United States Department of the Interior

NATIONAL PARK SERVICE

Klondike Gold Rush National Historical Park
P.O. Box 517
Skagway, Alaska 99840

IN REPLY REFER TO:
L7615 – 02 (KLGO)

April 7, 2003

Dear Interested Citizen:

Enclosed for your information and review is the environmental assessment (EA) for a proposal to improve the safety of visitors hiking the Chilkoot Trail by repairing and/or replacing trails, campsites, outhouses, and a warming shelter associated with Sheep Camp campground and the Chilkoot Trail that were damaged or destroyed by flooding in August 2002. Flood damage to these facilities has severely impacted visitor safety and access in this popular backcountry camping area. Repairs to these facilities are necessary to provide the type and level of visitor services described in the park's 1996 General Management Plan for the Chilkoot Trail Unit. The EA was completed in accordance with the National Environmental Policy Act of 1969, and the regulations of the Council on Environmental Quality (40CFR 1508.9).

The comment period for the EA will extend 30 days, beginning April 7, 2003 and ending May 7, 2003. Please send written comments to:

Attention: Bruce Noble, Superintendent
Klondike Gold Rush National Historical Park
Second & Broadway, PO Box 517
Skagway, Alaska 99840
Email: Bruce_Noble@nps.gov

If you have questions about the subject document or need additional copies, please call (907) 983-9200.

Thank you for your interest in this project.

Sincerely,

Bruce Noble
Superintendent, Klondike Gold Rush National Historical Park

ENVIRONMENTAL ASSESSMENT
April 2003

Flood Damage Remediation at Sheep Camp
Klondike Gold Rush National Historical Park
Skagway, Alaska

United States Department of the Interior
National Park Service

PURPOSE AND NEED

The National Park Service (NPS) is considering improving the safety of visitors hiking the Chilkoot Trail through relocation and replacement of a portion of the trail, a foot bridge, two outhouses, and several campsites at Sheep Camp campground that were damaged and/or destroyed by flooding of the Taiya River during August 2002. On August 12, 2002 heavy rains and warm weather caused the Taiya River to rise from its average height of 15 feet to crest at 19 feet (as measured 1.5 miles upstream of outlet). In addition to flood damage in downstream areas including Dyea, localized flooding in the headwaters area resulted in extensive damage to NPS managed facilities at the Sheep Camp backcountry campground (located approximately 14 miles upstream of the outlet).

The purpose of the proposed project is to improve the safety of visitors hiking the Chilkoot Trail. Flood damage to these facilities has severely impacted visitor safety and access in popular backcountry areas of the park. Damage to these park areas and related events on August 12, 2002 consisted of:

* the Taiya River at Sheep Camp campground (mile 11.8 on the Chilkoot Trail) abandoning its main channel and creating a new channel that now runs through the middle of the campground
* the Chilkoot Trail became part of the new channel beginning at mile 11.8 and flowing south to Pleasant Camp (mile 10.5) and was inundated with water
* the old Pleasant camp campground was flooded and covered and covered with glacial loess
* approximately 600 lineal feet of the trail at Sheep Camp campground is still either under flowing water or in a saturated condition
* an additional 200 lineal feet of trail north of Sheep Camp has experienced significant erosion from high waters
* the north abutment support of the Zig Zag Bridge at mile 11.62 is undercut and unstable as a result of the high waters
* approximately eighteen (18) campsites were flooded at lower Sheep Camp campground and some are covered with up to 1" of glacial loess rendering them unusable, most sites are in areas that continue to experience surface flows or are now more prone to future flooding
* two outhouses at Sheep Camp campground have been filled by elevated ground water and are now unusable
* one public use shelter at Sheep Camp campground was flooded and is now on gravel bar in river

Although the distance between Sheep Camp (11.8 miles from the trailhead) and the next campground, Happy Camp, is just 6.5 miles, it is an extremely difficult hike that the average hiker takes a full day to complete. Parks Canada limits the number of hikers over Chilkoot Pass to 50 persons per day. Because the hike between Sheep Camp and Happy Camp is so demanding, NPS recommends that hikers shorten the distance they must travel in one day by staying at Sheep Camp. In its present state, Sheep Camp campground cannot accommodate the 50 hikers per day that will be traveling over Chilkoot Pass into Canada this summer, forcing many hikers to lengthen their journey over Chilkoot Pass by staying at the next closest campground, Pleasant Camp (10.5 miles from the trailhead). Lengthening the distance and time required to travel to Happy Camp could pose a greater risk to hikers by increasing their exposure to periods of higher avalanche danger (afternoons), inclement weather and fatigue, possibly resulting in increased number of injuries and accidents. The NPS would like to reduce any potential or perceived impacts to Chilkoot Trail hikers by repairing flood damaged areas at Sheep Camp and insuring

the same level of visitor services available prior to last summer's flood. Repairs to these facilities are necessary to provide the type and level of visitor services described in the park's General Management Plan for the Chilkoot Trail Unit (NPS 1996).

This environmental assessment (EA) analyzes the proposed action and no action alternatives and related impacts. The EA has been prepared in accordance with the National Environmental Policy Act of 1969 and regulations of the Council on Environmental Quality (40 CFR 1508.9).

BACKGROUND

The NPS Organic Act of 1916 states that the purpose of the national parks is to "conserve the scenery and the natural and historic objects and the wildlife therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations." (16 U.S.C. 1). The NPS Organic Act and the General Authorities Act prohibit impairment of park resources and values. The NPS Management Policies and Director's Order #55 use the terms "resources and values" to mean the full spectrum and intangible attributes for which the park is established and are managed, including the Organic Act's fundamental purpose and any additional purposes as stated in the park's establishing legislation. The impairment of park resources and values may not be allowed unless directly and specifically provided by statute. The primary responsibility of the National Park Service is to ensure that park resources and values will continue to exist in a condition that will allow the American people to have present and future opportunities for enjoyment of them.

Enabling legislation passed on June 30, 1976 created the Klondike Gold Rush National Historical Park…"in order to preserve in public ownership for the benefit and inspiration of the people of the United States, historic structures and trails associated with the Klondike Gold Rush of 1898, the Secretary of the Interior is authorized to establish the Klondike Gold Rush National Historical Park, consisting of a Seattle unit, a Chilkoot Trail unit, and a White Pass Trail unit." All of the lands within the boundaries of the park in Alaska are included on the National Register of Historic Places. This entitles them to protection offered under Section 1(3) and Section 2(b) of Executive Order 11593 and Section 106 of the National Historic Preservation Act. On June 16, 1978, the Chilkoot Trail and Dyea were designated as National Historic Landmarks. National Historic Landmarks are nationally significant historic places designated by the Secretary of the Interior because they possess exceptional value or quality in illustrating or interpreting the heritage of the United States. Later legislation, the Alaska National Interest Lands Conservation Act (ANILCA), amended the initial legislation that "lands or interest in lands owned by the State of Alaska or any other political subdivision may be acquired only by donation or exchange, notwithstanding the provisions of the Alaska Statehood Act." The State may also include the minerals in any such transaction.

Three agencies cooperate in the management of the Chilkoot Trail: Alaska State Parks, Parks Canada, and the NPS. The Chilkoot Trail unit is enclosed within a corridor of land mostly owned by the State of Alaska and administered by the NPS through a Memorandum of Understanding (MOU) reauthorized in 2002. Of the nearly 10,000 acres in this unit, the federal ownership is approximately 725 acres. The Sheep Camp site is located on state land and is adjacent to City of Skagway owned land. The NPS has consulted with the City on this project.

Chilkoot Trail and Dyea National Historic Landmark is located about eight road miles west of Skagway. Access to the site is along a narrow, windy, and mostly gravel road from Skagway. The Dyea and Chilkoot Trail National Historic Landmark includes all of the historic Chilkoot trail and the townsite of Dyea. Extending from the Taiya River Inlet north, it encompasses the Taiya River valley to the Canadian border and the summit of Chilkoot Pass. Dyea developed on

the mouth of the Taiya River plain at the head of Lynn Canal. Adjoining the Dyea area and partially outside the park boundary on state land near the Dyea road are portions of a Park Service campground, a ranger station, and seasonal employee residences.

ISSUES

To focus the environmental assessment, the NPS selected specific issues for further analysis and eliminated others from evaluation. Subsequent environmental consequences related to each alternative focus on these issues. A brief rationale for the selection of each topic is given below

Issues Selected for Analysis

Natural Soundscape: The natural soundscape of the area could be affected temporarily by noise generated by use of helicopters to transport materials to the project area and by the use of power tools during construction.

Vegetation: Trees, shrubs, forbs, and lichens could be affected by trail relocation and campsite/outhouse replacement.

Soils: The proposed project could affect soils in the project area.

Wildlife: The use of helicopters and chainsaws could temporarily displace wildlife from the project area.

Recreation/Visitor Use: Construction could temporarily affect park visitors traveling or recreating in the project area. No action would not alleviate the safety concerns associated with the flood damage.

Park Operations and Management: NPS operations and management at Sheep Camp could benefit from flood damage remediation efforts.

National Historic Landmark: The resources and values of the Dyea and Chilkoot Trail National Historic Landmark could be affected by the proposed actions.

Cultural Resources: Cultural resources within the area of Sheep Camp could be affected by the clearing of vegetation for new tent pads, trail tread, and outhouses.

Floodplains: The proposed project would occur within the 100-year floodplain of the Taiya River and a Floodplain Statement of Findings (SOF) will be prepared according to Director's Order 77-2 Floodplain Management Procedural Manual (see Appendix B).

Water Resources: Repairs to the Zigzag Bridge would involve in-water work to support and stabilize existing cribs and reinforce channel banks; therefore, water resources could be affected.

Issues Eliminated from Further Consideration

Wetlands: The analysis conducted for the construction of the Sheep Camp campground in the early 1990s concluded that there were no wetlands in the project area. Sites chosen for campground and trail relocation are higher than previously existing sites and do not contain vegetation characteristic of wetlands. The vegetative species and soils within the project area indicate these sites would not likely be classified as wetlands. Soils within the Upper Taiya

valley bottom are very deep and well-drained. Since there are no wetlands on the site of the proposed project, no impact to wetlands would occur.

Air Quality: Since no actions are proposed that would result in any measurable effects on air resources, this issue will not be considered further.

Visual Quality: The visual quality of the project area would not be affected by the proposed action. Replacement of damaged and/or destroyed facilities would not alter the visual quality of this previously developed site. The total size of the campground and length of trail to be replaced will be unchanged from pre-flood conditions.

Threatened and Endangered Species: There are no known federal or state listed threatened or endangered species, federal candidate species, or state-listed species of special concern within the project area (USFWS 2002).

Wilderness: There is no Congressionally designated wilderness within the park. A wilderness suitability analysis for the Chilkoot Trail and White Pass Units of Klondike Gold Rush National Historical Park was completed in 1988 and reviewed in the park's GMP (1996). No block of land was found suitable due to the lack of minimal acreage. Consequently, no effects on wilderness would occur.

Subsistence: Subsistence activities in or adjacent to the project area would not be affected by the alternatives (see Appendix A for the ANILCA Section 810 subsistence evaluation).

Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations: This order requires all federal agencies to identify and address disproportionately high and adverse human health or environmental effects of their programs and policies on minorities and low-income populations and communities. This project would not result in any changes in the socioeconomic environment of the project area, and, therefore, would not be expected to have any direct or indirect impacts to minority or low-income populations or communities.

Fisheries: Although the project area is adjacent to the Taiya River, proposed activities would have no effect on fisheries. The upper Taiya River does not contain resident or migratory fish due to downstream obstructions (Paustian et al. 1994). The nearest fish populations are located approximately 6 miles downstream of the project area.

Rare Plants: In 2002, a vascular plant inventory was conducted in the park and no rare or sensitive species were located in or near Sheep Camp campground.

PERMITS AND APPROVALS NECESSARY TO IMPLEMENT THE PROJECT

Table 1 outlines the permits and approvals needed to proceed with the proposed action.

Table 1: Environmental Permits and Approvals for Project Completion

Required Permit/Approval	Regulatory Agency	Authority	Description
Project possibly affecting historical or archeological sites (Cultural Resource Concurrence)	State Historic Preservation Officer (SHPO)	National Historic Preservation Act of 1966	For any federal project the SHPO must concur that cultural resources would not be adversely affected.
Discharge of dredged or fill material into U.S. waters (U.S. ACE Fill Permit)	U.S. Army Corps of Engineers	Section 404, Federal Water Pollution Control Act of 1972 as amended in 1977 (Clean Water Act)	The U.S. ACE must authorize the discharge of fill in U.S. waters. A U.S. ACE Nationwide Permit #18 applies.

ALTERNATIVES INCLUDING THE PROPOSED ACTION

NO ACTION ALTERNATIVE

Under the No Action Alternative, the NPS would not repair and/or replace flood-damaged backcountry facilities in and near Sheep Camp. The remaining 12 sites at the campground would continue to be used by hikers. Three existing pit toilets would be available for human waste disposal although 2 are nearing capacity from extensive use. The warming shelter (shown on the cover of this document) would remain unusable in its current location in the middle of the active river channel and would likely be damaged even further by continued inundation.

PROPOSED ACTION ALTERNATIVE

Under the Proposed Action Alternative, the NPS would improve the safety of visitors hiking the Chilkoot Trail by repairing and/or replacing trails, campsites, outhouses, and a warming shelter associated with Sheep Camp campground and the Chilkoot Trail that were damaged or destroyed by flooding in August 2002. Flood damage to these facilities has severely impacted visitor safety and access in popular backcountry areas of the park. Repairs to these facilities are necessary to provide the type and level of visitor services described in the park's General Management Plan for the Chilkoot Trail Unit (NPS 1996).

Two site visits to the project area were made by NPS planners and resource managers immediately after the August 12th flood and again on November 5th, 2002. These site visits yielded an evaluation of flood damage, an assessment of long-term changes in drainage patterns, and recommendations for corrective actions and strategic improvements to the campground that would minimize damage from similar future events (Schrooten 2002). Recommendations for suitable areas for the replacement of lost facilities were based on adequate space, location (visitor

use/convenience), avalanche danger, future flooding, wetlands, wildlife and vegetation. After the site reconnaissance, the team refined a design for remediation of the damaged areas.

