeneous, fine sand	75	SS-19			12 15 19 24	34
			WELL GRADED SAND (SW) (5YR 4/3), reddish brown , saturated, medium dense, homogeneous, fine to coarse sand, subangular to subrounded	70	SS-20			4 10 12 13	22
-59.1	41.6			60	SS-21			7 15 21 24	36
-60.0	42.5		SILTY SAND (SM) (5YR 4/3), reddish brown , wet, dense, homogeneous, fine sand						

BOTTOM OF BOREHOLE AT 42.5 ft
Boring terminated at EL -60.0' MLLW in SILTY SAND
Boring conducted from Northstar Marine Services, Inc. - Northstar L/B Vision

0 7 13 20 27 33 40

GBA ENGINEERS ★ SURVEYORS

Boring Designation FD24-B-11

DRILLING LOG

DIVISION	North Atlantic Division
INSTALLATION	New England District
SHEET	1 OF 1 SHEETS
CONTRACT NO.:	W912DS22D0017
TASK ORDER NO.:	W912WJ24F0024
PROJECT NAME:	Subsurface Exploration of New Haven Harbor
9. COORDINATE SYSTEM	State Plane - Connecticut
HORIZONTAL	NAD83
VERTICAL	MLLW
10. SIZE AND TYPE OF BIT	Mud Rotary (4" Tricone Roller)
2. HOLE NUMBER	FD24-B-11
LOCATION COORDINATES	N 658650.7 E 955766.9
11. MANUFACTURER'S DESIGNATION OF DRILL	ADT-240, CME-55, autohammer efficiency 83.2% (08/30/23)
3. DRILLING AGENCY	Aquifer Drilling & Testing (ADT) - A Cascade Company
12. TOTAL SAMPLES	DISTURBED 22 / UNDISTURBED 0
4. NAME OF DRILLER	Nick Marmolejo
13. TOTAL NUMBER CORE BOXES	0
5. DIRECTION OF BORING	☒ VERTICAL ☐ INCLINED; DEG FROM VERTICAL: --- ; BEARING:
14. ELEVATION GROUND WATER	See Remarks
15. DATE BORING	STARTED 7/3/24 / COMPLETED 7/3/24
6. THICKNESS OF OVERBURDEN	>42.6'
16. ELEVATION TOP OF BORING	-17.3' (Measured in field)
7. DEPTH DRILLED INTO ROCK	0'
17. TOTAL CORE RECOVERY FOR BORING	N/A
8. TOTAL DEPTH OF BORING	42.6'
18. SIGNATURE AND TITLE OF INSPECTOR	Lindsay Pugh, PG, Geologist

ELEV	DEPTH	LEGEND	FIELD CLASSIFICATION OF MATERIALS (Description)	% REC	Samp No.	RQD %	REMARKS	Blows/ 0.5 ft	N-Value
			ORGANIC CLAY (OH) (2.5Y 4/1), dark gray, wet, very soft, homogeneous, trace shell fragments, and fine sand, Organic Sediments	57	SS-01		USCS - Gradation results and classification provided by CDM Smith Laboratory Autohammer, 140lbs, 30in drops, 2-inch diameter, 24 inches long split spoon used on all samples	0 0 0 WOR/1.1	0 /5
				100	SS-02			0 0 0 0 0 WOR/2.0	0
				100	SS-03			0 0 0 0 0 WOR/2.0	0
-24.7	7.4			100	SS-04			0 0 0 0 0 WOR/2.0	0
			No shell fragments, and fine sand	100	SS-05		Gravel: 0; Sand: 5; Fines: 95; LL: 108; PI: 64; MC: 114; OH	0 0 0 0 0 WOR/2.0	0
				100	SS-06			0 0 0 0 0 WOR/2.0	0
				100	SS-07			0 0 0 0 0 WOR/2.0	0
				100	SS-08			0 0 0 0 0 WOR/2.0	0
				100	SS-09			0 0 0 0 0 WOR/2.0	0
				100	SS-10			0 0 0 0 0 WOR/2.0	0
-38.7	21.4			100	SS-11			0 0 0 0 0 WOR/2.0	0
			SANDY LEAN CLAY (CL) (2.5Y 4/1), dark gray, wet, very soft, some fine sand, and shell fragments	100	SS-12		Gravel: 0; Sand: 45; Fines: 55; LL: 41; PI: 17; MC: 45; CL	0 0 0 0 0 WOR/2.0	0
							Switched from drag rotary bit to tricone roller bit		
-42.9	25.6			80	SS-13			3 4 7 8	11
			POORLY GRADED SAND WITH SILT (SP-SM) (5YR 3/2), dark reddish brown / grayish brown, wet, very loose to medium dense, fine to coarse sand, and mica, Marine Sediments	55	SS-14		Gravel: 7; Sand: 87; Fines: 6; MC: 18; SP-SM	3 5 4 6	9
-47.9	30.6			55	SS-15			4 6 6 9	12
			Trace fine gravel	40	SS-16			4 1 0 0	1
-49.9	32.6		No fine gravel	55	SS-17			3 4 5 6	9
-53.4	36.1			60	SS-18 SS-19			3 5 4 10	9
			SANDY SILT (ML) (2.5YR 3/3), dark reddish brown, moist, very stiff, homogeneous, mica	70	SS-20		Gravel: 0; Sand: 47; Fines: 53; MC: 24; ML	4 9 8 9	17
-57.0	39.7			75	SS-21			5 7 9 11	16
-58.3	41.0		SILTY SAND (SM) (2.5YR 3/3), dark reddish brown, saturated, medium dense, homogeneous, fine sand						
-59.9	42.6		LEAN CLAY (CL) (2.5YR 3/3), dark reddish brown, wet, soft, homogeneous, mica	100	SS-22			2 1 2 2	3

BOTTOM OF BOREHOLE AT 42.6 ft
Boring terminated at EL -59.9 in LEAN CLAY
Boring conducted from Northstar Marine Services, Inc. - Northstar L/B Vision

GBA ENGINEERS ★ SURVEYORS

Boring Designation FD24-B-12

DRILLING LOG

DIVISION	North Atlantic Division
INSTALLATION	New England District
SHEET	1 OF 1 SHEETS
CONTRACT NO.:	W912DS22D0017
TASK ORDER NO.:	W912WJ24F0024
PROJECT NAME:	Subsurface Exploration of New Haven Harbor
9. COORDINATE SYSTEM	State Plane - Connecticut
HORIZONTAL	NAD83
VERTICAL	MLLW
10. SIZE AND TYPE OF BIT	Mud Rotary (4" Tricone Roller)
2. HOLE NUMBER	FD24-B-12
LOCATION COORDINATES	N 659568.5 E 955379.1
11. MANUFACTURER'S DESIGNATION OF DRILL	ADT-240, CME-55, autohammer efficiency 83.2% (08/30/23)
3. DRILLING AGENCY	Aquifer Drilling & Testing (ADT) - A Cascade Company
12. TOTAL SAMPLES	DISTURBED 12 / UNDISTURBED 0
4. NAME OF DRILLER	Dominick Pepe
13. TOTAL NUMBER CORE BOXES	0
5. DIRECTION OF BORING	☒ VERTICAL ☐ INCLINED; DEG FROM VERTICAL: --- ; BEARING:
14. ELEVATION GROUND WATER	See Remarks
15. DATE BORING	STARTED 7/25/24 / COMPLETED 7/25/24
6. THICKNESS OF OVERBURDEN	>24'
16. ELEVATION TOP OF BORING	-36.4' (Measured in field)
7. DEPTH DRILLED INTO ROCK	0'
17. TOTAL CORE RECOVERY FOR BORING	N/A
8. TOTAL DEPTH OF BORING	24'
18. SIGNATURE AND TITLE OF INSPECTOR	Loukas Rimanelli, Geologist

ELEV	DEPTH	LEGEND	FIELD CLASSIFICATION OF MATERIALS (Description)	% REC	Samp No.	RQD %	REMARKS	Blows/ 0.5 ft	N-Value
									0
-38.4	2.0		SILT WITH SAND (ML) (2.5Y 4/1), dark gray, wet, very soft, low plasticity, rapid dilatancy, Organic Sediments	75	SS-01		USCS - Gradation results and classification provided by CDM Smith Laboratory Autohammer, 140lbs, 30in drops, 2-inch diameter, 24 inches long split spoon used on all samples	0 0 0 0 WOR/2.0	0
			With fine sand	20	SS-02		Gravel: 0; Sand: 32; Fines: 68; LL: NP; PI: NP; MC: 39; ML	0 0 2 6 WOH/1.0	2
-41.2	4.8								4
				90	SS-03			0 0 0 0 WOR/2.0	0
			POORLY GRADED SAND WITH SILT (SP-SM) (2.5YR 3/3), dark reddish brown, wet, very loose, rapid dilatancy, medium to coarse sand, Marine Sediments	70	SS-04		Gravel: 1; Sand: 94; Fines: 5; MC: 23; SP-SM	2 0 1 2	1
-44.4	8.0								8
			WELL GRADED SAND WITH SILT AND GRAVEL (SW-SM) (2.5YR 3/3), dark reddish brown, wet, very loose to medium dense, rapid dilatancy, medium to coarse sand, with gravel	10	SS-05			0 0 0 0	0
				35	SS-06			2 5 5 7	10
-48.4	12.0								11
			Rapid dilatancy, medium to coarse sand	50	SS-07		Gravel: 21; Sand: 70; Fines: 9; MC: 16; SW-SM	7 7 3 3	10
-50.4	14.0								
			SILT (ML) (2.5YR 3/3), dark reddish brown, wet, medium stiff to stiff, low plasticity, slow dilatancy, with coarse sand	15	SS-08			10 3 3 4	6
				75	SS-09		Gravel: 0; Sand: 4; Fines: 96; LL: NP; PI: NP; MC: 28; ML	3 3 4 5	7
				45	SS-10			9 5 6 4	11
				55	SS-11			2 2 3 4	5
				75	SS-12			4 5 4 5	9
-60.4	24.0								15 19 23

BOTTOM OF BOREHOLE AT 24.0 ft
Boring terminated at EL -60.4' MLLW in SILT
Boring conducted from Northstar Marine Services, Inc. - Northstar L/B Vision

GBA ENGINEERS ★ SURVEYORS

Boring Designation FD24-B-13

DRILLING LOG	DIVISION: North Atlantic Division	INSTALLATION: New England District	SHEET 1 OF 1 SHEETS
CONTRACT NO.: W912DS22D0017 TASK ORDER NO.: W912WJ24F0024 PROJECT NAME: Subsurface Exploration of New Haven Harbor		9. COORDINATE SYSTEM: State Plane - Connecticut; HORIZONTAL: NAD83; VERTICAL: MLLW 10. SIZE AND TYPE OF BIT: Mud Rotary (4" Tricone Roller)	
2. HOLE NUMBER: FD24-B-13	LOCATION COORDINATES: N 660674.7 E 955804.1	11. MANUFACTURER'S DESIGNATION OF DRILL: ADT-240, CME-55, autohammer efficiency 83.2% (08/30/23)	
3. DRILLING AGENCY: Aquifer Drilling & Testing (ADT) - A Cascade Company		12. TOTAL SAMPLES: DISTURBED 14; UNDISTURBED 0	
4. NAME OF DRILLER: Nick Marmolejo		13. TOTAL NUMBER CORE BOXES: 0	
5. DIRECTION OF BORING: ☒ VERTICAL ☐ INCLINED	DEG FROM VERTICAL: --- BEARING:	14. ELEVATION GROUND WATER: See Remarks	
		15. DATE BORING: STARTED 7/2/24 COMPLETED 7/2/24	
6. THICKNESS OF OVERBURDEN: >27.1'		16. ELEVATION TOP OF BORING: -34.1' (Measured in field)	
7. DEPTH DRILLED INTO ROCK: 0'		17. TOTAL CORE RECOVERY FOR BORING: N/A	
8. TOTAL DEPTH OF BORING: 27.1'		18. SIGNATURE AND TITLE OF INSPECTOR: Lindsay Pugh, PG, Geologist	

ELEV	DEPTH	LEGEND	FIELD CLASSIFICATION OF MATERIALS (Description)	% REC	Samp No.	RQD %	REMARKS	Blows/ 0.5 ft	N-Value	
			ORGANIC SILT (OH) (2.5Y 2.5/1), black, wet, very soft, homogeneous, Organic Sediments	100	SS-01		USCS - Gradation results and classification provided by CDM Smith Laboratory; Gravel: 0; Sand: 2; Fines: 98; LL: 95; PI: 51; MC: 117; OH Autohammer, 140lbs, 30in drops, 2-inch diameter, 24 inches long split spoon used on all samples	0 0 WOR/1.1	0 /	0
				100	SS-02			0 0 0 0 WOR/2.0	0	
-39.0	4.9			100	SS-03			0 0 0 0 WOR/2.0	0	4
			POORLY GRADED SAND WITH SILT (SP-SM) (2.5YR 4/3), reddish brown, wet, medium dense, homogeneous, fine to medium sand, Marine Sediments	100	SS-04		Gravel: 0; Sand: 91; Fines: 9; MC: 24; SP-SM	3 5 6 6	11	
-42.7	8.6			65	SS-05			6 5 7 6	12	9
			SILTY SAND (SM) (2.5YR 4/3), reddish brown, saturated, very loose to loose, homogeneous, fine sand, mica	65	SS-06		Gravel: 0; Sand: 66; Fines: 34; MC: 26; SM	3 4 3 1	7	
				75	SS-07			2 0 1 1	1	13
				65	SS-08			4 2 1 2	3	
-51.1	17.0			80	SS-09			0 0 2 3 WOR/1.0	2	
			SANDY SILT (ML) (2.5YR 3/3), dark reddish brown, wet, medium stiff to very stiff, slow dilatancy, laminated, fine sand, mica	80	SS-10		Gravel: 0; Sand: 10; Fines: 90; MC: 28; ML	10 16 8 7	24	17
				70	SS-11			3 3 3 4	6	
				75	SS-12			3 4 2 4	6	21
				75	SS-13			4 4 4 6	8	
-61.2	27.1			85	SS-14			4 3 5 6	8	26

BOTTOM OF BOREHOLE AT 27.1 ft
Boring terminated at EL -61.2' MLLW in sandy SILT
Boring conducted from Northstar Marine Services, Inc. - Northstar L/B Vision

GBA ENGINEERS ★ SURVEYORS

Boring Designation FD24-B-14

DRILLING LOG

DIVISION	North Atlantic Division
INSTALLATION	New England District
SHEET	1 OF 1 SHEETS
CONTRACT NO.:	W912DS22D0017
TASK ORDER NO.:	W912WJ24F0024
PROJECT NAME:	Subsurface Exploration of New Haven Harbor
9. COORDINATE SYSTEM	State Plane - Connecticut
HORIZONTAL	NAD83
VERTICAL	MLLW
10. SIZE AND TYPE OF BIT	Mud Rotary (4" Tricone Roller)
2. HOLE NUMBER	FD24-B-14
LOCATION COORDINATES	N 661622.6 E 955233.2
11. MANUFACTURER'S DESIGNATION OF DRILL	ADT-240, CME-55, autohammer efficiency 83.2% (08/30/23)
3. DRILLING AGENCY	Aquifer Drilling & Testing (ADT) - A Cascade Company
12. TOTAL SAMPLES	DISTURBED 14 / UNDISTURBED 0
4. NAME OF DRILLER	Dominick Pepe
13. TOTAL NUMBER CORE BOXES	0
5. DIRECTION OF BORING	☒ VERTICAL ☐ INCLINED; DEG FROM VERTICAL: --- ; BEARING:
14. ELEVATION GROUND WATER	See Remarks
15. DATE BORING	STARTED 7/26/24 / COMPLETED 7/26/24
6. THICKNESS OF OVERBURDEN	>28'
16. ELEVATION TOP OF BORING	-33.1' (Measured in field)
7. DEPTH DRILLED INTO ROCK	0'
17. TOTAL CORE RECOVERY FOR BORING	N/A
8. TOTAL DEPTH OF BORING	28'
18. SIGNATURE AND TITLE OF INSPECTOR	Loukas Rimanelli, Geologist

ELEV	DEPTH	LEGEND	FIELD CLASSIFICATION OF MATERIALS (Description)	% REC	Samp No.	RQD %	REMARKS	Blows/ 0.5 ft	N-Value	
			ORGANIC SILT (OH) (GLEY1 2.5/N), black, wet, very soft, homogeneous, low plasticity, rapid dilatancy, Organic Sediments	40	SS-01		USCS - Gradation results and classification provided by CDM Smith Laboratory Autohammer, 140lbs, 30in drops, 2-inch diameter, 24 inches long split spoon used on all samples Gravel: 0; Sand: 1; Fines: 99; LL: 113; PI: 67; MC: 146; OH	0 0 0 0 WOR/2.0	0	0
				50	SS-02			0 0 0 0 WOR/2.0	0	
				80	SS-03			0 0 0 0 WOR/2.0	0	4
				60	SS-04			0 0 0 0 WOR/2.0	0	
				75	SS-05			0 0 0 0 WOR/2.0	0	9
-44.0	10.9			100	SS-06			0 0 0 0 WOR/2.0	0	
			SILTY SAND (SM) (7.5YR 3/2), dark brown , wet, very loose to loose, homogeneous, slow dilatancy, fine sand, Marine Sediments	45	SS-07		Gravel: 0; Sand: 62; Fines: 38; MC: 27; SM	0 1 4 4 WOH/0.5	5	13
-47.1	14.0									
			POORLY GRADED SAND WITH SILT (SP-SM) (7.5YR 3/2), dark brown , moist, loose to medium dense, homogeneous, slow dilatancy, fine to medium sand	25	SS-08			2 2 3 2	5	
-49.1	16.0		(5YR 3/2), dark reddish brown / grayish brown, medium to coarse sand	65	SS-09		Gravel: 12; Sand: 77; Fines: 11; MC: 16; SP-SM	4 3 5 6	8	18
-51.1	18.0		Trace fine gravel	100	SS-10			19 13 12 36	25	
-53.1	20.0									
			SILT WITH SAND (ML) (2.5YR 3/3), dark reddish brown, moist, medium stiff to stiff, homogeneous, rapid dilatancy, fine sand	60	SS-11			3 4 3 6	7	
				25	SS-12		Gravel: 0; Sand: 28; Fines: 72; MC: 24; ML	5 4 3 4	7	22
-57.1	24.0		With fine gravel	25	SS-13			7 5 6 7	11	
-59.1	26.0		No fine gravel	100	SS-14			4 7 8 17	15	26
-61.1	28.0									

BOTTOM OF BOREHOLE AT 28.0 ft
Boring terminated at EL -61.1' MLLW in SILT WITH SAND
Boring conducted from Northstar Marine Services, Inc. - Northstar L/B Vision

GBA ENGINEERS ★ SURVEYORS

Boring Designation FD24-B-15

DRILLING LOG

DIVISION: North Atlantic Division

INSTALLATION: New England District

SHEET 1 OF 1 SHEETS

CONTRACT NO.: W912DS22D0017
TASK ORDER NO.: W912WJ24F0024
PROJECT NAME: Subsurface Exploration of New Haven Harbor

9. COORDINATE SYSTEM: State Plane - Connecticut | HORIZONTAL: NAD83 | VERTICAL: MLLW

10. SIZE AND TYPE OF BIT: Mud Rotary (4" Tricone Roller)

2. HOLE NUMBER: FD24-B-15 | LOCATION COORDINATES: N 662791.5 E 955175.7

11. MANUFACTURER'S DESIGNATION OF DRILL: ADT-240, CME-55, autohammer efficiency 83.2% (08/30/23)

3. DRILLING AGENCY: Aquifer Drilling & Testing (ADT) - A Cascade Company

12. TOTAL SAMPLES | DISTURBED: 15 | UNDISTURBED: 0

4. NAME OF DRILLER: Nick Marmolejo

13. TOTAL NUMBER CORE BOXES: 0

5. DIRECTION OF BORING: ☒ VERTICAL ☐ INCLINED | DEG FROM VERTICAL: --- | BEARING:

14. ELEVATION GROUND WATER: See Remarks

15. DATE BORING | STARTED: 8/7/24 | COMPLETED: 8/7/24

6. THICKNESS OF OVERBURDEN: >29.6'

16. ELEVATION TOP OF BORING: -31.7' (Measured in field)

7. DEPTH DRILLED INTO ROCK: 0'

17. TOTAL CORE RECOVERY FOR BORING: N/A

8. TOTAL DEPTH OF BORING: 29.6'

18. SIGNATURE AND TITLE OF INSPECTOR: Lindsay Pugh, PG, Geologist

ELEV	DEPTH	LEGEND	FIELD CLASSIFICATION OF MATERIALS (Description)	% REC	Samp No.	RQD %	REMARKS	Blows/ 0.5 ft	N-Value	
			ORGANIC SILT (OH) (2.5Y 2.5/1), black, saturated, very soft, homogeneous, low plasticity, rapid dilatancy, Organic Sediments	85	SS-01		USCS - Gradation results and classification provided by CDM Smith Laboratory Autohammer, 140lbs, 30in drops, 2-inch diameter, 24 inches long split spoon used on all samples	0 0 0 0 WOR/2.0	0	0
				100	SS-02		torvane (1.0) (uncorrected): 0.0 kg/cm² pocket penetrometer (uncorrected): 0.0 tsf	0 0 0 0 WOR/2.0	0	
				100	SS-03		Gravel: 0; Sand: 3; Fines: 97; LL: 119; PI: 68; MC: 134; OH	0 0 0 0 0 WOR/2.0	0	5
				85	SS-04			0 0 0 0 0 WOR/2.0	0	
				100	SS-05			0 0 0 0 0 WOR/2.0	0	9
-42.8	11.1			65	SS-06			0 0 0 3 WOR/1.5	0	
			POORLY GRADED SAND (SP) (7.5YR 3/2), dark brown , saturated, medium dense, homogeneous, rapid dilatancy, fine to medium sand, trace fine gravel, subangular to subrounded, Marine Sediments	85	SS-07		Gravel: 17; Sand: 80; Fines: 3; MC: 18; SP	0 6 7 7 WOR/0.5	13	
-45.3	13.6		(5YR 3/2), dark reddish brown / grayish brown, dense, fine sand, subrounded	70	SS-08		drive 5ft of casing	17 20 18 13	38	14
-47.3	15.6		POORLY GRADED SAND WITH SILT (SP-SM) (5YR 3/2), dark reddish brown / grayish brown, saturated, medium dense, homogeneous, rapid dilatancy	60	SS-09			8 8 7 6	15	
-49.3	17.6		SANDY SILT (ML) (5YR 3/2), dark reddish brown / grayish brown, saturated, stiff to hard, homogeneous, rapid dilatancy, fine sand, with mica	45	SS-10		Gravel: 0; Sand: 45; Fines: 55; MC: 29; ML	5 4 5 6	9	19
				75	SS-11			7 7 11 18	18	
				60	SS-12			10 10 13 17	23	23
				100	SS-13			15 14 15 16	29	
				65	SS-14			12 19 23 19	42	
-59.3	27.6		(7.5YR 3/2), dark brown , slow dilatancy	100	SS-15		torvane (1.0) (uncorrected): 0.5 kg/cm² pocket penetrometer (uncorrected): 0.25 tsf	7 6 9 12	15	28
-61.3	29.6									

