

U.S. Army Corps of Engineers
Michael Walsh
Project Manager
696 Virginia Road
Concord, MA 01742

WATER QUALITY CERTIFICATION

In Fulfillment of

**Section 401 of the United States Clean Water Act (33 U.S.C 1341)
and NH RSA 485-A:12, III**

WQC # 2015-404I-003

Activity Name	Maintenance Dredging of Sagamore Creek
Activity Location	New Castle and Rye, NH
Affected Surface waters	Lower Sagamore Creek and Back Channel Estuaries and the Atlantic Ocean off of the Wallis Sands Beach
Owner/Applicant	U.S. Army Corps of Engineers Project Manager 696 Virginia Road Concord, MA 01742
Appurtenant State permit(s) (and any amendments):	NHDES Wetlands Permit File # 2015-2693 (Applicant is the PDA/ NH Port Authority)
Applicable Federal permit(s):	See section C-42

A. INTRODUCTION

The U.S. Army Corps of Engineers (USACE, Corps or Applicant) proposes the maintenance dredging of a shoal in the Sagamore Creek (Back Channels) portion of the Portsmouth Harbor and Piscataqua River Federal Navigation Project and the placement of dredged materials in the near shore waters off of the Wallis Sands Beach in Rye, NH. A complete description of the Activity covered in this 401 Water Quality Certification (401 WQC, WQC or Certification) is provided in D-1 of this Certification.

This Certification documents laws, regulations, determinations and conditions related to the Activity for the attainment and maintenance of NH surface water quality standards, including the provisions of NH RSA 485-A:8 and NH Code of Administrative Rules Env-Wq 1700, for the support of designated uses identified in the standards.

B. 401 CERTIFICATION APPROVAL

Based on the facts, findings and conditions noted below, the New Hampshire Department of Environmental Services (NHDES) has determined that there is reasonable assurance that construction and operation of the Activity will not violate surface water quality standards. NHDES hereby issues this Certification, subject to the conditions in Section E, in accordance with Section 401 of the United States Clean Water Act (33 U.S.C. 1341) and RSA 485-A:12, III.

C. STATEMENT OF FACTS AND LAW

- C-1. Section 401 of the United States Clean Water Act (33 U.S.C. 1341) states, in part: "Any applicant for a federal license or permit to conduct any activity including, but not limited to, the construction or operation of facilities, which may result in any discharge into the navigable waters, shall provide the licensing or permitting agency a certification from the State in which the discharge originates or will originate...that any such discharge will comply with the applicable provisions of sections 301, 302, 303, 306, and 307 of this title.....No license or permit shall be granted until the certification required by this section has been obtained or has been waived...No license or permit shall be granted if certification has been denied by the State..."
- C-2. Section 401 of the Clean Water Act (CWA) further states, in part "Any certification provided under this section shall set forth any effluent limitations and other limitations, and monitoring requirements necessary to assure that any applicant for a Federal license or permit will comply with any applicable effluent limitations and other limitations...and shall become a condition on any Federal license or permit subject to the provisions of this section."
- C-3. Section 401(d) of the CWA provides that: "Any certification provided under this section [401] shall set forth any effluent limitations and other limitations, and monitoring requirements necessary to assure that any applicant for a Federal license or permit will comply with [enumerated provisions of the CWA]...and with any other appropriate requirement of State law set forth in such certification."

According to EPA 401 Guidance¹, "Under § 401(d) the water quality concerns to consider and the range of potential conditions available to address those concerns, extend to any provision of state or tribal law relating to the aquatic resource. Considerations can be quite broad so long as they relate to water quality. The U.S. Supreme Court has stated that, once the threshold of a discharge is reached (necessary for § 401 certification to be applicable), the conditions and limitations in the certification may address the permitted activity as a whole."²

¹ *Clean Water Action Section 401 Water Quality Certification: A Water Quality Protection Tool for States and Tribes*. U.S. Environmental Protection Agency, Office of Wetlands, Oceans and Watersheds. 2010.

² *PUD No. 1 of Jefferson County v. Washington Department of Ecology*, 511 U.S. 700, 712 (1994).

- C-4. 33 CFR 323.2(d)(3)(ii) , "(3) Section 404 authorization is not required for the following: . . . (ii) Incidental movement of dredged material occurring during normal dredging operations, defined as dredging for navigation in navigable waters of the United States, as that term is defined in part 329 of this chapter with proper authorization from the Congress and/or the Corps pursuant to 33 CFR part 322 of this Chapter; however, this exception is not applicable to dredging activities in wetlands as that term is defined in section 328.3 of this Chapter."
- C-5. Section 404(t) of the CWA regarding "Navigable waters within State jurisdiction" states the following: " Nothing in this section shall preclude or deny the right of any State or interstate agency to control the discharge of dredged or fill material in any portion of the navigable waters within the jurisdiction of such State, including any activity of any Federal agency, and each such agency shall comply with such State or interstate requirements both substantive and procedural to control the discharge of dredged or fill material to the same extent that any person is subject to such requirements. This section shall not be construed as affecting or impairing the authority of the Secretary to maintain navigation."
- C-6. NH RSA 485-A:12, III, states: "No activity, including construction and operation of facilities, that requires certification under section 401 of the Clean Water Act and that may result in a discharge, as that term is applied under section 401 of the Clean Water Act, to surface waters of the state may commence unless the department certifies that any such discharge complies with the state surface water quality standards applicable to the classification for the receiving surface water body. The department shall provide its response to a request for certification to the federal agency or authority responsible for issuing the license, permit, or registration that requires the certification under section 401 of the Clean Water Act. Certification shall include any conditions on, modifications to, or monitoring of the proposed activity necessary to provide assurance that the proposed discharge complies with applicable surface water quality standards. The department may enforce compliance with any such conditions, modifications, or monitoring requirements as provided in RSA 485-A:22."
- C-7. NH RSA 485-A: IV states: "No activity that involves surface water withdrawal or diversion of surface water that requires registration under RSA 488:3, that does not otherwise require the certification required under paragraph III, and which was not in active operation as of the effective date of this paragraph, may commence unless the department certifies that the surface water withdrawal or diversion of surface water complies with state surface water quality standards applicable to the classification for the surface water body. The certification shall include any conditions on, modifications to, or monitoring of the proposed activity necessary to provide reasonable assurance that the proposed activity complies with applicable surface water quality standards."
- C-8. NH RSA 485-A:12 (Enforcement of Classification) states the following:
- "I. After adoption of a given classification for a stream, lake, pond, tidal water, or section of such water, the department shall enforce such classification by

appropriate action in the courts of the state, and it shall be unlawful for any person or persons to dispose of any sewage, industrial, or other wastes, either alone or in conjunction with any other person or persons, in such a manner as will lower the quality of the waters of the stream, lake, pond, tidal water, or section of such water below the minimum requirements of the adopted classification. If the department shall set a time limit for abatement of pollution under paragraph II, and it becomes apparent at any time during the compliance period that full compliance with the adopted classification will not be attained by the end of such period due to the failure of any person to take action reasonably calculated to secure abatement of the pollution within the time specified, the department shall notify such person or persons in writing. If such person or persons shall fail or neglect to take appropriate steps to comply with the classification requirements within a period of 30 days after such notice, the department shall seek appropriate action in the courts of the state.

