
**Robe Lake Ecosystem Restoration
Evaluation Under Section 404(b)(1) CWA | DRAFT
Valdez, Alaska**



**U.S. Army Corps
of Engineers**
Alaska District

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**EVALUATION UNDER
SECTION 404(b)(1) CLEAN WATER ACT 40 CFR PART 230**
Robe Lake Ecosystem Restoration (CAP, 206)
Valdez, Alaska

1. Project Descriptions

The purpose of this CAP Section 206 study is to improve the Robe Lake ecosystem function in a self-sustaining way that reduces the amount of human intervention and maintenance required, while improving existing salmonid rearing and spawning habitat.

The recommended plan, Alternative B-3, is outlined as follows. The entire flow of Corbin Creek would be rerouted back into the relic channel of Old Corbin Creek. To direct flow, a diversion dike would run parallel to the existing Corbin Creek, and perpendicular to Old Corbin Creek. A channel approximately 275-foot-long would be excavated to connect Old Corbin Creek to Corbin Creek. Approximately 1.5 miles of Old Corbin Creek would be excavated to deepen channel geometry. The culverts under ALPETCO trail system on Old Corbin Creek would be replaced with a trail bridge. A berm approximately 450-foot-long would be placed in the low-lying area between the two bluffs near the Old Corbin Creek culverts to prevent overland flow from entering historic channels that flow towards the Robe River subdivision. The two culverts with a diameter of approximately 12.75-foot at the Robe River crossing would be replaced with three culverts with a diameter of approximately 14-foot for increased flow capacity and improve fish passage.

Old Corbin Creek would be enhanced through nature-based features, such as stream bed improvements to mimic the narrow and deep channel geometry seen on other creeks (i.e., Brownie Creek and Deep Creek). These improvements include channelization of Old Corbin Creek to accommodate increased flows, adding pools-riffle complexes, and increasing amount of large woody debris. These nature-based features would be implemented to work in concert with natural processes to mimic natural conditions.

A. Authority

The feasibility study was conducted by USACE Alaska District under authority granted by the Continuing Authorities Program (CAP) Section 206 of the Water Resources Development Act (WRDA) of 1996 (33 U.S.C. §2330), as amended.

B. General Description of Dredged or Fill Material

The primary discharges to waters of the U.S. would be:

- a) Placement of quarry-sourced rock construction material (A-rock and B-rock) for the construction of the diversion dike; and

- b) Placement of the material removed during dredging of Old Corbin Creek to enhance nature-based features; or
- c) Placement of terrestrial fill (i.e., coarse sand and gravel) for a temporary construction of an access road to build the diversion dike.

The nature and location of the dredging-related discharge would depend upon the means of dredging Old Corbin Creek. The volume of dredged material extracted from Old Corbin Creek would be sufficient to ensure the channel has flow capacity. The majority of that material would be placed along the bank of Old Corbin Creek to deepen channel geometry, and enhance nature-based features such as pool-riffle complexes, or fill in low areas to block off other relic channels. Any excess material may be placed on the channel banks to enhance and mimic a natural bank. No dredged material extracted from Old Corbin Creek is anticipated to be removed from the project site, the material will simply be re-contoured.

USACE anticipates that a temporary access road will need to be constructed with terrestrial fill (i.e., coarse sand and gravel from the Valdez quarry), which would be placed over certain areas along the ALPETCO trail system to allow land-based equipment to reach the proposed site for the diversion dike and dredge Old Corbin Creek. The temporary fill would also help reduce impacts to surrounding land from heavy equipment operations. Temporary fill would be removed after construction and placed for future beneficial use at an upland stockpile site within the Valdez quarry.

C. Descriptions of the Proposed Discharge Sites

The proposed enhancement of nature-based features with dredged material would be along the bank of Old Corbin Creek. The subsurface soil in this area consists of glacial till, and cobbles with layers of silt and sand. The surrounding understory vegetation along Old Corbin Creek is mainly comprised of deciduous shrubs (i.e., alder and willow).

D. Descriptions of Discharge Methods

Placement of dredged material for channel improvements and enhancement along Old Corbin Creek would most likely use heavy equipment such as an excavator or backhoe. Rock for the diversion dike and berm approximately 450-foot-long would be placed by an excavator. The temporary access road would be placed using front-end loaders and other standard land-based construction equipment.

2. Factual Determinations

A. Physical Substrate Determination

The dredged material placed along the bank of Old Corbin Creek to enhance nature-based features would contain a significant quantity of cobbles, poorly graded gravel, silt, and sand.

B. Water Circulation

The placement of dredged material along the bank of Old Corbin Creek to enhance nature-based features is not expected to cause long-term adverse changes to water circulation within Robe Lake. The proposed diversion dike would redirect the entire flow of Corbin Creek into Old Corbin Creek, which will increase cold, turbid, glacial flow into Robe Lake. The temporary fill would be removed entirely upon construction of the project, and thus it will have no lasting adverse effect on water circulation within the floodplain.