BOTTOM OF BOREHOLE AT 29.6 ft
Boring terminated at EL -61.3' MLLW in sandy SILT
Boring conducted from Northstar Marine Services, Inc. - Northstar L/B Vision

GBA ENGINEERS ★ SURVEYORS

Boring Designation FD24-B-16

DRILLING LOG	DIVISION: North Atlantic Division	INSTALLATION: New England District	SHEET 1 OF 1 SHEETS
CONTRACT NO.: W912DS22D0017 TASK ORDER NO.: W912WJ24F0024 PROJECT NAME: Subsurface Exploration of New Haven Harbor		9. COORDINATE SYSTEM: State Plane - Connecticut; HORIZONTAL: NAD83; VERTICAL: MLLW 10. SIZE AND TYPE OF BIT: Mud Rotary (4" Tricone Roller)	
2. HOLE NUMBER: FD24-B-16	LOCATION COORDINATES: N 663859.7 E 955391.6	11. MANUFACTURER'S DESIGNATION OF DRILL: ADT-240, CME-55, autohammer efficiency 83.2% (08/30/23)	
3. DRILLING AGENCY: Aquifer Drilling & Testing (ADT) - A Cascade Company		12. TOTAL SAMPLES: DISTURBED 13; UNDISTURBED 0	
4. NAME OF DRILLER: Nick Marmolejo		13. TOTAL NUMBER CORE BOXES: 0	
5. DIRECTION OF BORING: ☒ VERTICAL ☐ INCLINED	DEG FROM VERTICAL: --- BEARING:	14. ELEVATION GROUND WATER: See Remarks	
		15. DATE BORING: STARTED 8/4/24 COMPLETED 8/5/24	
6. THICKNESS OF OVERBURDEN: >25.8'		16. ELEVATION TOP OF BORING: -34.2' (Measured in field)	
7. DEPTH DRILLED INTO ROCK: 0'		17. TOTAL CORE RECOVERY FOR BORING: N/A	
8. TOTAL DEPTH OF BORING: 25.8'		18. SIGNATURE AND TITLE OF INSPECTOR: Lindsay Pugh, PG, Geologist	

ELEV	DEPTH	LEGEND	FIELD CLASSIFICATION OF MATERIALS (Description)	% REC	Samp No.	RQD %	REMARKS	Blows/ 0.5 ft	N-Value
			ORGANIC SILT (OH) (2.5Y 2.5/1), black, saturated, very soft, homogeneous, low plasticity, rapid dilatancy, hydrocarbon odor, Organic Sediments	0	SS-01		USCS - Gradation results and classification provided by CDM Smith Laboratory Autohammer, 140lbs, 30in drops, 2-inch diameter, 24 inches long split spoon used on all samples	0 0 0 0 WOR/2.0	0
				30	SS-02		Gravel: 0; Sand: 6; Fines: 94; LL: 119; PI: 65; MC: 115; OH	0 0 0 0 WOR/2.0	0
				35	SS-03			0 0 0 0 WOR/2.0	0
-41.7	7.5			70	SS-04			0 0 0 2 WOR/1.5	0
-42.7	8.5		POORLY GRADED GRAVEL (GP) (5YR 3/4), dark reddish brown / moderate brown, saturated, loose, homogeneous, rapid dilatancy, fine to medium gravel, Marine Sediments				rig chatter from 7.5' - 8.0'		
				15	SS-05		Gravel: 6; Sand: 23; Fines: 71; MC: 25; ML	9 4 4 4	8
			SILT WITH SAND (ML) (5YR 3/4), dark reddish brown / moderate brown, saturated, stiff to very stiff, homogeneous, slow dilatancy, fine to medium sand, with mica	5	SS-06			10 10 6 5	16
-46.2	12.0								
			SILTY SAND (SM) (5YR 3/4), dark reddish brown / moderate brown, saturated, very loose, homogeneous, rapid dilatancy, fine sand, with mica	40	SS-07			5 4 3 3	7
				10	SS-08			5 3 4 5	7
				0	SS-09			4 6 4 4	10
				30	SS-10			3 3 3 3	6
-54.2	20.0								
			SANDY SILT (ML) (5YR 3/4), dark reddish brown / moderate brown, saturated, hard to stiff, stratified, rapid dilatancy, fine sand, with mica	100	SS-11		Gravel: 0; Sand: 30; Fines: 70; MC: 27; ML torvane (1.0) (uncorrected): 0.0 kg/cm² pocket penetrometer (uncorrected): 0.0 tsf	12 20 16 11	36
				55	SS-12			12 8 7 7	15
				85	SS-13			4 4 4 4	8
-60.0	25.8								

BOTTOM OF BOREHOLE AT 25.8 ft
Boring terminated at EL -60.0' MLLW in sandy SILT
Boring conducted from Northstar Marine Services, Inc. - Northstar L/B Vision

GBA ENGINEERS ★ SURVEYORS

Boring Designation FD24-B-17

DRILLING LOG

DIVISION: North Atlantic Division		INSTALLATION: New England District	SHEET 1 OF 1 SHEETS
CONTRACT NO.: W912DS22D0017		9. COORDINATE SYSTEM: State Plane - Connecticut	HORIZONTAL: NAD83 / VERTICAL: MLLW
TASK ORDER NO.: W912WJ24F0024		10. SIZE AND TYPE OF BIT: Mud Rotary (4" Tricone Roller)	
PROJECT NAME: Subsurface Exploration of New Haven Harbor		11. MANUFACTURER'S DESIGNATION OF DRILL: ADT-240, CME-55, autohammer efficiency 83.2% (08/30/23)	
2. HOLE NUMBER: FD24-B-17	LOCATION COORDINATES: N 664746.8 E 956025.9	12. TOTAL SAMPLES	DISTURBED: 14 / UNDISTURBED: 0
3. DRILLING AGENCY: Aquifer Drilling & Testing (ADT) - A Cascade Company		13. TOTAL NUMBER CORE BOXES: 0	
4. NAME OF DRILLER: Nick Marmolejo		14. ELEVATION GROUND WATER: See Remarks	
5. DIRECTION OF BORING: ☒ VERTICAL ☐ INCLINED	DEG FROM VERTICAL: --- / BEARING:	15. DATE BORING	STARTED: 8/5/24 / COMPLETED: 8/5/24
6. THICKNESS OF OVERBURDEN: >28.1'		16. ELEVATION TOP OF BORING: -32.6' (Measured in field)	
7. DEPTH DRILLED INTO ROCK: 0'		17. TOTAL CORE RECOVERY FOR BORING: N/A	
8. TOTAL DEPTH OF BORING: 28.1'		18. SIGNATURE AND TITLE OF INSPECTOR: Lindsay Pugh, PG, Geologist	

ELEV	DEPTH	LEGEND	FIELD CLASSIFICATION OF MATERIALS (Description)	% REC	Samp No.	RQD %	REMARKS	Blows/ 0.5 ft	N-Value	
			ORGANIC SILT (OH) (2.5Y 2.5/1), black, saturated, very soft, low plasticity, rapid dilatancy, Organic Sediments	30	SS-01		USCS - Gradation results and classification provided by CDM Smith Laboratory; Gravel: 0; Sand: 1; Fines: 99; LL: 119; PI: 68; MC: 180; OH Autohammer, 140lbs, 30in drops, 2-inch diameter, 24 inches long split spoon used on all samples torvane (1.0) (uncorrected): 0.0 kg/cm² pocket penetrometer (uncorrected): 0.0 tsf	0 0 0 0 WOR/2.0	0	0
				65	SS-02			0 0 0 0 WOR/2.0	0	
				50	SS-03			0 0 0 0 WOR/2.0	0	4
				50	SS-04			0 0 0 0 WOR/2.0	0	
				100	SS-05		torvane (1.0) (uncorrected): 0.0 kg/cm² pocket penetrometer (uncorrected): 0.0 tsf	0 0 0 0 WOR/2.0	0	9
-42.6	10.0									
-43.6	11.0		ORGANIC SILT WITH SAND (OL)	55	SS-06		Gravel: 0; Sand: 20; Fines: 80; MC: 125; OL	0 0 0 4 WOR/1.5	0	
-46.0	13.4		WELL GRADED SAND (SW) (2.5Y 2.5/1), black, saturated, medium dense, rapid dilatancy, fine to coarse sand, trace fine gravel	70	SS-07			6 8 9 10	17	13
					SS-08					
-48.7	16.1		SILTY SAND (SM) (5YR 3/3), dark reddish brown , saturated, medium dense, rapid dilatancy, fine sand, with mica, Marine Sediments	100	SS-09			10 9 9 9	18	
-50.7	18.1		POORLY GRADED SAND (SP) (5YR 3/3), dark reddish brown , saturated, medium dense, rapid dilatancy, fine to medium sand, subrounded, with mica	50	SS-10			6 8 8 10	16	18
			SILTY SAND (SM) (5YR 3/3), dark reddish brown , saturated, medium dense to loose, rapid dilatancy, fine sand	55	SS-11		Gravel: 0; Sand: 87; Fines: 13; MC: 30; SM	7 5 8 7	13	
				70	SS-12			4 3 5 5	8	
				70	SS-13			3 4 4 6	8	22
-58.2	25.6			70	SS-14			4 5 6 5	11	
-60.7	28.1		SANDY SILT (ML) (5YR 3/3), dark reddish brown , saturated, stiff, rapid dilatancy, fine sand, with mica	50	SS-15			6 6 6 8	12	26

BOTTOM OF BOREHOLE AT 28.1 ft
Boring terminated at EL -60.7' MLLW in sandy SILT
Boring conducted from Northstar Marine Services, Inc. - Northstar L/B Vision

GBA ENGINEERS ★ SURVEYORS

Boring Designation FD24-B-18

DRILLING LOG	DIVISION: North Atlantic Division	INSTALLATION: New England District	SHEET 1 OF 1 SHEETS
CONTRACT NO.: W912DS22D0017 TASK ORDER NO.: W912WJ24F0024 PROJECT NAME: Subsurface Exploration of New Haven Harbor		9. COORDINATE SYSTEM: State Plane - Connecticut; HORIZONTAL: NAD83; VERTICAL: MLLW 10. SIZE AND TYPE OF BIT: Mud Rotary (4" Tricone Roller)	
2. HOLE NUMBER: FD24-B-18	LOCATION COORDINATES: N 666144.3 E 955439.9	11. MANUFACTURER'S DESIGNATION OF DRILL: ADT-240, CME-55, autohammer efficiency 83.2% (08/30/23)	
3. DRILLING AGENCY: Aquifer Drilling & Testing (ADT) - A Cascade Company		12. TOTAL SAMPLES: DISTURBED 10; UNDISTURBED 0	
4. NAME OF DRILLER: Nick Marmolejo		13. TOTAL NUMBER CORE BOXES: 0	
5. DIRECTION OF BORING: ☒ VERTICAL ☐ INCLINED	DEG FROM VERTICAL: --- BEARING:	14. ELEVATION GROUND WATER: See Remarks	
		15. DATE BORING: STARTED 7/1/24 COMPLETED 7/1/24	
6. THICKNESS OF OVERBURDEN: >40.9'		16. ELEVATION TOP OF BORING: -20.7' (Measured in field)	
7. DEPTH DRILLED INTO ROCK: 0'		17. TOTAL CORE RECOVERY FOR BORING: N/A	
8. TOTAL DEPTH OF BORING: 40.9'		18. SIGNATURE AND TITLE OF INSPECTOR: Lindsay Pugh, PG, Geologist	

ELEV	DEPTH	LEGEND	FIELD CLASSIFICATION OF MATERIALS (Description)	% REC	Samp No.	RQD %	REMARKS	Blows/ 0.5 ft	N-Value	
			ORGANIC SILT (OH) (10YR 2/1), black, saturated to wet, very soft, homogeneous, medium plasticity, Organic Sediments	20	SS-01		USCS - Gradation results and classification provided by CDM Smith Laboratory Autohammer, 140lbs, 30in drops, 2-inch diameter, 24 inches long split spoon used on all samples	0 0 0 0 WOR/2.0	0	0
				70	SS-02		Gravel: 0; Sand: 1; Fines: 99; LL: 117; PI: 62; MC: 135; OH	0 0 0 0 WOR/2.0	0	6
				50	SS-03			0 0 0 0 WOR/2.0	0	
				100	SS-04			0 0 0 0 WOR/2.0	0	13
				100	SS-05		Gravel: 0; Sand: 2; Fines: 98; LL: 151; PI: 86; MC: 110; OH	0 0 0 0 WOR/2.0	0	19
				100	SS-06			0 0 0 0 WOR/2.0	0	26
-51.3	30.6			100	SS-07			0 0 0 0 WOR/2.0	0	
			SILTY SAND (SM) (2.5YR 3/3), dark reddish brown, subangular, wet, very loose, homogeneous, fine sand, mica, Marine Sediments	100	SS-08					32
				60	SS-09		Gravel: 0; Sand: 71; Fines: 29; MC: 26; SM	2 1 2 3	3	
-61.6	40.9			100	SS-10			0 2 2 3 WOR/0.5	4	39

BOTTOM OF BOREHOLE AT 40.9 ft
Boring terminated at EL -61.6' MLLW in SILTY SAND
Boring conducted from Northstar Marine Services, Inc. - Northstar L/B Vision

GBA ENGINEERS ★ SURVEYORS

Boring Designation FD24-B-19

DRILLING LOG

DIVISION: North Atlantic Division	INSTALLATION: New England District	SHEET 1 OF 1 SHEETS	
CONTRACT NO.: W912DS22D0017	9. COORDINATE SYSTEM: State Plane - Connecticut	HORIZONTAL: NAD83	VERTICAL: MLLW
TASK ORDER NO.: W912WJ24F0024	10. SIZE AND TYPE OF BIT: Mud Rotary (4" Tricone Roller)		
PROJECT NAME: Subsurface Exploration of New Haven Harbor			
2. HOLE NUMBER: FD24-B-19	LOCATION COORDINATES: N 668042.5 E 956680.8	11. MANUFACTURER'S DESIGNATION OF DRILL: ADT-240, CME-55, autohammer efficiency 83.2% (08/30/23)	
3. DRILLING AGENCY: Aquifer Drilling & Testing (ADT) - A Cascade Company		12. TOTAL SAMPLES	DISTURBED: 10 / UNDISTURBED: 0
4. NAME OF DRILLER: Nick Marmolejo		13. TOTAL NUMBER CORE BOXES: 0	
5. DIRECTION OF BORING: ☒ VERTICAL ☐ INCLINED	DEG FROM VERTICAL: ---	BEARING:	14. ELEVATION GROUND WATER: See Remarks
		15. DATE BORING	STARTED: 8/8/24 / COMPLETED: 8/8/24
6. THICKNESS OF OVERBURDEN: >22.7'		16. ELEVATION TOP OF BORING: -38.7' (Measured in field)	
7. DEPTH DRILLED INTO ROCK: 0'		17. TOTAL CORE RECOVERY FOR BORING: N/A	
8. TOTAL DEPTH OF BORING: 22.7'		18. SIGNATURE AND TITLE OF INSPECTOR: Lindsay Pugh, PG, Geologist	

ELEV	DEPTH	LEGEND	FIELD CLASSIFICATION OF MATERIALS (Description)	% REC	Samp No.	RQD %	REMARKS	Blows/ 0.5 ft	N-Value	
			ORGANIC SILT (OL) (5Y 2.5/1), black , saturated, soft, homogeneous, rapid dilatancy, no dry strength, Organic Sediments				USCS - Gradation results and classification provided by CDM Smith Laboratory Autohammer, 140lbs, 30in drops, 2-inch diameter, 24 inches long split spoon used on all samples torvane (1.0) (uncorrected): 0.0 kg/cm² pocket penetrometer (uncorrected): 0.0 tsf			0
-42.5	3.8			100	SS-01			0 4 3 3 WOH/0.7	7	4
					SS-02					
			POORLY GRADED SAND WITH SILT (SP-SM) (5YR 3/3), dark reddish brown , saturated, loose, homogeneous, rapid dilatancy, fine to medium sand, subangular to subrounded, Marine Sediments	100	SS-03		Gravel: 0; Sand: 91; Fines: 9; LL: NP; PI: NP; MC: 31; SP-SM	1 1 4 5	5	
-45.4	6.7									7
			SILTY SAND (SM) (5YR 3/3), dark reddish brown , saturated, very loose to medium dense, homogeneous, rapid dilatancy, fine sand, with mica	100	SS-04		Gravel: 0; Sand: 57; Fines: 43; MC: 24; SM	0 0 0 0 WOR/2.0	0	
				100	SS-05			1 1 3 3	4	
				70	SS-06			12 5 7 9	12	11
				70	SS-07			3 3 5 7	8	
				70	SS-08			3 5 5 6	10	14
				70	SS-09			2 4 4 6	8	
				70	SS-10			3 3 4 6	7	18
				40	SS-11			2 2 5 5	7	
-61.4	22.7									21

BOTTOM OF BOREHOLE AT 22.7 ft
Boring terminated at EL -61.4' MLLW in SILTY SAND
Boring conducted from Northstar Marine Services, Inc. - Northstar L/B Vision

GBA ENGINEERS ★ SURVEYORS

Boring Designation FD24-B-20

DRILLING LOG

DIVISION	North Atlantic Division
INSTALLATION	New England District
SHEET	1 OF 1 SHEETS
CONTRACT NO.:	W912DS22D0017
TASK ORDER NO.:	W912WJ24F0024
PROJECT NAME:	Subsurface Exploration of New Haven Harbor
9. COORDINATE SYSTEM	State Plane - Connecticut
HORIZONTAL	NAD83
VERTICAL	MLLW
10. SIZE AND TYPE OF BIT	Mud Rotary (4" Tricone Roller)
2. HOLE NUMBER	FD24-B-20
LOCATION COORDINATES	N 668739.3 E 956522.8
11. MANUFACTURER'S DESIGNATION OF DRILL	ADT-240, CME-55, autohammer efficiency 83.2% (08/30/23)
3. DRILLING AGENCY	Aquifer Drilling & Testing (ADT) - A Cascade Company
12. TOTAL SAMPLES	DISTURBED 7 / UNDISTURBED 0
4. NAME OF DRILLER	Nick Marmolejo
13. TOTAL NUMBER CORE BOXES	0
5. DIRECTION OF BORING	☒ VERTICAL ☐ INCLINED
DEG FROM VERTICAL	---
BEARING	
14. ELEVATION GROUND WATER	See Remarks
15. DATE BORING	STARTED 6/30/24 / COMPLETED 6/30/24
6. THICKNESS OF OVERBURDEN	31.5'
16. ELEVATION TOP OF BORING	-30.8' (Measured in field)
7. DEPTH DRILLED INTO ROCK	0'
17. TOTAL CORE RECOVERY FOR BORING	N/A
8. TOTAL DEPTH OF BORING	31.5'
18. SIGNATURE AND TITLE OF INSPECTOR	Lindsay Pugh, PG, Geologist

ELEV	DEPTH	LEGEND	FIELD CLASSIFICATION OF MATERIALS (Description)	% REC	Samp No.	RQD %	REMARKS	Blows/ 0.5 ft	N-Value
			ORGANIC SILT (OH) (2.5Y 2.5/1), black, wet, very soft, high plasticity, hydrocarbon odor, Organic Sediments	0	SS-01		USCS - Gradation results and classification provided by CDM Smith Laboratory Autohammer, 140lbs, 30in drops, 2-inch diameter, 24 inches long split spoon used on all samples	0 0 0 0 WOR/2.0	0
				100	SS-02		Gravel: 0; Sand: 5; Fines: 95; LL: 121; PI: 58; MC: 167; OH	0 0 0 0 WOR/2.0	0
				100	SS-03			0 0 0 0 WOR/2.0	0
				100	SS-04		Gravel: 0; Sand: 14; Fines: 87; LL: 96; PI: 53; MC: 128; OH	0 0 0 0 WOR/2.0	0
-47.8	17.0		SILTY SAND WITH GRAVEL (SM) (2.5YR 3/4), dark reddish brown, wet, medium dense, homogeneous, fine to coarse gravel, and fine to coarse sand, Marine Sediments				rig chatter from 17' to 28' below mudline		
				20	SS-05		Gravel: 31; Sand: 50; Fines: 19; MC: 16; SM	8 5 7 9	12
-53.8	23.0		POORLY GRADED SAND WITH SILT (SP-SM) (2.5YR 3/4), dark reddish brown, wet, loose, homogeneous, fine to coarse sand						
				30	SS-06		Gravel: 0; Sand: 93; Fines: 7; MC: 20; SP-SM	4 5 3 5	8
-58.8	28.0		SILTY SAND (SM) (2.5YR 3/4), dark reddish brown, wet, medium dense, stratified, fine sand						
				95	SS-07		Gravel: 0; Sand: 72; Fines: 28; MC: 21; SM	3 5 6 7	11
-62.3	31.5		BOTTOM OF BOREHOLE AT 31.5 ft Boring terminated at EL -62.3' MLLW in SILTY SAND Boring conducted from Northstar Marine Services, Inc. - Northstar L/B Vision						

GBA ENGINEERS ★ SURVEYORS

Boring Designation FD24-CAD-01

DRILLING LOG	DIVISION: North Atlantic Division	INSTALLATION: New England District	SHEET 1 OF 1 SHEETS
CONTRACT NO.: W912DS22D0017		9. COORDINATE SYSTEM: State Plane - Connecticut	HORIZONTAL: NAD83 / VERTICAL: MLLW
TASK ORDER NO.: W912WJ24F0024		10. SIZE AND TYPE OF BIT: Mud Rotary (4" Tricone Roller)	
PROJECT NAME: Subsurface Exploration of New Haven Harbor		11. MANUFACTURER'S DESIGNATION OF DRILL: ADT-240, CME-55, autohammer efficiency 83.2% (08/30/23)	
2. HOLE NUMBER: FD24-CAD-01	LOCATION COORDINATES: N 656,611.0 E 954,152.9	12. TOTAL SAMPLES	DISTURBED: 22 / UNDISTURBED: 0
3. DRILLING AGENCY: Aquifer Drilling & Testing (ADT) - A Cascade Company		13. TOTAL NUMBER CORE BOXES: 0	
4. NAME OF DRILLER: Nick Marmolejo		14. ELEVATION GROUND WATER: N/A	
5. DIRECTION OF BORING: ☒ VERTICAL ☐ INCLINED	DEG FROM VERTICAL: --- / BEARING	15. DATE BORING	STARTED: 7/13/24 / COMPLETED: 7/14/24
6. THICKNESS OF OVERBURDEN: >81'		16. ELEVATION TOP OF BORING: -5.1' (Measured in field)	
7. DEPTH DRILLED INTO ROCK: 14.7'		17. TOTAL CORE RECOVERY FOR BORING: N/A	
8. TOTAL DEPTH OF BORING: 95.7'		18. SIGNATURE AND TITLE OF INSPECTOR: Lindsay Pugh, PG, Geologist	

