Draft ENVIRONMENTAL ASSESSMENT
Shoreline Stabilization
Pend Oreille River

ALBENI COVE RECREATION AREA

BONNER COUNTY, IDAHO

US ARMY CORPS OF ENGINEERS
SEATTLE DISTRICT

December 2007

US Army Corps
of Engineers
Seattle District

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Pend Oreille River
Shoreline Stabilization Project

Albeni Cove Recreation Area
Bonner County, Idaho
Winter 2007-2008

Draft Environmental Assessment

Responsible Agencies: The agency responsible for this project is the U.S. Army Corps of Engineers – Seattle District.

Abstract: This Draft Environmental Assessment (EA) evaluates the environmental, cultural and social effects of a Pend Oreille River shoreline stabilization intended to prevent further loss of shoreline at the Corps of Engineers' Albeni Cove Recreation Area. Erosion from wave action, primarily caused by boats, has caused incremental bank failure along several hundred feet of shoreline at the site, causing some tree loss and undercutting, and directly affecting two campsites, a swimming beach, and a wetland. The compact clayey sediments at the site are subjected to inundation during full pool elevation (~2,062.5'above mean sea level) of the reservoir and are stricken energetically by large waves caused by high winds or boat traffic during that period. Although water pressure holds the soil in place at high pool, when the pool is drawn down for the winter, the temporarily stabilized soils erode or slough off onto the beach vacated by the receding shoreline, especially when saturated by heavy fall precipitation.

The primary focus of the project is the construction of rock riprap bank stabilization along approximately 1,600 lineal feet of the shoreline. When complete, the structure will provide protection against erosion to an elevation of between 2063 and 2065, or 0.50 to 2.50 feet above the regulated summer pool level. Access for the project will be partly by existing park roads and partially over dewatered river substrate, primarily sand and clay, with some gravel. The work will take place within an area administered by the Corps of Engineers (Corps) for recreational purposes which is being impacted by shoreline erosion.

The project will not constitute a major federal action and will not significantly affect the quality of the human or natural environment. Impacts from the project are expected to include minor effects on water quality, bank cover, short-term air quality and noise effects, and recreational boat use. The Corps will use best management practices to minimize potential adverse effects to aquatic and terrestrial resources. Impacts to air quality, noise, and water quality will generally be highly localized and short in duration. Best management practices will be used to address air quality. Mitigation for bank cover will take the form of plantings of native vegetation in and over the rock used for bank protection. Shoreline boat access at campsites will be maintained by creation of V-notches and posts to accommodate bow-in mooring on the shore.

THE OFFICIAL COMMENT PERIOD ON THIS ENVIRONMENTAL ASSESSMENT ENDS JANUARY 22, 2008.

This document is available online at: http://www.nws.usace.army.mil/ers/envirdocs.html.

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1.0 INTRODUCTION

This Draft Environmental Assessment (EA) is prepared under the National Environmental Policy Act (NEPA) of 1969 (42 USC 4321-4370e), Sec. 102(C). It evaluates the environmental, cultural and social effects of a Pend Oreille River shoreline stabilization intended to prevent further loss of shoreline at the Corps of Engineers' Albeni Cove Recreational Area. Erosion from wave action, primarily caused by boats, has caused incremental bank failure along several hundred feet of shoreline at the site, causing some tree loss and undercutting, and directly affecting two campsites, a swimming beach, and a wetland. The compact clayey sediments at the site are subjected to inundation during full pool elevation (~2,062) of the reservoir and are stricken energetically by large waves caused by high winds or boat traffic during that period. Although water pressure holds the soil in place at high pool, when the pool is drawn down for the winter, the temporarily destabilized soils erode or slough off onto the beach vacated by the receding shoreline, especially when saturated by heavy fall precipitation. Section 9 of the Flood Control Act of 1946 authorizes repair, relocation, restoration or protection of highways, railways or utilities being damaged or destroyed by operation of any dam under control of the Department of the Army.

The primary focus of the project is the construction of rock riprap bank stabilization along approximately 1,600 lineal feet of the shoreline. When complete, the structure would provide protection against erosion to an elevation between 2063 and 2065, or 0.50 to 2.50 feet above the regulated summer pool level. Access for the project would be partly by existing park roads and partially over dewatered river substrate, primarily sand and clay, with some gravel. The work would take place within an area administered by the Corps of Engineers (Corps) for recreational purposes that are being impacted by shoreline erosion.

1.1 Background

The Albeni Cove Recreation Area is owned and managed by the US Army Corps of Engineers (Corps) as part of the Albeni Falls Dam Project (see Figs. 1 and 2). It has 10 recreational vehicle

(RV) sites and four tent sites, a swimming cove, a boat launch, picnic tables, drinking water, and a restroom with toilets and showers. It is open between May and September. Information on the site is available at http://www.nws.usace.army.mil/PublicMenu/Menu.cfm?sitename=ALBENI&pagename=Albeni_Cove.

Figure 1. Project location in Idaho. (map from Geology.com: http://geology.com/state-map/idaho.shtml)

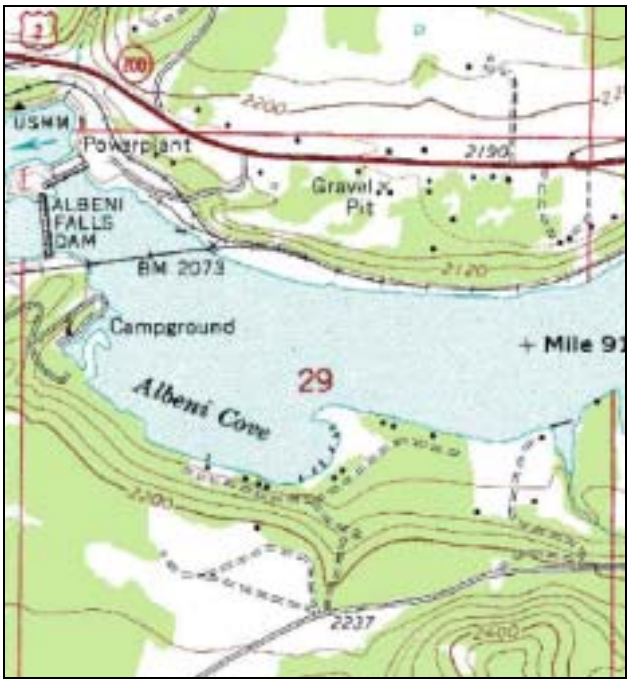

Figure 2. USGS topographic map: Project location on the Pend Oreille River, showing campground and Albeni Falls Dam, both toward left. Scale is indicated by 1-mile section grid marks. North is toward top of map.

1.2 Authority

The Albeni Falls Dam Project was authorized under the Flood Control Act of 17 May 1950 (Public Law 516, 81st Congress, 2nd Session) in accordance with Senate Document 9, 81st Congress, 1st Session, as part of a comprehensive plan for the development of the Columbia River System. Funds are appropriated each year by Congress for Operation and Maintenance of the Albeni Falls Dam Project. The Corps is proposing the bank stabilization project under the authority of this Act. Additionally, Section 110 of the National Historic Preservation Act provides authority to perform this work to protect historic properties.

2.0 NEED AND PURPOSE

Need:

Over several years, wave action, primarily from passing boats, has caused erosion along several hundred feet of shoreline at Albeni Cove, a Corps of Engineers recreation area on the Pend Oreille River in northern Idaho, just upstream of Albeni Falls Dam. In places, several feet of bank have been lost. Undercutting has occurred, and some tree loss has taken place or is imminent. Individual campsites in some places are at risk, as is a trail to the sites. Infrastructure such as water lines, faucets and fire hydrants, and rails would need to be relocated if the erosion progresses. A cultural resources site also stands to be impacted. Action is needed to address these risks. Figure 3 shows the project site and areas of erosion.

