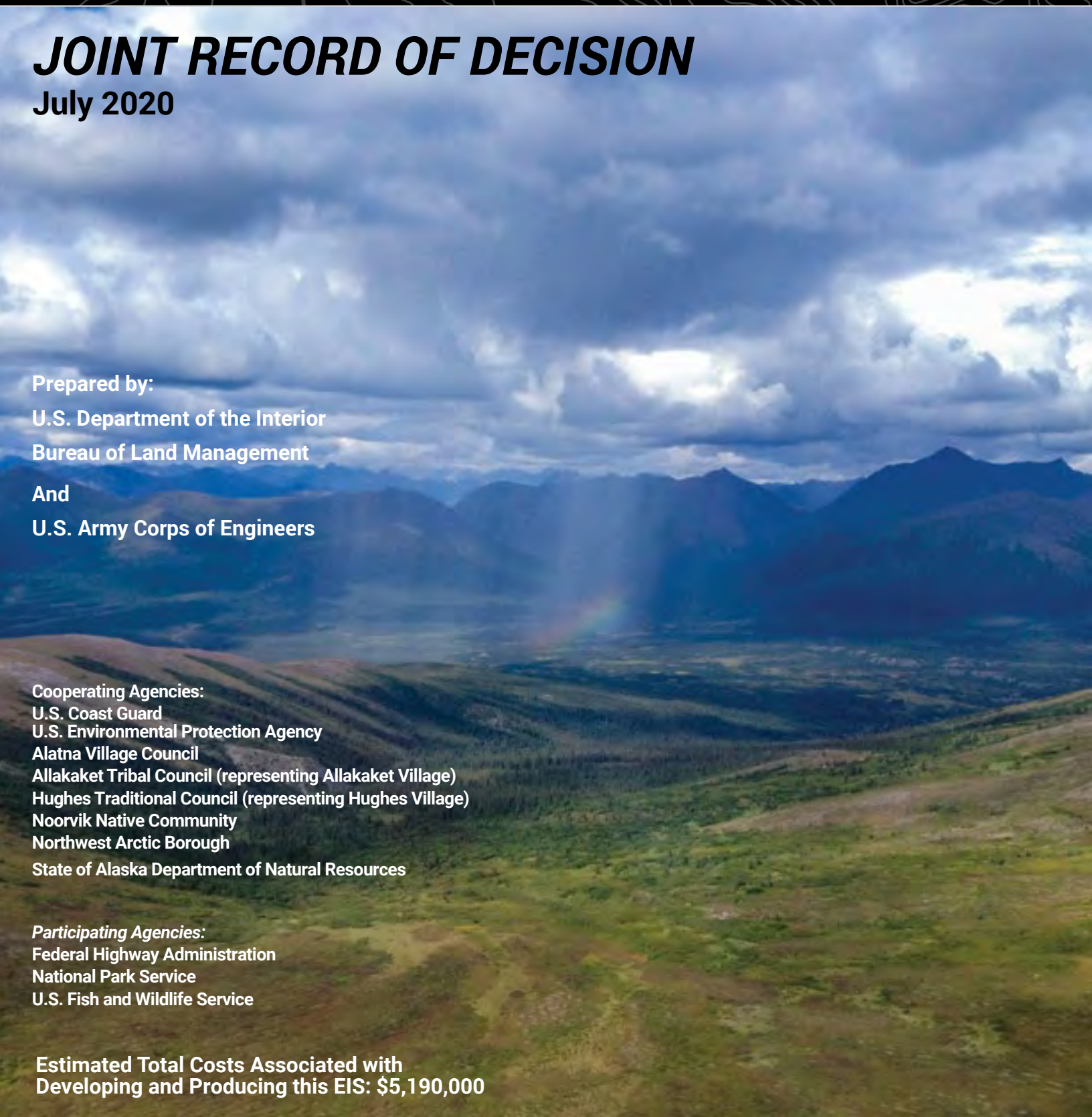
Ambler Road

Environmental Impact Statement

JOINT RECORD OF DECISION

July 2020



Prepared by:

U.S. Department of the Interior

Bureau of Land Management

And

U.S. Army Corps of Engineers

Cooperating Agencies:
U.S. Coast Guard
U.S. Environmental Protection Agency
Alatna Village Council
Allakaket Tribal Council (representing Allakaket Village)
Hughes Traditional Council (representing Hughes Village)
Noorvik Native Community
Northwest Arctic Borough
State of Alaska Department of Natural Resources

Participating Agencies:
Federal Highway Administration
National Park Service
U.S. Fish and Wildlife Service

Estimated Total Costs Associated with Developing and Producing this EIS: $5,190,000

Cover Photo: Looking north at the Brooks Range from the Alatna Hills. Photo by Crystal Glassburn (BLM).

DOI-BLM-AK-F030-2016-0008-EIS
BLM/AK/PL- 19/013+1610+F030

AMBLER ROAD ENVIRONMENTAL IMPACT STATEMENT

Joint Record of Decision

Bureau of Land Management
U.S. Army Corps of Engineers

July 2020

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Joint Record of Decision and Permit Evaluation for the Ambler Road Project

LEAD FEDERAL AGENCY	Bureau of Land Management
COOPERATING FEDERAL AGENCY	U.S. Army Corps of Engineers
APPLICANT	Alaska Industrial Development and Export Authority
APPLICATION REFERENCE NUMBERS	BLM Case File FF-09112 POA-2013-00396
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ACRONYMS AND ABBREVIATIONS

ACHP	Advisory Council on Historic Preservation
ANDR	Alaska Department of Natural Resources
AIDEA	Alaska Industrial Development and Export Authority (Applicant/Permittee)
ANCSA	Alaska Native Claims Settlement Act
ANILCA	Alaska National Interest Lands Conservation Act
APE	Area(s) of Potential Effect
BLM	Bureau of Land Management
CAA	Clean Air Act
CFR	Code of Federal Regulations
Corps	U.S. Army Corps of Engineers
CWA	Clean Water Act
DA	U.S. Department of the Army
DEIS	Draft Environmental Impact Statement
District	Ambler Mining District
DOI	U.S. Department of the Interior
DPA	Defense Production Act of 1950
EEA	Environmental and Economic Analysis
EFH	Essential Fish Habitat
EIS	Environmental Impact Statement
EO	Executive Order
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
FEIS	Final Environmental Impact Statement
FLPMA	Federal Land Policy and Management Act
FR	*Federal Register*
GAAR	Gates of the Arctic National Park and Preserve
JROD	Joint Record of Decision
LEDPA	Least Environmentally Damaging Practicable Alternative
MP	Milepost
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NPS	National Park Service
PA	Programmatic Agreement
Permittee	See AIDEA
Project	Ambler Road Project
ROW	right-of-way/rights-of-way
SF299	Standard Form 299
SHPO	State Historic Preservation Officer
SOA	scope of analysis
USC	United States Code
USCG	U.S. Coast Guard
USFWS	U. S. Fish and Wildlife Service
USGS	U.S. Geological Survey
WOTUS	Waters of the United States
WQC	Water Quality Certification

1. INTRODUCTION

1.1 Background

This document constitutes the Record of Decision under the National Environmental Policy Act (NEPA) for the Ambler Road Project (Project). This is a Joint Record of Decision (JROD) of the following federal agencies:

- U.S. Department of the Interior (DOI), Bureau of Land Management (BLM)
- U.S. Department of the Army (DA), U.S. Army Corps of Engineers (Corps)

The Project, proposed by the Alaska Industrial Development and Export Authority (AIDEA, also known as the BLM "Applicant" and Corps "Permittee"), would create a new road in north-central Alaska from the Dalton Highway to the Ambler Mining District (District). The Project would include a road with stream crossings, temporary construction camps, permanent maintenance camps, airstrips associated with the maintenance camps, material sites, communications stations, and a fiber optic line over more than 200 miles of land owned by the United States of America and other entities. The BLM, as the lead federal agency, assessed Project impacts in a Final Environmental Impact Statement (FEIS), published March 27, 2020.

This JROD is prepared in accordance with BLM's authority under Title V of the Federal Land Policy and Management Act (FLPMA) (43 United States Code [USC] 1761–1772), and Sections 810, 201, and Title XI of the Alaska National Interest Lands Conservation Act (ANILCA).

Further, this JROD contains the Corps' determination of compliance with the Section 404(b)(1) Guidelines (40 Code of Federal Regulations [CFR] 230; "Guidelines"), the public interest review (33 CFR 320.4), and permit decision under the authority delegated to the District Engineer by 33 CFR 325.8, pursuant to Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act of 1899.

This document records the agencies' mutual decision to select Alternative A for the Project. See a map of the selected alternative in Appendix A, Maps, of this JROD. Minor errata associated with the FEIS are presented in Appendix B, Final Environmental Impact Statement – Errata, of this JROD. Applicant design features as well as agency mitigation measures and special conditions are included in Appendices C (Design Features Proposed by the Applicant) through I (National Marine Fisheries Service Letter of Concurrence) of this JROD.

BLM's authorities are limited to the Project components that occur on BLM-managed public lands. The Corps' regulatory authority is limited to components of the Project that would result in discharges of dredged and/or fill material into Waters of the United States (WOTUS) under the CWA and all work within navigable WOTUS under the Rivers and Harbors Act of 1899.

A portion of AIDEA's proposed route goes through Gates of the Arctic National Park and Preserve (GAAR), managed by the National Park Service (NPS). In ANILCA Section 201(4)(b), Congress directed the Secretary of the Interior to authorize surface transportation access across GAAR from the District to the Alaska Pipeline Haul Road (Dalton Highway). This Congressionally approved access through GAAR

is not subject to NEPA.[1] Instead, ANILCA directs the Secretary of the Interior and Secretary of Transportation (U.S. Department of Transportation) to jointly prepare an Environmental and Economic Analysis (EEA) to determine the route through GAAR, and the terms and conditions that may be required for issuance of the right-of-way (ROW) permit by the Secretary. The EEA and a related route selection decision are being issued concurrently with this JROD.

The FEIS for the Project was prepared by the BLM, with the Corps, U.S. Coast Guard (USCG), U.S. Environmental Protection Agency (EPA), Alatna Village Council, Allakaket Tribal Council, Hughes Traditional Council, Noorvik Native Community, Northwest Arctic Borough, and State of Alaska Department of Natural Resources (ADNR) as cooperating agencies. In addition, the NPS, Federal Highway Administration, and U.S. Fish and Wildlife Service (USFWS) were participating agencies. The findings in the FEIS were based on an open, collaborative, and robust process among scientists, resource specialists, and regulatory staff of the Corps, BLM, all other cooperating and participating agencies, and participating public. This process resulted in an FEIS that—consistent with NEPA—provides an adequately detailed analysis of the environmental impacts of the Applicant's proposal and all reasonable alternatives, including the No Action Alternative, to inform and support the reviews and decisions of the BLM and Corps for the proposed Project.

The BLM received a revised ROW application from the Applicant dated June 30, 2016 and considered it adequate to initiate NEPA review. The Corps received a DA permit application from the Applicant dated June 30, 2016. The Corps, as part of its permit evaluation process and cooperating agency role for the Project, contributed to the development of a Draft and Final Environmental Impact Statement (EIS) in compliance with NEPA. The BLM Notice of Availability for the FEIS was published in the *Federal Register* on March 27, 2020.

The agencies will require the Applicant to comply with all design features[2] that are part of its application, as expressed in Section 2.4.4 of the FEIS and Appendix C of this JROD, as appropriate.

1.2 Authorities

1.2.1 Bureau of Land Management Authority

The BLM is responsible for land use authorizations on certain federally administered public lands. The authority for management of the land and resource development options presented in the FEIS is pursuant to FLPMA, Title V (43 USC 1761-1772)

1.2.2 U.S. Army Corps of Engineers Authority

This permit action is being taken under authority delegated to the District Engineer by 33 CFR 325.8, pursuant to:

[1] ANILCA 201(4): "… (b) Congress finds that there is a need for access for surface transportation purposes across the Western (Kobuk River) unit of the Gates of the Arctic National Preserve (from the Ambler Mining District to the Alaska Pipeline Haul Road) and the Secretary shall permit such access in accordance with the provisions of this subsection. (c) Upon the filing of an application pursuant to section 1104 (b), and (c) of this Act for a right-of-way across the Western (Kobuk River) unit of the preserve, including the Kobuk Wild and Scenic River, the Secretary shall give notice in the Federal Register of a thirty-day period for other applicants to apply for access. (d) The Secretary and the Secretary of Transportation shall jointly prepare an environmental and economic analysis solely and for the purpose of determining the most desirable route for the right-of-way and terms and conditions which may be required for the issuance of that right-of-way. This analysis shall be completed within one year and the draft thereof within nine months of the receipt of the application and shall be prepared in lieu of an environmental impact statement which would otherwise be required under section 102(2)(C) of the National Environmental Policy Act. Such analysis shall be deemed to satisfy all requirements of that Act and shall not be subject to judicial review. Such environmental and economic analysis shall be prepared in accordance with the procedural requirements of section 1104(e)…"

[2] The BLM uses the term "design features" to encompass features of the project design that are intended to reduce impacts, and these can include other mitigating measures that are not literally design-oriented but may be best practices and operational features meant to minimize impact of the project.

- CWA, Section 404 (33 USC 1344)
- Rivers and Harbors Act of 1899, Section 10 (33 USC 403)

2. DECISION SUMMARY

2.1 Bureau of Land Management's Decision Summary

This JROD approves the development of Project Alternative A on BLM-managed lands, as described in the FEIS (March 2020). The FEIS (located on BLM's ePlanning Project website https://eplanning.blm.gov/eplanning-ui/admin/project/57323/570 analyzed the Applicant's proposal to develop the Ambler Road and associated airstrips, material sites, construction camps, maintenance stations, and communications facilities.

This JROD concludes the EIS process and fulfills NEPA requirements for the subsequent issuance of a BLM ROW Grant and other authorizations necessary for development of the Ambler Road on federal lands managed by the BLM. Actions covered by this decision include the Project components outlined in Section 3.2 of this JROD and all phases of the Project that would be on BLM-managed lands, including:

- Road ROW and embankment for all phases of construction
- Temporary construction camps, permanent maintenance camps, gatehouses, airstrips, and turnouts
- Communications system
- Fiber optics line
- Material sites and water sources
- Road operations and maintenance for approximately 50 years
- Road closure and reclamation
- Timber sales

The Applicant will be required to comply with all BLM mitigating measures selected from Appendix N (Potential Mitigation) of the FEIS, which are listed in Appendix D (BLM Supporting Documentation) of this JROD. The design features[3] the Applicant has agreed to undertake to avoid and minimize impacts are also described in Chapter 2 (Alternatives) of the FEIS and listed in Appendix C of this JROD. For facilities whose locations will be identified in site-specific plans as part of the Plan of Development (e.g., material sites, construction camps, and maintenance camps) on BLM-managed lands, the BLM will evaluate site-specific plans and determine whether those site-specific proposals fall within the scope of the Ambler Road FEIS and JROD for this project, or whether additional site-specific NEPA is required based on potential site-specific issues.

The BLM has determined the Project is in conformance with the following BLM resource management plans:

- *Utility Corridor Resource Management Plan/Environmental Impact Statement Record of Decision*[4], covering the Trans-Alaska Pipeline System corridor at the eastern edge of the study area and encompassing most of the BLM-managed land that would be affected by the Project.
- *Resource Management Plan and Record of Decision for the Central Yukon Planning Area*[5], covering most of the study area, but only small parcels of BLM-managed land would be affected in this planning area.

[3] As design features proposed by the Applicant, these features apply throughout the Project's alignment regardless of land ownership.

[4] BLM. 1991. *Utility Corridor Resource Management Plan/Environmental Impact Statement Record of Decision*. Available at: eplanning.blm.gov/epl-front-office/projects/lup/35315/43921/47272/UtilityRMP_ROD_web.pdf

[5] BLM. 1986. *Resource Management Plan and Record of Decision for the Central Yukon Planning Area*. Available at: eplanning.blm.gov/epl-front-office/projects/lup/35315/43914/47265/CYRMP_ROD_small-web.pdf

- *Kobuk-Seward Peninsula Record of Decision and Approved Management Plan*[6], covering the western portion of the study area, but only small parcels of BLM-managed land would be affected in this planning area.

The Project would not conflict with the overall long-term management direction for BLM-managed lands encompassed by the Project.

2.1.1 Alaska National Interest Lands Conservation Act Section 810 Summary

The ANILCA Section 810 Evaluation was published in the FEIS without final determinations because the evaluation also serves NPS's decision, and the NPS EEA was not final at that time. The ANILCA Section 810 Final Evaluation, with final determinations, is published with this JROD (Appendix E).

Appendices C, D and E of this JROD describe the mitigating measures that the Applicant is required to undertake to avoid, minimize, and mitigate impacts to subsistence resources and uses.

2.2 U.S. Army Corps of Engineers' Decision Summary

After an independent review of the Ambler Road FEIS, the Corps has determined that the FEIS includes an adequate level of information, in conjunction with the NPS EEA, to inform the DA permit decision. The Corps hereby adopts the FEIS for the Project, and finds it fulfills the needs and obligations set forth by NEPA and other relevant laws, regulations, and policies of the Corps as a cooperating agency.

The information presented in this JROD and appendices includes the Corps' determination of the proposal's compliance with the guidelines and public interest evaluation (see Appendix F, Corps Supporting Information). The Corps finds that Alternative A identified in the FEIS, including the changes since the public notice and incorporation of special conditions, is the Least Environmentally Damaging Practicable Alternative (LEDPA) and would not be contrary to the public interest. The changes since the public notice (Project design revisions) are discussed in Section 2.0 of Appendix F. A DA permit to authorize the discharge of dredged and fill material, as well as work within navigable WOTUS, as described herein, will be proffered to the Applicant.

3. PROJECT DESCRIPTION

3.1 Project Location

The proposed Ambler Road would be located in north-central Alaska, connecting the existing Dalton Highway, at Milepost (MP) 161, to the District along the southern edge of the Brooks Range in the Koyukuk and Kobuk River watersheds. The western end of the Project lies within the Northwest Arctic Borough. The eastern end is in a broad unincorporated area (no borough government).

3.2 Overall Project Description

3.2.1 Road Right-of-Way, Road Embankment, Phases 1, 2, and 3

The Applicant has proposed a 211-mile road, from MP 161 on the existing Dalton Highway to the south bank of the Ambler River within the District. The Applicant's proposal, Alternative A, is mapped in Appendix A of this JROD. The road will fall within a ROW generally 250 feet wide. The ROW Grant has been proposed with a term of 50 years. The ROW will be wider in certain locations to allow for roadway cuts and fills and for maintenance sites, material sites, and airstrips, as described below.

[6] BLM. 2006. *Kobuk Seward Peninsula Resource Management Plan, Draft EIS*. Available at: eplanning.blm.gov/epl-front-office/eplanning/docset_view.do?projectId=66967&currentPageId=96799&documentId=132953

Construction will occur in phases. Phase 1 is a 1-lane "pioneer road" with minimal shoulder space. It will include installation of all culverts and bridge crossings of waterways needed for all phases and will allow access to the District late-summer through winter, but it is not anticipated to provide access in spring and early summer when portions of the road may be soft. All bridges (29 estimated) would be 1-lane structures and would not be widened in later phases. All culverts would be installed at the size needed for Phase 2. Phase 2, which may be constructed immediately following Phase 1 as a single construction effort or later in time, will widen, deepen, and otherwise finish the road embankment needed for year-round use, but the road would remain a 1-lane road. Phase 3 would be constructed when mining activity and resulting traffic warrant, and it is possible Phase 3 may never be built. Phase 3 would widen the embankment to accommodate 2-way traffic (allowance for 2 lanes with shoulders). All culverts would be extended for Phase 3.

3.2.2 Temporary Construction Camps, Permanent Maintenance Camps, Gatehouses, Airstrips, and Turnouts

The Applicant has proposed 4 maintenance stations for the life of the Project and 5 additional temporary construction camps. Maintenance stations each would include a gravel airstrip that is 150 feet wide and 3,000 feet long. Temporary camps would be built within material sites. Temporary and permanent camps would include housing, storage and maintenance areas, water and sewer systems, generators, and fuel tanks. The road would include heated, staffed gatehouses near each end. Twenty periodic turnouts would be constructed of additional fill to provide locations to pull off the road.

3.2.3 Communications System

The Applicant has proposed a fiber optic line be buried within the road embankment along the length of the road. Directional drilling is proposed at bridge crossings to place the cable housing beneath stream beds. The Applicant has also proposed communications towers: 3 at maintenance stations plus 9 at material sites, for a total of 12. Each tower will include a small equipment building, generator, and fuel storage.

3.2.4 Materials Sites and Water Sources

The Applicant has proposed 44 material sites at intervals along the road, totaling 1,863 acres. Water sources are proposed at multiple streams. Material sites and water sources typically will include short spur access roads.

3.2.5 Road Operations

The road will operate as a private industrial-access road and will not be open to the general public. A permitting system will allow traffic to and from the District and will allow delivery of goods and fuel, by commercial carrier only, to communities/landowners near the road. Land managing agencies and emergency personnel on official business will also use the road. All drivers will be required to follow the Applicant's protocols (approved by the BLM) for road use.

3.2.6 Road Closure and Reclamation

At the end of the approved term of the ROW, the Applicant will close the road to traffic and remove all maintenance stations, culverts, and bridges; remove or re-contour the embankments; and reclaim/revegetate the land with native species.

4. Purpose and Need

4.1 Applicant's Stated Purpose and Need

AIDEA, the Applicant, is pursuing construction of an industrial access road consistent with its mission to increase job opportunities and otherwise encourage the state's economic growth, including development

of natural resources. Specifically, AIDEA's purpose for this Project is to support mineral resource exploration and development in the District. The road would provide surface transportation access to the District and allow for expanded exploration, mine development, and mine operations at mineral prospects throughout the District. AIDEA indicates that surface transportation access would help bring the high-value mineral resource areas into production.

AIDEA lists multiple public benefits related to the Project purpose, including direct employment for road construction and operation, indirect employment related to mining, revenues paid to local and state governments and Alaska Native corporations, and commercial access opportunities for nearby communities with proximity to a road.

4.2 Bureau of Land Management Purpose and Need for Action

In accordance with Section 501 of FLPMA, as amended, BLM's purpose and need for the proposed action is to respond to a ROW application submitted by the Applicant to cross BLM-managed lands. See Chapter 1 (Introduction) of the Ambler Road FEIS for a discussion of BLM's Purpose and Need.

4.3 U.S. Army Corps of Engineers Purpose and Need

4.3.1 Basic Project Purpose and Water Dependency

Pursuant to 40 CFR 230.10(a)(3), the Corps has defined the basic Project purpose as: To provide transportation access to the Ambler Mining District to support mineral exploration and development. The proposed activity does not require access or proximity to or siting within a special aquatic site to fulfill its basic purpose. Therefore, the activity is not water dependent. The Corps has determined that practicable alternatives that do not involve special aquatic sites are not available to the Applicant due to the abundance of wetlands within the Project area.

4.3.2 U.S. Army Corps of Engineers Overall Project Purpose

The overall project purpose is used for evaluating practicable alternatives to the Applicant's preferred alternative under the Section 404(b)(1) guidelines and must be specific enough to define the Applicant's needs, but not so restrictive as to preclude all discussion of alternatives (33 CFR 325, Appendix B 9 b(4)). Defining the overall project purpose is the responsibility of the Corps, considering the public interest. However, the Applicant's needs must be considered in the context of the desired geographic area of the development, and the type of project being proposed. Consistent with this responsibility, the Corps has defined the overall Project purpose as: To provide year round surface transportation access for mining exploration and development in the Ambler Mining District.

5. SCOPE OF ANALYSIS

5.1 Scope of Analysis for Bureau of Land Management

5.1.1 Bureau of Land Management National Environmental Policy Act Analysis

The BLM is the lead federal agency for the EIS. To comply with NEPA, the BLM assessed the environmental consequences with support from other federal, state, borough, and tribal entities. The BLM prepared the EIS in compliance with NEPA, the Council on Environmental Quality regulations for implementing NEPA (40 CFR 1500–1508), BLM NEPA Handbook H-1790-1[7], and other applicable laws and regulations (see Section 8 of this JROD).

[7] BLM. 2008. National Environmental Policy Act Handbook H-1790-1. January 2008. NEPA Handbook H-1790 508. Available at: www.ntc.blm.gov/krc/uploads/366/NEPAHandbook_H-1790_508.pdf

The BLM determined the scope of analysis (SOA) with the coordination of the cooperating agencies. The SOA included the direct, indirect, and cumulative impacts within the Project area or "affected environment," which is generally defined as the area from the Brooks Range (same latitude as the northern edge of the District) south to the Yukon River, and from the Dalton Highway corridor west to Kobuk Valley National Park (FEIS, Volume 4, Maps, Map 1-1). Where the affected area for a given resource differed from the SOA, the applicable affected area was described in the Ambler Road FEIS.

5.1.2 Alaska National Interest Lands Conservation Act Section 810 Analysis

For any project requiring an authorization from the BLM, pursuant to ANILCA Section 810, the BLM is responsible for conducting an ANILCA Section 810 analysis. Based on ANILCA Section 810 and BLM Instruction Memorandum 2011-008, the BLM determined that the ANILCA Section 810 analysis needs to address the portions of the Project requiring a BLM authorization, primarily the easternmost 25 miles of the proposed road, and all aspects of the Project that are dependent on that authorization, because those portions of the Project would not go forward if not for BLM authorization. This is consistent with NEPA requirements for evaluation of connected actions. The Section 810 Evaluation was published without final findings and determinations in the Ambler Road FEIS, because it also serves NPS's decision and the NPS EEA was not yet final at the time the Ambler Road FEIS was published. The ANILCA Section 810 Final Evaluation, with final findings and determinations, is published with this JROD (Appendix E).

5.2 Scope of Analysis for U.S. Army Corps of Engineers

The BLM, the lead federal agency, determined the NEPA SOA after coordination with the cooperating agencies. As a cooperating agency with federal permitting responsibilities, the Corps' SOA is based on its statutory authorities under Section 404 of the CWA and Section 10 of the Rivers and Harbors Act of 1899. Therefore, the Corps' SOA included the direct, indirect, and cumulative impacts associated with the proposed discharges of dredged and/or fill material in WOTUS, including wetlands, and uplands within the proposed road corridor. The geographic area within which the Corps is responsible for evaluating activities, including the specific activities requiring DA authorization, included the entire Project footprint.

5.3 Scope of Analysis for National Historic Preservation Act

Section 106 of the National Historic Preservation Act (NHPA) requires each federal agency, prior to any federally assisted, approved, or funded undertaking, to take into account the effect of its proposed undertaking on any property included in or eligible for inclusion in the National Register of Historic Places (hereafter called historic properties).

The BLM, State Historic Preservation Officer (SHPO), and Advisory Council on Historic Preservation (ACHP) determined that a Programmatic Agreement (PA) for the Project is appropriate because the effects on historic properties cannot be fully identified and mitigated prior to agency permit decisions; historic properties may be discovered during Project implementation; and it is necessary to record the terms and conditions agreed on to resolve potential adverse effects of the Project on historic properties, pursuant to 36 CFR 800.14(b). The BLM, as the lead federal agency for Section 106, consulted with other state and federal agencies, Tribes, Alaska Native Claims Settlement Act (ANCSA) corporations, other interested parties, and the Applicant to develop an alternative process for a phased approach to compliance with Section 106 of the NHPA. The PA is included as Appendix H of this JROD.

In accordance with 36 CFR 800.4(a), the BLM and SHPO, in consultation with other interested parties, established the undertaking's Area of Potential Effects (APE). As defined in 36 CFR 800.16(d), the APE encompasses direct, indirect, and cumulative effects to historic properties for alternatives carried forward for detailed analysis in the Ambler Road FEIS. The APE applies to all lands, regardless of management status, that may be affected by the Project undertaking, including areas within 1 mile of all Project components. The APE is defined and documented in Appendix B of the PA (see Appendix H of this

JROD). Section 106 consultation is further discussed in Section 8.4 (National Historic Preservation Act) of this JROD.

5.4 Scope of Analysis for Endangered Species Act

Section 7(a)(2) of the Endangered Species Act (ESA) requires federal agencies to consult with the USFWS and National Marine Fisheries Service (NMFS or National Oceanic and Atmospheric Administration Fisheries), as appropriate, to ensure that their actions do not jeopardize the continued existence of species listed as threatened or endangered under the ESA, or destroy or adversely modify their critical habitat. The Federal Action Area for ESA consultation purposes was defined as the overall Project study area for the 3 action alternatives, with emphasis on the proposed ROW for the road and its other components. Section 8.5 of this JROD provides additional information regarding ESA consultation.

5.5 Scope of Analysis for Magnuson-Stevens Fishery Conservation and Management Act

Section 305(b)(2) of the Magnuson-Stevens Fishery Conservation and Management Act requires federal agencies to consult with the NMFS on any action authorized, funded, or undertaken that may adversely affect Essential Fish Habitat (EFH).

The Project includes the proposed 211-mile road and ROW and associated maintenance and construction camps, airstrips, material sites, water sources, and communications sites. These components, and specifically the Pacific salmon habitat within and adjacent to these components, define the Project area potentially affecting EFH.

EFH is assessed in Section 3.3.2 of the Ambler Road FEIS. EFH consultation conclusions are discussed in Section 8.9 of this JROD. Documentation of the EFH consultation process is included in Appendix I.

6. ALTERNATIVES

Considering alternatives helps to ensure that ultimate decisions concerning the proposed Project are well founded and consistent with national policy goals and objectives (33 CFR 325, Appendix B (7); 40 CFR 230.5(C); 40 CFR 1502.14). NEPA requires that an EIS include a discussion of a reasonable range of alternatives, including a no action alternative, and the effects of those alternatives. Reasonable is based on consideration of the project purpose as well as technology, economics, and common sense. Under the CWA Section 404(b)(1) guidelines, practicability of alternatives is taken into consideration, and no alternative may be permitted if there is a less environmentally damaging practicable alternative. Practicable is defined as the alternative is available and capable of being done after taking into consideration cost, existing technology, and/or logistics in light of the overall project purpose (40 CFR 230.3(q)). Appendix G (Alternatives Development Memorandum), Section 4, of the FEIS describes criteria used by the BLM to determine whether a potential alternative was reasonable.

As presented in Chapter 2 and Appendix G of the Ambler Road FEIS, a rigorous and comprehensive process was used to identify and evaluate Project alternatives. The BLM considered 6 mode alternatives (e.g., air, rail, ice road) and 10 surface transportation alternative alignments, and eliminated unreasonable alternatives from detailed analysis in the FEIS. The Corps' General Regulatory Policies (33 CFR 320), DOI's NEPA regulations (43 CFR 46.415), BLM's NEPA Handbook, and other laws and statutes provide key reasons for eliminating alternatives. These reasons generally include: 1) does not meet the purpose and need of the proposed project; 2) is not "reasonable" or "practicable"; or 3) does not include features that would reduce environmental impacts when compared to the proposed project. Chapter 2, Section 2.3, of the FEIS presents a list of alternatives eliminated from detailed analysis. Appendix G of the FEIS provides additional detail on the rationale for eliminating alternatives.

6.1 Alternatives Considered and Carried Forward for Detailed Analysis in the Ambler Road FEIS

The BLM and cooperating agencies developed 4 alternatives (3 action alternatives), including the Applicant's proposed Alternative A and the No Action Alternative, for evaluation in the EIS. Alternatives B and C address the concerns raised in scoping, represent a reasonable range of potentially practicable alternatives in consideration of the Overall Project Purpose (Section 4 of this JROD), and fulfill NEPA requirements for analyzing the No Action Alternative. Please see Sections 2.4 and 2.5 of the FEIS for a comparison of the alternatives.

The Project alternatives are as follows:

- No Action Alternative
- Alternative A: Applicant's Proposed/GAAR North Route
- Alternative B: Applicant's Alternative/GAAR South Route
- Alternative C: BLM Alternative/Diagonal Route

6.2 Bureau of Land Management's Rationale for Adopting Alternative A

Under Title V of FLPMA, 43 USC 1761–1772, the BLM is authorized to grant ROWs over, upon, under, or through public lands for certain specified purposes, including "roads, trails, highways, railroads, canals, tunnels, tramways, airways, livestock driveways, or other means of transportation." As described in more detail below, the grant of a ROW is in the public interest, conforms to the applicable land use plans and is consistent with the purpose for which the BLM manages the lands it crosses and with applicable laws and regulations. AIDEA is also qualified to hold a grant and has the technical and financial capability to construct and operate the road as described (see 43 CFR 2804.26). For example, AIDEA has successfully developed similar industrial projects, such as the Delong Mountain Transportation System, and has demonstrated sufficient capitalization to carry out the proposed Project.

Among the action alternatives evaluated in the Ambler Road FEIS, Alternative A will result in fewer overall environmental impacts on all lands than Alternatives B or C. The impacts specific to BLM-managed lands would be the same for Alternatives A and B, and would be substantially less than Alternative C. However, considering its fewer overall environmental impacts, the BLM considers the Alternative A alignment to be the environmentally preferred alternative.

Alternative A is the most direct route and therefore has the smallest Project footprint in wildlife habitat, wetlands, and fish habitat and is also the most economically feasible to construct, operate, maintain, and eventually reclaim. The overall Project footprint is less for Alternative A than Alternative B, and significantly less than Alternative C. Of particular relevance to subsistence impacts, Alternative A places a river crossing on the Reed River 7 miles farther from known sheefish spawning habitat than Alternative B, which means less potential for impacts to this important subsistence resource. Alternative A also places the road outside of Ambler's vegetation subsistence harvest area, while Alternative B overlaps it. Alternative A requires fewer disturbed acres (4,524 acres, of which 1,022 acres are on DOI-managed land) than Alternative B (5,138 acres, of which 1,033 are on DOI-managed land). Alternative A also avoids placing an airstrip, construction camp, and maintenance facility within GAAR, while Alternative B includes these features within GAAR. Even though it may have been feasible to locate these features outside GAAR under Alternative B, doing so would result in a greater disturbance and construction cost taking into account the full length of the road. For a more detailed comparison of impacts by alternative, see Chapter 2, Section 2.5, and Appendix C (Chapter 2 Alternatives Tables and Supplemental Information), Tables 1 and 2, of the FEIS as well as Appendix E (ANILCA Section 810 Final Evaluation) of this JROD.

The decision in this JROD emphasizes balanced and environmentally responsible development, and includes protections for physical, biological, and social/cultural resources. In accordance with ANILCA

Section 810, the decision also addresses local residents' concerns regarding protection of their subsistence way of life and the subsistence resources on which they depend through inclusion of new mitigation measures developed specifically for the Project (Appendix N of the FEIS; Appendices C through E, H, and I of the JROD).

The BLM has determined that Alternative A is in the public interest for the following reasons. The Project would lead to increased revenues to the State of Alaska, resulting from state and local taxes and fees. Private land use agreements with NANA Corporation and Doyon Limited Corporation are expected to result in increased revenues for these Alaska Native corporations. Local residents and communities will benefit indirectly from revenues associated with development on federally managed lands that would accrue to the State of Alaska. Construction of Project facilities would occur over a total of approximately 4 to 6 years and employ approximately 680 workers per year. Once operational, the FEIS estimates that the Project will employ approximately 50 full-time employees. The future mines would employ a substantial workforce each year during construction (estimated at 178 to 1,792 jobs, depending on the mine), and each mine is projected to employ dozens of workers during operations (55 to 217 jobs, depending on the mine).

The BLM evaluated its land management authorities and plans in the FEIS and finds that Alternative A is consistent with its approved plans. Alternative A would cross BLM-managed land that is subject to the following land use plans: Kobuk-Seward Peninsula Resource Management Plan, Central Yukon Resource Management Plan, and Utility Corridor Resource Management Plan. The BLM has conducted these resource management planning efforts knowing that Congress identified a need for surface access to the District in ANILCA. As such, these plans have acknowledged the potentiality of this road for years (as a particularly relevant example, see the Record of Decision for the Utility Corridor Resource Management Plan). Furthermore, the routing for Alternative A does not cross any lands designated for special protection (unlike Alternative C, which crosses several designated Areas of Critical Environmental Concern). Alternative A, as approved herein, is consistent with these management plans in the area of the ROW and overall is consistent with how the BLM manages public lands in the area. Alternative A, as approved herein, also complies with applicable laws and regulations.

Taking these factors into account, the BLM has determined that issuance of a ROW for Alternative A—subject to the terms, conditions, stipulations, and environmental protection measures identified in this JROD and its attachments—serves the public interest, conforms to the applicable land use plans, and is consistent with the purpose for which the BLM manages the lands crossed by the ROW.

6.3 U.S. Army Corps of Engineers' Determination of the Least Environmentally Damaging Practicable Alternative

The Corps has determined that Alternative A, Applicant's Proposed Route, meets the overall Project purpose, is practicable, and would result in the least environmentally damaging impacts with the inclusion of the appropriate and practicable special conditions listed in Appendix G (Corps of Engineers Special Conditions and Rationales) of this JROD.

Alternative A (Applicant's Proposed Route) is the most direct route from the Dalton Highway to the District among the practicable alternatives. Alternative A would result in the discharge of approximately 8,460,218 cubic yards of fill material to permanently fill 1,431.0 acres of wetlands and 0.5 acres of open waters for the construction of a 211-mile gravel industrial roadway and associated material sites and infrastructure. Within GAAR, Alternative A would permanently fill 110.0 acres of wetlands along 26 miles of the Project. Approximately 2,932 streams would be crossed, permanently impacting 250,435 linear feet of stream channels.

Alternative B (Applicant's Alternative Route) would be a longer road compared to Alternative A (224 miles versus 211 miles) and would result in the permanent fill of a substantially greater amount of

wetlands (1,758.3 acres versus 1431.0 acres). Alternative B would impact fewer miles within GAAR, but overall, it is 17 miles longer than Alternative A. At the Corps' request, the Applicant modified Alternative B to apply the same changes that they made to Alternative A (limiting road width to Phase 2 design parameters, moving material sites and maintenance stations from within GAAR). This resulted in a decrease of fill proportionate to Alternative A, for the narrowing of the road. It also reduces the amount of fill within GAAR by removing infrastructure but resulted in an increase of fill associated with the need for additional material sites and maintenance stations due to distance requirements. Removing the material site from GAAR resulted in the need for an additional site outside of GAAR, increasing fill into WOTUS. Alternative B would permanently fill more wetlands compared to Alternative A (142.6 compared to 110 acres) within GAAR. Alternative B would also cross a larger number of streams (3,205 versus 2, 932) that would result in more impacts to stream systems compared to Alternative A (311,252 linear feet versus 250,435 linear feet). As described in the Ambler Road FEIS and Appendix G of this JROD, the indirect effects from airborne dust would be greater under Alternative B as compared to Alternative A.

The NPS EEA describes the impacts of Alternatives A and B within GAAR. Alternative A crosses a longer distance within GAAR compared to Alternative B (26 miles versus 18 miles). Compared to Alternative B, Alternative A would have the greatest overall impact to visitor experience and wilderness values in GAAR, largely because of view shed and noise impacts at Nutuvukti Lake and the wilderness boundary. Alternative B avoids Nutuvukti Fen and Lake completely while Alternative A is only 0.25 mile upstream from the lake and traverses the fen, and therefore could have potential downstream effects to this large and unique fen and lake.

The NPS has the primary responsibility for requiring best management practices and mitigative measures that would result in a reduction of potential impacts to resources within GAAR from Alternative A. The NPS EEA and Appendix C of that document identify mitigation measures that would be implemented within GAAR. Special Conditions associated with the Corps' permit apply to the entire length of the road, inside and outside of GAAR (see Appendix G of this JROD). To mitigate impacts to cultural resources, a PA with the BLM and consulting parties has been implemented to identify historic properties and avoid, minimize and mitigate impacts. Implementation of this PA is also a special condition in the Corps' permit. AIDEA has also agreed to mitigation measures that will be protective of Nutuvukti Fen and viewsheds along the Kobuk River and these will be a requirement in the Corps' permit. Although Alternative A would result in greater impacts to Nutuvukti Fen within GAAR, on balance, Alternative B results in greater impacts to WOTUS than Alternative A. However, Alternative A does not result in significantly adverse impacts to other resources. Therefore, while practicable, Alternative B would not be the LEDPA.

Alternative C is a 332-mile alignment (0 miles within the GAAR), with its eastern terminus at MP 59.5 of the Dalton Highway. It is over 100 miles longer than both Alternatives A and B, would result in significantly more discharge of fill into wetlands compared to the other 2 alternatives (3,890 acres versus 2,079 for Alternative A and 2.416 acres for Alternative B), would cross more streams and fill more than double the floodplain area, and would require at least 600 more culverts. Alternative C, while practicable, would not be the LEDPA.

As required by 40 CFR 1502.14, federal agencies must explore all reasonable alternatives, including a No Action Alternative. For the Corps, the No Action Alternative is defined as Corps permit denial. It provides a benchmark, enabling decision makers to compare the magnitude of environmental effects of the action alternatives. The No Action Alternative would result in denial of the DA permit application. In this case, no discharge of fill for the construction of the Ambler Road and associated facilities would

occur, and no operations and maintenance requirements would exist. This alternative does not meet the Overall Project Purpose.

Please refer to Appendix F (Corps Supporting Information) of this JROD for additional detail regarding the LEDPA analysis.

7. PUBLIC INVOLVEMENT

Public involvement is an essential step in the NEPA process, providing an opportunity for the public and agencies to express their views and help identify issues to be addressed in the EIS. Appendix Q (Substantive Comments and BLM Responses) of the FEIS provides a consideration of comments received on the Draft Environmental Impact Statement (DEIS).

7.1 Public Notice

The BLM published the Notice of Availability of the DEIS and ANILCA Section 810 Evaluation in the *Federal Register* on August 30, 2019. The BLM extended the comment period from 45 to 60 days, with the comment period closing on October 29, 2019.

The Corps published the original Public Notice for the Ambler Road Project on September 13, 2019, with the public comment period closing on October 15, 2019. A revised Public Notice was published September 27, 2019, extending the comment period to October 29, 2019. Appendix F of this JROD provides the Corps' consideration of comments received on the Public Notice for the DA permit application.

7.2 Public Meetings

The *Federal Register* published a Notice of Intent to prepare an EIS (82 *Federal Register* [FR] 12119) on February 28, 2017. The open scoping period, with a formal extension, was held from February 28, 2017, through January 31, 2018, to gather stakeholder input regarding the Project. Public scoping meetings were held in 13 separate locations in the Project area and in Fairbanks and Anchorage between November 13, 2017, and January 18, 2018. Scoping submissions and issues raised, which informed the analysis in the EIS, are included in a Scoping Summary Report dated April 2018, available on BLM's ePlanning Project website. BLM's public meeting process provided the opportunity to invite potentially affected and interested individuals, agencies, Tribes, and groups to help:

- Share information and identify concerns about the proposed action;
- Define a range of alternatives;
- Determine and define the scope of issues to examine;
- Identify other environmental and consultation requirements;
- Gather additional information regarding potential effects of the proposed action; and,
- Inform and identify potentially interested parties.

On August 30, 2019, a Notice of Availability of the DEIS was published in the *Federal Register* (84 FR 45799), announcing the public comment period for the DEIS, which was extended and ended on October 29, 2019. A comment period on the Corps' DA Permit application was issued on September 13, 2019, and expired on October 29, 2019. Public meetings were held in 22 Alaska communities, including Fairbanks and Anchorage, plus Washington, D.C. The dates and locations of the public meetings are included in Appendix I (Collaboration and Consultation) of the Ambler Road FEIS, and the official transcripts are available on BLM's ePlanning Project website.

On March 27, 2020, a Notice of Availability of the Ambler Road FEIS was published in the *Federal Register* (85 FR 17353). The mandatory 30-day review period ended April 26, 2020.

Pursuant to ANILCA Section 810(a)(1) and (2), the BLM conducted its hearings as combined hearings on the DEIS and ANILCA Section 810 Evaluation. This allowed the federal agencies to hear and gather comments regarding potential impacts to subsistence use resulting from the alternatives considered in the DEIS. These ANILCA Section 810 hearings were conducted in the following communities:

- Kotzebue
- Ambler
- Kobuk
- Shungnak
- Noorvik
- Huslia
- Hughes
- Tanana
- Evansville/Bettles
- Stevens Village
- Anaktuvuk Pass
- Noatak
- Kiana
- Buckland
- Selawik
- Alatna (via phone)
- Allakaket
- Wiseman/Coldfoot

7.3 Other Public Involvement

The BLM published the Project website at https://www.blm.gov/programs/planning-and-nepa/plans-in-development/alaska/AmblerRoadEIS to provide information, maps, and documents to the public regarding the Project and NEPA process, and to give meeting notices. This website also provided links to other useful online resources.

The Corps published online notices regarding the Project, with maps and figures from the application, on its website: https://www.poa.usace.army.mil/Missions/Regulatory/Public-Notices/Article/1959307/poa-2013-396-kobuk-alatna-and-koyukuk-rivers/.

7.4 Evaluation and Consideration of Comments Received

Numerous comments were received from local, state, and federal agencies; Tribes; and the public on the DEIS. Substantive comments received on the DEIS are broadly summarized and responded to in Appendix Q of the Ambler Road FEIS. All individual substantive comments and responses are available on BLM's ePlanning Project website. A total of 29,191 submissions were received, of which 964 were considered unique (the others typically were form letters). These 964 submissions included written comments submitted in person, by mail, and electronically as well as oral testimony at hearings (transcribed for the record). These submissions generated a total of 2,390 substantive comments, many of which were on related topics (see Appendix Q of the FEIS).

Comments on the Ambler Road FEIS were not solicited. Comments received after the publication of the FEIS on March 27, 2020, were considered during development of the JROD. Any information corrected can be found in Appendix B of this JROD

8. RELATED LAWS AND POLICIES

8.1 National Environmental Policy Act

The BLM and Corps have independently reviewed and evaluated the information presented in the Ambler Road FEIS and other supplemental information provided following the March 27, 2020, release of the FEIS. These agencies find that the EIS process has produced sufficient and accurate assessments of the resources, needs, concerns, and other issues that relate to this action and therefore is appropriate for the public interest review and alternative analysis required by 33 CFR 320.4(b)4, 40 CFR 230.10, 40 CFR Part 1500, and 43 CFR Part 46.

Signature of this JROD by the authorizing officials completes BLM's and Corps' NEPA requirements and responsibilities for applications received to date.

8.2 Clean Water Act

Pursuant to Section 401 of the CWA (33 USC 1341), a Section 404 CWA permit is not valid until a Section 401 Water Quality Certification (WQC) has been issued or the requirement for the certification has been waived. For the purposes of the Project, the State of Alaska administers Section 401 WQC. Conditions of the Section 401 WQC would become conditions to the final DA permit.

The Alaska Department of Environmental Conservation completed their review of the proposed Project pursuant to Section 401 of the CWA, and issued a WQC on April 10, 2020.

8.3 Fish and Wildlife Coordination Act

Coordination with the USFWS, NMFS, and State of Alaska Department of Fish and Game, and completion of the process and analyses contained within the FEIS and JROD, was completed. Signature by the authorizing official completes the BLM's and Corps' Fish and Wildlife Coordination Act responsibilities.

8.4 National Historic Preservation Act

The BLM initiated consultation for Section 106 of the NHPA (54 USC 300101 et seq.) early in the process and accepted the role of Lead Federal Agency to develop a PA, pursuant to 36 CFR 800.14(b), that met the needs of all federal agencies. BLM's coordination efforts included consulting with the SHPO and ACHP (required Signatories to the PA) and inviting the Corps, NPS, USCG, ADNR, and the Applicant to sign the PA as Invited Signatories. In addition, the BLM consulted with Tribes, ANSCA corporations, municipal governments, and other interested parties to develop the PA, and provided opportunities for the public to comment on and share information relevant to the Section 106 process. The BLM considered all comments received during development of the PA and sought to develop an alternative process to Section 106 compliance that was in keeping with the reasonable and good faith intent of the NHPA and met the needs of all consulting parties.

The PA provides a phased approach for federal agencies to ensure the following is carried out: continued consultation and coordination pursuant to 36 CFR 800; identification of historic properties within the APE pursuant to 36 CFR 800.4; assessment of potential adverse effects to historic properties from the Project pursuant to 36 CFR 800.5; and methods for resolution of adverse effects to historic properties through avoidance, minimization, or mitigation measures pursuant to 36 CFR 800.6. The PA also contains stipulations for mitigating impacts to cultural resources, including requirements for contractor cultural resource sensitivity training, resource monitoring requirements to assess potential indirect or cumulative effects from the Project, artifact curation and documentation requirements, and a plan for the inadvertent discovery of human remains. In addition, the PA meets requirements for the Alaska Historic Preservation Act (Alaska Statute 41.35) for lands owned by the State of Alaska. The PA is Appendix H of this JROD. All stipulations included in the PA (April 27, 2020) among the BLM, SHPO, and ACHP (all

signatories); the Corps, NPS, ADNR, and Applicant (all invited signatories); and concurring parties regarding the Project are hereby made part of the DA Permit and BLM ROW authorization.

8.5 Endangered Species Act

Early in the NEPA process, the BLM coordinated with the USFWS, offering the opportunity to become a cooperating agency. USFWS declined cooperating agency status, but did participate in a number of agency workshops and meetings to review fish and wildlife data and potential impacts throughout the planning process. Pursuant to Section 7 of the ESA (16 USC 1531 et seq.), the BLM contacted USFWS on the potential need to consult for federally listed species and confirmed that no ESA-listed species of animals or plants occur within the Project area. The BLM determined that the Project would have no effect on federally listed species and therefore did not engage in Section 7 consultation for the Project.

8.6 Materials Act

BLM's authority to dispose of sand, gravel, and other mineral and vegetative material that are not subject to mineral leasing or location under the mining laws is the Act of July 31, 1947, as amended (30 USC 601 et seq.), commonly referred to as the Materials Act. Mineral materials disposal is managed under regulations at 43 CFR 3600. Under these regulations, site-specific mining and reclamation plans are required before the BLM can permit specific disposal actions. For material sites on BLM-managed lands for this Project, the BLM will evaluate site-specific mineral materials mining and reclamation plans submitted by the proponent, and determine whether the FEIS for this Project is adequate, or whether additional site-specific NEPA is required based on potential issues.

8.7 Alaska National Interest Lands Conservation Act, Title XI

Title XI of ANILCA addresses the proposed construction of transportation and utility systems in and across Conservation System Units. Section 1104 of Title XI outlines the specific steps for granting approval to develop such projects as airports, roads, ferry terminals, pipelines, and transmission or communication lines in Conservation System Units. The Applicant submitted a Standard Form 299 (SF299) application pursuant to Title XI ANILCA requirements. Section 1104(g)(2) states: "The head of each Federal agency, in making a decision (for a transportation system across a conservation system unit such as GAAR), shall consider, and make detailed findings supported by substantial evidence, with respect to (eight points)." Although neither the BLM nor the Corps are authorizing a transportation and utility system across a Conservation System Unit (the Secretary of the Interior is making such authorization across GAAR via separate decision not subject to Section 1104(g)(2)), in an abundance of caution, the BLM and Corps previously decided to follow Title XI procedures. Accordingly, the 8 points, as relevant to the BLM and Corps, and findings are addressed below.

(A.) The need for, and economic feasibility of, the transportation or utility system

The need for the Project is addressed above in Section 4 of this JROD and in Chapter 2 of the FEIS. The economic feasibility of the transportation (road) and utility (fiber optic/communications) system, largely is a business decision of AIDEA and its investors, and is based on the economic feasibility of the mines proposed in the District. A paragraph titled Funding and Costs in Section 2.4.3 (p 2-9) of the FEIS provides further information.

(B.) Alternative routes and modes of access, including a determination with respect to whether there is any economically feasible and prudent alternative to the routing of the system through or within a conservation system unit, national recreation area, or national conservation area and, if not, whether there are alternative routes or modes which would result in fewer or less severe adverse impacts upon the conservation system unit.

The BLM evaluated a full range of alternative routes and modes to identify reasonable alternatives. The evaluation included consideration of economic feasibility and prudence. The details of the analysis are

included in Appendix G of the FEIS. Three reasonable routes were identified and evaluated in full in the FEIS. Alternative A, the alternative selected in this JROD, is the most direct and shortest overall route. Alternative B overlaps Alternative A for most of its length but dips southward at GAAR to traverse less of the GAAR Preserve land. Alternative C is a much longer alignment that avoids GAAR and other Conservation System Units altogether. The alternatives and alternative development process are the subject of Chapter 2 of the Ambler Road FEIS. The FEIS indicated that all 3 action alternatives were potentially reasonable alternatives, but that Alternative C would cost substantially more to construct and maintain than the other alternatives and would have substantially greater impacts for most resources. For construction of Phases 1, 2, and 3 (full, 2-lane road) plus reclamation of the road at the end of the road's useful life, the alternatives would cost:

A. $579.3 million

B. $621.6 million

C. $1.09 billion

Alternative C would cost 88 percent more than Alternative A. While the BLM determined Alternative C to be potentially economically feasible during early alternatives development and screening, the BLM and Corps have mutually determined that it is not economically prudent to select it given the considerably lower cost of Alternative A. Nor is Alternative C environmentally preferable, particularly in light of its greater environmental impacts and extensive relatively poor soils for construction.

The 2 alternatives on different alignments within the GAAR Preserve are not subject to NEPA. ANILCA Section 201(4)(b) instead provided that the Secretary of the Interior and Secretary of Transportation would evaluate the most desirable overall route across the GAAR Preserve and across the Kobuk Wild and Scenic River within the Preserve, and would issue their own common decision. The Secretaries have selected Alternative A as the most desirable route for the GAAR segment of the road.

(C.) The feasibility and impacts of including different transportation or utility systems in the same area.

The Ambler Road ROW would be suited to other transportation or utility systems in the same corridor, if there was demand for them. A railroad on precisely the same alignment may not be feasible because of grades too steep for rail access, but much of the route would be technically feasible to access by rail. However, there is no foreseeable demand for separate road and rail systems in the same corridor. There may be demand for separate, non-AIDEA or non-mining access on the same road, and the BLM and NPS would need to separately consider such requests for access in a new NEPA document if an application was received. The impacts of any separate construction would be additive to the impacts of the road, including, for example, loss of habitat and valuable wetlands. However, keeping activity in a single, linear corridor would minimize the additive impacts in other resource categories, such as noise, visual effects, and recreation and tourism. The EPA, in its role as a cooperating agency, suggested that the BLM consider a pipeline in the same corridor. The BLM determined that a pipeline supplying fuel or transporting ore slurry was not reasonably foreseeable. If a mining company wished to include a pipeline to support the District's development, a separate application and NEPA process would be required. However, given the width of AIDEA's requested ROW (250 feet) and the design criteria for the proposed road, the BLM believes a pipeline could be feasibly accommodated, if requested at a future date.

(D.) Short- and long-term social, economic, and environmental impacts of national, state, or local significance, including impacts on fish and wildlife and their habitat, and on rural, traditional lifestyles.

Short- and long-term effects are fully addressed in Chapter 3 (Affected Environment and Environmental Consequences) and accompanying appendices of the Ambler Road FEIS. Regarding the specific topics noted:

- Social and economic effects of state and local significance (short- and long-term) are addressed in FEIS Chapter 3, Section 3.4.5, Socioeconomics and Communities, and indirect and cumulative effects in FEIS Appendix H (indirect and Cumulative Impacts Associated with the Ambler Road), Section 3.5.5, Socioeconomics and Communities.
- Fish and wildlife effects and their habitat effects of state and local significance and possibly of national significance for caribou (short- and long-term) are addressed in FEIS Chapter 3, Section 3.3, Biological Resources, and indirect and cumulative effects in FEIS Appendix H, Section 3.4, Biological Resources.
- Rural traditional lifestyle effects of state and local significance are addressed throughout the socioeconomics sections cited in the first bullet, with emphasis at headings for Rural Lifestyle. The issues also addressed in the Subsistence Technical Report (Appendix L of the FEIS); Section 810 Analysis (Appendix E of this JROD); FEIS Chapter 3, Section 3.4.7, Subsistence Use and Resources; and indirect and cumulative impacts are addressed in FEIS Appendix H, Section 3.5.7, Subsistence Use and Resources.

(E.) The impacts, if any, on the national security interests of the United States that may result from approval or denial of the application for a transportation or utility system.

Executive Order (EO) 13603, National Defense Resource Preparedness, delegates a number of authorities granted to the President through the Defense Production Act of 1950 (DPA), other statutes, and the Constitution to the Secretary of the Interior to ensure the vitality of the domestic industrial base, including the availability of critical minerals. Under Section 306 of that EO, the Secretary of the Interior, along with the Secretary of Defense, is delegated the authority of the President under Section 303(a)(1)(B) of the DPA "to encourage the exploration, development, and mining of strategic and critical materials". EO 13817, issued on December 20, 2017, A Federal Strategy to Ensure Secure and Reliable Supplies of Critical Minerals, establishes as federal policy the need to identify new sources of critical minerals; increase activity at all levels of the supply chain, including exploration, mining, concentration, separation, alloying, recycling, and reprocessing critical minerals; ensure that our miners and producers have electronic access to the most advanced topographic, geologic, and geophysical data within U.S. territory; and streamline leasing and permitting processes to expedite exploration, production, processing, reprocessing, recycling, and domestic refining of critical minerals. In response to EO 13817, the U.S. Geological Survey (USGS) prepared a critical minerals list, "Final List of Critical Mineral 2018", and the Department of Commerce prepared a strategic plan, "A Federal Strategy to Ensure Secure and Reliable Supplies of Critical Minerals". Increasing access to allow for the exploration and development of critical minerals is an important goal of that plan.

