

Environmental Assessment



Rehabilitation and Replacement of Brooks Camp Facilities

Katmai National Park and Preserve, Alaska

Prepared by:
United States Department of the Interior
National Park Service
Katmai National Park and Preserve

July 2006

TABLE OF CONTENTS

1.0 INTRODUCTION	3
1.1 Purpose for Action	3
1.2 Need for Action	3
1.3 Background	18
1.4 Relationship of the Proposal to Other Park Planning	21
1.5 Issues	24
1.5.1 Issues Selected for Detailed Analysis	24
1.5.2 Issues Dismissed from Detailed Analysis	24
1.6 Permits and Approvals Needed to Implement the Project	26
2.0 ALTERNATIVES	26
2.1 Introduction	26
2.2 Alternative A: No-Action	27
2.3 Alternative B: Rehabilitation and Replacement of Facilities	27
2.3.1 Mitigation Measures	36
2.4 Environmentally Preferred Alternative	37
2.5 Description of Alternatives and Actions Considered but Eliminated from Detailed Study	37
2.6 Summary and Comparison of Alternatives	39
3.0 AFFECTED ENVIRONMENT	41
3.1 Project Area	41
3.2 Resource Impact Topics	41
4.0 ENVIRONMENTAL CONSEQUENCES	43
4.1 Introduction	43
4.2 Cumulative Impacts Analysis Assumptions	43
4.3 Alternative A: No-Action	44
4.4 Alternative B: Rehabilitation and Replacement of Facilities	47
5.0 CONSULTATION AND COORDINATION	51
6.0 LIST OF PREPARERS AND CONTRIBUTORS	51
7.0 REFERENCES	52

APPENDICES

Appendix A - Summary Evaluation and Findings, ANILCA Section 810 (a)	55
Appendix B - Coastal Zone Negative Determination	60
Appendix C - Cost Comparison Between Alternatives	63

LIST OF FIGURES

Figure 1: Location and Regional Maps	4
Figure 2: Brooks Camp Vicinity Map	5
Figure 3: Brooks Camp Developed Area Map	6
Figure 4: Brooks Camp Site Map	7
Figure 5: Brooks Camp Seasonal Employee Housing	9

Figure 6: Brooks Camp Campground.....	12
Figure 7: Brooks Camp Existing Leach Field and Alternate Sites.....	17
Figure 8: Lake Brooks Proposed Vault Toilet	32
Figure 9: Brooks Camp Archeological Sensitivity.....	35

LIST OF PHOTOS

Photo 1: Cover – Brooks Camp, Brooks River Mouth, Corner Area.....	Cover
Photo 2: Wall Tent with Canvas Cover.....	10
Photo 3: Wall Tent with Bear Investigating Graywater Sump.....	10
Photo 4: Campground Picnic Shelter.....	13
Photo 5: Campground Pit Privies.....	13
Photo 6: Campground Drying Rack.....	14
Photo 7: Lake Brooks Pit Privy.....	14
Photo 8: Brooks Camp Leach Field.....	19
Photo 9: Typical Setting of Proposed Alternate Leach Field.....	19

1.0 INTRODUCTION

1.1 Purpose for Action

The National Park Service (NPS) is considering facility upgrades at the Brooks Camp Developed Area of Katmai National Park and Preserve (KATM) starting in late summer of 2006. This site is located approximately 30 air miles east of the park headquarters and gateway visitor center in King Salmon, Alaska (Figures 1, 2, 3). Access to Brooks Camp is primarily from King Salmon by either float plane or boat. Most Brooks Camp facilities are located north of the mouth of the Brooks River, on the shore of Naknek Lake (Figures 3, 4). Additional facilities are located south of the river, on the shore of Lake Brooks (Figure 3).

The proposed project includes several components related to employee housing, visitor services, sanitation and utilities. The six project components are (1) rehabilitation of seven seasonal employee, cabin housing units, (2) removal of four seasonal employee, wall tent housing units and replacement with hard-sided housing units, (3) rehabilitation of the public campground, (4) rehabilitation of the electrical generation and distribution system, (5) replacement of the Lake Brooks pit toilet with a vault toilet and (6) rehabilitation of the existing leach field and construction of an alternate leach field. Project components and alternatives are described in more detail in Chapter 2.

The overall purpose of this project is to provide minimally necessary, maintenance corrective actions to address critical life, health and safety issues to keep the Brooks Camp operation functioning at an adequate level over the next several years. NPS management policies and plans and many regulatory agencies mandate that KATM provide a safe and healthy environment for employees and concessioners, as well as the visiting public. To satisfy these obligations and maintain or salvage the NPS declining investment in the Brooks Camp infrastructure, this project must be started soon to protect and upgrade facilities to support current visitor use levels.

Specifically, the purpose of each respective project component noted above is to (1) rehabilitate employee housing to provide adequate health, safety and utility services, (2) remove substandard housing from the park housing inventory and replace it with energy efficient, standard quality housing that satisfies regulatory health and safety requirements, (3) provide an adequate, sanitary and safe public campground, (4) correct deficiencies in the current electrical generation and distribution system, (5) provide a sanitary human waste disposal system at the Lake Brooks visitor entrance and (6) provide a reliable leach field operation in compliance with State wastewater and public health regulations.

1.2 Need for Action

The 1996 *Development Concept Plan, Brooks River Area* (DCP) and *Record of Decision* (ROD) called for removing all facilities at the present Brooks Camp location and developing a new site south of the Brooks River for visitor services and support facilities. This Environmental Assessment (EA) is procedurally connected, or “tiered” to the larger-scale DCP and Environmental Impact Statement (EIS) completed in 1996. The NPS stands by the original decision to eventually move the Brooks Camp operation south of the Brooks River to the Beaver Pond Terrace. This EA describes minimal maintenance tasks justified under critical need (life/health/safety) categories.

A significant deferred maintenance backlog has developed during the last twenty years, resulting in deteriorating facilities at Brooks Camp that are now in need of major upgrades or replacement. In summary, a lack of adequate support facilities, identified in the 1996 DCP/EIS, increasingly contributes to employee health, safety and welfare deficiencies (NPS, 1996a). The existing electrical system is



Figure 2 BROOKS CAMP VICINITY MAP

This topographic map depicts the area around Brooks Camp, featuring Naknek Lake and the Naknek River. Key locations marked include King Salmon, Brooks Camp, Dumping Mountain, and the Valley of Ten Thousand Smokes. The map includes a scale bar for 1 mile and a north arrow. A detailed inset map shows the Valley of Ten Thousand Smokes. The map is labeled with various geographical features, including Sugarloaf Mountain, Lake, and Naknek River. The map is titled 'Figure 2 BROOKS CAMP VICINITY MAP'.

Figure 3
BROOKS CAMP
DEVELOPED AREA
(BCDA)

Brooks Camp Developed Area
Katmai National Park and Preserve Compendium 2005

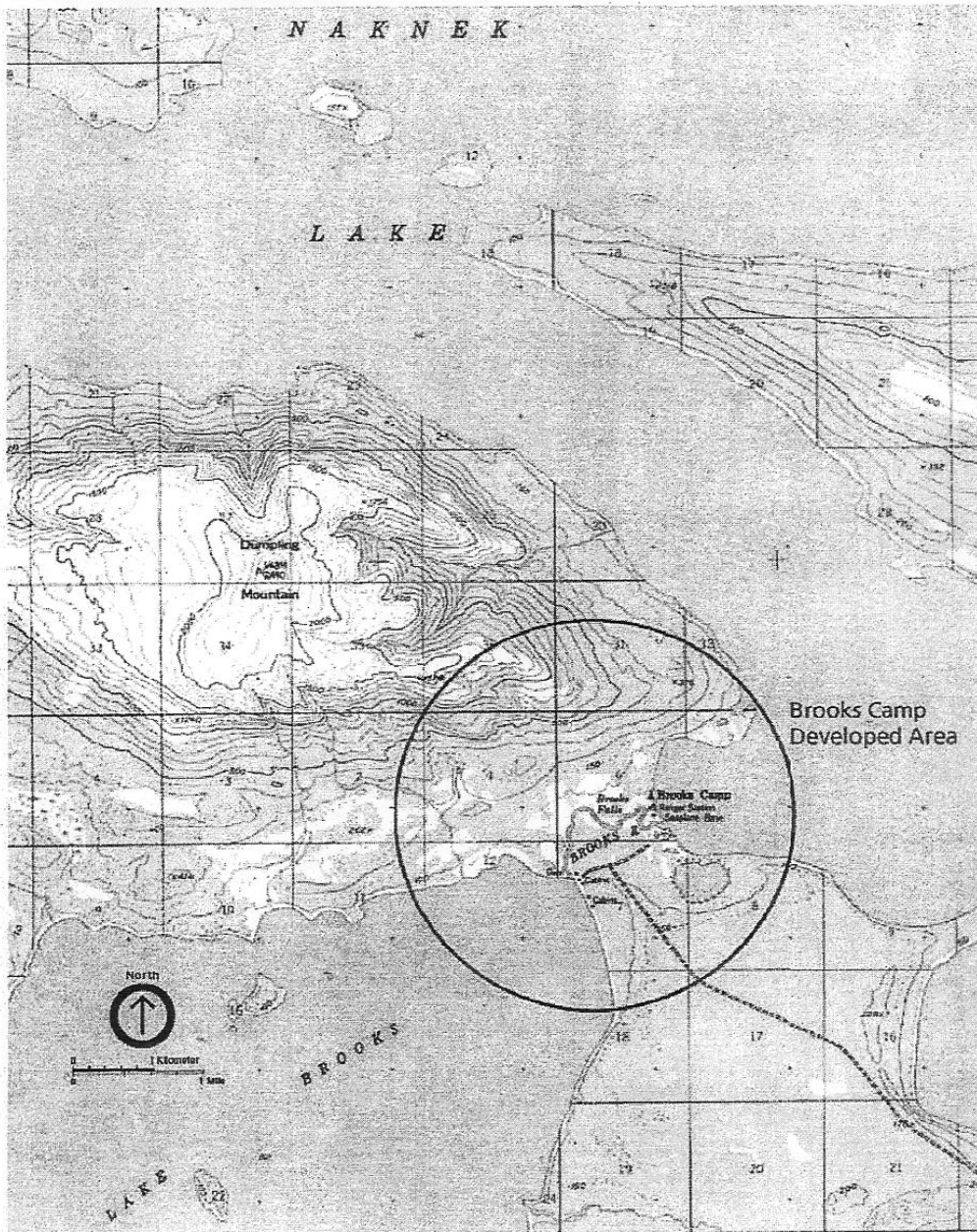
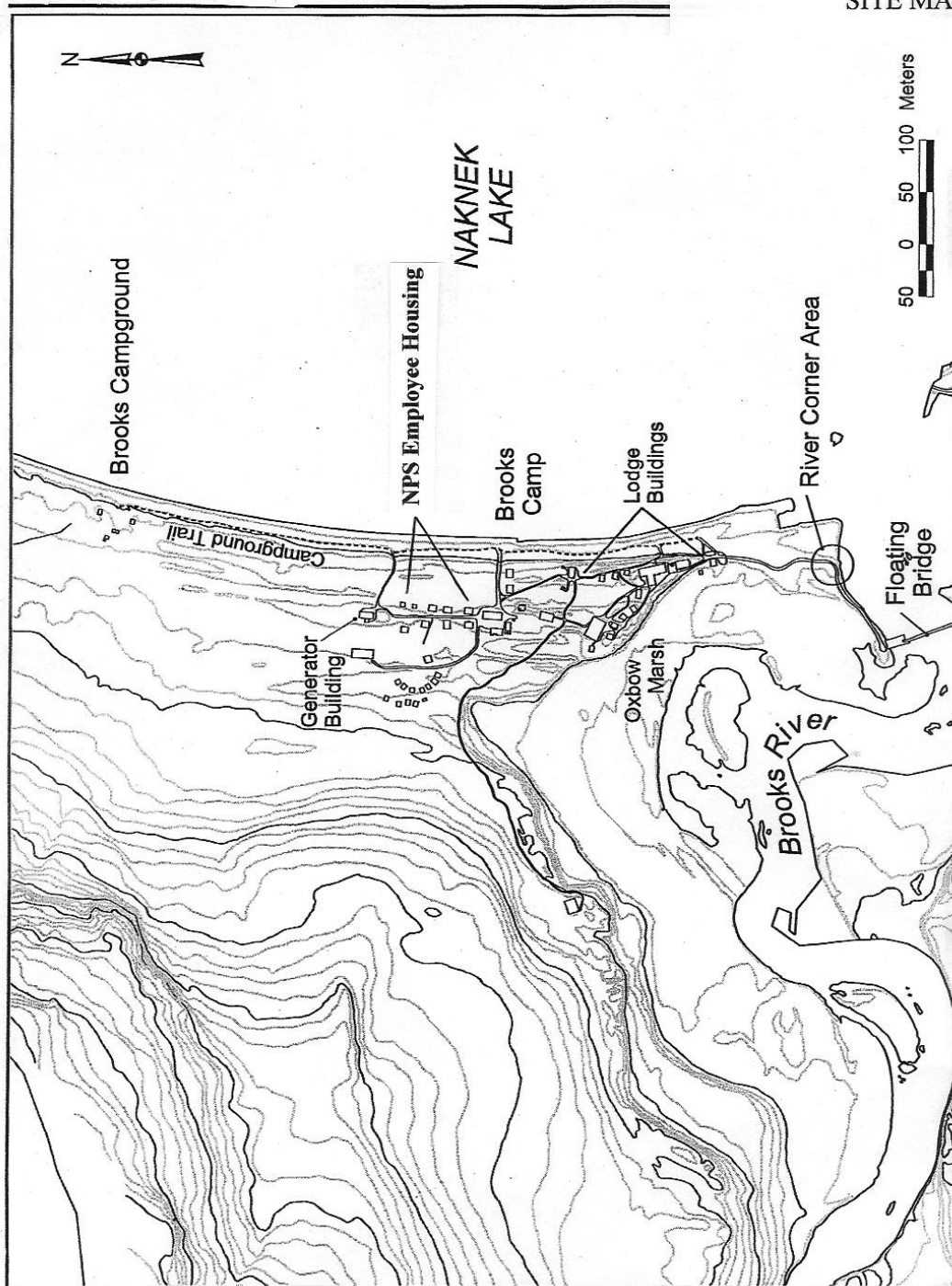


Figure 4 BROOKS CAMP
SITE MAP



undersized and overloaded to the point of being documented as unsafe by the NPS Regional Safety Officer. Other utility systems have experienced failures and may need replacement or extensive repairs in the near future. Employee housing, the public campground and sanitation facilities are not only inadequate and substandard, but also do not meet basic State and federal health, safety and environmental regulatory requirements. Specific park needs associated with each of the six project components are described in detail below. Based on these compelling reasons, it is necessary that the NPS take action soon to address problems with the Brooks Camp infrastructure.

1.2.1 Rehabilitation of Seven Seasonal Employee Cabins

Brooks Camp is the largest developed area in this 4.3 million-acre wilderness park, and no on-site private sector housing options are available for seasonal employees. The NPS constructed four seasonal employee housing cabins in 1965 and three in 1980 (Figure 5). Limited upgrades have taken place in the older units and no upgrades have taken place in the newer units. All are rated as having “fair” interior and exterior conditions in the QMIS (Quarters Management Inventory System), the NPS’s housing inventory database. Very little work has been planned in either the upkeep or improvement of these quarters in the last decade because the 1996 DCP/EIS and resulting ROD directed that Brooks Camp facilities would be moved (NPS, 1996a). Consequently the cabin interiors have deteriorated from years of use to the point where they will be barely serviceable in the next few years without major rehabilitation. The Camp move has been postponed, and this rehabilitation must be undertaken soon if the cabins are to remain habitable.

KATM is out of compliance with NPS Director’s Order 36 to provide safe, sanitary and energy-efficient employee housing (NPS, 2001). Employees housed in the oldest units experience little privacy and must share limited, sanitary toilet and bathing facilities, inconveniently located at the south end of the employee housing pathway. For all seven cabins, of particular concern are safety issues associated with substandard electrical wiring (e.g., open ground, undersized wiring); no permanent heat source, with tenants forced to rely on portable electric heaters which pose a substantial fire hazard; and deteriorated and inadequate kitchen, bathroom and toilet facilities, which require tenants to use facilities remote from their quarters, exposing them to the risk of nighttime brown bear encounters.

1.2.2. Wall Tent Employee Housing Replacement

The four existing, hard-sided wall tents are located along the main employee housing area (Figure 5). These wall tents account for eight of the bedrooms available in Brooks Camp for seasonal employees and volunteers. In 1983, the NPS constructed units BRT 1 and BRT 2 and in 1990, units BRT 3 and BRT 4. Past their useful lives, these wall tents are in very poor and rapidly deteriorating condition (Photo 2). For over ten years, these plywood and canvas units have been targeted for replacement in NPS budget proposal cycles. All four units are currently rated as “obsolete” in QMIS. As old, decrepit, hard-sided wall tents, they are drafty, dark and deficient in proper utilities. Mold and mildew grow on interior and exterior canvas roofs and walls. Again, in this remote location, no private sector housing options exist for KATM seasonal employees.

Employees housed in these wall tents experience no privacy, little storage for personal gear, and must share limited, sanitary toilet and bathing facilities located at the south end of the employee housing pathway. The interior and exterior conditions are poor due to advanced age, inherent poor quality construction, lack of regular maintenance and inadequate utilities. Occupant health and safety is compromised by unsafe wiring and lack of proper sewage and graywater disposal. Employees have no heat in the shoulder seasons and the wall tents do not have adequate insulation. Occupants commonly use portable space heaters and open propane ovens to heat the units. Frequent use of portable space heaters causes electrical circuit failures. Smoke detectors are dismantled because they cannot be placed in

Figure 5 BROOKS CAMP
SEASONAL EMPLOYEE HOUSING

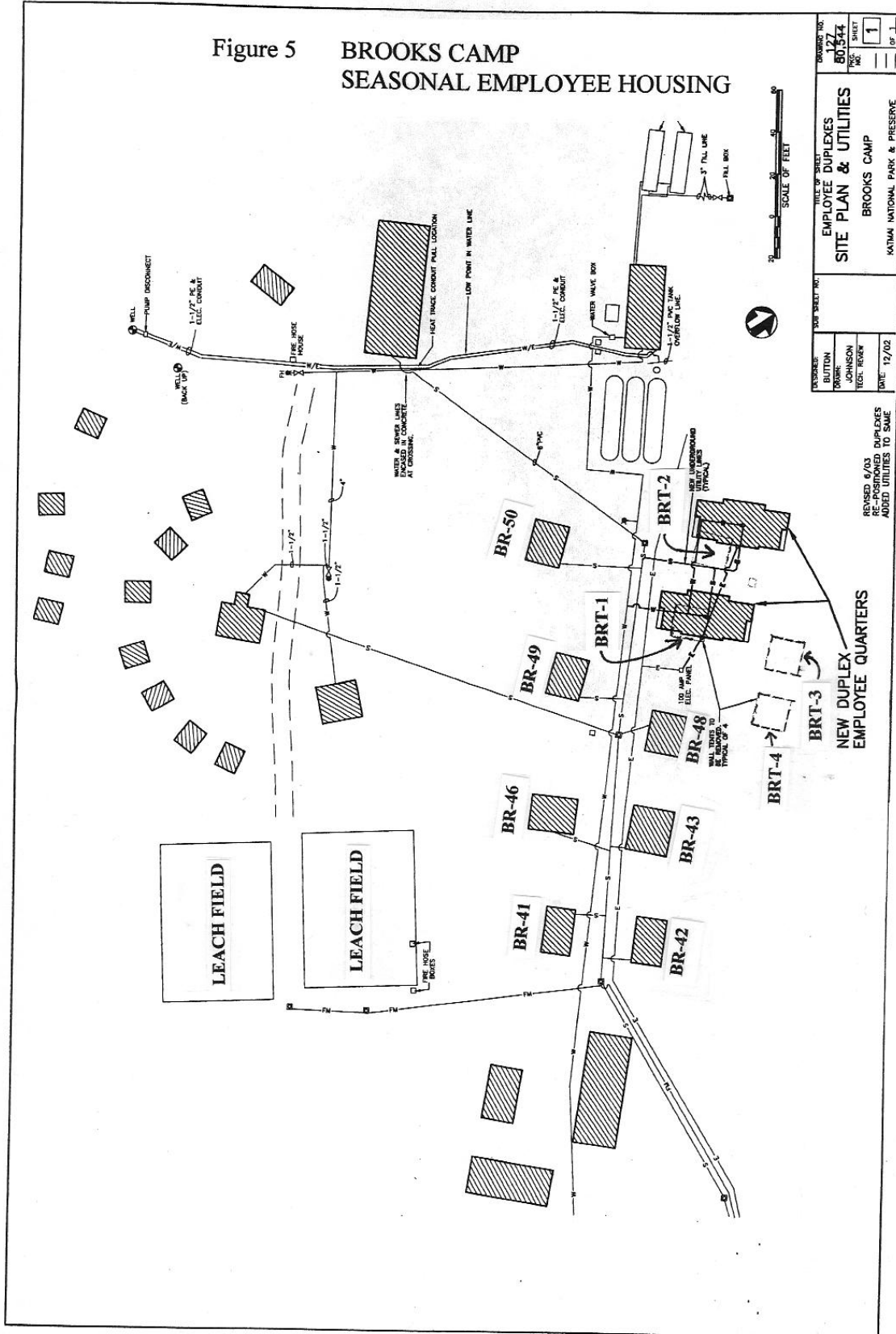




Photo 2. Wall tent with canvas and tarp cover



Photo 3. Wall tent porch with brown bear investigating graywater sump

locations that do not trigger the alarms. Current NPS safety requirements are unmet, particularly with respect to egress, fire sprinkler protection and smoke detection.

