



Environmental Assessment

Spruce Creek Access

DENALI NATIONAL PARK AND PRESERVE, ALASKA

April 2002

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SUMMARY

This *Environmental Assessment for Access to Spruce Creek* considers the applicants' proposal and three alternatives for access to two one-acre inholdings within the Spruce #4 patented mining claim along Spruce Creek in the Kantishna Hills of Denali National Park and Preserve. The owners of the Spruce #4 parcel of land requested access to their properties for personal use. They sold all rights on 18 acres of Spruce #4 to the National Park Service (NPS) and retained non-commercial rights on two one-acre parcels for private, personal uses. This access request replaces the applicants' original request for access to the 20-acre Spruce #4 parcel of land to construct and operate a remote lodge. A draft EIS was released for that request in July 1999, and the applicants asked the NPS to hold the final EIS while they considered the NPS purchase offer and waited for Congress to authorize the purchase above appraised value. The applicants agreed to the purchase offer, and Congress authorized the purchase in December 2001. Title passed to the NPS in February 2002. The application for the original access application to construct and operate a lodge was withdrawn.

The NPS is complying with Title XI of the Alaska National Interest Lands Conservation Act (ANILCA). Section 1110(b) of ANILCA requires the Secretary of the Interior to provide "Notwithstanding any other provision of this Act or other law, . . . such rights as may be necessary to assure adequate and feasible access for economic and other purposes to the concerned land by such . . . private owner or occupier and their successors in interest. Such rights shall be subject to reasonable regulations issued by the Secretary to protect the natural and other values of such lands." These regulations, promulgated in 1986, can be found in Title 43, Code of Federal Regulations Part 36 (Access to Conservation System Units in Alaska). The alternatives differ in terms of route, method, or combination of both. The NPS has identified the proposed access as its preferred alternative.

- **No-Action Alternative** (*current access*) is 9.8 miles of road and airstrip that is presently used to access the property on Spruce #4 under authority of temporary access permits. The road access departs the Denali Park Road at mile 89 and follows mining access roads to the Spruce #4 parcel of land. This access includes use of the 1,120-foot Glen Creek landing strip for small airplanes. This route fords Moose Creek, Spruce Creek, and other streams a total of 38 times and entails 0.6 miles of access in the bed of Spruce Creek.
- **Proposed Access** (*NPS preferred alternative*) is similar to the existing access, except about 0.64 miles of new road would be constructed along Spruce Creek to avoid instream travel. This 9.7-miles of access includes access to and use of the Glen Creek landing strip. It would result in 32 stream crossings of Moose, Spruce, and other creeks in the area and eliminates about 0.6 miles of access in the bed of Spruce Creek. Vehicle authorizations along the park road and along the access road would be limited to protect fish habitat and recreational uses in the area.
- **Fly and Drive Alternative** (*environmentally preferred alternative*) uses the last 2.9 miles of access in the proposed alternative, including 0.64 miles of new construction and 0.2 miles of the Glen Creek airstrip. No vehicle allocations would be authorized on the park road beyond mile 14.8 or on the first 6.7 miles of existing mining access to Glen Creek. Primary access would be by air with remote road connection to Spruce #4.
- **Glen Creek Bench Alternative** would use existing access from the park road to the Glen Creek landing strip and construction of about 1.3 miles of new road between the Glen Creek mining road and Spruce #4. This alternative would avoid stream crossings upstream of Glen Creek, but 1.92 acres of vegetation and over one acre of wetlands would be removed.

BRIEF SUMMARY OF IMPACTS

- **No-Action Alternative** would result in the greatest adverse impacts to water quality and fish habitat of all the alternatives from continued use of 38 stream fords and 1,750 feet of road in the stream bed of Spruce Creek. Road access in the streambed is not consistent with NPS wetland protection policies. This alternative would have the least impact on visual resources, vegetation resources, and subsistence uses in the area. Impacts to all physical, biological, and social resources in the affected area would be negligible to minor. This alternative would not result in the impairment of any of the purposes or values for which the park additions were created in ANILCA Title I and Title II.
- **Proposed Access** would result in 32 stream fords and avoid road sections on the stream bed of Spruce Creek, thereby being consistent with NPS policies regarding roads in streams. This alternative would result in the second least adverse impact to wetland resources, including riparian wetlands. About 0.6 acres of vegetation would be removed to construct new road courses to avoid instream sections, but much of this vegetation would be alder shrubs on former mining tailings. About 200 cubic yards (cy) of gravel would be needed to construct the new road courses along Spruce Creek with an estimated 10 cy per year for road maintenance. Impacts to all physical, biological, and social resources in the affected area would be negligible to minor. This alternative would not result in the impairment of any of the purposes or values for which the park additions were created in ANILCA Title I and Title II.
- **Fly and Drive Alternative** would result in 16 stream fords and also avoid road sections in the Spruce Creek stream course with new road construction as in the proposed access alternative. This alternative would result in the least adverse impact to wetland resources, including riparian wetlands. This alternative would result in about twice as many airplane flights into the area because overland vehicle access would be precluded, which would increase the frequency of noise intrusions into a larger backcountry area than with the other alternatives. The smallest footprint of access area would reduce potential adverse impacts to wildlife habitat. Also, this alternative would have the least impact on public use of the first six miles of the Moose Creek mining access route, but the first three miles would be used for access to private inholdings on Rainy Creek. Impacts to all physical, biological, and social resources in the affected area would be negligible to minor. The applicants would have to own or charter airplanes for access. This alternative would not result in the impairment of any of the purposes or values for which the park additions were created in ANILCA Title I and Title II.
- **Glen Creek Bench Alternative** would result in the greatest impacts to wetlands, and NPS policies require the agency to avoid impacts to wetlands if a practicable alternative exists. About 3,200 cy of gravel fill would be needed to construct 1.3 miles of new road, including fill on 1.3 acres of wetlands. Annual gravel needs for road maintenance would be about twice as much as the other action alternatives. This alternative, however, avoids high quality grayling breeding habitat in the North Fork of Moose Creek. Because of the greater length of new road construction in an exposed area, this alternative would have the greatest adverse impacts to natural quiet and scenic resources. Also, the route passes near or over known archeological sites, which are avoided by the other alternatives. This alternative would not result in the impairment of any of the purposes or values for which the park additions were created in ANILCA Title I and Title II.

A decision (finding of no significant impact) will be released no sooner than 30 days and no later than 120 days after release of the EA. For further information contact: Robert Aramberger, Regional Director, National Park Service, Alaska Regional Office, 2525 Gambell Street, Anchorage, Alaska 99503 (907-257-2690) or Paul Anderson, Superintendent, Denali National Park and Preserve, P.O. Box 9, Denali Park, Alaska 99755 (907-683-9581).

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PURPOSE AND NEED FOR ACTION

1.1 Purpose of Action

The National Park Service (NPS) is considering a request for access to a pair of inholdings on Spruce Creek in the Kantishna Hills of Denali National Park and Preserve (appendix A). The two owners of the 20-acre patented mining claim, Spruce #4, sold all their rights to 18 acres of their land and retained non-commercial use rights to the remaining two a one-acre parcels. They have each applied to the NPS for a long-term right-of-way (ROW) permit for access to their land for personal uses.

The applicants each seek a ROW permit from the NPS to use 9.7 miles of primitive gravel road along Moose and Spruce creeks and a dirt airstrip near Glen Creek in the Kantishna Hills for access to their property for personal use. The purpose of the NPS ROW permits would be to grant access both by vehicle along the gravel road to Spruce #4 from mile 88 of the Denali Park Road and by airplanes to the airstrip near lower Glen Creek. The applicants have proposed making improvements to the primitive 9.7-mile mining access road along the segment by Spruce Creek to avoid instream travel. Access to the property in winter would be by ski plane and snowmobile, as allowed by regulations. See figure 1.1 for project location.

This environmental assessment (EA) has been prepared to evaluate potential environmental impacts of the proposal and alternatives and to inform the public, regulatory agencies, and other interested parties. The EA findings and public comment will form the basis for a decision by the NPS Alaska Regional Director regarding the ROW permit. The NPS has analyzed alternatives and mitigating measures to minimize adverse environmental impacts to the park. This document has been prepared in accordance with the National Environmental Policy Act of 1969 (NEPA) and regulations of the Council of Environmental Quality (40 CFR Part 1500).

1.2 Need for Action

In 1980 the Alaska National Interest Lands Conservation Act (ANILCA) enlarged Mount McKinley National Park and redesignated the area as Denali National Park and Preserve. The park portion of the conservation system unit was enlarged to the north, including the Kantishna Hills Mining District (figure 1.1). ANILCA Title XI, Section 1110(b) requires the NPS to provide "... such rights as may be necessary to assure adequate and feasible access for economic and other purposes to the concerned land by such ... private owner or occupier and their successors in interest. Such rights shall be subject to reasonable regulations issued by the Secretary (of the Interior) to protect the natural and other values of such lands." The NPS needs to evaluate the proposed access to grant a ROW permit pursuant to ANILCA.

Regulations at 43 CFR Part 36 "Access into Conservation System Units in Alaska" and at 36 CFR Part 14 "Rights of Way in National Parks" apply to this right-of-way permit request. In particular, 43 CFR 36.10 specifies the NPS shall permit the ROW desired by the applicants unless the route or method of access would:

- 1) cause significant adverse impacts on natural or other values of the area and adequate and feasible access otherwise exists; or
- 2) jeopardize public health and safety and adequate and feasible access otherwise exists; or

- 3) be inconsistent with the management plan(s) for the area or purposes for which the area was established and adequate and feasible access otherwise exists; or
- 4) the method is unnecessary to accomplish the applicants' land use objective.

If the NPS makes one of the findings described above, another alternative route or method of access shall be specified in a ROW permit to provide the applicants adequate and feasible access, after consultation with the applicants. These criteria form the basis for evaluating the applicants' ROW proposal and alternatives in this EA.

The regulations further specify that issuance of a ROW permit shall be subject to certain terms and conditions (43 CFR Part 36.9). These terms and conditions form standards for the analysis of the proposal and alternatives in this EA and for developing measures to mitigate possible adverse effects caused by the proposal and alternatives. To meet this regulatory requirement, the NPS must ensure through mitigation or other measures that the following terms and conditions are met:

1. requirements to ensure, to the maximum extent feasible, that the ROW is used in a manner compatible with the purposes for which the affected area was established or is managed;
2. requirements for restoration, revegetation, and curtailment of erosion of the surface of the land;
3. requirements to ensure activities in connection with the ROW will not violate applicable air and water quality standards and related facility siting standards established pursuant to law;
4. requirements, including the minimum necessary width, designed to control or prevent: (a) damage to the environment (including damage to fish and wildlife habitat); (b) damage to public or private property; and (c) hazards to public health and safety.
5. requirements to protect the interests of individuals living in the general area of the ROW permit who rely on the fish, wildlife, and biotic resources of the area for subsistence purposes; and
6. requirements to employ measures to avoid or minimize adverse environmental, social, or economic impacts.