As part of its critical minerals and metals investigation, the USGS looked at carbonate-hosted copper deposits, which often also host the critical minerals cobalt, germanium, and gallium. Cobalt is an important ingredient of super-alloys used to make aircraft turbine engines. This application makes up nearly half of the United States consumption of this critical mineral. Germanium and gallium have properties that make them important minerals in a number of modern applications, including solar cells, infrared optics, LEDs, semiconductors, and smartphones. The best-known carbonate-hosted copper deposit in Alaska is Bornite, also known as Ruby Creek, in the Ambler Mining District along the southern slopes of the Brooks Range. While renowned for its high copper grades, Bornite also hosts significant quantities of cobalt and potentially other critical minerals. The proposed Ambler Road will provide the access necessary for the development and production of these critical minerals in furtherance of the national security interests of the United States.

(F.) Any impacts that would affect the purposes for which the federal unit or area concerned was established.

Impacts to GAAR are addressed both in the EIS and in greater depth in the NPS EEA. The following FEIS sections are particularly relevant:

- Land use and land management, including management for wilderness characteristics of the Park and Preserve portions of GAAR, are addressed in FEIS Chapter 3, Section 3.4.1, Land Ownership, Use, and Management, and Special Designations. Effects to the Kobuk Wild and Scenic River also are addressed.
- Recreation and tourism, much of which is centered around GAAR and the rivers that flow out of GAAR, are addressed in FEIS Chapter 3, Section 3.4.3, Recreation and Tourism.
- Visual resources, including the areas viewed within GAAR and from certain parts of GAAR, are addressed in FEIS Chapter 3, Section 3.4.4, Visual Resources.
- The acoustic environment, including sounds heard within GAAR, are addressed in FEIS Chapter 3, Section 3.2.6, Acoustical Environment (Noise).

While substantial impacts are anticipated within GAAR, Congress in ANILCA Section 201(4)(b) specifically provided for road access to the District across the Preserve portion of GAAR at the time it established GAAR.

(G.) Measures which should be instituted to avoid or minimize negative impacts.

The BLM and Corps have carefully examined the potential mitigation measures and standard stipulations addressed in Appendix N of the FEIS and have selected in this JROD those that should be instituted to avoid or minimize adverse impacts. Note that all agency special conditions are in addition to those design features (commitments) made by the Applicant in its application, as expressed in FEIS Chapter 2, Section 2.4.4, Design Features Proposed by AIDEA, and Appendix C of this JROD. The full suite of commitments and measures that will be instituted to avoid and minimize negative effects are attached to this JROD as follows:

- Appendix C – Design Features Proposed by the Applicant
- Appendix D – BLM Supporting Documents
- Appendix F – Corps Supporting Information
- Appendix G – Corps of Engineers Special Conditions and Rationales
- Appendix H – NHPA Section 106 Programmatic Agreement
- Appendix I – NMFS Concurrence

These design features, mitigation measures, and special conditions are expected to substantially protect valued resources along and near the road. The NPS EEA pertaining to GAAR also recommends mitigation consistent with these measures. The State of Alaska and Native corporations formed under ANCSA, which collectively own more of the road corridor than does the United States, also are anticipated to adopt many of the same or substantially similar measures where the road crosses their lands. See effectiveness evaluations for each mitigation measure in Appendix N of the Ambler Road FEIS for more detail.

(H.) The short- and long-term public values which may be adversely affected by approval of the transportation or utility system versus the short- and long-term public benefits which may accrue from such approval.

Based on the public comment record for the Ambler Road EIS, the public values many things about the Project area in its existing condition, including particularly:

- Subsistence opportunities; subsistence resources such as caribou, moose, salmon, and sheefish; and the traditional rural lifestyle and Native cultures that have subsistence as the central feature.
- Large tracts of natural lands and waters with intact ecosystems, substantially without roads, airports, and signs of human habitation.
- Recreation opportunity and recreation/tourism-based business opportunity in the area, including backpacking, river floating/boating, fishing, sport hunting, camping, flightseeing, lodge stays, and guiding for many of these activities.

These values would be adversely affected by the road and resulting mines, as explained in Chapter 3 of the Ambler Road FEIS.

Substantial public benefits also are expected to result from the Project:

- The road would provide much-needed, high-paying jobs for construction (approximately 6 years) and operation (approximately 50 years). The vast majority of jobs are expected to be held by Alaskans, and a portion is expected to be held by residents of the local area. Specific numbers of jobs are detailed in FEIS Chapter 3, Section 3.4.5, Socioeconomics and Communities.
- The road is expected to induce greater exploration within the District and result in development of multiple mines. Exploration and development would be indirect and cumulative effects of the road, and would result in many more jobs for initial development and for on-going operations (approximately 50 years). Again, the vast majority of jobs [8] are expected to be held by Alaskans, and a portion is expected to be held by residents of the local area. Specific numbers of jobs are detailed in Ambler Road FEIS Appendix H, Section 3.5.5, Socioeconomics and Communities.
- The State of Alaska, Northwest Arctic Borough, and ANCSA Native corporation landowners would be expected to accrue substantial taxes, fees, mineral royalties, payments in lieu of taxes, job training, and other economic benefits to the State's General Fund and to the people of region and of the State as a whole.
- Communities nearest to the road, particularly Kobuk, Shungnak, and Ambler near the western end and Bettles and Evansville nearer to the eastern end, will have opportunity to connect to the Project's fiber optic cable and benefit from greater internet bandwidth and speed, allowing greater participation in e-commerce, telemedicine, and general communications. Similarly, the same communities and area residents/landowners near the road will have the opportunity to take commercial deliveries via the road, with likely substantial improvements in the cost of living (lower fuel and grocery prices). See Ambler Road FEIS Appendix H, particularly Section 2.2, Indirect Road Access Scenarios, and Section 3.5.5, Socioeconomics and Communities.
- Society as a whole is expected to benefit from the copper and other metals, including zinc, lead, gold, and silver, to which the road would provide access.

8.8 Clean Air Act

Per the Clean Air Act (CAA) (42 USC 7401–7671, Section 176(c)) of General Conformity Rule Review: The proposed actions (BLM issuance of a ROW Grant and Corps issuance of a permit to discharge fill for the construction of the proposed Project) are not in a CAA non-attainment area, and the conformity determination requirements of the CAA do not apply to the proposed Project at this time. Any later indirect emissions are generally not within these agencies' continuing program responsibility and generally cannot be practicably controlled by these agencies. For these reasons, a conformity determination is not required for these permit actions.

8.9 Magnuson-Stevens Fishery Conservation and Management Act

Ambler Road FEIS Chapter 3, Section 3.3.2, Fish and Amphibians, addresses anadromous fish such as salmon and has specific sections addressing EFH. The BLM consulted with NMFS and determined there was substantial EFH for Pacific salmon in Project area waterways. The FEIS presents the necessary EFH assessment information, and NMFS concurred that implementation of proposed mitigation measures will minimize adverse impacts to EFH in a letter dated March 30, 2020 (Appendix I of this JROD).

[8] University of Alaska Center for Economic Development. 2019. Economic Impacts of Ambler Mining District Industrial Access Project and Mine Development. Prepared for the U.S. Department of the Interior, Bureau of Land Management.

8.10 Executive Order 13175 Consultation and Coordination with Indian Tribal Governments

Throughout the planning process, the BLM offered government-to-government consultation with Tribes throughout the broad Project area and undertook such meetings whenever requested. Some government-to-government meetings occurred face-to-face in rural Alaska communities, while others occurred via teleconference. While meetings occurred throughout the process, many government-to-government meetings occurred in conjunction with public meetings on the DEIS.

Specific to meeting the requirements of Section 106 of the NHPA, the BLM crafted a PA in consultation with Tribes and other interested parties. Consultation for Section 106 will continue throughout the life of the PA. See consultation summary in Ambler Road FEIS Chapter 1, Section 1.5, Collaboration and Coordination, and further detail in Appendix I to the PA (Appendix H of this JROD).

8.11 Executive Order 12898 Environmental Justice

Environmental Justice issues are addressed in Ambler Road FEIS Chapter 3, Section 3.4.6, Environmental Justice. The FEIS states that where adverse effects to residents of the Project area may be substantial, they would be disproportionately high and adverse impacts to minority and low-income populations.

8.12 Executive Order 11988 Flood Plain Management

The BLM determined that AIDEA's proposed action had elements that would be located within floodplains, namely associated with bridge and culvert crossings of major streams and rivers. The BLM documented the potential impacts and took public and agency input on potential mitigation measures through the Draft and Final EIS review process. The public notice and input process was used to notify the public and agencies of the potential impacts and suggestions for mitigation.

The BLM evaluated a full range of alternatives and screened alternatives in part based on potential stream and river crossings in determining reasonable alternatives. However, due to the length of the required access, avoiding the crossing of floodplains of major streams and rivers altogether would not be practicable. The BLM documented the direct and indirect impacts associated with the occupancy and modification of the floodplains in several sections of Chapter 3 and Appendix H of the FEIS (see, specifically, Chapter 3, Section 3.2.5, Water Resources). Because of the lack of mapped floodplains in this remote Project area, the BLM generated floodplain impact information based on topographic mapping and aerial photograph interpretation by an engineering hydrologist registered in Alaska.

Because of the remoteness of the proposed alignments, potential floodplain impacts are not anticipated to affect human lives or property. Impacts to natural floodplain values are anticipated and described. The Applicant proposed design features to minimize floodplain impacts, specifically proposing to adequately pass peak flood flows. Additional mitigation measures to protect floodplains and WOTUS have been incorporated into the decision and are documented in Appendices F and G of this JROD. Mitigation measures were considered in the FEIS, including their potential to minimize impacts and their potential effectiveness if implemented. This section of the JROD, in combination with the cited impact analysis and mitigation measures, constitutes the findings of the BLM.

Overall, the BLM has determined that avoiding floodplain impacts altogether is not practicable but that potential impacts to human life or property are not anticipated. Proposed design features and mitigation measures required through this JROD will adequately minimize and mitigate for impacts to natural floodplain values.

8.13 Executive Order 11990 Protection of Wetlands

AIDEA's proposed action requires fill in wetlands and other WOTUS. The BLM coordinated with the Corps as a cooperating agency having expertise and jurisdiction on the impact analysis and mitigation.

AIDEA's SF299 application included a wetland permit application and accompanying wetland mapping; however, that mapping did not include sufficient coverage for all of Alternatives A and B or for most of Alternative C. The BLM and Corps required additional wetland mapping and analysis be prepared at a sufficient scale and coverage to support these agencies decision making responsibilities.

The BLM documented the potential wetland impacts and took public and agency input on potential mitigation measures through the Draft and Final EIS review process. The public notice and input process was used to notify the public and agencies of the potential impacts and suggestions for mitigation. The Corps conducted additional notice procedures and commenting in accord with their responsibilities under the CWA. The BLM evaluated a full range of alternatives and screened alternatives in part based on potential impacts to WOTUS (streams and riparian acreage). Due to the extent of wetlands and other waters in the Project area, avoiding wetland impacts was determined not to be practicable. The BLM documented the impacts associated with wetland fill in several Sections of Chapter 3 and Appendix H of the Ambler Road FEIS (see, specifically, Chapter 3, Sections 3.2.5, Water Resources, and 3.3.1, Wetlands and Vegetation).

The Applicant proposed routing alignments for Alternatives A and B that took into consideration wetlands and other waters and attempted to minimize those impacts. The BLM designed the routing of Alternative C and attempted to minimize impacts to wetlands in that alternative's routing. AIDEA proposed design features to minimize wetland impacts specifically proposing measures to avoid or minimize melting permafrost, placement of riprap, maintaining hydrologic connectivity with culvert design, avoiding the Nutuvukti Fen among others. Additional mitigation measures to protect floodplains and WOTUS have been incorporated into the decision and are documented in Appendices F and G of this JROD. These measures were considered in the FEIS, including their potential to minimize impacts and their potential effectiveness if implemented. This section of the JROD, in combination with the cited impact analysis and mitigation measures, constitutes the findings of the BLM. The BLM is also relying on the analysis and findings prepared by the Corps in Appendices F and G of this JROD.

Overall, the BLM has determined that avoiding impacts to wetlands and other WOTUS altogether is not practicable but that with the proposed design features and mitigation measures implemented with this decision, impacts to wetlands and WOTUS will be adequately minimized and mitigated.

8.14 Executive Order 13112 Invasive Species

Invasive species are addressed in Ambler Road FEIS Chapter 3, Section 3.3.1, Vegetation and Wetlands. The FEIS states that no invasive species of animal is known in the Project area and such animal infestation is unlikely. Plants are addressed under the heading Non-native Invasive Plants. Mitigation measures to avoid or minimize impacts of invasive plant species are included in Appendix D of this JROD.

9. OTHER AUTHORIZATIONS

For other state and local authorizations that apply to the proposed Project, refer to Chapter 1, Section 1.5.7 (Summary of Applicable Laws, Regulations, and Permits), of the Ambler Road FEIS, which in turn refers to FEIS Appendix B (Chapter 1 Introduction Tables and Supplemental Information), Table 1, which lists permits required by the Project.

10. FINAL AGENCY ACTION

10.1 Bureau of Land Management's Decision

I recommend approval of this JROD to select Alternative A as described in the Ambler Road FEIS and authorize the Ambler Road Project ROW Grant and associated temporary use permits over BLM-managed lands described in that alternative subject to terms, conditions, stipulations, and environmental protection measures developed by the DOI for BLM-managed lands, identified in this JROD and its attachments, and included in the application submitted by the Applicant.

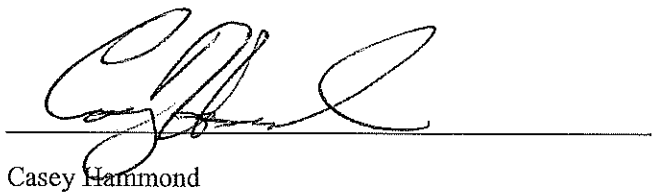
Chad Padgett
State Director
Bureau of Land Management, Alaska

7/22/2020
Date

10.1.1 Assistant Secretary Approval

I hereby approve this JROD to select Alternative A and authorize the Ambler Road Project ROW Grant and associated temporary use permits over BLM-managed lands described in that alternative subject to terms, conditions, stipulations, and environmental protection measures developed by the DOI for BLM-managed lands, and identified in this JROD, including attachments, and in the application submitted by the Applicant.

My approval of this decision constitutes the final decision of the DOI for BLM-managed lands and, in accordance with the regulations at 43 CFR 4.410(a)(3), is not subject to appeal under Departmental regulations at 43 CFR Part 4.



Casey Hammond
Principal Deputy Assistant Secretary,
Exercising the Authority of the Assistant Secretary,
Land and Minerals Management, DOI

7/23/20

Date

10.2 U.S. Army Corps of Engineers' Decision

I find that the issuance of the DA permit, as described by regulations published in 33 CFR Parts 320 through 332, for the proposed work described in this document, is based on a thorough analysis and evaluation of all issues set forth in the Ambler Road FEIS. There are no less-environmentally damaging practicable alternatives available to the Applicant to construct the Project than Alternative A, with inclusion of appropriate and practicable special conditions to minimize adverse effects to the environment. The issuance of this permit is consistent with National Policy, statutes, and administrative directives; and on balance, issuance of a Corps' permit to construct the Project is not contrary to the public interest. As explained in this JROD and its appendices, all practicable means to avoid and/or minimize environmental harm from the selected alternative have been adopted and would be required by terms and conditions of the DA permit.

Approving Official:

David S. Hobbie

David S. Hobbie
Regional Regulatory Chief
Alaska District

July 23rd, 2020

Date

Appendix A

Maps

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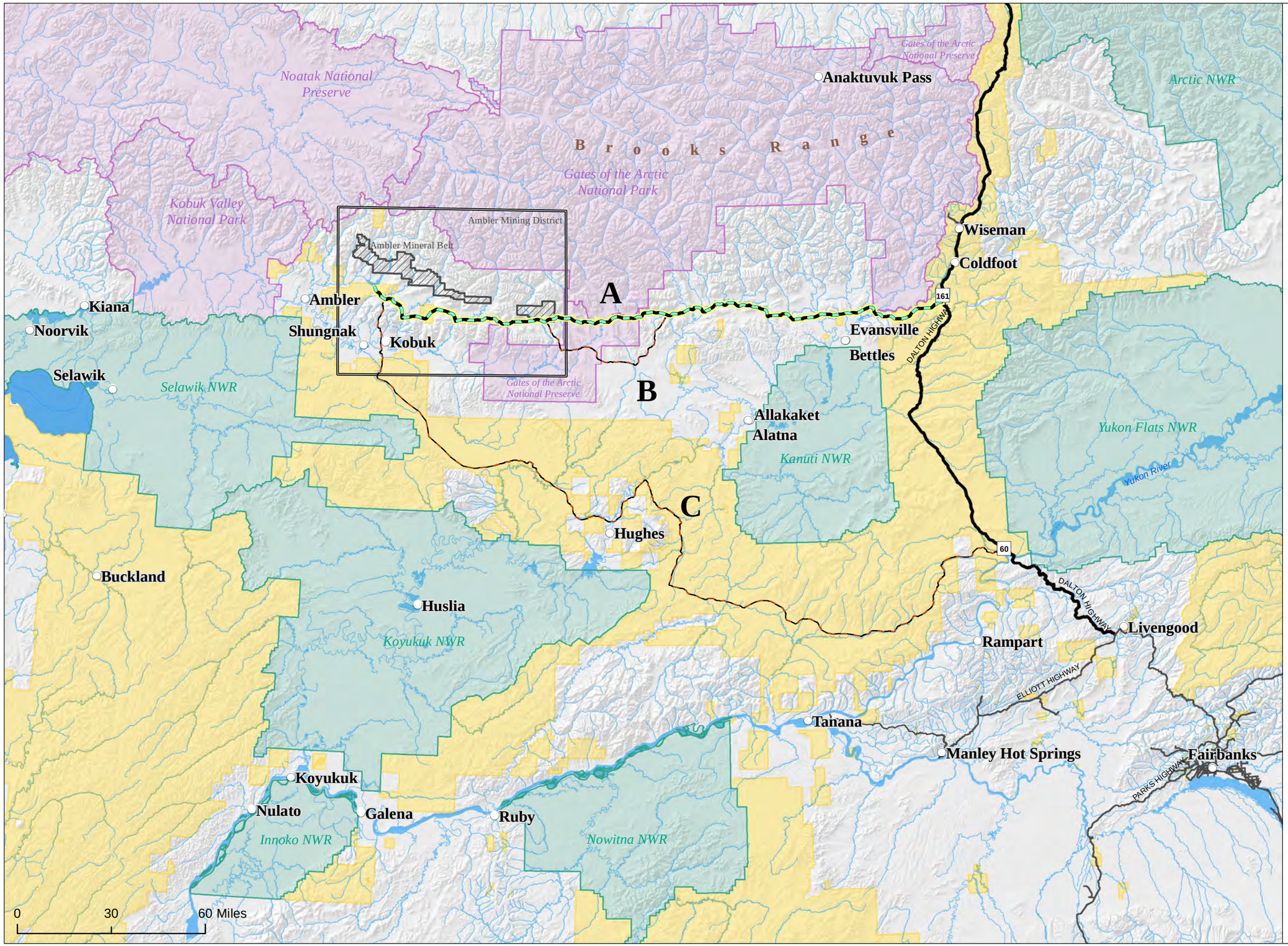
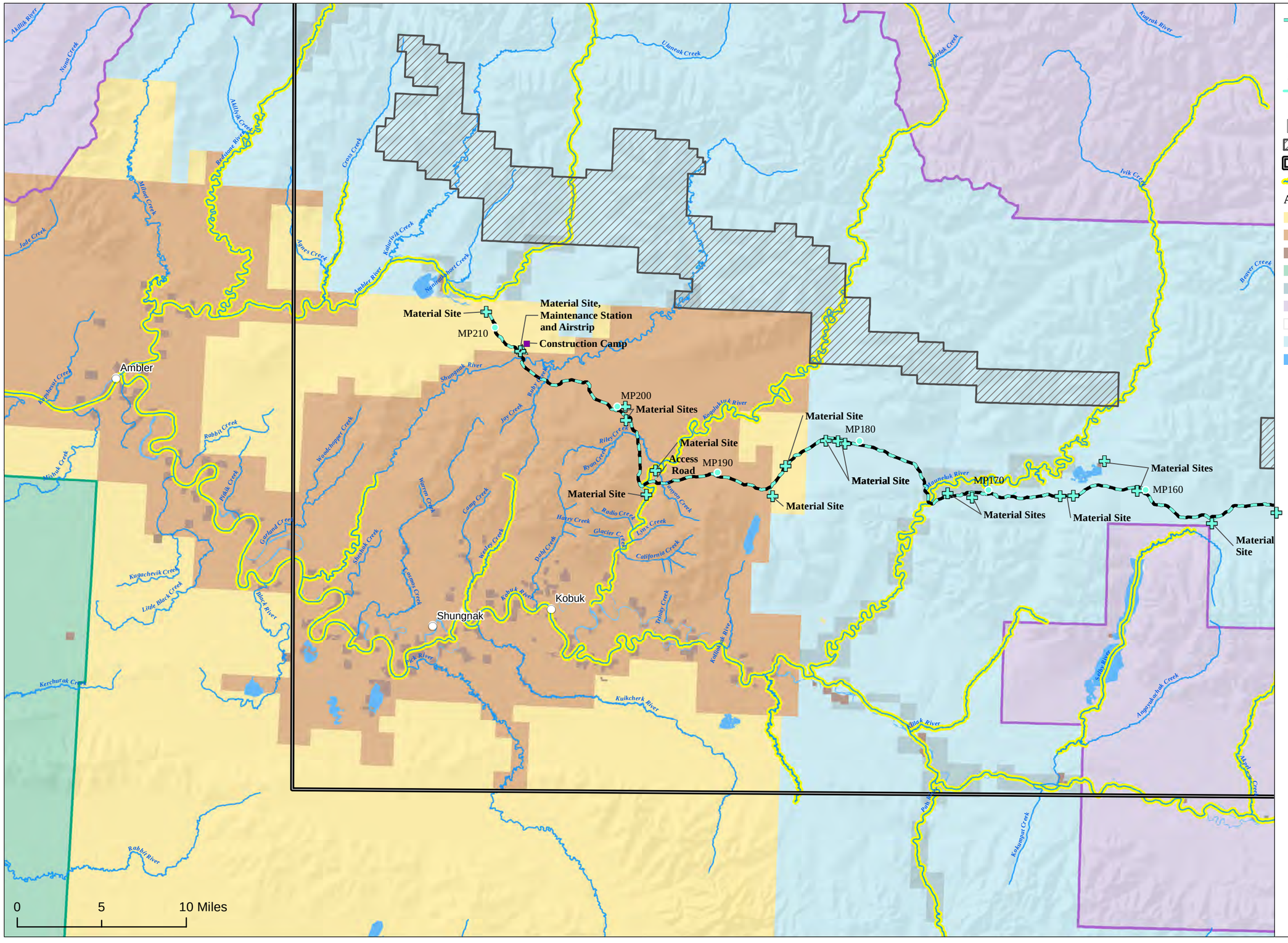


SOURCES:
[a]BLM 2018

Date: 4/2/2020
No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual or aggregate use with other data. Original data were compiled from various sources. This information may not meet National Map Accuracy Standards. This product was developed through digital means and may be updated without notification.

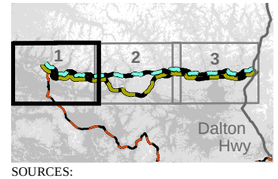
Figure 1



- Selected Alternative
- Project Milepoint
- Project Material Site
- Project Airstrip
- Project Access Road
- Communities
- Dalton Highway Mile Post
- Ambler Mineral Belt[a]
- Ambler Mining District[a]
- Anadromous Stream[b]

Administered Lands[a]

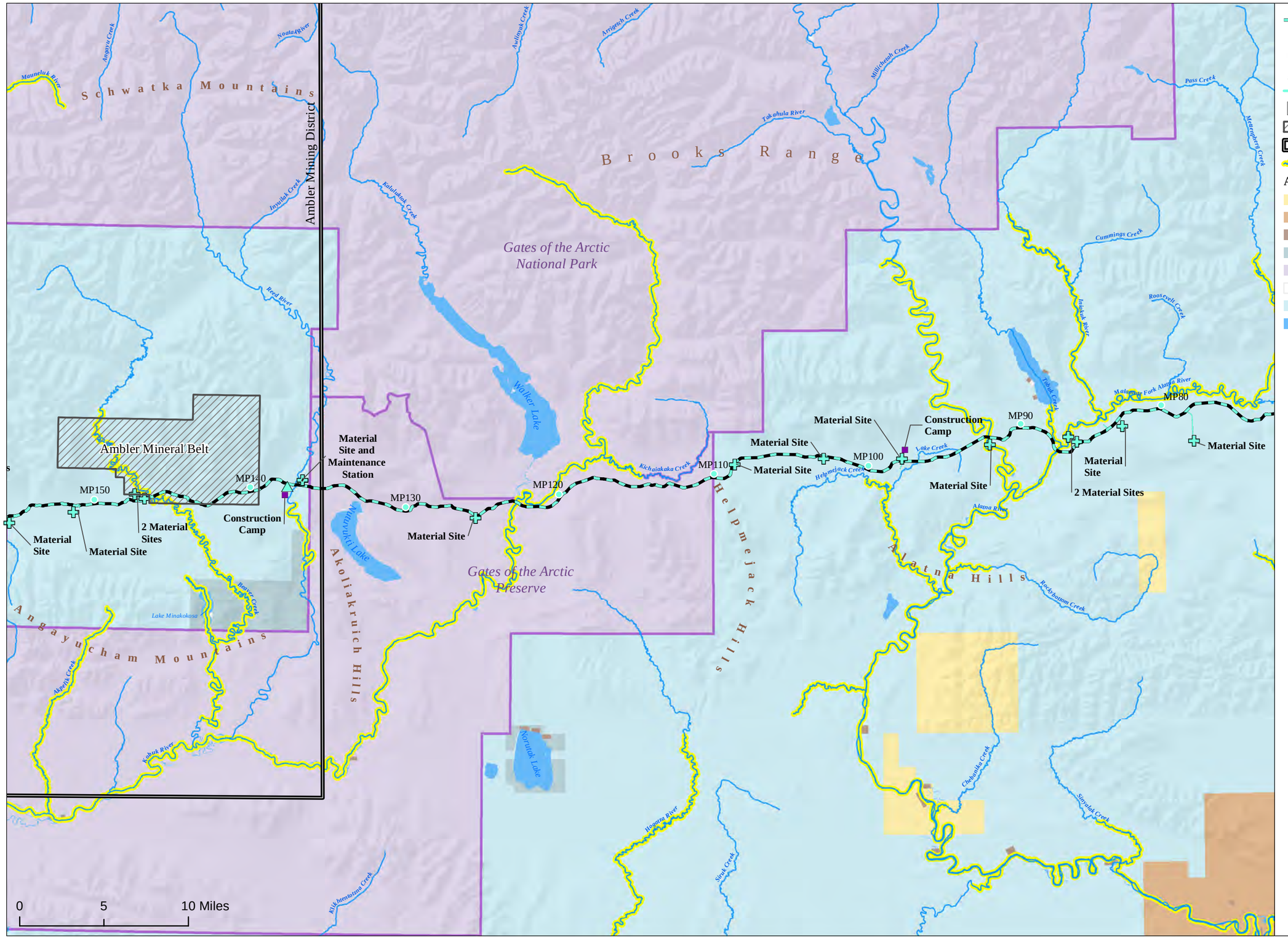
- Bureau of Land Management
- Alaska Native Lands
- Alaska Native Allotment
- Fish and Wildlife Service
- Local Government
- National Park Service
- Private
- State
- Water



SOURCES:
[a]BLM 2018
[b]ADFG 2019

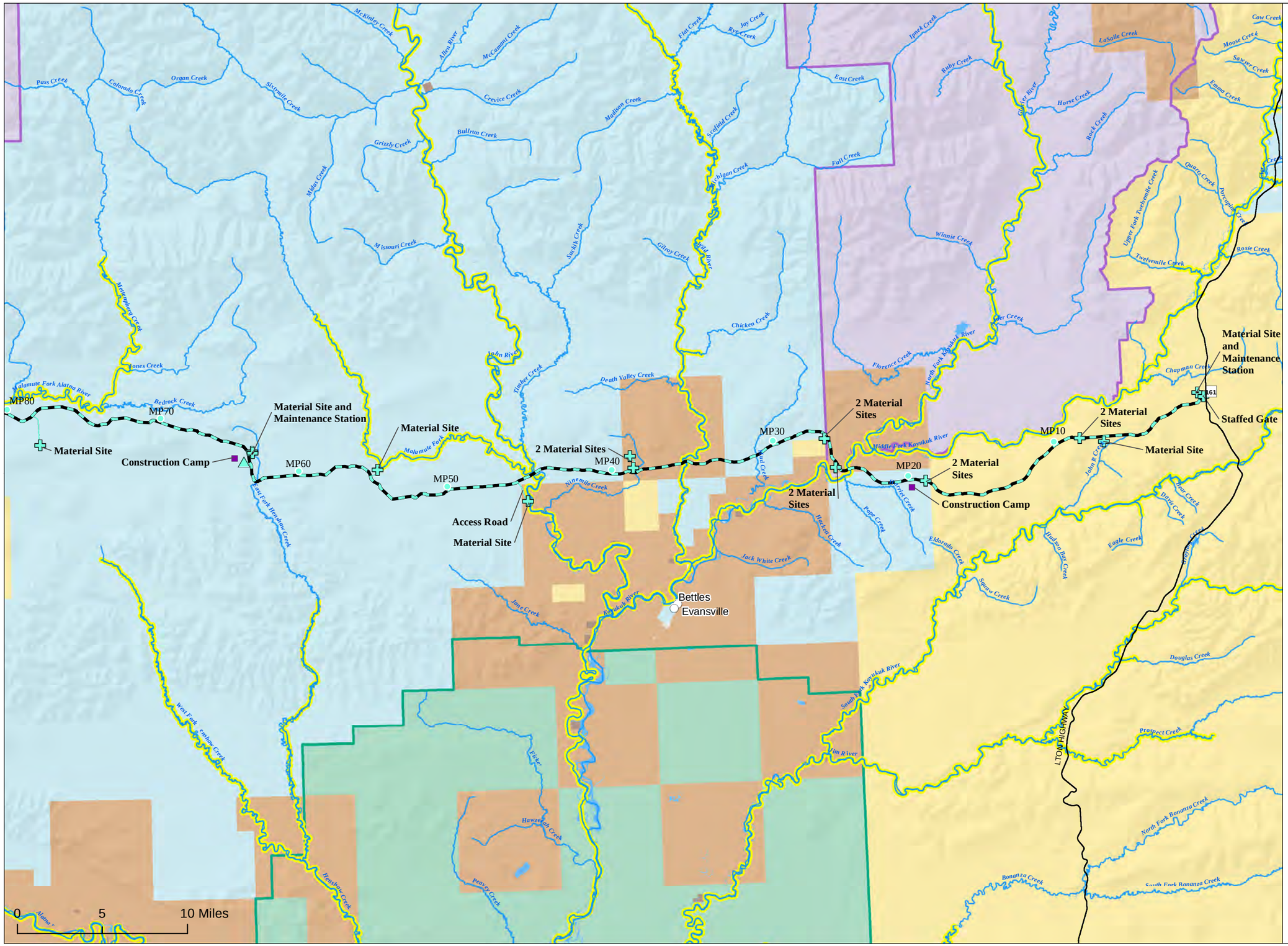
Date: 4/1/2020
No warranty is made by the Bureau of Land Management as to the accuracy, reliability,or completeness of these data for individual or aggregate use with other data. Original data were compiled from various sources. This information may not meet National Map Accuracy Standards. This product was developed through digital means and may be updated without notification.
Scale: 1:350,000

Figure 2 Page 1



SOURCES:
[a]BLM 2018
[b]ADFG 2019

Date: 4/1/2020
No warranty is made by the Bureau of Land Management as to the accuracy, reliability,or completeness of these data for individual or aggregate use with other data. Original data were compiled from various sources. This information may not meet National Map Accuracy Standards. This product was developed through digital means and may be updated without notification.
Scale: 1:350,000



- Selected Alternative
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- Communities
- Dalton Highway Mile Post
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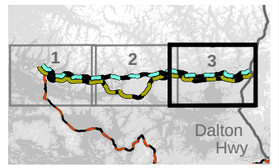
- Private
- State
- Water



SOURCES:
[a]BLM 2018
[b]ADFG 2019

Date: 4/1/2020
No warranty is made by the Bureau of Land Management as to the accuracy, reliability,or completeness of these data for individual or aggregate use with other data. Original data were compiled from various sources. This information may not meet National Map Accuracy Standards. This product was developed through digital means and may be updated without notification.
Scale: 1:350,000

Appendix B

Final Environmental Impact Statement – Errata

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Ambler Road Final Environmental Impact Statement
Joint Record of Decision
Appendix B
Final Environmental Impact Statement – Errata

FEIS Volume 1, Appendix C

Table 1. The number of material sites for each alternative was not consistent between what was shown on Map 2-3 (in FEIS Volume 4) and what was provided in Table 1 (FEIS Appendix C). In some locations, materials sites are split by the proposed road, and it appears these were counted sometimes as one site and sometimes as two sites. Using a consistent method of counting split sites as one site, the following numbers of material sites replace the numbers of sites provided in Table 1:

- Alternative A = 44 (Appendix C, Table 1 shows 41)
- Alternative B = 49 (Appendix C, Table 1 shows 46)
- Alternative C = 42 (Appendix C, Table 1 shows 44)

Alternatives Tables. After the BLM published the Ambler Road FEIS, it was notified of an updated cost estimate (October 2019) for constructing the different phases for both Alternatives A and B. AIDEA confirmed that these are the most recent estimates. These costs estimates are provided below:

- Alternative A – Total Construction Cost (Phase 3) – $501,907,400
- Alternative B – Total Construction Cost (Phase 3) – $582,213,200

FEIS Volume 3, Appendix N

- Numbering of mitigation measures in Appendix N, Sections 3.4.1 and 3.4.2, was incorrect in some copies of the FEIS. While paper copies of the FEIS were corrected, some electronic copies may still show this error in numbering of mitigation measures.

FEIS Volume 3, Appendix O

- The entry for SRB&A 2016 should be: SRB&A (Stephen R. Braund & Associates). 2016. Final Subsistence and Traditional Knowledge Studies Report. Usai-Ur-Brzzz-00-000004-000. Submitted to Alaska LNG. September 28, 2016. Privileged and Confidential.
- An entry was missing: Wolfe, R.J. 2004. Local Traditions and Subsistence: A Synopsis from Twenty-Five Years of Research by the State of Alaska. ADF&G Technical Paper No. 284. Juneau, Alaska.

FEIS Volume 4, Maps

Map 2-3. Map 2-3, as published in the FEIS, did not identify a maintenance station near MP 138 of Alternatives A/B. It would be located where an airstrip was noted by a blue triangle on Page 2 of Map 2-3. The maintenance station has been noted on the maps of alternatives in Appendix A of the JROD. See also Appendix C, Table 1, above for a correction related to this map.

Map 3-17. The Alaska Department of Fish and Game (ADF&G) advised the BLM that all of the waters identified on Map 3-17 as "Nominated Anadromous (in Review)" were accepted into the ADF&G Anadromous Waters Catalog officially in summer 2019 when the yearly review was completed, and the catalog and associated atlas were updated on June 1, 2019.

Maps 3-17 and 3-18: A member of the staff of the Northwest Arctic Borough (NAB) noted after release of the FEIS several locations of salmon and non-salmon spawning habitats near the western end of the project. While the NAB is a cooperating agency for the EIS, it appears the comments were personal. These habitat areas were noted as areas personally known to the commenter as a subsistence fisherman and as areas that did not appear in the data depicted on the map. The areas identified included spawning habitat of chum salmon, grayling, and "two kinds of whitefish." The BLM considered this new Traditional Knowledge to evaluate whether it would alter BLM's decision. All three alternatives terminate on the same alignment at the western end, so there would be no difference in how alternatives would affect these streams. Furthermore, sufficient fish presence, fish passage, and other water and fish mitigation measures are proposed by the Applicant or will be required by the BLM and Corps that the new information does not change the decision regarding selection of an alternative or selection of mitigation measures. The BLM has forwarded the information about fish spawning habitat to ADF&G so that agency can consider any verification needed and consider inclusion in the ADF&G's Anadromous Waters Catalog.

Appendix C

Design Features Proposed by the Applicant

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Ambler Road Final Environmental Impact Statement

Joint Record of Decision

Appendix C
Design Features Proposed by the Applicant

The following design features have been proposed by the Alaska Industrial Development and Export Authority (AIDEA) as a means of minimizing or mitigating for potential impacts. The design features will apply to the selected action alternative and will be implemented across the entire project, regardless of land ownership.

1.1. General Responsibilities and Plan of Development

- AIDEA would submit to the BLM, separately or as part of the plan of development (POD), a financing plan that indicated surety of the funding needed to build and operate the road according to the POD. Indication of AIDEA's financial ability to fund the project and its removal would be via binding agreements with mining companies, project investors, or other funders, indication of the ability to issue sufficient revenue bonds, and indication of acceptable financial instruments to ensure road closure and reclamation. The financing plan would be submitted for review and approval before final authorization to begin construction of any portion of the Ambler Road.

1.2. General Completion of Use (Restoration/Reclamation)

- AIDEA would prepare and submit for approval a detailed closure and reclamation plan that would include (1) a plan for closure and reclamation of 100 percent of the road project, including the road's full length, and including removal of all related buildings, airstrips, material sites, bridges and their abutments and piers, culverts, and communications equipment; (2) a timing and sequencing plan that shows reclamation as a single effort for the entire road (even if undertaken over 2 or more seasons); (3) a plan to dispose of all demolition scrap and debris outside the road corridor; (4) a plan for disposal of embankment material not needed for restoring natural contours, including safe disposal and capping of any materials that contain NOA and cleanup and disposal of any contaminated soils; (5) an update to the project's invasive species management plan; (6) an update to the project's stormwater pollution prevention plan, including detail regarding restoration of stream channels to approximately natural courses with minimal harm to aquatic life; and (7) a post-reclamation monitoring plan (e.g., for erosion, invasive plant species, use of the corridor for access).
- At the project's outset, before final approval for construction, AIDEA would pre-fund a Reclamation Reserve Fund or similar bonding instrument to the satisfaction of the BLM and other landowners providing ROW grants for the road, to provide for adequate reclamation during the closure and reclamation period.

1.3. Operations

- AIDEA would ensure personnel with current training in first aid were always present at construction and maintenance camps.

1.4. Physical Environment

- Geotechnical field studies and detailed thermal modeling would be completed, and specific measures to be incorporated in specific areas would be identified during final design after the alignment has received approval from the appropriate federal and state agencies to control permafrost thawing.

Design features related to this mitigation would be determined during the design/permitting phase and would be incorporated into ROW authorization and the permit.

- Cut slopes exposing ice-rich permafrost are particularly susceptible to erosion and would be stabilized using a mat of riprap or porous, granular material placed on a geotextile fabric. The porous rock material and geotextile fabric would be used to cover the exposed ice-rich soils and would extend to the toe of the embankment slope, allowing water to flow through the subsurface soils beneath the roadway embankment. Design features related to this mitigation would be determined during the design/permitting phase and would be incorporated into ROW authorization and permit stipulations.
- Embankment thicknesses would be increased where permafrost is likely, and cut sections would be avoided to the greatest extent practical to minimize permafrost exposure. Since permafrost degradation typically begins at the toe of the fill slope and spreads under the embankment, fill slopes should be ideally as flat as possible (constructing benched berms alongside the embankment is a common approach). During Phases 1 and 2, fill slopes at culverts would be flattened to provide sufficient burial cover over the culverts to protect the pipes. The flatter fill slopes and more gradual transition from the roadway embankment to existing ground would also help reduce permafrost degradation at the stream crossings. Flattening the fill slopes would be weighed against the increased footprint of the roadway. Design features related to this mitigation would be determined during the design/permitting phase and would be incorporated into ROW authorization and permit stipulations.
- Provisions for reducing permafrost degradation would be included in project design. Potential methods for addressing permafrost concerns include embankment insulation, air convention embankment, thermosyphons, sunsheds, snowsheds, or air ducts. For example, 6 inches of rigid insulation board could be installed under culvert bedding material for increased insulation. Design features related to this mitigation and associated monitoring requirements would be determined during the design/permitting phase and would be incorporated into ROW authorization and permit stipulations.
- Snow would be plowed off the road shoulders and embankment slopes to facilitate dissipation of heat out of the roadway embankment and reduce the likelihood of permafrost degradation. The operations and maintenance BMPs covering snow plowing would be incorporated into the stipulations of the ROW authorization and carried through into AIDEA's contract requirements for any road operator hired by AIDEA.
- Additional soil stability and erosion measures, such as riprap armoring and installation of erosion control matting, would be incorporated in the design where conditions suggest erosion may be an issue. Geotextile fabric would be placed beneath the riprap as appropriate to prevent migration of fines out of the underlying soils into surface water flows. Design features related to this mitigation would be determined during the design/permitting phase and incorporated into permit stipulations.
- AIDEA would avoid the use of materials containing NOA to the greatest extent feasible. For the purposes of this project, AIDEA has identified a threshold of 0.1 percent asbestos by mass as its definition of NOA materials (DOT&PF's regulations are specified for materials above 0.25 percent NOA; however, AIDEA has committed to a lower threshold). If use of NOA materials cannot be avoided, AIDEA would follow DOT&PF measures as allowed under 17 Alaska Administrative Code 97 and described in their May 14, 2015, regulations regarding the use of materials containing NOA.
- Sufficient oil-spill-cleanup materials (e.g., absorbents, containment devices) would be carried by field crews on all project maintenance and security vehicles.
- Project design features that mitigate impacts to permafrost and hydrology would be incorporated based on geologic and hydrologic studies to freely convey surface water across the road surface and minimize impacts on groundwater flows. Design features related to this mitigation would be refined during the design/permitting phase and would be incorporated into ROW authorization and permit stipulations. See also Section 3.2.1, Geology and Soils, for further information about permafrost soils.

- The planned construction of the road would use fill techniques with minimal cutting of native soils to the maximum extent practical. Cut areas would be examined further during future design phases to evaluate the risk of intercepting groundwater flows. High-risk areas would be mitigated by adjusting the roadway profile to reduce or eliminate the required cut or by incorporating appropriate drainage measures to collect and convey the exposed water. Design features related to this mitigation would be determined during the design/permitting phase and would be incorporated into ROW authorization and permit stipulations.
- Bridges and culverts would be installed at all identified drainage crossings, including rills and ephemeral channels, to maintain hydrologic connectivity, minimize changes to watershed basin areas, and reduce the likelihood of water impoundment degrading permafrost. An adequate number of culverts and/or bridges would be installed to maintain hydrologic continuity and existing drainage patterns within wetland complexes, ephemeral channels, and perennial stream channels. AIDEA would evaluate the use of bridges versus culverts on braided streams to reduce impacts to the stream and allow natural stream channel movement. Design features related to this mitigation would be determined during the design/permitting phase and would be incorporated into ROW authorization and permit stipulations.
- The collection of upstream runoff in ditches would be minimized to reduce the effects of diverting surface waters to adjacent drainage ways, maintain existing flow patterns and quantities, and reduce the potential for permafrost degradation. Roadside ditches would only be used in limited cut areas where permafrost presence is unlikely. The elevated (fill) aspect of the road is expected to avoid impacts to shallow groundwater sources; if there are site-specific concerns about damming shallow groundwater or wetting of the embankment, coarse materials would be placed at the lowest levels of the embankment to facilitate groundwater movement across the system (see also Section 3.2.1, Geology and Soils). Design features related to this mitigation would be determined during the design/permitting phase and would be incorporated into ROW authorization and permit stipulations.
- Culverts and bridges would be sized to adequately span (at a minimum) the bankfull width of the natural channel to minimize changes to stream flow velocities during base and flood flows and to maintain natural channel functions, such as sediment/debris transport and wildlife passage. Stream banks would be stabilized at road crossings to minimize the potential for erosion and downstream sedimentation. Design features related to this mitigation would be determined during the design/permitting phase and would be incorporated into ROW authorization and permit stipulations.
- All culverts determined by resource agencies as necessary to maintain hydrologic connectivity during full build-out of the project (Phase 3) would be installed during construction of Phase 1. Length of culverts installed during Phase 1 would be as needed for Phase 2. Design features related to this mitigation would be determined during the design/permitting phase and would be incorporated into ROW authorization and permit stipulations.
- An adaptive management plan for monitoring, maintaining, and repairing culverts over the life of the road would be developed, with Alaska Department of Fish and Game (ADF&G) and USACE input. The plan would include documentation of culvert locations using a Global Positioning System, and regular monitoring during culvert installation and through road operations. The plan would identify corrective measures that would be taken if concerns are identified, and timeframes for those measures to be implemented. Corrective measures may include additional culverts, increasing culvert sizes, adding thaw lines, adding dead-man anchors, or other appropriate measures. The proposed subsistence advisory committee (see design feature under Social Systems) would help in the oversight of the plan and overall road operations and maintenance.
- Design techniques would be employed during design phases to facilitate shallow groundwater flow beneath the road embankment. Installation of multiple culverts in parallel, at a subsurface layer of porous, rocky substrate, and subsurface drains/pipe are potential options. Design features related to

this mitigation would be determined during the design/permitting phase and would be incorporated into ROW authorization and permit stipulations.

- Riprap would be placed around the culvert ends at all phases of construction to protect and stabilize the slope of the embankment, reducing erosion of embankment material and minimizing the risk of embankment failure at the crossing during flood events. AIDEA would minimize the use of erosion controls that use plastic and use 100 percent biodegradable materials to the greatest extent practicable. Plastic materials used in sensitive areas would be removed once areas are stabilized. Geo-cells may be considered for stabilization on steep slopes. Design features related to this mitigation would be determined during the design/permitting phase and would be incorporated into ROW authorization and permit stipulations.
- Design and construction of large bridges would employ measures to minimize effects on water flow and fish migration. Specific design features related to this mitigation would be determined during the design/permitting phase, and would include measures such as:
  - Use of clean temporary diversion structures (e.g., Super Sack containers).
  - Working in low-water conditions when the need for diversion and dewatering requirements are lessened.
  - Minimizing use of riprap by exploring bioengineering alternatives for bank protection and stabilization.
  - Placing pilings to allow for unimpeded river traffic.
  - Restricting in-water construction during critical migration and spawning movements.
- A stormwater pollution prevention plan would be developed for construction and would identify BMPs to be implemented to reduce the potential for water quality impacts. BMPs also would be incorporated for road operation and maintenance activities to minimize potential impacts on water quality. Measures would include barriers to capture and filter stormwater at construction area boundaries, stabilization of disturbed areas as quickly as feasible, designation of specific areas for fueling, practices for drilling and driving piling and disposing of any drilling mud, and maintaining equipment to reduce the potential for unintentional releases. The operating and maintenance BMPs would be incorporated into the stipulations of the ROW permit and carried through into AIDEA's contract requirements of any road operator hired by AIDEA.
- Trucks hauling concentrate from the Ambler Mining District (District) to the Dalton Highway would be required to use covered, sealed containers to prevent ore concentrate from escaping the haul trucks and minimize the potential for impacts on streams from concentrate transport. The operating requirement would be incorporated into the stipulations of the ROW permit and carried through into AIDEA's permit requirements of any road user.
- A spill prevention and response plan would be developed to guide construction and operation activities. The plan would identify measures to reduce the potential for fuel spills, locations of spill response materials, and training of construction and maintenance staff on spill response. AIDEA would also develop a concentrate recovery plan similar to that developed at the Red Dog Mine to address concentrate spills. Details of the plans would be incorporated into the stipulations of the ROW permit and carried through into AIDEA's contract requirements of any road operator hired by AIDEA.
- All bridges would be designed to adequately convey at a minimum the 100-year peak flood without damage to the roadway embankment or adjacent channel reaches. Scour characteristics of rivers at bridge crossings would be evaluated to minimize long-term risk to bridge abutments and piers. Culverts would be designed to convey at a minimum the 50- or 100-year peak flood depending on site characteristics and perceived risk, as determined on a case-by-case basis. All stream simulation and other moderate to major culverts would be designed to convey the 100-year peak flood, at a minimum. Design features related to this mitigation would be determined during the design/permitting phase and would be incorporated into ROW authorization and permit stipulations.

- During design, culvert widths and bridge spans would be increased as needed, and/or overflow culverts would be installed to improve floodplain connectivity and accommodate stream characteristics to reduce the likelihood of damming or erosion. Overflow culverts, typically set at higher elevations relative to the primary culvert, would be considered at stream crossings where aufeis formation is probable. The overflow culverts would greatly improve the ability to keep water flowing across the roadway and prevent erosion and damming should flow through the primary culvert become impeded or blocked by ice. Overflow culverts also would be considered at stream crossings where there is a high likelihood of large woody debris (e.g., fallen trees) blocking culverts, based on the prevalence of timbered banks and active stream erosion upstream of the crossing. Overflow culverts also would be considered at broad, active floodplains, especially where the main stream channel is poorly defined, to better accommodate hydrologic connectivity across the floodplain. Design features related to this mitigation would be determined during the design/permitting phase and would be incorporated into ROW authorization and permit stipulations.
- During construction, AIDEA has proposed requiring contractors to use the following techniques to reduce construction noise:
  - Place stationary noise sources away from noise-sensitive locations.
  - Turn idling equipment off.
  - Drive equipment forward instead of backward, lift instead of drag materials, and avoid scraping or banging activities.
  - Use quieter equipment with properly sized and maintained mufflers, engine intake silencers, less obtrusive backup alarms (e.g., manually adjustable, self-adjusting, or broadband sound alarms instead of traditional “beep-beep-beep” alarms), engine enclosures, or noise blankets.
  - Purchase and use new equipment rather than using older equipment. New equipment tends to be quieter than older equipment due to new technology, improvements in mechanical efficiency, improved casing and enclosures, and other innovations.
- Dust palliatives would be applied to the gravel road to reduce the potential for dust. The University of Alaska Fairbanks (UAF) Alaska University Transportation Center has been studying dust palliatives for several years, and this project would incorporate the latest technologies for dust minimization and mitigation based on UAF studies. Details of the plans would be incorporated into the stipulations of the ROW permit and carried through into AIDEA's contract requirements of any road operator hired by AIDEA.
- Construction emissions would be minimized through use of standard BMPs related to dust suppression, equipment maintenance, and other factors.

1.5. Biological Resources

- Fish surveys would be undertaken to assess whether fish are present in the rivers and streams in the action area at various freshwater life history stages. The scope of the fish surveys would be coordinated with ADF&G, U.S. Fish and Wildlife Service, and National Marine Fisheries Service once a corridor has been approved. Results from the fish surveys would be shared with ADF&G for nomination and potential inclusion in the Anadromous Waters Catalog.
- Stabilization and restoration of sites disturbed during construction activities would occur in a timely manner within the post-disturbance growing season as work is completed. Disturbed soils would be stabilized and revegetated with native plant materials to reduce visual impacts and the potential for soil erosion and sediment discharge. AIDEA would work with the Alaska Plant Materials Center and the relevant land manager to develop a plan for obtaining native plant seed and/or cuttings to be used for restoration and reclamation needs. Design features related to this mitigation would be determined during the design/permitting phase and would be incorporated into permit stipulations.
- Reclamation of the industrial access road and support facilities would be undertaken at the end of the 50-year term of the ROW authorization. A detailed reclamation plan is subject to land manager

approval and would be developed prior to the issuance of the ROW permit. Reclamation measures would include removal of embankments, culverts, and bridges; re-grading the roadway to establish more natural ground contours and drainage patterns; and revegetation of the area through seeding or planting of native vegetation. Appropriate native plant materials would be identified in consultation with the Alaska Plant Materials Center and each landowner. Design features related to this mitigation would be determined during the design/permitting phase and would be incorporated into permit stipulations.

- In areas where the proposed roadway footprint requires the fill of wetlands and does not contain a defined channel, minor culverts (less than 3-foot diameter) would be installed at approximately 150-foot spacing to maintain hydrologic connectivity between bisected wetlands. Culvert spacing and sizing would ultimately be determined during permitting based on additional design information. Design features related to this mitigation would be determined during the design/permitting phase and incorporated into permit stipulations.
- Measures to avoid wetland loss would include design efforts to minimize impacts to wetlands and streams such as traversing upland habitats with less than 10 percent longitudinal grades; avoiding sloughs, ponds, and lakes, typically by a minimum of 50 feet; locating river crossings at straight sections; avoiding braided or multiple channels; and crossing rivers at the narrowest point feasible. Other design minimization measures would include shifting the alignment to impact lower-value wetlands and following existing roads or trails where possible.
- If selected, AIDEA would evaluate whether the Alternative A corridor can be shifted any further north to increase the distance from the Nutuvukti Fen. AIDEA would collect additional soils and hydrology information along the road alignment in the fen area and evaluate additional measures to further minimize effects on the fen. AIDEA would evaluate the potential to use porous fill materials in this area to allow more groundwater to flow through the road embankment.
- For waterways to be crossed with culverts and which are deemed to be fish-bearing, the design would comply with ADF&G fish passage standards, which require prescribed velocities and capacities among other design factors, to minimize and/or mitigate impacts to fish habitat from construction activities and operations. Design features of each fish stream crossing structure would be determined through coordination with the ADF&G during the design/permitting phase and incorporated into permit stipulations to ensure structures are designed to maintain fish passage per the Fish Passage Act (AS 16.05.841).
- All perennial rivers and streams are assumed to provide fish habitat, and crossings of them would be designed to provide fish passage. Crossings of well-established ephemeral channels likely to provide fish habitat during seasonal flow periods would also be designed to provide fish passage. Fish passage culverts would be designed and installed using stream simulation principles with embedded culverts filled with substrate to replicate natural channel characteristics and function. Fish passage crossings would be designed to convey the 100-year peak flood (1 percent exceedance probability). See Section 2.5.6 (Water Resources), Water – General, for additional culvert information. The design, construction, and installation of all anadromous water crossings would comply with the methods and recommendations in “Culvert Design Guidelines for Ecological Function, Alaska Fish Passage Program” (USFWS 2020). All fish passage culvert designs would additionally comply with the State of Washington stream simulation culvert width standards, which call for culvert widths of 1.2 times bankfull width plus 2 feet. Design features related to this mitigation would be determined during the design/permitting phase and incorporated into permit stipulations.
- AIDEA would comply with ADF&G permit requirements for all in-water work in salmon streams, including timing restrictions.
- Construction on the pioneer road would comply with possible restrictions during bird nesting periods in accordance with the Migratory Bird Treaty Act.

- AIDEA would incorporate the abatement and wildlife interaction protocols used on the Delong Mountain Transportation System into construction and operation of the Ambler Road. Details of the operating plan would be carried through into AIDEA's permit requirements of any road user.
- AIDEA communications protocol for road users would include coordination and notification to drivers of currently observed animal patterns, including migration patterns, to increase awareness of potential animal and vehicle conflicts. AIDEA would develop communication protocols in conjunction with wildlife managers. The communication protocols would be carried through into AIDEA's permit requirements of any road user.
- AIDEA would adopt a caribou policy that AIDEA and all contractors and road users would make every effort to ensure caribou are not disturbed in their efforts to cross the road. The operating policy would prevent the free-flow of traffic on the Ambler Road whenever caribou are crossing or are in the area. During times of caribou herd seasonal migration, the policy would allow for the closure of the road for several consecutive days. During such herd movements, AIDEA would monitor caribou movement and maintain a log of herd movement based on location and numbers of animals. Records would be maintained and shared annually with ADF&G and the Authorized Officer.

1.6. Social Systems

- AIDEA would operate the Ambler Road as an industrial access road not open to the general public and would establish a road-use permit system to ensure authorized use only. AIDEA would maintain a staffed gate at the Dalton Highway end of the road to regulate access only to authorized drivers. A similar gate would be established near the western end, near the boundary of the District. The road would not be open to general public use for any purpose or by any means, including vehicles, on foot, or by bicycle, except for crossing the road at designated and safe locations. The BLM's interpretation of AIDEA's proposal is that AIDEA would permit only (1) drivers on official mining business to and from the District; (2) road construction and road maintenance personnel on official business; (3) the road's fiber optics and satellite communications system installation and maintenance personnel on official business; (4) road construction and maintenance camp employees on official business; (5) borough, state, and federal land management agency personnel or Native regional corporation landowners' land management or permitting personnel on official business for lands adjacent to the road or within the District; (6) regulatory agency personnel on official business associated with compliance, monitoring, inspection, or enforcement for the Ambler Road project or District authorizations; (7) state and federal emergency response officials or crews (police, medical, fire) on official business; and (8) commercial companies/drivers transporting goods or fuel for communities near the road, including for private landowners whose parcels may not be directly adjoining or associated with a named community (outlying Native allotments and similar private properties). None of these classes of road users would be allowed to transport members of the general public as passengers, whether for a fee or not, except those passengers on official business as stated above.
- Bridges would be designed to minimize impacts on river flow and allow continued navigation on the river by watercraft that use each particular river, typically rafts, canoes, kayaks, and small motorized vessels. Where commercial/industrial barges are possible, the bridges would be designed for passage of tugs and barges.
- Kobuk River bridge design would consider aesthetics and incorporate design measures that minimize visual impacts. This includes incorporating brush and willows into riprap areas or using geo-cells for stabilization on steep slopes to reduce riprap and promote vegetation establishment.
- Revegetation of fill slopes with native seed, trees, and/or shrubs on topsoil could be used as a mitigation technique to reduce the contrast between the gravel road and the existing forest. Design features related to this mitigation would be determined during the design/permitting phase and would be incorporated into permit stipulations.

