

**NEWBURYPORT HARBOR
PLUM ISLAND NORTH POINT
NEWBURYPORT, MASSACHUSETTS**

BENEFICIAL USE OF DREDGED MATERIALS

**APPENDIX F
SUITABILITY DETERMINATION**

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Memorandum For: Jack Karalius, Project Manager, CENAE-PPP

Subject: Suitability Determination for the Newburyport Harbor Federal Navigation Project, Newburyport, Massachusetts.

1. Summary:

This memorandum addresses the suitability of dredged material from the Newburyport Harbor Federal Navigation Project (FNP) for placement at nearshore beneficial reuse sites or directly on local beaches. The New England District (NAE) of the U.S. Army Corps of Engineers (USACE) finds that sufficient data has been provided to satisfy the evaluation and testing requirements of Section 404 of the Clean Water Act (CWA). Based on an evaluation of the project site and the material proposed to be dredged, these sediments are suitable for placement at the proposed locations.

2. Project Description:

NAE is proposing to dredge an area of approximately 30 acres from shoals within the 9 and 15 foot (MLLW) channels of the Newburyport Harbor FNP in Newburyport, MA (Figures 1 and 2). These areas will be dredged to the authorized project depth plus allowable overdepth. This is expected to produce a volume of approximately 200,000 cubic yards of primarily sandy material. It is expected that this material will be hydraulically dredged and either pumped directly onto nearby beaches or placed at a nearshore site for the purpose of beach nourishment.

3. Conceptual Site Model:

NAE reviewed historic testing data, previous environmental assessments, land-use, existing water quality data, and interviewed local officials to develop a conceptual site model (CSM) for the Newburyport Harbor FNP. The CSM was used to characterize the system and identify potential sources of contamination and any site-specific contaminants of concern in order to inform the sampling, testing, and analysis of the project.

Newburyport Harbor is situated at the mouth of the Merrimack River and forms the border between Newburyport and Salisbury, MA. The FNP is located within the lower 4.5 miles of the Merrimack River south of the U.S. Route 1 bridge. Two jetties form the terminus of the FNP and extend 4,118 feet and 2,445 feet from the shore.

Land use around the FNP is high density residential in the City of Newburyport and on Plum Island with commercial and retail properties in Newburyport. There are extensive tidal wetlands on the north and south shores of the estuary and the Salisbury Beach State Park is located on the northern shore.

The Merrimack River estuary is classified as Class SB by the Commonwealth of Massachusetts and the basin adjacent to the FNP is Class SA (314 CMR 4.06). Class SB waters are designated as habitat for fish, other aquatic life, and wildlife and for primary and secondary contact recreation (MassDEP 2016). The Class SA waters of the basin are considered excellent habitat for fish, other aquatic life, and wildlife and are suitable for shellfish harvesting and for primary and secondary contact recreation (MassDEP 2016).

NAE last dredged the Newburyport Harbor FNP in 2010 when 165,000 cubic yards of sandy material was hydraulically dredged and pumped directly onto Plum Island Beach and Salisbury Beach.

Based on a review of available data, and communication with local officials, NAE determined that there are no known recent spills in the vicinity of the project area.

Following this tier one review of the site characteristics and the available historical data, NAE assigned the Newburyport Harbor FNP a low-moderate risk ranking according to the following matrix (adapted from USACE 2014):

Rank	Guidelines
Low	Few or no sources of contamination. Data available to verify no significant potential for adverse biological effects.
Low-Moderate	Few or no sources of contamination but existing data is insufficient to confirm ranking.
Moderate	Contamination sources exist within the vicinity of the project with the potential to produce chemical concentrations that may cause adverse biological effects.
High	Known sources of contamination within the project area and historical data exists that has previously failed biological testing.