ELEV	DEPTH	FIELD CLASSIFICATION OF MATERIALS (Description)	% REC	Samp No.	RQD %	REMARKS	Blows/ 0.5 ft	N-Value
-8.1	3.0	ORGANIC SOIL WITH SAND (OL) (2.5Y 5/1), gray, saturated, very soft, homogeneous, rapid dilatancy, fine sand, Organic Sediments	35	SS-01		USCS - Gradation results and classification provided by CDM Smith Laboratory Autohammer, 140lbs, 30in drops, 2-inch diameter, 24 inches long split spoon used on all samples	0 0 0 0 WOR/2.0	0
			55	SS-02			2 2 3 4	5
-15.8	10.7	POORLY GRADED SAND WITH SILT (SP-SM) (2.5Y 3/1), very dark gray, saturated, loose, homogeneous, rapid dilatancy, fine to medium sand, trace silt, subangular to subrounded	75	SS-03		Gravel: 0; Sand: 91; Fines: 9; MC: 19; SP-SM	5 5 1 1	6
-18.1	13.0	(SP-SM) trace shell fragments		SS-04				
		ORGANIC CLAY (OL) (2.5Y 5/1), gray, wet, very soft, homogeneous, medium plasticity, slow dilatancy, sandy	100	SS-05		Gravel: 0; Sand: 28; Fines: 72; MC: 66; OH	0 0 0 0 WOR/2.0	0
		ORGANIC SILT WITH SAND (OH) (5Y 4/1), dark gray / olive gray, wet to moist, very soft, homogeneous, medium plasticity, no dilatancy, fine sand, and shell fragments	100	SS-06		pocket penetrometer (uncorrected): 0.5tsf	0 0 0 0 WOR/2.0	0
			100	SS-07		pocket penetrometer (uncorrected): 0.5tsf	0 0 0 0 WOR/2.0	0
			100	SS-08		pocket penetrometer (uncorrected): 0.5tsf; Gravel: 0; Sand: 28; Fines: 72; MC: 66; OH	0 0 0 0 WOR/2.0	0
-42.1	37.0		100	SS-09		pocket penetrometer (uncorrected): 0.75tsf	0 0 0 0 WOR/2.0	0
		POORLY GRADED SAND WITH SILT (SP-SM) (5YR 3/2), dark reddish brown / grayish brown, saturated, medium dense, homogeneous, rapid dilatancy, fine to medium sand, trace coarse sand, Marine Sediments	100	SS-10			8 10 9 7	19
			55	SS-11		Gravel: 1; Sand: 94; Fines: 6; MC: 20; SP-SM	5 7 7 7	14
-53.1	48.0							
		POORLY GRADED SAND (SP) (5YR 3/3), dark reddish brown , saturated, medium dense, homogeneous, rapid dilatancy, fine to medium sand, trace silt	65	SS-12			3 5 6 9	11
-58.1	53.0							
		SILTY SAND (SM) (5YR 3/3), dark reddish brown , saturated, loose to medium dense, homogeneous, rapid dilatancy, fine sand, little mica	70	SS-13			3 4 4 4	8
			70	SS-14			5 5 6 8	11
-67.1	62.0							
		SANDY SILT (ML) (5YR 3/3), dark reddish brown , saturated, stiff, homogeneous, low plasticity, rapid dilatancy, low toughness, low dry strength, little mica	80	SS-15		drive 5ft of casing	6 7 6 7	13
-72.1	67.0							
		SILTY SAND (SM) (5YR 3/3), dark reddish brown , saturated, medium dense, homogeneous, rapid dilatancy, trace mica	90	SS-16		drive 5ft of casing	7 10 10 12	20
-78.1	73.0							
		SILT (ML) (5YR 3/3), dark reddish brown , saturated to wet, stiff, homogeneous, low plasticity, rapid dilatancy, low toughness, low dry strength, trace fine sand, little mica, Glacio-Marine Silt	95	SS-17		drive 5ft of casing	4 6 6 8	12
			100	SS-18		pocket penetrometer (uncorrected): 1.00tsf	0 4 4 5 WOR/0.5	8
-87.1	82.0	(ML) no fine sand, some mica						
		ELASTIC SILT (MH) (5YR 3/3), dark reddish brown , wet, stiff to soft, laminated, medium plasticity, no dilatancy, medium toughness, medium dry strength, some mica	100	SS-19		pocket penetrometer (uncorrected): 1.25tsf	0 5 4 4 WOH/0.5	9
			100	SS-20		pocket penetrometer (uncorrected): 1.25tsf	0 1 3 3 WOR/0.5	4
-100.8	95.7		100	SS-21		pocket penetrometer (uncorrected): 1.25tsf	0 2 2 3 WOH/0.5	4

BOTTOM OF BOREHOLE AT 95.7 ft
Boring terminated at EL -100.8' MLLW in ELASTIC SILT
Boring conducted from Northstar Marine Services, Inc. - Northstar L/B Vision

GBA ENGINEERS ★ SURVEYORS

Boring Designation FD24-CAD-02

DRILLING LOG	DIVISION: North Atlantic Division	INSTALLATION: New England District	SHEET 1 OF 1 SHEETS

CONTRACT NO.: W912DS22D0017	9. COORDINATE SYSTEM: State Plane - Connecticut; HORIZONTAL: NAD83; VERTICAL: MLLW
TASK ORDER NO.: W912WJ24F0024	10. SIZE AND TYPE OF BIT: Mud Rotary (4" Tricone Roller)
PROJECT NAME: Subsurface Exploration of New Haven Harbor	
2. HOLE NUMBER: FD24-CAD-02; LOCATION COORDINATES: N 656,869.4 E 954,654.4	11. MANUFACTURER'S DESIGNATION OF DRILL: ADT-240, CME-55, autohammer efficiency 83.2% (08/30/23)
3. DRILLING AGENCY: Aquifer Drilling & Testing (ADT) - A Cascade Company	12. TOTAL SAMPLES: DISTURBED 19; UNDISTURBED 0
4. NAME OF DRILLER: Nick Marmolejo	13. TOTAL NUMBER CORE BOXES: 0
5. DIRECTION OF BORING: ☒ VERTICAL ☐ INCLINED; DEG FROM VERTICAL: ---; BEARING:	14. ELEVATION GROUND WATER: N/A
	15. DATE BORING: STARTED 7/9/24; COMPLETED 7/9/24
6. THICKNESS OF OVERBURDEN: >92.6'	16. ELEVATION TOP OF BORING: -9' (Measured in field)
7. DEPTH DRILLED INTO ROCK: 0'	17. TOTAL CORE RECOVERY FOR BORING: N/A
8. TOTAL DEPTH OF BORING: 92.6'	18. SIGNATURE AND TITLE OF INSPECTOR: Lindsay Pugh, PG, Geologist

ELEV	DEPTH	LEGEND	FIELD CLASSIFICATION OF MATERIALS (Description)	% REC	Samp No.	RQD %	REMARKS	Blows/ 0.5 ft	N-Value	
			ORGANIC SILT WITH SAND (OH) (2.5Y 2.5/1), black, wet, very soft, homogeneous, little sand, shell fragments, Organic Sediments	85	SS-01		USCS - Gradation results and classification provided by CDM Smith Laboratory Autohammer, 140lbs, 30in drops, 2-inch diameter, 24 inches long split spoon used on all samples	0 0 0 0 WOR/2.0	0	0
				100	SS-02			0 0 0 0 WOR/2.0	0	
				100	SS-03			0 0 0 0 WOR/2.0	0	
-24.3	15.3		ORGANIC SILT (OH) (5Y 4/1), dark gray / olive gray, wet, very soft, homogeneous, trace fine sand, shell fragments	100	SS-04			0 0 0 0 WOR/2.0	0	15
				100	SS-05		Gravel: 0; Sand: 8; Fines: 92; MC: 104; OH	0 0 0 0 WOR/2.0	0	
				100	SS-06			0 0 0 0 WOR/2.0	0	
-39.3	30.3									29
-43.0	34.0		Some fine sand, trace wood	100	SS-07			0 0 0 0 WOR/2.0	0	
			POORLY GRADED SAND WITH SILT (SP-SM) (7.5YR 3/2), dark brown , wet to saturated, loose, homogeneous, rapid dilatancy, fine to coarse sand, trace silt, Marine Sediments	60	SS-08		Switched from drag rotary bit to tricone roller bit, drive 5ft of casing	4 4 6 9	10	
				55	SS-09		Gravel: 0; Sand: 95; Fines: 5; MC: 21; SP-SM	4 5 4 5	9	44
-56.1	47.1			75	SS-10			3 4 3 4	7	
			SILT WITH SAND (ML) (2.5YR 3/3), dark reddish brown, saturated, medium stiff to stiff, homogeneous, slow dilatancy, some fine sand, mica, Glacio-Marine Silt	75	SS-11		Gravel: 0; Sand: 11; Fines: 90; MC: 30; ML	4 3 3 8	6	
				100	SS-12			3 4 4 5	8	58
-69.6	60.6									
-73.0	64.0		Trace fine sand, little mica	100	SS-13			6 6 7 11	13	
			SILT (ML) (2.5YR 3/3), dark reddish brown, wet to moist, medium stiff to very soft, laminated, low plasticity, no dilatancy, fine sand, trace mica, laminated thin clay layers	100	SS-14			5 4 4 4	8	
				100	SS-15		Gravel: 0; Sand: 1; Fines: 99; MC: 36; ML	0 3 3 6 WOR/0.5	6	73
				100	SS-16			0 4 3 4 WOR/0.5	7	
				100	SS-17			0 2 3 4 WOR/0.5	5	
				100	SS-18			0 0 2 3 WOR/1.0	2	87
-100.0	91.0									
-101.6	92.6		SILTY SAND (SM) (2.5YR 3/3), dark reddish brown, wet, medium dense, rapid dilatancy, fine sand, interlayered clay	100	SS-19			10 10 12 12	22	

BOTTOM OF BOREHOLE AT 92.6 ft
Boring terminated at EL -101.6' MLLW in SILTY SAND

Boring conducted from Northstar Marine Services, Inc. - Northstar L/B Vision

GBA ENGINEERS ★ SURVEYORS

Boring Designation FD24-CAD-03

DRILLING LOG

DIVISION: North Atlantic Division

INSTALLATION: New England District

SHEET 1 OF 1 SHEETS

CONTRACT NO.: W912DS22D0017

TASK ORDER NO.: W912WJ24F0024

PROJECT NAME: Subsurface Exploration of New Haven Harbor

9. COORDINATE SYSTEM: State Plane - Connecticut | HORIZONTAL: NAD83 | VERTICAL: MLLW

10. SIZE AND TYPE OF BIT: Mud Rotary (4" Tricone Roller)

2. HOLE NUMBER: FD24-CAD-03 | LOCATION COORDINATES: N 657,210.7 E 954,209.8

11. MANUFACTURER'S DESIGNATION OF DRILL: ADT-240, CME-55, autohammer efficiency 83.2% (08/30/23)

3. DRILLING AGENCY: Aquifer Drilling & Testing (ADT) - A Cascade Company

12. TOTAL SAMPLES: DISTURBED 20 | UNDISTURBED 0

4. NAME OF DRILLER: Dominick Pepe

13. TOTAL NUMBER CORE BOXES: 0

5. DIRECTION OF BORING: ☒ VERTICAL ☐ INCLINED | DEG FROM VERTICAL: --- | BEARING:

14. ELEVATION GROUND WATER: N/A

15. DATE BORING: STARTED 8/1/24 | COMPLETED 8/1/24

6. THICKNESS OF OVERBURDEN: >96.5'

16. ELEVATION TOP OF BORING: -4.5' (Measured in field)

7. DEPTH DRILLED INTO ROCK: 0'

17. TOTAL CORE RECOVERY FOR BORING: N/A

8. TOTAL DEPTH OF BORING: 96.5'

18. SIGNATURE AND TITLE OF INSPECTOR: Lindsay Pugh, PG, Geologist

ELEV	DEPTH	FIELD CLASSIFICATION OF MATERIALS (Description)	% REC	Samp No.	RQD %	REMARKS	Blows/ 0.5 ft	N-Value
-7.5	3.0	SILTY SAND (SM) (10YR 3/1), very dark gray, saturated, very loose, rapid dilatancy, fine sand, subrounded	40	SS-01		USCS - Gradation results and classification provided by CDM Smith Laboratory Autohammer, 140lbs, 30in drops, 2-inch diameter, 24 inches long split spoon used on all samples Gravel: 1; Sand: 94; Fines: 5; LL: NP; PI: NP; MC: 22; SP	0 0 0 0 WOR/1.0 WOH/1.0	0
-12.5	8.0	POORLY GRADED SAND WITH SILT (SP-SM) (2.5Y 3/2), very dark grayish brown, saturated, very loose, rapid dilatancy, fine to medium sand, trace shell fragments, subangular to subrounded	35	SS-02			4 2 1 2	3
-19.0	14.5	ORGANIC SILT (OH) (2.5Y 3/1), very dark gray, wet, very soft, slow dilatancy, little fine sand, and shell fragments, Organic Sediments	100	SS-03		torvane (1.0) (uncorrected): 1.5 kg/cm² pocket penetrometer (uncorrected): 0.0 tsf	0 0 0 0 WOR/2.0	0
-24.0	19.5	Trace fine sand, and shell fragments	100	SS-04		torvane (1.0) (uncorrected): 1.0 kg/cm² pocket penetrometer (uncorrected): 0.0 tsf; Gravel: 0; Sand: 9; Fines: 92; MC: 68; OH	0 0 0 0 WOR/2.0	0
		No fine sand, and shell fragments	100	SS-05		torvane (1.0) (uncorrected): 1.25 kg/cm² pocket penetrometer (uncorrected): 0.0 tsf	0 0 0 0 WOR/2.0	0
			100	SS-06		torvane (1.0) (uncorrected): 1.25 kg/cm² pocket penetrometer (uncorrected): 0.0 tsf	0 0 0 0 WOR/2.0	0
			100	SS-07		torvane (1.0) (uncorrected): 1.0 kg/cm² pocket penetrometer (uncorrected): 0.0 tsf; Gravel: 0; Sand: 13; Fines: 87; MC: 77; OH	0 0 0 0 WOH/2.0	0
-39.0	34.5							
-39.8	35.3	SANDY SILT	55	SS-08 SS-09		torvane (1.0) (uncorrected): 1.5 kg/cm² pocket penetrometer (uncorrected): 0.0 tsf drive 5ft of casing	0 1 3 5 WOR/0.5	4
-42.5	38.0	SILTY SAND (SM) (2.5Y 3/1), very dark gray, saturated, very loose, rapid dilatancy, fine to medium sand, some fine sand, Marine Sediments	100	SS-10			10 10 12 21	22
		POORLY GRADED SAND WITH SILT (SP-SM) (7.5YR 3/2), dark brown , saturated, medium dense to loose, rapid dilatancy, medium to coarse sand, trace shell fragments, and fine gravel, subangular to subrounded	40	SS-11		Gravel: 12; Sand: 81; Fines: 7; MC: 17; SP-SM	4 6 5 4	11
-54.0	49.5							
-57.5	53.0	No fine gravel	50	SS-12			4 4 5 5	9
		SILT (ML) (2.5YR 3/3), dark reddish brown, wet, stiff, rapid dilatancy, some mica, Glacio-Marine Silts	55	SS-13		torvane (1.0) (uncorrected): 0.5 kg/cm² pocket penetrometer (uncorrected): 0.0 tsf	5 6 6 7	12
-67.5	63.0		60	SS-14		torvane (1.0) (uncorrected): 0.0 kg/cm² pocket penetrometer (uncorrected): 0.0 tsf	5 6 10 10	16
		ELASTIC SILT (MH) (2.5YR 3/3), dark reddish brown, wet, soft to stiff, slow dilatancy, some mica	100	SS-15		torvane (1.0) (uncorrected): 2.0 kg/cm² pocket penetrometer (uncorrected): 0.75 tsf	1 3 4 3	7
			100	SS-16		torvane (1.0) (uncorrected): 2.5 kg/cm² pocket penetrometer (uncorrected): 0.5 tsf	0 2 3 2 WOH/0.5	5
-79.0	74.5							
		Lensed	100	SS-17		torvane (1.0) (uncorrected): 2.5 kg/cm² pocket penetrometer (uncorrected): 0.5 tsf	2 2 2 4	4
			100	SS-18		torvane (1.0) (uncorrected): 1.5 kg/cm² pocket penetrometer (uncorrected): 0.25 tsf	0 3 4 4 WOR/0.5	7
			100	SS-19		torvane (1.0) (uncorrected): 2.0 kg/cm² pocket penetrometer (uncorrected): 0.5 tsf	4 7 5 5	12
-92.5	88.0							
		SILTY SAND (SM) (2.5YR 3/3), dark reddish brown, saturated, medium dense, rapid dilatancy, some mica	80	SS-20			6 8 11 13	19
			75	SS-21			11 10 14 12	24
-101.0	96.5							

BOTTOM OF BOREHOLE AT 96.5 ft

Boring terminated at EL -101.0' MLLW in SILTY SAND

Boring conducted from Northstar Marine Services, Inc. - Northstar L/B Vision

GBA ENGINEERS ★ SURVEYORS

Boring Designation FD24-CAD-04

DRILLING LOG

DIVISION: North Atlantic Division	INSTALLATION: New England District	SHEET 1 OF 1 SHEETS	
CONTRACT NO.: W912DS22D0017	9. COORDINATE SYSTEM: State Plane - Connecticut	HORIZONTAL: NAD83	VERTICAL: MLLW
TASK ORDER NO.: W912WJ24F0024	10. SIZE AND TYPE OF BIT: Mud Rotary (4" Tricone Roller)		
PROJECT NAME: Subsurface Exploration of New Haven Harbor	11. MANUFACTURER'S DESIGNATION OF DRILL: ADT-240, CME-55, autohammer efficiency 83.2% (08/30/23)		
2. HOLE NUMBER: FD24-CAD-04	LOCATION COORDINATES: N 657,470.8 E 954,704.6	12. TOTAL SAMPLES	DISTURBED: 19 / UNDISTURBED: 0
3. DRILLING AGENCY: Aquifer Drilling & Testing (ADT) - A Cascade Company		13. TOTAL NUMBER CORE BOXES: 0	
4. NAME OF DRILLER: Nick Marmolejo		14. ELEVATION GROUND WATER: N/A	
5. DIRECTION OF BORING: ☒ VERTICAL ☐ INCLINED	DEG FROM VERTICAL: ---	BEARING:	15. DATE BORING: STARTED 7/6/24 / COMPLETED 7/7/24
6. THICKNESS OF OVERBURDEN: >95.3'		16. ELEVATION TOP OF BORING: -7.7' (Measured in field)	
7. DEPTH DRILLED INTO ROCK: 0'		17. TOTAL CORE RECOVERY FOR BORING: N/A	
8. TOTAL DEPTH OF BORING: 95.3'		18. SIGNATURE AND TITLE OF INSPECTOR: Lindsay Pugh, PG, Geologist	

ELEV	DEPTH	LEGEND	FIELD CLASSIFICATION OF MATERIALS (Description)	% REC	Samp No.	RQD %	REMARKS	Blows/ 0.5 ft	N-Value
			ORGANIC CLAY (CH) (5Y 2.5/1), black , wet, very soft, homogeneous, trace fine sand, and shell fragments, Organic Sediments	100	SS-01		USCS - Gradation results and classification provided by CDM Smith Laboratory Autohammer, 140lbs, 30in drops, 2-inch diameter, 24 inches long split spoon used on all samples	0 0 0 0 WOR/2.0	0
-13.5	5.8		(2.5Y 3/1), very dark gray	100	SS-02			0 0 0 0 WOR/2.0	0
				0	SS-03			0 0 0 0 WOR/2.0	0
-23.5	15.8		(5Y 4/1), dark gray / olive gray	65	SS-04		Gravel: 0; Sand: 6; Fines: 94; LL: 112; PI: 70; MC: 91; OH	0 0 0 0 WOR/2.0	0
-28.5	20.8		No fine sand, and shell fragments	65	SS-05			0 0 0 0 WOR/2.0	0
				100	SS-06			0 0 0 0 WOR/2.0	0
				100	SS-07			0 0 0 0 WOR/2.0	0
-45.0	37.3			100	SS-08			0 0 0 0 WOR/2.0	0
-49.4	41.7		With wood	85	SS-09		Switched from drag rotary bit to tricone roller bit, drive 5ft of casing	7 9 9 9	18
-52.7	45.0		POORLY GRADED SAND WITH SILT (SP-SM) (5YR 3/2), dark reddish brown / grayish brown, wet, medium dense, homogeneous, fine to coarse sand, trace fine gravel, Marine Sediments	65	SS-10		Gravel: 8; Sand: 87; Fines: 5; MC: 16; SP-SM drive 15ft of casing	6 4 6 10	10
-57.7	50.0		SILT (ML) (5YR 3/3), dark reddish brown , wet, stiff, homogeneous, some sand, and mica, Glacio-Marine Silts	100	SS-11			2 2 3 3	5
-62.7	55.0		LEAN CLAY (CL) (5YR 3/3), dark reddish brown , wet, medium stiff, homogeneous, trace mica	100	SS-12			0 2 3 3 WOH/0.5	5
-70.7	63.0		LEAN CLAY (5YR 3/3), dark reddish brown , moist, laminated						
			Lensed	100	SS-13		Gravel: 0; Sand: 1; Fines: 99; LL: 44; PI: 21; MC: 37; CL	0 2 3 4 WOR/0.5	5
-78.7	71.0			100	SS-14			0 4 4 4 WOR/0.5	8
			SILT (ML) (5YR 3/3), dark reddish brown , wet, stiff to very stiff, lensed	100	SS-15		Gravel: 0; Sand: 8; Fines: 92; MC: 28; ML	5 6 7 7	13
-85.7	78.0								
-88.7	81.0		SANDY SILT (ML) wet	100	SS-16			4 7 11 13	18
-93.7	86.0		SILTY SAND (SM) (5YR 3/3), dark reddish brown , saturated, medium dense, homogeneous, fine sand, few mica, Glacio-Marine Sands	100	SS-17			12 14 15 13	29
			POORLY GRADED SAND (SP) (5YR 3/3), dark reddish brown , saturated, medium dense, homogeneous, fine sand	100	SS-18			10 13 11 12	24
-103.0	95.3			100	SS-19			8 9 8 11	17

BOTTOM OF BOREHOLE AT 95.3 ft
Boring terminated at EL -103.0' MLLW in POORLY GRADED SAND
Boring conducted from Northstar Marine Services, Inc. - Northstar L/B Vision