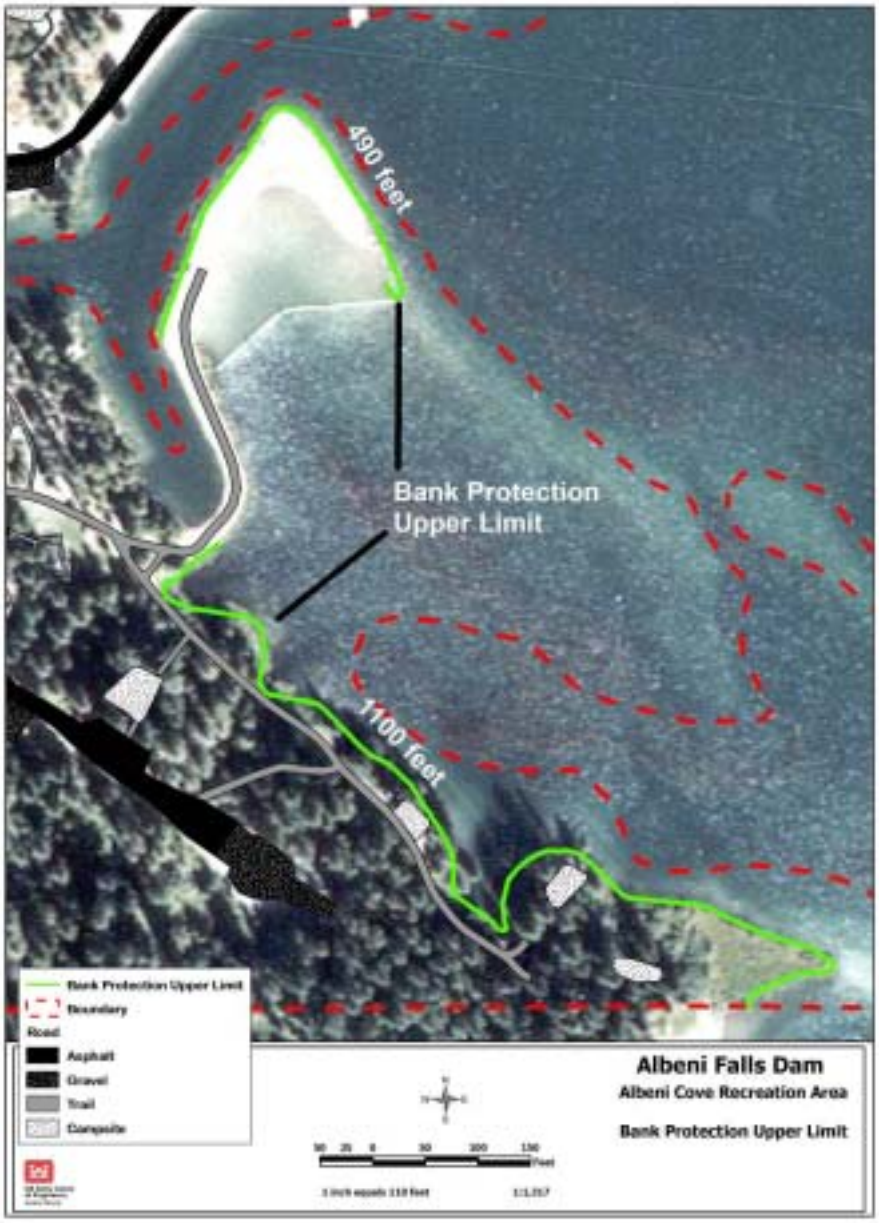

Figure 3. Aerial photograph showing project area and bank protection upper limit. (Highlights with linear distance labels indicate shoreline area to be constructed.)

Purpose:
The purpose of the project is to stem further erosion and loss of standing trees and other vegetation along 1,600 feet of shoreline at the Albeni Cove Recreation Area, to prevent erosion of a remaining cultural site, and to prevent loss or relocation of existing facilities.

3.0 ALTERNATIVES

Five alternatives were considered for this project. A non-structural alternative, a shortened length alternative, and a bioengineering alternative were considered but rejected. A No-Action

Alternative and the Preferred Alternative (bank stabilization using rock and large woody debris) were carried through detailed analysis.

3.1 No Action

Under the no-action alternative, no work would be done to stabilize the shoreline, while the campground would continue to be managed as such. The shoreline would continue to erode and place at risk a cultural resources site, two campgrounds, water lines, faucets and fire hydrants, and rails. Later work would need to be done to move, stabilize, repair or replace affected infrastructure.

3.2 Preferred Alternative: Bank Stabilization Using Rock and Large Woody Debris

Using Class III riprap (range of diameter = 6-20 in.; median diameter = 15 in.), the bank would be protected by placing rock along the affected areas of shoreline. Rock would be placed between elevations 2055 and 2065 (in some cases the toe would be higher), and would be inserted into bank undercuts a short distance where possible.

Work would be planned to coincide with the lower operating limit of Albeni Falls Dam. Construction would be conducted from land on the swimming spit, where no vegetation impedes access. Placement along the vegetated bank to the east of the swimming cove would be from the waterward side, on the dewatered substrate. In places where trees have come down on the shoreline or must be removed for the work, those trees, including rootwads and branches, would be anchored in place with the rock, to provide cover for fish and wildlife. Topsoil would be placed in the interstices of the rock, and native plantings of native willows (*Salix* spp.) and Douglas spirea (*Spirea douglasii*) would be placed for riparian shade and cover.

Design drawings are contained in Appendix B of this report. The drawings specify a 2 horizontal:1 vertical slope along the eastern cove shoreline and a 1.5:1 slope along the swimming spit shoreline. Following minimal excavation to achieve the desired slope, a 1-ft minimum layer filter rock (3-inch-minus) would be placed to prevent fine sediment from washing through the voids of the larger armor layer and into the river. Once the slope is established, Class III riprap armor rock would be placed on top of the filter layer. The thickness of the armor rock is specified as 2 ft and 4 ft for the 2:1 and 1.5:1 side slopes, respectively. Smaller rock would be placed in the spaces between larger stone to minimize void space. The toe of the armored slope along the swimming spit would be keyed in using a buried toe to prevent toe slip failure. The excavated material would then be placed on top of the armor rock. Any incidental native vegetation cleared for construction would be replanted with the same or similar plant species.

Construction material would consist of graded Class III riprap, 3-inch-minus crushed stone, and soil. All rock material would be obtained from a state permitted source. Machinery used for construction includes a D-4 bulldozer with 6-way blade and 3-prong ripper or equivalent, 200 Series excavator with thumb or equivalent and dump trucks. Riverbed access would be via existing park roads to about point H. Near the J cove, the riverbed elevation is approximately 2053'. It would be necessary to create access across the cove on the frozen riverbed because low pool will be 2055'. The access would be from elevation 2055 to elevation 2053 (it is assumed

the riverbed will be frozen, and 15 feet wide. Clean Class V riprap (up to 27 inches in diameter, with a median diameter of 20 inches) would be placed on the riverbed and on any existing ice or in water up to two feet deep. This material would be covered with filter fabric and 3" minus material placed on top for access across the J cove (from station 11 + 40 to station 12 + 80). The material would be removed from the water or ice once the access is no longer necessary, and worked into the armor protection. There, the 3" minus rock would be placed first and the larger stone over that. There are a few large voids where the Class V rock would be suitable very near the J cove.

Wetland boundaries would be delineated and construction fencing installed to prevent any road encroachment in the wetland area. Staging would occur at the terminus of the access road near the top of bank where an existing clearing in vegetation occurs. In order to reduce clearing of riparian vegetation, rock placement would be accomplished from the shoreline instead of top of bank. A temporary haul road would be accessed from the staging area and be aligned near the toe of slope within the exposed shoreline. Construction would avoid any excavation into the bank to avoid any disturbance to embedded culturally sensitive material.

Where access is needed for machinery to work on the riverbed, a gravel pad would be laid down. Construction would proceed from the far (southeast) end of the project area, working backward so that the pad material would be covered and incorporated into the bank protection.

Habitat features incorporated into the design would include riparian vegetation planting. Six to 12 inches of topsoil would be placed on top of the revetment on exposed rock above the 2062.5' high-pool elevation line. Smaller diameter rock would aid in soil retention by reducing interstitial spaces created by larger diameter riprap. Tublings of native riparian shrub species would be planted into the soil using dibble and planting bars. Where possible, shrubs would also be planted in the native bank where the plantings do not interefere with recreational purposes. Species to be planted include: scouler willow *(Salix scouleriana)*, red-osier dogwood *(Cornus sericea)*, nootka rose *(Rosa nutkana)*, and Douglas spirea *(Spirea douglasii)*. Planting would occur in early spring. The plant material would benefit from spring precipitation as irrigation is not feasible on this site.

Up to approximately 2,800 cubic yards of riprap, plus about 1,200 cubic yards of 3-inch-minus gravel, would be placed largely but not entirely below the ordinary high water mark. Some excavation into the substrate would be necessary, totaling up to about 750 cubic yards of material. This material would be used to bury the toe of the stabilization structure. A total of up to about 0.9 acre of riverbed would be covered by the proposed fill.

No other alternative was less damaging to the environment than the preferred alternative, or less costly.

3.3 Non-Structural Alternative

The non-structural alternative would consist of reduction or cessation in use of the property. It was rejected due its inefficiency and the inability to no longer pursue the protection of the property. Continued management of this property is in the best interest of the Corps. This property is an asset to the Corps and the general public, providing income and also recreational

opportunities. This recreational area is also important to the local native tribes concerned with the preservation of cultural resources located on site. This alternative does not meet the need and purpose for this project.

3.4 Bioengineering

This alternative would rely on placement of logs and coir (coconut fiber) mats on the eroded bank face. This alternative was rejected due to its limited capabilities and inability to meet the demand of the specified area. These materials are typically not meant to withstand long-term wave action without continued maintenance, and because of this, have been deemed unsuitable for the project. As a short-term solution only, this method is not cost-effective because it would require funding for regular maintenance. It does not meet the need and purpose, and therefore has not been evaluated further.

3.5 Shortened Length Alternative

The possibility of using a length of 1400 lineal feet of armoring was analyzed but did not meet the engineering requirements to provide adequate protection to the entire area at risk of eroding. The Corps also discussed using short sections of riprap to stabilize the weakest points along the shoreline, however project engineers stated that this would increase the risk to the unprotected sections.

4.0 EXISTING ENVIRONMENT

4.1 Soils

Two soil types occur in the area and are evident by the geological formations and the vegetative cover changes. Soils in the northern portion are categorized as Dufort-Rock outcrop complex, 5 to 45 percent slopes. The Dufort portion is very deep, well drained, with moderate permeability. Available water capacity is low to moderate, and runoff is rapid with a high potential for water erosion. Effective rooting depth is 60 inches or more. The rock outcrop portion consists of areas of exposed granite, gneiss or schist that is fractured in places. Soils in the southern portion of the unit are categorized as Cabinet silt loam, 12 to 30 percent slopes. These are deep, moderately drained soils and permeability is moderate to a depth of about eleven inches where a clay layer reduces permeability. Runoff is rapid, and the hazard of water erosion is very high.