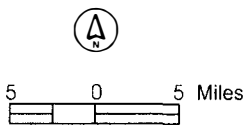
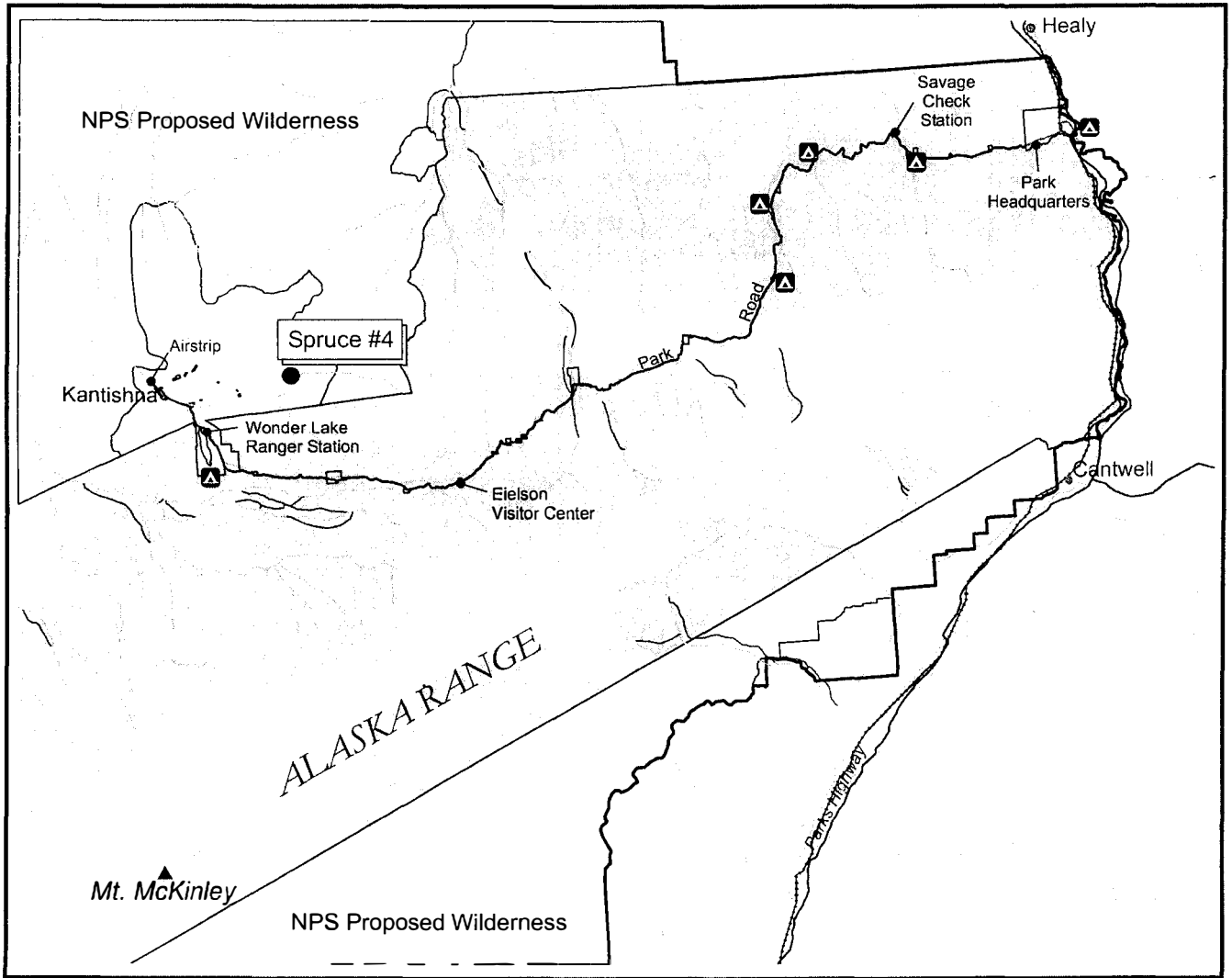
The NPS promulgated regulations at 36 CFR Part 14 to administer grants of rights-of-way across NPS lands. The terms and conditions of a long-term ROW permit granting such access would be subject to review and renewal at least once every 10 years. The NPS also promulgated road management regulations to address access and use across the Denali Park Road beyond the Savage River checkpoint at mile 14 (36 CFR 13.63(d)).



1.3 Background

1.3.1 NPS Organic Act, Act Amendments, and NPS Management Policy

The 1916 Organic Act directed the Secretary of the Interior and the NPS to manage national parks and monuments to:

“...conserve the scenery and the natural and historic objects and the wild life therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations.” (16 U.S.C. 1.)



-  Designated Wilderness
-  NPS Proposed Wilderness

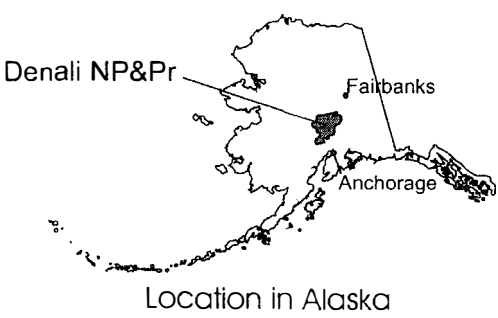


FIGURE 1.1
Park Road and Kantishna Hills
Denali National Park and Preserve
U.S. Department of the Interior • National Park Service

Location in Alaska

The Organic Act also granted the Secretary the authority to implement “rules and regulations as he may deem necessary or proper for the use and management of the parks, monuments and reservations under the jurisdiction of the National Park Service.” (16 U.S.C. 3.)

The 1978 amendments to the 1916 NPS Organic Act and 1970 NPS General Authorities Act expressly articulated the role of the national park system in ecosystem protection. The amendments further reinforce the primary mandate of preservation by stating:

“The authorization of activities shall be construed and the protection, management, and administration of these areas shall be conducted in light of the high public value and integrity of the National Park System and shall not be exercised in derogation of the values and purposes for which these various areas have been established, except as may have been or shall be directly and specifically provided for by Congress.” (16 U.S.C. 1-a1.)

The NPS Organic Act and the General Authorities Act prohibit impairment of park resources and values. The 2001 NPS Management Policies uses the terms “resources and values” to mean the full spectrum of tangible and intangible attributes for which the park is established and are managed, including the Organic Act’s fundamental purpose and any additional purposes as stated in the park’s establishing legislation. The impairment of park resources and values may not be allowed unless directly and specifically provided by statute. The primary responsibility of the 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 environmental assessment. 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.

1.3.2 Park Purpose and Significance

On February 26, 1917, Congress established the original Mount McKinley National Park as “... a public park for the benefit and enjoyment of the people... for recreation purposes by the public and for the preservation of animals, birds, and fish and for the preservation of the natural curiosities and scenic beauties thereof ... said park shall be, and is hereby established as a game refuge.” (39 Stat. 938). In 1922 and 1932 subsequent legislation expanded the park boundaries to the east and north, including lands in the Wonder Lake area for the purpose of protecting winter game habitat, especially for moose.

In 1980 Congress passed and President Carter signed the Alaska National Interest Lands Conservation Act (ANILCA). ANILCA, Section 202(3)(a) added about 3.8 million acres to Mount McKinley National Park and renamed it as Denali National Park and Preserve to be managed for the following purposes:

To protect and interpret the entire mountain massif, and additional scenic mountain peaks and formations; and to protect habitat for, and populations of fish and wildlife including, but

not limited to, brown/grizzly bears, moose, caribou, Dall sheep, wolves, swans and other waterfowl; and to provide continued opportunities, including reasonable access, for mountain climbing, mountaineering and other wilderness recreational activities. Subsistence uses by local residents shall be permitted in the additions where such uses are traditional.

1.3.3 Related Park Management Plans, Policies, and Regulations

1.3.3.1 Park Management Plans

General Management Plan (GMP): The GMP (NPS 1986a) addresses traffic levels on the Denali Park Road, access rights and methods, land ownership patterns and land protection priorities, and wilderness suitability in ANILCA park additions. A goal of the GMP is to reduce private vehicle access on the park road and increase tour and shuttle bus access for an overall total of 10,512 vehicles each year.

Land Protection Plan (LPP): The acquisition of Kantishna surface estates is listed as a top priority in the park's LPP. The LPP (NPS 1986a) states, "The existing recreational uses of private properties in the Kantishna area are considered compatible; however, additional recreational use and facility development in this portion of the park would generate additional traffic on the park road and increase the problem of avoidance behavior by wildlife." Methods of acquisition of fee and less-than-fee interests in land include donation, exchange, purchase, and relinquishment.

Denali National Park and Preserve Final Environmental Impact Statement (EIS) for the Wilderness Recommendation: This EIS (NPS 1988a) proposed excluding those areas in the Kantishna Hills affected by mining. The Spruce Creek area was found not suitable for wilderness designation, and it was not included in the recommendation for wilderness designation. The NPS is preparing a draft backcountry management plan for the park to address use of the backcountry and wilderness. This plan recognizes lands in the Kantishna Hills determined to be unsuitable for wilderness designation because of persistent disturbance from past mining are now suitable because of changing conditions. Most mining properties have been purchased and many of these are being restored.

The Final EIS, Cumulative Impacts of Mining, Denali National Park and Preserve, Alaska: The NPS (1990) prepared this EIS as a result of a 1985 district court order to analyze the cumulative impacts of mining in three national parks in Alaska, including the Kantishna Hills of Denali National Park and Preserve. The record of decision (ROD) calls for NPS to develop a mining claim acquisition plan to acquire all patented and valid unpatented mining claims in the park. Existing non-mining developments or improvements on patented claims would be reviewed for compatibility with park purposes and possible acquisition. Compatible non-mining developments and improvements could be excluded from acquisition. During the acquisition phase, the NPS would process mining plans of operations. Mining claim acquisition methods would include purchase, exchange, or donation. The NPS could exercise eminent domain in appropriate cases.

Entrance Area and Road Corridor Development Concept Plan/EIS (DCP/EIS): The DCP/EIS (NPS 1996) is an amendment to the park's 1986 GMP and describes the plan for visitor use, resource protection, and related facility development in non-wilderness areas in the entrance zone and along the park road corridor to the Kantishna airstrip. It provides for visitor facilities and services in the study area to meet a wide range of visitor needs and interests. Pertinent to the Spruce Creek Access EA, the DCP/EIS addresses vehicle limits for the park road and Kantishna operations, land ownership in Kantishna, gravel sources for road construction and maintenance, and maintenance and improvements to the Kantishna airstrip.

The DCP/EIS defines the road allocation season as the Saturday before Memorial Day through the second Thursday after Labor Day with an overall limit of 10,512 vehicles. “Up to 1,360 total vehicles could travel to and from Kantishna, comprising 13% of all traffic under the GMP limits.” This total includes traffic for inholders other than Kantishna businesses, which has averaged less than 100 vehicles in recent years. Kantishna business traffic limits were based on 1994-1996 use levels, and they were to be phased in by the year 1999 as follows:

- Denali Backcountry Lodge 315
- Kantishna Roadhouse 420
- McKinley Gold Camp 210
- North Face/Camp Denali 315
- All other inholders 100
- TOTAL 1,360

In all cases the overall allocation season traffic limit of 10,512 would apply.

36 CFR Part 13.63, Denali National Park and Preserve, Special Regulations: On June 19, 2000 the NPS published a final rule (Federal Register vol. 18, no. 118, pages 37863 to 37879), which codifies vehicle operations and management on the Denali Park Road west of the Savage River and prohibits the operation of snowmobiles in that part of the park unit formerly known as Mount McKinley National Park. This regulation authorizes the park superintendent to issue no more than 10,512 motor vehicle permits each year for access to the restricted section of the road between miles 14.8 and 87.9. The superintendent is authorized to adjust the number of permits to the Kantishna area in response to the sale or cessation of a business or significant change in services offered to the public. The superintendent has deleted vehicle authorization to the McKinley Gold Camp.

1.3.3.2 Gravel Management Policies and Plans

Policies regarding the use of in-park gravel are based on the Mineral Materials Act of 1947, which specifically prohibits the disposal of common variety mineral materials by sale or donation from any “national parks and monuments.” Common variety mineral materials are sand, stone, gravel, clay, cinder, pumice, and petrified wood. The NPS and its contractors may use mineral materials from existing or new sources within a park unit for administrative purposes of the unit if “... economic factors make it totally impractical to import sand or gravel and if acceptable sources are identified in the park resources management plan” (NPS Management Policies, NPS 2000, Section 9.1.3.3).

The NPS Special Directive 91-6, Use of In-Park Borrow Material, provides direction on implementing the NPS Management Policies for administrative use of in-park borrow material. “Functions necessary for park administration” are defined as actions in approved park plans or environmental compliance documents. Use of in-park sources “should be considered only if the following two tests are met: 1) acceptable sources exist in the park, and 2) economic factors make it totally impractical to import materials.” Park managers must find in writing whether “acceptable sources” exist in the park by evaluating “...the natural, cultural, socioeconomic, and visitor use effects of using existing and/or new sites.” The definition of “totally impractical” is case-specific; however, park managers “... must weigh the expected costs and effects of an in-park source against expected costs and effects of outside sources to determine the acceptability of in-park sources.” These guidelines also state, “Potential NPS use of materials from new or existing sites on private lands inside park boundaries should be evaluated using the same process outlined for extraction from

federally owned land in parks.” And, “... mineral materials to be used by NPS contractors is the functional equivalent of NPS use.” Furthermore, the guideline states, “Generally, in-stream sources should not be considered. Stream channels and floodplains are generally recognized as sensitive resources and are not usually suitable as sources for sand, gravel, or borrow.”

