Rhode Island Coastal Resources Management Council
Oliver H. Stedman Government Center
Wakefield, RI 02879
(401) 783-3370

Rhode Island Department of Environmental Management
235 Promenade Street
Providence, RI 02908-5767
(401) 222-6820

APPLICATION FOR MARINE DREDGING AND ASSOCIATED ACTIVITIES pursuant to the Marine Infrastructure Maintenance Act of 1996 and the Marine Waterways and Boating Facilities Act of 2001, Chapter 46-6.1 of the Rhode Island General Laws.

PURPOSE OF APPLICATION

Agency Use Only
File Number
2025-06-017
Date Received

- [X] Application for Dredging and Disposal of Dredged Material
- [ ] Request Renewal of RIDEM Dredge Permit File # _____
- [ ] Request Renewal of CRMC Dredge Permit File # _____
- [ ] Request Modification of RIDEM Dredge Permit File # _____
- [ ] Request Modification of CRMC Dredge Permit File # _____

(Please Type or Print)

APPLICANT INFORMATION

Applicant Name: The Town of Narragansett

(NOTE: Applicant must be the owner of the property on which the activity is proposed)

Applicant Address: 25 5th Avenue Telephone No. 401-789-1044

City/Town: Narragansett State: RI Zip: 02882

PROJECT INFORMATION

Project Address: 139 Boston Neck Rd. (closest to the site, no actual address)

City/Town: Narragansett State: RI Zip: 02882

Tax Assessor's Plat(s) and Lot Number(s): A-33, A-33B, A-38, A-39, A-40, A-133

Project Consultant/Engineer Name: Foth Infrastructure & Environment, LLC / Kaitlyn Cross

Consultant/Engineer Address 114 Touro Street, Newport, RI, 02840

Consultant/Engineer Telephone No. (401) 626-7208

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6/5/2025
COASTAL RESOURCES MANAGEMENT COUNCIL

ACTIVITIES ASSOCIATED WITH THE PROPOSED DREDGE PROJECT (check all that apply)*

- [X] Filling of Waters of the State
- [ ] Marinas – New construction or expansion
- [ ] Site Disturbances
  - __ Residential Development: six (6) or more dwellings
  - __ Commercial, Industrial, State or Municipal Development
  - X Any project ≥ five (5) acres of disturbance
- [ ] Flow Alterations
- [ ] Point Source Discharge of Pollutants

GENERAL INFORMATION

Identify program and associated application number for any other RIDEM applications filed for this project

_____	Freshwater Wetlands	Application Number _____
_____	RIPDES	Application Number _____
_____	Individual Sewage Disposal System	Application Number _____
_X_	Other (Dredge Permit, 401 WQC)	Application Number N/A

If you have any questions, please contact the RIDEM at 222-7500 or CRMC at 783-3379.

CERTIFICATION OF APPLICANT

I hereby certify that I have requested and authorized the investigation, compilation, and submission of all the information, in whatever form, contained in this Application; that I have personally examined and am familiar with the information submitted herein; and that such information is true, accurate and complete to the best of my knowledge.

Signature of Applicant: _____ Date: 5/6/25

JONATHAN S. GERHARD, TOWN ENGINEER

Please return this completed application form and all supporting information, as indicated on the accompanying Submittal Checklist to:

Rhode Island Coastal Resources Management Council
Oliver H. Stedman Government Center
Wakefield, RI, 02879

and

Rhode Island Department of Environmental Management
Office of Technical & Customer Assistance
235 Promenade Street
Providence, RI 02908

* Water Quality Certification required for these activities pursuant to Section 401 of the CWA and the Rhode Island Water Quality Rules may be incorporated into an approval issued as part of this application.

Office Use Only:

Suitable for Public Notice _____ Date: _____

- [ ] Approved
- [ ] Denied
- [ ] Withdrawn

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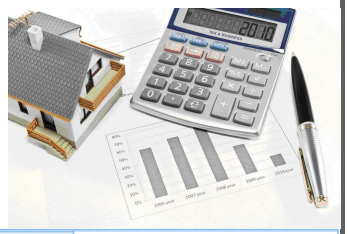

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Parcel Identification

Map/Lot	A-33-B
Account	51
State Code	910V - CHARITABLE
Card	1/1
User Account	33000500

Assessment

Land	$93,000
Building	$0
Card Total	$93,000
Parcel Total	$93,000

Prior Assessments

Fiscal Year	Land Value	Building Value	Outbuilding Value	Total Value
2024	$93,000	$0	$0	$93,000
2023	$70,600	$0	$0	$70,600
2022	$70,600	$0	$0	$70,600
2021	$70,600	$0	$0	$70,600
2020	$20,300	$0	$0	$20,300

Location and Owner

Location	BOSTON NECK ROAD
Owner	AUDUBON SOCIETY OF R I
Owner2	
Owner3	
Address	12 SANDERSON RD
Address2	
Address3	SMITHFIELD RI 02917

Building Information

Design	
Year Built	
Heat	
Fireplaces	0
Rooms	0
Bedrooms	0
Bathrooms	
Above Grade Living Area	0 SF

Sale Information

Sale Date	Sale Price	Legal Reference	Instrument
01/05/1978	$0	105-0317	
10/25/1950	$0	032-0132	

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Sketch Not Available

Building Sub Areas

Land Information

Land Area	0.433 AC
Zoning	P
View	-
Neighborhood	0390

Yard Item(s)

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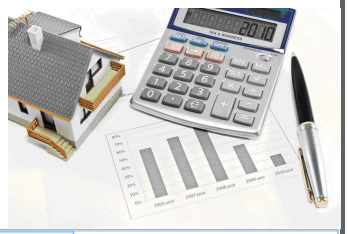

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Parcel Identification

Map/Lot	A-38
Account	56
State Code	910V - CHARITABLE
Card	1/1
User Account	33000500

Assessment

Land	$73,300
Building	$0
Card Total	$73,300
Parcel Total	$73,300

Prior Assessments

Fiscal Year	Land Value	Building Value	Outbuilding Value	Total Value
2024	$73,300	$0	$0	$73,300
2023	$55,200	$0	$0	$55,200
2022	$55,200	$0	$0	$55,200
2021	$55,200	$0	$0	$55,200
2020	$12,700	$0	$0	$12,700

Location and Owner

Location	BOSTON NECK ROAD
Owner	AUDUBON SOCIETY OF R I
Owner2	
Owner3	
Address	12 SANDERSON RD
Address2	
Address3	SMITHFIELD RI 02917

Building Information

Design	
Year Built	
Heat	
Fireplaces	0
Rooms	0
Bedrooms	0
Bathrooms	
Above Grade Living Area	0 SF

Sale Information

Sale Date	Sale Price	Legal Reference	Instrument
12/16/1971	$0	075-0092	
11/24/1950	$0	032-0222	
05/01/1943	$0	019-0119	

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Picture Not Available

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Building Sub Areas

Land Information

Land Area	0.081 AC
Zoning	P
View	-
Neighborhood	0250

Yard Item(s)

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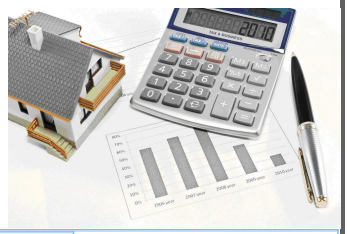

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Parcel Identification

Map/Lot	A-40
Account	58
State Code	910V - CHARITABLE
Card	1/1
User Account	33000500

Assessment

Land	$73,300
Building	$0
Card Total	$73,300
Parcel Total	$73,300

Prior Assessments

Fiscal Year	Land Value	Building Value	Outbuilding Value	Total Value
2024	$73,300	$0	$0	$73,300
2023	$55,200	$0	$0	$55,200
2022	$55,200	$0	$0	$55,200
2021	$55,200	$0	$0	$55,200
2020	$12,700	$0	$0	$12,700

Location and Owner

Location	BOSTON NECK ROAD
Owner	AUDUBON SOCIETY OF R I
Owner2	
Owner3	
Address	12 SANDERSON RD
Address2	
Address3	SMITHFIELD RI 02917

Building Information

Design	
Year Built	
Heat	
Fireplaces	0
Rooms	0
Bedrooms	0
Bathrooms	
Above Grade Living Area	0 SF

Sale Information

Sale Date	Sale Price	Legal Reference	Instrument
12/16/1971	$0	075-0090	
10/27/1950	$0	032-0145	

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Building Sub Areas

Land Information

Land Area	0.081 AC
Zoning	P
View	-
Neighborhood	0250

Yard Item(s)

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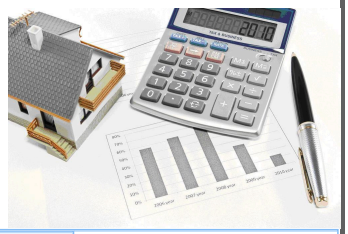

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Parcel Identification

Map/Lot	A-133
Account	131
State Code	1320 - VAC NOT DV
Card	1/1
User Account	04315200

Assessment

Land	$236,600
Building	$0
Card Total	$236,600
Parcel Total	$236,600

Prior Assessments

Fiscal Year	Land Value	Building Value	Outbuilding Value	Total Value
2024	$236,600	$0	$0	$236,600
2023	$179,800	$0	$0	$179,800
2022	$179,800	$0	$0	$179,800
2021	$179,800	$0	$0	$179,800
2020	$51,700	$0	$0	$51,700

Location and Owner

Location	BOSTON NECK ROAD
Owner	DUNES CORPORATION, THE
Owner2	
Owner3	
Address	P O BOX 749
Address2	
Address3	NARRAGANSETT RI 02882

Building Information

Design	
Year Built	
Heat	
Fireplaces	0
Rooms	0
Bedrooms	0
Bathrooms	
Above Grade Living Area	0 SF

Sale Information

Sale Date	Sale Price	Legal Reference	Instrument
12/31/1998	$0	000-0000	

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Building Sub Areas

Land Information

Land Area	1.77 AC
Zoning	R-80
View	-
Neighborhood	0390

Yard Item(s)

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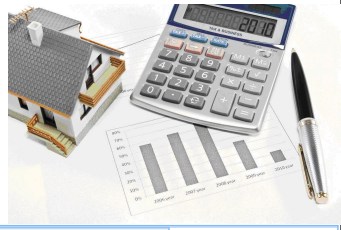

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Parcel Identification

Map/Lot	A-33
Account	49
State Code	3333 - LARGE BUS
Card	1/8
User Account	04315500

Assessment

Land	$0
Building	$4,627,200
Card Total	$4,627,200
Parcel Total	$16,984,300

Prior Assessments

Fiscal Year	Land Value	Building Value	Outbuilding Value	Total Value
2024	$10,098,600	$5,437,600	$1,448,100	$16,984,300
2023	$9,828,200	$4,759,000	$804,900	$15,392,100
2022	$9,828,200	$4,759,000	$804,900	$15,392,100
2021	$9,828,200	$4,759,000	$804,900	$15,392,100
2020	$7,150,500	$4,411,000	$810,000	$12,371,500

Location and Owner

Location	137 BOSTON NECK ROAD
Owner	DUNES CLUB, THE
Owner2	
Owner3	
Address	P. O. BOX 749
Address2	
Address3	NARRAGANSETT RI 02882

Building Information

Design	Clubs/Lodges
Year Built	1938
Heat	Forced Air-D
Fireplaces	0
Rooms	0
Bedrooms	0
Bathrooms	1 Half Bath
Above Grade Living Area	25,859 SF

Sale Information

Sale Date	Sale Price	Legal Reference	Instrument
10/25/1950	$0	032-0132	

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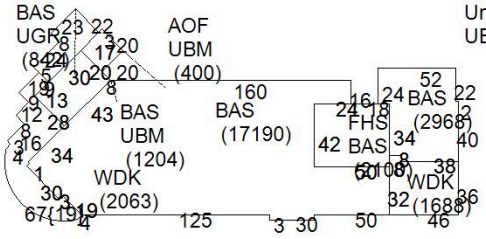

UnSketched Subareas:
UBM (4860)

Building Sub Areas

Sub Area	Net Area
Basement, Unfinished	6,464 SF
Deck, Wood	3,751 SF
First Floor	24,304 SF
Garage, Under	842 SF
Half Story, Finished	1,155 SF
Office Area	400 SF

Land Information

Land Area	32.16 AC
Zoning	B-C
View	-
Neighborhood	C

Yard Item(s)

Description	Quantity	Size	Year
PAVING-ASPHALT	1	190000	1966
SEA WALL	1	320	2011
COMM WOOD	1	192	2000
TEN CRT COMM	1	28800	2000
TEN CRT COMM	1	28800	2000
W/PLUMBING	1	1760	1966
W/PLUMBING	1	1540	1966
W/PLUMBING	1	1176	1966
W/PLUMBING	1	714	1966
W/PLUMBING	1	714	1966
W/PLUMBING	1	392	1966
W/PLUMBING	1	665	1966
POOL-INGR CONC	1	105	2002
POOL-INGR CONC	1	1224	1966
CANOPY-CM-AVE	1	600	1966
COMM WOOD	1	880	1966
COMM WOOD	1	460	1966
CABIN-MINIMAL	1	660	2000
WOOD DECK	1	9800	1966
W/PLUMBING	1	3072	1966
W/PLUMBING	1	3072	1966
W/PLUMBING	1	3072	1966
W/PLUMBING	1	1920	1966
W/PLUMBING	1	1920	1966
W/PLUMBING	1	1920	1966
W/PLUMBING	1	1024	1966
W/PLUMBING	1	1024	1966
W/PLUMBING	1	1024	1966
SHED FRAME	1	405	2011
SHED FRAME	1	405	2011
W/PLUMBING	1	1520	1966
W/PLUMBING	1	1330	1966
W/PLUMBING	1	1330	1966
W/PLUMBING	1	1330	1966
W/PLUMBING	1	1330	1966
CMM BTH HSE GD	1	144	2000
CMM BTH HSE GD	1	144	2000
WOOD DECK	1	16152	1966
FENCE-10'CHAIN	1	800	2000
FENCE-10'CHAIN	1	580	2000
COMM WOOD	1	448	2000
COMM WOOD	1	200	2000
WOOD DECK	1	308	2011

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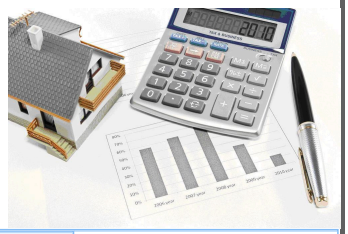

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Parcel Identification

Map/Lot	A-39
Account	57
State Code	910V - CHARITABLE
Card	1/1
User Account	33000500

Assessment

Land	$73,300
Building	$0
Card Total	$73,300
Parcel Total	$73,300

Prior Assessments

Fiscal Year	Land Value	Building Value	Outbuilding Value	Total Value
2024	$73,300	$0	$0	$73,300
2023	$55,200	$0	$0	$55,200
2022	$55,200	$0	$0	$55,200
2021	$55,200	$0	$0	$55,200
2020	$12,700	$0	$0	$12,700

Location and Owner

Location	220 BOSTON NECK ROAD
Owner	AUDUBON SOCIETY OF R I
Owner2	
Owner3	
Address	12 SANDERSON RD
Address2	
Address3	SMITHFIELD RI 02917

Building Information

Design	
Year Built	
Heat	
Fireplaces	0
Rooms	0
Bedrooms	0
Bathrooms	
Above Grade Living Area	0 SF

Sale Information

Sale Date	Sale Price	Legal Reference	Instrument
06/30/1995	$0	330-0586	
12/08/1966	$0	060-0178	
12/08/1966	$0	060-0123	
12/08/1966	$0	060-0121	
06/17/1940	$0	016-0116	

Picture Not Available

Sketch Not Available

Building Sub Areas

Land Information

Land Area	0.081 AC
Zoning	P
View	-
Neighborhood	0250

Yard Item(s)

Foth

Permit Application

Narrow River Dredging

The Town of Narragansett

Narragansett, RI

June 2025

Project ID: 0022N010

Solving our clients' toughest science and engineering challenges.

Foth
114 Touro Street
Newport, RI 02840
(401) 236-0360
foth.com

June 4, 2025

Mason Sherman
Rhode Island Coastal Resources Management Council
4808 Tower Hill Rd # 116
Wakefield, RI 02879

Re: Narrow River Dredging Permit Application
Town of Narragansett, Narragansett, Rhode Island

Dear Mr. Sherman:

On behalf of the Town of Narragansett, RI (Town), Foth Infrastructure & Environment, LLC (Foth) is pleased to present the attached request for dredging and placement permit for the above referenced project. This application is being submitted as part of the General Permit (GP) for the State of Rhode Island under Section 10 of the Rivers and Harbors Act of 1899, the Marine Infrastructure Maintenance Act of 1996 and the Marine Waterways and Boating Facilities Act of 2001, Chapter 46-6.1 of the Rhode Island (RI) General Laws, and Section 401 of the Clean Water Act. It is anticipated that the proposed project shall fall under the following permits:

- United States Army Corp of Engineers GP No. 7 for Dredging, disposal of dredged material, beach nourishment & rock removal and rock relocation (PGP) or GP No. 10 for Aquatic habitat restoration, establishment and enhancement activities (PGP).
- RI Costal Resource Management Council Assent Application for Marine Dredging and Associated Activities.
- RI Department of Environmental Management Section 401 Water Quality Certificate (WQC)

The proposed work includes the new dredging of the existing sand bar at the mouth of the Narrow River within the limits shown in the plans in Appendix A. It is proposed that the dredged material removed from the mouth of the Narrow River will be placed onto the adjacent barrier spit. The proposed dredging aims to realign the existing channel with the removal of a section of the existing sandbar, which currently poses a navigational hazard at lower stages of the tide.

Thank you for your attention to this request. Should you have any questions or require any additional information, please do not hesitate to contact me at (401) 626-7208 or at Kaitlyn.Cross@foth.com.

Sincerely,
Foth Infrastructure & Environment, LLC

Kaitlyn Cross

Kaitlyn Cross, EIT
Project Manager

Michael Campagnone, P.E.

Michael Campagnone, P.E.
Senior Technology Manager
Licensed in RI, MA, NY

pw:\\foth-pw.bentley.com:foth-pw-01\Documents\Clients\Narragansett RI T\0022N010.00\4000 Regulatory Agency Correspondence\4150 Regulatory Permits\Phase I Permitting\Narrow River Dredging Permit Narrative.docx

Narrow River Dredging Permit Narrative

Project ID: 0022N010

Prepared for

The Town of Narragansett

25 5th Ave. Narragansett, RI 02882

Prepared by

Foth Infrastructure & Environment, LLC

June 2025

114 Touro St. • Newport, RI 02840 • (401) 236-0360
foth.com

Narrow River Dredging Permit Narrative

Table of Contents

Page

1. Introduction 1
   - 1.1 Purpose 1
   - 1.2 Scope of Work 2
   - 1.3 Previous Dredge Events 3
   - 1.4 Natural Resources 3
   - 1.5 Outfall Discharge and Spill History 5
   - 1.6 Known Sources of Contamination 5
2. Sediment Testing and Data Review 6
   - 2.1 Sediment Chemistry 6
3. Alternatives Analysis 7
   - 3.1 Dredge Design Alternatives 7
     - 3.1.1 Alternative #1: Narrow River Entrance Sandbar Dredging with Placement on The Barrier Spit 7
     - 3.1.2 Alternative #2: The Narrows North and South Channels with Placement on Narragansett Town Beach 8
     - 3.1.3 Alternative #3: Sandbar Realignment Dredging 8
     - 3.1.4 Alternative #4: No Action 9
   - 3.2 Placement Alternatives 9
     - 3.2.1 Offshore Placement of Dredged Material at the Rhode Island Sound Disposal Site (RISDS) 9
     - 3.2.2 Upland Landfill and Confined Aquatic Disposal (CAD) Cell Placement 10
     - 3.2.3 Placement at Narragansett Town Beach 10
     - 3.2.4 Placement at The Narrows Barrier Spit 10
4. Regulated Resource Areas 11
   - 4.1 USACE 11
   - 4.2 RIDEM 11
   - 4.3 CRMC 12
     - 4.3.1 CRMC Section 1.3.1(A) Category B Requirements 13
       - 4.3.1.1 Demonstration of need for the proposed dredging: 13
     - 4.3.2 CRMC Section 1.3.1(B) Filling, Removing, or Grading of Shoreline Features 18

Table of Contents (continued)

Page

4.3.2.1 Demonstration of Compliance with Standards....18
4.3.3 CRMC Section 1.3.1(I) Dredging and Dredged Material Disposal....20
4.3.3.1 Demonstration of Compliance with Standards....20
4.3.4 CRMC Section 1.3.1(J) Filling In Tidal Waters....22
5. Mitigation Measures....23
6. Conclusions....24

Tables

Table 1-1 Proposed Dredging....3
Table 1-2 Proposed Fill....3
Table 2-1 Beach Placement Contaminants Criteria....6

Appendices

Appendix A .... Narrow River Dredging Permit Plans
Appendix B .... State and Federal Agency Sediment Placement Approval
Appendix C .... Abutters List
Appendix D ....Spill History
Appendix E .... Statement of No Objection from Abutters
Appendix F .... Sediment Sample Analysis Results

1. Introduction

The Town of Narragansett (The Town), and their consultants, Foth infrastructure & Environment, LLC (Foth) have prepared the Permit Application herein for the interagency review and approval for the new dredging of approximately 2.8 acres from the mouth of the Narrow River. The proposed new dredging includes the removal of up to 41,551 CY of material to a depth of -4.0' Mean Lower-Low Water (MLLW) plus an allowable 1-foot of overdepth (-4.0' MLLW +1.0' OD) with placement of dredged material on the adjacent barrier spit located at the mouth of the Narrow River.

The proposed project is located within Narragansett, Rhode Island, approximately 0.7 miles to the northeast of the Narragansett Town Beach. The Narrow River, also known as the Pettaquamscutt River, runs from the Town of North Kingstown to the Town of Narragansett. The Pettaquamscutt Cove splits the town lines between the Town of South Kingstown and the Town of Narragansett leading into the lower reach towards the project site, known as The Narrows. The river extends approximately seven (7) miles and consists of an inlet, a narrow channel, and a series of basins fed by several small streams throughout the river. The river is underlaid by a steep-walled bedrock valley partially filled with glacial sediment as evident in the bedrock outcroppings located within the proximity of the mouth.

Figure 1-1: Site Location

1.1 Purpose

The mouth of the Narrow River, also known as The Narrows, is situated near Narragansett Town Beach, just north of The Dunes Club. During the summer months, the river's mouth is a hub of recreational activities, including swimming and boating. Further upriver, one finds the Sprague Bridge and the Chafee National Wildlife Refuge, which is managed by the U.S. Fish and Wildlife Service (USFWS). The Narrow River Preservation Association (NRPA), a State-Designated Watershed Council, has been dedicated to the preservation, protection, and restoration of the Narrow River and its watershed since 1970. Although the

Narrow River is not classified as a significant estuary within Rhode Island, it supports a rich biodiversity of both animal and plant life. The Pettaquamscutt Marsh Wildlife Refuge owned by the Rhode Island Audubon Society runs along the southern shore of the narrows adjacent to the site and the Chafee National Wildlife Refuge, located just upriver, is under the stewardship of the USFWS.

The Narrow River serves an important function for public access and transit, allowing residents to enjoy both public and private access for recreational vessels along the river as well as travel to and from Narragansett Bay. Public access along the river includes several established sites: three state-owned boat launching ramps, the Lacey Bridge and Middlebridge Bridge fishing sites, and two (2) scenic overlook areas. In addition to the public access along the river, there are two (2) marinas located along the river north of the Boston Neck Rd. bridge. In recent years, the combination of coastal storms and sediment migration have significantly increased the volume of sand within the flood tide delta (known as the "sandbar") just inside the mouth of the Narrow River. This has posed challenges for boaters, particularly after storm events, as the sandbar has evolved in size and location, making the area increasingly difficult to navigate and risking closure of the mouth.

The existing barrier spit at the mouth of the Narrow River has been generally stable over the last 15 to 20 years. The previous southern channel that ran along the northern edge of the barrier spit remained relatively steady in its location with depths of approximately minus one (-1.0) feet to minus five (-5.0') feet MLLW, allowing recreational vessels to transit safely. A series of severe storms occurring in relatively short frequencies, within the winter of 2021, overtopped the sandbar and deposited sand into the existing southern channel. Over the next several years to present day, severe storms have furthered this trend and the southern channel that was stable for many years is now completely closed off.

Dredging in this area is essential for two critical purposes; (1) to maintain recreational vessel usage of the spit and (2) to preserve tidal action in the critical resource areas of the Narrow River Estuary. The proposed dredging aims to remove a significant portion of this sandbar, which currently poses a navigational hazard at lower stages of the tide. This will allow for the mouth of the Narrow to be restored to a single tidal channel.

The beneficial reuse of dredge material along the barrier spit aims relocate material by realigning the existing sandbar. By realigning the sandbar, the project will elevate and flatten the backside of the barrier spit as well as reconstruct the eroded dune along the front. This beneficial reuse of dredge materials seeks to provide additional armoring against coastal storms. Beyond coastal protection, this realignment has the potential to enhance bird habitat by creating supportive terrain for shorebirds.

1.2 Scope of Work

The proposed work will consist of realigning the existing sandbar by mechanically dredging The Narrows to a depth of -4 feet Mean Lower Low Water (MLLW) plus a 1.0 foot allowable over dredge (-4.0' MLLW + 1' OD). All dredging will be performed with three (3) foot horizontal to one (1) foot vertical slopes (3H:1V). The proposed dredged material would then be placed along the northern side of the existing sandbar at elevations ranging from +5' MLLW to +8' MLLW. It is anticipated that approximately 41,551 cy of material will be dredged from the Narrow River sandbar and realigned to enhance the barrier spit.

The elevations of the placed dredged material will be gradual placed on 5H:1V slopes and tying into existing elevations on the sandbar. No material is proposed to be placed on the southern shorefront slope in order to preserve previously known shorebird habitat. Table 1-1 and Table 1-2 details the proposed dredge and fill volumes associated with the detailed scope of work. See **Appendix A** for proposed project plans.

Table 1-1 Proposed Dredging

Site	Area (SF)	Intertidal Area (SF)	Dredge Volume (CY)	Overdepth Volume (CY)	Total Dredge Volume (CY)
Narrow River Dredging	122,389	95,877	35,923	5,628	41,551

Table 1-2 Proposed Fill

Site	Area (SF)	Intertidal Area (SF)	Fill Volume (CY)
Barrier Spit Placement	208,494	114,174	37,992

1.3 Previous Dredge Events

Based on Foth's research of historical permits and records, The Narrows have never been dredged. A preliminary review of the RI Coastal Resources Management Council (CRMC) permit database returned no results for previous dredge permits at this site. Foth reached out to the RI CRMC; and it was indicated that this area has not historically been permitted or dredged, and therefore, will be classified as new dredging.

1.4 Natural Resources

Foth performed a desktop review of the RI Geographic Information System (RIGIS) and the USFWS' Information for Planning and Consulting (IPaC) database to obtain information of critical habitat, endangered species, migratory birds, or other natural resources that may be impacted by the proposed dredging within the Narrow River. Preliminary results indicated the following species and habitat:

- Northern Long-Eared Bats
    - Based on Foth's experience on recent dredging projects within RI, the RI Department of Environmental Protection (RI DEM) Fish and Wildlife indicated that there has been no presence of Northern Long-Eared Bats or their habitat in RI in recent years.
- Tricolored Bat
    - Currently, guidance on distance to hibernacula and other associated parameters for the Tricolored Bat has not yet been released to the states. Due to the proximity to the adjacent tidally influenced water, there is no suitable habitat for the Tricolored Bat within the proposed project area.
- Roseate Turn
    - Based on Foth's experience on recent dredging projects within RI, the RI DEM fish and wildlife indicated that there have been no sightings of Roseate Turn in RI in recent years.
- Piping Plover
    - The mouth of The Narrows has had a Piping Plover residence as well as feeding and nesting areas. In June of 2023, Foth observed a Piping Plover nest on the existing

sandbar. These birds are considered threatened. The proposed dredging will have some impact to the intertidal feeding areas however, the placement of material is expected to create an increase in potential nesting habitat. Time of Year (TOY) restrictions specified in the permits would be followed and construction activities would be limited to the dates specified in the TOY window. Additionally, the proposed design has taken steps to avoid areas of placement that have previously fostered Piping Plover nesting habitat.

- Approximately, 43 species of migratory birds are identified as birds of particular concern within the vicinity of the narrow river.
    - It is not anticipated that migratory birds will be affected by the proposed dredging. Considerations may need to be taken during the permitting process to account for TOY working windows. Additionally, the work will be performed by a contractor with experience working in coastal environments that require special attention to detail in minimizing the impacts to sensitive resource areas.
- The Narrow River abuts the Pettaquamscutt Marsh to the south and the John H. Chafee National Wildlife Refuge farther up the river from the proposed dredge site.
    - Foth has designed the proposed dredge footprints in order to not impact the adjacent land and therefore does not anticipate that the proposed dredging will produce impacts to the Wildlife Refuge. Considerations may need to be taken during the permitting process to account for noise pollution that has the potential to affect the Wildlife Refuge.
- The Narrow River is adjacent to or intersects the following wetlands:
    - Estuarine and Marine Deepwater
        - E1UBL – Estuarine subtidal unconsolidated bottom which is considered estuarine open water.
        - M1UBL – Marine subtidal unconsolidated bottom which is considered marine open water.
    - Estuarine and Marine Wetland
        - E2EM1P – Estuarine intertidal persistent emergent wetland, that is irregularly flooded.
        - M2USP – Marine intertidal unconsolidated shore that is irregularly flooded.
        - M2RS2P/M2RS2P – Marine rocky shores.
        - E2RS2P – Estuarian rocky shores.

Located north of the Boston Neck Road Bridge existing an existing USFWS salt marsh restoration project, conducted in 2019. This restoration consisted of material removed from within the Upper Narrow River adjacent to the marsh. Both drainage improvements and the placement of thin layers of dredged material were conducted on the Narrow River marsh surfaces in 2019 to build resiliency against sea level rise. Dredging within The Narrows may cause potential adjustment of the Mean High Water (MHW) levels in the upper portions of the Narrow River adjacent to the USFWS' salt marsh restoration project. It is unknown weather these impacts will affect the existing salt marsh.

Based on the available GIS data, the CMRC defines the area above the Mean High Water (MHW) at the mouth of the Narrow River as “Barrier Spit”. The CRMC defines Barrier Islands and Spits as areas comprised of sand, gravel or cobble extending parallel to the coast and separated from the mainland by a coastal pond, tidal water body, or coastal wetland. In addition to a beach, barriers have, in most cases, a frontal foredune zone and often, back barrier dune fields. The lateral limits of barriers are defined by the area where unconsolidated sand or gravel of the barrier abuts bedrock or glacial sediment.

1.5 Outfall Discharge and Spill History

A due diligence assessment was conducted to identify potential sources of sediment contamination from outfall discharges within The Narrows. Known outfall discharge locations within the proximity of proposed dredge sites and/or those that could have potentially discharged into a nearby tributary/tributaries where dredging is proposed are presented in the plans in **Appendix A**. It should be noted that there are no outfall locations present within the proposed dredge footprints.

The spill history for The Narrows is based upon the available incident information reported by the federal National Response Center (NRC) through 2024. Based on Foth’s review of the available information there have been no significant spills reported in or within the proximity of The Narrows in recent history. Foth reached out to the Narragansett Harbor Master who indicated that he has no record of spills occurring within the river over the last fifteen (15) years.