On the site itself below the high water mark, sediment is fine, with silts and clays predominant. There is small rock and gravel in places, but it is not native material. The eroding shoreline is fine material, compacted in places because of continual human use during the recreation season.

4.2 Hydrology and Geology

The Pend Oreille River is part of the Flathead/Clark Fork/Pend Oreille watershed. The Flathead and Clark Fork and their tributaries drain a portion of the Rocky Mountains in western Montana and northern Idaho. The Clark Fork empties into Lake Pend Oreille, and the Pend Oreille River begins at the outlet of the lake. Albeni Falls Dam was constructed along the Pend Oreille River at RM 90, roughly 25 river miles downstream of the outlet. The Pend Oreille River at Albeni Falls Dam has a watershed of about 24,200 square miles, which supplies an average stream flow of about 25,930 cubic feet per second. The Clark Fork is Lake Pend Oreille's largest tributary

and contributes about 86 percent of the total flow. Lake Pend Oreille is one of the deepest and largest lakes in the western United States. Conditions in Lake Pend Oreille, such as the stage of the lake and timing of the inflow, are influenced not only by Albeni Falls dam, but also by the operation of upstream flood control projects and basin hydrologic factors. Lake Pend Oreille is drained by the Pend Oreille River, which flows west, then north, then, after crossing the US/Canada border, flows west again a short distance before entering the Columbia River.

The water level of Lake Pend Oreille fluctuates between a summer elevation of 2,062.5 feet above mean sea level (msl) and winter elevations (2051-2055 feet msl, measured at the Hope, Idaho gauge on Lake Pend Oreille). The dam is operated to provide for kokanee spawning in fall, and for protection of incubating eggs in winter and spring. Lake elevation is targeted at an elevation of either 2051' or 2055' in winter, depending on the outcome of a consultative process that considers the seasonal precipitation forecast, number of female kokanee spawners, success of lower Columbia chum salmon spawning, and recent history of Lake Pend Oreille winter elevations. These criteria are reviewed by September of each year by an interagency team consisting of representatives from Idaho Fish and Game, the US Fish and Wildlife Service (USFWS), the Corps of Engineers, the National Marine Fisheries Service, and the Bonneville Power Administration; the Priest and Pend Oreille Lakes Commission also participates. The team recommends a lake elevation for the coming winter, and the USFWS submits an operation request to the Corps of Engineers for consideration by the interagency Technical Management Team, which oversees week-to-week operation of the Federal Columbia River Power System. The Corps makes its decision in consideration of the TMT's evaluation.

November 20 is the target date for drafting the lake. No more than one foot of draft and a level no lower than 2051 msl is permitted between November 20 and November 30. Between November 20 and November 30, if the lake rises due to storm inflow, it may be drafted no lower than one foot from the highest elevation reached within this period, and that must happen by November 30. If the lake should rise due to storm inflow above the low elevation during December, then the highest level reached is to be maintained as a minimum, in order to protect eggs of kokanee which may have spawned during high water. This last happened in 1995. Because the dam releases water as needed to maintain specified lake elevation, the Albeni Falls Dam forebay elevation may be lower than the Hope elevation, as shown in Figure 4.

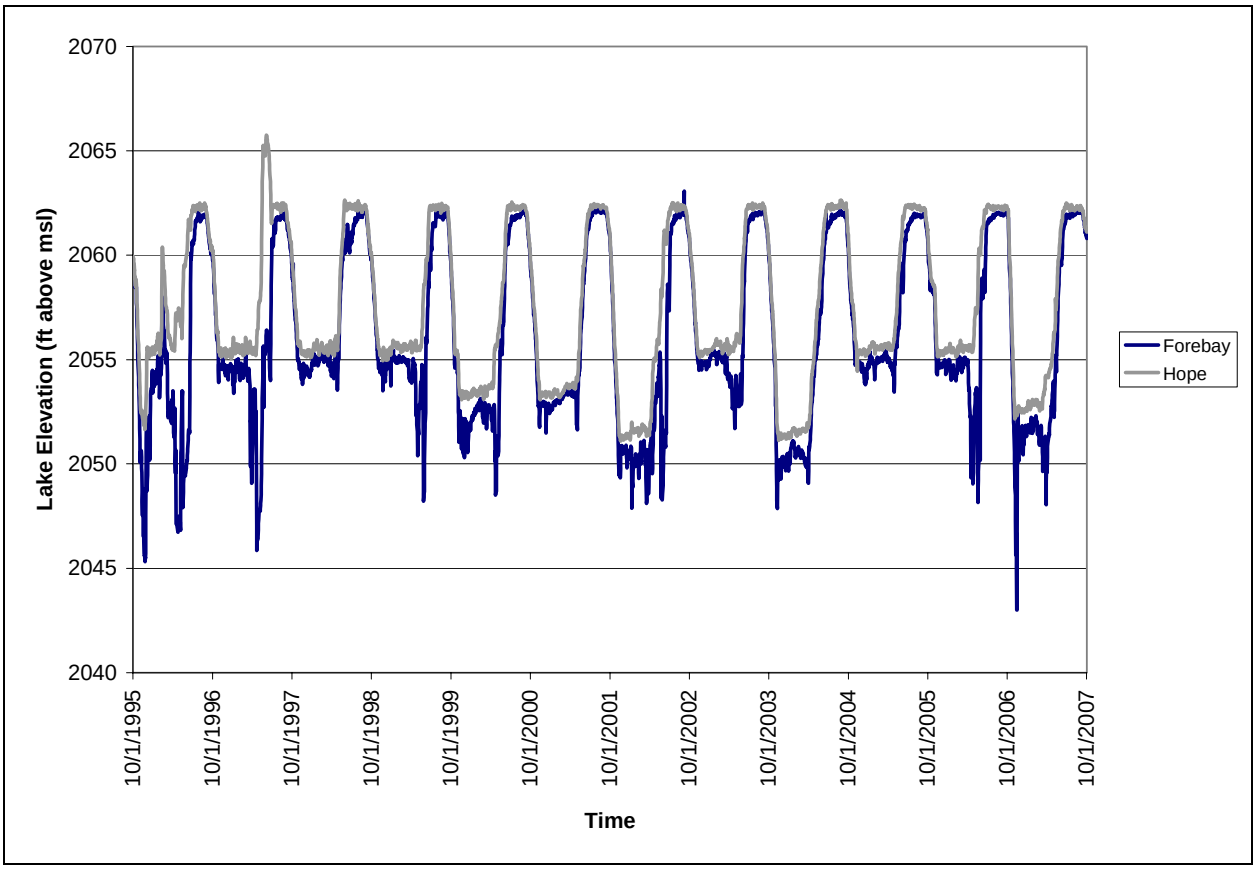

Figure 4. Daily average elevation of Lake Pend Oreille since 1995, at Hope, and on the Pend Oreille River close to the project location immediately upstream of Albeni Falls Dam (forebay).

Soils that, before dam construction, were not subjected to flooding in long durations except during the spring runoff period now are inundated through the entire summer. This saturation weakens the soil structure and kills off vegetation that normally would help stabilize the bank. During the lengthy high summer elevation, banks along the river are weakened by wake- and wind-generated waves. As the sediment column is undercut, the overlying strata collapse. Site soils are also affected by erosion within burrows created by animals. Both overland flow and hydraulic overpressure from wave action at the burrow entrances below the high water level are leading to fairly rapid sediment loss.

4.3 Water Quality

There is no apparent change in downstream turbidity or temperature as a result of the operation of the dam, but spill at the dam does elevate total dissolved gas (TDG) levels annually, especially during spring runoff season. TDG supersaturation can be harmful to fish and other aquatic organisms depending on gas concentrations, duration of exposure and other factors. Localized turbidity due to wave erosion and sloughing of unconsolidated shoreline materials during summer pool levels is evident between Lake Pend Oreille and Albeni Falls Dam. The project area contributes to localized turbidity.

The Pend Oreille River is listed for temperature on the State of Idaho's 1998 Section 303(d) list of impaired waters (Ecology, 2004). Water quality data from the Pend Oreille River show that

water temperatures exceed the site-specific maximum criterion of 20° C (68° F) from the state water quality standards. In addition to Idaho, the entire Pend Oreille River in Washington is also considered impaired for temperature. High water temperatures limit bull trout distribution. Bull trout spawning and rearing is extremely limited due to high summer temperatures that are above the thermal tolerance for bull trout. However, bull trout from the Priest River do use the Pend Oreille River as a migration corridor in the fall and spring to and from Lake Pend Oreille (Corps, 2005).

4.4 Vegetation

In the Dufort-Rock soil complex, Douglas fir (*Pseudotsuga menziesii*), ponderosa pine (*Pinus ponderosa*) and lodgepole pine (*Pinus contorta*) are the primary canopy species, with lesser amounts of western larch (*Larix occidentalis*), western white pine (*Pinus monticola*), and grand fir (*Abies grandis*). In the Cabinet silt loam complex western red cedar (*Thuja plicata*), western white pine, grand fir, Douglas fir, and western hemlock (*Tsuga heterophylla*) are the predominant species. Western larch, ponderosa pine and lodgepole pine occur as scattered individuals. A wide diversity of understory species occurs throughout both complexes, with drier open areas dominated by shrub species and denser areas composed of grasses and forbs. Common shrubs include serviceberry (*Amelanchier alnifolia*), red-osier dogwood (*Cornus stolonifera*), Rocky Mountain maple (*Acer glabrum*), common chokecherry (*Prunus virginiana*), western thimbleberry (*Rubus parviflorus*), ocean spray (*Holodiscus discolor*), and Douglas spirea (*Spiraea douglasii*). The riparian vegetation functions to provide shade, some cover, and a source of terrestrial insects for fish to feed on.

