

**CLEAN WATER ACT SECTION 404 (b)(1) EVALUATION
U.S. ARMY CORPS OF ENGINEERS
NEW ENGLAND DISTRICT, CONCORD, MA**

PROJECT: Wiswall Dam Aquatic Ecosystem Restoration Project

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PROJECT DESCRIPTION:

Wiswall Dam is located on the Lamprey River in the town of Durham, Strafford County, New Hampshire. The proposed project is to construct an artificial bypass channel around the dam in order to restore anadromous fish passage to areas of the Lamprey River upstream. Approximately 43 miles of riverine habitat will become accessible to anadromous fish in the Lamprey River upstream from the Dam. Anadromous river herring are currently stocked in Pawtuckaway Lake, upstream from Wiswall Dam and returning pre-spawning adults pass through the fish ladder at the Macallen Dam, downstream in Newmarket. However, the migrating fish are unable to pass beyond the Wiswall Dam, which is the next upstream barrier on the Lamprey River. Returning Atlantic salmon are also unable to access spawning habitat upstream from the Wiswall Dam, but are expected to gain access to additional spawning habitat upstream from Wiswall Dam with the construction of the bypass channel.

The work will involve the excavation of a channel along the east side of the Lamprey River (left bank looking downstream) that will connect the impoundment behind the Wiswall Dam with the section of the river downstream from the dam. The bypass channel would be located on a 2-acre area adjacent to and downstream of Wiswall Dam. The channel will follow a broad circular path approximately 1,100 feet in length with a channel gradient of approximately 1%, and have a total cut or fill width of between 30 and 70 feet. The upper 800 feet of channel will follow through a gently rolling terrace and then turn back to the river's edge. The final 300 feet of channel will follow along the north bank of the river back to the base of the dam. The channel will connect at its upstream end to an inlet, 50 feet long by 20 feet wide, which was once the constructed entrance to the millrace around the dam. The channel will divert water around the dam, ranging from all the water in the river (up to 45 cubic feet per second (cfs)) during low flows to several hundred cfs during high river flows. The entire channel bottom will be covered with gravel, cobbles, and boulders to create a continuous benthic habitat and to control channel flows.

Construction will involve the removal of approximately 3,100 cubic yards of soil and rock material. Some of this material will be used to create the streambed of the channel. In addition, the channel will traverse approximately 0.5 acre of forested wetland, which will be replaced with riverine habitat. However, additional fringing emergent and scrub shrub wetland will be created along the channel in various locations. See Environmental Assessment for a full project description. This proposed action represents the least environmentally damaging practical alternative.

**NEW ENGLAND DISTRICT
U.S. ARMY CORPS OF ENGINEERS
Evaluation of Clean Water Act Section 404(b)(1) Guidelines**

PROJECT: **Wiswall Dam Aquatic Ecosystem Restoration Project**

1. Review of Compliance (Section 230.10(a)-(d)).

- a. The discharge represents the least environmentally damaging practicable alternative and if in a special aquatic site, the activity associated with the discharge must have direct access or proximity to, or be located in the aquatic ecosystem to fulfill its basic purpose. YES NO
- b. The activity does not appear to:
1) violate applicable state water quality standards or effluent standards prohibited under Section 307 of the CWA; 2) jeopardize the existence of Federally listed threatened and endangered species or their critical habitat; and 3) violate requirements of any Federally designated marine sanctuary YES NO
- c. The activity will not cause or contribute to significant degradation of waters of the U.S. including adverse effects on human health, life stages of organisms dependent on the aquatic ecosystem, ecosystem diversity, productivity and stability, and recreational, aesthetic, and economic values YES NO
- d. Appropriate and practicable steps have been taken to minimize potential adverse impacts of the discharge on the aquatic ecosystem YES NO