For these quarters, sewage disposal, graywater discharge and drinking water services are substandard or non-existent. Years ago, park personnel devised a sink graywater disposal system for the four units, consisting of two perforated 55-gallon drums buried near two wall tent frames, adjacent to boardwalk entrances. In 2003, this illegal graywater disposal method was cited as an open violation of the Alaska Department of Environmental Conservation (ADEC) wastewater regulations at 18 AAC 72 during an NPS environmental audit (NPS, 2003a). Since ADEC requirements are unmet for graywater discharge, the systems could be shut down for long-standing violation of State wastewater regulations.

KATM biologists have documented several recent incidents where brown bears were attracted to and subsequently investigated graywater discharge by digging in and around one drum and wet gravel under a porch (Photo 3). Since at least 1997, park personnel have documented similar incidents of bears digging in and around this sump. Maintenance workers, when called out to resolve this recurrent problem, apply chlorine to the gravel to reduce odors and place nail boards on the drums to deter bears.

Of further concern to employee safety with wall tents is the lack of protection from bears who roam the area in considerable numbers. The lack of bathrooms in the tents requires occupants to use facilities removed from their quarters, exposing them to the risk of nighttime brown bear encounters.

Currently, KATM is out of compliance with NPS Director's Order 36, requiring NPS housing to be safe, sanitary, energy efficient and cost effective to maintain (NPS, 2001). The park has not attempted to secure funds to replace these obsolete housing units until recently because, per the DCP, the Camp was scheduled to move. The move has been postponed, and as a result the need to address housing deficiencies has become urgent.

1.2.3 Public Campground Rehabilitation

This is the only developed, overnight campground in the 4.3 million-acre park. It is located at Brooks Camp, the most visited area in KATM, and is sold out for most of the summer months (Figures 4, 6). The campground has become considerably degraded from cumulative use and minimal maintenance. No improvements or upgrades have been made to this campground in over ten years because of DCP plans to move the Camp. Now that the move has been postponed, it is essential to begin repairs if the area is to continue to be safely used by the visiting public.

The campground lies in a large grove of mature cottonwoods, characterized by unstable, hazardous limbs and standing, rotten trees that threaten to fall on campers below them. During high winds, common in the Alaska Peninsula region, these trees pose imminent hazards and the strong probability of personal injury due to falling timber. Each year, the park removes downed timber located along main Camp pathways, but needs to address the removal of numerous, standing hazard trees in the campground.

The undeveloped campsites are located on uneven ground with few visible signs or markers to direct visitors or identify individual campsites. The worn picnic shelters, drying rack, food cache and pit toilet structures, some built nearly 25 years ago, have rotting boards and are inadequate to accommodate current levels of visitation (Photos 4, 5, 6).

Two pit toilets serve the campground, located at the far northwest end, directly in line with annual spring water runoff flowing down from Dumpling Mountain towards Naknek Lake. These pit toilets do not comply with the ADEC wastewater regulations at 18 AAC 72 because they are located within the 100



Brooks Campground Map

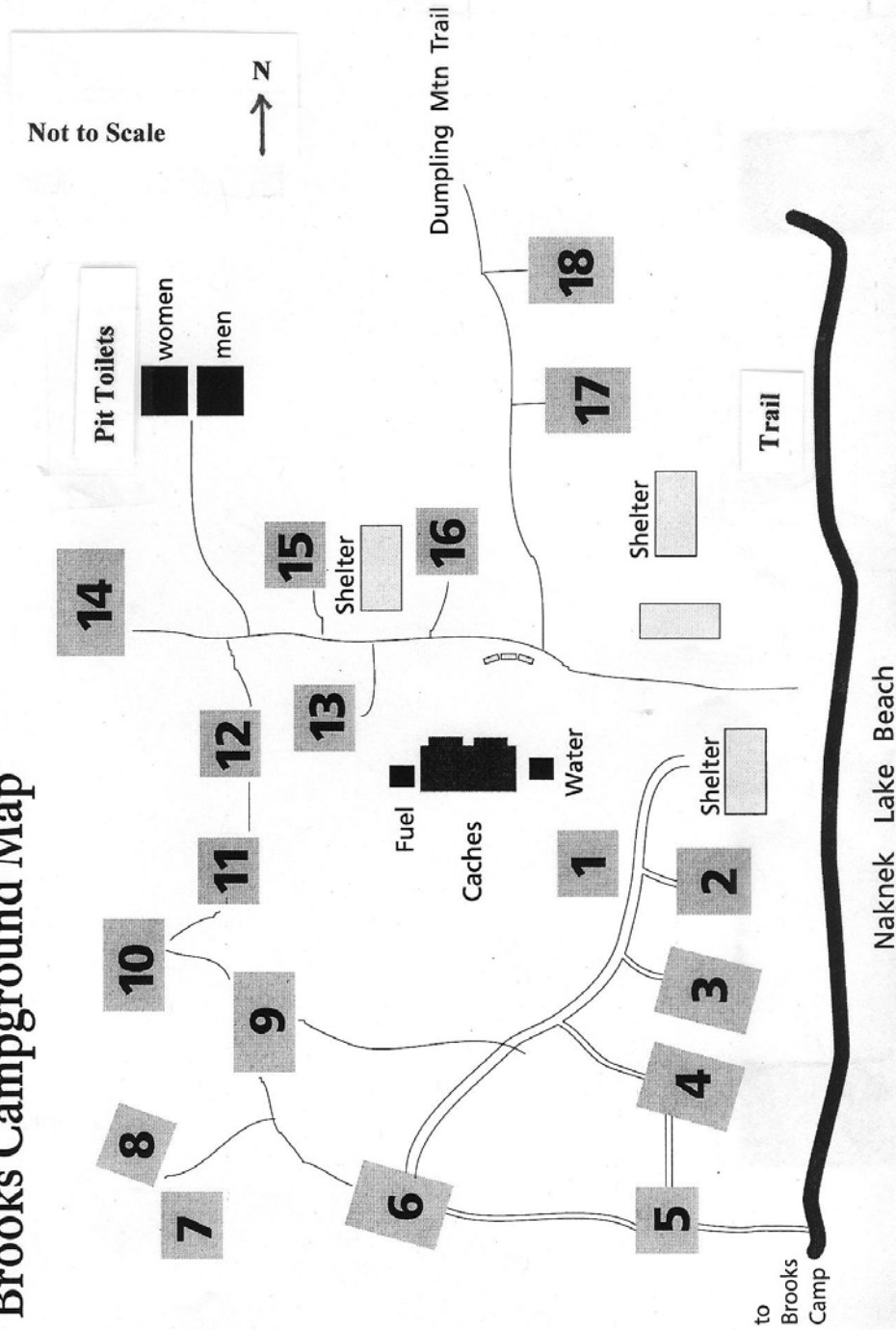




Photo 4. Campground picnic shelter



Photo 5. Campground pit privies



Photo 6. Campground drying rack



Photo 7. Lake Brooks pit privy

foot minimum separation distance to Naknek Lake. Sheet flow runoff events during spring pose a threat that pit toilet contents could flood and flow downhill, thereby contaminating the campground surface and/or Naknek Lake. In addition, the NPS is required to report raw sewage spills to the NPS Public Health Consultant and the ADEC within one day. In the event of such a spill with potential harm to the public campground, the affected area would need to be roped-off and quarantined until the NPS Public Health Consultant deemed it safe. According to NPS Director's Order 83, *Public Health*, the NPS is to protect the health and well-being of NPS employees and park visitors through the elimination or control of disease agents and transmission modes and to ensure compliance with applicable federal, State and local public health laws and regulations. KATM is out of compliance with this policy due both to the existence and location of these unsanitary pit privies in a front country operation.

1.2.4 Rehabilitation of the Electrical Generation and Distribution System

The Brooks Camp electrical generation systems are in service each year from April through October. They serve a concessioner-operated 60-bed lodge, housing for approximately 40 park and concession employees, a ranger station, visitor center, and many support buildings. All power, heat, fuel, and water are provided by the NPS at the site. The NPS is bound by a concessions contract to provide electric utility service for the sole concessioner at Brooks Camp, Katmailand.

The utility systems were installed in 1975, and except for generator replacement, have since received only minimal maintenance work. Electricity is provided by two manually switched 100-KW diesel-powered generators. These generators provide power for lights, appliances and equipment as well as heat for 85 percent of the park buildings and heat for domestic water.

Fuel to power these generators must be hauled by truck 13 miles to a boat landing, transferred to the park's fuel tanker vessel and transported by the vessel across 30 miles of open lake to Brooks Camp, where the fuel is transferred into two 8,000-gallon storage tanks. This vessel makes approximately eight trips each season, delivering approximately 24,500 gallons of diesel fuel for Camp uses. This large fuel volume requirement, with multiple transfer points, is costly, labor-intensive and creates a high potential for fuel spills and accidents.

Over the last 30 years many modifications have been made to the power systems, including new service additions for new and substantially renovated buildings. In addition, many electrical deficiencies have been "corrected" by unqualified personnel. The result is that generator loads are extremely out of balance, services to buildings are undersized and inadequately protected, and individual building circuits are overloaded. These deficiencies are all violations of the National Electric Code, NFPA 70. Specifically, violations center in several areas; the use of grounded conductors; circuit, feeder, and service loads; underground service for lateral conductors; overcurrent protection; and general wiring requirements.

In 2000 the NPS-Regional Safety Officer conducted an electrical hazard inspection of the Camp. This inspection resulted in a deficiency list of 26 "serious violations" and a strong recommendation that the Camp electrical systems be checked by a licensed electrician for code compliance, since serious violations of the Electrical Code were common. Until 2002, no licensed electrician had ever been employed at Brooks Camp. By 2003, urgent professional inspection and repair work was underway that corrected several critical flaws and revealed the extent of the pervasive deficiencies in these systems. Most of the primary distribution system, from and including the main system service panels to each sub panel, need to be replaced. This is due to the age of the 30-year-old system, as well as incremental service add-ons performed without accompanying upgrades to the primary distribution system. The NPS has

contracted with an electrical engineer to investigate these deficiencies and prepare a detailed list of required repairs and replacements. The park needs to implement these electrical system corrections.

Most Brooks Camp buildings have no built-in heating. As a result, residents and occupants use portable, electric resistance heaters. This heat form, in addition to representing a serious fire hazard, is also very inefficient, in that fuel oil is converted to electricity and then back into heat; far less efficient than if the fuel were converted directly into heat. This also applies to the heating of domestic water. An added disadvantage of the current system is that the generators must be sized to accommodate the maximum load. With load spikes presented in the mornings by domestic hot water and in the evenings by domestic hot water, space heating, and cooking, the generators are substantially oversized for the loads occurring during the slow part of the day. This is very inefficient in that generators operate at maximum efficiency when they are loaded to at least 75 percent of capacity, and their efficiency drops off dramatically as loading decreases to below 35 percent of capacity. With continually rising fuel, labor and transport costs, KATM urgently needs to address utility service challenges of providing safe and reliable electricity, building heat and hot water for Brooks Camp occupants, while conserving fuel.

1.2.5 Replacement of Lake Brooks Pit Toilet with Vault Toilet

Lake Brooks is used as a float plane landing and visitor entry point when strong easterly winds are unsuitable for safe landing at the Naknek Lake entry point. Visitors disembark from their plane and wait for a shuttle van to transport them to the lower Brooks River where they walk to the Brooks Camp lodge complex. Currently, the only public toilet facility at Lake Brooks is a small, primitive pit privy located within 100 feet of the high water line of the lake (Photo 7). According to a 2003 environmental audit, this pit privy was installed without a permit from the ADEC and consists of a wooden outhouse built over a 55-gallon drum (NPS, 2003a). Not only is this old plywood, one-seat privy dark and unsanitary, it violates the ADEC regulations at 18 AAC 72 specifying an acceptable, minimal separation distance from surface waters. As an open pit toilet, it emits an unwelcome, strong odor for visitors who are eating food at adjacent picnic tables in the park entrance area. In addition, KATM is out of compliance with NPS Director's Order 83, since pit privies are not suitable for front country use and are unsanitary. Since this site commonly serves dozens of visitors on adverse weather days, the need clearly exists for a public toilet facility.

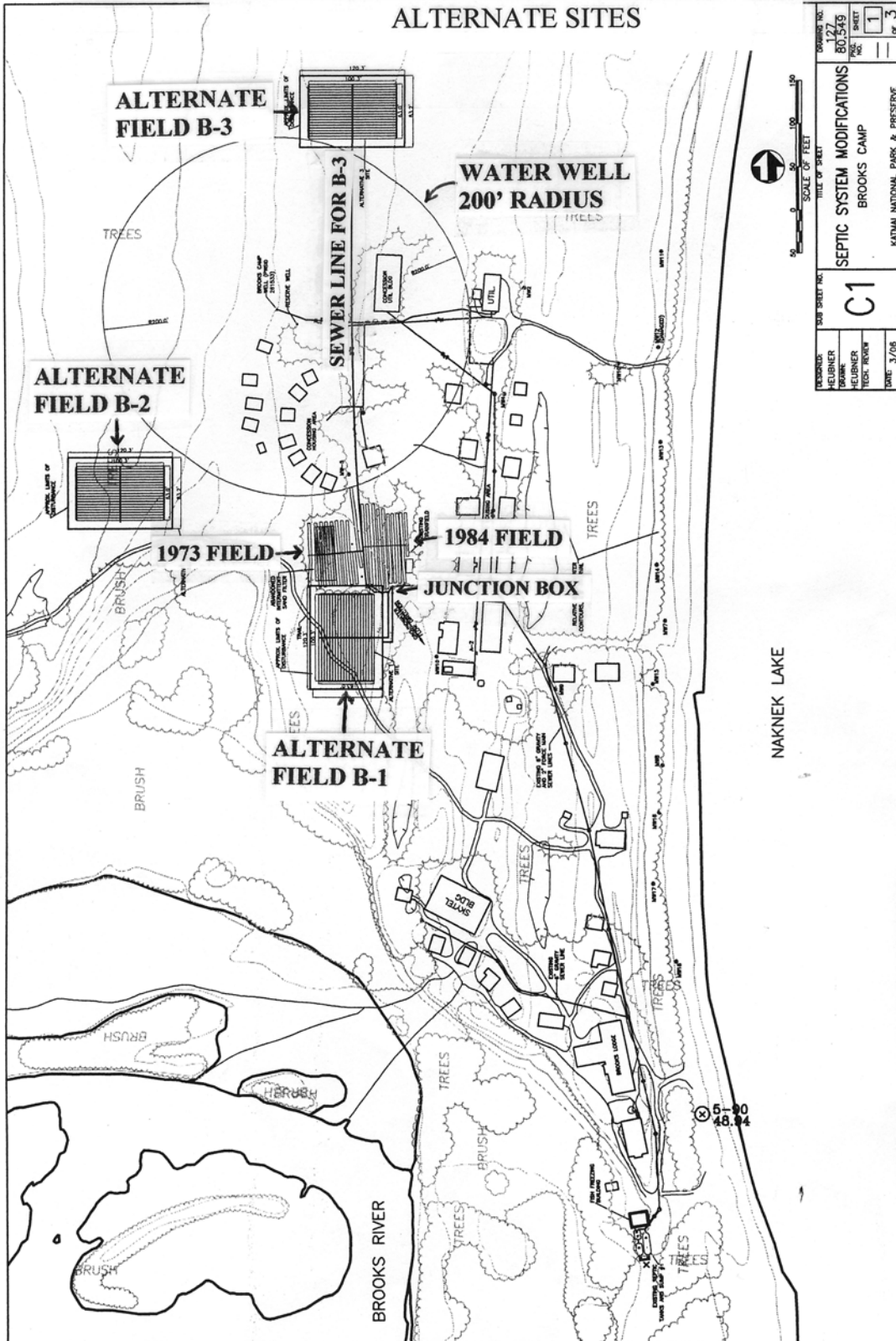
1.2.6 Leach Field Rehabilitation and Construction of Alternate Leach Field

The Brooks Camp leach field and sewage system serves a lodge operated by a concessioner, visitor facilities and employee housing at this site, accessible only by float plane and boat. Facilities are operated from May through September. Water service is available from late spring (depending on weather and ground conditions) through approximately September 22nd of each year.

The original Brooks Camp leach field, installed in 1973, covered one-half the area of the existing leach field (Figure 7). During 1983-1984, this leach field failed. In 1984, the NPS rehabilitated the first field and installed a second field, to the east of and the same size as, the 1973 field. Both fields operated concurrently from 1984 to 1995. In 1995, after eleven years of operation, the combined field failed. That autumn, after the visitor season, the NPS constructed a new field within the same footprint by installing a maximum number of new lateral lines in between the original lines. This avoided disturbance to new ground and potential cultural resources, but according to NPS engineers, resulted in a new field with re-used soils having less than the estimated 1995 capacity required for Camp operations.

Figure 7

**BROOKS CAMP
EXISTING LEACH FIELD AND
ALTERNATE SITES**



DESIGNED BY	DATE	3/06
CHECKED BY	DATE	
SEAL	DATE	
PROJECT NO.	127	
SHEET NO.	80,549	
TITLE	SEPTIC SYSTEM MODIFICATIONS	
PROJECT	BROOKS CAMP	
DATE	3/06	
BY	1	
OF	3	
KATIA NATIONAL PARK & PRESERVE		

In 1996, the park adopted water conservation measures throughout the Camp. To reduce organic waste volume and build-up in the wastewater system, the park discontinued fish cleaning and fish grinder operations. Water saving fixtures such as low-flush toilets were installed to reduce wastewater effluent. An intermittent sand filter was added on top of the leach field to pre-treat effluent prior to disposal in the leach field. However, this sand filter failed in 1998. During that same year, engineers determined that the water distribution system had leaks. They conducted tests for usage, percolation and distribution and concluded that the 4,630 gallon capacity field was barely, adequately sized for the effluent volume discharged.