1.6 Known Sources of Contamination

In accordance with the 2020 Harbor Management Plan prepared by the Town of Narragansett, stormwater runoff is the most significant source of bacteria to the Narrow River. Outfalls within the Narrow River have been or will be targeted for improved Best Management Practices (BMPs) to improve water quality. The Town is working to build detention ponds at several outfall locations including those at Wampum Road, Conanicus Road, Mettatuxet Road, and Edgewater Road. In addition to the proposed improvements, RIDEM has done both dry weather and wet weather bacterial sampling and monitors for illicit connections to stormwater pipes.

The Town of Narragansett indicated that two (2) stormwater outfalls exist beneath the Boston Neck Rd bridge. Review of the Rhode Island Department of Transportation (RIDOT) Stormwater Program indicated that these two (2) drainages system were investigated due to their location within a floodplain, proximity to outstanding resource waters, potential for endangered species, tight soils, and high-water table. After implementation of Best Management Practices (BMPs) RIDOT, in conjunction with the EPA, determined that no further action was required for the effluent from these structures. Dredging within the vicinities of these outfalls are not required as the river has sustained depths ranging from approximately -5.0 feet MLLW to -10.0 feet MLLW.

Review of the RIDOT Stormwater Program also indicated that in December of 2021 the EPA approved the RIDOT Stormwater Control Plan for the Narrow River with no further action required by RIDOT. Therefore, RIDOT is no longer required to implement any new structural stormwater controls for the site. According to the Narragansett Department of Public Works (DPW) no known public outfalls are located within the Lower Narrow River (Narrows). Further field investigation may be required to locate any private outfalls.

Due to the recreational nature of the existing channel use and the absence of commercial industries along the river, The Narrows are generally considered removed from sources of potential contamination. In addition, the velocity of the tidal flushing within the Narrow River creates a high energy environment which is not conducive to the settling of potential sources of contamination.

2. Sediment Testing and Data Review

Sediment cores were collected in October of 2023 from nine (9) locations south of the Boston Neck Rd. bridge to the mouth of the Narrow River specified in the Sampling and Analysis Plan (SAP) provided to the agencies and dated April 26, 2023. The samples were collected to the proposed dredge depth, including overdepth.

2.1 Sediment Chemistry

The samples from the proposed dredge footprint were combined into 4 composite samples and analyzed for grain size and bulk sediment chemistry including PAH's, TPH's, PCB's and Pesticides. Testing parameters, analytical methods, and reporting limits used are outlined in the SAP. See **Appendix F** for the results of the analysis performed on the Narrow River sediment. Grain size results from within the Narrow River can be categorized as the following:

- Fine to Medium Sands, trace coarse sand, trace silt (>50% sand, 0-5% fines, 0-5% gravel)
- Medium to fine sand, trace fines, trace gravel (>50% sand, 0-5% fines, 5-10% gravel)
- Medium to Coarse Sand, some gravel, trace fines (>50% sand, 0-5% fines, 10-35% gravel)

A total of nine (9) Vibracore samples were taken from the Narrow River and were tested as four (4) composites. Comp 1 contained samples, NR-1, NR-2, and NR-3, Comp 2 contained sample NR-4, Comp 3 contained samples NR-5 and NR-6, and Comp 4 contained samples NR-7 and NR-8. Sample NR-9 was tested on its own. Composite 3 (COMP 3), detailed below in Table 2-1, was the only sample composite that was located within the vicinity of the proposed dredge footprint detailed within this application.

Table 2-1 Beach Placement Contaminants Criteria

Parameter	Units	Beach Placement Criteria	COMP 3
Arsenic	mg/kg	1.7	1.25
Cadmium	mg/kg	1.0	ND
Chromium	mg/kg	10.0	3.05
Copper	mg/kg	10.0	0.58
Lead	mg/kg	25.0	1.40
Mercury	mg/kg	0.500	0.002
Nickle	mg/kg	5.0	1.90
Zinc	mg/kg	25.0	7.83

3. Alternatives Analysis

As part of the evaluation process, Foth reviewed feasible dredge prism and placement area alternatives for the mouth of the Narrow River. Mechanical dredging is considered the most viable option for the proposed project. In order to provide the most thorough review of the possible dredging and placement alternatives, several options were reviewed.

3.1 Dredge Design Alternatives

3.1.1 Alternative #1: Narrow River Entrance Sandbar Dredging with Placement on The Barrier Spit

This alternative involved the hydraulic dredging of the northern and eastern extents of the existing sandbar at the mouth of the Narrow River to a depth of -4' MLLW + 1' OD. This design would create a uniform channel extending along the mouth of the Narrow River. The intent of this alternative was to realign the sandbar along the barrier spit and create a navigational channel within the mouth of the Narrow River.

Figure 3-1: Narrow River Entrance Dredging

3.1.2 Alternative #2: The Narrows North and South Channels with Placement on Narragansett Town Beach

Alternative 1 explored hydraulic dredging of the existing deep water within the lower Narrow Rivers North and South channel, from Boston Neck Road to the mouth of The Narrows, to a depth of -4' MLLW + 1' OD. Dredging material was proposed to be places on the Narragansett Town Beach utilizing a pipeline. Hydraulic dredging of The Narrows Channel would result in approximately 78,000 cubic yards (CY) of dredge material for placement on the Town Beach. Due to the specialized equipment required to complete this work, available funding for this project made this alternative unfeasible.

Figure 3-2: The Narrows Channels Dredging

Although not considered as part of this application, dredging of the Narrow River utilizing a hydraulic dredge with placement at the Narragansett Town Beach is considered a viable subsequent phase of work for future dredge events within the Narrow River. Any future dredge events shall be submitted as part of a separate application and are subject to available funding.

3.1.3 Alternative #3: Sandbar Realignment Dredging

This alternative involves the mechanical dredging of the northern limits of the existing sandbar in an effort to "realign" the natural channel. Historically, there existed a North and South channel adjacent to the sandbar as shown in Alternative #2. After several years of severe storms, the existing barrier spit was overtopped and the southern channel which had been the primary navigational channel for recreational boaters, was shoaled in. Currently, only a northern natural channel with shallow depths exists. By dredging the northernmost extents of the existing sandbar to a depth of -4' MLLW + 1' OD, the formation of the natural channel to the north can be expedited, resulting in a new, naturally deep channel that will allow for safe navigation of recreational boaters. This alternative is the preferred design based on estimated time of construction, available funds, and its reduced impact to the adjacent coastal resource areas.

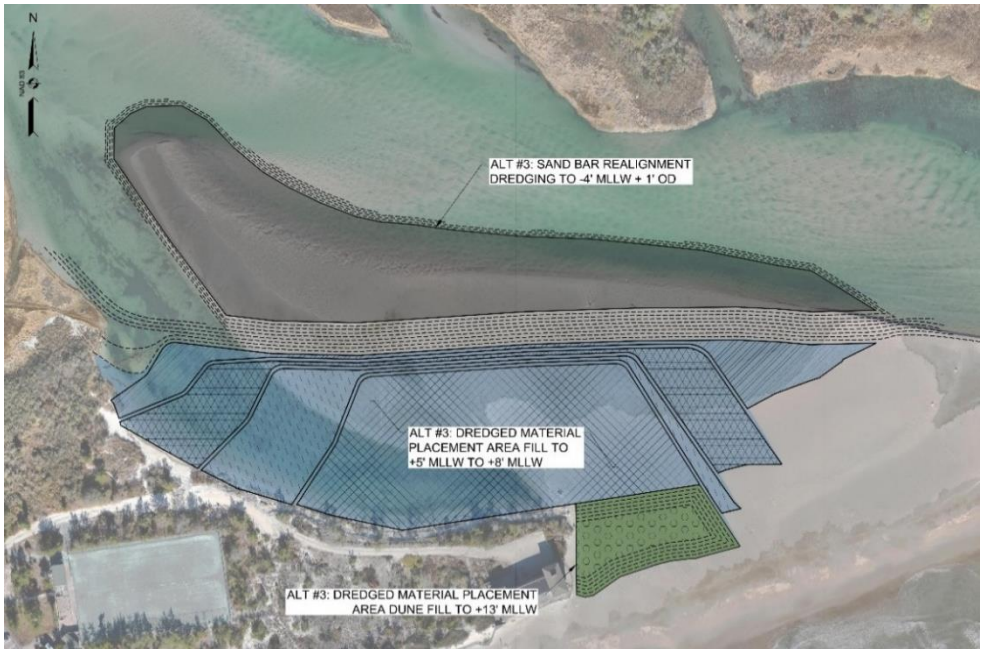


Figure 3-3: The Narrows Sandbar Realignment Dredging

3.1.4 Alternative #4: No Action

This alternative entails no dredging or placement of material from within The Narrows. The absence of dredging in this region would facilitate the continued accretion of the overtopped sandbar, thereby exacerbating the navigational barriers within the extant Narrow River. Over time, this would culminate in the closure of the navigation within the channel, rendering it unusable for recreational boaters. Moreover, the lack of dredging of material from The Narrows would the availability of sediment for deposition on the adjacent barrier spit. This would enable the ongoing erosion of the previously existing dune and augment the susceptibility of the barrier spit to coastal storm inundation. This scenario would render the area increasingly vulnerable to intensified erosion along the beach and further sediment deposition within the river.

3.2 Placement Alternatives

3.2.1 Offshore Placement of Dredged Material at the Rhode Island Sound Disposal Site (RISDS)

The RISDS is located south of Narragansett Bay, approximately 16.7 kilometers (9.03 nautical miles) south of Point Judith, Rhode Island, within the separation zone for Narragansett Bay shipping lanes. The site is defined as a 5,900' × 5,900' area on the seafloor with water depths ranging from 111' to 127'. This site is the same location as Site 69B, selected for short-term use by the USACE to receive dredged material from the Providence River and the Harbor Maintenance Dredging project.

While the results of the physical and chemical analysis of the October 2023 sediment samples showed relatively low levels of contaminants of concern for offshore placement, the shallow nature of the river poses challenges for the offshore placement of dredged material. The offshore placement of dredged material requires special oceangoing scows that are typically large in size and draft a significant amount of water. The shallow depths at the Narrow River would present challenges with getting the necessary waterside equipment in and out of the river for the placement of dredged material at the RISDS. Due to the lack of depth for vessel maneuverability, this alternative was considered unfeasible for the project.

3.2.2 Upland Landfill and Confined Aquatic Disposal (CAD) Cell Placement

The sediment sample results for the Narrow River did not exceed the limits of Residential Direct Exposure and Commercial/Industrial Direct Exposure as described in the "Rules and Regulations for Dredging and the Management of Dredged Material" and therefore should not require upland disposal within a landfill.

Foth has conducted ongoing coordination with the RI CRMC regarding the remaining volume within the Providence River CAD Cell disposal. Currently no opportunities exist for material to be used within the existing Providence River CAD Cells for placement or as capping material. Disposal of material within the Providence River CAD Cell would require use of oceangoing scows that are typically large in size and draft on average 4 feet of water. Additionally, Foth's review of the data collected during the sediment sampling events at Narrow River indicate that the material does not require disposal within a CAD Cell due to its lack of exceedances in contaminants of concern.

Due to the elevated costs that are associated with both of these disposal alternatives these are not considered feasible solution.

3.2.3 Placement at Narragansett Town Beach

Foth reviewed the feasibility of placing dredged material from the mouth of the Narrow River on the Narragansett Town Beach. This alternative could be combined with all of the dredge alternative detailed above. Although not considered as part of this application, placement at Narragansett Town Beach is considered a viable placement location for future dredge events from the Narrow River. This placement alternative is to be reconsidered as part of future dredge events.

3.2.4 Placement at The Narrows Barrier Spit

In an effort to provide additional coastal protection to the adjacent Narrow River waterway, raising the entire existing barrier spit utilizing dredged material from within the Narrow River was proposed. This alternative involves the placement of dredged material onto the backside of the existing barrier spit outside of the area of shorebird habitat. This alternative aims to place dredged material in a manner that minimizes the impact on sensitive coastal resource areas and animal habitat while maintaining public access to extensive areas of the Narrow River barrier spit, resulting in a more optimized placement area design. The proposed work will be carried out by a contractor experienced in working in coastal environments, ensuring attention to detail when working around sensitive resource areas. Adhering to the Time of Year (TOY) window specified in the permits will help minimize impacts to sensitive resource areas, including shorebirds such as the Piping Plover.

The dredged material is proposed to be placed and graded to elevations ranging from +3' MLLW to +8' MLLW. The material will be deposited on the backside (north side) of the barrier spit in incremental elevation increases of one foot (1') with the fill being blended into the existing elevation contours of the front side (southern side) of the barrier spit as shown on the plans in **Appendix A**. The transitions of the 1' increments in elevation for which the material will be placed will be graded on 5H:1V slopes. The proposed placement area would tie into the proposed dredge prism directly with a 5H:1V slope extending from elevation +3' MLLW to the proposed dredge depth of -4' MLLW + 1' OD.

This proposed placement area has the potential to increase the available shorebird habitat at the barrier spit. Generally shorebirds prefer a gentle sloping, sparely vegetated sand beaches with small patches of vegetation, cobble, and gravel. The proposed dredged material is composed of sand with medium to fine sands with some coarse sand and gravel mixed in.

Although the proposed work is intended to be constructed within the environmental time of year window, coinciding with the offseason for the beach, the proposed placement area is also confined to the west side of the existing barrier spit. This allows for the eastern end of the spit, which is frequently traversed by the public, to remain open during construction. The proposed dredging and placement of material would

allow for unrestricted lateral access to the southern face of the barrier spit beach during construction activities. The proposed limits of work as well as the potential limit of protective construction fencing can be found in the attached plans in **Appendix A.**

Furthermore, the deposition of material along the existing barrier spit can be executed with minimal specialized equipment. This proposed method can be implemented using terrestrial machinery, thereby avoiding the necessity for specialized marine equipment. Additionally, it mitigates the requirement for extensive trucking, which is otherwise essential for transportation to the Town Beach.

In conclusion, placement at The Narrows Barrier Spit is the most favorable alternative to protect existing animal habitat, reduces the need for specialized equipment and trucking, preserve public access to the existing barrier spit, and aims to protects existing shorebird habitat.

4. Regulated Resource Areas

4.1 USACE

Section 404 of the Federal Clean Water Act and Section 10 of the Federal Rivers and Harbors act of 1899 give the U.S. Army Corps of Engineers (Corps) authority to regulate work and structures located in or that affect navigable waters of the United States. The waters adjacent to the site are considers both "waters of the U.S and", "Navigable waters of the U.S", and "intertidal" as defined in the above referenced Acts and are therefore under jurisdiction of the Corps. The Corps has issued General Permit (GP) for the State of Rhode Island under Section 10 of the Rivers and Harbors Act of 1899. It is anticipated that the proposed project shall fall under General Permit (GP) No. 7 For Dredging, Disposal Of Dredged Material, Beach Nourishment & Rock Relocation or General Permit No. 10 for Aquatic Habitat Restoration, Establishment And Enhancement Activities. Foth anticipates the following:

- General Permit No. 7
  - This work may fall under a Pre-Construction Notification (PNC) due to its classifications as new dredging.
- General Permit No. 10
  - This work may fall under a PCN due to the permanent & temporary impacts > 5,000 SF in non-tidal waters.

4.2 RIDEM

The quality of Rhode Island's surface waters is regulated under the Rhode Island and Providence Plantations Department of Environmental Management's (DEM) Office of Water Resources through the Water Quality Regulations (Regulations). The Regulations are adopted in accordance with the Federal Water Pollution Control Act (33 U.S.C. sec. 1251 et seq.) and the Rhode Island General Laws Chapter 46-12. A review of the RIDEM Office of Water Resources Shellfish Program Shellfish Area Monitoring Map updated May 2024, indicates that the taking of shellfish is prohibited from the entire dredge area. The area is further described as Growing Area 7-2 - Narrow River. The prohibited area remains closed to shellfishing due to the significant amount of fecal coliform bacteria found in the river. The water located to the south of the dredge area, outside of the narrow river, is considered growing area 14E which consists of offshore waters from Narragansett, Rhode Island to Westport, Massachusetts. Growing area 14E is approved for shellfish growing and consumption.

The waters of the project area are classified as SA waters by the RIDEM. While this area prohibits shellfish harvesting, the area is safe for primary and secondary recreation. SA waters are designated for shellfish harvesting for direct human consumption, primary and secondary contact recreational activities, and fish and wildlife habitat. They shall be suitable for aquacultural uses, navigation and industrial cooling. These waters shall have good aesthetic value.

Potential water quality impacts resulting from the proposed new dredging and resultant increased public vessel traffic include:

- Loss of shellfish habitat due to dredging:
    - Dredging shall occur within the Time of Year (TOY) window specified within the federal and state regulatory agency permits as well as conform to any and all turbidity standards required to reduce or prevent impact to shellfish habitat.
- Increased turbidity during dredging:
    - Dredging shall occur by mechanical means with landside excavation equipment.
    - Visual monitoring of turbidity levels shall be conducted during the dredging and if the turbidity should become excessive then the dredging shall cease until normal turbidity levels are achieved.
- Discharge of pollutants from vessels and landside equipment:
    - Evidence of floating and suspended materials generated by project activities shall be removed forthwith by the dredging contractor. All monitoring, report preparation and adaptive management shall be in conformity with all permits for the respective site.

The Rhode Island Water Quality Regulations have classified the waters within the proposed dredge area as Class SA waters. This area remains closed to shellfish harvesting for human consumption due to high levels of fecal coliform in the river, but the river is safe for primary and secondary recreation. Through the implementation of the mitigation measures detailed above, the new dredging goals for this project can be obtained while remaining consistent with the water classification

4.3 CRMC

The Rhode Island Coastal Management Council (CRMC) has mapped the proposed dredge area as the following (**Appendix A**)

- Type 2 Waters – Low intensity Use

The proposed dredge area is located within Type 2 waters. Type 2 waters includes waters in areas with high scenic value that support low intensity recreational and residential uses. These waters include seasonal mooring areas where good water quality and fish and wildlife habitat are maintained. The CRMC's goal is to maintain and, where possible, restore the high scenic value, water quality, and natural habitat of these of these areas, while providing for low intensity uses that will not detract from these values. The dredging of the mouth of the Narrow River will not alter the current Type 2 water classification designated by the CRMC.

Additionally, in accordance with the Narrow River Special Area Management Plan, approved by RI CRMC & NOAA (1999), *"It would not harm the River if its flood-tidal delta was dredged periodically and the sand replaced on the Narragansett Beach. Boat navigation in the lower Narrows would be enhanced and no habitat changes would occur north of the Sprague Bridge, a major choke point. Narragansett Town Beach would be the logical site for beach replacement using flood-tidal delta sand."*

4.3.1 CRMC Section 1.3.1(A) Category B Requirements

4.3.1.1 Demonstration of need for the proposed dredging:

The Town is proposing new dredging of the Narrow River to improve recreational vessel usage and to prevent the loss of tidal action to the important resource areas of the Narrow River Estuary. This project is also seeking to provide additional armoring against coastal storms. This alternative also has the potential to enhance bird habitat by creating supportive terrain for shorebirds. In compliance with RI CRMC Section 1.3.1(A) of a Category B permit, the following policies have been addressed.

- *Demonstration of compliance with all applicable local zoning ordinances, building codes, flood hazard standards, and all safety codes, fire codes, and environmental requirements:*
    - A RIDEM Water Quality Certificate and a USACE permit for dredging and disposal shall be required in addition to a CRMC assent. Dredging is supportive to the CRMCs responsibility to "protect, maintain, and where possible, enhance public access to and along the shore for the benefit of all Rhode Islanders" (RI Coastal Resources Management Program, Section 335 "Protection and Enhancement of Public Access to the Shore"). The dredging activity to be conducted shall both maintain and enhance public access, safety, and navigability.
- *Description of the boundaries of the coastal waters and land area that are anticipated to be affected:*
    - The Rhode Island Coastal Resources Management Council (CRMC) has mapped the dredging area to be predominantly within Type 2 waters, noted as waters classified for low-intensity use. This body of water is considered impaired due to the shoaling of sediments at the mouth of the river creating a significant navigational hazard to recreational boaters. In addition to the navigational hazard posed by the shoaling, the reduced tidal flushing in the river as a result of the existing shoaling has caused a negative impact on the water quality. The proposed dredging of the Narrow River is anticipated to provide an overall benefit and enhance public access via restoration of navigational use of The Narrows. Additionally, the placement of material on the adjacent barrier spit has the potential to enhance bird habitat as well as additional coastal protection. It is not anticipated that the proposed dredging would increase the amount of vessel traffic beyond what The Narrows historically experienced but rather maintain the intended recreational uses of The Narrows. The proposed dredging within the Narrow River is supportive of the CRMC's responsibility to protect, maintain, and where possible, enhance public access to and along the shore for the benefit of all Rhode Islanders.
- *Demonstration that the alteration or activity will not result in significant impacts on erosion and/or deposition processes along the shore and in tidal waters:*
    - The proposed project consists of dredging material from the narrow river to a depth of -4' MLLW plus a 1' allowable overdepth. This dredge depth was developed based on the existing deepwater sections of the river and is intended to mimic conditions of the existing river bathymetry. The intent of this work is to restore the river due to increased sedimentation due to coastal storms. The proposed project is not anticipated to have a negative impact on erosion or deposition along the shoreline.
- *Demonstration that the alteration or activity will not result in significant impacts on the abundance and diversity of plant and animal life:*

- Foth performed a desktop review of the RI Geographic Information System (RIGIS) and the USFWS' Information for Planning and Consulting (IPaC) database to obtain information of critical habitat, endangered species, migratory birds, or other natural resources that may be impacted by the proposed dredging within the Narrow River. Preliminary results indicated the following species and habitat:
    - Northern Long-Eared Bats
        - Based on Foth's experience on recent dredging projects within RI, the RI Department of Environmental Protection (RI DEM) Fish and Wildlife indicated that there has been no presence of Northern Long-Eared Bats or their habitat in RI in recent years.
    - Tricolored Bat
        - Currently, guidance on distance to hibernacula and other associated parameters for the Tricolored Bat has not yet been released to the states. Due to the proximity to the adjacent tidally influenced water, there is no suitable habitat for the Tricolored Bat within the proposed project area.
    - Roseate Tern
        - Based on Foth's experience on recent dredging projects within RI, the RI DEM Fish and Wildlife indicated that there have been no sightings of Roseate Tern in RI in recent years.
    - Piping Plover
        - The mouth of The Narrows has had Piping Plover residence. Both feeding areas and nesting areas are present. The proposed dredging will have some impact to the intertidal feeding areas however, the placement of material is expected to create an increase in potential nesting habitat. Time of Year (TOY) restrictions specified in the permits would be strictly followed and construction activities would be limited to the dates specified in the TOY window. Additionally, the proposed design has taken steps to avoid areas of placement that have previously fostered Piping Plover nesting habitat.
    - Approximately, 43 species of migratory birds are identified as birds of particular concern within the vicinity of the Narrow River.
        - It is not anticipated that migratory birds will be affected by the proposed dredging. Time of Year (TOY) restrictions specified in the permits would be strictly followed and construction activities would be limited to the dates specified in the TOY window.
- Plant Life
    - Eelgrass – Based on the results of the desktop study conducted by Foth, no known eelgrass beds exist within the Narrow River estuary. The proposed

dredging and placement of material is not expected to have any impact on known eelgrass bed habitat.

- Wetlands – The proposed dredging is in the vicinity of the following wetland areas:
    - Estuarine and Marine Deepwater
        - E1UBL – Estuarine subtidal unconsolidated bottom which is considered estuarine open water.
        - M1UBL – Marine subtidal unconsolidated bottom which is considered marine open water.
    - Estuarine and Marine Wetland
        - E2EM1P – Estuarine intertidal persistent emergent wetland, that is irregularly flooded.
        - M2USP – Marine intertidal unconsolidated shore that is irregularly flooded.
        - M2RS2P/M2RS2P – Marine rocky shores.
        - E2RS2P – Estuarian rocky shores.
    - The closest wetland areas to the proposed dredging are two areas of estuarine intertidal persistent emergent wetland located approximately 130 feet to the west and 150 feet to the north. Roughly 140' to the north of the proposed dredging exists two small areas of estuarine subtidal unconsolidated bottom. The proposed dredging does not overlap with any of these described wetland areas and minimal impacts are anticipated.
- Saltmarsh – In accordance with the RIGIS mapping tool, saltmarsh habitat exists adjacent to the west and north of the proposed dredging and placement areas. An area of saltmarsh exists approximately 150 feet to the north of the proposed dredging and an area of saltmarsh exists approximately 130 to the west of the proposed dredging. The saltmarsh area to the west of the proposed dredging is directly adjacent to the proposed placement area however the proposed areas of placement do not overlap with the saltmarsh area in order to minimize the impact. Dredge placement material is anticipated to be blended into existing grade as to not overtop or overlap existing saltmarsh habitat.

- Animal Life
    - Shellfish - The proposed dredge footprint is located within Growing Area 7-2 which encompasses the entirety of the Pettaqaumscutt River (Narrow River) is closed to shellfish harvesting year-round. Dredging within the specified Time of Year window can mitigate any unanticipated impact to shellfish.
    - Tautog (Tautoga onitus) – This species lives in areas of hard structure such as rocks, jetties, pilings, and wrecks. Tautog are mostly active during daylight hours and are less active during the nighttime. Tautog typically migrate into shallower

waters in Rhode Island in the early spring and remain through the late fall where they retreat back to deeper water in the winter months. The proposed dredge window for this project is anticipated to occur between October and January, which falls between the recommended window to protect mature and spawning tautog.

- Winter Flounder – This species of flounder is a bottom dwelling species. Winter Flounder often make short seasonal migrations into shallow bays and estuaries in the fall and winter months where they will remain to spawn in the late winter to early spring months. Peak spawning time for this species is typically in February and March. The proposed dredge window for this project is anticipated to occur between October and January, which falls between the recommended window to protect mature and spawning tautog.

- Atlantic Sturgeon – While Atlantic Sturgeon are not expected at the project site, they are listed as an Endangered Species Act (ESA) Section 7 Threatened Species. Based on the desktop study conducted by Foth, the National Marine Fisheries Service (NFMS) ESA Section 7 Mapper shows the mouth of the Narrow River as possible migrating and feeding areas for Atlantic Sturgeon. Transient adult individuals could occur in the proposed project area to opportunistically forage.

- Shortnose Sturgeon - While Shortnose Sturgeon are not expected at the project site, they are listed as an Endangered Species Act (ESA) Section 7 Endangered Species. Based on the desktop study conducted by Foth, the National Marine Fisheries Service (NFMS) ESA Section 7 Mapper shows the mouth of the Narrow River as possible migrating and foraging areas for Shortnose Sturgeon. Transient adult individuals could occur in the proposed project area to opportunistically forage.

- Sea Turtles – Sea turtles are not expected to be observed in the Narrow River, however four species of the ESA listed threatened or endangered sea turtles under NOAA/NMFS jurisdiction have the potential to seasonally occur in the adjacent Narragansett Bay: the threatened Northwest Atlantic Ocean DPS of loggerhead, North Atlantic DPS of green, and the endangered Kemp's ridley and leatherback sea turtles.

- Other Fish – Other fish species that could be found in the Narrow River are species such as summer flounder, bluefish, striped bass, and weakfish. Based on the anticipated time of year restrictions for this project, minimal impact to these species is anticipated as they are more typically found in these waters during times outside of the window.

  - In summary, dredging within the Narrow River will not significantly impact the presently low abundance of plant and animal life, nor will it impact its diversity. It is likely that the dredged area will be re-colonized by the benthic organisms found in the adjacent undisturbed sediments and other fish will return to their habitat once dredging reaches completion. Any impacts to the benthic habitat experienced by the proposed work is expected to recover within 12 months and thereby restore the fish food source.

- *Demonstration that the alteration will not unreasonably interfere with, impair, or significantly impact existing public access to, or use of, tidal waters and/or the shore:*

- The proposed work will not interfere with, impair, or significantly impact existing public access, but rather improve it. The proposed dredging will assist with realigning the existing sandbar, commonly utilized by recreational boaters in the summertime. The realignment of the existing sandbar aims to support the natural establishment of a deeper channel to the north of the existing sandbar and allow for recreational boaters to utilize the area for berthing and beach access. Over time this natural channel will deepen to become safe for recreational vessels that frequent the mouth of the Narrow River.

- *Demonstration that the alteration will not result in significant impacts to water circulation, flushing, turbidity, and sedimentation:*

  - The proposed dredging will provide for unimpeded flow. Any increases in turbidity resulting from the dredging operation will be short term and occur exclusively throughout the course of dredging. The proposed dredging within the Narrow River will utilizes side slope of a 3' horizontal to a 1' vertical slope (3H:1V) template to reduce any potential impacts of anoxic environments within the project area.

  - Turbidity will be visually monitored throughout the course of dredging. Should turbidity become excessive, dredging will immediately cease. Dredging will not resume until turbidity has dissipated.

- *Demonstration that there will be no significant deterioration in the quality of the water in the immediate vicinity as defined by RIDEM:*

  - No long-term change in water quality is expected as a result of the dredging. There will be no discharges associated with the work aside from turbidity associated with dredging activities. Turbidity will be visually monitored throughout the course of dredging.

  - It will be necessary to obtain a Water Quality Certificate from the Rhode Island DEM prior to commencement of dredging. The Water Quality Certificate will contain any conditions required to ensure state water quality regulations. The Contractor will be responsible for adhering to the mitigation measures proposed by State and Federal agencies for the project. These will be incorporated in the contract documents and enforced during construction to ensure there are no negative impacts to the coastal and marine resources.

- *Demonstration that the alteration or activity will not result in significant impacts to areas of historic and archaeological significance:*

  - There are no identifiable historical and archaeological resources within the area to be affected by the dredging.

  - As part of USACE permitting the State Historic Preservation Office (SHPO) and Tribal Historic Preservation Office (THPO) will have an opportunity to consult on the project. Any historic or tribal resources identified as part of this consultation will be identified. The Contractor shall be responsible for adhering to any State or Federal requirements as per of this consultation.

- *Demonstration that the alteration or activity will not result in significant conflicts with water-dependent uses and activities such as recreation boating, fishing, swimming, navigation, and commerce:*

- The proposed dredging will not result in significant conflicts with water dependent uses and activities. With the dredging of the existing sand bar, the project aims to prioritize safe navigation to a portion of The Narrows. The project would result in an increase in safe navigational waters as a result of the dredging.

- *Demonstration that measures have been taken to minimize any adverse scenic impact:*

  - No change in use of the site is requested. There will be no alteration of present water dependent uses and activities. Other than the temporary visual impact of the dredge at the sandbar at the northern end of the beach due to the construction. This impact will be limited to the duration of construction, which will occur within the environmental time of year window as well as the recreational offseason. It is not anticipated that the project will have an adverse scenic impact.

4.3.2 CRMC Section 1.3.1(B) Filling, Removing, or Grading of Shoreline Features

4.3.2.1 Demonstration of Compliance with Standards

- ***For filling, removal or grading:***

  - *Fill slopes shall have a maximum grade of thirty-three percent (33%)*

    - The maximum slope of the proposed placement area for the dredged material is a 5H:1V slope (20%).

    - The maximum slope for the proposed dredging shall be limited to 3H:1V (33%).

  - *All excess excavated materials, excess fill, excess construction materials, and debris shall be removed from the site and shall not be disposed in tidal waters or on a coastal feature.*

    - Only the approved dredged material shall be placed in tidal waters or graded out on a coastal feature. No material shall be placed outside of the designated placement location detailed within this application.

  - *Disturbed uplands adjacent to a construction site shall be graded and re-vegetated or otherwise stabilized to prevent erosion during or immediately after construction. Nutrients shall be applied at rates necessary to establish and maintain vegetation without causing significant runoff to surface waters.*

    - The placement area will be designed to prevent erosion during or immediately after construction. The Contractor shall be responsible for preparing a proposed planning plan prior to the start of construction which shall detail the proposed planting species and planting schedule.