- AIDEA would form a subsistence working group for communication and knowledge sharing. The group would help determine where subsistence users would need to cross the road. The number and extent of these crossings would be negotiated with the group. Ramps would be constructed in select areas to aid such crossings if the subsistence working group determines that such construction is warranted to mitigate impacts to subsistence.

Appendix D

BLM Supporting Documentation

- Attachment D 1 – BLM Selected Mitigation Measures from Appendix N of the Ambler Road FEIS
- Attachment D 2 – BLM Potential Mitigation Measures from Appendix N, Covered by Regulations, Laws or BLM Authorizations
- Attachment D 3 – BLM Potential Mitigation Measures from Appendix N, Not Adopted

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Attachment D 1:

BLM SELECTED MITIGATION MEASURES FROM APPENDIX N OF THE FEIS

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Ambler Road Final Environmental Impact Statement

Joint Record of Decision

Appendix D, Attachment D 1

BLM Selected Mitigation Measures from Appendix N of the FEIS

In addition to the Design Features described in the Ambler Road FEIS Chapter 2 and Appendix C of this JROD, the BLM has selected mitigating measures from the FEIS Appendix N to avoid, minimize, or reduce impacts identified in the environmental analysis. These selected mitigation measures will apply only to lands under BLM jurisdiction and authority (BLM-managed lands). These mitigation measures will be used to formulate stipulations, and terms and conditions for all BLM authorizations covered by the Ambler Road FEIS.

Measures covered by regulations, laws, and standard stipulations for BLM authorizations are listed in Appendix D, Attachment D 2.

Table D-1 – BLM Selected Mitigation Measures from Appendix N of the FEIS

Mitigation Tracking Number	Mitigation Measure	FEIS Reference
4	AIDEA would notify the Authorized Officer in writing 30 days prior to the beginning of any planned temporary closure and 90 days prior to initiation of permanent closure and reclamation activities. For unplanned closures, AIDEA must notify the Authorized Officer within 24 hours after initiating the closure.	Appendix N, 1.1 General Measures
6	Except for authorized road/traffic signs, no signs or advertising devices would be placed on the right-of-way (ROW) or on adjacent public lands, except those posted by or at the direction of the Authorized Officer.	Appendix N, 1.1 General Measures
7	AIDEA would not block or obstruct the ingress or egress along any permanent existing roads or trails, including perennial winter trails and subsistence trails identified by communities, unless explicitly approved by the Authorized Officer	Appendix N, 1.1 General Measures
8	To ensure monument preservation and aid in the management of federal lands, the points where the road enters, on which the road is located, and where it leaves federal interest lands would be documented. This would be accomplished by locating and measuring to the nearest monuments on either side of the as-built centerline of the road. When on federal lands, if the road centerline falls within 1,320 feet of an existing monument, its position would also be measured, and its relationship shown relative to the centerline. These steps would ensure both objectives and would assist in the federal land manager's ability to identify where the road is on federal lands.	Appendix N, 1.1 General Measures

Mitigation Tracking Number	Mitigation Measure	FEIS Reference
9	AIDEA would conduct an environmental briefing with all employees, contractors, and subcontractors so they are familiar with the stipulations. AIDEA would maintain records of participant names and dates for these briefings and would make such records available to the BLM on demand. AIDEA would ensure that a copy of the stipulations would be readily available in either hard copy or electronic format to all employees, contractors/subcontractors, and agency staff at all crew quarters and offices associated with road operations (e.g., gatehouses, offices at maintenance camps).	Appendix N, 1.1 General Measures
10	AIDEA would develop and submit a monitoring plan for approval by the Authorized Officer. It would be designed to demonstrate compliance with the approved plan of operations and other federal and state environmental laws and regulations, provide early detection of potential problems, and supply information that would assist in directing corrective actions should they become necessary. Specific programs required to be included would be itemized in the Grant. Monitoring plans may incorporate existing state and federal monitoring requirements to avoid duplication. However, the submitted monitoring plan needs to include copies of and clearly reference these other plans.	Appendix N, 1.1 General Measures
11	AIDEA would ensure that copies of all relevant monitoring plan records are available for the BLM, upon request.	Appendix N, 1.1 General Measures
12	AIDEA would provide to the BLM copies of any permits required by any other federal or state agencies with jurisdiction prior to receiving a Notice to Proceed (NTP) with surface disturbing activities on BLM-managed lands.	Appendix N, 1.1 General Measures
14	AIDEA would submit documentation of consultation with affected subsistence communities to the BLM within 90 days of approving 90 percent road design at each phase of construction; annually by the end of the calendar year for 2 years following completion of construction of each phase; and, at minimum, every 5 years thereafter for the life of the project. Reporting would include a list of issues raised during consultation and results of road use monitoring.	Appendix N, 1.2 Reporting Requirements
15	AIDEA would monitor road use and keep records of numbers of vehicles by vehicle class and trip purpose. AIDEA would include in its monitoring and record keeping any unauthorized use of the road.	Appendix N, 1.2 Reporting Requirements
17	AIDEA would provide annual reports of incidents and accidents, including location, date, nature of incident or accident, whether any administrative or enforcement action was initiated, actions taken by AIDEA in response, and status of response completion. Examples of types of reportable incidents and accidents include (but are not limited to) fuel spills, overturned vehicles, wildlife injuries or fatalities, etc.	Appendix N, 1.2 Reporting Requirements
21	When the project improvements (infrastructure, roadbeds, and pads) are no longer needed, the end-of-project reclamation would include removing the fill placed in wetlands, and restoring the original contours of the landscape to return the land to its original condition for fish and wildlife to the greatest extent practicable.	Appendix N, 1.4 General Completion of Use (Restoration/ Reclamation)

Mitigation Tracking Number	Mitigation Measure	FEIS Reference
23	AIDEA would submit an initial closure and reclamation plan for approval prior to receiving a NTP for construction on BLM-managed land. AIDEA would submit an updated closure and reclamation plan with each submission of as-built data, at each 5-year interval for the life of the project, and upon notification of intent to begin closure and reclamation activities.	Appendix N, 1.4 General Completion of Use (Restoration/ Reclamation)
24	Each closure and reclamation plan update would be required to include documentation that AIDEA has notified any local communities authorized to receive goods or services via AIDEA facilities of the plan and anticipated timelines.	Appendix N, 1.4 General Completion of Use (Restoration/ Reclamation)
30	Each installation of artificial erosion control media would remain in place and be inspected and maintained weekly during the growing season until vegetation is established to achieve natural erosion control.	Appendix N, 3.2.1 Geology and Soils
31	Develop and implement a permafrost monitoring plan to detect and respond to issues resulting from permafrost disturbance at any location in the construction or operating ROW, including spur roads, landing strips, and building pads.	Appendix N, 3.2.1 Geology and Soils
32	AIDEA would design and construct the road to follow standard industry practices to reduce or eliminate permafrost degradation and associated road quality deterioration.	Appendix N, 3.2.1 Geology and Soils
33	If foam is used to insulate the permafrost from thermal degradation, it would be composed of closed-cell extruded polystyrene or other closed cell foams (e.g., blue board) rather than non-extruded expanded polystyrene foam.	Appendix N, 3.2.1 Geology and Soils
34	Geotechnical investigations would include analysis of acid-producing properties of samples collected from material sites, along the road alignment, and at locations of ancillary facilities to identify areas of potential acid rock drainage. Testing also would be done for non-acidic metals leaching. Cuts would be minimized in areas with high potential for acid rock drainage and non-acidic metals leaching. AIDEA would provide a protocol for determining when alternative locations would be needed to avoid such areas and, if avoidance is not possible, how cut material and drainage would be handled.	Appendix N, 3.2.1 Geology and Soils
35	AIDEA would develop and implement a plan to inform workers and residents of all communities in the area directly affected by the Ambler Road of the occurrence of Naturally Occurring Asbestos (NOA) in road materials, and on the ways to minimize exposure to NOA and so reduce health risk.	Appendix N, 3.2.1 Geology and Soils
36	Gravel and other construction materials would not be taken from active stream or riverbeds, active floodplains, lakeshores, or lake outlets without further site-specific analysis and approval of the Authorized Officer.	Appendix N, 3.2.2 Sand and Gravel Resources
39	Excavated materials would not be stockpiled in rivers, streams, 100-year floodplains, or wetlands unless approved by the Authorized Officer.	Appendix N, 3.2.2 Sand and Gravel Resources

Mitigation Tracking Number	Mitigation Measure	FEIS Reference
54	Temporary construction camps, permanent maintenance and operations stations, and all facilities would be maintained in a sanitary manner, free of loose debris and potential wildlife attractants. Solid waste materials and classes that are bear attractants would be collected in bear-proof containers until hauled away for proper disposal.	Appendix N, 3.2.3 Hazardous Waste
57	AIDEA would ensure that all solid waste and garbage, including incinerated ash, is removed from public lands and disposed of in an ADEC-approved waste disposal facility within 90 days of generation.	Appendix N, 3.2.3 Hazardous Waste
58	AIDEA would ensure that portable toilets are used for human waste disposal, and are regularly maintained anywhere construction or maintenance activity is concentrated, such as at material sites.	Appendix N, 3.2.3 Hazardous Waste
59	For construction and operation phases, when AIDEA is required by 40 Code of Federal Regulations (CFR) 112 to prepare a Spill Prevention Control and Countermeasure Plan (SPCCP), a copy of this plan will be furnished to the BLM. In addition, copies of other plans required to be developed by existing state and federal hazardous materials law (e.g., for transport of mining chemicals, liquefied natural gas, mining ore, etc.) would be submitted to the BLM.	Appendix N, 3.2.3.1 Spill Prevention and Response
61	Notice of any reportable spill (as required by 40 CFR 300.125 and 18 Alaska Administrative Code [AAC] 75.300) would be given to the Authorized Officer as soon as possible, but no later than 24 hours after occurrence.	Appendix N, 3.2.3.1 Spill Prevention and Response
62	ADEC-approved oil spill cleanup materials (absorbents) would be carried by trucks transporting fuel or hazardous fluids on the road and would be available at all fueling points.	Appendix N, 3.2.3.1 Spill Prevention and Response
64	During construction and operation, “duck ponds” would be placed beneath all parked vehicles at all times. Fuel spill kits would be kept on site wherever equipment is working. An overpack drum would be kept on site wherever drums are used to store or transfer petroleum or other hazardous materials.	Appendix N, 3.2.3.1 Spill Prevention and Response
65	AIDEA would ensure that all spill containment devices, including “duck ponds,” liners, and vehicle drip pans, are maintained in good working condition at all times. Spill containment devices that are punctured, torn, or worn beyond serviceability would be replaced immediately but not more than 48 hours after discovery of the unserviceable condition.	Appendix N, 3.2.3.1 Spill Prevention and Response
67	Any cyanide transported along the ROW must be transported by a signatory to the International Cyanide Management Code.	Appendix N, 3.2.3.1 Spill Prevention and Response

Mitigation Tracking Number	Mitigation Measure	FEIS Reference
69	AIDEA would ensure that all hazardous materials containers, including Petroleum, Oil, and Lubricants (POL) containers, are stored within secondary containment. • Double-walled tanks would meet secondary containment requirements. • When containment other than double-walled tanks is used, the containment area would be lined with an impermeable liner composed of material compatible with the substance(s) to be contained. The liner would be free of cracks or gaps and sufficiently impervious to contain leaks or spills. • If the containment is completely under cover of a roof, then the containment volume must be large enough to contain the capacity of the largest container stored within. • If the containment is not completely under cover of a roof, then the containment volume must be large enough to contain the capacity of the largest container stored, plus water from a 5-year, 24-hour storm event. The amount of precipitation from a 5-year, 24-hour storm event for a given location can be found at hdsc.nws.noaa.gov/husk/pad's/pfds_map_ak.html.	Appendix N, 3.2.3.2 Fuel Handling and Storage
70	Transfer of POLs to equipment would be completed in a secure manner to minimize the possibility of contamination of the surrounding environment. At a minimum, secondary containment would be placed under connection points and the transfer/delivery location to catch drips and overflow and assist the operator in containing a spill, if one occurs.	Appendix N, 3.2.3.2 Fuel Handling and Storage
71	Any equipment needing repairs that have the potential to release fluids would be repaired at a designated maintenance station if the equipment can be moved. If such repairs must be conducted in the field, the repairs would be completed over an impermeable liner to ensure fluid migration to the environment does not occur.	Appendix N, 3.2.3.2 Fuel Handling and Storage
72	No fuel storage or refueling of equipment would be allowed within the floodplain of a river or lake, unless approved by the Authorized Officer.	Appendix N, 3.2.3.2 Fuel Handling and Storage
73	All fuel containers used, including barrels and propane tanks, must be marked with Permittee's name, fuel type, and purchased date (e.g., GSI, Hydraulic Fluid, 2020)	Appendix N, 3.2.3.2 Fuel Handling and Storage
74	AIDEA would develop a plan addressing inadvertent discovery of paleontological resources as part of its Plan of Development (POD), to be submitted for approval.	Appendix N, 3.2.4 Paleontological Resources
75	All stream crossings would be designed based on site-specific information, such as fish species presence (presence may be assumed if data do not exist), seasonal in-stream flows and peak discharge, and floodplain regime. In developing estimates of flows and discharge for crossing design, climate trends would be used to improve the future discharge estimates and delineation of the floodplains.	Appendix N, 3.2.5.1 Water - General

Mitigation Tracking Number	Mitigation Measure	FEIS Reference
76	Stream crossings would preserve floodplain connectivity to the greatest extent practicable, for example by measures such as setting the invert for overflow culverts at the same grade level as the floodplain, distributing the overflow culverts to match the flood-flow patterns in the floodplain, etc.	Appendix N, 3.2.5.1 Water - General
77	Mobile ground equipment would not be operated in or on lakes, streams, or rivers on BLM-managed land except when ice thickness is adequate to support the equipment without altering the stream bed or displacing water outside the stream channel, unless specifically approved by the Authorized Officer.	Appendix N, 3.2.5.1 Water - General
80	To comply with Executive Order 11988, and Department Manual 520, disturbance in floodplains would be avoided where practicable. When avoidance is not practicable, floodplain disturbance would be minimized, and floodplain function restored to the extent practicable. • Where the authorized route intersects a stream, it is assumed that road construction in the floodplain is unavoidable. Where new road construction is otherwise undertaken in the 100-year floodplain (e.g., parallel to a stream, in proximity to a lake, or for access to ancillary facilities), AIDEA must demonstrate that alternative locations were considered. • Roads through floodplains would cross riparian areas perpendicular to the main channel to the extent practicable. • Throughout the ROW, structural and vegetative treatments in riparian areas would be used to contribute to the maintenance or restoration of proper functioning condition. • When riparian vegetation is cleared, riparian vegetation diversity and density would be re-established to the extent practicable.	Appendix N, 3.2.5.1 Water - General
82	Snow ramps or snow bridges and ice thickening used during construction at watercourse crossings would be substantially free of soil and/or debris. The ramps and/or bridges would be breached upon completion of the winter construction season before spring snowmelt begins.	Appendix N, 3.2.5.2 Water Quality
83	Caissons, coffer dams, or other methods would be used for in-water drilling or pile driving to keep work areas separate from surface waters, to protect water quality. If any drilling muds were used for geotechnical drilling, bridge pile drilling, or other drilling, muds would be kept separate from any surface water.	Appendix N, 3.2.5.2 Water Quality
84	A 100-foot undisturbed vegetation buffer would be maintained along any ponds, lakes, creeks, rivers, or higher-value wetland (patterned fens, emergent wetlands, moss-lichen wetlands), unless site-specific conditions warrant an exception. Any exceptions must be approved by the Authorized Officer. The buffer width would start from the edge of the riparian area associated with waterbodies or from the edge of higher value wetland.	Appendix N, 3.2.5.2 Water Quality
85	As part of the POD, AIDEA would provide a Noise Management Plan, subject to land manager approval, outlining noise reduction methods and features to be used during construction and operation of the ROW.	Appendix N, 3.2.6 Acoustical Environment (Noise)

Mitigation Tracking Number	Mitigation Measure	FEIS Reference
86	Prior to receiving an NTP for surface disturbing activities, AIDEA would submit a Dust Control Plan, subject to approval by the Authorized Officer and review by the Alaska Department of Environmental Conservation (ADEC), that would apply to all road construction and maintenance activities and to construction and operation of all project facilities, including airstrips, construction camps, and material sites. At a minimum, the plan would include: a statement of the expected effectiveness and environmental effects of the proposed palliative options; rationale for selection of palliatives that includes consideration for minimizing effects on fish, wildlife, vegetation, and water quality; and a dust control prescription (Best Management Practices [BMPs], palliatives, policies, practices, methodologies, general schedules) by activity, season, road segment, and construction phase. Details on palliatives, frequency, and application method would be included in this plan.	Appendix N, 3.2.7 Air Quality and Climate
87	The Air Quality component of the monitoring plan would include, at a minimum: methods for determining compliance with applicable state and federal laws and regulations; methods for monitoring dust impacts at sensitive receptors in all potentially affected communities during construction, road maintenance activities, and road use; methods for monitoring dust production during all activities that involve disturbance of NOA materials; methods for determining the effectiveness of dust control policies, practices, and methodologies implemented; and actions to be taken in response to adverse monitoring results.	Appendix N, 3.2.7 Air Quality and Climate
88	Dust suppressants with ingredients known to be harmful to aquatic organisms would not be used within 328 feet of any fish-bearing stream and higher-value wetlands (i.e., emergent wetlands, moss-lichen wetlands, patterned fens, shallow ponds).	Appendix N, 3.2.7 Air Quality and Climate
89	AIDEA would ensure that all construction camps would be located in areas that avoid potential exposure to asbestos, or have been constructed to avoid human exposure to asbestos.	Appendix N, 3.2.7 Air Quality and Climate
5	Prior to receiving a NTP with surface disturbing activities, AIDEA would submit for approval by the Authorized Officer a comprehensive plan for minimizing human exposure to NOA. At a minimum, the plan would address the relevant design features in their proposal, qualifications of staff providing oversight for NOA-related activities, testing methods, operating procedures and construction techniques specific to areas containing NOA, documentation of locations where NOA materials are placed, and methods for informing road users and maintenance staff when they are working where NOA materials were used.	Appendix N, 3.2.7 Air Quality and Climate
91	AIDEA would conduct baseline analysis and surveys on BLM-managed lands to identify BLM Special Status plant species, prior to conducting surface disturbing activities. The nature and extent of required analysis would be proposed by AIDEA for review and approval by the Authorized Officer.	Appendix N, 3.3.1.1 Vegetation - General

Mitigation Tracking Number	Mitigation Measure	FEIS Reference
92	All restoration and revegetation activities would be performed in accordance with AIDEA's Revegetation Plan, as approved by the Authorized Officer. In order to minimize the risk of introducing invasive species, AIDEA's revegetation plan will rely on use of topsoil with live native vegetation where practicable, and on planting and reseeding as secondary options.	Appendix N, 3.3.1.1 Vegetation - General
93	AIDEA would ensure that all areas where vegetation is cleared or fill is placed, including road embankments, are revegetated as soon as practicable, unless operation of the authorized road and facilities necessitates the area remaining unvegetated.	Appendix N, 3.3.1.1 Vegetation - General
95	AIDEA would establish requirements that vehicles used on the road be in good working condition and would do a visual inspection for any signs of leaks.	Appendix N, 3.3.1.1 Vegetation - General
96	At temporary construction camps, permanent maintenance camps, or other places of common intended pedestrian traffic, boardwalks or similar measures would be built, used, and properly maintained in areas where repeated trampling would create visible trails or water tracks or would otherwise impede vegetation growth, or the route would be closed and closure enforced.	Appendix N, 3.3.1.1 Vegetation - General
97	Topsoil and vegetation would be stockpiled separately from overburden in a manner that prevents loss through erosion and allows for their use during the reclamation process.	Appendix N, 3.3.1.1 Vegetation - General
99	In wetlands, tundra mats or other appropriate types of ground protection would be used to minimize disturbance of ground vegetative cover outside the cut-fill footprint during non-winter construction, unless otherwise authorized by the Authorized Officer.	Appendix N, 3.3.1.2 Wetlands
100	Minimize the disruption of groundwater flow though the active layer above permafrost covered by the roadbed, to protect groundwater-fed wetlands such as fens.	Appendix N, 3.3.1.2 Wetlands
101	Disturbance to uncommon wetlands such as patterned fens and moss-lichen wetlands would be avoided to the maximum extent practicable.	Appendix N, 3.3.1.2 Wetlands

Mitigation Tracking Number	Mitigation Measure	FEIS Reference
102/103	AIDEA would prepare an Invasive Species Prevention and Management Plan (ISPMP) to prevent the introduction and spread of Non-native Invasive Species (NNIS), including terrestrial and aquatic plant and animals. At a minimum, the ISPMP would address the following items: • Compatibility with the current National and State BLM Invasive Species Management Policies. • Methods and timeframe for conducting a baseline NNIS assessment prior to initiating surface disturbing activities, and periodic assessments throughout the duration of the authorization. • Methods of NNIS prevention and infestation management. • Clear procedures for documenting and reporting detections of NNIS. • Specific practices, procedures, and BMPs for preventing the spread of NNIS, such as vehicle and equipment inspection and washing/brushing. • A program (procedures, timeframes, documentation) for training all employees engaged in road construction or maintenance and all drivers authorized to use the road in invasive species awareness and abatement. • An adaptive management and monitoring framework to mitigate the introduction and spread of NNIS (including terrestrial and aquatic plants and animals) throughout the duration of the authorization and for at least five growing seasons after completion of reclamation.	Appendix N, 3.3.1.3 Non-native Invasive Species
3104	When infestations occur, as much as possible begin project operations in areas without non-native or noxious weed species, as opposed to initiating activities from areas of infestation.	Appendix N, 3.3.1.3 Non-native Invasive Species
107	AIDEA would prepare and submit for approval by the Authorized Officer a Timber Clearing, Salvage, and Utilization Plan prior to any clearing activity addressing, at a minimum, clearing equipment and methods; minimizing risks to public safety; avoiding fire fuel hazards, minimizing forest health risks; skidding, yarding, and decking management to minimize environmental impacts; erosion and sediment control during timber handling operations; timeframes for removal of timber from public lands; and plans, if any, for making timber available for disposal to the public. All timber clearing would be performed in accordance with the approved plan.	Appendix N, 3.3.1.4 Forestry, Timber, and Fire
108	AIDEA would ensure that removal of timber and other woody vegetation is limited to only that necessary to facilitate activities authorized in the ROW Grant, and that trees that will not be removed are not damaged.	Appendix N, 3.3.1.4 Forestry, Timber, and Fire
109	Use of open fires in connection with Ambler Road activities is prohibited on BLM-managed land unless approved by the Authorized Officer and performed in accordance with federal law, except that incineration of solid waste combustibles may be conducted in accordance with the grant stipulations. AIDEA would require all employees, contractors, subcontractors, and authorized drivers to build no fires except in designated fire rings designed for the purpose.	Appendix N, 3.3.1.4 Forestry, Timber, and Fire

Mitigation Tracking Number	Mitigation Measure	FEIS Reference
111	AIDEA would employ measures from Firewise Alaska (forestry.alaska.gov/Assets/pdfs/home/firewise09.pdf) to prevent wildfires from overtaking maintenance stations and communication towers.	Appendix N, 3.3.1.4 Forestry, Timber, and Fire
112	AIDEA would promptly notify the Authorized Officer of any fires that occur on or near lands subject to the ROW Grant.	Appendix N, 3.3.1.4 Forestry, Timber, and Fire
114	AIDEA would be held financially responsible for AIDEA's actions or activities that result in a wildfire. Costs associated with wildfires include, but are not limited to, damage to natural resources and costs associated with any suppression action taken on the fire.	Appendix N, 3.3.1.4 Forestry, Timber, and Fire
116	AIDEA would ensure that their employees, contractors, and subcontractors do not intentionally harass or feed wild animals (including fish, amphibians, birds, and mammals) while on duty or living at any camp or mobile camp. This includes leaving unattended garbage or other potentially edible items that would attract wildlife, including birds. This would be part of the training for all employees, contractors, and subcontractors.	Appendix N, 3.3.2 Wildlife - General
117	AIDEA would notify the Authorized Officer within 30 days if an animal is killed during the course of construction or operation of the road or associated facilities, including in defense of life or property.	Appendix N, 3.3.2 Wildlife - General
119	All field crews, construction workers, maintenance workers, and drivers on the road would follow a wildlife interaction plan prepared by AIDEA or a designee detailing how they are to manage wildlife attractants (food and non-food materials) and respond to human-wildlife interactions. This would be included with the training for authorized drivers of the Ambler Road.	Appendix N, 3.3.2 Wildlife - General
121	AIDEA must include in its road design measures to minimize impacts on wildlife movement and minimize habitat fragmentation during construction, to the extent practicable. This may include, but not be limited to, such features as: • Burying infrastructure or facilities that may deter wildlife movement • Creating wildlife escapement design features in excavations • Siting and orienting infrastructure and facilities to allow for unfettered wildlife movement • Using vegetation to provide screened movement corridors around infrastructure and facilities	Appendix N, 3.3.2 Wildlife - General
129	AIDEA would ensure that vegetation clearing during all phases of construction would be scheduled to minimize impacts on migratory birds and any other birds on the BLM special status species list (to be provided by the BLM and updated periodically). The primary mechanism to avoid and minimize impacts is to conduct vegetation clearing outside of the nesting season (May 1–July 15 for this region). If AIDEA chose to clear vegetation during this timeframe, then AIDEA would have a qualified biologist survey any area where vegetation would be damaged by the project or associated activities within 48 hours prior to vegetation disturbance. If an active nest is located, an appropriate avoidance area (as determined by the qualified biologist) would be marked and avoided until the biologist determines that the nest has been naturally vacated.	Appendix N, 3.3.4 Birds

Mitigation Tracking Number	Mitigation Measure	FEIS Reference
133	Vehicles would be required to slow down or stop and wait to permit the movement of wildlife across the road at any location. During known caribou migration, the Authorized Officer may require temporary cessation of traffic, but only in discrete areas for limited amounts of time, and not without first consulting with AIDEA on potential operational impacts.	Appendix N, 3.3.5 Mammals
134	Snowbank height would be minimized to allow caribou passage, in particular during spring migrations, to the extent practicable.	Appendix N, 3.3.5 Mammals
138	To minimize wildlife entanglement and plastic debris pollution, erosion and sediment control products would be plastic-free, as much as possible, such as netting manufactured from 100 percent biodegradable, non-plastic materials like jute, sisal, or coir fiber.	Appendix N, 3.3.5 Mammals
139	AIDEA, in final design, would work with private landowners to ensure that Native allotments and other private parcels would be entirely avoided (if desired by the property owner) wherever possible. AIDEA would minimize impacts of the road project (including materials sites, access roads, etc.) on nearby Native allotments and private parcels and on any existing development by means such as providing buffer space or using topography or existing vegetation as a screen.	Appendix N, 3.4.1 Land Ownership, Use, Management, and Special Design
140	AIDEA would seek to minimize impacts within the Gates of the Arctic National Park and Preserve (GAAR) by assessing the feasibility (during subsequent project design) of moving material sites and maintenance stations outside of the Park Boundaries and by reducing the number of communications towers within GAAR boundaries. If not feasible from a cost or technical standpoint, AIDEA will minimize the siting of such facilities within GAAR as much as practical.	Appendix N, 3.4.1 Land Ownership, Use, Management, and Special Design
141	AIDEA's authorization (permit) program for drivers authorized to use the road would include education/training about ROW stipulations that apply to drivers. AIDEA would maintain documentation of such education/training and make the records available to the BLM or other jurisdictional agencies on request. No drivers would be allowed to use the road without such education/training.	Appendix N, 3.4.2 Transportation and Access
142	In keeping with operation of the Ambler Road as an industrial access road not generally open to the public, AIDEA would operate project airstrips for Ambler Road activities only, except for emergency landings. Public access to airstrips for recreation, hunting, or other general uses would not be allowed and would be monitored by construction camp/maintenance camp crews and Ambler Road security. Details regarding methods of restricting access to project airstrips would be included in the Public Access Plan (see next measure).	Appendix N, 3.4.2 Transportation and Access

Mitigation Tracking Number	Mitigation Measure	FEIS Reference
143	AIDEA would prepare and submit a Public Access Plan inclusive of construction and operational periods to the Authorized Officer for review and approval. The plan would include types and locations of ramps and other suitable methods for allowing public access across the road ROW for subsistence and local over-snow travel purposes, and for preventing the potential for trespass along the road from crossing sites, road and trail intersections, and other locations. AIDEA would make provisions for suitable permanent crossings of the ROW for the public where the ROW crosses or runs along existing roads, foot trails, winter trails, , easements (including Alaska Native Claims Settlement Act 17b public easements), or other ROWs or known routes identified through AIDEA coordination with subsistence communities in the region and land managers. Provisions for crossings would be in place during Phase 1 construction.	Appendix N, 3.4.2 Transportation and Access
144	Pursuant to 43 CFR 2805.15(a), the BLM retains the right to access the lands covered by the ROW Grant at any time and to enter any facility AIDEA constructs on the ROW. Similarly, other agencies or landowners that, in the judgment of the Authorized Officer, have permit-compliance responsibilities for the road or mines or that need access for land management and other functions similarly shall be authorized to drive the road, after training, at no charge. Requirements to have commercial driver's license that may apply to other classes of drivers on the road would not apply to agency personnel except where they were otherwise required to have such a license.	Appendix N, 3.4.2 Transportation and Access
145	Areas of restricted public access would be easily identifiable on the ground. AIDEA would provide appropriate signs, flagging, barricades, and other safety measures when regulating or prohibiting public access.	Appendix N, 3.4.2 Transportation and Access
146	Where the proposed alignment interferes longitudinally with traditional trails or adjudicated RS2477 routes, AIDEA would maintain such routes in their current location by altering or refining the Ambler Road design or replacing those facilities with parallel facilities of equal or better condition. Location of security gates would be adjusted to ensure no unauthorized access.	Appendix N, 3.4.2 Transportation and Access
147	AIDEA would prohibit its agents, employees, and contractors and their respective employees, from hunting, fishing, shooting, trapping, using vehicles off-road, or camping while on duty or living at a camp.	Appendix N, 3.4.3 Recreation and Tourism
149	AIDEA would identify for BLM review and incorporate into its project design features and measures to minimize visual impacts from light fixtures. Lighting designs would use the minimum lighting intensity necessary to ensure safety; use localized task lighting; and incorporate measures such as diffusers, lenses, and shielding to reduce nighttime glare, light radiation, and backscatter into the sky.	Appendix N, 3.4.4 Visual Resources
152	The exterior of structures associated with temporary construction camps and long-term maintenance and operations facilities would be colored covert green, shadow gray, or a similar color unless another color is specified in the project-specific stipulations as depicted on BLM's Visual Resource Management Standard Environmental Colors Chart. For more information visit: www.blm.gov/programs/recreation/recreation-programs/visual-resource-management	Appendix N, 3.4.4 Visual Resources

Mitigation Tracking Number	Mitigation Measure	FEIS Reference
153	Tall structures would be minimized and constructed in locations not conspicuous on the horizon, to the greatest extent practicable.	Appendix N, 3.4.4 Visual Resources
154	Other visual impact mitigation measures, subject to consistency with vegetation BMPs, would include: • Maintain a screening of existing natural vegetation between the Ambler Road and its facilities and the Dalton Highway, to the extent possible. • Minimize locating Ambler Road facilities, new material sites, and construction or maintenance material stockpiles in areas that would be visible to the public in places with special visual resource values. • Blend the Ambler Road facilities into the natural setting to the extent practicable when crossing or passing near places with high visual resource value, including GAAR, Areas of Critical Environmental Concern, the Dalton Highway corridor, existing communities, and streams used for recreation and transportation.	Appendix N, 3.4.4 Visual Resources
155	AIDEA would perform the following mitigation measures to address effects on socioeconomics: • Plan and execute construction activities to minimize, to the extent practicable, impact to high-use tourist and recreation seasons (e.g., river floating, wildlife viewing, hunting, snow machining, dog mushing). • Plan and execute construction activities to minimize, to the extent practical, impacts to local lodges and other businesses (i.e., minimize summer and fall construction in recreational and tourist areas). • Identify and promote work opportunities for local residents.	Appendix N, 3.4.5 Socioeconomics and Communities
157	AIDEA would use only non-persistent and immobile types of pesticides, herbicides, preservatives, and other chemicals. Each chemical to be used and its application constraint would be approved by the BLM prior to use. The use of pesticides and herbicides is regulated by ADEC's Environmental Health Division through 18 AAC 90 and may require a permit.	Appendix N, 3.4.5.1 Public Health
161	AIDEA would consult directly and regularly with affected subsistence communities, represented in the subsistence working group formed by AIDEA (see Chapter 2, Section 2.4.4 of the EIS), including on the following items: • AIDEA would consult with directly affected subsistence communities to discuss the siting, timing, and methods of road construction and operations (see also Appendix N Section 3.4.2, Transportation and Access). • AIDEA would make every reasonable effort, including such mechanisms as conflict avoidance agreements and mitigating measures, to ensure that road construction activities and operations and maintenance activities carefully consider and minimize interference with subsistence activities.	Appendix N, 3.4.7 Subsistence Uses and Resources

Mitigation Tracking Number	Mitigation Measure	FEIS Reference
162	AIDEA would notify workers and road users when subsistence activities are ongoing in the area and direct them to refrain from actions that may affect the activities (e.g., not removing trapline markers).	Appendix N, 3.4.7 Subsistence Uses and Resources
163	Subsistence activity impact mitigation would also include: • Identifying locations and times when subsistence activities occur and minimizing work during these times and in these areas to the maximum extent practicable. • Scheduling work (e.g., blasting) to avoid conflict with subsistence activities when possible. • Managing project-related aviation activities to minimize disturbance of hunters or prey species.	Appendix N, 3.4.7 Subsistence Uses and Resources
164	AIDEA would establish a meat recovery plan for wildlife killed as a result of construction activities, truck traffic on the road, air traffic on airstrips, and other project related activity. The plan would be developed in consultation with the subsistence working group, allowing proximate rural residents an opportunity to remove and use the carcasses for subsistence.	Appendix N, 3.4.7 Subsistence Uses and Resources
165	Mitigation measures for historic properties are listed in a Programmatic Agreement (PA; Appendix H of this JROD). AIDEA would have to comply with the terms of the PA, which is an agreement with the BLM, USACE, NPS, Alaska Department of Natural Resources, Alaska State Historic Preservation Officer, Advisory Council on Historic Preservation, and AIDEA, related to implementation of Section 106 of the National Historic Preservation Act (NHPA; 16 USC 470 et seq.). A Cultural Resources Management Plan has been implemented and agreed to as part of the PA.	Appendix N, 3.4.8 Cultural Resources
166	AIDEA would consult with the BLM, local communities, and Tribes to seek ways to avoid damaging or disturbing cultural landscapes, Traditional Cultural Properties, or other places of traditional cultural importance located along the ROW that are locally or regionally important but may not meet the criteria of a historic property.	Appendix N, 3.4.8 Cultural Resources

Attachment D 2:

BLM POTENTIAL MITIGATION MEASURES FROM APPENDIX N, COVERED BY REGULATIONS, LAWS OR BLM AUTHORIZATIONS

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Ambler Road Final Environmental Impact Statement

Joint Record of Decision

Appendix D, Attachment D 2

BLM Potential Mitigation Measures from Appendix N, Covered by Regulations, Laws or BLM Authorizations

In addition to the BLM mitigation measures in Appendix D, Attachment D-1, the following mitigation measures from Appendix N of the Ambler Road FEIS consist of measures covered by regulations, laws and standard stipulations, which will be incorporated as needed in BLM authorizations associated with the Ambler Road project analyzed in the Ambler Road FEIS.

Table D-2 – BLM Mitigation Measures Covered by Regulations, Laws or BLM Authorizations

Mitigation Tracking Number	Mitigation Measure	FEIS References	Implement Measure Yes or No	Rationale For or Against Implementing
1	AIDEA would conduct all activities associated with the initiation, construction, operation, and termination of the grant within the authorized limits of the right-of-way (ROW) area.	Appendix N, 1.1 General Measures	Required by Code of Federal Regulations (CFR)	Already implied in the concept of a ROW grant. Also redundant with 43 CFR 2805.12(a)(8)(vi).
2	Any activities on the Ambler Road ROW beyond those analyzed in the FEIS and specified in the ROW Grant must have prior written approval of the Authorized Officer.	Appendix N, 1.1 General Measures	Required by CFR	Redundant with 43 CFR 2805.11(c).
3	AIDEA would ensure that the facilities to be constructed, used, and operated would limit or prevent damage to scenic, esthetic, cultural, and environmental values (including damage to fish and wildlife habitat), damage to federal property, and hazards to public health and safety.	Appendix N, 1.1 General Measures	Required by CFR	Redundant with 43 CFR 2805.12(a)(8)(3).
5	Except as specified in the ROW Grant, AIDEA would not disturb or destroy pipelines, fuel gas lines, roads, trails, work pads, survey monuments or ROW markers, cathodic protection devices, monitoring rods, drainage/erosion control structures, or any other facilities or properties existing on public lands. Any disturbance of these facilities or properties by AIDEA in the conduct or operations under this ROW would be reported to the Authorized Officer and would be restored to the satisfaction of the Authorized Officer.	Appendix N, 1.1 General Measures	Required by CFR	Provides more specificity for a general principle expressed in 43 CFR 2805.12. This is a standard stipulation and would be in the ROW Grant.

Mitigation Tracking Number	Mitigation Measure	FEIS References	Implement Measure Yes or No	Rationale For or Against Implementing
13	In accordance with regulation at 43 CFR 2805.11(c), AIDEA may only use the ROW for the specific use the ROW Grant authorizes. AIDEA would ensure that the road, camps, and any other authorized facilities are used only in support of authorized activities. Other uses, including use by hunters, fishers, tourists, researchers, or employee's friends or family members, is not authorized. This does not preclude providing appropriate emergency assistance to anyone in distress, providing assistance and support to law enforcement or search and rescue personnel, or providing support to agency staff and contractors engaged in administration of the ROW Grant.	Appendix N, 1.1 General Measures	ROW Grant Stipulation	This is a standard stipulation.
16	AIDEA would provide the BLM with as-built data for the road within 90 days of completion of each construction phase. Data would be in the form of an ESRI shape file(s) referencing the North American Datum of 1983 (NAD83).	Appendix N, 1.2 Reporting Requirements	ROW Grant Stipulation	Holder is required by regulations to provide maps, 43 CFR 2805.12(a)14)
18	AIDEA would refine, based on the National Environmental Policy Act (NEPA) analysis, the Plan of Development (POD) provided with the Standard Form 299 (SF299) ROW Grant application, and the POD would be reviewed and approved by the BLM and made part of the ROW Grant to AIDEA. In accordance with regulations at 43 CFR 2805.12(a)(8)(vi), AIDEA would construct, operate, and maintain the Ambler Road and Related Facilities within the ROW in a manner consistent with the ROW Grant, including the approved POD.	Appendix N, 1.3 General Responsibili-ties and Plan of Development	ROW Grant Stipulation	This is standard procedure to refine the POD to more closely align with the FEIS.

Mitigation Tracking Number	Mitigation Measure	FEIS References	Implement Measure Yes or No	Rationale For or Against Implementing
19	ADIEA's proposed design features, industry best management practices (BMPs), and the BLM-adopted mitigation measures listed in this JROD would be incorporated by reference into AIDEA's POD and compliance program. Selected design features, BMPs, and mitigation measures would be refined and clarified in the subsequent ROW Grant stipulations.	Appendix N, 1.3 General Responsibilities and POD	ROW Grant Stipulation	This compliments #18 (Appendix N, 1.3) and adds clarification to the standard process of design features and mitigation measures being rolled into the ROW Grant.
20	Upon completion of use of all, or a very substantial part, of the ROW, AIDEA would promptly remove all improvements and equipment, except as otherwise approved by the Authorized Officer, and would restore the ROW to a condition that is approved in writing by the Authorized Officer. Road closure would include barriers near either end and at other locations as needed to minimize continued use of the alignment as a transportation corridor by off-road vehicles, including snowmobiles.	Appendix N, 1.4 General Completion of Use (Restoration/ Reclamation)	ROW Grant Stipulation	Mitigations are to support the requirement to restore the ROW, 43 CFR 2805(a)(8)(i).
25	AIDEA would submit a final summary report to the Authorized Officer within 30 days of completion or cessation of operations. This report would include: • Written statement of program completion with completion date. • Summary compilation of incident and accident reports required under mitigation measure #4 in Section 1.2. • A comprehensive map showing camp locations and dates utilized, fuel storage locations and dates utilized, routes used for off-highway fuel hauls and dates utilized, storage locations for any hazardous materials with dates utilized, and types of materials.	Appendix N, 1.4 General Completion of Use (Restoration/ Reclamation)	ROW Grant Stipulation	This would provide the BLM with necessary information to ensure all potential issues are addressed during closure and reclamation.

Mitigation Tracking Number	Mitigation Measure	FEIS References	Implement Measure Yes or No	Rationale For or Against Implementing
26	Before BLM would issue a Notice to Proceed (NTP) for a construction segment or project, AIDEA would, in a manner acceptable to the Authorized Officer, locate and clearly mark on the ground the exterior boundaries of the ROW and the location of all related facilities proposed to be constructed as part of that specific construction segment or project.	Appendix N, 2 Alternatives	ROW Grant Stipulation	Proper location of the ROW boundaries is essential for construction employees to avoid errors and for compliance staff to collect accurate information. The principle of accurately locating the ROW before an NTP is essential.
27	AIDEA would provide a financial guarantee, making funds accessible to the BLM to cover the cost of construction, operation, maintenance, and termination/reclamation in the event they are unable to do so. The financial guarantee mechanism must meet the requirements of BLM regulation and policy.	Appendix N, 2 Alternatives	ROW Grant Stipulation	The BLM requires bonding on BLM ROWs (IM2019-013, 11/15/2018)
28	AIDEA would submit a plan for use of explosives on federal land, including but not limited to blasting techniques, to the Authorized Officer.	Appendix N, 2 Alternatives	Required in the ROW Grant as part of the POD	This is part of a complete POD, 43 CFR 2804.12(a)(8).
29	All construction and operations activities would be conducted with due regard for good resource management and in such a manner as not to block any stream or drainage system; change the character or course of a stream; cause the pollution of any stream, lake, wetland, or land area; or cause pollution of the air.	Appendix N, 2 Alternatives	ROW Grant Stipulation	This is required under 43 CFR 2805.12.
37	AIDEA would provide a detailed mineral materials (e.g., gravel) mining and reclamation plan to the BLM for approval at least 90 days prior to beginning any mining operations. The mining and reclamation plan would address all applicable items in the Mineral Materials Mining and Reclamation Plan Proposal Form (Appendix N, Attachment A, of the FEIS). It would also address what would be done with asbestos-containing materials during reclamation.	Appendix N, 3.2.2 Sand and Gravel Resources	Stipulation would be in a minerals material permit, since these are just for material sites	This is a standard stipulation for mineral material authorizations.

Mitigation Tracking Number	Mitigation Measure	FEIS References	Implement Measure Yes or No	Rationale For or Against Implementing
38	AIDEA would notify the BLM at the beginning and end of active mining operations.	Appendix N, 3.2.2 Sand and Gravel Resources	Stipulation would be in a minerals material permit, since these are just for material sites	This is a standard stipulation for mineral material authorizations and allows the BLM to document when active mining is occurring.
40	AIDEA would ensure that the site is developed sequentially in cells. A disturbed cell would be reclaimed prior to opening a new area. Exceptions to allow for thawing of permafrost may be granted at the discretion of the Authorized Officer.	Appendix N, 3.2.2 Sand and Gravel Resources	Stipulation would be in a minerals material permit, since these are just for material sites	This is a standard stipulation for mineral material authorizations and ensures non-wasteful development of material sites.
41	AIDEA would ensure that a 100-foot undisturbed buffer is maintained along any lakes or creeks that flow through upland material mining pits. Any approved access roads that bisect the buffer area would be rehabilitated at the close of mining by revegetating the crossing with plant species and densities similar to those in the undisturbed buffer for at least 100 feet from the bank-full elevation. Access roads in buffers originally void of vegetation would be scarified to a minimum depth of 8 inches during final reclamation.	Appendix N, 3.2.2 Sand and Gravel Resources	Stipulation would be in a minerals material permit, since these are just for material sites	This is a standard stipulation for mineral material authorizations. The Alaska Department of Environmental Conservation (ADEC) recommends a minimum setback of “200 feet between excavation limits and the ordinary high water level of surface water bodies, including lakes, rivers, and streams”. This measure would be partially effective at eliminating water quality impacts.

Mitigation Tracking Number	Mitigation Measure	FEIS References	Implement Measure Yes or No	Rationale For or Against Implementing
42	AIDEA would ensure that buffer zones are not disturbed, except by designated crossings. Operation of equipment, placement of overburden or mined material, or storage/placement of any equipment and supplies would not be allowed in any buffer zones identified in the mining and reclamation plan, specified in the Decision Record for this authorization, or required in these stipulations.	Appendix N, 3.2.2 Sand and Gravel Resources	Stipulation would be in a minerals material permit, since these are just for material sites	This is a standard stipulation for mineral material authorizations. This would reduce impacts associated with water quality.
43	Unless separately authorized, AIDEA would ensure that no material site is used for storage of materials and supplies not related to production of mineral from that site. Unless separately authorized, AIDEA would ensure that mineral materials sites are not used for secondary or value-added production processes not related to production of mineral materials.	Appendix N, 3.2.2 Sand and Gravel Resources	Stipulation would be in a minerals material permit, since these are just for material sites	This is a standard stipulation for mineral material authorizations that assures compliance with policy in the BLM mineral materials handbook and prevents operations outside the authorities implemented under mineral materials regulations.
44	AIDEA would ensure that no minerals originating outside the permit area are imported to the permit area, except as may be authorized in approved project plans.	Appendix N, 3.2.2 Sand and Gravel Resources	Stipulation would be in a minerals material permit, since these are just for material sites	This is a standard stipulation for mineral material sites and is BLM policy in the mineral materials handbook. It facilitates production verification and helps ensure compliance with legal requirements to obtain fair market value for public resources.

Mitigation Tracking Number	Mitigation Measure	FEIS References	Implement Measure Yes or No	Rationale For or Against Implementing
45	AIDEA would ensure that overburden, topsoil, and vegetation are stockpiled separately in a manner that prevents loss through erosion, preserves them for use in reclamation, and does not impede access to usable mineral materials.	Appendix N, 3.2.2 Sand and Gravel Resources	Stipulation would be in a minerals material permit, since these are just for material sites	This is important for reclamation and should be retained as such. This is a standard stipulation for mineral material authorizations. In addition to facilitating reclamation success, it encourages efficient use of public resources.
46	AIDEA would ensure that work pit sides are sloped to prevent erosion and provide for the safety of humans and animals. Slopes along pit sides and inactive faces would be no greater than 3:1 (horizontal:vertical).	Appendix N, 3.2.2 Sand and Gravel Resources	Stipulation would be in a minerals material permit, since these are just for material sites	This is a standard stipulation for mineral material authorizations. In addition to facilitating reclamation success, it encourages efficient use of public resources.
47	AIDEA would ensure that site stabilization measures and measures to control erosion, sedimentation, and stormwater are maintained in proper working order throughout the term of the authorization, including during periods of temporary closure or inactivity.	Appendix N, 3.2.2 Sand and Gravel Resources	Stipulation would be in a minerals material permit, since these are just for material sites	This is a standard stipulation for mineral material authorizations; addresses a frequent issue with material sites.
48	AIDEA would ensure that BMPs for dust abatement (e.g., graveling, watering) are utilized when deemed necessary by AIDEA, their contractor, or subcontractor, or when directed by a BLM representative.	Appendix N, 3.2.2 Sand and Gravel Resources	Redundant	This is a standard stipulation for mineral material authorizations. See #86 (Appendix N, 3.2.7). If the overall project dust control plan addresses dust abatement at material sites, this would be redundant.

Mitigation Tracking Number	Mitigation Measure	FEIS References	Implement Measure Yes or No	Rationale For or Against Implementing
49	AIDEA would meet with BLM staff at the end of the life cycle of the material site mine, prior to final reclamation, to define final configuration of the mine.	Appendix N, 3.2.2 Sand and Gravel Resources	Stipulation would be in a minerals material permit, since these are just for material sites	This is a standard stipulation for mineral material authorizations. It ensures that the operator is proceeding in a manner consistent with BLM's needs for final reclamation of material sites.
50	AIDEA would ensure that reclamation is conducted in accordance with the approved reclamation plan. Deviations or modifications to the approved reclamation plan must be approved in writing by the Authorized Officer prior to execution.	Appendix N, 3.2.2 Sand and Gravel Resources	Stipulation would be in a minerals material permit, since these are just for material sites	This is a standard stipulation for mineral material authorizations. While it does seem obvious that reclamation must be in accordance with the reclamation plan, the length of time these sites are open leads to change in operators and turn over in personnel, and it has proven necessary to head off issues.

Mitigation Tracking Number	Mitigation Measure	FEIS References	Implement Measure Yes or No	Rationale For or Against Implementing
51	AIDEA or its designee would prepare and implement a comprehensive waste management plan. This plan would be drafted in consultation with federal, state, and borough agencies as appropriate, and would be submitted to the Authorized Officer for approval. Management decisions affecting waste generation would be addressed in the following order of priority: (1) prevention and reduction, (2) recycling, (3) treatment, and (4) disposal. The plan would include: • Precautions taken to avoid attracting wildlife to food and garbage, including use of bear-resistant containers for all waste materials and classes. • Protocols for the incineration, backhaul, or composting of all putrescible waste in a manner approved by the Authorized Officer; burial of waste is not permitted. All solid waste, including incinerator ash, would be disposed of in an approved waste-disposal facility in accordance with U.S. Environmental Protection Agency and ADEC regulations and procedures. • Procedures for the disposal of wastewater and domestic wastewater. The BLM prohibits wastewater discharges or disposal of domestic wastewater into bodies of fresh, estuarine, and marine water, including wetlands, unless authorized by an Alaska Pollutant Discharge Elimination System permit.	Appendix N, 3.2.3 Hazardous Waste	Redundant	Better addressed by #52 (Appendix N, 3.2.3). Partially addressed by Wildlife Interaction Plan.
52	Construction camps and permanent facilities for maintenance and operations would meet ADEC standards for handling and disposal of solid waste, human waste, gray water, and kitchen sanitation. AIDEA would provide waste disposal, gray water, and sanitation plans with sufficient detail to determine that they comply with ADEC guidelines.	Appendix N, 3.2.3 Hazardous Waste	ROW Grant Stipulation	Ensures that the BLM is provided enough information in camp/facility plans to ensure that ADEC guidelines for sanitation and hazardous waste would be met.

Mitigation Tracking Number	Mitigation Measure	FEIS References	Implement Measure Yes or No	Rationale For or Against Implementing
53	AIDEA would remove all waste generated by road activities, and dispose of waste according to applicable local, state, and federal laws. Prompt removal of discarded or unneeded material, equipment, and debris is required.	Appendix N, 3.2.3 Hazardous Waste	Redundant	Redundant with #52 (Appendix N, 3.2.3).
55	AIDEA would transport, store, transfer, and dispose of hazardous waste, hazardous materials, and hazardous material containers in a way that meets legal requirements and prevents release to the environment.	Appendix N, 3.2.3 Hazardous Waste	ROW Grant Stipulation	Rationale is based on effectiveness description in FEIS, Appendix N, 3.2.3.
56	Hazardous material containment liner material would be compatible with the stored product and capable of remaining impermeable during typical weather extremes expected throughout the storage period.	Appendix N, 3.2.3 Hazardous Waste	Redundant	Redundant with the second bullet in #69 (Appendix N, 3.2.3.2).
60	All spills would be contained and cleaned up as soon as the release has been identified. Appropriate spill response equipment and supplies must be on hand when hazardous materials are used. Field crews must have access to these materials, and they must be available at each refueling point. All employees would be trained in general spill-response protocol and reporting requirements. Personnel with a higher level of spill-response training specific the hazardous materials known to be transported on the Ambler Road would always be present at each maintenance station and, if there is an associated airstrip, have oversight responsibility for the airstrip. The release of Petroleum, Oils, and Lubricants (POLs) or hazardous substances other than POLs to any water body is to be reported to ADEC as soon as the person has knowledge of the release. All other releases would be reported in accordance with ADEC spill reporting guidelines (in Fairbanks 907-457-2121, or 1-800-478-9300 outside normal business hours).	Appendix N, 3.2.3.1 Spill Prevention and Response	Covered under state law and Spill Prevention Control and Counter-measure Plan (SPCCP)	Most of this would be covered by the SPCCP. Other parts are already required by state law.

Mitigation Tracking Number	Mitigation Measure	FEIS References	Implement Measure Yes or No	Rationale For or Against Implementing
63	AIDEA agrees to indemnify the United States against any liability arising from the release of any hazardous substance or hazardous waste (as these terms are defined in the Comprehensive Environmental Response, Compensation and Liability Act of 1980, 42 U.S. Code [USC] 9601, et. seq. or the Resource Conservation and Recovery Act, 42 USC 6901, et. seq.) on the authorization (unless the release or threatened release is wholly unrelated to the authorization permittee/AIDEA/permittee's activity on the authorization). This agreement applies without regard to whether a release is caused by AIDEA, its agent, or an unrelated third party.	Appendix N, 3.2.3.1 Spill Prevention and Response	ROW Grant Stipulation	Reasons stated in the effectiveness description in FEIS, Appendix N, 3.2.3.1.
66	Equipment that has been identified as having fluid leaks would have a drip basin under the leak area to ensure no release to the surrounding environment occurs.	Appendix N, 3.2.3.1 Spill Prevention and Response	Redundant	Redundant with #64 (Appendix N, 3.2.3.1).
68	Transportation and storage of hazardous materials would be handled in a manner to minimize the potential impacts to the environment and human health.	Appendix N, 3.2.3.2 Fuel Handling and Storage	Redundant	Redundant with #55 (Appendix N, 3.2.3).
78	Following completion of use of ice bridges or ice roads, and before breakup occurs, AIDEA would breach ice bridges or ice roads at primary flow locations.	Appendix N, 3.2.5 Water - General	Duplicative	Duplicate of #82 (Appendix N, 3.2.5.2).
79	AIDEA would ensure that the temperature of natural surface water or groundwater would not be changed, beyond those changes happening under background conditions, by the Ambler Road or by any Ambler Road activities to affect the natural surface water or groundwater, unless approved by the Authorized Officer. Potential mitigation measures include limiting changes to energy pathways to those waters, such as avoiding changes in surface albedo, vegetative cover, reflected solar energy, or areas of pooling.	Appendix N, 3.2.5 Water - General	AIDEA Design Feature	AIDEA design features address and plan for groundwater impacts; minimal impacts expected to surface water temperatures.

Mitigation Tracking Number	Mitigation Measure	FEIS References	Implement Measure Yes or No	Rationale For or Against Implementing
81	The applicant would employ BMPs for stormwater, sediment, and erosion control per the Alaska Storm Water Guide (dec.alaska.gov/water/wnpspc/stormwater/Guidance.html), with particular attention to considerations for linear projects.	Appendix N, 3.2.5.2 Water Quality	AIDEA Design Feature	This is covered under their Stormwater Pollution Prevention Plan and is in the design features.
94	AIDEA would employ mitigation measures to reduce contamination of roadside vegetation through industry BMPs that prevent and minimize fugitive dust, stormwater runoff, erosion, and spills and leaks. Contaminant monitoring would continue throughout the life of the project, and adaptive management would be employed to modify mitigation measures to reduce contamination.	Appendix N, 3.3.1.1 Vegetation - General	Part of Dust Control Plan	The BLM will ensure the Dust Control Plan covers the contamination monitoring.