In the summer of 2005, after ten years of operation, the leach field showed signs of possible, imminent failure. NPS employees observed standing effluent in a valve box at the field inlet near the employee housing walkway (Photo 8). The system was originally designed and constructed as a pressure distribution system with 3/16" holes drilled in 1" PVC pipe, suspended from infiltrator chambers. Upon inspection, engineers found that some of the lateral lines were completely full of effluent, while others were not receiving any effluent, because many of the 3/16" holes were clogged. Park employees attempted to re-balance the system by drilling a 3/4" hole through the 1" PVC lines in each lateral line. After seven months of rest during the winter off-season, it is hoped that the leach field will re-balance and operate adequately again during summer of 2006. However, at this time, it is unknown whether the overloaded laterals will be able to rejuvenate. In the likely event that rejuvenation does not fully occur, NPS and ADEC engineers believe that leach field failure is possible during 2006.

NPS engineers suspect that the existing meter monitoring the flow of effluent has not been operating properly. It is also possible that the existing leach field has been damaged from long-term use on the same site and compaction from a well-traveled road and bone yard operation. The 2005 repairs may not be adequate to restore it to a fully usable condition. It is unknown for certain whether the design capacity of the field is being exceeded or if the field is in imminent failure.

Section 18 AAC 72.260(a)(4) of the ADEC wastewater regulations states "(a) The department will approve the plans for construction of a community or alternate soil absorption system if.....(4) a sufficient usable wastewater disposal area exists with characteristics for both an initial and a replacement soil absorption system....." No alternate leach field site has ever been designated at Brooks Camp. Thus, the current field has been operating for many years in avoidance of this ADEC engineering and safety standard, with no contingency site. Further, NPS Director's Order 83, *Public Health*, mandates that NPS managers will reduce the risk of waterborne diseases and provide safe wastewater disposal by ensuring wastewater systems are properly operated, maintained, monitored and deficiencies promptly corrected. It further states that wastewater systems are to be in compliance with the Clean Water Act and the ADEC regulations. The Concessions contract between the NPS and Katmailand assures that the NPS will provide sewer service. Thus, the NPS needs to make compliant wastewater services available at Brooks Camp, with an identified alternate site.

This environmental assessment (EA) presents and analyzes "no-action" and proposed action alternatives and their associated environmental impacts. It has been prepared in accordance with the National Environmental Policy Act (NEPA) of 1969 and regulations of the Council on Environmental Quality (40 CFR 1508.9).

1.3 Background

Katmai National Park and Preserve, encompassing approximately 4.3 million acres, is located at the head of the Alaska Peninsula, about 290 miles southwest of Anchorage. Established as a National Monument in 1918 to preserve the Valley of Ten Thousand Smokes and the landscape associated with the



Photo 8. Brooks Camp leach field
with open valve box



Photo 9. Typical setting of proposed alternate
leach field

cataclysmic volcanic eruption of 1912, it was expanded over the years by four presidential proclamations, then enlarged and re-designated a National Park and Preserve by the Alaska National Interest Lands Conservation Act (ANILCA, PL 96-487) in 1980.

The park's field headquarters in King Salmon is about 10 miles west of the park's western boundary and is the main departure point and gateway for Brooks Camp visitors. Located on the north bank of the Naknek River on the Alaska Peninsula, King Salmon is 284 miles southwest of Anchorage, but aside from a 15-mile road to Naknek, no roads connect King Salmon with the rest of the state. With a 2005 population of approximately 420, King Salmon has grown into a government, transportation and service center for the commercial salmon and recreational visitor industries (ADCCED, 2006).

Brooks Camp is located in west-central KATM, outside of designated park wilderness areas. King Salmon is the closest permanent town, about 30 miles west of Brooks Camp. Primary access to the seasonal camp is by float plane or boat from King Salmon. The camp lies near the outlet of Brooks River, a 1.5 mile long river that drains from Lake Brooks into Naknek Lake. The Brooks River divides Brooks Camp into two parts that lie north and south of the river. The area north of the river includes Brooks Lodge and other Katmailand and NPS buildings; including the ranger station, maintenance facilities, seasonal housing cabins and tent platforms, a visitor center, auditorium and campground. The area south of the river includes several bear viewing platforms, NPS employee housing cabins, maintenance facilities and a visitor contact area at Lake Brooks.

Park Purpose and Significance

Park purpose statements for KATM can be viewed in the General Management Plan (NPS, 1986) and DCP/EIS (NPS, 1996a). In addition, the DCP contains an overview of the park, preserve and the Brooks River area. To focus this EA, purpose and significance statements for the Brooks River area are given below.

Brooks River Area Purpose Statements

Stemming from the ANILCA legislation, the NPS identified three primary purposes for the Brooks River area: (1) to protect habitats for, and populations of, fish and wildlife, including, but not limited to, high concentrations of brown bears and their denning areas and maintain the watersheds and habitat vital to red salmon spawning in an unimpaired condition, (2) to provide for the general public resource-based recreation that does not impair natural and cultural values and (3) to protect and interpret outstanding natural, cultural, geologic and scenic values (NPS, 1996a).

Brooks River Area Significant Resource Statements

The DCP also describes the area's significant resources as (1) the largest concentration of protected brown bear populations in the world, many of which can be easily viewed by the public in the Brooks River area, (2) the Brooks River channel that serves as an important red salmon spawning area, (3) the Brooks River Falls that serve as a concentration area for red salmon, (4) the gathering of brown bears to feed on migrating salmon at Brooks Falls provides world-class wildlife viewing and photography opportunities of brown bears in a natural setting, (5) Brooks River, Lake Brooks and Naknek Lake support world-class recreational fisheries for rainbow trout and red salmon. Quality sport fishing opportunities exist in the river and adjoining lakes for Arctic grayling and lake trout, (6) the immense size of the surrounding landforms, their topographic relief, volcanic and glacial origins, and their active geologic processes, in addition to the many expansive freshwater lakes, make the area an outstanding scenic resource and (7) the Brooks River area, designated as a National Historic Landmark, contains an internationally significant concentration of ethnographic, historic and prehistoric cultural remains spanning a 4,500-year period.

The NPS Organic Act and the General Authorities Act prohibit impairment of park resources and values. *NPS Management Policies 2001* uses the terms “resources and values” to mean the full spectrum of tangible and intangible attributes for which the park is established and 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 NPS 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.

The evaluation of whether impacts of a proposed action would lead to an impairment of park resources and values is included in this EA. Impairment is more likely when there are potential impacts to a resource or value whose conservation is:

- necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the park;
- key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park; or
- identified as a goal in the park’s general management plan or other relevant NPS planning documents.

1.4 Relationship of the Proposal to Other Park Planning

The 1986 *KATM General Management Plan* (GMP) directed that a Development Concept Plan/EIS be prepared to address management issues in the Brooks River area. The GMP states that any proposed developments will be designed to avoid impacts on the significant known archeological resources of the area. Ground-disturbing activities will be preceded by archeological surveys and testing. The NPS will also consult with Native American tribes on actions that have the potential to affect significant ethnographic resources. The NPS is committed to taking whatever actions are necessary to limit conflicts between bears and visitors in the Brooks Camp area to an acceptable level. This may include a phased relocation of all or part of the existing facilities.

The 1996 DCP describes desired future conditions for natural resources, cultural resources and visitor experience/interpretation. Future conditions that are especially pertinent to this project include protecting and maintaining habitat vital to red salmon and rainbow trout spawning and juvenile development cycles; protecting ecosystem functions; enhancing the visitor experience by focusing visitor use and development in specific areas in order to minimize disturbance to natural, cultural and scenic resources; and encouraging concessioner-provided services and facilities that are economically feasible, site-suitable and necessary for appropriate public recreation. The DCP also recognizes the important, desired future condition to preserve cultural resource sites and remains that best illustrate the 4,500 years of Alaska Peninsula occupation. Public use goals and objectives for the Brooks River area pertinent to this specific project are that the NPS and concessioner are to develop and maintain facilities for recreational users that are consistent with park management concerns regarding wildlife, fish, biological diversity, preservation of cultural resources and public safety.

The DCP and its accompanying ROD describe alternative strategies for the operation and location of development in the Brooks River Area. The DCP defines the area’s purpose and significance of the area’s resources, identifies resource management objectives, describes primary interpretive themes for the area and formulates visitor experience objectives for the area. The Preferred Alternative 5 calls for removing all facilities at the present Brooks Camp location and developing a new site south of the Brooks River for visitor services and support facilities. The plan’s goal was to reduce public use impacts on prime bear

habitat and nationally significant archeological sites in the Brooks River corridor. The Brooks River Area is to retain a unique cultural resources heritage and is to have a diverse array of recreational opportunities.

However, in the ten years since the ROD was signed, funding has not been available to implement the Brooks Camp move described in Alternative 5. A significant deferred maintenance backlog has developed since the DCP planning process was initiated in the late 1980's and facilities at Brooks Camp are in need of major upgrades or replacement. A lack of adequate support facilities, identified in the DCP/EIS, increasingly contributes to employee welfare and life/health/safety deficiencies. Several utility systems have experienced failures and need replacement or extensive repairs in the near future. Facilities for employee housing, visitor camping and sanitation are inadequate and substandard. To address these specific, urgent concerns, the park has requested funding for new facilities and replacement or rehabilitation of existing facilities.

In the continued absence of full implementation of the Preferred Alternative 5 the following strategy is being followed by the NPS management:

- Maintain all existing facilities within funding and resource constraints
- Propose new or replacement facilities to meet identified needs
- Any new facility will be evaluated for locating south of the river corridor
- Assess and address developing life/health/safety and employee welfare facilities issues

This EA is procedurally connected, or "tiered" to the larger-scale DCP and EIS completed in 1996. This tiered document allows the NPS to focus on the current maintenance and management issues that are ready for decisions and exclude from consideration those issues already decided by the EIS. An EA could not be tiered to the EIS if the NPS intended to forego the Brooks Camp move or if new information required a re-analysis of the move decision. The NPS stands by the original EIS/ROD decision to eventually move the Brooks Camp operation south of the Brooks River to the Beaver Pond Terrace. This EA describes minimal maintenance tasks justified under critical need (life/health/safety) categories. Underscored here is the NPS intent to accomplish Alternative 5, including the gradual relocation of functions and facilities from the north to the south side of the Brooks River. Cumulative regional impacts and policy direction have already been defined by the EIS. Included in this EA are project specific information and changes that have occurred since the DCP/EIS was published. By tiering with an EA, the NPS can avoid unnecessary duplication and focus on solving urgent current and anticipated Brooks Camp problems over the next several years.

Proposed project components described in this EA have been reviewed, approved and prioritized by an inter-agency, interdisciplinary team of NPS facility managers, engineers, environmental protection specialists and planners. Implementation of these components will allow KATM to protect employees and safely meet the current demands of the visiting public at Brooks Camp until a decision is made as to when to implement the DCP/ROD, or take other actions.

The 1998 Housing Needs Assessment for KATM identified the minimum number of housing units required to support the park mission and to protect property, resources and visitors. The minimum number of bedrooms for seasonal employees in Brooks Camp/Lake Brooks needed to meet the park mission in 2003 (the most recent figures available) was 34, in 15 shared units. The report identified a shortfall of 16 Category II seasonal housing units (shared units) park-wide in 1998 and a potential shortfall of 22 by 2002. Of these shared units, four were identified for Brooks Camp/Lake Brooks in 1998, with no projected change by 2002. In 2005-2006, the King Salmon dorm was constructed under an approved EA and Finding of No Significant Impact (FONSI) (NPS, 2003b), providing 10 bedrooms for seasonal, volunteer and transient workers in or passing through King Salmon. The 1998 report acknowledged that it

was incomplete because it excluded three tent frames in King Salmon, with a total of 6 bedrooms, from the housing inventory. It also excluded the housing needs of volunteers and essential cooperators. Even so, the report confirmed that area housing is generally not available or affordable for KATM seasonal employees.

The FY 2005-2008 Strategic Plan states that by September 30, 2008, 33% of NPS employee housing will be in fair or good condition. The Plan also states that by September 30, 2008, 96% of the visitors will be satisfied with the overall quality of NPS services, facilities and recreational opportunities, including visitor services at the public campground.

The NPS Director's Order and Reference Manual (RM) 36, Employee Housing, ensures that NPS housing shall be safe and sanitary and, to every extent possible, energy efficient and cost effective to maintain. Parks must comply with applicable local laws and regulations pertaining to health and safety. Housing should be accessible to, and usable by, persons with disabilities to the greatest extent reasonable. Substandard housing (e.g., trailers, obsolete housing) is to be eliminated or upgraded and quality, well-designed, long-term housing facilities with full life-cycle cost consideration are to be properly constructed, rehabilitated and maintained. Sustainable practices must be incorporated to the maximum extent practicable in planning, design, siting, construction and maintenance.

The 1998 NPS Housing Management Handbook describes Category II housing as units designated for employees as beneficial to the park where reasonable alternatives are exhausted and the units are needed because remoteness and a temporary work force create compelling rationale for the NPS to provide housing as a benefit to the park. In the absence of available housing, NPS policy is to provide only the minimal number of housing units necessary to support the park mission.

The *Handbook* also states that quality park housing is an essential management tool used to effectively and efficiently provide for the protection of park resources, property and visitors and to meet the park's mission. It supports the replacement of housing units where adequate housing is unavailable for sale or rent within a reasonable commuting distance. Park housing is to be provided for people who are essential to the management and operation of the park. These may include not only NPS employees, but also concession employees, volunteers, researchers, essential cooperators and employees of another federal agency. Park housing design is to minimize impacts on park resources and values and comply with NPS quality design standards. Design costs are to be minimized by using existing NPS standard designs. The objectives of NPS housing management are also to require that substandard housing units not be used as housing until they are brought up to standard, to eliminate substandard housing from the park inventory, to provide safe and sanitary housing units and to improve them to be energy efficient. The Park Superintendent, Housing Coordinator and Facility Manager are responsible for developing a strategy to eliminate obsolete housing and rehabilitating units to good condition.

1998 Conservation Easement. In 1998, the NPS purchased a conservation easement on the eastern portion of US Survey 7623, south of the river mouth and including the spit upon which the existing NPS bulkhead area is sited (USA, 1998). Among other purposes, this easement increased opportunities for access for park visitors and allowed the Melgenak heirs owners to continue to use the easement area for certain traditional and cultural activities. These rights are reserved in perpetuity. In addition, the heirs reserved exclusive use of an approximately eight-acre parcel within the Protected Property, the "Exclusive Use Area". The United States received the right to enter upon the Protected Property to protect and manage park resources and wildlife and protect park visitors. The United States also received the right to allow access and use by the general public on the Protected Property, except for the Exclusive Use Area. The United States received the right to use, maintain, restore and replace the existing road and barge landing facility on the Protected Property. The heirs reserved the right to exclusively use the spit on

the south shore of the Brooks River where it enters Naknek Lake for traditional, cultural activities during the following periods annually; two weeks in mid August, October 1-31, and other times as the NPS may authorize. At such times, when the heirs are present, the public is excluded from the spit and lands lying between the spit and the Exclusive Use Area. Neither party can deposit or accumulate trash, debris, broken equipment or other unsightly or offensive materials on the Protected Property. Neither party can dump or dispose of toxic materials, hazardous substances or solid wastes on the Protected Property.

The *2006 KATM Compendium* contains special regulations for specific park areas, including the Brooks Camp Developed Area (BCDA, Figure 3). Camping in this 1.5-mile radius area is authorized only at the Brooks Camp Campground.

The *2006 Bear-Human Conflict Management Plan* describes appropriate behaviors and actions to use for preventive and responsive management within the BCDA, including sections on signage, regulations, human food storage and preparation, garbage disposal, fishing and heavy bear-use areas.

1.5 Issues

To focus the content of the EA, the NPS selected specific issues and eliminated others from further analysis. Subsequent discussions of the affected environment and environmental impacts related to each alternative focus on these selected issues. A brief rationale for the selection or dismissal of each topic is given below.

1.5.1 Issues Selected for Detailed Analysis

Visual Quality. The removal of four wall tent structures, installation of an alternate leach field and construction of new duplexes with associated utilities could affect the visual quality of the Brooks Camp site.

Water Resources and Fish. The no-action alternative could affect the quality of water resources and fish habitat in the BCDA.

Soils and Vegetation. Soils and vegetation could be disturbed during excavation associated with replacement of wall tent housing and installation of vault toilets, a leach field and utility corridors.

Wildlife. Terrestrial wildlife such as brown bears, small mammals and passerine birds could be affected by short-term displacement from preferred habitat and loss of habitat as a result of construction activities and facility placement.

Cultural Resources. Archeological resources could be affected by construction of buildings and utility systems.

Visitor Use. Construction activities could temporarily affect the satisfaction of visitors passing through the park administrative area. New seasonal housing could indirectly affect the number and satisfaction of park visitors. Proposed sanitation and electrical upgrades could affect visitor enjoyment of the Brooks Camp area.

1.5.2 Issues Dismissed from Detailed Analysis

Air Quality. Air quality is excellent within the Brooks Camp area. Even so, dust levels increase on a temporary, intermittent basis, correlating to periods of high winds and float plane activity on the lakes.

KATM is designated as a Class II attainment area under the Clean Air Act. The park is mostly unaffected by industrial or urban activities that would produce pollutants. The only sources of potential seasonal air quality impairment at Brooks Camp are generator emissions, incinerator emissions, emissions from fewer than fifteen vehicles, aircraft landings and take-offs, boat operations and wind borne particulates of volcanic ash from the Valley of Ten Thousand Smokes. Frequent breezes and wind sweep air pollutants out of the camp area. This project is expected to have no impact on area air quality.

Soundscape. The project area is used on a seasonal basis with high levels of visitation activity during June through September. Although the project area is predominantly a natural area, the natural soundscape is frequently impacted during the summer season by noise associated with increased aircraft, ATV traffic and visitors. Existing noise sources within the Brooks Camp area are wind, float plane landings and take-offs, boat traffic, vehicles on the Valley Road, utility vehicles, generators and visitors. The project would be expected to have a short-term, negligible effect and no long-term effect on the soundscape of the area.

Wetlands. Wetlands do exist within the greater BCDA, however no wetlands are known to occur in the vicinity of the proposed project components. At this time, the BCDA has not been mapped under the USFWS National Wetlands Inventory system. Therefore, this EA does not address EO 11990 Wetlands Protection.

Floodplain. The project area is not within a regulatory floodplain. Surface waters (Brooks River, Naknek Lake and Lake Brooks) are present near the project area. The levels of Naknek Lake and the Brooks River fluctuate between early spring and summer. According to area residents, no flooding has occurred in Brooks Camp in recent years. The NPS has no historical records regarding flooding incidents in Brooks Camp. This project is not expected to impact the floodplain and therefore this EA does not address EO 11988 Floodplain Management.

Wilderness. The proposed action would not occur within a wilderness area and, therefore, would not impact wilderness characteristics or values.

Threatened, Endangered, and Other Special Status Species. The NPS has requested concurrence with the USFWS that there are no known federal or State listed threatened or endangered species or federal candidate species in the project area. Several “species of concern” may occur within the broader project area such as lynx, northern goshawk, harlequin duck, Wilson’s warbler, blackpoll warbler, grey-cheeked thrush and Swainson’s thrush.

Subsistence. Per ANILCA, subsistence activities are only permitted in Katmai National Preserve, not in Katmai National Park. The effects of the proposed action on subsistence uses and needs were dismissed from further analysis because the proposed action is located in the Park. An ANILCA Section 810(a) summary evaluation and analysis is contained in Appendix A, based on potential impacts of proposed NPS activities in the Preserve.

Local Economy. Labor and some materials for this project may be obtained from the nearby communities of King Salmon and Naknek. However, any related impacts on the local economy would likely be short-term, negligible and beneficial due to the small size and duration of the project.