4. Sampling, Testing, and Analysis:

Based on the low-moderate ranking for the Newburyport Harbor FNP, NAE prepared a sampling and analysis plan (SAP) for the project on 21 July 2016 and received concurrence from the U.S. Environmental Protection Agency Region 1 (USEPA), the U.S. Fish and Wildlife Service (USFWS), and the Massachusetts Department of Environmental Protection (MassDEP).

In July of 2016 NAE collected sediment grab samples for grain size analysis from nine locations throughout the proposed dredge area, identified as stations A through I on Figures 1 and 2. Results from this analysis are presented on Table 1 and show the sediments in the FNP to be predominately poorly graded

fine to coarse sands with a gravel fraction present at several stations. There was no measurable fine grained material at any of the analyzed stations.

Table 1. Grain Size Results from Newburyport Harbor FNP Sediment Grabs (2016)

Sample ID	% Gravel	% Coarse Sand	% Medium Sand	% Fine Sand	% Fines
A	0.0	0.1	98.5	1.4	0.0
B	0.0	0.3	98.7	1.0	0.0
C	3.8	27.2	68.9	0.2	0.0
D	46.2	17.7	35.9	0.1	0.0
E	0.1	0.8	67.4	31.7	0.0
F	0.6	3.7	76.6	19.2	0.0
G	0.1	3.2	80.6	16.1	0.0
H	3.6	17.0	78.1	1.2	0.0
I	0.1	0.3	93.8	5.8	0.0

In conjunction with this and previous efforts NAE collected sediment grab samples from the Salisbury Beach placement area (2016), the Plum Island Inner Beach (2017), the Salisbury nearshore site (2013), the Plum Island nearshore site (2013), and the Plum Island Outer Beach (2009). The location of the potential placement areas are shown on Figure 3. Results from grain size analysis of these samples are presented in Table 2 and show the composition of the potential placement areas to be similar to the FNP with poorly graded fine to coarse sands making up more than 97% of the sediment in all samples.

Table 2. Grain Size Results from Disposal Site Sediment Grabs

Sample ID	% Gravel	% Coarse Sand	% Medium Sand	% Fine Sand	% Fines
Plum Island Inner Beach (2017)					
PIIB-T1-H	0.0	1.5	95.5	2.9	0.0
PIIB-T1-M	0.0	13.5	81.2	3.6	0.0
PIIB-T1-L	0.0	7.4	87.5	3.7	0.0
PIIB-T2-H	0.0	1.1	95.8	2.9	0.0
PIIB-T2-M	0.0	0.9	97.8	1.2	0.0
PIIB-T2-L	0.0	0.6	98.9	0.5	0.0
Plum Island Nearshore (2013)					
PINS-A	0.0	0.1	49.1	50.8	0.0
PINS-B	0.3	0.7	87.2	11.9	0.0
PINS-C	0.0	0.0	66.0	34.0	0.0
PINS-D	0.1	0.2	57.2	42.6	0.0
PINS-E	0.0	0.2	96.5	3.2	0.0
Plum Island Outer Beach (2009)					
PIOB-T1-H	0.0	99.9			0.1
PIOB-T1-L	0.0	99.3			0.7
PIOB-T2-H	0.0	99.8			0.2
PIOB-T2-L	0.8	98.5			0.7
PIOB-T3-H	0.0	99.7			0.3
PIOB-T3-L	1.9	97.6			0.5
Salisbury Nearshore (2013)					
SNS-A	0.0	0.1	73.2	26.7	0.0
SNS-B	0.0	0.0	2.7	97.3	0.0
SNS-C	0.0	0.0	74.9	25.0	0.0
SNS-D	0.0	0.1	83.1	16.8	0.0
SNS-E	0.0	0.0	1.4	98.5	0.0
Salisbury Beach (2016)					
SB-H	0.0	0.0	95.8	4.0	0.1
SB-M	0.0	0.0	70.2	29.7	0.1
SB-L	0.0	0.2	89.0	10.8	0.0

5. Clean Water Act Regulatory Requirements:

The placement of sediments at nearshore and beach nourishment sites is regulated under Section 404 of the Clean Water Act. Subpart G of Section 404(b)(1), Guidelines for Specification of Disposal Sites for Dredged or Fill Material, describes the procedures for conducting this evaluation, including any relevant testing that may be required.