The special directive further states that, “All mineral material sites in park units ultimately should be reclaimed. Park managers should ensure that an adequate reclamation plan is developed before authorizing use of in-park sources of mineral materials or continuing use of existing pits. ... Areas to be used for administrative purposes should be recontoured and reclaimed to the maximum extent possible while still allowing for administrative use.”

The park developed a Gravel Acquisition Plan in 1993 that identified the Teklanika and Toklat gravel sites in the park as the two primary gravel source sites for park road maintenance. The life expectancy of the Teklanika site was estimated to be about 30 years, and the Toklat site was estimated to have no predetermined end date. Development and use of these sites was compared to the import of gravel from external source sites, and the cost was found to be about 20% of importing gravel, particularly to western portions of the Denali Park Road. The NPS is updating the park’s gravel acquisition plan in the next couple of years.

Regarding road maintenance at the west end of the park road, the Entrance Area and Road Corridor Development Concept Plan/EIS recommended that NPS, “Purchase gravel from private landowners or acquire from previously disturbed park lands in the Kantishna area, provided that specifications for maintenance and repair on the west end of the park road could be met. Gravel extraction from previously disturbed parkland would include subsequent reclamation. Once Kantishna sources are no longer feasible, an additional gravel source could be developed along Moose Creek about two miles upstream from the North Face Lodge.” In 1999 the NPS approved the removal of about 40,000 cubic yards of material at mile 89 of the Denali Park Road, principally for maintenance and repairs to the western 24 miles of the Denali Park Road (NPS 1999a).

1.3.3.3 Wetland Management Policy

Director’s Order #77-1 (Wetland Protection) implements Executive Order 11990 “Protection of Wetlands.” It updates, streamlines, and clarifies NPS wetland policies, requirements, and standards. The NPS officially adopted the goal of “no net loss of wetlands.” In addition, the NPS will strive to achieve service-wide a longer-term goal of net gain in wetlands. Compensation for wetland degradation or loss will be at a minimum 1:1 ratio. For proposed new developments that have the potential for direct or indirect adverse impacts on wetlands, the NPS committed to employ the following sequence:

1. avoid adverse wetland impacts to the extent practicable,
2. minimize impacts that could be avoided, and
3. compensate for remaining unavoidable adverse wetland impacts via restoration of degraded wetlands.

The NPS wetlands Statement of Findings for this access project is in appendix B.

1.4 Issues and Impact Topics

Issues and impact topics identified during the scoping process for the draft Spruce Creek Access EIS (NPS 1999b) form the basis for environmental analysis in this document. They reflect consideration

of federal and state laws, orders, regulations, policies, and public concerns for the upper Moose Creek and Spruce Creek drainages. A brief rationale is provided for each issue and topic analyzed in the environmental consequences part of the EA (chapter 4). Issues and topics considered but not addressed in this document are also identified. Chapter 5, Consultation and Coordination, provides details on scoping and consultation with other federal and state agencies.

1.4.1 Effects on Geologic Resources

Concern was expressed about the use and sources of gravel to construct and maintain an access road. Section 1.3 above describes pertinent authorities and NPS policies and plans addressing gravel acquisition and use.

1.4.2 Effects on Natural Quiet and Visual Resources

The public expressed concern about increased noise from the use of aircraft and vehicles, including snowmobiles, in the upper Moose Creek drainage. Concern was also expressed regarding dust and visual impacts from new road and/or airstrip facilities, including vehicle and snowmobile storage at the Glen Creek Airstrip and along the Moose Creek Road.

1.4.3 Effects on Water Quality and Aquatic Resources

Repeated vehicle fordings of streams in the area would increase turbidity in this normally clear-water stream, and fuel and oil from vehicles could adversely affect water quality. Potential effects on nine species of fish that occur in the streams in the Kantishna Hills are a concern.

1.4.4 Effects on Vegetation and Wetlands

The use and partial construction of an access route to the Spruce #4 property could adversely affect tundra vegetation and wetlands in the area. Pursuant to their request for a ROW permit, the applicants will apply to the U.S. Army Corps of Engineers for a Clean Water Act Section 404 permit for fill into the waters of the USA.

1.4.5 Effects on Wildlife

The construction and use of the proposed access route or other alternative routes from Kantishna to the Spruce #4 property could disturb and displace wildlife in the area. Moose, caribou, wolves, grizzly and black bears, and other small mammals and birds inhabit the area. Species of concern in the area are the North American lynx, harlequin duck, and olive-sided flycatcher.

1.4.6 Effects on Cultural Resources

Development of new access in the Kantishna area could disturb or lead to damages to archeological and historical resources in the area.

1.4.7 Effects on Public Use

There is concern for adequate and feasible road-use allocations for the requested access. This concern has been greatly reduced for the proposal presented in this EA as compared to the proposal evaluated in the draft EIS for access to the proposed McKinley View Lodge on Spruce #4 because the access would only be for limited private, personal use. An issue was identified on who would

have access along the access road to what point and whether vehicle use limits would be imposed on such a road and by what means. Concern was also expressed about charging fees for use of the road, and if the NPS would charge inholders for access to their private property. Concern was also expressed for the potential effects on overnight backcountry users and day hikers from lodges that use the mining roads as hiking routes.

1.4.8 Effects on Subsistence

Possible impacts on subsistence users and subsistence resources need to be considered. Section 810 of ANILCA and NPS policies require that proposed actions within Alaska's national parks address potential impacts to the area's legally permitted subsistence users. A section 810 statement is included in appendix C.

1.4.9 Wilderness

The proposed access would not traverse designated wilderness; however, any long-term ROW permit and maintenance of roads in the area could preclude the area from consideration as suitable for wilderness designation.

1.4.10 Cumulative Impacts

Concern was expressed about the additive effect of the proposed access with past and potential future mining in the area, along with the potential for additional developments in the Kantishna area.

1.4.11 Issues Considered but Dismissed from Further Consideration

The following issues are dismissed from consideration in this EA because the requested access is small in scope.

1.4.11.1 Private Property

The purchase price could influence the property values in the Kantishna Hills, but the access examined in the EA for the type and frequency of access associated with the proposed action and alternatives would not affect property values.

1.4.11.2 Park Management

Oversight of the access permit by park managers would result in a minor workload increase.

1.4.11.3 Regional and Local Economy

The proposed access to private property for personal uses would have a negligible effect on the local and regional economy because expenditures at local and regional businesses pursuant to access and use of the private property would be negligible and no new jobs or bed tax would result.

1.4.11.4 Threatened and Endangered Species

The American peregrine falcon has been delisted, and active nests are more than 10 miles from the project area. There are no other threatened or endangered species regularly occurring in the area.

1.4.11.5 Effects on Minority and Low-Income Populations

Executive Order 12898 requires federal agencies to incorporate environmental justice into their missions by identifying and addressing high and adverse human health or environmental effects of their programs and policies on minorities and low-income populations and communities. The proposed access would not result in disproportionately high direct or indirect adverse effects on any minority or low-income population or community.

1.5 Permits and Approvals Needed to Complete Project

The next step is to complete the EA process with a decision document. The NPS would then issue a ROW permit with terms and conditions of the permit. The latter includes an adequate map of the ROW permit area and an appraisal of the fair market value of the area to determine the annual rental fees for use of these public lands.

A Corps of Engineers Clean Water Act Section 404 Permit is needed for any part of the project that traverses the waters of the United States, including wetlands. The Alaska Department of Environmental Conservation would need to issue a Certificate of Reasonable Assurance pursuant to the Clean Water Act Section 401. Also where any road crosses a water body holding fish, the Alaska Department of Fish and Game requires a Fish Habitat Permit. The State Historic Preservation Office (SHPO) must approve any construction of access that could adversely affect historic or archeological resources. Permits from the ADEC and SHPO may not be needed.

1.6 Alternatives Considered but Eliminated from Further Consideration

The levels of resources impacts and expense of these alternatives would be exorbitant and not reasonable for the proposed personal-use purposes. These alternatives would be more than adequate, but financially infeasible for the proposed uses. They are therefore eliminated from further consideration. Variations of these alternatives are also considered but dismissed for similar reasons. (Many of the following alternatives were considered in the draft EIS for access to the proposed McKinley View Lodge.)

1.6.1 Moose Creek Alternative

This alternative would entail improvement of the entire existing 9.8 miles of existing access from mile 89 of the Denali Park Road to Spruce #4. It includes about 2,200 feet of new road construction over about 1.1 acres of shrub-scrub tundra wetland east of Spruce Creek and a 1,000-foot extension of the Glen Creek airstrip, also in lowland shrub wetlands. All of the patch-work gravel fill and new construction would require almost 19,000 cubic yards of gravel. This alternative would be too costly for the proposed access and is considered unreasonable for the applicants' proposed personal uses.

1.6.2 North Bench Alternative

This alternative would follow the first three miles of the proposed access from mile 88 of the Denali Park Road to the first ford of Moose Creek. A bridge would be constructed over Moose Creek and the route would follow the Rainy Creek road for about a mile before it would divert along benches north of Moose Creek and below toe slopes of the Kantishna Hills. This route would result in about 5 miles of new road construction and low water fords over Rainy Creek, Dry Creek, and Glen Creek, and it would eliminate up to 17 acres of wetlands. About 28,100 cubic yards of gravel would be

needed to construct this access. In addition, estimates indicate the cost would be over \$2 million, making this alternative clearly unreasonable for the applicants' requested personal access.

1.6.3 Skyline Drive Alternative

This alternative would follow the ridge-top mining access route from mile 91 of the Denali Park Road to Glen Creek and over a bench to Spruce Creek. This 12-mile route follows about 10 miles of existing mining access routes, requires about 2 miles of new road, and crosses Glen Creek about 24 times. The existing Kantishna Airstrip would be used for air access as needed. This alternative would require 12,400 cubic yards of gravel and result in the elimination of 7.1 acres of wetlands. This alternative would be far too costly for the proposed access and is considered unreasonable for the applicants' proposed personal uses.

1.6.4 Air-Access-Only Alternative

A new airstrip would be constructed adjacent to Spruce #4 on NPS land with a short spur road to the two one-acre parcels. This airstrip would need to be about 1,500 feet long for small personal aircraft, which would require about 8,000 cubic yards of gravel fill and the loss of 2.0 acres of wetlands. The volume of gravel needed in the wetlands, the cost of constructing a new airstrip, and the impacts to the natural scenic vistas would be unreasonable for the proposed personal use.

2.0 DESCRIPTION OF THE ALTERNATIVES

2.1 Introduction

This chapter includes a description and comparison of the impacts of the alternatives analyzed in this EA. It also includes a discussion of environmental stipulations to be included in any right-of-way (ROW) permit the NPS grants. Finally, it includes a brief description of measures that, if followed by the applicants, would mitigate certain adverse impacts described in chapter 4. Also included is an evaluation of each measure's effectiveness.