Executive Order 12898, “Environmental Justice.” Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations*, 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 be expected to result in significant changes in the 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.

ANILCA Section 1306. ANILCA Section 1306 calls for locating NPS administrative facilities on Native land in the vicinity of the NPS when practicable and desirable. For the Brooks Camp administrative site, Section 1306(a)(1) applies, because the site is located within the boundary of the conservation system unit. Currently, with the DCP planned move of facilities and functions south of the Brooks River, ample federal land area is available for foreseeable site development. Thus, Section 1306(b)(2) does not apply; the NPS has no need to acquire additional private real property for this project, including parcels from nearby Native lands.

Land Use and Access. Under any alternatives, the potential for park visitors trespassing on non-federal lands would not be expected to increase. The NPS conservation easement and private allotment parcel are located south of the Brooks River, outside of the immediate Brooks Camp and Lake Brooks project component areas. This project would not be expected to increase visitor use nor would it interfere with the provisions of the easement agreement. As part of the normal NEPA public review process, the heirs would be welcome to express their views on this proposal.

1.6 Permits and Approvals Needed to Implement the Project

Since the project would not occur in or affect wetlands, no Department of the Army Section 404 permit would be required. The NPS has submitted a Negative Determination Letter to the State of Alaska, Department of Natural Resources, Office of Project Management and Permitting, to request concurrence that this project is consistent with the standards of the revised Alaska Coastal Management Program and would have no effect on the uses or resources of the coastal zone (Appendix B). This project would be reviewed by the Lake and Peninsula Borough (L&PB) for provisions under the revised borough coastal management plan.

NPS project engineers would be responsible for obtaining permits and approvals required for utility systems and services, including the leach field and vault toilet project components. For any leach field alternative, the NPS would submit a modified domestic wastewater collection plan to the ADEC for approval and a permit to construct, install and operate a modified Brooks Camp system.

2.0 ALTERNATIVES

2.1 Introduction

This chapter describes a no-action alternative and a range of reasonable alternatives; the proposed action alternative and three variations. Additional action alternatives are briefly described but not considered further or analyzed in Chapter 4.

An interdisciplinary team of NPS staff, including engineers, managers, environmental protection specialists and facility planners developed reasonable alternatives over several years. They applied specific criteria related to agency regulatory requirements, costs, functions, management needs and long-term maintenance. Other considerations included current location of infrastructure services; DCP goals, requirements and desired future conditions; public health ramifications; Katmailand concessions contract provisions; feasibility of transporting building materials to the site; length of the construction season; disruption of visitor services; disturbance of bears; site topography; labor availability and site hydrology. During their analysis for the leach field component, engineers compared initial construction costs, life-

cycle costs and recurring annual costs. Appendix C provides a table of cost comparisons of the leach field alternatives described in this chapter. At the end of this chapter, Table 2-1 provides a summary and comparison of alternatives and their environmental impacts.

2.2 Alternative A: No-Action (Environmentally Preferred Alternative)

The “Affected Environment” section of Chapter 3 provides additional detail of the profile of existing facilities and functions. Sections 1.2 and 2.3 provide detail on existing facility dimensions and amenities. The no-action alternative represents a continuation of the existing situation and provides a baseline for evaluating the changes and impacts of the proposed action alternatives.

Under the no-action alternative, no facility rehabilitation or replacement would be completed for employee housing, visitor services or sanitation at Brooks Camp or Lake Brooks. The NPS would continue to house seasonal employees in the “obsolete” hard-sided wall tents and cabins currently used for this purpose. No kitchens or toilet facilities would be added to the primitive cabins. Illegal, graywater sump drains at the wall tent sites would continue to be used. The existing campground would remain in its current condition, with deteriorated shelters, unsanitary pit toilets and unlabelled campsites. The park would continue routine maintenance each spring by clearing only downed trees along main pathways and repairing structural damage from weather and bears. Standing hazardous trees in the campground would not be removed. No repairs would be attempted on the existing leach field nor would a new, alternate field be constructed. Electrical generation and distribution systems would not be upgraded. Pit privies at the campground and Lake Brooks visitor entrance would not be replaced.

2.3 Alternative B: Implementation of Six Maintenance Project Components, with Rehabilitation of Existing Leach Field and Optional Construction of New Leach Field (NPS Preferred Alternative)

Under this alternative, the NPS would implement project components 1-5 described in detail below. For component 6, three variations of this alternative, B(1), B(2) and B(3), present three different construction sites for a new leach field. A fourth variation, B(4), eliminates the new leach field construction.

1. Seasonal Employee Housing Rehabilitation

Existing employee cabins BR 48, 49 and 50, built in 1980, are approximately 19’9” by 15’9” (300 square feet) with three rooms; kitchen, bathroom and living area (Figure 5) (Cash, 1996b). Each of these cabins has sewer, water and electric service with a range, refrigerator, hot water heater and portable electric heat. Dimensions of BR 46 are approximately 24’ by 16’ (396 square feet). Existing amenities for BR 46 include two rooms with an enclosed bedroom/bathroom, a kitchen area with a range, refrigerator, sink and hot water heater and fuel oil heat. Services include sewer, water and electricity. Double-occupancy cabins BR 46, 48, 49 and 50 were constructed with three-quarter bathrooms which are still operational today, although in great need of rehabilitation. With construction dates of 1965 and dimensions of 22’ by 14’ (308 square feet), double occupancy cabins BR 41, BR 42 and BR 43 have no bathrooms or room dividers. These more primitive cabins have one open room with a sink that empties gray water into the sewer line. As long ago as 1999, all seven cabins were rated as “fair” in QMIS.

Proposed work performed by NPS maintenance staff would include replacement and/or upgrade of kitchen and bath/toilet facilities; installation of room dividers in double-occupancy bedrooms; installation of hard-wired electric baseboard heat; replacement of worn hardware and collapsing built-in shelving; and replacement of non-code compliant electrical wiring. For BR 41, 42 and 43, small additions of up to 10’ by 14’, or 140 square feet, would be added to these older cabin footprints to accommodate the upgrades. These additions would be made by leveling the ground underneath the addition and placing foundation

timbers onto a layer of D-1 gravel. Gravel would be obtained from the NPS stockpile on site. The existing roof line would be extended to accommodate the extra cabin length and maintain the existing width. No excavation would occur below the Katmai ash layer. The cabins would still be considered temporary and could be moved and relocated.

Specifically, kitchens would be outfitted with new counters, cabinets and appliances. New flooring and carpet would be installed, foundations would be repaired, new bath/toilet fixtures would be installed and interior upgrades would be made to the lighting, windows and electrical systems. Sewer and water lines and plumbing connections are already in place for each cabin, so no new excavation would be required to add utility services. During 2006, these seven cabins are housing 11 seasonal employees. With the proposed project, no net gain or loss would occur in the number of NPS seasonal employee bedrooms at Brooks Camp.

2. Seasonal Employee Wall Tent Replacement with Cabins

The existing, hard-sided wall tents, listed as “obsolete”, temporary housing are approximately 15’ 9” by 13’ 9” (219 square feet). Each has one open room, no insulation, a refrigerator, kitchen range, water heater and portable electric heaters. Together the wall tents provide 876 square feet of cramped, substandard living space for eight employees, in four separate locations. Boardwalks, porches and footpaths connect the wall tents with each other and the main employee housing walkway. Each unit has electric service, but no water or sewer service.

With this project component, the four wall tents would be replaced with two hard-sided duplex cabins. Work would include the provision of proper heat, electrical, water and sewer service. Each duplex would have two bedrooms per unit, for a total of eight bedrooms. These eight bedrooms would result in no net gain or loss in the number of bedrooms available for Brooks Camp seasonal employee housing. Per NPS Director’s Order 36, modular log style duplex replacement cabins have been carefully evaluated for soundness, cost-effectiveness and compliance with NPS standards and applicable health and safety laws and regulations. The duplexes would be pre-fabricated buildings designed according to the standard Service-wide Housing Design Prototype Catalog Plan No. 4. The structures would be temporary, since their foundation timbers rest on the ground surface, allowing them to be moved to another location.

In accordance with NPS policies to consolidate park functions, construction of these new, temporary duplex structures would be located substantially on the same footprint as the existing wall tent complex (buildings, porches, boardwalks, utilities, footpaths) (Figure 5). The new footprint would completely include that of BRT 1 and 2 and existing utilities. The total building footprint would enlarge from approximately 876 to 1848 square feet, to provide adequate space in each duplex unit for a small living room, kitchen, bath/toilet, and two bedrooms. Less boardwalk area would be needed, as the four tents are currently located in scattered locations. Each duplex would have dimensions of approximately 21’ by 44’ or 924 square feet on a single floor, with 462 square feet per unit. These buildings would be intended primarily for seasonal operation but would be provided with full insulation and heat to allow for standard operation and employee comfort during the shoulder seasons.

The modular log style duplex kits would be barged from King Salmon to Brooks Camp. Site work would include clearing one rectangle of approximately 7600 square feet that would include a standard 20 foot perimeter around each building to allow for maneuvering heavy equipment. Approximately 120 trees (50 white spruce, 10 cottonwood and 60 birch) would need to be cut to clear this area. The duplex footprint would be leveled to a minimal degree to allow for even placement of foundation timbers and boardwalks. The duplexes would be sited in such a manner as to minimize the amount of utility trenching and above-ground boardwalk required to provide access to the main road and main utilities. All of the gravel used in this project to stabilize the foundation timbers would be taken from gravel stockpiled at the Moraine Pit.

The wall tents would remain functional for most of the replacement construction season and methodically removed. Modular log duplex construction workers may be housed in the wall tents to avoid a lengthy commute to/from the Lake Brooks housing. During modular log cabin site preparation, BRT-1 and BRT-2 and associated structures would be dismantled, using hammers and saws. Wooden pieces would be hauled by park vehicle and properly disposed of in the camp incinerator. Non-burnables would be transported by barge and recycled or disposed of in the King Salmon landfill. During the course of the project, BRT-3 and BRT-4 and all associated temporary structures such as the remainder of the boardwalks, porches and the graywater collection systems would be similarly dismantled and incinerated or transported to the landfill. The new modular log style structures would be assembled in place, without any excavation below the Katmai soil ash layer.

New utility work to the duplexes would include providing heat, water, sewer and electrical service. As much as possible, utility lines would be excavated in previously disturbed soils and existing utility trenches. For each duplex building, heat would consist of a new above-ground, double-wall, up to a 100-gallon diesel storage tank and associated above-ground piping. Water, sewer, and electrical utilities would consist of providing new underground service connections from the duplex site to existing services along or near the main housing pathway. All main utility lines are already located within approximately 50 feet of duplex site connection points, so minimal trench excavation would be required. Sewer, water and electric lines would each be installed in separate trenches of up to 50 linear feet, at a maximum bury depth of two feet. Water and sewer line excavations would have a maximum disturbance width of four feet and electric line excavations, two feet. New, wooden walkways would be placed above ground to connect duplex entrances with the main walkway.

3. Rehabilitate Brooks Camp Campground

The 60-person, 18 site, Brooks Camp campground is the only formal overnight NPS campground located within KATM. During 2005, NPS campground hosts remarked that most Brooks Camp campers expected and enjoyed a natural and rustic campground appearance, but wanted upgrades to the unsanitary facilities. The proposed project component would enhance this theme and accomplish several safety and sanitation upgrades to the campground. NPS maintenance workers would 1) mark and remove standing hazardous trees; 2) install two “Sweet Smelling” (SST) vault toilets to replace the existing pit toilets; 3) replace the existing food cache; 4) provide three picnic shelters and one drying rack to replace the existing shed-type structures; 5) harden trails and more clearly delineate individual campsites.

The park would identify and remove numerous, hazardous standing trees, mostly cottonwoods, from the campground. Downed trees and logs would be cut into firewood for campers.

Per NPS policy, suitable front country waste systems include vault toilets. Pit toilets are only suitable in back country settings and only as a last resort where other types of facilities are not possible. The two existing campground pit privies, consisting of 30” corrugated metal pipes buried in the ground, would be replaced by a double vault toilet, each with up to a 1,000 gallon capacity tank, that incorporate the US Forest Service SST design features (USFS). This design is generally acceptable to the visitor and easy to operate and maintain. The proposed, double vault toilet would have two sealed containers buried six feet and enclosed in one structure. All waste would be contained in the tanks until removed by pumping.

The double vault toilet would be housed in one modular log style structure on a poured concrete slab, with two doors, similar to the one installed at the Brooks Falls trailhead. NPS employees would use heavy equipment to excavate one hole to contain two 1,000 gallon capacity, plastic tanks. Concrete would be poured in and around the tanks and for a slab on which to place the structure. Per ADEC separation distance regulations, the vault toilet would be located beyond 200 feet from the Brooks Camp drinking

water well and beyond 100 feet from Naknek Lake. The vault toilet building would be sited to take advantage of the wind flow and sun's energy and so that the vent stack would not affect visitor use areas. Up to a 15 foot perimeter may be required for heavy equipment maneuver room to excavate the hole. A few trees may need to be cut, but the site would be selected so as to affect a minimal number of trees.

The NPS would consult with the ADEC regarding vault toilet sewage sludge disposal. Currently, other vault toilets and septic tanks in the Brooks Camp/Lake Brooks area are emptied on a seasonal basis. In the early spring, sewage sludge from vault toilets and septage from septic tanks is pumped into the NPS septage trailer and hauled along main Camp trails, across the dewatered river mouth and along the Valley of Ten Thousand Smokes Road a few miles for disposal and minimal treatment in the ADEC-permitted sewage lagoon. The septage disposal site has been permitted by the ADEC since 1993. However, it is permitted to receive septage from septic tanks. Currently, the NPS disposes of the sludge pumped from vault toilets located at Margot Creek Falls Trailhead, Falls Trailhead and Three Forks Overlook. The NPS would consult with the ADEC as to whether this permit needs to be modified to accept sludge from additional vault toilets.

Campground visitors must store food at Brooks Camp in a secure food cache to prevent food and other odorous items from attracting bears (NPS, 2006b). The existing, deteriorated food cache building in the campground would be replaced with a new, similar modular log style structure on the same location. The three shed-style picnic shelters and drying rack would be replaced with similar modular log style structures. The replacement cache, picnic shelters and rack would need no excavation, but would rest on top of the ground in the same footprints. No new ground disturbance would be needed.

In line with the desired primitive, camping experience, existing, selected foot trails and campsites in the campground would be minimally hardened and thinly graveled to smooth out rough terrain. Campsites would be brushed and more clearly delineated so visitors could easily locate their assigned campsite. Removable, numbered markers would be tied to nearby trees or shallow stakes inserted within the ash layer, or by some other minimally invasive means. No deep, permanent staking would be done. For all campground upgrades, in-park materials would be extracted and stockpiled according to the Katmai Sand, Rock and Gravel Plan (NPS, 1996b). Gravel for the campground rehabilitation would be obtained from the Moraine Pit.

4. Rehabilitate Electrical Generation and Distribution System

This project component would initiate the rehabilitation of the electrical distribution and generating system at Brooks Camp. The park has already provided for a licensed electrician to inspect these systems, correct the most serious deficiencies, and identify further corrective measures required. Another project has been funded to provide professional engineering services to design a complete overhaul of the electric distribution systems at Brooks Camp (100 KW) and Lake Brooks (25 KW). This project component would allow the park to contract with an electrical engineering firm to take the findings of the electrician, conduct further field investigations, and prepare design documents to correct all deficiencies. Some of the actual construction work to accomplish the design would be included in this component. Other work (e.g., new underground wiring) once design details are determined, would be addressed in additional NEPA documents.

The engineering analysis would be used to determine the exact size and nature of the electrical loads, and the portion of the load attributable to building heat, domestic hot water, and electric stoves would be subtracted from this value. The existing generators would be replaced with three smaller generators each sized to meet only half of this new load. The new generators would be selected for optimal operational efficiency, and reduced noise levels and would be provided with a waste heat recovery option. New automatic synchronized switchgear would be installed to bring on only enough generating capacity

necessary to meet the load. The waste heat recovery feature of the new generators would be used to heat water to approximately 180 degrees F, which would then be circulated to selected buildings in the site in shallow-bury insulated "arctic pipe." At each building this new service would be used for baseboard heat, as well as, through a tank and coil, to provide domestic hot water. To ensure that heat is present for building heat and domestic hot water at all times, a new diesel-fired hot water boiler would be installed downstream of the generator heat recovery loops, and would run when there is insufficient heat being recovered from the generators.

Part of this component would correct the life/health/safety deficiencies quantified by previous engineering projects. This work would consist of rewiring the camp's primary distribution system, including new distribution panels. This component would also provide generator capacity to more closely match the electrical load of the facility and provide many energy-saving features.

5. Replace Lake Brooks Pit Toilet with Vault Toilet

Per guidance in NPS Director's Order 83, the pit privy (Photo 7) at the Lake Brooks visitor entry point would be replaced by a SST double-vault toilet with up to a 1,000 gallon capacity for each tank. The toilet would be contained inside one common modular log style structure on a concrete slab, with two doors, similar in appearance to existing vault toilets located at other BCDA facilities. The vault toilet would be located at the north end of the gravel entrance parking lot at Lake Brooks (Figure 8). The building would be placed to take advantage of the wind flow and the sun's energy and so odors emitted from the vent stack would not affect the adjacent picnic pavilion area. Arriving visitors would easily notice this structure in their line of sight, at the top of the gravel slope, at approximately 150 feet away, as they disembark from their planes or walk toward shuttle vans.

Per ADEC regulations at 18 AAC 72 and 18 AAC 80, the vault toilet would be located beyond the 200 foot minimum separation distance from the Lake Brooks water well to protect the drinking water source from pathogen contamination, and beyond 100 feet from Lake Brooks. Up to a 15 foot perimeter may be required to maneuver heavy equipment to excavate the six foot deep hole. Some of this ground has already been disturbed with a parking area and driveway; only a few trees may need to be removed. Sludge would be pumped, as needed and deposited in the sewage pit on the Valley Road.