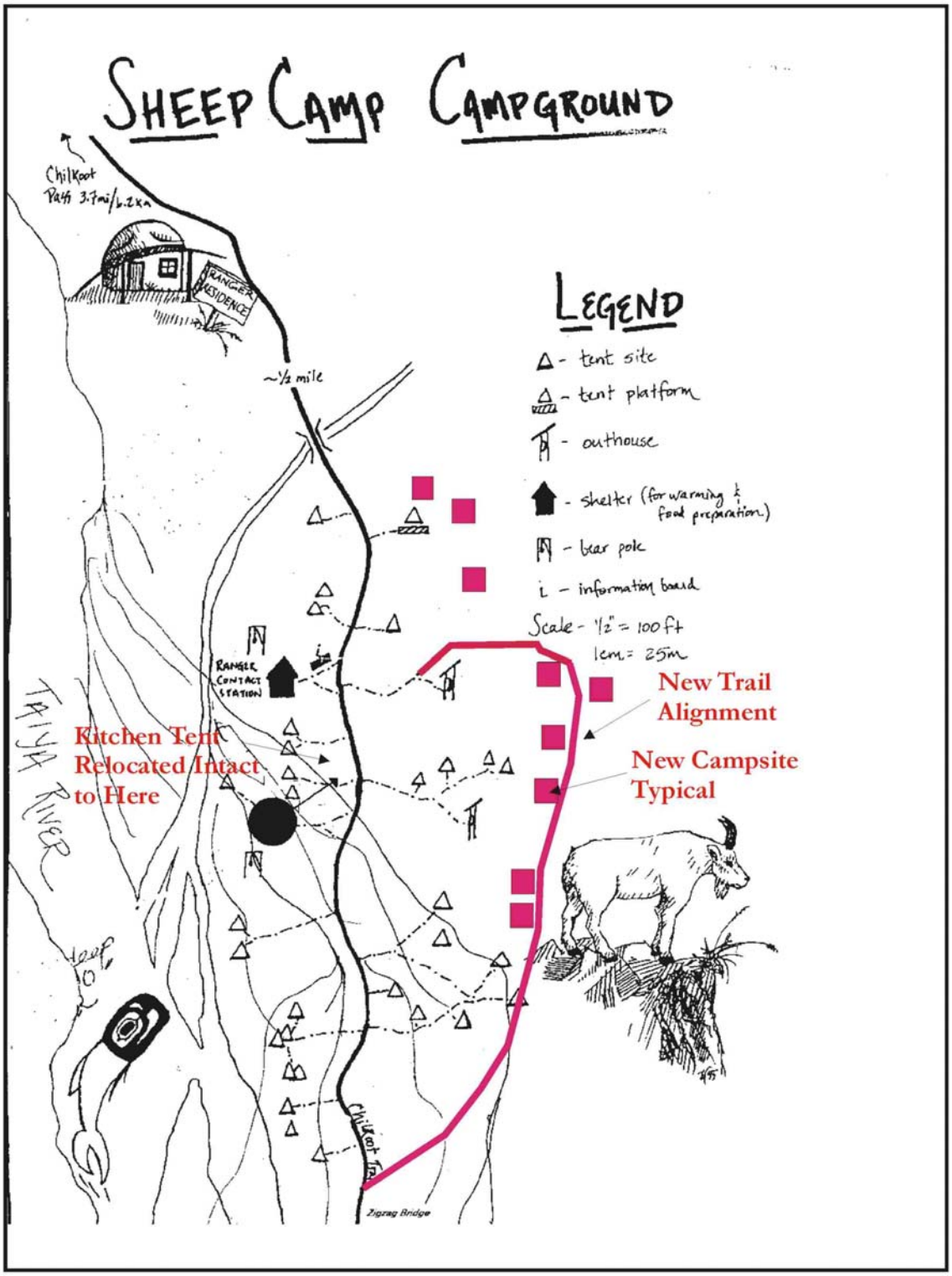
The preferred alternative is to construct between 15 and 18 additional camp sites interspersed within and adjacent to existing sites at the northern end of the Sheep Camp campground (see Figure 1). Figure 1 is a conceptual drawing of the proposed project. The exact location of the proposed facilities would be determined on the ground by the park's natural and cultural resource specialists working in conjunction with the trail crew. Sensitive areas identified by these specialists would be avoided. Some new camp sites could be constructed within the footprint of the existing campground, but not enough space exists within the current footprint for all of the sites that need to be replaced. In a relatively undisturbed area immediately to the east of the existing sites, planners located suitable areas for the establishment of new campsites, foot paths, two outhouses and the Chilkoot Trail relocation. This area is further away from the Taiya River and higher in elevation. Approximately 1500 linear feet of the Chilkoot Trail would be relocated 200-300 yards east of the river. This location was chosen because it is further from the river and slightly above the active floodplain. These areas do not appear to experience the same flood frequency as areas to the west and south that are closer to the river.

The entire acreage within the area proposed for new construction would be less than 3 acres. Of the total acreage, about 1.5 acres would be disturbed for construction by crews using hand tools for the placement of facilities, campsites and associated trails. The vegetation would be cleared with minimal disturbance to mineral soil except in the immediate location of tent pads and outhouses. The NPS Trail Crew would remove vegetation along the trail corridor to a width of approximately 8 feet. The trail tread would be approximately 36 inches in width and brushed back an additional 2 – 3 feet on each side. Camp sites would be brushed out to an approximately 10 feet in diameter circle. Facilities would be sited in natural openings whenever possible; however, it is anticipated that 10-20 trees would be removed during construction of the trail and other facilities. Large live trees would be preserved and only small trees (less than 10 inches dbh) would be removed. Standing dead trees (snags) would be retained for wildlife unless they pose a safety hazard. The damaged warming shelter would be relocated to higher ground 50 to 100 feet to the northeast. This would be accomplished by winching and rolling the structure intact to its new location.

The construction of the trail and campsites would be completed by NPS personnel during the spring and summer of 2003. Installation of two new outhouses may not be possible until 2004. If possible, new outhouses would be sited adjacent to existing sites and old sites would be filled in with gravel and soil. The park would considering alternatives to pit toilets in an effort to minimize future impacts to park resources. Efforts would be made to screen these sites and make them compatible with the historic scene.

In addition to trail rehabilitation and relocation, one foot bridge, Zigzag Bridge, located at the south end of the campground, would be repaired. The Zigzag Bridge is still usable, but its rock and log crib supports and vegetative revetments were weakened and damaged by the flood waters. The trail crew would support the rock foundation of the cribs and stabilized the eroding stream banks by adding biodegradable jute fabric pillows filled with soil and planting willow cuttings for added support. This would require in-stream work and consultation with the U.S. Army Corps of Engineers. Approximately 1000 square yards of jute fabric would be

Figure 1. Conceptual drawing of Sheep Camp showing proposed flood remediation work (Schrooten 2002).



stacked about 5 layers high in an area about 50 x 20 feet. Fifty linear feet of stream bank will be repaired. Rock needed for the foundation work would be 6-12 inches minimum in diameter and angular in composition. The biologs are 12 to 20 inches in diameter, jute filled with coconut husks and shavings. The 10 to 20 foot long log is placed end to end to anchor the streambank revetment and to provide a smooth surface that flowing water will not scour (Figure 2).

Construction supplies and materials would be sling-loaded to the site by helicopter. This would require 1-3 days of flights. These flights would occur in May prior to the start of the project. Crew are expected to start work on campground repairs and trail relocation in early May and be completed before the start of the peak visitor season (early June). The crew would travel to the site by foot and stay at the Sheep Camp Ranger Station during construction. Approximately 4-10 maintenance workers would be involved in this project. Approximately 30 cubic yards of gravel fill material would be needed for all of the proposed activities. This fill would be taken by hand from a borrow pit out of view of the trail and away from water sources.

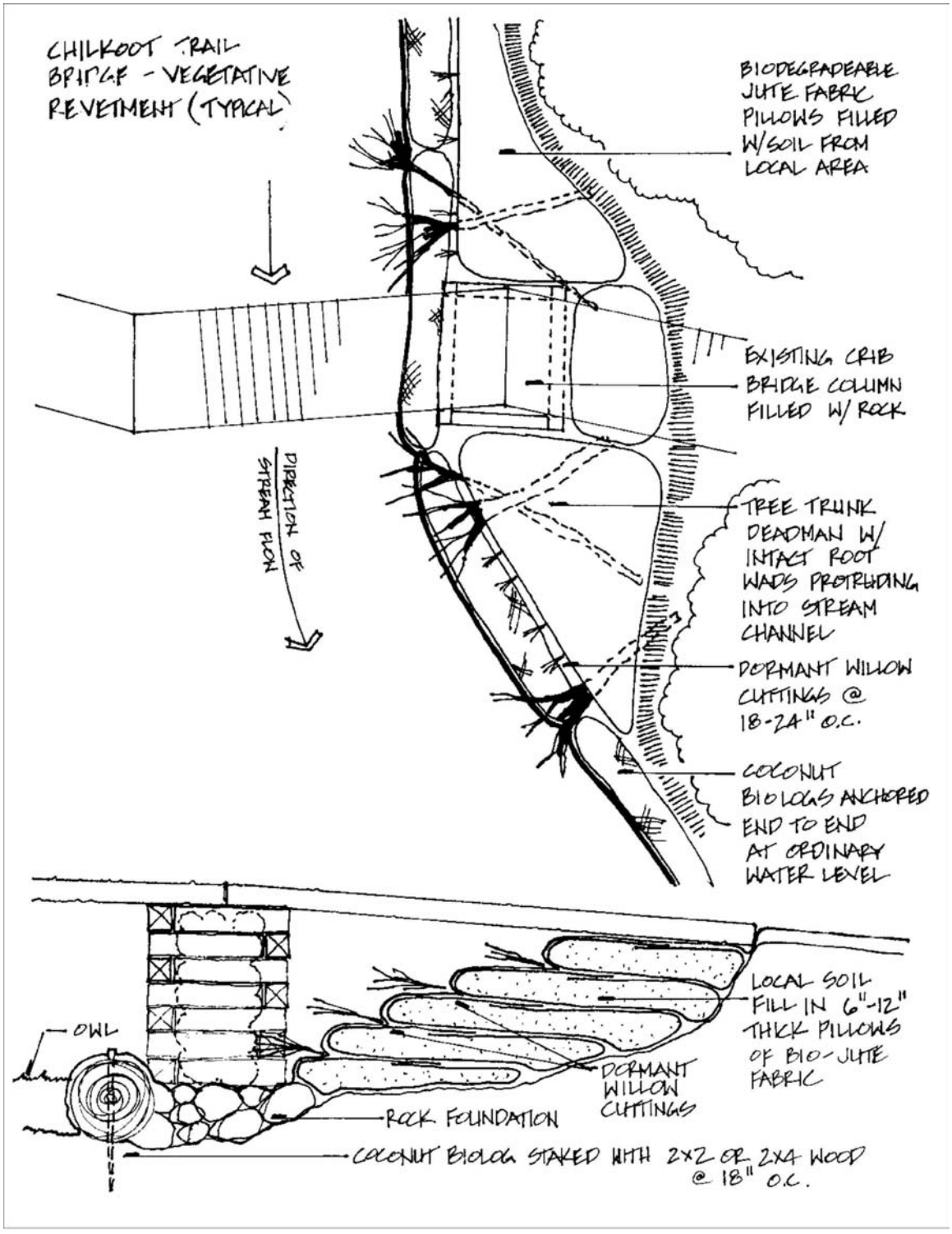
This alternative would correct the flood damage to facilities without measurably increasing the capacity or size of the Sheep Camp campground. The proposed actions would result in a developed area footprint at Sheep Camp that is similar in size to pre-flood conditions. The visitor capacity would be unchanged and the total number of campsites, outhouses, and shelters would be approximately the same. The total length of trails in the area would also be similar. In the attached Floodplain SOF (Appendix B) the park describes measures it would take to minimize threats to visitor safety from flooding at Sheep Camp.

ENVIRONMENTALLY PREFERRED ALTERNATIVE

In accordance with Director's Order-12, *Conservation Planning, Environmental Impact Analysis, and Decision-making*, the NPS is required to identify the "environmentally preferred alternative" in all environmental documents, including EAs. The environmentally preferred alternative is determined by applying the criteria suggested in the National Environmental Policy Act (NEPA) of 1969, which is guided by the Council on Environmental Quality (CEQ).
Generally, these criteria mean the environmentally preferable alternative is the alternative that causes the least damage to the biological and physical environment and that best protects, preserves, and enhances historic, cultural, and natural resources (Federal Register, 1981).

The "Proposed Action Alternative" is the environmentally preferred alternative, because human health and safety are enhanced under this alternative. Remediation efforts include only the replacement of lost/damaged facilities. The overall size of the campground (i.e., the footprint) and the maximum number of visitors the site could hold would be the same as pre-flood levels.

Figure 2. Zigzag Bridge repair design from Schrooten (2002).



ALTERNATIVES ELIMINATED FROM DETAILED STUDY

Relocate Entire Sheep Camp Campground Outside of Floodplain

In the analysis conducted for the 1992 Environmental Assessment of the construction of the present day Sheep Camp campground, the NPS examined several other potential sites in the Taiya Valley for the camping area. These sites were dismissed primarily due to inadequate size, sensitive resource concerns, or avalanche danger (NPS 1992). The campground was moved from the previous location (approximately ¾ of a mile up valley of the current site) in 1994 because of impacts to cultural resources and frequent flooding. The current site is removed from the main avalanche paths found to the north. The Taiya River valley is an extremely narrow (1/2 mile at it's widest) glacial U-shaped valley. Valley walls rise steeply from the valley floor and large, level upland areas are non-existent. Consequently, the only suitable areas for a campground are in the valley bottom and within the floodplain.

Replace Lost Campsites at Another Campground

The next closest campground to Sheep Camp is Pleasant Camp (1.5 miles down valley from Sheep Camp). The NPS considered adding 18 new campsites at Pleasant Camp to make up for the number of sites lost at Sheep Camp. This alternative was eliminated from further consideration as it would not satisfy the purpose and need identified by the NPS. This alternative would not improve visitor safety but would, in fact, increase the likelihood of injuries and accidents to hikers because of the need to hike further to get over Chilkoot Pass. By increasing the distance most backpackers would have to travel on the most physically-demanding leg of the 33-mile Chilkoot Trail (from Sheep Camp to Happy Camp via Chilkoot Pass) this alternative would not improve the safety of backcountry visitors in the park. Currently, many hikers leaving from Sheep Camp find it difficult to reach Chilkoot Pass before avalanche danger increases in the afternoon. This situation would worsen if most hikers were forced to extend the distance traveled by staying at Pleasant Camp.

Redirect the Taiya River and Rehabilitate Damaged Campsites

Forcing the Taiya River back into its previous channel and away from the Sheep Camp camping area and Chilkoot Trail would require extensive in-water work. Heavy equipment would be needed to dredge out the previous channel and fill in new channels the river has created in the southern portion of the campground. Construction of a large rock dike would also be necessary to keep the river from returning to the new channels it has created. This alternative was dismissed as "environmentally infeasible" because it would have significant adverse environmental impacts on the Taiya River. Likewise, it would profoundly alter the historical scene and negatively affect the National Historic Landmark. It is not even known whether the heavy equipment necessary to accomplish this work could be transported to this remote location.

Table 2. Comparison of Alternative Actions

	No Action Alternative	Proposed Action Alternative
Management Emphasis	This no-action alternative provides a baseline for evaluating the changes and impacts of the proposed action alternative. Under this alternative, current conditions and features would be managed as-is.	Management would emphasize improving the safety of visitors hiking the Chilkoot Trail by repairing and/or replacing trails, campsites, outhouses, and a warming shelter associated with Sheep Camp campground and the Chilkoot Trail that were damaged or destroyed by flooding in August 2002. Flood damage to these facilities has severely impacted visitor safety and access in popular backcountry areas of the park.
Chilkoot Trail Relocation	No trail relocation would occur. Hikers would continue to ford a main channel of the Taiya River just south of Sheep Camp campground.	Approximately 1500 linear feet of the Chilkoot Trail would be relocated 200-300 yards east of the river. This location was chosen because it is further from the river and slightly above the active floodplain. These areas do not appear to experience the same flood frequency as areas to the west and south that are closer to the river. Relocation of the trail would remove the need for Chilkoot Trail hikers to ford the Taiya River.
Replacement of 15 to 18 lost campsites	No repairs, replacement, or improvement would occur. Natural and cultural resources would remain in their current conditions.	The preferred alternative is to construct between 15 and 18 additional camp sites interspersed within and adjacent to existing sites at the northern end of the Sheep Camp campground. The exact location of the proposed facilities would be determined on the ground by the park's natural and cultural resource specialists working in conjunction with the trail crew. Sensitive areas identified by these specialists would be avoided.