Mitigation Tracking Number	Mitigation Measure	FEIS References	Implement Measure Yes or No	Rationale For or Against Implementing
98	The following mitigation measures would be incorporated to reduce impacts to wetlands and wetland functions by helping to maintain hydrologic connectivity between bisected wetlands and waterbodies. Design measures would be based on geologic and hydrologic studies to freely convey surface water across the road surface. • Bridges and culverts would be installed at all identified drainage crossings, including rills and ephemeral channels, to help maintain hydrologic connectivity, minimize changes to watershed basin areas, and reduce likelihood of water impoundment degrading permafrost. An adequate number of culverts and/or bridges would be used to maintain hydrologic continuity and existing drainage patterns within wetland complexes, ephemeral channels, and perennial streams. • Roadside ditches would only be used in limited cut areas where permafrost presence is unlikely. These efforts could help to maintain hydrologic connectivity between bisected wetlands and reduce the effects of diverting surface water flow to minimize impacts.	Appendix N, 3.3.1.2 Wetlands	AIDEA Design Feature, see Appendix C of this JROD	This is a design feature, inadvertently listed in the Appendix N of the Ambler Road FEIS

Mitigation Tracking Number	Mitigation Measure	FEIS References	Implement Measure Yes or No	Rationale For or Against Implementing
106	Prior to initiating clearing operations on federal land, AIDEA would provide the Authorized Officer with an estimate of the amount of merchantable timber (tree species 5 inches in diameter at breast height or larger), if any, expected to be cut, removed, or destroyed, and would pay the BLM in advance of such construction or maintenance activity, such sum of money as the Authorized Officer determines to be the full stumpage value of the timber to be cut, removed, or destroyed. Prior to any operations AIDEA if required, would enter into a timber sale contract with the BLM for timber designated for cutting on the ROW.	Appendix N, 3.3.1.4 Forestry, Timber, and Fire	ROW Grant Stipulation	Project-specific implementation of regulatory requirements. ROW Grant does not convey ownership of timber resources and ROW timber must be sold at fair market value. See 43 CFR 2805.15(c) and 43 CFR 5402.0-6.
110	The federal government would not be held responsible for protection of AIDEA's structures or their personal property from wildfire.	Appendix N, 3.3.1.4 Forestry, Timber, and Fire	ROW Grant Stipulation	Standard practice for managing government liability and managing potential risk to firefighter safety.
113	The BLM, through the Authorized Officer, reserves the right to impose restrictions on Ambler Road activities in any area to prevent the cause or spread of wildfire and ensure public safety during periods when fire danger is severe.	Appendix N, 3.3.1.4 Forestry, Timber, and Fire	No	This is required by 43 CFR 9212.2 but would provide more specificity.

Mitigation Tracking Number	Mitigation Measure	FEIS References	Implement Measure Yes or No	Rationale For or Against Implementing
118	AIDEA would ensure that food, garbage, and other potential wildlife attractants are kept secured while awaiting their use, removal, or incineration.	Appendix N, 3.3.2 Wildlife - General	Duplicative	This ensures that wildlife harassment is minimized. Recommend combining with #121 (Appendix N, 3.3.2), for a comprehensive Wildlife Interaction Plan that addresses specific issues and applies to the entire route. Note that language referring to garbage management is redundant with #116 (Appendix N, 3.3.2). Issues could be sorted out in ROW Grant stipulation development.
120	AIDEA would work with land managers and wildlife agencies to identify construction timing windows to protect wildlife. Timing design features related to this mitigation would be determined during the design/permitting phase.	Appendix N, 3.3.2 Wildlife - General	ROW Grant Stipulations	This would reduce impacts to wildlife. Recommend combining with #121 (Appendix N, 3.3.2) for a comprehensive plan to address impacts to wildlife and share information with stakeholders.
122	AIDEA would submit culvert and bridge inspection and maintenance plans to the Authorized Officer for approval prior to construction and would adhere to the maintenance schedules and stipulations outlined in the plans.	Appendix N, 3.3.3 Fish and Amphibians	Part of AIDEA's Design Features	This would reduce impacts to water quality and fish. Recommend removing culverts from the mitigation as a plan for their inspection and maintenance is already provided in AIDEA's design features.

Mitigation Tracking Number	Mitigation Measure	FEIS References	Implement Measure Yes or No	Rationale For or Against Implementing
123	AIDEA would employ properly installed erosion and sedimentation measures during construction to minimize sedimentation impacts to fish habitat. AIDEA would also stabilize disturbed areas and employ BMPs at construction sites to direct stormwater away from fish-bearing waters.	Appendix N, 3.3.3 Fish and Amphibians	Redundant	This is redundant to #126 (Appendix N, 3.3.3).
124	Stream bed structures would be constructed such that the combination of structure height and subsequent water velocity allows all occurring fish species free movement within the water body. Any culvert that otherwise would be designed to convey less than the 100-year peak flood (1 percent exceedance probability) would be designed to convey at least the 100-year peak flood if it was a fish passage crossing.	Appendix N, 3.3.3 Fish and Amphibians	AIDEA Design Feature	This is already covered in AIDEA's design features.
125	All fish-bearing-stream crossings would be natural channel designs (e.g., U.S. Fish and Wildlife Service 2019), follow fish passage design guidelines, to facilitate fish passage for all life stages.	Appendix N, 3.3.3 Fish and Amphibians	ROW Grant, POD	This ensures impacts to water quality and fish is reduced. Matches Corps mitigation measures.
127	AIDEA would notify the BLM within 48 hours of any observation of dead or injured fish on water source intake screens or in holes used for pumping water. AIDEA would temporarily cease pumping from that hole until additional preventative measures are taken to avoid further impacts to fish.	Appendix N, 3.3.3 Fish and Amphibians	ROW Grant Stipulation, add to self reporting	This would reduce fish mortality and allow the BLM to evaluate AIDEA's methods for pumping water on a case–by-case basis if fish mortality/injury occurs.

Mitigation Tracking Number	Mitigation Measure	FEIS References	Implement Measure Yes or No	Rationale For or Against Implementing
130	AIDEA would ensure that vegetation clearing during all phases of construction would be scheduled to minimize impacts on migratory birds and any other birds on the BLM special status species list or watch list (lists to be provided by BLM and updated periodically). The primary mechanism to avoid and minimize impacts is to conduct vegetation clearing outside of the nesting season (May 1–July 15 for this region). If AIDEA chose to clear vegetation during this timeframe then AIDEA would have a qualified biologist survey any area where vegetation would be damaged by the project or associated activities within 48 hours prior to vegetation disturbance. If an active nest is located, an appropriate avoidance area (as determined by the qualified biologist) would be marked and avoided until the biologist determines that the nest has been naturally vacated. This measure is similar to a measure proposed by AIDEA.	Appendix N, 3.3.4 Birds	Redundant	This is redundant with #129 (Appendix N, 3.3.3).
131	AIDEA would ensure that no vertical or near-vertical faces that may encourage bank swallow nesting are left on any slope, including on material stockpiles. If bank swallows establish nests, AIDEA would ensure that the face is not disturbed until after young are fledged or the nests are naturally vacated	Appendix N, 3.3.4 Birds	Redundant	This is similar to #46 (Appendix N, 3.2.2).
132	During periods of wildlife breeding, lambing, or calving activity, and during major migrations of wildlife, AIDEA's activities on BLM-managed land may be restricted by the Authorized Officer with written notice. From time to time, the Authorized Officer may furnish AIDEA a list of areas where such actions may be required, together with anticipated dates of restriction.	Appendix N, 3.3.5 Mammals	ROW Grant Stipulation	This is a standard stipulation that would be in the ROW Grant.

Mitigation Tracking Number	Mitigation Measure	FEIS References	Implement Measure Yes or No	Rationale For or Against Implementing
148	AIDEA's agents, employees, and contractors, and their respective employees, would not use project equipment or personal vehicles, including those used for transportation to and from the job site, for the purpose of scouting for, or participating in, hunting, fishing, shooting, and trapping activities.	Appendix N, 3.4.3 Recreation and Tourism	ROW Grant Stipulation	This would be in the ROW Grant.
150	For temporary and long-term facilities, designs would use the minimum lighting intensity necessary to ensure safety; use localized task lighting; and incorporate measures such as diffusers, lenses, and shielding to reduce nighttime glare, light radiation, and backscatter into the sky.	Appendix N, 3.4.4 Visual Resources	Duplicative	This is included in #149 (Appendix N, 3.4.4).
151	Structure designs and equipment at temporary construction camps and permanent maintenance and operations facilities would use color, form, line, and texture to reduce contrast with background features. Reflectivity would be minimized.	Appendix N, 3.4.4 Visual Resources	Duplicative	This in part of #152 (Appendix N, 3.4.4).
156	Avoid locating construction support and operations/ maintenance facilities (e.g., construction camps) in places with special visual resource values that would be observable to the general public or that would reduce the visual values of private properties.	Appendix N 3.4.5 Socioeco-nomics and Communities	Duplicative	Duplicative, covered in #154 (Appendix N, 3.4.4).
158	AIDEA would develop and implement a plan to educate workers, regional health care workers, and residents of all communities in the area potentially affected by the Ambler Road on the health effects of exposure to NOA, pesticides, herbicides, preservatives, and other chemicals. The plan would include opportunities for routine risk-based health screening of workers, nearby communities, and regular subsistence users for non-cancerous and cancerous diseases that could result from exposure to these compounds.	Appendix N, 3.4.5.1 Public Health	Duplicative	This is duplicative of #35 (Appendix N, 3.2.1)

Attachment D 3:

BLM POTENTIAL MITIGATION MEASURES FROM APPENDIX N, NOT ADOPTED

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Ambler Road Final Environmental Impact Statement

Joint Record of Decision

Appendix D, Attachment D 3

BLM Potential Mitigation Measures from Appendix N, Not Adopted

The decision in this JROD includes all practicable means to avoid or minimize environmental harm consistent with the purpose and need of the action, including potential impacts associated with cumulative impacts. Pursuant to 40 Code of Federal Regulations (CFR) 1505.2(c), the BLM provides the following explanations for not adopting the following mitigation measures considered in the Ambler FEIS. All proposed mitigation measures can be found in Appendix N of the Ambler Road FEIS.

Table D-3 – Mitigation Measures Not Adopted

Mitigation Tracking Number	Potential Mitigation Measure	FEIS References	Implement Measure Yes or No	Rationale for Not Adopting
35	Part of the potential mitigation measure #35 (Appendix N, 3.2.1) was not adopted as follows: "The plan would include opportunities for routine risk-based health screening for non-cancerous and cancerous asbestos related diseases of workers, nearby communities, and regular subsistence users."	Appendix N, 3.2.1 Geology and Soils	Parts of #35 (Appendix N, 3.2.1) were adopted; see Attachment D 1; this last sentence was not adopted	This board-based management of human health would be better administrated by the state, tribal, and local governments. Protection of public health is largely outside BLM's authority except to the extent users of BLM-managed land are affected; hence, this measure was determined to be an unduly broad assertion of BLM authority.
105	All mineral materials (sand and gravel) used on the right-of-way (ROW) would be inspected and certified weed-free in accordance with the State of Alaska's Weed Free Gravel Certification Program (plants.alaska.gov/invasives/weed-free-gravel.htm).	Appendix N, 3.3.1.3 Non-native Invasive Species	No	Compliance with the standards of this certification program is not feasible for a project of this scale.

Mitigation Tracking Number	Potential Mitigation Measure	FEIS References	Implement Measure Yes or No	Rationale for Not Adopting
115	AIDEA would create and fund fish and wildlife monitoring program that includes obtaining public input and providing public updates on monitoring results. Through the program, AIDEA would document conditions of fish, birds, and key wildlife species prior to construction to establish a baseline; monitor changes in habitat conditions and use during construction and operation of the road to characterize impacts; and contract with subject matter experts as needed to refine mitigation measures (subject to Authorized Officer approval) to increase their effectiveness. The program would include a point of contact for communities and fish and wildlife managers seeking and sharing information on conditions of fish and wildlife in the area affected by the project. See also Measure 7, Appendix N, 3.3.2, regarding the Fish and Wildlife Protection Plan.	Appendix N 3.3.2 Wildlife - General	No	Overly broad, vague, and does not address any clearly defined management goal or explicit mitigation requirement. This kind of broad-based resource monitoring is typically a responsibility of the BLM.
126	AIDEA would protect known or suspected Fish Spawning Beds, Fish Rearing Areas, and Overwintering Areas from sediment where soil material is expected to be suspended in water as a result of Ambler Road activities. Settling basins or other sediment control structures would be constructed and maintained to intercept sediment before it reaches rivers, streams, or lakes. Where disturbances cannot be avoided, proposed modifications and appropriate mitigation measures would be designed by AIDEA and approved by the Authorized Officer.	Appendix N, 3.3.3 Fish and Amphibians	No	This is covered by National Pollutant Discharge Elimination System/Alaska Pollutant Discharge Elimination System standards.
128	During periods of fish spawning, rearing, and migration, AIDEA's activities on federal land may be restricted by the Authorized Officer with written notice. As needed, the Authorized Officer may furnish AIDEA a list of areas where such actions may be required, together with anticipated dates of restriction. The Authorized Officer would coordinate with the Alaska Department of Fish and Game (ADF&G) for appropriate fish habitat protection measures.	Appendix N, 3.3.3 Fish and Amphibians	No, but if the state permit does not spell this out then the BLM can put it in the ROW Grant	This would be unprecedented in the state and conflicts with state management authority for fish habitat.

Mitigation Tracking Number	Potential Mitigation Measure	FEIS References	Implement Measure Yes or No	Rationale for Not Adopting
135	Prior to starting activities, AIDEA would obtain the locations of known brown bear dens from current survey data for the purpose of avoiding both human/bear interactions and disturbance of bear dens.	Appendix N, 3.3.5 Mammals	No	See effectiveness summary in the FEIS, Appendix N, 3.3.5. In addition, the BLM and ADF&G do not have current survey data for brown bear denning locations on BLM-managed lands in the vicinity of the proposed route. May also combine with #136 (Appendix N, 3.3.5) or incorporate into #121 (Appendix N, 3.3.2) as part of a comprehensive wildlife management plan.
136	During survey and construction, cross-country activity is prohibited within 1/2 mile of occupied grizzly bear dens identified by current survey unless alternative protective measures are approved by the Authorized Officer in consultation with the ADF&G. During maintenance and operations, cross-country activity originating from the Ambler Road is prohibited entirely.	Appendix N, 3.3.5 Mammals	No	Because only minimally effective does not merit carrying forward. See effectiveness summary in the FEIS, Appendix N, 3.3.5.
137	Within the Tozitna North and Tozitna South Areas of Critical Environmental Concern (ACECs), aircraft associated with Ambler Road activities would be required to fly a minimum of 2,000 feet above ground level (AGL) from May 10 to June 30, unless doing so would endanger human life or be an unsafe flying practice. From July 1 to May 9, aircraft associated with Ambler Road activities would be required to fly a minimum of 1,000 feet AGL above these ACECs unless doing so would endanger human life or be an unsafe flying practice. Normal landings and takeoffs would be allowed.	Appendix N, 3.3.5 Mammals	No	This is required under the BLM management plan for these ACECs. However, Alternative A would not affect these ACECs, so the mitigation measure is not necessary.

Mitigation Tracking Number	Potential Mitigation Measure	FEIS References	Implement Measure Yes or No	Rationale for Not Adopting
159	AIDEA would prohibit its employees, contractors, subcontractors, and their employees from visiting local communities while on-duty or while staying at project facilities except for the conduct of official business. When communities are visited for conduct of official business, AIDEA will keep records of purpose, date, location, and participants, and will make such records available to the BLM or law enforcement agencies on demand.	Appendix N, 3.4.5.1 Public Health	No	This would be better implemented by communities; the BLM does not have the authority.
160	AIDEA's road construction, operations, and closure/reclamation would not impede qualified rural residents from pursuing subsistence activities (Alaska National Interest Lands Conservation Act, Public Law 96-487).	Appendix N, 3.4.7 Subsistence Uses and Resources	No	This is redundant with law and is addressed in more detail elsewhere.
167	AIDEA's road construction, operations, maintenance, and closure/reclamation would be coordinated with local communities and Tribes to help ensure these activities would not limit access to Native American religious sites, would not limit use and possession of sacred objects, would protect the indigenous people's freedom to worship through ceremonial and traditional rites (as defined in the American Indian Religious Freedom Act [AIRFA], 42 U.S. Code 1996); and would avoid adversely affecting the physical integrity of any Sacred Sites that may be located on federal lands, per Executive Order (EO) 13007 (May 24, 1996; 61 *Federal Register* 26771).	Appendix N, 3.4.8 Cultural Resources	No	This is already required by Native American Graves Protection and Repatriation Act, AIRFA, and EO 13007; it does not add any more specificity.

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Appendix E

ANILCA Section 810 Final Evaluation

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Table of Contents

A. ANILCA Section 810 Final Evaluation

This analysis of subsistence impacts is prepared for the Ambler Road Final Environmental Impact Statement (FEIS) that analyzes the environmental consequences of a proposed road to the Ambler Mining District (District). The U.S. Bureau of Land Management (BLM) has prepared this analysis, on behalf of the Department of Interior, to fulfill the departmental requirements pursuant to Section 810 of Alaska National Interest Lands Conservation Act (ANILCA), as part of the FEIS to address a right-of-way (ROW) application filed by the Alaska Industrial Development and Export Authority (AIDEA). AIDEA proposes to construct, operate, and remove a 211-mile, all-season, industrial access road from the existing Dalton Highway at milepost (MP) 161 westerly to the District, located within the Northwest Arctic Borough (NAB) in the southern foothills of the Brooks Range of north-central Alaska. Under AIDEA's proposal, approximately 25 miles of the 211 miles of road would cross BLM-managed lands and approximately 26 miles would cross NPS-managed lands. According to AIDEA, the road would provide access for mineral exploration, mine development, and mining operations in the District as well as commercial commerce to communities if spur access roads are developed in the future. The proposed road would not be open to public access. There is currently no road or other surface access to the District from the existing transportation network. The District has long been recognized as containing a variety of mineral deposits, which have been explored or evaluated for more than a century (AIDEA 2016; Grybeck 1977). There are more than 1,300 active mining claims in the District vicinity (ADNR 2018). A 2015 economic analysis identified 4 major mineral deposits, with Trilogy Metals Inc.'s Arctic and Bornite deposits the most active (Cardno 2015), which would benefit from an industrial access road to develop the deposits and improve economics.

The FEIS provides detailed analysis of the following three road alternatives and a no-action alternative:

- No Action Alternative: The No Action Alternative evaluates what would occur if the BLM does not grant a road ROW to AIDEA. The No Action Alternatives provides a baseline for comparison to the other alternatives and it is a potential outcome of the FEIS.
- Alternative A: Alternative A is AIDEA's proposed alternative. It starts at MP 161 of the Dalton Highway and is 211 miles long with 3,498 acres of DOI-managed lands. The distance from Fairbanks to the road terminus would be 456 miles.
- Alternative B: Alternative B is an alternate route proposed by AIDEA across NPS lands in GAAR. It is a variation on Alternative A, with the same beginning point (MP161) and termini. It is 228 miles long with 3,083 acres of Department of Interior (DOI)-managed lands. The distance from Fairbanks to the road terminus would be 473 miles.
- Alternative C: Alternative C grew out of scoping comments. The route begins at MP 59.5 of the Dalton Highway and is 332 miles long with 19,090 acres of DOI-managed land. The distance from Fairbanks to the road terminus would be 476 miles.

A.1 Subsistence Evaluation Factors

Section 810(a) of (ANILCA), 16 United States Code (USC) 3120(a), requires that an evaluation of subsistence uses and needs be completed for any federal determination to "withdraw, reserve, lease, or otherwise permit the use, occupancy, or disposition of public lands." As such, an evaluation of potential impacts on subsistence under ANILCA Section 810(a) must be completed for the Ambler Road Final Environmental Impact Statement (FEIS). ANILCA requires that this evaluation include findings on three specific issues, as follows:

- The effect of use, occupancy, or disposition of public lands on subsistence uses and needs

- The availability of other lands for the purposes sought to be achieved
- Other alternatives that would reduce or eliminate the use, occupancy, or disposition of public lands needed for subsistence purposes

Per Bureau of Land Management (BLM) Instruction Memorandum No. AK-2011-008 (BLM 2011), three factors are considered when determining if a significant restriction of subsistence uses and needs may result from the proposed action, alternatives, or in the cumulative case, as follows:

- Reduction in the abundance of harvestable resources used for subsistence purposes
- Reduction in the availability of resources used for subsistence caused by alteration of their distribution, migration patterns, or location
- Legal or physical limitations on access of subsistence users to harvestable resources

Each alternative must be analyzed according to these criteria. ANILCA Section 810 also requires that cumulative impacts be analyzed (BLM 2011). This approach helps the reader separate subsistence restrictions that could be caused by activities proposed under the four alternatives, including the no action alternative, from those that could be caused by past, present, or future activities that have occurred or could occur in the surrounding area.

An alternative would be considered to significantly restrict subsistence uses if, after consideration of protection measures, such as lease stipulations or required operating procedures, it can be expected to substantially reduce the opportunity to use subsistence resources (BLM 2011). Substantial reductions are generally caused by large reductions in resource abundance, a major redistribution of resources, extensive interference with access, or major increases in the use of those resources by non-subsistence users.

If the analysis determines that the proposed action, alternatives, or the cumulative case may significantly restrict subsistence uses, the head of the Federal agency having jurisdiction over the federal public lands in question is required to notify the State of Alaska and appropriate regional and local subsistence committees. It also must conduct ANILCA Section 810 hearings in potentially affected communities.

It is possible that the finding may be revised to "will not significantly restrict subsistence uses" based on changes to alternatives, new information, or new mitigation measures resulting from the hearings. If the significant restriction remains, the head of the Federal agency having jurisdiction may prohibit the action or finalize the evaluation by making the following determinations:

- A significant restriction of subsistence uses would be necessary, consistent with sound management principles for the use of public lands
- The proposed activity would involve the minimal amount of public land necessary to accomplish the purpose of the use, occupancy, or other disposition
- Reasonable steps would be taken to minimize adverse effects on subsistence uses and resources resulting from such actions (Section 810(a)(3))

The head of the Federal agency having jurisdiction can then authorize use of the public lands.

B. ANILCA Section 810(A) Evaluations and Findings for All Alternatives and the Cumulative Case

Chapter 2 of the FEIS includes a detailed description of the sequencing of construction, operation and maintenance and decommissioning of the road. Road construction includes procurement and use of gravel resources, timing of construction, construction equipment and uses, personnel camps and support logistics, including air traffic support for personnel and material. Construction of the road would be in three separate phases, projected to span 10 years. Operations and maintenance include mine operations, material and ore transport, transport of fuel and chemicals, maintenance of material sites and facilities and communications. Decommissioning includes the proposed decommissioning of the project and reclamation. The evaluation and findings following this introductory section include short summaries of the alternatives descriptions otherwise described in detail in the FEIS.

Chapter 3 of the Ambler Road FEIS describes the current environmental status of the project area and potential effects of the alternatives to subsistence and subsistence resources. Appendix H of the Ambler Road FEIS: Indirect and Cumulative Impacts Associated with the Ambler Road of the FEIS addresses the indirect and cumulative impacts of the road and Appendix L of the Ambler Road FEIS: Subsistence Technical Report assesses information regarding subsistence use in the project area. This analysis uses the above information from the FEIS to evaluate potential impacts to subsistence pursuant to Section 810(a) of ANILCA and as directed in BLM instruction memorandum (BLM IM AK-2011-008).

The evaluation of potential impacts to subsistence resources was conducted by identifying impact indicators and analyzing potential impacts of the proposed road and its alternatives on subsistence uses. These impacts were compared to the three subsistence impact categories according to Section 810 of ANILCA: resource abundance, resource availability and user access. Two impact indicators were identified that could be quantitatively measured for the subsistence communities: resource importance and subsistence use areas. Resource importance is measured in three categories: high, moderate and low. Resource importance is established by analyzing historical harvests from the potentially affected communities. Subsistence use areas were quantified from years of subsistence use data collected primarily by ADF&G. A detailed discussion of this methodology is available in Appendix L of the Ambler Road FEIS: Subsistence Technical Report Section 5.

These impact indicators are based on NEPA guidance, which requires consideration of both context and intensity when assessing significant impacts (40 CFR 1508.27). By understanding the relative importance of each subsistence resource and the location of where these subsistence resources are used, as well as the context and intensity of impacts to subsistence resources and activities, vulnerable impacts from the proposed project can be better analyzed.

Subsistence uses and resources are discussed in detail in the Ambler Road FEIS Section 3.4.7. Tables 42-45 in Appendix L of the Ambler Road FEIS: Subsistence Technical Report Section 6.4 illustrates the resource importance to each community whose subsistence use area would potentially be affected by the proposed road. Tables 47- 49 of the technical report quantifies the categories of resource importance by community. Each alternative of the proposed road is evaluated for the availability, abundance and access to subsistence resources of importance to communities: caribou, moose, fish (salmon and non-salmon), vegetation and other resources (large land mammals, marine mammals, migratory birds, etc.)

B.1 Evaluation and Findings for No Action Alternative

Under the No Action Alternative, the BLM would not grant a ROW. The No Action Alternative provides a baseline against which impacts under other alternatives can be evaluated.

B.1.1 Evaluation of the Effect of Use, Occupancy or Disposition on Subsistence Use and Need

Under the No Action Alternative, there would be no reduction in the abundance of harvestable resources (caribou, moose, salmon, non-salmon fish, vegetation and other) used for subsistence purposes. There would be no adverse impacts on wildlife habitats, direct impacts on subsistence resources, or increased harvest and increased competition from non-subsistence users. There would be no reduction in the availability of subsistence resources caused by an alteration in their distribution, migration, or location. There would be no limitation on the access of subsistence users to harvestable resources, including physical and legal barriers.

B.1.2 Evaluation of the Availability of Other Lands

Under the No Action Alternative, construction and operation of the road would not occur on federally managed public lands. Therefore, there would be no need to evaluate other lands for the access road.

B.1.3 Evaluation of Other Alternatives That Would Reduce or Eliminate the Use, Occupancy or Disposition of Public Lands Needed for Subsistence Purposes

Under the No Action Alternative, construction and operation of the road would not occur. Therefore, there would be no need to evaluate other ways to accommodate the proposed action.

B.1.4 Findings

The No Action Alternative would not result in a significant restriction of subsistence uses. A positive determination pursuant to ANILCA Section 810 is not required.

B.2 Evaluation and Findings for Alternative A (AIDEA Proposed Route (GAAR North) to the Dalton Highway)

Alternative A is a 211-mile alignment, accessing the District from the east, with its eastern terminus at MP 161 of the Dalton Highway. It is a total length of 456 miles to Fairbanks. It runs almost directly west to the District across primarily state-managed, BLM-managed, and NPS-managed lands. The ROW would traverse the south side of the Brooks Range, following a series of stream and river valleys oriented roughly east-west, separating the Schwatka Mountains from a series of smaller mountain ranges and foothills, including the Ninemile Hills, Jack White Range, Alatna Hills, Helpmejack Hills, Akoliakruich Hills, Angayucham Mountains, and Cosmos Hills. This route crosses GAAR farther north than Alternative B. See Ambler Road FEIS, Appendix A, Map 2-3.

B.2.1 Evaluation of the Effect of Use, Occupancy or Disposition on Subsistence Use and Need

B.2.1.1 Caribou

Abundance

Caribou, of the large land mammals, is the most depended upon natural resource available to potentially affected communities (FEIS Section 3.3.4 Mammals). In this region of Alaska caribou is the primary resource harvested, making up 32 percent of the total poundage of consumable resources (Appendix L, Section 5.1.2).

In 18 of the 27 communities involved in this study, caribou are of high or moderate importance (Appendix L, Table 42). Of these communities, nine would see a direct impact by the proposed action: Alatna, Allakaket, Ambler, Anaktuvuk Pass, Bettles, Evansville, Kobuk, Selawik and Shungnak. Bettles, Evansville, Kobuk and Shungnak all have subsistence use areas that would be bisected by the proposed road. Evansville, Kobuk and Shungnak are considered in the high value resource category for caribou.

These communities would be impacted most by the ROW. Alatna, Allakaket and Ambler subsistence use areas would be partially bisected by the proposed action. Allakaket and Ambler are both ranked in the high category for caribou use, with Alatna ranked moderate. Anaktuvuk Pass and Selawik are located on the periphery of the project. Both communities are in the high dependence category for caribou use. All other communities in the subsistence study, whether they are ranked as having a high, moderate or low dependence on caribou, have subsistence use areas outside of the project area and likely wouldn't see an impact on their subsistence use.

The project area passes through the winter, migratory and peripheral range of the WAH and the peripheral range of the Hodzana Hills Herd (HHH). Construction and operation activities as described in the proposed road FEIS Section 3.4.7 could affect abundance by:

- causing direct mortalities
- loss and fragmentation of habitat
- behavioral changes

Direct mortalities could occur if traffic is at expected use of 168 trips per day, with the chance for a caribou- vehicle strike. While this may occur, the significance of an individual collision on the herd population would be minor. Caribou may also see the road as a physical barrier that may alter their behavior or shift their migratory patterns. This may lead to a change in body condition due to expenditure of energy (Sullender 2017). Increased energy expenditures may result in reduced foraging rates and, ultimately, decreased mating success/pregnancy rates. Caribou migration may be altered to the point where calving success and winter survival are affected. These would both have major impacts on the herd population. While the proposed project will occur in approximately .0005% of the WAH overall range, effects from fragmenting an unbroken habitat with a linear structure may impact caribou behavior. These changes could lead to a higher mortality rate in caribou affecting the overall population.

Availability

Bettles, Evansville, Kobuk and Shungnak subsistence use areas would all be bisected by the proposed road alignment. Caribou is a high value resource to Shungnak, Evansville and Kobuk and a moderate resource to Bettles. These communities would experience the greatest impact from the road being built. The project would intersect a portion of the subsistence use areas of Allakaket, Alatna and Ambler. Allakaket and Ambler are ranked as high value for caribou, with Alatna ranked as moderate. Wiseman and Selawik subsistence use areas are both on the periphery of the proposed project and are ranked as high value for caribou. Hughes is also on the periphery of the area but is ranked as moderate value on caribou. Impacts to these communities could be realized as subsistence users having to travel farther and longer to harvest caribou than they previously did. It could also cause less overall hunter success, meaning subsistence users would have to turn to non-traditional food sources.

The primary construction and operation activities which may affect caribou availability to local communities include:

- air and ground traffic
- construction noise (e.g., blasting, machinery)
- presence of linear infrastructure (e.g., road)
- human activity

Air traffic has been a commonly reported and observed impact on caribou on the North Slope and in Northwest Alaska (SRB&A 2009, 2018, Georgette and Loon 1988, Sullender 2017). Air traffic is observed to cause behavioral changes, skittish behavior, and delayed or diverted crossing behavior, which

in turn has impacts on caribou hunting success. These types of behaviors are most observed in response to helicopter traffic, although fixed-wing aircraft have also been observed to elicit similar responses. In addition to changes in behavior, increased exposure to aircraft disturbance may also affect body condition through increased energy expenditures (Sullender 2017). Furthermore, increased energy expenditures may result in reduced foraging rates and, ultimately, decreased mating success/pregnancy rates. This would have significant impacts on the herd population.

Roads, road traffic and construction are also believed to cause behavioral and migratory changes in caribou which can affect hunting success. Deflections or delays of caribou movement from roads and associated ground traffic and human activity has been documented in the traditional knowledge of harvesters (SRB&A 2009, 2014, 2018) and during behavioral studies on caribou, particularly for maternal caribou (ABR and SRB&A 2014 and Johnson et al 2019). In recent years, reports of ground traffic–related impacts on the North Slope caribou hunting, particularly in the vicinity of Nuiqsut, have increased with the construction of gravel roads in the area (SRB&A 2016, 2017, 2018). Impacts of roads have also been observed by Noatak and Kivalina caribou hunters regarding the Red Dog Delong Mountain Transportation System (DMTS) (SRB&A 2014). Residents have observed that some caribou may stop once they reach the DMTS, sometimes traveling alongside the road before crossing, and other times bypassing the road altogether. Such behavior has also been documented through radio collar observation. A study conducted by (Wilson et.al. 2016), found that the DMTS influenced the movements of approximately 30 percent of radio-collared WAH caribou, and the average delay in crossing was 33 days. Caribou from the Teshekpuk Herd (TH) were not similarly affected, which could be due to greater exposure of the TH to industrial development in the eastern portion of its range. In general, observed caribou behavior in response to the DMTS is variable: in some cases, caribou cross seemingly without delay, while in other cases herds scatter and migration is delayed for multiple days (Wilson et al. 2016, ABR and SRB&A 2014). Responses to roads also seem to vary from year to year based on the context in which roads are encountered.

Access

Alatna, Allakaket, Ambler, Anaktuvuk Pass, Bettles, Evansville, Kobuk, Selawik and Shungnak would all see their subsistence hunting areas intersected by the proposed ROW (Appendix L: Tables 42 and 47). Bettles, Evansville, Kobuk and Shungnak would have their hunting areas bisected by the project. Allakaket, Alatna and Ambler would have their subsistence hunting area partially intersected, while Selawik would be on the periphery of the project. The communities that would have their use areas wholly or partially bisected would see the largest impact on their subsistence activities.

Impacts to harvester access would occur within the vicinity of the road corridor, where harvesters could be faced with physical obstructions to access or by removal of usable area (e.g. avoidance of work areas).

- physical barriers: road, construction laydown materials, pilings and heavy equipment
- diversion: avoidance of material sites and other areas which are unsafe for travel
- crossing ramps: placement of ramps and ease of use by subsistence users, hunters may not be permitted to cross construction-phase roads until crossing areas are established

The degree of impacts from construction and operation would depend on whether the timing of construction activities conflicts with subsistence use areas and activities for a community. Because construction would occur year-round, it is likely that there would be direct conflicts with construction activities for certain subsistence use areas. Subsistence activities occur year-round, peaking in the fall (August and September) and again in the mid-winter and early spring (February through April) for most study communities with available data (Appendix L: Section 5). The project corridors cross areas used for

both riverine and overland travel, and construction activities would occur year-round; thus, residents may experience significant impacts during all subsistence seasons and activities which are overlapped by the proposed ROW.

The proposed ROW would not permit access to residents for subsistence purposes but would allow residents to cross the road at established crossing areas. The efficacy of crossing ramps to reduce access impacts for local hunters would depend on the location, design, and frequency of the ramps along the ROW. Subsistence users do not always use or follow established trails when pursuing resources overland; instead traveling in various directions based on environmental factors (e.g., weather, snow and ice conditions) and traditional knowledge of resource distribution and behavior. Therefore, the presence of crossing ramps would not eliminate significant impacts to user access. Subsistence users may have to travel additional distances when pursuing resources in order to locate approved crossing areas, or they may take safety risks by crossing in areas not approved for crossing. In addition, despite the presence of crossing ramps, some individuals may still have difficulty using crossing ramps, especially when hauling sleds. Subsistence users in the community of Nuiqsut have reported difficulty under certain conditions when using crossing ramps on industrial roads near their community (SRB&A 2018).

B.2.1.2 Moose

Abundance

The proposed road corridor crosses subsistence moose hunting areas for nine communities. Moose is considered a resource of high importance for five of the communities (Alatna, Allakaket, Bettles, Evansville and Wiseman), and of moderate importance for three communities (Ambler, Kobuk, and Shungnak) (Appendix L, Table 42).

Construction and operation activities as described in the proposed road FEIS Section 3.4.7 could affect abundance by:

- causing direct mortalities
- loss and fragmentation of habitat
- behavioral changes

Direct mortalities could occur during construction and operation both from vehicle-moose collisions. An estimated 168 trips on the road daily would substantially increase the probability of a collision. This probability would be the same all year long. Construction would affect moose through removal or disturbance of habitat. Since moose have smaller ranges than caribou and do not migrate, impacts would be more localized to the immediate vicinity of the road.

Availability

Impacts to moose availability would generally be on a smaller geographic scale than for caribou, as moose have smaller ranges and residents do not rely on seasonal migratory movements when hunting them. Thus, impacts to moose hunting from construction and operation of the road would occur primarily in the vicinity of the road where moose could exhibit avoidance or other behavioral changes. Because a majority of moose hunting in the region occurs along rivers during the fall months, impacts would be most likely to occur in areas where the road corridor crosses key moose hunting rivers such as the Koyukuk and Kobuk rivers, and smaller drainages such as the Alatna, John, and Wild rivers. Residents may experience decreased success in these areas due to moose remaining in deeper brush (Appendix L: Section 6.4.1). Because intersections with the road are a very small portion of the rivers, this would not have a significant effect on overall hunter success.

Aside from the temporary disturbance during construction and of traffic during operation, moose availability would not be significantly impacted by the proposed ROW. Moose may actually use the road as a travel corridor, especially in winter. Moose may still be available to harvest by subsistence users at current levels.

Access

While road access for local subsistence users would not be permitted, it is possible that residents from local communities would use the cleared area of the ROW alongside the road as a travel corridor; particularly if game such as moose concentrate in these corridors. Use of the ROW may facilitate access to hunting areas farther from the community as well as between communities. AIDEA indicates that ROW travel would be prohibited, and security would patrol the roads to prevent violations. Enforcement measures would reduce but not eliminate use of the ROW. Restrictions on use of the ROW, particularly by residents when certain areas of the road would be crossable, may be difficult to enforce.

B.2.1.3 Fish

Abundance

The proposed ROW would cross subsistence fishing areas for four communities: Shungnak, Ambler, Bettles and Evansville. Fish is considered a resource of high importance for these communities (Appendix L, Table 42). Key fish species for these communities include chum salmon, sheefish, humpback and broad whitefish and, to a lesser extent, cisco, northern pike, grayling, burbot, and trout. In addition to the above communities who have documented use of the rivers crossed by the proposed project corridor, communities downstream that rely on sheefish (Buckland, Kobuk, Kiana, Noorvik, Selawik, Noatak and Kotzebue) could experience consequences to harvest if larger impacts to fish movement, reproductive success or health occur (FEIS Section 3.3.2, 3-43 and 3-52).

Impacts to fish under Alternative A could include:

- spawning habitat loss
- increased turbidity from construction sedimentation
- contamination from accidental spills
- introduction of invasive species

The proposed ROW would construct bridges across known Koyukuk River Chinook and chum salmon spawning habitat and install culverts in more than 1,000 perennial streams assumed to support anadromous and/or resident fish. Bridges and culverts would eliminate and alter fish habitat (FEIS Section 3.3.2, Fish and Amphibians). Culverts would eliminate portions of natural stream channels by routing flow underneath the roadway embankment. The project proponent proposes to use stream simulation design principles that more replicate natural stream conditions, which will minimize but not eliminate impacts to waterways. Replacing natural habitat with culverts and confining flow through culverts and bridges would reduce habitat complexity, increase sedimentation and scour potential, and degrade habitat quality both upstream and downstream throughout the life of the road.

The Kobuk and Alatna rivers are key spawning grounds for sheefish and are also important fishing areas. The upper Kobuk River supports the largest spawning concentration of sheefish in Alaska. The Kobuk is well known for its world-class sheefish trophy fishing. The Alatna River is the most important spawning area for sheefish and other whitefish species in the upper Koyukuk River drainage (FEIS Section 3.3.2). The ROW would cross both drainages under Alternative A. If construction removed suitable spawning habitat directly, the loss would equate to a significant decrease to spawning success.

Sedimentation, especially when increased over naturally occurring levels, adversely affects habitat quality and function. Increased fine sediments can smother incubating eggs, decrease fry emergence, reduce the amount of suitable habitat for juvenile fish, and decrease benthic community production (Limpinsel et al. 2017). Elevated turbidity from suspended solids diminishes habitat quality, and may decrease primary production, elevate water temperatures, and affect feeding behavior; large plumes can damage gills and impair organ function (Limpinsel et al. 2017). If sedimentation increased in any of the spawning areas, there would be a significant impact to spawning success.

Spills have the potential to substantially degrade habitat quality and affect the long-term health of individual fish and fish populations. Habitat located in the vicinity of road crossing sites, which includes spawning, rearing, feeding, wintering and migratory habitat, would be most susceptible to contamination from potential spills. Such a spill, particularly if near a stream, would substantially alter water chemistry, cause fish mortality, substantially degrade habitat quality and function, and cause population-level effects.

The introduction of invasive species could also impact fish habitat and/or productivity. Unlike other ROW impacts that are expected to be more short-term, the introduction of invasive species could become a long-term impact if their spread is uncontrolled. This would cause a significant effect because of the long-term nature of the impact.

Availability

Construction activities which may affect fish availability to subsistence communities include:

- installation of bridges, culverts and related pile installation
- stream diversion and excavation
- gravel mining
- loss of harvest area

Fish could be diverted, displaced, or obstructed due to culvert placement, excavation, or stream diversion. While impacts to fish resulting from construction activities are expected to be localized, subsistence users often harvest fish in specific locations along rivers; thus, localized changes in fish distribution could have impacts on resource availability for individual harvesters.

Removing gravel from a stream channel changes the structure of its natural habitat for aquatic species, sediment transport dynamics and flow processes; degrades quality and habitat function upstream and downstream of mined areas; and alters fish and invertebrate communities (Brown et al. 1998). Removing streambed gravel from relic channels in the floodplain would degrade habitat quality by reducing habitat complexity and altering dynamics, which may affect survival rates of incubating eggs (Kondolf et al. 2002). Adverse impacts to fish may be fairly localized during the activity, although the full magnitude of effects is difficult to quantify given the lack of specific gravel extraction methods and plans. Studies have shown that attempts to mitigate or restore streams impacted by gravel mining may be ineffective because impacts often extend kilometers upstream and downstream of mined sites (Brown et al. 1998). Gravel mining near sheefish and other whitefish spawning areas would have especially negative consequences to fish populations, since these fish have specific spawning requirements and large numbers of fish spawn in relatively small, distinct areas.

While impacts to fish resulting from construction activities are expected to be localized, subsistence users often harvest fish in specific locations along rivers; thus, localized changes in fish distribution could have impacts on resource availability for individual harvesters. In addition to the communities who have documented use of the rivers crossed by the project corridors, communities upstream and downstream

from the project corridors could experience impacts on fish availability if larger impacts to fish movement or health occur. An impact of this scale would be quite significant.

Access

There may be periods of time during construction where access along certain river drainages is obstructed due to bridge construction activities. It is anticipated that bridges would be designed with adequate clearance. However, it is possible that bridges may also obstruct boat travel along certain smaller waterways; the likelihood of this impact depends on individual bridge height and design.

B.2.1.4 Vegetation

Abundance

Vegetation is a high value resource to all communities except Livengood and Nenana in the project area Bettles, Evansville, Kobuk and Shungnak subsistence use areas would be bisected by the ROW. The Wiseman subsistence use area is located on the periphery of the project area.

Construction and operation activities which may affect the abundance of vegetation, including berries, wild plants, and wood include:

- clearing of the ROW
- fugitive dust
- contamination from accidental spills

ROW construction would result in the removal of vegetation harvesting areas for residents. Communities along the proposed road corridors may also experience reduced availability of vegetation in traditional harvesting areas during and after construction of the road. This may lead to an overall decline in the abundance of harvestable vegetation.

In addition, a larger area surrounding the road would likely be removed from use for some individuals due to concerns about contamination. Impacts to vegetation harvest areas resulting from roads has been documented in relation to the Red Dog DMTS (SRB&A 2009b). Residents from Kivalina have reported observing dust on vegetation and changes in the taste or appearance of berries. In addition, some individuals have reported that they no longer use traditional vegetation harvesting areas along the DMTS due to concerns about contamination.

Spills have the potential to substantially degrade vegetation. Vegetation located in the vicinity of road would be most susceptible to contamination from potential spills. Introduction of toxicants from petroleum products associated with vehicle use and road run-off can impact vegetation (FEIS Section 3.3.1). Accidental spills along the ROW may significantly restrict harvestable vegetation in the direct vicinity of the road.

Availability

Construction and operation activities which may affect the availability of vegetation would include:

- clearing of the ROW
- fugitive dust
- contamination from accidental spills

Availability of vegetation in the direct route of the road may be directly impacted due to construction activity. Construction activity may lead to concerns by residents about contamination of subsistence resources, particularly plants and berries. This concern would be especially elevated in areas where naturally occurring asbestos is exposed during construction or contained in the gravel fills used for the

project. Spills or other contamination could also affect the local distribution of vegetation or may result in resources being considered unavailable to local harvesters due to concerns of contamination.

Permanent loss of native vegetation would occur from construction of the main road, landing strips, material and rip-rap sources, and construction access roads, due to vegetation clearing and the placement of gravel fill. Loss of vegetation through an undisturbed landscape would result in several effects to the surrounding environment, including alteration of adjacent vegetation community composition and loss or alteration of fish and wildlife habitat. Removal of native vegetation in this area, particularly in boreal forest, could take decades to recover (FEIS Section 3.3.1).

Access

Impacts to harvester access would occur along the ROW, where harvesters could be faced with physical obstructions to access or by removal of usable area.

- physical barriers: road, construction laydown materials, pilings and heavy equipment
- diversion: avoidance of material sites and other areas which are unsafe for travel
- crossing ramps: placement of ramps and ease of use by subsistence users, individuals may not be permitted to cross construction-phase roads until crossing areas are established

The degree of impacts from construction and operation would depend on whether the timing of construction activities conflicts with harvest. Because construction would occur year-round, it is likely that there would be direct conflicts with vegetation harvest. Subsistence harvest activities occur year-round, peaking in the summer for most communities (Appendix L: Section 5). The project corridor crosses areas used for both riverine and overland travel; thus, residents may experience significant impacts during all activities which are overlapped by the proposed ROW. While access would be hindered more for some communities than others, the proposed ROW may significantly restrict current levels of access for all involved communities.

B.2.1.5 Other

Abundance

Other subsistence resources such as Dall sheep, bear, muskoxen, small land mammals, marine mammals, migratory birds, upland game birds and eggs are considered of moderate or low importance or have fewer communities depending on them for subsistence (FEIS Section 3.4.7). Impacts from construction and operation could occur but may not significantly impact the abundance of these resources available for subsistence use.

Availability

Availability of all other subsistence resources would vary from season to season and resource to resource. Construction can impact hunting for land mammals (large and small), birds (waterfowl and upland), and gathering eggs. Construction activities that may affect resource availability for subsistence users include:

- construction activity
- physical obstructions from infrastructure vehicle and air traffic
- accidental fuel or other contaminant spills

In the short term, construction activity may displace or divert resources such as large land mammals, small land mammals, and waterfowl, due to associated activity. Construction may also destroy vegetation and surrounding habitat for resources. Clearing of trees and brush for the ROW and stripping of topsoil and organic material may alter or degrade resource habitat, particularly for herbivores that depend on surface vegetation. Habitat alteration can affect resource distribution, thereby reducing the availability of

those resources to subsistence users in traditional hunting or harvesting areas. Equipment, material storage sites and related infrastructure associated with construction, may act as a physical barrier to wildlife. This general disturbance of wildlife could result in subsistence resources being unavailable at the time and place that subsistence users are accustomed to finding them.

During construction and operation, the availability of subsistence resources would be affected through air and ground traffic, resulting in changes in behavior, changes in local distribution of resources, and/or avoidance of the ROW.

Accidental spills may degrade habitat along the ROW. This may alter the behavior of wildlife dependent upon the habitat, causing avoidance of the ROW. This would not significantly affect resources in this category. Wildlife in this group do not migrate as the caribou do, and therefore would not experience a large-scale affect. Effects from the road would be more localized to the general vicinity of the ROW.

Access

Impacts to harvester access would occur within the vicinity of the road corridor, where harvesters could be faced with physical obstructions to access or by causing harvesters to avoid construction work areas. Construction infrastructure such as the road, construction laydown materials, and heavy equipment could present physical barriers to subsistence users. In addition, individuals traveling overland may have to divert around material sites and other areas which are unsafe for travel. The road will include crossing ramps for local residents to use when traveling overland, although there has been some concern of their ease of use; therefore the road may pose an obstruction to overland travel during the construction phase; in addition, hunters may not be permitted to cross construction-phase roads until crossing areas are established, thus obstructing travel altogether for a period of time.

B.2.2 Evaluation of the Availability of Other Lands

Alternative A and B are both similar in the amount of federal land used by the ROW (3,498 and 3,083 acres respectively). The only variation in public land between the alternatives would occur within GAAR. The remainder of the two routes would be located on State and Native Corporation land. Alternative C proposes to use BLM managed land for most of the route (19,090 acres), with Native Corporation land and State of Alaska land managing less. Other DOT&PF previously identified alternative corridors considered include the Original Brooks East, Kanuti Flats, Elliot Highway, Parks Highway Railroad, DMTS Port, Cape Blossom, Selawik Flats and Cape Darby. These routes did not meet screening criteria and were not considered further (see FEIS Appendix G for further discussion).

Of the feasible alternatives carried forward for evaluation, the proposed route was designed and engineered to optimize many environmental and economic considerations. Alternative A is the most economically feasible route and while it crosses more waterbodies requiring culverts or bridges, it has a smaller overall footprint than the other proposed routes. While Alternative C crosses the subsistence use area of 12 communities, A and B both cross only subsistence use areas of 11 communities[1]. Alternatives A and B both have the largest project area in the WAH habitat (4,161 and 4,775 acres respectively), while Alternative C has an area of 4,120 total acres. Alternative C, unlike Alternatives A and B, would also intersect the range of the RMH, a small, non-migratory herd centered on the Ray Mountains.

[1] Note: For alternatives A and B the only resource used by Hughes that could be affected would be Dall sheep. The importance of Dall sheep to the community of Hughes is not known. Only high and moderate valued resources were analyzed in detail for in this Section 810 Analysis.

The purpose of constructing and operating the proposed road would be to access the District. As such, there is no other feasible terminus for the road. Therefore, the only options are the starting point and the route the road would follow.

B.2.3 Evaluation of Other Alternatives That Would Reduce or Eliminate the Use, Occupancy or Disposition of Public Lands Needed for Subsistence Purposes

AIDEA and DOT&PF considered numerous transportation modes and route alternatives for accessing the District. Their screening process eliminated many of those options as either not physically or economically feasible. Consideration was given to the environment as air travel only was an option; a rail system was another. Using existing infrastructure, such as the DMTS, for part of the route was considered. These options did not meet the criteria established for this project. Only physically and economically feasible alternatives were carried through for analysis in the FEIS.

B.2.4 Findings

Alternative A would not result in a significant restriction to subsistence uses for Beaver, Galena, Hughes, Huslia, Livengood, Manley Hot Springs, Minto, Nenana, Rampart, Stevens Village and Tanana.

Alternative A may result in a significant restriction to subsistence uses for Alatna, Allakaket, Ambler, Anaktuvuk Pass, Bettles, Buckland, Coldfoot, Evansville, Kiana, Kobuk, Kotzebue, Noatak, Noorvik, Selawik, Shungnak and Wiseman due to a decrease in abundance and availability of caribou, fish and vegetation.

All communities may not experience impacts equally to all resources. But the proposed road project may significantly impact at least one resource for all above communities.

The proposed road may deflect or delay the migration of caribou of the WAH by an average of 33 days (Appendix L Section 6.4.1). Fragmentation of habitat from construction of the project (although small in relation to overall caribou habitat) may change behavior that may result in an increased expenditure of energy, because the habitat is currently unaltered (FEIS Section 3.3.4). This may lead to a decrease in overwinter survival and lower reproductive success. A reduction of population of the herd may also lead to caribou not being available when and where subsistence users are accustomed to harvesting them. The proposed road may also limit or divert subsistence users in their harvest of caribou.

Construction of the proposed road requires many bridges, culverts and bank modifications to be completed. This can affect the population of fish indirectly by loss of habitat and lower spawning success. Lower abundance may lead to a lower availability of both salmon and non-salmon fish in historical subsistence use areas.

Construction of the proposed road would remove suitable vegetation harvest areas and hinder access to more. While this area is very small in comparison to the overall harvest areas, vegetation harvesting is a high value resource to nearly all communities in the study area. Considering the importance of vegetation, altered availability of vegetation may result in a significant reduction in subsistence uses.

B.3 Evaluation and Findings for Alternative B (AIDEA Alternative Route (GAAR South) to the Dalton Highway)

Alternative B is similar to Alternative A, but it differs in the route through GAAR. It is 228 miles long with a total distance to Fairbanks of 473 miles. This routes crosses GAAR further south than Alternative A.

B.3.1 Evaluation of the Effect of Use, Occupancy or Disposition on Subsistence Use and Need

B.3.1.1 Caribou

Because Alternative B is very similar to Alternative A, there would be no quantifiable differences between the analyses for caribou. See Section B.2.1.1 of this evaluation.

B.3.1.2 Moose

Because Alternative B is very similar to Alternative A, there would be no quantifiable differences between the analyses for moose. See Section B.2.1.2 of this evaluation.

B.3.1.3 Fish

Most of the analysis of Alternative A would apply similarly to Alternative B. See Section B.2.1.3 of this evaluation. Noticeable differences will be discussed below.

The route chosen through GAAR for Alternative B would place a river crossing on the Reed River approximately 7 miles from sheefish spawning habitat on the mainstem of the Kobuk River and closer to sheefish spawning habitat than any other alternative. This may increase the likelihood of impact to the resource. Moving a crossing closer to sheefish spawning habitat, especially with the concentrated spawning area located there would increasing sediment from construction and erosion and potential degradation and contamination of the habitat from accidental spills. This may impact reproductive success of sheefish in the Kobuk River. As stated in B.2.1.3 of this evaluation, this particular stretch of the Kobuk River has the highest concentration of sheefish spawning habitat in Alaska. Any effect on spawning success here may affect a large portion of the sheefish population.

B.3.1.4 Vegetation

Alternative B differs from Alternative A in that the ROW would overlap Ambler's vegetation harvest area. This may lead to a direct impact by removal of harvestable vegetation or contamination (real or perceived) to harvestable vegetation by fugitive dust and accidental spills (see Section B.2.1.4). This may significantly restrict harvest by the community of Ambler. The direct loss of harvestable vegetation by construction of the road would last for the life of the project. Even after reclamation of the road, vegetation can take decades to recover.

B.3.1.5 Other

Because Alternative B is very similar to Alternative A, there will be no quantifiable differences between the analyses for other resources. See Section B.2.1.5 of this evaluation.

B.3.2 Evaluation of the Availability of Other Lands

See Section B.2.2 of this evaluation.

B.3.3 Evaluation of Other Alternatives That Would Reduce or Eliminate the Use, Occupancy or Disposition of Public Lands Needed for Subsistence Purposes

See Section B.2.3 of this evaluation.

B.3.4 Findings

Alternative B would not result in a significant restriction to subsistence uses for Beaver, Galena, Hughes, Huslia, Livengood, Manley Hot Springs, Minto, Nenana, Rampart, Stevens Village and Tanana.

Alternative B may result in a significant restriction to subsistence uses for Alatna, Allakaket, Ambler, Anaktuvuk Pass, Bettles, Buckland, Coldfoot, Evansville, Kiana, Kobuk, Kotzebue, Noatak, Noorvik, Selawik, Shungnak and Wiseman due to a decrease in abundance and availability of caribou, fish and vegetation.

See Section B.2.4 of this evaluation for discussion.

B.4 Evaluation and Findings for Alternative C (Diagonal Route to the Dalton Highway)

The BLM developed this alternative based on scoping comments. The 332-mile route is longer than the other alternatives but has a similar driving length (476 miles) to Fairbanks. This alternative would have a logical terminus connecting into the road and rail network to provide year-round access to existing port facilities.

B.4.1 Evaluation of the Effect of Use, Occupancy or Disposition on Subsistence Use and Need

B.4.1.1 Caribou

Abundance

Impacts of the road to caribou would generally be the same between Alternative C and Alternative A/B[2]. The route change would affect different communities which will be discussed here. Any variation in impact on resource between the two alternatives will be discussed here as well. Similar impacts of the road are discussed in Section B.2.1.1 of this evaluation.

Ten communities would experience a direct impact on caribou from Alternative C: Alatna, Allakaket, Ambler, Anaktuvuk Pass, Hughes, Huslia, Kobuk, Selawik, Shungnak and Tanana. Six of these communities consider caribou of high importance, Allakaket, Ambler, Anaktuvuk Pass, Kobuk, Selawik and Shungnak (Appendix L: Table 44). Tanana is in the low resource category, with the remaining communities in the moderate category. Hughes, Kobuk and Shungnak would have their subsistence hunting areas bisected by the proposed road. Alatna, Allakaket and Ambler subsistence hunting areas would be partially intersected by the proposed ROW. The proposed ROW would be located on the periphery of Selawik and Tanana's subsistence hunting areas. Anaktuvuk Pass would see an impact in an isolated portion of their subsistence use area. All other communities in the subsistence study, whether they are ranked as having a high, moderate or low dependence on caribou, have subsistence use areas outside of the project area and likely wouldn't see an impact on their subsistence use.

Alternative C places the ROW through the middle of the entire RMH range; it bypasses the HHH range and passes through the peripheral and winter range of the WAH. This alternative intercepts only a small portion of the migratory area of the WAH. The RMH may experience a direct impact from this alternative. Because the RMH is a smaller herd (812 as of last census), access to it is limited and it has a relatively short season, subsistence harvest is low (FEIS Section 3.3.4). Alternative C crosses more WAH

[2] Note, while Alternative C would affect more habitat than Alternatives A and B, the impacts to subsistence users would be localized to subsistence use areas. Any alteration of resource availability, abundance, or access would be felt the same by subsistence users, it's just different communities that would experience the impact.

habitat than the other alternatives. But, may have a lesser impact on their fall and spring migrations because it only intercepts a small portion of their migratory range.