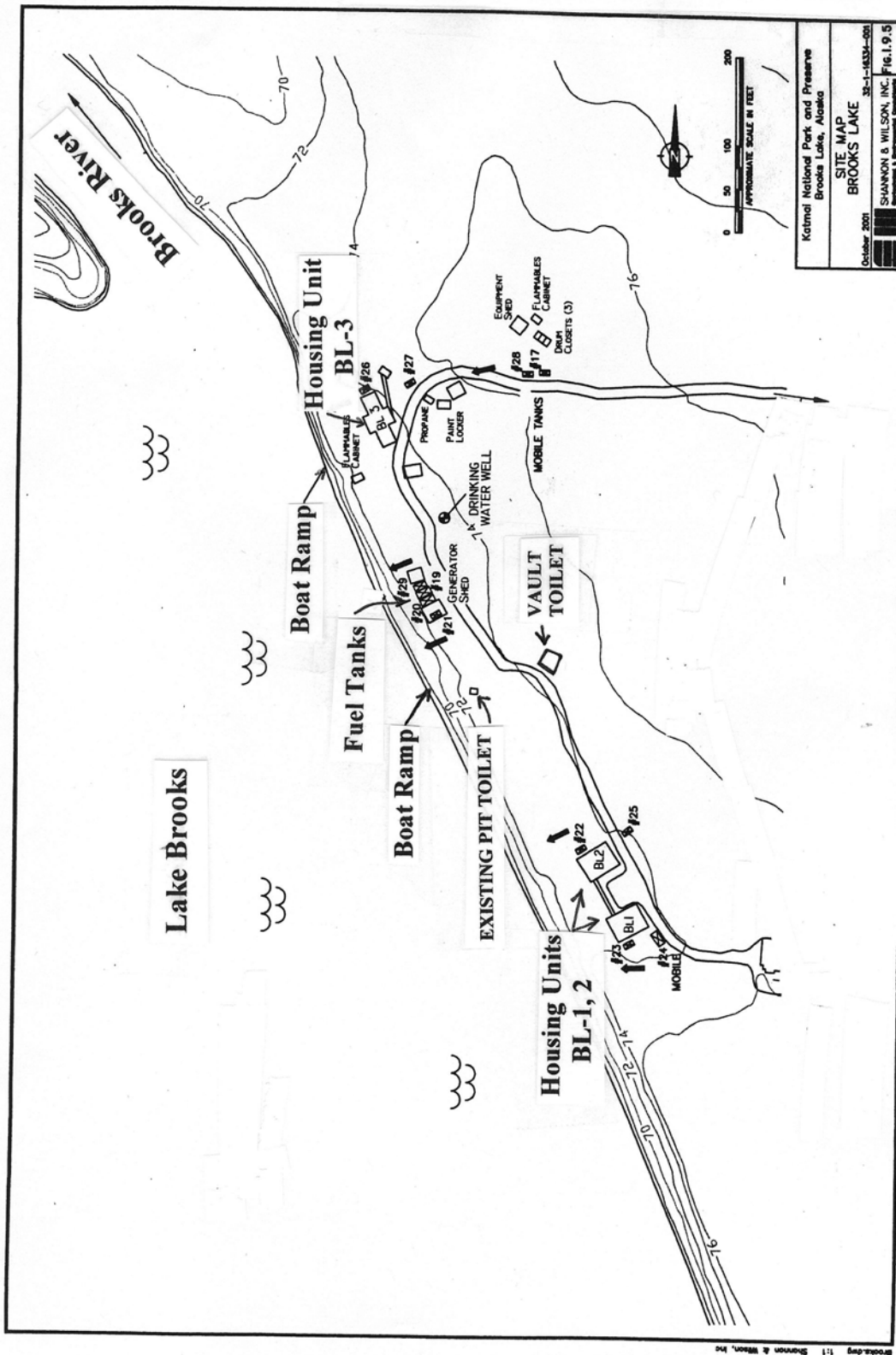
6. Rehabilitate Existing Leach Field and Option to Construct Alternate Leach Field

The existing leach field site has been in operation for over 33 years, with an original and two replacement systems, each having a life span of 10-11 years. This site has long ago reached the end of an average leach field site lifespan of 10-20 years. The scope of this component is to rehabilitate the existing leach field with an option to construct a reserve leach field at a new location. Three potential locations are analyzed as Alternatives B(1), B(2) and B(3) at the end of this section (Figure 7). A fourth alternative, B(4), eliminates the new leach field construction. Each of these four alternatives would still include the other five project components previously described.

To rehabilitate the old leach field, the primary goal would be to equalize the distribution of effluent within the system. The NPS would develop a variety of engineering options, including drilling additional holes in piping to facilitate flow. The design capacity is determined based on the assumption that the flow pattern and volume are operating at an optimal level. NPS engineers have determined that the flow is currently unbalanced and the field may be nearing capacity. A new flow meter would be installed to

Figure 8

LAKE BROOKS PROPOSED VAULT TOILET



accurately

accurately monitor flows. The two foot thick sand filter that lies on top of a portion of the existing field would be removed, as it failed in 1998. The existing leach field has a footprint of approximately 120' x 100', or 12,500 square feet. In 1995, the NPS constructed a new field by adding lines in between the original leach field lines. This was done to minimize the amount of cultural resource impacts by restricting excavation to the existing site. No more space exists in the same site to repeat this strategy and the underlying soils are too saturated with particulate matter after 33 years to be used reliably as the sole Brooks Camp leach field.

Another problem of having a sole replacement field in the same location is the cumulative compaction that has occurred with 4-wheel vehicular traffic hauling laundry and other loads along the trail that bisects the leach field and the use of the leach field as a bone yard for storage of maintenance materials. Due to this compaction, the existing field has already been partly compromised. However, ADEC engineers assert that it still has usable life and recommend that it be rehabilitated, in conjunction with constructing a reserve field on a new site.

ADEC and NPS wastewater engineers advise that two rotating fields are the best solution to the Brooks Camp situation. Two alternating fields would lengthen the serviceable life of both fields. As a field ages, the soils become clogged and less efficient in absorbing and straining wastewater. By allowing each field to rest longer between service, the life of each field could be lengthened.

Even if the existing leach field does not completely fail in 2006, the ADEC and the NPS Public Health Consultant advise that an alternate leach field is necessary to provide reliable and compliant wastewater disposal. It can also offer flexibility to use during seasonal variations in flow during the summer with concurrent monitoring of the old site. Maintenance personnel could rotate the use of two fields, thereby eliminating the high potential that either field would fail. If one were to fail, the alternate field would provide an immediate backup while the failed field could be repaired, avoiding cessation of all wastewater disposal service at Brooks Camp.

The new field would have a smaller footprint than the existing field. The existing field was constructed by installing new lines in-between the lines of the former field that had failed. As a result, NPS was unable to construct a standard "bed" configuration, which would require the smallest footprint to construct. Leach field piping would be placed in an excavated bed of approximately 100' by 60', or 6,000 square feet with varying depth down to a maximum of 5 feet. An approximate 20 foot perimeter around the field would be needed as maneuver room for excavation equipment and materials. Thus, the total area footprint would be approximately 120' x by 80', or 9,600 square feet. After workers cleared the area of trees and brush, they would use heavy equipment to excavate and stockpile soils on the perimeter. The pipes and equipment would be placed in the bed, then covered with the original soil. The natural, undisturbed subsoils would act as the infiltrative surface where percolation of the domestic wastewater occurs. Gravel and fill material required for the leach field rehabilitation and construction would be obtained through a contractor and barged out to Brooks Camp from King Salmon. The existing lift station would be used to pump domestic wastewater to the leach field collection area. Two feet of soil would be placed over the top of the field for frost protection.

With any of the three potential site locations, between 50-100 trees would be cut down to clear-cut the leach field area (Photo 9). Additional trees would be cut in the path of the sewer line connecting the leach field to the junction box. Some of these trees are already dead or dying. Also, as has been successfully used for the existing field, an electric fence enclosure may be needed to deter bears from investigating the site. The eventual alternative location may shift slightly from the drawings shown in Figure 7, depending on the results of field investigations for cultural resources as well as engineering and maintenance

requirements. Construction of the sewer lines and leach field would be expected to occur in stages during spring through autumn.

Any new leach field system would also need to comply with regulations at 18 AAC 72 for the minimum 100 foot horizontal separation distance between the soil absorption system and the mean, annual high water level of Naknek Lake. All three reserve field locations shown in Figure 7 would lie outside of the 100' minimum separation distance to the Brooks Camp water well. The existing field was designed for a capacity of 4,650 gallons per day. The proposed field would be sized to accommodate a loading of approximately 6,000 gallons per day. This greater capacity would be needed to handle the anticipated additional wastewater volume generated by the cabin and duplex kitchen/bath facilities. At the end of each operating season, all drains and sewer lines would be flushed with water as is routinely done now. Per NPS Reference Manual 83, leach fields would be surveyed annually during a high use period to identify system failures such as odors and surfacing wastewater.

Alternative B(1) – New Leach Field Located South of Existing Field

For this alternative variation, the reserve field would be constructed generally south of the existing field, as shown in Figure 7. This location would require the least linear feet of sewer line connection to the junction box, up to approximately 75 feet. This site is located within an archeologically sensitive area delineated by the park cultural resources team (Figure 9).

Alternative B(2) – New Leach Field Located West of Existing Field

For this alternative location, the reserve field would be constructed generally west of the existing field, as shown in Figure 7. This location would require more linear feet of sewer line connection to the junction box than B-1, up to approximately 300 feet. This site is located just outside of an archeologically sensitive area delineated by the park cultural resources team (Figure 9).

Alternative B(3) – New Leach Field Located North of Existing Field

For this alternative location, the reserve field would be constructed generally north of the existing field, as shown in Figure 7. For this alternative, approximately 450 feet of sewer line would be needed to connect the field with the junction box. This site is located outside of an archeologically sensitive area delineated by the park cultural resources team and inside the area the team recommended for placement (Figure 9). The ADEC would be willing to grant a waiver to allow a reduced minimum separation distance between the sewer line and the water well. For about 200 feet, the sewer line would need to cross over or under existing water, sewer and electrical utility lines.

Alternative B(4) – No New Leach Field

This variation would rehabilitate the existing leach field. The NPS would not construct a new leach field on a new site to use as a reserve field.

Construction schedule

Work would be accomplished as funding and manpower become available and archeological clearance is obtained. Funding has been secured for completion of most components, with rehabilitation and replacement work to commence in summer of 2006. Work would be performed through autumn and possibly during subsequent years. As much as possible, tasks would be scheduled to minimize direct interaction with bears and to avoid any interference with services necessary for the visiting public. Much of this work would be accomplished by NPS labor. Interior work on employee housing rehabilitation may

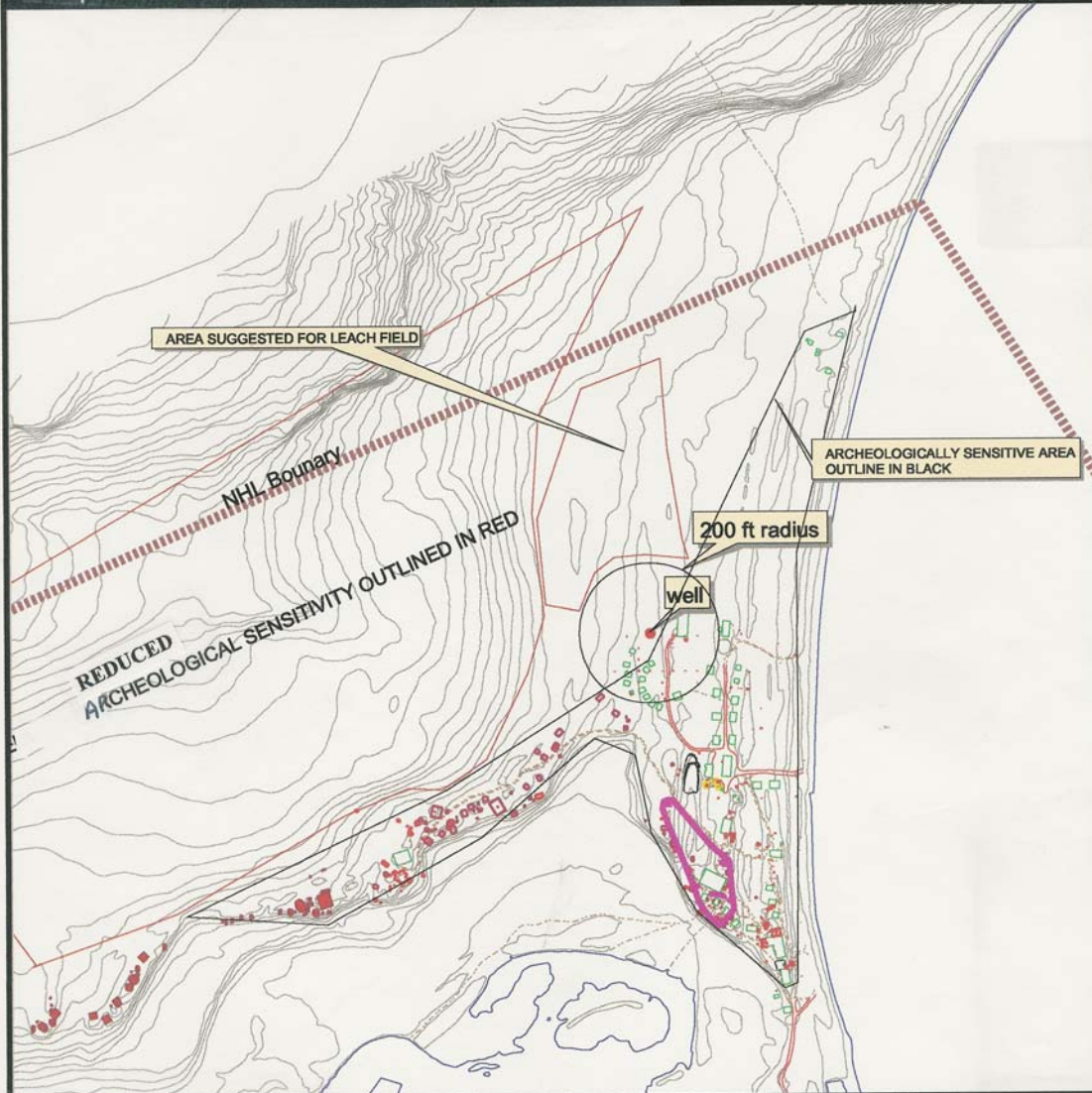
Figure 9

BROOKS CAMP
ARCHEOLOGICAL SENSITIVITY

National Park Service
U.S. Department of the Interior



Proposed Leachfield Location



Legend
Symbol
Description
Symbol
Description
Symbol
Description
Symbol
Description

Map Location



Cultural Resources
Katmai National Park and Preserve



0.05 0 0.05 0.1 0.15 0.2 Kilometers

1 : 4,724 1 inch = 0.12 kilometers

January 12, 2006

be started during the visitor season, since that housing area is generally not frequented by visitors. Most equipment and materials would be barged to the Brooks Camp and Lake Brooks sites during summer trips via the NPS barge. Materials would be stockpiled in maintenance facilities and areas away from public view.

The wall tents would remain functional for most of the replacement construction season and then methodically removed. Modular log structure construction workers may be housed in the wall tents to avoid a lengthy commute to/from the Lake Brooks employee housing. During cabin site preparation and construction, the boardwalks and 55-gallon drum disposal system would be removed and non-burnables disposed of off-site. Leach field rehabilitation would occur during 2006 or in subsequent years. Construction of an alternate leach field would commence after regulatory agency approvals have been completed. Sewer line installation from the new leach field to the existing pump system may be staged, according to ground conditions, labor availability and engineer plans. Campground rehabilitation would be scheduled so as to avoid disturbance to bears and campers. The Lake Brooks vault toilet would be constructed when labor, materials and equipment are available.

2.3.1 Mitigation Measures

Cultural Resources. To ensure that each project component complies with Section 106 of the National Historic Preservation Act, archeological investigation would be necessary before ground-disturbing work could be implemented. In addition, the descendants of the people that once lived at Brooks Camp would need to be consulted before work could begin. NPS cultural resource specialists would conduct a field survey of the proposed sites where ground disturbance would take place. Cultural resource specialists would monitor the project component sites during excavation activities.

Should previously unknown cultural resources be identified during project implementation, work would be stopped in the discovery area. The NPS would perform consultations in accordance with 36 CFR 800.11. The resources would be evaluated to determine if they are eligible to be listed on the National Register of Historic Properties. If proposed excavation locations could not be adjusted to avoid adversely affecting eligible cultural resources, the NPS would execute a Memorandum of Agreement (MOA) with the Advisory Council on Historic Preservation and the Alaska State Historic Preservation Office that would incorporate comments from consulting parties. The MOA would specify measures to minimize or mitigate adverse effects. Furthermore, as appropriate, the NPS would abide by provisions of the Native American Graves Protection and Repatriation Act of 1992. Any artifacts recovered from park property at the project site would be accessioned, cataloged, preserved, and stored in compliance with the NPS *Cultural Resource Management Guidelines*.

Site Rehabilitation. For housing rehabilitation and replacement, ground disturbance would be limited to a maximum buffer of 20 feet from the duplex perimeters and cabin additions. For the duplexes, additional ground disturbance would occur for the short utility corridors to tie into existing main lines. Most new water, sewer and electrical lines to the buildings would be installed in previously disturbed areas such as existing utility corridors.

For construction of components, as much as possible, revegetation efforts would take place concurrently with construction activities. Park personnel would make an effort to salvage viable groundcover mats and reduce storage time by expeditiously transplanting them to suitable, disturbed sites such as utility corridors. Wherever possible, in the heavily vegetated areas that must be cleared, mats of ground cover and shrubs would be salvaged and used to revegetate disturbed areas. When possible, larger trees in the area to be cleared but not directly in the footprint of buildings or the leach field, would remain intact with a sufficient root buffer zone.

For all ground-disturbing project components, efforts would be made to avoid introduction of non-native species into the area. Excavation, backfilling, and revegetation would be accomplished with a combination of hand tools and heavy equipment. Cut trees would be used as campground firewood. Stumps and other organic debris would be burned or buried on site.

Wildlife. As much as possible, tasks would be scheduled during periods of low bear use (e.g., spring, August, etc.) to minimize direct interactions with bears. Since bears are more prone to travel through Brooks Camp after facilities shut down on September 21st, one bear management technician may be stationed on site during autumn construction activities. Interactions between bears and people would be minimized by housing some workers in Brooks Camp and by limiting the number of trips made across the river. As much as possible, supplies and equipment would be staged in the vicinity of work areas during periods of low bear use to minimize bear and people interactions. Trees and shrubs in the woodland areas would be cut before May 1st and after July 20th in any given year to avoid disturbance to nesting birds.

2.4 Environmentally Preferred Alternative

The no-action alternative is the environmentally preferred alternative, because it would cause less damage to the biological and physical environment, whereas, the NPS preferred alternative would result in minor, negative environmental impacts to soils, vegetation and wildlife. The no-action alternative would result in no new negative impacts to soils, vegetation, wildlife and cultural resources. However, the no-action alternative would result in major, negative impacts to visitor use due to inadequate utilities, poor campground facilities and inadequate sanitation facilities. (See Table 2.6 and the “Environmental Consequences” chapter for more information about these impacts).

2.5 Description of Alternatives and Actions Considered But Eliminated from Detailed Study

Two alternatives were considered but dismissed from further analysis based primarily on factors relating to whether the alternatives are feasible or reasonable.

1. Remove Existing Leach Field and Install Two New Alternating Fields in Same Footprint

The alternative to dig up the existing leach field and install two new fields in the same site was dismissed for many reasons. Two positive aspects accompanied this alternative; avoidance of additional cultural resource impacts due to new ground disturbance and closer site access for maintenance personnel. However, it was ruled out as not feasible since NPS engineers determined that two alternating fields could not physically fit inside the existing footprint.

In addition, the original, old soils would be unreliable to sustain normal operations. Typically when a site fails, new soils are hauled in to replace the old ones, since the old soils are saturated with old effluent and not nearly as effective. ADEC engineers state that a new field on a previously used site is not as effective unless the site is excavated down to clean material. Even when this is done, fields on existing sites do not have the same life span as the previous field on the same site. One reason for the reduced lifespan is that removing all of the material and reconstruction efforts involves multiple passes with heavy equipment, which tends to further compact the subsurface soils. This is detrimental to the performance of a leach field. Also, the underlying soils at an existing site already have an extended history of use. This area has been in use as a leach field, sustaining three new field installations, for over 33 years. After the sludge laden soil is removed, the soil column beneath the field has already experienced decades of effluent percolating through it, reducing the capacity of the soils beneath. These soils cannot be expected to behave in a similar manner to virgin soils in the treatment of effluent.

Public health ramifications would be significant issues in digging up a 33-year old leach field, hauling the tons of contaminated, sludge laden soils, piping, infiltrators and equipment offsite and properly disposing of it in an area with heavy brown bear activity. This waste would need to be transported down the Naknek Lake beach, across the Brooks River and deposited in an old gravel pit along the Valley of Ten Thousand Smokes. However, waste disposal sites in Parks are prohibited under 36 CFR Part 6. If a waiver could not be obtained, an alternate disposal location would be the King Salmon landfill, with transport via NPS barge and truck. For either location, disposal could become a major waste management problem and bear attractant.

Although the expensive transfer and disposal operation would incur a high environmental risk from potential spills to pristine waters, it could be done with fewer public health effects during minimal river/lake water levels in the spring of 2007. But waiting until then may be too late to resolve urgent leach field viability issues for 2006. The park could suffer a substantial loss in visitation if the work were not completed prior to the arrival of 2007 Brooks Camp summer guests. The result could be a breach of the Katmailand contract from the park's inability to provide adequate wastewater services.