4.5 Wetlands

Three classes of wetlands have been identified at the site (see Fig. 5). Littoral habitat dominates the portions of the site below an elevation of 2062 msl; this area is classified as lacustrine, limnetic, unconsolidated bottom, permanently flooded. These lands are partially submerged in spring and fall and are totally submerged in the summer months. This is different from pre-dam conditions in that the inundation is for longer periods (spring through well into September) vs. pre-dam duration of spring to early summer, coinciding with snowmelt. The inundation is more consistently shallower: normal high pool is now about 2062-2062.5, vs. spring elevation from low 2060's to 2070 or more before the dam was built. The two other types of emergent wetlands are found along the interface with the littoral zone and the upland areas, typically forming a fringe in the shallower portions of the draw-up areas. The first is at the far southeastern end—a marshy area on a point, which may be eroded without protection from wave action. The other is off the bay just south of the swimming area. It may be less vulnerable to erosion.

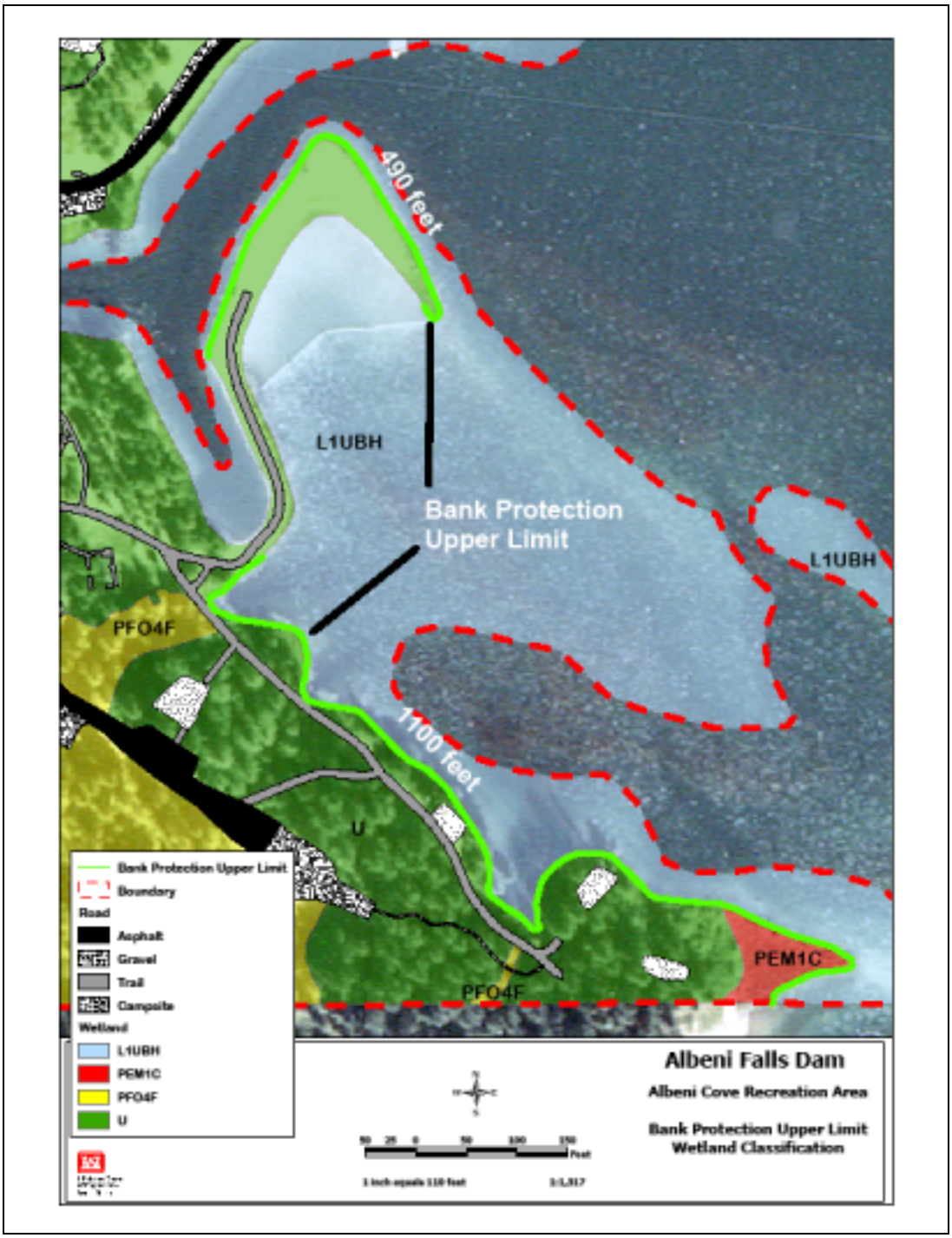

Figure 5. . Wetland designations for project area.

Designations are defined as follows:

- L1UBH: Lacustrine, limnetic, unconsolidated bottom, permanently flooded (i.e. a shallow lakeshore with a gravelly or sandy bottom)
- PEM1C: Palustrine, emergent, persistent, seasonally flooded (i.e. a seasonally wet meadow)
- PFO4F: Palustrine, forested, needle-leaved evergreen, semipermanently flooded (a seasonally very wet wetland forested with conifers)

4.6 Fish and Wildlife

4.6.1 Fish

Lake Pend Oreille and the Pend Oreille River are home to a variety of native and non-native fish and support a significant recreational fishery. Major species include the bull trout (*Salvelinus confluentus*--listed as threatened under the Endangered Species Act), rainbow (Kamloops) trout (*Oncorhynchus mykiss*), lake trout or mackinaw (*S. namaycush*), cutthroat trout (*O. clarki*), kokanee (sockeye salmon) (*O. nerka*), bass (*Micropterus* spp.), whitefish (*Prosopium* spp.), yellow perch and sunfish (*Lepomis* spp.). Other fish commonly found in the Pend Oreille River include northern pikeminnow (*Ptychocheilus oregonensis*), peamouth (*Mylocheilus caurinus*), and yellow perch (*Perca flavescens*), largescale sucker (*Catostomus macrocheilus*), longnose sucker (*Catostomus catastomus*) and brown bullhead (*Ameiurus nebulosus*).

Kokanee, while not native to the Pend Oreille system, are an important prey species for threatened native bull trout, and fishing for both kokanee and bull trout has been curtailed in order to support population recovery efforts for both species. Coldwater species such as trout and kokanee tend to occupy the deeper waters of the main lake while the warmwater species are more prevalent in the near-shore areas and the Pend Oreille River between Sandpoint and the dam. The project area provides some habitat value, especially to the warm-water species, although drawdowns of the reservoir in winter may negatively affect warmwater fish habitat. The shoreline is characterized by shallow water at summer pool and is exposed and dry during most of the drawdown period.

As described in Sec. 4.2, winter lake levels are managed to address spawning needs of kokanee, again because they are an important forage species for threatened bull trout.

4.6.2 Wildlife

The habitat of this area supports waterfowl, white-tailed deer, bear, small mammals and songbirds, osprey (*Pandion halioetus*) and bald eagles (*Haliaeetus leucocephalus*).

State and Federal agencies intensively monitor waterfowl for their importance to hunting as a recreational activity. The number of ducks can range from 47,500 to 142,600 in the Pend Oreille River basin.

Most of the 23 species of waterfowl recorded in the area are migrants or winter residents, but Canada geese and several resident species of ducks nest and rear their young on and around the shorelines of the lake and river. Mallards, three species of teal, widgeons, coots, and pied-billed grebes are among the many species reported to nest along the shoreline and/or in adjacent marshes.

Birds of prey such as hawks, owls, and bald eagles are associated with the Pend Oreille riparian areas. Bald eagles have been nesting in this area throughout recorded history. Ospreys are found in the area from mid-March through October. The osprey population of northern Idaho and northeastern Washington constitutes the largest nesting concentration in the western states and

perhaps the entire country. The closest known eagle nest is located approximately 0.85 miles west of the bank protection site.

4.6.3 Threatened and Endangered Species

In accordance with Section 7(a)(2) of the Endangered Species Act of 1973 (as amended), federally funded, constructed, permitted, or licensed projects must take into consideration impacts to federally listed and proposed threatened or endangered species. Several species listed as either threatened or endangered may be found in Bonner County, as follows (USFWS 2007):

Endangered
Western gray wolf (*Canis lupus*)
Woodland caribou (*Rangifer tarandus caribou*)

Threatened
Canada lynx (*Lynx canadensis*)
Grizzly bear (*Ursus arctos*)
Bull trout (*Salvelinus confluentus*) (critical habitat designated)

Candidate (listing warranted but precluded)
Slender moonwort (*Botrychium lineare*)

4.6.3.1 Western Gray Wolf

On April 1, 2003 (USFWS 2003), this Distinct Population Segment (DPS) was reclassified as separate from the Rocky Mountain gray wolf DPS, and downlisted from Endangered to Threatened, except where already classified as threatened or as an experimental population (three of these exist in central Idaho, Yellowstone, and Mexico). The gray wolf preys on medium and large mammals such as deer, elk, bighorn sheep, and woodland caribou, as well as possibly smaller mammals and birds, and sometimes livestock. As a social animal, it maintains packs that usually number about 2 to 12 members. Typical home territory ranges in size from 50 to 550 square kilometers, but it can be much bigger. Although the gray wolf historically ranged through large parts of North America, Europe and Asia, it has been extirpated from much of that area. Recovery efforts, however, are showing success in some areas.