Three action alternatives and a no-action alternative are described in this chapter. Each alternative identifies overland ROW routes and airplanes as means of access to the applicants' remaining two one-acre parcels. The alternatives are:

- 1) **No-Action** – This alternative would result in no improved access and no long-term ROW permit. The no-action alternative would include the annual issuance of temporary access permits from the NPS for the owners to use the Denali Park Road to mile 89 and the existing unimproved mining access routes from there to Spruce #4. This route follows 9.1 miles of mining access road up Moose Creek to Spruce Creek and then up Spruce Creek to Spruce #4. The access also includes use of the 1,120-foot Glen Creek airstrip and the 0.5-mile spur road to Moose Creek. The total length of access, including 0.2 miles of airstrip, is about 9.7 miles.
- 2) **Proposed Access (NPS Preferred Alternative)** – This alternative includes limited use of the Denali Park Road to mile 89, the mining access route along Moose Creek, the Glen Creek airstrip and spur road, and some of the existing access along Spruce Creek. Access along Moose Creek would be the same as the no-action alternative. Access along Spruce Creek would be extended along a tundra bench east of Spruce Creek and new and abandoned road segments along this creek would be constructed or cleared, respectively, to avoid instream travel. The total length of access would be about 9.7 miles.
- 3) **Fly and Drive Alternative (Environmentally Preferred Alternative)** – This alternative would entail airplane use of the Glen Creek airstrip and use of mining access routes between there and Spruce #4 as described in the proposed access alternative. No vehicle travel by the applicants would be permitted along the Denali Park Road or the first 6 miles of the Moose Creek mining access route to the Glen Creek area. The total length of access would be about 2.9 miles.
- 4) **Glen Creek Bench Alternative** - This alternative includes limited use of the Denali Park Road to mile 89, follows the existing access between the park road to the Glen Creek airstrip, and then proceeds up the Glen Creek mining access route and across tundra between that mining trail and Spruce #4. This alternative would require new road construction over about 1 mile of tundra, including about 0.7 miles of wetlands. The total length of access would be about 8.8 miles.

Figure 2.1 shows each of the access alternatives.

2.2 Elements Common to All Action Alternatives

The elements described below are common to all of the access alternatives unless otherwise noted for the fly and drive access alternative. The existing Glen Creek airstrip would be used for all of the alternatives. The terms and conditions for the access would be specified in a right-of-way (ROW) permit to the two one-acre inholdings. A draft ROW permit (appendix D) and the specific terms and conditions are summarized below in section 2.2.1. Mitigation common to all alternatives is addressed in section 2.7 "Mitigating Measures."

All alternatives considering road access would be subject to Denali Park Road use allocations as described in the Denali National Park and Preserve's General Management Plan (GMP), Entrance Area and Road Corridor Plan, and the final road regulations (FR 37878 June 19, 2000.)

2.2.1 Specific Terms and Conditions of a ROW Permit:

Drivers authorized to operate vehicles on the Park road pursuant to the permit are expected to comply with permit terms, State laws, provisions in 36 CFR Part 4 - Vehicles and Traffic Safety, and park road rules. Improvements to any part of the access, including blading, filling, or removal of vegetation, must have prior written authorization from the Superintendent. The Glen Creek airstrip may be used and maintained in its dimensions and condition as of August 2000. The Kantishna Airstrip and the Visitor Transportation System (VTS) may be used as by the general public.

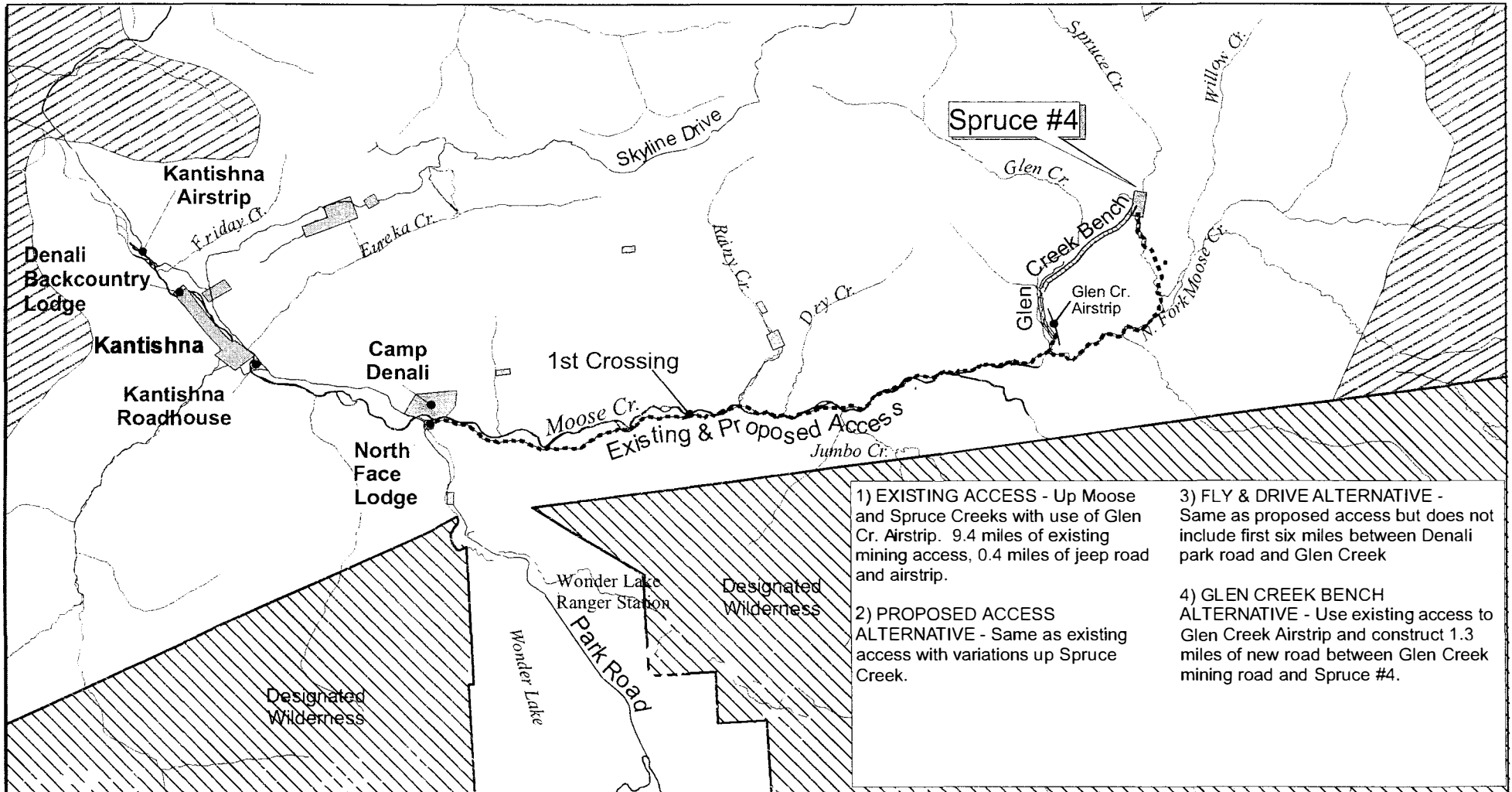
Vehicles belonging to the permittees, guests, or visitors may not be parked on park land except pursuant to written authorization from the Superintendent or as provided in the permit stipulations. The ROW permit would allow parking on the Glen Creek Airstrip and possibly one other location. Parking or storage shelters at these locations may be authorized if the need is demonstrated.

Except for the fly and drive alternative, the permit would grant each owner fifteen (15) vehicle round trips (30 passes each) per summer season with private vehicles over the restricted part of the Denali Park Road from mile 14.9 to mile 89. The summer season is defined in regulation as beginning on the Saturday of Memorial Day weekend and ending on the second Thursday after Labor Day weekend or September 15, whichever comes first. Non-commercial guests may be authorized by the property owners to use the vehicle allocation pursuant to the permit. The owners must provide authorization in writing for guests to access their private property. A road travel permit would be obtained from the park dispatch office. The authorized person may be required to show a valid driver's license or other picture identification and the permittee's written authorization before being allowed access across the Denali Park Road. Each applicant can request additional road passes from the Superintendent for special situations. The Superintendent would consider these requests and grant passes as deemed reasonable and consistent with current road regulations.

Except for the fly and drive alternative, limited vehicle access from mile 89 of the Denali park Road to Spruce #4 would be allowed across the mining access route to Spruce #4 during the peak summer visitor season. All vehicles used for this access must park in a summer parking area in Kantishna established by the NPS, either along the Park Road or near the first upstream crossing of Moose Creek. Each owner would be permitted up to 15 round trips (30 passes each) per summer season from the Denali Park Road to Spruce #4, including no more than 8 round trips total in any month and no more than 2 round trips in any day.

The Glen Creek Airstrip could be used in its current condition for access to the area in both summer and winter. Vehicle access from the Glen Creek Airstrip to Spruce #4 would be in addition to access from the park road and limited to no more than 15 round trips per summer season for each applicant (30 roundtrips each in the fly and drive alternative), including no more than 8 round trips in any month and 2 round trips in any day (16 round trips per month and 4 round trips per day in the fly and drive alternative.) Snowmobile access would be allowed in accordance with applicable NPS regulations.

There would be no limits in the number of vehicle passes after the summer season in the fall because visitor traffic is much reduced then and water levels and fish habitat are less critical then. Vehicle



- 1) EXISTING ACCESS - Up Moose and Spruce Creeks with use of Glen Cr. Airstrip. 9.4 miles of existing mining access, 0.4 miles of jeep road and airstrip.
- 2) PROPOSED ACCESS ALTERNATIVE - Same as existing access with variations up Spruce Creek.
- 3) FLY & DRIVE ALTERNATIVE - Same as proposed access but does not include first six miles between Denali park road and Glen Creek
- 4) GLEN CREEK BENCH ALTERNATIVE - Use existing access to Glen Creek Airstrip and construct 1.3 miles of new road between Glen Creek mining road and Spruce #4.

Figure 2.1

ACCESS ALTERNATIVES TO SPRUCE 4

Denali National Park and Preserve, Alaska

Legend

Alternatives		Private Property
	Proposed Access	
	Glen Bench Route	Designated Wilderness

Miles

passes in spring before the summer season would be limited to 2 round trips for each applicant from the park road, if open then, and two round trips for each applicant from the Glen Creek Airstrip after breakup. This is because arctic grayling spawn immediately after breakup and move to summer feeding areas within one month of spawning. Breakup, usually during the month of May, is a critical time for grayling.

2.2.2 Road Design and Engineering for New Construction

In Interior Alaska, many areas are known or suspected to have long-term seasonal frost or permafrost subsurface conditions, which greatly affect road and airstrip design and construction. For new road construction, the “overlay” design is recommended for side slopes of 0 % to 20 %. The overlay design consists of laying geo-textile (synthetic fiber cloth) directly on the tundra surface, then placing appropriate thickness of gravel on the geo-textile surface. Gravel elevates the road grade above the existing ground to minimize water saturation of the road surface and to keep frozen sections (seasonal or permafrost) frozen.

Gravel thickness for road construction would be varied according to field identification of surface water or fine-grained, frozen subsurface conditions. Generally, for overlay sections with 0 % to 20 % side slopes, recommended gravel thickness is ½ foot, 1 foot, and 2 feet, depending on ground saturation or to prevent permafrost melting. Geo-textile material would be called for in sections of new road construction over continually saturated wetlands. Cut and fill construction is also contemplated, but not full bench construction. Most of the new road construction contemplated in the alternatives would be on well drained and durable surfaces.

2.2.3 Gravel Specifications

This EA assumes the applicants would obtain project gravel for new construction from the ROW corridor, including that part of the Spruce #4 parcel in the ROW.

All mineral materials (gravel) referred to in this document would be “pit-run.” Pit-run is identified as materials normally obtained “as is” from surface or subsurface portions of landforms. Pit-run is conventionally considered to be reasonably free of organic material, and usually does not contain an excessive amount of over-sized (cobbles or boulders) or undersized (clay silt or sand) particles. Quantities or volumes described for the alternatives are only of the generic fill category.

2.2.4 Vehicles

Each applicant would use four-wheel drive pick-up trucks in late spring and fall for access along the mining access routes in the Moose Creek drainage. During the core summer season 4-wheel-drive vehicles would be used for access up and down the Moose Creek drainage. Small airplanes such as a Piper Supercub, Cessna 185, or other would be used to access the Glen Creek airstrip. Snowmobiles would be used for access from the Glen Creek airstrip or from the George Parks Highway to the inholdings, as allowed under park regulations.