C. Suspended Particulate/Turbidity Determinations

The dredged material and the receiving substrates along the bank of Old Corbin Creek are expected to consist of glacial till, coarse sand, poorly graded gravel, cobbles, and silt. The dredging is expected to be performed with an excavator. A hydraulic ripping attachment to an excavator may be necessary to remove consolidated sediment or weathered bedrock within the dredging prism. In mechanical dredging, the sediment becomes suspended into the water by:

- a) impact of the dredge with the bottom of the tributary,
- b) fallback of sediment as the dredge is raised to the surface,
- c) dewatering of the sediment as it is stockpiled or placed at the placement site.

Placement of rock for the diversion dike is expected to increase turbidity in the project area over a short duration, as the substrate contains fine particles and silt that is easily disturbed. Rock and fill material would contain residual fines that may become suspended in the water column and contribute minimally to turbidity. The existing geometry of Old Corbin Creek, and the enhancement of nature-based features (i.e., pool-riffle complexes) is anticipated to dissipate any suspended sediments.

D. Contaminant Determinations

The project footprint is located inland along Old Corbin Creek, which is mostly accessible through the ALPETCO trail system. The Alaska Department of Environmental Conservation (ADEC) Contaminated Sites Program has no records of contaminant releases within this area.

The Clean Water Act Section 404(b)(1) guidelines state, "Dredged or filled material is most likely to be free from chemical, biological, or other pollutants where is composed primarily of sand, gravel, or other naturally occurring inert material. Dredged material so composed is generally found in areas of high current or wave energy..." (40 CFR 230.60). As described in previous sections, the material to be dredged consists of a few

feet of coarse sand and gravel, on top of much denser formations of weathered bedrock. USACE determines that the material to be dredged meets the above description from 40 CFR 230.60 and is highly unlikely to have received and retained contaminants.

E. Aquatic Ecosystems and Organism Determinations

The observed substrate at the habitat enhancement site is likely to host low densities of macroinvertebrates and arthropod larvae inhabiting a substrate of coarse mobile sand. Removal of this substrate would change the surface particle size distribution, adding more coarse material to the existing sand. This will alter its suitability for some species, while creating more opportunities for other organisms, such as juvenile salmonids.

F. Proposed Placement Site Determinations

The dredged material would consist of coarse sand, gravel, cobbles, and silt. USACE expects the dredged material to have minimal dispersion via dewatering when placed on along Old Corbin Creek to enhance the bank and produce pools, riffles, runs, and other nature-based features. However, the placed material would be subject to disturbance heavy rains and other natural processes.

G. Determination of Cumulative, Secondary Effects on the Aquatic Ecosystem

Natural processes could gradually disperse dredged material placed along Old Corbin Creek, and no permanent long-term effects are anticipated. Anticipated maintenance dredging for this CAP 206 project is anticipated to occur every 10 years.

Construction of the diversion dike would reroute Corbin Creek into Old Corbin Creek. This will increase glacial flows into Robe Lake. The influx of cold, turbid, glacial flow will reduce the overgrowth of macrophytes; meeting the project objectives to restore the aquatic ecosystem within Robe Lake.

3. Findings of Compliance or Non-compliance with the Restrictions on Discharge

A. Adaptation of Section 404(b)(1) Guidelines to this Evaluation

The proposed project complies with the requirements outlined in the Environmental Protection Agency's (EPA) Guidelines for Specification of Disposal Sites for Dredged or Fill Material.

B. Evaluation of Availability of Practicable Alternatives to the Proposed Placement Site Which Would Have Less Adverse Impact on the Aquatic Ecosystem

The placement of material into the aquatic environment for the construction of the diversion dike is integral to the project purpose of restoring the ecosystem at Robe Lake to a self-sustaining system that requires minimal human intervention. Material placed to create a temporary access road and construction pad would be removed at the end of the project construction, resulting in no changes in water circulation within the floodplain. The temporary access road and construction pad will also serve to reduce the impacts of heavy equipment operations on the surrounding environment. Placement of the dredged material along the bank of Old Corbin Creek to enhance nature-based features would be the most beneficial means of placing the dredged material.

C. Compliance with Applicable State Water Quality Standards

The proposed project will not lead to exceedances of applicable State of Alaska water quality standards.

D. Compliance with Applicable Toxic Effluent Standards or Prohibitions under Section 307 of the Clean Water Act

No toxic effluents that would affect water quality parameters are associated with the proposed project. Therefore, the project complies with toxic effluent standards of Section 307 of the Clean Water Act.

E. Compliance with Endangered Species Act of 1973

USACE has determined that no Federal or State threatened or endangered species are known to occur within the project's footprint, as proposed. Likewise, there is no critical habitat designated for threatened or endangered species within the proposed project's footprint. Informal coordination efforts with the U.S. Fish and Wildlife Service (USFWS) under the precept of the Fish and Wildlife Coordination Act (FWCA) have been ongoing.

F. Evaluation of the Extent of Degradation of the Waters of the United States

There are no municipal or private water supplies in the area that could be negatively affected by the proposed project. There would be no significant adverse impacts on macroinvertebrates, fish and wildlife, or special aquatic sites.