Under §230.60, General Evaluation of Dredged or Fill Material, further testing of the dredged material is not necessary if the material is not considered

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a carrier of contaminants. According to §230.60(a) this exclusion applies if the dredged material is composed primarily of sand, gravel, or other naturally occurring inert material from a high energy environment such as a coastal area with shifting sand bars and channels.

Based on a review of the sampling data, NAE determined that the dredged material is composed primarily of sand from a high energy environment and is not likely a carrier of contaminants.

6. Suitability Determination:

Sediments from the Newburyport Harbor FNP meet the exclusionary criteria established in §230.60(a) as dredged material that is not likely a carrier of contaminants that does not require further testing. Therefore, the material meets the requirements of Section 404 of the Clean Water Act and is suitable for placement as proposed.

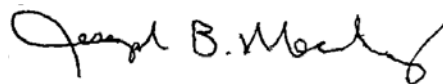
Copies of this determination were sent to the United States Environmental Protection Agency (USEPA) and the Massachusetts Department of Environmental Protection (MEDEP) who concurred with NAE's findings.

7. References:

MassDEP 2016. Massachusetts Consolidated Assessment and Listing Methodology (CALM) Guidance Manual for the 2016 Reporting Cycle. Massachusetts Department of Environmental Protection, Division of Watershed Management, Watershed Planning Program. July 2016.