GBA ENGINEERS ★ SURVEYORS

Boring Designation FD24-CAD-05

DRILLING LOG	DIVISION: North Atlantic Division	INSTALLATION: New England District	SHEET 1 OF 1 SHEETS
CONTRACT NO.: W912DS22D0017		9. COORDINATE SYSTEM: State Plane - Connecticut	HORIZONTAL: NAD83 / VERTICAL: MLLW
TASK ORDER NO.: W912WJ24F0024		10. SIZE AND TYPE OF BIT: Mud Rotary (4" Tricone Roller)	
PROJECT NAME: Subsurface Exploration of New Haven Harbor		11. MANUFACTURER'S DESIGNATION OF DRILL: ADT-240, CME-55, autohammer efficiency 83.2% (08/30/23)	
2. HOLE NUMBER: FD24-CAD-05	LOCATION COORDINATES: N 657,808.3 E 954,261.7	12. TOTAL SAMPLES	DISTURBED: 20 / UNDISTURBED: 0
3. DRILLING AGENCY: Aquifer Drilling & Testing (ADT) - A Cascade Company		13. TOTAL NUMBER CORE BOXES: 0	
4. NAME OF DRILLER: Dominick Pepe		14. ELEVATION GROUND WATER: N/A	
5. DIRECTION OF BORING: ☒ VERTICAL ☐ INCLINED	DEG FROM VERTICAL: --- / BEARING	15. DATE BORING	STARTED: 7/27/24 / COMPLETED: 7/28/24
6. THICKNESS OF OVERBURDEN: >97'		16. ELEVATION TOP OF BORING: -5.6' (Measured in field)	
7. DEPTH DRILLED INTO ROCK: 0'		17. TOTAL CORE RECOVERY FOR BORING: N/A	
8. TOTAL DEPTH OF BORING: 97'		18. SIGNATURE AND TITLE OF INSPECTOR: Loukas Rimanelli, Geologist	

ELEV	DEPTH	LEGEND	FIELD CLASSIFICATION OF MATERIALS (Description)	% REC	Samp No.	RQD %	REMARKS	Blows/ 0.5 ft	N-Value	
			ORGANIC CLAY (OL) (2.5Y 2.5/1), black, wet, very soft, homogeneous, low plasticity, slow dilatancy, low dry strength, Organic Sediments	95	SS-01		USCS - Gradation results and classification provided by CDM Smith Laboratory Autohammer, 140lbs, 30in drops, 2-inch diameter, 24 inches long split spoon used on all samples	0 0 0 0 WOR/2.0	0	0
-10.6	5.0									
			ORGANIC CLAY SANDY (OH) with sand, trace shell fragments	100	SS-02		pocket penetrometer (uncorrected): 1.0 tsf	0 0 0 0 WOR/2.0	0	
				100	SS-03		pocket penetrometer (uncorrected): 1.0 tsf; Gravel: 0; Sand: 35; Fines: 65; LL: 73; PI: 42; MC: 51; OH	0 0 0 0 WOR/2.0	0	
				100	SS-04		pocket penetrometer (uncorrected): 1.0 tsf	0 0 0 0 WOR/2.0	0	15
-25.6	20.0									
			ORGANIC SILT medium plasticity, no dilatancy, medium dry strength, no sand, no shell fragments	60	SS-05		drive 5ft of casing; pocket penetrometer (uncorrected): 1.25 tsf	0 0 0 0 WOR/2.0	0	
				100	SS-06		pocket penetrometer (uncorrected): 1.25 tsf	0 0 0 0 WOR/2.0	0	
				100	SS-07		drive 5ft of casing; pocket penetrometer (uncorrected): 0.5 tsf	0 0 0 0 WOR/2.0	0	30
				100	SS-08		drive 5ft of casing; Gravel: 0; Sand: 20; Fines: 80; LL: 82; PI: 43; MC: 99; OH; pocket penetrometer (uncorrected): 0.25 tsf	0 0 0 2 WOR/1.5	0	
-44.6	39.0									
			POORLY GRADED SAND WITH SILT (SP-SM) (2.5YR 3/1), dark reddish gray, saturated, very loose to medium dense, homogeneous, rapid dilatancy, medium to coarse sand, Marine Sediments	90	SS-09		drive 5ft of casing; Gravel: 1; Sand: 94; Fines: 6; MC: 24; SP-SM	4 5 6 6	11	
				0	SS-10		drive 5ft of casing	0 2 2 3 WOH/0.5	4	46
-55.6	50.0									
			(2.5YR 4/4), reddish brown, fine sand, with mica	50	SS-11			11 10 13 16	23	
-59.6	54.0									
			SILT WITH SAND (ML) (2.5YR 4/4), reddish brown, saturated, very stiff to hard, homogeneous, rapid dilatancy, fine sand, Glacio-Marine Silts	90	SS-12		Gravel: 0; Sand: 29; Fines: 71; MC: 25; ML	2 18 23 24	41	
				65	SS-13			14 17 17 14	34	61
				65	SS-14			16 24 27 23	51	
				80	SS-15			12 15 19 24	34	
-79.6	74.0									
			POORLY GRADED SAND (SP) (2.5YR 4/4), reddish brown, saturated, dense to medium dense, homogeneous, rapid dilatancy, medium to coarse sand, Glacio-Marine Sands	85	SS-16			10 15 18 19	33	76
-85.6	80.0									
			Fine sand	70	SS-17			15 14 18 16	32	
				70	SS-18			9 13 15 13	28	
				65	SS-19			8 9 13 15	22	91
-102.6	97.0									
				80	SS-20			12 12 13 16	25	

BOTTOM OF BOREHOLE AT 97.0 ft
Boring terminated at EL -102.6' MLLW in POORLY GRADED SAND
Boring conducted from Northstar Marine Services, Inc. - Northstar L/B Vision

GBA ENGINEERS ★ SURVEYORS

Boring Designation FD24-CAD-06

DRILLING LOG	DIVISION: North Atlantic Division	INSTALLATION: New England District	SHEET 1 OF 1 SHEETS
CONTRACT NO.: W912DS22D0017		9. COORDINATE SYSTEM: State Plane - Connecticut	HORIZONTAL: NAD83 / VERTICAL: MLLW
TASK ORDER NO.: W912WJ24F0024		10. SIZE AND TYPE OF BIT: Mud Rotary (4" Tricone Roller)	
PROJECT NAME: Subsurface Exploration of New Haven Harbor		11. MANUFACTURER'S DESIGNATION OF DRILL: ADT-240, CME-55, autohammer efficiency 83.2% (08/30/23)	
2. HOLE NUMBER: FD24-CAD-06	LOCATION COORDINATES: N 658,062.2 E 954,770.9	12. TOTAL SAMPLES	DISTURBED: 19 / UNDISTURBED: 0
3. DRILLING AGENCY: Aquifer Drilling & Testing (ADT) - A Cascade Company		13. TOTAL NUMBER CORE BOXES: 0	
4. NAME OF DRILLER: Nick Marmolejo		14. ELEVATION GROUND WATER: N/A	
5. DIRECTION OF BORING: ☒ VERTICAL ☐ INCLINED	DEG FROM VERTICAL: --- / BEARING	15. DATE BORING	STARTED: 7/5/24 / COMPLETED: 7/5/24
6. THICKNESS OF OVERBURDEN: >93'		16. ELEVATION TOP OF BORING: -8.5' (Measured in field)	
7. DEPTH DRILLED INTO ROCK: 0'		17. TOTAL CORE RECOVERY FOR BORING: N/A	
8. TOTAL DEPTH OF BORING: 93'		18. SIGNATURE AND TITLE OF INSPECTOR: Lindsay Pugh, PG, Geologist	

ELEV	DEPTH	LEGEND	FIELD CLASSIFICATION OF MATERIALS (Description)	% REC	Samp No.	RQD %	REMARKS	Blows/ 0.5 ft	N-Value	
			ORGANIC SILT (OH) (2.5Y 3/1), very dark gray, wet, very soft, homogeneous, little fine sand, few shell fragments, Organic Sediments	100	SS-01		USCS - Gradation results and classification provided by CDM Smith Laboratory Autohammer, 140lbs, 30in drops, 2-inch diameter, 24 inches long split spoon used on all samples Gravel: 0; Sand: 9; Fines: 91; LL: 89; PI: 46; MC: 102; OH	0 0 0 0 WOR/2.0	0	0
				100	SS-02			0 0 0 0 WOR/2.0	0	
				100	SS-03			0 0 0 0 WOR/2.0	0	
-24.2	15.7		ORGANIC CLAY (OH) trace shell fragments, no fine sand	100	SS-04			0 0 0 0 WOR/2.0	0	15
				100	SS-05			0 0 0 0 WOR/2.0	0	
				100	SS-06		Gravel: 0; Sand: 9; Fines: 91; LL: 104; PI: 65; MC: 90; OH	0 0 0 0 WOR/2.0	0	29
-44.5	36.0			100	SS-07			0 0 0 0 WOR/2.0	0	
-49.2	40.7		POORLY GRADED SAND WITH SILT (SP-SM) (5YR 3/2), dark reddish brown / grayish brown, loose to medium dense, homogeneous, Marine Sediments	65	SS-08			6 4 6 6	10	
-54.5	46.0		Fine to coarse sand, trace fine gravel	65	SS-09		Gravel: 4; Sand: 89; Fines: 7; MC: 19; SP-SM Switched from drag rotary bit to tricone roller bit, drive 5ft of casing	3 5 6 6	11	44
-56.5	48.0		No fine gravel	60	SS-10		drive 5ft of casing	5 3 4 5	7	
			SILT (ML) (2.5YR 4/3), reddish brown, stiff to very stiff, homogeneous, trace fine sand, some mica, Glacio-Marine Silts	95	SS-11			3 4 4 5	8	
				100	SS-12		Gravel: 0; Sand: 3; Fines: 97; MC: 30; ML	4 4 3 6	7	58
-72.5	64.0			100	SS-13			9 10 9 7	19	
-77.5	69.0		SILTY SAND (SM) (2.5YR 4/3), reddish brown, medium dense, homogeneous, fine sand, trace mica, Glacio-Marine Sands	100	SS-14			9 13 13 14	26	
-83.5	75.0		POORLY GRADED SAND (SP) (2.5YR 4/3), reddish brown, medium dense, homogeneous, fine sand, trace silt, and mica	100	SS-15			7 8 8 7	16	73
-88.5	80.0		SILTY SAND (SM) (2.5YR 4/3), reddish brown, medium dense, homogeneous	100	SS-16			8 6 7 12	13	
-92.5	84.0		SILT SANDY (ML) (2.5YR 4/3), reddish brown, very stiff, homogeneous, trace mica, sandy	100	SS-17			5 7 9 14	16	
			POORLY GRADED SAND (SP) (2.5YR 4/3), reddish brown, very dense to dense, homogeneous, fine sand, trace silt	100	SS-18			35 45 44 53	100+	88
-101.5	93.0			100	SS-19			18 20 21 22	41	

BOTTOM OF BOREHOLE AT 93.0 ft
Boring terminated at EL -101.5' MLLW in POORLY GRADED SAND
Boring conducted from Northstar Marine Services, Inc. - Northstar L/B Vision

GBA ENGINEERS ★ SURVEYORS

Boring Designation FD24-RC-01

DRILLING LOG	DIVISION: North Atlantic Division	INSTALLATION: New England District	SHEET 1 OF 1 SHEETS
CONTRACT NO.: W912DS22D0017 TASK ORDER NO.: W912WJ24F0024 PROJECT NAME: Subsurface Exploration of New Haven Harbor		9. COORDINATE SYSTEM: State Plane - Connecticut; HORIZONTAL: NAD83; VERTICAL: MLLW 10. SIZE AND TYPE OF BIT: NQ2 series 10 bit	
2. HOLE NUMBER: FD24-RC-01	LOCATION COORDINATES: N 643,953.1 E 954,939.9	11. MANUFACTURER'S DESIGNATION OF DRILL: ADT-273, CME-55, autohammer efficiency 86.5% (10/17/24)	
3. DRILLING AGENCY: Aquifer Drilling & Testing (ADT) - A Cascade Company		12. TOTAL SAMPLES: DISTURBED 6; UNDISTURBED 0	
4. NAME OF DRILLER: Nick Marmolejo		13. TOTAL NUMBER CORE BOXES: 1	
5. DIRECTION OF BORING: ☒ VERTICAL ☐ INCLINED	DEG FROM VERTICAL: --- BEARING:	14. ELEVATION GROUND WATER: N/A	
		15. DATE BORING: STARTED 8/23/24 COMPLETED 8/23/24	
6. THICKNESS OF OVERBURDEN: 14.3'		16. ELEVATION TOP OF BORING: -39' (Measured in field)	
7. DEPTH DRILLED INTO ROCK: 7'		17. TOTAL CORE RECOVERY FOR BORING: 85%	
8. TOTAL DEPTH OF BORING: 21.3'		18. SIGNATURE AND TITLE OF INSPECTOR: Lindsay Pugh, PG, Geologist	

ELEV	DEPTH	LEGEND	FIELD CLASSIFICATION OF MATERIALS (Description)	% REC	Samp No.	RQD %	REMARKS	Blows/ 0.5 ft	N-Value
			POORLY GRADED SAND (SP) (2.5Y 3/1), very dark gray, saturated, very loose to medium dense, rapid dilatancy, fine to medium sand, trace silt, trace coarse sand, subangular to subrounded Marine Sediments	47	SS-01		USCS - Gradation results and classification provided by CDM Smith Laboratory; Gravel: 0; Sand: 97; Fines: 3; MC: 24; SP Autohammer, 140lbs, 30in drops, 2-inch diameter, 24 inches long split spoon used on all samples	0 0 1 1	1 /2
				5	SS-02			6 5 4 6	9
							switch from continuous sampling to 5ft intervals to stabilize 4in casing quickly due to strong undercurrents		
-45.7	6.7		(7.5YR 3/4), dark brown	25	SS-03			4 6 8 8	14
-49.0	10.0		SILTY SAND (SM) (7.5YR 3/4), dark brown , saturated, medium dense, rapid dilatancy, very fine sand, trace mica	75	SS-04			10 10 9 9	19
-53.3	14.3						switch from roller bit to wireline coring setup set 3inch casing within 4inch casing in order to create good seal for NQ2 core drilling - rig chatter while 4inch is advanced		
-54.3	15.3		ALTERED GRANITE SCHIST slightly weathered, black pinkish white, medium crystalline, K-feldspar, Quartz, Plagioclase, Biotite present, very hard to hard, slightly to moderately fracture spacing, near horizonal joints with iron oxidation on rough surfaces	85	Run 1	82	R1a (15.9'-16.2') UCS=18.69 Ksi Youngs Modulus at failure=5,915.9 Ksi 0-10° joint at 16.3' 0-5° weathering mineralization vein at 17.3' R1b (18.2'-18.5') UCS=21.47 Ksi Youngs Modulus at failure=7,144.1 Ksi heavily altered mineralization containing chlorite between 19.1'-19.9'	100 100/0.0	100 /0
-60.3	21.3								

BOTTOM OF BOREHOLE AT 21.3 ft
Boring terminated at -60.3' MLLW in ALTERED GRANITE SCHIST
Boring conducted from Northstar Marine Services, Inc. - Northstar L/B Vision

CORE LOG	DIVISION	INSTALLATION	SHEET / OF
	North Atlantic Division	New England District	1 OF 1 SHEETS

CONTRACT NO.: W912DS22D0017		9. COORDINATE SYSTEM: State Plane - Connecticut	HORIZONTAL: NAD83 / VERTICAL: MLLW
TASK ORDER NO.: W912WJ24F0024		10. SIZE AND TYPE OF BIT: NQ2 series 10 bit	
PROJECT NAME: Subsurface Exploration of New Haven Harbor			
2. HOLE NUMBER: FD24-RC-01	LOCATION COORDINATES: N 643,953.1 E 954,939.9	11. MANUFACTURER'S DESIGNATION OF DRILL: ADT-273, CME-55, autohammer efficiency 86.5% (10/17/24)	
3. DRILLING AGENCY: Aquifer Drilling & Testing (ADT) - A Cascade Company		12. TOTAL SAMPLES	DISTURBED: 6 / UNDISTURBED: 0
4. NAME OF DRILLER: Nick Marmolejo		13. TOTAL NUMBER CORE BOXES: 1	
5. DIRECTION OF BORING: ☒ VERTICAL ☐ INCLINED	DEG FROM VERTICAL: --- / BEARING	14. ELEVATION GROUND WATER	
		15. DATE BORING	STARTED: 8/23/24 / COMPLETED: 8/23/24
6. THICKNESS OF OVERBURDEN: 14.3'		16. ELEVATION TOP OF BORING: -39.0	
7. DEPTH DRILLED INTO ROCK: 7'		17. TOTAL CORE RECOVERY FOR BORING: 85%	
8. TOTAL DEPTH OF BORING: 21.3'		18. SIGNATURE AND TITLE OF INSPECTOR: Lindsay Pugh, PG Geologist	

ELEV	DEPTH	Fracture Drawing	Fracture Number	Legend	FIELD CLASSIFICATION OF MATERIALS (Description)	Rock Core: Run No.	Box No.	Rec %	Frac. per foot	RQD %	Drill Time (Rate ft/hr)	W_x	REMARKS
-53.3	14.3												switch from roller bit to wireline coring setup
-54.3	15.3												set 3inch casing within 4inch casing in order to create good seal for NQ2 core drilling - rig chatter while 4inch is advanced
			-		ALTERED GRANITE SCHIST slightly weathered, black pinkish white, medium crystalline, K-feldspar, Quartz, Plagioclase, Biotite present, very hard to hard, slightly to moderately fracture spacing, near horizonal joints with iron oxidation on rough surfaces	Run 1	1		0		(6)		R1a (15.9'-16.2') UCS=18.69 Ksi
			1						1		(6)		Youngs Modulus at failure=5,915.9 Ksi
			-						0		(3)		0-10° joint at 16.3'
			-					85	0	82	(7)		0-5° weathering mineralization vein at 17.3'
			2						1		(3)		R1b (18.2'-18.5') UCS=21.47 Ksi
			-						0		(4)		Youngs Modulus at failure=7,144.1 Ksi
-60.3	21.3												heavily altered mineralization containing chlorite between 19.1'-19.9'

Boring terminated at -60.3' MLLW in ALTERED GRANITE SCHIST
Boring was conducted from Northstar Marine Services, Inc - Northstar L/B Vision

GBA ENGINEERS ★ SURVEYORS

Boring Designation FD24-RC-02

DRILLING LOG	DIVISION: North Atlantic Division	INSTALLATION: New England District	SHEET 1 OF 1 SHEETS
CONTRACT NO.: W912DS22D0017 TASK ORDER NO.: W912WJ24F0024 PROJECT NAME: Subsurface Exploration of New Haven Harbor		9. COORDINATE SYSTEM: State Plane - Connecticut; HORIZONTAL: NAD83; VERTICAL: MLLW 10. SIZE AND TYPE OF BIT: NQ2 series 10 bit	
2. HOLE NUMBER: FD24-RC-02	LOCATION COORDINATES: N 648,012.9 E 954,452.4	11. MANUFACTURER'S DESIGNATION OF DRILL: ADT-273, CME-55, autohammer efficiency 86.5% (10/17/24)	
3. DRILLING AGENCY: Aquifer Drilling & Testing (ADT) - A Cascade Company		12. TOTAL SAMPLES:	DISTURBED: 9; UNDISTURBED: 0
4. NAME OF DRILLER: Nick Marmolejo		13. TOTAL NUMBER CORE BOXES: 2	
5. DIRECTION OF BORING: ☒ VERTICAL ☐ INCLINED	DEG FROM VERTICAL: ---	BEARING:	14. ELEVATION GROUND WATER: N/A
		15. DATE BORING	STARTED: 8/31/24; COMPLETED: 8/31/24
6. THICKNESS OF OVERBURDEN: 26.4'		16. ELEVATION TOP OF BORING: -21.4' (Measured in field)	
7. DEPTH DRILLED INTO ROCK: 9.8'		17. TOTAL CORE RECOVERY FOR BORING: 92%	
8. TOTAL DEPTH OF BORING: 36.2'		18. SIGNATURE AND TITLE OF INSPECTOR: Lindsay Pugh, PG, Geologist	

ELEV	DEPTH	LEGEND	FIELD CLASSIFICATION OF MATERIALS (Description)	% REC	Samp No.	RQD %	REMARKS	Blows/ 0.5 ft	N-Value
			ORGANIC SILT WITH SAND (OL) (2.5Y 2.5/1), black, saturated, very soft, low plasticity, rapid dilatancy, fine sand, Organic Sediments	50	SS-01		USCS - Gradation results and classification provided by CDM Smith Laboratory Autohammer, 140lbs, 30in drops, 2-inch diameter, 24 inches long split spoon used on all samples switch from continuous sampling to 5ft intervals to stabilize 4in casing quickly due to marginal weather conditions torvane (1.0) (uncorrected): 0.0 kg/cm² pocket penetrometer (uncorrected): 0.0 tsf Gravel: 0; Sand: 31; Fines: 68; MC: 89; ML	0 0 0 0 WOR/2.0	0
-28.5	7.1			114	SS-02			0 1 2 1 WOR/0.5	2 /0
			SILTY SAND (SM) (2.5Y 5/2), grayish brown, saturated, very loose to loose, rapid dilatancy, fine to coarse sand, trace fine gravel, some shell fragments, Marine Sediments		SS-03				
				50	SS-04			5 3 4 3	7
				50	SS-05			0 0 0 3 WOR/1.5	0
-40.4	19.0								
			SILT WITH SAND (ML) (5YR 3/3), dark reddish brown , wet, stiff, rapid dilatancy, some fine sand, with mica	50	SS-06		torvane (1.0) (uncorrected): 2.0 kg/cm² pocket penetrometer (uncorrected): 0.75 tsf	3 3 6 14	9
-44.4	23.0								
			WELL GRADED GRAVEL (GW) (2.5Y 2.5/1), black, very dense, Glacial Till				rig chatter as 4inch roller is advanced to next sample interval		
				33	SS-07		roller and spoon refusal on glacial till. switch to rock coring setup	100 100/0.3	100 /4
-47.8	26.4								
			ALTERED GRANITE SCHIST moderately weathered to slightly weathered, yellowish white and black, medium crystalline, K-feldspar, Quartz, Plagioclase, Biotite present, very hard to hard, highly to moderately fracture spacing, iron oxide staining, vertical to near vertical fractures with rough surface containing iron oxidation staining	80	Run 1	37	2 near vertical cross fractures from 28.4'-29.2'		
-51.4	30.0			100	Run 2	61	near vertical fracture from 30.6'-33.0' near vertical fracture from 33.6'-34.8' 45° fracture at 35.3' R2(35.4'-35.7') UCS=15.56 Ksi Youngs Modulus at failure=5,282.7 Ksi		
-57.6	36.2								

BOTTOM OF BOREHOLE AT 36.2 ft
Boring terminated at -57.6' MLLW in ALTERED GRANITE SCHIST.
Boring terminated early due damage to NQ2 inner barrel
Boring conducted from Northstar Marine Services, Inc. - Northstar L/B Vision

GBA ENGINEERS ★ SURVEYORS

Boring Designation FD24-RC-02

CORE LOG	DIVISION: North Atlantic Division	INSTALLATION: New England District	SHEET 1 OF 1 SHEETS