    - It is intended that planting will be placed within appropriate conditions and seasons to promote healthy growth. Plantings will be designed to mimic existing vegetation conditions, and/or common New England planting species to promote optimal vegetation regrowth.

  - *Removal or placement of sediments along jetties or groins may be permitted only as part of an approved dredging or beach nourishment project.*

        - No placement of sediments along jetties or groins is anticipated as part of this project.

    - *All fill shall be clean and free of materials which may cause pollution of tidal waters.*

        - Based on the chemical analysis of the sediments collected during the October 2023 sampling event, the proposed dredged material was approved by RI CRMC and RI DEM for placement of the adjacent Narragansett Town Beach (**Appendix B**).

        - Copies of the grain size and chemical analysis of the October 2023 samples can be found in **Appendix F**.

    - *Cutting into rather than filling out over a coastal bank is the preferred method of changing upland slopes*.

        - The dredged material will be placed over the coastal bank to minimize the impacted area only to which is required for the dredged material to be removed from the prism. No additional cutting or placement of material will occur outside of the described placement area.

    - *Limit the application, generation, and migration of toxic substances and ensure that toxic substances are properly stored and disposed of onsite in accordance with all applicable federal, state, and local requirements.*

        - Proper Best Management Practices (BMP's) will be employed to ensure that no environmentally harmful substances are exposed to the project area. All hazardous substances will be properly stored and disposed of onsite in accordance with all applicable federal, state, and local requirements.

- ***For earthwork on shoreline features:***

    - *Prior to initiation of construction, the contractor may be required to meet on site with the CRMC staff to discuss and clarify the conditions of the permit.*

        - Full cooperation will be required of the contractor for any on site coordination with the regulatory agencies.

    - *A re-vegetation plan shall be submitted for review and approval when construction is undertaken on a barrier beach. This plan shall describe plant material, methods of planting, time of planting, soil amendments, and maintenance.*

        - The Contractor shall be responsible for preparing a proposed planting plan prior to the start of construction which shall detail the proposed planting species and planting schedule.

        - It is intended that planting will be placed within appropriate conditions and seasons to promote healthy growth. Plantings will be designed to mimic existing vegetation conditions, and/or common New England planting species to promote optimal vegetation regrowth.

    - *Construction materials and excavated soils shall not be placed or stored on any shoreline feature excepting developed barrier beaches and manmade shorelines.*

- No foreign construction materials will be placed into the proposed fill area. Only dredged material from within the proposed dredge prism will be placed as proposed within this application.

- *All disturbed soils shall be graded smooth to a maximum 3:1 slope and re-vegetated immediately after construction, or temporarily stabilized with mulch, jute matting, or similar means until seasonal conditions permit such re-vegetation.*

  - The maximum slope of the proposed placement area for the dredged material is a 5H:1V slope (20%).

  - The maximum slope for the proposed dredging shall be limited to 3H:1V (33%).

  - The Contractor shall be responsible for preparing a proposed planting plan prior to the start of construction which shall detail the proposed planting species and planting schedule.

  - It is intended that planting will be placed within appropriate conditions and seasons to promote healthy growth. Plantings will be designed to mimic existing vegetation conditions, and/or common New England planting species to promote optimal vegetation regrowth.

- *In sensitive areas, work shall be carried out from areas above slope from coastal features. Machinery and construction equipment shall normally not be allowed to operate on a coastal wetland. For unavoidable work on a coastal wetland, a protective cover shall be deployed to minimize disturbance*.

  - No work in intended within the areas of coastal features or wetlands unless explicitly detailed within this application.

  - Any impacts will be limited to the duration of construction, which will occur within the environmental time of year window as well as the recreational offseason.

- *In instances where the CRMC permits temporary disturbance of a coastal feature, shoreline slope, buffer zone, or area of beach grass, the disturbed area shall be completely restored by the owner under the guidance of CRMC staff.*

  - Any temporary disturbance of a coastal feature, shoreline, slope, buffer zone, or area of beach grass will be completely restored under the guidance of CRMC staff. Any impacts will be limited to the duration of construction, which will occur within the environmental time of year window as well as the recreational offseason.

- *Concrete structures which will come in contact with salt water shall be constructed with concrete which utilizes a Type II or Type V air entraining Portland cement or an equivalent that is resistant to sulfate attacks of seawater.*

  - No concrete structures are proposed for this project.

4.3.3 CRMC Section 1.3.1(I) Dredging and Dredged Material Disposal

4.3.3.1 Demonstration of Compliance with Standards

- ***For Dredging:***

- *Bottoms of dredged areas shall slope downward into the waterway so as to maximize tidal flushing.*
    - As shown on the proposed dredge plans (**Appendix A**), the proposed dredge template is proposed to utilize 3H:1V for dredging to tie into existing mudline elevations and 5H:1V side slopes for fill to tie into the adjacent existing elevations.
- *Bottom slopes at the edges of dredged areas shall have a maximum slope of fifty percent (50%) percent.*
    - The proposed Narrow River dredge template utilizes a 3H:1V (33%) slope throughout the footprint to minimize flow restrictions and the creation of deep holes.
- *Dredging shall be planned so as to avoid undermining adjacent shoreline protection facilities and/or coastal features.*
    - The proposed Narrow River dredge footprint is not within the vicinity of any shoreline protection facilities and/or coastal features, and therefore, will not impact the structural integrity of any adjacent structures. The closest structure to the proposed dredging is a private dock located approximately 300 feet to the north. The proposed dredging is not anticipated to impact this structure.
- *Shellfish dredged from waters classified SB or lower shall not be made available for human consumption or bait.*
    - No shellfish dredged shall be made available for human consumption or bait.
- *All dredging at any marina shall be bounded to the footprint of the Marina Perimeter Limit (MPL). Side slopes associated with such dredging shall be allowed to extend beyond the MPL and then only when all adjacent structures are not impacted.*
    - The proposed dredging does not fall within an existing Marina Perimeter Limit.

- ***For Dredged Materials Disposal in Open Water:***
    - This Standard is not applicable for the proposed project.
- ***For Dredged Materials Disposal in the Creation of Wetlands, Aquatic Habitat, or Island:***
    - This Standard is not applicable for the proposed project.
- ***For dredged material being placed upland:***
    - *Dewatering of dredged materials shall occur within a properly designed dewatering facility.*
        - Dredged material shall be placed adjacent to the dredge area in order to realign the spit. Dewatering will only occur with the top approximately one (1) to two (2) feet of material to ensure final placement consist of aesthetically refined dredge material.
        - Dredged material shall be properly dewatered on the adjacent sandbar prior to placement within the proposed fill template. The dewatering area will be confined to the proposed work limits in the permit plans in **Appendix A**.

- *After dewatering, dredged materials placed on uplands adjacent to tidal waters shall be vegetated or otherwise permanently stabilized. Surface slopes of the disposal area shall be graded so as to prevent surface ponding.*
    - Dredge material stored and stockpiled will be temporary to ensure aesthetically refined material is placed on top. No dewatered material will be stored long-term. All material will be graded as detailed within **Appendix A** prior to the completion of work.
- *Where dredged materials are placed behind a wall or bulkhead.*
    - No dredged material will be placed behind a wall or bulkhead for this project.

- ***For dredged material being placed as beach nourishment:***
    - *The placement of dredged materials on a beach is a preferred disposal alternative, providing that the materials in question are predominantly clean sands processing grain size and such other characteristics to make them compatible with the naturally occurring beach material.*
        - Based on the chemical analysis of the sediments collected during the October 2023 sampling event, the proposed dredged material was approved by RI CRMC and RI DEM for placement of the adjacent Narragansett Town Beach (**Appendix B**).
        - Copies of the grain size and chemical analysis of the October 2023 samples can be found in **Appendix F**.

4.3.4 CRMC Section 1.3.1(J) Filling In Tidal Waters

The proposed placement area would include the filling of tidal waters at the mouth of the Narrow River. The amount of fill in the tidal waters have been reduced to the maximum extent possible that would still allow the amount of material dredged to provide the Town with a partially useable channel near the river mouth. The potential placement of dredged material exclusively above the intertidal zone was considered. However, due to the limited space on the barrier spit and the need to avoid impacting existing shorebird habitat, placement outside the intertidal zone on the barrier spit would fall significantly short of providing the necessary capacity for all the dredged material.

The proposed area for filling is what remains of the previous southern channel, which was closed off when the barrier spit was overtopped by severe storms in recent years. This area now experiences significantly less tidal flushing than before. It is proposed that this area, which no longer receives substantial tidal flushing, be filled and converted into additional barrier spit land. Although this would result in a reduction of tidal waters, it would expand the available barrier spit land, thereby supporting public access and creating additional habitat for shorebirds.

5. Mitigation Measures

The following mitigation measure shall be implemented into the proposed project to reduce any adverse impacts to resource areas, water quality, or biological impacts:

- The proposed dredging shall occur during the permitted environmental windows of October through January
- Dredging shall be performed by land based mechanical means.
- Visual evidence of floating and suspended materials generated by project activities shall be corrected immediately by the dredging contractor. All monitoring, report preparation, and adaptive management shall be in conformity with all permits for the respective site.
- The work will be performed by a contractor with experience working in coastal environments that require special attention to detail in minimizing the impacts to sensitive resource areas.
- The extent of the project area will be clearly delineated, and all construction personnel will be informed of the boundaries of the project area.
- The contractor shall maintain adequate materials onsite for containment and cleanup of any spills.
- The contractor conducting the work shall utilize good housekeeping practices, safer alternative products where feasible and employee training programs to prevent or reduce the discharge of pollutants from construction activities.
- All debris generated as a result of the project construction shall be removed from the site and disposed of at an appropriate upland disposal location.
- No debris, oil, petroleum products or other organic material resulting from construction activities shall be allowed to enter or be placed where it may be washed by rainfall or runoff into the river or adjacent water of the U.S.
- Activities Shall Not Violate Water Quality Standards.
- Appropriate Best Management Practices (BMP) shall be implemented throughout the project site.

6. Conclusions

The proposed project includes the new dredging of approximately 2.8 acres from the mouth of the Narrow River with placement at the adjacent barrier spit. The proposed new dredging includes the removal of up to 41,551 CY of material to a depth of -4.0' Mean Lower-Low Water (MLLW) plus an allowable 1-foot of overdepth (-4.0' MLLW +1.0' OD) with placement of dredged material on the adjacent barrier spit located at the mouth of the Narrow River. The proposed dredge depth of -4' MLLW + 1' OD is intended to sufficiently accommodate vessel usage within the Narrows as well as to preserve tidal action in the critical resource areas of the Narrow River Estuary.

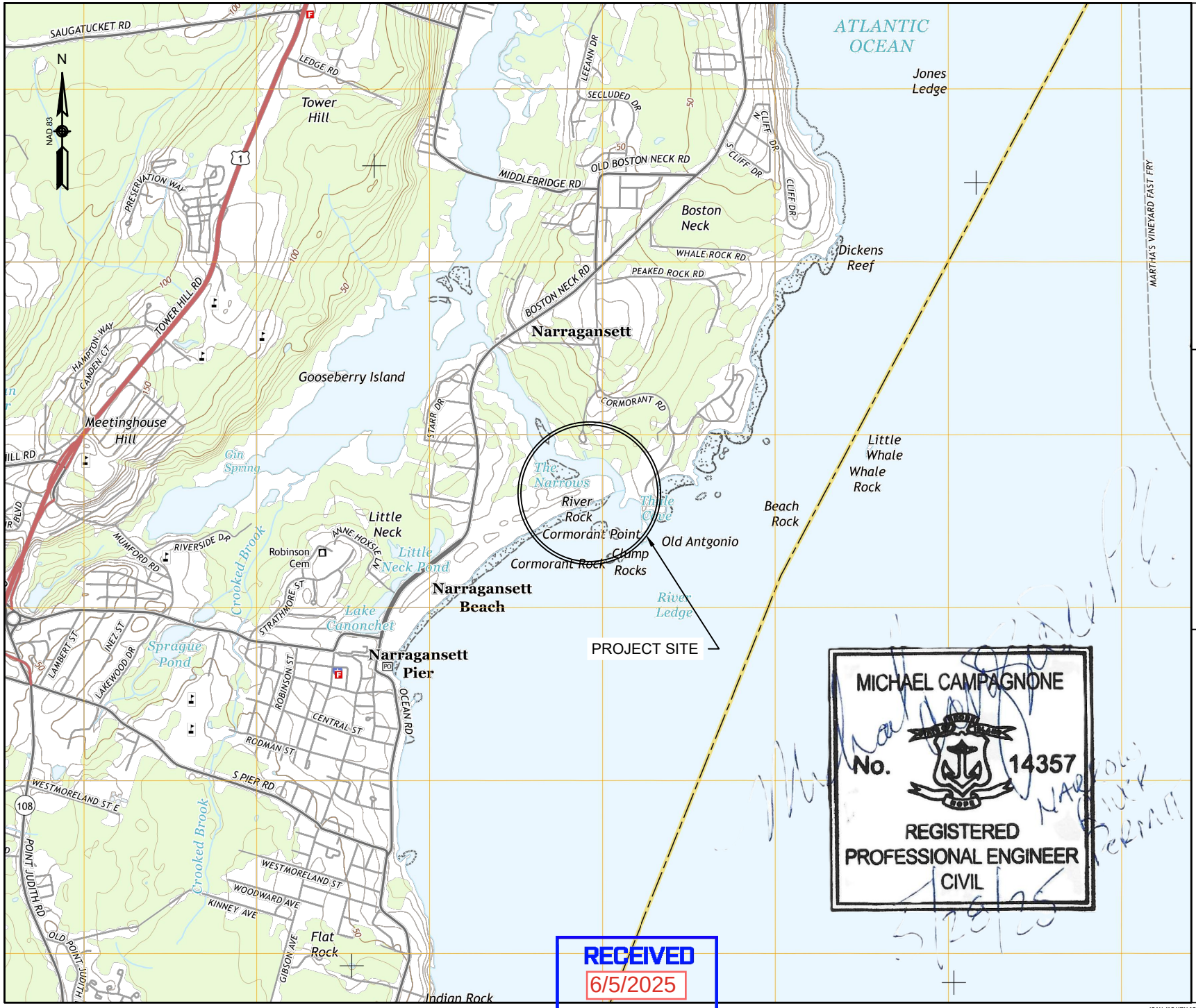
The beneficial reuse of dredge material along the barrier spit aims relocate material by realigning the existing sandbar. By realigning the sandbar, the project will elevate and flatten the backside of the barrier spit as well as reconstruct the eroded dune along the front. This beneficial reuse of dredge materials seeks to provide additional armoring against coastal storms. Beyond coastal protection, this realignment has the potential to enhance bird habitat by creating supportive terrain for shorebirds.

Based on the results of the physical and chemical testing performed on the sediment from within the Narrow River, the proposed dredge material has been deemed suitable for placement on the adjacent Narragansett Town Beach (See **Appendix B**). Foth, on behalf of the Town, requests authorization of the proposed dredging from within the Narrow River with subsequent placement of material on the adjacent Narragansett Beach barrier spit.

Appendix A

Narrow River Dredging Permit Plans

(Dated May 28, 2025)



NARROW RIVER DREDGING
AT: TOWN OF NARRAGANSETT
COUNTY OF: WASHINGTON COUNTY
APPLICATION BY: FOTH INFRASTRUCTURE & ENVIRONMENT, LLC
DATE: 05/28/2025
SHEET 1 OF 7

LOCUS MAP

GRAPHIC SCALE
NTS
0
NTS
SCALE IN FEET

PURPOSE: NEW DREDGING AT THE MOUTH OF THE NARROW RIVER
DATUM: MLLW = 0.00'
NAVD88 = +1.91'
MHW = +3.31'
AHTL = +4.89'

FOTH INFRASTRUCTURE & ENVIRONMENT, LLC.
114 TOURO ST. NEWPORT, RI 02840

MICHAEL CAMPAGNONE
No. 14357
REGISTERED PROFESSIONAL ENGINEER
CIVIL

RECEIVED
6/5/2025
COASTAL RESOURCES MANAGEMENT COUNCIL

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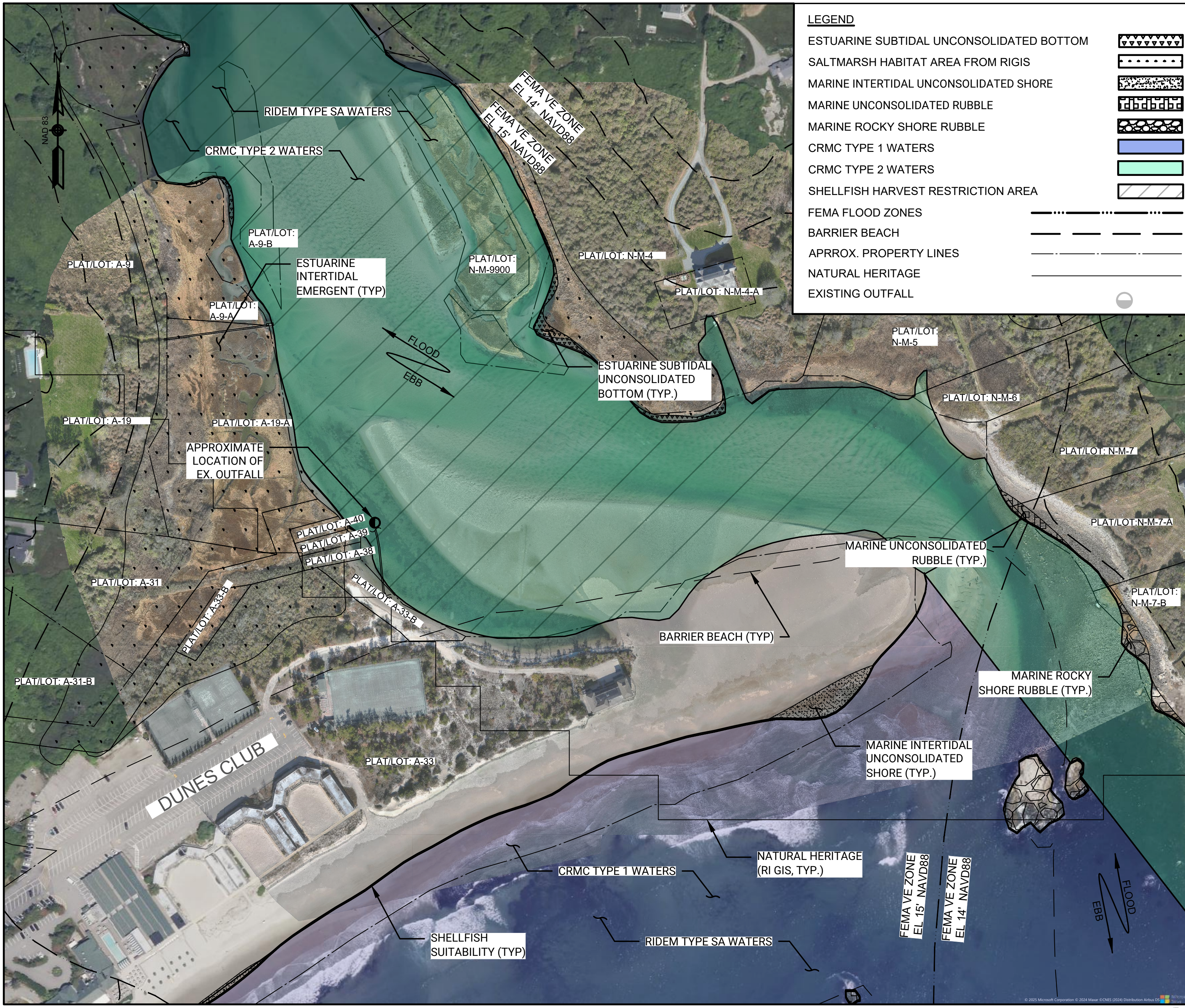

LEGEND

- ESTUARINE SUBTIDAL UNCONSOLIDATED BOTTOM
- SALTMARSH HABITAT AREA FROM RIGIS
- MARINE INTERTIDAL UNCONSOLIDATED SHORE
- MARINE UNCONSOLIDATED RUBBLE
- MARINE ROCKY SHORE RUBBLE
- CRMC TYPE 1 WATERS
- CRMC TYPE 2 WATERS
- SHELLFISH HARVEST RESTRICTION AREA
- FEMA FLOOD ZONES
- BARRIER BEACH
- APRROX. PROPERTY LINES
- NATURAL HERITAGE
- EXISTING OUTFALL

NARROW RIVER DREDGING

AT: TOWN OF NARRAGANSETT
COUNTY OF: WASHINGTON COUNTY
APPLICATION BY: FOTH INFRASTRUCTURE & ENVIRONMENT LLC

DATE: 02/27/2025

SHEET 2 OF 7

NATURAL RESOURCE PLAN

GRAPHIC SCALE
0 150 300
SCALE IN FEET

RECEIVED
6/5/2025
COASTAL RESOURCES MANAGEMENT COUNCIL

PURPOSE: NEW DREDGING AT THE MOUTH OF THE NARROW RIVER

DATUM: MLLW = 0.00'
NAVD88 = +1.91'
MHW = +3.31'
AHTL = +4.89'

FOTH INFRASTRUCTURE & ENVIRONMENT, LLC.
114 TOURO ST. NEWPORT, RI 02840

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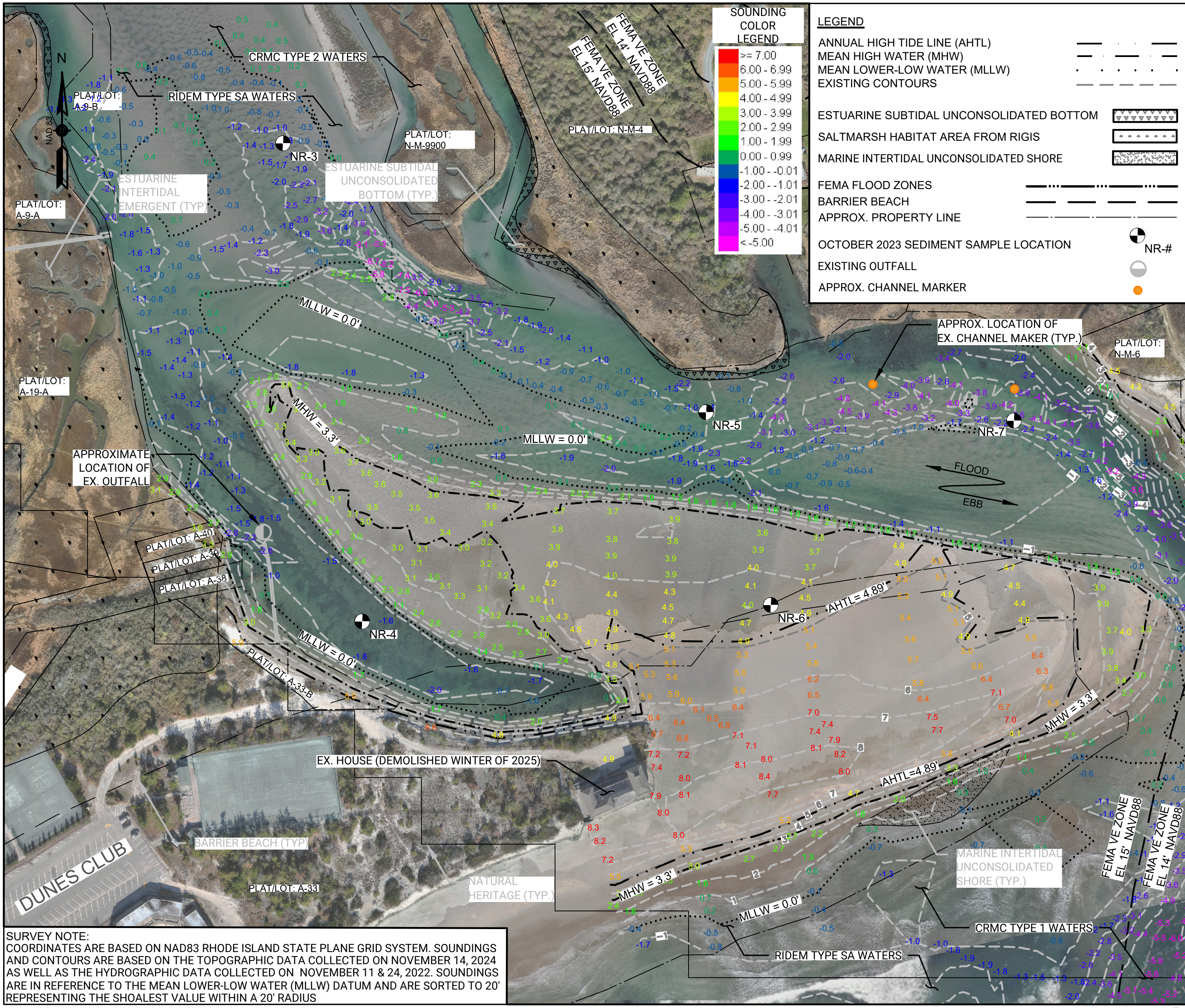

SOUNDING COLOR LEGEND

>= 7.00
6.00 - 6.99
5.00 - 5.99
4.00 - 4.99
3.00 - 3.99
2.00 - 2.99
1.00 - 1.99
0.00 - 0.99
-1.00 - -0.01
-2.00 - -1.01
-3.00 - -2.01
-4.00 - -3.01
-5.00 - -4.01
< -5.00

LEGEND

ANNUAL HIGH TIDE LINE (AHTL)
MEAN HIGH WATER (MHW)
MEAN LOWER-LOW WATER (MLLW)
EXISTING CONTOURS
ESTUARINE SUBTIDAL UNCONSOLIDATED BOTTOM
SALTMARSH HABITAT AREA FROM RIGIS
MARINE INTERTIDAL UNCONSOLIDATED SHORE
FEMA FLOOD ZONES
BARRIER BEACH
APPROX. PROPERTY LINE
OCTOBER 2023 SEDIMENT SAMPLE LOCATION NR-#
EXISTING OUTFALL
APPROX. CHANNEL MARKER

SURVEY NOTE:
COORDINATES ARE BASED ON NAD83 RHODE ISLAND STATE PLANE GRID SYSTEM. SOUNDINGS AND CONTOURS ARE BASED ON THE TOPOGRAPHIC DATA COLLECTED ON NOVEMBER 14, 2024 AS WELL AS THE HYDROGRAPHIC DATA COLLECTED ON NOVEMBER 11 & 24, 2022. SOUNDINGS ARE IN REFERENCE TO THE MEAN LOWER-LOW WATER (MLLW) DATUM AND ARE SORTED TO 20' REPRESENTING THE SHOALEST VALUE WITHIN A 20' RADIUS

NARROW RIVER DREDGING

AT: TOWN OF NARRAGANSETT
COUNTY OF: WASHINGTON COUNTY
APPLICATION BY: FOTH INFRASTRUCTURE & ENVIRONMENT LLC

DATE: 02/27/2025

SHEET 3 OF 7

EXISTING CONDITIONS

GRAPHIC SCALE
0 100 200
SCALE IN FEET

PURPOSE: NEW DREDGING AT THE MOUTH OF THE NARROW RIVER

DATUM: MLLW = 0.00'
NAVD88 = +1.91'
MHW = +3.31'
AHTL = +4.89'

FOTH INFRASTRUCTURE & ENVIRONMENT, LLC
114 TOURO ST. NEWPORT, RI 02840

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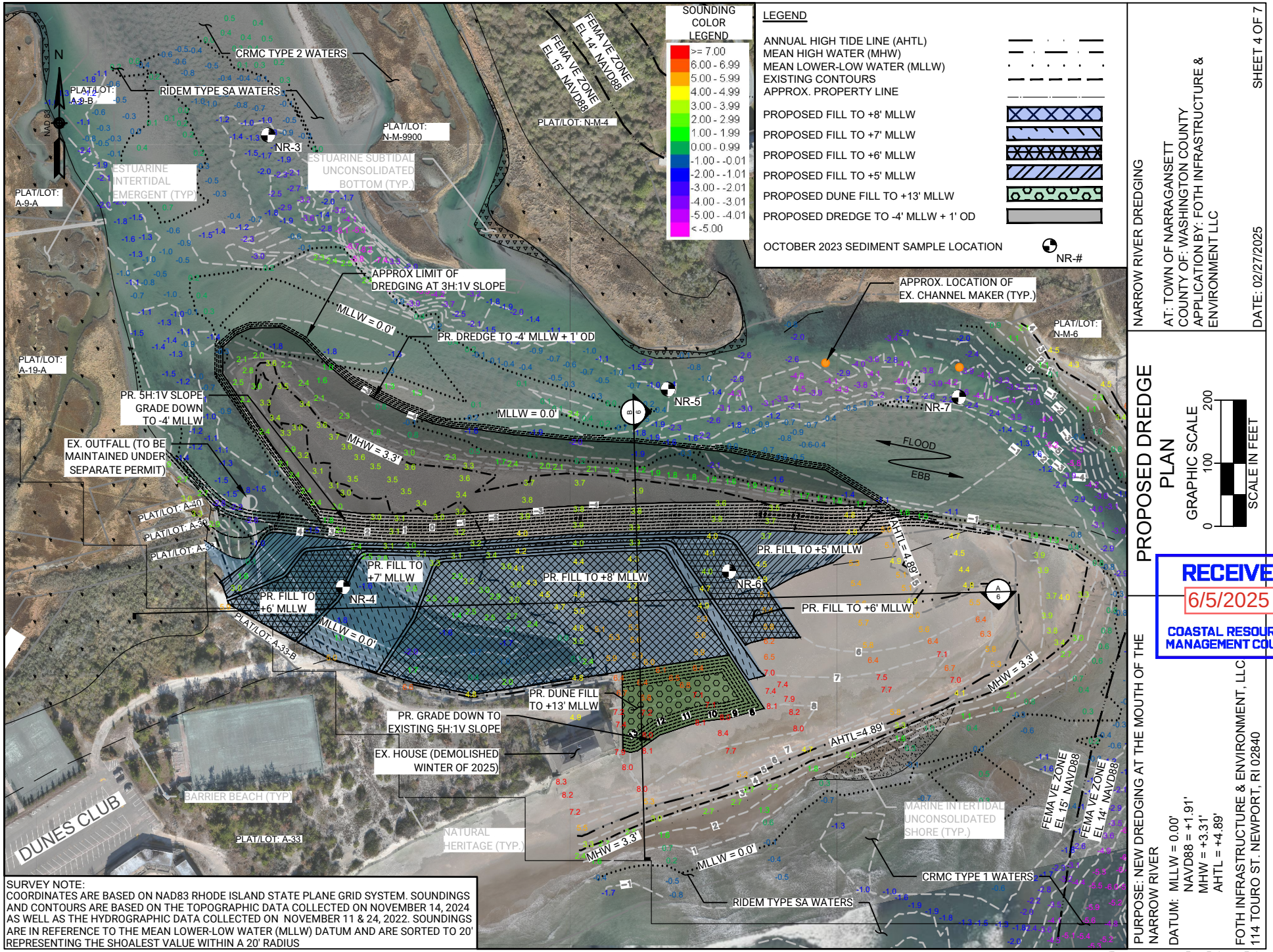

SURVEY NOTE:
COORDINATES ARE BASED ON NAD83 RHODE ISLAND STATE PLANE GRID SYSTEM. SOUNDINGS AND CONTOURS ARE BASED ON THE TOPOGRAPHIC DATA COLLECTED ON NOVEMBER 14, 2024 AS WELL AS THE HYDROGRAPHIC DATA COLLECTED ON NOVEMBER 11 & 24, 2022. SOUNDINGS ARE IN REFERENCE TO THE MEAN LOWER-LOW WATER (MLLW) DATUM AND ARE SORTED TO 20' REPRESENTING THE SHOALEST VALUE WITHIN A 20' RADIUS