Availability

Impacts of the road to caribou would be the same between Alternative C and Alternatives A/B. The route change would affect different communities which are discussed in the previous section. For impacts of the road see Section B.2.1.1 of this evaluation.

Access

Impacts of the road to caribou would be the same between Alternative C and Alternative A/B. The route change would affect different communities which are discussed in the previous section. For impacts of the road see Section B.2.1.1 of this evaluation.

B.4.1.2 Moose

Abundance

Impacts of the road to moose would be the same between Alternative C and Alternative A/B. The route change would affect different communities which will be discussed here. For impacts of the road see Section B.2.1.2 of this evaluation.

The proposed ROW crosses subsistence moose hunting areas for eight communities, Alatna, Allakaket, Ambler, Hughes, Kobuk, Shungnak, Stevens Village and Tanana. Moose is considered a resource of high importance for five of the communities (Alatna, Allakaket, Hughes, Stevens Village and Tanana), and of moderate importance for the rest (Appendix L, Table 44).

Availability

Impacts of the road to moose would be the same between Alternative C and Alternative A/B. The route change would affect different communities which are discussed in the previous section. For impacts of the road see Section B.2.1.2 of this evaluation.

Access

Impacts of the road to moose would be the same between Alternative C and Alternative A/B. The route change would affect different communities which are discussed in the previous section. For impacts of the road see Section B.2.1.2 of this evaluation.

B.4.1.3 Fish

Abundance

Impacts of the road to fish would generally be the same between Alternative C and Alternative A/B. The route change would affect different communities which will be discussed here. Any variation in impact on resource between the two alternatives will be discussed here as well. Similar impacts of the road are discussed in Section B.2.1.1 of this evaluation.

The proposed ROW crosses subsistence fishing areas for nine communities: Alatna, Allakaket, Ambler, Hughes, Huslia, Kiana, Kobuk, Shungnak and Stevens Village. This alternative affects more community fishing resources than the other two alternatives. For all these communities except Alatna and Stevens Village, fish are categorized as a resource a high importance (Appendix L, Table 44). Hughes, Kobuk and Shungnak would see their subsistence fishing areas bisected by the proposed ROW. Alatna, Allakaket and Ambler use areas would be partially intersected by the ROW. The ROW would fall on the periphery of the Hughes and Huslia fishing use areas. These communities would have direct impacts to their subsistence use areas from the proposed project. Other communities not directly impacted by the road could also see an effect in terms of spawning habitat loss, increased turbidity and loss of harvest area.

Alternative C crosses the Kobuk River directly downstream from Kobuk River sheefish spawning habitat. Thus, any changes to waterways which obstruct access to spawning grounds could have larger indirect impacts to communities who harvest sheefish upstream and downstream from the road corridor. However, Alternative C would be less likely to have direct impacts on sheefish spawning grounds due to sediment and turbidity. But Alternative C would require a crossing on the Koyukuk River near Hughes in the middle of known sheefish spawning habitat. In addition, while Alternative C would cross more fish streams than alternatives A and B, it would construct more bridges and fewer minor culverts which are more likely to obstruct fish passage. In addition to sheefish spawning grounds, Alternative C also crosses streams which support spawning for Chinook and chum salmon. Impacts to salmon spawning grounds could also have larger effects to communities who harvest salmon downstream from the road corridor along the Yukon and Koyukuk rivers.

Availability

Impacts of the road to fish would be the same between Alternative C and Alternative A/B. The route change would affect different communities which are discussed in the previous section. For impacts of the road see Section B.2.1.3 of this evaluation.

Access

Impacts of the road to fish would be the same between Alternative C and Alternative A/B. The route change would affect different communities which are discussed in the previous section. For impacts of the road see Section B.2.1.3 of this evaluation.

B.4.1.4 Vegetation

Abundance

Impacts of the road to vegetation would be the same between Alternative C and Alternative A/B. The route change would affect different communities which will be discussed here. For impacts of the road see Section B.2.1.4 of this evaluation.

Vegetation is a resource of high importance to almost each community in the project area. Allakaket, Ambler, Hughes, Kobuk, Shungnak and Stevens Village are in the high value category for vegetation. Shungnak and Kobuk subsistence use areas would be bisected by the proposed ROW. Allakaket and Ambler would see their subsistence use areas partly intersected, and Stevens Village's use area is on the periphery of the project.

Availability

Impacts of the road to vegetation would be the same between Alternative C and Alternative A/B. The route change would affect different communities which are discussed in the previous section. For impacts of the road see Section B.2.1.4 of this evaluation.

Access

Impacts of the road to vegetation would be the same between Alternative C and Alternative A/B. The route change would affect different communities which are discussed in the previous section. For impacts of the road see Section B.2.1.4 of this evaluation.

B.4.1.5 Other

Abundance

Impacts of the road to other resources would be the same between Alternative C and Alternative A/B. The route change would affect different communities which will be discussed here. For impacts of the road see Section B.2.1.5 of this evaluation.

Other resources are of low or moderate importance to almost each community in the project area. Alatna, Allakaket, Ambler, Anaktuvuk Pass, Hughes, Huslia, Kobuk, Selawik, Shungnak, Stevens Village and Tanana all use at least one other resource that may be impacted by the proposed ROW.

Availability

Impacts of the road to other resources would be the same between Alternative C and Alternative A/B. The route change would affect different communities which will be discussed in the previous section. For impacts of the road see Section B.2.1.5 of this evaluation.

Access

Impacts of the road to other resources would be the same between Alternative C and Alternative A/B. The route change would affect different communities which will be discussed in the previous section. For impacts of the road see Section B.2.1.5 of this evaluation.

B.4.2 Evaluation of the Availability of Other Lands

See Section B.2.2 of this evaluation.

B.4.3 Evaluation of Other Alternatives That Would Reduce or Eliminate the Use, Occupancy or Disposition of Public Lands Needed for Subsistence Purposes

See Section B.2.3 of this evaluation.

B.4.4 Findings

Alternative C would not result in a significant restriction to subsistence uses for Beaver, Bettles, Buckland, Coldfoot, Evansville, Galena, Kotzebue, Livengood, Manley Hot Springs, Minto, Nenana, Noatak, Noorvik, Rampart and Wiseman.

Alternative C may result in a significant restriction to subsistence uses for Alatna, Allakaket, Ambler, Anaktuvuk Pass, Hughes, Huslia, Kiana, Kobuk, Selawik, Shungnak, Stevens Village and Tanana due to decrease of abundance and availability of caribou, fish and vegetation.

All communities may not experience impacts equally to all resources. But the proposed road project may significantly impact at least one resource for all above communities.

Alternative C may not affect the migration of WAH caribou as much as the other two alternatives. But there is still a portion of the road that extends into the WAH migratory area and this alternative crosses more total range of the WAH, so an impact may occur (Appendix A: Map 3-22). Approximately 20 percent of the WAH cross this area in the winter. This may significantly divert the herd on their winter range making availability to subsistence users a concern.

Construction of the proposed road requires many water crossings to be installed. This is concerning because of the proximity to sheefish spawning habitat. If any detrimental impact stems from these installations a majority of the sheefish population in Northwest Alaska may be significantly impacted.

Construction of the proposed road would remove suitable vegetation harvest areas and hinder access to more. While this area is very small in comparison to the overall harvest areas, vegetation harvesting is a high value resource to nearly all communities in the study area. Considering the importance of vegetation, altered availability of vegetation may result in a significant reduction in subsistence uses.

B.5 Evaluation and Findings for the Cumulative Case

The goal of the cumulative case analysis presented in Appendix H is to evaluate the incremental impact of the actions considered in the EIS, in conjunction with all past, present, and reasonably foreseeable future

activities in or near the Ambler Road. Past and present actions which have affected subsistence uses and resources within the study region include mineral development, infrastructure projects, scientific research, recreation and tourism, sport hunting and fishing, hunting and harvesting regulations, establishment of wildlife refuges, national parks and preserves, and environmental changes resulting from climate change.

Actions included in the cumulative case analysis are listed in Appendix H Section 2. Past and present actions that have affected subsistence and resources are:

- oil exploration and extraction, including Trans-Alaska Pipeline System (TAPS) and the Dalton Highway
- Red Dog Mine, including the DMTS and port site
- sport hunting and fishing
- passage of ANILCA
- impacts of climate change
- Reasonably foreseeable future actions are:
    - development of mineral prospects within the District
    - use of the proposed road for commercial access
    - use of the proposed road for commercial use by local communities and Native Allotment owners

B.5.1 Evaluation of the Effect of Use, Occupancy or Disposition on Subsistence Use and Need

B.5.1.1 Oil Exploration and Extraction

Oil and gas exploration, development, and production is ongoing and planned within the onshore North Slope, State and Federal waters in the Beaufort Sea, and in the Western Canadian Arctic. These activities include exploration work, infrastructure development, construction, and maintenance, gravel mining, and production associated with existing wells. These activities are expected to continue under all alternatives.

Construction of the TAPS and Dalton Highway have affected subsistence access and resource availability for communities in the eastern portion of the project area, with many residents believing that the highway and pipeline have resulted in changes to caribou migration across the region. Impacts to vegetation within this area include construction of the Dalton Highway and other roads and airports in rural Alaska communities, which has resulted in loss within the footprints, alteration beyond the footprints, and the spread and establishment of non-native invasive species (NNIS) near developments.

B.5.1.2 Red Dog Mine

The Red Dog Mine, including the DMTS and port site, has introduced contamination concerns for local residents, particularly Kivalina residents who are situated downstream from the mine, and have affected resource distribution and migration for resources such as caribou and marine mammals possibly resulting in decreased harvests of these resources over time (EPA 2009). Residents have observed that some caribou would stop once they reach the DMTS, sometimes traveling alongside the road before crossing, and other times bypassing the road altogether. Such behavior has also been documented through radio collar observation.

B.5.1.3 Sport Hunting and Fishing

Increased sport hunting and fishing in the region and associated air traffic have resulted in increased competition for local subsistence users in addition to disturbance and displacement of subsistence resources such as caribou.

B.5.1.4 ANILCA

The establishment of Gates of the Arctic National Park and Preserve (GAAR) in the 1980s also affected access to and use of traditional harvesting areas for residents of nearby communities within the northeastern portion of the project area by limiting use of ATV's in national parkland (Watson 2018).

B.5.1.5 Climate Change

Climate change is an ongoing factor considered in cumulative effects analyses of the Ambler Road. Climate change could affect the habitat, behavior, distribution, and populations of fish and wildlife within the program area. Impacts of climate change include changes in the predictability of weather conditions such as the timing of freeze-up and breakup, snowfall levels, storm and wind conditions, and ice conditions (e.g., ice thickness on rivers and lakes), all of which affect individuals' abilities to travel to subsistence use areas when resources are present in those areas. In addition, subsistence users may experience greater risks to safety when travel conditions are not ideal. Changes in resource abundance or distribution resulting from climate change can also affect the availability of those resources to subsistence users or may cause subsistence users to travel farther and spend more time and effort on subsistence activities (Brinkman 2016).

B.5.1.6 Reasonably Foreseeable Future Actions

Reasonably foreseeable actions within the region that could contribute to subsistence impacts include development of the Ambler Mining District (Arctic, Bornite, Sun, and Smucker projects); use of the AMDIAR for commercial access; use of the AMDIAR for commercial use by local communities and Native Allotment owners

The development of mines within the District and secondary access roads would result in habitat loss, alteration, and fragmentation of WAH caribou migratory and winter range. The mines, mining roads, and secondary access roads would increase habitat fragmentation exponentially. The fragmentation of habitat would further remove usable habitat for caribou during migration and winter, which could force substantial range shifts, increased competition for resources, or increased predation (NCASI 2008). Alternative's A and B, both place the ROW in more migratory habitat than Alternative C, which may spatially alter WAH migration away from subsistence use areas of Alatna, Allakaket, Ambler, Bettles, Evansville, Hughes, Kobuk, Shungnak, Selawik and Wiseman. But, Alternative C places the ROW more in the winter range of the WAH. This may alter the WAH use of winter range and impact Alatna, Allakaket, Ambler, Hughes, Huslia, Kobuk, Selawik, Tanana and Shungnak. In addition, it is unclear whether the road would allow access to small mining claims; while large mines would likely have policies regarding hunting and fishing by workers, smaller mining outfits or individuals may allow these activities. According to the Western Arctic Herd Working Group (WAHWG 2017), communities within the region have already experienced increased competition in traditional hunting areas, with greater numbers of hunters concentrated within smaller areas. Sport hunting is a key issue within the region for subsistence harvesters, and public access to the area via a road or ROW would contribute to these impacts.

Reasonably foreseeable future actions that would impact fish include the advanced mining development and indirect road access. Direct and indirect chemical stressors such as mining-related pollution, acid mine drainage, and the release of toxic materials have the potential to significantly impact aquatic life health and the survival of fish populations (Limpinsel et al. 2017). Toxic metals that bioaccumulate in fish tissue can lead to fish mortality, increased susceptibility to disease, reduced growth rates, and pose health risks to human consumers (Hughes et al. 2016). Given the proximity of the 4 most advanced mine projects to the Kobuk River sheefish spawning grounds and the large numbers of sheefish that spawn in

this habitat, sheefish may be especially vulnerable to population-level effects (Appendix H Section 3.4.2), from large scale spills or leaching of acid rock into waterways (Appendix L pg. 166).

Mining and its associated activities have the potential to cause the greatest impacts to vegetation. Open pit and underground mining would result in loss of vegetation within the project area and alteration of vegetation beyond project areas from disturbance of surface and groundwater flow, lowering of the water table from dewatering activities, and fugitive dust from heavy metals and accessory roads. As has been shown at Red Dog Mine, fugitive dust from heavy metals can travel thousands of feet to several kilometers in distance, particularly if strict mitigation measures are not employed or practiced. This can result in increased or complete loss of lichen and moss (Neitlich et al. 2017). Heavy metal dust can persist in the soil for many decades (Neitlich et al. 2017), resulting in adverse impacts to the surrounding vegetation and habitat. Although the exact number of acres of vegetation that would be lost or altered is unknown, the potential magnitude of loss and alteration is expected to be at least in the thousands of acres, not including accessory roads. In addition, hundreds of thousands of acres of mining claims exist in the advanced mining scenario, which could result in more loss and alteration than initially predicted if more claims are developed.

B.5.2 Evaluation of the Availability of Other Lands

See Section B.2.2 of this evaluation.

B.5.3 Evaluation of Other Alternatives That Would Reduce or Eliminate the Use, Occupancy or Disposition of Public Lands Needed for Subsistence Purposes

See Section B.2.3 of this evaluation.

B.5.4 Findings

The cumulative case, when taken in conjunction with Alternatives A, B, and C, would not result in a significant restriction to subsistence uses for the communities of Beaver, Galena, Livengood, Manley Hot Springs, Minto, Nenana, Rampart and Stevens Village.

The cumulative case, when taken in conjunction with Alternatives A, B, and C, may result in a significant restriction to subsistence uses for the communities of Alatna, Allakaket, Ambler, Anaktuvuk Pass, Bettles, Buckland, Coldfoot, Evansville, Hughes, Huslia, Kiana, Kobuk, Kotzebue, Noatak, Noorvik, Selawik, Shungnak, Stevens Village, Tanana, and Wiseman, due to a potential decrease in abundance and availability of caribou, fish and vegetation.

All communities may not experience impacts equally to all resources. But the proposed road project may impact at least one resource for all above communities.

Cumulative impacts of Alternatives A and B related to resource abundance and availability would likely be greater than those under Alternative C, as they would be more likely to affect resource availability of migrating caribou to the subsistence study communities, particularly during the fall months, and are most likely to have population-level effects on sheefish and whitefish, all key subsistence species among the study communities. However, impacts related to user access and direct impacts on resource availability along the road corridors would be similar across all alternatives and would affect a similar number of study communities.

The proposed road in conjunction with discussed cumulative effects may divert or delay the migration of caribou of the WAH by an average of 33 days (Appendix L Section 6.4.1). This may lead to a decrease in overwinter survival and lower reproductive success. A reduction of population of the herd may also lead to caribou not being available when and where subsistence users are accustomed to harvesting them. The

proposed road and cumulative impacts may also limit or divert subsistence users in their harvest of caribou.

Construction of the proposed road and addition of numerous open pit mining operations requires much infrastructure to be completed. This can affect the population of fish indirectly by loss of habitat and lower spawning success. Lower abundance may lead to a lower availability of both salmon and non-salmon fish in historical subsistence use areas.

Construction of the proposed road in conjunction with discussed cumulative effects would remove suitable vegetation harvest areas and hinder access to more. While this area is very small in comparison to the overall harvest areas, vegetation harvesting is a high value resource to nearly all communities in the study area. Considering the importance of vegetation, altered availability of vegetation may result in a significant reduction in subsistence uses.

C. Notice and Hearings

ANILCA Section 810(a) provides that no "withdrawal, reservation, lease, permit, or other use, occupancy or disposition of the public lands which would significantly restrict subsistence uses shall be effected" until the federal agency gives the required notice and holds a hearing in accordance with ANILCA Section 810(a) (1) and (2). The BLM provided notice in the Federal Register that it made positive findings pursuant to ANILCA Section 810 that the Alternatives A, B, and C and cumulative case presented in the Ambler Road FEIS, met the "may significantly restrict" threshold. As a result, public hearings were held in the potentially affected communities of Alatna, Allakaket, Ambler, Anaktuvuk Pass, Bettles, Buckland, Coldfoot, Evansville, Kiana, Kobuk, Kotzebue, Noatak, Noorvik, Selawik, Shungnak and Wiseman, along with hearings in Anchorage, Fairbanks and Washington DC. Notice of these hearings were provided in the Federal Register and by way of the local media. Meeting dates and times were also posted on BLM's website at: https://eplanning.blm.gov/eplanning-ui/project/57323/530

D. Subsistence Determinations under ANILCA Section 810(a)(3)

ANILCA Section 810(a) provides that no "withdrawal, reservation, lease, permit, or other use, occupancy or disposition of the public lands which would significantly restrict subsistence uses shall be effected" until the federal agency gives the required notice and holds a hearing in accordance with ANILCA Section 810(a)(1) and (2), and makes the three determinations required by ANILCA Section 810(a)(3). The three determinations that must be made are: 1) that such a significant restriction of subsistence use is necessary, consistent with sound management principles for the utilization of the public lands; 2) that the proposed activity will involve the minimal amount of public lands necessary to accomplish the purposes of such use, occupancy, or other such disposition; and, 3) that reasonable steps will be taken to minimize adverse impacts to subsistence uses and resources resulting from such actions [16 U.S.C. 3120(a)(3)(A), (B), and (C)].

The BLM has found in this final subsistence evaluation that Alternatives A, B, C and the cumulative case considered in this FEIS may significantly restrict subsistence uses. Therefore, the BLM undertook the notice and hearing procedures required by ANILCA Section 810 (a)(1) and (2) in conjunction with release of the Ambler Road DEIS in order to solicit public comment from the potentially affected communities and subsistence users of Alatna, Allakaket, Ambler, Anaktuvuk Pass, Bettles, Buckland, Coldfoot, Evansville, Kiana, Kobuk, Kotzebue, Noatak, Noorvik, Selawik, Shungnak and Wiseman.

Alternatives A and B have similar impacts on the affected environment, including social systems. The BLM determined that Alternative A is the preferred alternative, as it is the most direct route and will have the smallest project footprint in wildlife habitat, wetlands and fish habitat and is also the most economically feasible to construct, operate, maintain and eventually reclaim. The overall project footprint is less for Alternative A than Alternative B, and significantly less than Alternative C. Of particular relevance to subsistence impacts, Alternative A places a river crossing on the Reed River 7 miles further from sheefish spawning habitat than Alternative B, which lessens potential impacts to this important subsistence resource. Alternative A also places the road outside of Ambler's vegetation harvest area while Alternative B overlaps it. Alternative A requires fewer disturbed acres (4,524 acres of which 1,022 acres are on DOI managed land). Alternative B disturbs 5,138 acres, of which 1,033 are on DOI managed land. Alternative A also avoids placing an airstrip, construction camp and maintenance facility within GAAR, which is a design feature of Alternative B.

The determinations below satisfy the requirements of ANILCA Section 810(a)(3)(A), (B), and (C).

D.1.1 Significant Restriction of Subsistence Use is Necessary, Consistent with Sound Management Principles for the Utilization of Public Lands.

The Bureau of Land Management Central Yukon Field Office has prepared an Environmental Impact Statement for federal authorizations under the Federal Land Policy and Management Act (FLPMA), and NPS prepared an Environmental and Economic Analysis for federal authorizations under the Alaska National Interest Land Conservation Act (ANILCA), both in response to a right-of-way application from the Alaska Industrial Development and Export Authority (AIDEA). AIDEA proposes to construct, operate, maintain, and remove a 211-mile, all-season, industrial access road to the Ambler Mining District in the Brooks Range of Alaska. Under AIDEA's proposal, approximately 25 miles of the proposed road would cross BLM-managed lands and approximately 26 miles would cross GAAR under Alternative A. The road would provide access for mineral exploration, mine development, and mining operations in the District.

Under FLPMA, the Secretary of the Interior, acting through the BLM, is required to manage public lands for multiple use and sustained yield. FLPMA expressly provides for issuance of rights of way over public land for transportation systems which are in the public interest. Under ANILCA, the Secretary of the Interior is required to authorize surface transportation across Gates of the Arctic National Preserve, Kobuk Unit from the Dalton Highway to the Ambler Mining District. District and to otherwise administer the Preserve under the laws governing National Park System units, including ANILCA.

Alternative A considers the necessity for economically feasible development while providing protections that minimize impacts to subsistence resources and uses and provide for their continued use. Under Alternative A, the mitigation measures identified in Appendix N of the EIS serve to further reduce the impact of the proposed activity on subsistence uses and resources.

This determination considers and balances a variety of factors with regard to the proposed activity on public lands, including, most prominently, the comments received during the public meetings and hearings which stressed the importance of facilitating residents continued use of the project area. The preferred alternative may significantly restrict subsistence uses for the communities of Alatna, Allakaket, Ambler, Anaktuvuk Pass, Bettles, Buckland, Coldfoot, Evansville, Kiana, Kobuk, Kotzebue, Noatak, Noorvik, Selawik, Shungnak and Wiseman. Such a significant restriction is necessary, consistent with sound management principles for the use of the public lands and for fulfillment of the Secretary of the Interior's responsibilities under the Federal Land Policy and Management Act of 1976 (FLPMA 501(a)(6)), ANILCA 201(4)(b) and other laws applicable to the impacted public lands.

The cumulative case in conjunction with the preferred alternative may significantly restrict subsistence uses for the communities of Alatna, Allakaket, Ambler, Anaktuvuk Pass, Bettles, Buckland, Coldfoot, Evansville, Hughes, Huslia, Kiana, Kobuk, Kotzebue, Noatak, Noorvik, Selawik, Shungnak, Stevens Village, Tanana, and Wiseman. Such a significant restriction is necessary, consistent with sound management principles for the use of the public lands and for fulfillment of the Secretary of the Interior's responsibilities under the Federal Land Policy and Management Act of 1976 (FLPMA 501(a)(6)), ANILCA 201(4)(b) and other laws applicable to the impacted public lands.

D.1.2 The Proposed Activity Will Involve the Minimal Amount of Public Lands Necessary to Accomplish the Purposes of Such Use, Occupancy or Other Disposition.

Alternative A involves the minimal amount of public lands necessary to accomplish the purpose and need of the Ambler Road EIS to construct, operate, maintain, and remove a 211-mile, all-season, industrial access road to the Ambler Mining District in the Brooks Range of Alaska while providing special protections for specific habitats and site-specific resources and uses. Alternatives that varied routes and the no action alternative were analyzed. The use of public lands is minimized by only building the road through Phase 2 (20' wide roadway) unless and until traffic volumes justify upgrading the road to Phase 3 (32' wide roadway). The area of disturbance is further minimized by various co-location design features such as installing required fiber optic cables within the embankment of the roadway; utilizing material sites as temporary staging areas for construction activities, and requiring any additional staging areas to be located within the footprint of the ROW; and developing some material sites into long-term roadway maintenance facilities. The project applicant also committed to removing a previously-proposed communications tower and material site from the ROW within GAAR.

D.1.3 Reasonable Steps Will be Taken to Minimize Adverse Impacts Upon Subsistence Uses and Resources Resulting from Such Actions

When the BLM began its NEPA scoping process, it identified subsistence as one of the major issues to be addressed. The information found in the analysis of impacts to subsistence, including access, harvests and traditional use patterns, as well as results of public scoping meetings in the communities resulted in the development of several protective mitigation measures to minimize adverse impacts to subsistence uses and resources.

Potential BLM Mitigation Measure or Right of Way Grant Stipulations:

- All field crews, construction workers, maintenance workers, and drivers on the road would follow a wildlife interaction plan prepared by AIDEA or a designee detailing how they are to manage wildlife attractants (food and non-food materials) and respond to human-wildlife interactions. This would be included with the training for authorized drivers of the Ambler Road.
- AIDEA would work with land managers and wildlife agencies to identify construction timing windows to protect wildlife. Timing design features related to this mitigation would be determined during the design/permitting phase.
- AIDEA must include in its road design measures to minimize impacts to wildlife movement and minimize habitat fragmentation during construction. This may include, but not be limited to, such. features as:
    - Burying infrastructure or facilities that may deter wildlife movement.
    - Creating wildlife escapement design features in excavations.
    - Siting and orienting infrastructure and facilities to allow unfettered wildlife movement.

    - Using vegetation to provide screened and unfragmented movement corridors around infrastructure and facilities.
- All fish-bearing-stream crossings would be natural channel designs (e.g., U.S. Fish and Wildlife Service 2019), follow fish passage design guidelines, to facilitate fish passage for all life stages.
- Vehicles would be required to slow down or stop and wait to permit the free and unrestricted movement of wildlife across the road at any location. During known caribou migration, the Authorized Officer may require temporary cessation of traffic.
- AIDEA would consult directly and regularly with affected subsistence communities, represented in the subsistence working group formed by AIDEA (see Chapter 2, Section 2.4.4 of the EIS), including the following items:
    - AIDEA would consult with directly affected subsistence communities to discuss the siting, timing, and methods of road construction and operations (see also Section 3.4.2, Transportation and Access).
    - AIDEA would make every reasonable effort, including such mechanisms as conflict avoidance agreements and mitigating measures, to ensure that road construction activities and operations and maintenance activities carefully consider and minimize interference with subsistence activities
- AIDEA would notify workers and road users when subsistence activities are ongoing in the area and direct them to refrain from actions that may affect the activities (e.g., not removing trapline markers).
- Subsistence activity impact mitigation would also include:
    - Identifying locations and times when subsistence activities occur and minimizing work during these times and in these areas to the maximum extent practicable.
    - Scheduling work (e.g., blasting) to avoid conflict with subsistence activities when possible.
    - Managing project-related aviation activities to minimize disturbance of hunters or prey species.
- AIDEA would establish a meat recovery plan for wildlife killed as a result of construction activities, truck traffic on the road, air traffic on airstrips, and other project related activity. The plan would be developed in consultation with the subsistence working group, allowing proximate rural residents an opportunity to remove and use the carcasses for subsistence.

Given these measures, Alternative A includes reasonable steps to minimize adverse impacts on subsistence uses and resources.

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7/23/2020
Date

Appendix F

Corps Supporting Information

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CORPS SUPPORTING INFORMATION

JOINT RECORD OF DECISION
Ambler Road Project

APPLICANT: Alaska Industrial Economic and Development Authority
APPLICATION NO: POA-2013-00396
WATERWAY: Kobuk, Alatna and Koyukuk Rivers

This document constitutes the United States (U.S.) Department of the Army (DA), Corps of Engineers' (Corps) consideration of comments received on the DA permit application, compliance determination with the U.S. Environmental Protection Agency's (EPA) Section 404(b)(1) Guidelines (40 CFR 230; Guidelines), and the public interest review, for the Ambler Road project, under the authority delegated to the District Commander by 33 CFR 325.8, pursuant to Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act of 1899.

The Corps has reviewed the Ambler Final Environmental Impact Statement (Ambler Road FEIS) and the National Park Service Ambler Road Environmental and Economic Analysis (Ambler EEA) and incorporated the information from these documents into the following analysis.

1.0 Summary of Impacts to Waters of the U.S. (Corps)

As discussed in the FEIS, and as originally proposed, the Project (Alternative A) would permanently fill 2,059.5 acres of wetlands, 26.6 acres of open waters, and temporarily fill approximately 320 acres of wetlands along 211 miles of proposed gravel industrial road. Approximately 77,004 linear feet of streams would be permanently impacted and 324,115 linear feet of stream channel temporarily impacted by the Project. A total of 11,065,464 cubic yards of permanent and 50,440 cubic yards of temporary fill material was proposed to be discharged into WOTUS, including wetlands, during construction activities.

2.0 Project Design Revisions

The proposed Project (Alternative A) was modified in a revised permit application dated February 5, 2020. The revised permit reduced the width of the road by 12 feet, eliminating 1 of 2, 12-foot-wide driving lanes and constructing to Phase 2 standards (a single 12-foot-wide driving lane with 2, 4-foot-wide shoulders), further avoiding and minimizing impacts to WOTUS. The revised application also reduced the amount of material sites requested. These sites included only those containing a maintenance station or a communications tower. Other material

sites may be required to complete road construction. If additional material sites are required, the Applicant would request authorization for those in a separate permit. The total project elements requested under the February 5, 2020, application include the discharge of fill for the road, 15 material sites and access roads, 4 maintenance stations, 12 communication towers, 3 aircraft landing strips, and a fiber optic cable. As a result of the revisions from the original proposal identified in the previous section, the Project would permanently fill 1,431 acres of wetlands and 0.5 acre of open water with 8,460,218 cubic yards of fill material. Approximately 250,435 linear feet of stream channel would be permanently impacted. The proposed Project would also temporarily impact 333.6 acres of wetlands and 0.1 acre of open water with approximately 50,190 cubic yards of fill material, and indirectly impact 17,187 acres of wetlands due to dust deposition. Approximately 110.5 acres of the permanent impacts to wetlands would be within the Kobuk Preserve, GAAR.

3.0 U.S. Army Corps of Engineers Purpose and Need

Basic Project Purpose and Water Dependency

Pursuant to 40 CFR 230.10(a)(3), the Corps has defined the basic Project purpose as: To provide transportation access to the Ambler Mining District to support mineral exploration and development. The proposed activity does not require access or proximity to or siting within a special aquatic site to fulfill its basic purpose. Therefore, the activity is not water dependent. The Corps has determined that practicable alternatives that do not involve special aquatic sites are not available to the Applicant due to the abundance of wetlands within the Project area.

U.S. Army Corps of Engineers Overall Project Purpose

The overall project purpose is used for evaluating practicable alternatives to the Applicant's preferred alternative under the Section 404(b)(1) guidelines and must be specific enough to define the Applicant's needs, but not so restrictive as to preclude all discussion of alternatives (33 CFR 325, Appendix B 9 b(4)). Defining the overall project purpose is the responsibility of the Corps, considering the public interest. However, the Applicant's needs must be considered in the context of the desired geographic area of the development, and the type of project being proposed. Consistent with this responsibility, the Corps has defined the overall Project purpose as: To provide year round surface transportation access for mining exploration and development in the Ambler Mining District.

4.0 PUBLIC NOTICE OF DA PERMIT APPLICATION

A Public Notice was issued on September 13, 2019 and expired on October 15, 2019. A second public notice was issued on September 27, 2019 to extend the comment period to October 29, 2019.

On November 4, 2019, the Corps forwarded to the applicant all comments received on the public notice. This was followed by requests from the Corps for the applicant to respond to specific and substantive comments to the public

notices as described in the sections below. A summary of comments received and the applicant's responses are below.

4.1 Federal Agencies:

4.1.1 EPA

The EPA initiated the 404Q elevation process in their 3(a) comment letter dated October 9, 2019. The 404Q elevation process ended when EPA did not submit a 404Q 3B letter within 25 days of the 3(a) letter. The following are comments from the EPA's October 29, 2019 letter. EPA comments 3, 4, 6, 8 and 9, were forwarded to the applicant on November 13, 2019. The applicant responded to the Corps of Engineers on December 5, 2019. EPA comments 1, 2, 5, 7, 10 and 11, were forwarded to the applicant on January 10, 2020 and the Corps received responses on February 11, 2020.

EPA1, Mine as Connected Action: EPA recommends evaluating an access road for Clean Water Section 404 authorization once a mine project has been permitted, approved and financed for development to avoid unnecessary environmental impacts and losses associated with the construction of a road solely for continued exploration activities.

Applicant Response Summary: AIDEA cites the 2013, 9th Circuit Court of Appeals ruling regarding the Port Mackenzie, Alaska *(Alaska Survival v. Surface Transportation BD, 705 F. 3d 1073, 1086 (9th Cir. 2013)* project as justification for permitting the Ambler Road project without a mining proposal.

Corps Response: The Corps has determined that the Ambler Road project has independent utility from mining in the Ambler Mining District (Corps memo titled POA-2013-396 Kobuk River, evaluation of completeness under 33 CFR 325.1(d)(2), dated January 20, 2016). A full evaluation of environmental impacts in the Ambler Mining District would occur when a permit application is submitted to the Corps for mining development in the Ambler Mining District. Additionally, mining in Ambler Mining District was analyzed as an indirect effect of the Ambler Road in the Ambler FEIS.

EPA2, Alternatives: The EPA states that "the alternatives analysis should include the construction of one or more pipelines to carry fuel along the proposed road" as well as the continued access by air transportation. EPA also asked how a conclusion of compliance with the Guidelines would be reached to issue a Section 404 permit if the most desirable route as determined by the NPS (in the Ambler EEA) is not also the LEDPA.

Applicant Response Summary: AIDEA commented that the addition of a pipeline would only have a minimal reduction in truck traffic. Pipelines would increase overall impacts, because a wider footprint would be needed to bury the pipeline adjacent to the road. This would result in larger impacts at stream crossings, as

well as additional trenching and backfill, which would further disturb vegetation and increase potential for permafrost degradation; all of which were raised as key concerns during the Draft EIS review. Access by air only transportation would not meet the purpose and need for this project for a surface transportation access route to the Ambler Mining District from the Dalton Highway.

Corps Response: The Corps concurs with the applicant's response that one or more fuel pipelines would result in greater environmental impacts than transportation of fuel with vehicles along the roadway. Air transport was considered in the EIS as an alternative to a road and was eliminated as a viable alternative since it did not meet the overall project purpose. Air transportation alone would not provide surface transportation for mining exploration and development, and therefore would not meet the Corps' overall project purpose, nor BLM's project purpose and need. The proposed project includes design of air strips in support of construction activities, maintenance and operation of the road and facilities. Any alternative chosen by the NPS would remain a practicable alternative. Any other route through the Park would become not practicable. ANILCA required the Park Service to dedicate a road right-of-way across the Western (Kobuk River) unit of the Gates of the Arctic National Preserve for access to the Ambler Mining District. (ANILCA Title II Sec 201(4)(d)(ii)). All other requirements of the 404(b)(1) guidelines would remain the same.

EPA2a, Evaluating Potential Effects of Discharges of Dredged or Fill Material:
The EPA commented that the current record likely underestimates the extent, magnitude and permanence of the adverse effects of the proposed discharge of dredged or fill material to WOTUS.

Applicant Response Summary: AIDEA describes in the administrative record how the design team overstated rather than underestimated the magnitude and permanence of possible adverse effects of the proposed discharge of dredged or fill material to the aquatic environment.

Corps Response: The FEIS discloses the direct, indirect, and cumulative effects of the discharge of fill material to WOTUS. Effects for the portion of the proposed Road going through Gates of the Arctic is also evaluated in the Ambler EEA. For example, secondary effects from fugitive dust extend 100 meters on both sides of the roadway. All perennial streams are assumed to contain populations of fish and likely also anadromous species. Since the DEIS was published, the FEIS was modified by the BLM to describe the magnitude, duration, and likelihood of the impacts of the proposed project, including impacts to WOTUS. Furthermore, the Corps' evaluation categorized the impacts from the road to WOTUS and fish resources as permanent.

EPA3, Wetland Mapping: EPA recommends that AIDEA complete a wetland validation assessment to determine the precision and accuracy of the current wetland mapping efforts.

Applicant Response Summary: AIDEA submitted information regarding wetlands data collection and wetland delineations, including quality control of wetlands field information and any corrections, the methodology used for mapping wetlands, and coordination with the Corps.

Corps Response: The Corps reviewed and approved the applicant's desktop mapping approach (DOWL memo dated December 7, 2018, titled Wetland Classification for the Communities Route and the AIDEA Preferred Alternatives) that has been implemented in the DEIS for the communities route (Alternative C) and the AIDEA preferred alternatives (Alternatives A and B), to include the eastern 50 mile reroute (Alternative A and B) (email from Corps to applicant on December 17, 2019). The applicant used publicly available aerial imagery services to delineate habitat types based on landscape position, water sources, vegetation structure, and topography. Creation of habitat boundary polygons were at one inch equals 1,000 feet. This created polygons at a minimum of 0.25 acre in size. The wetland mapping for the alternatives also used high resolution aerial photography, National Wetland Inventory mapping when available and USGS National Hydrological Dataset. The Hydrology (1:63,360 scale) was used to identify streams that were too small to map. The stream was measured if possible, and buffered by 2.5 feet on each side to create a stream polygon. If the stream was too small to measure, then a 3-foot wide polygon was created.

The Corps reviewed the 2014 wetland delineation, which used 2012/2013 data sheets, together with DOWL's data corrections. The Corps determined that the field based wetland delineation, with corrections, is in compliance with requirements of the 1987 Wetland Delineation Manual and Alaska Regional Supplement, and is acceptable. No additional field work would be required of the applicant to complete the delineation (email from Corps to applicant on December 17, 2019). However, the final design phase would include obtaining LiDAR on the easternmost 50 miles of the corridor and conducting further field studies to identify additional drainages and to avoid and minimize the impacts to wetlands and aquatic resources to the extent practicable. Additionally, the applicant would be required to identify cross drainage culvert locations in the field. Additional discussion of wetlands data is contained in the response to comment TOASF1, below.

Stream Locations and Crossings, EPA4: EPA recommended the applicant provide updated information on the location of small streams and the estimated number of culverts of each size necessary, prior to issuance of the DA permit.

Applicant's Response: "It should be clarified that the 2014 wetland delineation used aerial photography, LiDAR, and fieldwork to map streams as small as 2-foot

wide for the entire corridor in its initial alignment. The easternmost 50 miles of the initial alignment were subsequently shifted to the north. LiDAR was not available for the desktop delineation of the revised easternmost 50-mile alignment, but the rest of the remaining 160 miles of the corridor includes mapping of streams 2-foot wide and larger."

"The preliminary design used LiDAR to determine the size of culverts for each crossing:

- Major culverts for streams 10 to 20 feet wide
- Moderate culverts for streams 4 to 10 feet wide
- Minor culverts for streams up to 3 feet wide"

"The final design phase would include obtaining LiDAR on the easternmost 50 miles of the corridor and conducting further field studies to identify additional drainages and avoid and minimize the impacts to wetlands and aquatic resources to the extent practicable; and confirm the size and location of culverts needed, including small culverts needed to maintain natural flow patterns in wet areas. As noted in the application and DEIS, culverts would be placed where needed to maintain hydrologic connectivity to minimize effects on drainage patterns."

Corps Response: The applicant mapped streams using USGS Hydrography Dataset (1:63,360 scale) to identify streams less than 12-foot wide that were not easily identifiable by aerial imagery. Measureable streams were buffered by 2.5 feet on both sides of the polyline to create stream polygons. USGS Topographic maps (1:63,360 or 1:24,000) were used to understand topographic relief, drainage patterns and other natural features with contours ranging from 10 to 20 feet. The applicant was able to use information from prior field work on the project to inform their mapping of the eastern 50 miles for the corridor because the aerial signatures were similar.

Before the start of construction, the applicant would be required to collect additional stream data to further refine sites where culverts would be required. The applicant would also be required to design culverts to enable adequate fish passage and stream continuity to include passage of sediment and woody material up to the 100-year flood stage. All cross drainage culvert locations would be identified and marked in the field. Additionally, the applicant modified 20 moderate to large culverts to bridges instead, which would ensure hydrologic connectivity and minimize effects on drainage patterns.

EPA5, Essential Fish Habitat: The EPA recommends that AIDEA provide additional information regarding Essential Fish Habitat. The lack of data on salmon presence limits the ability to evaluate the impacts on EFH and salmon.

Applicant Response Summary: AIDEA believes that additional fish studies are not needed in order to assess potential impacts to essential fish habitat (EFH).

AIDEA cites field studies that were completed within the corridor and are available on AIDEA's AMDIAP website at **ambleraccess.org/reports**. Information from these studies, the state's Anadromous Waters Catalog, and LiDAR provide sufficient information on fish presence and stream gradient and flow that assumptions can easily be made about which streams are considered EFH. In the absence of fish presence data, anadromous fish were conservatively assumed to be present in streams with suitable habitat. Where habitat is appropriate, EFH is assumed.

AIDEA states the project must comply with ADF&G Title 16 fish habitat permits which require stream simulation culverts or bridges for fish stream crossings. The ADF&G permit stipulations would require that culverts do not become barriers to fish movement or stream connectivity. AIDEA is proposing to construct stream simulation culverts on all streams that the ADF&G believes may have fish habitat and additional hydrology studies would be done during the final design phase, in order to ensure proper design of fish stream culverts.

Corps Response: Chum and Chinook salmon presence is fairly ubiquitous in the project area especially in the eastern half within the Koyukuk watersheds. At least one of these species can be found in almost all major drainages in the project area. The habitat preferences, and life histories of these species are generally well known and documented. Project specific information regarding salmon presence and habitat were based on a variety of sources including recent field surveys in the project area, published reports, and data and input from fish biologist experts, traditional local knowledge, cooperating agencies, and public comments from local communities (EIS, Public Comments and Public Scoping Meeting Minutes). EFH is managed by the National Marine Fisheries Service, whom provided EFH Conservation Recommendations that have been incorporated into this permit evaluation and would become permit conditions, if issued and as applicable (see Section 7.10 below) Additionally, the applicant is conservatively assuming that streams with fish contain EFH, and AIDEA is proposing to construct stream simulation culverts on all streams that the ADF&G believes may have fish habitat, resulting in a minimization of impacts to fish habitat and fish passage.

EPA6, Material Sites: The EPA states that it is not clear how much investigation of these material sites has occurred to determine if 1) there are sufficient material volumes, 2) if they contain naturally occurring asbestos or acid or metal leaching rock, and 3) if they have been located to avoid and minimize impacts to WOTUS.

Applicant Response Summary: AIDEA states that they would "conduct geotechnical investigations to support final design and to determine the potential for encountering acid rock drainage (ARD) and naturally occurring asbestos (NOA) and to guide avoidance. To minimize the potential for airborne asbestos, AIDEA would follow the Alaska Department of Transportation & Public Facilities' (DOT&PF's) interim guidance (DOT&PF 2012a) and standards for NOA material

use (17 AAC 97). AIDEA would avoid asbestos containing materials if practicable. AIDEA would not use any asbestos containing materials with over 0.1 percent asbestos. Areas with sulfide minerals (potential for ARD) would be avoided in both the road alignment and material sites, to the maximum extent practicable. AIDEA would follow guidance in 11 AAC 97.240 to minimize the potential for ARD. AIDEA intends to minimize the potential for exposure of the sulfide materials to water to the maximum extent practicable where it would not be possible to completely avoid such materials."

Corps Response: The Corps' permit would require the applicant to use fill material that does not contain contaminants in toxic amounts. Appendix N outlines potential BLM design features to avoid and minimize impacts from air born asbestos due to the project. To avoid road cuts and use of materials with the potential for ARD, corrosion testing would be required during geotechnical investigation for the road and material sites (FEIS; Appendix N). The Corps would require AIDEA to provide a protocol for determining when alternative locations would be needed to avoid areas containing potential for ARD, and if avoidance is not possible, how cut material and drainage would be handled (FEIS Appendix N) as part of the permit conditions, if issued.

Loss of Functions and Values, EPA7: The EPA states that because no functional assessment method was consistently applied, there is no meaningful way to compare the functional losses among the alternatives, and to determine the LEDPA and meaningful compensatory mitigation.

Corps Response: The implementing regulations do not require that a functional assessment be used to evaluate a permit application nor to determine compensatory mitigation. The Corps determined that there is sufficient information in the permit application and the Ambler Road FEIS to make meaningful comparisons among alternatives, determine a LEDPA, evaluate mitigation, and make a permit decision.

EPA8a, Secondary and Cumulative Impacts: The draft EIS does not sufficiently evaluate the cumulative impacts so that the Corps can determine the nature and degree of impacts of the proposed discharge on the aquatic environment.

*Applicant Response: "*The Draft EIS includes reasonable and practicable predictions, and a very detailed summary of potential indirect and cumulative impacts in every resource section in Chapter 3. Appendix H also includes a detailed analysis for indirect and cumulative impacts covering four reasonably foreseeable mine development projects (Arctic, Bornite, Sun, and Smucker). Chapter 3 sections on Mining, Access, and Other Indirect and Cumulative Impacts and Appendix H address the potential for adverse effects from reasonably foreseeable activities, including an increased risk of spills, changed surface and groundwater drainage patterns, increased air emissions and fugitive

dust emissions, loss of vegetation and wetlands, and many other issues. There appears to be ample evaluation of potential cumulative impacts on the aquatic environment."

Corps Response: The Corps has determined that the information in the permit application, and the Ambler Road FEIS provides adequate detail regarding past, present and reasonably foreseeable future actions to make reasonable predictions of the cumulative impacts to the environment. Review of 404(b)(1) and public interest review factors is found within Sections 6.0 and 7.0 of this document. Determination of cumulative effects on the aquatic ecosystem is located in Section 6.1.8 of this document. See also NAB2 below.

EPA8b: The EPA requested more information regarding the types of activities that would cause temporary impacts to WOTUS.

Applicant Response summary: AIDEA clarified that the temporary impacts at stream crossings were overestimated and determined by measuring a distance upstream and downstream of culverts and bridges, and that these impact areas were scaled to the size of the culvert or bridge (ranging from 5 feet for minor culverts to 200 feet for medium and large bridges).

Corps Response: Temporary impacts associated with the discharge of fill material in WOTUS would mainly be the disturbance to wetlands and vegetation along 10-foot wide work areas along both sides of the road; and temporary work areas associated with access for installation of culverts and bridges and other structures. Based on the revised permit application submitted February 5, 2020 the project would temporarily disturb 333.6 acres of wetlands and 0.1 acre of open water. The discharge of fill material within the culverted stream crossings are considered to be permanent impacts.

EPA8c: The EPA recommends that fugitive dust modeling occur and be used to refine the magnitude and extent of fugitive dust deposition and subsequent impacts to wetlands and surface waters for each alternative, to estimate the secondary impacts to aquatic resources.

*Applicant Response: "*We do not believe that modeling of dust deposition is required to evaluate the potential effects from fugitive dust. Recent EISs and CWA Section 404 permits for projects involving new gravel road construction (e.g., Nanushuk EIS) have not required modeling of fugitive dust, but rather, used existing data and studies to come up with a predicted dust shadow of 328 feet. This is based on peer-reviewed studies of dust distribution on the Dalton Highway, which indicate that dust distribution decreases with distance from the road, with the majority of dust fall (about 95% of the total load) occurring within approximately 328 feet of the road (Auerbach et al. 1997; Myers-Smith et al. 2006; Walker and Everett 1987). Everett (1980) also observed that early

snowmelt brought about by dust accumulation on the winter snow extends between 98 to 328 feet on either side of the road."

"The DOT&PF reports that annual average daily traffic (AADT) volumes on the Dalton Highway range from 140 to 350 for various Dalton Highway segments. The cumulative effects analysis in Appendix H of the Draft EIS estimated AMDIAP AADTs at up to 168 with full operation of four mines. We would posit that the information from the Dalton Highway studies is sufficient and the effects analogous in terms of potential dust deposition extent and magnitude along AMDIAP."

"References:

- Auerbach, N. A., M. D. Walker, and D. A. Walker. 1997. Effects of roadside disturbance on substrate and vegetation properties in Arctic tundra. Ecological Applications 7(1):218–35.
- Everett, K. R. 1980. Distribution and properties of road dust along the northern portion of the Haul Road. Pages 101–28 [In] J. Brown, editor. Environmental engineering and ecological baseline investigations along the Yukon River-Prudhoe Bay Haul Road U.S. Army Cold Regions Research and Engineering Laboratory, Report 80-19, Hanover, NH.
- Myers-Smith, I. H., B. K. Arnesenm, R. M. Thompson, and F. S. Chapin, III. 2006. Cumulative impacts on Alaskan Arctic tundra of a quarter century of road dust. Ecoscience 13(4):503–10."
- Walker, D. A., and K. R. Everett. 1987. Road dust and its environmental impact on Alaska taiga and tundra. Arctic and Alpine Research 19:479–89."

Corps Response: Additional study of the effects of fugitive dust are not warranted given the available information in the permit application and Ambler Road FEIS. The information regarding fugitive dust impacts are sufficient to make meaningful comparisons among alternatives, determine the LEDPA and to make a permitting decision.

EPA8d: The EPA recommends that potential impacts (such as frost heaving, pot-holing, and ponding) to the roadway from road performance deficiencies caused by thermal instability be quantified based on impacts known from roads constructed in similar environments such as the Dalton Highway to gain a more comprehensive understanding of the long-term and secondary impacts on permafrost and the surrounding environment.

Applicant Response: "It is generally only the organic-rich, ice-rich, or poorly drained soils that are susceptible to subsidence and erosion due to permafrost degradation. The Draft EIS (Appendix D, Table 2) states that 78% percent (3,510 acres) of Alternative A crosses mountainous terrain underlain by continuous permafrost (low potential for thaw-sensitive soils) and 22 percent (1,014 acres) crosses lowland/upland areas with higher potential for thaw-sensitive soils.

Similarly, the 2011 Geotechnical Memorandum estimated 137 miles of the corridor crossed good soils with low potential for thaw-sensitive soils and 42 miles crossed poor soils with high potential for thaw-sensitive soils. Thus, the majority of the corridor, based on the data in the record, does not cross thaw-sensitive soils where minor changes in permafrost depth would lead to detrimental impacts on the road or environment."

"Once more geotechnical data is available, AIDEA would take measures based on engineering and best practices (including the experience of DOT&PF from its operations of the Dalton Highway) during the design and construction to address the specific regions where subsurface soils are at greater risk from permafrost degradation. For example, the pioneer road depth can be increased and/or rigid foam insulation board (RFIB) incorporated into the embankment over areas of thaw-sensitive soils. Construction phasing can also be dictated to begin construction of full-depth embankment over thaw-sensitive soils early in the construction process."

Corps Response: AIDEA has incorporated several techniques into their design that would minimize impacts to permafrost soils. For example, the collection of upstream runoff in ditches would be minimized to reduce the effects of diverting surface waters to adjacent drainage ways, maintain existing flow patterns and quantities, and reduce the potential for permafrost degradation. The applicant would also use insulation in the roadway where necessary to reduce impacts to permafrost soils. The final road design would be provided to the Corps for review prior to the applicant beginning construction. Actions which would minimize impacts to permafrost soils can be found in Appendix D of this document.

EPA9, Acid Rock Drainage: The EPA recommends geotechnical investigations for acid rock drainage (ARD) for material sites; and that the acid rock drainage mitigation measures describe the methods that would be implemented to prevent acid rock drainage from cuts and material sites, and the decision process and standards for determining when acid rock drainage risks would lead to alternative locations of material sites.

Applicant Response Summary. AIDEA states that they would conduct geotechnical investigations to support final design and would determine the potential for ARD; and cuts would be avoided in areas with high potential for ARD to avoid exposure of sulfide minerals. Areas with sulfide minerals would be avoided to the maximum extent practicable. In cases where sulfide minerals cannot be avoided, the design would minimize the effects of exposure by following guidance in 11 AAC 97.240.

Corps Response: Before the final design phase and construction began the applicant would conduct additional geotechnical investigations to identify areas of potential acid rock drainage (Ambler Road FEIS, Appendix N). The results of the testing would inform which material sites should be used in order to avoid and

minimize impacts from potential ARD. The Ambler Road FEIS, Appendix N, 3.2.1 states as a potential mitigation measure: Road "cuts would be minimized in areas with high potential for acid rock drainage and also for metals leaching into waters. AIDEA would provide a protocol for determining when alternative locations would be needed to avoid ARD and if avoidance is not possible, how cut materials and drainage would be handled." In Appendix D of this JROD, the Corps would require that cuts and fill material be avoided in areas containing potential for ARD as part of the permit, if issued. If use of NOA cannot be avoided the applicant would be required to cap the material.

EPA10, Mitigation Sequence: EPA requests that additional avoidance and minimization measures be included in the permit regarding methods to protect wetlands from erosion and to maintain connectivity for aquatic resources in the project area.

Applicant Response Summary: AIDEA states the Mitigation Plan and the resubmitted CWA Section 404 permit application include additional avoidance and mitigation measures to protect wetlands and maintain hydrological connectivity. AIDEA intends to reuse overburden from material sites and would include this in the final design and reclamation plans, including the 10-foot buffer areas where palustrine emergent and scrub shrub wetlands tend to regrow relatively quickly.

Corps Response: The Corps has worked with the applicant and agencies to develop mitigative measures to avoid and minimize impacts to wetlands and stream systems. The Corps met with the applicant and agencies on February 13, 2020 to agree on mitigative measures specific to culverts that would be appropriate for the project. For example, AIDEA has committed to constructing culverts that comply with the State of Washington stream simulation culvert standards requiring culverts to be 1.2 times bankfull width plus two feet. This is a more protective standard than is currently required by Alaska Department of Fish and Game. Additionally, AIDEA would be required to develop and implement an adaptive management monitoring plan that is designed to identify and resolve potential problems at culverts. These measures would be applied throughout the entire length of the road and are listed in the special conditions (JROD Appendix G).

EPA11, Compensatory Mitigation: EPA recommends that mitigation plans containing 40 CFR 230.94(c)(2) through (c)(14) as described in the compensatory Mitigation Rule for Losses of Aquatic Resources: Final Rule (40 CFR Part 230, Subpart J) be submitted for review by the agencies prior to issuance of a permit and incorporated into the FEIS. The EPA suggest that if there appears to be a lack of appropriate and practicable compensatory mitigation option, the Corps should consider not issuing a permit for the proposed activity.

Corps Response: The Corps' regulations require that AIDEA be in compliance with the 404(b)1 Guidelines and all related regulations including 33 CFR 332 and 33 CFR 320.4 regarding mitigation. Specifically 33 CFR 320.4 states "For activities involving 404 discharges, a permit would be denied if the discharge that would be authorized by such permit would not comply with the Environmental Protection Agency's 404(b)(1) guidelines." The Corps has coordinated with federal and state agencies regarding a compensatory mitigation plan. These have included Alaska Department of Natural Resources, US Fish and Wildlife Service, National Park Service, Bureau of Land Management, Environmental Protection Agency, and DOYON. These agencies and corporations worked with the applicant to offer options for possible compensatory mitigation. The Corps has determined that mitigation in the form of avoidance and minimization is sufficient and compensatory mitigation for impacts of the proposed project is not appropriate. Mitigation is discussed in Section 5.1 of this document.

4.1.2 STATE AGENCIES:

The following are comments from the Alaska Department of Natural Resources in their letter dated October 29, 2019 to the Corps' public notice. The Corps forwarded substantive comments to the applicant on January 10, 2020. The applicant responded to the Corps on February 11, 2020.

DNR1: The DNR requested consultation with the Corps if it is determined that additional mitigation would be required for the project:

*Applicant Response: "*This letter simply requests that the U.S. Army Corps of Engineers consult with the Alaska Department of Natural Resources (DNR) if the project requires compensatory mitigation. DNR participated in the November 1, 2019 agency meeting where compensatory mitigation was discussed, and the Alaska Industrial Development and Export Authority would continue to consult with them as the Compensatory Mitigation Plan is finalized."

Corps Response: The Corps consulted with the DNR in the November 1, 2019 agency coordination meeting regarding compensatory mitigation, and during an interagency meeting on February 13, 2020 regarding mitigation measures at stream crossings. AIDEA has coordinated with the DNR in the development of the Mitigation Plan.

4.1.3 LOCAL AGENCIES:

The following are comments from the Northwest Arctic Borough (NAB) in their letter to the Corps dated October 29, 2019. The Corps forwarded the substantive comments to the applicant on December 13, 2019 and received responses from the applicant on December 30, 2019.

NAB1, Fill Material and Naturally Occurring Asbestos: "There is a lack of current environmental and geological information about asbestos risk to make informed decision on the physical environment for material sources."

Applicant Response Summary: AIDEA would be required to avoid use of material containing naturally occurring asbestos (NOA) if practicable. All material sites would be tested for NOA before material sites would be developed. AIDEA does not anticipate using materials containing NOA.