The gray wolf is a habitat generalist, but is not as tolerant of humans as are some other animals, so for those reasons and the disturbed nature of the area, the gray wolf is unlikely to be found in the project area.

4.6.3.2 Woodland caribou

The Selkirk Mountain woodland caribou was listed as an endangered species in the United States by the U.S. Fish and Wildlife Service in 1984. The population has been restricted to the Selkirk Mountains of northeastern Washington, northern Idaho, and southeastern British Columbia. Currently, approximately 50 caribou occur as 2 herds in Idaho and British Columbia (USFWS, 1993). They generally inhabit old-growth or mature forests of western red cedar, Engelmann spruce, western hemlock and subalpine fir, at elevations above 5,000 feet. Caribou were transplanted into Idaho in 1987 to help the nearly extirpated population. To support self-sustaining caribou populations, approximately 443,000 acres of habitat is being managed.

Further introduction of herds and public education, hunter education and law enforcement efforts are needed for recovery (USFWS, 1993). Caribou are not likely to be found in the immediate project vicinity, in part due to extensive development, but also because of the relatively low elevation (about 2062 feet) and lack of suitable forest habitat.

4.6.3.3 Canada Lynx

The Canada lynx was listed as threatened on March 24, 2000, for the contiguous 48 states. These cats have large home ranges, and subsist primarily on snowshoe hares (USFWS 2005). The lynx is primarily associated with boreal forests of spruce and fir, and is adapted for hunting and surviving in deep snow for extended periods. Lynx movements and range size are partly dependent on fluctuations in snowshoe hare populations. The lynx will eat other small mammals and birds, especially during times of low snowshoe hare abundance, but will generally not be able to raise kittens to independence in such conditions. Generally, it is found above about 3,500 feet elevation (J. Jacobson, USACE, pers. comm. 2006), higher than the project elevation of about 2,062 feet above sea level. The lynx is also relatively intolerant of human activity. Thus, the required habitat type for lynx and snowshoe hare is not present in the project vicinity, and lynx are not likely to occur there.

4.6.3.4 Grizzly Bear

The grizzly bear is North America's largest land carnivore, and once existed over much of what is now the 48 contiguous states of the U.S. It has been hunted or displaced from most of that range, and now occupies a small fraction of it, in Arizona, California, Colorado, Idaho, Montana, New Mexico, Nevada, Oregon, Utah, Washington, and Wyoming. It is generally reclusive and sensitive to human disturbance; interactions with humans which do occur are mainly in undeveloped or lightly developed areas, and then usually in the presence of nuisance attractions such as unsecured refuse. It is mostly solitary except during mating, and in the case of females rearing cubs. Grizzlies are omnivorous, foraging on berries, leaves, bulbs and roots as well as insects, small mammals, carrion, occasional larger mammals, and fish. They hibernate in winter after feeding heavily in late summer and fall to store reserves, and then emerge in spring and begin replenishing weight lost during hibernation. The grizzly bear population in its remaining range in the 48 contiguous states was listed as threatened on March 11, 1967 (USFWS 2007), except where it is listed as an experimental population (portions of Idaho and Montana), and under review (Yellowstone, Selkirk, North Cascades, Cabinet-Yaak populations). Because of the generally developed nature of the project area, no grizzly bear use of the area is expected.

4.6.3.5 Bull Trout

The bull trout Columbia Basin Distinct Population Segment (DPS) was listed as threatened in 1998. This fish is a char and a member of the salmonid family. It is sensitive to habitat disturbances, and requires clear, cold water, with clean gravelly or rocky substrate for spawning. It is found in river headwaters as well as some larger rivers with the requisite habitat conditions. It eats plankton and then insects when young, and then consumes smaller fish. In Lake Pend Oreille, kokanee are a staple forage item for bull trout.

Bull trout are present in the project area, which is part of their historical migratory habitat, though Albeni Falls Dam blocked passage. A study (Geist et al, 2004) has been undertaken for the Corps of Engineers to determine migratory behavior in the Pend Oreille River, especially

near Albeni Falls Dam, with the intent of determining requirements for restoring fish passage at the dam. Recent results indicate that adult fish move out of the Priest River following fall spawning, and may stay in the Pend Oreille River during the winter. They may also be present at other times of year, such as spring. Tagging studies did not result in detections of fish near the project site itself, but the fact that they did spend time in the Pend Oreille River is indicative that they may be near the project location at some time.

4.6.3.6 Slender Moonwort

According to the USFWS (undated), "Slender moonwort is a small perennial fern with pale green leaves two to seven inches long. Leaf segments are typically linear and divided or forked at the ends. It is considered to be one of the more distinctive moonworts.

"The plant grows in habitat such as meadows with tall grass and forbs, and in small openings within forests dominated by a variety of spruce, pine or fir species. This species was first described by scientists and given the name slender moonwort in 1994. Slender moonwort (*Botrychium lineare*) was once found in Idaho (the exact collection site is uncertain, but is believed to be Bonner County or Boundary County)." It is now thought to be extirpated in Idaho. It is therefore not expected to be in the project area, although its habitat may be present there.

4.7 Cultural Resources and Native American Concerns

4.7.1 Archaeology and Prehistory

Site 10BR90 is within the project footprint. The site is on a narrow peninsula that extends east from a USACE campsite around to a second, smaller cove to the south. A cut bank less than a meter high is at the back of the beach. The site was tested in 1995 to determine its eligibility for the National Register of Historic Places under criterion D (Miss 2002). Artifacts were mapped and collected from the beach surface, and a 20 square meter surface collection unit was placed on the north part of the beach. Subsurface investigations comprised three auger probes and four 0.5 x 0.5 m test units, and clearing of four bank faces. A total of 185 prehistoric artifacts, 176 (95.1%) of which were flaked stone and nine (4.9%) of which were ground/battered stone, were recovered, mostly from the surface collection unit on the eroded beach surface. Thirty-four historic or modern artifacts were recovered, including 10 brown and clear vessel glass pieces; round wire nails; wire; a fishing lure; shotgun shells; and a machinery part.

Two projectile points were recovered and give an indication of the age of the site. A large stemmed point suggested Early to Middle Period (11,500-2000 Before Present [B.P.]) occupation while a small sidenotched point dates to the past ca. 1500 years, when the bow and arrow were introduced to the region. Possible Mazama tephra suggested that sediments are old enough to accommodate an occupation of the age represented by the older point style.

The prehistoric artifact assemblage is predominantly stone toolmaking debitage and cores, indicating that reduction of raw stone material and tool manufacturing were important activities at the site. The other tools are mostly expedient in nature, representing light-duty cutting (edge–modified pieces) and heavier duty pounding (battered cobbles) and chopping (edge-altered cobbles). The edge-modified pieces could have been used to cut game, fish, or plant material, while the projectile points suggest that the focus may have been primarily on processing of

game. No bone was recovered, however, and no features (non-portable artifacts such as remains of house floors, hearths, roasting pits) were identified. Little of the historical material reflects the early history of the region. The brown bottle base was identified by its trademark as manufactured by the Owens Illinois Glass Company of Cleveland, Ohio from 1940 to 1966. Most of the cultural material from the site exists as an unstructured lag deposit. Only a few artifacts were found behind the bank in TU 1, and most of these are associated with an erosional boundary. The sparseness of the cultural content and the lack of distinctive cultural strata suggests that the area tested does not retain enough research potential to qualify for the NRHP under Criterion D. Archaeological deposits may occur upland outside the tested area, however, and the site should be treated as if it were eligible.

4.7.2 Native American Concerns

The site and proposed undertaking are within the lands ceded to the United States by the Kalispel Tribe of Indians. The Kootenai Tribe of Idaho, Coeur d'Alene Tribe, and Confederated Salish and Kootenai Tribes of the Flathead Reservation also have cultural interests in the area.

4.8 Land Use

The project site is managed by the Corps as a recreation area. The entire area is zoned as recreation - intensive use; public use facilities include 13 non-hookup campsites, two park attendant sites, a restroom, a picnic area, one boat ramp, one swim area, one park office, paved roads, paved or graveled parking areas, and graveled trails. The area is generally open from mid-May to mid-September, with walk-in use only during the winter months. Albeni Falls Dam is close by, just to the west, with its spillway forming the left side (looking downstream) of the dam. The Burlington Northern Railroad has a track that runs across the river at a perpendicular angle to the dam's spillway. Just beyond the dam, on the south side of the river, the towns of Oldtown, Idaho and Newport, Washington combine into one community straddling the Washington-Idaho state line. The vicinity otherwise is developed but rural, with a mixture of residential and commercial uses.

4.9 Utilities and Public Services

A buried potable water line for hydrants and drinking fountains is present along the shoreline where the work would take place. An electrical line, television cable, and phone line are present across the roadway leading to the campgrounds and swimming area. There is also a sewer line under the access road. The spit with the swimming beach has railings on its west side, as well as benches. There are other utilities along surface roads approaching the recreation area, mainly electrical, phone, television and water lines, but none are expected to be affected. An asphalt walkway approaches the shoreline from the parking area.