2. Technical Evaluation Factors (Subparts C-F).

	<u>N/A</u>	<u>Signif-icant</u>	<u>Signif-icant*</u>			
a. Potential Impacts on Physical and Chemical Characteristics of the Aquatic Ecosystem (Subpart C).						
1) Substrate.			x			
2) Suspended particulates/turbidity.			x			
3) Water.			x			
4) Current patterns and water circulation.			x			
5) Normal water fluctuations.			x			
6) Salinity gradients.	x					
b. Potential Impacts on Biological Characteristics of the Aquatic Ecosystem (Subpart D).						
1) Threatened and endangered species.	x					
2) Fish, crustaceans, mollusks and other aquatic organisms in the food web.			x			
3) Other wildlife.			x			
c. Potential Impacts on Special Aquatic Sites (Subpart E).						
1) Sanctuaries and refuges.	x					
2) Wetlands.			x			
3) Mud flats.	x					
4) Vegetated shallows.			x			
5) Coral reefs.	x					
6) Riffle and pool complexes.			x			
d. Potential Effects on Human Use Characteristics (Subpart F)						
1) Municipal and private water supplies.			x			
2) Recreational and commercial fisheries.			x			
3) Water-related recreation.			x			
4) Aesthetics.			x			
5) Parks, national and historic monuments, national seashores, wilderness areas, research sites, and similar preserves.			x			

3. Evaluation and Testing (Subpart G).

a. The following information has been considered in evaluating the biological availability of possible contaminants in dredged or fill material. (Check only those appropriate.)

- | | |
|--|---|
| 1) Physical characteristics..... | x |
| 2) Hydrography in relation to known or anticipated sources of contaminants..... | x |
| 3) Results from previous testing of the material or similar material in the vicinity of the project .. | x |
| 4) Known, significant sources of persistent pesticides from land runoff or percolation | |
| 5) Spill records for petroleum products or designated hazardous substances (Section 311 of CWA) | |
| 6) Public records of significant introduction of contaminants from industries, municipalities, or other sources | |
| 7) Known existence of substantial material deposits of substances which could be released in harmful quantities to the aquatic environment by man-induced discharge activities | |
| 8) Other sources (specify) | |

List appropriate references.

Draft Environmental Assessment for Wiswall Dam project

b. An evaluation of the appropriate information in 3a above indicates that there is reason to believe the proposed dredge or fill material is not a carrier of contaminants, or that levels of contaminants are substantively similar at extraction and disposal sites and not likely to require constraints. The material meets the testing exclusion criteria.

<input checked="" type="checkbox"/>	<input type="checkbox"/>
YES	NO

4. Disposal Site Delineation (Section 230.11(f)).

a. The following factors, as appropriate, have been considered in evaluating the disposal site.

- | | |
|--|---|
| 1) Depth of water at disposal site | x |
| 2) Current velocity, direction, and variability at the disposal site | x |
| 3) Degree of turbulence | x |

- | | |
|---|---|
| 4) Water column stratification | x |
| 5) Discharge vessel speed and direction | |
| 6) Rate of discharge | |
| 7) Dredged material characteristics
(constituents, amount, and type
of material, settling velocities) | x |
| 8) Number of discharges per unit of time | x |
| 9) Other factors affecting rates and
patterns of mixing (specify) | |

List appropriate references:

Draft Environmental Assessment for Wiswall Dam project

b. An evaluation of the appropriate factors in 4a above indicates that the disposal site and/or size of mixing zone are acceptable

x	
YES	NO

5. Actions To Minimize Adverse Effects (Subpart H).

All appropriate and practicable steps have been taken, through application of recommendation of Section 230.70-230.77 to ensure minimal adverse effects of the proposed discharge.

x	
YES	NO

List actions taken.

- 1) See Environmental Assessment

6. Factual Determination (Section 230.11).

A review of appropriate information as identified in items 2 - 5 above indicates that there is minimal potential for short or long term environmental effects of the proposed discharge as related to:

- | | |
|--|--------------|
| a. Physical substrate
(Review sections 2a, 3, 4, and 5 above). | YES x NO |
| b. Water circulation, fluctuation and salinity
(Review sections 2a, 3, 4, and 5). | YES x NO |
| c. Suspended particulates/turbidity
(Review sections 2a, 3, 4, and 5). | YES x NO |

- d. Contaminant availability
(Review sections 2a, 3, and 4). YES | | NO | |
- e. Aquatic ecosystem structure, function
and organisms(review sections 2b and
c, 3, and 5) YES | | NO | |
- f. Proposed disposal site
(review sections 2, 4, and 5). YES | | NO | |
- g. Cumulative effects on the aquatic
ecosystem. YES | | NO | |
- h. Secondary effects on the aquatic
ecosystem. YES | | NO | |

7. Findings of Compliance or non-compliance.

The proposed disposal site for discharge of dredged or fill material complies with the Section 404(b)(1) guidelines and represents the least environmentally damaging practicable alternative.

YES | | NO | |

DATE

Thomas L. Koning
Colonel, Corps of Engineers
District Engineer