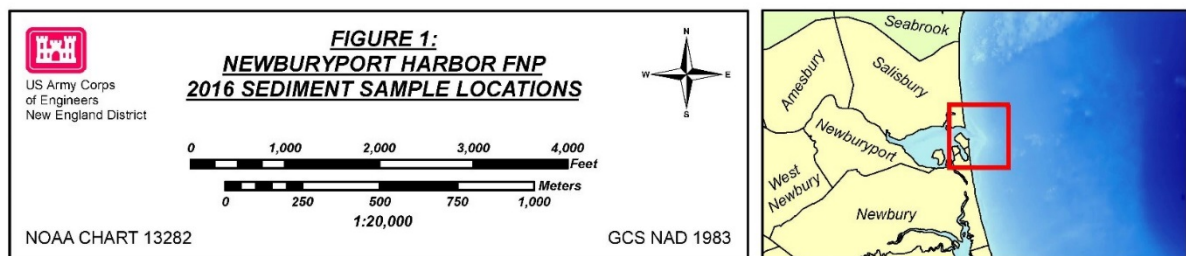
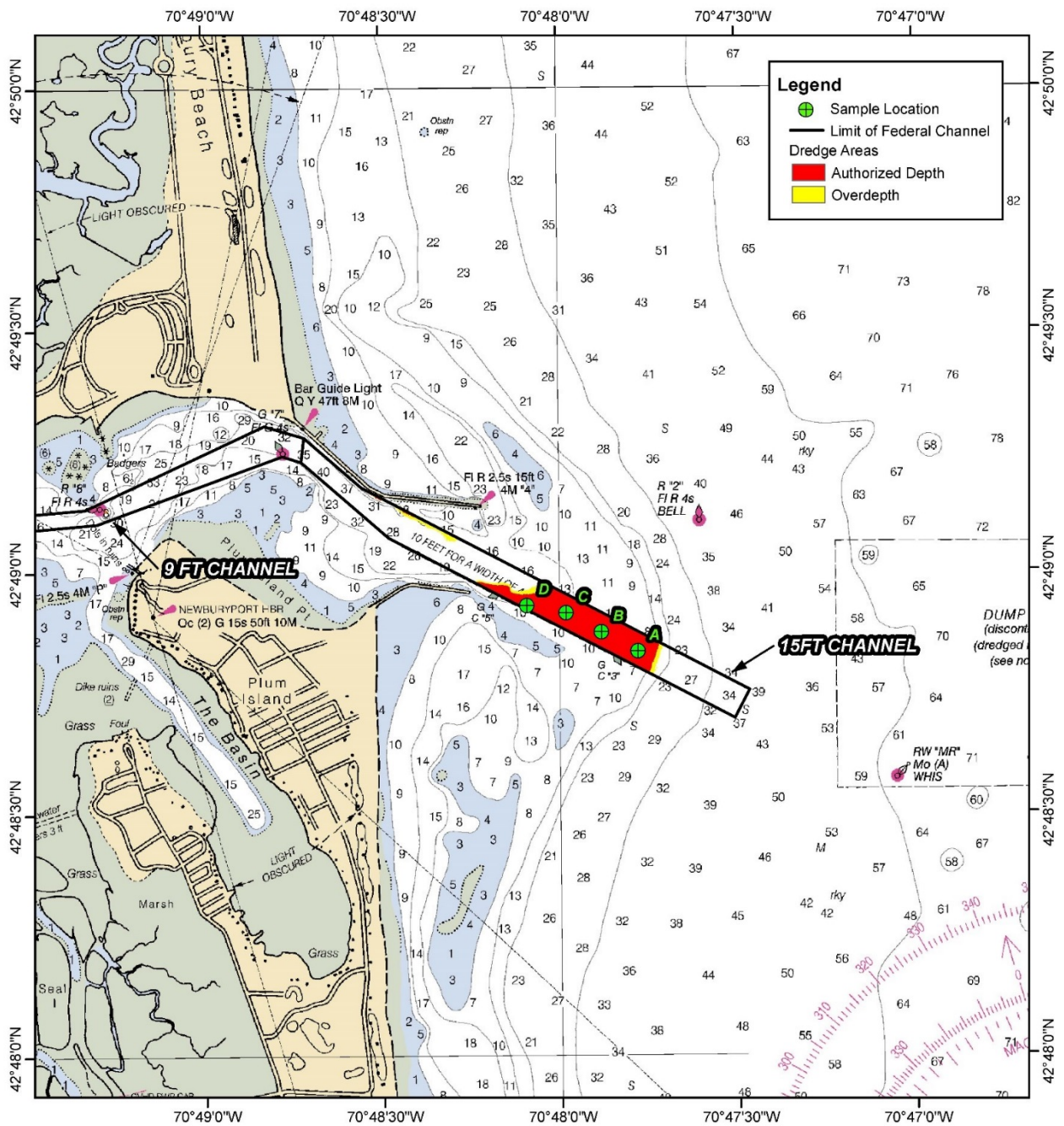
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