	No Action Alternative	Proposed Action Alternative
Repair of Sheep Camp warming shelter	No repairs, replacement, or improvement would occur. The warming shelter would remain in the Taiya River and would be inaccessible to campers. Natural and cultural resources would remain in their current conditions.	The damaged warming shelter would be relocated to higher ground 50 to 100 feet to the northeast. This would be accomplished by winching and rolling the structure intact to its new location.
Replacement of two outhouses	No repairs, replacement, or improvement would occur. Natural and cultural resources would remain in their current conditions.	Installation of two new outhouses may not be possible until 2004. If possible, new outhouses would be sited adjacent to existing sites and old sites would be filled in with gravel and soil.
Repairs to Zigzag Bridge	Same as above.	The Zigzag Bridge is still usable, but its rock and log crib supports and vegetative revetments were weakened and damaged by the flood waters. The trail crew would support the rock foundation of the cribs and stabilized the eroding stream banks.

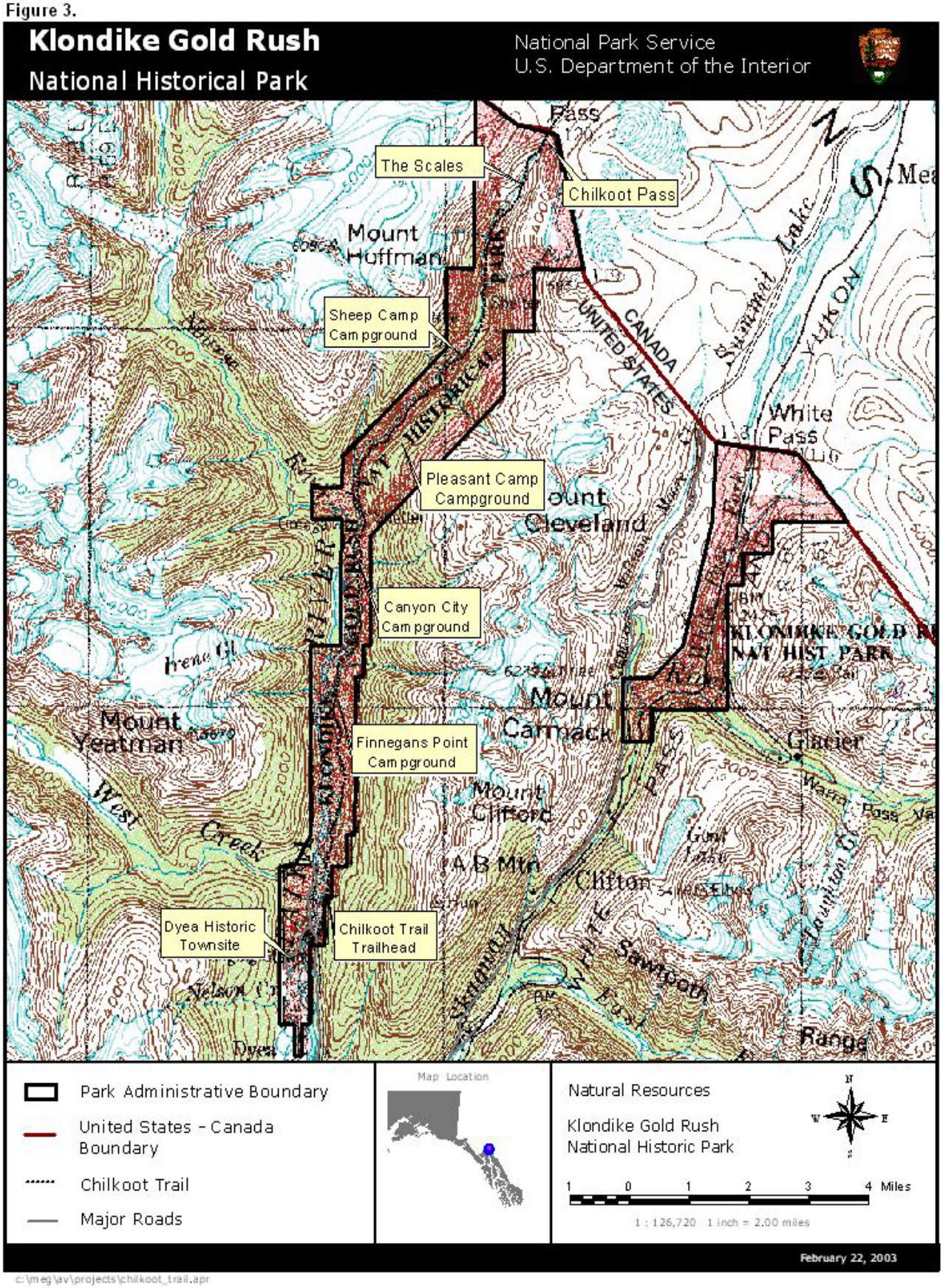
AFFECTED ENVIRONMENT

The Alaska units of Klondike Gold Rush National Historical Park are located at the northern limit of navigation along the Inside Passage of Southeast Alaska. A portion of the park lies within Skagway, which is about 80 air miles north of Juneau and 500 air miles east of Anchorage. The Chilkoot Trail unit of the park encompasses most of the Taiya River valley and is northwest of the City of Skagway. The Taiya River valley is approximately 17 miles long and one-half mile wide. It rises from sea level to approximately 3700 feet elevation.

Visitation to Klondike Gold Rush National Historical Park (the park) averages over 700,000 people annually of which approximately 3,000 hike the 33-mile Chilkoot Trail. The initial 16.5 miles of the trail are in the United States and are managed by the NPS under a cooperative agreement with the State of Alaska. The remaining 16.5 miles are in Canada. Use of this trail continues to grow, as the area becomes increasingly popular with tourists from around the world. Sheep Camp (elevation 1000 feet) is a strategically important campground along the Chilkoot Trail because it is the final stop before the steepest and most physically challenging section of the hike up the Golden Stairs and over Chilkoot Pass (elevation 3700 feet).

Numerous facilities exist along the trail both in the U.S. and Canada (Figure 3). Within the U.S. portion there are four primitive camping areas with outhouses, bear poles for safe storing of food, a trail crew cabin near Canyon City, a ranger residence at Sheep Camp, several interpretive signs,

Figure 3.


Klondike Gold Rush
National Historical Park
National Park Service
U.S. Department of the Interior
The Scales
Chilkoot Pass
Mount Huffman
Sheep Camp Campground
Pleasant Camp Campground
Canyon City Campground
Finnegans Point Campground
Dyea Historic Townsite
Chilkoot Trail Trailhead
Mount Cleveland
Mount Carmack
Mount Yeatman
Mount Clifford
White Pass
Glacier
Clifton
Sawtooth Range
CANADA
UNITED STATES
YUKON
Park Administrative Boundary
United States - Canada Boundary
Chilkoot Trail
Major Roads
Map Location
Natural Resources
Klondike Gold Rush
National Historic Park
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February 22, 2003
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six warming/drying shelters located at the four campgrounds, and numerous foot bridges. The NPS Trail Crew works on the trail annually to keep it maintained.

Natural Environment

The Sheep Camp site is located within the Pacific Northwest Coast Rainforest characterized by a moderate coastal (marine) climate. Forest types include coniferous forests of western hemlock, mountain hemlock, Sitka spruce, sub-alpine fir. Black cottonwood, paper birch, alder and willow are common at these sites. Understory species include highbush cranberry, goat's beard, devil's club, blueberry and currant. A wide variety of herbaceous plants exist and occur as ground vegetation, including ferns, twisted stalk, mosses and pyrolas.

Mountain goat and black bear are the most common larger wildlife species within the project area. Brown bear and wolves are seen infrequently. The park has had few bear problems resulting in the temporary closure of several Chilkoot Trail camping areas. Other animals that may be found in the area include mink, snowshoe hare, pine marten, fox, lynx, coyote, and numerous small mammals. The Taiya River valley provides resting and feeding habitat for migratory birds generally before early May and after mid-October. Mallard ducks are the most common, though green-winged teal, widgeon, common and barrow goldeneye, common merganser, and Canadian geese may be found. Blue and spruce grouse, ptarmigan and a variety of raptors and songbirds are found within the project area. In a recent survey NPS personnel located two bald eagle nests in the lower Taiya River valley. During April and May 10-20 eagles are often observed in the area. Similar numbers of eagles are observed in the Taiya River valley in fall during coho salmon spawning. Dolly Varden and Coho salmon are known to be present in the Taiya River from the mouth to approximately 1 mile north of Canyon City historic site, above which waterfalls prevent further upstream movement. Pink salmon spawn in the Taiya River up to the northern confluence of the Nourse and Taiya Rivers. There are no known threatened or endangered animal or plant species or critical habitats in the project area.

The area is at the northern limit of the moist Maritime Climatic Zone which is noted for milder winters, warm summers and lack of permafrost. The climate is generally mild, with an overcast sky during two-thirds of the year. The precipitation at Skagway is approximately 28 inches per year, while further inland at higher elevations over 50 inches are received. The coldest month is January with a mean temperature of 21 degrees Fahrenheit. In Skagway July is the warmest month, with a mean temperature of 58 degrees Fahrenheit. The average length of the frost-free season is 180 days, extending generally from about the first of May to the middle of October. Strong winds may occur in any season, but they are common in winter. The mountains surrounding the Chilkoot Trail are covered by deep snow in the winter, but most snow melts during June, July and August. Perennial ice fields remain above the 3,000 foot level. Avalanches occur mostly during the middle and late spring and affect all areas above 1500 feet, but hazardous zones are easily recognized and avoided. In the Chilkoot Pass area, heavy snow and terrain restrict winter and spring recreational use.

The Taiya River drainage basin encompasses an area of 179 square miles with an annual discharge of 1,074 cubic feet per second (cfs). The mean monthly discharge varies from 82 cfs in January to 3,485 cfs in July. During the months of June through September the mean monthly average is 2,635 cfs while during the other eight months it averages 293 cfs. The Taiya River is a very turbid river due to glacial melt. Frequent channel migration and channel braiding is likely attributable to high bedload sediment supply. Flow in the tributary drainage spanned by the Zig Zag bridge is sustained by mountainslope runoff and shallow flood plain aquifers (Paustian et al. 1994).

Specific information regarding the floodplain status is not available for the Taiya River and an extensive study would be necessary to determine if the project would be located within a 100 year floodplain. The existing campground is probably within a 100 year floodplain as evidenced by last summer's flood event. The National Wetland Inventory has not been completed for the Taiya River valley. The vegetative species and soils within the project area indicate these sites would not likely be classified as wetlands. Soils within the Upper Taiya valley bottom are very deep and well-drained. Parent material is glacial outwash and alluvium. Lower floodplain surfaces are subject to flooding on a seasonal basis while higher terraces are either not flooded or flooded only during extreme high flows. Patches of hemlock forest indicate the most stable sites in the valley bottom (Paustian et al. 1994).

Cultural Environment

The American side of the Chilkoot Trail includes the major historical sites of Dyea, Finnegans Point, Canyon City, Pleasant Camp, Sheep Camp, The Scales, and portions of the Summit. It also includes other smaller historical sites, portions of the historic trail(s), and numerous artifacts found along the trail(s). The entire trail lies within the boundaries of the Chilkoot Trail and Dyea National Historic Landmark (NHL) and is listed on the National Register. Prior to the gold rush of 1898, the Chilkoot Trail was a well established Tlingit trade route into the interior. Dyea and Skagway were both sites of seasonally occupied Tlingit camps.

During the peak of the 1898 gold rush, Sheep Camp was a bustling trailside community with a highly transient population of around 8,000. Based on earlier archeological compliance and survey work (Fenicle 1992, Gurcke 1992, Hayes 1993, 1994), the current Sheep Camp campground appears to be located near the outskirts of historic Sheep Camp but still within the camp. The pictures of historic Sheep Camp that shows this area shows an area exclusively of tents sitting on either snow or the frozen river. This area might therefore be properly called the "suburbs" of Sheep Camp. "Downtown" Sheep Camp, the commercial core of the town, had mostly log and wood framed buildings rather than tents and was located north and west of the current campground. Based on archeological and historic information, it is believed that the area around the campground had only a scattering of tents during the gold rush but the exact number is unknown. It is known that individuals occupying tents usually did so for only a brief period of time (a few weeks to a month at most) before they moved up the trail into Canada. The brief occupation of these highly ephemeral "structures" would probably account for the lack of archeological features found in the campground. Past investigators have discovered over 800 historic artifacts in the immediate vicinity of the campground but no archeological features. The "downtown" commercial core, on the other hand, has over 30 major features. The historic artifacts found in the campground have tended to cluster in the northern rather than the southern portion. This could be due to cultural reasons, that is, the northern part of the campground represents the southern boundary of Sheep Camp, or it could be due to natural reasons, a flood had previously inundated this area sometime after the gold rush wiping out all trace of the cultural resources that had been there before.

An Assessment of Actions (Form XXX) has been submitted by the park for this proposal. Upon approval the action will comply with Section 106 of the National Historic Preservation Act. This approval must occur prior to any construction.

Human Environment

Tourism is a major source of income for the Skagway region. Cruise ships have a major effect upon facilities and services in Skagway. The daily arrival of up to 8,000 cruise ship passengers requires extensive services and facilities for transportation and recreation. More than 700,000 visitors each year arrive in Skagway traveling by cruise ship, the Alaska Marine Highway (ferry),

Klondike Highway, White Pass and Yukon Route Railroad, various airlines and other means. The 3000 visitors annually using the Chilkoot Trail bring most of their necessary supplies and equipment with them. Hence they have little effect on the local economy compared to the cruise ship passengers.

Sheep Camp is located 11.8 miles from the trailhead in Dyea. It is the most popular camping area on the U.S. side of the trail. It is the northernmost camping on U.S. portion of the trail. Most hikers make this an overnight destination camp in preparation for the 6.5 mile trek to Happy Camp in Canada. During July, the peak of the hiking season, it was common to have more than 40 campers each night, with over 80 at peak times. In its currently reduced state, Sheep Camp campground can accommodate up to 24 campers. Finnegan's Point (mile 4.8) is the least used camp (12 campers maximum), while Canyon City (mile 7.5) and Pleasant Camp (mile 10.5) frequently fill to capacity with 40 and 24 campers respectively.