II. If, after adoption of a classification of any stream, lake, pond, or tidal water, or section of such water, including those classified by RSA 485-A:11, it is found that there is a source or sources of pollution which lower the quality of the waters in question below the minimum requirements of the classification so established, the person or persons responsible for the discharging of such pollution shall be required to abate such pollution within a time to be fixed by the department. If such pollution is of municipal or industrial origin, the time limit set by the department for such abatement shall be not less than 2 years nor more than 5 years. For good cause shown, the department may from time to time extend any time limit established under this paragraph. Any determination by the department under this paragraph shall be subject to appeal as provided for in RSA 485-A:19."

C-9. NH RSA 485-A:8 and Env-Wq 1700 (Surface Water Quality Regulations), together fulfill the requirements of Section 303 of the Clean Water Act that the State of New Hampshire adopt water quality standards consistent with the provisions of the Act.

C-10. Env-Wq 1701.02, entitled "Applicability", states that:

"(a) These rules shall apply to all surface waters.

(b) These rules shall apply to any person who causes point or nonpoint source discharge(s) of pollutants to surface waters, or who undertakes hydrologic modifications, such as dam construction or water withdrawals, or who undertakes any other activity that affects the beneficial uses or the level of water quality of surface waters."

C-11. Env-Wq 1703.01 Water Use Classifications.

(a) State surface waters shall be divided into class A and class B, pursuant to RSA 485-A:8, I, II and III. Each class shall identify the most sensitive use which it is intended to protect.

- (b) All surface waters shall be restored to meet the water quality criteria for their designated classification including existing and designated uses, and to maintain the chemical, physical, and biological integrity of surface waters.
- (c) All surface waters shall provide, wherever attainable, for the protection and propagation of fish, shellfish and wildlife, and for recreation in and on the surface waters.
- (d) Unless the flows are caused by naturally occurring conditions, surface water quantity shall be maintained at levels adequate to protect existing and designated uses.

C-12. Env-Wq 1702.46 defines surface waters as "surface waters of the state" as defined in RSA 485-A:2, XIV and waters of the United States as defined in 40 CFR 122.2."

RSA 485-A:2, XIV defines "surface waters of the state" as "perennial and seasonal streams, lakes, ponds and tidal waters within the jurisdiction of the state, including all streams, lakes, or ponds bordering on the state, marshes, water courses and other bodies of water, natural or artificial."

40 CFR 122.2 defines 'Waters of the United States'.

C-13. Wetlands are defined in 40 CFR 122.2 as "[t]hose areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. This definition is the same as the definition of jurisdictional wetlands used for State wetland permitting in RSA 482-A:2, X (see C-14). 40 CFR 122.2 further states that wetlands generally include swamps, marshes, bogs, and similar areas.

C-14. RSA 482-A:2, X. defines "Wetlands" as "[a]n area that is inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that under normal conditions does support, a prevalence of vegetation typically adapted for life in saturated soil conditions."

C-15. RSA 485-A:8, I states that "Class A waters shall be of the highest quality" and that there "[s]hall be no discharge of sewage or wastes" into Class A waters. Sewage and waste are defined as follows:

RSA 485-A:2, X. " "Sewage" means the water-carried waste products from buildings, public or private, together with such groundwater infiltration and surface water as may be present."

RSA 485-A:2, XVI. ""Waste" means industrial waste and other wastes."

RSA 485-A:2, VI. ""Industrial waste" means any liquid, gaseous or solid waste substance resulting from any process of industry, manufacturing trade or business or from development of any natural resources."

RSA 485-A:2, VIII. "Other wastes" means garbage, municipal refuse, decayed wood, sawdust, shavings, bark, lime, ashes, offal, oil, tar, chemicals and other substances other than sewage or industrial wastes, and any other substance harmful to human, animal, fish or aquatic life."

- C-16. Env-Wq 1702.07 "Biological Integrity" means the ability of an aquatic ecosystem to support and maintain a balanced, integrated, adaptive community of organisms having a species composition, diversity, and functional organization comparable to that of similar natural habitats of a region.
- C-17. Env-Wq 1702.17 "Designated uses" means those uses specified in water quality standards for each water body or segment whether or not such uses are presently occurring. According to the 2014 Consolidated Assessment and Listing Methodology (CALM)³ designated uses include Aquatic Life, Fish and Shellfish Consumption, Drinking Water Supply after Adequate Treatment, Primary and Secondary Contact Recreation and Wildlife.
- C-18. Env-Wq 1702.25 "Industrial waste" means "industrial waste" as defined in RSA 485-A:2, VI (see C-15).
- C-19. Env-Wq 1702.27 "Mixing zone" means a defined area or volume of the surface water surrounding or adjacent to a wastewater discharge where the surface water, as a result of the discharge, might not meet all applicable water quality standards.
- C-20. Env-Wq 1702.35 "Other wastes" means "other wastes" as defined in RSA 485-A:2, VIII (see (see C-15)).
- C-21. Env-Wq 1702.18 defines a discharge as:
- "a. The addition, introduction, leaking, spilling, or emitting of a pollutant to surface waters, either directly or indirectly through the groundwater, whether done intentionally, unintentionally, negligently, or otherwise; or
 - b. The placing of a pollutant in a location where the pollutant is likely to enter surface waters."
- C-22. The term "discharge", as applied under section 401 of the Clean Water Act means the potential for a discharge. It does not need to be a certainty, only that it may occur should the federal license or permit be granted. Further, the discharge does not need to involve the addition of pollutants (such as water released from the tailrace of a dam). As the U.S. Supreme Court has stated "[w]hen it applies to water, 'discharge' commonly means a 'flowing or issuing out'" and an addition of a pollutant is not "fundamental to any discharge". Two courts have found that a

³2014 Section 305(b) and 303(d) Consolidated Assessment and Listing Methodology. NHDES-R-WD-15-9. New Hampshire Department of Environmental Services. October 14, 2014. See <http://des.nh.gov/organization/divisions/water/wmb/swqa/2014/index.htm>.

withdrawal of water or reduction in flow does not constitute a discharge for the purposes of section 401 of the Clean Water Act ⁴.