2.3 No-Action Alternative

This alternative describes what would transpire if the NPS did not issue a long-term ROW permit to the applicants and no access improvements to the applicants private parcels are allowed. The no-action alternative provides a benchmark or point of reference to compare and contrast the impacts of action alternatives. The no-action alternative considers and assumes the use of existing laws,

regulations, approved plans, and policies in effect at the present time (see section 1.3 of this EA). The no-action alternative would result in no long-term ROW permit for improved access to the Spruce #4 parcel in the Kantishna Hills for private, personal use. Access to the area would be as it is now (see figures 2.2a and 2.2b).

Presently, the owners of the Spruce #4 property obtain seasonal temporary access permits to travel to their property in summer and winter. The permits have allowed vehicle access over the Denali Park Road and the existing 9.7-mile, unimproved, mining access route up Moose and Spruce Creeks, and use of the 1,120-foot-long Glen Creek airstrip. The summer access route includes 38 fords of Moose Creek and its tributaries and about 1,750 feet of access in active channels of Spruce Creek. This access also includes passage over 29 unpatented mining claims along Moose and Spruce creeks, held by Northwest Explorations, Inc. The NPS owns the land surface, however, and validity of the mineral interests on the claims has not been adjudicated. This access also includes a short section across the northwest corner of the North Face Lodge property near the junction with the park road, which has been used for years by miners, the NPS, the applicants, and other inholders.

The owners obtained temporary access permits from the NPS for the summer and winter of 1998 to haul cabin logs and materials to their land at Spruce #4 to build two log cabins. They obtained similar access to construct one log sauna in the summer of 1999, and in summer of 2000 they erected a second log sauna and various out-buildings. The 2001 temporary access permit authorized up to 20 vehicle passes to each applicant over the restricted part of the Denali Park Road during the summer season. Both owners use high-center, four-wheel-drive trucks and off-highway vehicles (OHVs) to access their property during summer over the deeper fords of Moose Creek. The owners have landed small airplanes (such as a Piper Supercub, Cessna 185, and Cessna 206) at the Glen Creek airstrip in summer and winter. Both have accessed their property in winter by snowmobile as allowed by existing regulations. Under this alternative, the owners of the property and cabins would continue to access their property for limited personal use via the existing access and temporary permits.

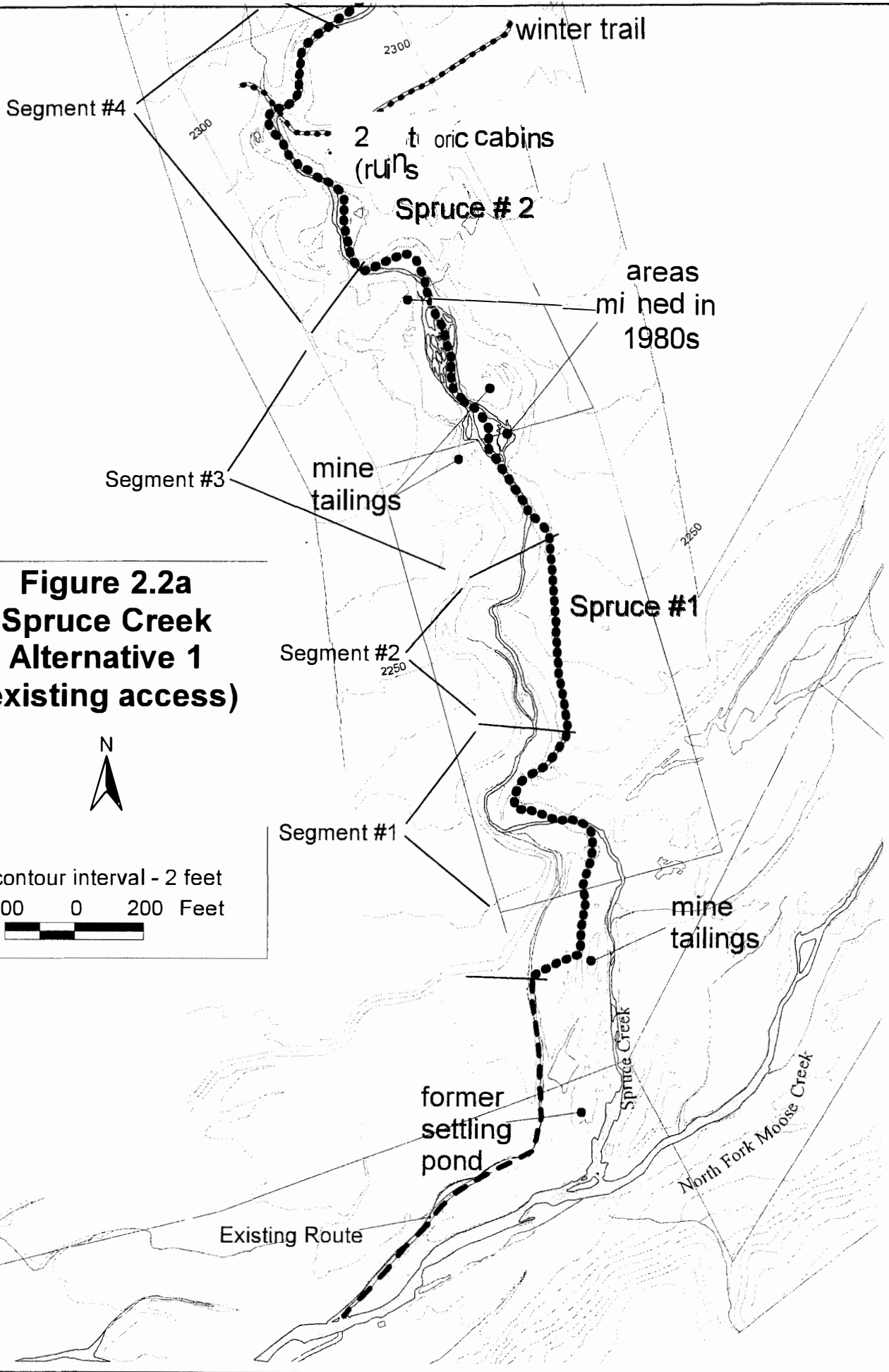
2.4 Proposed Access (*NPS Preferred Alternative*)

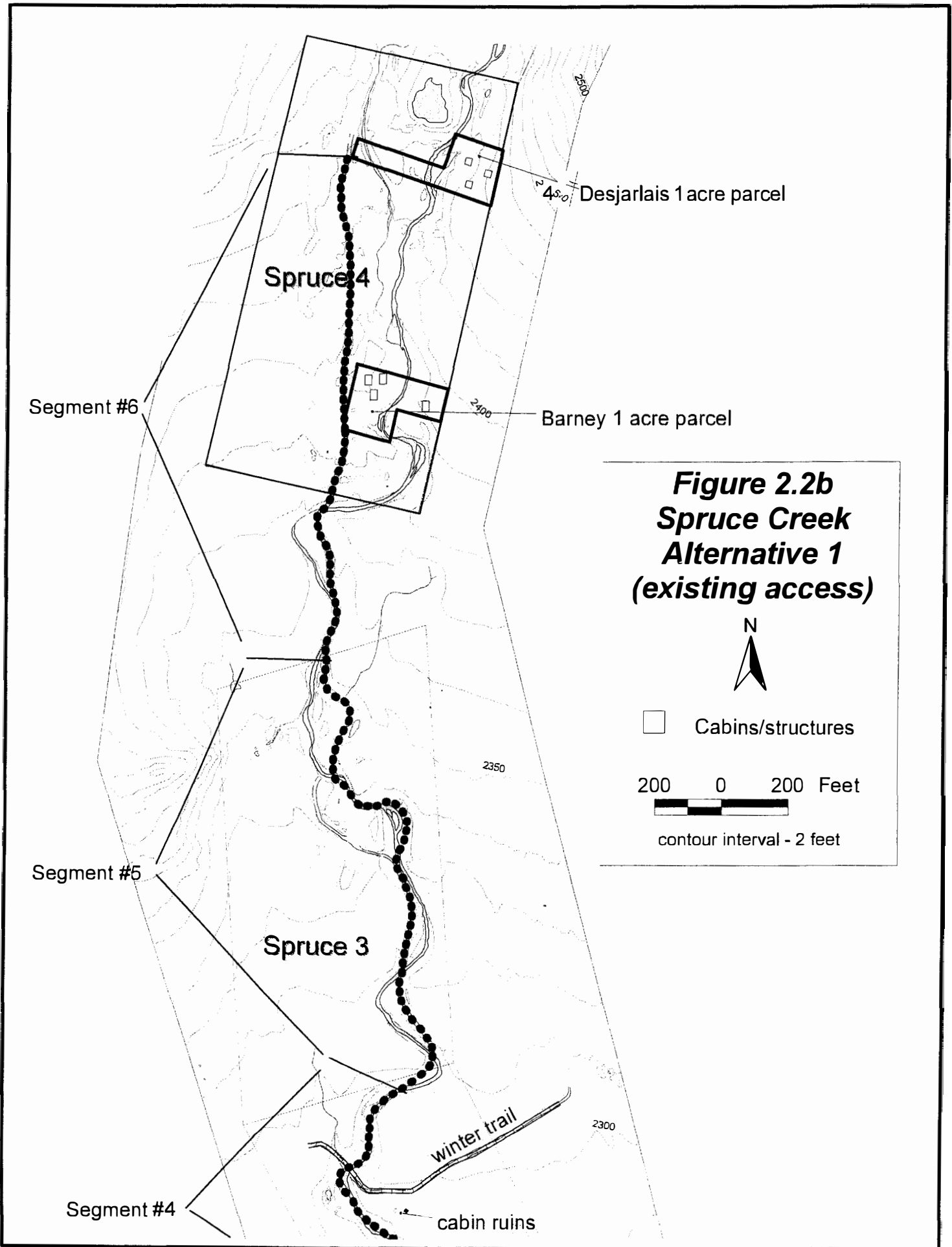
This access alternative would follow the existing Moose Creek mining access roads to Spruce Creek from mile 89 of the Denali Park Road, including passage over 29 unpatented mining claims held by Northwest Explorations, Inc. This alternative includes use of the lower Glen Creek airstrip and the existing spur road to that airstrip from the existing route. An existing spur road and the airstrip would add another 0.5 miles for a total of 9.8 miles of access. This alternative would be similar to the existing access described in section 2.3 except the segments of road along Spruce Creek would be positioned to avoid instream travel in Spruce Creek. Most of the 32 total stream fords would be perpendicular to stream flow, and there would be a total of 6 fording sites along Spruce Creek. The segment on the tundra bench above the floodplain would be longer than the existing tundra segment and require more gravel fill, but it would avoid instream travel in an active floodplain area. This alternative would entail gravel fill on about 0.25 acres of wetlands east of Spruce Creek. An estimated 205 cubic yards (cu yd) of fill would be needed for the new road construction and obtained from the ROW along Spruce Creek to their one-acre parcels on Spruce #4. This access would include a short stretch across private property at the northwest corner of the North Face Lodge 5-acre parcel of land, which has been used by the general public for several decades. Access improvements along Spruce Creek are described below in six segments. See figures 2.3a and 2.3b.

**Figure 2.2a
Spruce Creek
Alternative 1
(existing access)**



contour interval - 2 feet
200 0 200 Feet





2.4.1 Proposed Access Conditions and Engineering

Segment 1, Proposed Access: Segment 1 traverses about 850 feet of an area mostly disturbed by past mining activity. Initially it follows an abandoned stream channel that appears to have been used as a mining road in the past. This segment cuts the corner of a gravelly bench before it fords Spruce Creek at a right angle. The gravel from the bank would be available for fill on segment 2, and both segments are wholly within the Spruce #1 mining claim, which the NPS determined to be null and void.

Segment 2, Proposed Access: Segment 2 traverses about 1,100 feet of scrub-shrub tundra on a bench east of Spruce Creek, and 900 feet of this is scrub-shrub tundra wetlands (0.19 acres). Four-wheel drive vehicles have traversed 800 feet of this segment in the past few years without fill being added, but ruts are forming in the tundra mat. A maximum of 150 cubic yards of gravel fill (900 feet by 9 feet wide by 0.5 feet) is recommended to protect the access surface and underlying permafrost.