In addition, NPS maintenance workers could not perform this hazardous work alone. The NPS Public Health Consultant advised that the 2006/2007 freeze-thaw cycle would reduce, but not entirely remove pathogens, since some are more resistant than others. The work would have to be done by a private contractor with specialized safety and transport equipment. However, no extra housing exists for contractors at this time. NPS housing is completely full during spring and summer months with essential Brooks Camp and Lake Brooks employees.

2. Remove Existing Leach Field and Install One New Field in Same Footprint

The alternative to dig up the existing leach field and install a replacement field in the same site was also dismissed. As in the previous alternative, two positive aspects accompanied this alternative; avoidance of additional cultural resource impacts due to new ground disturbance and closer site access for maintenance personnel. However, it was also ruled out as not feasible. In addition to the reasons described above involving saturated, ineffective subsoils; reduced leach field life span; significant public health and worker safety issues; lack of contractor housing; risk of breach of the Katmailand contract; potential spills during transfer and disposal operations and loss of visitation, this alternative would not satisfy the ADEC requirement at 18 AAC 72 for alternating leach fields. At an initial, estimated cost of over \$214,000, it would be prohibitively expensive to construct an unreliable leach field. Per NPS and ADEC engineers, it would have a greatly reduced, projected lifespan of up to only six years.

2.6 Summary and Comparison of Alternatives

Table 2.1 presents a summary and comparison of the potential effects of the no-action alternative and the reasonable alternatives.

Table 2.1 Summary and Comparison of Alternatives

Impact Topics	Alternative A: No-Action (Environmentally Preferred Alternative)	Alternatives B (1), (2), (3): Implement Six Components with New Leach Field Construction (NPS Preferred Alternative)	Alternative B (4): Implement Six Components with No New Leach Field Construction
Visual Quality	<p>Short-term – negative, minor impact due to poor appearance of housing, privies, campground.</p> <p>Long-term – negative, minor impact as appearance of facilities continues to deteriorate.</p>	<p>Short-Term – negative, minor impact from construction activities, including clearing trees.</p> <p>Long-term – positive impact with improved facility appearance and removal of deteriorating structures, but negative, minor overall impact with clearing of trees for duplexes and alternate leach field.</p>	<p>Short-term – negative, minor impact from construction activities, including clearing of trees.</p> <p>Long-term – similar as Alternatives B (1-3), but less negative impact since no trees would be cleared to develop a new leach field site.</p>
Water Resources and Fish	<p>Short-term – minor negative impact, as pit privies could be flooded and contaminate surface waters.</p> <p>Long-term – negligible due to large dilution factor of lakes.</p>	<p>Short-term – minor, positive impact, as vault toilets would reduce spill potential.</p> <p>Long-term - same as short-term.</p>	<p>Short-term – same as B (1-3).</p> <p>Long-term - same as short-term.</p>
Soils and Vegetation	<p>Short-term – no impact.</p> <p>Long-term – no impact.</p>	<p>Short-term – negative, minor impact due to construction activities.</p> <p>Long-term – negative, minor impact with revegetation and erosion control of developed sites.</p> <p>Up to the following amounts of disturbed land, some previously disturbed, would be impacted.</p> <p>B (1) – 26,300 square feet or 0.60 acres</p> <p>B (2) – 29,900 square feet or</p>	<p>Short-term – similar to B (1-3) but slightly less negative due to no additional ground disturbance for new leach field.</p> <p>Long-term – negative, minor impact with revegetation and erosion control of developed sites. But slightly more positive than B (1-3) due to no new leach field development.</p> <p>Up to 13,500 square feet, or 0.31 acres of disturbed land, some previously disturbed, would be impacted.</p>

		0.69 acres B (3) – 32,300 square feet or 0.74 acres	
Wildlife	Short-term – no impact.	Short-term – negative, minor impact as bears, small mammals and passerine birds could be temporarily displaced due to noise and facility construction.	Short-term –similar to B (1-3) but to a slightly lesser degree.
	Long-term – no impact.	Long-term – negative, minor impact, as bears would have less available habitat.	Long-term – similar to B (1-3) but to a slightly lesser degree.
Cultural Resources	Short-term and Long-term – no impact.	<p>Short-term and Long-term – no impact to negative, negligible for components 1-5.</p> <p>For the leach field component 6, impacts depend on testing and potential sensitivity of specific sites and could be a range as follows:</p> <p>B (1) – no impact ranging to major, negative impacts. Area is within sensitive area delineated as having high potential for resource impact.</p> <p>B (2) – no impact ranging to minor, negative impacts, since area is close, but outside of sensitive area delineated as having high potential for resource impact.</p> <p>B (3) – no impact ranging to negligible impact, since area is outside of delineated sensitive area.</p>	<p>Short-term and Long-term– same as B (1-3) for components 1-5.</p> <p>For the leach field component 6; no impact.</p>
Visitor Use	Short-term – minor, negative impacts due to deteriorating campground facilities.	Short-term – negative, negligible impact during construction since park visitors could see and hear construction activities that may degrade the visitor experience.	Short-term –same as B (1-3)
	Long-term – negative, major impact to quality and extent of visitor services due to lack of	Long-term – positive, moderate impact from improved visitor services; utilities, campground facilities,	Long-term – positive, minor impact from improved visitor services; utilities, campground facilities, and retention of park

	adequate utilities; poor campground facilities; inadequate sanitation facilities and park inability to recruit personnel to assist visitors.	sanitation and retention of park staff. Risk eliminated that Camp would incur closure due to leach field failure.	staff. However, overall negative, moderate impact due to lack of a new, alternating leach field, risk of failure of existing leach field with imminent Camp closure.
--	--	--	---

3.0 AFFECTED ENVIRONMENT

3.1 Project Area

The DCP contains descriptions of the Brooks Camp affected environment. Additional highlights are presented here, relevant to the proposed project.

Elevations at Brooks Camp range from 42 to 62 feet above mean sea level. The natural topography in the camp area slopes gently to the east-southeast, from Dumpling Mountain toward Naknek Lake. The site is covered by a mixed forest of white spruce and birch and under story vegetation of alder, grasses and forbs. The groundwater flow is generally to the southeast at the site and the drinking water aquifer is not hydraulically connected with shallower aquifers.

Brooks Camp has no road system on the north side of the river, however the trails accommodate a variety of small motorized vehicles. Secondary trails within the camp and between facilities such as the leach field and NPS housing are approximately eight to ten feet in width and are compacted native soils. NPS Brooks Camp employee housing, including wall tents and cabins, is located along a main gravel trail parallel with the lake border and west of the campground. The campground is managed by the NPS and is located at the far northern end of the development. The campground has a strong connection to Naknek Lake, through pathways and view corridors. Those same corridors also transmit considerable float plane noise to the campsites.

Most of the existing structures in Brooks Camp are constructed with a modular log style building system, relying on milled cedar timbers for walls on an elevated wood-framed platform floor. These systems are well-suited to remote locations due to easy construction, prepackaged for shipment, durability, low maintenance and rustic appearance, similar to log cabins. Modular log style buildings have provided consistency with repeated use of recognizable and uniformly-colored material.

The DCP/EIS indicates that future plans include two landings to serve visitor arrivals. In addition to the Naknek Lake float plane and boat landing, a secondary landing site at Lake Brooks would still remain much the same with a shuttle to the lodge.

3.2 Resource Impact Topics

Visual Quality. Brooks Camp is located just north of the mouth of Brooks River on the shore of Naknek Lake. Spectacular views of mountains, hills and lakes are available for those looking in an easterly or southeasterly direction. Once inland from the beach, panoramic visibility is limited due to vegetative growth. Views out of the campground are towards Naknek Lake and up to Dumpling Mountain.

Currently none of the campground structures are of the modular log style architecture, are generally older or made with T1-11 plywood. Past evaluations have recommended that these campground structures be demolished (Cash, 1999a). Most Brooks Camp buildings are modular log style buildings, lending a consistency to Camp architecture. Visitors tend to associate log buildings with “cabins” or the back country, and modular log style buildings integrate well with the context of Brooks Camp and wooded surroundings. The natural color of the untreated cedar planking achieves a deep brown over time. As described in Chapter 1, campground structures, existing wall tents and pit privies are in poor condition and are incongruent with the modular log style buildings in Brooks Camp.

Water Resources and Fish. The closest surface waters are Brooks River, Naknek Lake and Lake Brooks. The water quality of Lake Brooks and the main body of Naknek Lake is good and clear with clean, gravelly sediments. During an ordinary summer, Naknek Lake does not stratify chemically and thermal stratification, if any, is weak. Strong coastal winds generally keep the lake well mixed. Rainwater and snowmelt surface runoff from the areas above the campground and Lake Brooks pit privies could be expected to reach lake waters. Both lakes are heavily used by floatplanes and boats during the summer months. A limited amount of diesel and gasoline fuels are introduced into Naknek and Lake Brooks by leakage from the engines of small boats and aircraft anchored or beached adjacent to Brooks Camp. Naknek Lake, Brooks River and Lake Brooks are recognized by the State as waters important for anadromous fish. Large runs of red salmon return to the river in July to spawn, and a smaller run of coho salmon spawn in late summer. Brooks Camp lies within the coastal management zone defined by the Lake and Peninsula Borough (L&PB) as an area at or below the 200 foot contour level.

Soils and Vegetation. Much of the project area is characterized by a closed or open canopy stand of white spruce and Kenai birch with an under story of various species of willow and alder. Project components would occur in upland habitat, within white spruce, birch and cottonwood woodlands. Most alien plant species found at Brooks Camp may have become established as a result of inadvertent importation by visitors’ footwear and NPS soil disturbing projects. Introduced species found in the area include shepherd’s purse, pineapple weed, clover and dandelion. The ground adjacent to the existing buildings has already been disturbed by past activities, but large trees have been left standing near buildings.

Each spring, the park removes hazardous, downed trees from camp trails. However, many rotten, standing cottonwood trees remain throughout the campground. Similarly, spruce bark beetles have killed dozens of large spruce trees in the main camp area, many of these located in between employee housing units.

Brooks Camp rests on unconsolidated sand and gravel of glacial and volcanic origin (Cash, 1999a). Most of the Brooks Camp area was covered with fine, tan-colored ash following the 1912 eruption of the Novarupta and Katmai calderas, approximately 26 miles southeast of the site. Ash up to about 12 inches thick forms a surficial layer of soil below the organic mat across the site. North of Brooks River, the organic mat is generally 0-0.5 feet thick with a foot of Katmai Ash immediately below. At depths of 3-4 feet, soils are 90% sand and 10% silt. At 6-7 feet the sediments are again 80-90% sand and 20-10% silt. South of the Brooks River, the surface organic mat is up to one foot thick. The underlying Katmai Ash layer forms the next foot of sediment. At depths of around 6-7 feet, the sediments are usually 80% sand and 20% gravel, with some silt and peat.

Wildlife. The Brooks River area is noted for its outstanding wildlife resources. The salmon runs annually attract more than 65 brown bears. The bears remain on the Brooks River typically through the later part of July when they disperse to other streams with later-timed runs. Bears return to Brooks River again in September to catch spawning and spawned out salmon concentrated in the river. Brown bear frequent the

project component areas. Other wildlife species that utilize the Brooks River area include moose, river otter, mink, short-tailed weasel, porcupine, beaver, wolf and wolverine. Bird species known to frequent the area include bald eagle, common merganser, Arctic tern and a variety of passerine birds. Red squirrels, voles, shrews, foxes, lynx and snowshoe hares inhabit the surrounding forest.

Cultural Resources. Brooks Camp is located within the Brooks River Archeological District National Historical Landmark (Figure 9), established because of the quantity and quality of prehistoric remains. Brooks Camp proper, occupying the point of a terrace which overlooks both lake and river, is situated on a prehistorically heavily occupied section of the landmark. Here the land is comprised of a series of temporarily sequential beach ridges and river terraces which intersect at the mouth of the river. It is primarily on these ridges and terraces that prehistoric dwellings were constructed, with activities taking place all around. Occupation of the beach ridges along the Naknek Lake began as early as 4,500 years ago and has been found to extend from near the mouth of Brooks River to the campground.

The ethnographic importance of the Brooks River corridor has not been afforded the same level of recognition as the archeological values. The ethnographic resources overlap many of the archeological deposits, but the heart of the ethnographic resources is located near the Brooks River mouth and immediate shoreline on the north side of the river and the shoreline south of the river mouth to a point beyond which the “Beaver Pond” comes closest to Naknek Lake. The ethnographic resources associated with Brooks Camp are rich, varied and include the traditional harvest of redfish or the taking of spawned out red salmon in the Naknek drainage by those Alaska Natives traditionally associated with the area. Other ethnographic resources are largely undocumented and poorly understood. The Brooks River corridor contains numerous burials that are of extreme ethnographic importance to contemporary peoples traditionally associated with this site. The preliminary information that has been recorded suggests that Ketivik, or Brooks Camp, is a potential candidate for the National Register of Historic Places as a Traditional Cultural Property.

Visitor Use. Brooks Camp is the most heavily visited site in KATM. The park is developing and implementing a visitor use survey for Brooks Camp, with data collection starting in summer of 2006. Brooks Camp annually receives approximately 10,000 visitors (NPS, 2006c). Summer visitor use and activities are described in the DCP.

The 2006 Katmailand contract guides the management of the sole Brooks Camp concessions operation, in accordance with NPS concessions management standards. Visitors rely heavily on the services made available and regulated through this contract. This contract is scheduled for a 10-year renewal in 2007.

4.0 ENVIRONMENTAL CONSEQUENCES

4.1 Introduction

This chapter provides an evaluation of the potential effects or impacts of each of the alternatives on the resources described in the issue statements presented in Chapter 1, “Purpose and Need for Action”.

4.2 Cumulative Impact Analysis Assumptions

Cumulative impacts are defined as the incremental impacts to the environment resulting from adding the proposed action to other past, present, and reasonably foreseeable future actions (also referred to as regional actions), regardless of what agency (federal or non-federal) or person undertakes those actions. Cumulative impacts may result from singularly minor but collectively significant actions taking place over a period of time (CEQ Sec 1508.7).

Cumulative impacts are analyzed in Chapter 4 by considering the past, present, and reasonable foreseeable future actions taken by the NPS, other agencies, private organizations and individuals in the Brooks Camp area. These include the following:

- Past construction, conversion and expansion of numerous NPS and private structures, including offices, storage facilities, maintenance facilities, a visitor center, commercial lodge, employee and concessions residences, a campground, utilities, roads and trails.
- Past, present and future operation of the above facilities and infrastructures.
- Future possible actions such as (1) construction of NPS facilities (e.g., replacing the existing Lake Brooks maintenance facility), (2) moving the bulk fuel storage facility away from the shore of Lake Brooks and (3) implementing the Brooks Camp move as specified in Alternative 5 of the 1996 DCP/ROD.

The NPS has requested funding to replace the existing unsafe maintenance facilities at Lake Brooks to ensure that visitor facilities can be adequately maintained and to protect employee health and safety. Replacement of these facilities would include clearing, hardening and fencing a new maintenance yard and access driveway; constructing a new shop and all associated utilities; constructing a new storage shed and removing existing facilities. The current facilities are inadequate, unsafe and sited in a location adjacent to sensitive cultural resources, major bear traffic corridors, and in full view of the visiting public. Utility codes need to be corrected and personnel need to be able to work on vehicles and equipment in accordance with OSHA standards. The NPS would propose a project to allow park facilities and equipment to be adequately serviced and maintained, thereby allowing employees to safely perform their duties and visitors to safely travel park roads and use park facilities. The proposed project would undergo a future, NEPA public review.

The NPS has requested funding to move the bulk fuel storage facility at Lake Brooks to a safer location away from surface waters and cultural resources. Included in the Lake Brooks facilities complex is a bulk fuel storage plant consisting of 5,000 gallons of diesel storage and 4,000 gallons of gasoline storage. These tanks are located within 20 feet of the north shore of Lake Brooks, a pristine fresh water lake that is important in the migration of anadromous salmon in the region. Near the bulk fuel storage facility are two dispensing facilities, including pumps and containment pads, and two diesel-powered generators, which are the sole source of electrical power for the Lake Brooks operation.

The current tank location has elicited a 2002 letter of concern from the ADEC and has been referenced by environmental audits conducted by the NPS. The NPS would conduct a NEPA assessment to explore a project to relocate this facility complex to a safe and secure area, removed from surface water, active roadways and archeological resources. Relocation of the facility would greatly reduce the potential of accidental discharges of fuel into sensitive areas such as salmon habitat and archeological resources and employee residential areas.

At this time, it is not known when the move described in Alternative 5 of the DCP/ROD would be funded and implemented. However, in the absence of full implementation of the Proposed Alternative, the NPS would continue to resolve issues related to inadequate support facilities by following the strategy described in Section 1.4.

4.3 Alternative A: No-Action (Environmentally Preferred Alternative)

Visual Quality. With this alternative, the appearance of the existing, deteriorating, wall tents, privies, campground structures and hazard trees would present minor, negative, short-term impacts to the Camp visual quality. This effect would be reduced to a small degree, since no trees would be cleared and no additional soil would be disturbed for a new leach field and duplexes. However, over the long-term, visual quality would sustain a minor, negative impact as the facilities continued to deteriorate and eventually burned or collapsed.

Cumulative Impacts. Existing facilities at Brooks Camp have modified the visual landscape from one of a completely natural setting to one where the sights and sounds of man are noticeable and acceptable. The past and future rehabilitation and replacement of facilities and the future construction of Beaver Pond facilities would continue the trend toward development, causing minor, negative changes to visual quality, since additional man-made facilities and infrastructure would be present in the park. This alternative would add a small amount to these adverse effects.

Conclusion. The no-action alternative would continue a minor, negative impact to park visual quality. However, the level of impacts on visual quality anticipated from this alternative would not result in impairment of park resources that fulfill specific purposes identified in the parks enabling legislation or that are key to the natural and cultural integrity of the park and preserve.

Water Resources and Fish. Negative, minor short-term impacts could occur under this alternative, as pit privies could overflow or be flooded during sheet flow events and contaminate surface waters or threaten fish habitat in Naknek Lake or Lake Brooks. However, due to the immense water volume of the lakes and the large dilution factor, negative effects would be negligible over the long-term.

Cumulative Impacts. Construction and operation activities from past, present and future area projects would be expected to generate minor, negative effects on water resources in the short term. Erosion control measures and revegetation of construction sites would lessen these impacts to a negligible level over the long-term. This alternative would contribute a minor portion to these impacts.

Conclusion. In the event of pit privy flooding events, this alternative could adversely impact water resources of the project area to a minor level in the short-term, moderating to a negligible level over the long-term. The level of impacts on water resources and fish anticipated from this alternative would not result in impairment of park resources that fulfill specific purposes identified in the parks enabling legislation or that are key to the natural and cultural integrity of the park and preserve.

Soils and Vegetation. Under this alternative, no new impacts to soils or vegetation would occur, since no new excavation or ground disturbance is proposed.

Cumulative Impacts. Construction and related ground disturbance activities from past, present and future NPS projects would be expected to result in minor, negative short-term impacts to soils and vegetation in the Brooks Camp area. To mitigate impacts, the NPS would pursue best management practices and revegetation to conserve soils and prevent erosion, resulting in a long-term, minor negative impact. The no-action alternative would not change these cumulative effects.

Conclusion. Under this alternative, no new impacts to soils and vegetation would occur. The level of impacts on soils and vegetation anticipated from this alternative would not result in impairment of park resources that fulfill specific purposes identified in the parks enabling legislation or that are key to the natural and cultural integrity of the park and preserve.

Wildlife. No impacts to wildlife would occur because no new construction would occur.