CONTRACT NO.: W912DS22D0017		9. COORDINATE SYSTEM: State Plane - Connecticut	HORIZONTAL: NAD83 / VERTICAL: MLLW
TASK ORDER NO.: W912WJ24F0024		10. SIZE AND TYPE OF BIT: NQ2 series 10 bit	
PROJECT NAME: Subsurface Exploration of New Haven Harbor		11. MANUFACTURER'S DESIGNATION OF DRILL: ADT-273, CME-55, autohammer efficiency 86.5% (10/17/24)	
2. HOLE NUMBER: FD24-RC-02	LOCATION COORDINATES: N 648,012.9 E 954,452.4	12. TOTAL SAMPLES	DISTURBED: 9 / UNDISTURBED: 0
3. DRILLING AGENCY: Aquifer Drilling & Testing (ADT) - A Cascade Company		13. TOTAL NUMBER CORE BOXES: 2	
4. NAME OF DRILLER: Nick Marmolejo		14. ELEVATION GROUND WATER	
5. DIRECTION OF BORING: ☒ VERTICAL ☐ INCLINED	DEG FROM VERTICAL: --- / BEARING	15. DATE BORING	STARTED: 8/31/24 / COMPLETED: 8/31/24
6. THICKNESS OF OVERBURDEN: 26.4'		16. ELEVATION TOP OF BORING: -21.4	
7. DEPTH DRILLED INTO ROCK: 9.8'		17. TOTAL CORE RECOVERY FOR BORING: 92%	
8. TOTAL DEPTH OF BORING: 36.2'		18. SIGNATURE AND TITLE OF INSPECTOR: Lindsay Pugh, PG Geologist	

ELEV	DEPTH	Fracture Drawing	Fracture Number	Legend	FIELD CLASSIFICATION OF MATERIALS (Description)	Rock Core: Run No.	Box No.	Rec %	Frac. per foot	RQD %	Drill Time (Rate ft/hr)	W_x	REMARKS
-47.8	26.4		1		ALTERED GRANITE SCHIST moderately weathered to slightly weathered, yellowish white and black, medium crystalline, K-feldspar, Quartz, Plagioclase, Biotite present, very hard to hard, highly to moderately fracture spacing, iron oxide staining, vertical to near vertical fractures with rough surface containing iron oxidation staining	Run 1	Box 1	80	1	37	(3)		
			2						1		(3)		
			-						0		(3)		2 near vertical cross fractures from 28.4'-29.2'
			-						0		(5)		
-51.4	30.0		3						1		(5)		near vertical fracture from 30.6'-33.0'
			4						1		(4)		
			5						1		(3)		
			6			Run 2	Box 1	100	1	61	(3)		near vertical fracture from 33.6'-34.8'
			7						1		(4)		
			8						1		(4)		45° fracture at 35.3' R2(35.4'-35.7') UCS=15.56 Ksi Youngs Modulus at failure=5,282.7 Ksi
-57.6	36.2												

Boring terminated at -57.6' MLLW in ALTERED GRANITE SCHIST.
Boring terminated early due damage to NQ2 inner barrel
Boring was conducted from Northstar Marine Services, Inc - Northstar L/B Vision

GBA ENGINEERS ★ SURVEYORS

Boring Designation FD24-RC-03

DRILLING LOG

DIVISION	North Atlantic Division
INSTALLATION	New England District
SHEET	1 OF 1 SHEETS
CONTRACT NO.:	W912DS22D0017
TASK ORDER NO.:	W912WJ24F0024
PROJECT NAME:	Subsurface Exploration of New Haven Harbor
9. COORDINATE SYSTEM	State Plane - Connecticut
HORIZONTAL	NAD83
VERTICAL	MLLW
10. SIZE AND TYPE OF BIT	NQ3 series 8 bit
2. HOLE NUMBER	FD24-RC-03
LOCATION COORDINATES	N 645,964.0 E 954,427.6
11. MANUFACTURER'S DESIGNATION OF DRILL	ADT-240, CME-55, autohammer efficiency 83.2% (08/30/23)
3. DRILLING AGENCY	Aquifer Drilling & Testing (ADT) - A Cascade Company
12. TOTAL SAMPLES	DISTURBED 12 / UNDISTURBED 0
4. NAME OF DRILLER	Nick Marmolejo
13. TOTAL NUMBER CORE BOXES	1
14. ELEVATION GROUND WATER	N/A
5. DIRECTION OF BORING	☒ VERTICAL ☐ INCLINED; DEG FROM VERTICAL: --- ; BEARING:
15. DATE BORING	STARTED 7/15/24 COMPLETED 7/16/24
6. THICKNESS OF OVERBURDEN	11.8'
16. ELEVATION TOP OF BORING	-28.7' (Measured in field)
7. DEPTH DRILLED INTO ROCK	19.6'
17. TOTAL CORE RECOVERY FOR BORING	88%
8. TOTAL DEPTH OF BORING	31.4'
18. SIGNATURE AND TITLE OF INSPECTOR	Lindsay Pugh, PG, Geologist

ELEV	DEPTH	LEGEND	FIELD CLASSIFICATION OF MATERIALS (Description)	% REC	Samp No.	RQD %	REMARKS	Blows/ 0.5 ft	N-Value
			SILTY SAND (SM) (2.5Y 2.5/1), black, saturated, very loose to loose, rapid dilatancy, fine to medium sand, subangular to subrounded	60	SS-01		USCS - Gradation results and classification provided by CDM Smith Laboratory; Gravel: 0; Sand: 83; Fines: 17; MC: 27; SM Autohammer, 140lbs, 30in drops, 2-inch diameter, 24 inches long split spoon used on all samples	0 0 0 2 WOR/1.0 WOH/0.5	0
				95	SS-02			1 2 4 6	4 /5
-32.6	3.9		Trace shell fragments	55	SS-03			10 4 2 1	6
-34.7	6.0		POORLY GRADED SAND WITH SILT AND GRAVEL (SP-SM) (5Y 5/1), gray , saturated, loose to medium dense, rapid dilatancy, fine to coarse sand, little shell fragments, trace gravel	90	SS-04			1 3 2 4	5
				45	SS-05		Gravel: 13; Sand: 82; Fines: 5; MC: 17; SP-SM	8 7 4 2	11
-39.3	10.6			75	SS-06			10 21 32 100/0.1	53
-40.5	11.8		WELL GRADED SAND WITH SILT AND GRAVEL (SW-SM) (10YR 3/2), very dark grayish brown, saturated, very dense, stratified, fine to coarse sand, some fine to medium gravel, and silt, Till	0			switch from roller bit to wireline coring setup set 3inch casing within 4inch casing in order to create good seal for NQ3 core drilling - extremely hard drilling with roller rock bit (~45 minutes)		
-42.1	13.4		ALTERED GRANITE SCHIST slightly weathered to moderately weathered, pale yellowish white and black, finely crystalline, K-feldspar, Quartz, Plagioclase, Biotite present, very hard to hard, moderately to highly fracture spacing, near vertical fractures with iron oxidation and epidote on rough fracture surfaces, clay mineralization along joints with slightly to moderately weathered joint surfaces	95	Run 1	50	40° fracture at 14.4' 70° fracture at 15.1'		
-44.1	15.4			90	Run 2	30	45° fracture at 16.4' R2 (17.1'-17.4') UCS=8.86 Ksi Youngs Modulus at failure=5,375.7 Ksi 110° fracture at 17.4'		
-47.1	18.4			94	Run 3	68	150° fracture at 18.4' 180° fracture at 19.4' 120° fracture at 20.4' R3 (20.8'-21.0') UCS=21.04 Ksi Youngs Modulus at failure=7,815.4 Ksi 0-10° joint at 21.7'		
-52.1	23.4		Medium crystalline, moderately to slightly fracture spacing	98	Run 4	96	140° fracture at 23.0' 150° fracture at 26.0'		
-57.1	28.4		Moderately weathered, finely crystalline, moderately to highly fracture spacing	100	Run 5	23	0-10° joint at 29.2' near vertical fracture from 30.2'-31.4' with near horizontal jointing throughout		
-60.1	31.4								

BOTTOM OF BOREHOLE AT 31.4 ft
Boring terminated at EL -60.1' MLLW in ALTERED GRANITE SCHIST
Boring conducted from Northstar Marine Services, Inc. - Northstar L/B Vision

CORE LOG	DIVISION: North Atlantic Division	INSTALLATION: New England District	SHEET 1 OF 1 SHEETS
CONTRACT NO.: W912DS22D0017		9. COORDINATE SYSTEM: State Plane - Connecticut	HORIZONTAL: NAD83 / VERTICAL: MLLW
TASK ORDER NO.: W912WJ24F0024		10. SIZE AND TYPE OF BIT: NQ3 series 8 bit	
PROJECT NAME: Subsurface Exploration of New Haven Harbor		11. MANUFACTURER'S DESIGNATION OF DRILL: ADT-240, CME-55, autohammer efficiency 83.2% (08/30/23)	
2. HOLE NUMBER: FD24-RC-03	LOCATION COORDINATES: N 645,964.0 E 954,427.6	12. TOTAL SAMPLES	DISTURBED: 12 / UNDISTURBED: 0
3. DRILLING AGENCY: Aquifer Drilling & Testing (ADT) - A Cascade Company		13. TOTAL NUMBER CORE BOXES: 1	
4. NAME OF DRILLER: Nick Marmolejo		14. ELEVATION GROUND WATER	
5. DIRECTION OF BORING: ☒ VERTICAL ☐ INCLINED	DEG FROM VERTICAL: --- / BEARING	15. DATE BORING	STARTED: 7/15/24 / COMPLETED: 7/16/24
6. THICKNESS OF OVERBURDEN: 11.8'		16. ELEVATION TOP OF BORING: -28.7	
7. DEPTH DRILLED INTO ROCK: 19.6'		17. TOTAL CORE RECOVERY FOR BORING: 88%	
8. TOTAL DEPTH OF BORING: 31.4'		18. SIGNATURE AND TITLE OF INSPECTOR: Lindsay Pugh, PG Geologist	

ELEV	DEPTH	Fracture Drawing	Fracture Number	Legend	FIELD CLASSIFICATION OF MATERIALS (Description)	Rock Core: Run No.	Box No.	Rec %	Frac. per foot	RQD %	Drill Time (Rate ft/hr)	W_x	REMARKS
-40.5	11.8							0					switch from roller bit to wireline coring setup
-42.1	13.4		1										set 3inch casing within 4inch casing in order to create good seal for NQ3 core drilling - extremely hard drilling with roller rock bit (~45 minutes)
			2		ALTERED GRANITE SCHIST slightly weathered to moderately weathered, pale yellowish white and black, finely crystalline, K-feldspar, Quartz, Plagioclase, Biotite present, very hard to hard, moderately to highly fracture spacing, near vertical fractures with iron oxidation and epidote on rough fracture surfaces, clay mineralization along joints with slightly to moderately weathered joint surfaces	Run 1	Box 1	95	1	50	(11)		
-44.1	15.4		3						1		(8)		15
			4						1		(12)		40° fracture at 14.4'
			5			Run 2	Box 1	90	1	30	(3)		70° fracture at 15.1' 45° fracture at 16.4'
-47.1	18.4		6						1		(6)		R2 (17.1'-17.4') UCS=8.86 Ksi Youngs Modulus at failure=5,375.7 Ksi
			7						2		(3)		110° fracture at 17.4'
			-						2		(5)		150° fracture at 18.4'
			8			Run 3	Box 1	94	0	68	(5)		20 180° fracture at 19.4' 120° fracture at 20.4'
			9						1		(5)		R3 (20.8'-21.0') UCS=21.04 Ksi
-52.1	23.4		-						1		(5)		Youngs Modulus at failure=7,815.4 Ksi
			-		Medium crystalline, moderately to slightly fracture spacing				0		(5)		0-10° joint at 21.7'
			10						0		(4)		140° fracture at 23.0'
			-			Run 4	Box 1	98	1	96	(5)		25 150° fracture at 26.0'
			11						0		(5)		
-57.1	28.4		12						1		(6)		
			13		Moderately weathered, finely crystalline, moderately to highly fracture spacing				1		(4)		
			14						6		(2)		0-10° joint at 29.2' 30
-60.1	31.4					Run 5	Box 1	100	5	23	(2)		near vertical fracture from 30.2'-31.4' with near horizontal jointing throughout

Boring terminated at EL -60.1' MLLW in ALTERED GRANITE SCHIST
Boring was conducted from Northstar Marine Services, Inc - Northstar L/B Vision

GBA ENGINEERS ★ SURVEYORS

Boring Designation FD24-RC-04

DRILLING LOG	DIVISION: North Atlantic Division	INSTALLATION: New England District	SHEET 1 OF 1 SHEETS
CONTRACT NO.: W912DS22D0017		9. COORDINATE SYSTEM: State Plane - Connecticut	HORIZONTAL: NAD83 / VERTICAL: MLLW
TASK ORDER NO.: W912WJ24F0024		10. SIZE AND TYPE OF BIT: NQ2 series 10 bit	
PROJECT NAME: Subsurface Exploration of New Haven Harbor		11. MANUFACTURER'S DESIGNATION OF DRILL: ADT-273, CME-55, autohammer efficiency 86.5% (10/17/24)	
2. HOLE NUMBER: FD24-RC-04	LOCATION COORDINATES: N 646,516.4 E 954,612.2	12. TOTAL SAMPLES	DISTURBED: 10 / UNDISTURBED: 0
3. DRILLING AGENCY: Aquifer Drilling & Testing (ADT) - A Cascade Company		13. TOTAL NUMBER CORE BOXES: 2	
4. NAME OF DRILLER: Nick Marmolejo		14. ELEVATION GROUND WATER: N/A	
5. DIRECTION OF BORING: ☒ VERTICAL ☐ INCLINED	DEG FROM VERTICAL: --- / BEARING	15. DATE BORING	STARTED: 8/16/24 / COMPLETED: 8/16/24
6. THICKNESS OF OVERBURDEN: 8'		16. ELEVATION TOP OF BORING: -25.1' (Measured in field)	
7. DEPTH DRILLED INTO ROCK: 27.5'		17. TOTAL CORE RECOVERY FOR BORING: 96%	
8. TOTAL DEPTH OF BORING: 35.5'		18. SIGNATURE AND TITLE OF INSPECTOR: Lindsay Pugh, PG, Geologist	

ELEV	DEPTH	LEGEND	FIELD CLASSIFICATION OF MATERIALS (Description)	% REC	Samp No.	RQD %	REMARKS	Blows/ 0.5 ft	N-Value
			POORLY GRADED SAND WITH SILT (SP-SM) (2.5Y 3/1), very dark gray, saturated, medium dense to very loose, homogeneous, rapid dilatancy, fine to coarse sand, some shell fragments, subangular to subrounded, Marine Sediments	55	SS-01		USCS - Gradation results and classification provided by CDM Smith Laboratory Autohammer, 140lbs, 30in drops, 2-inch diameter, 24 inches long split spoon used on all samples Gravel: 1; Sand: 92; Fines: 8; LL: NP; PI: NP; MC: 22; SP-SM	0 3 5 3	8
				100	SS-02			4 7 5 5	12
				30	SS-03			0 0 0 0	WOR/2 0
-33.1	8.0			100	SS-04			0 0 100	WOR/0 8 100/0.0
			ALTERED GRANITE SCHIST moderately weathered to slightly weathered, pale yellowish white and black, finely crystalline, K-feldspar, Quartz, Plagioclase, Biotite present, very hard to hard, highly to moderately fracture spacing, near vertical fractures with rough surfaces that are slightly to moderately weathered and contain iron oxidation, near horizontal joints with iron oxidation	100	Run 1	66	switch from roller bit to wireline coring setup set 3inch casing within 4inch casing near vertical fracture from 8.0'-11.4' with horizontal jointing throughout 60° and 90° cross fractures at 12.0' 60°, 70° and 90° cross fractures at 12.4'		
-38.1	13.0			94	Run 2	70	40° fracture at 15.5' R2 (16.0'-16.3') UCS=27.19 Ksi Young's Modulus at failure=30,472.4 Ksi 0° joint at 17.3' 170° fracture at 17.6'		
-43.1	18.0		Slightly weathered to unweathered, medium crystalline	96	Run 3	74	intensely fractured at 18.8' 120° fracture at 19.6' R3 (20.7'-21.1') UCS=12.06 Ksi Young's Modulus at failure=8,900.2 Ksi 0-5° joint at 21.5' 0-5° joint at 21.7'		
-48.1	23.0								
			Moderately to slightly fracture spacing	96	Run 4	88	20-30° joints from 26.6'-27.0'		
-53.1	28.0								
			Finely crystalline, increase in pyroxene, biotite and hornblende mineralization	100	Run 5	98	0° joint at 31.8'		
-58.1	33.0								
				80	Run 6	80			
-60.6	35.5								

BOTTOM OF BOREHOLE AT 35.5 ft
Boring terminated at -60.6' MLLW in ALTERED GRANITE SCHIST
Boring conducted from Northstar Marine Services, Inc. - Northstar L/B Vision

GBA ENGINEERS ★ SURVEYORS

Boring Designation FD24-RC-04

CORE LOG	DIVISION: North Atlantic Division	INSTALLATION: New England District	SHEET 1 OF 1 SHEETS

CONTRACT NO.: W912DS22D0017		9. COORDINATE SYSTEM: State Plane - Connecticut	HORIZONTAL: NAD83 / VERTICAL: MLLW
TASK ORDER NO.: W912WJ24F0024		10. SIZE AND TYPE OF BIT: NQ2 series 10 bit	
PROJECT NAME: Subsurface Exploration of New Haven Harbor			
2. HOLE NUMBER: FD24-RC-04	LOCATION COORDINATES: N 646,516.4 E 954,612.2	11. MANUFACTURER'S DESIGNATION OF DRILL: ADT-273, CME-55, autohammer efficiency 86.5% (10/17/24)	
3. DRILLING AGENCY: Aquifer Drilling & Testing (ADT) - A Cascade Company		12. TOTAL SAMPLES	DISTURBED: 10 / UNDISTURBED: 0
4. NAME OF DRILLER: Nick Marmolejo		13. TOTAL NUMBER CORE BOXES: 2	
5. DIRECTION OF BORING: ☒ VERTICAL ☐ INCLINED	DEG FROM VERTICAL: --- / BEARING:	14. ELEVATION GROUND WATER	
		15. DATE BORING	STARTED: 8/16/24 / COMPLETED: 8/16/24
6. THICKNESS OF OVERBURDEN: 8'		16. ELEVATION TOP OF BORING: -25.1	
7. DEPTH DRILLED INTO ROCK: 27.5'		17. TOTAL CORE RECOVERY FOR BORING: 96%	
8. TOTAL DEPTH OF BORING: 35.5'		18. SIGNATURE AND TITLE OF INSPECTOR: Lindsay Pugh, PG Geologist	

ELEV	DEPTH	Fracture Drawing	Fracture Number	Legend	FIELD CLASSIFICATION OF MATERIALS (Description)	Rock Core: Run No.	Box No.	Rec %	Frac. per foot	RQD %	Drill Time (Rate ft/hr)	W_x	REMARKS
-33.1	8.0		1		ALTERED GRANITE SCHIST moderately weathered to slightly weathered, pale yellowish white and black, finely crystalline, K-feldspar, Quartz, Plagioclase, Biotite present, very hard to hard, highly to moderately fracture spacing, near vertical fractures with rough surfaces that are slightly to moderately weathered and contain iron oxidation, near horizontal joints with iron oxidation				5		(8)		near vertical fracture from 8.0'-11.4' with horizontal jointing throughout
			2						7		(5)		
			3			Run 1	Box 1	100	5	66	(6)		
			4						4		(4)		
			5						5		(5)		
-38.1	13.0		6						1		(6)		60° and 90° cross fractures at 12.0'
			-						0		(6)		60°, 70° and 90° cross fractures at 12.4'
			7						1		(6)		
			-			Run 2	Box 1	94	0	70	(6)		40° fracture at 15.5'
			8						2		(6)		R2 (16.0'-16.3') UCS=27.19 Ksi
-43.1	18.0		9										Young's Modulus at failure=30,472.4 Ksi
			10		Slightly weathered to unweathered, medium crystalline				1		(7)		0° joint at 17.3'
			-						1		(8)		170° fracture at 17.6'
			11			Run 3	Box 1	96	0	74	(4)		intensely fractured at 18.8'
			-						2		(4)		120° fracture at 19.6'
-48.1	23.0		-						0		(4)		R3 (20.7'-21.1') UCS=12.06 Ksi
			-		Moderately to slightly fracture spacing				0		(3)		Young's Modulus at failure=8,900.2 Ksi
			-						0		(3)		0-5° joint at 21.5'
			-						0		(5)		0-5° joint at 21.7'
			12			Run 4	Box 1	96	4	88	(5)		
			-						0		(5)		20-30° joints from 26.6'-27.0'
-53.1	28.0		-										
			-		Finely crystalline, increase in pyroxene, biotite and hornblende mineralization				0		(5)		
			-						0		(6)		
			-						0		(5)		
			13			Run 5	Box 2	100	1	98	(6)		
			-						0		(7)		0° joint at 31.8'
-58.1	33.0		-										
			-						0		(10)		
			-			Run 6	Box 2	80	0	80	(5)		
-60.6	35.5		-						0		(5)		

Boring terminated at -60.6' MLLW in ALTERED GRANITE SCHIST
Boring was conducted from Northstar Marine Services, Inc - Northstar L/B Vision

GBA ENGINEERS ★ SURVEYORS

Boring Designation FD24-RC-05

DRILLING LOG	DIVISION: North Atlantic Division	INSTALLATION: New England District	SHEET 1 OF 1 SHEETS
CONTRACT NO.: W912DS22D0017		9. COORDINATE SYSTEM: State Plane - Connecticut	HORIZONTAL: NAD83 / VERTICAL: MLLW
TASK ORDER NO.: W912WJ24F0024		10. SIZE AND TYPE OF BIT: NQ2 series 10 bit	
PROJECT NAME: Subsurface Exploration of New Haven Harbor		11. MANUFACTURER'S DESIGNATION OF DRILL: ADT-240, CME-55, autohammer efficiency 83.2% (08/30/23)	
2. HOLE NUMBER: FD24-RC-05	LOCATION COORDINATES: N 646,697.0 E 954,612.8	12. TOTAL SAMPLES	DISTURBED: 14 / UNDISTURBED: 0
3. DRILLING AGENCY: Aquifer Drilling & Testing (ADT) - A Cascade Company		13. TOTAL NUMBER CORE BOXES: 0	
4. NAME OF DRILLER: Nick Marmolejo		14. ELEVATION GROUND WATER: N/A	
5. DIRECTION OF BORING: ☒ VERTICAL ☐ INCLINED	DEG FROM VERTICAL: --- / BEARING:	15. DATE BORING	STARTED: 8/11/24 / COMPLETED: 8/11/24
6. THICKNESS OF OVERBURDEN: >17.7'		16. ELEVATION TOP OF BORING: -25.4' (Measured in field)	
7. DEPTH DRILLED INTO ROCK: 0'		17. TOTAL CORE RECOVERY FOR BORING: N/A	
8. TOTAL DEPTH OF BORING: 17.7'		18. SIGNATURE AND TITLE OF INSPECTOR: Lindsay Pugh, PG, Geologist	