4.10 Air Quality and Noise

Air quality meets standards as set forth by the Idaho Department of Environmental Quality. Noise is typical of a small-town area with a railroad. Recreational powerboats, especially during summer months, are another source of noise.

4.11 Transportation

Local roads and streets coming from Oldtown provide the main access to the project site. Highway 2 runs on the opposite side of the river, and with a bridge connection downstream of Albeni Falls Dam, passes through Oldtown/Newport. It connects with Spokane to the south, and Sandpoint and Bonners Ferry, Idaho, to the north, and then to points east in Montana. An elevated Burlington Northern Railroad track and bridge are adjacent to the site. Its route parallels that of Highway 2 for some distance in northern Idaho. It runs through Oldtown, Idaho, and the truck route for transportation of materials to the site would cross the tracks in town via a highway bridge.

4.12 Socioeconomics

The project is located near the towns of Oldtown, Idaho, and Newport, Washington. These areas are semirural with economies based on resource extraction and tourism/recreation. The site itself is in Bonner County, Idaho, just outside of Oldtown. The site is used recreationally for camping, boating, swimming and fishing. The proposed project area holds no other significant socioeconomic impact to the area.

As of the 2000 census (US Census Bureau, undated), nonwhites made up 3.4% of the total population, and the percentage of residents with incomes below poverty level was 12.4%.

4.13 Recreation

Recreation is very important industry for the local community and county governments. Fishing, water skiing, snow skiing, hunting, camping, and bird watching are important recreational activities. The Albeni Cove Recreation Area is generally open from mid-May to mid-September, with walk-in use only during the winter months. The estimated average visitation is 28,336 people per year; in fiscal year 2006 (Oct 1, 2005, to Sep 30, 2006), an estimated 26,045 people visited the site. Of those visits, visitors participated in one or more of the following activities: swimming (42.81%), other (20.12%), picnicking (13.00%), sightseeing (11.76%), boating (5.46%), camping (3.65%), fishing (1.43%), and water skiing (1.62%).

4.14 Aesthetics

The immediate project area is lightly developed and features views of water and of nearby mountains. The shoreline is in a state of constant erosion, which detracts somewhat from the aesthetic experience. Trees and other vegetation are continually sloughing off and a near-constant turbidity is present at high pool. The remaining upland riparian area, another aesthetic asset, is threatened if erosion is not curtailed.

5.0 ENVIRONMENTAL EFFECTS

The anticipated effects of the two alternatives are documented together below so as to allow comparison of the alternatives in relation to each affected resource.

5.1 Soils

5.1.1 No-Action

Soil characteristics would not be affected by this alternative. However, the erosive nature of soils on site would continue to be an issue, with wave-induced instability and sloughing as an ongoing effect.

5.1.2 Bank Stabilization

The Preferred Alternative would stabilize the soils on the bank at the project site by shielding them from wave action. No replacement of soils would take place, and therefore the character of the underlying soils would remain the same. However, layering of topsoil in and on the rock matrix would be done so as to accommodate native vegetation to be planted and to sprout and grow in on its own.

5.2 Hydrology and Geology

5.2.1 No-Action

With this alternative, the shoreline would continue to erode into the river, dispersing sediment outward and resulting in the continued loss of bank area.

5.2.2 Bank Stabilization

All of the work would be conducted in the dry for this proposed project under the Preferred Alternative. All applicable best management practices would be in effect throughout the construction process. With the reduction of sediment from the erosion process, the area immediately in front of the bank stabilization structure may deepen over time. As waves and wind exert effects on this area after construction, there is potential for the sediment that has settled in the shallow area to disperse into the deeper portions of the river. This sediment should pose no problem with hydrology or the geology of this location.

5.3 Water Quality

5.3.1 No Action

The shoreline would continue to erode, resulting in continued suspension of solids, and turbid conditions. There would be no change to water temperature.

5.3.2 Bank Stabilization

The project would not likely result in measurable or significant water quality changes. Tree loss would be minimized within the project design. Temperatures would probably not change very much, but there would be a temporary loss of overhead cover. Maturation of riparian vegetation should, over the long run, provide some shade and localized cooling of shallow water.

Since little or no in-water work would occur, no significant adverse water quality impacts are expected to result from the proposed construction activities. However, pursuant to the Clean Water Act, a Section 404(b)(1) evaluation is being prepared, and a Sec. 401 water quality

certification would be obtained from Idaho Department of Environmental Quality prior to any work. The following management actions would be implemented during construction activities. These conditions are included in the project *Construction Management Plan*; a Corps inspector would be on-site to ensure that contractors abide by these requirements.

1. All grading and placement work would be accomplished in the dry, above the water surface, except in the J cove, where rock would likely be placed on the ice; that material will be removed for final placement in the bank stabilization cross-section. Even if the inshore water is not frozen solid, rock would be clean and would be individually placed, rather than dumped.
2. Petroleum products and other toxic material would be stored in a staging area above summer pool elevation, and would be prevented from entering surface waters. Refueling of equipment would be restricted to areas at least 100 feet from the riverbed.
3. If the contractor observes distressed or dead fish, or any obvious sign of contamination such as oil sheen or odor, all work would cease and the inspector would be notified;
4. A spill response plan would be prepared as required by the Corps, and the contractor(s) working on the placement of the rock would be required to have spill kits and trained employees on site at all times during active construction.

Beneficial impacts to water quality from construction activities include the curtailment of sediment plumes and turbidity associated with the sloughing bank.

5.4 Vegetation

5.4.1 No-Action

Trees would continue to fall, and more riparian vegetation would be lost. The shoreline may continue to take on a barren appearance.

5.4.2 Bank Stabilization

Some trees have fallen due to the erosion, and others are at risk of falling. Those trees and any others which might need to be removed for the construction would be used on site as large woody debris to provide riparian cover for fish and other organisms. Care would be taken to minimize impact on vegetation along haul routes, and along the shoreline where the riprap would be placed. Disturbed areas associated with the temporary access roads would be replanted with native vegetation, including willows and Douglas spirea, to re-establish cover and prevent erosion. It is anticipated that between five and 15 trees no greater than 20 inches in diameter would be removed. Additional trees and shrubs may need to be pruned to provide clearances for truck and equipment movement.

5.5 Wetlands

5.5.1 No-Action

The riverbed wetland would continue to receive sediment from erosion of the shoreline under the no-action alternative. The potential exists for the wet meadow at the far southeastern point of the

project to erode if not protected. The palustrine wetland midway along the shoreline is at lower risk of erosion, but over the long term, may not be immune.

5.5.2 Bank Stabilization

Under the Preferred Alternative, rock placement would cover about 0.9 acre of the riverbed, which is classified as wetland (see Figure 5). Construction equipment would operate on a bed of gravel along the vegetated (southeastern) shoreline area of the project in winter. The riverbed may be frozen at the time the construction takes place. Much or all of the placed gravel would be permanently covered by the rock placement. Because this area is seasonally inundated, it would be fully submerged up to about elevation 2062' by mid to late June. This constitutes a change of substrate for this wetland. The Corps has designed mitigation for this loss of the characteristic substrate into the project. All suitable woody material encountered on site would be incorporated into the bank protection, and plantings at the top of bank would provide an enhancement to the shoreline habitat. Further mitigation is described in Section 5.15 of this document.

Bank stabilization would decrease the likelihood of the wet meadow at the southeastern point to erode. Rock placement would be waterward of the edge of the meadow. It would top out at elevation 2062.5', the ordinary high water mark, and would end where the meadow begins. Hydraulic connection between the river and the wetland would be maintained through the interstices of the rock. Wave-induced erosion of the wetland would be prevented over time.

The palustrine wetland midway along the shoreline would ultimately be protected against wave erosion by the placement of the rock fill, but the fill would not directly impact the wetland itself. Placing the fill would provide better assurance that wave action would not erode into the wetland over time.

A Clean Water Act Section 404 analysis is being prepared in parallel with this document.

5.6 Fish and Wildlife

5.6.1 Fish

5.6.1.1 No-Action

The bank would continue to erode, adding sediment to the riverbed, but also adding potential cover in the form of large woody debris because of downed trees. This combination would probably be more beneficial to non-native warm-water species than to native salmonids, but the local environment is a slow-moving river with temperatures that may reach above 20^{o} C (68^{o} F) in summer, and thus is not prime salmonid habitat. Salmonids nonetheless may benefit from the large woody debris on occasion when they are inshore.

5.6.1.2 Bank Stabilization

This alternative would result in more stable shorelines, with some riparian habitat including native vegetation and large woody debris. Erosion-generated sedimentation would be curtailed. Benefit to riparian habitat quality would depend in part on cover generated by growth of planted

vegetation on the bank . Construction would not involve in-water work except possibly in the J cove. If the water is frozen solid, no fish would be present. If the water is not frozen solid, clean rocks would be placed in water individually, so there would be little chance of direct impacts to fish. To the extent that fish, especially native species such as bull trout, were in the local area in winter, there should be little impact other than temporary disturbance from short-term operation of machinery. Stormwater runoff would be controlled via best management practices, and spill prevention and containment measures would be in place and active.