NARROW RIVER DREDGING

AT: TOWN OF NARRAGANSETT
COUNTY OF: WASHINGTON COUNTY
APPLICATION BY: FOTH INFRASTRUCTURE & ENVIRONMENT LLC

DATE: 02/27/2025

SHEET 4 OF 7

PROPOSED DREDGE PLAN

GRAPHIC SCALE
0 100 200
SCALE IN FEET

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6/5/2025
COASTAL RESOURCES MANAGEMENT COUNCIL

PURPOSE: NEW DREDGING AT THE MOUTH OF THE NARROW RIVER

DATUM: MLLW = 0.00'
NAVD88 = +1.91'
MHW = +3.31'
AHTL = +4.89'

FOTH INFRASTRUCTURE & ENVIRONMENT, LLC
114 TOURO ST. NEWPORT, RI 02840

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NARROW RIVER DREDGING

AT: TOWN OF NARRAGANSETT
COUNTY OF: WASHINGTON COUNTY
APPLICATION BY: FOTH INFRASTRUCTURE & ENVIRONMENT LLC

DATE: 02/27/2025

SHEET 5 OF 7

PROPOSED CONSTRUCTION PLAN

GRAPHIC SCALE
0 150 300
SCALE IN FEET

RECEIVED
6/5/2025
COASTAL RESOURCES MANAGEMENT COUNCIL

PURPOSE: NEW DREDGING AT THE MOUTH OF THE NARROW RIVER

DATUM: MLLW = 0.00'
NAVD88 = +1.91'
MHW = +3.31'
AHTL = +4.89'

FOTH INFRASTRUCTURE & ENVIRONMENT, LLC.
114 TOURO ST. NEWPORT, RI 02840

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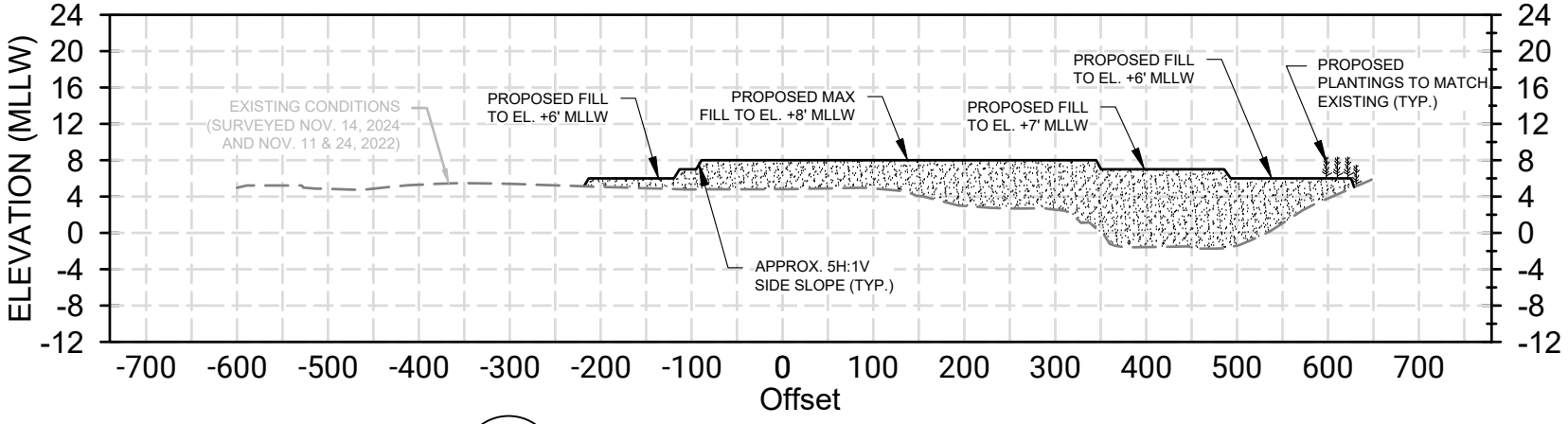
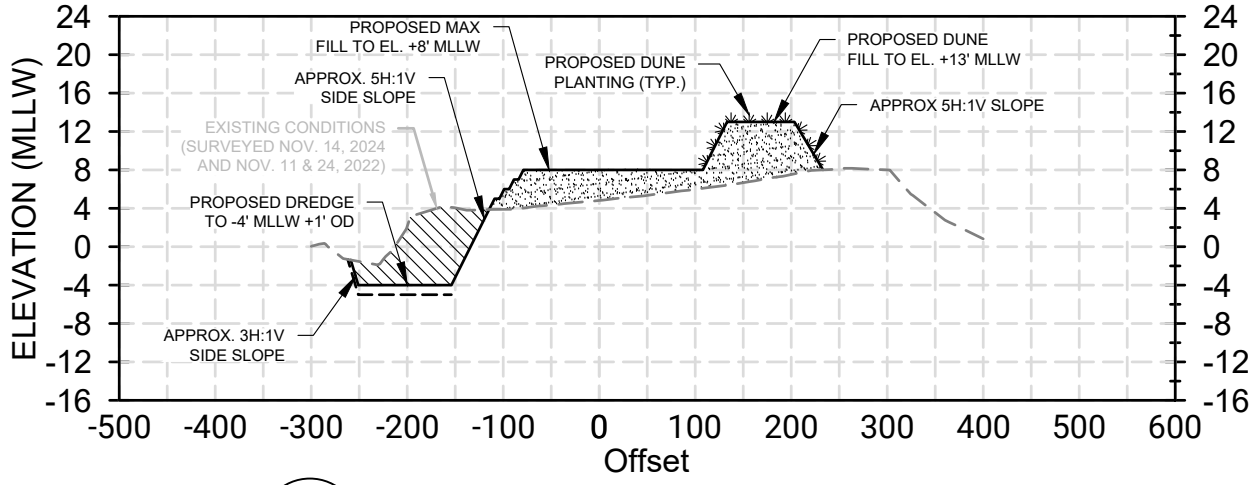


A / 4 SECTION A / NARROW RIVER PLACEMENT AREA
SCALE: HORIZONTAL 1" = 200'; VERTICAL 1" = 20'



B / 4 SECTION B / NARROW RIVER DREDGE & PLACEMENT AREA
SCALE: HORIZONTAL 1" = 200'; VERTICAL 1" = 20'

LEGEND

PROPOSED DREDGE

PROPOSED FILL

NARROW RIVER DREDGING
AT: TOWN OF NARRAGANSETT
COUNTY OF: WASHINGTON COUNTY
APPLICATION BY: FOTH INFRASTRUCTURE & ENVIRONMENT LLC
DATE: 02/27/2025
SHEET 6 OF 7

PROPOSED DREDGE PLAN SECTIONS

GRAPHIC SCALE 0 100 200 SCALE IN FEET

PURPOSE: NEW DREDGING AT THE MOUTH OF THE NARROW RIVER
DATUM: MLLW = 0.00'
NAVD88 = +1.91'
MHW = +3.31'
AHTL = +4.89'

FOTH INFRASTRUCTURE & ENVIRONMENT, LLC.
114 TOURO ST. NEWPORT, RI 02840

c:\pw_workdir\pw_lelivd_adb\d08436616.5 x 11_plot narrow river

RECEIVED
6/5/2025
COASTAL RESOURCES MANAGEMENT COUNCIL

CUT & FILL VOLUME SUMMARY:

Narrow River Dredge Area				
	Volume to Design (CY)	Overdepth Volume (CY)	Total Dredge Volume (CY)	Total Dredge Square Footage (SF)
Dredge to -4' MLLW +1' OD	35,923	5,628	41,551	122,389

Narrow River Sand Bar Placement Area		
	Required Fill (CY)	Required Fill (SF)
Narrow River Placement Area Fill to +8' to +5' MLLW	37,992	208,494

VOLUME NOTES: VOLUMES ARE CONSIDERED APPROXIMATE FOR CONCEPTUAL PURPOSES. VOLUMES INCLUDE A +10% CONTINGENCY. VOLUMES ARE BASED ON A COMBINATION OF TOPOGRAPHIC DATA COLLECTED ON NOVEMBER 14, 2024 AND HYDROGRAPHIC DATA COLLECTED ON NOVEMBER 11 & 24, 2022.

TOPOGRAPHIC SURVEY NOTES:

1. PROJECT NAME: NARROW RIVER DREDGING
2. PROJECT NUMBER: 0022N010
3. PLOT SCALE: 1" = 200' & 1" = 300'
4. SURVEY DATE: NOVEMBER 14, 2024 & NOVEMBER 11 & 24, 2022
5. SURVEYOR: M. CAMPAGNONE, E. BOWE, M. GOGGIN

8. WEATHER COND: SUNNY, 47 DEG F, WINDS NE 5-15 KTS
9. PROJECT DATUM: MLLW AS NOTED IN DATUM CONVERSION CHART
10. COOR. SYSTEM: NAD83 - RHODE ISLAND STATE PLANE
12. BENCHMARK: "RI STATE BOARD OF PUBLIC ROADS BM #399" E: 343765.71, N:134612.59, ELEVATION: 69.36' NAVD88

GENERAL NOTES:
1. THE CONCEPTUAL DESIGNS SHOWN ON THIS PLAN ARE BASED ON DATA THAT WAS GATHERS ON NOVEMBER 14, 2024 AS WELL AS NOVEMBER 11 & 24, 2022 USING TOPOGRAPHIC AND SINGLE BEAM HYDROGRAPHIC SURVEY METHODS.
2. COORDINATES ARE BASED ON NAD 83 RHODE ISLAND STATE PLANE GRID SYSTEM.
3. SOUNDINGS AND CONTOURS ARE BASED ON THE TOPOGRAPHIC DATA COLLECTED ON NOVEMBER 14, 2024 AS WELL AS THE HYDROGRAPHIC DATA COLLECTED ON NOVEMBER 11 & 24, 2022.
4. SOUNDINGS ARE IN REFERENCE TO THE MEAN LOWER-LOW WATER (MLLW) DATUM AND ARE SORTED TO 20' REPRESENTING THE SHOALEST VALUE WITHIN A 20' RADIUS
5. RTK CORRECTIONS FOR THIS SURVEY PROVIDED BY KEYNET - VRS (GEOID 12A)
6. ORTHO-IMAGERY AND SCALED DATA IS APPROXIMATE UNLESS OTHERWISE NOTED AND SHOULD BE USED AS GENERAL REFERENCE ONLY.
7. THE INFORMATION DEPICTED ON THIS PLAN REPRESENTS THE RESULTS OF TOPOGRAPHIC AND HYDROGRAPHIC SURVEYS PERFORMED ON THE DATES SHOWN, AND CAN ONLY BE CONSIDERED AS INDICATING THE SEABED CONDITIONS AT THAT TIME. INTERPOLATED INFORMATION FROM BETWEEN SOUNDING RUNS IS NOT GUARANTEED. SHOALS, OBSTRUCTIONS OR OTHER DIFFERING CONDITIONS MAY EXIST BETWEEN THESE RUNS. CONSULT WITH FOTH INFRASTRUCTURE & ENVIRONMENT, LLC. FOR MORE DETAILED INFORMATION.
8. PROPERTY LINES SHOWN ARE ONLY APPROXIMATE. NO SURVEYS WERE CONDUCTED VERIFYING LOCATIONS OF SHOWN PROPERTY LINES. PROPERTY LINES SHOWN ARE BASED OFF NARRAGANSETT TOWN GIS DATA.
8. POSSESSION AND USE OF THE MATERIAL CONTAINED ON THESE DRAWINGS IS GRANTED ONLY IN CONNECTION WITH ITS USE AS IT RELATES TO THE TITLED PROJECT, ANY OTHER USE, REPRODUCTION OR DISCLOSURE OF THE INFORMATION CONTAINED HEREON IS EXPRESSLY PROHIBITED WITHOUT THE WRITTEN CONSENT OF FOTH.

DATUM OFFSETS

MLLW	MLW	NAVD 88	
4.89	4.76	2.98	AHTL
3.56	3.43	1.65	MHHW
3.31	3.18	1.40	MHW
1.91	1.78	0.00	NAVD 88
0.13	0.00	-1.78	MLW
0.00	-0.13	-1.91	MLLW
-0.94	-1.07	-2.85	ALTL

OFFSETS TAKEN FROM VDATUM ONLINE ON 09/06/2022 FOR 41.442489N, -71.441626W GEOID 18

AHTL AND ALTL VALUES DETERMINED FROM NOAA TIDE STATION #8452660 NEWPORT, RI 2025 PREDICTED TIDES. ALTL VALUE PREDICTED 3/1/2025. AHTL VALUE PREDICTED 11/6/2025.

NARROW RIVER DREDGING

AT: TOWN OF NARRAGANSETT
COUNTY OF: WASHINGTON COUNTY
APPLICATION BY: FOTH INFRASTRUCTURE & ENVIRONMENT LLC

DATE: 02/27/2025

SHEET 7 OF 7

SURVEY NOTES

GRAPHIC SCALE
0 NTS NTS
SCALE IN FEET

PURPOSE: NEW DREDGING AT THE MOUTH OF THE NARROW RIVER

DATUM: MLLW = 0.00'
NAVD88 = +1.91'
MHW = +3.31'
AHTL = +4.89'

FOTH INFRASTRUCTURE & ENVIRONMENT, LLC.
114 TOURO ST. NEWPORT, RI 02840

Appendix B

State and Federal Agency Sediment Placement Approval

Bowe, Ethan D

From: Cross, Kaitlyn E
Sent: Thursday, January 30, 2025 3:29 PM
To: Bowe, Ethan D; Campagnone, Mike; Goggin, Maddy F
Subject: FW: [External] RE: Sampling and Analysis Plan for Narrow River, Narragansett, RI

From: Veinotte, Christopher L CIV USARMY CENAE (USA) <Christopher.L.Veinotte@usace.army.mil>
Sent: Tuesday, June 27, 2023 10:46 AM
To: Cross, Kaitlyn E <Kaitlyn.Cross@foth.com>
Subject: [External] RE: Sampling and Analysis Plan for Narrow River, Narragansett, RI

Hi Kaitlyn,

As proposed, you will still need a verification under the RI GPs from USACE, but this project will meet exclusionary criteria. Coordinate with the State to determine if the sediment meets their criteria. We will begin processing the application at that time.

Best,
Chris

Christopher L. Veinotte
U.S. Army Corps of Engineers
New England District
696 Virginia Road
Concord, MA 01742
978-318-8495 (Desk)
978-514-1252 (Mobile)

From: Cross, Kaitlyn E <Kaitlyn.Cross@foth.com>
Sent: Thursday, May 18, 2023 2:36 PM
To: cenae-r-ri <cenae-r-ri@usace.army.mil>; Martin, Leslie CIV USARMY USACE (USA) <Leslie.Martin@usace.army.mil>; Jones, Helen A CIV USARMY CENAE (USA) <Helen.A.Jones@usace.army.mil>
Cc: Veinotte, Christopher L CIV USARMY CENAE (USA) <Christopher.L.Veinotte@usace.army.mil>; Gagnon, Ron (DEM) <Ron.Gagnon@dem.ri.gov>; rlucia@crmc.ri.gov; Skuncik, Scott R <Scott.Skuncik@foth.com>; jskenyon@crmc.ri.gov
Subject: [URL Verdict: Neutral][Non-DoD Source] Sampling and Analysis Plan for Narrow River, Narragansett, RI

Good Afternoon,

On behalf of the Town of Narragansett, Foth Infrastructure & Environment, LLC request your review of this Sampling and Analysis Plan (SAP) for the above referenced site. This SAP is intended to confirm suitability of the proposed dredged sediments from the Narrow River for placement at the adjacent Narragansett Town Beach. Please feel free to reach out with any questions. Should you have any issues accessing these files please let me know.

Here's a OneDrive link to Town of Narragansett - Narrow River SAP.zip.

Thanks,
Kaitlyn

Kaitlyn Cross, EIT

Project Civil Engineer – Ports & Harbors

Foth Infrastructure & Environment, LLC
Office: (401) 239-0472
Cell: (401) 626-7208
www.foth.com

Bowe, Ethan D

From: Cross, Kaitlyn E
Sent: Friday, February 28, 2025 2:18 PM
To: Bowe, Ethan D
Subject: FW: [External] FW: Sampling and Analysis Plan for Narrow River, Narragansett, RI

From: Gagnon, Ron (DEM) <Ron.Gagnon@dem.ri.gov>
Sent: Wednesday, April 17, 2024 2:03 PM
To: Cross, Kaitlyn E <Kaitlyn.Cross@foth.com>; jskenyon <jskenyon@crmc.ri.gov>; Personeus, Neal (DEM) <neal.personeus@dem.ri.gov>; Schneider, Eric (DEM) <eric.schneider@dem.ri.gov>
Cc: Richard Lucia <rlucia@crmc.ri.gov>; Bowe, Ethan D <Ethan.Bowe@foth.com>; Skuncik, Scott R <Scott.Skuncik@foth.com>; Livermore, Julia (DEM) <Julia.Livermore@dem.ri.gov>
Subject: RE: [External] FW: Sampling and Analysis Plan for Narrow River, Narragansett, RI

The Department has reviewed the sampling results (attached) for compliance with the *Rules and Regulations for Dredging and the Management of Dredged Materials (250-RICR-150-05-2)* (the Dredge Regulations). The results were also reviewed in a Teams meeting with Froth and DEM on April 17, 2024.

DEM approves the dredge sediments that are represented by samples 1 to 8 for beach nourishment (all samples at < 10% silt/clay).

Dredge sediments associated with Sample 9 (approximately 31% silt/clay) do not meet the criteria for beach nourishment but based on the chemical analysis results, the material meets the Residential Exposure Criteria and can be beneficially reused in accordance with Rule 2.9 B. 4. of the Dredge Regulations.

Rhode Island Department of Environmental Management
235 Promenade Street | Room 260 | Providence, RI 02908

Ron Gagnon, P.E.
Administrator
Office of Customer & Technical Assistance
Tel: (401) 537-4013

Email: Ron.Gagnon@dem.ri.gov
Website: www.dem.ri.gov

From: Cross, Kaitlyn E <Kaitlyn.Cross@foth.com>
Sent: Monday, April 1, 2024 4:15 PM
To: Gagnon, Ron (DEM) <Ron.Gagnon@dem.ri.gov>; jskenyon <jskenyon@crmc.ri.gov>; Personeus, Neal (DEM) <neal.personeus@dem.ri.gov>; Schneider, Eric (DEM) <eric.schneider@dem.ri.gov>
Cc: Richard Lucia <rlucia@crmc.ri.gov>; Bowe, Ethan D <Ethan.Bowe@foth.com>; Skuncik, Scott R <Scott.Skuncik@foth.com>; Livermore, Julia (DEM) <Julia.Livermore@dem.ri.gov>
Subject: RE: [External] FW: Sampling and Analysis Plan for Narrow River, Narragansett, RI

Good afternoon,

Please find attached the results of the chemical analysis on sediment from within the Narrow River in Narragansett, RI based on the compositing plan approved on 2/8/2024. The Town of Narragansett respectfully request that these results be reviewed for approval of placement of the adjacent Town beach. Please let me know if you have any questions or comments. We would like to set up a meeting to discuss these results at your earliest convenience in an effort to keep this project moving forward.

Thanks,
Kaitlyn

Kaitlyn Cross, EIT
Project Civil Engineer – Ports & Harbors

Foth Infrastructure & Environment, LLC
Office: (401) 239-0472
Cell: (401) 626-7208
www.foth.com [foth.com]

From: Gagnon, Ron (DEM) <Ron.Gagnon@dem.ri.gov>
Sent: Thursday, February 8, 2024 8:23 AM
To: Cross, Kaitlyn E <Kaitlyn.Cross@foth.com>; jskenyon <jskenyon@crmc.ri.gov>; Personeus, Neal (DEM) <neal.personeus@dem.ri.gov>; Schneider, Eric (DEM) <eric.schneider@dem.ri.gov>
Cc: Richard Lucia <rlucia@crmc.ri.gov>; Bowe, Ethan D <Ethan.Bowe@foth.com>; Skuncik, Scott R <Scott.Skuncik@foth.com>; Livermore, Julia (DEM) <Julia.Livermore@dem.ri.gov>
Subject: RE: [External] FW: Sampling and Analysis Plan for Narrow River, Narragansett, RI

The compositing plan described below is consistent with our discussion. DEM confirms approval of the plan.

Ron

Rhode Island Department of Environmental Management
235 Promenade Street | Room 260 | Providence, RI 02908

Ron Gagnon, P.E.
Administrator
Office of Customer & Technical Assistance
Tel: (401) 537-4013

Email: Ron.Gagnon@dem.ri.gov
Website: www.dem.ri.gov

From: Cross, Kaitlyn E <Kaitlyn.Cross@foth.com>
Sent: Wednesday, February 7, 2024 4:32 PM
To: Gagnon, Ron (DEM) <Ron.Gagnon@dem.ri.gov>; jskenyon <jskenyon@crmc.ri.gov>; Personeus, Neal (DEM) <neal.personeus@dem.ri.gov>; Schneider, Eric (DEM) <eric.schneider@dem.ri.gov>
Cc: Richard Lucia <rlucia@crmc.ri.gov>; Bowe, Ethan D <Ethan.Bowe@foth.com>; Skuncik, Scott R <Scott.Skuncik@foth.com>; Livermore, Julia (DEM) <Julia.Livermore@dem.ri.gov>
Subject: RE: [External] FW: Sampling and Analysis Plan for Narrow River, Narragansett, RI

Good Afternoon,

Would you mind just confirming the plan below so we can begin laboratory analysis?

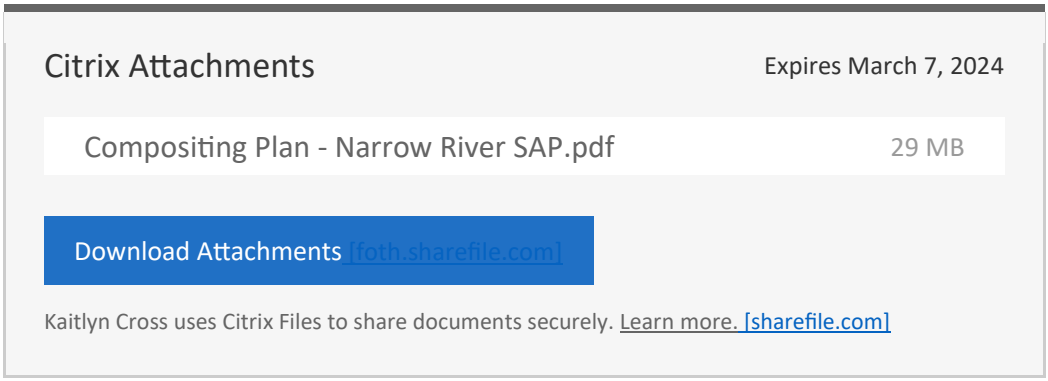
Thanks,
Kaitlyn

From: Cross, Kaitlyn E
Sent: Tuesday, February 6, 2024 5:18 PM
To: 'Gagnon, Ron (DEM)' <Ron.Gagnon@dem.ri.gov>; 'jskenyon' <jskenyon@crmc.ri.gov>; 'Personeus, Neal (DEM)' <neal.personeus@dem.ri.gov>; 'Schneider, Eric (DEM)' <eric.schneider@dem.ri.gov>
Cc: 'Richard Lucia' <rlucia@crmc.ri.gov>; Bowe, Ethan D <Ethan.Bowe@foth.com>; Skuncik, Scott R <Scott.Skuncik@foth.com>; 'Livermore, Julia (DEM)' <Julia.Livermore@dem.ri.gov>
Subject: RE: [External] FW: Sampling and Analysis Plan for Narrow River, Narragansett, RI

Good Afternoon,

Thank you all for your time today. Below I have prepared the final composing plan developed in our meeting today. If you could please confirm your approval that would be appreciated.

- COMP 1 – NR-1, NR-2, NR-3 (yellow on the attached plan)
- COMP 2 – NR-4 (blue on the attached plan)
- COMP 3 – NR-5, NR-6 (grey on the attached plan)
- COMP 4 – NR-7, NR-8 (orange on the attached plan)
- COMP 5 – NR-9 (green on the attached plan)



Please let me know if you have any questions.
Thanks,
Kaitlyn

From: Cross, Kaitlyn E
Sent: Wednesday, January 31, 2024 1:56 PM
To: Gagnon, Ron (DEM) <Ron.Gagnon@dem.ri.gov>
Cc: jskenyon <jskenyon@crmc.ri.gov>; Richard Lucia <rlucia@crmc.ri.gov>; Schneider, Eric (DEM) <eric.schneider@dem.ri.gov>; Personeus, Neal (DEM) <neal.personeus@dem.ri.gov>; Bowe, Ethan D <Ethan.Bowe@foth.com>; Skuncik, Scott R <Scott.Skuncik@foth.com>; Livermore, Julia (DEM) <Julia.Livermore@dem.ri.gov>
Subject: RE: [External] FW: Sampling and Analysis Plan for Narrow River, Narragansett, RI

Lo

Do you have time to meet to discuss this? The collection of representative samples of sediment from the Town beach was not indicated in our approved sampling plan. As for the USACE, please see my email below on 1/14/2023 which indicates that the USACE has notified that this project meets exclusionary criteria and directed us to coordinate directly with the state agencies. Therefore, we would be looking for a compositing scheme developed by the RI DEM or RI CRMC. Foth can prepare a draft sampling plan for your review/approval but I believe we need more input prior to doing so. Let me know if there is a time that works best for the group to meet.

Thanks,
Kaitlyn

From: Gagnon, Ron (DEM) <Ron.Gagnon@dem.ri.gov>
Sent: Wednesday, January 31, 2024 1:39 PM
To: Cross, Kaitlyn E <Kaitlyn.Cross@foth.com>
Cc: jskenyon <jskenyon@crmc.ri.gov>; Richard Lucia <rlucia@crmc.ri.gov>; Schneider, Eric (DEM) <eric.schneider@dem.ri.gov>; Personeus, Neal (DEM) <neal.personeus@dem.ri.gov>; Bowe, Ethan D <Ethan.Bowe@foth.com>; Skuncik, Scott R <Scott.Skuncik@foth.com>; Livermore, Julia (DEM) <Julia.Livermore@dem.ri.gov>
Subject: RE: [External] FW: Sampling and Analysis Plan for Narrow River, Narragansett, RI

DEM has reviewed your request below regarding compositing samples and have the following comments.

- No more than two samples of similar grain size should be composited. Compositing of additional samples was not considered when reviewing the original sampling plan.
- Beneficial use of the dredged sediments at Town Beach will require a representative sampling of sediments to ensure that the material is adequate for beach nourishment. DEM does not agree that the compositing plan noted below will provide the confidence needed to ensure that dredged sediments are meeting the beach nourishment criteria.
- On page 14 of the Sampling and Analysis Plan submitted for this project it states, “All individual core samples (and sub-samples if applicable) collected in the field will first be analyzed for grain size distribution, with results being forwarded to the USACE’s Environmental Resources and Marine Operations Section (ERS) to determine an appropriate compositing scheme for performing chemical analyses. Chemical results will be reported to the USACE ERS.” Has the ACOE reviewed and commented on the proposed compositing plan?

Based on the information reviewed by DEM at this time, we do not approve of the compositing plan noted below into a total of only two samples. DEM will require that no more than two samples of similar grain size be composited for further analysis.

Sincerely,

Ronald Gagnon
Rhode Island Department of Environmental Management
235 Promenade Street | Room 260 | Providence, RI 02908

Ron Gagnon, P.E.
Administrator
Office of Customer & Technical Assistance
Tel: (401) 537-4013

Email: Ron.Gagnon@dem.ri.gov
Website: www.dem.ri.gov

From: Cross, Kaitlyn E <Kaitlyn.Cross@foth.com>
Sent: Saturday, January 27, 2024 12:03 PM
To: Gagnon, Ron (DEM) <Ron.Gagnon@dem.ri.gov>
Cc: jskenyon <jskenyon@crmc.ri.gov>; Richard Lucia <rlucia@crmc.ri.gov>; Schneider, Eric (DEM) <eric.schneider@dem.ri.gov>; Personeus, Neal (DEM) <neal.personeus@dem.ri.gov>; Bowe, Ethan D <Ethan.Bowe@foth.com>; Skuncik, Scott R <Scott.Skuncik@foth.com>
Subject: RE: [External] FW: Sampling and Analysis Plan for Narrow River, Narragansett, RI

Ron,

Based on this can you confirm that it is appropriate to composite all samples with 10% or less fines? This would include all samples with the exception of NR-9. The proposed composites include:

- COMP-1: NR-1, NR-2, NR-3, NR-4 0.8-2.9, NR-4 2.9-3.4, NR-5, NR-6 0.0-2.5, NR-6 2.5-3.8, NR-7 0.0-1.3, NR-7 1.3-2.3, NR-8
- COMP-2: NR-9

Please let me know if you find this compositing acceptable.
Thanks,
Kaitlyn

From: Gagnon, Ron (DEM) <Ron.Gagnon@dem.ri.gov>
Sent: Wednesday, January 24, 2024 11:53 AM
To: Cross, Kaitlyn E <Kaitlyn.Cross@foth.com>
Cc: jskenyon <jskenyon@crmc.ri.gov>; Richard Lucia <rlucia@crmc.ri.gov>; Schneider, Eric (DEM) <eric.schneider@dem.ri.gov>; Personeus, Neal (DEM) <neal.personeus@dem.ri.gov>; Bowe, Ethan D <Ethan.Bowe@foth.com>; Skuncik, Scott R <Scott.Skuncik@foth.com>
Subject: RE: [External] FW: Sampling and Analysis Plan for Narrow River, Narragansett, RI

Kaitlyn

DEM agrees that compositing samples of similar characteristics is allowed prior to chemical analysis. Compositing of coarse- and fine-grained samples would not be allowed.

Ron

Rhode Island Department of Environmental Management
235 Promenade Street | Room 260 | Providence, RI 02908

Ron Gagnon, P.E.
Administrator
Office of Customer & Technical Assistance
Tel: (401) 537-4013

Email: Ron.Gagnon@dem.ri.gov
Website: www.dem.ri.gov

From: Cross, Kaitlyn E <Kaitlyn.Cross@foth.com>
Sent: Friday, January 19, 2024 4:43 PM
To: Gagnon, Ron (DEM) <Ron.Gagnon@dem.ri.gov>
Cc: jskenyon <jskenyon@crmc.ri.gov>; Richard Lucia <rlucia@crmc.ri.gov>; Schneider, Eric (DEM) <eric.schneider@dem.ri.gov>; Personeus, Neal (DEM) <neal.personeus@dem.ri.gov>; Bowe, Ethan D <Ethan.Bowe@foth.com>; Skuncik, Scott R <Scott.Skuncik@foth.com>
Subject: RE: [External] FW: Sampling and Analysis Plan for Narrow River, Narragansett, RI

Ron,

Any update on this?

Thanks,
Kaitlyn

From: Cross, Kaitlyn E
Sent: Tuesday, January 9, 2024 4:15 PM
To: 'Gagnon, Ron (DEM)' <Ron.Gagnon@dem.ri.gov>; jskenyon <jskenyon@crmc.ri.gov>
Cc: Richard Lucia <rlucia@crmc.ri.gov>; Schneider, Eric (DEM) <eric.schneider@dem.ri.gov>; Personeus, Neal (DEM) <neal.personeus@dem.ri.gov>; Bowe, Ethan D <Ethan.Bowe@foth.com>; Skuncik, Scott R <Scott.Skuncik@foth.com>
Subject: RE: [External] FW: Sampling and Analysis Plan for Narrow River, Narragansett, RI

Good Afternoon All,

Please find attached the grain size results for the Narrow River Sediment Sampling. Foth requests the RI DEM and RI CRMC's review for potential compositing prior to chemical analysis. Please let me know if you have any questions.