Privately operated helicopter scenic flights initiated in 1985 operate from a heliport near the airport in Skagway. Flights are conducted to a glacier in the Taiya River valley, and hikers on the Chilkoot Trail are seldom out of hearing distance as helicopters pass overhead on their flight. Up to 2 dozen flights could occur on a busy day. Most flights occurring in the Taiya Valley affect hikers and campers from Canyon City south with few flights directly over Sheep Camp. Helicopters are used by the NPS 3-5 days during the summer for transporting materials (e.g., equipment, supplies, food) for trail crews, archeology field camps, natural resource field crews, and backcountry rangers. Most use occurs during late May/early June through early October. Helicopters are also used for medical evacuations of injured or sick hikers during the summer.

ENVIRONMENTAL CONSEQUENCES

NO ACTION ALTERNATIVE

Natural Soundscape:

General Analysis. The natural soundscape in the park would not be impacted in the short-term by noise associated with repairs to flood damaged facilities in Sheep Camp. In the immediate vicinity of Sheep Camp, the natural soundscape would benefit from this alternative as 20-40 fewer hikers could camp in this area. Long-term effects to the soundscape are expected to be minimal however, as the smaller campground would remain open and the same or increasing numbers of backpackers would continue to pass through the area on their way to Chilkoot Pass. NPS helicopters would continue to be used by NPS personnel in spring and fall (usually just one day per season) to transport supplies needed during the summer field season or irregularly for emergencies. However, the adverse effect of this noise on the natural soundscape would be minor, because the noise is intermittent, would occur only within Sheep Camp, and occurs only during summer months.

Conclusions. There would be continuing minor adverse long-term impacts on the natural soundscape. Because impacts would be minor, there would be no impairment of park resources and values associated with this topic.

Vegetation:

General Analysis. Since the NPS would not replace lost facilities in Sheep Camp vegetation present in the project area would not be impacted.

Conclusions. There would be no impacts on vegetation; therefore, there would be no impairment of park resources and values associated with this topic.

Soils:
General Analysis. No new impact to soils would occur under this alternative as no ground disturbance is proposed. Existing impacts resulting from the bank erosion at the Zig Zag bridge would continue to occur. An increase in turbidity in this relatively clear stream would result; however, these adverse impacts would be minor, localized, and short-term given the tendency of the bank to stabilize naturally over time.
Conclusions. There would be continuing minor adverse short-term impacts on soils. Because impacts would be minor, there would be no impairment of park resources and values associated with this topic.

Wildlife:
General Analysis. Wildlife occurring in the area such as marten, red squirrel, black bear, brown bear, wolverine, mountain goat, varied thrush, common raven, chestnut-backed chickadee, northern goshawk, weasel, sapsucker, and rodents would not be disturbed by the use of chainsaws and other hand tools to replace lost facilities because no construction would take place. Disturbance and displacement of wildlife currently occurs in the project area due to the noise associated with backpackers, park operations, and facility maintenance; therefore, wildlife in the area have either been displaced from the site or have habituated to current levels of human activity. Existing noise from campers and thru-hikers would continue to have the potential to displace wildlife from adjacent habitats. This adverse effect would be of minor intensity, however, because the noise potentially causing displacement would continue to occur predictably and mainly during the summer and would only affect wildlife within areas close to the trail and campground. Predictable noise levels have fewer impacts than disturbances that are unpredictable and occur sporadically (Joslin and Youmans 1999).
Conclusions. Minor adverse long-term impacts on wildlife would continue as a result of continued operation of the Chilkoot Trail and Sheep Camp campground. There would be no new impacts on wildlife. Because continuing impacts would be minor; there would be no impairment of park resources and values associated with this topic.

Recreation/Visitor Use:
General Analysis. Visitors to the park would be seriously impacted by the decreased camping opportunities at Sheep Camp and the unsafe conditions on portions of the Chilkoot Trail that are now under water. In order to hike the Chilkoot Trail and access Sheep Camp, backpackers would have to ford several hundred feet of braided river channels with moderate to strong surface flows averaging 1 foot in depth. Crossing these sections of submerged trail during high flows would present backpackers with swiftly flowing water thigh to waist deep. Adults and especially children could be at risk of drowning while crossing these river channels at high or even moderate flows. Most backpackers would have to stay at Pleasant Camp (1.5 mile down valley from Sheep Camp) making their journey over Chilkoot Pass to Happy Camp longer and more difficult, possibly increasing risk of injury/accidents and negatively impacting the visitor experience. Hikers could continue to use the trail and the few campsites that are available at Sheep Camp, but many would have a much more difficult hike over Chilkoot Pass due to the added distance they must travel and the need to ford a main channel of the Taiya River just south of Sheep Camp. In high water events, the park would probably be forced to close the trail to the public 2-3 times a summer season because the threat to human health and safety would be too great. If the trail were closed 2-3 times a summer, 100-150 visitors would not be able to experience the Chilkoot Trail each year. The long-term adverse effects on recreation/visitor use would be major and 50-100 visitors may chose not to hike the trail at all under these circumstances.
Conclusions. Major adverse long-term impacts to visitor use of the Chilkoot Trail would result if no action were taken at Sheep Camp campground. Although impacts would be major, there

would be no impairment of park resources and values if this alternative is selected because a majority of visitors would likely continue to hike the trail despite these conditions.

Park Operations and Management:
General Analysis. Park operations and management would continue to be impacted under this alternative. Park Rangers would have to ford a swiftly flowing channel of the Taiya River regularly in order to perform their routine duties. The park ranger stationed at Sheep Camp would not have the opportunity to contact as many hikers on their way up and over Chilkoot Pass since many fewer backpackers would be able to stay at Sheep Camp (20-40 fewer campers per night). The ability of the park ranger to educate and inform the public would be greatly impacted by this alternative. The trail would be open a majority of the summer season and an unknown number of visitors would continue to hike the trail despite these often unsafe conditions.
Conclusions. This alternative would allow the current impacts on park operations/management to continue. Existing adverse impacts would continue to be major over the long term. Although the impacts would be major; there would be no impairment of park resources and values associated with this topic.

National Historic Landmark:
General Analysis. The Dyea and Chilkoot Trail National Historic Landmark would not be affected under this alternative as the construction of replacement facilities would not occur. The flooded condition of Sheep Camp would not affect the National Historic Landmark as the natural flowing Taiya River is consistent with the values protected by the National Historic Landmark designation.
Conclusions. There would be no impacts on the National Historic Landmark; therefore, there would be no impairment of park resources and values.

Cultural Resources:
General Analysis. Cultural resources would be unaffected by the construction of replacement facilities. Cultural resources would continue to be affected by the movement of the Taiya River across its floodplain. Flooding would continue to remove artifacts and alter existing historical features associated with the original Sheep Camp.
Conclusions. There would be no new impacts on cultural resources; therefore, there would be no impairment of park resources and values.

Floodplains:
General Analysis. Floodplains would continue to be impacted under this alternative as the much reduced Sheep Camp campground would continue to operate and park visitors would hike the Chilkoot Trail. In the case of Sheep Camp campground, the cost of obtaining precise floodplain information is prohibitive; therefore, the NPS is assuming that the campground is in the 100-year regulatory floodplain of the Taiya River. Continued operation of the much reduced campground would occur under this alternative; however, this type of development represents a minimal amount of intrusion on floodplains and floodplain processes. As described in the Affected Environment section, the Taiya River valley is a U-shaped glacial valley with a very narrow floodplain and steeply ascending footslopes. Suitable sites for trails and campgrounds can only be found on the valley bottom and within the river's floodplain. The NPS has kept development in these areas to a minimum and as a result, ongoing impacts to floodplains and floodplain processes along the Chilkoot Trail are minor, adverse, long-term, and localized. In the attached Floodplain SOF (Appendix B) the park describes measures it would take to minimize threats to visitor safety from flooding at Sheep Camp.
Conclusions. Minor adverse long-term impacts on floodplains would continue to occur under this alternative but these impacts are localized and do not represent a major commitment of

resources on the part of the NPS. Because impacts would be minor; there would be no impairment of park resources and values associated with this topic.

Water Resources:
General Analysis. Water resources would be impacted under this alternative because the park would not replace existing outhouses which are nearing capacity. No action regarding human waste disposal at Sheep Camp would result in the likelihood of increased contamination to surface and subsurface waters in the area. Although the "No Action Alternative" would involve no ground or vegetation disturbance, it is undesirable because large numbers of visitors would hike through the river on a daily basis, possibly causing impacts to water quality. By regularly walking through the river, hikers would increase bank erosion resulting in increased sedimentation and turbidity. This situation could negatively affect water quality both surface and subsurface if not addressed. This long-term adverse effect would be of minor intensity, however, given the lower numbers of campers expected at Sheep Camp and the reduced capacity of the site. No repairs to the Zigzag Bridge would occur under this alternative, including efforts to stabilize the eroding stream bank at the northern bridge abutment. This long-term adverse effect on water resources would be minor and short-term, however, given that stream bank erosion is a natural occurrence in this active floodplain and generally turbid river.
Conclusions. Minor adverse long-term impacts on water resources would likely occur under this alternative if nothing is done to address the human waste disposal issue and the stream bank erosion issue at the Zigzag Bridge. Because impacts would be minor; there would be no impairment of park resources and values associated with this topic.

Cumulative Impacts Analysis: Cumulative impacts are defined as the *incremental impacts* on the environment resulting from adding the proposed action to other past, present, and reasonably foreseeable future actions (also referred to as regional actions), including those taken by both federal and nonfederal agencies, as well as actions undertaken by individuals. Cumulative impacts may result from singularly minor but collectively significant actions taking place over a period of time (CEQ Sec 1508.7).

Past, present, and reasonably foreseeable future actions impacting the issues addressed above within the Taiya River Watershed, include the following:

- Once a thriving stampeder camp of approximately 8,000 inhabitants for a brief period during the height of the 1898 gold rush, Sheep Camp now serves as a remote backcountry camping area accommodating up to 80 hikers a night at the peak summer visitor season. Because of the Canadian permit system capping the number of hikers allowed over Chilkoot Pass each day at 50 persons, the maximum number of hikers at the Sheep Camp campground each day is unlikely to increase. Winter use of the trail is virtually non-existent, but use during the now slow shoulder season could increase as the Chilkoot Trail grows in popularity.
- Human activity has been ongoing in the Taiya River valley for several thousand years. The Tlingit Indians controlled Chilkoot Pass and used it as an important trade route between the Coast and the Interior for an unknown number of years before the arrival of the first European Americans. In 1880 the Tlingits opened up the trail to the first gold prospectors. Since that time, the number of humans in the valley steadily rose peaking during the 1898 gold rush. The upper valley was essentially abandoned from 1900 to 1961 when the State of Alaska began reconstruction of the Chilkoot Trail for recreational use. Low numbers of hikers and hunters used the trail between those years but use was limited and irregular. Much of the watershed was extensively logged between 1898 and 1970. Periodic glacial outburst floods and channel migrations have acted to keep the

valley bottom in early successional stages of exposed gravel bars, shrubfields, and spruce/cottonwood riparian forests. Areas that have escaped frequent disturbance have advanced hemlock dominated forest stands.

- Scenic air tours regularly occur over the Taiya River valley in summer. The Bureau of Land Management and the National Park Service regulates where air tour operators may land but overflights are unrestricted. Currently the number of operators and the amount of traffic appears stable.
- The Chilkoot Trail Unit of the park is managed to protect the cultural/natural resources and provide a primitive backcountry experience to park visitors. The park plans to maintain the current level of backcountry visitor opportunities into the future. The upper Taiya watershed (from the West Creek Tributary to the Canadian border) is to be managed for recreational uses at current levels. Downstream portions of the valley (the lower 3 miles of the river) have mixed landownership (NPS, State of AK, City of Skagway, private) and could experience considerable development in the future. The NPS continues to work with these various landowners to ensure that park resources and values are protected.

Although human influence has been extensive in the Sheep Camp area beginning in the gold rush era, the area is now relatively undeveloped and existing facilities are quite primitive. Existing impacts to natural and cultural resources in the area include loss of upland forest and riparian habitats to trail and campground development; altered floodplain processes due to development within the 100 year floodplain; disturbance to wildlife from people and aircraft; noise and light disturbance from facilities; introduction of non-native, invasive plant species; and destruction/theft of cultural resources. Regardless of the above past, present, and reasonably foreseeable future actions, there would be no cumulative (incremental) impacts on the issues described above, under this alternative, as no new actions would be taken.

Conclusions. There would be no incremental (cumulative) impacts associated with the No Action Alternative to the issue topics identified. All impacts would be associated with past, present, and future actions.

PROPOSED ACTION ALTERNATIVE

Natural Soundscape:

General Analysis.

The natural soundscape in the park would be impacted to a minor degree in the short-term (up to 4 weeks) by noise associated with the transport of materials and the construction of replacement facilities; however, the noise would occur early in the season when few visitors are hiking the trail. The 2-5 helicopter flights needed to transport materials to the site would not represent a measurable difference in noise levels over existing operation levels. Minor long-term adverse impacts would also be expected because replacing the lost facilities would result in 20-40 more campers at Sheep Camp. These impacts would occur intermittently and mainly during the peak visitor use season (between June and August). However, the adverse effect of this noise on the natural soundscape would be minor, because the noise is intermittent, within Sheep Camp, and occurs only during summer months. Since this alternative would not result in an increase in visitor numbers no new impacts would occur.

Conclusions. Overall, the proposed action would result in minor, short-term and long-term adverse impacts to the natural soundscape, but these impacts would occur intermittently and mainly during the peak visitor use season (between June and August). The nature of these

impacts would not result in the impairment of park resources and values associated with this topic.

Vegetation:
General Analysis. This alternative requires the disturbance of approximately 1.5 acres of native vegetation for all of the proposed activities. Trail alignment, campsites, and outhouses would be sited in order to avoid the removal of trees greater than 10 inches in diameter. Between 10 and 20 trees could be removed along with understory vegetation comprised of shrubs and forbs. Concentrating campers at designated sites would result in the loss of a minimal amount of vegetation in the immediate vicinity of the facilities and the preservation of large areas of native vegetation in a predominantly natural state. Ground disturbance associated with the construction could increase the potential for weed spread and establishment within the project area. A 2000 exotic plant survey of the Chilkoot Trail Unit (Furbish and Jorgensen 2001) documented several species of exotic plants in the Sheep Camp area. However, only one species was targeted for management control – Common plantain (*Plantago major*). Follow up surveys in 2001 and 2002 could not relocate this species. Since the park periodically monitors developed areas for exotic and invasive plants and implements control actions if necessary, weed spread would only be a minor concern for this project. The species present at the site are not highly invasive and continued monitoring and control work would prevent the spread of exotic species in the area. Likewise, the spruce/cottonwood/alder forest on this site is an early successional community adapted to frequent disturbance (flood, avalanche, channel migration). Areas dominated by late-successional plant communities would be avoided and thus would not be altered by this project. Altogether, because the affected area is relatively small and impacts will be clustered rather than dispersed, and because thousands of acres of high quality, native vegetation would remain intact, adverse impacts on vegetation would be minor both in the short-term and long-term.
Conclusions. Overall, the proposed action would result in minor, adverse, site-specific, short-term and long-term impacts to vegetation. The nature of these impacts would not result in the impairment of park resources and values associated with this topic.