Cumulative Impacts. Construction and operations activities from past, present and future projects such as the Lake Brooks maintenance facility and Brooks Camp move would create minor, negative, short-term and long-term impacts to wildlife due to disturbance and habitat loss in the area. The no-action alternative would not change these cumulative effects.

Conclusion. No impacts to wildlife would occur in the Brooks Camp area under this alternative. The level of impacts on wildlife anticipated from this alternative would not result in impairment of park resources that fulfill specific purposes identified in the parks enabling legislation or that are key to the natural and cultural integrity of the park and preserve.

Cultural Resources. Cultural resources in the Brooks Camp area would be unaffected with this alternative, since no new ground disturbance would occur.

Cumulative Impacts. No impacts would be expected from future actions to the Brooks Camp area, as any projects would be regulated under state and federal requirements for cultural resource protection. Any impacts to cultural resources in unsurveyed areas would need to be evaluated on a site and project-specific basis by cultural resource professionals.

Conclusion. No unmitigated impacts would occur in the Brooks Camp area under this alternative. The level of impacts on cultural resources anticipated from this alternative would not result in impairment of park resources that fulfill specific purposes identified in the parks enabling legislation or that are key to the natural and cultural integrity of the park and preserve.

Visitor Use. In the short-term, visitor use in the area would sustain a minor, negative impact due to deteriorating campground facilities and inadequate sanitation. This would progress to a major level of impact due to the lack of adequate utilities, poor campground facilities and inadequate sanitation facilities. An important, vital and expected visitor service, the ability to tent camp in primitive style at Brooks Camp, would be eliminated if the campground were closed, whether due to hazardous tree fall, unsafe structures or sewage contamination. The park would not correct critical Camp utility problems such as electrical code violations. Consequently, the risk from fire resulting in loss of property, life or limb would continue. In the event of leach field failure during the height of summer visitation, the park would have to mitigate raw sewage spills on the ground, posing risk to human health. In addition, a leach field failure could result in the closure of Brooks Camp operations, for a short or long duration, possibly leading to a breach of the Katmailand contract and further visitor dissatisfaction. The long-term result of this alternative would be a diminished quality and extent of visitor services the park could offer.

Cumulative Impacts. Past, present and future NPS projects would create minor, short-term disturbances for visitors during construction. In the long-term, with the construction of new concessions facilities at the Beaver Pond terrace, visitor satisfaction would be expected to improve to a minor, positive degree, as visitors were afforded safer facilities and easier access to bear-viewing areas south of the river. The no-action alternative would contribute a slight negative effect to these cumulative impacts.

Conclusion. The no-action alternative would result in minor, negative impacts in the short term. In the long term, however, major, negative impacts would be expected to the quality and extent of visitor services until new facilities could be built south of the river. The level of impacts on visitor use anticipated from this alternative would not result in impairment of park resources that fulfill specific purposes identified in the parks enabling legislation or that are key to the natural and cultural integrity of the park and preserve.

4.4 Alternative B: Rehabilitation and Replacement of Critical Facilities (NPS Preferred Alternative)

Visual Quality. During construction activities, including clearing trees, the Brooks Camp area would exhibit short-term, minor, negative impacts to visual quality. The presence of additional on-site structures would continue to modify the natural landscape of the area to one with a more developed appearance. This impact would be partly offset by the removal of the wall tents, privies and campground structures. Modular log style buildings would blend with the surroundings and existing cabins, creating a consistent, rustic appearance. Approximately 0.60, 0.69 and 0.74 acres, respectively, for Alternatives B(1-3) and 0.31 acre for Alternative B(4), would be affected by project development and ground disturbance activities. The duplex and alternate leach field sites, cleared of trees, would detract from the visual quality of the area. Alternative B(4) would have a slightly less negative impact on visual quality than B(1-3) since no ground disturbance would be done for a reserve leach field. The implementation of construction best management practices, mitigation measures and natural revegetation would gradually be expected to slightly improve the landscape of the disturbed area over the course of approximately four years, resulting in a long-term, negative, minor impact to visual quality.

Cumulative Impacts. Past and future development would continue the minor, negative effect to visual quality. Future NPS construction activities for a Lake Brooks maintenance shop and the Camp move would cause minor, negative impacts to the visual quality of the general area. To help mitigate these effects, future projects would be expected to include erosion control and revegetation. Alternative B would add a minor, additional effect to these negative cumulative impacts.

Conclusion. This alternative would continue a negative, minor impact to visual quality in the short and long-term. However, the level of impacts on visual quality anticipated from this alternative would not result in impairment of park resources that fulfill specific purposes identified in the parks enabling legislation or that are key to the natural and cultural integrity of the park and preserve.

Water Resources and Fish. Positive, minor, short-term impacts would occur under this alternative, with removal of the pit privy flooding hazard. The risk of sewage contamination of surface waters or fish habitat would be reduced. Similarly, positive, minor impacts would continue in the long-term with removal of these potential contamination sources. Other project components would be expected to have no impact on water resources or fish, both in the short-term and long-term.

Cumulative Impacts. Construction activities from future BCDA projects would be expected to cause a negative, negligible to minor, short-term impact on area water resources, depending on project locations and the use of erosion control practices. However, in the long-term, overall, positive, minor impacts would accrue as fuel spill potentials were reduced, with elimination of bulk fuel tank storage at the Lake Brooks entrance point and reduced vehicle traffic over the lower Brooks River. This alternative would add a slight, additional positive effect.

Conclusion. In the short-term and long-term, positive, minor impacts would occur under this alternative, with removal of the pit privy flooding hazard. The level of impacts on water resources and fish anticipated from this alternative would not result in impairment of park resources that fulfill specific purposes identified in the parks enabling legislation or that are key to the natural and cultural integrity of the park and preserve.

Soils and Vegetation. This alternative would be expected to result in short-term, minor negative impacts to soils and vegetation in the project area, with less impact for Alternative B(4). Soils and vegetation would be disturbed during excavation for new buildings, additions, utility lines and the leach fields. For

components 1-5, a total ground disturbance of up to approximately 13,500 square feet, or 0.31 acres for B(1-4) would be expected. This consists of cabin additions (4,860 square feet), construction of new duplexes with associated utility corridors (8,100 square feet) and two vault toilets (500 square feet). Under Alternatives B(1), B(2), or B(3), respectively, rehabilitation of the existing leach field and construction of a new leach field with connecting sewer line would disturb approximately 12,800, 16,400 or 18,800 square feet. Thus, the total ground disturbance for components 1-6, including Alternatives B(1-4), respectively, would be 26,300, 29,900, 32,300 and 13,500 square feet, or 0.60, 0.69, 0.74 and 0.31 acre. Approximately 10 cubic yards of gravel from the Moraine Pit would be used for the campground, housing and vault toilet project components.

Some of the disturbance for construction of the cabin additions, duplexes and utility lines would occur in soil that has previously been disturbed, although the amount cannot be determined accurately due to the long occupation history of the developed site. No new utility line excavation would be required for the cabin additions, as they already have utility connections in place. As much as possible, duplex utility lines would be installed in previously disturbed ground and existing utility corridors to reduce the new footprint. Up to 150 linear feet of soil, to a depth of up to two feet, would be disturbed by the installation of electric, water and sewer service to the duplex complex. With a maximum excavation width of approximately four feet for water and sewer, and two feet for electric lines, the total area of disturbance for utilities would be up to 500 square feet or 1,500 cubic feet. The leach field and sewer line would require excavation and backfill of a maximum of 88,000 cubic feet of soil, with Alternative B(3).

Ground disturbance would be limited to a maximum buffer of 20 feet around the new duplexes, cabin additions and leach field and 15 feet around the vault toilets. Excavation, backfilling, and revegetation would be accomplished with a combination of hand tools and heavy equipment. After clearing, minimal excavation and gravel placement would be required to set the temporary foundations of the cabin additions and new duplexes. Access to the duplexes from the main housing pathway would be provided by placing temporary boardwalks on top of the ground. Excavated leach field soil would be stockpiled within the cleared area, covered to reduce erosion and soon backfilled into the leach field pit.

Up to 100 trees would be cleared from the leach field site, with up to 50 more for the sewer line, depending on the route. Approximately 120 trees would be cleared from the new duplex site. A few more trees would be cut for the Lake Brooks vault toilet site, along the road edge. These sites would be allowed to naturally revegetate with trees, shrubs and grasses. In the long-term, this project would be expected to create a negative, minor impact with revegetation and erosion control of the developed sites.

Cumulative Impacts. Construction and related ground disturbance activities from past, present and future NPS projects would be expected to result in minor, negative, short-term impacts to soils and vegetation in the Brooks Camp area. This impact would be reduced by the use of best management practices and revegetation. However, over the long-term, soils and vegetation would be negatively impacted to a minor degree, as more of the land area is disturbed and developed. This alternative would add a slight amount to these impacts.

Conclusion. Construction and ground disturbing activities from this alternative would have a minor, negative, short and long-term impact to soils and vegetation in the area. Between approximately 0.31 to 0.74 acres would be affected, with some of the area previously disturbed. The level of impacts on soils and vegetation anticipated from this alternative would not result in impairment of park resources that fulfill specific purposes identified in the parks enabling legislation or that are key to the natural and cultural integrity of the park and preserve.

Wildlife. Outdoor construction activity associated with the proposed project would mainly occur during the months of August-October and April-June. As much as possible, brush and trees in the undisturbed area of the proposed project would be cut after July 20th and before May 1st to avoid impacts to nesting birds. Similarly, as much as possible, project components would be scheduled to avoid impacts to bears. Mitigation measures would be implemented (see section 2.3.2) to minimize bear-human interactions. Bears, small mammals and other wildlife could be temporarily displaced due to noise and activities associated with facility construction, causing a short term adverse effect. A small amount of bear habitat in the Camp area would be lost due to construction of the duplexes and the alternate leach field. However, it is expected that any displaced wildlife would have no difficulty becoming established elsewhere on adjacent land. With the removal of bear attractants, bears would not risk injury or death by entering wall tents or investigating graywater sumps. For these reasons, as well as the limited scope and area of the project, long-term, adverse impacts to wildlife impacts would be minor.

Cumulative Impacts. Construction activities for past, present and future BCDA projects would create negative, minor impacts to wildlife due to disturbance and habitat loss. This project area represents a very small percentage of the available wildlife habitat in the region. This alternative would add a minor, additional negative effect to cumulative impacts.

Conclusion. Minor, negative, short-term and long-term impacts to wildlife would be expected with this alternative from habitat loss and displacement of wildlife. However, the level of impacts on wildlife anticipated from this alternative would not result in impairment of park resources that fulfill specific purposes identified in the parks enabling legislation or that are key to the natural and cultural integrity of the park and preserve.

Cultural Resources. For components 1-5, no to negligible, negative impacts to cultural resources would be expected. For the leach field component, archeological testing and consultation would be done to choose a location that best avoids or mitigates adverse effects to cultural resources. The NPS would consider the potential for archeological impacts during the decision-making process.

The existing leach field, located between the NPS incinerator and the lodge employee housing area, is within an archeological site known as XMK-043. No archeological investigation was conducted when the original leach field was constructed; however an archeologist who was investigating reopened trenches at the leach field in 1996 noted cultural features near the southern edge of the field and along the trail leading to the Brooks Camp cultural exhibit. Alternative site B(1) would be closer to the Brooks River where it is more likely that construction would destroy archeological resources (Figure 7). GIS data shows that the proposed leach field would straddle a north-south running rise resembling a beach ridge. At least one depression, probably a house, sits on this ridge.

At this time, KATM cultural resources staff advise against constructing a new leach field at B(1) on the south edge of the current leach field. Excavation at this site could result in no impacts to major, negative impacts. Likewise, B(2) is within an area of high potential for cultural resources. Excavation at this site could result in no to minor, negative impacts. Site B(3), recommended by the KATM cultural resources staff, is furthest away from the Brooks River and any potential for negative cultural resources impacts. Excavation at B(3) could result in no to negligible impacts. Archeologists would extensively test any site selected for the new leach field. If archeological resources are located they would be carefully evaluated, recorded and then preserved by selecting another leach field site. This investigation process would continue until a leach field site was found that did not impact archeological resources.

At Lake Brooks, archeological site XMK-008 is a multiple occupation site that includes house ruins and buried archeological deposits aligned along beach ridges. In 2005, archeologists conducted several test

excavations within the proposed Lake Brooks vault toilet footprint at a location adjacent to the access road and gravel entrance area appearing less likely to disturb archeological resources. Investigations within the project component footprint recovered sparse stone artifacts within layers of volcanic ash and sand. The Alaska State Historic Preservation Officer concurred with the NPS determination that the project's effects to eligible archeological resources were not adverse. The NPS consulted with interested parties to determine if there are objections to constructing the facility at this location. Their comments will be addressed by this EA public review process.

Cumulative Impacts. For future projects, construction activities on unsurveyed sites would be regulated by state and federal requirements for cultural resource protection. Any impacts to unsurveyed areas would need to be evaluated on a site and project-specific basis. This alternative would be expected to contribute no to negligible impacts to cultural resources.

Conclusion. For components 1-5, no to negative, negligible impacts would be expected. For the alternate leach field, the NPS would perform archeological testing and consultation to choose the best location that would avoid or mitigate adverse effects to cultural resources. Table 2.1 shows projected impacts for Alternatives B(1-4). The level of impacts on cultural resources anticipated from this alternative would not result in impairment of park resources that fulfill specific purposes identified in the park's enabling legislation or that are key to the natural and cultural integrity of the park and preserve.

Visitor Use. For Alternatives B(1-4), visitors to the park administrative site could possibly hear, or if taking an indirect route to the visitor facilities, see, construction and excavation activities, possibly resulting in a negligible, negative impact to the visitor experience. Moderate, long-term benefits would be expected, however, with Alternatives B(1-3) since the project would provide substantially improved visitor services in the form of safe and reliable utilities, campground facilities and sanitation. In addition, by providing proper housing for seasonal employees whose jobs focus on visitor use, the park would be better able to recruit and retain qualified personnel for these positions. Alternative B(4) would exhibit similar positive, minor impacts for components 1-5. However, over the long-term, these would be overshadowed by a negative, moderate impact due to the lack of a new, alternating leach field and the related risk of leach field failure and Camp closure.

Cumulative Impacts. Construction activities for past, present and future area projects would create minor, short-term disturbances for visitors. However, with construction of new Beaver Pond Terrace facilities, long-term, positive effects to visitors would be expected with improved access and services. Alternative B (1-3) would contribute to a small degree to the positive, cumulative impacts. Alternative B(4) would lessen this effect to a small degree.

Conclusion. This alternative would result in negligible, negative, short-term effects during construction as park visitors would be able to observe and hear construction activities which could degrade the visitor experience. Even so, moderate, long-term benefits would be expected for Alternatives B(1-3) with substantially improved visitor facilities.

5.0 CONSULTATION AND COORDINATION

Persons, Organizations and Agencies Contacted

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

U.S. Fish and Wildlife Service, Ecological Services:

Ellen Lance, Wildlife Biologist, was contacted by telephone on June 2, 2006 for information on the Endangered Species Act and Section 7 consultation.

State of Alaska, Department of Natural Resources, Office of Project Management and Permitting, Alaska Coastal Zone Management Program (ACMP): Christine Ballard, ACMP Project Review Specialist, was contacted by telephone on June 2, 2006 for consultation regarding requirements under the recently revised ACMP.

Lake and Peninsula Borough, ACMP District Coordination:

Coastal Zone District Representative Marvin Smith was contacted by telephone on March 16, 2006 for consultation regarding requirements under the District CMP.

U.S. National Park Service, Denver Service Center, Water Resources Division:

Gary Smillie, Hydrologist, was contacted by telephone on June 2, 2006 for information regarding floodplain concerns in the Brooks Camp area.

6.0 LIST OF PREPARERS AND CONTRIBUTORS

Katmai National Park and Preserve

Helen Lons, Chief of Planning and Compliance
Tom Kay, Brooks Camp Maintenance Supervisor
Mike Fedorko, Maintenance Worker
Jim Gavin, Chief of Maintenance
Kathy Spengler, Brooks Lead Ranger
Tammy Olson, Acting Chief of Natural Resources, Wildlife Biologist
Daniel Noon, NEPA Biologist
Becky Brock, Chief of Concessions
Dale Vinson, Archeologist
Niki Quester, 2006 Campground Host
Lilly Williams, Brooks VIP
Bob Freeland, 2005 Campground Host

Alaska Department of Environmental Conservation

Bill Rieth, Engineer

NPS Alaska Regional Office

Paul Button, Mechanical Engineer
Bill Heubner, Civil Engineer
Tim Hudson, Planning, Design and Maintenance Team Leader
John Leffel, Public Health Consultant
Heather Rice, Environmental Protection Specialist
Bud Rice, Environmental Protection Specialist
Dick Anderson, Environmental Protection Specialist

Joan Darnell, Environmental Resources Team Manager

7.0 REFERENCES

Alaska Department of Commerce, Community and Economic Development. 2006 Alaska Community Database. King Salmon Community Overview. April 14, 2006.

http://www.commerce.state.ak.us/dca/commdb/CF_BLOCK.cfm

Alaska Department of Environmental Conservation. 2002. Wastewater Disposal 18 AAC 72.

Cash Barner Architects. 1999a. Brooks Camp Orientation Site Visit June 28, 1999 – July 1, 1999.

_____. 1999b. Brooks River Area Visitor Facilities Development. Relocate Brooks Camp. Katmai National Park and Preserve. Schematic Design Program.

National Park Service. 1986. General Management Plan. Wilderness Suitability Review. Land Protection Plan. Katmai National Park and Preserve. Alaska.

_____. 1996a. Final Development Concept Plan. Environmental Impact Statement. Brooks River Area. Record of Decision. Katmai National Park and Preserve.

_____. 1996b. Environmental Assessment. Rehabilitate Valley of 10,000 Smokes Road. Draft Sand, Rock, and Gravel Plan.

_____. 1998. National Park Service Housing Management Handbook. Washington Housing Office.

_____. 2000. National Park Service Management Policies 2001.

_____. 2001. Draft Director's Order and Reference Manual 36: Employee Housing.

_____. 2003a. Katmai National Park and Preserve. Final Environmental Audit Findings and Observations Report.

_____. 2003b. Environmental Assessment. Upgrade of King Salmon Seasonal/Transient Housing Facilities.

_____. 2004a. Annual Performance Plan for Katmai National Park and Preserve, Fiscal Year 2005.

_____. 2004b. Director's Order and Reference Manual 83. Public Health.

_____. 2004c. Draft Katmai National Park Water Resources Management Plan. Alaska Region.

_____. 2004d. Environmental Assessment. Naknek Lake Fill Removal. Katmai National Park and Preserve. Alaska.

_____. 2004e. Strategic Plan. Fiscal Years 2005-2008.

_____. 2006a. Bear-Human Conflict Management Plan. Katmai National Park and Preserve.

_____. 2006b. Compendium. Katmai National Park and Preserve. 2005.

_____. 2006c. Servicewide Interpretive Report. Katmai National Park and Preserve. Fiscal Year 2005.
<http://inside.nps.gov/sir/printsir.cfm?org=KATM&fyear=2005>

United States of America. Agreement for the Sale, Purchase and Conveyance of Lands Between the Heirs of Palakia Melgenak and the United States of America. 1998.

United States Forest Service. In-Depth Design and Maintenance Manual for Vault Toilets. USFS Technical Services. USDA.

APPENDICES

- A. Summary Evaluation and Findings, ANILCA Section 810(a)**
- B. ACMP Coastal Zone Negative Determination**
- C. Cost Comparison Between Leach Field Alternatives**

Appendix A

Alaska National Interest Land Conservation Act (ANILCA) Section 810(a) Summary Evaluations and Findings

BACKGROUND

Subsistence uses, as defined by the Alaska National Interest Land Conservation Act (ANILCA), section 803, means "the customary and traditional uses by rural Alaska residents of wild, renewable resources for direct personal or family consumption as food, shelter, fuel, clothing, tools, or transportation; for the making and selling of handicraft articles out of non-edible byproducts of fish and wildlife resources taken for personal or family consumption; for barter, or sharing for personal or family consumption; and for customary trade." Subsistence activities include hunting, fishing, trapping, and collection of berries, edible plants, and wood or other materials.