ELEV	DEPTH	LEGEND	FIELD CLASSIFICATION OF MATERIALS (Description)	% REC	Samp No.	RQD %	REMARKS	Blows/ 0.5 ft	N-Value	
										0
			ORGANIC SILT (OL) (2.5Y 2.5/1), black, saturated, very soft, low plasticity, rapid dilatancy, Organic Sediments	12	SS-01		USCS - Gradation results and classification provided by CDM Smith Laboratory Autohammer, 140lbs, 30in drops, 2-inch diameter, 24 inches long split spoon used on all samples torvane (1.0) (uncorrected): 0.0 kg/cm² pocket penetrometer (uncorrected): 0.0 tsf	0 0 0 0 WOR/1.7	0 /2	
				55	SS-02			0 0 0 2 WOR/1.5	0	
-28.5	3.1				SS-03					3
			SILTY SAND (SM) (2.5Y 3/1), very dark gray, saturated, very loose to medium dense, rapid dilatancy, fine to coarse sand, some shell fragments, subangular to subrounded, Marine Sediments	75	SS-04			3 5 5 3	10	
				50	SS-05		Gravel: 2; Sand: 76; Fines: 23; MC: 29; SM	3 2 2 4	4	6
-32.9	7.5									
			WELL GRADED SAND WITH SILT (SW-SM) (5YR 3/3), dark reddish brown , saturated, loose, rapid dilatancy, fine to coarse sand, little fine to medium gravel, subangular to subrounded	50	SS-06			3 3 2 2	5	8
-35.6	10.2									
			SANDY SILT (ML) (5YR 3/3), dark reddish brown , saturated, medium stiff, rapid dilatancy, fine sand, mica	100	SS-07		torvane (1.0) (uncorrected): 0.75 kg/cm² pocket penetrometer (uncorrected): 0.25 tsf	2 2 4 9	6	11
-37.1	11.7									
			WELL GRADED SAND WITH SILT (SW-SM) (5YR 3/3), dark reddish brown , saturated, dense, rapid dilatancy, fine to coarse sand, little fine to medium gravel, subangular to subrounded		SS-08			17 20 13 9		
-38.0	12.6			100	SS-09		Gravel: 0; Sand: 27; Fines: 73; MC: 20; ML		33	
-39.4	14.0		SANDY SILT (ML) (5YR 3/3), dark reddish brown , saturated, hard, low plasticity, slow dilatancy, fine sand, mica							14
			FAT CLAY (CH) (5YR 3/3), dark reddish brown , wet, soft, laminated, high plasticity, no dilatancy	100	SS-10		torvane (1.0) (uncorrected): 2.5 kg/cm² pocket penetrometer (uncorrected): 0.5 tsf torvane (1.0) (uncorrected): 2.5 kg/cm² pocket penetrometer (uncorrected): 0.25 tsf	0 0 4 4 WOR/1.0	4	
				50	SS-11			3 3 5 6	8	17
-43.1	17.7									

BOTTOM OF BOREHOLE AT 17.7 ft
Boring terminated at -43.1' MLLW in FAT CLAY.
Boring terminated early due to mechanical breakdown
Boring conducted from Northstar Marine Services, Inc. - Northstar L/B Vision

GBA ENGINEERS ★ SURVEYORS

Boring Designation FD24-RC-05A

DRILLING LOG	DIVISION: North Atlantic Division	INSTALLATION: New England District	SHEET 1 OF 1 SHEETS
CONTRACT NO.: W912DS22D0017 TASK ORDER NO.: W912WJ24F0024 PROJECT NAME: Subsurface Exploration of New Haven Harbor		9. COORDINATE SYSTEM: State Plane - Connecticut; HORIZONTAL: NAD83; VERTICAL: MLLW 10. SIZE AND TYPE OF BIT: NQ2 series 10 bit	
2. HOLE NUMBER: FD24-RC-05A	LOCATION COORDINATES: N 646,706.8 E 954,590.1	11. MANUFACTURER'S DESIGNATION OF DRILL: ADT-273, CME-55, autohammer efficiency 86.5% (10/17/24)	
3. DRILLING AGENCY: Aquifer Drilling & Testing (ADT) - A Cascade Company		12. TOTAL SAMPLES: DISTURBED 7; UNDISTURBED 0	
4. NAME OF DRILLER: Nick Marmolejo		13. TOTAL NUMBER CORE BOXES: 0	
5. DIRECTION OF BORING: ☒ VERTICAL ☐ INCLINED	DEG FROM VERTICAL: --- BEARING:	14. ELEVATION GROUND WATER: N/A	
		15. DATE BORING: STARTED 8/14/24 COMPLETED 8/14/24	
6. THICKNESS OF OVERBURDEN: >20.6'		16. ELEVATION TOP OF BORING: -25.4' (Measured in field)	
7. DEPTH DRILLED INTO ROCK: 0'		17. TOTAL CORE RECOVERY FOR BORING: N/A	
8. TOTAL DEPTH OF BORING: 20.6'		18. SIGNATURE AND TITLE OF INSPECTOR: Lindsay Pugh, PG, Geologist	

ELEV	DEPTH	LEGEND	FIELD CLASSIFICATION OF MATERIALS (Description)	% REC	Samp No.	RQD %	REMARKS	Blows/ 0.5 ft	N-Value
							Autohammer, 140lbs, 30in drops, 2-inch diameter, 24 inches long split spoon used on all samples drilled down to previous sample interval from FD24-RC-05		
-41.0	15.6		FAT CLAY (CH) (5YR 3/3), dark reddish brown , wet, soft, laminated, high plasticity, no dilatancy	100	SS-10A		torvane (1.0) (uncorrected): 2.0 kg/cm² pocket penetrometer (uncorrected): 0.75 tsf	2 4 7 7	11
-41.6	16.2		SILT WITH SAND (ML) (5YR 3/3), dark reddish brown , saturated, medium stiff, low plasticity, slow dilatancy, fine sand, mica		SS-11A		torvane (1.0) (uncorrected): 1.0 kg/cm² pocket penetrometer (uncorrected): 0.75 tsf		
-43.0	17.6		FAT CLAY (CH) (5YR 3/3), dark reddish brown , wet, medium stiff, high plasticity, no dilatancy	100	SS-12A		torvane (1.0) (uncorrected): 3.0 kg/cm² pocket penetrometer (uncorrected): 1.5 tsf	6 8 14 13	22
					SS-13				
-46.0	20.6		CLAYEY SAND WITH GRAVEL (SW-SC) (7.5YR 4/3), brown , saturated, medium dense to very dense, rapid dilatancy, fine to coarse sand, fine to medium gravel, angular to subangular, quartz fragments	5	SS-14			21 19 32 30	51
				100	SS-15				
-46.1	20.7		BOTTOM OF BOREHOLE AT 20.6 ft						

Boring terminated at -46.0' MLLW in BEDROCK.
Boring terminated early due to mechanical breakdown
Boring conducted from Northstar Marine Services, Inc. - Northstar L/B Vision

0 3 6 10 13 16 19

GBA ENGINEERS ★ SURVEYORS

Boring Designation FD24-RC-05B

DRILLING LOG	DIVISION: North Atlantic Division	INSTALLATION: New England District	SHEET 1 OF 1 SHEETS
CONTRACT NO.: W912DS22D0017		9. COORDINATE SYSTEM: State Plane - Connecticut	HORIZONTAL: NAD83 / VERTICAL: MLLW
TASK ORDER NO.: W912WJ24F0024		10. SIZE AND TYPE OF BIT: NQ2 series 10 bit	
PROJECT NAME: Subsurface Exploration of New Haven Harbor		11. MANUFACTURER'S DESIGNATION OF DRILL: ADT-273, CME-55, autohammer efficiency 86.5% (10/17/24)	
2. HOLE NUMBER: FD24-RC-05B	LOCATION COORDINATES: N 646,699.7 E 954,590.6	12. TOTAL SAMPLES:	DISTURBED: 5 / UNDISTURBED: 0
3. DRILLING AGENCY: Aquifer Drilling & Testing (ADT) - A Cascade Company		13. TOTAL NUMBER CORE BOXES: 1	
4. NAME OF DRILLER: Nick Marmolejo		14. ELEVATION GROUND WATER: N/A	
5. DIRECTION OF BORING: ☒ VERTICAL ☐ INCLINED	DEG FROM VERTICAL: --- / BEARING:	15. DATE BORING	STARTED: 8/19/24 / COMPLETED: 8/19/24
6. THICKNESS OF OVERBURDEN: 21'		16. ELEVATION TOP OF BORING: -25.7' (Measured in field)	
7. DEPTH DRILLED INTO ROCK: 15.1'		17. TOTAL CORE RECOVERY FOR BORING: 87%	
8. TOTAL DEPTH OF BORING: 36.1'		18. SIGNATURE AND TITLE OF INSPECTOR: Lindsay Pugh, PG, Geologist	

ELEV	DEPTH	LEGEND	FIELD CLASSIFICATION OF MATERIALS (Description)	% REC	Samp No.	RQD %	REMARKS	Blows/ 0.5 ft	N-Value
							Autohammer, 140lbs, 30in drops, 2-inch diameter, 24 inches long split spoon used on all samples drilled down to previous sample interval from FD24-RC-05A		
-46.7	21.0		CLAYEY SAND WITH GRAVEL (SW-SC) (7.5YR 4/3), brown , saturated, medium dense to very dense, rapid dilatancy, fine to coarse sand, fine to medium gravel, angular to subangular, quartz fragments	70	SS-14A			7 19 30 18	49
-46.8	21.1			100	SS-15A			19 100/0.0	19
-51.8	26.1		ALTERED GRANITE SCHIST moderately weathered to slightly weathered, pale yellow and white, medium, K-feldspar, Quartz, Plagioclase, Biotite present, very hard to hard, highly to moderately fracture spacing, iron staining from 21.1' to 21.8', near vertical fractures with rough surfaces and clay mineralization and iron staining on near horizontal joints	84	Run 1	40	40° fracture at 22.5' 70° fracture at 22.9' 20° joint at 23.4' near vertical fracture from 23.8'-24.4' 40° fracture at 24.8' 100° mineralization vein from 24.7'-25.3' 0-5° joints from 26.1'-27.9'		
-56.8	31.1		Slightly weathered to unweathered, moderately to slightly fracture spacing	84	Run 2	54	R2 (28.7'-29.0') UCS=21.27 Ksi Young's Modulus at failure=9,149.2 Ksi		
-61.8	36.1		Pale yellow black	92	Run 3	68	R3 (31.6'-31.9') UCS=24.58 Ksi Young's Modulus at failure=6,227.9 Ksi 0-5° joints from 34.1'-35.7'		

0 6 11 17 23 28 34

BOTTOM OF BOREHOLE AT 36.1 ft

Boring terminated at -61.8' MLLW in ALTERED GRANITE SCHIST.
Soil collection data at RC-05, RC-05A and RC-05B have been combined into RC-05B location and renamed RC-05 COMBINED.
Offsets were caused by mechanical issues.
Boring conducted from Northstar Marine Services, Inc. - Northstar L/B Vision

CORE LOG

DIVISION	North Atlantic Division
INSTALLATION	New England District
SHEET	1 OF 1 SHEETS
CONTRACT NO.:	W912DS22D0017
TASK ORDER NO.:	W912WJ24F0024
PROJECT NAME:	Subsurface Exploration of New Haven Harbor
9. COORDINATE SYSTEM	State Plane - Connecticut
HORIZONTAL	NAD83
VERTICAL	MLLW
10. SIZE AND TYPE OF BIT	NQ2 series 10 bit
2. HOLE NUMBER	FD24-RC-05B
LOCATION COORDINATES	N 646,699.7 E 954,590.6
11. MANUFACTURER'S DESIGNATION OF DRILL	ADT-273, CME-55, autohammer efficiency 86.5% (10/17/24)
3. DRILLING AGENCY	Aquifer Drilling & Testing (ADT) - A Cascade Company
12. TOTAL SAMPLES	DISTURBED 5 / UNDISTURBED 0
4. NAME OF DRILLER	Nick Marmolejo
13. TOTAL NUMBER CORE BOXES	1
14. ELEVATION GROUND WATER	
5. DIRECTION OF BORING	☒ VERTICAL ☐ INCLINED; DEG FROM VERTICAL: ---; BEARING:
15. DATE BORING	STARTED 8/19/24 / COMPLETED 8/19/24
6. THICKNESS OF OVERBURDEN	21'
16. ELEVATION TOP OF BORING	-25.7
7. DEPTH DRILLED INTO ROCK	15.1'
17. TOTAL CORE RECOVERY FOR BORING	87%
8. TOTAL DEPTH OF BORING	36.1'
18. SIGNATURE AND TITLE OF INSPECTOR	Lindsay Pugh, PG Geologist

ELEV	DEPTH	Fracture Drawing	Fracture Number	Legend	FIELD CLASSIFICATION OF MATERIALS (Description)	Rock Core: Run No.	Box No.	Rec %	Frac. per foot	RQD %	Drill Time (Rate ft/hr)	W_x	REMARKS
-46.7 / -46.8	21.0 / 21.1		1		ALTERED GRANITE SCHIST moderately weathered to slightly weathered, pale yellow and white, medium, K-feldspar, Quartz, Plagioclase, Biotite present, very hard to hard, highly to moderately fracture spacing, iron staining from 21.1' to 21.8', near vertical fractures with rough surfaces and clay mineralization and iron staining on near horizontal joints				1		(4)		
			2						2		(5)		40° fracture at 22.5'
			3										70° fracture at 22.9'
						Run 1	Box 1	84	2	40	(7)		20° joint at 23.4'
			4										near vertical fracture from 23.8'-24.4'
									1		(4)		
			5										40° fracture at 24.8'
									1		(5)		100° mineralization vein from 24.7'-25.3'
-51.8	26.1		6		Slightly weathered to unweathered, moderately to slightly fracture spacing				1		(2)		0-5° joints from 26.1'-27.9'
			7						6		(8)		
			-			Run 2	Box 1	84	0	54	(4)		R2 (28.7'-29.0') UCS=21.27 Ksi
			-						0		(5)		Young's Modulus at failure=9,149.2 Ksi
			-						0		(5)		
-56.8	31.1		-		Pale yellow black				0		(5)		
			-						0		(3)		R3 (31.6'-31.9') UCS=24.58 Ksi
			-			Run 3	Box 1	92	0	68	(4)		Young's Modulus at failure=6,227.9 Ksi
			8						6		(6)		0-5° joints from 34.1'-35.7'
			19						1		(6)		
-61.8	36.1												

Boring terminated at -61.8' MLLW in ALTERED GRANITE SCHIST.
Soil collection data at RC-05, RC-05A and RC-05B have been combined into RC-05B location and renamed RC-05 COMBINED.
Offsets were caused by mechanical issues.
Boring was conducted from Northstar Marine Services, Inc - Northstar L/B Vision

GBA ENGINEERS ★ SURVEYORS

Boring Designation FD24-RC-05 COMBO

DRILLING LOG

DIVISION: North Atlantic Division		INSTALLATION: New England District	SHEET 1 OF 1 SHEETS
CONTRACT NO.: W912DS22D0017		9. COORDINATE SYSTEM: State Plane - Connecticut	HORIZONTAL: NAD83 / VERTICAL: MLLW
TASK ORDER NO.: W912WJ24F0024		10. SIZE AND TYPE OF BIT: NQ2 series 10 bit	
PROJECT NAME: Subsurface Exploration of New Haven Harbor		11. MANUFACTURER'S DESIGNATION OF DRILL: ADT-273, CME-55, autohammer efficiency 86.5% (10/17/24)	
2. HOLE NUMBER: FD24-RC-05 COMBO	LOCATION COORDINATES: N 646,699.7 E 954,590.6	12. TOTAL SAMPLES	DISTURBED: 22 / UNDISTURBED: 0
3. DRILLING AGENCY: Aquifer Drilling & Testing (ADT) - A Cascade Company		13. TOTAL NUMBER CORE BOXES: 1	
4. NAME OF DRILLER: Nick Marmolejo		14. ELEVATION GROUND WATER: N/A	
5. DIRECTION OF BORING: ☒ VERTICAL ☐ INCLINED	DEG FROM VERTICAL: --- / BEARING:	15. DATE BORING	STARTED: 8/11/24 / COMPLETED: 8/19/24
6. THICKNESS OF OVERBURDEN: 21'		16. ELEVATION TOP OF BORING: -25.7' (Measured in field)	
7. DEPTH DRILLED INTO ROCK: 15.1'		17. TOTAL CORE RECOVERY FOR BORING: 97%	
8. TOTAL DEPTH OF BORING: 36.1'		18. SIGNATURE AND TITLE OF INSPECTOR: Lindsay Pugh, PG, Geologist	

ELEV	DEPTH	FIELD CLASSIFICATION OF MATERIALS (Description)	% REC	Samp No.	RQD %	REMARKS	Blows/ 0.5 ft	N-Value
		ORGANIC SILT (OL) (2.5Y 2.5/1), black, saturated, very soft, low plasticity, rapid dilatancy, Organic Sediments	12	SS-01		USCS - Gradation results and classification provided by CDM Smith Laboratory	0 0 0 0 WOR/1.7	0 /2
-28.8	3.1		55	SS-02		Autohammer, 140lbs, 30in drops, 2-inch diameter, 24 inches long split spoon used on all samples	0 0 0 2 WOR/1.5	0
		SILTY SAND (SM) (2.5Y 3/1), very dark gray, saturated, very loose to medium dense, rapid dilatancy, fine to coarse sand, some shell fragments, subangular to subrounded, Marine Sediments		SS-03		torvane (1.0) (uncorrected): 0.0 kg/cm² pocket penetrometer (uncorrected): 0.0 tsf		
			75	SS-04			3 5 5 3	10
-33.2	7.5		50	SS-05		Gravel: 2; Sand: 76; Fines: 23; MC: 29; SM	3 2 2 4	4
		WELL GRADED SAND WITH SILT (SW-SM) (5YR 3/3), dark reddish brown , saturated, loose, rapid dilatancy, fine to coarse sand, little fine to medium gravel, subangular to subrounded	50	SS-06			3 3 2 2	5
-35.9	10.2							
-37.4	11.7	SANDY SILT (ML) (5YR 3/3), dark reddish brown , saturated, medium stiff, rapid dilatancy, fine sand, mica	100	SS-07		torvane (1.0) (uncorrected): 0.75 kg/cm² pocket penetrometer (uncorrected): 0.25 tsf	2 2 4 9	6
-38.3	12.6			SS-08				
		WELL GRADED SAND WITH SILT (SW-SM) (5YR 3/3), dark reddish brown , saturated, dense, rapid dilatancy, fine to coarse sand, little fine to medium gravel, subangular to subrounded	100	SS-09		Gravel: 0; Sand: 27; Fines: 73; LL: NP; PI: NP; MC: 20; ML	17 20 13 9	33
-39.7	14.0		100	SS-10			0 0 4 4 WOR/1.0	4
-41.3	15.6					torvane (1.0) (uncorrected): 2.5 kg/cm² pocket penetrometer (uncorrected): 0.5 tsf		
-41.9	16.2	SANDY SILT (ML) (5YR 3/3), dark reddish brown , saturated, hard, low plasticity, slow dilatancy, fine sand, mica		SS-11A				
-43.3	17.6		50	SS-12		torvane (1.0) (uncorrected): 1.0 kg/cm² pocket penetrometer (uncorrected): 0.75 tsf torvane (1.0) (uncorrected): 3.0 kg/cm² pocket penetrometer (uncorrected): 1.5 tsf	6 8 14 13	22
		FAT CLAY (CH) (5YR 3/3), dark reddish brown , wet, soft, laminated, high plasticity, no dilatancy		SS-13				
		SILT WITH SAND (ML) (5YR 3/3), dark reddish brown , saturated, medium stiff, low plasticity, slow dilatancy, fine sand, mica	70	SS-14A			7 19 30 18	49
-46.7	21.0		100	SS-15A			19 100 100/0.0	100 /0
-46.8	21.1	FAT CLAY (CH) (5YR 3/3), dark reddish brown , wet, medium stiff, high plasticity, no dilatancy				swtich from roller bit to wireline coring setup set 3inch casing within 4inch casing		
		CLAYEY SAND WITH GRAVEL (SW-SC) (7.5YR 4/3), brown , saturated, medium dense to very dense, rapid dilatancy, fine to coarse sand, fine to medium gravel, angular to subangular, quartz fragments	84	Run 1	40	40° fracture at 22.5' 70° fracture at 22.9' 20° joint at 23.4' near vertical fracture from 23.8'-24.4' 40° fracture at 24.8' 100° mineralization vein from 24.7'-25.3' 0-5° joints from 26.1'-27.9'		
-51.8	26.1							
		ALTERED GRANITE SCHIST moderately weathered to slightly weathered, pale yellow and white, medium, K-feldspar, Quartz, Plagioclase, Biotite present, very hard to hard, highly to moderately fracture spacing, iron staining from 21.1' to 21.8', near vertical fractures with rough surfaces and clay mineralization and iron staining on near horizontal joints	84	Run 2	54	R2 (28.7'-29.0') UCS=21.27 Ksi Young's Modulus at failure=9,149.2 Ksi		
-56.8	31.1							
		Slightly weathered to unweathered, moderately to slightly fracture spacing Pale yellow black	92	Run 3	68	R3 (31.6'-31.9') UCS=24.58 Ksi Young's Modulus at failure=6,227.9 Ksi 0-5° joints from 34.1'-35.7'		
-61.8	36.1							

BOTTOM OF BOREHOLE AT 36.1 ft

Boring terminated at -61.8' MLLW in ALTERED GRANITE SCHIST.
Soil collection data at RC-05, RC-05A and RC-05B have been combined into RC-05B location and renamed RC-05 COMBINED. Offsets were caused by mechanical issues.
Boring conducted from Northstar Marine Services, Inc. - Northstar L/B Vision

GBA ENGINEERS ★ SURVEYORS

Boring Designation FD24-RC-05 COMBO

CORE LOG	DIVISION: North Atlantic Division	INSTALLATION: New England District	SHEET 1 OF 1 SHEETS

CONTRACT NO.: W912DS22D0017	9. COORDINATE SYSTEM: State Plane - Connecticut; HORIZONTAL: NAD83; VERTICAL: MLLW
TASK ORDER NO.: W912WJ24F0024	10. SIZE AND TYPE OF BIT: NQ2 series 10 bit
PROJECT NAME: Subsurface Exploration of New Haven Harbor	
2. HOLE NUMBER: FD24-RC-05 COMBO; LOCATION COORDINATES: N 646,699.7 E 954,590.6	11. MANUFACTURER'S DESIGNATION OF DRILL: ADT-273, CME-55, autohammer efficiency 86.5% (10/17/24)
3. DRILLING AGENCY: Aquifer Drilling & Testing (ADT) - A Cascade Company	12. TOTAL SAMPLES: DISTURBED 22; UNDISTURBED 0
4. NAME OF DRILLER: Nick Marmolejo	13. TOTAL NUMBER CORE BOXES: 1
5. DIRECTION OF BORING: ☒ VERTICAL ☐ INCLINED; DEG FROM VERTICAL: ---; BEARING:	14. ELEVATION GROUND WATER:
	15. DATE BORING: STARTED 8/11/24; COMPLETED 8/19/24
6. THICKNESS OF OVERBURDEN: 21'	16. ELEVATION TOP OF BORING: -25.7
7. DEPTH DRILLED INTO ROCK: 15.1'	17. TOTAL CORE RECOVERY FOR BORING: 97%
8. TOTAL DEPTH OF BORING: 36.1'	18. SIGNATURE AND TITLE OF INSPECTOR: Lindsay Pugh, PG Geologist