Soils:
General Analysis. Although ground disturbance would occur under this alternative (approximately 1.5 acres), adverse impacts to soils in the project area would be minor over both the short-term and long-term for several reasons. Significant erosion is unlikely given the relatively flat topography and lack of steep slopes on this river terrace site. Likewise, soils in this very dynamic, mid elevation floodplain site are undeveloped and are extremely stoney (Paustian et al. 1994). This alternative would not result in an increase in disturbed lands (i.e., compacted or unstable soils) over pre-flood levels at this site because previously disturbed areas have been reclaimed by the river. Therefore; there would be no measurable increase in the developed area footprint under this alternative and no new impacts would occur. The extraction of fill material from borrow pits would result in minor, adverse, localized effects due to the limited area affected. Bank stabilization work at the Zigzag Bridge would result in a minor, short-term decrease in soil erosion in this area due to the bank stabilization aspects of the project.
Conclusions. Overall, the short-term impacts to soils from this alternative would be minor, adverse, and site-specific given existing conditions in the project area. The nature of these impacts would not result in the impairment of park resources and values associated with this topic.

Wildlife:
General Analysis. Wildlife occurring in the area such as marten, red squirrel, black bear, brown bear, wolverine, mountain goat, varied thrush, common raven, chestnut-backed chickadee, northern goshawk, weasel, sapsucker, and rodents would be disturbed by the use of chainsaws

and other hand tools to replace lost facilities and the use of helicopters to transport materials to the project site. Wildlife could be temporarily displaced from the project area while construction is occurring (up to 4 weeks). Normal habitat use and movement patterns would likely continue at times of day when construction activities are not occurring (evenings, night, early morning). Nesting birds such as eagles and goshawks are especially sensitive to disturbance especially by helicopters. Efforts will be made to avoid known bald eagle nests by having helicopters maintain a minimum 2000 feet distance from these sites. Since helicopter use would be of such short duration, impacts to breeding birds would be minor adverse and short-term. Disturbance and displacement of wildlife currently occurs in the project area due to the noise associated with backpackers, park operations, and facility maintenance; therefore, wildlife in the area have either been displaced from the site or have habituated to current levels of human activity. Existing noise from campers and thru-hikers would continue to have the potential to displace wildlife from adjacent habitats. Replacement of flood damaged facilities would result in minor impacts to wildlife comparable to pre-flood levels. This adverse effect would be of minor intensity, however, because the noise potentially causing displacement would continue to occur predictably and mainly during the summer and would only affect wildlife within areas near the trail and campground.

Conclusions. Minor adverse long-term impacts on wildlife would continue as a result of actions proposed under this alternative. There would be no new impacts on wildlife. Because continuing impacts would be minor; there would be no impairment of park resources and values associated with this topic.

Recreation/Visitor Use:

General Analysis. Visitors to the park would be temporarily impacted by the noise and inconvenience associated with construction of replacement facilities; however, these effects would be negligible and short-term (the 4 weeks of construction) as work would be scheduled in the spring when visitation is extremely low (2-5 campers per day on average). Work within the park would not result in trail or campground closures, but noise and the visual perturbation associated with construction could detract from the visitor's experience of the park briefly as they travel through Sheep Camp. Construction would occur before the peak summer visitation season, so fewer numbers of visitors would be affected. Long-term major benefits to recreation/visitor use would result from the repairs made to the flood damaged facilities as more hikers would be able to camp at Sheep Camp and they would not have to travel further to get to Happy Camp as they do now. By relocating the Chilkoot Trail and restoring lost camping opportunities at Sheep Camp campground, this alternative would have a major long-term beneficial effect on park visitors.

Conclusions. In the short-term, impacts would be adverse but negligible. Over the long-term, the proposed action would result in major, beneficial, regional, long-term impacts to recreation/visitor use. The nature of these impacts would not result in the impairment of park resources and values associated with this topic.

Park Operations and Management:

General Analysis. Park operations and management would benefit from the replacement of flood damaged facilities at Sheep Camp. These repairs would improve the visitor experience on the Chilkoot Trail and provide for an increased level of visitor safety. Relocating lost trails and other facilities further away from the dynamic Taiya River would also improve the efficiency of NPS staff in maintaining NPS facilities and providing for visitor safety in this remote backcountry area. By minimizing potential injuries and accidents related to daily stream crossings and exhaustion, the trail rangers could spend more time interacting with the general public and performing their other job responsibilities in an efficient manner. Repairs to the Zig Zag bridge would ensure the extended life of this structure. If these repairs are not made, the

bridge would eventually collapse and hikers would be forced to ford the stream instead thus increasing risk of accident/injury.
Conclusions. Overall, the proposed action would result in major, beneficial, regional, long-term impacts to the park operations and management. The nature of these impacts would not result in the impairment of park resources and values.

National Historic Landmark:
General Analysis. The Dyea and Chilkoot Trail National Historic Landmark would be affected by the replacement of flood damaged facilities in Sheep Camp. Impacts are examined in detail in the attached XXX form in compliance with Section 106 of the National Historic Preservation Act of 1966 (Appendix C). Short-term effects would occur during construction. This alternative would add campsites along the trail and in the camping area, which could increase the cumulative impact in the present natural setting. This effect would be reduced since these sites would only be seen when in the immediate vicinity of the campground. The long-term impact (i.e., the visual impact of the new facilities) would be minimized by the primitive nature of these facilities and the fact that they would be well concealed within the forest. The facilities to be constructed would be compatible with the historic period for which the National Historic Landmark was established.
Conclusions. Given the primitive nature of the facilities to be replaced, impact to the Dyea and Chilkoot Trail National Historic Landmark would be negligible, negative, short and long-term, and localized. The nature of these impacts would not result in the impairment of park resources and values associated with this topic.

Cultural Resources:
General Analysis.
Impacts to cultural resources are examined in detail in the attached XXX form in compliance with Section 106 of the National Historic Preservation Act of 1966 (Appendix C). The State of Alaska Historic Preservation Officer (SHPO) has concurred that the preferred alternative would not adversely affect cultural resources. NPS archeologists would work closely with the NPS Trail Crew to site replacement facilities in suitable areas. If unknown or concealed archeological or historical resources are encountered during any activity listed above, all necessary steps would be taken to protect the resources discovered and to immediately notify the Cultural Resources Specialist, Klondike Gold Rush National Historical Park, at the Park headquarters in Skagway, Alaska. Further work on the project would be suspended until the nature and extent of the resources can be determined. If artifacts are recovered, those artifacts and any other written or photographic documentation associated with this project would be curated at the Park according to standard NPS practices.
Conclusions. Given that no increase in visitor use would occur under this alternative, impact to cultural resources would be minor, negative, long-term, and localized. The nature of these impacts would not result in the impairment of park resources and values associated with this topic.

Floodplains:
General Analysis. The proposed project would occur within the 100-year floodplain of the Taiya River. Although the construction of replacement facilities would occur under this alternative, this type of development represents a minimal amount of intrusion on floodplains and floodplain processes. In accordance with Director's Order 77-2 (Floodplain Management) a floodplain Statement of Findings (SOF) was prepared (see Appendix B). As described in the Affected Environment section, the Taiya River valley is a U-shaped glacial valley with a very narrow floodplain and steeply ascending footslopes. Suitable sites for trails and campgrounds can only be found on the valley bottom and within the river's floodplain. The NPS has kept

development in these areas to a minimum and as a result, ongoing impacts to floodplains and floodplain processes along the Chilkoot Trail are minor, adverse, long-term, and localized. In the attached Floodplain SOF (Appendix B) the park describes measures it would take to minimize threats to visitor safety from flooding at Sheep Camp.

Conclusions. Minor adverse long-term impacts on floodplains would occur under this alternative but these impacts are localized and do not represent a major commitment of resources on the part of the NPS. Because impacts would be minor; there would be no impairment of park resources and values associated with this topic.

Water Resources:

General Analysis. Water resources could be impacted under this alternative because of trail, outhouse, and campsite construction and bridge repair in and near the Taiya River and its tributaries. The clearing of vegetation for trails and campsites would expose soil and result in increased erosion. This situation would negatively affect surface water quality, but this short-term adverse effect would be of minor intensity given the small area impacted and the high sediment load of the Taiya River especially in spring when construction would occur. Sincle these sites would be located away from the river, increased sedimentation is unlikely to occur. Repairs to the Zigzag Bridge requiring in-stream work would occur under this alternative, including efforts to stabilize the eroding stream bank at the northern bridge abutment. This short-term impact would be minor, adverse and localized because it would occur in spring when turbidity is higher. This long-term beneficial effect on water resources would be minor, however, given that stream bank erosion is a natural occurrence in this active floodplain and generally turbid river.

Conclusions. Minor adverse short-term impacts on water resources would occur under this alternative, but long-term effects would be minor, localized and beneficial due to the stream bank erosion mitigation included in the Zigzag bridge repair design. Because impacts would be minor; there would be no impairment of park resources and values associated with this topic.

Cumulative Impacts Analysis:

General Analysis. As noted in the "No Action Alternative," past, present, and reasonably foreseeable future actions have impacted the above mentioned issues, in many ways. These actions and related impacts would not differ under this "Proposed Action Alternative." Additional adverse impacts resulting from implementing the “Proposed Action Alternative” would be minor for all impact topics (see above analysis). Therefore, the cumulative impacts of implementing the “Proposed Action Alternative” in addition to other past, present, and reasonably foreseeable future actions would be minor at most for all impact topics. Two impact topics considered (i.e., Park Operations and Management, Recreation/Visitor Use) would be beneficially impacted by the proposed alternative (see above analysis). These long-term, beneficial, major impacts would be unaffected by the cumulative impacts discussed above.

Conclusions. The cumulative (incremental) impacts of implementing the “Proposed Action Alternative” in addition to other past, present, and reasonably foreseeable future actions would be minor at most for all impact topics.

Table 3. Comparison of Alternative Impacts

	No Action Alternative	Proposed Action Alternative
Natural Soundscape	* Minor adverse long-term impacts.	* Minor adverse long-term and short-term impacts.
Vegetation	* No impacts.	* Minor adverse long-term and short-term impacts.
Soils	* Minor adverse short-term impacts.	* Minor adverse short-term impacts.
Wildlife	* Minor adverse long-term impacts.	* Minor adverse long-term impacts.
Recreation/ Visitor Use	* Major adverse long-term impacts.	* Negligible adverse short-term impacts. * Major beneficial long-term impacts.
Park Operations and Management	* Major adverse long-term impacts.	* Major beneficial long-term impacts.
National Historic Landmark	* No impacts.	* Negligible adverse short-term and long-term impacts.
Cultural Resources	* No impacts.	* Minor adverse long-term impacts.
Floodplains	* Minor adverse long-term impacts.	* Minor adverse long-term impacts.
Water Resources	* Minor adverse long-term impacts.	* Minor adverse short-term impacts. * Minor beneficial long-term impacts.

CONSULTATION AND COORDINATION

The following agencies, organizations, and individuals were consulted in the preparation of this document.

Federal Agencies/Individuals Consulted

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APPENDIX A

ANILCA SECTION 810 (a) SUMMARY EVALUATION AND FINDINGS

I. INTRODUCTION

This section was prepared to comply with Title VIII, Section 810 of the Alaska National Interest Lands Conservation Act (ANILCA). It summarizes the evaluations of potential restrictions to subsistence activities, which could result from the proposal to improve the safety of visitors hiking the Chilkoot Trail by repairing and/or replacing trails, campsites, outhouses, and a warming shelter associated with Sheep Camp campground and the Chilkoot Trail that were damaged or destroyed by flooding in August 2002 in the Chilkoot Trail Unit of Klondike Gold Rush National Historical Park (the park) in Skagway, Alaska.

II. THE EVALUATION PROCESS

Section 810(a) of ANILCA states:

"In determining whether to withdraw, reserve, lease, or otherwise permit the use, occupancy, or disposition of public lands … the head of the federal agency … over such lands … shall evaluate the effect of such use, occupancy, or disposition on subsistence uses and needs, the availability of other lands for the purposes sought to be achieved, or disposition of public lands needed for subsistence purposes. No such withdrawal, reservation, lease, permit, or other use, occupancy or disposition of such lands which would significantly restrict subsistence uses shall be affected until the head of such Federal agency -

(1) gives notice to the appropriate State agency and the appropriate local committees and regional councils established pursuant to Section 805;
(2) gives notice of, and holds, a hearing in the vicinity of the area involved;
(3) determines that (A) such a significant restriction of subsistence uses is necessary, consistent with sound management principles for the utilization of the public lands, (B) the proposed activity will involve the minimal amount of public lands necessary to accomplish the purposes of such use, occupancy, or other disposition, and (C) reasonable steps will be taken to minimize adverse impacts upon subsistence uses and resources resulting from such actions."

ANILCA created new conservation system units and additions to existing units of the national park system in Alaska. Section 816 of ANILCA prohibits the taking of wildlife in national parks and monuments except as specifically authorized. Klondike Gold Rush National Historical Park was established in 1976 before the passage of ANILCA. ANILCA and NPS regulations do not authorize subsistence use on federal lands within Klondike Gold Rush National Historical Park.

The potential for significant restriction must be evaluated for the proposed action's effect upon "… subsistence uses and needs, the availability of other lands for the purposes sought to be achieved and other alternatives which would reduce or eliminate the use."

III. PROPOSED ACTION ON FEDERAL LANDS

The National Park Service (NPS) is considering improving the safety of visitors hiking the Chilkoot Trail through relocation and replacement of a portion of the trail, a foot bridge, two

outhouses, and several campsites at Sheep Camp campground that were damaged and/or destroyed by flooding of the Taiya River during August 2002. On August 12, 2002 heavy rains and warm weather caused the Taiya River to rise from its average height of 15 feet to crest at 19 feet (as measured 1.5 miles upstream of outlet). In addition to flood damage in downstream areas including Dyea, localized flooding in the headwaters area resulted in extensive damage to NPS managed facilities at the Sheep Camp backcountry campground (located approximately 14 miles upstream of the outlet).

The purpose of the proposed project is to improve the safety of visitors hiking the Chilkoot Trail by repairing and/or replacing trails, campsites, outhouses, and a warming shelter associated with Sheep Camp campground and the Chilkoot Trail that were damaged or destroyed by flooding in August 2002. Flood damage to these facilities has severely impacted visitor safety and access in popular backcountry areas of the park. Repairs to these facilities are necessary to provide the type and level of visitor services described in the park's General Management Plan for the Chilkoot Trail Unit (NPS 1996). Damage to these park areas and related events on August 12, 2002 consisted of:

* the Taiya River at Sheep Camp campground (mile 11.8 on the Chilkoot Trail) abandoning its main channel and creating a new channel that now runs through the middle of the campground
* the Chilkoot Trail became part of the new channel beginning at mile 11.8 and flowing south to Pleasant Camp (mile 10.5) and was inundated with water
* the old Pleasant camp campground was flooded and covered and covered with glacial loess
* approximately 600 lineal feet of the trail at Sheep Camp campground is still either under flowing water or in a saturated condition
* an additional 200 lineal feet of trail north of Sheep Camp has experienced significant erosion from high waters
* the north abutment support of the Zig Zag Bridge at mile 11.62 is undercut and unstable as a result of the high waters
* approximately eighteen (18) campsites were flooded at lower Sheep Camp campground and some are covered with up to 1" of glacial loess rendering them unusable, most sites are in areas that continue to experience surface flows or are now more prone to future flooding
* two outhouses at Sheep Camp campground have been filled by elevated ground water and are now unusable
* one public use shelter at Sheep Camp campground was flooded and is now on gravel bar in river

Visitation to Klondike Gold Rush National Historical Park (the park) averages over 700,000 people annually of which approximately 3,000 hike the 33-mile Chilkoot Trail. The initial 16.5 miles of the trail are in the United States and are managed by the NPS under a cooperative agreement with the State of Alaska. The remaining 16.5 miles are in Canada. Use of this popular trail continues to grow, as the area becomes increasingly popular with tourists from around the world. Sheep Camp (elevation 1000 feet) is a strategically important campground along the Chilkoot Trail because it is the final stop before the steepest and most physically challenging section of the hike up the Scales and over Chilkoot Pass (elevation 3700 feet).