- C-23. Env-Wq 1702.23 "Existing uses" means those uses, other than assimilation waste transport, which actually occurred in the water body on or after November 28, 1975, whether or not they are included in the water quality standards.
- C-24. Env-Wq 1702.39 defines a pollutant as: "pollutant" as defined in 40 CFR 122.2. This means "dredged spoil, solid waste, incinerator residue, filter backwash, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, (except those regulated under the Atomic Energy Act of 1954, as amended (42 U.S.C. 2011 et seq.)), heat, wrecked or discarded equipment, rock, sand, cellar dirt, and industrial, municipal, and agricultural waste discharged into water."
- C-25. Env-Wq 1702.51 "Waste" means "waste" as defined in RSA 485-A:2, XVI (see C-15).
- C-26. Env-Wq 1702.54 "Zone of passage" means an area bordering a mixing zone and which is free from pollutants and which allows for unobstructed movement of aquatic organisms.
- C-27. Env-Wq 1703.03 (c) (1) states that all "[s]urface waters shall be free from substances in kind or quantity which:
- a. Settle to form harmful deposits;
 - b. Float as foam, debris, scum or other visible substances;
 - c. Produce odor, color, taste or turbidity which is not naturally occurring and would render it unsuitable for its designated uses;
 - d. Result in the dominance of nuisance species; or
 - e. Interfere with recreational activities."
- C-28. Env-Wq 1703.11 entitled "Turbidity" states the following:
- "(a) Class A waters shall contain no turbidity, unless naturally occurring.
 - (b) Class B waters shall not exceed naturally occurring conditions by more than 10 NTUs.
 - (c) Waters identified in RSA 485-A:8, III shall contain no turbidity of unreasonable kind or quality.

⁴ Information in this paragraph is from page 4 of the following guidance document: *Clean Water Action Section 401 Water Quality Certification: A Water Quality Protection Tool for States and Tribes*. U.S. Environmental Protection Agency, Office of Wetlands, Oceans and Watersheds. 2010. The Supreme Court case that is referred to is *S.D. Warren Co. v. Maine Board of Environmental Protection et al*, 547 U.S. 370, 126 S. Ct. 1853 (2006).

(d) For purposes of state enforcement actions, if a discharge causes or contributes to an increase in turbidity of 10 NTUs or more above the turbidity of the receiving water upstream of the discharge or otherwise outside of the visible discharge, a violation of the turbidity standard shall be deemed to have occurred."

C-29. Env-Wq 1703.14, entitled "Nutrients", states that

"a. Class A waters shall contain no phosphorous or nitrogen unless naturally occurring.

b. Class B waters shall contain no phosphorous or nitrogen in such concentrations that would impair any existing or designated uses, unless naturally occurring.

c. Existing discharges containing either phosphorous or nitrogen which encourage cultural eutrophication shall be treated to remove phosphorus or nitrogen to ensure attainment and maintenance of water quality standards.

d. There shall be no new or increased discharge of phosphorous into lakes or ponds.

e. There shall be no new or increased discharge(s) containing phosphorous or nitrogen to tributaries of lakes or ponds that would contribute to cultural eutrophication or growth of weeds or algae in such lakes and ponds."

C-30. Env-Wq 1703.19, entitled "Biological and Aquatic Community Integrity", states that

"a. The surface waters shall support and maintain a balanced, integrated and adaptive community of organisms having a species composition, diversity, and functional organization comparable to that of similar natural habitats of a region; and

b. Differences from naturally occurring conditions shall be limited to non-detrimental differences in community structure and function."

C-31. Env-Wq 1703.21 (a)(1) states that "Unless naturally occurring or allowed under part Env-Wq 1707, all surface waters shall be free from toxic substances or chemical constituents in concentrations or combinations that injure or are inimical to plants, animals, humans or aquatic life."

C-32. Env-Wq 1703.07 through 1703.11 contain standards relative to dissolved oxygen, bacteria, benthic deposits, oil and grease, and turbidity.

C-33. Env-Wq 1707.01 regarding designation of mixing zones, states the following.

"(a) Mixing zones shall be prohibited in Class A waters.

(b) For Class B waters, the department shall designate a limited area or volume of the surface water as a mixing zone if the applicant provides sufficient scientifically

valid documentation to allow the department to independently determine that all criteria in Env-Wq 1707.02 have been met.”

C-34. Env-Wq 1707.02 regarding minimum criteria for mixing zones states that mixing zones shall be subject to site specific criteria that, as a minimum:

“(a) Meet the criteria in Env-Wq 1703.03(c)(1);

(b) Do not interfere with biological communities or populations of indigenous species;

(c) Do not result in the accumulation of pollutants in the sediments or biota;

(d) Allow a zone of passage for swimming and drifting organisms;

(e) Do not interfere with existing and designated uses of the surface water;

(f) Do not impinge upon spawning grounds and/or nursery areas of any indigenous aquatic species;

(g) Do not result in the mortality of any plants, animals, humans, or aquatic life within the mixing zone;

(h) Do not exceed the chronic toxicity value of 1.0 TUc at the mixing zone boundary; and

(i) Do not result in an overlap with another mixing zone.”

C-35. Antidegradation provisions are included in Env-Wq 1702 and Env-Wq 1708.

a. Env-Wq 1702.02 states that “Antidegradation” means a provision of the water quality standards that maintains and protects existing water quality and uses.

b. Env-Wq 1708.02 states that “Antidegradation shall apply to: (a) Any proposed new or increased activity, including point source and nonpoint source discharges of pollutants, that would lower water quality or affect the existing or designated uses;(b) Any proposed increase in loadings to a waterbody when the proposal is associated with existing activities; (c) Any increase in flow alteration over an existing alteration; and (d) Any hydrologic modifications, such as dam construction and water withdrawals.”

c. Antidegradation applies to all parameters as evidenced by Env-Wq 1708.08 (a) (Assessing Waterbodies) which states, “The applicant shall characterize the existing water quality and determine if there is remaining assimilative capacity for each parameter in question.”

d. According to Env-Wq 1708.04 (b), “A proposed discharge or activity shall not eliminate any existing uses or the water quality needed to maintain and protect those uses”.

e. Env-Wq 1702.03 states that “Assimilative capacity” means the amount of a pollutant or pollutants that can safely be released to a waterbody without