Segment 3, Proposed Access: Segment 3 descends into the Spruce Creek floodplain for a total distance of about 800 feet. This segment is mostly in a gravelly floodplain disturbed by past mining activity on Spruce #2. The descent from the tundra bench to the floodplain would be via a 50-foot ramp requiring cut and fill construction. This segment fords Spruce Creek in one place where the channel is braided. The southern half of this segment skirts a large tailing pile, which could be used as a source of gravel for long-term maintenance if the Spruce #2 claim proves to be invalid. The northern part of this segment cuts over an alder-covered, gravelly slope composed of mining tailings.

Segment 4, Proposed Access: Segment 4 continues 1,050 feet west of Spruce Creek to one ford at the northern edge of this segment. The southern part of this segment lies in uplands, the middle section lies in scrub-shrub wetlands (where the winter trail cuts through), and the northern section lies in undifferentiated dry uplands/lowland wetlands. A short 100-foot section climbs onto scrub-shrub wetland between two gravelly human-disturbed sections to avoid instream travel in a constricted part of Spruce Creek.

Segment 5, Proposed Access: Segment 5 traverses about 1,600 feet of the Spruce Creek drainage, including 3 fords at right angles to the stream. About 1,100 feet of this segment follows existing gravel road. The other 500 feet follows abandoned mining trails that are now alder-covered and avoids 200 feet of instream travel. Most of this segment lies within an area mapped as scrub-shrub wetland and upland complex. All of the existing and proposed new access surface is passable, but a 100-foot segment in the northernmost 300 feet would need ditching to transport water from a small spring to the east of Spruce Creek. This segment is entirely within the Spruce #3 mining claim, which the NPS determined to be null and void.

Segment 6, Proposed Access: The last 1,000 feet of this 1,700-foot segment follows the established gravel access on Spruce #4, which is mostly on uplands and gravelly floodplain in an area disturbed by past mining. The first 700 feet of this segment traverses the uplands and wetlands on a bench west of the Spruce Creek channel from Spruce #3 to the existing road on Spruce #4 to avoid instream travel. This new section of road would traverse about 250 feet of wetlands (0.05 acres), which may require two or three culverts in the northern part on Spruce #4. An estimated 6 inches of fill would be need on the wet sections for a maximum total of 42 cu yd (250 feet by 9 feet by 0.5 feet), which could be obtained from Spruce #4.

2.4.2 Construction

The applicants would be responsible for construction upgrade of the road along Spruce Creek. The road construction would occur before or after the peak visitor season (June 30 to August 30) and in accordance with a fish habitat permit issued by ADFG to minimize adverse impacts to fish habitat.

The applicants would obtain gravel from within the ROW easement to their one-acre parcels on Spruce #4. A small back-hoe/loader would be used to move gravel in the floodplain areas and approaches on and off benches above Spruce Creek. A total of about 205 cu yd of gravel would be needed for new access construction through 0.25 acres of wetlands. Gravel would be hauled in the loader bucket. Gravel would not be moved off of the contested mining claims, but it could be moved about within the claims.

2.5 Fly and Drive Alternative (*Environmentally Preferred Alternative*)

This access route would use the existing Glen Creek airstrip and mining access trails between the airstrip and Spruce #4. Construction for this alternative would be the same as for the proposed alternative, but no wheeled vehicle access would be permitted over the Denali Park Road or the first 6 miles of the Moose Creek mining access route. A total of 16 stream fords would be used between Glen Creek and Spruce #4, including those along the North Fork of Moose Creek and Spruce Creek. The access would be limited in the snow-free season to small airplanes and light trucks between the Glen Creek airstrip and Spruce #4. Access in winter could include the use of light aircraft and snowmobiles, as permitted by NPS regulations. See figures 2.1, 2.3a, and 2.3b.

The vehicle allocation would be 30 roundtrips per year between the Glen Creek airstrip and Spruce #4 for each applicant, with no more than 15 roundtrips in any one month and no more than 4 roundtrips in any day by each applicant.

This alternative would be the environmentally preferred alternative because fewer vehicular passes would result across the Denali Park Road and lower Moose Creek area, resulting in less potential adverse impacts to wildlife and other park visitors.

2.6 Glen Creek Bench Alternative

This access alternative would follow the existing 6.7-mile long Moose Creek mining access roads to the Glen Creek airstrip from mile 89 of the Denali Park Road. From there it follows existing Glen Creek mining access roads and a segment of new construction to Spruce #4. This alternative includes use of the lower Glen Creek airstrip (figure 2.4).

The 2-mile-long segment from the Glen Creek crossing to the Barney parcel on Spruce #4 starts with 4,900 feet of the Glen Creek mining access road. This segment then continues into new construction for approximately 6,000 feet, including 3,340 feet of wetlands. The new construction includes undisturbed tundra on stream terraces, alluvial fans, and low angle ridges. This section is laid out with moderate undulating grades on moderate side slopes, both on the mixed wet, sometimes frozen soils, and on the dry “esker-like” ridges. Grades on this location are relatively moderate with none exceeding 15 %, and side slopes are all under 40 %.

Construction on wetlands includes moderately sloped, very wet (and frozen) portions in the first 440 feet of the new construction part of the route and on the 2,500 feet leading to Spruce #4. Another 160

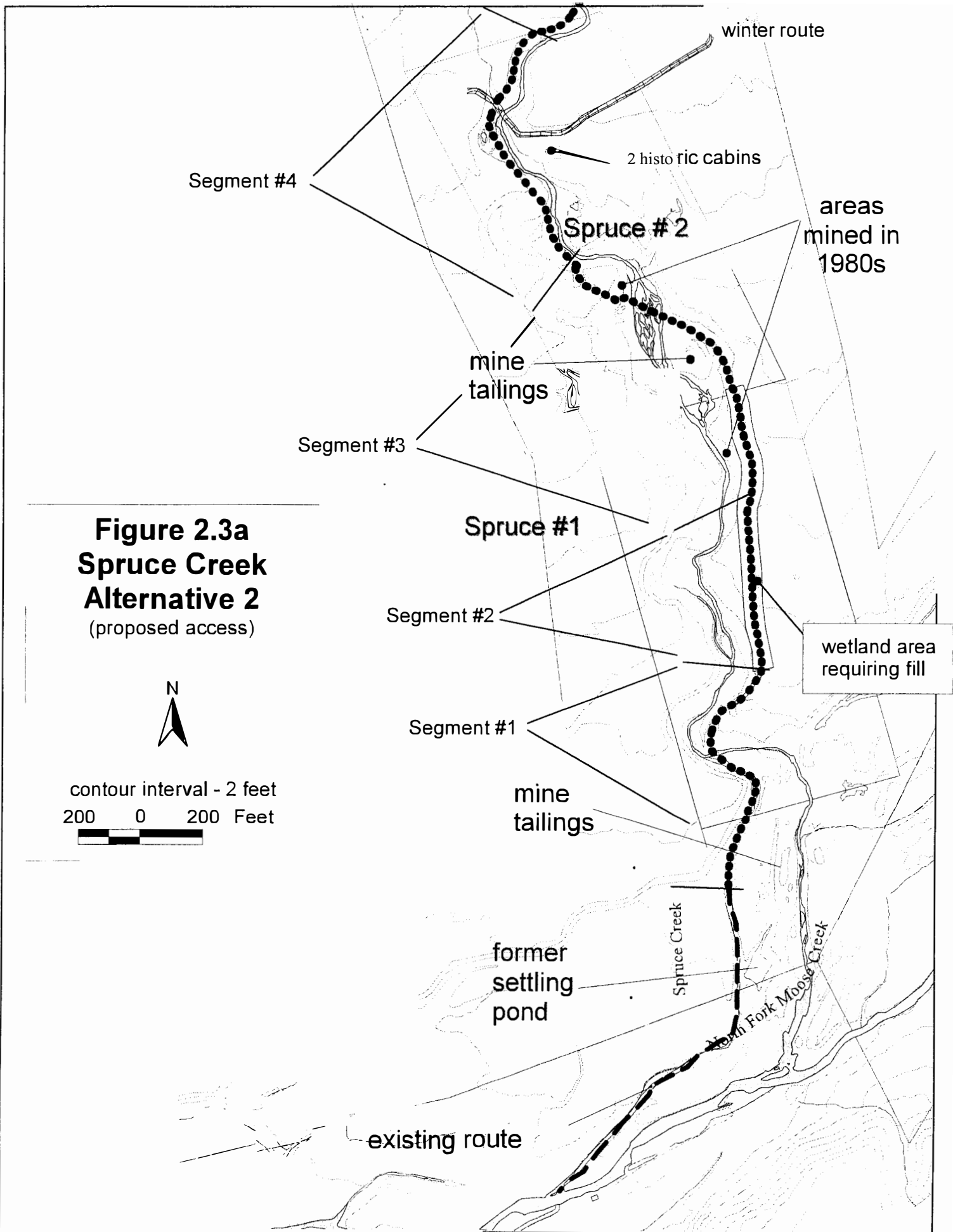


Figure 2.3a
Spruce Creek
Alternative 2
 (proposed access)



contour interval - 2 feet
 200 0 200 Feet

winter route

2 historic cabins

Segment #4

Spruce # 2

areas mined in 1980s

mine tailings

Segment #3

Spruce #1

Segment #2

wetland area requiring fill

Segment #1

mine tailings

former settling pond

Spruce Creek

North Fork Moose Creek

existing route

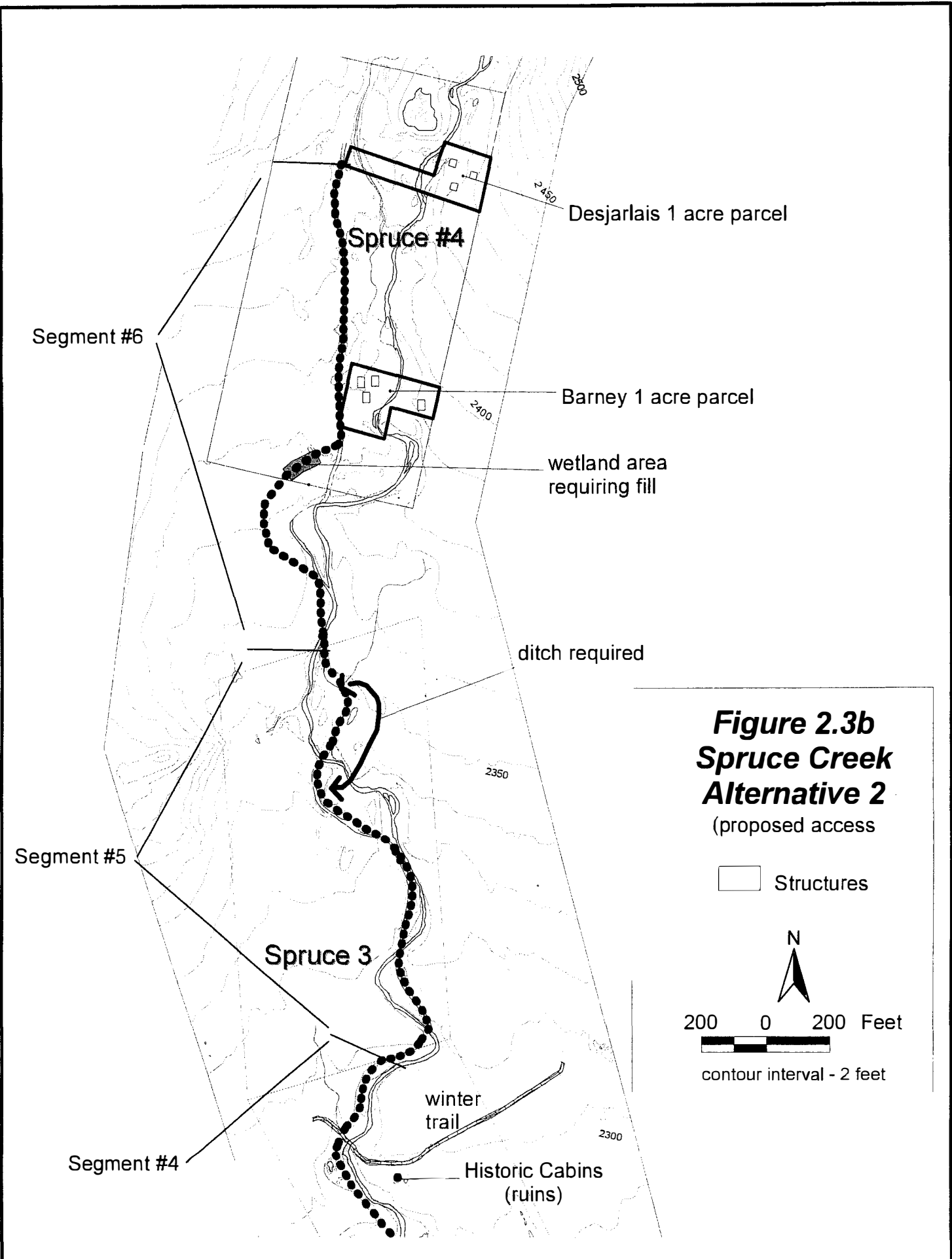


Figure 2.3b
Spruce Creek
Alternative 2
 (proposed access)