Although the distance between Sheep Camp (11.8 miles from the trailhead) and the next campground, Happy Camp, is just 6.5 miles, it is an extremely difficult hike that the average hiker takes a full day to complete. Parks Canada limits the number of hikers over Chilkoot Pass

to 50 persons per day. Because the hike between Sheep Camp and Happy Camp is so demanding, most hikers prefer to shorten the distance they must travel in one day by staying at Sheep Camp. In its present state, Sheep Camp campground cannot accommodate the 50 hikers per day that will be traveling over Chilkoot Pass into Canada this summer, forcing many hikers to lengthen their journey over Chilkoot Pass by staying at the next closest campground, Pleasant Camp (10.5 miles from the trailhead). Lengthening the distance and time required to travel to Happy Camp could pose a greater risk to hikers by increasing their exposure to inclement weather and fatigue, possibly resulting in increased number of injuries and accidents. The NPS would like to reduce any potential or perceived impacts to Chilkoot Trail hikers by repairing flood damaged areas at Sheep Camp and insuring the same level of visitor services available prior to last summer's flood.

This analysis addresses two alternatives: the "No Action" alternative and the "Proposed Action" alternative. A full discussion of the alternatives and anticipated effects can be found in the Environmental Assessment (EA) for this project.

IV. AFFECTED ENVIRONMENT

A summary of the affected environment pertinent to subsistence is presented here. For a comprehensive description, see the "Affected Environment" and "Environmental Consequences" sections of the EA. The Resource Management Plan (RMP) contains additional descriptions of the environment of Klondike Gold Rush National Historical Park (NPS 2000).

Federal Lands within Klondike Gold Rush National Historical Park are closed to subsistence uses. Other federal lands adjoining the park in the Tongass National Forest are open for subsistence uses. Regional subsistence activities that take place include hunting, fishing, trapping, berry picking, and plant gathering. Black bear, moose, fish, furbearers, small mammals, waterfowl, berries, other edible plants, and wood constitute the major subsistence resources used by local residents in Unit 1D.

V. SUBSISTENCE USES AND NEEDS EVALUATION

To determine the potential impact on existing subsistence activities, three evaluation criteria were analyzed relative to existing subsistence resources that could be impacted.

- the potential to reduce important subsistence fish and wildlife populations by (a) reductions in numbers; (b) redistribution of subsistence resources; or (c) habitat losses;
- what effect the action might have on subsistence fisherman or hunter access;
- the potential for the action to increase fisherman or hunter competition for subsistence resources.

1) The potential to reduce populations:

The "No Action" alternative is the status quo. It does not involve replacement of flood damaged backcountry facilities in the Sheep Camp area by the National Park Service, and consequently has no potential to reduce populations of subsistence resources through the actual reduction of numbers, the redistribution of resources, or habitat loss beyond the existing level resulting from the existing level of development of the project area.

The "Proposed Action" alternative involves replacement of flood damaged backcountry facilities in the Sheep Camp area by the National Park Service. This alternative would correct the flood damage to facilities without measurably increasing the capacity or size of the Sheep Camp

campground. The proposed actions would result in a developed area footprint at Sheep Camp that is similar in size to pre-flood conditions. The visitor capacity would be unchanged and the total number of campsites, outhouses, and shelters would be approximately the same. The total length of trails in the area would also be similar.
No subsistence is known to occur in these areas. The replacement of flood damaged backcountry facilities is not expected to reduce or redistribute subsistence resources. Wildlife and habitats would be subjected to minimal temporary impacts and disturbances caused by these improvements. The potential impacts would be temporary and would not reduce wildlife populations or their habitat.

2) Restriction of Access:

The "No Action" alternative is the status quo. It does not involve replacement of flood damaged backcountry facilities in the Sheep Camp area by the National Park Service. Consequently, it will not lead to an increase in restrictions to access.

The "Proposed Action" alternative involves replacement of flood damaged backcountry facilities in the Sheep Camp area by the National Park Service. This alternative would correct the flood damage to facilities without measurably increasing the capacity or size of the Sheep Camp campground. The rights of access for subsistence harvest on NPS lands are granted by section 811 of ANILCA. The park is managed according to legislative mandates, NPS management policies, and the Code of Federal Regulations. This alternative would not in any way affect the access to resources by local subsistence users. Consequently, no restrictions on access to resources by subsistence users are proposed.

3) Increase in Competition:

The "No Action" alternative is the status quo. It does not involve replacement of flood damaged backcountry facilities in the Sheep Camp area by the National Park Service. Consequently, it will not lead to an increase in competition.

The "Proposed Action" alternative involves replacement of flood damaged backcountry facilities in the Sheep Camp area by the National Park Service. This alternative would correct the flood damage to facilities without measurably increasing the capacity or size of the Sheep Camp campground. This alternative would not produce any increases in competition for subsistence resources. The continued implementation of provisions of ANILCA Title VIII should ensure a subsistence priority on federal lands within the region.

VI. AVAILABILITY OF OTHER LANDS

The availability of other lands outside and within the park have been considered in the proposed actions. There is no other feasible way to meet NPS needs of providing safe and accessible opportunities for visitors to experience the Chilkoot Trail without basing those activities on lands in the park. The proposed actions are consistent with NPS mandates. Because the proposed actions occur on federal lands that are not available for subsistence use, the proposed actions do not affect the availability of federal lands for subsistence use.

VII. ALTERNATIVES CONSIDERED

No alternatives other than the "No Action" and "Proposed Action" alternatives were considered.

VIII. FINDINGS

This analysis concludes that the "Proposed Action" alternative will not result in a significant restriction of subsistence uses. The "No Action" alternative will also not result in a significant restriction of subsistence uses.

REFERENCES:

NPS. 1996. General Management Plan/Development Concept Plan and Environmental Impact Statement, Klondike Gold Rush National Historical Park, Skagway, Alaska.

NPS. 2000. Resource Management Plan, Klondike Gold Rush National Historical Park, Skagway, Alaska.

APPENDIX B

Sheep Camp Campground
Klondike Gold Rush National Historical Park
Floodplain Statement of Findings
March 2003

Introduction

Sheep Camp campground is a backcountry facility located at mile 11.8 on the 33-mile Chilkoot Trail in Klondike Gold Rush National Historical Park, Skagway, Alaska. The initial 16.5 miles of the Chilkoot Trail are in the United States and the final 16.5 miles are in Canada. On the U.S. side, the trail parallels the Taiya River from a point just upstream of the Taiya River Delta, to the river's headwaters at Chilkoot Pass (mile 16.5 and elevation 3700 feet). The Taiya is a geomorphically active glacial river in a deeply incised U-shaped valley with an extremely narrow floodplain averaging ½ mile in width but much narrower in many places. The Chilkoot Trail was used extensively by stampeders during the 1898 gold rush as a route to the Klondike gold fields in Canada. Nearly 3,000 park visitors annually seek to recreate this historic journey by hiking the modern Chilkoot Trail and following in the footsteps of the gold rush stampeders. The park provides and maintains primitive backcountry camping areas at 4 sites along the Chilkoot Trail – Finnegans Point, Canyon City, Pleasant Camp, and Sheep Camp. In August 2002, flooding along the Taiya River caused localized damage to the southern portion of the Sheep Camp camping area, a footbridge, and portions of the Chilkoot Trail. The park is considering repairing and/or replacing these damaged facilities. For a detailed discussion of the proposed action refer to the Environmental Assessment (EA) on this project.

Jusitification for Use of Floodplain

Due to the extremely narrow valley bottom and precipitously steep footslopes, the park is unable to locate these camping facilities outside of the floodplain. The length and rugged nature of the trail make it infeasible to expect visitors to hike the entire U.S. portion of the Chilkoot Trail without stopping overnight at least once. The current location of Sheep Camp campground was established in 1995 after extensive environmental review of many different sites including those outside of the floodplain. Lack of available upland areas and other environmental hazards (including avalanche, flooding, and rockfall) made these sites unsuitable. The park is proposing to replace flood-damaged facilities at Sheep Camp by relocating them to areas adjacent to undamaged facilities at the north end of the campground. New campsites, trails, and outhouses would be constructed on land that is further away from the river and slightly higher than areas that were flooded in August 2002. The size of the campground footprint and the number of campsites would be constructed to pre-flood standards and conditions.

Site-Specific Flood Risk

Late summer and fall rain-on-snow storm runoff events appear to produce the largest flood events in the upper Taiya watershed. Glacial meltwater does not produce significant flood events in the upper Taiya River watershed, as it does in the Taiya's main tributaries, the Nourse River and West Creek. The recurrence interval for flooding at the site appears to be about 5 years, although high flows that result in overbank flooding and channel bank migration probably occur every year. No accurate measurement of stream velocity is available for the site, but stream depths of 24-36 inches were reported at peak flooding in 2002. Because these events are the result of storm runoff, flooding at this site is fairly predictable and occurs relatively gradually (over several hours

or days); therefore, it is considered a *non-high-hazard* floodplain where risk to humans from flooding is very low. Historical records and recent events indicate that catastrophic glacial outburst flooding can occur in the Taiya watershed, but generally only downstream of the confluences of Nourse River and West Creek. Outburst floods don't occur at Sheep Camp due to the absence of proglacial lakes upstream of this site.

Flood Mitigation Plans

Due to the remote nature of this site and the natural and cultural resource values present, the park is not proposing to use structural flood protection measures to protect Sheep Camp. Likewise, effective structural flood proofing is very difficult in geomorphically active areas like the Taiya River valley. Instead, mitigation will consist of effective flood warning, flood evacuation planning, and emergency area closures. A NPS backcountry ranger is stationed at the Sheep Camp Ranger Station (located ½ mile up the Chilkoot Trail from the campground). During the peak visitor use season (June- August), a ranger is present 7 days a week and can provide the support necessary to monitor river conditions and initiate campground evacuation if necessary. The NPS ranger is in constant radio contact with park headquarters and can send and receive updates on the weather and flood conditions. Signs indicating that the site is flood-prone and suggesting appropriate actions in the event of flooding will be developed and posted at the Sheep Camp warming shelter and cooking area. Similar information will be made available to all hikers when they receive their backcountry permit from the Trails Center before starting their hike. The primitive facilities proposed for replacement would involve only minimal modification of the floodplain. In the event of major flooding, all affected areas would be closed immediately to insure the safety of visitors and park staff.

Summary

With these mitigation measures in place, the NPS feels that natural floodplain values would be protected, and potentially hazardous conditions associated with flooding would be minimized.

APPENDIX C

Section 106 National Historic Preservation Act Compliance

ASSESSMENT OF ACTIONS HAVING AN EFFECT ON CULTURAL RESOURCES

A. DESCRIPTION OF UNDERTAKING

1. **Park:** Klondike Gold Rush National Historical Park
2. **Work/Project Description:**

a. Project Name: Flood Damage Remediation Work at the Sheep Camp Campground

b. Project Number(s): KLGO 03-

c. Describe project and area of potential effects (as defined in 36 CFR Part 800.2(c)); explain why work/project is needed.

On 12 August 2002 heavy rains and warm weather caused the Taiya River to rise from its average height of around 15 feet to crest at 19 feet (as measured 1.5 miles upstream of the river outlet). In the vicinity of the Sheep Camp campground (Figures 1 and 3), the river jumped its banks and started flowing through the lower half of the campground and down the Chilkoot Trail. Approximately 600 lineal feet of trail that comes up from the south and passes through the campground was either under flowing water and now destroyed or in a saturated condition. The north abutment support of the Zig Zag Bridge at mile 11.62 was undercut and is currently unstable. Approximately eighteen (18) campsites were flooded in the lower half of the campground and are now covered with over 1 inch of glacial loess rendering them unusable. Most of these inundated campsites are in areas that continue to experience surface flows and are therefore essentially destroyed. Two outhouses at the campground were filled with floodwaters and are now unusable. One public use warming shelter was also flooded and pushed down river onto a gravel bar.

The purpose of the proposed project is to improve the safety of visitors hiking the Chilkoot Trail by repairing and / or replacing trails, campsites, outhouses, and the warming shelter associated with the Sheep Camp campground and a portion of the Chilkoot Trail that were damaged or destroyed by recent flooding. Flood damage to these facilities has severely impacted visitor safety and access in popular backcountry areas of the Park. Repairs to these facilities are necessary to provide the type and level of visitor services described in the Park's General Management Plan for the Chilkoot Trail Unit (National Park Service 1996).

This project consists of:

- Building a new section of Chilkoot Trail to replace the section that was

destroyed by the recent flooding.

As noted above, the Taiya River abandoned its main channel and created a new channel that now runs through the middle of the Sheep Camp campground and down the Chilkoot Trail. The Park must move the trail to higher ground to the east as the current trail is unusable (Figure 1). The Park Trail Crew will remove vegetation along the new trail corridor to a width of approximately 8 feet. The trail tread will be approximately 36 inches in width and brushed back an additional 2 – 3 feet on each side. Mineral soil will not be disturbed by this action although over time, hikers will trample the remaining vegetation and soon reach the mineral soil underneath.

- Building new campsites to replace those that were destroyed by the recent flooding.

The campsites in the southern portion of the campground are unusable because of flood damage. In the northern part of the campground and along the new section of trail, new campsites will be brushed out in a circle approximately 10 feet in diameter with a side trail from each new campsite to the main trail constructed in the same manner (Figure 1). These campsites would be sited in natural openings whenever possible; however, it is anticipated that 10-20 trees would have to be removed during construction of the trail and other facilities. Large live trees would be preserved and only small trees (less than 10 inches dbh) would be removed. Standing dead trees (snags) would be retained for wildlife unless they pose a safety hazard. Mineral soil will not be disturbed by this action but again over time, campers will trample the remaining vegetation and reach the mineral soil underneath.

- Moving the warming shelter to higher ground.

The damaged warming shelter would be relocated to higher ground 50 to 100 feet to the northeast. Winching and rolling the structure intact to its new location would accomplish this.

- Installing new outhouses to replace those lost in the recent flood.

Installation of the new outhouses may not be possible until 2004. If possible, the new outhouses would be sited adjacent to existing sites and the old sites would be filled in with gravel and soil. The construction procedure for placing outhouses is essentially the same as constructing campsites except that an approximately 4 feet by 6 feet by 6 feet deep hole is dug in the cleared spot. The existing outhouse shell would then be moved and placed over the hole. The park is considering using composting toilets if feasible; in which case, a leach field (no larger than 20 feet by 20 feet) filled with rock (approximately 30 cubic yards) adjacent to the outhouses would be constructed but the composting toilet would not require holes to be dug. Efforts would be made to screen these sites and make them compatible

with the historic scene. The composting toilet project will be detailed in another triple x if the decision is made to go ahead with them.