Narrow River SAP - Sampling Plan 20231003.pdf [foth-my.sharepoint.com]

Thanks,
Kaitlyn

From: Gagnon, Ron (DEM) <Ron.Gagnon@dem.ri.gov>
Sent: Monday, August 28, 2023 1:49 PM
To: Cross, Kaitlyn E <Kaitlyn.Cross@foth.com>; Schneider, Eric (DEM) <eric.schneider@dem.ri.gov>; Personeus, Neal (DEM) <neal.personeus@dem.ri.gov>
Cc: jskenyon <jskenyon@crmc.ri.gov>; Richard Lucia <rlucia@crmc.ri.gov>
Subject: RE: [External] FW: Sampling and Analysis Plan for Narrow River, Narragansett, RI

That is correct, DEM added one additional location and was approved. CRMC is the final approver.

Ron

From: Cross, Kaitlyn E <Kaitlyn.Cross@foth.com>
Sent: Monday, August 28, 2023 1:18 PM
To: Schneider, Eric (DEM) <eric.schneider@dem.ri.gov>; Personeus, Neal (DEM) <neal.personeus@dem.ri.gov>; Gagnon, Ron (DEM) <Ron.Gagnon@dem.ri.gov>
Cc: jskenyon <jskenyon@crmc.ri.gov>; Richard Lucia <rlucia@crmc.ri.gov>
Subject: RE: [External] FW: Sampling and Analysis Plan for Narrow River, Narragansett, RI

Good Afternoon,

Any update on this? Please let me know if you have any questions or need anything further.

Thanks,
Kaitlyn

From: Cross, Kaitlyn E
Sent: Monday, August 21, 2023 3:58 PM
To: 'Schneider, Eric (DEM)' <eric.schneider@dem.ri.gov>; 'neal.personeus@dem.ri.gov' <neal.personeus@dem.ri.gov>; 'Gagnon, Ron (DEM)' <Ron.Gagnon@dem.ri.gov>

Cc: 'jskenyon@crmc.ri.gov' <jskenyon@crmc.ri.gov>; 'rlucia@crmc.ri.gov' <rlucia@crmc.ri.gov>
Subject: RE: [External] FW: Sampling and Analysis Plan for Narrow River, Narragansett, RI

Good Afternoon all,

Just checking in on this SAP request. Let me know if you need any additional information.

Thanks,
Kaitlyn

From: Cross, Kaitlyn E
Sent: Monday, August 14, 2023 1:36 PM
To: Schneider, Eric (DEM) <eric.schneider@dem.ri.gov>; neal.personeus@dem.ri.gov; Gagnon, Ron (DEM) <Ron.Gagnon@dem.ri.gov>
Cc: jskenyon@crmc.ri.gov; rlucia@crmc.ri.gov
Subject: FW: [External] FW: Sampling and Analysis Plan for Narrow River, Narragansett, RI

Good Afternoon,

Just following up on this to see if you had any additional questions or comments.

Thanks,
Kaitlyn

From: Cross, Kaitlyn E
Sent: Friday, August 4, 2023 4:09 PM
To: Schneider, Eric (DEM) <eric.schneider@dem.ri.gov>; Gagnon, Ron (DEM) <Ron.Gagnon@dem.ri.gov>
Cc: jskenyon <jskenyon@crmc.ri.gov>; Richard Lucia <rlucia@crmc.ri.gov>; Personeus, Neal (DEM) <neal.personeus@dem.ri.gov>
Subject: RE: [External] FW: Sampling and Analysis Plan for Narrow River, Narragansett, RI

Eric,

Thank you for the quick clarification! We appreciate the teams review, we will add the additional sample to our proposed sampling plan. Do you need the plan provided within the SAP revised? Please let me know if this is the cover page you were looking for. I included PAHs within the proposed testing assuming that they would be required, let me know if this is correct. In addition, SVOCs are not included in beach criteria, should that be included as well?

We have not shared this plan with USFWS but certainly can, do you have a specific contact you would prefer? If not we can reach out to see who would be best to review. The Narrow River Preservation Association has been involved in the project and was given a feasibility analysis to review, but not specifically the SAP. We can share with them as well. Thank you for the heads up on the shellfish survey, we will be sure to include that in future planning for the project.

Thanks,
Kaitlyn

From: Schneider, Eric (DEM) <eric.schneider@dem.ri.gov>
Sent: Friday, August 4, 2023 3:35 PM
To: Gagnon, Ron (DEM) <Ron.Gagnon@dem.ri.gov>; Cross, Kaitlyn E <Kaitlyn.Cross@foth.com>
Cc: jskenyon <jskenyon@crmc.ri.gov>; Richard Lucia <rlucia@crmc.ri.gov>; Personeus, Neal (DEM) <neal.personeus@dem.ri.gov>
Subject: RE: [External] FW: Sampling and Analysis Plan for Narrow River, Narragansett, RI

Hi [illegible],

Apologies for the confusion. That comment was from DMF. Our intention was to request an additional sample at the shoal and not replace the current sample at the mouth. Thanks for seeking clarification and, again, my apologies for the confusion created by the mis-numbering in our attachment.

LMK if you need anything else or would like to discuss those comments further.
Best,
Eric

From: Cross, Kaitlyn E <Kaitlyn.Cross@foth.com>
Sent: Friday, August 4, 2023 2:52 PM
To: Gagnon, Ron (DEM) <Ron.Gagnon@dem.ri.gov>
Cc: jskenyon <jskenyon@crmc.ri.gov>; Richard Lucia <rlucia@crmc.ri.gov>; Schneider, Eric (DEM) <eric.schneider@dem.ri.gov>; Personeus, Neal (DEM) <neal.personeus@dem.ri.gov>
Subject: RE: [External] FW: Sampling and Analysis Plan for Narrow River, Narragansett, RI

Ron,

Just to clarify, there is already a sample NR8 (located near the mouth of the river), would you like this sample moved to the location shown in your email? Or are you asking for an additional sample to be placed, making the project nine (9) samples overall?

Thanks,
Kaitlyn

From: Gagnon, Ron (DEM) <Ron.Gagnon@dem.ri.gov>
Sent: Friday, August 4, 2023 2:02 PM
To: Cross, Kaitlyn E <Kaitlyn.Cross@foth.com>
Cc: jskenyon <jskenyon@crmc.ri.gov>; Richard Lucia <rlucia@crmc.ri.gov>; Schneider, Eric (DEM) <eric.schneider@dem.ri.gov>; Personeus, Neal (DEM) <neal.personeus@dem.ri.gov>
Subject: RE: [External] FW: Sampling and Analysis Plan for Narrow River, Narragansett, RI

Noted below are comments from the Division of Marine Fisheries:

The Marine Habitat Team has reviewed the Sampling and Analysis Plan (SAP) for Narrow River and offer the following comments and suggestions.

(1) DMF suggests the applicant consider an additional sample at the sandbar (shown in the attached screen shot as NR8).

(2) As part of the pre-dredging survey work, DMF will require a shellfish survey be conducted to determine if shellfish are present in densities that will need to be relocated prior to dredging. This does not need to occur now. We are just providing notice.

(3) Just curious if the Narrow River Preservation Association or USFWS had an opportunity to review the SAP? I realize the SAP is usually only shared with USACE, RI CRMC, and RI DEM; however, those two entities might have comments.

We will also need the Sampling Plan cover sheet submitted for agency sign-off.

Thanks,

Rhode Island Department of Environmental Management
235 Promenade Street | Room 260 | Providence, RI 02908

Ron Gagnon, P.E.
Administrator
Office of Customer & Technical Assistance
Tel: (401) 222-4700 ext. 2777500

Email: Ron.Gagnon@dem.ri.gov
Website: www.dem.ri.gov

From: Cross, Kaitlyn E <Kaitlyn.Cross@foth.com>
Sent: Tuesday, August 1, 2023 2:32 PM
To: Schneider, Eric (DEM) <eric.schneider@dem.ri.gov>; Personeus, Neal (DEM) <neal.personeus@dem.ri.gov>; Gagnon, Ron (DEM) <Ron.Gagnon@dem.ri.gov>
Cc: jskenyon <jskenyon@crmc.ri.gov>; Richard Lucia <rlucia@crmc.ri.gov>
Subject: RE: [External] FW: Sampling and Analysis Plan for Narrow River, Narragansett, RI

Good Afternoon,

Just wanted to check in on this and see if you had any comments? As indicated below, we do not need USACE to issue a SAP so we will be deferring to RI DEM and RI CRMC to approve or comment on the proposed sampling plan request.

If it would be beneficial, I am happy to host a joint teams meeting with both agencies to discuss the proposed work?

Thanks,
Kaitlyn

From: Cross, Kaitlyn E
Sent: Friday, July 14, 2023 9:32 AM
To: Schneider, Eric (DEM) <eric.schneider@dem.ri.gov>; neal.personeus@dem.ri.gov; Gagnon, Ron (DEM) <Ron.Gagnon@dem.ri.gov>
Subject: RE: [External] FW: Sampling and Analysis Plan for Narrow River, Narragansett, RI

Good Morning,

I just wanted to follow up on this Sampling and Analysis Plan request and let you know what that the USACE has indicated that this project meets exclusionary criteria and directed us to coordinate directly with the state agencies. Therefore, I just wanted to check in with you are see if you had any update on your review of this project. Please let me know if you have any questions or comments.

Thanks,
Kaitlyn

From: Cross, Kaitlyn E
Sent: Tuesday, June 13, 2023 7:39 AM
To: Schneider, Eric (DEM) <eric.schneider@dem.ri.gov>
Subject: RE: [External] FW: Sampling and Analysis Plan for Narrow River, Narragansett, RI

Please use the link below.

Town of Narragansett - Narrow River SAP.zip [foth-my.sharepoint.com]

Thanks,
Kaitlyn

From: Schneider, Eric (DEM) <eric.schneider@dem.ri.gov>
Sent: Monday, June 12, 2023 9:51 AM
To: Cross, Kaitlyn E <Kaitlyn.Cross@foth.com>
Subject: [External] FW: Sampling and Analysis Plan for Narrow River, Narragansett, RI

Hi Kaitlyn,

My apologies for having to leave last week's meeting early. Could you please add me to the shared folder below, so that I can access the SAP and associated files.

Thanks,
Eric

From: Gagnon, Ron (DEM) <Ron.Gagnon@dem.ri.gov>
Sent: Thursday, May 18, 2023 2:43 PM
To: Personeus, Neal (DEM) <neal.personeus@dem.ri.gov>; Schneider, Eric (DEM) <eric.schneider@dem.ri.gov>
Subject: FW: Sampling and Analysis Plan for Narrow River, Narragansett, RI

For your review.

Thanks,

Ron

From: Cross, Kaitlyn E <Kaitlyn.Cross@foth.com>
Sent: Thursday, May 18, 2023 2:36 PM
To: cenae-r-ri@usace.army.mil; Leslie.Martin@usace.army.mil; Jones, Helen A NAE <Helen.A.Jones@usace.army.mil>
Cc: 'Veinotte, Christopher L CIV USARMY CENAE (US)' <Christopher.L.Veinotte@usace.army.mil>; Gagnon, Ron (DEM) <Ron.Gagnon@dem.ri.gov>; Richard Lucia <rlucia@crmc.ri.gov>; Skuncik, Scott R <Scott.Skuncik@foth.com>; jskenyon <jskenyon@crmc.ri.gov>
Subject: Sampling and Analysis Plan for Narrow River, Narragansett, RI

Good Afternoon,

On behalf of the Town of Narragansett, Foth Infrastructure & Environment, LLC request your review of this Sampling and Analysis Plan (SAP) for the above referenced site. This SAP is intended to confirm suitability of the proposed dredged sediments from the Narrow River for placement at the adjacent Narragansett Town Beach. Please feel free to reach out with any questions. Should you have any issues accessing these files please let me know.

Here's a OneDrive link to Town of Narragansett - Narrow River SAP.zip [foth-my.sharepoint.com].

Thanks,
Ka

Kaitlyn Cross, EIT
Pr[illegible] Civil Engineer – Ports & Harbors

Foth Infrastructure & Environment, LLC
Office: (401) 239-0472
Cell: (401) 626-7208
www.foth.com [foth.com]

Appendix C

Abutters List

ID	Site Address	Owner Name	Owner Address	Owner City	Owner State	Owner Zip
A-33	137 BOSTON NECK ROAD	DUNES CLUB, THE	P. O. BOX 749	NARRAGANSETT	RI	02882
A-133	BOSTON NECK ROAD	DUNES CORPORATION, THE	P O BOX 749	NARRAGANSETT	RI	02882
A-19-A	BOSTON NECK ROAD	SINCLAIR ROSALYN K REVOCABLE TRUST	144 WESTMINISTER STREET	PROVIDENCE	RI	02903
A-33-A	BOSTON NECK ROAD	AUDUBON SOCIETY OF R I	12 SANDERSON RD	SMITHFIELD	RI	02917
A-33-B	BOSTON NECK ROAD	AUDUBON SOCIETY OF R I	12 SANDERSON RD	SMITHFIELD	RI	02917
A-38	BOSTON NECK ROAD	AUDUBON SOCIETY OF R I	12 SANDERSON RD	SMITHFIELD	RI	02917
A-39	220 BOSTON NECK ROAD	AUDUBON SOCIETY OF R I	12 SANDERSON RD	SMITHFIELD	RI	02917
A-40	BOSTON NECK ROAD	AUDUBON SOCIETY OF R I	12 SANDERSON RD	SMITHFIELD	RI	02917
A-9-A	BOSTON NECK ROAD	AUDUBON SOCIETY OF R I	12 SANDERSON RD	SMITHFIELD	RI	02917
N-M-1-A	0 OLD BOSTON NECK ROAD	NATURE CONSERVANCY	4245 N. FAIR HEIGHTS DRIVE	ARLINGTON	VA	22203
N-M-3	CORMORANT ROAD	UNITED STATES OF AMERICA, THE	300 WESTGATE CENTER DRIVE	HADLEY	MA	01035
N-M-4	CORMORANT ROAD	NATURE CONSERVANCY, THE	159 WATERMAN STREET	PROVIDENCE	RI	02906
N-M-4-A	54 BAKER ROAD	WHALE ROCK LLC	200 CLIFF ROAD	WELLESLEY	MA	02481
N-M-5	CORMORANT ROAD	UNITED STATES OF AMERICA	300 WESTGATE CENTER DRIVE	HADLEY	MA	01035
N-M-6	0 CORMORANT ROAD	NATURE CONSERVANCY, THE	159 WATERMAN STREET	PROVIDENCE	RI	02906
N-M-7	THULE COVE ROAD	THULE COVE ROAD, LLC	ONE JOY STREET	BOSTON	MA	02108
N-M-7-A	45 THULE COVE ROAD	45 THULE COVE ROAD LLC	ONE JOY STREET	BOSTON	MA	02108
N-M-7-B	0 THULE COVE ROAD	NATURE CONSERVANCY, THE	159 WATERMAN STREET	PROVIDENCE	RI	02906

Appendix D

Spill History

Appendix C: Spill History for Narrow River												
SEQNOS	DESCRIPTION_OF_INCIDENT	TYPE OF INCIDENT	INCIDENT CAUSE	INCIDENT DATE/ TIME	INCIDENT DTG	INCIDENT LOCATION	LOCATION ADDRESS	NEAREST CITY	STATE	COUNTY	ZIP	POTENTIAL FLAG
5016		UNKNOWN SHEEN	UNKNOWN	1/8/1990 7:00	DISCOVERED			WAKEFIELD	RI	WASHINGTON		
81305	UNKNOWN / UNKNOWN	UNKNOWN SHEEN	UNKNOWN	7/28/1991 21:30	DISCOVERED		JUST ABOVE BRIDGE ON THE NARROW RIVER	NARAGANSETT	RI	WASHINGTON	02882	
94554	SHEEN SIGHTING / SOURCE AND CAUSE UNKNOWN.	UNKNOWN SHEEN	UNKNOWN	10/31/1991 12:00	DISCOVERED		MIDDLEBRIDGE RD	NARRAGANSETT	RI	WASHINGTON		
221413	20 FT OUTBOARD/ UNKNOWN IF ANY PRODUCT HAS BEEN RELEASED/ BOAT IS IN PROCESS OF SINKING	VESSEL	UNKNOWN	2/12/1994 10:00	DISCOVERED			NARAGANSETT	RI	WASHINGTON	02882	
1180315	CALLER IS REPORTING THAT DURING FUELING, THE OPERATOR OVER-FILLED THE TANK. THE MATERIAL WENT INTO THE WATER.	VESSEL	OPERATOR ERROR	6/5/2017 12:00	OCCURRED		NARRAGANSETT GALLERY PIER	NARRAGANSETT	RI	WASHINGTON		N
1197468	CALLER IS REPORTING A SHEEN COMING FROM THE DISASSEMBLED EQUIPMENT ON THE DOCK FROM THE THE M/V RAYDA CHERAMIE.	VESSEL	OTHER	11/16/2017 13:00	OCCURRED	DOCK AA		NARRAGANSET	RI	WASHINGTON		N

Appendix E

Statement of No Objection from Abutters

May 9, 2025

Army Corps of Engineers
Regulatory Division
696 Virginia Road
Concord, MA 01742-2751

RI CRMC
4808 Tower Hill Rd # 116
Wakefield, RI 02879

RI DEM
235 Promenade St,
Providence, RI 02908

Re: Statement of No Objection
Town of Narragansett – Narrow River Dredging
25 5th Ave, Narragansett, RI 02882

To Whom It May Concern,

Following review of the permit applications drawings dated February 27, 2025, and prepared by Foth Infrastructure & Environment, LLC. I am aware that the Town of Narragansett is proposing to dredge up to approximately 41,551 cubic yards of material to a depth of -4' MLLW + 1' OD from the Pettaquamscutt River with placement onto the adjacent barrier spit on Parcels **A-33-B, A-38, A-39, and A-40**. I have no objection to the proposed project.

Signature: Scott Ruhren

Name: Scott Ruhren

Title: Audubon Society of RI Senior Director of Conservation

Date: 5/9/25

May 19, 2025

Army Corps of Engineers
Regulatory Division
696 Virginia Road
Concord, MA 01742-2751

RI CRMC
4808 Tower Hill Rd # 116
Wakefield, RI 02879

RI DEM
235 Promenade St,
Providence, RI 02908

Re: Statement of No Objection
Town of Narragansett – Narrow River Dredging
25 5th Ave, Narragansett, RI 02882

To Whom It May Concern,

Following review of the permit applications drawings dated February 27, 2025, and prepared by Foth Infrastructure & Environment, LLC. I am aware that the Town of Narragansett is proposing to dredge up to approximately 41,551 cubic yards of material to a depth of -4' MLLW + 1' OD from the Pettaquamscutt River with placement onto the adjacent barrier spit on Parcel **A-33**. I have no objection to the proposed project.

Signature: Stephen P Sterling gm

Name: Stephen P Sterling

Title: General Manager The Dunes Club

Date: 5/19/2025

Appendix F

Sediment Sample Analysis Results

ANALYTICAL REPORT

Lab Number:	L2364904
Client:	Foth-CLE Engineering Group 15 Creek Road Marion, MA 02738
ATTN:	Kaitlyn Cross
Phone:	(508) 762-0776
Project Name:	NARROW RIVER DREDGING
Project Number:	0022N010.00
Report Date:	01/05/24

Certifications & Approvals: MA (M-MA030), NH NELAP (2062), CT (PH-0825), DoD (L2474), FL (E87814), IL (200081), IN (C-MA-04), KY (KY98046), LA (85084), ME (MA00030), MD (350), MI (99110) , NJ (MA015), NY (11627), NC (685), OH (CL106), OR (MA-0262), PA (68-02089), RI (LAO00299), TX (T104704419), VT (VT-0015), VA (460194), WA (C954), US Army Corps of Engineers, USDA (Permit #525-23-107-88708), USFWS (Permit #206964).

320 Forbes Boulevard, Mansfield, MA 02048-1806
508-822-9300 (Fax) 508-822-3288 800-624-9220 - www.alphalab.com

Project Name: NARROW RIVER DREDGING
Project Number: 0022N010.00

Lab Number: L2364904
Report Date: 01/05/24

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2364904-01	NR-1	SEDIMENT	NARRAGANSETT, RI	10/31/23 12:45	11/01/23
L2364904-02	NR-2	SEDIMENT	NARRAGANSETT, RI	10/31/23 12:10	11/01/23
L2364904-03	NR-3	SEDIMENT	NARRAGANSETT, RI	10/31/23 11:00	11/01/23
L2364904-04	NR-4 0.0-0.8	SEDIMENT	NARRAGANSETT, RI	10/31/23 10:40	11/01/23
L2364904-05	NR-4 0.8-2.9	SEDIMENT	NARRAGANSETT, RI	10/31/23 10:40	11/01/23
L2364904-06	NR-4 2.9-3.4	SEDIMENT	NARRAGANSETT, RI	10/31/23 10:40	11/01/23
L2364904-07	NR-5	SEDIMENT	NARRAGANSETT, RI	10/31/23 11:20	11/01/23
L2364904-08	NR-6 0.0-2.5	SEDIMENT	NARRAGANSETT, RI	10/31/23 10:04	11/01/23
L2364904-09	NR-6 2.5-3.8	SEDIMENT	NARRAGANSETT, RI	10/31/23 10:04	11/01/23
L2364904-10	NR-7 0.0-1.3	SEDIMENT	NARRAGANSETT, RI	10/31/23 11:50	11/01/23
L2364904-11	NR-7 1.3-2.3	SEDIMENT	NARRAGANSETT, RI	10/31/23 11:50	11/01/23
L2364904-12	NR-8	SEDIMENT	NARRAGANSETT, RI	10/31/23 11:45	11/01/23
L2364904-13	NR-9	SEDIMENT	NARRAGANSETT, RI	10/31/23 12:25	11/01/23

Project Name:	NARROW RIVER DREDGING	**Lab Number:**	L2364904
Project Number:	0022N010.00	**Report Date:**	01/05/24

Case Narrative

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

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

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

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

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

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

Project Name:	NARROW RIVER DREDGING	**Lab Number:**	L2364904
Project Number:	0022N010.00	**Report Date:**	01/05/24

Case Narrative (continued)

Report Submission

January 5, 2024: This is a preliminary report.

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

Grain Size Analysis

The WG1868134-1 Laboratory Duplicate RPDs for % coarse gravel (67%), % fine gravel (133%), % total gravel (67%), performed on L2364904-05, are outside the acceptance criteria. The elevated RPDs have been attributed to the non-homogeneous nature of the native sample.

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

Authorized Signature: Elizabeth Porta

Title: Technical Director/Representative Date: 01/05/24

INORGANICS
&
MISCELLANEOUS

Project Name: NARROW RIVER DREDGING
Project Number: 0022N010.00

Lab Number: L2364904
Report Date: 01/05/24

SAMPLE RESULTS

Lab ID: L2364904-01
Client ID: NR-1
Sample Location: NARRAGANSETT, RI

Date Collected: 10/31/23 12:45
Date Received: 11/01/23
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Grain Size Analysis - Mansfield Lab										
Cobbles	ND		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK
% Coarse Gravel	ND		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK
% Fine Gravel	ND		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK
% Total Gravel	ND		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK
% Coarse Sand	2.00		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK
% Medium Sand	14.0		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK
% Fine Sand	83.0		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK
% Total Sand	99.0		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK
% Silt Fine	1.00		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK
% Clay Fine	ND		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK
% Total Fines	1.00		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK

Project Name: NARROW RIVER DREDGING
Project Number: 0022N010.00

Lab Number: L2364904
Report Date: 01/05/24

SAMPLE RESULTS

Lab ID: L2364904-02
Client ID: NR-2
Sample Location: NARRAGANSETT, RI

Date Collected: 10/31/23 12:10
Date Received: 11/01/23
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Grain Size Analysis - Mansfield Lab										
Cobbles	ND		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK
% Coarse Gravel	ND		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK
% Fine Gravel	ND		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK
% Total Gravel	ND		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK
% Coarse Sand	3.00		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK
% Medium Sand	17.0		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK
% Fine Sand	79.0		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK
% Total Sand	99.0		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK
% Silt Fine	1.00		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK
% Clay Fine	ND		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK
% Total Fines	1.00		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK

Project Name: NARROW RIVER DREDGING
Project Number: 0022N010.00

Lab Number: L2364904
Report Date: 01/05/24

SAMPLE RESULTS

Lab ID: L2364904-03
Client ID: NR-3
Sample Location: NARRAGANSETT, RI

Date Collected: 10/31/23 11:00
Date Received: 11/01/23
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Grain Size Analysis - Mansfield Lab										
Cobbles	ND		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK
% Coarse Gravel	1.00		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK
% Fine Gravel	ND		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK
% Total Gravel	1.00		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK
% Coarse Sand	2.00		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK
% Medium Sand	9.00		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK
% Fine Sand	88.0		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK
% Total Sand	99.0		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK
% Silt Fine	ND		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK
% Clay Fine	ND		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK
% Total Fines	ND		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK

Project Name: NARROW RIVER DREDGING
Project Number: 0022N010.00

Lab Number: L2364904
Report Date: 01/05/24

SAMPLE RESULTS

Lab ID: L2364904-04
Client ID: NR-4 0.0-0.8
Sample Location: NARRAGANSETT, RI

Date Collected: 10/31/23 10:40
Date Received: 11/01/23
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Grain Size Analysis - Mansfield Lab										
Cobbles	ND		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK
% Coarse Gravel	ND		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK
% Fine Gravel	ND		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK
% Total Gravel	ND		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK
% Coarse Sand	1.00		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK
% Medium Sand	5.00		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK
% Fine Sand	90.0		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK
% Total Sand	96.0		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK
% Silt Fine	3.00		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK
% Clay Fine	1.00		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK
% Total Fines	4.00		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK

Project Name: NARROW RIVER DREDGING
Project Number: 0022N010.00

Lab Number: L2364904
Report Date: 01/05/24

SAMPLE RESULTS

Lab ID: L2364904-05
Client ID: NR-4 0.8-2.9
Sample Location: NARRAGANSETT, RI

Date Collected: 10/31/23 10:40
Date Received: 11/01/23
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Grain Size Analysis - Mansfield Lab										
Cobbles	ND		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK
% Coarse Gravel	1.00		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK
% Fine Gravel	5.00		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK
% Total Gravel	6.00		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK
% Coarse Sand	7.00		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK
% Medium Sand	13.0		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK
% Fine Sand	64.0		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK
% Total Sand	84.0		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK
% Silt Fine	8.00		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK
% Clay Fine	2.00		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK
% Total Fines	10.0		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK

Project Name: NARROW RIVER DREDGING
Project Number: 0022N010.00

Lab Number: L2364904
Report Date: 01/05/24

SAMPLE RESULTS

Lab ID: L2364904-06
Client ID: NR-4 2.9-3.4
Sample Location: NARRAGANSETT, RI

Date Collected: 10/31/23 10:40
Date Received: 11/01/23
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Grain Size Analysis - Mansfield Lab										
Cobbles	ND		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK
% Coarse Gravel	ND		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK
% Fine Gravel	1.00		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK
% Total Gravel	1.00		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK
% Coarse Sand	2.00		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK
% Medium Sand	35.0		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK
% Fine Sand	59.0		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK
% Total Sand	96.0		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK
% Silt Fine	3.00		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK
% Clay Fine	ND		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK
% Total Fines	3.00		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK

Project Name: NARROW RIVER DREDGING
Project Number: 0022N010.00

Lab Number: L2364904
Report Date: 01/05/24

SAMPLE RESULTS

Lab ID: L2364904-07
Client ID: NR-5
Sample Location: NARRAGANSETT, RI

Date Collected: 10/31/23 11:20
Date Received: 11/01/23
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Grain Size Analysis - Mansfield Lab										
Cobbles	ND		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK
% Coarse Gravel	5.00		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK
% Fine Gravel	5.00		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK
% Total Gravel	10.0		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK
% Coarse Sand	15.0		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK
% Medium Sand	45.0		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK
% Fine Sand	29.0		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK
% Total Sand	89.0		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK
% Silt Fine	1.00		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK
% Clay Fine	ND		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK
% Total Fines	1.00		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK

Project Name: NARROW RIVER DREDGING
Project Number: 0022N010.00

Lab Number: L2364904
Report Date: 01/05/24

SAMPLE RESULTS

Lab ID: L2364904-08
Client ID: NR-6 0.0-2.5
Sample Location: NARRAGANSETT, RI

Date Collected: 10/31/23 10:04
Date Received: 11/01/23
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Grain Size Analysis - Mansfield Lab										
Cobbles	ND		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK
% Coarse Gravel	ND		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK
% Fine Gravel	ND		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK
% Total Gravel	ND		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK
% Coarse Sand	1.00		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK
% Medium Sand	23.0		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK
% Fine Sand	76.0		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK
% Total Sand	100		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK
% Silt Fine	ND		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK
% Clay Fine	ND		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK
% Total Fines	ND		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK

Project Name: NARROW RIVER DREDGING
Project Number: 0022N010.00

Lab Number: L2364904
Report Date: 01/05/24

SAMPLE RESULTS

Lab ID: L2364904-09
Client ID: NR-6 2.5-3.8
Sample Location: NARRAGANSETT, RI

Date Collected: 10/31/23 10:04
Date Received: 11/01/23
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Grain Size Analysis - Mansfield Lab										
Cobbles	ND		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK
% Coarse Gravel	1.00		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK
% Fine Gravel	ND		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK
% Total Gravel	1.00		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK
% Coarse Sand	4.00		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK
% Medium Sand	30.0		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK
% Fine Sand	64.0		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK
% Total Sand	98.0		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK
% Silt Fine	1.00		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK
% Clay Fine	ND		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK
% Total Fines	1.00		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK

Project Name: NARROW RIVER DREDGING
Project Number: 0022N010.00

Lab Number: L2364904
Report Date: 01/05/24

SAMPLE RESULTS

Lab ID: L2364904-10
Client ID: NR-7 0.0-1.3
Sample Location: NARRAGANSETT, RI

Date Collected: 10/31/23 11:50
Date Received: 11/01/23
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Grain Size Analysis - Mansfield Lab										
Cobbles	ND		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK
% Coarse Gravel	ND		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK
% Fine Gravel	ND		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK
% Total Gravel	ND		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK
% Coarse Sand	4.00		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK
% Medium Sand	42.0		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK
% Fine Sand	53.0		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK
% Total Sand	99.0		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK
% Silt Fine	1.00		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK
% Clay Fine	ND		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK
% Total Fines	1.00		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK

Project Name: NARROW RIVER DREDGING
Project Number: 0022N010.00

Lab Number: L2364904
Report Date: 01/05/24

SAMPLE RESULTS

Lab ID: L2364904-11
Client ID: NR-7 1.3-2.3
Sample Location: NARRAGANSETT, RI

Date Collected: 10/31/23 11:50
Date Received: 11/01/23
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Grain Size Analysis - Mansfield Lab										
Cobbles	ND		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK
% Coarse Gravel	14.0		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK
% Fine Gravel	20.0		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK
% Total Gravel	34.0		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK
% Coarse Sand	17.0		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK
% Medium Sand	29.0		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK
% Fine Sand	19.0		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK
% Total Sand	65.0		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK
% Silt Fine	1.00		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK
% Clay Fine	ND		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK
% Total Fines	1.00		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK

Project Name: NARROW RIVER DREDGING
Project Number: 0022N010.00

Lab Number: L2364904
Report Date: 01/05/24

SAMPLE RESULTS

Lab ID: L2364904-12
Client ID: NR-8
Sample Location: NARRAGANSETT, RI

Date Collected: 10/31/23 11:45
Date Received: 11/01/23
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Grain Size Analysis - Mansfield Lab										
Cobbles	ND		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK
% Coarse Gravel	8.00		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK
% Fine Gravel	7.00		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK
% Total Gravel	15.0		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK
% Coarse Sand	22.0		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK
% Medium Sand	38.0		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK
% Fine Sand	23.0		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK
% Total Sand	83.0		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK
% Silt Fine	2.00		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK
% Clay Fine	ND		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK
% Total Fines	2.00		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK

Project Name: NARROW RIVER DREDGING
Project Number: 0022N010.00

Lab Number: L2364904
Report Date: 01/05/24

SAMPLE RESULTS

Lab ID: L2364904-13
Client ID: NR-9
Sample Location: NARRAGANSETT, RI

Date Collected: 10/31/23 12:25
Date Received: 11/01/23
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Grain Size Analysis - Mansfield Lab										
Cobbles	ND		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK
% Coarse Gravel	ND		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK
% Fine Gravel	ND		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK
% Total Gravel	ND		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK
% Coarse Sand	1.00		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK
% Medium Sand	3.00		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK
% Fine Sand	65.0		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK
% Total Sand	69.0		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK
% Silt Fine	28.0		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK
% Clay Fine	3.00		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK
% Total Fines	31.0		%	0.100	NA	1	-	12/26/23 12:05	12,D6913/D7928	SJK

Lab Duplicate Analysis

Batch Quality Control

Project Name: NARROW RIVER DREDGING
Project Number: 0022N010.00

Lab Number: L2364904
Report Date: 01/05/24

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Grain Size Analysis - Mansfield Lab Associated sample(s): 01-13 QC Batch ID: WG1868134-1 QC Sample: L2364904-05 Client ID: NR-4 0.8-2.9						
Cobbles	ND	ND	%	NC		20
% Coarse Gravel	1.00	2.00	%	**67**	Q	20
% Fine Gravel	5.00	1.00	%	**133**	Q	20
% Total Gravel	6.00	3.00	%	**67**	Q	20
% Coarse Sand	7.00	8.00	%	13		20
% Medium Sand	13.0	13.0	%	0		20
% Fine Sand	64.0	67.0	%	5		20
% Total Sand	84.0	88.0	%	5		20
% Silt Fine	8.00	7.00	%	13		20
% Clay Fine	2.00	2.00	%	0		20
% Total Fines	10.0	9.00	%	11		20

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2364904-01A	Plastic 8oz unpreserved for Grain Size	A	NA		3.6	Y	Absent		A2-HYDRO-TFINE(),A2-HYDRO-CFINE(),A2-HYDRO-FSAND(),A2-HYDRO-CGRAVEL(),A2-HYDRO-MSAND(),A2-HYDRO-TGRAVEL(),A2-HYDRO-SFINE(),A2-HYDRO-CSAND(),A2-HYDRO-TSAND(),A2-HYDRO-COBBLES(),A2-HYDRO-FGRAVEL()
L2364904-01B	Glass 250ml/8oz unpreserved	A	NA		3.6	Y	Absent		A2-ARCHIVE()
L2364904-02A	Plastic 8oz unpreserved for Grain Size	A	NA		3.6	Y	Absent		A2-HYDRO-TFINE(),A2-HYDRO-CGRAVEL(),A2-HYDRO-CFINE(),A2-HYDRO-FSAND(),A2-HYDRO-MSAND(),A2-HYDRO-TGRAVEL(),A2-HYDRO-CSAND(),A2-HYDRO-SFINE(),A2-HYDRO-TSAND(),A2-HYDRO-FGRAVEL(),A2-HYDRO-COBBLES()
L2364904-02B	Glass 250ml/8oz unpreserved	A	NA		3.6	Y	Absent		A2-ARCHIVE()
L2364904-03A	Plastic 8oz unpreserved for Grain Size	A	NA		3.6	Y	Absent		A2-HYDRO-TFINE(),A2-HYDRO-CFINE(),A2-HYDRO-CGRAVEL(),A2-HYDRO-FSAND(),A2-HYDRO-MSAND(),A2-HYDRO-TGRAVEL(),A2-HYDRO-SFINE(),A2-HYDRO-CSAND(),A2-HYDRO-TSAND(),A2-HYDRO-FGRAVEL(),A2-HYDRO-COBBLES()
L2364904-03B	Glass 250ml/8oz unpreserved	A	NA		3.6	Y	Absent		A2-ARCHIVE()
L2364904-04A	Plastic 8oz unpreserved for Grain Size	A	NA		3.6	Y	Absent		A2-HYDRO-TFINE(),A2-HYDRO-CFINE(),A2-HYDRO-CGRAVEL(),A2-HYDRO-FSAND(),A2-HYDRO-MSAND(),A2-HYDRO-TGRAVEL(),A2-HYDRO-SFINE(),A2-HYDRO-CSAND(),A2-HYDRO-TSAND(),A2-HYDRO-COBBLES(),A2-HYDRO-FGRAVEL()
L2364904-04B	Glass 250ml/8oz unpreserved	A	NA		3.6	Y	Absent		A2-ARCHIVE()
L2364904-05A	Plastic 8oz unpreserved for Grain Size	A	NA		3.6	Y	Absent		A2-HYDRO-TFINE(),A2-HYDRO-FSAND(),A2-HYDRO-CFINE(),A2-HYDRO-CGRAVEL(),A2-HYDRO-MSAND(),A2-HYDRO-TGRAVEL(),A2-HYDRO-CSAND(),A2-HYDRO-SFINE(),A2-HYDRO-TSAND(),A2-HYDRO-COBBLES(),A2-HYDRO-FGRAVEL()
L2364904-05B	Glass 250ml/8oz unpreserved	A	NA		3.6	Y	Absent		A2-ARCHIVE()

*Values in parentheses indicate holding time in days

Project Name: NARROW RIVER DREDGING
Project Number: 0022N010.00

Lab Number: L2364904
Report Date: 01/05/24

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2364904-06A	Plastic 8oz unpreserved for Grain Size	A	NA		3.6	Y	Absent		A2-HYDRO-TFINE(),A2-HYDRO-CFINE(),A2-HYDRO-CGRAVEL(),A2-HYDRO-FSAND(),A2-HYDRO-MSAND(),A2-HYDRO-TGRAVEL(),A2-HYDRO-CSAND(),A2-HYDRO-SFINE(),A2-HYDRO-TSAND(),A2-HYDRO-COBBLES(),A2-HYDRO-FGRAVEL()
L2364904-06B	Glass 250ml/8oz unpreserved	A	NA		3.6	Y	Absent		A2-ARCHIVE()
L2364904-07A	Plastic 8oz unpreserved for Grain Size	A	NA		3.6	Y	Absent		A2-HYDRO-TFINE(),A2-HYDRO-FSAND(),A2-HYDRO-CFINE(),A2-HYDRO-CGRAVEL(),A2-HYDRO-MSAND(),A2-HYDRO-TGRAVEL(),A2-HYDRO-SFINE(),A2-HYDRO-CSAND(),A2-HYDRO-TSAND(),A2-HYDRO-COBBLES(),A2-HYDRO-FGRAVEL()
L2364904-07B	Glass 250ml/8oz unpreserved	A	NA		3.6	Y	Absent		A2-ARCHIVE()
L2364904-08A	Plastic 8oz unpreserved for Grain Size	A	NA		3.6	Y	Absent		A2-HYDRO-TFINE(),A2-HYDRO-CFINE(),A2-HYDRO-FSAND(),A2-HYDRO-CGRAVEL(),A2-HYDRO-MSAND(),A2-HYDRO-TGRAVEL(),A2-HYDRO-CSAND(),A2-HYDRO-SFINE(),A2-HYDRO-TSAND(),A2-HYDRO-COBBLES(),A2-HYDRO-FGRAVEL()
L2364904-08B	Glass 250ml/8oz unpreserved	A	NA		3.6	Y	Absent		A2-ARCHIVE()
L2364904-09A	Plastic 8oz unpreserved for Grain Size	A	NA		3.6	Y	Absent		A2-HYDRO-TFINE(),A2-HYDRO-CFINE(),A2-HYDRO-CGRAVEL(),A2-HYDRO-FSAND(),A2-HYDRO-MSAND(),A2-HYDRO-TGRAVEL(),A2-HYDRO-CSAND(),A2-HYDRO-SFINE(),A2-HYDRO-TSAND(),A2-HYDRO-FGRAVEL(),A2-HYDRO-COBBLES()
L2364904-09B	Glass 250ml/8oz unpreserved	A	NA		3.6	Y	Absent		A2-ARCHIVE()
L2364904-10A	Plastic 8oz unpreserved for Grain Size	A	NA		3.6	Y	Absent		A2-HYDRO-TFINE(),A2-HYDRO-CFINE(),A2-HYDRO-CGRAVEL(),A2-HYDRO-FSAND(),A2-HYDRO-MSAND(),A2-HYDRO-TGRAVEL(),A2-HYDRO-CSAND(),A2-HYDRO-SFINE(),A2-HYDRO-TSAND(),A2-HYDRO-FGRAVEL(),A2-HYDRO-COBBLES()
L2364904-10B	Glass 250ml/8oz unpreserved	A	NA		3.6	Y	Absent		A2-ARCHIVE()
L2364904-11A	Plastic 8oz unpreserved for Grain Size	A	NA		3.6	Y	Absent		A2-HYDRO-TFINE(),A2-HYDRO-FSAND(),A2-HYDRO-CGRAVEL(),A2-HYDRO-CFINE(),A2-HYDRO-MSAND(),A2-HYDRO-TGRAVEL(),A2-HYDRO-SFINE(),A2-HYDRO-CSAND(),A2-HYDRO-TSAND(),A2-HYDRO-FGRAVEL(),A2-HYDRO-COBBLES()
L2364904-11B	Glass 250ml/8oz unpreserved	A	NA		3.6	Y	Absent		A2-ARCHIVE()

*Values in parentheses indicate holding time in days

Project Name: NARROW RIVER DREDGING
Project Number: 0022N010.00

Lab Number: L2364904
Report Date: 01/05/24

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2364904-12A	Plastic 8oz unpreserved for Grain Size	A	NA		3.6	Y	Absent		A2-HYDRO-TFINE(),A2-HYDRO-CGRAVEL(),A2-HYDRO-CFINE(),A2-HYDRO-FSAND(),A2-HYDRO-MSAND(),A2-HYDRO-TGRAVEL(),A2-HYDRO-CSAND(),A2-HYDRO-SFINE(),A2-HYDRO-TSAND(),A2-HYDRO-FGRAVEL(),A2-HYDRO-COBBLES()
L2364904-12B	Glass 250ml/8oz unpreserved	A	NA		3.6	Y	Absent		A2-ARCHIVE()
L2364904-13A	Plastic 8oz unpreserved for Grain Size	A	NA		3.6	Y	Absent		A2-HYDRO-TFINE(),A2-HYDRO-CGRAVEL(),A2-HYDRO-FSAND(),A2-HYDRO-CFINE(),A2-HYDRO-MSAND(),A2-HYDRO-TGRAVEL(),A2-HYDRO-CSAND(),A2-HYDRO-SFINE(),A2-HYDRO-TSAND(),A2-HYDRO-FGRAVEL(),A2-HYDRO-COBBLES()
L2364904-13B	Glass 250ml/8oz unpreserved	A	NA		3.6	Y	Absent		A2-ARCHIVE()

*Values in parentheses indicate holding time in days

Project Name:	NARROW RIVER DREDGING	**Lab Number:**	L2364904
Project Number:	0022N010.00	**Report Date:**	01/05/24

GLOSSARY

Acronyms

DL - Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

EDL - Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).

EMPC - Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.

EPA - Environmental Protection Agency.

LCS - Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.

LCSD - Laboratory Control Sample Duplicate: Refer to LCS.

LFB - Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.

LOD - Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

LOQ - Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

MDL - Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.

MS - Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.

MSD - Matrix Spike Sample Duplicate: Refer to MS.

NA - Not Applicable.

NC - Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.

NDPA/DPA - N-Nitrosodiphenylamine/Diphenylamine.

NI - Not Ignitable.

NP - Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.

NR - No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.

RL - Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.

RPD - Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.

SRM - Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.

STLP - Semi-dynamic Tank Leaching Procedure per EPA Method 1315.

TEF - Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.

TEQ - Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.

TIC - Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Project Name:	NARROW RIVER DREDGING	**Lab Number:**	L2364904
Project Number:	0022N010.00	**Report Date:**	01/05/24

Footnotes

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Chlordane: The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA,this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Gasoline Range Organics (GRO): Gasoline Range Organics (GRO) results include all chromatographic peaks eluting from Methyl tert butyl ether through Naphthalene, with the exception of GRO analysis in support of State of Ohio programs, which includes all chromatographic peaks eluting from Hexane through Dodecane.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

F - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively

Project Name:	NARROW RIVER DREDGING	**Lab Number:**	L2364904
Project Number:	0022N010.00	**Report Date:**	01/05/24

Data Qualifiers

Identified Compounds (TICs). For calculated parameters, this represents that one or more values used in the calculation were estimated.

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

ND - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

V - The surrogate associated with this target analyte has a recovery outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Z - The batch matrix spike and/or duplicate associated with this target analyte has a recovery/RPD outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Project Name:	NARROW RIVER DREDGING	**Lab Number:**	L2364904
Project Number:	0022N010.00	**Report Date:**	01/05/24

REFERENCES

12 Annual Book of ASTM Standards. (American Society for Testing and Materials) ASTM International.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

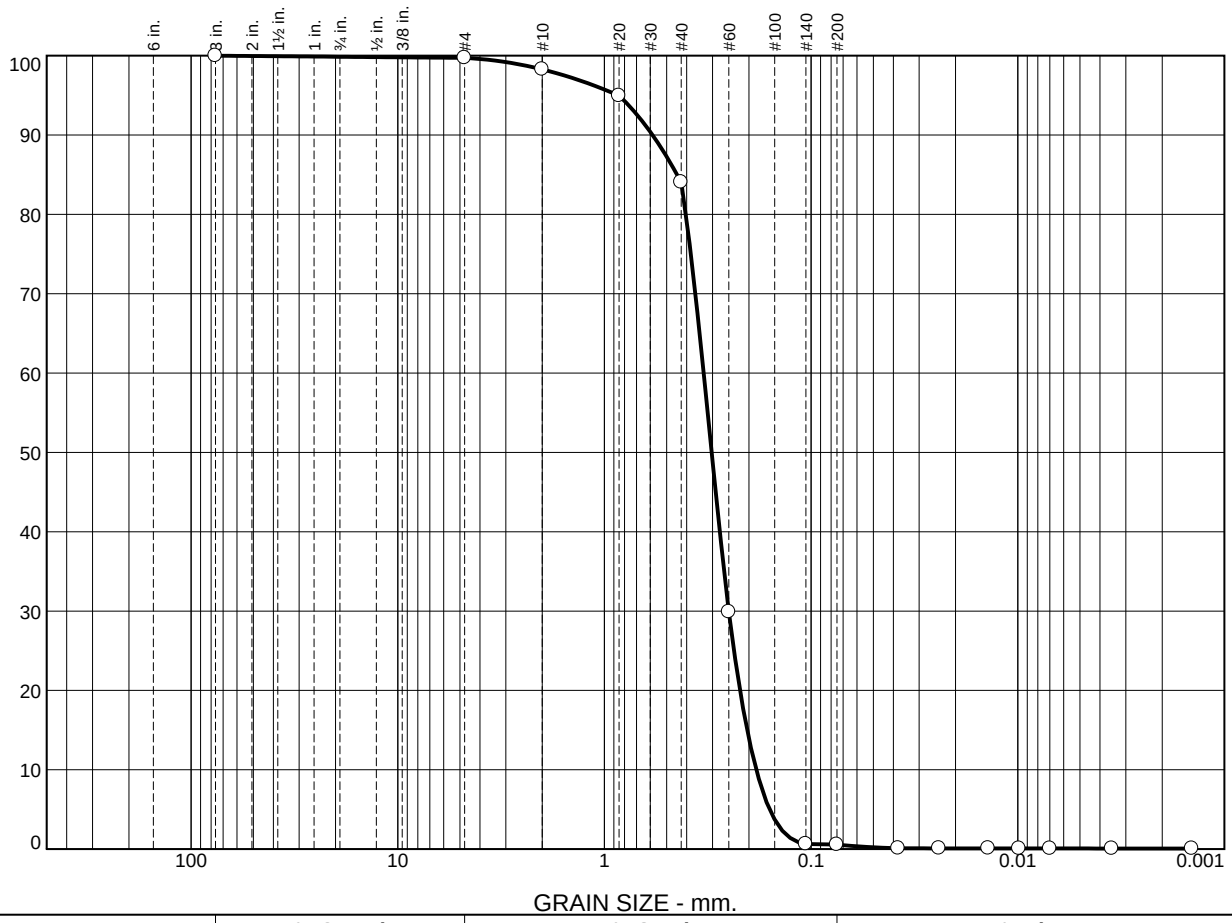
We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.

ASTM D6913/D7928

GRAIN SIZE ANALYSIS

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical samples.

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0	0	0	2	14	83	1	0

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○			0.4450	0.3311	0.3029	0.2503	0.2040	0.1843	1.03	1.80

	Material Description	USCS	AASHTO
○		SP	

Project No. **Client:**

Project:

○ **Source of Sample:** NR-1 **Sample Number:** L2364904-01

Alpha Analytical

Mansfield, MA

Remarks:

Figure

GRAIN SIZE DISTRIBUTION TEST DATA

1/5/2024

Location: NR-1
Sample Number: L2364904-01
USCS Classification: SP

Sieve Test Data

Post #200 Wash Test Weights (grams): **Dry Sample and Tare =** 274.43
Tare Wt. = 0.00
Minus #200 from wash = 0.0%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
274.43	0.00	3"	0.00	0.00	100
		#4	0.77	0.00	100
		#10	3.97	0.00	98
		#20	9.11	0.00	95
		#40	29.92	0.00	84
		#60	148.59	0.00	30
		#140	80.30	0.00	1
		#200	0.24	0.00	0.6

Hydrometer Test Data

Hydrometer test uses material passing #200
Percent passing #200 based upon complete sample = 1
Weight of hydrometer sample =50.85
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = 1+
Meniscus correction only = 0.0
Specific gravity of solids = 2.65
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 - 0.2645 **x Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	18.9	1.0050	1.0058	0.0138	5.0	15.0	0.0379	0.1
5.00	18.9	1.0045	1.0053	0.0138	4.5	15.1	0.0240	0.1
15.00	18.9	1.0045	1.0053	0.0138	4.5	15.1	0.0139	0.1
30.00	18.9	1.0040	1.0048	0.0138	4.0	15.2	0.0099	0.1
60.00	18.9	1.0040	1.0048	0.0138	4.0	15.2	0.0070	0.1
240.00	18.9	1.0035	1.0043	0.0138	3.5	15.4	0.0035	0.1
1440.00	18.9	1.0030	1.0038	0.0138	3.0	15.5	0.0014	0.1

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Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	2	14	83	99	1	0	1

D_5	D_{10}	D_{15}	D_{20}	D_{30}	D_{40}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.1587	0.1843	0.2040	0.2209	0.2503	0.2766	0.3029	0.3311	0.4037	0.4450	0.5854	0.8581

Fineness Modulus	C_u	C_c
1.63	1.80	1.03

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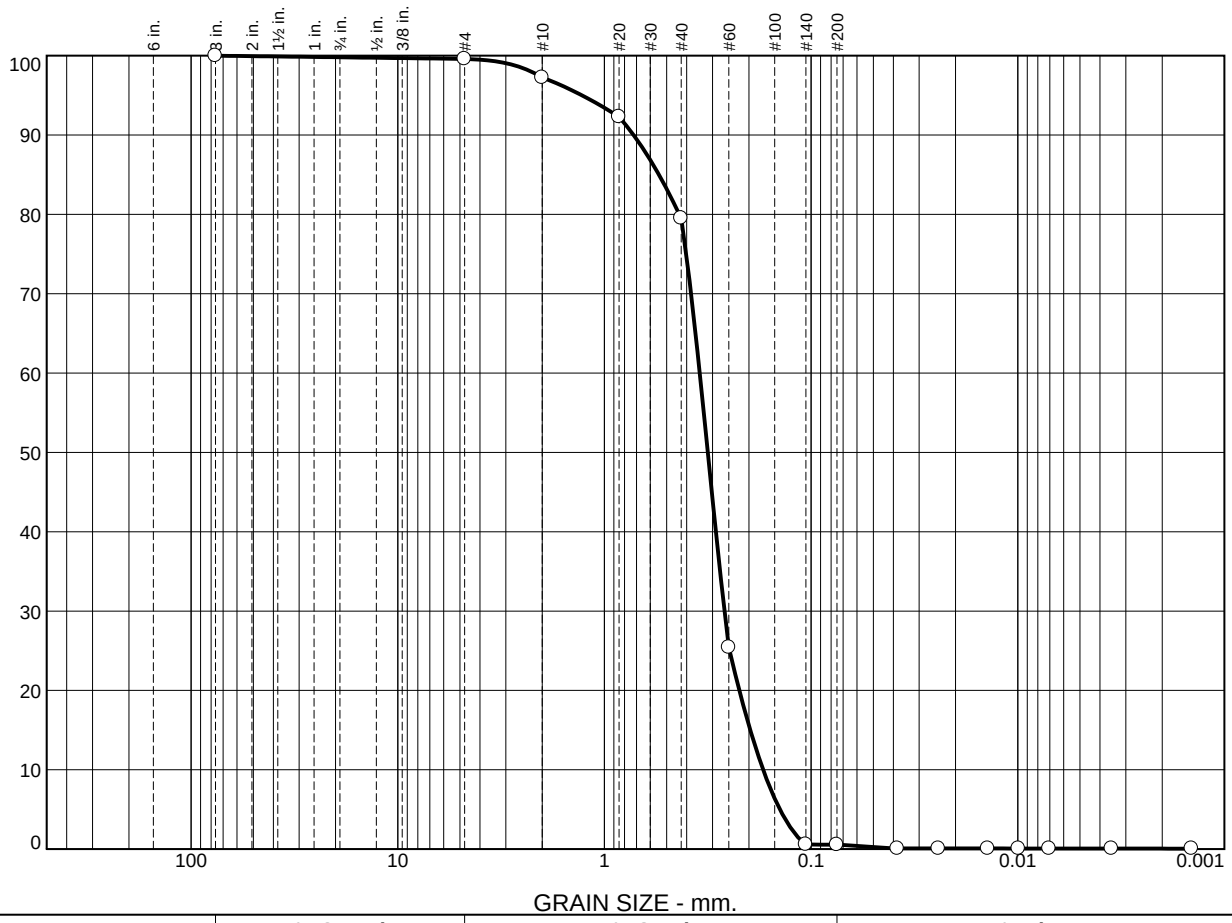
Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0	0	0	3	17	79	1	0

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○			0.5452	0.3460	0.3163	0.2626	0.1971	0.1706	1.17	2.03

Material Description	USCS	AASHTO
○	SP	

Project No. **Client:**

Project:

○ **Source of Sample:** NR-2 **Sample Number:** L2364904-02

Alpha Analytical

Mansfield, MA

Remarks:

Figure

GRAIN SIZE DISTRIBUTION TEST DATA

1/5/2024

Location: NR-2
Sample Number: L2364904-02
USCS Classification: SP

Sieve Test Data

Post #200 Wash Test Weights (grams): **Dry Sample and Tare =** 285.65
Tare Wt. = 0.00
Minus #200 from wash = 0.0%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
285.65	0.00	3"	0.00	0.00	100
		#4	1.16	0.00	100
		#10	6.72	0.00	97
		#20	14.16	0.00	92
		#40	36.51	0.00	80
		#60	154.46	0.00	25
		#140	71.00	0.00	1
		#200	0.07	0.00	0.5

Hydrometer Test Data

Hydrometer test uses material passing #200
Percent passing #200 based upon complete sample = 0
Weight of hydrometer sample =50.09
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = 1+
Meniscus correction only = 0.0
Specific gravity of solids = 2.65
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 - 0.2645 **x Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	18.9	1.0040	1.0048	0.0138	4.0	15.2	0.0382	0.1
5.00	18.9	1.0040	1.0048	0.0138	4.0	15.2	0.0242	0.1
15.00	18.9	1.0040	1.0048	0.0138	4.0	15.2	0.0139	0.1
30.00	18.9	1.0035	1.0043	0.0138	3.5	15.4	0.0099	0.1
60.00	18.9	1.0030	1.0038	0.0138	3.0	15.5	0.0070	0.1
240.00	18.9	1.0030	1.0038	0.0138	3.0	15.5	0.0035	0.1
1440.00	18.9	1.0025	1.0033	0.0138	2.5	15.6	0.0014	0.1

Alpha Analytical

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	3	17	79	99	1	0	1

D_5	D_{10}	D_{15}	D_{20}	D_{30}	D_{40}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.1415	0.1706	0.1971	0.2226	0.2626	0.2891	0.3163	0.3460	0.4339	0.5452	0.7229	1.2839

Fineness Modulus	C_u	C_c
1.71	2.03	1.17

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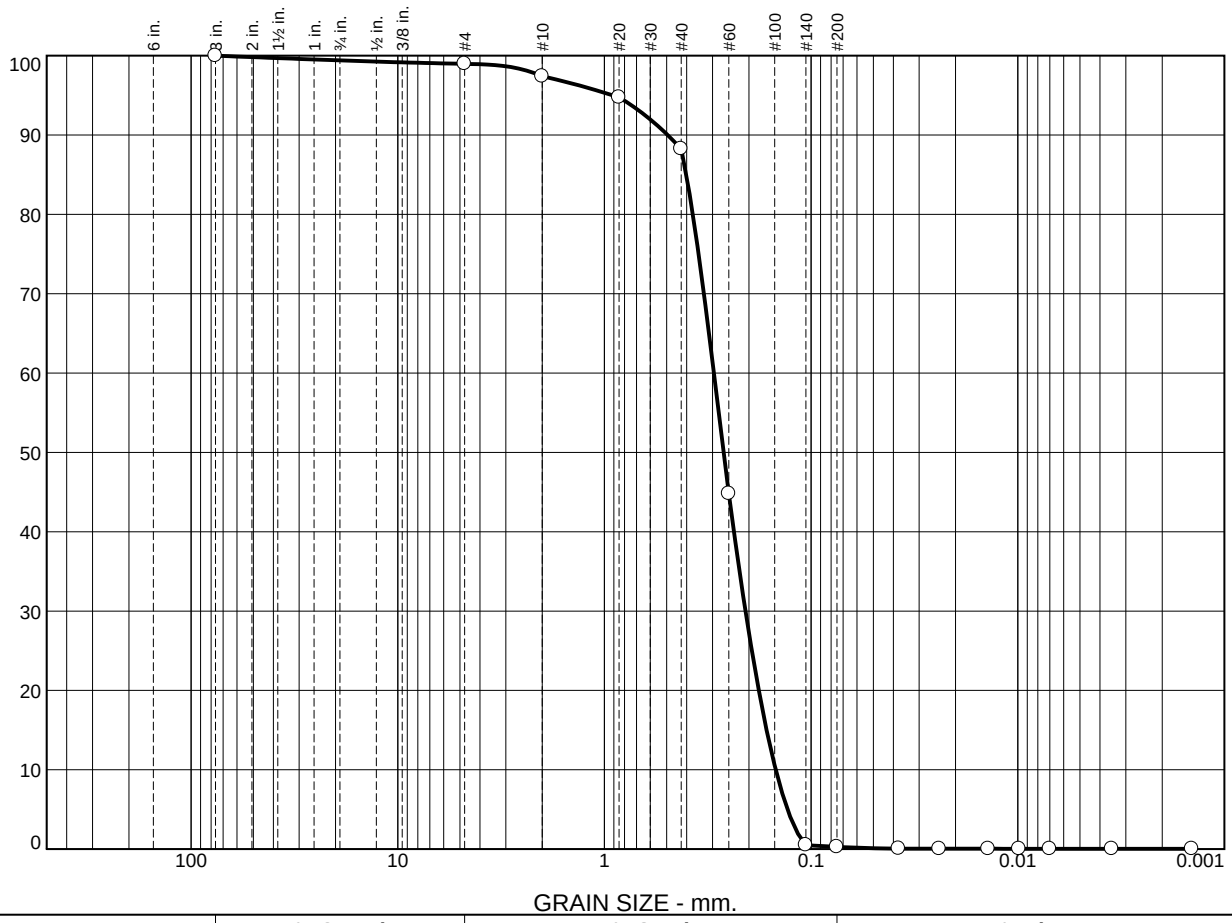
Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0	1	0	2	9	88	0	0

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○			0.4017	0.2956	0.2650	0.2079	0.1642	0.1482	0.99	1.99

Material Description	USCS	AASHTO
○	SP	

Project No. **Client:**

Project:

○ **Source of Sample:** NR-3 **Sample Number:** L2364904-03

Alpha Analytical

Mansfield, MA

Remarks:

Figure

GRAIN SIZE DISTRIBUTION TEST DATA

1/5/2024

Location: NR-3
Sample Number: L2364904-03
USCS Classification: SP

Sieve Test Data

Post #200 Wash Test Weights (grams): **Dry Sample and Tare =** 295.53
Tare Wt. = 0.00
Minus #200 from wash = 0.0%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
295.53	0.00	3"	0.00	0.00	100
		#4	3.05	0.00	99
		#10	4.65	0.00	97
		#20	7.86	0.00	95
		#40	19.16	0.00	88
		#60	128.41	0.00	45
		#140	130.90	0.00	1
		#200	0.66	0.00	0.3

Hydrometer Test Data

Hydrometer test uses material passing #200
Percent passing #200 based upon complete sample = 0
Weight of hydrometer sample =51.42
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = 1+
Meniscus correction only = 0.0
Specific gravity of solids = 2.65
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 - 0.2645 **x Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	18.9	1.0055	1.0063	0.0138	5.5	14.8	0.0377	0.1
5.00	18.9	1.0050	1.0058	0.0138	5.0	15.0	0.0239	0.1
15.00	18.9	1.0045	1.0053	0.0138	4.5	15.1	0.0139	0.0
30.00	18.9	1.0040	1.0048	0.0138	4.0	15.2	0.0099	0.0
60.00	18.9	1.0035	1.0043	0.0138	3.5	15.4	0.0070	0.0
240.00	18.9	1.0035	1.0043	0.0138	3.5	15.4	0.0035	0.0
1440.00	18.9	1.0030	1.0038	0.0138	3.0	15.5	0.0014	0.0