- causing violations of applicable water quality criteria or negatively impacting uses.
- f. Env-Wq 1708.08 describes the process for assessing waterbodies to determine if there is remaining assimilative capacity for each parameter in question.
 - g. Env-Wq 1708.09 Significant or Insignificant Determination states :(a) Any discharge or activity that is projected to use 20% or more of the remaining assimilative capacity for a water quality parameter, in terms of either concentration or mass of pollutants, or volume or flow rate for water quantity, shall be considered a significant lowering of water quality. The department shall not approve such a discharge or activity unless the applicant demonstrates that the proposed lowering of water quality is necessary to achieve important economic or social development, in accordance with Env-Wq 1708.10, in the area where the waterbody is located.
 - h. Env-Wq 1708.01 (b) states: "For significant changes in water quality, where the quality of the surface waters exceeds levels necessary to support propagation of fish, shellfish, and wildlife, and recreation in and on the water, that quality shall be maintained and protected unless the department finds, after full satisfaction of the intergovernmental coordination and public participation provisions that, in accordance with Env-Wq 1708.10, allowing lower water quality is necessary to accommodate important economic or social development in the area in which the surface waters are located. In allowing such degradation or lower water quality, the department shall assure water quality adequate to fully protect existing uses. Further, the department shall assure that the highest statutory and regulatory requirements shall be achieved for all new and existing point sources and that all cost effective and reasonable best management practices for nonpoint source control shall be implemented".
 - i. Env-Wq 1708.01 (c) states: "For insignificant changes in water quality, where the quality of the surface waters exceeds levels necessary to support propagation of fish, shellfish, and wildlife, and recreation in and on the water, that quality shall be maintained and protected. In allowing such degradation or lower water quality, the department shall assure water quality adequate to protect existing uses fully. Further, the department shall assure that the highest statutory and regulatory requirements shall be achieved for all new and existing point sources and that all cost effective and reasonable best management practices for nonpoint source control shall be implemented".

C-36. Env-Wq 1708.06 – Protection of Class A Waters

- (a) In accordance with RSA 485-A:8, I, discharges of sewage or waste to Class A waters shall be prohibited.
- (b) Proposed new or increased activities that the department determines do not involve the discharge of sewage or waste shall be reviewed in accordance with Env-Wq 1708.01 through Env-Wq 1708.12.

C-37. Env-Wq 1708.05 - Protection of Water Quality in ORW

- (a) Surface waters of national forests and surface waters designated as natural under NH RSA 483:7-a, I, shall be considered outstanding resource waters (ORW).
- (b) Water quality shall be maintained and protected in surface waters that constitute ORW, except that some limited point and nonpoint source discharges may be allowed providing that they are of limited activity which results in no more than temporary and short-term changes in water quality. "Temporary and short term" means that degradation is limited to the shortest possible time. Such activities shall not permanently degrade water quality or result at any time in water quality lower than that necessary to protect the existing and designated uses in the ORW. Such temporary and short term degradation shall only be allowed after all practical means of minimizing such degradation are implemented.

C-38. Env-Wq 1708.07 Protection of Water Quality in High Quality Waters

- (a) Subject to (b) below, high quality waters shall be maintained and protected, except that insignificant changes in water quality, as determined by the department in accordance with Env-Wq 1708.09, shall be allowed.
- (b) Degradation of significant increments of water quality, as determined in accordance with Env-Wq 1708.09, in high quality waters shall be allowed only if it can be demonstrated to the department, in accordance with Env-Wq 1708.10, that allowing the water quality degradation is necessary to accommodate important economic or social development in the area in which the receiving waters are located.
- (c) Economic/social benefits demonstration and alternatives analysis shall not be required for authorization of an insignificant lowering of water quality. However, in allowing a lowering of water quality, significant or insignificant, all reasonable measures to minimize degradation shall be used.
- (d) If the water body is Class A Water, the requirements of Env-Wq 1708.06 shall also apply.

C-39. Env-Wq 1702.06 states ""Best management practices" means those practices which are determined, after problem assessment and examination of all alternative practices and technological, economic and institutional considerations, to be the most effective practicable means of preventing or reducing the amount of pollution generated by point or nonpoint sources to a level compatible with water quality goals."

C-40. Section 303(d) of the Clean Water Act (33 U.S.C. 1313(d)) and the regulations promulgated thereunder (40 C.F.R. 130.0 – 40 C.F.R. 130.11) require states to identify and list surface waters that are violating state water quality standards (i.e., Section 303(d) List) that do not have an approved TMDL. For these water quality-impaired waters, states must establish Total Maximum Daily Loads (TMDLs) for the pollutants causing the impairments and submit the list of impaired surface waters and TMDLs to EPA for approval. TMDLs include source identification, determination of the allowable load and pollutant reductions (by source) necessary to meet the allowable load. Once a TMDL is conducted, the pollutant/surface water is

transferred to the list of impaired waters with approved TMDLs (known as Category 4A waters). The Section 303(d) List is, therefore, a subset of all impaired waters. The most recent Section 303(d) list of impaired waters is the draft 2014 Section 303(d) List⁵.

- C-41. When a surface water does not meet water quality standards (i.e., when it is impaired), the addition of pollutants causing or contributing to impairment is prohibited in accordance with the following:
- a. Env-Wq 1703.03 (a) states that "The presence of pollutants in the surface waters shall not justify further introduction of pollutants from point or nonpoint sources, alone or in any combination".
 - b. NH RSA 485-A:12 (I) (Enforcement of Classification) states that "After adoption of a given classification for a stream, lake, pond, tidal water, or section of such water, the department shall enforce such classification by appropriate action in the courts of the state, and it shall be unlawful for any person or persons to dispose of any sewage, industrial, or other wastes, either alone or in conjunction with any other person or persons, in such a manner as will lower the quality of the waters of the stream, lake, pond, tidal water, or section of such water below the minimum requirements of the adopted classification".
- C-42. 33 CFR, § 336.1(a)(1) states the following "The CWA requires the Corps to seek state water quality certification for discharges of dredged or fill material into waters of the U.S."
- C-43. RSA 482-A (Fill and Dredge in Wetlands) requires any person who excavates, removes, fills, dredges or constructs any structures in or on any bank, flat, marsh, or swamp in and adjacent to any waters of the state to obtain a wetlands permit from NHDES [RSA 482-A:3 I (a)]. On October 8, 2015, the Pease Development Authority (PDA)/ NH Port Authority submitted a wetlands permit application to NHDES for the Activity.
- C-44. The Applicant submitted an application for 401 Water Quality Certification to NHDES on August 17, 2015.
- C-45. NHDES issued a draft Section 401 Water Quality Certification for public comment from June 06, 2016 to July 11, 2016. No comments were received.