- Repairing the Zig Zag Bridge damaged during recent flooding.

In addition to trail rehabilitation and relocation, Zigzag Bridge, a footbridge, located at the south end of the Sheep Camp campground, will be repaired. The bridge is still usable, but its rock and log crib supports and vegetative revetments were weakened and damaged by the floodwaters. The trail crew would support the rock foundation of the cribs and stabilized the eroding stream banks by adding biodegradable jute fabric pillows filled with soil and planting willow cuttings for added support (Figure 2). This would require in-stream work and consultation with the U.S. Army Corps of Engineers.

NPS personnel would complete the construction of the trail, the campsites, and the bridge repair during the spring and summer of 2003. Construction supplies and materials would be sling-loaded to the site by helicopter. This would require 1-3 days of flights. These flights would occur in April or May prior to the start of the project. Crew are expected to start work on the repairs and trail relocation in early May and be completed before the start of the peak visitor season (early June). The crew would travel to the site by foot and stay at the Sheep Camp Ranger Station during construction. Approximately 4-10 maintenance workers would be involved in this project.

This project would correct flood damage to facilities without measurably increasing the capacity or size of the current Sheep Camp campground. The proposed actions would result in a developed area footprint at Sheep Camp that is similar in size to pre-flood conditions. The visitor capacity would be unchanged and the total number of campsites, outhouses, and shelters would be approximately the same. The total length of trails in the area would also be similar.

3. **Has the area of potential effects been surveyed to identify cultural resources?**
No [ ] Yes [X] Source or Reference: See number 7 below.

[ ] Check here if no known cultural resources will be affected. (If this is because area has been disturbed, please explain or attach additional information to show the disturbance was so extensive as to preclude intact cultural deposits.)

4. **Potentially Affected Resource(s):**
a. Name and number(s): State of Alaska site numbers are listed for the following potentially affected resources: Klondike Gold Rush National Historical Park (49-SKG-086), Chilkoot Trail and Dyea National Historic Landmark (49-SKG-132), the Chilkoot Trail (49-SKG-067), and historic Sheep Camp (49-SKG-092).

b. Location: The modern Sheep Camp campground is located at mile 12.0 to 13.0 on the recreational Chilkoot Trail within the Park's Chilkoot Trail Unit (Figure 3).

c. NR status: This project is located within the Chilkoot Trail and Dyea National Historic Landmark and also listed on the National Register of Historic Places.

5. **The proposed action will:** (Check as many as apply.)

[ ] Destroy, remove, or alter features/elements from a historic structure;
[ ] Replace historic features/elements in kind;
[ ] Add nonhistoric features/elements to a historic structure;
[X] Alter or remove features/elements of a historic setting or environment (including terrain);
    [X] Add nonhistoric features/elements (including visual, audible, or atmospheric) to a historic setting or cultural landscape;
[X] Disturb, destroy, or make archeological resources inaccessible;
[ ] Disturb, destroy, or make ethnographic resources inaccessible;
[X] Potentially affect presently unidentified cultural resources;
    [ ] Begin or contribute to deterioration of historic features, terrain, setting, landscape elements, archeological or ethnographic resources;
[ ] Involve a real property transaction (exchange, sale, or lease of land or structures);
    [ ] Other (please specify):

6. **Measures to prevent or minimize loss or impairment of historic / prehistoric properties**
(Remember that setting, location, and use may be relevant):

The most active period for historic Sheep Camp was during the spring of 1898 when the camp had a population estimated at around 8,000. In April that year, a Dyea newspaper reported that there was "scarcely an inch" of available ground in Sheep Camp in which to camp, with "tents so thickly set as to prevent one passing between them in any instance." (Norris and Taylor 1986). Based on earlier archeological compliance and survey work (Fenicle 1992, Gurcke 1992, Hayes 1993, 1994), the current Sheep Camp campground appears to be located within the boundaries of the historic gold rush era camp. This area might be properly called the "suburbs" of Sheep Camp with the "downtown" part of Sheep Camp located about a mile north. Based on archeological discoveries over the past decade, it appears that the current campground had at least a scattering of tents during the gold rush. Because of the highly transient nature of Sheep Camp, the individuals occupying those tents would have moved on after only a brief period of time (a few weeks to a month). Most historic pictures of Sheep Camp show tents sitting on either snow or the frozen river in the vicinity of the present campground. This fact could probably account for the lack of archeological features found in the area of the campground. Past investigators, however, have discovered numerous historic artifacts within the current campground. These artifacts have tended to cluster in the northern rather than the southern portion of the campground. While that fact might illustrate a cultural boundary line (the

edge of historic Sheep Camp for example), it is also possible, perhaps more probable, that the lack of artifacts in the southern part of the campground is due more to a natural catastrophe such as the recent flood.

In the northern portion of the campground, during pervious compliance projects, a total of 206 metal "hits" were noted in 1992 and 164 "hits" in 1995. A total of 142 soil probes and 14 one by one-meter test unites were excavated during the 1992 field season. These test units were all sterile (devoid of artifacts) with the exception of unit 5 which contained a single small length of rusty wire just below the surface (Gurcke 1992). Five 1 by 1 meter test units were excavated in 1995 and 40 artifacts were recovered from three of the units while 2 were sterile (Fortini 1995).

One of the more interesting things discovered in the test units excavated in the Sheep Camp campground was a thin charcoal layer noted in each unit. This layer, which lies below the cultural deposit, maybe identified with a major fire that took place prior to the gold rush, probably sometime around the 1870s. This event is recorded in historical photos, which show a large fire scar on the walls of the canyon near historic Canyon City. This charcoal layer has also been observed in the cut banks up-valley as far as Mile 14.0 on the recreational trail (Fortini 1995).

Archeological compliance procedures:

- Building a new section of Chilkoot Trail to replace the section that was destroyed by the recent flooding.

The first priority is to re-open the Chilkoot Trail. An area for the rerouted trail that avoids the flood-damaged section has already been selected (Figure 1). The new section of trail will be flagged by the Park Trail Crew and carefully walked over and visually examined by the Park Archeologist prior to any work being done on it. This will assure that there are no obvious cultural features in the way. The new campsites in this area can also be flagged and surveyed at the same time. Because of the dense vegetation, however, there is the potential for missing artifacts and minor features in spite of the care in which this initial survey is undertaken.

The next step will be to have the trail crew brush vegetation from the new trail corridor. This new-brushed section of trail will then be carefully metal detected by the Park Archeologist. The metal detector requires that the head be close to the ground and that the machine be constantly moved back and forth in order to work properly. The dense vegetation prevents the operator from doing this, hence the need for clearing brush first. When metal is detected, a pin flag will be placed on or near the "hit." When the survey is complete, the locations of the pin flags (if any) will be noted and then a small hole will be hand dug by trowel near each pin flag in an attempt to find the source of the "hit." If the "hit" turns out to be modern trash, it will be removed and disposed of. If it turns out to be an historic

artifact, then that fact is noted, the artifact is photographed if necessary, and then covered up and left in place. The artifacts will be fully documented and removed later when a datum has been established for the campground. Features, if found, will require more extensive work including possible test excavations. Work on features will be postponed until the seasonal archeological crew is available. If deemed necessary, the new trail might have to be moved slightly to avoid any artifacts or features found.

- Building new campsites to replace those that were destroyed by the recent flooding.

- Installing new outhouses to replace those lost in the recent flood.

The next step in the project is to increase the number of campsites. Some of the new campsites will be placed in what is left of the Sheep Camp campground while others will be placed along the new section of trail (Figure 1). The procedures will be similar to the trail reroute with a few differences. The seasonal archeological crew will be doing this work. A permanent benchmark will be placed in the campground so that all future projects can be tied to the same spot. The benchmark will then be used to create an accurate map of the campground as well as accurately locate any pin flags, artifact concentrations, features, and any test units or soil probes if it was felt those were needed. Archeologists have already surveyed the campground rather intensively and will have surveyed the new trail reroute so there is no need to do it another time. The Park Trail Crew will then remove the vegetation at the new camping sites. Park archeologists will be available to monitor construction activities in case artifacts are found during those activities. Park archeologists will then carefully survey the new brushed out camping spots using a metal detector. Any metal detector "hit" will be flagged and mapped in using the recently established benchmark. As before, a small hole will be hand dug by trowel near each pin flag in an attempt to find the source of the "hit." Modern trash will be removed and disposed of. Historic artifacts found this way will be mapped in and properly documented in-situ. They will then be removed, collected, and curated at the park's curatorial storeroom in Skagway. If any historic artifacts were found during the trail reroute survey, they will be mapped in and removed at the same time. Some of the area has been tested in the past but if metal detection indicates artifact concentrations or features, they may have to be removed by formal 1 by 1 meter test units unless an alternative location for the new campsite can be found. An Oakfield soil probe will also be used to conduct occasional probes below the surface to record the stratigraphy and to search for buried, non-metallic cultural resources. The same procedures apply for the areas where the replacement outhouses will be placed.

- Moving the warming shelter to higher ground.

The Park Archeologist will examine the path the warming shelter will take to higher ground. A metal detection survey may also be needed. If historic artifacts

are found within the path, the path will either be adjusted to avoid those resources or the artifacts will be removed as per the procedures noted above.

- Repairing the Zig Zag Bridge damaged during recent flooding.

The north abutment support of the Zig Zag Bridge at mile 11.62 was undercut and damaged during the recent flooding. The area to be impacted by the proposed repair work will be visually examined by the Park Archeologist. If deemed necessary, a metal detection survey will also be performed and the same procedures as noted above, apply.

The archeological crew would travel to the site by foot and stay at the Sheep Camp Ranger Station during construction. Approximately 2-3 archeologists would be involved in the project. Their equipment, supplies, and food will be ferried up by helicopter as noted above.

All artifacts recovered will be removed from the ground after proper in-situ documentation. The artifacts and any written or photographic documentation associated with this project will be curated at the park according to standard NPS practices. An archeological compliance report on the work accomplished will be forthcoming.

If unknown or concealed archeological or historical resources are encountered during any activity listed above, all necessary steps will be taken to protect the resources discovered and to immediately notify the Cultural Resources Specialist, Klondike Gold Rush National Historical Park, at the park headquarters in Skagway, Alaska. Further work will be suspended until the nature and extent of the resources can be determined.

7. **Supporting Study Data**: (attach if feasible; if action is in a plan, EA or EIS, give name and project or page number):

Bearss, Edwin C.
1970 *Proposed Klondike Gold Rush National Historical Park Historic Resource Study*. Washington, D. C.: National Park Service.

Carley, Caroline D.
1981 Inventory of Cultural Resources in the Chilkoot and White Pass Units of Klondike Gold Rush National Historical Park. *Reconnaissance Report No. 40*. Seattle, WA: Office of Public Archaeology, Institute for Environmental Studies, University of Washington.

Fenicle, Diane L.
1992 Cultural Resources along the Chilkoot Trail: Pleasant Camp to Sheep Camp and Dyea Excavations. Skagway, AK: National Park Service.

Fortini, William R., Jr.
1995 Final Report - Field Season 1995. Compliance Projects KLGO 95-03, 95-04, 94-17, 94-25, 94-27, 94-28, 94-29, 95-A, B, C, D, E, F, G; Chilkoot Trail Survey; and Sites CT #126 and 140. Skagway, AK: National Park Service.

Gurcke, Karl
1992 Archeological Compliance Report: Construct four new Chilkoot Trail Shelters and the new Sheep Camp Campground. Skagway, AK: National Park Service.

Hayes, David
1993 Final Report of 1993 Field Survey: Canyon City to Pleasant Camp; and Compliance Projects from Dyea, Sheep Camp, and 14.2 Mile Bridge. Skagway, AK: National Park Service.

1994 Final Report of 1992 Archaeological Field Work: Compliance Projects at Finnegan's Point, Pleasant Camp, Sheep Camp, 12 Mile Bridge, and 11.5 Mile Trail Re-Route. Skagway, AK: National Park Service.

National Park Service
1992 Environmental Assessment - Construction of Chilkoot Trail Public Use Shelters and Camping Area. Klondike Gold Rush National Historical Park, Alaska. Anchorage, AK: National Park Service.

National Park Service
1996 General Management Plan, Development Concept Plan and Environmental Impact Statement, Klondike Gold Rush National Historical Park, Skagway, Alaska and Seattle, Washington. Anchorage, AK: National Park Service.

Norris, Frank and Carol Taylor
1986 Historic Structures and Sites: Dyea and the Chilkoot Trail. Anchorage, AK: National Park Service. Draft report.

Schrooten, Paul.
2002 Sheep Camp Reconnaissance Report. Anchorage, AK: National Park Service.

Spude, Robert L.
1980 Chilkoot Trail. *Occasional Paper No. 20.* Fairbanks, AK: Anthropology and Historic Preservation, Cooperative Park Studies Unit, University of Alaska, Fairbanks.

8. **Attachments:** [X] Maps [ ] Archeological survey, if applicable [ ] Drawings [ ] Specifications [ ] Photographs [ ] Scope of Work [ ] Site plan [ ] List of Materials [ ] Samples [ ] Other

9. **Prepared by:** Karl Gurcke **Date:** 03/05/03
Title: Cultural Resource Specialist
Phone: (907) 983-2921, (907) 983-9214 **Fax:** (907) 983-9249
Email: karl_gurcke@nps.gov

Figure 1. Conceptual drawing of Sheep Camp showing proposed flood remediation work (Schrooten 2002).