5.6.2 Wildlife

5.6.2.1 No-Action

The riparian zone would continue to erode, resulting in loss of vegetation and impacting wildlife habitat. Perching and nesting habitat for birds might decrease over time. Riparian vegetation is also used by small mammals, which might thus also be impacted.

5.6.2.2 Bank Stabilization

Several bird species are present in the project area. However, proposed activities should not have a significant effect on the local bird community. There would be temporary noise-related disturbance to any overwintering birds, as well as to mammals in the area. Effects to nesting or roosting habitat would be limited, and tree removal would be minimized. Prey availability in any foraging habitat in the project area would be only temporarily affected, if at all. Bird perching habitat loss may be offset by re-establishment of riparian vegetation along the shoreline.

5.6.3 Threatened and Endangered Species

Potential impacts of the proposed projects on threatened and endangered species are addressed in a Biological Evaluation (BE) incorporated herein. This BE provides the Corps' rationale for the effect determinations briefly described below and summarized in Table 2.

Table 1.. Endangered Species Act Effects Determination Summary

Scientific Name	Common Name	Effect Determination
Canis lupus	western gray wolf	No effect
Rangifer tarandus caribou	woodland caribou	No effect
Lynx canadensis	Canada lynx	No effect
Ursus arctos	grizzly bear	No effect
Salvelinus confluentus	bull trout	Not likely to adversely affect
Botrychium lineare	slender moonwort	No effect

5.6.3.1 Western Gray Wolf

Because of its reclusive nature and the somewhat developed and disturbed nature of the project area and its close proximity to Oldtown, Idaho, the western gray wolf is not likely to be found there. The project thus is expected to have no effect on the western gray wolf.

5.6.3.2 Woodland Caribou

The woodland caribou has specialized habitat requirements, being generally found at higher elevations (above about 5000 feet) in mature forest. It is thus not likely to be present in the project area, which is at about 1762 feet and is not characterized by mature forest. The project is expected to have no effect on the woodland caribou.

5.6.3.3 Canada Lynx

The specialized habitat (spruce forests above 3,500 feet) and prey (snowshoe hare) needs of the Canada lynx make it unlikely to be in the project area, which is at about 1762 feet and lacks the requisite spruce forest characteristics. The project is thus expected to have no effect on Canada lynx.

5.6.3.4 Grizzly Bear

Because of the generally reclusive nature of the grizzly bear, it is not likely to be found in a developed area such as the project location, which is very close to Oldtown, Idaho, especially as long as garbage is not left unsecured. The project is expected to have no effect on grizzly bear.

5.6.3.5 Bull Trout

This species is present in the project area, and uses the Pend Oreille River as part of its migratory corridor. It may be present in the winter when construction is expected to occur. However, construction would be "in the dry" (above the water), and because of the use of large woody debris and riparian vegetation as part of the project, it is expected that the project may affect, but is not likely to adversely affect, bull trout.

5.6.3.6 Slender Moonwort

Forest habitat may be marginally present for this species at the project location, but because of its disturbed nature and the fact that the slender moonwort is believed extinct in Idaho, the species is not likely to be found there. It is thus expected that the project would have no effect on slender moonwort.

5.7 Cultural Resources and Native American Concerns

5.7.1 No-Action

Operation of the Albeni Falls Dam project is having an adverse effect on the site, as the operation is causing shoreline erosion that results in loss of important archaeological data for understanding the prehistory of the area and the culture history of several Indian tribes. Under the No-Action Alternative, project operations would continue to contribute to erosion at the site directly and indirectly and are thus having an adverse effect on the characteristics of the site that make it eligible for the National Register of Historic Places. The values that may make the remaining parts of the site eligible for the National Register will be lost eventually if erosion continues.

5.7.2 Bank Stabilization

Under the Preferred Alternative, all preliminary and construction work would take place on Federal fee land at a prehistoric archaeological site that may be eligible for the National Register.

In accordance with the provisions of the National Historic Preservation Act of 1966, as amended, and Corps Historic Preservation regulations, the Corps will coordinate this plan with the Idaho SHPO and Indian tribes' historic preservation specialists, and will maintain contact with the SHPO and those specialists throughout planning, design, and construction. The Corps asserts that the proposed erosion control work would have "no adverse effect" for the following reasons:

The parts of site 10-BR-90 that would be directly affected by construction are not eligible for the National Register of Historic Places under criterion D, primarily through loss of integrity. The remaining parts of site 10-BR-90 that may benefit from erosion control are insufficiently evaluated under criterion D but probably are eligible and may be considered as a contributing member of the Upper Pend Oreille River National Register Archaeological District (Determination of Eligibility now under preparation). Although the Albeni Cove area was a seasonal campsite associated with the Bigsmoke (Ignace) family who had very important cultural roles in the Kalispel Tribe, the area that will be stabilized is not specifically known to have characteristics that make it eligible under criteria A-C.

The proposed treatment would substantially reduce and probably prevent further adverse effects caused by operation of the Albeni Falls Dam project's reservoir at 10- BR-90 within the treated area. Construction will be monitored during placement by qualified staff to assure that no inadvertent immediate adverse effects on the site occur.

The Corps will file electronic and paper copies of all technical reports documenting work at the site with the Idaho State Historic Preservation Officer, Advisory Council on Historic Preservation, and appropriate offices of the Kalispel Tribe, Confederated Salish and Kootenai Tribes, Kootenai Tribe of Idaho, and Coeur d'Alene Tribe within 12 months of the work's completion.

5.8 Land Use

5.8.1 No-Action

No change in land use would occur as a result of taking no action to address the erosion, except that some of the campground characteristics would be affected. For instance, camping and swimming areas would be impacted as the area available for the activities erodes.

5.8.2 Bank Stabilization

Neither the construction activities nor the long-term effect of the project would change the land use designations on the property. The property would remain as a recreation area within Corps ownership, with all uses still viable (see also Sec. 5.13.2). As well, nearby urban features and transportation corridors (railroad and highways) would continue as before.

5.9 Utilities and Public Services

5.9.1 No-Action

Should erosion continue, there is a potential for exposure and damage to an existing potable water supply line that runs parallel to and just inland from the shoreline. This would be toward

the shoreline campsites from the point where the road forks between the swim area and the campsites. The potable water line serves faucets for campers and fire hydrants. If no action is taken, then the water line would have to be relocated, if possible. If relocation could be achieved, then the water line would be capped and campers would pack water into the site and fire hydrants would be removed, increasing the fire hazard to the local area.

5.9.2 Bank Stabilization

The design and construction will avoid utilities, so the proposed construction is expected to have no effect on telephone, water, cable, or electric utilities. The asphalt walkway pavement would be repaired after construction. This would be done sometime in the spring once the weather warms and asphalt companies open, and would consist of an extra two-inch layer overtopping the existing walkway, with no disposal. Existing utilities would be protected by this alternative.

5.10 Air Quality and Noise

5.10.1 No-Action

No impact concerning air quality or noise would occur as a result of taking no action to address the erosion.

5.10.2 Bank Stabilization

Maintenance of unpaved haul roads and work during the winter months would minimize fugitive dust. Noise would be intermittent along the haul route and would vary at the work site depending on the type of equipment operating during construction. Work would be limited to daylight hours only, thus eliminating disturbing noise during the nighttime hours. All noise factors have been addressed for their effect on threatened and endangered species. During construction, there would be a temporary and localized reduction in air quality due to emissions from equipment operation during hauling, access road development, and general construction of the bank stabilization. However, these effects would be temporary and localized, and would occur only during daylight hours. As a result, impacts would be *de minimis*.

5.11 Transportation

5.11.1 No-Action

There would be no effect on transportation as a result of allowing the bank to continue eroding.

5.11.2 Bank Stabilization

Trucks hauling material for this project would utilize public highways and secondary roads as necessary to travel to and from the quarry or materials pit. The number of trucks, and the time between loads would allow the haul to proceed with little or no impact on normal traffic during the winter season. The campground would be closed to the public in winter, and blocked when not in use by the Corps contractors. Construction vehicles may interrupt local traffic when entering or leaving the construction area and while on the city truck route. Interruptions are expected to be minimal. Any damages that may occur to the truck route would be repaired at Corps expense. Repairs and restoration would be to a condition as good as that which was present prior to the start of the Corps work on this project.

5.12 Socio-Economics

5.12.1 No-Action

Potential loss of two campsites and an impact to swimming access if erosion is not addressed could represent a slight impact to the local area's economics. Campers who might spend time and money locally may be unable to do so. Some people intending to swim at the site may elect not to do so.

5.12.2 Bank Stabilization

Construction activities associated with this project would not adversely impact the two major sectors of the economy, tourism and recreation. The proposed project should have a temporary positive economic effect in that contract equipment would be hired to perform the work, materials would be purchased from local quarries and other suppliers, and services and facilities in the greater Priest River/Pend Oreille/Kootenai/Sandpoint area would be utilized in support of the effort. The work would be done in the winter months, normally a slow period in the construction industry. Trucks with construction materials would cross the railway in Oldtown via a highway bridge, so the railway would continue to operate without interruption Bank stabilization would preserve the integrity of the two affected campsites and the swimming area, and so would be beneficial to the local economy in the long run.

5.13 Recreation

5.13.1 No-Action

Possible impacts of continuing erosion on two campsites and the swimming area would negatively impact local recreation gradually as the amenities are impaired or lost through erosion.