D. FINDINGS

- D-1. The Applicant proposes to perform maintenance dredging of a shoal in the Sagamore Creek portion of the Portsmouth Harbor and Piscataqua River Federal Navigation Project (FNP) in New Castle, New Hampshire. This area has not been dredged since 1970-'71, and is restricting use of facilities and is causing a navigational hazard (in some areas available depths have been reduced to as little

⁵The 2014 draft 303(d) list is available at <http://des.nh.gov/organization/divisions/water/wmb/swqa/2014/index.htm>.

as 2 feet MLLW⁶). A total of approximately 4,100 cubic yards (cy) of sediment (primarily sand) is proposed to be dredged from an approximate 36,000 square foot (0.83 acre) area in Sagamore Creek located at the confluence of the Back Channels at channel markers "G&R SL" and "GC-15" (see Figure 1). Sediment will be dredged to the 6 foot (MLLW) authorized project depth plus one foot of allowable overdepth. The material will be dredged by a mechanical dredge and transported by scow to a near shore site located approximately 900 feet off of Wallis Sands State Beach in Rye, NH (see Figure 1). The near shore placement site is approximately 900-feet-wide by 2,100-feet-long (43.4 acres) with water depths that range from 14 to 26 feet MLLW and was last used in 1994 and 2000 for placement of dredged material from Little Harbor, New Hampshire. It is anticipated that the scows will travel northward to pass under the Route 1B bridge, out through the mouth of the Piscataqua River and then south to the designated dredged material placement site (approximately 6.5 miles each way). Because of bridge restrictions, the scows will likely have a capacity of 500 cy and it is anticipated that approximately 14 trips will be necessary. Dredging and placement is proposed to occur between November 15 and March 15 to protect spawning shellfish and winter flounder as well as anadromous fish runs. It will take approximately 3 to 4 weeks to complete the work.

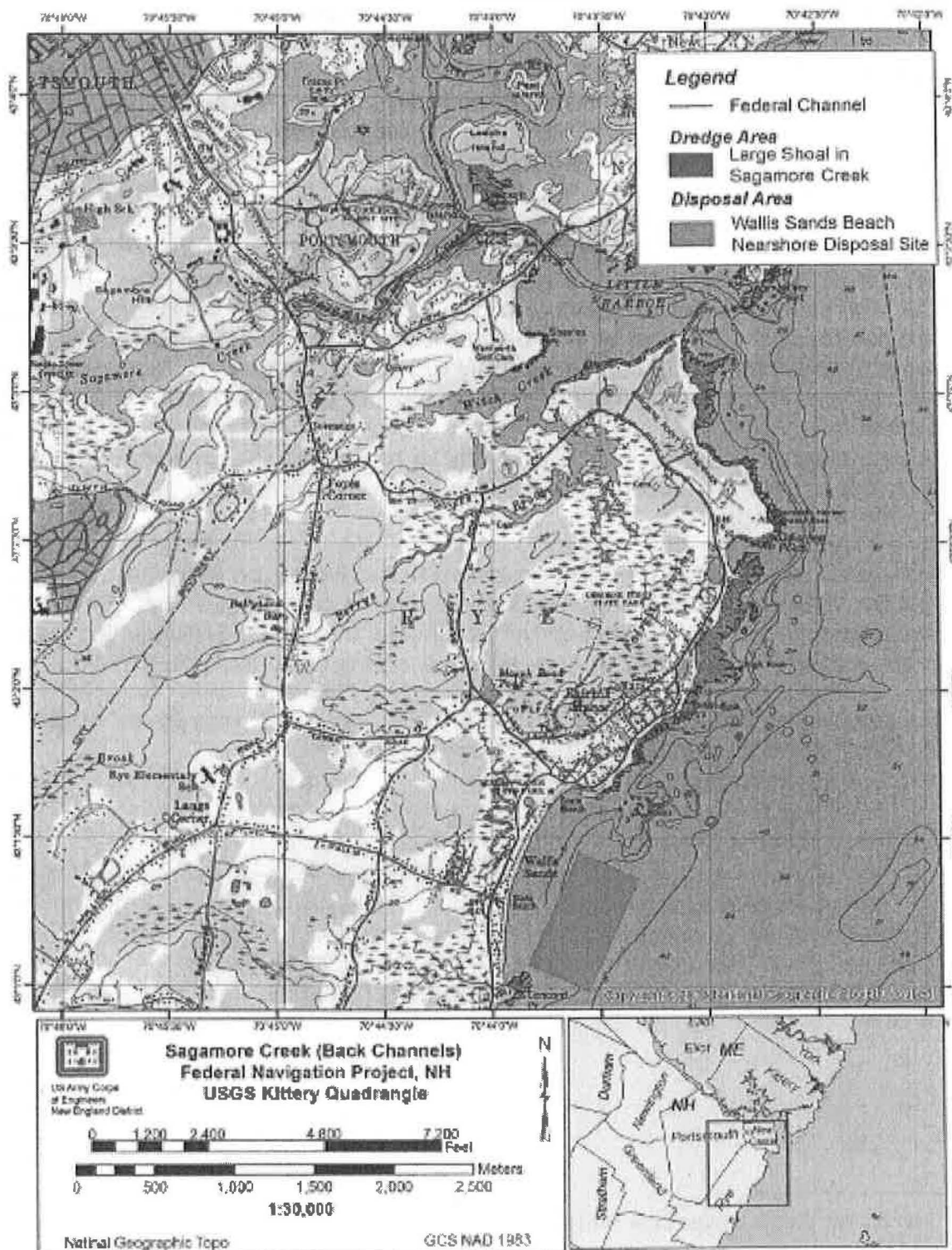
Additional details regarding the proposed Activity may be found in the § 401 water quality certification application which included a copy of the Draft Environmental Assessment (EA) and Finding of No Significant Impact (FONSI) which was originally prepared by the Applicant in August, 2015 and revised in April, 2016⁷.

For reasons stated in D-6 of this Certification, incidental movement of dredged material is not covered by this Certification.

⁶ MLLW stands for Mean Lower Low Water.

⁷ *Draft Environmental Assessment, Clean Water Act Section 404(b)(1) Evaluation, and Finding of No Significant Impact*. Environmental Resources Section, Engineering/Planning Division, U.S. Army Corps of Engineers, New England District, Concord, Massachusetts. August, 2015. Revisions were made in April, 2016.

Figure 1 (from the Applicant's WQC application)



D-2. The Applicant is responsible for the Activity, including construction and operation.

D-3. Surface waters as defined in Env-Wq 1702.46 are navigable waters for the purposes of certification under § 401 of the Clean Water Act and include jurisdictional wetlands that are subject to State wetlands permitting under RSA 482-A.

The named and unnamed surface waters (including wetlands) affected by the Activity, are surface waters under Env-Wq 1702.46. NHDES has assigned Assessment Unit (AU) identification numbers to many, but not all surface waters. Surface waters that do not have an AU number are still considered surface waters in accordance with Env-Wq 1702.46. Surface waters that could be potentially affected by the Activity (and their associated AU numbers (where available) and legislative classification) include, but are not limited to the following:

Assessment Unit ID	Description	Class
NHEST600031001-04	Lower Sagamore Creek	B
NHEST600031001-05	Back Channel	B
NHOCN000000000-02-18	Atlantic Ocean (includes near shore placement area off of Wallis Sands Beach)	B

D-4. The Activity is not within the watershed of an Outstanding Resource Water (see C-37).