I. INTRODUCTION

This section was prepared to comply with Title VIII, Section 810 of the ANILCA. It summarizes the evaluation of potential restrictions to subsistence uses that could result from the proposed action by the National Park Service (NPS) to rehabilitate and replace selected critical facilities at the Brooks Camp Developed Area in Katmai National Park. Since the ANILCA made no provisions to allow subsistence activities in Katmai National Park, this analysis will only address potential impacts of proposed NPS activities in Katmai National Preserve.

II. EVALUATION PROCESS

Section 810(a) 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, and other alternatives which would reduce or eliminate the use, occupancy 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 effected 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; and
- (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...and (C) reasonable steps will be taken to minimize adverse impacts upon subsistence uses and resources resulting from such actions.”

A proclamation by President Woodrow Wilson in 1918 created Katmai National Monument from a reservation of approximately 1,700 square miles. Three major purposes of the monument designation were 1) to preserve an area important to the study of volcanism, 2) to preserve the Valley of Ten Thousand Smokes and 3) to conserve an area potentially popular with persons seeking unique scenery and for those with scientific interest. Increased in 1931 to include Lake Brooks, Grosvenor Lake, Lake Colville and part of Naknek Lake, again in 1942 to include offshore islands within five miles of the monument coastline, and again in 1969 to include the remainder of Naknek Lake, the monument grew to contain 4,361 square miles.

With the passage of the ANILCA in 1980 the designation of 3.7 million acres of the monument was changed to a national park, and an additional 308,000 acres was included as a national preserve. Furthermore, 3.4 million acres of the park and preserve were designated as wilderness. The Katmai Preserve was created by the ANILCA Section 202(2) for the following purposes (among others) “to protect habitats for, and populations of, fish and wildlife including, but not limited to, high concentrations of brown/grizzly bears and their denning areas; to maintain unimpaired the water habitat for significant salmon populations; and to protect scenic, geological, cultural and recreational features.” The taking of fish and wildlife for subsistence uses is allowed by the ANILCA within Katmai National Preserve pursuant to Section 203, however, subsistence activities are not authorized within Katmai National Park.

The potential for significant restriction of subsistence uses must be evaluated for the proposed action’s effect on “...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, occupancy, or disposition of public lands needed for subsistence purposes.” (Section 810, ANILCA).

III. PROPOSED ACTION ON FEDERAL PUBLIC LANDS

The NPS is considering facility upgrades at the Brooks Camp Developed Area of Katmai National Park and Preserve starting in summer of 2006. This site is located approximately 30 air miles east of the park headquarters and gateway visitor center in King Salmon, Alaska. Access to Brooks Camp is primarily from King Salmon by either float plane or boat. Brooks Camp is located at the mouth of the Brooks River, on the shore of Naknek Lake.

The proposed project includes several components related to employee housing, visitor services, sanitation and utilities. The six project components are (1) rehabilitation of seven seasonal employee cabins, (2) removal of four aged, seasonal, wall tent employee housing units and replacement with hard-sided housing units, (3) rehabilitation of the public campground, (4) rehabilitation of the electrical generation and distribution system, (5) replacement of the Lake Brooks pit toilet with a vault toilet, and (6) rehabilitation of the existing leach field and construction of an alternate leach field. Project components and alternatives are described in detail in Chapter 2 of this Environmental Assessment.

IV. AFFECTED ENVIRONMENT

A summary of the affected environment pertinent to subsistence uses at Katmai National Preserve is presented here.

Katmai National Preserve, encompassing 308,000 acres, is located on the northern end of the Alaska Peninsula in Game Management Unit 9 and contains geologic features, scenery, wildlife and cultural resources of national significance. Subsistence activities are not permitted in Katmai National Park in accordance with the ANILCA Title II Section 203; Title VIII Section 816(a); and Title XIII Section 1314(c). However, subsistence uses are allowed within Katmai National Preserve in accordance with the

ANILCA Title II Section 203 and provisions of Title VIII. Other federal public lands in GMU 9C include Bureau of Land Management lands situated along the south-southeast boundary of the Kvichak River drainage and adjacent to the northwest boundary of the Katmai National Preserve.

Subsistence activities in Katmai National Preserve include hunting, trapping, fishing, gathering firewood, picking berries and wild plants, and gathering bird eggs. The area is used for subsistence by residents of Kokhanok, Igiugig, Levelock, Naknek and King Salmon to harvest caribou, brown bear, moose, beaver, snowshoe hare, fox, lynx, mink, wolf, wolverine, ptarmigan, waterfowl, salmon, trout, berries, wild edible plants, and other wood resources.

The rehabilitation and replacement of selected critical facilities proposed at the Brooks Camp Developed Area is located in Katmai National Park (formerly Katmai National Monument) and will not affect subsistence activities in Katmai National Preserve.

The proposed project will affect areas north and south of the Brooks River within a few miles of Naknek Lake and Lake Brooks. The Brooks River area lies completely within Katmai National Park and lands within Katmai National Park are closed to subsistence uses. However, the ANILCA authorized subsistence uses with Katmai National Preserve, and on adjacent federal public lands managed by the BLM and the USFWS. Becharof National Wildlife Refuge shares a common boundary with the park and is the closest land to Brooks Camp where Title VIII subsistence is allowed. The boundary between the park and the refuge is irregular, however the closest refuge land to Brooks Camp is a distance of approximately 16 miles.

Regional subsistence activities that occur outside of the park include hunting, fishing, trapping, berry picking and plant gathering. Caribou, moose, beaver, snowshoe hare, fox, lynx, mink, wolf, wolverine, river otter, beaver, ducks, geese, waterfowl eggs, edible plants and berries, salmon, trout, pike, whitefish, and white spruce constitute the major subsistence resources used by local residents.

The Brooks River provides spawning habitat for primarily sockeye salmon which migrate from Bristol Bay to the Naknek River, to Naknek Lake and to the Brooks River. Most of the salmon harvested in the Naknek River system have been produced within Katmai National Park and many have been produced in the Brooks River/Lake Brooks section of this system.

The following documents contain additional descriptions of the affected environment of Katmai National Park and Preserve: Katmai National Park and Preserve Final General Management Plan, Alaska Regional Office, National Park Service, 1984; Katmai National Park and Preserve, Final Environmental Impact Statement, Wilderness Recommendation, National Park Service, 1988.

V. SUBSISTENCE USES AND NEEDS EVALUATION

To determine the potential impact on subsistence activities by the proposed facility upgrades, three evaluation criteria were analyzed relative to current subsistence resources that could be impacted.

The evaluation criteria are:

1. The potential to reduce important subsistence fish and wildlife populations by (a) reductions in abundance; (b) redistribution of subsistence resources; or (c) loss of habitat.
2. Potential impacts the action may have on access for subsistence hunters and fishermen.

3. The potential for the action to increase competition among hunters and fishermen for subsistence resources.

1. The Potential to Reduce Populations:

There should be no significant reductions in populations of subsistence fish and wildlife resources as a result of the rehabilitation and replacement of selected critical Brooks Camp Developed Area facilities. There is little or no subsistence hunting and trapping activity in the area and the proposed facility upgrades should have no long-term effect on local moose, bear and small game populations. Some spruce and birch trees and other vegetation may be disturbed by activities associated with upgrading the NPS facilities, however this should have no impact on the availability, quality and overall abundance of moose, bear or small game habitat.

The proposed project is not expected to alter subsistence habitats or result in any measurable reduction in or redistribution of wildlife or other subsistence resources in Katmai National Preserve. Provisions of the ANILCA, the Federal Subsistence Board, and NPS regulations provide the tools for adequate protection of fish and wildlife populations within Katmai National Preserve while ensuring a subsistence priority for local rural residents. In addition, the superintendent may enact closures and/or restrictions if necessary to protect subsistence opportunities or to assure the continued viability of a particular fish or wildlife population.

2. Restriction of Access:

The proposed action to upgrade selected Brooks Camp Developed Area facilities is not expected to limit or restrict the access of subsistence users to natural resources within the Katmai National Preserve. The superintendent may enact closures and/or restrictions if necessary to protect subsistence opportunities or to assure the continued viability of a particular fish or wildlife population.

3. Increase in Competition:

The proposed rehabilitation and replacement of selected Brooks Camp Developed Area facilities is not expected to result in increased competition for fish, wildlife or other resources that would significantly impact subsistence users. NPS regulations and provisions of the ANILCA mandate that if and when it is necessary to restrict taking of fish or wildlife, subsistence users will be given a priority over other user groups. Continued implementation of the ANILCA provisions should mitigate any increased competition from resource users other than subsistence users. The superintendent may enact closures and/or restrictions if necessary to protect subsistence opportunities or to assure the continued viability of a particular fish or wildlife population.

VI. AVAILABILITY OF OTHER LANDS

The proposed NPS action is site-specific to the existing, developed Brooks Camp/Lake Brooks site located in Katmai National Park. Since there are no other land inholdings available within the project area, no other lands are suitable for the project. The proposed action is consistent with NPS mandates and the KATM General Management Plan and is not expected to impact subsistence uses. Subsistence users also have access to and utilize other federal, State and private lands within the region for subsistence activities.

VII. ALTERNATIVES CONSIDERED

A “no action alternative” to preserve the status quo and continue to operate and maintain Brooks Camp and Lake Brooks with the existing facilities was considered in this analysis. This alternative was rejected in favor of the proposed action alternative because it did not (1) remove or rehabilitate substandard housing from the park housing inventory and replace it with energy efficient, standard quality housing that requires less maintenance and satisfies regulatory health and safety requirements; (2) improve sanitation conditions for human waste removal at the Brooks Camp campground or the Lake Brooks entrance area; (3) provide safe and sanitary visitor facilities at the Brooks Camp campground, (4) provide for the rehabilitation of a safe electrical generation and distribution system and (5) provide a reliable, compliant leach field system for Brooks Camp. No other alternatives were considered in this analysis since the proposed action involves critical facilities that are both site and project-specific.

FINDINGS

This analysis concludes that the proposed action would not result in a significant restriction of subsistence uses.

APPENDIX B

NEGATIVE DETERMINATION

Proposed Brooks Camp Facility Rehabilitation and Replacement with Relevant Standards of the Alaska Coastal Management Plan (ACMP) and Enforceable and Administrative Policies of the 1996 Lake and Peninsula Borough (L&PB) Coastal Management Plan

A. Coastal Development (11 AAC 112.200)

L&PB Coastal Management Plan (CMP) Section A-1, Water-Related Activities

Response: The facility upgrades at Brooks Camp are considered water-related activities due to the location of the camp along the shores of Naknek and Brooks Lakes with access only by float plane or boat. This project would avoid negative impacts to water quality through the use of Best Management Practices and restricting the footprint above the OHW mark, with no in-water work.

L&PB CMP Section A-2 – Mitigation

Response: Mitigation measures would be taken for cultural resources, soils, vegetation and wildlife.

Cultural Resources: To ensure that each project component complies with Section 106 of the National Historic Preservation Act, archeological investigation would be necessary before ground-disturbing work could be implemented. In addition, the descendants of the people that once lived at Brooks Camp would need to be consulted before work could begin. NPS cultural resource specialists would conduct a field survey of the proposed sites where ground disturbance would take place and monitor the project component sites during excavation activities.

Should previously unknown cultural resources be identified during project implementation, work would be stopped in the discovery area. The NPS would perform consultations in accordance with 36 CFR 800.11. The resources would be evaluated to determine if they are eligible to be listed on the National Register of Historic Properties. If proposed excavation locations could not be adjusted to avoid adversely affecting eligible cultural resources, the NPS would execute a Memorandum of Agreement (MOA) with the Advisory Council on Historic Preservation and the Alaska State Historic Preservation Office (SHPO) that would incorporate comments from consulting parties. The MOA would specify measures to minimize or mitigate adverse effects. Furthermore, as appropriate, the NPS would abide by provisions of the Native American Graves Protection and Repatriation Act of 1992. Any artifacts recovered from park property at the project site would be accessioned, cataloged, preserved, and stored in compliance with the NPS *Cultural Resource Management Guidelines*.

Soils and Vegetation: For housing rehabilitation and replacement, ground disturbance would be limited to a maximum buffer of 20 feet from the duplex perimeters and cabin additions. For the duplexes, additional ground disturbance would occur for the short utility corridors to tie into existing main lines. Most new water, sewer and electrical lines to the buildings would be installed in previously disturbed areas such as existing utility corridors.

As much as possible, revegetation efforts would take place concurrently with construction activities. Park personnel would make an effort to salvage viable groundcover mats and reduce storage time by expeditiously transplanting them to suitable, disturbed sites such as utility corridors. Wherever possible, in the heavily vegetated areas that must be cleared, mats of ground cover and shrubs would be salvaged and used to revegetate disturbed areas. When possible, larger trees in the area to be cleared but not directly in the footprint of buildings or the leach field, would remain intact with a sufficient root buffer zone. Excavation, backfilling, and revegetation would be accomplished with a combination of hand tools

and heavy equipment. Cut trees would be used as campground firewood. Stumps and other organic debris would be burned or buried on site.

Wildlife: As much as possible, tasks would be scheduled during periods of low bear use (e.g., spring, August, etc.) to minimize direct interactions with bears. Since bears are more prone to travel through Brooks Camp after facilities shut down on September 21st, one bear management technician may be stationed on site during autumn construction activities. Interactions between bears and people would be minimized by housing some workers in Brooks Camp and by limiting the number of trips made across the river. As much as possible, supplies and equipment would be staged in the vicinity of work areas during periods of low bear use to minimize bear and people interactions. Trees and shrubs in the woodland areas would be cut before May 1st and after July 20th in any given year to avoid disturbance to nesting birds.

L&PB CMP Section A-4 – Compatibility

Response: The proposed facility upgrades would be compatible with adjacent land and water uses and the primary purposes of the Brooks River area: (1) to protect habitats for, and populations of, fish and wildlife, including, but not limited to, high concentrations of brown bears and their den areas and maintain the watersheds and habitat vital to red salmon spawning in an unimpaired condition, (2) to provide for the general public resource-based recreation that does not impair natural and cultural values and (3) to protect and interpret outstanding natural, cultural, geologic and scenic values.

B. Coastal Habitats and Resources (11 AAC 112.300)

L&PB CMP Section B-1 – State Habitat Standards

Response: The proposed Brooks Camp facilities project would comply with state habitat standards at 6 AAC 80.130.

L&PB CMP Section B-2 – Upland Habitats

Response: Construction and ground disturbing activities would range from no impact to a minor, negative impact to soils and vegetation in various locations of the Brooks Camp area. Between approximately 0.31 to 0.74 acres would be affected, with some of the area previously disturbed. For more discussion, please see sections 2.6 and 4.4 of the EA. To minimize and mitigate impacts to natural vegetation, revegetation efforts would occur concurrently with construction activities. (See mitigation measures discussed under Response A-2.)

L&PB CMP Section B-4 – Anadromous Fish Waters

Response: All proposed Brooks Camp facility project components are outside of the 100-foot minimum distance from the ordinary high water mark of anadromous fish waters (Naknek and Brooks Lakes). Project activities are expected to have no adverse effect on anadromous fish waters.

C. Air, Land, and Water Quality (11 AAC 112.310)

L&PB CMP Section C-7 – Sewage Disposal

Response: The proposed replacement leach field and vault toilets would be constructed at a minimum of 200 feet from public water wells. The sewage disposal pit is located over one mile from the project component sites. All water and wastewater separation distances would comply with ADEC regulations at 18 AAC 72 and 18 AAC 80.

D. Subsistence Use/Personal Use (11 AAC 112.270)

L&PB CMP Section D-2 – Development Impacts

Response: Per ANILCA, subsistence activities are only permitted in Katmai National Preserve, not in Katmai National Park. The effects of the proposed action on subsistence uses and needs were dismissed from further analysis in the EA because the proposed action is located in the Park. An ANILCA Section

810(a) summary evaluation and analysis is contained in Appendix A of the EA, based on potential impacts of proposed NPS activities in the Preserve. The proposed project is not expected to alter subsistence habitats or result in any measurable reduction in or redistribution of wildlife or other subsistence resources in Katmai National Preserve. The proposed project is not expected to result in increased competition for fish, wildlife or other resources that would significantly impact subsistence users. NPS regulations and provisions of the ANILCA mandate that if and when it is necessary to restrict taking of fish or wildlife, subsistence users will be given a priority over other user groups. Continued implementation of the ANILCA provisions should mitigate any increased competition from resource users other than subsistence users. The park superintendent may enact closures and/or restrictions if necessary to protect subsistence opportunities or to assure the continued viability of a particular fish or wildlife population.

L&PB CMP Section D-3 – Access

Response: An ANILCA Section 810(a) analysis was completed and added as Appendix A to the EA. The proposed action is not expected to limit or restrict the access of subsistence users to natural resources within the Katmai National Preserve. The park superintendent may enact closures and/or restrictions if necessary to protect subsistence opportunities or to assure the continued viability of a particular fish or wildlife population.

E. Transportation and Utilities (111 AAC 112.280)

L&PB CMP Section E-4 – Siting, Construction, and Operation

Response: No restrictions would be placed on traditional methods and means of public access through State and federal lands. The proposed action is designed to maintain facilities in the existing transportation-related and utility infrastructure to continue to provide means of public access and recreation. The project would help conserve coastal resources by preventing sewage spills near transportation corridors (e.g., Lake Brooks vault toilet near the visitor gateway). As much as possible, project components would be designed to minimize the development footprint and be located within previously developed areas of Brooks Camp. Some of the disturbance for construction of the cabin additions, duplexes and utility lines would occur in soil that has previously been disturbed. For further discussion, please see section 2.3.1 of the EA for mitigation measures.

H. Recreation

L&PB CMP Section H-1 – Protection of Recreation Values

Response: Public use goals and objectives for the Brooks River area pertinent to this specific project are that the NPS and concessioner are to develop and maintain facilities for recreational users that are consistent with park management concerns regarding wildlife, fish, biological diversity, preservation of cultural resources and public safety. This project would enhance this goal.

I. Archaeological and Historic Resources (111 AAC 112.320)

L&PB CMP Section I-1 – Cultural and Historic Resource Areas and Section I-2 – Resource Protection

Response: The NPS would comply with the National Historic Preservation Act and related laws and regulations, including consultation with the SHPO and affected parties. Cultural resource mitigation measures are described in Response A-2. For project components 1-5, no to negligible impacts to cultural resources would be expected. For component 6, the leach field construction, archeological testing and consultation would be done to choose a location that best avoids or mitigates adverse effects to cultural resources.

APPENDIX C

KATM MAINTENANCE PROJECT BROOKS CAMP

COST COMPARISON BETWEEN LEACH FIELD ALTERNATIVES

Cost Category	Alternative A	Alternative B *	Alternative B(4)
	No-Action	Proposed Project with Reserve Leach field at Various New Locations (B-1, B-2 and B-3)	Proposed Project with No Reserve Leach field
Recurring Annual	\$4,000	\$660	\$660
Initial One-Time	\$ 0	B(1) \$71,000	\$10,000
		B(2) \$73,800	
		B(3) 100,000	
Life-Cycle	\$60,000	B(1) \$80,900	\$19,600
		B(2) \$83,700	
		B(3) \$109,900	

* An assumption is made that a new, reserve leach field would have a lifespan of 15 years.

Alternatives B(1-4) include the Initial One-Time cost of rehabilitation of the existing leach field, estimated at \$10,000.

The Initial One-Time costs for Alternatives B(1-3) do not include Section 106 cultural resources compliance costs, as these cannot be estimated until field testing commences.