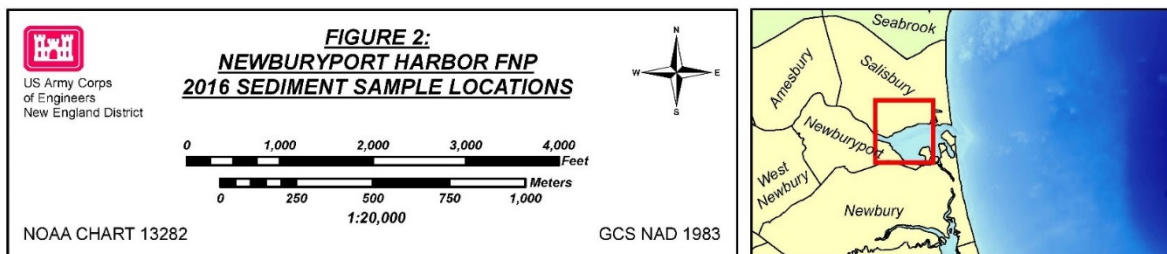
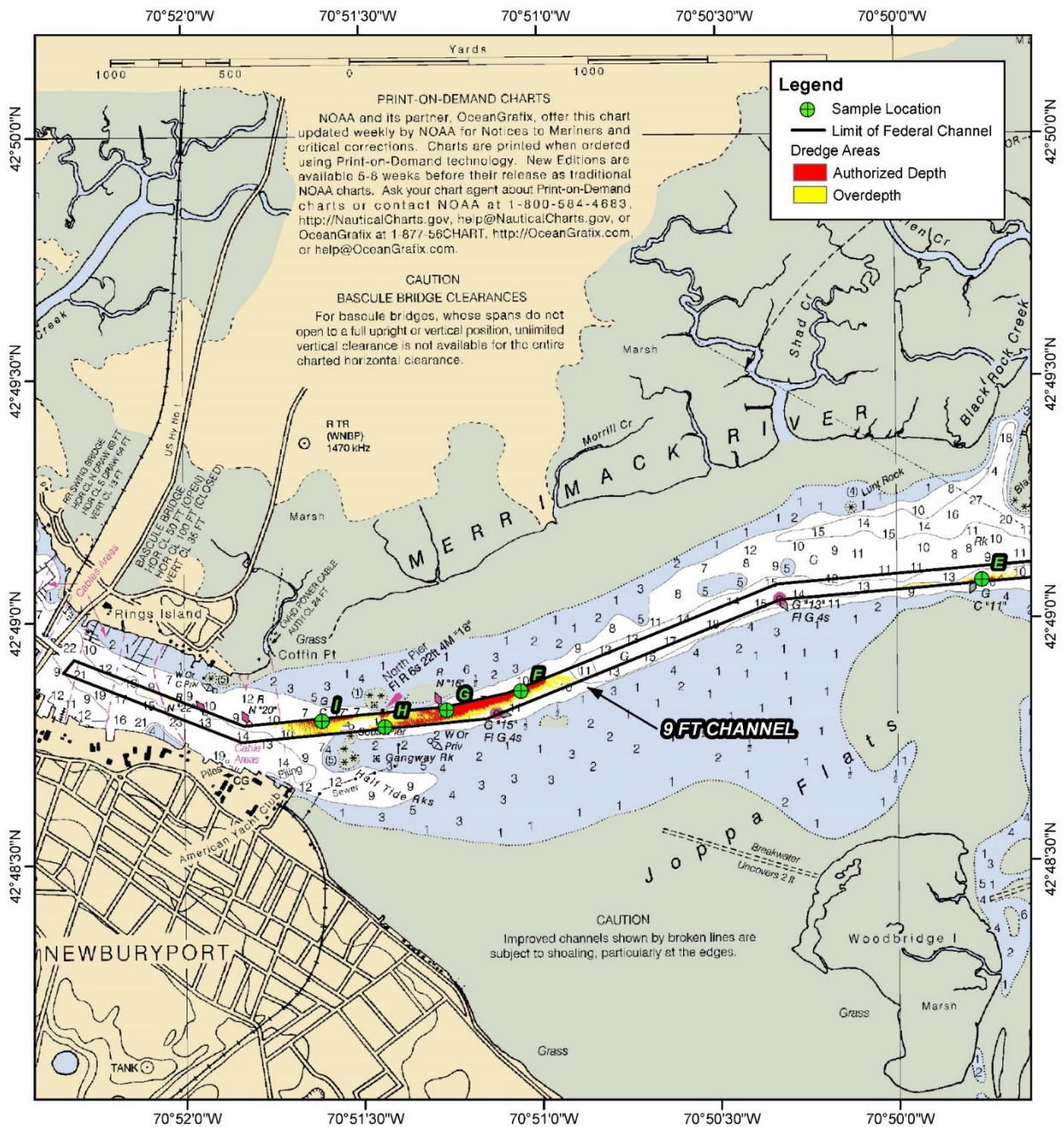
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