D-5. According to the draft 2014 list of impaired waters (see C-40), the following surface waters in the vicinity of the proposed Activity are listed as impaired. All impairments, with the exception of those highlighted in bold (which have approved TMDLs), are on the Section 303(d) List:

Assessment Unit (AU)	Waterbody Name	Cause of Impairment (Designated Use Impaired)
NHEST600031001-04	Lower Sagamore Creek	Estuarine Bioassessments (AL) Mercury (FC & SFC) Polychlorinated Biphenyls(FC & SFC) Enterococcus (PCR) Enterococcus (SCR) Dioxin (including 2,3,7,8-TCDD)(SFC) Fecal Coliform(SFC)
NHEST600031001-05	Back Channel	Estuarine Bioassessments (AL) Light Attenuation Coefficient (AL) Mercury (FC & SFC) Polychlorinated Biphenyls(FC & SFC) Enterococcus (PCR) Enterococcus (SCR) Dioxin (including 2,3,7,8-TCDD)(SFC) Fecal Coliform(SFC)

Assessment Unit (AU)	Waterbody Name	Cause of Impairment (Designated Use Impaired)
NHOCN000000000-02-18	Atlantic Ocean (includes near shore placement area off of Wallis Sands)	Polychlorinated Biphenyls(FC & SFC) Dioxin (including 2,3,7,8-TCDD)(SFC)
Notes: AL = Aquatic Life, PCR = Primary Recreation, SCR = Secondary Recreation, FC = Fish Consumption, SFC = Shellfish Consumption		
Impairments highlighted in bold have approved TMDLs. All other impairments are on the Section 303(d) List.		

In 2010, NHDES completed a statewide bacteria TMDL⁸ that addressed enterococcus impairments in the Lower Sagamore Creek Estuary (NHEST600031001-04).

As stated in section C-41 of this Certification, when a surface water does not meet water quality standards (i.e., when it is impaired), the addition of pollutants causing or contributing to impairment is prohibited. That is, existing loadings must be held. The Activity is not expected to result in the addition of any of the parameters shown in the table above.

D-6. NHDES believes it has the authority to include conditions and limitations in the Certification to address all aspects of the Activity (see C-3). The Corps agrees that NHDES has the authority to include conditions in the 401 Water Quality Certification that address placement of dredged material in state waters (i.e., near-shore of the Wallis Sands Beach). However the Corps does not agree that NHDES has the authority to include conditions in the 401 Water Quality Certification regarding dredging activities in the Federal Navigation Project (Sagamore Creek) based on following regulation:

33 CFR 323.2(d)(3)(ii) , "(3) Section 404 authorization is not required for the following: . . . (ii) Incidental movement of dredged material occurring during normal dredging operations, defined as dredging for navigation in navigable waters of the United States, as that term is defined in part 329 of this chapter with proper authorization from the Congress and/or the Corps pursuant to 33 CFR part 322 of this Chapter; however, this exception is not applicable to dredging activities in wetlands as that term is defined in section 328.3 of this Chapter."

NHDES does not concur with the Corps on this issue. However, to enable the proposed Activity to move forward, and based on the definition of incidental movement of dredged material provided herein⁹ and, as requested by the Corps,

⁸ *New Hampshire Statewide Total Maximum Daily Load (TMDL) for Bacteria Impaired Waters*. New Hampshire Department of Environmental Services. September, 2010.

⁹ The term "incidental movement of dredged material" is not defined in federal statute or

condition E-7 in this 401 Certification has been written to only pertain to the placement of dredged material at the near-shore site off of the Wallis Sands Beach. NHDES, however, reserves all rights to assert jurisdiction in future projects relative to NHDES' authority to include conditions in 401 Water Quality Certifications relative to Corps dredging activities. The Corps likewise reserves all rights authorized by Congress.

Although dredging in Sagamore Creek is not addressed in condition E-7 of this Certification, there are other New Hampshire laws, regulations and permits that will help ensure that the proposed dredging complies with state surface water quality standards. For example, in accordance with RSA 485-A:12, I and II (see C-8), the Activity must also comply with state surface water quality standards.

- D-7. The Activity involves the discharge of dredged or filled material in state surface waters (see D-1) and therefore requires a NHDES Wetlands Permit. In October, 2015, the Pease Development Authority (PDA)/ NH Port Authority applied for a NHDES Wetlands Permit for the Activity (see C-43).
- D-8. NHDES received an application for §401 Water Quality Certification on August 17, 2015.
- D-9. The draft Environmental Assessment⁷ (EA) submitted with the §401 Water Quality Certification application provides an assessment of the environmental impacts and alternatives considered along with other data applicable to environmental compliance requirements. Dredging alternatives that were evaluated include no dredging, mechanical bucket dredging, hydraulic pipeline dredging and hydraulic hopper dredging. Sediment placement alternatives that were evaluated include upland placement, beach placement, near shore placement and unconfined open ocean disposal. Environmental impacts that were addressed include the physical, chemical and biological impacts of dredging and placement of sediment, including the impacts on threatened and endangered (T&E) species and essential fish habitat (EFH).
- D-10. Mechanical bucket dredging involves the use of a barge-mounted crane, backhoe or cable-arm with a bucket to dig the material from the channel bottom. The material is placed in a scow for transport to the disposal site by tug. The EA recommends mechanical bucket dredging because it is well-suited to fit in tight quarters such as the area in and around Sagamore Creek. In addition, the depths of dredging are conducive to mechanical bucket dredging. The EA did not consider hopper dredging to be viable because it lacks the maneuverability to be efficient in tight areas such as Sagamore Creek. Further, the EA concluded that cutterhead pipeline dredging is impracticable because of the relatively long distance between the

regulation. For the purposes of this Certification, incidental movement of dredged material means the redeposit of dredged material that is incidental to the excavation of material in New Hampshire surface waters when such material falls back to substantially the same place as the initial removal and at approximately the same time it was removed.

dredge site and proposed placement area which exceeds the maximum distance sediment can be pumped via this method (approximately one mile) before an additional pump is needed.