5.13.2 Bank Stabilization

There would be no negative impact on recreation from construction activities, due primarily to the season of the year (winter) and the fact the work would be done "in the dry" during annual reservoir drawdown. Over the long term, recreation may benefit from the project somewhat due to elimination of sediment entering the water and stabilization of the shoreline. Campsites would be preserved, and the swim area would be maintained. Boat moorings at campsites would be maintained by construction of V-notches in the revetment with tie-ups.

5.14 Aesthetics

5.14.1 No-Action

Continuing shoreline erosion and sedimentation of the inshore riverbed, along with loss of trees and riparian vegetation, would detract from the beauty of the shoreline and reduce the visual appeal of the recreation area and of the visitor's experience there.

5.14.2 Bank Stabilization

During construction, there would be some disturbance from heavy equipment. Such disturbance is not expected to be significant. After construction is complete the site will look different and perhaps harsh immediately near the shoreline because of the riprap bank stabilization structure in place of the eroding bank. However, over time the native riparian vegetation and large woody debris will soften this appearance. The structure will prevent further loss of shoreline and maintain the remaining habitat and cultural resources in place. Incorporation of native riparian vegetation and large woody debris would further "soften" the aesthetic effect. However, some will likely view the rocks as unnatural and engineered.

5.15 Mitigation

Mitigation would take the form of avoidance, minimization, and compensation on site. Specifically:

- The work would take place in the winter and generally above the waterline, so as to avoid impacts to aquatic resources.
- The design includes placement of large woody debris, as well as planting of native vegetation, including willows, which would replace natural values lost either from the erosion or from the construction. Palustrine wetlands would be protected from wave-induced erosion over time.
- Loss of cultural resources and historic properties would be avoided through the placement of the bank armoring.
- Disruption of utilities during construction activities would be avoided.
- Disruption to traffic during construction would be minimized as much as possible, and any damage to road infrastructure would be repaired.
- Railings and other amenities would be replaced on completion of construction.

Boat moorage at campsites would also be maintained.

Unavoidable Adverse Effects

Unavoidable adverse effects of the proposed project include:

- the disruption of local traffic by construction vehicles;
- disruption to local birds and small mammals in the area due to noise of construction activities; and
- the loss of up to about 0.8 acre of riverbed habitat

For the reasons discussed in this document, the Corps has determined that these effects are not significant.

5.16 Cumulative Impacts

Riprap along shorelines has several negative ecological effects associated with it. The Pend Oreille River upstream of Albeni Falls Dam has approximately 115 miles of shoreline (USACE 1981). About 10% of the river's shoreline consists of boulders and riprap (IDEQ 2001), and recent annual placement represents about 1%. Examples of armoring include the following: The Corps placed riprap along 800 feet of shoreline at Priest River Wildlife Management Area in April 2006, and has plans to stabilize two more historic sites to protect wildlife habitat and historic properties. The two projects in the foreseeable future are Hoodoo Creek (site 10-BR-

20), and Priest River (site 10-BR-95). Hoodoo Creek requires approximately 558 feet of riprap for bank protection. The plan for the Priest River site involves approximately 3,675 feet of a combination of riprap and biological erosion control methods including plantings and biologs. The current proposed projects and the two future projects amount to approximately 1% of the total shoreline along the Pend Oreille River and Lake. Additional work at Sandpoint, Priest River, Carr Creek and Hornby Creek would add about 3,000 lineal feet of shoreline stabilization.

Cumulative hydrological impacts of using riprap for bank protection along the Pend Oreille River could include the following: (1) scour and transporting of bank material cannot occur naturally in the areas of riprap, (2) lateral channel migration will be inhibited, (3) habitat complexity will decrease along armored banks, and (4) increased velocity past riprap can cause scour elsewhere as stream energy is transferred downstream (Crandall et al. 1984). Riprap also affects biological community assemblages. At least one study found that smaller size classes of salmonids decrease in number in riprap habitat, but yearling and larger sizes increase in number (Knudsen and Dilley 1987); however, the authors stated that the effects are much more pronounced in small streams than in large rivers. Schmetterling et al. (2001) acknowledge the paradox of trying to maintain natural fluvial processes at the same time as protecting public and private infrastructure from those same processes.

Past and ongoing actions in the area include other bank stabilization actions by the Corps as well as other entities. Reasonably foreseeable future actions that may occur in the overall project area include development docks and marinas at various locations in this lake system. Also planned is development of the "Sand Creek Byway," a new segment of highway U.S. 95 designed to bypass Sandpoint.

The acute cumulative impacts from the stabilization work, such as increased noise, emissions, and traffic disruptions that may occur if other local construction is done simultaneously are expected to be temporary and insignificant.

Cumulative impacts from increasing the total length of armored shoreline would be minimized by plantings of native vegetation and by incorporating large woody debris into the stabilization structure in order to create more complexity of fish habitat. Overall, with mitigation, this project does not add significantly to the cumulative impact of bank armoring along the Pend Oreille River.

6.0 COORDINATION

The following agencies and entities have been involved with the environmental coordination of the proposed project:

- U.S. Fish and Wildlife Service (USFWS)
- Idaho Department of Fish and Game (IDFG)
- Idaho Department of Lands (IDL)
- Idaho Department of Environmental Quality (IDEQ)
- Kalispel Tribe
- Coeur d'Alene Tribe

- Kootenai Tribe of Idaho
- Confederated Salish and Kootenai Tribes

7.0 ENVIRONMENTAL COMPLIANCE

7.1 National Environmental Policy Act

This Environmental Assessment is being prepared pursuant to Sec. 102(C) of NEPA. Any comments or concerns will be contained and addressed in the forthcoming Final Environmental Assessment.

7.2 Endangered Species Act

In accordance with Section 7(a)(2) of the Endangered Species Act of 1973, as amended, federally funded, constructed, permitted, or licensed projects must take into consideration impacts to federally listed or proposed threatened or endangered species. A Biological Evaluation is being submitted to USFWS as part of this document.

7.3 Clean Water Act

A 404(b)(1) evaluation, which demonstrates compliance with the substantive requirements of the CWA, is required for work involving discharge of fill material into the waters of the United States. Since no in-water construction is planned, but a portion of the structure would become wet at full pool (i.e., occurs below ordinary high water), a 404(b)(1) evaluation is being prepared for this project. A Section 401 Water Quality Certification request is being submitted to the Idaho Department of Environmental Quality. An erosion control plan would be developed and put into action prior to the beginning of construction.

7.4 Fish and Wildlife Coordination Act

The Fish and Wildlife Coordination Act (16 USC 470) requires that wildlife conservation receive equal consideration and be coordinated with other features of water resource development projects. A Fish and Wildlife Coordination Act Report is not required for maintenance work.

7.5 National Historic Preservation Act

The National Historic Preservation Act (16 USC 470) requires that the effects of proposed Federal undertakings or actions on properties (such as archaeological sites, buildings, structures, or objects) included in or eligible for inclusion in the National Register of Historic Places must be considered. Affected State and/or Tribal Historic Preservation Officers (SHPO) and the Advisory Council on Historic Preservation (ACHP) must be afforded an opportunity to comment on the undertaking, and the agency also must consult with affected Indian tribes. Letters requesting information on affected resources or interests have been sent to the Kalispel Tribe, the Coeur d'Alene Tribe, the Kootenai Tribe of Idaho, and the Confederated Salish-Kootenai Tribes. The Kalispel Tribe has responded by email and verbally; the Coeur d'Alene Tribe responded by letter. The proposed undertaking as described in this EA has been reviewed by a Corps archaeologist; a Section 106 determination has been submitted to the Idaho State Historic Preservation Officer who has concurred with the Corps determination. The review findings have

been taken into account to develop management measures that would prevent adverse effects of construction on the site.

7.6 Executive Order 12898, Environmental Justice

Executive Order 12898 directs every federal agency to identify and address disproportionately high and adverse human health or environmental effects of agency programs and activities on minority and low-income populations. Since no adverse human health or environmental effects are anticipated to result from the project, the Corps has determined that no disproportional adverse impacts to low-income or minority populations would occur.

7.7 Executive Order 11988, Floodplain Management Guidelines

Executive Order 11988, dated May 24, 1977, outlines the responsibilities of Federal agencies in the role of floodplain management. Each agency shall evaluate the potential effects of actions on floodplains and should avoid undertaking actions that directly or indirectly induce growth in the floodplain or adversely affect natural floodplain values. This EA evaluates effects of alternative water operations on flooding and floodplains. No development in any floodplain is anticipated as a result of the alternatives considered.

7.8 Executive Order 11990, Protection of Wetlands

Executive Order 11990 encourages Federal agencies to take actions to minimize the destruction, loss, or degradation of wetlands, and to preserve and enhance the natural and beneficial values of wetlands when undertaking Federal activities and programs. Minor, short-term, indirect impacts to wetlands adjacent to the shoreline or roadways could occur during construction of improvements. This EA assesses effects on wetlands and riparian areas; the preferred alternative is intended to benefit riparian function.

8.0 PREPARERS

The following people contributed directly to preparation of this document:

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9.0 CONCLUSION

Based on the above analysis, this project is not a major Federal action significantly affecting the quality of the human or natural environment, and therefore does not require preparation of an environmental impact statement.

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Appendix A: Photos

Figure A-1. Outside shoreline of swimming area, showing erosion and exposure of underlying rock.

Figure A-2. Bank erosion, with some undercutting, at campsite.

Appendix B: Design Drawings

Because of their large size, these drawings are separate from this document. Link to them from the same location where this document is found.