Corps Response: The Corps' permit would require the applicant to use fill material that does not contain contaminants in toxic amounts. AIDEA would need to submit a permit modification to the Corps containing geotechnical surveys and the exact location and sizes of material sites that are currently not included in the permit application. Appendix N outlines potential BLM design features to avoid and minimize impacts from air born asbestos due to the project. To avoid road cuts and use of materials with the potential for ARD, corrosion testing would be required during geotechnical investigation for the road and material sites (Ambler Road FEIS; Appendix N). The Corps would require AIDEA to provide a protocol for determining when alternative locations would be needed to avoid areas containing potential for ARD, and if avoidance is not possible, how cut material and drainage would be handled (Ambler Road FEIS Appendix N) as part of the permit conditions, if issued.

NAB2, Cumulative Impacts and Subsistence: The "DEIS does not fully address the cumulative impacts of the project including mining in the Ambler Mining District. The direct and cumulative impacts of the project do not include an analysis of the relationship of Borough residents and their dependence on subsistence resources. The NAB requests that the project should have measures to protect subsistence resources and request that the resources be treated with dignity and respect. AIDEA and contractors should participate in Alaska Native Relations Training to understand the intricacies of local traditional knowledge and how Alaska Natives treat natural resources to prosper."

Applicant Response Summary: AIDEA states the cumulative effects of the Project are discussed in the EIS in Chapter 3 and Appendix H. The EIS identifies potential mitigation measures for caribou specifically minimizing the snow bank height to allow for caribou passage and a caribou policy for the free-flow of caribou across the road. Potential measures to protect fish (including Sheefish and other whitefish species) are outlined in Appendix A of the DEIS and include fish passage culverts and bridges to mimic the natural conditions as much as possible. Impacts of the project to major sheefish and whitefish spawning areas, located 8 to 15 miles downstream of the project in the Kobuk River are not anticipated. Bridges would be constructed to not impede safe navigation for subsistence users.

Additionally, "AIDEA would require the construction contractor and employees to receive a project-specific training on local cultural practices and traditional knowledge. AIDEA would work with the NAB, Maniilaq and Tanana Chiefs Council to develop appropriate training. AIDEA intends to develop a subsistence

advisory committee and the AIDEA Board has voted to support this effort through its authorization to develop the committee (AIDEA Board Resolution G19-21). The Subsistence Advisory Committee is intended to replicate the success of the Subsistence Advisory Committee used for the Red Dog Mine." This council would be a source of local knowledge with respect to subsistence uses to ensure the road design, construction and operation do not affect subsistence activities. As such AIDEA does not anticipate that the project would result in substantive changes in caribou migration patterns, population size or access by subsistence users."

"AIDEA agrees that a thorough public process is critical to the Northwest Arctic Borough's Habitat Conservation District for protection of sheefish and whitefish spawning areas and sub-districts established as priority subsistence resource areas. AIDEA would actively participate in the public process associated with NAB zoning regulations for Habitat Conservation Districts, anticipated to begin once a corridor has been selected through the federal environmental review process."

Corps Response: Section 7.2 of this document addresses impacts and mitigation measures to protect subsistence uses. The Ambler Road FEIS, Appendix N, 3.4.7 Subsistence Uses and Resources lists potential mitigation measures for the protection of subsistence resources. These measures include the following (for a complete list of special conditions on the permit see Appendix G of this document): Road operations would not block qualified rural residents from pursuing subsistence activities. AIDEA would consult with affected communities in the subsistence working group on an ongoing basis to include road siting, and methods of construction; identification of measures to minimize impacts to subsistence users; designation of a liaison to interface with the communities; and coordination of development of monitoring plans for protection of subsistence uses. AIDEA would minimize work during times and locations when subsistence activities would occur and manage project-related aviation activities to avoid disturbances to hunters and prey species. AIDEA has also agreed to not allowing workers to use the road to access hunting and fishing. The applicant has agreed to develop a Subsistence Advisory Committee and require the construction contractor and employees to receive a project-specific training on local cultural practices and traditional knowledge as well as other measures described above, in Appendix G of this document and Appendix N of the FEIS. These actions would be included as part of the project design as measures to be voluntarily implemented by AIDEA. Further discussion of cumulative impacts and impacts to subsistence can be found within the analysis of 404(b)(1) and public interest review factors within Sections 6.0 and 7.0 of this document. Determination of cumulative effects on the aquatic ecosystem is located in Section 6.1.8 of this document. See also EPA8a above.

NAB3, Climate Change: The NAB recommends building infrastructure such as culverts and bridges with material that is environmentally friendly and to

withstand the effects of permafrost melt and changing water currents. The Borough requests that local expertise be consulted in the placing of bridges and culverts.

Applicant Response: "As noted above, fish streams crossed would require fish habitat permits from the ADF&G. ADF&G often requires specific information on the construction schedule so they can inspect the culvert installations. This permitting process would require fish passage culverts and bridges to be designed to minimize the potential for effects on fish passage and to be constructed in a manner that reduces the potential for adverse effects on fish habitat from construction activities. This could include using foam insulation under culvert locations to reduce the potential for permafrost degradation. The U.S. Coast Guard (USCG) would review and approve bridge designs."

"AIDEA would require monitoring of fish passage culvert and bridge installations while the road is in operation to provide additional attention to changing water currents and to minimize potential for adverse effects on water resources during construction and operations."

"To incorporate local knowledge into bridge and culvert design, construction, and operations, AIDEA intends to develop a Subsistence Advisory Committee and the AIDEA Board has voted to support this effort through its authorization to develop the committee. This advisory committee would be consulted during the design and construction phases of the project and this consultation would continue when the road is in operation. The Subsistence Advisory Committee is intended to replicate the success of the Subsistence Advisory Committee used for Red Dog Mine."

Corps Response: The measures described above would be incorporated into the Corps permit, if issued. AIDEA would be required to comply with culvert stream simulation standards that call for culvert widths of 1.2 times bankfull (bfw) width plus two feet. This would be a more protective measure compared to 0.9 times OHW typically required for fish passage culverts in Alaska (AIDEA letter to the Corps dated February 21, 2020; Appendix D, JROD). The culverts would also be designed to accommodate the 100-year flood flow for all moderate to major sized culverts. AIDEA would be required to implement an adaptive management plan for monitoring, maintaining and repairing culverts over the life of the road. Corrective measures would, for example, placing additional culverts, repositioning culverts, increasing culvert sizes, adding thaw lines and anchors as needed and as conditions change over the years. AIDEA has also increased the number of small bridges proposed for the project. These twenty new single span bridges would replace moderate to large culverts and improve floodplain connectivity and flow capacity at these crossing, further reducing impacts to streams, fish passage, and subsistence resources.

4.1.4. Other Public Comments:

Arctic Audubon Society's (AAS) response by email dated October 29, 2019 to Corps' Public Notice. The Corps forwarded the substantive comments to the applicant on January 10, 2020. The applicant responded to the Corps on February 11, 2020.

AAS: The DEIS fails to adequately analyze impacts to migratory bird species that would be affected by climate induced impacts and the project specific direct, indirect and cumulative effects of each alternative.

*Applicant Response: "*Impacts to birds were not raised as one of the key issues during public or agency scoping. However, the Draft Environmental Impact Statement (EIS) does address potential impacts to birds and bird habitats. The Ambler Mining District Industrial Access Project would only affect a very small portion of the abundant bird habitat in the study area. Population-level effects on avian species would not be anticipated, given the relatively small impacts on habitat from the project compared to the expansive availability of similar habitat. The Alaska Industrial Development and Export Authority's (AIDEA's) reclamation plans for material sites would also consider reclamation of material sites in a condition that would enhance bird habitat, particularly that of waterfowl. Material sites that are depleted after construction would be reclaimed in the short-term. Other material sites would be reclaimed as they are depleted over the course of the project."

"AIDEA believes the Draft Environmental Impact Statement (EIS) provides sufficient analysis of potential climate change impacts. It addresses it in the cumulative effects section for every resource topic in Chapter 3 and in Appendix H of the Draft EIS."

Corps Response: The Corps has determined that the analysis of direct, indirect and cumulative impacts to birds in the Ambler Road FEIS (Section 3.3.3 and Appendix H Section 3.4.3) and the Ambler EEA (is sufficient to make a permitting decision, including discussion regarding the impact climate change may have on birds. Section 6.3.3 of this document discusses impacts to birds.

Trustees of Alaska responded by email dated October 29, 2019 to Corps' Public Notice. Comments were provided in their document titled, *The Ambler Permitting Process is Deeply Flawed,* In Section titled *The EIS Does Not Provide an Adequate Basis for the Corps to meet its Clean Water Act or NEPA Obligations, page 172 to 202*. The Corps forwarded substantive comments to the applicant on January 10, 2020. The applicant responded to the Corps on February 11, 2020.

TOA1, Compliance with the 404(B)(1) Guidelines: "The Corps does not have sufficient information to make the factual determinations required under the

404(b)1 Guidelines. The public notice and DEIS does not show detail regarding project phases or specific information sufficient to do an analysis of the infrastructure associated with the project."

Applicant Response Summary: AIDEA states the Draft Environmental Impact Statement (EIS) and wetland delineation studies have sufficient information for the U.S. Army Corps of Engineers (USACE) to conduct their Clean Water Act (CWA) Section 404(b)(1) analysis. Cumulative effects from development of the four major prospects in the Ambler Mining District (Arctic, Bornite, Sun, and Smucker) are addressed in the Draft EIS in each resource section and in Appendix H. The SF-299 consolidated application discusses soils, hydrology, aquatic resources, and other information. The application also discusses project phasing and measures that would be taken to address potential construction and operation effects on permafrost areas and aquatic resources. A number of studies have been conducted in the conservation system units in the project vicinity as referenced in the SF-299 consolidated application submitted in June 2016 and are available on AIDEA's project website at <ambleraccess.org/reports.html>.

Corps Response: The Corps has determined that we have sufficient information in the Ambler Road FEIS and permit application to make the factual determinations under the 404(b)1 Guidelines and our public interest review factors. The factual determinations are discussed in Section 6.2 of this document.

TOA2, Impacts to Aquatic Resources: "The DEIS does not provide the information or analysis needed to adequately assess the extent and severity of the impacts to hydrology, fish habitat and stream connectivity of the project. The DEIS and public notice do not propose adequate mitigation measures that would prevent gravel material sites in floodplains and streambeds."

Applicant Response Summary: AIDEA responded that the hydrology studies conducted during the reconnaissance phase which are available on the AIDEA AMDIAP webpage provide sufficient information regarding stream gradients for purposes of this permitting effort. Potential hydrological impacts related to road construction, development of material sites, and road operations and maintenance are relatively well-known. The Draft EIS includes sufficient information with regard to potential construction and operations impacts related to flooding and maintenance (Section 3.2.5 Water Resources, pp. 3-16 to 3-28), loss of wetlands (Section 3.3.1 Vegetation and Wetlands, pp. 3-36 to 3-50), potential asbestos issues (Section 3.2.1 Geology and Soils (pp. 3-3 to 3-9), and changes to hydrological regimes of wetlands and other waters (Section 3.3.1 Vegetation and Wetlands, pp. 3-36 to 3-50 and Section 3.2.5 Water Resources, pp. 3-16 to 3-28).

Corps Response: In response to comments the Corps worked with the applicant to further avoid and minimize impacts to WOTUS, particularly with regards to stream and river crossings. The Corps held an interagency meeting on February 13, 2020 to discuss additional measures that the applicant could take to mitigate impacts to aquatic resources. From that meeting, the applicant has committed to installing culverts with widths 1.2 times the bankfull width (BFW) of the stream plus two feet as recommended in the Washington Department of Fish and Wildlife's Water Crossing Design Guidelines, 2013 (Barnard, et a., 2013). Culverts would pass the 100 year flood even flow. Channels would be crossed at the narrowest point feasible to minimize impacts to floodplains. Culvert structures would replicate natural substrate, stream slope, and flow dynamics, to provide flood capacity and reduce flow velocities. Rock or bioengineered methods would be used at inlet and outlets of culverts and at bridges to reduce erosion, sedimentation, and embankment failure. Excavated materials would not be stock piled in rivers, streams, 100-year floodplains or wetlands. All culverts would be maintained for the life of the road. Gravel and other construction materials would not be taken from streambeds, riverbeds, active floodplains or within 500' of the channel whichever is farther. No material sites would be located within an active channels and within 500' of channel (or from the active floodplain whichever is larger). These would become a requirement of the permit, if issued.

The Corps has determined that impacts to aquatic resources have been minimized to the maximum extent practicable due to the applicant's proposed standards listed above (and in Appendix N of the Ambler Road FEIS and Appendix G of this document). The Ambler Road FEIS and information provided by the applicant provides sufficient information for the Corps to assess the direct, indirect and cumulative impacts to aquatic resources, including impacts to hydrology, fish habitat and stream connectivity. For additional discussion of mitigation measures see Corps Response to EPA10 in this document. Impacts to the environment are discussed in Sections 6.0 and 7.0 of this document. Mitigation measures and special conditions to minimize impacts to fish, and wetland ecosystems are listed in Sections 5.1.1, 5.1.2 and 5.1.3 of this document.

TOA3, "The Corps Does Not Have Sufficient Information on Wetlands in the Project Area to Make a Permitting Decision":

Applicant Response Summary: AIDEA states that Alternatives A and B have been field-delineated, except for the easternmost 50 miles which was shifted to the north. A desktop delineation of the easternmost 50 miles was completed in 2016 and accepted by the USACE.

Corps Response: See Corps Response to EPA3 comment in this document for discussion of the information the Corps evaluated and approved regarding wetlands mapping for this project. The Corps has determined that there is

sufficient information in the administrative record regarding wetlands mapping to make a permitting decision. Any differences in wetlands numbers in the Corps analysis and the Ambler Road FEIS is due to the additional plan refinements during the permit evaluation process.

TOA4, Climate Change. "The DEIS does not adequately address the effects of climate change and how to mitigate for those impacts particularly the effects of permafrost degradation issues. The Corps should analyze the impacts of climate change on each alternative and determine how each alternative should be designed and how mitigation measures should be used to address impacts from climate change such as changes to hydrology and permafrost."

Applicant's response summary: AIDEA's application submittals include numerous avoidance and minimization measures. In addition, Appendix N of the Draft EIS lists Design Features, Best Management Practices (BMPs), and Potential Mitigation Measures being considered as requirements of the right-of-way (ROW) permit and other agency approvals. We assume many of those measures will be included in the CWA Section 404 permit stipulations, given that the USACE is a cooperating agency and will be signing a Joint Record of Decision (ROD). The mitigation measures included in the ROW permit and the CWA Section 404 permit are enforceable.

"AIDEA is committed to protecting permafrost to provide a stable roadway and reduce long-term maintenance and environmental impacts that would result from permafrost degradation. The proposed corridor was developed to cross soils with low potential for subsidence and erosion resulting from permafrost degradation to the greatest extent practical. While the entire corridor is generally underlain by continuous or discontinuous permafrost that does not imply the entire corridor is equally prone to subsidence and subsequent road quality deterioration resulting from minor changes in permafrost depth. Depending on soil type and ice content, permafrost may be considered thaw-stable, where foundation materials are unchanged in unfrozen condition, or thaw-sensitive (unstable), where the foundation experiences loss of strength and thaw settlement upon thawing."

Corps Response: The Ambler EEA and Ambler Road FEIS sufficiently address the impacts climate change may have on each resource, as applicable, including permafrost, within the resource sections and within the Ambler Road FEIS Appendix H, Table 3-1. The Corps has determined that this analysis is sufficient for its permit evaluation process. AIDEA stated that they are committed to protecting permafrost to provide a stable roadway and reduce long-term maintenance and environmental impacts that would result from permafrost degradation. The Corps would require special conditions to address concerns regarding permafrost degradation as part of the permit, if issued. Mitigation (avoidance, minimization and compensatory) is discussed in Sections 5.1 and 5.2 of this document.

TOA5, The applicant's proposed mitigation in the public notice is insufficient to meet the Corps' obligations with regard to compensatory mitigation and is contrary to NEPA and the 404(b)(1) guidelines:

Applicant Response Summary: AIDEA responded that "the SF-299 consolidated application addresses numerous avoidance and minimization measures. In addition, Appendix N of the Draft EIS lists Design Features, Best Management Practices (BMPs), and Potential Mitigation Measures being considered as requirements of the right-of-way (ROW) permit and other agency approvals. Fish stream culverts would be designed in accordance with stream simulation design to minimize impacts and mimic natural habitat. In addition, the SF-299 consolidated application addresses the use of additional culverts to maintain hydrologic connections and minimize impacts. The proposed corridor was developed to cross soils with low potential for subsidence and erosion resulting from permafrost degradation to the greatest extent practical."

Corps Response: Since the September 13, 2019 Public Notice and in response to comments, the applicant modified their proposed project to further avoid and minimize impacts to WOTUS. The revised permit application dated February 5, 2020, reduced the width of the road by 12 feet, eliminating one of two 12-foot wide driving lanes and constructing to Phase II standards only (a single 12-foot wide driving lane with two 4-foot wide shoulders), further avoiding and minimizing impacts to waters of the U.S. (WOTUS). The applicant also replaced 20 moderate to large culverts with small bridges.
The Corps has approved final avoidance and minimization mitigation measures as well as two voluntary water quality or fish habitat improvement projects that the applicant has committed to develop with the local communities, and implement. These measures are listed in Appendix G, Special Conditions. The Corps has determined that mitigation, in the form of avoidance and minimization, and voluntary conditions requested by the applicant is sufficient, and compensatory mitigation for the proposed project is not required.

TOA6, "The Corps Has Not Assessed the Functions and Services of Potentially Impacted Wetlands":

Applicant Response Summary: AIDEA responded that "there is currently no USACE-approved and regularly used functional assessment method for assessing large landscape scale projects in Interior Alaska. When no functional assessment is available to compare wetland impacts to wetland rehabilitation, other measures such as acres, may need to be used to quantify credits and debits (33 CFR 332.8(o)(2)). While AIDEA understands that the RGL 09-10 functional assessment is no longer being used, it still provides sufficient information for the USACE to consider the functions and values of the wetlands across the corridor, in order to assess alternatives and determine the LEDPA and to contribute to the USACE's assessment of appropriate compensatory mitigation."

Corps Response: The Corps has determined that there is sufficient information in the Ambler Road FEIS and the Ambler EEA and permit application to make a permitting decision. A functional assessment of the alternatives is not required by implementing regulations. The Mitigation determination can be found in Section 5.0 and a discussion of impacts to WOTUS can be found in Section 6.0 of this document.

TOA7, "The Corps Cannot Approve Mitigation Plans Without the Required Financial Assurance as well as the items described in paragraphs (c)(2) through (c)(14) in the Corps' Compensatory Mitigation Rule":

*Applicant Response: "*The final Compensatory Mitigation Plan would include the items described in paragraphs (c)(2) through (c)(14) in the Corps' Compensatory Mitigation Rule. In terms of financial assurance, AIDEA would be issuing a Letter of Credit or other similar legal arrangement to set aside an agreed dollar amount of AIDEA proceeds to ensure the agreed upon compensatory mitigation project is successful. This could also include setting up a reserve fund based on the issuance of bonds, for which a portion of the proceeds would be retained and invested in an escrow account to provide any needed financial assurance."

Corps Response: The Corps has approved final mitigation measures (avoidance and minimization) as well as two voluntary water quality or fish habitat improvement projects that the applicant has committed to develop with the local communities and implement. These measures are listed in Appendix G, Special Conditions. The Corps has determined that mitigation, in the form of avoidance and minimization, and voluntary conditions requested by the applicant is sufficient, and compensatory mitigation for the proposed project is not required.

TOA8: "The DEIS Provides Insufficient Cumulative and Secondary Effects Analysis of Mineral Operations":

*Applicant Response: "*We believe that the Draft EIS does include reasonable and practicable predictions based on development of four major mineral prospects in the Ambler Mining District (Arctic, Bornite, Smucker, and Sun). The Draft EIS includes a summary of potential cumulative impacts in every resource section in Chapter 3 and Appendix H includes an additional 107 pages of detailed analysis for indirect and cumulative impacts. There appears to be ample evaluation of potential cumulative impacts on the aquatic environment."

Corps Response: The Corps has determined there is sufficient information to review the cumulative, indirect and secondary effects of the project and to make compliance determinations relative to the 404 (b)(1) Guidelines, and public interest review factors and to reach a permit decision. The Corps' determination and conclusions regarding secondary and cumulative effects are in Sections 6.1.7 and 6.1.8 of this Appendix C.

TOA9, Use of Rigid Foam Insulation Board or other measures to protect permafrost soils:
"Rigid foam insulation board (RFIB) can be added to any full-depth embankment design in the EIS and result in substantial gravel reduction."

Applicant Response: The applicant anticipates that practical use of the RFIB would be underneath culverts in areas of thaw-sensitive permafrost, where the corridor crosses high-value wetlands and where a low-profile embankment would reduce the footprint. However, installing RFIB along the entire corridor as blanket strategy would add to the project cost and schedule without justifiable environmental benefits (an estimated 12 million dollars for the entire road); and would result in detrimental challenges during maintenance and reclamation.

Corps Response: The Corps concurs with the applicant that the use of RFIB throughout the entire project footprint is not practicable due to cost and would not be part of the least environmentally damaging practicable alternative. The Corps would require the applicant to determine areas where use of RFIB would be practicable and would reduce the effects of the discharge of fill into wetlands and other WOTUS, particularly underneath culverts in areas of thaw-sensitive permafrost soils and where the corridor crosses high-value wetlands where a low-profile embankment would reduce the footprint of fill. Additionally, the Corps would require the applicant to construct to the full Phase II embankment height without first building the pioneer road in areas with thaw-unstable permafrost soils and emergent wetlands. Special conditions that would be required by the Corps are listed in Appendix G. Additionally, all design features would become requirements of the permit, if issued.

Trustees of Alaska also provided comments by email dated October 29, 2019 to the Corps' Public Notice. The following comments are from a letter by Siobhan Fennessy (on behalf of the Trustees of Alaska) (TOASF) dated October 7, 2019, pages 17-21 under headings Impacts to Wetland Delineation Reports; and Wetland Functional Assessments. The Corps forwarded the substantive comments to the applicant on January 10, 2020. The applicant responded to the Corps on February 11, 2020.

TOASF1, Wetland Delineation Reports: It is not clear how the wetland acreages were determined in the wetland delineation reports in the DEIS and 404 permit application or why these estimates are different.

Applicant Response: "The 2014 wetland delineation was completed for a 68,067-acre study area (the numbers in the Siobhan Fennessy letter are correct – the study area was a 2,000-foot-wide corridor centered on the proposed road alignment and included proposed material sites, maintenance stations, etc.). Based on consultation with the U.S. Army Corps of Engineers (USACE), AIDEA has now submitted a revised Clean Water Act (CWA) Section 404 permit

application removing material sites from the permit, as it is likely that far fewer material sites would be required. This means that the evaluations done to date are conservative as to potential effects."

"The 2016 desktop delineation study was limited to the easternmost 50 miles of the project corridor, where the proposed alignment was shifted to the north. The study area included a 1,000-foot-wide corridor centered on the proposed new road alignment. This added 6,527-acres to the original study area, increasing the total project study area to 74,594 acres. This covered both Alternatives A and B. The easternmost 50 miles was mapped again in 2019 along with Alternative C during preparation of the Draft Environmental Impact Statement (EIS) to provide comparable wetland information on the three alternative corridors carried forward in the Draft EIS."

"In 2019, the USACE and the Bureau of Land Management (BLM) requested that the Alaska Industrial Development and Export Authority (AIDEA) provide desktop wetlands mapping for Alternative C, as well as expansion of the 2016 mapping to a 2,000-foot-wide corridor, in order to provide a consistent study area width for analysis of the proposed corridor and comparison of alternatives. A mapping methodology was prepared in coordination with the USACE and other agencies to guide this mapping effort for the Draft EIS. The proposed project footprint is within this study area."

Corps Response: The applicant developed a wetlands and waters desktop mapping method to enable comparisons of alternatives in the EIS. The Corps determined that this mapping methodology for the project alternatives including the eastern 50 miles is sufficient for permitting. The applicant mapped streams using USGS Hydrography Dataset (1:63,360 scale) to identify streams less than 12-foot wide that was not available by aerial imagery. Streams were buffered by 2.5 feet on both sides of the polyline to create stream polygons. USGS Topographic maps (1:63,360 or 1:24,000) were used to understand topographic relief, drainage patterns and other natural features with contours ranging from 10 to 20 feet. The applicant was able to use information from prior field work on the project to inform their mapping of the eastern 50 miles for the corridor because the aerial signatures were similar.

Because the EIS has a broader scope of analysis than the 404 Clean Water Act, the wetland quantities in the EIS need not precisely equal the wetlands evaluated in a Section 404 Clean Water Act permit application.

TOASF2, Wetland Functional Assessments: The commenter questioned the scientific validity of the wetland functional assessments and their utility in establishing mitigation requirements:

Applicant Response Summary: AIDEA states that "there is currently no USACE approved and regularly used functional assessment method for assessing large

landscape scale projects in Interior Alaska. When no functional assessment is available to compare wetland impacts to wetland rehabilitation, other measures such as acres, may need to be used to quantify credits and debits (33 CFR 332.8(o)(2)). While AIDEA understands that the RGL 09-10 functional assessment is no longer being used, it still provides sufficient information for the USACE to consider the functions and values of the wetlands across the corridor, in order to assess alternatives and determine the LEDPA and to contribute to the USACE's assessment of appropriate compensatory mitigation."

Corps Response: The Corps has determined that there is sufficient information in the EIS and permit application to make a permitting decision and, therefore, a full revised functional assessment for the entire routes for the alternatives would not be required.

5.0 MEANS TO MINIMIZE OR AVOID ADVERSE ENVIRONMENTAL IMPACT TO AQUATIC RESOURCES (40 CFR 1505.2(C), 40 CFR 1505.3, 40 CFR 230.70, SUBPART H)

5.1 Mitigation:

5.1.1 Applicant's Proposed Mitigation: See Appendix E, Ambler Mining District Industrial Access Project Mitigation Plan, Section 4.0, dated March 2020, that describes the avoidance and minimization measures proposed by AIDEA.

Additional Avoidance Measures

5.1.2 Avoidance: Additional design changes adopted by the Applicant that would further avoid impacts to wetlands include the following: The total permanent fill in wetlands was reduced from 1,900.3 acres to 1,431.0. The road width was reduced from 32 feet to 20 feet. The number of material sites requested in this permit action was reduced from 41 to 15 and material sites were eliminated from within the Gates of the Arctic National Park and Preserve. The number of medium and large culverts was reduced by 20 and replaced by single span bridges. Permafrost areas would require the highest embankment depths to minimize thermal impacts to substrates and would have side slopes of 2:1 instead of 4:1 to minimize fill and to provide greater insulation to protect permafrost. The final design would determine locations to place rigid board insulation in the road embankment, which would be appropriate to reduce the amount of fill material needed and to provide thermal protection of ice-rich permafrost. The road alignment would be refined using additional geotechnical investigations to avoid ice rich and wet substrates and soils as much as practicable. The fiber optic cable would be installed within the road embankment and attached to bridges to avoid impacts to natural substrates and soils. Drainage and stream conveyance structures would replicate natural substrate and stream slope to simulate the natural stream bottom substrates and to reduce the potential for erosion of stream bottom and banks. The project final design would provide geotechnical investigation to identify areas to be avoided due to the occurrence of naturally occurring asbestos and sulfide minerals. Dust control

measures would be used to reduce the potential for impacts to soils and substrates from settling of airborn dust.

Compensatory Mitigation:
(33CFR§320.4(r)(1), 33CFR§332.1, and 33CFR§332.3(a)(1) & (b)(3) 40 CFR 230).

5.1.3 Compensatory Mitigation Determination:
5.1.3.1 Is compensatory mitigation required? ☐ yes ☒ no

As originally proposed, the Ambler Road project would result in impacts to stream and wetland functions due to the permanent discharge of fill into approximately 1,900.3 acres of WOTUS and 324,115 linear feet of streams and temporarily impact 320 acres of WOTUS. The proposed project (Alternative A) was modified in a revised permit application dated February 5, 2020. The revised permit reduced the width of the road by 12 feet, eliminating one of two 12-foot wide driving lanes and constructing to Phase II standards only (a single 12-foot wide driving lane with two 4-foot wide shoulders) minimizing impacts to waters of the U.S.(WOTUS). It also eliminated 20 moderate and large culverts and replaced them with single span bridges. The revised application also reduced the amount of material sites requested. The sites currently requested included only those containing a maintenance station or a communications tower.

Other material sites may be required to complete road construction. If additional material sites are required the applicant would request authorization for those in a separate permit. However, a total of 40 material sites were assumed to be developed for the purposes of cumulative impacts analysis. The total project elements requested under the February 5, 2020 application include the discharge of fill for the road, 15 material sites and access roads, 4 maintenance stations, 12 communication towers, 3 air landing strips, and a fiber optic cable. The project would permanently fill 1,431 acres of wetlands and 0.5 acre of open water with 8,460,218 cubic yards fill material. Approximately 250,435 linear feet of stream channel would be permanently impacted. The proposed project would also temporarily impact 333.6 acres of wetlands and 0.1 acre of open water with about 50,190 cubic yards of fill material, and indirectly impacts 17,187 acres of wetlands due to dust deposition. Approximately 110.5 acres of the permanent impacts to wetlands would be within the Kobuk Preserve, Gates of the Arctic National Park and Preserve.

The primary wetland functions that would be impacted by the proposed discharge of fill include: fish and wildlife habitat, flood flow regulation, and maintenance of soil thermal regime. The primary stream functions that would be impacted by the proposed discharge of fill include: water conveyance, loss of substrate and structural processes, aquatic species habitat, floodplain storage, and watercourse/wetland connectivity. All mitigation measures that protect

streams and fisheries resources would also indirectly mitigate for impacts to fisheries subsistence resources.

The following table shows the direct, indirect and cumulative impacts (existing development, the Project development including direct, indirect and temporary impacts, and reasonably foreseeable future mines in the Ambler Mining District) for the proposed project, and shows cumulative impacts as a % of the watershed.

Table 1: Summary of impacts to WOTUS* as percent of HUC10 Watersheds.

Watershed Name	Total Area (acres)	AMDIAP Direct Impacts (acres)	AMDIAP Indirect Impacts (acres)	Cumulative Impacts (acres)	Cumulative Impacts Plus Indirect (acres)	Cumulative Development Plus Indirect Project Impacts in Watershed (% of area)	Watershed 5% Threshold (acres)	Indirect Impacts in GAAR (acres)
Kobuk-Selawik Rivers								
Headwaters Kobuk River	189,338.1	158.3	1,135.4	158.3	1,293.7	0.7	9,466.9	981.9
Kaluluktok Creek	131,422.8	3.2	16.7	3.2	19.9	0.0	6,571.1	16.7
Kobuk Canyon-Kobuk River	244,095.0	123.9	1,047.9	148.7	1,196.6	0.5	12,204.8	1,047.9
Reed River	234,980.8	133.6	382.7	133.6	516.3	0.2	11,749.0	73.8
Beaver Creek	188,015.1	131.5	1,128.1	968.5	2,096.6	1.1	9,400.8	N/A
Selby River	105,131.7	92.9	586.1	92.9	679.0	0.6	5,256.6	N/A
Outlet Mauneluk River	203,399.8	264.3	1,866.1	264.3	2,130.4	1.0	10,170.0	N/A
Kogoluktuk River	283,740.8	301.1	1,391.6	314.0	1,705.6	0.6	14,187.0	N/A
Shungnak River	148,507.5	198.4	649.6	2,852.6	3,502.2	2.4	7,425.4	N/A
Outlet Ambler River	238,387.6	71.5	245.8	1,304.6	1,550.4	0.7	11,919.4	N/A
Subtotal	*N/A*	*1,478.8*	*8,449.9*	*6,240.7*	*14,690.6*	*N/A*	*N/A*	2,120.3
Koyukuk River								
Marion Creek-Middle Fork Koyukuk River	244,148.8	259.7	1,124.6	1,156.7	2,281.3	0.9	12,207.4	N/A
Michigan Creek-Wild River	181,051.9	37.3	279.3	82.3	361.6	0.2	9,052.6	N/A
Malamute Fork John River	123,892.5	34.6	369.2	34.6	403.8	0.3	6,194.6	N/A
Timber Creek-John River	224,691.9	147.7	1,117.8	215.7	1,333.5	0.6	11,234.6	N/A
Harriet Creek-Koyukuk River	100,351.2	178.2	1,155.2	391.8	1,547.0	1.5	5,017.6	N/A
Middle South Fork Koyukuk River	168,062.7	111.2	433.5	322.8	756.3	0.5	8,403.1	N/A
Tobuk Creek	63,419.7	29.7	290.8	29.7	320.5	0.5	3,171.0	N/A
Malamute Fork Alatna River	155,071.5	227.3	1,726.0	227.3	1,953.3	1.3	7,753.6	N/A
Helpmejack Creek-Alatna River	214,441.7	208.2	1,410.2	208.2	1,618.4	0.8	10,722.1	N/A
East Fork Henshaw Creek	151,269.3	210.2	830.6	223.7	1,054.3	0.7	7,563.5	N/A
Subtotal	*N/A*	*1,444.5*	*8,737.2*	*2,892.8*	*11,630.0*	*N/A*	*N/A*	*N/A*
Total	**N/A**	**2,923.3**	**17,187.1**	**9,133.5**	**26,320.6**	**N/A**	**N/A**	**N/A**

* Cumulative impacts include: existing development, the Project development including direct, indirect and temporary impacts, and reasonably foreseeable future mines in the Ambler Mining District

Wetlands are spread out across 60 percent of the road footprint and thaw-sensitive permafrost soils are spread out across 22 percent of the road footprint. Due to the distribution of wetlands and stream crossings throughout the road corridor, avoidance of all impacts to WOTUS is not practicable. The impacts from the Ambler Road project are distributed along the entire length of the road across twenty 10-digit HUCs.

The percent of each watershed directly impacted, including cumulative impacts, ranged from 0 to 1.5% (See table 1, above). Even if the percentage of cumulative (including indirect) impacts to the watershed were tripled, no watershed would exceed 5% impervious area due to fill, which is cited as a percent of the watershed with impervious area at which impairment in some watershed functions is detected (Ourso and Fenzel, 2003). The estimated percent areas in Table 1 include indirect effects of dust from the road. Dust can impact wetland functions, but it does not create impervious area. It is the total amount of impervious area the Ourso and Fenzel studied. They found watershed started exhibiting impairments to watershed function once the impervious area neared or exceeded 5%.

Additionally, the applicant has committed to mitigation measures that would result in significant minimization of impacts to important functions such as hydrology, fish habitat, erosion control, and maintenance of soil thermal regime. In response to comments received on the public notice regarding impacts to subsistence access and subsistence resources, the applicant has volunteered additional mitigation measures (see measures 19-22 below).

The following list of mitigation measures (avoidance and minimization) would be required as part of the project plans or as special conditions of the permit (complete list located in Appendix G of the JROD):

To reduce total impacts:

- The applicant withdrew their request for the two-lane Phase III road, limiting the construction to the dimensions of the one-lane Phase II road. The applicant changed 20 minor to major culvert crossings to one lane single span bridges and four minor culverts were upgraded to moderate/major culverts. In addition to the originally proposed bridges, the following bridges and culvert upgrades would be required in the design, as part of the permit:

Location of Culverts Proposed to be Changed to Bridges

Type	Lat	Long
Mod Culvert to Small Bridge	67.071877	-150.384334
Mod Culvert to Small Bridge	67.078887	-150.354724
Minor Culvert to Small Bridge	67.061486	-151.179185
Major Culvert to Small Bridge	67.045897	-151.327056
Minor Culvert to Mod/Major Culvert	67.025924	-151.994371
Major Culvert to Small Bridge	67.025095	-152.132817
Major Culvert to Small Bridge	67.091941	-152.772354
Major Culvert to Small/Medium Bridge	67.063247	-153.796113
Major Culvert to Small Bridge	67.012455	-154.452184
Major Culvert to Small Bridge	67.017534	-154.492931
Major Culvert to Small Bridge	67.029101	-154.934643
Moderate Culvert to Small Bridge	67.027785	-154.953343
Major Culvert to Small Bridge	67.02327	-155.073227
Major Culvert to Small Bridge	67.012886	-155.568651
Mod Culvert to Small Bridge	67.025543	-155.6521
Minor Culvert to Mod/Major Culvert	67.01889	-155.824145
Major Culvert to Small Bridge	67.016434	-156.442824
Mod Culvert to Small Bridge	67.027921	-156.402418
Mod Culvert to Small Bridge	67.025308	-156.515552
Mod Culvert to Small Bridge	67.018104	-156.655509
Major Culvert to Small Bridge	67.058764	-156.713006
Minor Culvert to Mod/Major Culvert	67.100459	-156.822455
Mod Culvert to Small Bridge	67.142567	-157.031966
Minor Culvert to Mod/Major Culvert	67.15359	-157.042002

Mitigative measure to minimize impacts to streams, floodplains, and fish habitat:

- Culvert widths shall be 1.2 times the bankfull width of the stream plus two feet as recommended in the Washington Department of Fish and Wildlife's Water Crossing Design Guidelines, 2013. Culverts in fish-bearing streams shall be designed to maintain a natural channel and substrates to maintain a natural stream bed character. This embedded stream simulation design shall maintain fish passage by retaining the natural steam slope, meander, and water velocity and depth patterns similar to the natural (undisturbed) stream reaches upstream and downstream of the culvert location."

Rationale: This condition would mitigate impacts to streams and fish habitat. This condition is included to ensure fish passage for all species and life stages of fish and other aquatic organisms, and to maintain natural hydrological connections

and morphological character of the stream channel and adjacent wetlands and floodplains to the maximum extent practicable(40 CFR 230 and 33 CFR 320).

Discussion: Installing appropriately sized culverts that maintain natural stream characteristics and accommodate flow to the 100 year flood event is the most effective way to minimize impacts to streams due to roads with culverted stream crossings. The applicant has committed to installing culverts with widths 1.2 times the bankfull width (BFW) of the stream plus two feet as recommended in the Washington Department of Fish and Wildlife's Water Crossing Design Guidelines, 2013 (Barnard, et a., 2013). This culvert size is more protective to stream channels than 0.95*Ordinary High Water (OHW) standard found in the MOU between the Alaska Department Of Transportation (DOT) and the state Fish and Game (Alaska MOU). Culverts in fish-bearing streams, and in streams assumed to be fish bearing, shall be designed to maintain a natural channel, substrates and banks to maintain a natural stream bed character. This embedded stream simulation design will maintain fish passage by retaining the natural steam slope, meander, and water velocity and depth patterns similar to the natural (undisturbed) stream reaches upstream and downstream of the culvert location. Additionally, the applicant has changed 20 stream crossings from moderate to large culverts to single span bridges, further reducing impacts to hydrology and fish passage. This would result in a reduction of 2,572 linear feet of stream impacts. These measures would also reduce impacts from maintenance during the life of the road.

- Final cross-drainage culvert locations shall be determined during final design and staked in the field. Existing (natural) drainage patterns shall be maintained throughout all construction and operation periods by the installation of culverts in all authorized fill areas in sufficient number and size to prevent ponding, dewatering, water diversion between watersheds, or concentrating runoff flows and to ensure that hydrology is not altered.

- Stream crossings shall preserve floodplain connectivity to the greatest extent possible.

- Overflow culverts would be at the same grade level as the floodplain, and placed to match the flood-flow patterns in the floodplain.

- Permafrost stabilization measures shall include features to minimize the disruption of groundwater flow though the active layer to protect groundwater-fed wetlands such as fens.

- Culverts installed for sheet-flood connectivity shall be marked so they can be easily inspected to ensure their intended functions.

- Excavated materials shall not be stockpiled in rivers, streams, 100-year floodplains or wetlands.

- Material sites shall be located outside of active channels and active floodplains. A 500' buffer around all streams shall be maintained, within which no material site or access road to a material site could be located.

- Where it is practicable, a 100-foot undisturbed vegetation buffer shall be maintained along ponds, lakes, creeks, rivers or higher-value wetland (patterned fens, emergent wetlands and moss-lichen wetlands). The buffer width shall start from the edge of the riparian area associated with the waterbodies or from the edge of the higher value wetland.

- An Adaptive Management Plan (AMP) for monitoring, maintaining, and repairing culverts over the life of the road shall be developed in consultation with ADF&G and the Corps. The AMP shall include documentation of culvert locations with GPS; regular monitoring during culvert installation and through the road operations; corrective measures which would be taken if concerns are identified; and timeframes for those measures to be implemented. Corrective measures may include installation of additional culverts, increasing culvert size, adding thaw lines, adding deadman anchors or other appropriate measures. AIDEA shall use its proposed AMDIAP subsistence Advisory Committee to help in oversight of the AMP. The permittee shall prepare and submit a culvert monitoring report to the Corps for three summer seasons following completion of the fill placement for the road construction as well as at years five, and every five years after that for the life of the road. The reports shall be submitted prior to July 30 of each year. The report shall include photographs of at least 20% of the crossings to demonstrate the hydrologic conditions at spring beak-up time and post break-up (summer conditions). In addition, the report shall include photographs (and locations photographs were taken) and an evaluation of all areas where additional culverts are necessary to retain existing drainage patterns and where culvert maintenance, repair, upgrade, setting adjustments or replacement are necessary.

Rationale: This condition is included to ensure water flow through the culvert is adequate for all flows at all times without causing erosional changes the channel, including up and downstream reaches of the crossing; retain the substrate, banks and vegetation; and provide for fish passage. The natural (current condition) hydrologic regime protects water quantity and quality, vegetation, soils and fish and wildlife habitats (40 CFR 230 and 33 CFR 320).

Discussion: The development and implementation of a Culvert Adaptive Management Plan (AMP) for monitoring, maintaining, and repairing culverts over the life of the road is an additional mitigation measure that will minimize impacts to aquatic resources due to the discharge of fill for the construction of the road. The culvert AMP shall be developed in conjunction with the Corps and the Alaska Department of Fish and Game. It shall include, for example,

documentation of stream name, crossing location (culvert locations with GPS in decimal lat/long), culvert size, etc., regular monitoring during culvert installation and through the life of the road; corrective measures which would be taken if concerns were identified; and timeframes for those measures to be implemented would be established. The culvert/drainage corrective work shall be completed by freeze-up within the same summer season the drainage problems were identified. Evidence of ponding, drying, erosion of stream channel or other channel changes adjacent to authorized fill areas are indicators of necessary corrective actions. Culverts shall be marked to facilitate snow removal operations to prevent excessive deposition of snow and debris into creeks and drainage areas. Culverts shall be maintained to adequately convey surface waters and maintain fish passage throughout the life of the project (road use). Corrective measures may include replacement of existing culverts, installation of additional culverts, increasing culvert size, adding thaw lines, adding deadman anchors or other appropriate measures. AIDEA shall submit its proposed culvert AMP to the Corps for review 45 days prior to road construction, and to the Subsistence Advisory Committee to help with oversight of the culvert AMP. Appropriately placed and maintained culverts, both for flowing water, and in wet areas where cross drainage must be maintained, would minimize potential impacts to aquatic resources due to the discharge of fill for the construction of the road. Properly placed and maintained culverts would reduce the potential for the impoundment of water on the upstream side of the road and the drying of the wetlands downstream of the road.

Mitigation measures to protect thaw-sensitive permafrost soils:

- The permittee shall construct the road to Phase II standard embankment depths in areas with thaw sensitive permafrost soils and in emergent wetlands, without first constructing the pioneer road.

- The collection of upstream runoff in ditches would be minimized to reduce the effects of diverting surface waters to adjacent drainage ways and reduce the potential for permafrost degradation.

- The applicant shall use insulation in the roadway where necessary to reduce impacts to permafrost soils (for example, in area of thaw-sensitive permafrost soils). These areas shall be identified prior to construction and on-site changes made during construction as necessary to protect permafrost soils. These areas shall be identified in the final design that will provided to the Corps for review prior to construction. If foam is used to insulate the permafrost from thermal degradation, it shall be composed of closed-cell extruded polystyrene or other closed cell foams (e.g., blueboard) rather than non-extruded expanded polystyrene foam.

Nutuvukti Fen protection:

- AIDEA shall design the road where it crosses upstream of Nutuvukti Fen and Nutuvukti to minimize the disruption of surface and shallow

subsurface flow though the active layer to protect hydrologic inputs to the fen and lake. Evidence of soils or vegetation drying downstream of the road, or any changes to fen or lake hydrology will be considered noncompliance with this condition.

- AIDEA shall locate the road alignment to minimize water quality impacts to Nutuvukti Fen and Nutuvukti Lake.

Rationale: These mitigation measures are required to avoid impacts to Nutuvukti Fen, an important aquatic resource (33 CFR 320.4(b)(1), 33 CFR 320.4(r)(1), and 40 CFR 230.41).

Discussion: The Nutuvukti Fen and Lake are specifically identifiable, highly functioning aquatic resources that provide important flood storage, water quality and aquatic diversity functions. No direct impacts are proposed for these resources, however, if hydrologic flow patterns were disrupted they could result in impacts to the Fen. Locating the road to ensure no disruption to surface and shallow subsurface flows across the road, and to minimize potential runoff from the road, is the primary way to ensure no impacts to the fen or lake occur.

AIDEA voluntarily agrees to incorporate the following measures into their project plan to reduce aesthetic and subsistence resource impacts:

Wild and Scenic Rivers (Kobuk River):

- Vegetative screening techniques such as willow brush layering, will be used to cover riprap areas and provide a more natural aesthetic. The Kobuk River bridge design will use brush and willow layering or use geo-cells for stabilization on steep slopes to reduce the use of riprap and promote vegetation establishment.

Rationale: AIDEA has volunteered this measure to address visual impacts in the GAAR and the Wild and Scenic Kobuk River (40 CFR 230.53 and 230.54). This measure would mitigate impacts to recreation and scenic values (33 CRF 320.4e).

Subsistence Resources:

- AIDEA voluntarily agrees to ensure the construction contractor and employees receive a project-specific training on local cultural practices and traditional knowledge. AIDEA will work with the NAB, Maniilaq and Tanana Chiefs Council to develop appropriate training.

- AIDEA voluntarily agrees to develop a subsistence advisory committee (AIDEA Board Resolution G19-21). The Subsistence Advisory Committee is intended to replicate the success of the Subsistence Advisory Committee used for the Red Dog Mine. This council would be a source of local knowledge with respect to subsistence uses to ensure the road

design, construction and operation do not affect subsistence activities. AIDEA will invite one member from the Gates of the Arctic National Park and Preserve (GAAR) Subsistence Resource Committee (SRC) to serve on the AMDIAP subsistence advisory committee to be a liaison between the subsistence advisory committee and the GAAR SRC.

- AIDEA voluntarily agrees to consult directly and regularly with affected subsistence communities, tribal governments, Alaska Native corporations, and Alaska Native non-profits (such as Tanana Chiefs Conference and Maniilaq) through a subsistence advisory committee formed by AIDEA to: a) determine measures for minimizing impacts to subsistence uses (such as placement of subsistence user crossing ramps); b) share results of road use monitoring; c) resolve potential conflicts regarding subsistence uses and road construction and operation; d) designate a project liaison dedicated to receiving feedback from subsistence communities; and e) consult with subsistence communities in the development of monitoring plans for subsistence resources.

- Prevent any road user from using the road for access to hunting or fishing.

- Incorporate abatement and wildlife interaction protocols used in the Delong Mountain Transportation System into construction and operation of the Ambler Road.

- Develop and implement a communications protocol for road users that would notify drivers of observed animal migration and movement patterns to increase the awareness of potential animal and vehicle conflicts. AIDEA will implement a caribou policy to ensure that all users of the road would make every effort to leave caribou undisturbed during migration or movement across the road. The policy will allow the road to be temporarily closed during times when caribou are migrating across the road. AIDEA will monitor caribou migration and maintain a log of herd movement. These records would be maintained and shared annually with the ADF&G.

- AIDEA voluntarily agrees to work with the local communities and stakeholders on the eastern as well as the western portion of the alignment to identify at least one water quality or fish habitat improvement project to implement on each side/end of the road.

Rationale: AIDEA has volunteered these mitigation measure to address public comments regarding impacts of the road to subsistence resources, subsistence hunters and local communities (33 CFR 320).

Conclusions:

The applicant's plan and the special conditions of the permit, which incorporates the measures discussed above, as well as others listed in Appendix G of the JROD, illustrate that the project has been designed to avoid and minimize direct and indirect impacts to WOTUS to the maximum extent practicable. Particularly; the reduction in the width of the road, the substitution of 20 single span bridges for moderate and major culverts, and the culvert design which exceeds the current Alaska standard. The applicant has also incorporated measures into their project plan to address concerns regarding the impacts of the road on subsistence resources and activities raised during the public comment period. These measures were considered and incorporated into the assessment of direct, indirect and cumulative impacts to resources due to the discharge of fill into WOTUS. The cumulative effects (existing development, the Project development including direct, indirect and temporary impacts, and reasonably foreseeable future mines in the Ambler Mining District) of the discharge of fill for the construction of the road would result in impacts to less than 5% of the total area within each of the twenty HUC 10 watersheds the project crosses. Since this percentage includes indirect impacts from dust, which does not result in impervious area, this total is conservative. Therefore, the Corps has determined that mitigation in the forms of avoidance and minimization is sufficient, and compensatory mitigation is not appropriate for the proposed Ambler Road project.

With respect to cumulative impacts to fish and other aquatic resources; the EIS found that due to reasonably foreseeable future actions including mining, major impacts to aquatic resources could occur and could include the loss of wetlands, the disruption of natural surface and groundwater interactions and processes, the reduction of essential fish habitat, particularly to Sheefish habitat, the decrease in water quantity and potential degradation of water quality, and the reduction in biodiversity and fish production. Any future projects that require a permit from the Corps of Engineers, including mining operations that impact WOTUS, would also require additional assessments of cumulative impacts, assessment of compliance with the Clean Water Act Section 404, the Rivers and Harbor Act Section 10, and the determination of the appropriateness of compensatory mitigation.

References:

Ourso, R.T. and S. A. Frenzel (2003). Identification of linear and threshold responses in streams along a gradient of urbanization in Anchorage, Alaska. Hydrobiologia. 501:117–131.

Barnard, R. J., J. Johnson, P. Brooks, K. M. Bates, B. Heiner, J. P. Klavas, D.C. Ponder, P.D. Smith, and P. D. Powers (2013). Water Crossings Design Guidelines, Washington Department of Fish and Wildlife, Olympia, Washington. http://wdfw.wa.gov/hab/ahg/culverts.htm

MOU between Alaska Department of Fish and Game and Alaska Department of Transportation and Public Facilities for the Design Permitting and Construction of Culverts for Fish Passage. August 2001.

5.1.3.6 Other Mitigative Actions (e.g. voluntary actions that exceed compensatory mitigation as needed to offset resource impacts): The applicant has voluntarily agreed to implement two water quality or fish habitat improvement projects. These projects would be developed with input from local communities and reviewed by the Corp prior to implementation. See Appendix G for the voluntary special condition addressing this action.

5.2 Mitigation Measures Required by State Agencies

ADEC's Certificate of Reasonable Assurance for the proposed action dated April 10, 2020, includes:

1. Reasonable precautions and controls must be used to prevent incidental and accidental discharge of petroleum products or other hazardous substances. Fuel storage and handling activities for equipment must be sited and conducted so there is no petroleum contamination of the ground, subsurface, or surface waterbodies.

2. During construction, spill response equipment and supplies such as sorbent pads shall be available and used immediately to contain and cleanup oil, fuel, hydraulic fluid, antifreeze, or other pollutant spills. Any spill amount must be reported in accordance with Discharge Notification and Reporting Requirements (AS 46.03.755 and 18 AAC 75 Article 3). The applicant must contact by telephone the DEC Area Response Team for Northern Alaska at (907) 451-2121 during work hours or 1-800-478-9300 after hours. Also, the applicant must contact by telephone the National Response Center at 1-800-424-8802.

3. Runoff discharged to surface water (including wetlands) from a construction site disturbing one or more acres must be covered under Alaska's General Permit for Storm Water Discharges from Large and Small Construction Activities in Alaska (AKR100000). This permit requires a Storm Water Pollution Prevention Plan (SWPPP). For projects that disturb more than five acres, this SWPPP must also be submitted to DEC Division of Water (William Ashton, 907-269-6283) prior to construction.

4. During the work on the culverts and bridges, construction equipment shall not be operated below the ordinary high-water mark if equipment is leaking fuel, oil, hydraulic fluid, or any other hazardous material. Equipment shall be inspected and recorded in a log daily for leaks. If leaks are found, the equipment shall not be used and pulled from service until the leak is repaired.
5. All work areas, material access routes, and surrounding wetlands involved in the construction project shall be clearly delineated and marked in such a way that equipment operators do not operate outside of the marked areas.

6. Natural drainage patterns shall be maintained, to the extent practicable, without introducing ponding or drying.

7. Excavated or fill material, including overburden, shall be placed so that it is stable, meaning after placement the material does not show signs of excessive erosion. Indicators of excess erosion include: gullying, head cutting, caving, block slippage,

material sloughing, etc. The material must be contained with siltation best management practices (BMPs) to preclude reentry into any waters of the U.S., which includes wetlands.

8. Include the following BMPs to handle storm water and total storm water volume discharges as they apply to the site:

a. Divert storm water from off-site around the site so that it does not flow onto the project site and cause erosion of exposed soils;

b. Slow down or contain storm water that may collect and concentrate within a site and cause erosion of exposed soils;

c. Place velocity dissipation devices (e.g., check dams, sediment traps, or riprap) along the length of any conveyance channel to provide a non-erosive flow velocity. Also place velocity dissipation devices where discharges from the conveyance channel or structure join a water course to prevent erosion and to protect the channel embankment, outlet, adjacent stream bank slopes, and downstream waters.

9. Fill placed during winter construction within wetlands that during the summer contain surface water that is connected to natural bodies of water, must be stabilized or contained in the spring prior to breakup. This action is to ensure that silts are not carried from the fill to the natural bodies of water in the spring and summer.

10. Prior to fill placement in the spring or summer, a silt fence or similar structure shall be installed on a line parallel to and within five feet of the proposed fill toe of slope within all wetland areas that contain standing water that is connected to any natural body of water or where the fill toe is within 25 feet of such a water body. This structure shall remain in place until the fill has been stabilized or contained in another manner.

11. Implement BMPs to minimize impact to thaw-sensitive permafrost soils.

12. Fill material (including dredge material) must be clean sand, gravel or rock, free from petroleum products and toxic contaminants in toxic amounts.

13. Avoid the use of naturally occurring asbestos and sulfide minerals that cause acid drainage in cut and fill areas to the greatest extent as practicable.

14. Geotechnical investigations of material sites and excavation, along the road alignment and at locations of ancillary facilities, shall include geochemical screening and testing in accordance with the recommendations of the Global Acid Rock Drainage Guide (GARD Guide), sponsored by the International Network for Acid Prevention. The project proponent shall submit a plan for 1) geochemical characterization of acid generation potential, and 2) proper handling of material for preventing and mitigating harmful impacts of acid drainage (Plan) to DEC for review and approval. Locations containing unacceptable acid generating potential (as defined in the approved Plan) shall not be disturbed. If avoidance of those areas containing unacceptable

acid generating potential material is not possible, AIDEA must follow the Plan for material handling and acid rock drainage from occurring at the site. AIDEA shall provide the DEC Division of Water (Jim Rypkema, 907-334-2288, James.Rypkema@alaska.gov) the opportunity to review and approve the draft Plan 60-days prior to groundbreaking.

15. Any disturbed ground and exposed soil not covered with fill must be stabilized and re-vegetated with endemic species, grasses, or other suitable vegetation in an appropriate manner to minimize erosion and sedimentation, so that a durable vegetative cover is established in a timely manner.

16. DEC reserves the right to modify, amend, or revoke this certification if DEC determines that, due to changes in relevant circumstances – including without limitation, changes in project activities, the characteristics of the receiving water bodies, or state water quality standards (WQS) – there is no longer reasonable assurance of compliance with WQS or other appropriate requirements of state law.

17. If your project is not completed by the time limit specified under USACE Permit and will continue, or for a modification of the USACE permit, you must submit an application for renewal of this certification at least 60 days before the expiration date or any deadline established by USACE for certification action on the modification, or 60 days before the proposed effective date of the modification, whichever is sooner.

5.3 Special Conditions of the Corps Permit

In addition, in order to comply with the 404(b)(1) guidelines, and to ensure the project is not contrary to the public interest, special conditions would be required on the Department of the Army permit. The Corps of Engineers list of required special conditions is included in Appendix G of this document.

6.0 EVALUATION OF THE DISCHARGE OF DREDGE AND FILL MATERIAL IN ACCORDANCE WITH 404(B)(1) GUIDELINES (40 CFR Section 230, Subparts B through F)

6.1 SUBPART B- Compliance with the Guidelines:

Findings of significant degradation related to the proposed discharge shall be based upon appropriate factual determinations, evaluation and tests required by subparts B and G, after consideration of subparts C through F, with special emphasis on the persistence and permanence of the effects outlined in those subparts (40 CFR 230.10(c)).