- D-11. The EA selected placement of the dredged material near shore and just off the Wallis Sands State Beach as the preferred alternative because the dredged material is 1) relatively clean sand and of similar grain size as the disposal area (see D-12 and D-13), 2) the transport distance is relatively short and 3) this alternative keeps the sand in the littoral system where it can serve as a potential source of material for indirect nourishment to adjacent beaches. Although several potential upland locations were identified, the EA concluded that none were found practicable from either a cost or logistics standpoint and that even if a viable alternative was identified, using a near shore site is preferable for clean sandy material as it keeps the material in the littoral zone. Direct beach placement was also not selected as it would require pumping the material directly onto the beach. A cutterhead pipeline dredge can only pump the material approximately one mile before an additional pump is needed. Since there are no public beaches adjacent to Sagamore Creek within a reasonable pumping distance, the EA did not consider direct beach placement of the dredged material to be a viable alternative.
- D-12. Sediment Grain Size: Appendix D of the EA includes grain size analysis results conducted on the sediment from the proposed area to be dredged and the proposed Wallis Sands near shore disposal location. In 2002, three sediment samples were collected from the shoal and four sediment samples were collected from the proposed disposal area for grain size analysis. Results indicated that the area of the proposed dredge was predominantly sand (approximately 97-98%) with the fine grain size fraction (silts and clays) comprising no more than 2% and that this was very similar to the sediment at the proposed disposal site (approximately 97-98% sand with no more than 3% silt and clay).
- D-13. Sediment Chemistry: Chemical analysis results of sediment samples collected on 7/28/03 are presented in Appendix C of the EA. Samples included four sediment samples from the area of the shoal which were composited (i.e., Composite Sta A, B, C & F) and analyzed for semi-volatile organics, pesticides, PCB Congeners, total metals, and total organic carbon. NHDES compared the results to the Threshold Effects Concentration (TEC) and Probable Effects Concentration (PEC). TEC values are screening thresholds below which adverse effects are unlikely and PEC values are screening thresholds above which adverse effects are likely¹⁰. TEC values are less than PEC thresholds. Results indicated that most were below the reporting limit and that the reporting limits in most cases were well below the PEC. Of those that were above the reporting limit they were all less than the TEC. This suggests that aquatic biota at the disposal site should not be adversely impacted by contaminant levels in the dredged sediment. The fact that the sediments were relatively "clean" is supported by the grain size analyses which indicated that the material was predominantly sand with very little organic content (i.e., the total

¹⁰ From draft "Evaluation of Sediment Quality Guidance Document". NHDES-WD-04-9. New Hampshire Department of Environmental Services. April 2005.

organic carbon was less than 1%). Dredged or fill material that is composed primarily of sand, gravel or other naturally occurring inert material is most likely to be relatively free from pollutants¹¹. The conclusion that the sediments are relatively clean is also supported by the finding that no spills have been reported in the area¹¹. Finally, the potential for contaminant concentrations in the dredged sediment to negatively impact aquatic life will become even less when the material is placed at the disposal area due to dilution and dispersion.

D-14. Potential Impacts in Sagamore Creek:

- a. **Physical and Chemical Impacts:** According to the EA (section 6.2.1), dredging operations will not have a significant long-term impact on turbidity levels or water column chemistry in the dredging area. The removal of predominantly clean sandy material (see D-12 and D-13) from the shoal will temporarily suspend sediments in the water column and result in localized increases in turbidity during the dredging operation. For clamshell dredges, sediment resuspension comes from four major sources: sediment suspended by the impact and withdrawal of the bucket from the bottom; washing of material from the top and sides of the bucket as it moves through the water; spillage of sediment-laden water out of the bucket as it breaks the water surface; inadvertent spillage of material during barge loading or intentional overflow intended to increase a barge's effective load. The amount of turbidity generated during the dredging operations is largely dependent on the sediment characteristics, ambient currents and the skill of the dredge operators. As the material is predominantly sand it is expected to settle out of the water column relatively quickly. Due to the low contaminant levels, the release of contaminants are expected to be minimal. Based on the above, the draft EA concludes that there should be no significant long term-term impact on Sagamore Creek waters.
- b. **Biological Impacts:** According to the EA (section 6.2.2), dredging operations will not likely have a significant impact on the biological resources in the area. This is because most motile organisms, such as crabs and finfish, have the ability to move from the area of impact. Although most sedentary organisms in the direct area of impact would be killed, recolonization of the dredged areas should take place within a relatively short period of time by organisms in the surrounding areas and from seasonal recruitment. The post-dredging community is expected to closely resemble the existing community since there will be no change in sediment structure.

The effects of turbidity on shellfish along the intertidal banks and shallows of Sagamore Creek should not be significantly impacted as any increases in turbidity levels should be short-lived and localized. Adult lobsters and crabs are expected to survive short term increases in turbidity however larval forms are more sensitive. To protect lobster larvae, which are typically most abundant from May through July, dredging and disposal operations will occur

¹¹ From the draft EA, Appendix D.

from November 15 through March 15. According to the EA, the time of year restriction will also protect spawning shellfish and anadromous fish during spawning runs.

On December 9, 2015, the New Hampshire Fish and Game Department (NHFGD) advised NHDES that a shortened dredge window would be preferred for rainbow smelt and winter flounder. That is, to give rainbow smelt the opportunity to completely migrate out of Sagamore Creek and into the Great Bay estuary, and to provide winter flounder with a clear window to spawn in March in areas such as Little Harbor and Back Channel, NHFGD recommends that dredging occur from December 15 through February 15.

In July 2015, the Applicant conducted an eelgrass survey and found there was no eelgrass in the proposed area to be dredged. Although eelgrass was found in the vicinity, it is not expected to be directly impacted by the Activity and any indirect impacts from increased turbidity are expected to be temporary and localized since the dredged material is predominantly sandy which should settle relatively quickly. The potential to impact nearby eelgrass beds is further minimized by dredging during the cold weather months when eelgrass growth is slow.

Based on the above, NHDES finds that the proposed dredging operation should, with reasonable assurance, comply with Env-Wq 1703.19, "Biological and Aquatic Community Integrity" (see C-30).

D-15. Potential Impacts at Placement Site:

- a. Physical and Chemical Impacts: According to the EA (section 6.3.1), placement of the dredged material at the near shore site off of Wallis Sands Beach would not significantly change the present character of the site since the shoal material is similar in grain size composition to that of the proposed near shore placement area, has low levels of contaminants and the volume to be placed is relatively small compared to the area of the placement site. Although there will be temporary increases in turbidity due to suspended solids after each placement of dredged material, no significant release of contaminants or long-term environmental effects is expected since the dredged material is predominantly "clean" sand (see D-12 and D-13). The EA further states that increases in turbidity should not extend beyond approximately 300 feet from the location of the scow based on monitoring conducted with the dredge CURRITUCK¹² and that there should be little, if any, potential for impacts to water quality outside of the established placement site (i.e., mixing zone) boundaries.

¹² *Suspended Sediment Plumes Associated with Hopper Dredging at Sesuit Harbor, Massachusetts.* Douglas Clarke, Kevin Rein and Charles Dickerson. U.S. Army Engineer Research and Development Center. Vicksburg, Mississippi. February 2010. Submitted to U.S. Army Engineer District, New England.

- b. **Biological Impacts:** According to the EA (section 6.3.2), the major effects of placement are turbidity and direct burial. Turbidity impacts are expected to be short-term and localized (due to the sandy nature of the dredged material) and not likely to significantly impact the biota adjacent to the placement site. Any negative impacts on shellfish and existing benthic resources are expected to be minimal and short-lived given the relatively small amount of material to be placed. Some burrowing organisms may survive by burrowing through the sediments given sufficient time between placement events. Although some organisms may be killed by direct burial the affected area is usually recolonized rapidly through recruitment from other areas. Rapid recolonization of the benthic communities is expected to replace any mortality due to placement activities, given the compatibility of the dredged material with that found at the near shore placement site (see D-12).