□ Structures



200 0 200 Feet

contour interval - 2 feet

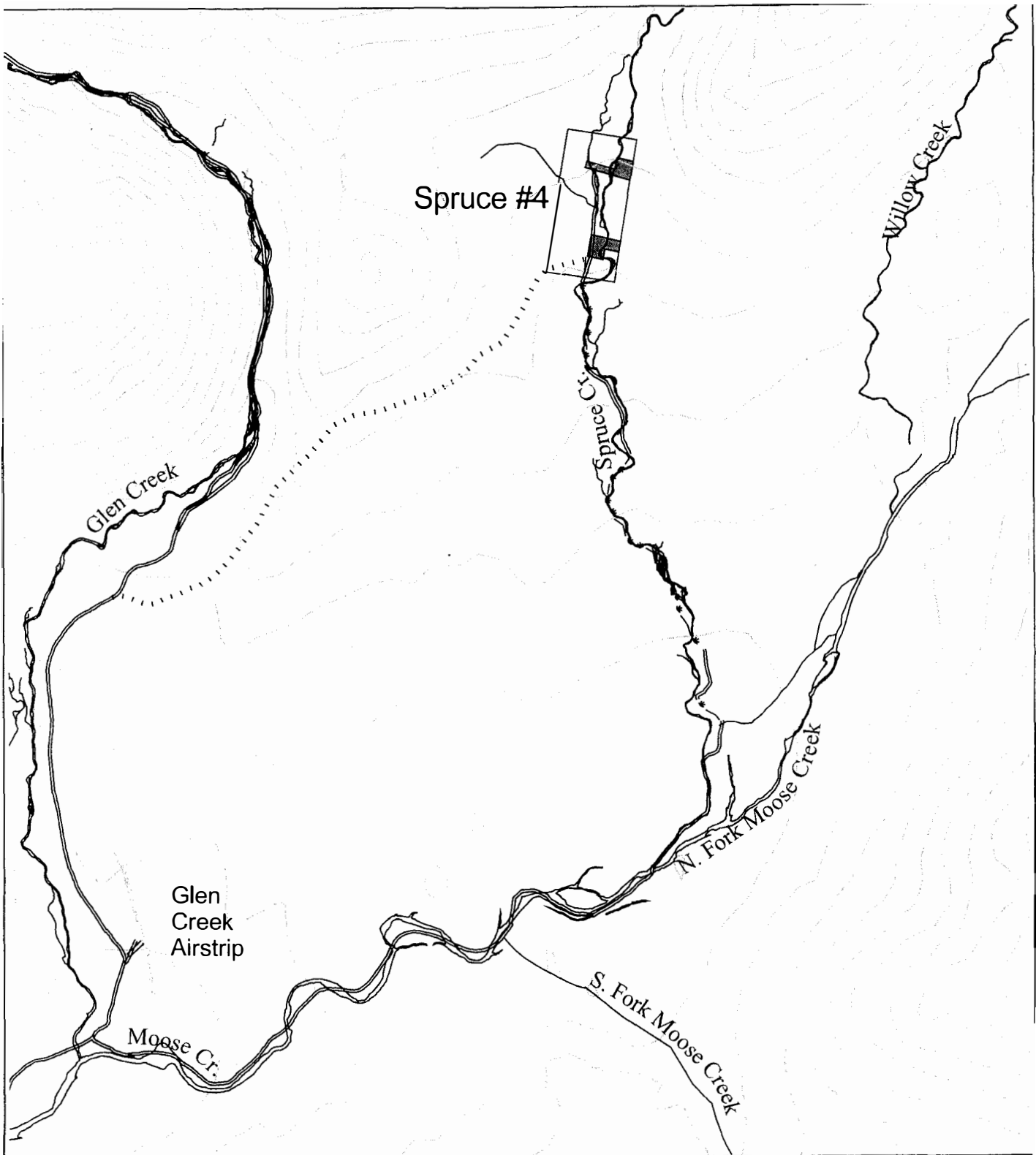


FIGURE 2.4

**GLEN CREEK BENCH ALTERNATIVE
SPRUCE #4 ACCESS**

Legend

- Access Routes
-  Existing Mining Access Routes
-  Existing Bladed Spruce Cr. Rd.
-  New Construction
-  Private Land



contour interval = 50 feet

Denali National Park and Preserve
Alaska



feet of new construction crosses over forested and tall shrub-covered wetlands within the 430 feet from the Spruce #4 property line to the Barney parcel. About 3,050 cu yd of gravel and 2,940 feet of geo-textile material are estimated for this new construction. A bull-dozer, front-loader, and 5 or 10-yard dump truck would be needed to construct this segment. To accommodate the heavy equipment and saturated conditions, a minimum 10-foot wide road surface and 1.5 foot thick gravel fill would be required. An average 10 % side slope is assumed for these calculations. Much of the beginning and middle of this section is on intermittent dry ridge topography, where cut and fill techniques (estimated at 240 cu yd for the wetlands and up to 400 cu yd for the non-wetlands) are expected to provide adequate road surface material. This section of new road would cover about 2,400 square feet of scrub shrub wetland at three low spots along the ridge, or about 0.055 acres of wetlands.

2.7 Mitigating Measures

2.7.1. Mitigating Measures In Place

Mitigation would be spelled out in the ROW permit for this access project (appendix D). Right-of-way permit stipulations that provide mitigation are considered part of the proposed action and alternatives. This permit would specify vehicle usage, Denali Park Road allocations, and road construction standards to protect sensitive natural resources and provide for visitor safety. These standards would include specifications such as width, timing of construction activities, potential material source sites, and wetlands compensation. Best management practices (BMPs) are listed in the ROW permit (appendix D.), and they are assumed in the analysis of impacts in this EA.

No construction of any access alternative would be allowed until all applicable state and federal permits are obtained. These permits would include a Clean Water Act Section 404 permit from the U.S. Army Corps of Engineers and a Fish Habitat Permit issued by the Alaska Department of Fish and Game. A Clean Water Act Section 401 Certificate of Reasonable Assurance from the Alaska Department of Environmental Conservation may also be required (see section 1.5).

In consideration of the ADFG fish habitat permit, vehicle crossings of important grayling and salmon habitat travel would not be allowed during critical fish migration and spawning periods. Since grayling spring migration and spawning mostly occur during the month of May (ADFG 2000) and grayling fall migration to winter habitat in lower Moose Creek usually occurs during the second week in September (Meyer and Kavanagh 1983), these periods would be closed to vehicle fordings.

The mitigation resulting from these measures has been factored into the analyses of environmental consequences in chapter 4.

2.7.2 Potential Mitigating Measures

The following measures would further reduce or eliminate adverse effects identified in chapter 4 and summarized in chapter 2. A decision on these mitigating measures has not occurred; they are noted here as potential measures that could further mitigate the adverse effects of the proposed action and alternatives. If any of these measures were adopted, they would appear in the finding of no significant impact and terms and conditions of the right-of-way permit. The analysis in this EA does not assume that the following mitigating measures are in place; however, they are evaluated in the discussions of effectiveness that follow the brief description of each of the potential measures below.

2.7.2.1 Airplane Operations

The Federal Aviation Administration (FAA) requests all aircraft to maintain a minimum altitude of 2,000 feet above the surface of Denali National Park. FAA Advisory Circular (AC) 91-36C, “Visual Flight Rules (VFR) Flight Near Noise-Sensitive Areas,” defines the surface as the highest terrain within 2,000 feet laterally of the route of flight, or the uppermost rim of a canyon or valley. The applicants and their guests would route their airplanes to and from airstrips to reduce noise impacts to park resources and park visitors from overflights. The applicants and their guests are encouraged to minimize or reroute trips to and from park airstrips to avoid sensitive park resources. The applicants are encouraged to confer with the NPS in planning transportation routes that minimize these effects. Human safety should take precedent at all times over these recommendations.

Purpose of the measure

The purpose of the measure is to minimize adverse impacts to sensitive wildlife and the recreating public in Denali National Park and Preserve.

Effectiveness of the measure

Delineating flight corridors and minimum flight altitudes of 2,000 feet or greater for airplanes traveling to and from airstrips would minimize disturbance to nesting birds, denning wolves, caribou and moose with young, Dall sheep, and any other wildlife that would be startled or adversely affected by noise from low-flying aircraft. Likewise, flying over areas seldom used by park visitors would minimize disturbance to recreationists visiting Denali National Park and Preserve. The FAA has the authority to regulate air space, but an informal agreement between the NPS and the applicants could achieve the desired result.

2.7.2.2 Birds

Right-of-way construction activities would be scheduled before the arrival and nest initiation of most birds in spring, or delayed until late summer (August 15) when most nesting activity has been completed and young birds are mobile enough to move away from disturbed areas.

Purpose of the measure

The purpose of this measure is to minimize adverse impacts to nesting birds, particularly sensitive species or birds nesting in riparian zones.

Effectiveness of the measure

This measure would help protect nesting habitat for sensitive birds such as Harlequin ducks in Moose and Spruce Creeks and other birds along riparian zones. The summer season is the primary construction period, so it would be unreasonable to halt all construction activities between June and August when birds are nesting and rearing young. This measure would have very limited effectiveness.

2.8 Rationale for Environmentally Preferred Alternative

The environmentally preferred alternative would cause the least damage to the biological and physical environment and best protects, preserves, and enhances historic, cultural, and natural resources, which may or may not be the no-action alternative. For the requested access the environmentally preferred alternative would cause the least adverse impact to a combination of aquatic habitat, wetlands, scenery, important fish and wildlife habitat, wilderness recreational activities, and subsistence activities. All of these environmental values are provided for this area in

the purposes for the park extension in ANILCA (see section 1.3.2.) The Fly and Drive Alternative would impact less wetlands and less aquatic habitat than all of the other alternatives, including the no-action alternative. This alternative presents trade-offs, however, because increased access by airplane would create more noise disturbance to wildlife and wilderness users, but these impacts would be much shorter in duration and more ephemeral than the overland travel by trucks through Moose Creek. Also, the visitor use is much less in the Glen Creek area near upper Moose Creek than it is along the lower stretches of Moose Creek near the park road.