The determinations of potential short or long-term effects of proposed discharges of dredged or fill material on the physical, chemical and biological components of the aquatic environment shall include the following:

6.1.1. Physical Substrate Determinations [230.11(a), *230.20*]:
References: Ambler Road FEIS: Chapter 3.2 Physical Environment, Chapter 3.2.1 Ambler Road FEIS, Geology and Soils and 3.2.2 Sand and Gravel Resources; Map 3-1 and 3-2 Maps of Permafrost and Asbestos Potential; Appendix D Physical Environment Tables; Appendix H Indirect and Cumulative Impacts; Appendix N Potential Mitigation; NPS EEA

The proposed project would result in the permanent loss of 1,431 acres of wetland substrates and 0.5 acres of substrates below OHW and the disturbance of 1007.85 acres of upland substrates. Continuous permafrost generally less than 3 feet below the surface, typically underlies the project area. Discontinuous permafrost is also found within the project area. Permafrost substrates are discussed in Section 3.2., Geology and Soils, of the Ambler Road FEIS. Permafrost slows drainage and has formed soils and substrates with large amounts of poorly decomposed organic matter. Soils and substrates in the project area contain features from permafrost degradation such as substrate creep, thaw settlement, and slumps. Naturally occurring asbestos and sulfur containing compounds are present in the rock within the project area (EIS, Chapter 3.2.1, Map 3-2). The project would cross thousands of tributary streams as well as larger rivers containing floodplains and alluvial deposited substrates.

The construction of a roadbed overlaying permafrost soils could alter the soil thermal regime and may cause melting of permafrost, thermokarst development and erosion of organic soils, if there is not adequate insulation. Culverts alter the natural substrate characteristics in streams for the length of the culvert. Culverts and bridge structures can cause erosion of stream beds and banks, and cause debris jams. Sulfur containing rock deposits if exposed during road construction activities can cause acid drainage, mobilization of heavy metals and lowered pH levels in substrates if not avoided. Airborne dust particles originating from the roadbed fill material can settle onto snow surfaces and cause rapid melting of snow and warming of soils leading to disruption of the soil thermal regime, thermokarst development, and the alteration of soil chemistry. Disturbance of substrates can expose naturally occurring asbestos particles into the air.

All Avoidance and Minimization Measures are outlined in Section 5.1.1 and 5.1.2 of this JROD. AIDEA has agreed to minimize impacts to substrates by the following: The total permanent fill in wetlands was reduced from 1,900.3 acres to 1,431.0. The road width was reduced from 32 feet to 20 feet. The number of material sites was reduced from 41 to 15 and material sites were eliminated from within the Gates of the Arctic National Park and Preserve. Permafrost areas would require the highest embankment depth to minimize thermal impacts to substrates and would have side slopes of 2:1 instead of 4:1 to minimize fill and to provide greater insulation to protect permafrost. The final design would determine locations to place rigid board insulation in the road embankment, which would be appropriate to reduce the amount of fill material needed and to

provide thermal protection of ice-rich permafrost. The road alignment would be refined using additional geotechnical investigations to avoid ice rich and wet substrates and soils. The fiber optic cable would be installed within the road embankment and attached to bridges to avoid impacts to natural substrates and soils. Drainage and stream conveyance structures would replicate natural substrate, stream slope to simulate the natural stream bottom substrates and to reduce the potential for erosion of stream bottom and banks. The project final design would provide geotechnical investigation to identify areas to be avoided due to the occurrence of naturally occurring asbestos and sulfide minerals. Dust control measures would be used to reduce the potential for impacts to soils and substrates from settling of airborn dust.

Special Conditions to minimize impacts to the aquatic ecosystem are listed in Appendix G. With proposed design features and inclusion of special conditions including requirements for compensatory mitigation, the project would comply with this section of the guidelines.

6.1.2 Water Quality, circulation, fluctuation and salinity determinations *[*230.11(b), *230.22 -230.25*]: Also see discussion below under 6.1.7, Determination of Secondary Effects.
References: Ambler Road FEIS: Chapter 3.2 Physical Environment, Chapter 3.2.5 Water Resources; Map 3-6 Large Rivers and Lakes Hydrological Gauges; Appendix D Physical Environment Tables; Appendix H Indirect and Cumulative Impacts; Appendix N Potential Mitigation. Ambler EEA: Chapter 3 Water Quality; Chapter 3 Hydrology, Floodplains and Permafrost.

Waters within the project alignment are considered pristine and without any known sources of human caused contamination. North of the project, the Brooks Range contains the headwaters of the Koyukuk River and Kobuk River basins of which their tributary streams largely flow in a southerly direction across the project area. Thousands of tributary streams and rivulets cross the project area and provide sources of water, nutrients, sediment, fish habitat and wetland-stream connectivity. Naturally occurring asbestos can be high in some waters where there is an abundance of asbestos materials in native rock. Some river systems have naturally high levels of suspended or dissolved solids and turbidity due to seasonal glacial runoff, a dominance of peat/bog water sources, or from naturally occurring disturbances such as landslide or fire.

The construction of the road if not properly done could impact the water quality, and natural water flow patterns of wetlands and stream systems. The FEIS (Chapter 3.2.5 Water Resources) finds that the placement of fill material across the water flow gradient can block or disrupt the natural overland flow patterns of wetlands and streams causing ponding or drying and degradation of water quality. Ponding and decreases in water flow patterns can lower dissolved oxygen concentrations, and disrupt the flow of water, and nutrients, water

thermal regimes, and impact water quality. There are no marine waters in the project area and therefore, natural salinity gradients would not be impacted.

AIDEA proposes the placement of thousands of culverts and if not sized and designed properly they can constrict water flow, increase water velocities, erode stream banks and block the normal movements and migrations of aquatic organisms such as fish. Improperly placed culverts can cause excessive headcutting of stream bottom and banks that can alter the natural geomorphology of rivers. Construction activities during installation of culverts requires physically isolating portions of stream channels from the natural water flow to enable excavation, backfilling of sediment, and placement of the culvert structures in the stream channel. Such work can increase fine sediment to downstream waters and adversely affect water quality and aquatic habitats.

Use of fill materials that contain sulfur compounds can lower pH levels to excessive levels in wetlands or streams that at high enough levels could impact water quality and aquatic organisms. Fugitive airborne dust particles can accumulate in wetlands, ponds and rivers with the potential to alter water chemistry and increase heavy metals in sediments.

All Avoidance and Minimization Measures are outlined in Section 5.1.2 and 5.1.2 of this JROD. AIDEA has agreed to the following design features and best management practices to minimize impacts to water quality, circulation and fluctuations: Drainage and stream conveyance structures would be designed to replicate natural stream bottom conditions, slope, and flow dynamics, to provide flood capacity, reduce excessive flow velocities and to reduce debris closing and icing that could cause changes to hydrology. Porous rock would be placed at the base of the road embankment where necessary to allow water movement across the embankment in areas where culverts alone may not be sufficient to maintain hydrologic connectivity (for example, upstream of the Nutuvukti Fen). Culverts would be installed at appropriate spacing to maintain hydrologic connectivity where wetlands flow across the project area. Rock or bioengineered methods would be used at inlet and outlets of culverts and at bridges to reduce increases in turbidity and suspended sediment loads in waters. Best management practices would be implemented to minimize settling of airborne dust onto wetlands and other waters. The project's final design would provide geotechnical investigation to identify areas to be avoided due to the presence of naturally occurring asbestos and sulfide minerals.

Special Conditions to minimize impacts to water quality, circulation and fluctuation patterns are listed in Appendix G of this JROD. The 401 Water Quality Certification addresses water quality and would be included as part of this permit, if issued (Section 5.2). With proposed design features and inclusion of special conditions, the proposed project would comply with this section of the guidelines.

6.1.3 Suspended Particulate/Turbidity determinations [230.11(c), *230.21*]:
References: Ambler Road FEIS: Chapter 3.2 Physical Environment; Chapter 3.2.5 Water Resources; Appendix D Physical Environment; Appendix H Indirect and Cumulative Impacts; Appendix N Potential Mitigation. Ambler EEA, Chapter 3, Water Quality.

Construction activities and the discharge of fill into WOTUS for the construction of gravel road and the placement of structures in waterways could result in increased suspended sediment and turbidity in the wetlands and waterbodies. At culvert and bridge abutment locations in streams, suspended sediment and turbidity would increase where water velocities and turbulent flow patterns occur in fine grained substrates. Construction activities adjacent or within waters would remove vegetation and disturb substrates making them susceptible to erosion of fine sediments into waterways and wetlands and causing increases in suspended particles. Adjacent to the roadway, the disruption of the soil thermal regime and the formation of thermokarst landscape features could cause increase water flow that can cause erosion of fine sediments and increases in turbidity in waterways and wetlands. Fugitive dust particles would settle onto wetlands and waterways and have potential to also cause increases in fine sediment and turbidity levels in waterways.

All Avoidance and Minimization Measures are outlined in Section 5.1.1, 5.1.2 and 5.1.3 of this JROD. The primary minimization measures include the following: Drainage and culvert structures would be placed and designed to replicate natural hydrologic conditions and not cause excessive suspended sediment and turbidity. AIDEA shall implement a culvert monitoring and adaptive management plan to ensure culverts are not causing excessive suspended particulates and turbidity in water columns. Erosion control measures such as rock or bioengineering methods at stream crossings would be utilized to control excessive erosion of sediments that could contribute to higher turbidity and suspended sediment loads in waterbodies. Disturbed areas would be contoured to natural grades, topsoil and mulch would be placed as needed and areas would be reseeded. Stream banks would be revegetated using a vegetated mat, willow stakes or similar bioengineered methods to promote rapid growth of riparian vegetation where practicable. Permafrost areas would require the highest embankment depth and would have side slopes of 2:1 instead of 4:1 to minimize potential for impacting the soil thermal regime and causing increased turbidity and suspended particles associated with thermokarst.

Mitigation is described in Section 5.1.1. Special Conditions to minimize impacts to the aquatic ecosystem are listed in Appendix G. With proposed design features and inclusion of special conditions, the project would comply with this section of the guidelines.

6.1.4 Contaminant determinations [230.11(d)]:

References: Ambler Road FEIS: Chapter 3.2 Physical Environment, Chapter 3.2.1 Geology and Soils, Chapter 3.2.2 Sand and Gravel Resources, Chapter 3.2.3 Hazardous Waste, Chapter 3.2.5 Water Resources; Appendix D Physical Environment; Appendix H Indirect and Cumulative Impacts; Appendix N Potential Mitigation. Ambler EEA, Chapter 3, Water Quality.

6.1.4.1 The following information has been considered in evaluating the biological availability of possible contaminants in dredged or fill material for all alternatives: (checked boxes apply)

- ☒ Physical characteristics (receiving waters, bottom sediments, slurry constituents).
- ☐ Hydrograph in relation to known or anticipated sources of contaminants.
- ☐ Results from previous testing of the material or similar material in the vicinity of the project.
- ☐ Known, significant, sources of persistent pesticides from land runoff or percolation.
- ☐ Spill records for petroleum products or designated (§311 of CWA) hazardous substances.
- ☐ Other public records of significant introduction of contaminants from industry, municipalities or other sources. (Appendix L of the STB DEIS)
- ☒ Known existence of substantial material deposits of substances which could be released in harmful quantities to the aquatic environment by man-induced discharge activities.

The project area has had limited human or industrial activities that could have caused contamination of the environment. Contaminated sites are present near existing communities and along the Dalton Highway and Trans-Alaska Pipeline that forms the eastern boundary of the project, however, there are no known contaminated sites within the project area.

However, there are known sources of sulfur bearing rocks that could form acid drainage during construction activities. Naturally occurring asbestos is also present in gravel that could be used as fill material.

The 401 Water Quality certification requires geotechnical investigations of material sites and excavations, in accordance with the recommendations of the Global Acid Rock Drainage Guide (GARD Guide), sponsored by the International Network for Acid Prevention. This would result in the identification of, the avoidance of the use of as much as practicable, and mitigation of the use of naturally occurring acid rock drainage producing materials and protect water quality and would result in compliance with this factor.

6.1.4.2 An evaluation of the information above indicates that there is reason to believe the proposed dredged or fill material is not a carrier of contaminants, or

that levels of contaminants are substantively similar at extraction and disposal sites. The material meets the testing exclusion criteria**.**

☐ Yes ☐ No ☒ Unknown

6.1.4.3 Is the discharge site adjacent to the extraction site and subject to the same sources of contaminants, or are the materials at the two sites substantially similar?

☐ Yes ☐ No ☒ Unknown

6.1.4.4 If there is a high probability that the material proposed for discharge is a carrier of contaminants are there constraints available that are acceptable to the permitting authority, and the Regional Administrator, to reduce potential contamination to acceptable levels at the disposal site? Yes

Additional geotechnical investigations would be required prior to final location of material sites and road cuts. If ARD producing materials must be disturbed, the applicant would follow DOT& PF's measures as allowed under 17 Alaska Administrative Code 97 and described in May 14, 2015 regulations regarding the use of materials containing NOA.

All Avoidance and Minimization Measures are outlined in Section 5.1.1 and 5.1.2 of this JROD. AIDEA has agreed to implement the following measures: AIDEA would avoid the use of materials containing NOA to the greatest extent feasible. AIDEA has identified a threshold of 0.1 percent asbestos by mass as its definition of NOA materials. With proposed design features and inclusion of special conditions, the project would comply with this section of the guidelines.

6.1.5: Aquatic ecosystem and organism determinations [230.11(e)]:
References: Ambler Road FEIS: Chapter 3.3 Biological Resources; Chapter 3.2.2 Fish and Amphibians; Chapter 3.2.5 Water Resources; Chapter 3.4.7 Subsistence Uses and Resources; Appendix E Biological Resources; Appendix H Indirect and Cumulative Impacts; Appendix N Potential Mitigation; Ambler EEA.

The aquatic ecosystems in the project area are abundant, diverse and in a pristine state. The project would cross a diversity of aquatic habitats including, small and large rivers, floodplain ponds, backwaters, and side channels, small ponds and larger lakes, and a diversity of wetland types.

The project area contains habitats for 20 species of fish, including anadromous and resident fish species important in subsistence and recreational fisheries occur in the project area. Many species of fish migrate seasonally among main stem, tributary and off channel habitats to meet life history needs including spawning, rearing, feeding and overwintering habitats. Major fish species include Chinook (*Oncorhynchus tshawytscha*) and chum salmon (*Oncorhynchus keta*), sheefish (*Stendous leucichthys*), round (*Prosopium cylindraceum*), broad

(*Coregonus nasus*) and humpback (*Coregonus pidschian*) whitefishes, lake chub (*Couesius plumbeus*), Dolly Varden (*Salvelinus malma*), Arctic grayling (*Thymallus arcticus*), burbot (*Lota lota*), northern pike (*Esox lucius*), longnose sucker (*Catastomus catastomus*) and slimy sculpin (*Cottus cognatus*). Alaska blackfish (*Dallia pectoralis*) and coho salmon (*Oncorhynchus keta*) may also be found in the project area. The rivers and streams, ponds and lakes also contain aquatic invertebrates and algae that form the basis of aquatic ecosystem food webs that include a diversity of life stages and species of fishes that are highly valued by people and wildlife. Aquatic invertebrates such as chironomids, black flies, caddisflies, mayflies, stoneflies, copepods where commonly found in the diets of grayling in several rivers in the project area.

Chinook and chum salmon are widely distributed with at least one of these species using all major rivers or streams in the project area, and are considered species of concern by the Alaska Department of Fish and Game in the Yukon River basin and in western Alaska because of declining numbers since the 1990s. The road alignment would cross Henshaw Creek which is documented as important spawning habitat for chum salmon. The South Fork of the Koyukuk River is also a good producer of chum and chinook salmon. The proposed road would cross known spawning areas for Chinook salmon at the John River and Wild River road crossings. The Ambler Road FEIS, Volume 4, Map 3-17 shows known Chinook and chum spawning areas but it is likely that other spawning areas occur in the project area that have not yet been identified. Anadromous fish surveys have documented juvenile coho salmon in the Malamute Fork Alatna River and Malamute Fork John River, the Jim River and Tobuk Creek (Anadromous Fish Surveys within the Brooks East Corridor Survey Area, Alaska, ABR June 2013).

Sheefish, round, broad whitefish and humpback whitefish occur in the project area and are important subsistence use species. Whitefish and sheefish are well known to make local and long distance migrations to spawning, feeding and overwintering habitats, including between salt and freshwater estuaries. Sheefish is the largest of the whitefish species and tend to spawn in concentrated locations and only a few areas in Alaska. The mainstem Kobuk River downstream of the project area approximately 15 linear miles south from the proposed road contains a concentrated spawning area for sheefish (Ambler Road FEIS, Map 3-18). Another documented sheefish spawning habitat is in the Alatna River about 25 miles south of the proposed alignment. These spawning areas in the upper Kobuk River contain the largest spawning population of sheefish in northwest Alaska, and is considered a world-class fishery. Whitefish and sheefish spawn in relatively few areas sometimes containing mixed species. Thus impacts to spawning areas can have a large effect to populations. Due to the distance between the project and the spawning areas, the proposed project is not anticipated to impact the sheefish spawing areas.

Arctic grayling is a resident fish species and is found widely over the project area. Every perennial stream likely contains populations of Arctic grayling along the road route. Alaska blackfish are also important in subsistence fisheries and are unique in that they breath air and survive in waters low in dissolved oxygen and tolerate extreme cold temperatures. Blackfish spawn and live in vegetated backwaters, and floodplain waters where many other fish cannot tolerate due to seasonal extreme variation in dissolved oxygen concentrations and freezing.

The project is within habitat for the wood frog (*Rana sylvatica*), the only amphibian in the region.

The discharge of fill material for the road and related infrastructure has the potential to impact the aquatic ecosystem and aquatic organisms. Impacts to fish and other aquatic organism habitats and their connectivity could occur due to the construction activities associated with placement of culverts. If improperly sized or placed, culverts can block upstream movement of fish to seasonally important habitats, such as spawning and overwintering habitats, due to excessively high water velocities, or perching of culvert outlets or inlet. If not embedded into the streambed culverts can result in loss of habitat function and excessive water velocities inside culverts. Culverts can also cause excessive erosion that can damage steambanks and channel bottoms and can result in degraded aquatic habitats. Improper erosion and sediment control measures can cause sedimentation and reduced habitat functions of gravel streambeds that are important fish spawning areas and habitat for aquatic invertebrates that form the basis of aquatic food webs. Culverts, if not adequately designed or spaced can also impede water flow causing impoundment of water that can alter stream or wetland hydrology and habitats for aquatic biota.

Gravel material in the project area are known to contain sulfur minerals that can cause lowered pH levels in water in a process called acid rock drainage. Therefore, the use of gravel material for roadbed fill, if mitigative measures are not applied, can contain sulfur bearing minerals, that could lower pH levels of the water that could cause fish kills. Fugitive dust particles in the air, over time, if not controlled, can collect in wetland and other waterbodies adding fine particles that could, in excessive amounts, add turbidity, fine particulate matter and possibly heavy metals to aquatic systems that may affect sensitive stages of life forms such as fish, invertebrate or frog larvae. The use of chloride salts in water as a dust palliative could increase salinity levels over time, in shallow ponds or in wetland soils that could potentially impact aquatic life stages of organisms sensitive to such changes such as the wood frog and larval fish.

For additional discussion of impacts to the aquatic environment and mitigation measures see sections 6.1.1-Physical Substrate Determinations, 6.1.2-Water Quality, Circulation, Fluctuation and Salinity Determinations; and 6.1.3-Suspended Sediment Determinations. All Avoidance and Minimization Measures are outlined in Section 5.1.1 and 5.1.2 of this JROD. AIDEA has agreed to

exceed the typical design standards used in Alaska and to comply with the State of Washington stream simulation culvert width standards which require culvert widths of 1.2 times BFW plus two feet. AIDEA would be required to develop an Adaptive Management Plan for monitoring, maintaining and repairing culverts over the life of the road. Culverts would be designed to preserve natural stream bed characteristics. This embedded stream simulation design would promote fish passage by maintaining stream slope, meander and provide flood capacity to reduce flow velocities and changes to channel type. Culverts would be sized to reduce maintenance associated with debris and sediment blockage and icing. Porous rock would be placed at the base of the road embankment to allow water movement across the embankment in areas where culverts alone may not be sufficient to maintain hydrologic connectivity and aquatic habitats (for example upstream of Nutuvukti Fen). All perennial streams are assumed to contain fish populations. Stream banks would be revegetated using willow stakes or other bioengineering methods to promote development of riparian vegetation. The final design would include geotechnical investigation to identify and avoid ice-rich permafrost or naturally occurring asbestos. For final design of the project AIDEA would be required to do chemical and physical testing to avoid and minimize the use of sulfur containing minerals that would cause acid drainage impacts to aquatic life. AIDEA would use dust control to reduce the potential for impacts to aquatic habitats. Gravel or other rock material would not be extracted from stream channels that support aquatic habitats.

Special Conditions to minimize impacts to the aquatic ecosystem are listed in Appendix G. With proposed design features and inclusion of special conditions, the project would comply with this section of the guidelines.

6.1.6: Proposed disposal site determination [230.11(f)]: Not applicable because there is no disposal site proposed for storage of dredged materials. There is no discharge of dredged material proposed for this project.

6.1.7 Determination of Secondary Effects on the Aquatic Ecosystem [40 CFR 230.11(h)]:
References: Ambler Road FEIS: Ch. 2.4.4 Design Features, Chapter 3.2 Physical Environment, Chapter 3.3 Biological Resources; Appendix E Biological Resources; Appendix H Indirect and Cumulative Impacts; Appendix Potential Mitigation. Ambler EEA.

Discussion of impacts. The 404(b)(1) Guidelines define the secondary effects as the effects on the aquatic ecosystem that is associated with a discharge of dredged or fill material but do not result from the actual placement of the dredged or fill material. The project along its 211 mile length is anticipated to permanently fill 1,431 acres of wetlands and 0.5 acre of open water with 8,460,218 cubic yards fill material. Approximately 110.5 acres of permanent impacts to wetlands would be within the Kobuk Preserve, Gates of the Arctic National Park and Preserve. The temporarily fill would be 333.6 acres of wetlands and 0.1 acre of

open water with about 50,190 cubic yards of fill material. Approximately 250,435 linear feet of stream channel would be permanently impacted.

The secondary impacts from the discharge of fill into WOTUS include increases in air-born dust from the gravel infrastructure, impacts to permafrost and changes in the natural water flow patterns. The FEIS documents the impacts that airborne dust can have on wetlands and soils. Fugitive airborn dust can impact wetland soils and vegetation composition by increasing soil pH, changes to soil nutrients, reduced plant species richness. Fugitive dust can also cause early snowmelt by altering the albedo on snow surfaces. Early snowmelt with loss of vegetation cover can result in warming of soil, increased depth of the active layer, disruption of permafrost and the subsequent formation of thermokarst features near the road. Thermokarst features can cause increased water flow or ponding, soil erosion, sedimentation of wetlands. Fugitive dust could also contain asbestos that can affect air quality and human health. The natural hydrology, sediment routing processes, and water flow patterns can also change due to incorrect placement of culverts. Ponding of water on upslope areas adjacent to the road embankment can impact soil thermal regimes and cause melting of underlying permafrost. Ponding and water channelization can alter wetland hydrology that is the basis for wetland productivity, species diversity and functional character. Insufficient sedimentation control measures during construction and maintenance activities can increase erosion and transport and deposition of fine sediment in stream channels that can impact stream biota including fish habitats. Water withdrawals for dust control could affect availability of habitat for aquatic life especially during low water level years or winter conditions. The discharge of fill activities could result in lowering of water pH due to naturally occurring sulfur compounds within the fill material.

All Avoidance and Minimization Measures are outlined in Section 5.1.1 and 5.1.2 of this JROD. AIDEA has agreed to avoidance and minimization measures to address secondary effects (Ambler Road FEIS, Chapter 2.4.4): Airborn dust BMPs would be implemented to protect water and air quality. Permafrost areas would require the highest embankment depth to minimize thermal impacts to substrates and would have side slopes of 2:1 instead of 4:1 to protect permafrost and minimize thermokarst development. The final design would identify locations where rigid board insulation in the road embankment would be appropriate to reduce the amount of fill material needed and to provide thermal protection of ice-rich permafrost. The road alignment would be refined using additional geotechnical investigations to avoid ice rich permafrost soils and emergent wetlands. AIDEA would implement a culvert adaptive management plan to identify and remediate potential problems such as ponding and erosion. Drainage and stream conveyance structures would replicate natural substrate, stream slope, and flow dynamics, to provide flood capacity and reduce flow velocities. Sheet flow from upslope areas would be collected in shallow roadside ditches and diverted to the nearest culvert to reduce impoundments and potential for permafrost degradation. Porous rock would be placed at the base of the road

embankment to allow water movement across the embankment in areas where culverts alone may not be sufficient to maintain hydrologic connectivity (for example, upstream of Nutuvukti Fen). Rock or bioengineered bank stabilization methods would be used at inlet and outlets of culverts and at bridges to reduce erosion, sedimentation, and embankment failure. Culverts would be installed at a minimum of 150-foot spacing to maintain hydrologic connectivity where wetlands flow across the project area. The final design would provide geotechnical investigation to identify areas to be avoided due to the occurrence of naturally occurring asbestos and sulfide minerals that could cause acid rock drainage.

Special Conditions to minimize secondary impacts to the aquatic environment are listed in Appendix G. With proposed design features and inclusion of special conditions, the project would comply with this section of the guidelines.

6.1.8 Determination of Cumulative Effects on the Aquatic Ecosystem [40 CFR230.11(g)]:

References: Ambler Road FEIS: Chapter 3; Appendix E; Appendix H Indirect and Cumulative Impacts; Ambler EEA.

The 404(b)1 Guidelines define cumulative impacts as: “Cumulative impacts are the changes in an aquatic ecosystem that are attributable to the collective effect of a number of individual discharges of dredged or fill material. Although the impact of a particular discharge may constitute a minor change, in itself the cumulative effect of numerous such piecemeal changes can result in a major impairment of the water resources and interfere with the productivity and water quality of existing aquatic ecosystems.”

The project would be in the upper Kobuk River and Koyukuk River watersheds. These watersheds are considered to be in a pristine state with intact and outstanding ecological functions. This region is one of the largest undeveloped areas in North America and is known for its pristine wetlands, rivers and lakes, fish, and wildlife habitats, unspoiled fishing and hunting, and world-class wilderness backcountry services. The project area supports healthy resident and migratory fish populations that are important subsistence resources to communities in the region. The land and waters that have been developed and that would likely be developed in the near future is very low, with estimates ranging from zero to less than 1 percent at the HUC 10 watershed scale. Most of the development in these watersheds have been associated with the maintenance of the Dalton Highway, small scale placer mining, mining exploration in the Ambler Mining District, and village communities particularly Coldfoot, Wiseman, Bettles/Evansville, Shungnak, and Kobuk.

The purpose of the road is to provide surface transportation to encourage future development of large open pit mines in the Ambler Mining District. The Ambler Road project would permanently fill 1,431 acres of wetlands and 0.5 acre of open

water with 8,460,218 cubic yards fill material. Approximately 110.5 acres of permanent impacts to wetlands would be within the Kobuk Preserve, Gates of the Arctic National Park and Preserve. The temporarily fill would be 333.6 acres of wetlands and 0.1 acre of open water with about 50,190 cubic yards of fill material. Approximately 250,435 linear feet of stream channel would be permanently impacted. Indirect impacts due to dust would affect 17,187 acres of wetlands (a 100 meter area on either side of the road).

Upon future geotechnical testing, the project may require development of additional material sites and access roads along the alignment to provide material for construction of the road and support facilities. The applicant has estimated about 567 acres of wetlands would be required for an additional 26 material sites up to 142 acres in size and spaced every 5 to 10 miles along the roadway. Access roads to these material sites would require an additional fill of about 76 acres wetlands. There may also be additional construction camps, water treatment facilities, fuel storage tanks, maintenance stations, and communications facilities associated with and located within these material sites.

Within the Ambler Mining District, there are several large deposits of minerals at the Bornite, Arctic, and Sun mine sites. The first potential mine, Arctic, is expected to start production about 2028. No applications for any large mine operations have been received by the Corps. The Arctic mine is in the headwaters of the Shungnak River which drains into the Kobuk River downstream of known sheefish spawning habitat. The development of large hard rock mines in the Ambler Mining District would involve the removal of vegetation and surface soils, construction of gravel pads, access roads, mineral and water processing facilities, tailings facilities and movement of massive amounts of rock to form large open pits to extract the sought after minerals. The removal of large amounts of material would impact surface and groundwater resources resulting in lowering of groundwater levels. Water treatment facilities would operate in perpetuity beyond the life of any one mine.

The Ambler Road and future mining activities could result in construction of spur roads, and installation of fiber optics cables to nearby communities. The cumulative effects of these potential future mining developments, material sites and other likely future development in the project area are further described in the FEIS in Appendix H Indirect and Cumulative Impacts. Due to the proposed Ambler Road and the likely future development activities, the impacts to fish, aquatic invertebrates and aquatic habitats, wetland, wetland dependent species, other wildlife and subsistence uses of resources are projected to increase in the foreseeable future when compared to the existing conditions in the analysis area. The Ambler Road FEIS concludes that cumulatively (with reasonably foreseeable future impacts from mining,) very substantial, long-term impacts to fish and aquatic life and to subsistence use practices in the region may occur (Appendix H 3.4.2). The most vulnerable aquatic species may be sheefish and other whitefish species because large numbers of fish spawn in relatively small,

geographically distinct locations including downstream of the Ambler Mining District. The project would also add to the cumulative impacts to other cold water adapted species particularly Chinook salmon.

***6.1.9 Findings of compliance or non-compliance with the restrictions on discharge* [40 CFR 230.12]:**

☐ On the basis of these Guidelines (Subparts C through G), the proposed disposal site for discharge of dredged or fill material complies with the Section 404(b)(1) Guidelines.

☒ On the basis of these Guidelines (Subparts C through G), the proposed disposal site for the discharge of dredged or fill material complies with the Section 404(b)(1) Guidelines with the inclusion of the appropriate and practicable discharge conditions to minimize pollution or adverse effects to the affected aquatic ecosystem. See Section 5.3 for a list of Special Conditions.

☐ The proposed disposal site for discharge of dredged or fill material does not comply with the Section 404(b)(1) Guidelines for the following reasons:

☐ There is a less damaging practicable alternative.

☐ The proposed discharge will result in significant degradation of the aquatic ecosystem.

☐ The proposed discharge does not include all practicable and appropriate measures to minimize potential harm to the aquatic ecosystem.

☐ There does not exist sufficient information to make a reasonable judgment as to whether the proposed discharge will comply with these Guidelines

6.2 Subpart C - Potential Impacts on Physical and Chemical Characteristics of the Aquatic Ecosystem (40 CFR Section 230 Subpart C) (Note: The effects described in this subpart were considered in making the factual determinations and the findings of compliance or non-compliance in subpart B (see 6.1 above).)

6.2.1 Substrate *[230.20, required under Section 230.11(a)]* Discussion regarding specific impacts and minimization of impacts is included in the Section 6.1.1, Physical Substrate Determination.

6.2.2 Suspended particulates/turbidity *[230.21, required under 230.11(c)]* Discussion regarding specific impacts and minimization of impacts is included in the Section 6.1.3, Suspended Particulates/Turbidity Determination.

6.2.3 Water *[230.22, required under 230.11(b)]* Discussion regarding specific impacts and minimization of impacts is included in Section 6.1.2, Water Quality, Circulation, Fluctuation and Salinity Determination**.**

6.2.4 Current patterns and water circulation *[230.23, required under 230.11(b)]* Discussion regarding specific impacts and minimization of impacts is included in Section 6.1.2, Water Quality, Circulation, Fluctuation and Salinity Determination**.**

6.2.5 Normal Water Fluctuation *[230.24, required under 230.11(b)]* Discussion regarding specific impacts and minimization of impacts is included in Section 6.1.2, Water Quality, Circulation, Fluctuation and Salinity Determination**.**

6.2.6 Salinity gradients *[230.25, required under 230.11(b)]* The Ambler Road project would result in impacts to fresh waters only, and is not near any source of salt water. Therefore this issue is not applicable to this project. No impacts to salinity gradients are anticipated to occur due to the proposed project.

6.3 Subpart D - Potential Impacts on Biological Characteristics of the Aquatic Ecosystem (40 CFR Section 230 Subpart D) (Note: The impacts described in this subpart were considered in making the factual determinations and the findings of compliance or non-compliance in subpart B (see 6.1 above).)

6.3.1 Threatened and endangered species [230.30]

The BLM is the lead federal agency for ESA consultations and has determined that the described activity would have no effect on any listed or proposed threatened or endangered species and would have no effect on any designated or proposed critical habitat, under the Endangered Species Act of 1973 (87 Stat. 844) (Ambler Road FEIS). The Corps concurs with this no effect determination. Therefore, no consultation with the U.S. Fish and Wildlife Service or the National Marine Fisheries Service (NMFS) was required.

6.3.2 Fish, crustaceans, mollusks, and other aquatic organisms in the food web *[230.31]* Discussion regarding specific impacts and minimization of impacts is included in Section 6.1.5, Impacts to Aquatic ecosystem and organisms**.**

6.3.3 Other wildlife *[230.32]*

References: Ambler Road FEIS, Ch. 3.3.3, Ch. 3.3.4, Appendix E: Table 18, 19

Discussion: The discharge of 8,460,218 cubic yards (CY) of fill would result in the permanent loss of 1,431 acres of wetlands. This section concentrates on birds and the wood frog. The proposed project would result in impacts to wildlife feeding, nesting, and rearing habitat for approximately one hundred and forty one (141) avian species, including thirty four (34) species of waterbirds, seventeen (17) species of shorebirds, and five (5) species of larid gulls. Of these one hundred and forty one (141) species of birds five (5) species are currently recognized by the BLM as sensitive species and seven (7) are BLM watch list species; and ten (10) are species of conservation concern as listed by the USFWS. Although the wood frog is the only species of amphibian to occur north of the Arctic Circle and within the project area it is not of conservation concern. Changes to habitat conditions in the subarctic-arctic regions have been linked to a changing climate that could stress the long term population viability for many species.

The area contains a complex of diverse habitats including emergent, scrub/shrub, and forested wetlands, as well as upland meadows, coniferous forests, deciduous forests, and mixed forest to provide an abundant food supply, diverse nesting habitat, and a variety of resting locations for resident and migratory birds. The abundance of undisturbed habitats adjacent to the project would allow for birds and other wildlife to move into adjacent areas and thus there would likely be small to moderate and long term impact to populations. Many species of birds in the region have requirements for aquatic or riparian habitats for nesting, rearing young, or feeding. Therefore measures to avoid, minimize and compensate for unavoidable impacts to aquatic and riparian areas would also tend to be protective of the habitats needed for these species.

All Avoidance and Minimization Measures are outlined in Section 5.1.1 and 5.1.2 of this JROD. AIDEA has agreed to implement avoidance and design measures that would tend to minimize impacts to habitats that could be used by many birds, small mammals, and the wood frog by reducing fill footprints and related impacts to aquatic and riparian areas, and maintaining hydrological connectivity (JROD, Appendix G; Ambler FEIS). Some of the main avoidance and minimization measures include: maintaining a 100-foot vegetated buffer between material sites and riparian areas, where practical; revegetation of stream banks using a vegetation mat, willow stakes or similar bioengineering methods; materials would not be taken from streambeds, active floodplains, lakeshores or outlets of lakes; excavated materials would not be stockpiled in rivers, 100-year floodplains or wetlands; minimizing use of plastic materials in erosion control; the use of dust palliatives on road surfaces to reduce airborne dust; the use of quieter equipment to reduce noise levels; the use of native plant materials in restoration and reclamation areas; avoiding sloughs, ponds and lakes; minimizing impacts to riparian areas by crossing rivers at the narrowest point possible; shifting the

alignment to avoid higher value wetlands were possible; and the implementation of wildlife avoidance protocols. Special Conditions to minimize impacts to the aquatic ecosystem are listed in Appendix G. With proposed design features and inclusion of special conditions, the project would comply with this section of the guidelines.

6.4 Subpart E - Potential Impacts on Special Aquatic Sites (40 CFR Section 230 Subpart E) (Note: The impacts described in this subpart were considered in making the factual determinations and the findings of compliance or non-compliance in subpart B (see 6.1 above).)

6.4.1 Sanctuaries and refuges *[40 CFR 230.40]*
References: Ambler Road FEIS, Table 3-24

The proposed project does not enter any National Wildlife Refuge, BLM Natural Resource Area or Area of Critical Environmental Concern, or state managed wildlife management areas. The Koyukuk River and tributaries flow south to the Kanuti National Wildlife Refuge boundary that is located about 5 miles south of Bettles/Evansville in the Western half of the project area. The Koyukuk National Wildlife Refuge boundary is located approximately 10 miles south of the community of Hughes and drains the Koyukuk river watershed, but is outside the greater project area. The Selawik National Wildlife Refuge is in the western boundary of the project areas and drains portions of the Kobuk River watershed and is outside the greater project area. Several BLM Natural Resource Areas and Areas of Critical Environmental Concern are located further to the south of the proposed project area and outside the project area. (Impacts to the GAAR are discussed in Sections 6.5.3-6.5.5, below.)

Mitigation measures and special conditions designed to avoid and minimize adverse impacts to wetlands, stream systems and other waterbodies would also be protective of these sanctuaries and refuges. All Avoidance and Minimization Measures are outlined in Section 5.1.1 and 5.1.2 of this JROD. Special Conditions to minimize impacts to the aquatic ecosystem are listed in Section 5.2 and 5.3. With proposed design features and inclusion of special conditions, the project would comply with this section of the guidelines.

6.4.2 Wetlands *[40 CFR 230.41]*
References: Ambler Road FEIS, Ch. 3.3.1; Appendix E; Appendix N Potential Mitigation; Map 3-9; Ambler EEA, Ch. 3, Ch. 3, pg 19-24, Table 3, and 4.

Discussion: The project area contains an abundance and diversity of wetland types. These wetlands are associated with low lying, permafrost dominated soils, as well as riverine floodplains and riparian areas, and to a lesser extend lakes and ponds.

Black spruce and sedge-scrub peatlands occur throughout the lowlands in abandoned floodplain and valley bottoms. Forest-scrub shrub are common in lowlands especially along streams and rivers. Palustrine Scrub-shrub (PSS) and Palustrine Forest (PFO) are the most abundant wetland types. Palustrine Emergent (PEM) and Palustrine Moss-lichen (PML) wetlands are less common.

The wetlands, especially those associated with riverine floodplains and riparian areas support aquatic life such as resident and anadromous fishes, and other aquatic adapted wildlife. The abundance and variety of wetlands provide habitats for a diversity of wildlife species. Environmental Research and Services completed a functional assessment for the portion of the alignment within Gates of the Arctic National Park and Preserve. Wetland functions include fish and wildlife habitat, sediment, and contaminant removal, flood flow regulation, erosion control, groundwater discharge and recharge, organic matter production and export, rare and native plant diversity, and maintenance of soil thermal regimes. The wetlands also provide subsistence, educational, scientific and heritage services.

The discharge of 8,460,218 cubic yards of fill would result in the permanent burial of 1,431.0 acres of wetlands of which 110.5 acres of fill in wetlands would be within the Kobuk Preserve of Gates of the Arctic National Park and Preserve. There would also be approximately 333.7 acres of wetlands that would be temporarily impacted (10 wide work zone adjacent to fill area, with larger work areas around culverts. No fill is proposed for temporary work zones).

Constrictions of water flow at wetland and stream crossings can cause changes to wetland hydrology including increased drying and ponding. Ponding on upslope sides of the road can alter the wetland soil thermal regime and cause melting of permafrost, thermokarst development and erosion of wetland soils and vegetation. Indirect effects due to airborn dust would include changes in wetland functions, soil characteristics, vegetation composition and increased risk of colonization by invasive plants. These effects would occur within 328 feet (100 meters) of gravel fill. The 328-foot distance is based on scientific literature documenting the extent of greatest indirect effects to wetland vegetation through changes to wetland plant composition and changes in albedo and soil thermal regime. For example, biomass of sphagnum moss may be reduced adjacent to the roadway while graminoid species would increase. Construction and use of a road can also introduce exotic invasive species.

Within the Kobuk Preserve, the project would cross just upslope (about 1,000 feet) of Nutuvukti Fen. Nutuvukti Fen is a rare patterned fen and is one of the largest in Alaska. Nutuvukti Fen is recharged by drainage through glacial outwash soils where and provide important functions such as biodiversity and hydrological functions. Nutuvukti Fen borders Nutuvukti Lake and runoff from the fen flows directly into the lake. Construction of a road upslope of Nutuvukti fen

could cause impoundment of water that could disrupt the hydrological and biodiversity functions of the fen and also be a source of sedimentation.

All Avoidance and Minimization Measures are outlined in Section 5.1.1 and 5.1.2 of this JROD. AIDEA has agreed to avoid and minimize impacts to wetlands by the following mitigation measures (JROD Appendix G and project plans): The total permanent fill in wetlands was reduced from 1,900.3 acres to 1,431.0. The road width was reduced from 32 feet to 20 feet. The number of material sites was reduced from 41 to 15 and material sites were eliminated from within the Gates of the Arctic National Park and Preserve. The fiber optic cable would be installed within the road embankment and attached to bridges to avoid impacts to wetlands. To protect wetland hydrology and connectivity AIDEA agrees to develop and implement an Adaptive Management Plan for monitoring and maintaining culverts over the life of the road. Permafrost areas would require the highest embankment depth to minimize thermal impacts to wetlands and would have side slopes of 2:1 instead of 4:1 to protect permafrost and prevent degradation of wetlands. The final design would identify locations where rigid board insulation in the road embankment would be appropriate to reduce the amount of fill material needed and to provide thermal protection of ice-rich permafrost. The road alignment would be refined using additional geotechnical investigations to avoid thaw unstable permafrost soils. Tundra mats or other appropriate types of ground protection would be used to minimize disturbances to substrate and soil surfaces during non-winter construction. To minimize erosion of wetlands, temporary disturbed areas would be stabilized with appropriate erosion control measures and seeded with Alaska Native Seed Mix as soon as possible after final grading. The applicant would be required to do chemical and physical testing to enable avoidance and minimize use sulfur minerals that would cause acid drainage impacts to wetlands. AIDEA would use dust control to reduce the potential for impacts to wetlands from settling of airborn dust. As a potential mitigative measure the Ambler Road FEIS (Appendix N) lists that AIDEA would prepare an invasive species prevention and management plan to prevent the introduction and spread of non-native invasive species.

Special Conditions to mitigate impacts to the aquatic ecosystem by avoidance and minimization are listed in Appendix G. With proposed design features and inclusion of special conditions, the proposed project would comply with this section of the guidelines.

6.4.3 Mud Flats *[40 CFR 230.42]*

Mudflats in freshwater systems are broad flat areas in inland lakes, ponds and rivers. Mudflats are important foraging sites for shorebirds and mammals adapted to aquatic habitats such as mink, and river otter. When mudflats are inundated, the shallow water and abundant aquatic invertebrates are good nursery habitats for fish and foraging areas for waterfowl. Exposed mudflats are excellent feeding habitats for shorebirds. Freshwater mudflats have not been

documented in the project area but likely occur seasonally along the margins of lakes, ponds and slow moving rivers. Mudflats have not been specifically identified in the project area. Even so, mitigation measures that are designed to minimize impacts to substrates, wetland, river, and lake systems would also protect mudflats in these systems if they occur (this document Sections 6.1.1 6.4.2, and 6.1.5).

Considering the finding of the Ambler Road FEIS and the analysis in the JROD, the Corps has determined that the proposed project would comply with this section of the Guidelines.

6.4.4 Vegetated Shallows [40 CFR 230.43]

Vegetated shallows in freshwater systems are permanently inundated areas that under normal circumstances support communities of rooted aquatic vegetation in rivers and lakes. Vegetated shallows along shallow ponds and slow moving rivers are important spawning and nursery areas for northern pike, blackfish, and wood frogs in the project area. The vegetated lake areas can be good nesting habitats for waterfowl, grebes, and loons. Mitigation measures that are designed to minimize impacts to wetlands, river and lake systems would also protect vegetated shallows (this document Sections 6.1.2, 6.1.3, 6.1.5, and 6.4.2).

Considering the finding of the Ambler Road FEIS and the analysis in the JROD, the Corps has determined that the project would comply with this section of the Guidelines.

6.4.5 Coral Reefs [40 CFR 230.44]

There are no coral reefs in the project area, therefore, none would be affected.

6.4.6 Riffle and Pool Complexes [40 CFR 230.45]

Riffle and pool complexes are valuable habitat for fish and aquatic invertebrates by providing shallow turbulent water flow that adds dissolved oxygen, while the pools provide deeper water for summer or winter refugia and provides a diversity of riverine habitats. Riffles and nearby runs are spawning and foraging habitats for resident and anadromous fishes. Riffles are susceptible to impacts from excessive fine sediment loads that can reduce interstitial spaces between gravels, resulting in lowering of oxygen levels for aquatic life and reducing habitat complexity. Excessive sedimentation can reduce water depths in pools causing them to become shallower and lowering their functional capacity. Riffle and pool habitats have been documented in numerous rivers in the project area associated with spawning anadromous fish (Ambler Road FEIS, BLM eplanning, Appendix 2E Fish Studies). Mitigation measures that are designed to minimize impacts to substrates, aquatic ecosystems in riverine systems would also protect riffle and pool complexes (this document Sections 6.1.1, 6.1.2, 6.1.3, and 6.1.5). Considering the finding of the Ambler Road FEIS and the analysis in the JROD, the Corps has determined that the proposed project would comply with this section of the Guidelines.

6.5 Subpart F - Potential Effects on Human Use Characteristics (40 CFR Section 230, Subpart F)

(Note: The impacts described in this subpart were considered in making the factual determinations and the findings of compliance or non-compliance in subpart B (see 6.1 above).)

6.5.1 Municipal and Private Water Supplies [40 CFR 230.50]

References: Ambler Road FEIS Chapter 3.2.5 Water Resources; Appendix D, Table 16

Discussion: The nearest subsurface water supply is 4.8 miles from proposed route. The water supply for the city of Shungnak is in the Kobuk River. The City of Kobuk well is likely influenced by the water quality of the Kobuk River. Impacts to water supplies are not anticipated because known water supplies are not near the project area.

6.5.2 Recreational and Commercial Fisheries [230.51]

References: Ambler Road FEIS, Ch. 3.3.2; Volume 4: Maps 3-5, 3-6, 3-17, 3-18: Appendix E: Table 16, 17; Appendix H; 3.4.2; Appendix N; Ambler EEA

Discussion: While there are fifteen species of fish in the analysis area that can be harvested only eight species are harvested for recreational and/or commercial fisheries, these include arctic grayling, sheefish, broad, and humpback whitefish, least cisco, Dolly Varden, chum salmon, northern pike, arctic char, and lake trout. Of the fish which are harvested five species were identified as key species for sports and commercial fishing arctic grayling, sheefish, chum and Chinook salmon, and northern pike.

Recreational fishing is probably not of large magnitude due to the remote location of much of the road alignment. Sport fishing is a primary activity at Nutuvukti Lake within the Kobuk Preserve. The construction of the road upslope of Nutuvukti Lake and at stream crossings would change the current unroaded character of the area and would become part of the new fishing experience. Culverts designed to allow fish passage and bridges would minimize impacts to fish resources caught in sport and subsistence fisheries.

Commercial fisheries do not take place within the project area but occur downstream. Access to the road would be restricted at the eastern end of the road preventing the general public's use of the road. The applicant has also agreed to disallow users of the road to use the road for access to hunting and fishing. Due to the limited access it is expected that there would not be the same level of indirect impacts to recreational or commercial fish stocks as have been seen when roads have been constructed in other locations throughout Alaska. However, direct impacts from the road include the loss of habitat due to the placement of culverts, the armoring of stream banks around culverts and bridge abutments, and the placement of fill into wetlands. However, the applicant

modified their culvert design and would construct fish passage culverts with a width of two times BFW plus two feet, with a stream simulation design. This standard is more protective of streams than current Alaska State standards. This would mitigate impacts to fisheries that would be caused by undersized culverts.

Additional discussion regarding impacts to fish and aquatic habitats including those important fishery species and mitigation measures are discussed in Sections 6.1.2, 6.1.3, 6.1.5, 6.1.7, 6.1.8 of this JROD. Impacts to water related recreation and aesthetics are discussed in Section 6.5.3 and 6.5.4 of this JROD. All Avoidance and Minimization Measures are outlined in Section 5.1.1 and 5.1.2 of this JROD. Special Conditions to minimize impacts to the aquatic ecosystem are listed in Appendix G. With proposed design features and inclusion of special conditions, the project would comply with this section of the guidelines.

6.5.3 Water-related Recreation *[230.52]* **References: Ambler Road FEIS 3.4.3; Ambler EEA, page 39-43**

Float trips are fairly common on the rivers within the project area. The major rivers impacted by the proposed project are the Alatna, Ambler, John, Kobuk, North Fork Koyukuk, and the Selawik; all of which have been documented as being used by floaters. A variety of outfitters fly floaters out to the rivers to be picked up after they have floated for multiple days. All of these major rivers except the Ambler are classified as Wild and Scenic Rivers. The Kobuk River would be the only one proposed for a road crossing within a portion of its Wild and Scenic designation.

The number of visitors to the Gates of the Arctic has been fairly consistent for almost two decades. That number decreased in the last reporting year which was 2018 (9,591 visitors in 2018; 11,177 in 2017; 10,745 in 2015; 10,840 in 2010; 11,278 in 2000; 1,010 in 1990 (https://irma.nps.gov/STATS/Reports/Park). It is not known how many of the visitors recreate on the water while in the park, but it would be safe to expect 25% of them spend time on the water.

Noise disturbances for those recreating on the water during construction would occur from a variety of sources to include, blasting for riprap at material sites; use of large vehicles and equipment during transport of gravel and rock from material sites; work gravel from material sites; and activities at maintenance stations and camps where noise levels would substantially higher than the pre-project conditions. This could impact the visitor experience or cause float trips to be cancelled or postponed to a time when construction was not occurring.

Table 8 and Map 3-29 from the Ambler Road FEIS shows potentially affected common river float routes, and the lengths of the float potential of these rivers. These include rivers crossed by the proposed road such as the Kobuk River within GAAR, and the Alatna River, John River and North Fork of the Koyukuk River where the road crosses outside of GAAR.

Dowl HKM worked together with the National Park Service to identify Key Observation Points (KOPs) along the proposed route. KOPs are typically corridors or points where people are likely to gather in expectation of a particularly pleasant looking vista. Initially there were over 20 areas taken into consideration, over half were eliminated because they replicated another KOP, this left the remaining ten KOPs which are considered critical viewpoints of the road. Simulations from these KOPs indicate miles of constructed road would be visible from rivers in the project area. Numerous KOPs are located in river corridors and lakes used for recreational float trips, particularly the Alatna, John, North Fork/Middle Fork Koyukuk, and Kobuk Rivers and Walker and Nutuvukti Lakes.

Nutuvukti Lake is located within a mile of the proposed corridor and has a rental cabin with fly-in only lake access, canoes are available for water recreation (http://www.alaskawilderness.net/accommodations.html). Other large lakes in the project area would not be near the road, but the road could potentially be seen from portions of the lakes. Within GAAR, Walker Lake and Nutuvukti Lake are the main access points to the Kobuk Preserve and float trips down the Kobuk River. The impacts to water-related recreation in the Kobuk Preserve would be considered large with long term effects (NPS EES, Chapter 3, Visitor Experience). However, a majority of the water recreation in the region could occur in areas where one would not encounter roads, noise and dust from the proposed project.

Since current recreation use is low and there has already been a decline in the number of visitors, impacts involving changes in water related recreation access, setting, activities, or use levels may not be measurable or apparent. The proposed road could bring higher recognition of the park to the forefront. The proposed road corridor area would continue to be recognized for its scenic quality and the quality of the scenery would change if the project was constructed.

AIDEA has agreed to avoidance and minimization measures that would be protective of water recreational interests. AIDEA has agreed to construct bridges to minimize impacts to river flow and allow safe water passage on rivers by water craft typical for a river, such as rafts, canoes, kayaks and small motorized vessels (Ambler Road FEIS, Chapter 2.4.4). At the Kobuk River bridge in GAAR, AIDEA has agreed to provide visual screening measures with the use of willow brush layering to cover riprap and provide a more natural appearance. As an avoidance measure, AIDEA has also agreed to remove material sites from within GAAR including one near the Kobuk River bridge. In addition, the Coast Guard Bridge permit would include conditions, stipulations and BMPs to avoid and minimize adverse impacts to water navigation and provide protective measures for the safe passage of boats under bridges.

Additional discussion regarding impacts that would affect the water recreational experience and mitigation measures that can also benefit water recreational users are discussed in Sections 6.1.2 Water Quality, Circulation and Fluctuation Determination, 6.1.3 Suspended Particulate and Turbidity Determination, 6.1.5 Aquatic Ecosystem and Organism Determination , 6.1.7 Determination of Secondary Effects to Aquatic Ecosystem, 6.1.8 Determination of Cumulative Effects on the Aquatic Ecosystem, 6.5.4 Aesthetics, and 7.15 Navigation of this JROD.

Special Conditions to minimize impacts to the aquatic ecosystem are listed in Section 5.2 and 5.3. With proposed design features and inclusion of special conditions, the project would comply with this section of the guidelines.

6.5.4 Aesthetics *[230.53]*
References: Ambler EEA pages 39-43; Ambler Road FEIS

Aesthetics with regards to this factor is as stated in the 404(b)1 Guidelines, Section 230.53: “Aesthetics associated with the aquatic ecosystem consist of the perception of beauty by one or a combination of the senses of sight, hearing, touch, and smell. Aesthetics of aquatic ecosystems apply to the quality of life enjoyed by the general public and property owners.”

The discharge of fill for the construction of the road would cause long term impacts to aesthetics. The senses of sight, sound, and smell all would be impacted. The construction period would cause visual impacts: dust plumes, reflections from the sun on vehicles traveling the road, and lights from construction equipment and traffic on the road (particularly in the winter). These impacts would occur during operations of the road as well. Additionally, there would be several airports constructed, communication towers, camp facilities, and permanent equipment storage buildings for maintenance; all of which would be new features of the landscape and change visual aesthetics of the area.

The potential to view the road while traveling on Wild and Scenic Rivers would also be high from areas up in the mountains as they look out over vistas with portions of the project in view. This ability to see the road would interfere with the feeling of remoteness and the wilderness experience. Bridge structures and road traffic would materially change the visual and auditory experience.

Other auditory aesthetics impacts that would occur include: noise during the construction period due to airplanes bringing employees and supplies, blasting to dislodge rock, and heavy equipment working to extract and haul gravel. After construction is complete the noise diminished to only when vehicles utilized the roads or airstrips. Olfactory impacts would come from dust throughout construction and operations, and fumes from equipment during construction and operations.

A report from https://irma.nps.gov/DataStore/DownloadFile/583292 called *State of the Park* found that "overall, long-term projected increases in ground-based and aircraft traffic indicate a deteriorating trend in the quality of acoustic resources at this location, as does an increase in development and steady tourism pressure throughout the state of Alaska (McDowell 2014)." Sound levels would disturb aesthetics but would not be high enough to cause hearing problems.

Approximately 16 of the 26 miles of the road through the GAAR comes within one mile of the portions of GAAR designated as a 'Wilderness' area. This area would experience the greatest changes from what a wilderness area was intended to impart - a sense of solitude, which would be impeded the most during construction but also throughout operations.

Indirectly, the discharge of fill for the construction of the road would result in increased traffic on the Dalton and Elliot Highways. These highways are expected to see an additional 50% increase in current truck traffic into the Fairbanks area. An ore-trailer assembly area near the Dalton Highway could conflict with recreational use of the nearby Chapman Lake that is managed as a wildlife viewing area by the BLM.

To help mitigate effects to aesthetics from visual and noise impacts the following mitigation measures are outlined in the Ambler Road FEIS and Ambler EEA: For the entire length of the Ambler Road, AIDEA has proposed design features to include the following (Ambler Road FEIS, Chapter 2.4.4): Visual impacts would be mitigated with the use of the latest technology in dust palliatives based on studies at the UAF Transportation Center. Revegetation of fill slopes would be done with native seed and vegetation to reduce the contrast between the road and existing native landscapes. AIDEA has agreed to mitigate the impacts from human made sounds by reducing traffic speeds by 10 to 20 mph; use of quieter and newer equipment with muffler, intake silencers, noise blankets, and quieter backup alarms; placing stationary noise sources away from noise-sensitive areas; turning idling equipment off; and avoiding scraping or banging activities (Ambler Road FEIS, Chapter 2.4.4; Ambler EEA).

Appendix N of the Ambler Road FEIS (Chapter 3.4.4) lists potential mitigation measures that may be included as conditions and stipulations to reduce impacts to visual aesthetics. Some of these measure are: Implementation of a plan to use designs to minimize impacts from light fixtures, the appearance of facilities and paint colors; use localized task lighting; and incorporate measures such as diffusers, lenses and shielding to reduce nighttime glare and light radiation and backscatter into the sky; use of color, form, and textures in the design of buildings, structures and equipment to minimize the visual contrast with the natural background; minimizing construction and placing of facilities that would be visible to the public in places with special visual resource values; and blending

the road and facilities into the natural setting in high visual resource value areas such as GAAR.