ELEV	DEPTH	Fracture Drawing	Fracture Number	Legend	FIELD CLASSIFICATION OF MATERIALS (Description)	Rock Core: Run No.	Box No.	Rec %	Frac. per foot	RQD %	Drill Time (Rate ft/hr)	W_x	REMARKS
-46.7	21.0		1		ALTERED GRANITE SCHIST moderately weathered to slightly weathered, pale yellow and white, medium, K-feldspar, Quartz, Plagioclase, Biotite present, very hard to hard, highly to moderately fracture spacing, iron staining from 21.1' to 21.8', near vertical fractures with rough surfaces and clay mineralization and iron staining on near horizontal joints				1		(4)		swtich from roller bit to wireline coring setup set 3inch casing within 4inch casing
-46.8	21.1		2						2		(5)		40° fracture at 22.5'
			3			Run 1	Box 1	84	2	40	(7)		70° fracture at 22.9' 20° joint at 23.4'
			4						1		(4)		near vertical fracture from 23.8'-24.4'
			5						1		(5)		40° fracture at 24.8' 100° mineralization vein from 24.7'-25.3'
-51.8	26.1		6		Slightly weathered to unweathered, moderately to slightly fracture spacing				1		(2)		0-5° joints from 26.1'-27.9'
			7						6		(8)		
			-			Run 2	Box 1	84	0	54	(4)		R2 (28.7'-29.0') UCS=21.27 Ksi Young's Modulus at failure=9,149.2 Ksi
			-						0		(5)		
			-						0		(5)		
-56.8	31.1		-		Pale yellow black				0		(5)		R3 (31.6'-31.9') UCS=24.58 Ksi Young's Modulus at failure=6,227.9 Ksi
			-						0		(3)		
			-			Run 3	Box 1	92	0	68	(4)		0-5° joints from 34.1'-35.7'
			8						6		(6)		
			19						1		(6)		
-61.8	36.1												

Boring terminated at -61.8' MLLW in ALTERED GRANITE SCHIST.
Soil collection data at RC-05, RC-05A and RC-05B have been combined into RC-05B location and renamed RC-05 COMBINED.
Offsets were caused by mechanical issues.
Boring was conducted from Northstar Marine Services, Inc - Northstar L/B Vision

GBA ENGINEERS ★ SURVEYORS

Boring Designation FD24-RC-06

DRILLING LOG	DIVISION: North Atlantic Division	INSTALLATION: New England District	SHEET 1 OF 1 SHEETS
CONTRACT NO.: W912DS22D0017 TASK ORDER NO.: W912WJ24F0024 PROJECT NAME: Subsurface Exploration of New Haven Harbor		9. COORDINATE SYSTEM: State Plane - Connecticut; HORIZONTAL: NAD83; VERTICAL: MLLW 10. SIZE AND TYPE OF BIT: NQ2 series 10 bit	
2. HOLE NUMBER: FD24-RC-06	LOCATION COORDINATES: N 645,190.4 E 954,887.4	11. MANUFACTURER'S DESIGNATION OF DRILL: ADT-273, CME-55, autohammer efficiency 86.5% (10/17/24)	
3. DRILLING AGENCY: Aquifer Drilling & Testing (ADT) - A Cascade Company		12. TOTAL SAMPLES: DISTURBED 7; UNDISTURBED 0	
4. NAME OF DRILLER: Nick Marmolejo		13. TOTAL NUMBER CORE BOXES: 2	
5. DIRECTION OF BORING: ☒ VERTICAL ☐ INCLINED	DEG FROM VERTICAL: --- BEARING:	14. ELEVATION GROUND WATER: N/A	
		15. DATE BORING: STARTED 8/31/24 COMPLETED 8/31/24	
6. THICKNESS OF OVERBURDEN: 5.5'		16. ELEVATION TOP OF BORING: -26.8' (Est. from USACE Dec. '23 Bathy)	
7. DEPTH DRILLED INTO ROCK: 25.5'		17. TOTAL CORE RECOVERY FOR BORING: 95%	
8. TOTAL DEPTH OF BORING: 31'		18. SIGNATURE AND TITLE OF INSPECTOR: Lindsay Pugh, PG, Geologist	

ELEV	DEPTH	LEGEND	FIELD CLASSIFICATION OF MATERIALS (Description)	% REC	Samp No.	RQD %	REMARKS	Blows/ 0.5 ft	N-Value
			SILTY SAND (SM) (5Y 6/1), gray / light olive gray, saturated, loose, homogeneous, rapid dilatancy, fine to coarse sand, some shell fragments, subangular, Marine Sediments				Autohammer, 140lbs, 30in drops, 2-inch diameter, 24 inches long split spoon used on all samples lower 4inch casing into soil immeadiately to stabilize casing in marginal sea state conditions		
				100	SS-01		Gravel: 1; Sand: 70; Fines: 29; MC: 33; SM	4 3 2 2	5
-32.3	5.5								
-32.8	6.0			100	SS-02		switch from roller bit to wireline coring setup set 3inch casing within 4inch casing in order to create good seal for NQ2 core drilling	100 100/0.2	100 /2
			ALTERED GRANITE SCHIST moderately weathered to slightly weathered, pink and whitish gray, coarsely crystalline, K-feldspar, Quartz, Plagioclase, Biotite present, very hard to hard, moderately to slightly fracture spacing, vertical fractures with moderately weathered rough surfaces containing iron oxidation and black staining	100	Run 1	80	vertical fracture from 6.0'-7.2' 130° fracture at 8.5' R2a (10.0'-10.3') UCS=17.12 Ksi Young's Modulus at failure=4,679.0 Ksi		
-37.8	11.0			94	Run 2	88	130° fracture at 11.0' vertical fracture from 11.8'-13.2' 30° cross fracture at 12.7' 160° cross fracture at 13.1' 45° fracture at 14.3' R2b (14.7'-15.0') UCS=22.51 Ksi Young's Modulus at failure=7,605.6 Ksi		
-42.8	16.0		Moderately to highly fracture spacing	100	Run 3	72	45° fracture at 15.3' 140° fracture at 15.8' vertical fracture from 16.5'-16.9' 60° fracture at 17.0' numerous cross and near vertical fractures from 17.5'-19.0' 125° fracture at 19.1' 125° fracture at 20.1'		
-47.8	21.0		Muscovite and biotite mineralization banding, slightly fracture spacing, chlorite on fracture surfaces	100	Run 4	88	2 near vertical cross fractures from 21.9'-23.0' R4a (23.7'-23.9') UCS=21.24 Ksi Young's Modulus at failure=7,734.9 Ksi R4b (24.9'-25.2') UCS=19.76 Ksi Young's Modulus at failure=10,323.5 Ksi		
-52.8	26.0		PEGMATITE	88	Run 5	84	near vertical fracture from 26.7'-28.0'		
-57.8	31.0								

0 5 10 15 19 24 29

BOTTOM OF BOREHOLE AT 31.0 ft
Boring terminated at -57.8' MLLW in ALTERED GRANITE SCHIST.
Boring terminated early due to increasing sea state conditions to prevent tooling from breaking downhole
Boring conducted from Northstar Marine Services, Inc. - Northstar L/B Vision

GBA ENGINEERS ★ SURVEYORS

Boring Designation FD24-RC-06

CORE LOG	DIVISION: North Atlantic Division	INSTALLATION: New England District	SHEET 1 OF 1 SHEETS

CONTRACT NO.: W912DS22D0017		9. COORDINATE SYSTEM: State Plane - Connecticut	HORIZONTAL: NAD83 / VERTICAL: MLLW
TASK ORDER NO.: W912WJ24F0024		10. SIZE AND TYPE OF BIT: NQ2 series 10 bit	
PROJECT NAME: Subsurface Exploration of New Haven Harbor			
2. HOLE NUMBER: FD24-RC-06	LOCATION COORDINATES: N 645,190.4 E 954,887.4	11. MANUFACTURER'S DESIGNATION OF DRILL: ADT-273, CME-55, autohammer efficiency 86.5% (10/17/24)	
3. DRILLING AGENCY: Aquifer Drilling & Testing (ADT) - A Cascade Company		12. TOTAL SAMPLES	DISTURBED: 7 / UNDISTURBED: 0
4. NAME OF DRILLER: Nick Marmolejo		13. TOTAL NUMBER CORE BOXES: 2	
5. DIRECTION OF BORING: ☒ VERTICAL ☐ INCLINED	DEG FROM VERTICAL: --- / BEARING:	14. ELEVATION GROUND WATER	
		15. DATE BORING	STARTED: 8/31/24 / COMPLETED: 8/31/24
6. THICKNESS OF OVERBURDEN: 5.5'		16. ELEVATION TOP OF BORING: -26.8	
7. DEPTH DRILLED INTO ROCK: 25.5'		17. TOTAL CORE RECOVERY FOR BORING: 95%	
8. TOTAL DEPTH OF BORING: 31'		18. SIGNATURE AND TITLE OF INSPECTOR: Lindsay Pugh, PG Geologist	

ELEV	DEPTH	Fracture Drawing	Fracture Number	Legend	FIELD CLASSIFICATION OF MATERIALS (Description)	Rock Core: Run No.	Box No.	Rec %	Frac. per foot	RQD %	Drill Time (Rate ft/hr)	W_x	REMARKS
-32.3	5.5		1					100					switch from roller bit to wireline coring setup
-32.8	6.0		2		ALTERED GRANITE SCHIST moderately weathered to slightly weathered, pink and whitish gray, coarsely crystalline, K-feldspar, Quartz, Plagioclase, Biotite present, very hard to hard, moderately to slightly fracture spacing, vertical fractures with moderately weathered rough surfaces containing iron oxidation and black staining				1		(6)		set 3inch casing within 4inch casing in order to create good seal for NQ2 core drilling
			3						2		(4)		vertical fracture from 6.0'-7.2'
			-			Run 1	Box 1	100	1	80	(3)		130° fracture at 8.5'
			4						0		(3)		
-37.8	11.0		5						1		(2)		R2a (10.0'-10.3') UCS=17.12 Ksi
			6						1		(6)		Young's Modulus at failure=4,679.0 Ksi
			7						2		(6)		130° fracture at 11.0'
			8			Run 2	Box 1	94	1	88	(5)		vertical fracture from 11.8'-13.2'
			9						1		(4)		30° cross fracture at 12.7'
-42.8	16.0		10						2		(4)		160° cross fracture at 13.1'
			11		Moderately to highly fracture spacing				2		(3)		45° fracture at 14.3'
			12						4		(3)		R2b (14.7'-15.0') UCS=22.51 Ksi
			13			Run 3	Box 1	100	4	72	(3)		Young's Modulus at failure=7,605.6 Ksi
			14						1		(7)		45° fracture at 15.3'
-47.8	21.0		15						1		(3)		140° fracture at 15.8'
			16		Muscovite and biotite mineralization banding, slightly fracture spacing, chlorite on fracture surfaces				1		(3)		vertical fracture from 16.5'-16.9'
			-						1		(4)		60° fracture at 17.0'
			-			Run 4	Box 1	100	0	88	(4)		numerous cross and near vertical fractures from 17.5'-19.0'
			-						0		(6)		125° fracture at 19.1'
-52.8	26.0		17						0		(4)		125° fracture at 20.1'
			18		PEGMATITE				1		(3)		2 near vertical cross fractures from 21.9'-23.0'
			-						1		(3)		R4a (23.7'-23.9') UCS=21.24 Ksi
			-			Run 5	Box 2	88	0	84	(3)		Young's Modulus at failure=7,734.9 Ksi
			-						0		(4)		R4b (24.9'-25.2') UCS=19.76 Ksi
-57.8	31.0								0		(6)		Young's Modulus at failure=10,323.5 Ksi near vertical fracture from 26.7'-28.0'

Boring terminated at -57.8' MLLW in ALTERED GRANITE SCHIST.
Boring terminated early due to increasing sea state conditions to prevent tooling from breaking downhole
Boring was conducted from Northstar Marine Services, Inc - Northstar L/B Vision

GBA ENGINEERS ★ SURVEYORS

Boring Designation FD24-RC-07

DRILLING LOG	DIVISION: North Atlantic Division	INSTALLATION: New England District	SHEET 1 OF 1 SHEETS
CONTRACT NO.: W912DS22D0017 TASK ORDER NO.: W912WJ24F0024 PROJECT NAME: Subsurface Exploration of New Haven Harbor		9. COORDINATE SYSTEM: State Plane - Connecticut; HORIZONTAL: NAD83; VERTICAL: MLLW 10. SIZE AND TYPE OF BIT: NQ2/NQ3 series 10 bit	
2. HOLE NUMBER: FD24-RC-07	LOCATION COORDINATES: N 647,931.6 E 954,570.3	11. MANUFACTURER'S DESIGNATION OF DRILL: ADT-273, CME-55, autohammer efficiency 86.5% (10/17/24)	
3. DRILLING AGENCY: Aquifer Drilling & Testing (ADT) - A Cascade Company		12. TOTAL SAMPLES: DISTURBED 10; UNDISTURBED 0	
4. NAME OF DRILLER: Nick Marmolejo		13. TOTAL NUMBER CORE BOXES: 2	
5. DIRECTION OF BORING: ☒ VERTICAL ☐ INCLINED	DEG FROM VERTICAL: --- BEARING:	14. ELEVATION GROUND WATER: N/A	
		15. DATE BORING: STARTED 8/22/24 COMPLETED 8/22/24	
6. THICKNESS OF OVERBURDEN: 19.7'		16. ELEVATION TOP OF BORING: -15.4' (Measured in field)	
7. DEPTH DRILLED INTO ROCK: 25'		17. TOTAL CORE RECOVERY FOR BORING: 98%	
8. TOTAL DEPTH OF BORING: 44.7'		18. SIGNATURE AND TITLE OF INSPECTOR: Lindsay Pugh, PG, Geologist	

ELEV	DEPTH	LEGEND	FIELD CLASSIFICATION OF MATERIALS (Description)	% REC	Samp No.	RQD %	REMARKS	Blows/ 0.5 ft	N-Value	
			ORGANIC CLAY (OH) (2.5Y 2.5/1), black, saturated, very soft, homogeneous, high plasticity, rapid dilatancy, little fine sand, and shell fragments, Organic Sediments	100	SS-01		USCS - Gradation results and classification provided by CDM Smith Laboratory Autohammer, 140lbs, 30in drops, 2-inch diameter, 24 inches long split spoon used on all samples perform 5ft sampling intervals in order to quickly stabilize 4inch casing into soil during marginal wind and sea state conditions (seas ~1ft) torvane (1.0) (uncorrected): 0.0 kg/cm² pocket penetrometer (uncorrected): 0.0 tsf Gravel: 0; Sand: 11; Fines: 89; LL: 114; PI: 70; MC: 124; OH	0 0 0 0 WOR/2.0	0	0
				100	SS-02			0 0 0 0 WOR/2.0	0	7
-28.4	13.0			100	SS-03			0 0 0 0 WOR/2.0	0	
			SILTY SAND (SM) (7.5YR 3/2), dark brown , saturated, loose, homogeneous, rapid dilatancy, fine to coarse sand, trace shell fragments, subangular to subrounded, Marine Sediments	25	SS-04		Gravel: 0; Sand: 84; Fines: 16; MC: 18; SM	4 4 5 4	9	14
-35.1	19.7									
-40.1	24.7		ALTERED GRANITE SCHIST slightly weathered to unweathered, pale yellowish white and black, finely crystalline, K-feldspar, Quartz, Plagioclase, Biotite present, very hard to hard, moderately to slightly fracture spacing, clay mineralization along rough surface fracture planes that are slightly to moderately weathered	94	Run 1	84	switch from roller bit to wireline coring setup set 3inch casing within 4inch casing in order to create good seal for NQ3 core setup R1 (20.2'-20.5') UCS=23.80 Ksi Young's Modulus at failure=9,036.3 Ksi 50° fracture at 22.2' 0-5° joint at 22.4' 160° fracture at 22.7'			21
-44.1	28.7			100	Run 2	93	75° fracture at 26.0' 70° fracture at 26.2' 0-5° joint at 26.7' 70° fracture at 27.5'			28
-50.1	34.7			97	Run 3	80	switch from NQ3 to NQ2 barrel with series 10 bit to help decrease drill rate time and reduce down pressure needed to advance barrel R3 (29.8'-30.2') UCS=21.43 Ksi Young's Modulus at failure=8,137.3 Ksi 130° fracture at 30.7' 40° fracture at 33.1' vertical fracture from 33.1'-33.9'			
-55.1	39.7			98	Run 4	96	80-90° fracture from 33.8'-34.7' 70° fracture at 39.0'-39.5'			35
-60.1	44.7			100	Run 5	84	70° fracture at 40.0' 80-90° fracture from 40.7'-41.7'			42

BOTTOM OF BOREHOLE AT 44.7 ft
Boring terminated at EL -60.1' MLLW in ALTERED GRANITE SCHIST
Boring conducted from Northstar Marine Services, Inc. - Northstar L/B Vision

CORE LOG	DIVISION: North Atlantic Division	INSTALLATION: New England District	SHEET 1 OF 1 SHEETS

CONTRACT NO.:	W912DS22D0017
TASK ORDER NO.:	W912WJ24F0024
PROJECT NAME:	Subsurface Exploration of New Haven Harbor
2. HOLE NUMBER	FD24-RC-07
LOCATION COORDINATES	N 647,931.6 E 954,570.3
3. DRILLING AGENCY	Aquifer Drilling & Testing (ADT) - A Cascade Company
4. NAME OF DRILLER	Nick Marmolejo
5. DIRECTION OF BORING	☒ VERTICAL ☐ INCLINED
DEG FROM VERTICAL	---
BEARING	
6. THICKNESS OF OVERBURDEN	19.7'
7. DEPTH DRILLED INTO ROCK	25'
8. TOTAL DEPTH OF BORING	44.7'
9. COORDINATE SYSTEM	State Plane - Connecticut
HORIZONTAL	NAD83
VERTICAL	MLLW
10. SIZE AND TYPE OF BIT	NQ2/NQ3 series 10 bit
11. MANUFACTURER'S DESIGNATION OF DRILL	ADT-273, CME-55, autohammer efficiency 86.5% (10/17/24)
12. TOTAL SAMPLES	DISTURBED 10 / UNDISTURBED 0
13. TOTAL NUMBER CORE BOXES	2
14. ELEVATION GROUND WATER	
15. DATE BORING	STARTED 8/22/24 / COMPLETED 8/22/24
16. ELEVATION TOP OF BORING	-15.4
17. TOTAL CORE RECOVERY FOR BORING	98%
18. SIGNATURE AND TITLE OF INSPECTOR	Lindsay Pugh, PG Geologist

ELEV	DEPTH	Fracture Drawing	Fracture Number	Legend	FIELD CLASSIFICATION OF MATERIALS (Description)	Rock Core: Run No.	Box No.	Rec %	Frac. per foot	RQD %	Drill Time (Rate ft/hr)	W_x	REMARKS
-35.1	19.7				ALTERED GRANITE SCHIST slightly weathered to unweathered, pale yellowish white and black, finely crystalline, K-feldspar, Quartz, Plagioclase, Biotite present, very hard to hard, moderately to slightly fracture spacing, clay mineralization along rough surface fracture planes that are slightly to moderately weathered	Run 1	Box 1	94	0	84	(9)		switch from roller bit to wireline coring setup
									0		(7)		set 3inch casing within 4inch casing in order to create good seal for NQ3 core setup
			1						3		(7)		R1 (20.2'-20.5') UCS=23.80 Ksi
									0		(7)		Young's Modulus at failure=9,036.3 Ksi
-40.1	24.7								0		(10)		50° fracture at 22.2'
			2			Run 2	Box 1	100	0	93	(12)		0-5° joint at 22.4'
			3						2		(8)		160° fracture at 22.7'
									1		(15)		75° fracture at 26.0'
-44.1	28.7								0		(17)		70° fracture at 26.2'
			4						0		(3)		0-5° joint at 26.7'
									1		(3)		70° fracture at 27.5'
			5			Run 3	Box 1	97	0	80	(3)		switch from NQ3 to NQ2 barrel with series 10 bit to help decrease drill rate time and reduce down pressure needed to advance barrel
			6						0		(3)		R3 (29.8'-30.2') UCS=21.43 Ksi
									0		(3)		Young's Modulus at failure=8,137.3 Ksi
-50.1	34.7								2		(3)		130° fracture at 30.7'
									1		(3)		40° fracture at 33.1'
			7						0		(2)		vertical fracture from 33.1'-33.9'
									0		(3)		80-90° fracture from 33.8'-34.7'
			8			Run 4	Box 1	98	0	96	(3)		
									0		(3)		
-55.1	39.7								1		(3)		70° fracture at 39.0'-39.5'
			9						1		(2)		70° fracture at 40.0'
									1		(2)		80-90° fracture from 40.7'-41.7'
						Run 5	Box 2	100	0	84	(2)		
									0		(3)		
-60.1	44.7								0		(4)		

Boring terminated at EL -60.1' MLLW in ALTERED GRANITE SCHIST
Boring was conducted from Northstar Marine Services, Inc - Northstar L/B Vision