Table 2.1 COMPARISON OF THE ALTERNATIVES

ALTERNATIVE	NO ACTION	PROPOSED ACCESS	FLY & DRIVE	GLEN CK. BENCH
Total Road & Air-strip Distance (miles)	9.8	9.8	2.9	8.8
Road Dimensions (width in feet)	9'-10' wide	9'-10' wide	9'-10' wide	9'-10' wide
Existing Road & Air-Strip Distance (miles)	9.8	9.5	2.6	7.6
New Road (miles)	0.0	0.3	0.3	1.2
Max. # Vehicles/year on park road	40 (20 each)	30 (15 each)	0	30 (15 each)
Vehicle Round Trips from Park Road to Spruce #4/Yr/Mo/Day	40/30/8 (20/15/4 each)	30/16/4 (15/8/2 each)	0	30/16/4 (15/8/2 each)
Vehicle Round Trips from Glen Creek Airstrip to Spruce #4 per Yr/Mo/Day	50/32/12 (25/16/6 each)	30/16/4 (15/8/2 each)	60/32/8 (30/16/4 each)	30/16/4 (15/8/2 each)
Max. Gravel Fill Needed (cu yd)	0	205	205	3,050
Potential Gravel Sources	None needed	Spruce #4, ROW along Spruce Creek mining claims	Spruce #4, ROW along Spruce Creek mining claims	Spruce #4, ROW
Stream Crossings & Types	38 fords	32 fords	16 fords	16 fords
# Crossings of Private Land	1	1	0	1
# Crossings of unpatented Mining Claims	29	29	9	19

Table 2.2 — Comparison of Impacts

Impact Topic	1. No Action (Existing Access)	2. Proposed Access Alternative (NPS Preferred)	3. Fly & Drive Alternative	4. Glen Creek Bench Alternative
Physical Environment Geologic Resources	No gravel fill would be used under the no-action alternative with existing conditions. Minor effects on stability of streambed and stream crossings would occur from channeling, stream capture, and erosion along existing roadbed due to 38 crossings, including 1,750 feet of instream road. Negligible effects on soil stability in floodplain. Permafrost absent along this route, except for short segment on bench east of Spruce Creek.	About 205 cu yd of gravel fill needed in the Spruce Creek floodplain and on wetlands along Spruce Creek. Annual gravel maintenance needs about 10 cu yd/yr. Minor risk of permafrost degradation and thaw settlement along short tundra section. Effects on soil stability and sediments in the floodplain of Moose Creek and North Fork from the access would be negligible. Erosion of stream materials is probable where stream-capture and channeling would occur, but this is reduced along Spruce Creek where 6 fords and 1,750 feet of instream travel would be avoided.	Impacts to gravel resources would be similar to the proposed access with about 205 cu yd of fill needed. Erosion of streambed materials from stream-capture and channeling would be reduced from the proposed alternative because 16 fewer stream crossings would be encountered.	Gravel fill volume would be the largest of all alternatives at about 3,290 cu yd. Annual gravel maintenance needs would likely be higher because of subsidence along permafrost sections with fill, but the maintenance needs would be minor (20 cu yd/yr). As with other alternatives, soil impacts along the floodplain section would be minimal, and no loss of material would be lost along the section above the Glen Creek ford.
Natural Quiet (noise)	No change from the existing conditions with minor amounts of vehicle noise. No construction noise would occur under this alternative. Snowmobiles are allowed in the area for access to home sites and for traditional uses.	Noise impacts would be similar to the no action alternative with up to 40 OHV and 8 light truck trips between the park road and Spruce #4 each year and 50 more OHV trips between Glen Creek airstrip and Spruce #4. Road construction noise along Spruce Creek would be short term and localized.	Impacts similar to those described for Alt. 2 (proposed access), but noise from vehicles between the park road and Glen Creek would not occur. Noise from aircraft landings and takeoffs would be most numerous at the Glen Creek airstrip under this alternative.	Noise impacts between the park road and Glen Creek and for winter access would be similar to the proposed access. Construction between Glen Creek and Spruce #4 would be greater in duration, but still short-term. Noise attenuation on this section of road would be less due to high position in tundra.

Impact Topic	1. No Action (Existing Access)	2. Proposed Access Alternative (NPS Preferred)	3. Fly & Drive Alternative	4. Glen Creek Bench Alternative
Visual Resources	Level to gently sloping terrain and riparian shrub vegetation shield most of this road from view by other park users, except Glen Creek airstrip. Views from this route would remain relatively poor, but impacts on scenic quality from surrounding locations would be minor.	Impacts to scenic quality would be similar to the no-action alternative with the minor exceptions of about 300 feet of new road on tundra east of Spruce Ck. and a small structure on Glen Ck. Airstrip. Most of the 9.8 miles of access would be shielded from view in the valley bottoms of Moose & Spruce creeks.	Visual impacts from this alternative would be similar to the proposed access, except 3.5 miles of road between Rainy and Glen creeks would be not be used for this access. Increased air traffic at Glen Creek would slightly increase temporary visual intrusions from airplanes.	Visual impacts from this alternative would be the greatest due to new road construction in exposed tundra between Glen and Spruce creeks. Impacts along the first 6.5miles of access would be the same as for the no-action and proposed access alternatives.
Water Resources	Water resources impacts from chronic low levels of suspended sediments greatest from this alternative with 38 steam crossings, including about 1,750 feet of instream travel. Though impacts minor in magnitude, this alt. would contribute most to long-term degradation of water quality and natural stream channels.	Impacts would be second highest of all alternatives with 32 stream crossings. A temporary increase in impacts likely during short period of road construction and reroute along Spruce Creek, but elimination of instream travel greatly reduces overall long-term effect compared to the no-action alternative.	Water resources impacts would be the least with this alternative because of only 16 stream crossings through the smaller streams (North Fork and Spruce Creek). Overall impacts would be similar to the proposed access, except the first 16 crossings of Moose, Jumbo, and Glen creeks would be avoided.	Water resources impacts would be second to least with this alternative with 16 crossings of Moose Creek, North Fork, Jumbo, and Glen creeks. Potential impacts to waters upstream of the Glen Creek cutoff would be eliminated, but impacts to wetland functions between Glen and Spruce creeks would be greatest.
Biological Environment	Impacts to habitats for invertebrates and fish would be greatest with 38 stream crossings and 1,750 feet (565 m) of instream road for a total of 2,465 m (1.48 mi.) of affected stream habitats from increased suspended sediments. In summer up to 180 vehicle fordings on North Fork of Moose Creek and 100 fordings on main fork of Moose Creek.	Impacts to habitats for invertebrates and fish would be second greatest with 32 stream crossings and total of 1,550 m (0.91 mi.) of affected stream habitats from increased suspended sediments. In summer up to 120 vehicle fordings on North Fork of Moose Creek and 60 fordings on main fork of Moose Creek.	Impacts to habitats for invertebrates and fish would be third greatest with 16 stream crossings and total of 800 m (0.47 mi.) of affected stream habitats from increased suspended sediments. Most important habitat along North Fork still affected by this alternative. In summer up to 120 vehicle fordings on North Fork of Moose Creek and no fordings on main fork of Moose Creek	Impacts to habitats for invertebrates and fish would be least with 16 stream crossings and total of 800 m (0.47 mi.) of affected stream habitats from increased suspended sediments. Most important habitat along North Fork avoided by this alternative. In summer up to 60 vehicle fordings on main fork of Moose Creek.

<p>Vegetation and Wetlands</p>	<p>No new impacts to vegetation would occur under the no-action alternative. Minor impacts to wetlands along a 300-foot long section near Spruce Creek. Natural revegetation of an old mining road and airstrip would be precluded with continued use of this access.</p>	<p>About 0.63 acres of tall shrub, low shrub and spruce forest would be removed for new road construction along Spruce Creek, including 0.37 acres of wetlands filled (0.25 acres) and/or traversed. Most wetlands in low scrub shrub type over permafrost. No new impacts to vegetation would be encountered along the rest of the access, as described in the no-action alternative.</p>	<p>Impacts to vegetation and wetlands would be the same as with the proposed access. Natural revegetation or reclamation along the road between Rainy and Glen creeks could occur over time if other mining claims are vacated.</p>	<p>Impacts greatest of all four alternatives because of 1.2 miles of new road construction between Glen Creek road and Spruce #4. This alternative impacts 1.92 acres of vegetation, including 1.36 acres of wetlands. Vegetation types affected in order of acreage would be low shrub, alpine tundra, tall shrub, and spruce forest. Majority of wetlands affected is low scrub shrub type over permafrost.</p>
<p>Wildlife and Habitats — Mammals</p>	<p>No new impacts to wildlife or habitat on 12.9 acres of existing access. Ongoing impacts to wildlife would be continued negligible impacts from short-term disturbance from vehicles and low level of human use along 9.8 miles of access.</p>	<p>Impacts nearly identical to the no-action alternative, except small area of new habitat loss (0.63 acres) along short segments of road construction by Spruce Creek. A total of about 12.9 acres of access would continue to be used along 9.8 miles of access.</p>	<p>A total of about 5.9 acres of habitat would be used along 3.8 miles of access, but a doubling of airplane takeoffs and landings at Glen Creek airstrip would result in the greatest local noise disturbance to wildlife. Vehicle disturbance along 6.5 miles between park road and Glen Creek would be avoided.</p>	<p>A total of about 11.7 acres of habitat along 8.6 miles of access would be occupied, including 1.92 acres (1.3 mi.) of new impacts to habitat between Glen Creek Road and Spruce #4. Temporary displacement of wildlife likely during construction, but long-term impacts negligible. Less impact to wildlife in the long run is likely because more wildlife uses riparian habitat by streams.</p>
<p>Wildlife and Habitats — Birds</p>	<p>No new impacts to birds, but short-term behavioral disturbances to breeding birds likely near Glen Creek airstrip and human activities near cabins at Spruce #4, but these effects negligible.</p>	<p>Impacts nearly identical to the no-action alternative, except small area of habitat loss (0.63 acres) along short segments of road construction by Spruce Creek.</p>	<p>Area of impacts to birds the smallest of all alternatives (5.9 acres) along 3.8 miles of access. Noise disturbance to birds along the Glen Creek airstrip would be doubled, but the area of impact is small.</p>	<p>Impacts to birds similar to the proposed access, but short-term impacts from construction of 1.3 miles of new road would be greater. Vacating riparian habitat along North Fork and Spruce Creek would be beneficial.</p>

Social and Economic Environment				
Cultural Resources	No historical or archeological sites eligible for listing on National Historic Register known along existing route, despite surveys of mining claims since mid-1980s. One set of cabin ruins are near the route on Spruce #3. The few buildings and mining tailings along the route are less than 50 years old.	Impacts to cultural resources similar to the no-action alternative, except 0.63 acres of vegetation removed to avoid instream travel in Spruce Creek. Cabin ruins and other mining features by Spruce Creek avoided. New construction would be observed or cleared by an archeologist in consultation with the ACHP and SHPO.	Potential impacts to cultural resources would be the same as for the proposed access.	This alternative would pass over or near 4 archeological sites. A plan to mitigate potential impacts would be made in consultation with ACHP and SHPO. Full documentation of sites would likely be required.
Public Use	Impacts to public use would not change from the present situation. Minor impacts to hikers between the park road and first ford at mile 3.5 would occur from limited vehicle use (less than 50 vehicle passes per year) along the road.	Impacts to public use would be nearly identical to the no-action alternative. Maintenance of the access road and Glen Creek airstrip to the conditions found in August 2000 would enhance public access to this area over time.	Impacts to public use would be the least because the first 6.5 miles from the park road would be avoided where the greatest number of park visitors in the area go. Noise impacts to backcountry users in units 41 and 35 would be greater because of about twice as many airplanes take-offs and landings.	Effects on public access to the area would be insignificant, but the reduction of stream crossings for the applicants would reduce the potential for vehicle strandings. The applicants could avoid stream crossings altogether when flying to the Glen Creek airstrip.
Subsistence	The no-action alternative would have no impacts on subsistence uses in the area.	The proposed access would have virtually no impacts on subsistence uses in the area. Access may be slightly improved for subsistence along the access road by Spruce Creek, but this effect would be negligible.	Impacts to subsistence uses would be similar to the no-action and proposed access alternatives, but twice as much airplane use would occur at Glen Creek airstrip. This would have a negligible effect on moose distribution and subsistence.	This alternative would result in a negligible change in subsistence use compared to the no-action alternative. 1.3 miles of new road would increase access, but access up North Fork and Spruce Creek would likely be cut off by erosion from future floods.
Wilderness	This alternative would not result in impacts to designated wilderness or to lands in the park identified as suitable for wilderness designation.	Impacts similar to the no-action alternative, but a short section of new road by Spruce Creek would be more visible to wilderness users in Backcountry Unit 35.	Impacts similar to the no-action and proposed access, but more noise disturbance from twice the airplane trips each year would occur. This effect would be cumulative with 600 flightseeing trips from the Kantishna Airstrip each summer.	Impacts to wilderness similar to the no-action and proposed access alternatives, but 1.3 miles of new road would be visible to wilderness users in unit 35.