Based on the above, NHDES finds that the proposed dredging operation should, with reasonable assurance, comply with Env-Wq 1703.19, "Biological and Aquatic Community Integrity" (see C-30).

- D-16. **Turbidity:** The project will likely result in short term, localized turbidity. Applicable turbidity criteria are provided in Env-Wq 1703.11 (d) (see C-28). Env-Wq 1707.01(b) allows for mixing zones (see C-33) provided the minimum criteria in Env-Wq 1707.02 are met (see C-34). In accordance with historical practice, mixing zones do not need to address areas directly impacted by dredging or filling of surface waters that are permitted under a NHDES Wetlands Permit. As indicated in D-7 above, a NHDES Wetlands permit for the Activity is expected to be issued in 2016. As discussed in D-15 above, according to the EA, turbidity criteria should be met within 300 feet of where the scow releases sediment at the placement site. Based on the EA, and in accordance with Env-Wq 1707.02, NHDES is approving a mixing zone of 300 feet from the location where the scow releases sediment at the placement site off of the Wallis Sands Beach. As the material is predominantly sand (which should settle relatively quickly), turbidity monitoring is not considered necessary unless visible and persistent plumes are observed at the boundary of the mixing zone.
- D-17. **Antidegradation:** Given that implementation of the Activity is short-term (i.e., estimated to take approximately 3 weeks) and given the area of surface water and sediment impacted is very small relative to the total area of the resource in the area, NHDES finds that the Activity is "insignificant" in accordance with Env-Wq 1708.09 (c). For insignificant determinations, Env-Wq 1708.01 (c) requires NHDES "[t]o assure that the highest statutory and regulatory requirements shall be achieved for all new and existing point sources and that all cost effective and reasonable best management practices for nonpoint source control shall be implemented". Best management practices are defined in Env-Wq 1702.06 (see C-39).

D-18. Actions taken to minimize adverse impacts: According to section 10 of the EA and the CWA Section 404(b)(1) Evaluation prepared by the Corps, the following actions will be taken to minimize potential adverse impacts associated with this Activity:

- a. The dredging contractor will be required to fully accommodate vessel traffic during dredging operations;
- b. Dredge window of November 15 through March 15 will be used to protect spawning, shellfish, anadromous finfish and winter flounder;
- c. All efforts will be made to avoid dredging or directly impacting any eelgrass that may be in the channel or nearby areas; and
- d. All dredge material placement activities will occur within designated boundaries of the established placement site location.

E. WATER QUALITY CERTIFICATION CONDITIONS

Unless otherwise authorized by NHDES, the following conditions shall apply:

- E-1. **Compliance with Water Quality Standards:** The Activity shall not cause or contribute to a violation of surface water quality standards. NHDES may modify this 401 Certification to include additional conditions to ensure the Activity complies with surface water quality standards, when authorized by law, and after notice and opportunity for hearing.
- E-2. **Inspections:** In accordance with applicable laws, the Applicant shall allow NHDES to inspect the Activity and affected surface waters to monitor compliance with the conditions of this 401 Certification.
- E-3. **Proposed Modifications to the Activity:** The Applicant shall consult with NHDES regarding any proposed modifications to the Activity, including construction or operation, to determine whether this 401 Certification requires modification in the future.
- E-4. **Transfer of Certification:** Should this Certification be transferred to a new owner, contact information for the new owner (including name, address, phone number and email) shall be provided to NHDES within 30 days of the transfer.
- E-5. **Compliance with Other Permits:** The Applicant shall comply with all applicable permits (and any amendments) associated with the Activity that may affect surface water quality. The conditions of these permits shall become conditions of this Certification upon issuance of this Certification. Should there be any discrepancies between permit requirements the more stringent requirement shall apply.
- E-6. **Timing of Activity:** The Activity shall be conducted as quickly as practicable during a time period that is acceptable to the New Hampshire Fish and Game Department and within the period of November 15 through March 15.

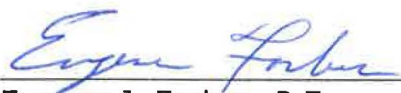
- E-7. **Turbidity:** Turbidity criteria [Env-Wq 1703.11(d)] shall be met at the edge of the NHDES approved mixing zone at the near-shore site off of the Wallis Sands Beach (see D-16 of this Certification).
- E-8. **Best Management Practices:** The Applicant shall implement best management practices to minimize turbidity associated with the Activity to the maximum extent practicable.
- E-9. **Eelgrass:** The Activity shall not result in the loss of any eelgrass in the channel or nearby areas.
- E-10. **Notification Procedure for Adverse Impacts:** At least 90 days prior to start of the Activity, the Applicant shall submit a notification procedure outlining the reporting process to NHDES for incidents related to the Activity that may adversely impact surrounding resource areas and habitats including, but not limited to, observed dead or distressed fish or other aquatic organisms, loss or damage to eelgrass, sediment spills outside of the approved disposal area, observed oily sheens on the water surface, turbidity plumes beyond deployed BMPs or approved mixing zones, and accidental spills associated with equipment failure. If at any time during implementation of the Activity an incident creates environmental impacts such as those listed above, all site related activities impacting the water shall cease until the source of the problem is identified and adequate mitigating measures are employed to the satisfaction of NHDES.

F. APPEAL

Any person aggrieved by this decision may appeal to the N.H. Water Council ("Council") by filing an appeal that meets the requirements specified in RSA 21-O:14 and the rules adopted by the Council, Env-WC 100-200. The appeal must be filed directly with the Council within 30 days of the date of this decision and must set forth fully every ground upon which it is claimed that the decision complained of is unlawful or unreasonable. Only those grounds set forth in the notice of appeal can be considered by the Council.

Information about the Council, including a link to the Council's rules, is available at <http://nhec.nh.gov/> (or more directly at <http://nhec.nh.gov/water/index.htm>). Copies of the rules also are available from the NHDES Public Information Center at (603) 271-2975.

If you have questions regarding this Certification, please contact Owen David at (603) 271-0699 or Owen.David@des.nh.gov



Eugene J. Forbes, P.E.
Director, NHDES Water Division

cc (by email):

Bill Kavanaugh, USACOE, New England

Carol Henderson, NHFG
Cheri Patterson, NHFG
Michael Johnson, NOAA
Geno Marconi, PDA/NH Port Authority
John P. Bohenko, Manager, City of Portsmouth
New Castle Select Board
Michael Magnant, Rye Town Administrator
Craig Rennie, NHDES Wetlands Bureau
Chris Williams, NHDES CZM