Alpha Analytical

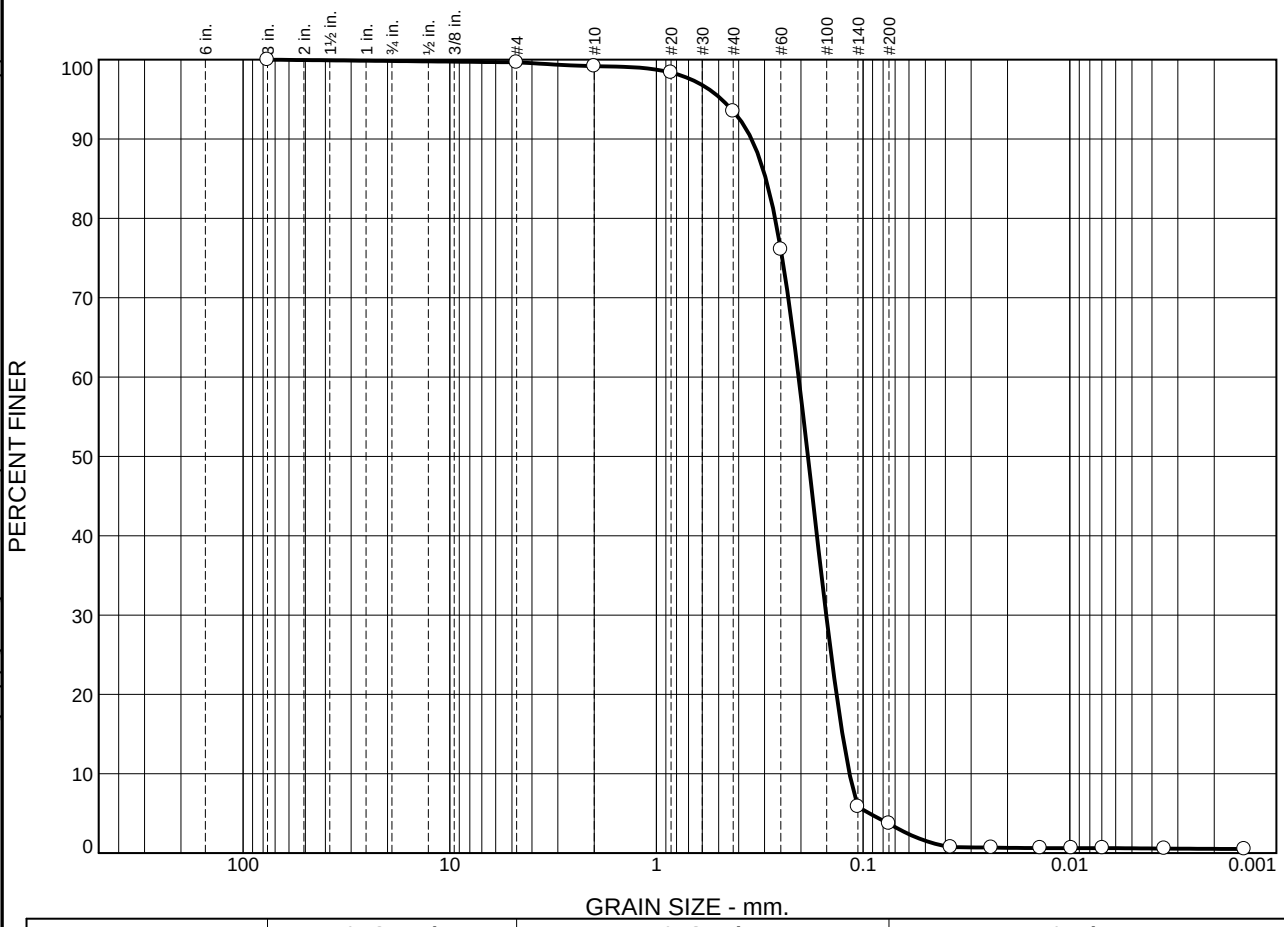
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	1	0	1	2	9	88	99	0	0	0

D_5	D_{10}	D_{15}	D_{20}	D_{30}	D_{40}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.1301	0.1482	0.1642	0.1792	0.2079	0.2363	0.2650	0.2956	0.3735	0.4017	0.4945	0.9132

Fineness Modulus	C_u	C_c
1.45	1.99	0.99

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0	0	0	1	5	90	3	1

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○			0.2957	0.2053	0.1850	0.1507	0.1259	0.1163	0.95	1.76

Material Description	USCS	AASHTO
○	SP	

Project No. **Client:**

Project:

○ **Source of Sample:** NR-4 0.0-0.8 **Sample Number:** L2364904-04

Remarks:

Alpha Analytical

Mansfield, MA

Figure

GRAIN SIZE DISTRIBUTION TEST DATA

1/5/2024

Location: NR-4 0.0-0.8
Sample Number: L2364904-04
USCS Classification: SP

Sieve Test Data

Post #200 Wash Test Weights (grams): **Dry Sample and Tare =** 245.79
Tare Wt. = 0.00
Minus #200 from wash = 0.0%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
245.79	0.00	3"	0.00	0.00	100
		#4	0.82	0.00	100
		#10	1.20	0.00	99
		#20	1.99	0.00	98
		#40	11.96	0.00	94
		#60	42.82	0.00	76
		#140	172.65	0.00	6
		#200	5.17	0.00	3.7

Hydrometer Test Data

Hydrometer test uses material passing #200
Percent passing #200 based upon complete sample = 4
Weight of hydrometer sample =50.47
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = 1+
Meniscus correction only = 0.0
Specific gravity of solids = 2.65
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 - 0.2645 **x Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	18.9	1.0055	1.0063	0.0138	5.5	14.8	0.0377	0.8
5.00	18.9	1.0050	1.0058	0.0138	5.0	15.0	0.0239	0.7
15.00	18.9	1.0045	1.0053	0.0138	4.5	15.1	0.0139	0.6
30.00	18.9	1.0045	1.0053	0.0138	4.5	15.1	0.0098	0.6
60.00	18.9	1.0045	1.0053	0.0138	4.5	15.1	0.0069	0.6
240.00	18.9	1.0040	1.0048	0.0138	4.0	15.2	0.0035	0.6
1440.00	18.9	1.0035	1.0043	0.0138	3.5	15.4	0.0014	0.5

Alpha Analytical

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	1	5	90	96	3	1	4

D_5	D_{10}	D_{15}	D_{20}	D_{30}	D_{40}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0931	0.1163	0.1259	0.1345	0.1507	0.1672	0.1850	0.2053	0.2665	0.2957	0.3466	0.4840

Fineness Modulus	C_u	C_c
0.91	1.76	0.95

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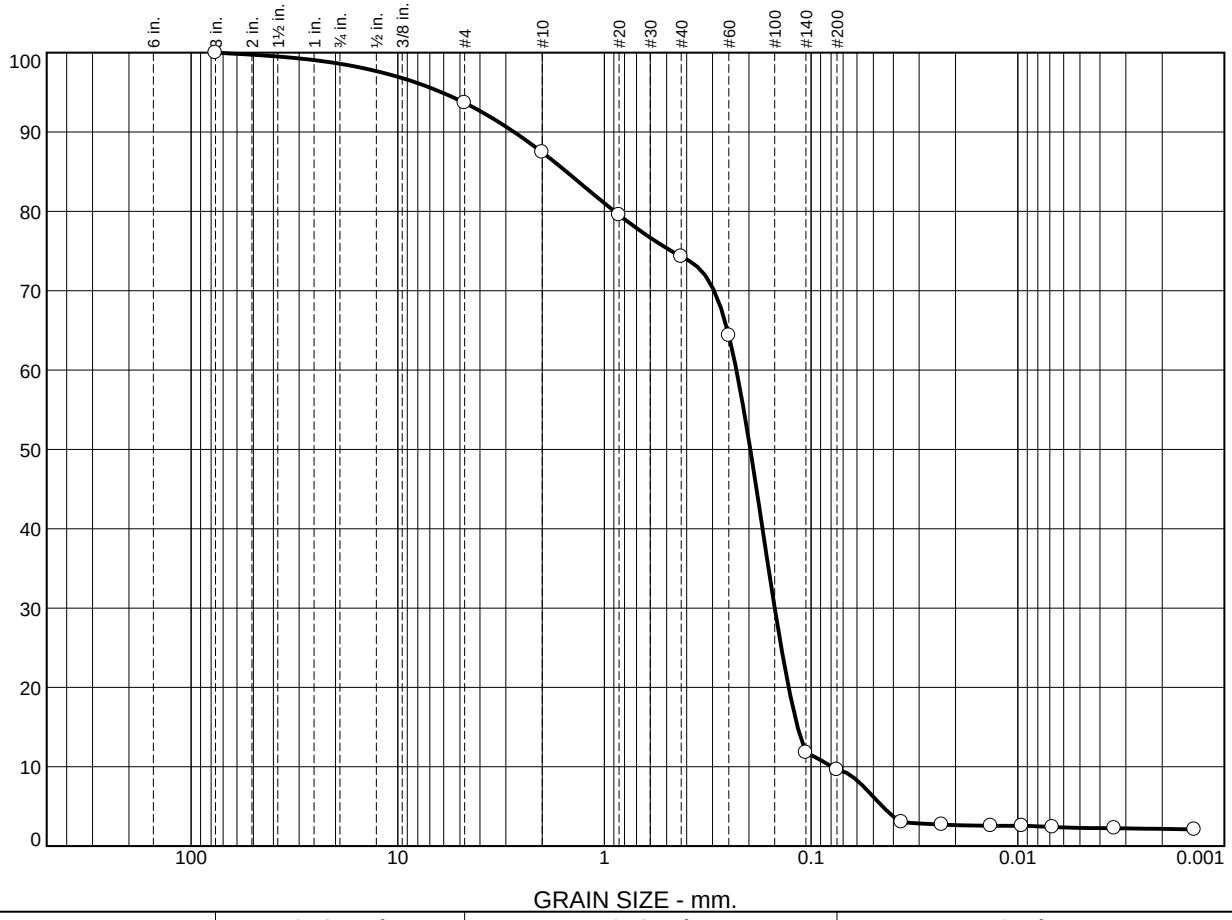
Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0	1	5	7	13	64	8	2

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○			1.5270	0.2298	0.1970	0.1499	0.1162	0.0791	1.24	2.90

Material Description	USCS	AASHTO
○		

Project No. **Client:**

Project:

○ **Source of Sample:** NR-4 0.8-2.9 **Sample Number:** L2364904-05

Alpha Analytical

Mansfield, MA

Remarks:

Figure

GRAIN SIZE DISTRIBUTION TEST DATA

1/5/2024

Location: NR-4 0.8-2.9
Sample Number: L2364904-05

Sieve Test Data

Post #200 Wash Test Weights (grams): **Dry Sample and Tare =** 78.05
Tare Wt. = 0.00
Minus #200 from wash = 0.0%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
78.05	0.00	3"	0.00	0.00	100
		#4	4.94	0.00	94
		#10	4.86	0.00	87
		#20	6.16	0.00	80
		#40	4.09	0.00	74
		#60	7.78	0.00	64
		#140	41.02	0.00	12
		#200	1.69	0.00	9.6

Hydrometer Test Data

Hydrometer test uses material passing #200
Percent passing #200 based upon complete sample = 10
Weight of hydrometer sample =50.37
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = 1-
Meniscus correction only = 0.0
Specific gravity of solids = 2.65
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 - 0.2645 **x Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	18.9	1.0090	1.0098	0.0138	9.0	13.9	0.0365	3.0
5.00	18.9	1.0080	1.0088	0.0138	8.0	14.2	0.0233	2.7
15.00	18.9	1.0075	1.0083	0.0138	7.5	14.3	0.0135	2.6
30.00	18.9	1.0075	1.0083	0.0138	7.5	14.3	0.0096	2.6
60.00	18.9	1.0070	1.0078	0.0138	7.0	14.4	0.0068	2.4
240.00	18.9	1.0065	1.0073	0.0138	6.5	14.6	0.0034	2.2
1440.00	18.9	1.0060	1.0068	0.0138	6.0	14.7	0.0014	2.1

Alpha Analytical

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	1	5	6	7	13	64	84	8	2	10

D_5	D_{10}	D_{15}	D_{20}	D_{30}	D_{40}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0452	0.0791	0.1162	0.1284	0.1499	0.1718	0.1970	0.2298	0.8938	1.5270	2.7354	6.1309

Fineness Modulus	C_u	C_c
1.63	2.90	1.24

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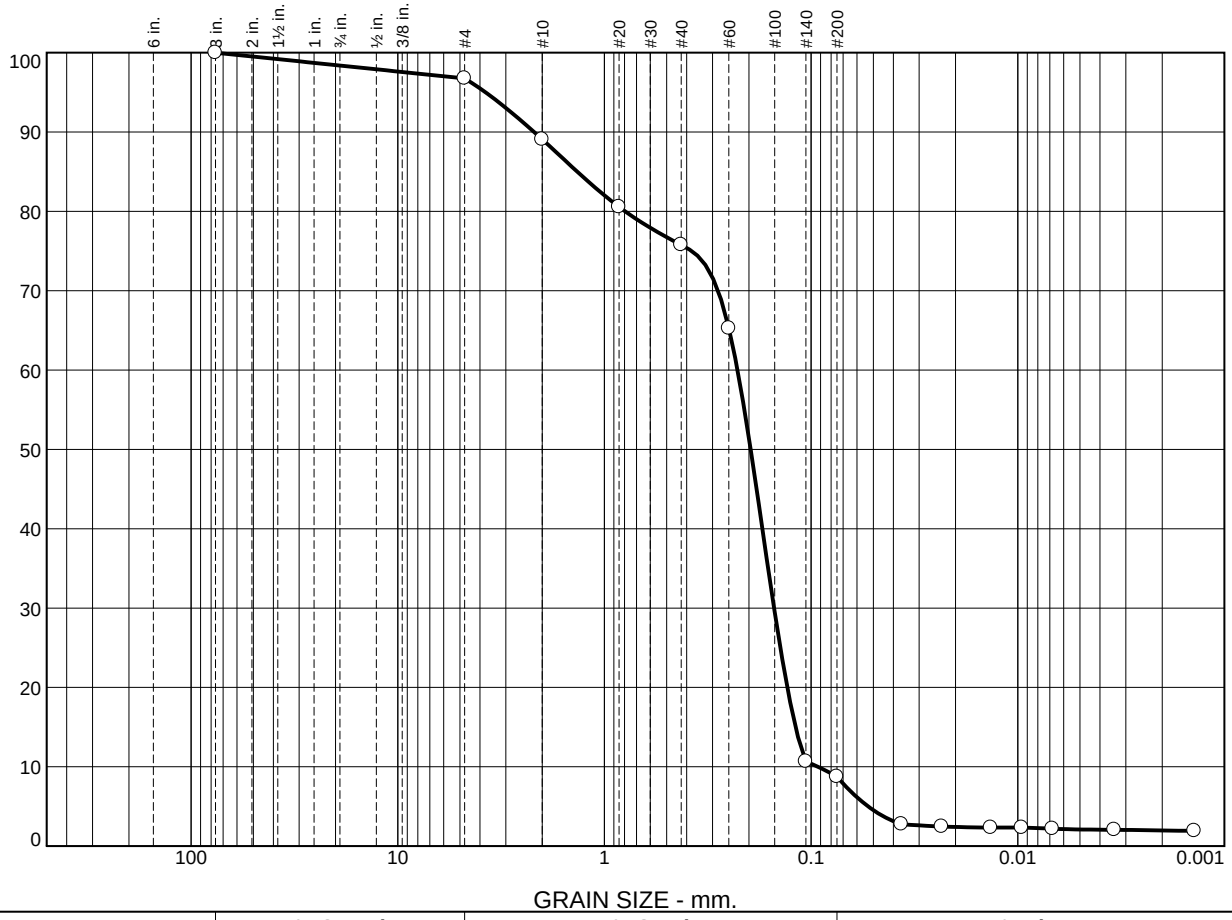
Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	2	1	8	13	67	7	2

LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
		1.3530	0.2271	0.1962	0.1510	0.1189	0.0928	1.08	2.45

Material Description	USCS	AASHTO

Project No. **Client:**

Project:

Source of Sample: NR-4 0.8-2.9 **Sample Number:** WG1868134-1

Alpha Analytical

Mansfield, MA

Remarks:

Figure

GRAIN SIZE DISTRIBUTION TEST DATA

1/5/2024

Location: NR-4 0.8-2.9
Sample Number: WG1868134-1

Sieve Test Data

Post #200 Wash Test Weights (grams): **Dry Sample and Tare =** 78.86
Tare Wt. = 0.00
Minus #200 from wash = 0.0%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
78.86	0.00	3"	0.00	0.00	100
		#4	2.56	0.00	97
		#10	6.06	0.00	89
		#20	6.71	0.00	81
		#40	3.78	0.00	76
		#60	8.28	0.00	65
		#140	43.06	0.00	11
		#200	1.51	0.00	8.7

Hydrometer Test Data

Hydrometer test uses material passing #200
Percent passing #200 based upon complete sample = 9
Weight of hydrometer sample =50.20
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = 1-
Meniscus correction only = 0.0
Specific gravity of solids = 2.65
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 - 0.2645 **x Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	18.9	1.0090	1.0098	0.0138	9.0	13.9	0.0365	2.8
5.00	18.9	1.0080	1.0088	0.0138	8.0	14.2	0.0233	2.5
15.00	18.9	1.0075	1.0083	0.0138	7.5	14.3	0.0135	2.3
30.00	18.9	1.0075	1.0083	0.0138	7.5	14.3	0.0096	2.3
60.00	18.9	1.0070	1.0078	0.0138	7.0	14.4	0.0068	2.2
240.00	18.9	1.0065	1.0073	0.0138	6.5	14.6	0.0034	2.1
1440.00	18.9	1.0060	1.0068	0.0138	6.0	14.7	0.0014	1.9

Alpha Analytical

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	2	1	3	8	13	67	88	7	2	9

D_5	D_{10}	D_{15}	D_{20}	D_{30}	D_{40}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0530	0.0928	0.1189	0.1304	0.1510	0.1722	0.1962	0.2271	0.7943	1.3530	2.1910	3.7622

Fineness Modulus	C_u	C_c
1.55	2.45	1.08

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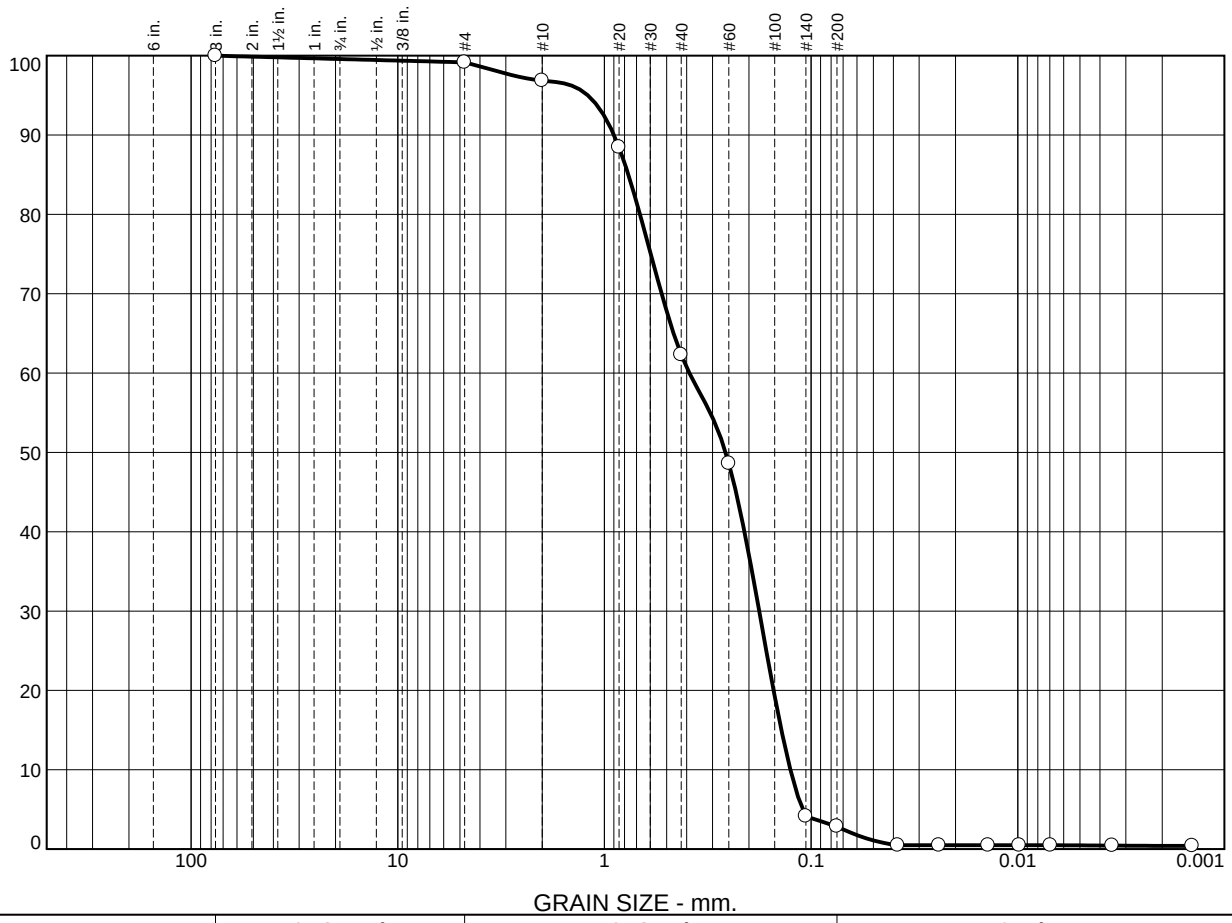
Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0	0	1	2	35	59	3	0

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○			0.7660	0.3882	0.2592	0.1784	0.1392	0.1259	0.65	3.08

	Material Description	USCS	AASHTO
○		SP	

Project No. **Client:**

Project:

○ **Source of Sample:** NR-4 2.9-3.4 **Sample Number:** L2364904-06

Remarks:

Alpha Analytical

Mansfield, MA

Figure

GRAIN SIZE DISTRIBUTION TEST DATA

1/5/2024

Location: NR-4 2.9-3.4
Sample Number: L2364904-06
USCS Classification: SP

Sieve Test Data

Post #200 Wash Test Weights (grams): **Dry Sample and Tare =** 220.78
Tare Wt. = 0.00
Minus #200 from wash = 0.0%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
220.78	0.00	3"	0.00	0.00	100
		#4	1.86	0.00	99
		#10	5.11	0.00	97
		#20	18.55	0.00	88
		#40	57.69	0.00	62
		#60	30.27	0.00	49
		#140	98.17	0.00	4
		#200	2.84	0.00	2.8

Hydrometer Test Data

Hydrometer test uses material passing #200
Percent passing #200 based upon complete sample = 3
Weight of hydrometer sample =50.10
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = 1+
Meniscus correction only = 0.0
Specific gravity of solids = 2.65
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 - 0.2645 **x Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	18.9	1.0045	1.0053	0.0138	4.5	15.1	0.0380	0.5
5.00	18.9	1.0045	1.0053	0.0138	4.5	15.1	0.0240	0.5
15.00	18.9	1.0045	1.0053	0.0138	4.5	15.1	0.0139	0.5
30.00	18.9	1.0045	1.0053	0.0138	4.5	15.1	0.0098	0.5
60.00	18.9	1.0045	1.0053	0.0138	4.5	15.1	0.0069	0.5
240.00	18.9	1.0040	1.0048	0.0138	4.0	15.2	0.0035	0.4
1440.00	18.9	1.0035	1.0043	0.0138	3.5	15.4	0.0014	0.4

Alpha Analytical

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	1	1	2	35	59	96	3	0	3

D_5	D_{10}	D_{15}	D_{20}	D_{30}	D_{40}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.1099	0.1259	0.1392	0.1518	0.1784	0.2103	0.2592	0.3882	0.6733	0.7660	0.8992	1.2023

Fineness Modulus	C_u	C_c
1.61	3.08	0.65

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Particle Size Distribution Report

	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0	5	5	15	45	29	1	0

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○			3.4273	0.9548	0.6858	0.4272	0.3204	0.2883	0.66	3.31

	Material Description	USCS	AASHTO
○		SP	

Project No. **Client:**

Project:

○ **Source of Sample:** NR-5 **Sample Number:** L2364904-07

Alpha Analytical

Mansfield, MA

Remarks:

Figure

GRAIN SIZE DISTRIBUTION TEST DATA

1/5/2024

Location: NR-5
Sample Number: L2364904-07
USCS Classification: SP

Sieve Test Data

Post #200 Wash Test Weights (grams): **Dry Sample and Tare =** 340.79
Tare Wt. = 0.00
Minus #200 from wash = 0.0%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
340.79	0.00	3"	0.00	0.00	100
		#4	33.84	0.00	90
		#10	50.19	0.00	75
		#20	63.15	0.00	57
		#40	92.27	0.00	30
		#60	85.90	0.00	5
		#140	13.20	0.00	1
		#200	0.07	0.00	0.6

Hydrometer Test Data

Hydrometer test uses material passing #200
Percent passing #200 based upon complete sample = 1
Weight of hydrometer sample =52.61
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = 0
Meniscus correction only = 0.0
Specific gravity of solids = 2.65
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 - 0.2645 **x Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	18.9	1.0035	1.0033	0.0138	3.5	15.4	0.0384	0.1
5.00	18.9	1.0030	1.0028	0.0138	3.0	15.5	0.0244	0.1
15.00	18.9	1.0030	1.0028	0.0138	3.0	15.5	0.0141	0.1
30.00	18.9	1.0030	1.0028	0.0138	3.0	15.5	0.0099	0.1
60.00	18.9	1.0030	1.0028	0.0138	3.0	15.5	0.0070	0.1
240.00	18.9	1.0030	1.0028	0.0138	3.0	15.5	0.0035	0.1
1440.00	18.9	1.0030	1.0028	0.0138	3.0	15.5	0.0014	0.1

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	5	5	10	15	45	29	89	1	0	1

D_5	D_{10}	D_{15}	D_{20}	D_{30}	D_{40}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.2537	0.2883	0.3204	0.3530	0.4272	0.5296	0.6858	0.9548	2.5795	3.4273	4.7262	18.8394

Fineness Modulus	C_u	C_c
3.23	3.31	0.66

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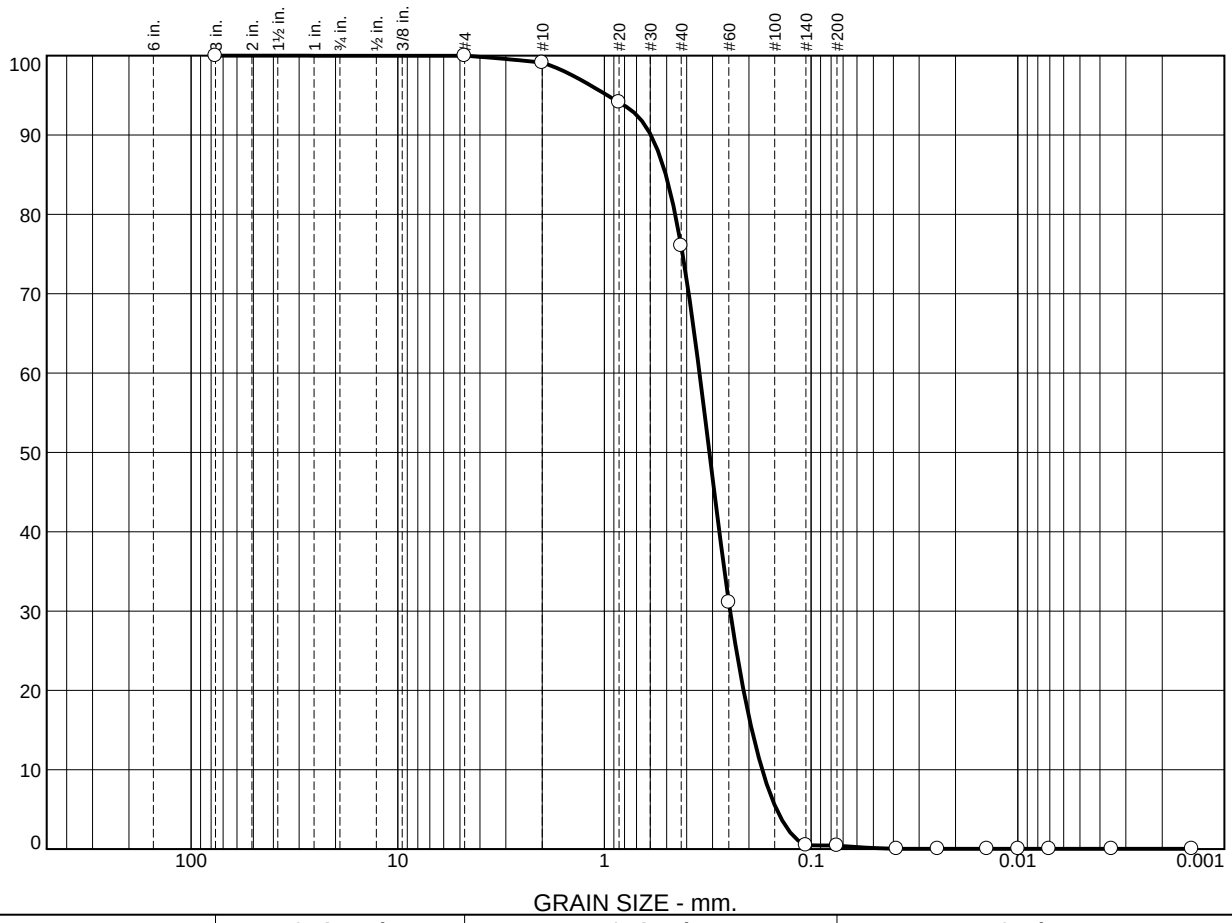
Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0	0	0	1	23	76	0	0

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○			0.5051	0.3469	0.3107	0.2465	0.1935	0.1725	1.02	2.01

	Material Description	USCS	AASHTO
○		SP	

Project No. **Client:**

Project:

○ **Source of Sample:** NR-6 0.0-2.5 **Sample Number:** L2364904-08

Alpha Analytical

Mansfield, MA

Remarks:

Figure

GRAIN SIZE DISTRIBUTION TEST DATA

1/5/2024

Location: NR-6 0.0-2.5
Sample Number: L2364904-08
USCS Classification: SP

Sieve Test Data

Post #200 Wash Test Weights (grams): **Dry Sample and Tare =** 283.76
Tare Wt. = 0.00
Minus #200 from wash = 0.0%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
283.76	0.00	3"	0.00	0.00	100
		#4	0.03	0.00	100
		#10	2.46	0.00	99
		#20	14.18	0.00	94
		#40	51.33	0.00	76
		#60	127.53	0.00	31
		#140	86.84	0.00	0
		#200	0.14	0.00	0.4

Hydrometer Test Data

Hydrometer test uses material passing #200
Percent passing #200 based upon complete sample = 0
Weight of hydrometer sample =51.08
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = 0
Meniscus correction only = 0.0
Specific gravity of solids = 2.65
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 - 0.2645 **x Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	18.9	1.0030	1.0028	0.0138	3.0	15.5	0.0385	0.0
5.00	18.9	1.0030	1.0028	0.0138	3.0	15.5	0.0244	0.0
15.00	18.9	1.0030	1.0028	0.0138	3.0	15.5	0.0141	0.0
30.00	18.9	1.0030	1.0028	0.0138	3.0	15.5	0.0099	0.0
60.00	18.9	1.0030	1.0028	0.0138	3.0	15.5	0.0070	0.0
240.00	18.9	1.0030	1.0028	0.0138	3.0	15.5	0.0035	0.0
1440.00	18.9	1.0030	1.0028	0.0138	3.0	15.5	0.0014	0.0

Alpha Analytical

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	1	23	76	100	0	0	0

D_5	D_{10}	D_{15}	D_{20}	D_{30}	D_{40}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.1468	0.1725	0.1935	0.2124	0.2465	0.2782	0.3107	0.3469	0.4540	0.5051	0.5962	0.9677