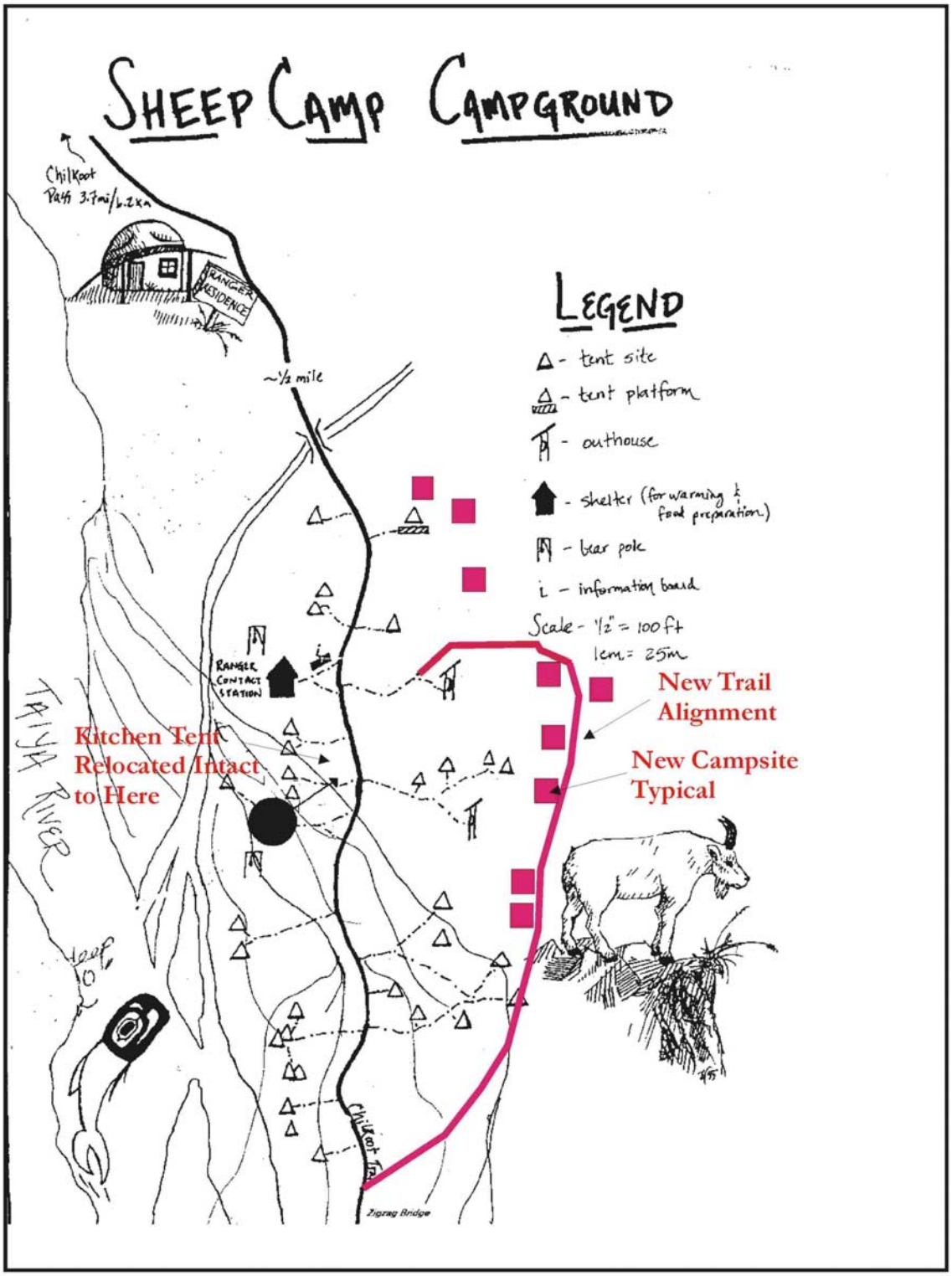


Figure 2. Zigzag Bridge repair design from Schrooten (2002).

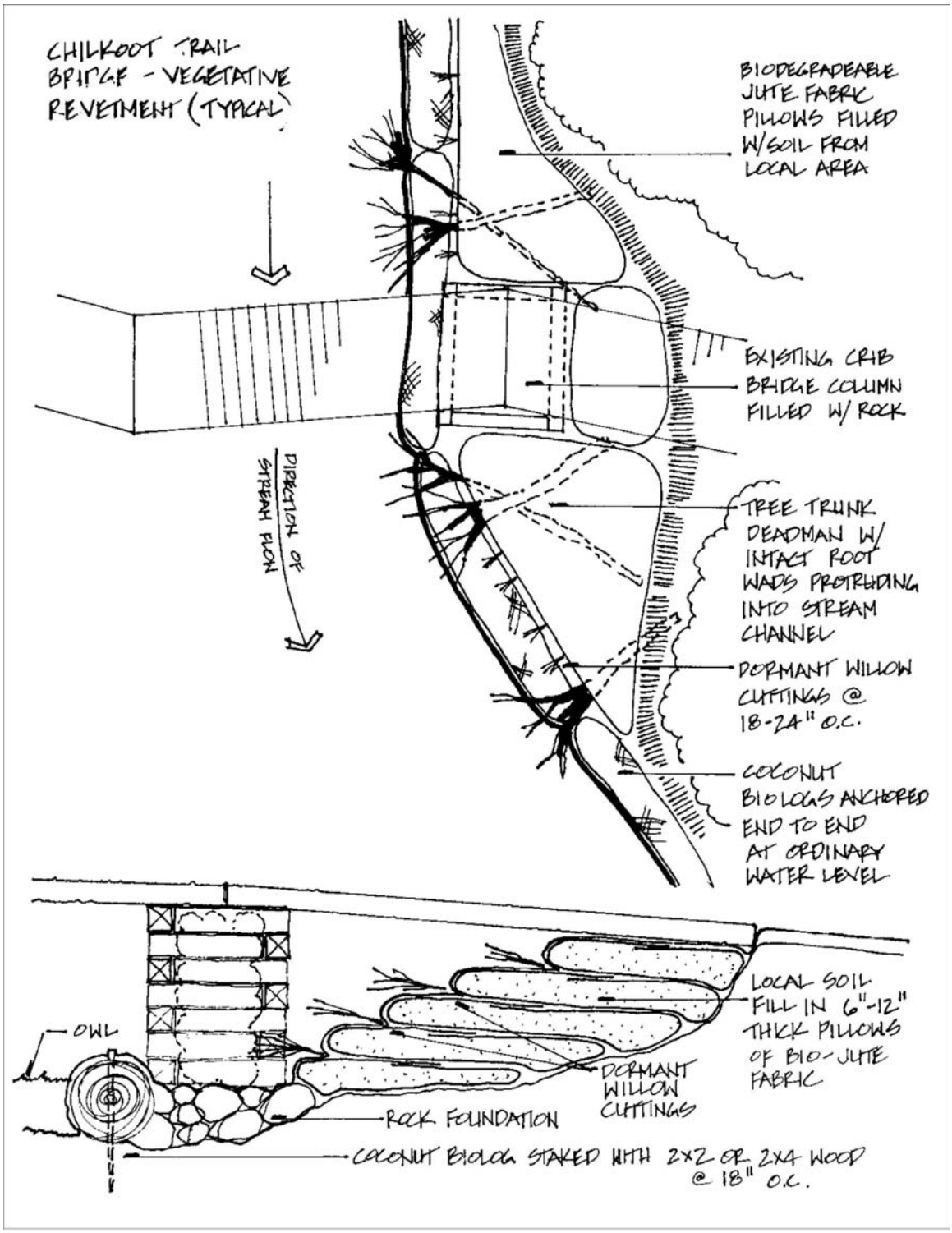
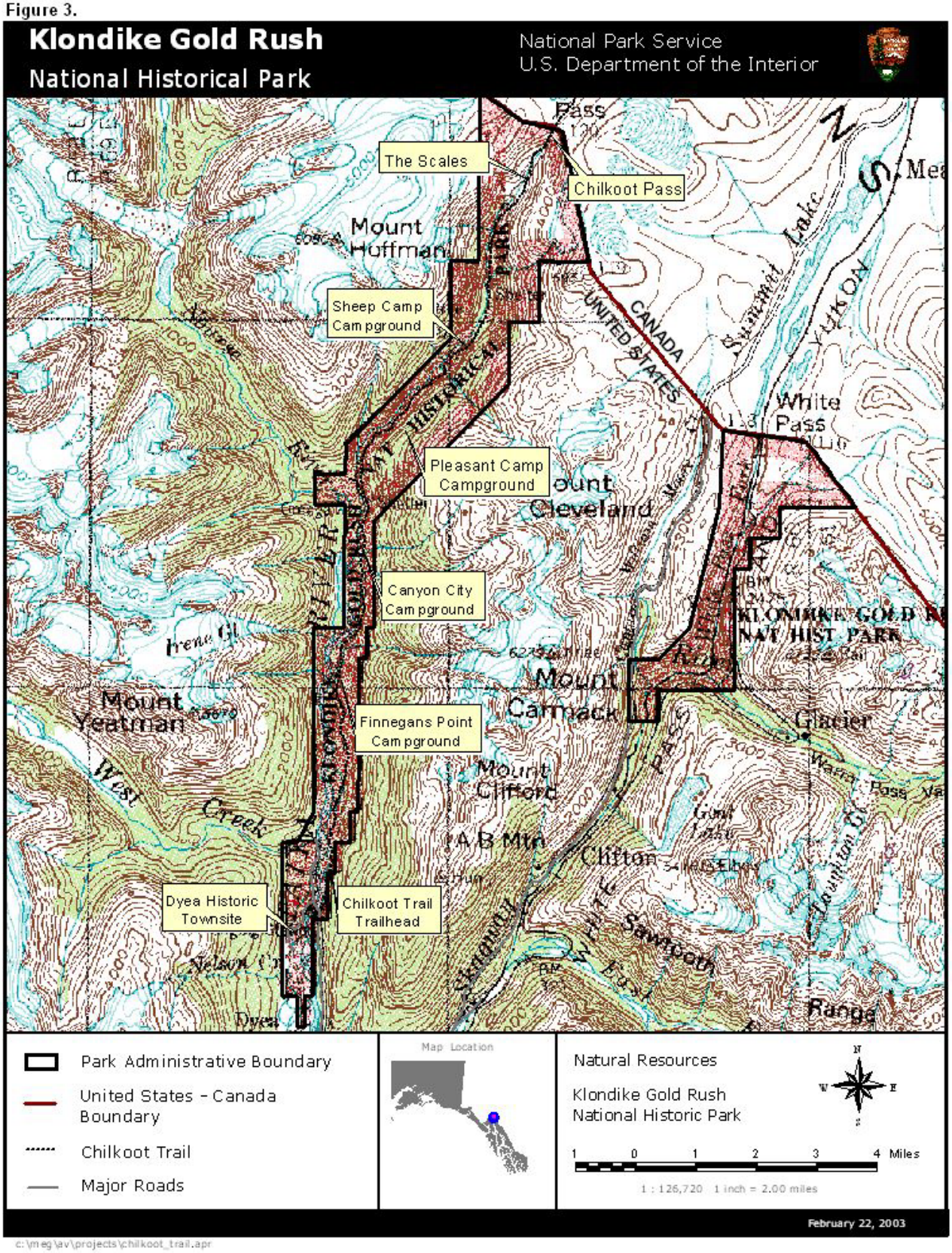


Figure 3.


Klondike Gold Rush
National Historical Park
National Park Service
U.S. Department of the Interior
The Scales
Chilkoot Pass
Mount Huffman
Sheep Camp Campground
Pleasant Camp Campground
Canyon City Campground
Finnegans Point Campground
Dyea Historic Townsite
Chilkoot Trail Trailhead
Mount Cleveland
Mount Carmack
Mount Yeatman
Mount Clifford
White Pass
Glacier
Clifton
Sawtooth Range
Lake
Creek
Park Administrative Boundary
United States - Canada Boundary
Chilkoot Trail
Major Roads
Map Location
Natural Resources
Klondike Gold Rush
National Historic Park
1 0 1 2 3 4 Miles
1 : 126,720 1 inch = 2.00 miles
February 22, 2003
c:\meg\av\projects\chilkoot_trail.apr

B. **REVIEWS BY CULTURAL RESOURCE SPECIALISTS**

The park 106 coordinator requested review by the park's cultural resource specialist/advisers as indicated by check-off boxes or described below:

SPECIALISTS: Your comments here (or attached) show that you have reviewed this proposal for conformity with requirements of Section 106, with the 1995 Servicewide PA (if applicable), and applicable parts of the Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation, NPS Management Policies, and NPS-28, and have given your best professional advice about this project and the issues relevant to the Section 106 process, including identification and evaluation of historic properties and further consultation needs.

[X]ARCHEOLOGIST
Name: Karl Gurcke
Date:
Comments:

Check if project does not involve ground disturbance [ ]

Assessment of Effect: ___ No Effect, ___ No Adverse Effect, ___ Adverse Effect, Programmatic Exclusion
Recommendations for conditions or stipulations:

[X]CURATOR
Name: Debbie Sanders
Date:
Comments:

Assessment of Effect: ___ No Effect, ___ No Adverse Effect, ___ Adverse Effect, Programmatic Exclusion
Recommendations for conditions or stipulations:

[X]ETHNOGRAPHER
Name: Rachel Mason
Date:
Comments:

Assessment of Effect: ___ No Effect, ___ No Adverse Effect, ___ Adverse Effect, Programmatic Exclusion
Recommendations for conditions or stipulations:

[X]HISTORIAN
Name: Frank Norris
Date:
Comments:

Assessment of Effect: ___ No Effect, ___ No Adverse Effect, ___ Adverse Effect, Programmatic Exclusion
Recommendations for conditions or stipulations:

[X]HISTORICAL ARCHITECT:
Name: Steve Peterson
Date:
Comments:

Assessment of Effect: ___ No Effect, ___ No Adverse Effect, ___ Adverse Effect, Programmatic Exclusion
Check if project meets Secretary's Standards [ ]
Recommendations for conditions or stipulations:

[X]HISTORICAL LANDSCAPE ARCHITECT
Name: Tonia Horton
Date:
Comments:

Assessment of Effect: ___ No Effect, ___ No Adverse Effect, ___ Adverse Effect, Programmatic Exclusion
Check if project meets Secretary's Standards [ ]
Recommendations for conditions or stipulations:

[X]OTHER ADVISERS
Name: Theresa Thibault
Title or area of specialty: Chief of Resources, KLGO
Date:

Comments:

Assessment of Effect: ___ No Effect, ___ No Adverse Effect, ___ Adverse Effect, Programmatic Exclusion
Recommendations for conditions or stipulations:

C. **PARK 106 COORDINATOR REVIEW AND RECOMMENDATIONS**
(completed by the park Section 106 coordinator)

1. **Assessment of Effect** :
__ No Effect, __ No Adverse Effect, __ Adverse Effect

2. **Compliance requirements:** (The following is the park's assessment of Section 106 process needs and requirements for this undertaking.):

[ ] A. STANDARD 36 CFR PART 800 CONSULTATION
Further consultation under 36 CFR Part 800 is needed.

[ ] B. PROGRAMMATIC EXCLUSION UNDER THE 1995 SERVICEWIDE PROGRAMMATIC AGREEMENT (PA)

The above action meets all conditions for a programmatic exclusion under Stipulation IV of the 1995 Servicewide PA for Section 106 compliance.

APPLICABLE EXCLUSION: Exclusion IV.B _____ [Specify 1-13 or IV.C addition to the list of exclusions.]

[ ] C. PLAN-RELATED UNDERTAKING

Consultation and review of the proposed undertaking were completed in the context of a plan review process, in accordance with the 1995 Servicewide PA and 36 CFR Part 800.
Specify plan/EA/EIS:

[ ] D. UNDERTAKING RELATED TO ANOTHER AGREEMENT

The proposed undertaking is covered for Section 106 purposes under another document such as a statewide agreement established in accord with 36 CFR Part 800.7 or counterpart regulations.
Specify:

[ ] E. STIPULATIONS/CONDITIONS

Following are listed any stipulations or conditions necessary to ensure that the assessment of effect above is consistent with 36 CFR Part 800 criteria of effect or to avoid or reduce potential adverse effects.

Recommended by Park Section 106 coordinator:
Name: Karl Gurcke
Title: Cultural Resource Specialist
Date:

D. **SUPERINTENDENT'S APPROVAL**

The proposed work conforms to NPS Management Policies and NPS-28 and I have reviewed and approve the recommendations, stipulations or conditions noted in Section C of this form.

Name/Signature of Superintendent:

Bruce J. Noble, Jr.

_____

Date