GBA ENGINEERS ★ SURVEYORS

Boring Designation FD24-RC-08

DRILLING LOG

DIVISION: North Atlantic Division

INSTALLATION: New England District

SHEET 1 OF 1 SHEETS

CONTRACT NO.: W912DS22D0017

TASK ORDER NO.: W912WJ24F0024

PROJECT NAME: Subsurface Exploration of New Haven Harbor

9. COORDINATE SYSTEM: State Plane - Connecticut | HORIZONTAL: NAD83 | VERTICAL: MLLW

10. SIZE AND TYPE OF BIT: NQ2/NQ3 series 10 bit

2. HOLE NUMBER: FD24-RC-08

LOCATION COORDINATES: N 647,932.8 E 954,162.6

11. MANUFACTURER'S DESIGNATION OF DRILL: ADT-273, CME-55, autohammer efficiency 86.5% (10/17/24)

3. DRILLING AGENCY: Aquifer Drilling & Testing (ADT) - A Cascade Company

12. TOTAL SAMPLES | DISTURBED: 6 | UNDISTURBED: 0

4. NAME OF DRILLER: Nick Marmolejo

13. TOTAL NUMBER CORE BOXES: 1

14. ELEVATION GROUND WATER: N/A

5. DIRECTION OF BORING: ☒ VERTICAL ☐ INCLINED | DEG FROM VERTICAL: --- | BEARING:

15. DATE BORING | STARTED: 8/15/24 | COMPLETED: 8/15/24

6. THICKNESS OF OVERBURDEN: 3.9'

16. ELEVATION TOP OF BORING: -38.2' (Measured in field)

7. DEPTH DRILLED INTO ROCK: 18.8'

17. TOTAL CORE RECOVERY FOR BORING: 88%

8. TOTAL DEPTH OF BORING: 22.7'

18. SIGNATURE AND TITLE OF INSPECTOR: Lindsay Pugh, PG, Geologist

ELEV	DEPTH	LEGEND	FIELD CLASSIFICATION OF MATERIALS (Description)	% REC	Samp No.	RQD %	REMARKS	Blows/ 0.5 ft	N-Value
			SILTY SAND (SM) (5Y 2.5/1), black , saturated, very loose, homogeneous, rapid dilatancy, fine to medium sand, some shell fragments, subangular to subrounded, Marine Sediments				Autohammer, 140lbs, 30in drops, 2-inch diameter, 24 inches long split spoon used on all samples		
				5	SS-01			0 0 0 0 WOR/2.0	0
-42.1	3.9			82	SS-02			22 22 33 100/0.2	55
-43.1	4.9		ALTERED GRANITE SCHIST moderately weathered to slightly weathered, pale pinkish yellow and black, finely crystalline, K-feldspar, Quartz, Plagioclase, Biotite present, very hard to hard, highly to moderately fracture spacing, near vertical fractures containing iron oxidation on surfaces, near horizontal joints with clay mineralization on surfaces, both fractures and joint surfaces are slightly to moderately weathered	85	Run 1	60	switch from roller bit to wireline coring setup set 3inch casing within 4inch casing in order to create good seal for NQ3 core setup 90° fracture at 5.3' 70° fracture at 6.1' 70° fracture at 6.9' R1 (7.9'-8.2') UCS=24.22 Ksi Young's Modulus at failure=8,045.8 Ksi 0° joint at 8.6'		
-47.9	9.7		Slightly weathered to unweathered, medium crystalline	90	Run 2	74	4° joint at 9.9' 95° fracture at 10.4' 20° joint at 11.6' 0-5° joint at 13.2' R2 (13.3'-13.6') UCS=23.14 Ksi Young's Modulus at failure=27,344.0 Ksi 0-5° joint at 14.0'		
-52.9	14.7		Slightly weathered to moderately weathered, finely crystalline, moderately to highly fracture spacing	85	Run 3	40	75° fracture at 14.2' switch from NQ3 to NQ2 barrel with series 10 bit to help reduce down pressure needed to advance barrel 0-5° joint at 15.7' 0-5° joint at 16.0' 10° joint at 16.5' 90-95° fracture from 17.0'-17.8', which include (3) 0-5° joints		
-56.9	18.7		Slightly weathered to unweathered, medium crystalline	95	Run 4	73	70° fracture at 19.1' 20° fracture at 19.8' 0-5° joint at 20.0' R4 (20.0'-20.4') UCS=15.48 Ksi Young's Modulus at failure=11,339.2 Ksi 10° joint at 21.0' 60° fracture at 21.3' 10° joint at 22.0' 80° fracture at 22.3'		
-60.9	22.7								

BOTTOM OF BOREHOLE AT 22.7 ft

Boring terminated at EL -60.9' MLLW in ALTERED GRANITE SCHIST

Boring conducted from Northstar Marine Services, Inc. - Northstar L/B Vision

GBA ENGINEERS ★ SURVEYORS

Boring Designation FD24-RC-08

CORE LOG	DIVISION: North Atlantic Division	INSTALLATION: New England District	SHEET 1 OF 1 SHEETS

CONTRACT NO.:	W912DS22D0017
TASK ORDER NO.:	W912WJ24F0024
PROJECT NAME:	Subsurface Exploration of New Haven Harbor
2. HOLE NUMBER	FD24-RC-08
LOCATION COORDINATES	N 647,932.8 E 954,162.6
3. DRILLING AGENCY	Aquifer Drilling & Testing (ADT) - A Cascade Company
4. NAME OF DRILLER	Nick Marmolejo
5. DIRECTION OF BORING	☒ VERTICAL ☐ INCLINED
DEG FROM VERTICAL	---
BEARING	
6. THICKNESS OF OVERBURDEN	3.9'
7. DEPTH DRILLED INTO ROCK	18.8'
8. TOTAL DEPTH OF BORING	22.7'
9. COORDINATE SYSTEM	State Plane - Connecticut
HORIZONTAL	NAD83
VERTICAL	MLLW
10. SIZE AND TYPE OF BIT	NQ2/NQ3 series 10 bit
11. MANUFACTURER'S DESIGNATION OF DRILL	ADT-273, CME-55, autohammer efficiency 86.5% (10/17/24)
12. TOTAL SAMPLES	DISTURBED 6 / UNDISTURBED 0
13. TOTAL NUMBER CORE BOXES	1
14. ELEVATION GROUND WATER	
15. DATE BORING	STARTED 8/15/24 / COMPLETED 8/15/24
16. ELEVATION TOP OF BORING	-38.2
17. TOTAL CORE RECOVERY FOR BORING	88%
18. SIGNATURE AND TITLE OF INSPECTOR	Lindsay Pugh, PG Geologist

ELEV	DEPTH	Fracture Drawing	Fracture Number	Legend	FIELD CLASSIFICATION OF MATERIALS (Description)	Rock Core: Run No.	Box No.	Rec %	Frac. per foot	RQD %	Drill Time (Rate ft/hr)	W_x	REMARKS
-42.1	3.9				ALTERED GRANITE SCHIST moderately weathered to slightly weathered, pale pinkish yellow and black, finely crystalline, K-feldspar, Quartz, Plagioclase, Biotite present, very hard to hard, highly to moderately fracture spacing, near vertical fractures containing iron oxidation on surfaces, near horizontal joints with clay mineralization on surfaces, both fractures and joint surfaces are slightly to moderately weathered								
-43.1	4.9		1						6		(4)		switch from roller bit to wireline coring setup
			2						4		(4)		set 3inch casing within 4inch casing in order to create good seal for NQ3 core setup
			3			Run 1	Box 1	85	2	60	(7)		90° fracture at 5.3'
			4						1		(5)		70° fracture at 6.1'
			-										70° fracture at 6.9'
-47.9	9.7		5						0		(7)		R1 (7.9'-8.2') UCS=24.22 Ksi Young's Modulus at failure=8,045.8 Ksi
			6		Slightly weathered to unweathered, medium crystalline				3		(7)		0° joint at 8.6'
			-						1		(9)		4° joint at 9.9'
			7			Run 2	Box 1	90	0	74	(8)		95° fracture at 10.4'
			8						1		(9)		20° joint at 11.6'
-52.9	14.7		-						2		(9)		0-5° joint at 13.2' R2 (13.3'-13.6') UCS=23.14 Ksi Young's Modulus at failure=27,344.0 Ksi
			9		Slightly weathered to moderately weathered, finely crystalline, moderately to highly fracture spacing				0		(10)		0-5° joint at 14.0'
			10						4		(12)		75° fracture at 14.2' switch from NQ3 to NQ2 barrel with series 10 bit to help reduce down pressure needed to advance barrel
			11			Run 3	Box 1	85	6	40	(3)		0-5° joint at 15.7' 0-5° joint at 16.0' 10° joint at 16.5'
-56.9	18.7		12						1		(3)		90-95° fracture from 17.0'-17.8', which include (3) 0-5° joints
			13		Slightly weathered to unweathered, medium crystalline				1		(3)		70° fracture at 19.1'
			14						2		(4)		20° fracture at 19.8' 0-5° joint at 20.0'
			15			Run 4	Box 1	95	2	73	(6)		R4 (20.0'-20.4') UCS=15.48 Ksi Young's Modulus at failure=11,339.2 Ksi
-60.9	22.7								2		(4)		10° joint at 21.0' 60° fracture at 21.3' 10° joint at 22.0' 80° fracture at 22.3'

Boring terminated at EL -60.9' MLLW in ALTERED GRANITE SCHIST
Boring was conducted from Northstar Marine Services, Inc - Northstar L/B Vision

GBA ENGINEERS ★ SURVEYORS

Boring Designation FD24-RC-09

DRILLING LOG

DIVISION: North Atlantic Division		INSTALLATION: New England District	SHEET 1 OF 1 SHEETS
CONTRACT NO.: W912DS22D0017		9. COORDINATE SYSTEM: State Plane - Connecticut	HORIZONTAL: NAD83 / VERTICAL: MLLW
TASK ORDER NO.: W912WJ24F0024		10. SIZE AND TYPE OF BIT: Mud Rotary (4" Tricone Roller)	
PROJECT NAME: Subsurface Exploration of New Haven Harbor		11. MANUFACTURER'S DESIGNATION OF DRILL: ADT-273, CME-55, autohammer efficiency 86.5% (10/17/24)	
2. HOLE NUMBER: FD24-RC-09	LOCATION COORDINATES: N 648,216.0 E 954,554.1	12. TOTAL SAMPLES	DISTURBED: 13 / UNDISTURBED: 0
3. DRILLING AGENCY: Aquifer Drilling & Testing (ADT) - A Cascade Company		13. TOTAL NUMBER CORE BOXES: 0	
4. NAME OF DRILLER: Nick Marmolejo		14. ELEVATION GROUND WATER: N/A	
5. DIRECTION OF BORING: ☒ VERTICAL ☐ INCLINED	DEG FROM VERTICAL: --- / BEARING:	15. DATE BORING	STARTED: 8/30/24 / COMPLETED: 8/30/24
6. THICKNESS OF OVERBURDEN: >59.3'		16. ELEVATION TOP OF BORING: -14.6' (Measured in field)	
7. DEPTH DRILLED INTO ROCK: 0'		17. TOTAL CORE RECOVERY FOR BORING: N/A	
8. TOTAL DEPTH OF BORING: 59.3'		18. SIGNATURE AND TITLE OF INSPECTOR: Lindsay Pugh, PG, Geologist	

ELEV	DEPTH	LEGEND	FIELD CLASSIFICATION OF MATERIALS (Description)	% REC	Samp No.	RQD %	REMARKS	Blows/ 0.5 ft	N-Value	
			ORGANIC SILT (OH) (2.5Y 2.5/1), black, saturated, very soft, rapid dilatancy, Organic Sediments	0	SS-01		USCS - Gradation results and classification provided by CDM Smith Laboratory	0 0 0 0 WOR/2.0	0	0
				0	SS-02		Autohammer, 140lbs, 30in drops, 2-inch diameter, 24 inches long split spoon used on all samples	0 0 0 0 WOR/2.0	0	
				35	SS-03		torvane (1.0) (uncorrected): 0.0 kg/cm² pocket penetrometer (uncorrected): 0.0 tsf; Gravel: 0; Sand: 9; Fines: 91; LL: 95; PI: 51; MC: 156; OH	0 0 0 0 WOR/2.0	0	9
				100	SS-04			0 0 0 0 WOR/2.0	0	
-30.6	16.0		SILTY SAND (SM) (2.5Y 3/1), very dark gray, saturated, very loose to medium dense, rapid dilatancy, fine to coarse sand, some shell fragments, Marine Sediments	100	SS-05			4 3 1 1	4	19
				55	SS-06		Gravel: 0; Sand: 86; Fines: 14; MC: 20; SM	3 4 5 7	9	
-41.9	27.3		Fine to medium sand, trace shell fragments	65	SS-07			6 6 10 12	16	28
				55	SS-08			5 5 3 3	8	
-51.9	37.3		Wood	50	SS-09			6 2 2 3	4	37
-55.6	41.0		POORLY GRADED SAND (SP) (5YR 3/3), dark reddish brown , saturated, medium dense, rapid dilatancy, fine to coarse sand	60	SS-10			6 7 8 9	15	
-59.6	45.0		CLAYEY SAND (SC) (2.5YR 5/3), reddish brown, wet, very dense, slow dilatancy, fine to coarse sand, little fine gravel				mild rig chatter from ~45'-46'			47
				0	SS-11		rig chatter while drilling to next sample interval from 47.3'-52.3'	16 32 21 35	53	
				75	SS-12			28 40 62 65	100+	
-71.9	57.3									56
-73.9	59.3		Trace fine gravel	100	SS-13			65 84 75 86	100+	

BOTTOM OF BOREHOLE AT 59.3 ft

Boring terminated at -73.9' MLLW in CLAYEY SAND.

Boring terminated early due to increasing sea state conditions to prevent tooling from breaking downhole

Boring conducted from Northstar Marine Services, Inc. - Northstar L/B Vision

GBA ENGINEERS ★ SURVEYORS

Boring Designation FD24-RC-10

DRILLING LOG	DIVISION: North Atlantic Division	INSTALLATION: New England District	SHEET 1 OF 1 SHEETS
CONTRACT NO.: W912DS22D0017		9. COORDINATE SYSTEM: State Plane - Connecticut	HORIZONTAL: NAD83 / VERTICAL: MLLW
TASK ORDER NO.: W912WJ24F0024		10. SIZE AND TYPE OF BIT: NQ2 series 10 bit	
PROJECT NAME: Subsurface Exploration of New Haven Harbor		11. MANUFACTURER'S DESIGNATION OF DRILL: ADT-273, CME-55, autohammer efficiency 86.5% (10/17/24)	
2. HOLE NUMBER: FD24-RC-10	LOCATION COORDINATES: N 646,337.1 E 954,627.1	12. TOTAL SAMPLES:	DISTURBED: 9 / UNDISTURBED: 0
3. DRILLING AGENCY: Aquifer Drilling & Testing (ADT) - A Cascade Company		13. TOTAL NUMBER CORE BOXES: 2	
4. NAME OF DRILLER: Nick Marmolejo		14. ELEVATION GROUND WATER: N/A	
5. DIRECTION OF BORING: ☒ VERTICAL ☐ INCLINED	DEG FROM VERTICAL: --- / BEARING:	15. DATE BORING	STARTED: 8/21/24 / COMPLETED: 8/21/24
6. THICKNESS OF OVERBURDEN: 7.7'		16. ELEVATION TOP OF BORING: -26' (Measured in field)	
7. DEPTH DRILLED INTO ROCK: 27.2'		17. TOTAL CORE RECOVERY FOR BORING: 99%	
8. TOTAL DEPTH OF BORING: 34.9'		18. SIGNATURE AND TITLE OF INSPECTOR: Lindsay Pugh, PG, Geologist	

ELEV	DEPTH	LEGEND	FIELD CLASSIFICATION OF MATERIALS (Description)	% REC	Samp No.	RQD %	REMARKS	Blows/ 0.5 ft	N-Value
			POORLY GRADED SAND WITH SILT (SP-SM) (2.5Y 4/1), dark gray, saturated, very loose to loose, homogeneous, rapid dilatancy, fine to medium sand, some shell fragments, subangular, Marine Sediments	75	SS-01		USCS - Gradation results and classification provided by CDM Smith Laboratory Autohammer, 140lbs, 30in drops, 2-inch diameter, 24 inches long split spoon used on all samples	1 2 2 3	4
-29.7	3.7								
			Fine to coarse sand	70	SS-02		Gravel: 0; Sand: 91; Fines: 9; MC: 25; SP-SM	1 4 4 4	8
-33.7	7.7			40	SS-03			4 4 100/0.0	4
			ALTERED GRANITE SCHIST highly weathered to moderately weathered, pale yellow and light gray, finely crystalline, K-feldspar, Quartz, Plagioclase, Biotite present, very hard to hard, highly fracture spacing, near vertical fractures with iron oxidation and clay mineralization along rough surfaces that are slightly to moderately weathered, and contains post weathering mineralization veins	96	Run 1	12	switch from roller bit to wireline coring setup set 3inch casing within 4inch casing in order to create good seal for NQ2 core setup two near vertical fractures from 7.7'-9.7' with numerous horizontal joints 0.2'-0.3' in length throughout section near vertical fracture from 9.7'-10.8' with 4 horizontal joints 150° fracture at 10.9' 50° fracture at 11.1'		
-38.7	12.7								
			Highly to moderately fracture spacing	100	Run 2	66	vertical fracture from 11.3'-12.5' vertical fracture from 12.7'-14.0' 80° fracture from 13.9'-14.8' 10° joint at 16.1' 10° joint at 16.2' 160° fracture at 16.6'		
-43.7	17.7								
			Moderately weathered	100	Run 3	76	R2 (16.7'-17.0') UCS=20.67 Ksi Young's Modulus at failure=9,775.2 Ksi 80° fracture from 18.5'-19.8' 70° fracture from 20.1'-20.4' 30° fracture at 20.7' mineralization vein at 21.1'		
-48.7	22.7								
			Moderately weathered to unweathered				20° fracture at 22.2'		
-50.7	24.7								
			QUARTZ-BIOTITE-PLAGIOCLASE SCHIST unweathered, foliated, black with white, pyrite present, hard, unfractured fracture spacing	98	Run 4	92	(3) 10° joints from 23.7'-23.9' 10° joint at 24.2' 40° mineralization vein at 24.5' R4 (26.7'-27.0') UCS=12.45 Ksi Young's Modulus at failure=4,067.1 Ksi		
-53.7	27.7								
-54.6	28.6								
-55.9	29.9		ALTERED GRANITE SCHIST unweathered, unfractured fracture spacing	98	Run 5	84	R5 (29.6'-29.9') UCS=16.55 Ksi Young's Modulus at failure=11,057.3 Ksi near vertical fracture from 30.4'-31.9' 45° fracture at 32.0'		
-56.6	30.6		QUARTZ-BIOTITE-PLAGIOCLASE SCHIST unweathered, foliated, black with white, pyrite present, unfractured fracture spacing						
-58.7	32.7		ALTERED GRANITE SCHIST unweathered, slightly to moderately fracture spacing	100	Run 6	64	near vertical fracture from 33.4'-34.5' 45° mineralization vein at 34.6'		
-60.9	34.9								

BOTTOM OF BOREHOLE AT 34.9 ft
Boring terminated at EL -60.9' MLLW in ALTERED GRANITE SCHIST
Boring conducted from Northstar Marine Services, Inc. - Northstar L/B Vision

GBA ENGINEERS ★ SURVEYORS

Boring Designation FD24-RC-10

CORE LOG	DIVISION: North Atlantic Division	INSTALLATION: New England District	SHEET 1 OF 1 SHEETS

CONTRACT NO.: W912DS22D0017	9. COORDINATE SYSTEM: State Plane - Connecticut; HORIZONTAL: NAD83; VERTICAL: MLLW
TASK ORDER NO.: W912WJ24F0024	10. SIZE AND TYPE OF BIT: NQ2 series 10 bit
PROJECT NAME: Subsurface Exploration of New Haven Harbor	11. MANUFACTURER'S DESIGNATION OF DRILL: ADT-273, CME-55, autohammer efficiency 86.5% (10/17/24)
2. HOLE NUMBER: FD24-RC-10; LOCATION COORDINATES: N 646,337.1 E 954,627.1	12. TOTAL SAMPLES: DISTURBED 9; UNDISTURBED 0
3. DRILLING AGENCY: Aquifer Drilling & Testing (ADT) - A Cascade Company	13. TOTAL NUMBER CORE BOXES: 2
4. NAME OF DRILLER: Nick Marmolejo	14. ELEVATION GROUND WATER
5. DIRECTION OF BORING: ☒ VERTICAL ☐ INCLINED; DEG FROM VERTICAL: ---; BEARING:	15. DATE BORING: STARTED 8/21/24; COMPLETED 8/21/24
6. THICKNESS OF OVERBURDEN: 7.7'	16. ELEVATION TOP OF BORING: -26.0
7. DEPTH DRILLED INTO ROCK: 27.2'	17. TOTAL CORE RECOVERY FOR BORING: 99%
8. TOTAL DEPTH OF BORING: 34.9'	18. SIGNATURE AND TITLE OF INSPECTOR: Lindsay Pugh, PG Geologist

ELEV	DEPTH	Fracture Drawing	Fracture Number	Legend	FIELD CLASSIFICATION OF MATERIALS (Description)	Rock Core: Run No.	Box No.	Rec %	Frac. per foot	RQD %	Drill Time (Rate ft/hr)	W_x	REMARKS
-33.7	7.7		1		ALTERED GRANITE SCHIST highly weathered to moderately weathered, pale yellow and light gray, finely crystalline, K-feldspar, Quartz, Plagioclase, Biotite present, very hard to hard, highly fracture spacing, near vertical fractures with iron oxidation and clay mineralization along rough surfaces that are slightly to moderately weathered, and contains post weathering mineralization veins	Run 1	Box 1	96	3	12	(9)		switch from roller bit to wireline coring setup
			2						2		(5)		set 3inch casing within 4inch casing in order to create good seal for NQ2 core setup
			3						1		(4)		two near vertical fractures from 7.7'-9.7' with numerous horizontal joints 0.2'-0.3' in length throughout section
			4						3		(3)		near vertical fracture from 9.7'-10.8' with 4 horizontal joints
			5						1		(9)		150° fracture at 10.9'
-38.7	12.7		6						1		(8)		50° fracture at 11.1'
			7		Highly to moderately fracture spacing				2		(6)		vertical fracture from 11.3'-12.5'
			8			Run 2	Box 1	100	3	66	(6)		vertical fracture from 12.7'-14.0'
			9						3		(6)		80° fracture from 13.9'-14.8'
			-						0		(6)		10° joint at 16.1'
-43.7	17.7												10° joint at 16.2'
			-		Moderately weathered								160° fracture at 16.6'
			10						0		(4)		R2 (16.7'-17.0') UCS=20.67 Ksi
			11			Run 3	Box 1	100	1	76	(5)		Young's Modulus at failure=9,775.2 Ksi
			-						3		(5)		80° fracture from 18.5'-19.8'
-48.7	22.7		12						0		(5)		70° fracture from 20.1'-20.4'
			13		Moderately weathered to unweathered				1		(6)		30° fracture at 20.7'
-50.7	24.7		14						3		(4)		mineralization vein at 21.1'
			-		QUARTZ-BIOTITE-PLAGIOCLASE SCHIST unweathered, foliated, black with white, pyrite present, hard, unfractured fracture spacing								20° fracture at 22.2'
			-			Run 4	Box 1	98	1	92	(4)		(3) 10° joints from 23.7'-23.9'
			-						0		(4)		10° joint at 24.2'
-53.7	27.7		-						0		(3)		40° mineralization vein at 24.5'
-54.6	28.6		-		ALTERED GRANITE SCHIST unweathered, unfractured fracture spacing				0		(3)		R4 (26.7'-27.0') UCS=12.45 Ksi
			-						0		(4)		Young's Modulus at failure=4,067.1 Ksi
-55.9	29.9		-		QUARTZ-BIOTITE-PLAGIOCLASE SCHIST unweathered, foliated, black with white, pyrite present, unfractured fracture spacing	Run 5	Box 2	98	0	84	(4)		R5 (29.6'-29.9') UCS=16.55 Ksi
-56.6	30.6		15						1		(3)		Young's Modulus at failure=11,057.3 Ksi
			-						0		(5)		near vertical fracture from 30.4'-31.9'
-58.7	32.7		16		ALTERED GRANITE SCHIST unweathered, slightly to moderately fracture spacing				1		(5)		45° fracture at 32.0'
			17			Run 6	Box 2	100	1	64	(6)		near vertical fracture from 33.4'-34.5'
-60.9	34.9												45° mineralization vein at 34.6'

Boring terminated at EL -60.9' MLLW in ALTERED GRANITE SCHIST
Boring was conducted from Northstar Marine Services, Inc - Northstar L/B Vision