Fineness Modulus	C_u	C_c
1.62	2.01	1.02

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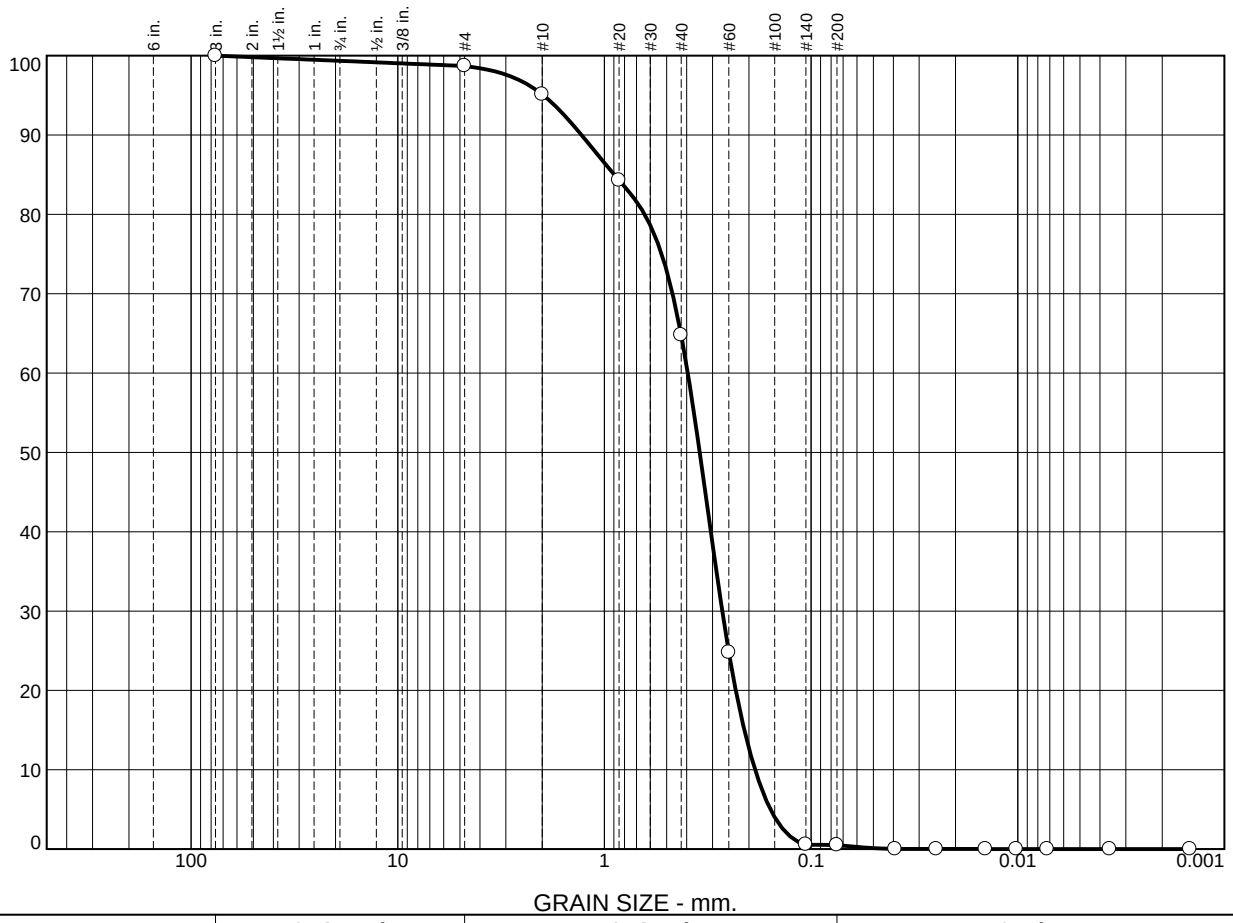
Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0	1	0	4	30	64	1	0

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○			0.8963	0.3950	0.3460	0.2692	0.2106	0.1868	0.98	2.11

Material Description	USCS	AASHTO
○	SP	

Project No. **Client:**

Project:

○ **Source of Sample:** NR-6 2.5-3.8 **Sample Number:** L2364904-09

Alpha Analytical

Mansfield, MA

Remarks:

Figure

GRAIN SIZE DISTRIBUTION TEST DATA

1/5/2024

Location: NR-6 2.5-3.8
Sample Number: L2364904-09
USCS Classification: SP

Sieve Test Data

Post #200 Wash Test Weights (grams): **Dry Sample and Tare =** 309.65
Tare Wt. = 0.00
Minus #200 from wash = 0.0%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
309.65	0.00	3"	0.00	0.00	100
		#4	4.03	0.00	99
		#10	11.09	0.00	95
		#20	33.50	0.00	84
		#40	60.42	0.00	65
		#60	123.90	0.00	25
		#140	74.97	0.00	1
		#200	0.16	0.00	0.5

Hydrometer Test Data

Hydrometer test uses material passing #200
Percent passing #200 based upon complete sample = 0
Weight of hydrometer sample =51.06
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = 0
Meniscus correction only = 0.0
Specific gravity of solids = 2.65
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 - 0.2645 **x Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	18.9	1.0010	1.0008	0.0138	1.0	16.0	0.0392	0.0
5.00	18.9	1.0010	1.0008	0.0138	1.0	16.0	0.0248	0.0
15.00	18.9	1.0010	1.0008	0.0138	1.0	16.0	0.0143	0.0
30.00	18.9	1.0005	1.0003	0.0138	0.5	16.2	0.0102	0.0
60.00	18.9	1.0005	1.0003	0.0138	0.5	16.2	0.0072	0.0
240.00	18.9	1.0005	1.0003	0.0138	0.5	16.2	0.0036	0.0
1440.00	18.9	1.0005	1.0003	0.0138	0.5	16.2	0.0015	0.0

Alpha Analytical

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	1	0	1	4	30	64	98	1	0	1

D_5	D_{10}	D_{15}	D_{20}	D_{30}	D_{40}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.1573	0.1868	0.2106	0.2315	0.2692	0.3058	0.3460	0.3950	0.6390	0.8963	1.2899	1.9744

Fineness Modulus	C_u	C_c
1.97	2.11	0.98

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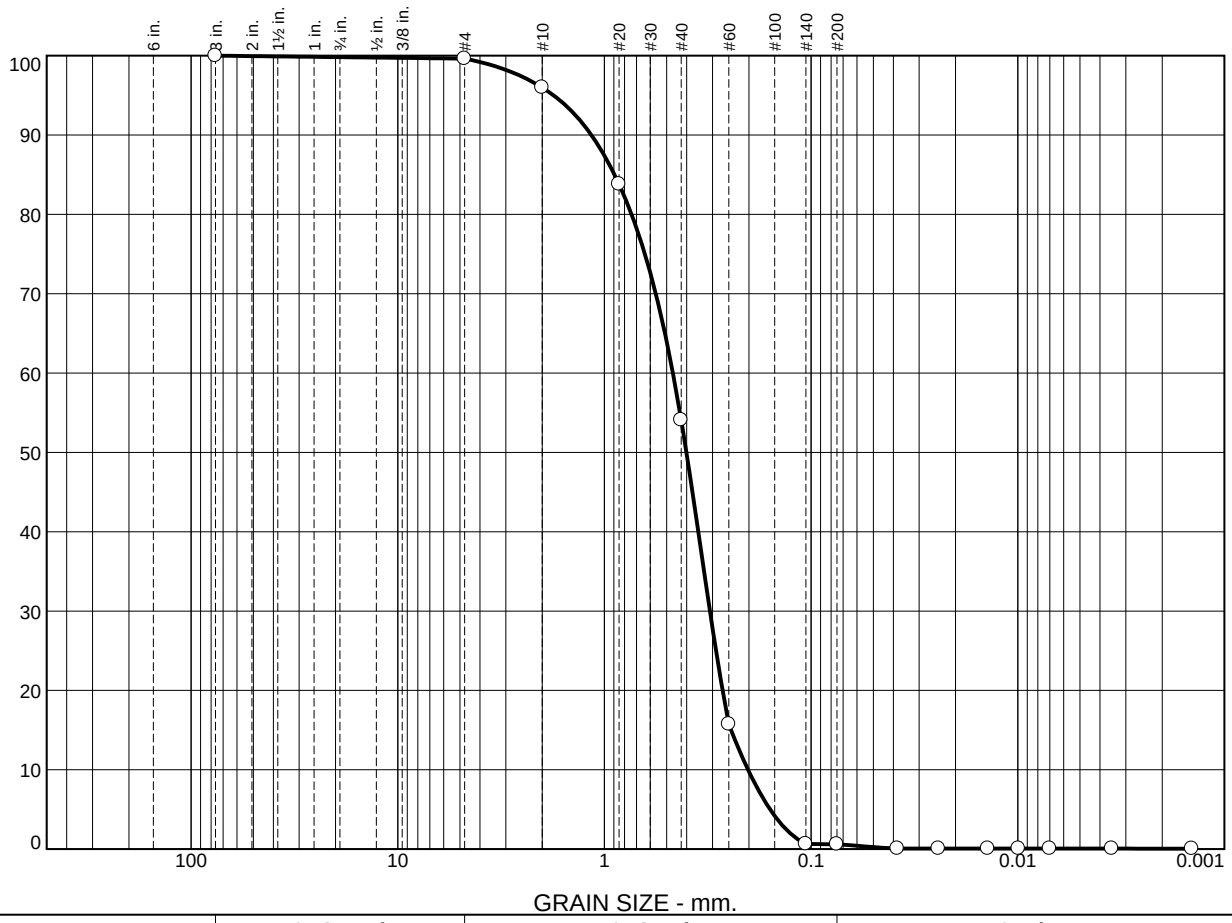
Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0	0	0	4	42	53	1	0

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○			0.8938	0.4663	0.4011	0.3089	0.2440	0.2021	1.01	2.31

Material Description	USCS	AASHTO
○	SP	

Project No. **Client:**

Project:

○ **Source of Sample:** NR-7 0.0-1.3 **Sample Number:** L2364904-10

Alpha Analytical

Mansfield, MA

Remarks:

Figure

GRAIN SIZE DISTRIBUTION TEST DATA

1/5/2024

Location: NR-7 0.0-1.3
Sample Number: L2364904-10
USCS Classification: SP

Sieve Test Data

Post #200 Wash Test Weights (grams): **Dry Sample and Tare =** 287.83
Tare Wt. = 0.00
Minus #200 from wash = 0.0%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
287.83	0.00	3"	0.00	0.00	100
		#4	1.07	0.00	100
		#10	10.51	0.00	96
		#20	35.05	0.00	84
		#40	85.54	0.00	54
		#60	110.40	0.00	16
		#140	43.38	0.00	1
		#200	0.14	0.00	0.6

Hydrometer Test Data

Hydrometer test uses material passing #200
Percent passing #200 based upon complete sample = 1
Weight of hydrometer sample =50.14
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = 0
Meniscus correction only = 0.0
Specific gravity of solids = 2.65
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 - 0.2645 **x Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	18.9	1.0040	1.0038	0.0138	4.0	15.2	0.0382	0.1
5.00	18.9	1.0040	1.0038	0.0138	4.0	15.2	0.0242	0.1
15.00	18.9	1.0040	1.0038	0.0138	4.0	15.2	0.0139	0.1
30.00	18.9	1.0035	1.0033	0.0138	3.5	15.4	0.0099	0.1
60.00	18.9	1.0035	1.0033	0.0138	3.5	15.4	0.0070	0.1
240.00	18.9	1.0035	1.0033	0.0138	3.5	15.4	0.0035	0.1
1440.00	18.9	1.0030	1.0028	0.0138	3.0	15.5	0.0014	0.1

Alpha Analytical

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	4	42	53	99	1	0	1

D_5	D_{10}	D_{15}	D_{20}	D_{30}	D_{40}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.1579	0.2021	0.2440	0.2683	0.3089	0.3516	0.4011	0.4663	0.7393	0.8938	1.1559	1.7628

Fineness Modulus	C_u	C_c
2.09	2.31	1.01

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Particle Size Distribution Report

	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0	14	20	17	29	19	1	0

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○			17.7851	3.4985	2.1043	0.7237	0.3313	0.2527	0.59	13.84

Material Description	USCS	AASHTO
○	SP	

Project No. **Client:**

Project:

○ **Source of Sample:** NR-7 1.3-2.3 **Sample Number:** L2364904-11

Alpha Analytical

Mansfield, MA

Remarks:

Figure

GRAIN SIZE DISTRIBUTION TEST DATA

1/5/2024

Location: NR-7 1.3-2.3
Sample Number: L2364904-11
USCS Classification: SP

Sieve Test Data

Post #200 Wash Test Weights (grams): **Dry Sample and Tare =** 362.52
Tare Wt. = 0.00
Minus #200 from wash = 0.0%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
362.52	0.00	3"	0.00	0.00	100
		#4	124.23	0.00	66
		#10	60.62	0.00	49
		#20	58.09	0.00	33
		#40	47.52	0.00	20
		#60	36.49	0.00	10
		#140	33.21	0.00	1
		#200	0.51	0.00	0.5

Hydrometer Test Data

Hydrometer test uses material passing #200
Percent passing #200 based upon complete sample = 0
Weight of hydrometer sample =51.39
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = 1+
Meniscus correction only = 0.0
Specific gravity of solids = 2.65
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 - 0.2645 **x Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	18.9	1.0045	1.0053	0.0138	4.5	15.1	0.0380	0.1
5.00	18.9	1.0040	1.0048	0.0138	4.0	15.2	0.0242	0.1
15.00	18.9	1.0040	1.0048	0.0138	4.0	15.2	0.0139	0.1
30.00	18.9	1.0040	1.0048	0.0138	4.0	15.2	0.0099	0.1
60.00	18.9	1.0040	1.0048	0.0138	4.0	15.2	0.0070	0.1
240.00	18.9	1.0040	1.0048	0.0138	4.0	15.2	0.0035	0.1
1440.00	18.9	1.0040	1.0048	0.0138	4.0	15.2	0.0014	0.1

Alpha Analytical

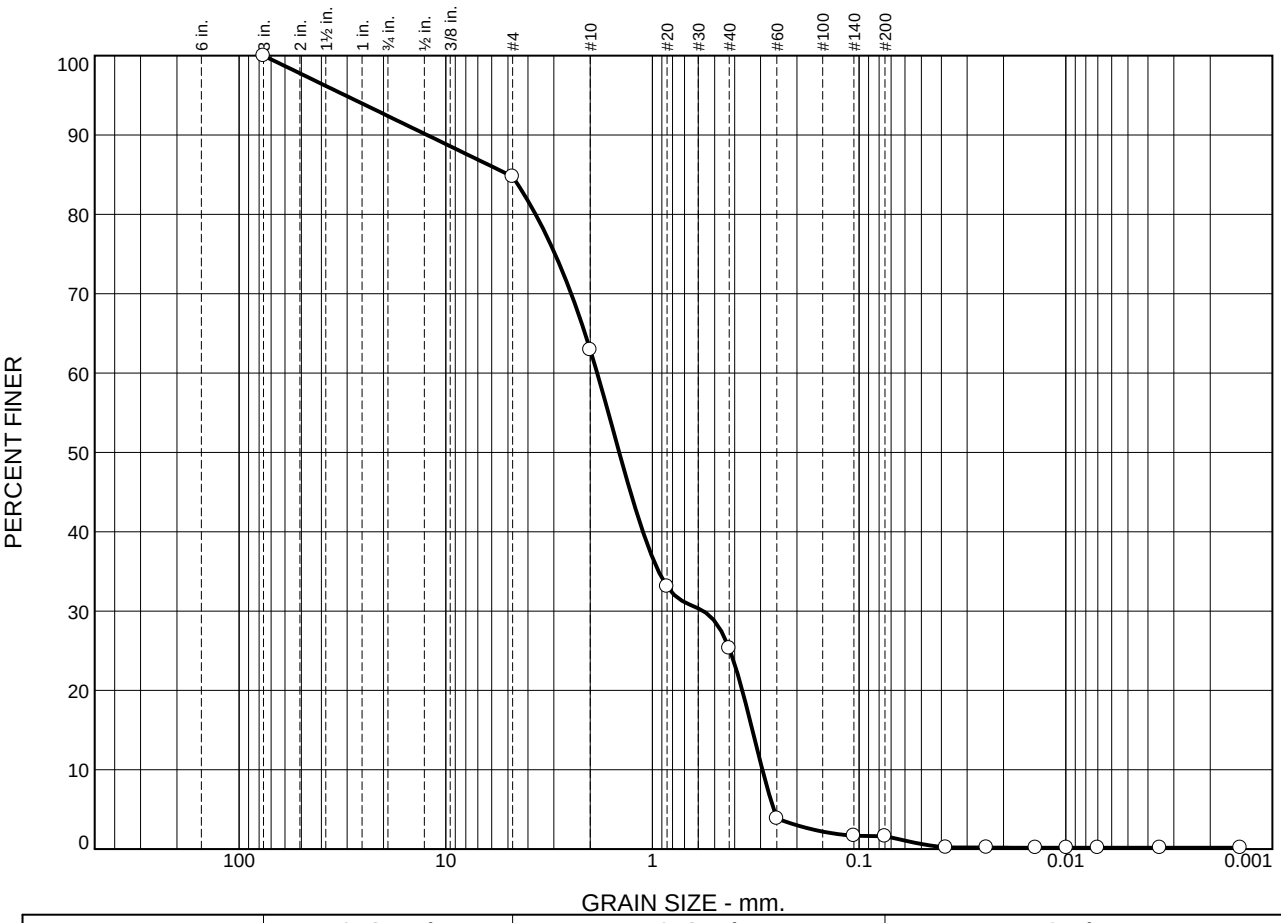
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	14	20	34	17	29	19	65	1	0	1

D_5	D_{10}	D_{15}	D_{20}	D_{30}	D_{40}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.1818	0.2527	0.3313	0.4277	0.7237	1.2423	2.1043	3.4985	11.9399	17.7851	27.7742	45.3499

Fineness Modulus	C_u	C_c
4.45	13.84	0.59

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0	8	7	22	38	23	2	0

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○			4.9509	1.8520	1.4475	0.5677	0.3284	0.2939	0.59	6.30

Material Description	USCS	AASHTO
○	SP	

Project No. **Client:**

Project:

○ **Source of Sample:** NR-8 **Sample Number:** L2364904-12

Alpha Analytical

Mansfield, MA

Remarks:

Figure

GRAIN SIZE DISTRIBUTION TEST DATA

1/5/2024

Location: NR-8
Sample Number: L2364904-12
USCS Classification: SP

Sieve Test Data

Post #200 Wash Test Weights (grams): **Dry Sample and Tare =** 258.68
Tare Wt. = 0.00
Minus #200 from wash = 0.0%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
258.68	0.00	3"	0.00	0.00	100
		#4	39.39	0.00	85
		#10	56.52	0.00	63
		#20	77.14	0.00	33
		#40	20.14	0.00	25
		#60	55.52	0.00	4
		#140	5.64	0.00	2
		#200	0.13	0.00	1.6

Hydrometer Test Data

Hydrometer test uses material passing #200
Percent passing #200 based upon complete sample = 2
Weight of hydrometer sample =51.49
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = 0
Meniscus correction only = 0.0
Specific gravity of solids = 2.65
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 - 0.2645 **x Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	18.9	1.0045	1.0043	0.0138	4.5	15.1	0.0380	0.2
5.00	18.9	1.0040	1.0038	0.0138	4.0	15.2	0.0242	0.2
15.00	18.9	1.0035	1.0033	0.0138	3.5	15.4	0.0140	0.2
30.00	18.9	1.0035	1.0033	0.0138	3.5	15.4	0.0099	0.2
60.00	18.9	1.0035	1.0033	0.0138	3.5	15.4	0.0070	0.2
240.00	18.9	1.0035	1.0033	0.0138	3.5	15.4	0.0035	0.2
1440.00	18.9	1.0035	1.0033	0.0138	3.5	15.4	0.0014	0.2

Alpha Analytical

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	8	7	15	22	38	23	83	2	0	2

D_5	D_{10}	D_{15}	D_{20}	D_{30}	D_{40}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.2590	0.2939	0.3284	0.3675	0.5677	1.1117	1.4475	1.8520	3.6781	4.9509	12.3152	30.6336

Fineness Modulus	C_u	C_c
3.84	6.30	0.59

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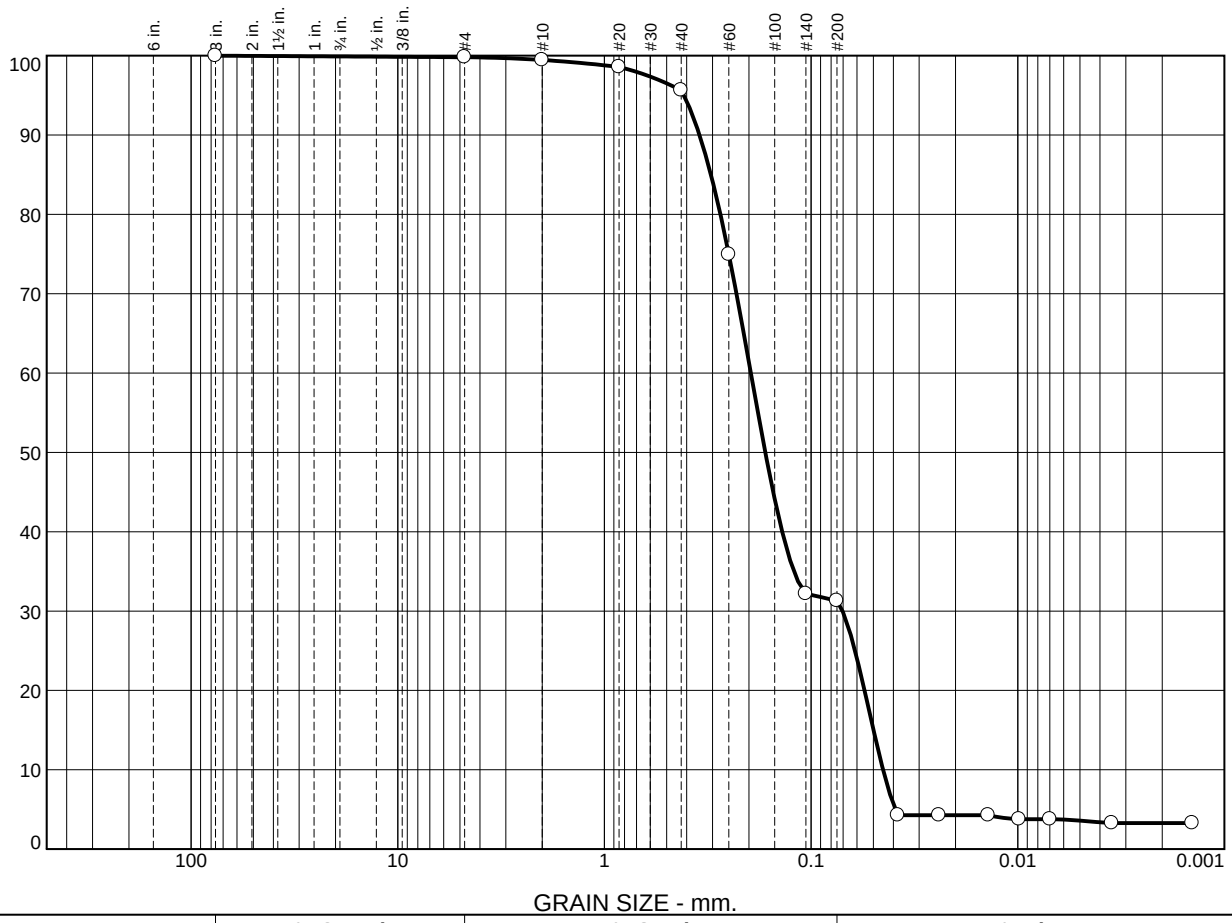
Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0	0	0	1	3	65	28	3

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○			0.3055	0.1958	0.1665	0.0705	0.0499	0.0449	0.57	4.37

Material Description	USCS	AASHTO
○		

Project No. **Client:**

Project:

○ **Source of Sample:** NR-9 **Sample Number:** L2364904-13

Alpha Analytical

Mansfield, MA

Remarks:

Figure

GRAIN SIZE DISTRIBUTION TEST DATA

1/5/2024

Location: NR-9
Sample Number: L2364904-13

Sieve Test Data

Post #200 Wash Test Weights (grams): **Dry Sample and Tare =** 363.60
Tare Wt. = 0.00
Minus #200 from wash = 0.0%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
363.60	0.00	3"	0.00	0.00	100
		#4	0.71	0.00	100
		#10	1.26	0.00	99
		#20	3.21	0.00	99
		#40	10.64	0.00	96
		#60	75.26	0.00	75
		#140	155.47	0.00	32
		#200	3.26	0.00	31

Hydrometer Test Data

Hydrometer test uses material passing #200
Percent passing #200 based upon complete sample = 31
Weight of hydrometer sample =51.03
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = 0
Meniscus correction only = 0.0
Specific gravity of solids = 2.65
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 - 0.2645 **x Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	18.9	1.0045	1.0043	0.0138	4.5	15.1	0.0380	4.3
5.00	18.9	1.0045	1.0043	0.0138	4.5	15.1	0.0240	4.3
15.00	18.9	1.0045	1.0043	0.0138	4.5	15.1	0.0139	4.3
30.00	18.9	1.0040	1.0038	0.0138	4.0	15.2	0.0099	3.8
60.00	18.9	1.0040	1.0038	0.0138	4.0	15.2	0.0070	3.8
240.00	18.9	1.0035	1.0033	0.0138	3.5	15.4	0.0035	3.3
1440.00	18.9	1.0035	1.0033	0.0138	3.5	15.4	0.0014	3.3

Alpha Analytical

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	1	3	65	69	28	3	31

D_5	D_{10}	D_{15}	D_{20}	D_{30}	D_{40}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0391	0.0449	0.0499	0.0551	0.0705	0.1379	0.1665	0.1958	0.2747	0.3055	0.3468	0.4123

Fineness Modulus	C_u	C_c
0.76	4.37	0.57

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624.1: m/p-xylene, o-xylene, Naphthalene
EPA 625.1: alpha-Terpineol
EPA 8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270E: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 524.2: THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables).
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522, EPA 537.1.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb**,** As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

CHAIN OF CUSTODY

PAGE 1 OF 2

ALPHA ANALYTICAL
8 Walkup Drive
Westboro, MA 01581
Tel: 508-898-9220

320 Forbes Blvd
Mansfield, MA 02048
Tel: 508-822-9300

Date Rec'd in Lab: 11/1/23

ALPHA Job #: L2364904

Client Information

Client: Narragansett
Address: 114 Touro St.
Newport, RI 02840
Phone: 401-626-7208
Email: Kaitlyn.Cross@foth.com

Project Information

Project Name: Narrow River Dredging
Project Location: Narragansett, RI
Project #: 0022N010.00
Project Manager: Kaitlyn Cross
ALPHA Quote #: 24371

Turn-Around Time

☑ Standard ☐ RUSH (only confirmed if pre-approved!)
Date Due:

Report Information - Data Deliverables

☐ ADEx ☐ EMAIL

Billing Information

☐ Same as Client info PO #:

Regulatory Requirements & Project Information Requirements

☐ Yes ☐ No MA MCP Analytical Methods ☐ Yes ☐ No CT RCP Analytical Methods
☐ Yes ☐ No Matrix Spike Required on this SDG? (Required for MCP Inorganics)
☐ Yes ☐ No GW1 Standards (Info Required for Metals & EPH with Targets)
☐ Yes ☐ No NPDES RGP
☐ Other State /Fed Program _____ Criteria _____

Additional Project Information:

Grain size analysis, archive chemistry. No additional analysis prior to Foth approval.

ANALYSIS

VOC: ☐ 8260 ☐ 624 ☐ 524.2
SVOC: ☐ ABN ☐ PAH
METALS: ☐ MCP 13 ☐ MCP 14 ☐ RCP 15
METALS: ☐ RCRA5 ☐ RCRA8 ☐ PP13
EPH: ☐ Ranges & Targets ☐ Ranges Only
VPH: ☐ Ranges & Targets ☐ Ranges Only
☐ PCB ☐ PEST
TPH: ☐ Quant Only ☐ Fingerprint
Grain Size
Metals, Moisture, PAH, TPH, PCB (Pest)

SAMPLE INFO
Filtration
☐ Field
☐ Lab to do
Preservation
☐ Lab to do

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler Initials	Sample Comments	TOTAL # BOTTLES
4904-01	NR-1	10/31/23	12:45	SE	KC	Archive Chem	2
-02	NR-2		12:10				2
-03	NR-3		11:00				2
-04	NR-4 0.0-0.8		10:40				2
-05	NR-4 0.8-2.9		10:40				2
-06	NR-4 2.9-3.4		10:40				2
-07	NR-5		11:20				2
-08	NR-6 0.0-2.5		10:04				2
-09	NR-6 2.5-3.8		10:04				2

Container Type			P	A						
Preservative			A	A						

Preservative
A= None
B= HCl
C= HNO_3
D= H_2SO_4
E= NaOH
F= MeOH
G= $NaHSO_4$
H = $Na_2S_2O_3$
I= Ascorbic Acid
J = NH_4Cl
K= Zn Acetate
O= Other

Relinquished By:	Date/Time	Received By:	Date/Time
Foth	11/1/23 13:29	AAL	11/1/23 15:29
AAL	11/1/23 17:25		11/1/23 1725
1110112 3-1930			
AAL	11/1/23	AAL	11/1/23 2050

All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

FORM NO: 01-01 (rev. 12-Mar-2012)

RECEIVED 6/5/2025 COASTAL RESOURCES MANAGEMENT COUNCIL

ALPHA ANALYTICAL

8 Walkup Drive, Westboro, MA 01581, Tel: 508-898-9220
320 Forbes Blvd, Mansfield, MA 02048, Tel: 508-822-9300

CHAIN OF CUSTODY

PAGE 2 OF 2

Date Rec'd in Lab: 11/1/23

ALPHA Job #: L2364904

Client Information

Client: Naragansett
Address: 114 Touro St.
Newport, RI 02840
Phone: 401-626-7208
Email: Kaitlyn.Cross@foth.com

Project Information

Project Name: Narrow River Dredging
Project Location: Narragansett, RI
Project #: 0022N010.00
Project Manager: Kaitlyn Cross
ALPHA Quote #: 24371

Turn-Around Time

☑ Standard ☐ RUSH (only confirmed if pre-approved)
Date Due:

Report Information - Data Deliverables

☐ ADEx ☐ EMAIL

Billing Information

☐ Same as Client info PO #:

Regulatory Requirements & Project Information Requirements

☐ Yes ☐ No MA MCP Analytical Methods ☐ Yes ☐ No CT RCP Analytical Methods
☐ Yes ☐ No Matrix Spike Required on this SDG? (Required for MCP Inorganics)
☐ Yes ☐ No GW1 Standards (Info Required for Metals & EPH with Targets)
☐ Yes ☐ No NPDES RGP
☐ Other State /Fed Program ____ Criteria ____

Additional Project Information:
Grain size analysis. Archive chemistry. No additional analysis prior to Foth approval.

ANALYSIS

VOC: ☐ 8260 ☐ 624 ☐ 524.2
SVOC: ☐ ABN ☐ PAH
METALS: ☐ MCP 13 ☐ MCP 14 ☐ RCP 15
METALS: ☐ RCRA5 ☐ RCRA8 ☐ PP13
EPH: ☐ Ranges & Targets ☐ Ranges Only
VPH: ☐ Ranges & Targets ☐ Ranges Only
☐ PCB ☐ PEST
TPH: ☐ Quant Only ☐ Fingerprint
Grain Size
(Metals, Moisture, TS (PAH, TPH, PCB, Pest)

SAMPLE INFO
Filtration: ☐ Field ☐ Lab to do
Preservation: ☐ Lab to do

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler Initials	Grain Size	Sample Comments	TOTAL # BOTTLES
4904-10	NR-7 0.0-1.3	10/31/23	11:50	SE	KC	✓	Archive Chem	2
-11	NR-7 1.3-2.3	↓	11:50	↓	↓	✓	↓	2
-12	NR-8	↓	11:45	↓	↓	✓	↓	2
-13	NR-9	↓	12:25	↓	↓	✓	↓	2

Container Type: P A
Preservative: P A

Preservative
A= None
B= HCl
C= HNO_3
D= H_2SO_4
E= NaOH
F= MeOH
G= $NaHSO_4$
H = $Na_2S_2O_3$
I= Ascorbic Acid
J = NH_4Cl
K= Zn Acetate
O= Other

Relinquished By:	Date/Time	Received By:	Date/Time
[signature] Foth	11/1/23 15:29	[signature] AAL	11.1.23 15:29
[signature] AAL	11/1/23 17:25	[signature]	11/1/23 1725
[signature]	11/01/23-1930	[signature] AAL	11/1/23 1933
[signature] AAL	11/1/23 2053	[signature]	11/1/23 20:50

All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.
FORM NO: 01-01 (rev. 12-Mar-2012)