Special Conditions to minimize impacts to aesthetics are listed in Appendix G. A special condition would include vegetation screening such as brush layering to cover riprap and geo-cells for stabilization of fill on steep slopes in order to also provide a more aesthetic quality at the Kobuk Bridge location within the GAAR. With proposed design features and inclusion of special conditions, the project would comply with this section of the guidelines.

6.5.5 Parks, national and historical monuments, national seashores, wilderness areas, research sites, and similar preserves *[230.54]*
References: Ambler EEA; Ambler Road FEIS 3.4.3

The project area would cross 26 miles of the GAAR as well as come within one mile of the Gates of the Arctic Wilderness Area. This would have major long term effects on both the park and the wilderness area. There are no historical monuments, national seashores, or research sites within the immediate project area. Walker Lake is a National Monument within Gates of the Arctic Wilderness area and is located about 3 miles north of the proposed Ambler Road.

ANILCA required the Park Service to dedicate a road right-of-way across the Western (Kobuk River) unit of the Gates of the Arctic National Preserve for access to the Ambler Mining District. ANILCA required that “the environmental and social and economic impact of the right-of-way including impacts upon wildlife, fish, and their habitat, and rural and traditional lifestyles including subsistence activities, and measures which should be instituted to avoid or minimize negative impacts and enhance positive impacts” be considered in the analysis identifying the right-of-way location (ANILCA Title II Sec 201(4)(d)(ii)).

The discharge of fill into WOTUS, including wetlands, for the construction of a road through the Western (Kobuk River) unit of the GAAR would degrade the values for which the GAAR was established. The discharge of fill would result in the loss and fragmentation of fish and wildlife habitat within WOTUS, and would create a source of sediment and contamination from the roadway that could impact the Kobuk River. This would indirectly impact the subsistence and wilderness recreational uses that local communities and visitors to the GAAR depend on and for which the Park was established. Traffic along the road would result in secondary impacts to WOTUS due to increases in dust deposition in wetlands adjacent to the road. The proposed project would also increase noise and impact aesthetics.

The discharge of fill for the construction of approach roads, abutments and piers associated with the bridge could degrade fisheries resources, water quality and natural flow patterns. These direct and indirect effects of the discharge of fill into

WOTUS, including the Kobuk River, would result in degradation of the GAAR's wilderness characteristics.

Putting a road through a park and within a short distance of a wilderness area would impact serenity and solitude. However, as Congress indicated, a road would likely be needed for mining purposes and so they put into legislation the capacity to do construct a road. They could have modified the boundaries of the park so that a road would not have to go through the area, but determined the best way to proceed was to allow for the development to occur at a later date in time. The construction of the road and its associated impacts is not out of alignment with what was originally identified in concept in ANILCA. Additionally, since current recreation use is low compared to other parks, impacts involving changes in recreation access, setting, activities, or use levels may not be measurable or apparent.

The Corps has determined that the project would have long term and large impacts to the Kobuk Preserve within the Gates of the Arctic National Park and Preserve. However, with the avoidance and minimization measures, the proposed project would comply with this section of the guidelines.

6.6 Subpart G – Evaluation and Testing (40 CFR Section 230, Subpart G)

This is discussed in more detail in Section 6.1.4 Contaminant determinations above. There is no reason to believe that any of the material to be discharged into WOTUS would be contaminated, with the requirement for testing for naturally occurring sulfur and asbestos containing materials.

6.7 Subpart H – Actions to Minimize Adverse Effects (40 CFR Section 230, Subpart H)

Actions to Minimize Adverse Effects, including required mitigation and permit special conditions are discussed in Section 5.0 above.

7.0 GENERAL POLICIES FOR EVALUATING SECTION 10 RHA AND 404 CWA PERMIT DECISIONS [33 CFR 320.4]:

7.1 Public Interest Review [33 CFR 320.4(a)]: The decision whether to issue a permit will be based on an evaluation of the probable impacts, including cumulative impacts, of the proposed activity and its intended use on the public interest.

The Corps has determined, after evaluation of the following general criteria (*i – iii* below) and the factors listed in Section 7.2 through 7.18, that the proposed Ambler Road project will not be contrary to the public interest, as long as all permit special conditions listed in Appendix G, and Sections 5.2 and 5.3 of this JROD are implemented.

i. **The relative extent of the public and private need for the proposed work:**

Discussion: The need for the proposed road was identified by Congress under ANILCA, which required the National Park Service to dedicate a road right-of-way across the Western (Kobuk River) unit of the Gates of the Arctic National Preserve for access to the Ambler Mining District (ANILCA Title II Sec 201(4)(d)(ii)). The proposed Ambler Road project would provide an access roadway that would benefit continued mining exploration and future mining development of copper and other minerals from the Ambler Mining District. In particular copper is a mineral that is needed in the manufacture of a variety of products including high tech electronics and products important in the renewable energy industries such as solar panels.

The construction of the road and associated facilities would provide employment opportunities and cash flow to local communities in the region and benefit their economies. Such cash flow can also benefit subsistence hunting and fishing activities by providing additional cash for purchase of gas, ammunition, snow machines, and for repair and maintenance of equipment used in subsistence activities. These economic benefits can help to alleviate food insecurity issues in the communities by providing greater diversity of food options.

The project would meet the needs of the applicant to develop the road in support of mining development of the Ambler Mining District and support the mineral needs of the nation.

ii. **The practicability of using reasonable alternative locations and/or methods to accomplish the objective of the proposed structure or work:**

Discussion: The project within the Kobuk Preserve would not be in conflict with management of the preserve because ANILCA specifically authorized an industrial road through the Kobuk Preserve in order to access the Ambler Mining District.

This project would not be in conflict with State priorities or objectives. The applicant would need to obtain the appropriate authorizations in accordance with applicable federal, state and local regulations.

The applicant has shown that there are no other practicable alternatives that would meet the purpose and need for the proposed project and be less environmentally damaging than the applicant's proposed project discussed in this JROD.

iii. **The extent and permanence of the beneficial and/or detrimental effects that the proposed structures or work may have on the public and private uses which the area is suited:**

The impacts to the environment are described in the BLM's FEIS and the Ambler EEA, as well as within this document. The road is expected to remain as long as there is mining within the Ambler Mining District, perhaps up to 50 years. After this the applicant states they would remove the road and reclaim the land. Therefore the impacts and benefits of the project would be long term. The road would leave impacts, regardless of whether it were removed and reclaimed or if it were to remain. It is unlikely that wetlands would restore to previous conditions even within several decades, if the land were to be reclaimed, although their functional capacity would increase after reclamation work.

The vast majority of the project area has evolved from natural processes over millennia and has provided food, cultural and spiritual sustenance for native peoples and highly valued wildland recreation uses for others. As described in the Ambler Road FEIS and Ambler EEA, and in this JROD, these uses of subsistence resources and wildlands would remain but would be impacted by construction activities and industrial uses of the road, including access for large scale mines in the Ambler Mining District over the long term.

7.2 General Environmental Concerns [33 CFR 320.4(a)]:

Concerns that may be addressed under general environmental concerns include those not addressed in other sections of this document. Subsistence is addressed below:

Subsistence References: Ambler Road FEIS Chapter 3.4.7 Subsistence Uses and Resources; Appendix F, Table 18; Appendix L Subsistence Technical Report

Discussion: The subsistence harvesting of wild plants and animals is basic to the cultural identity of the rural residents in the project areas for nutritional, economic, cultural and social well-being (FEIS Chapter 3.4.7). Subsistence hunting and fishing are regulated by both the State of Alaska and the federal government. The state regulates subsistence on state owned lands in Alaska.

The direct, indirect and cumulative impacts to subsistence are disclosed in the Ambler Road FEIS Chapter 3.4.7 and it was determined that effects would result in reduced harvesting opportunities and alterations to harvesting patterns (Appendix H, L and M). The Ambler FEIS states "Any changes to residents' ability to participate in subsistence activities, harvest subsistence resources in traditional places at the appropriate times and consume subsistence foods could have long-term or permanent effects on the spiritual, cultural, and physical well-

being of the study communities by diminishing social ties that are strengthened through harvesting, processing, and distributing subsistence resources, and by weakening overall community well-being." Direct and indirect effects to subsistence were also discussed in the Ambler EEA.

Twelve local communities would likely experience direct impacts to subsistence use areas, user access and resource availability (Ambler Road FEIS, 3.4.7; Appendix L). The FEIS lists the following communities that could be affected: Alatna, Allakaket, Ambler, Anaktuvuk Pass, Bettles, Coldfoot, Evansville, Hughes, Kobuk, Selawik, Shungnak and Wiseman. An additional 42 communities could be affected if there are changes to migration routes or population numbers of caribou. Caribou, moose and vegetation are subsistence resources of high importance to the majority of the communities (Appendix L, Table 42). Harvests of salmon, non-salmon fish, bear and birds eggs could be affected. These effects would be felt by a smaller proportion of local communities.

The NEPA scoping process and the Ambler Road FEIS identify caribou as a critical subsistence resource for local communities that would be impacted by the project (Ambler Road FEIS Chapter 3.3.4). The road would cross through important migratory ranges of several caribou herds of which the Western Arctic Caribou herd is the largest in Alaska (Ambler Road FEIS, Appendix L). As caribou migrate in the project area southward to overwintering areas in the fall and northbound to calving areas in the spring, a road traversing east to west could alter caribou availability to subsistence hunters in areas south of the road during the fall migration; and in areas north of the road during the spring migration period. Voluntary measures proposed by the Applicant would minimize and mitigate for effects to subsistence resources, as discussed below.

The availability of both anadromous and non-anadromous fish species were also identified as subsistence resources that could be directly affected. Particularly for the communities of Bettles, Evansville, Shungnak, Alatna, Allakaket, Kobuk, Kiana, Norvik, Hughes and Ambler. Impacts to fish resources important to subsistence users are described in more detail in this document in Section 6.1.5 (Aquatic Ecosystem and Organism Determinations) and in the Ambler Road FEIS in Chapter 3.3.2. Congregations of Sheefish and whitefish are documented to migrate from various river systems to spawn in only a few locations within the Alatna and Kobuk rivers that are located 15 downstream of the proposed road crossing (Ambler Road FEIS, Map 3-18).

The availability of chum and Chinook salmon could also be impacted by the project. The proposed road would cross streams that support spawning Chinook and chum salmon in the Upper Koyukuk River drainages (Ambler Road FEIS, Appendix L). The road would cross the Alatna River, Henshaw Creek, North Fork Koyukuk River, Wild River and the John River which contain spawning areas for salmon. As further described in section 6.1.5 of this document, the

potential impacts to fishes including those important to subsistence harvesters, include degradation of water quality, loss of spawning, rearing, and overwintering habitats, and blockage to fish movements to meet important life history needs.

To mitigate for potential impacts to fishes important in subsistence fisheries, AIDEA agrees to comply with the State of Washington stream simulation culvert standards that would design stream crossings with 1.2 times bankfull width plus two feet (AIDEA letter to Corps dated February 21, 20120). This would be an increase from the 0.9 times bankfull width in the current standards. AIDEA also agrees to develop and implement an Adaptive Management Plan for monitoring, maintaining and repairing culvert stream crossings over the life of the road. Such design standards aim to protect fish passage and habitat conditions in general in the areas that could be affected by the project. Additional mitigation measures to protect stream fish habitat is in Section 6.1.5 of this document and in special conditions listed in Appendix G of the JROD.

Other subsistence mitigation measures have been included in the design, construction, and operation of the proposed project to reduce impacts to subsistence resources and resource availability (Ambler Road FEIS Chapter 2, 2.4.4 and Appendix N). This includes that road operations would not impede qualified rural residents from engaging in subsistence activities as required by ANILCA (Public Law 96-487). The applicant has agreed to prohibit users of the road access to hunting and fishing from the road. AIDEA has proposed to develop and implement a subsistence Advisory Committee with oversight responsibilities of the Ambler Road Project during construction, operation and maintenance activities (Ambler FEIS Chapter 2, 2.4.4, and Appendix N). AIDEA would consult with affected subsistence communities on an ongoing basis to include discussing the siting, timing and methods of road construction and operations to determine appropriate road crossing locations and potentially the use of ramps at important caribou crossing locations. AIDEA would designate a project liaison dedicated to receiving feedback from the local communities. AIDEA would also consult with communities in the development of monitoring plans for subsistence resources. Additional mitigation measures that could reduce impacts to subsistence resources are listed in the Ambler Road FEIS at Chapter 2, 2.4.4, and Appendix N.

Considering the finding of the Ambler Road FEIS, the design features, special conditions, and the implementation of voluntary mitigation measures from the Applicant, the Corps has determined that the proposed project is not contrary to the Public Interest with regards to this factor.

7.3 Effects on Wetlands [33 CFR 320.4(b)]: Impacts to wetlands are discussed in Section 6.1.1, 6.1.5, 6.1.8 and 6.4.2 above.

The applicant has avoided and minimized impacts to wetlands to the maximum extent practicable. All Avoidance and Minimization Measures are outlined in

Appendix G, and Section 5.1.2 and 5.1.3 of this JROD. The Corps has determined that mitigation, in the form of avoidance and minimization is sufficient, and compensatory mitigation is not required for the unavoidable impacts to Gates of the Arctic National Park and Preserve. Special Conditions to minimize impacts to the aquatic ecosystem are listed in Appendix G. With proposed design features and inclusion of special conditions, the project would comply with this section and would not be contrary to the public interest.

7.4 Fish and Wildlife [33 CFR 320.4(c)]:
Reference: Ambler Road FEIS, Ch 2.5.12; Ch 3.3.4; Appendix A: Figure 3-1, 3-2; Appendix E: Table 19, 20, 21; Appendix F, Tables 15-20;Appendix H: 3.4.4, 3.5.7; Appendix L; Appendix N; Volume 4, Maps 3-20, 3-21, 3-22, 3-23; Ambler EEA.

Discussion: Impacts to Fish and Wildlife or habitats are also discussed in Sections 6.1.5, 6.1.8, 6.3.2 and 6.3.3 above. Fish are discuss in Section 6.1.5. Birds are discussed in Section 6.3.3. Caribou are discussed throughout the document and specifically in comment NAB2, and section 7.2.

Impacts to migration routes, and habitat foraging areas could result in a reduction of the number of animals available for harvest, herd density, as well as potential changes in migration patterns and habitat use. The Ambler Road FEIS concludes (Chapter 2, 2.5.12) that impacts to mammals in general would be likely and of long duration but over limited area. The magnitude of impacts are largely uncertain. Impacts to caribou could be over large areas because of their migration patterns over vast geography. Access to the road would be restricted at the eastern end of the road, preventing the general public's use of the road.

AIDEA has voluntarily agreed to the following mitigation measures to minimize impacts of the project to wildlife including caribou (Ambler Road FEIS, Chapter 2, 2.4.4): AIDEA would incorporate abatement and wildlife interaction protocols used in the Delong Mountain Transportation System into construction and operation of the Ambler Road. AIDEA would not allow road users access to hunting and fishing from along the road. Details of the operating plan would be carried through into AIDEA's permit requirements for road users. AIDEA would develop in coordination with wildlife managers and implement a communications protocol for road users that would notify drivers of observed animal migration and movement patterns to increase the awareness of potential animal and vehicle conflicts. AIDEA would implement a caribou policy that all users of the road would make every effort to ensure that caribou are not disturbed during migration or movement across the road. The policy would allow the road to be temporarily closed during times when caribou are migrating across the road. AIDEA agreed to monitor caribou migration and maintain a log of herd movement. These records would be maintained and shared annually with the ADF&G.

Considering the findings of the Ambler Road FEIS and the implementation of voluntary mitigation measures, the Corps has determined that the proposed project is not contrary to the Public Interest with regards to this factor.

7.5 Water Quality [33 CFR 320.4(d)]: Impacts to water quality are discussed in Sections 6.1.2, 6.1.3, and 6.1.4 above.

The Section 401 Certificate of Reasonable Assurance for the Ambler Road Project from the State of Alaska Department of Environmental Conservation was received on April 10, 2020.

Considering the finding of the Ambler Road FEIS and the analysis in JROD and the issuance of the 401 Certificate by the State of Alaska, the Corps has determined that the proposed project would comply with this section and not be contrary to the public interest.

7.6 **Historic, Cultural, Scenic and Recreational Values [33 CFR 320.4):** Impacts to GAAR, Wilderness and Wild and Scenic Rivers is discussed in Section 6.5.5 Parks, National Hand Historic Monument, National Seashores, Wilderness Areas, Research Areas and Similar Preserves.
References: Ambler Road FEIS Ch. 2.5, 3.4.3, Appendix F Table 23 and 3.4.8; Ambler EEA

Cultural resources include archaeological, historical, and architectural resources; structures; travel corridors; or places of religious, spiritual, or cultural significance to tribes, including Traditional Cultural Properties (TCPs), Sacred Sites, traditional use areas, cultural landscapes, and geographic features.

The BLM was the lead federal agency for consultation with SHPO under 106. The BLM determined the area of potential affect, which encompassed the Corps permit area. The Corps adopts the 106 consultation completed by the BLM for the Ambler Road. The BLM invited 109 tribes, Alaska Native corporations, agencies, and other interested parties to participate in Section 106 consultation, including G2G with several of those tribes. Of those, 28 state and federal agencies, cities, and tribal entities participated in the Section 106 process which has culminated in the development of a Programmatic Agreement (PA). This PA allows a phased approach to addressing Section 106, pursuant to the implementing regulations found in 36 CFR 800.

For the development of the PA (which would extend over a 30 year period), the Alaska Heritage Resources Survey database was consulted. There are 79 previously recorded AHRS sites within the project corridor at this time. The majority of the sites are prehistoric chipped stone scatters. Few previous cultural resource investigations within the project area have occurred. A data gap for the road was completed using a study corridor ten miles wide to identify previously recorded archaeological and ethnographic resources and investigations. Most

survey work was not recent and had been completed more than ten years ago. Most of the sites listed did not have determinations of eligibility completed which are required by Section 106. Archeological modeling suggest the APE of the road corridor contains high and medium probability zones for cultural resources. Additional historic properties may be located during additional inventory efforts or construction activities. Measures to be implemented for the purposes of mitigating adverse effects to historic properties are detailed in the PA. The Corps would require adherence to the PA, which would become a condition of the permit, if issued.

Recreational use of the proposed project area currently occurs mostly within the Gates of the Arctic National Park and Preserve, of which the road would affect future use of the area and diminish the solitude. The opportunities for recreation in the area, such as general or non-subsistence hunting and snow machining, are widely available elsewhere in the region. Since current recreation use is low, impacts involving changes in recreation access, setting, activities, or use levels may not be measurable or apparent. The road corridor affected area may be recognized for its scenic quality and landscape character, though scenic resources are not protected by existing legislation outside the park and ANILCA legislation specifically allows for a road to be constructed through the park.

Considering the finding of the Ambler Road FEIS and the analysis in the JROD, the Corps has determined that the proposed project would not be contrary to the public interest with regards to this factor.

7.6 Effects on Limits of the Territorial Sea [33 CFR 320.4(f)]: Since the project is fully within inland areas and not in a territorial sea there would be no effects on limits of the Territorial Sea.

7.7 Consideration of Property Ownership [33 CFR 320.4(g)]:
References: Ambler Road FEIS, Ch. 2.5.13 and Ch. 3.4.1; Maps 3-24-land ownership, Appendix C Table 2;Ambler EEA.

Most of the proposed route would cross state-owned or managed lands, representing 59 percent of the total land crossed by the proposed road. Federal lands would make up 24 percent of the land crossed by the road equally represented by the BLM (12 percent) and NPS (12 percent). The remaining 15 percent of lands are owned by NANA Regional Corporation, and Doyon Limited Regional Corporation. A small amount (2 percent) of the area that would be crossed by the road includes rivers, other waters and local government lands.

Twenty-six miles of the road would cross the Western (Kobuk River) Unit of Gates of the Arctic National Park and Preserve (GAAR). For discussion on the impacts to the GAAR see section 6.5.5 above.

AIDEA would be assigned certain land use rights within the right-of-way of the proposed Ambler Road for the 50 years term of the ROW (Ambler Road FEIS 2.5.13). The Ambler Road FEIS indicates that although the land management within the ROW would temporarily change, the underlying land ownership would remain and all land rights would revert to the land owners at the time of road closure.

Considering the finding of the Ambler Road FEIS and the analysis in the JROD, the Corps has determined that the proposed project is not contrary to the Public Interest with regards to this factor.

7.8 Activities Affecting Coastal Zones [33 CFR 320.4(h)]: There would be no effects to coastal zones since the project is not in or near a coastal zone.

7.9 Activities in Marine Sanctuaries [33 CFR 320.4(i)]: There would be no effects to marine sanctuaries since there are no marine sanctuaries within the project area.

7.10 Other Federal, State, and Local Requirements [33 CFR 320.4(j)]: Consultation with Indian Tribes, Alaska Natives and Native Hawaiians (EO 13175): The Kobuk Traditional Council requested Government to Government consultation and National Historic Preservation Act Section 106 consultation with the BLM in a letter to BLM dated October 25, 2019. The government to government meeting with the BLM was by conference call on January 7, 2020. The National Park Service and the Corps also attended this meeting. The Kobuk Traditional Council, in an email dated January 13, 2020, requested Corps response to six questions regarding wetlands information, compensatory mitigation and status of the 404q process with the EPA. The Corps responded to the Kobuk Traditional Council regarding these questions in an email dated January 29, 2020, and with a hard copy Feb 10, 2020. The responses are in the administrative record. The Corps determined that its Government to Government tribal consultation responsibility has been met (memorandum for record dated February 21, 2020 in administrative record).

Magnuson-Stevens Fishery Conservation and Management Act, Essential Fish Habitat (EFH): The Magnuson-Stevens Fishery Conservation and Management Act, as amended by the Sustainable Fisheries Act of 1996, requires all Federal agencies to consult with the NMFS on all actions, or proposed actions, permitted, funded, or undertaken by the agency, that may adversely affect Essential Fish Habitat (EFH). The Corps' September 13, 2019 Public Notice for the Ambler Road project identified BLM as the lead federal agency for EFH consultation. The project area is within the known range of the Chinook (Oncorhynchus tshawytscha), Coho (Oncorhynchus kisutch), and Chum (Oncorhynchus keta) salmon.

The BLM initiated EFH coordination with NMFS in a letter dated May 2, 2019 notifying NMFS of the Ambler Road FEIS. In NMFS's February 21, 2020 letter to BLM, they acknowledged the FEIS and stated the proposed action may adversely affect salmon and salmon EFH where the road crosses salmon rivers and streams and where gravel would be extracted for construction materials and fill. The NMFS also provided EFH Conservation Recommendations.

The Corps forwarded NMFS' conservation measures to the applicant on February 24, 2020. AIDEA provided a letter to the Corps dated February 27, 2020 (cc to BLM, NMFS, NPS and Coast Guard) in response to NMFS's conservation recommendations. AIDEA outlined how they have addressed the conservation recommendations through proposed design features and mitigation measures. For example, the applicant would install appropriately sized culverts that maintain natural stream characteristics and accommodate flow to the 100 year flood event. Appropriately sized an designed culverts is the most effective way to ensure continued fish passage, minimize impacts to the channel due to undersized culverts, and therefore minimize impacts to essential fish habitat. The applicant has committed to installing culverts with widths 1.2 times the bankfull width (BFW) of the stream plus two feet as recommended in the Washington Department of Fish and Wildlife's Water Crossing Design Guidelines, 2013 (Barnard, et a., 2013). This culvert size is more protective to stream channels than 0.95*Ordinary High Water (OHW) standard found in the MOU between the Alaska Department Of Transportation (DOT) and the state Fish and Game (Alaska MOU). Culverts in fish-bearing streams shall be designed to maintain a natural channel and substrates to maintain a natural stream bed character. This embedded stream simulation design would maintain fish passage by retaining the natural steam slope, meander, and water velocity and depth patterns similar to the natural (undisturbed) stream reaches upstream and downstream of the culvert location. Additionally, the applicant has changed 20 stream crossings from moderate to large culverts to single span bridges, further reducing impacts to hydrology and fish passage. This would result in a reduction of 2,572 linear feet of stream impacts. These measures would also reduce potential impacts to essential fish habitat from maintenance during the life of the road.

The Corps has met responsibilities for EFH under the Magnuson-Stevens Fishery Conservation and Management Act.

7.11 Safety of Impoundment Structures [33 CFR 320.4(k)]: There are no impoundment structures within the project area or proposed for the project.

7.12 Floodplain Management [33 CFR 320.4(l); Executive Order (EO) 11988]: References: Ambler Road FEIS, Ch. 3.2.5; Appendix D: Table 17; Ambler EEA Ch. 3.

Floodplains contain significant natural values and carry out numerous functions in the public interest including: flood attenuation, water quality maintenance, groundwater recharge, fish and wildlife functions and values, and cultural resource values. The proposed road alignment would cross an abundance and diversity of riverine floodplains in pristine conditions. Impacts to floodplains are discussed in Chapter 3.2.5 of the Ambler Road FEIS, Ambler EEA (Chapter 3) and Section 6.1.2 of this document.

All Avoidance and Minimization Measures are outlined in Section 5.1.1 and 5.1.2 of this JROD. The primary minimization measures include the following: Final design would include floodplain mapping of major rivers and streams to develop design to reduce fill and impacts within active floodplains. The applicant has committed to installing culverts with widths 1.2 times the bankfull width (BFW) of the stream plus two feet as recommended in the Washington Department of Fish and Wildlife's Water Crossing Design Guidelines, 2013 (Barnard, et a., 2013). Culverts would pass the 100 year flood even flow. Channels would be crossed at the narrowest point feasible to minimize impacts to floodplains. Culvert structures would replicate natural substrate, stream slope, and flow dynamics, to provide flood capacity and reduce flow velocities. Rock or bioengineered methods would be used at inlet and outlets of culverts and at bridges to reduce erosion, sedimentation, and embankment failure. Excavated materials shall not be stock piled in rivers, streams, 100-year floodplains or wetlands. All culverts shall be maintained for the life of the road. Gravel and other construction materials shall not be taken from streambeds, riverbeds, active floodplains or within 500' of the channel whichever is farther. These would become a requirement of the permit, if issued.

Special Conditions to minimize impacts to floodplains are listed in Appendix G. With proposed design features and inclusion of special conditions, the project would comply with this section and would not be contrary to the public interest or EO 11988.

7.13 Water Supply and Conservation [33 CFR 320.4(m)]:
References: Ambler Road FEIS, Chapter 3.2.5 Water Resources; Appendix D, Table 16

The Ambler Road FEIS summarizes the locations of known water supplies nearest the project (Chapter 3.2.5 Water Resources; Appendix D, Table 16). The nearest subsurface water supply is 4.8 miles from proposed route. The water supply for the city of Shungnak is in the Kobuk River. The City of Kobuk well is likely influenced by the water quality of the Kobuk River. Impacts to water supplies are not anticipated because known water supplies are not near the project area.

The project is not within or would affect a known public water supply. Considering the finding of the Ambler Road FEIS and the analysis in the JROD,

the Corps has determined that the proposed project is not contrary to the Public Interest with regards to this factor.

7.14 Energy Conservation and Development [33 CFR 320.4(n)]:
Reference: Ambler Road FEIS, Appendix D Table 24; Chapter 3.2.7 Air Quality and Climate.

The Ambler Road project is not an energy production project, therefore, energy production is not proposed for the project. The project would develop an industrial gravel access road a distance of 211-mile from the Dalton Highway from milepost 161 to banks of Ambler River, using conventional energy sources (diesel and gasoline fuels). Diesel would be the primary fuel used on-site for vehicles, equipment, and power generators for construction of road, and material site development. Gasoline would be used for small engine equipment. Considering the finding of the Ambler Road FEIS and the analysis in the JROD, the Corps has determined that the proposed project is not contrary to the Public Interest with regards to this factor.

7.15 Navigation [33 CFR 320.4(o)]:
References: Ambler Road FEIS, Chapter 3.2.5 Water Resources; Chapter 3.4.2, Transportation and Access; Section 3.4.3, Recreation and Tourism; Appendix D, Table 17; Chapter 2.4.4; Appendix N.

The placement of structures during bridge construction in federally designated navigable waters would be permitted by the U.S. Coast Guard under Section 9 of the Rivers and Harbors Act and the General Bridge Act of 1946. The purpose of these acts is to preserve the public right of navigation and to prevent interference with interstate and foreign commerce (www.dco.uscg.mil). Coast Guard permits require the consideration of navigation interests to include safe clearances for boat passage. The USCG would also determine navigability for rivers where previous determinations have not yet been done i.e., including and beyond Section 10 waters. The proposed alignment would impact primarily small boat craft.

The project originally required 23 small (≤50 ft), 15 medium (≤140 ft) and 11 large bridges (> 140 ft) across rivers (Ambler Road FEIS, Appendix D, Table 17). Bridges can impact water velocities and depths during high water events, freeze-up, ice-jams and breakup. To minimize these effects the applicant proposes to design bridges to pass the 100-year flood event and abutments placed outside of the full channel width. Additionally, the applicant revised their application to replace 20 medium to large culverts with small bridges, and upgrade two culverts to larger size. Riprap would be used to limit erosion. Piers would be placed in the river channel for large bridges and this would impact water flow patterns stream, bed scour and increase sediment loads and turbidity during high discharge events. Bridge piers would be located and designed to minimize

impacts to boat passage and aquatic resources. Bridges would be constructed during winter which would minimize impacts during the river navigation season.

A US Coast Guard permit would be sought for bridges that cross navigable waterways for which the US Coast Guard has authority including the large bridges across the Kobuk River and the Koyukuk River (both Section 10 waterways). The Coast Guard Bridge permit would include conditions, stipulations and BMPs to avoid and minimize adverse impacts to navigation and provide protective measures for the safe passage of boats under bridges. AIDEA has agreed to construct bridges to minimize impacts to river flow and allow continued navigation on rivers by water craft typical for a river, such as rafts, canoes, kayaks and small motorized vessels (Ambler Road FEIS, Chapter 2.4.4). Where commercial or industrial barges are possible, the bridges would be designed for passage of tugs and barges.

Considering the finding of the Ambler Road FEIS and the analysis in the JROD, the Corps has determined that the proposed project is not contrary to the Public Interest with regards to this factor.

7.16 Environmental Benefits [33 CFR 320.4(p)]:

The applicant has avoided and minimized impacts to waters of the U.S. to maintain aquatic resources. General benefits to the environment would not occur due to the proposed project, however, considering the finding of the Ambler Road FEIS, the Ambler EEA, and the analysis in the JROD, the Corps has determined that the proposed project is not contrary to the Public Interest with regards to this factor.

7.17 Economics [33 CFR 320.4(q)]:
References: Ambler Road FEIS, Chapter. 3.4.5 Socioeconomics and Communities; Appendix H, Section 2.2.2, Commercial Access Scenario; Appendix N Potential Mitigation; Ambler EEA Chapter 3 Environmental Analysis, Socioeconomics.

The BLM states in the FEIS that its economic analysis concentrates on local rural communities because that is where the primary socioeconomic impacts are anticipated (Ambler Road FEIS, Chapter 3.4.5). The majority of the study area communities have high levels of unemployment and low-income with high costs of living. The Ambler Road project would add jobs to the region during construction and operation of the road. These jobs and cash income would supplement the mixed subsistence-cash economy of the region. The proposed access road could also benefit communities through potential commercial access for affected communities. The economic benefits would help community members pay for subsistence activities, supplement food sources, and improve overall community wellbeing.

The Ambler Road FEIS states that approximately 2,730 jobs would be supported by the construction of the proposed road over the entire construction phase. The average construction employment is projected to be 680 jobs annually during Phases 1 and 2 assuming construction lasts 4 years. And an estimated 110 of these jobs would be filled by Northwest Arctic Borough/Yukon Kuskokwim Census Area (YKCA) residents, assuming 20 percent of the construction jobs would be filled by residents of this region. During the operation of the road, about 50 jobs would be directly supported. About 10 of these jobs would be filled by NAB/YKCA residents, assuming 20 percent would be filled by residents of this region. Operations-related spending for materials and services would support an additional 20 jobs throughout Alaska annually, while operations employee spending would support an additional 20 jobs annually.

The State of Alaska would receive royalty payments from excavation of embankment materials and aggregate on state lands during road construction; however, there is insufficient information to estimate these payments.

The Ambler EEA states that the applicant's preferred route would which is adjacent to NPS-managed designated wilderness, has the potential to deter wilderness recreational users and that this could impact local guides and outfitters who emphasis the wilderness character in the project area (Ambler EEA, Chapter 3, Socioeconomics).

The Ambler Road FEIS lists potential measures that would be protective of the local community's needs regarding economic development (Ambler Road FEIS, Appendix N). For example, AIDEA proposes to identify and promote work and training opportunities for local residents. AIDEA proposes to time the construction activities as much as possible to minimize impact to high-use tourist and recreational seasons such as river floating, wildlife viewing, hunting and dog mushing.

Considering the finding of the Ambler Road FEIS and the analysis in the JROD, the Corps has determined that the proposed project is not contrary to the Public Interest with regards to this factor.

7.18 Mitigation [33 CFR 320.4(r)]: Mitigation is discussed in Section 5.1 above.

Appendix G

Corps of Engineers Special Conditions and Rationales

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Corps of Engineers Special Conditions and Rationales

The following special conditions will be included in the Department of the Army (DA) permit to ensure the project is not contrary to the public interest (33 CFR 320.4 (r), and to ensure the project complies with the 404 (b)(1) Guidelines (40 CFR 230.10(d)), or at the permittee's request.

Pre-Construction Meeting

1. The permittee shall convene a pre-construction meeting with their contractor representatives present, a minimum of 15 days prior to the discharge of fill material into waters of the US authorized under this DA permit. The permittee shall invite the USACE, and appropriate federal, state and borough resource or regulatory agencies within 10 days of the meeting date. The permittee shall provide copies of the DA permit and all attachments to all contractor representatives who shall make the permit copies available at all times in the field during construction activities.

Rationale: To ensure clarification of all permit requirements with the permittee and their contractors (33 CFR 325). This special condition is also required to ensure compliance with the permit, and to minimize impacts to adjacent wetlands and other waters of the U.S. as a result of the permitted project (33 CFR 320.4(b) and 40 CFR 230.41).

Fill Discharges*:*

2. The Permittee shall use only clean fill material for this project. The fill material shall be free from items such as trash, debris, automotive parts, asphalt, construction materials, concrete blocks with exposed reinforcement bars, and soils contaminated with any toxic substance, in toxic amounts in accordance with Section 307 of the Clean Water Act.

3. The Permittee shall install erosion control measures along the perimeter of all work areas to prevent the displacement of fill material outside the authorized work area. The erosion control measures shall remain in place and be maintained until all authorized work is completed and the work areas are stabilized. To the maximum extent practicable, plastic-free erosion and sediment control products such as netting manufactured from 100-percent biodegradable materials like jute, sisal or coir fiber shall be used for erosion control. Immediately after completion of the final grading of the land surface, all slopes, land surfaces, and filled areas shall be stabilized using sod, degradable mats, barriers, or a combination of similar stabilizing materials to prevent erosion.

Rationale: These conditions are required to ensure that areas outside of the permitted area are protected from sediment caused by erosion, slumping, or lateral displacement of surrounding bottom deposits until the site is permanently stabilized (33 CFR 320.4(b), 40 CFR 230.20(b), 40 CFR 230.21, and 40 CFR 230.72(a)). These conditions are required to minimize adverse impacts to wetlands, other waters of the U.S., to fish and wildlife and the environment (33 CFR 320.4(b) and (d), 40 CFR 230.11(c) and (d), and 40 CFR 230.60)).

4. Snow and ice clearing operations shall not result in the discharge of vegetation, soil or debris into waters of the U.S. outside of all authorized fill areas.

Rationale: This condition is required to avoid adverse impacts to adjacent wetlands and other waters of the US as a result of the permitted project (33 CFR 320.4(b)(1), 33 CFR 320.4(r)(1), and 40 CFR 230.41).

Mitigative measure to minimize impacts to streams, floodplains, and fish habitat:

5. Culvert widths shall be 1.2 times the bankfull width of the stream plus two feet as recommended in the Washington Department of Fish and Wildlife's Water Crossing Design Guidelines, 2013. Culverts in fish-bearing streams shall be designed to maintain a natural channel and substrates to maintain a natural stream bed character. This embedded stream simulation design shall maintain fish passage by retaining the natural steam slope, meander, and water velocity and depth patterns similar to the natural (undisturbed) stream reaches upstream and downstream of the culvert location.

Rationale: This condition would mitigate impacts to streams and fish habitat. This condition is included to ensure fish passage for all species and life stages of fish and other aquatic organisms, and to maintain natural hydrological connections and morphological character of the stream channel and adjacent wetlands and floodplains to the maximum extent practicable(40 CFR 230 and 33 CFR 320).

6. Final cross-drainage culvert locations shall be determined in the field during breakup and locations staked. Existing (natural) drainage patterns shall be maintained throughout all construction and operation periods by the installation of culverts in all authorized fill areas in sufficient number and size to prevent ponding, dewatering, water diversion between watersheds, or concentrating runoff flows and to ensure that hydrology is not altered.

7. The applicant shall implement the conservation measures outlined in NMFS February 21, 2020 letter to BLM.

8. Stream crossings shall preserve floodplain connectivity to the greatest extent possible.

9. Overflow culverts should be at the same grade level as the floodplain, and placed to match the flood-flow patterns in the floodplain.

10. Gravel and other construction materials shall not be taken from streambeds, riverbeds, active floodplains, lakeshore or outlets of lakes. Material sites shall be located outside of active channels and active floodplains. A 500' buffer around all streams shall be maintained, within which no material site or access road to a material site shall be located.

11. Where it is practicable, a 100-foot undisturbed vegetation buffer shall be maintained along ponds, lakes, creeks, rivers or higher-value wetland (patterned fens, emergent wetlands and moss-lichen wetlands). The buffer width shall start from the edge of the riparian area associated with the waterbodies or from the edge of the higher value wetland.

Rationale: These conditions (9-16) are required to mitigate for impacts to WOTUS by protecting water quality, vegetation, soils, fish and wildlife habitats, and floodplain functions. (33 CFR 320.4(b) and (l) and 40 CFR 230.41, 40 CFR 230, and 33 CFR 320).

12. An Adaptive Management Plan (AMP) for monitoring, maintaining, and repairing culverts over the life of the road shall be developed in consultation with ADF&G and the Corps. The AMP shall include documentation of culvert locations with GPS; regular monitoring during culvert installation and through the road operations; corrective measures which would be taken if concerns are identified; and timeframes for those measures to be implemented. Corrective measures may include installation of additional culverts, increasing culvert size, adding thaw lines, adding deadman anchors or other appropriate measures. AIDEA shall use its proposed

AMDIAP subsistence Advisory Committee to help in oversight of the AMP. The permittee shall prepare and submit a culvert monitoring report to the Corps for three summer seasons following completion of the fill placement for the road construction as well as at years five, and every five years after that for the life of the road. The reports shall be submitted prior to July 30 of each year. The report shall include photographs of at least 20% of the crossings to demonstrate the hydrologic conditions at spring beak-up time and post break-up (summer conditions). In addition, the report shall include photographs (and locations photographs were taken) and an evaluation of all areas where additional culverts are necessary to retain existing drainage patterns and where culvert maintenance, repair, upgrade, setting adjustments or replacement are necessary.

Rationale: This condition is included to ensure water flow through the culvert is adequate for all flows at all times without causing erosional changes the channel, including up and downstream reaches of the crossing; retain the substrate, banks and vegetation; and provide for fish passage. The natural (current condition) hydrologic regime protects water quantity and quality, vegetation, soils and fish and wildlife habitats (40 CFR 230 and 33 CFR 320).

Mitigation measures to protect thaw-sensitive permafrost soils:

13. The permittee shall construct the road to Phase II standard embankment depths in areas with thaw sensitive permafrost soils and in emergent wetlands, without first constructing the pioneer road.

14. The collection of upstream runoff in ditches shall be minimized to reduce the effects of diverting surface waters to adjacent drainage ways and to reduce the potential for permafrost degradation.

15. The permittee shall use insulation in the roadway where necessary to reduce impacts to permafrost soils (for example, in area of thaw-sensitive permafrost soils). These areas shall be identified prior to construction and on-site changes made during construction as necessary to protect permafrost soils. These areas shall be identified in the final design that will provided to the Corps for review 45 days prior to construction. If foam is used to insulate the permafrost from thermal degradation, it shall be composed of closed-cell extruded polystyrene or other closed cell foams (e.g., blueboard) rather than non-extruded expanded polystyrene foam.

Rationale: These conditions are required to preserve permafrost and to protect water quality, vegetation, soils, fish and wildlife habitats, and to minimize impacts to adjacent wetlands and protect floodplain functions (33 CFR 320.4(b) and (l) and 40 CFR 230.41, 40 CFR 230, and 33 CFR 320).

Nutuvukti Fen protection:

16. AIDEA shall design the road where it crosses upstream of Nutuvukti Fen and Nutuvukti Lake to minimize the disruption of surface and shallow subsurface flow though the active layer to protect hydrologic inputs to the fen and lake. Evidence of soils or vegetation drying downstream of the road, or any changes to fen or lake hydrology will be considered noncompliance with this condition.

17. AIDEA shall locate the road alignment to minimize water quality impacts to Nutuvukti Fen and Nutuvukti Lake.

Rationale: These mitigation measures are required to avoid impacts to Nutuvukti Fen, an important aquatic resource (33 CFR 320.4(b)(1), 33 CFR 320.4(r)(1), and 40 CFR 230.41).

Floodplains:

18. To comply with Executive Order 11988, disturbance in floodplains will be avoided where practicable. When avoidance is not practicable, floodplain disturbance will be minimized and floodplain function maintained or restored to the extent practicable.

19. A 100-year flood standard (or larger) shall be used for conveyance of all stream simulation and other moderate and major culverts and bridges.

Rationale: These conditions are required to be in compliance with Executive Order 11988; and is required to ensure the project does not cause permanent impacts to WOTUS and fish and wildlife habitats (33 CFR 320.4b, 40 CFR 230).

Activities Involving Trenching:

20. Trenches may not be constructed or backfilled in such a manner as to drain waters of the U.S. (e.g., backfilling with extensive gravel layers, creating a French drain effect). Ditch plugs or other methods shall be used to prevent this situation. Except for material placed as minor trench over-fill or surcharge necessary to offset subsidence or compaction, all excess materials shall be removed to a non-wetland location. Revegetation shall follow the process outlined in special condition 29. The backfilled trench shall achieve the pre-construction elevation, within a year of disturbance unless climatic conditions warrant additional time. The additional time must be approved by the Corps. Excavated material temporarily sidecast into wetlands shall be underlain with ice pads, geotextile or similar material, to allow for removal of the temporary material to the maximum extent practicable.
Rationale: These conditions are required to ensure trenching, if used, does not cause permanent impacts to WOTUS (33 CFR 320.4(b), 40 CFR 230.21).

Site Restoration of Ground Disturbing Activities:

21. To prevent erosion, disturbed areas shall be stabilized immediately after construction. Revegetation of the site shall begin as soon as site conditions allow and in the same growing season as the disturbance unless climatic conditions warrant additional time. Additional time must be approved by the Corps. Native vegetation and topsoils removed for project construction shall be stockpiled separately and used for site rehabilitation. Except in areas of top soil excavation, excavated soils shall be sorted into mineral subsoils and topsoil, and stored separately. Topsoil is defined as the upper, outermost layer of soil, usually the top two (2) to eight (8) inches. The depth of topsoil can be measured as the depth from the surface to the first densely packed layer of soil. When backfilling, topsoil shall be placed as the uppermost layer to provide a seed bed for native species. If topsoil and/or organic materials are not available from the project site for rehabilitation, other locally-obtained native materials may be used. Species to be used for seeding and planting shall follow this order of preference: 1) species native to the site; 2) species native to the area; 3) species native to the state.

Rationale: This condition is required to ensure that permanent impacts to WOTUS and fish and wildlife habitats are minimized to the maximum extent practicable (33 CFR 320.4b, 40 CFR 230).

Airborne Dust:

22. The permittee shall ensure pollution to aquatic resources from road gravel spray and fine airborne dust discharges are minimized to the maximum extent practicable. Dust abatement practices, during dust prone weather and/or seasonal conditions, must be performed for the life of the project (use of the road). Compliance with this condition shall be determined by the absence of visible dust and gravel on wetland vegetation adjacent to the authorized fill areas.

23. Dust suppressants with ingredients potential harmful to aquatic organisms shall not be used within 328 feet of any fish –bearing stream and higher –value wetlands (e.g., emergent wetlands, moss-lichen wetlands, patterned fens and shallow ponds).

Rationale: These conditions are included to protect wetlands, air and water quality and fish and wildlife habitats from secondary impacts. 40 CFR 230, 33 CFR 320.

Navigation: Section 10 Mandatory (33 CFR PART 320.4(o)(3), and HQ memorandum)

24. Your use of the permitted activity must not interfere with the public's right to free navigation on all navigable waters of the U.S.

Rationale: Protection of navigation and the general public's right of navigation on the water surface is a primary concern of the federal government. This condition is required by regulation (33 CFR 320.4(o)(3)).

25. You must install and maintain, at your expense, any safety lights and signals prescribed by the U.S. Coast Guard (USCG), through regulations or otherwise, on your authorized facilities. The USCG may be reached at the following address and telephone number: Commander (oan), 17th Coast Guard District, P.O. Box 25517, Juneau, Alaska 99802, (907) 463-2272.

Rationale: The facility must be lighted to prevent navigation hazards and this condition is required by regulation (33 CFR 320.4(o)(3)).

26. The permittee understands and agrees that, if future operations by the U.S. require the removal, relocation, or other alteration, of the structure or work herein authorized, or if, in the opinion of the Secretary of the Army or his authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, the permittee will be required, upon due notice from the Corps of Engineers, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the U.S. No claim shall be made against the U.S. on account of any such removal or alteration.

Rationale: This condition is required by regulation to protect free navigation and the interests of the United States in existing or future federal projects (33 CFR 320.4(o)(3) and HQ memorandum).

Historic Properties/Cultural Resources:

27. The permittee shall implement the attached Programmatic Agreement (PA), entitled Programmatic Agreement by and Among the Bureau of Land Management, Alaska State Historic Preservation Officer, and Advisory Council on Historic Preservation Regarding the Ambler Road Industrial Access Road Project, Alaska, dated April 23, 2020. If you fail to comply with the implementation and associated enforcement of the PA the Corps may determine that you are out of compliance with the conditions of the Department of the Army

permit/verification and suspend the permit/verification. Suspension may result in modification or revocation of the authorized work.

Rationale: this condition is required to avoid impacts to historic properties/cultural resources, and comply with Section 106 of the National Historic Preservation Act (Section 106 of NHPA, 33 CFR 320.4(e), and 33 CFR 325 Appendix C).

28. If human remains, historic resources, or archeological resources are encountered during construction, all ground disturbing activities shall cease in the immediate area and the applicant shall immediately (within one business day of discovery) notify the U.S. Army Corps of Engineers (Corps), Alaska District, Regulatory Office at 2715 University Avenue, Suite #201E, Fairbanks, Alaska 99709, (907) 474-2166, or to Regpagemaster@usace.army.mil). Upon notification the Corps shall notify the State Historic Preservation Office (SHPO). Based on the circumstances of the discovery, equity to all parties and consideration of the public interest, the Corps may modify, suspend or revoke the permit in accordance with 33 CFR 325.7. After such notification, the project activities on federal lands shall not resume without written authorization from the Corps, SHPO, and federal manager. After such notification, project activities on tribal lands shall not resume without written authorization from the SHPO and the Corps.

Rationale: This condition is required to avoid impacts to historic properties/ cultural resources and to comply with Section 106 of the national Historic Preservation Act (Section 106 of NHPA, 33 CFR 320.4(e), and 33 CFR 325 Appendix C, 36 CFR 800).

Geotechnical Investigations

29. AIDEA shall avoid the use of materials containing naturally occurring asbestos (NOA is defined as 0.1 percent asbestos by mass) to the greatest extent practicable. If use of NOA materials cannot be avoided, the fill material and road cuts shall be capped with non-NOA materials in order to not expose NOA to the air, AIDEA shall follow DOT&PF measures as allowed under 17 Alaska Administrative Code 97 and described in May 14, 2015 regulations regarding the use of materials containing NOA.

Rationale: These conditions are required to avoid adverse impacts to the environment as a result of the permitted project (33 CFR 320.4(b)(1), 33 CFR 320.4(r)(1), and 40 CFR 230.41).

30. The applicant shall submit a final project plan to the Corps for review prior to beginning any permitted work. This plan shall be based on the geotechnical investigations conducted to identify areas to be avoided due to the presence of naturally occurring asbestos and sulfide minerals that can cause acid drainage in cut and fill areas. The final plan shall incorporate all mitigation measures.

Rationale: These conditions are required to avoid adverse impacts to adjacent wetlands and other waters of the US as a result of the permitted project (33 CFR 320.4(b)(1), 33 CFR 320.4(r)(1), and 40 CFR 230.41). AIDEA volunteered this as a minimization measure in the compensatory mitigation plan.

Self-Certification:

31. Within 60 days of completion of the work authorized by this permit, the Permittee shall complete the attached "Self-Certification Statement of Compliance" form (Attachment xx) and submit it to the Corps (U.S. Army Corps of Engineers, Regulatory Division, 2715 University Avenue, Suite #201 E, Fairbanks, AK 99709). In the event that the completed work deviates in

any manner from the authorized work, the Permittee shall describe the deviations between the work authorized by this permit and the work as constructed on the "Self-Certification Statement of Compliance" form. The description of any deviations on the "Self-Certification Statement of Compliance" form does not constitute approval of any deviations by the Corps.

Rationale: This special condition is required to ensure compliance with the permit and in order to efficiently plan compliance inspections.

Modifications:

32. Should any other agency require and/or approve changes to the work authorized or obligated by this permit, the Permittee is advised a modification to this permit may be required prior to initiation of those changes. It is the Permittee's responsibility to request a modification of this permit. The Corps reserves the right to fully evaluate, amend, and approve or deny the request for modification of this permit.

Rationale: This special condition is required to ensure compliance with the permit, and to minimize impacts to adjacent wetlands and other waters of the U.S. as a result of the permitted project (33 CFR 320.4(b) and 40 CFR 230.41).

Appendix H

Section 106 Programmatic Agreement

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PROGRAMMATIC AGREEMENT

BY AND AMONG THE

BUREAU OF LAND MANAGEMENT,

ALASKA STATE HISTORIC PRESERVATION OFFICER, AND

ADVISORY COUNCIL ON HISTORIC PRESERVATION

REGARDING THE

AMBLER MINING DISTRICT INDUSTRIAL ACCESS ROAD,

ALASKA

Executed the 27th of April, 2020

Expires 2045

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WHEREAS, the Department of the Interior, Bureau of Land Management (BLM) may issue a right-of-way (ROW) grant authorization across federal lands for an all-season, private industrial access road, to the Ambler Mining District, pursuant to the Federal Lands Policy and Management Act of 1976 (43 United States Code [USC] 1701); and

WHEREAS, the Alaska Industrial Development and Export Authority (AIDEA) is the Permittee and has proposed to construct, operate, maintain, and eventually remove the road and related features (Project). The Project will include construction of bridges, material sites, maintenance stations, airstrips, and related ancillary features, and will be built in Phases, beginning with a seasonal, single-lane, gravel pioneer road (Phase I), which will be upgraded in Phase II, and expanded into a 2-lane gravel road in Phase III. AIDEA anticipates the road will have a life of approximately 50 years, at which point the road will be removed and reclaimed; and

WHEREAS, the BLM has determined through consultation with the Alaska State Historic Preservation Officer (SHPO) that the Project is an Undertaking and subject to compliance with Section 106 of the National Historic Preservation Act of 1966 (NHPA), as amended (54 USC 300101 et seq.), and the implementing regulations found at 36 Code of Federal Regulations (CFR) 800; and

WHEREAS, Section 106 requires federal agencies to take into account the effects of their Undertakings on historic properties[1] and afford the Advisory Council on Historic Preservation (ACHP) a reasonable opportunity to comment, prior to any federal authorization or expenditure of federal funds. Furthermore, Section 106 requires consultation with Tribes, other agencies, local governments, interested parties, and the public, for the purpose of seeking, discussing, and considering the views of other participants, and, where feasible, seeking agreement with them regarding matters arising in the Section 106 process; and

WHEREAS, the BLM has prepared an Environmental Impact Statement (EIS) for the Project pursuant to the National Environmental Policy Act of 1969 (NEPA), as amended (42 USC 4321 et seq.), with a Record of Decision anticipated in May 2020, and has identified Alternative A/B the preliminarily preferred route for the Project. Alternative A is a 211-mile-long alignment, originating at Milepost 161 of the Dalton Highway, and extending west to the Ambler Mining District. Alternative B is a 228-mile-long alignment with the same origination and terminus points as Alternative A, but it crosses Gates of the Arctic National Preserve (GAAR) at a more southerly point. Maps of the alternatives are found in Attachment A and discussed in detail in the EIS (DOI-BLM-AK-F030-2016-0008-EIS); and

WHEREAS, the Alaska National Interest Lands Conservation Act 201(4)(b) states that the Secretaries of the Interior and Transportation shall permit access for surface transportation purposes across GAAR, managed by the National Park Service (NPS). Portions of Alternatives A and B would cross GAAR, making the Project an Undertaking, and the NPS is an Invited Signatory; and

WHEREAS, the U.S. Army Corps of Engineers (USACE) has jurisdiction over activities that would discharge dredge or fill material into waters of the U.S., including wetlands, and has determined that the Project will require a permit, pursuant to Section 404 of the Clean Water Act (33 USC 1251 et seq.), making the Project an Undertaking and the USACE is an Invited Signatory; and

WHEREAS, the BLM, in agreement with all participating agencies, has agreed to carry out lead federal agency responsibilities for Section 106, pursuant to 36 CFR 800.2(a)(2); and

[1] The term "historic properties" is consistent with 36 CFR 800.16(l)(1) and is defined as any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the National Register of Historic Places (NRHP). This includes artifacts, records, and remains that are related to and located within such properties, and includes properties of traditional religious or cultural importance to Tribes or other entities, and that meet the NRHP criteria.

WHEREAS, the BLM, in consultation with the Consulting Parties, established the Undertaking's Area of Potential Effects (APE), pursuant to 36 CFR 800.4(a) and 36 CFR 800.16(d), which encompasses direct, indirect, and cumulative effects on historic properties for the permitted alternative. The APE is described in Attachment B; and

WHEREAS, the Signatories and Invited Signatories, collectively "PA Signatories," recognize that future mining activities within the Ambler Mining District may be a reasonably foreseeable result of this Project; however, no mining activities are proposed or known at this time. The PA Signatories agree that any potential effects on historic properties that may result from future mining activities will be subject to independent Section 106 review as appropriate. The PA Signatories agree to share information on historic properties collected for this Undertaking to the extent practicable, and in accordance with relevant confidentiality restrictions, at such time; and

WHEREAS, as of December 2019, the Alaska Heritage Resources Survey (AHRS) database[2] lists 15 known resources located within the Direct APE and 64 known resources within the Indirect APE for Alternative A; and 10 known resources within the Direct APE and 43 known resources within the Indirect APE for Alternative B. A table of these resources is provided in Attachment C; and

WHEREAS, the BLM has determined that the Undertaking may have an adverse effect on historic properties, pursuant to 36 CFR 800.5. There are total of 18 known AHRS resources within the Direct APE and 87 additional known AHRS resources within the Indirect APE that may be adversely affected by the Undertaking (this includes resources in both the A and B Alternatives) and include prehistoric and historic archaeological resources, trails, camps, and mining features. Of these resources, only 1 has been determined eligible for listing in the National Register of Historic Places (NRHP), while the remaining 104 known resources have not been evaluated (listed in Attachment C); and

WHEREAS, the Permittee has proposed to construct the Project in Phases, and each Phase will consist of individual Components, Stages, and Segments[3], and the BLM has determined that effects to historic properties cannot be fully accounted for prior to issuance of the EIS Record of Decision. Therefore, this Programmatic Agreement (PA) was developed in consultation with the Consulting Parties to establish an alternative process for implementing Section 106 in a phased approach, pursuant to 36 CFR 800.14(b); and

WHEREAS, the SHPO has participated in the development of this PA and is a Signatory, pursuant to 36 CFR 800.6(c)(1)(ii); and

WHEREAS, the ACHP has participated in the development of this PA and is a Signatory, pursuant to 36 CFR 800.6(c)(1)(ii); and

WHEREAS, the BLM recognizes that the Federal Government has a unique legal relationship with Tribes set forth in the U.S. Constitution, and the PA outlines the process by which the BLM will complete a good

[2] The AHRS database is maintained by the Alaska Office of History and Archaeology, and includes buildings, objects, structures, archaeological and historic sites, districts, shipwrecks, travel ways, traditional cultural properties, landscapes, and other places of cultural importance.

[3] Project Phases include a Pre-Construction Phase, a pioneer road (Phase I), an all-seasons road (Phase II), and a 2-lane all-seasons road (Phase III) as well as Operations and Maintenance and Reclamation Phases. See Attachment G for more detailed descriptions. Components are defined as types of ancillary feature, such as bridges or materials sites. Segments are defined as geographical sections of the Project. Stages are defined as the specific construction activities that would occur for each construction Phase or Component.

faith effort to consult with Tribes[4] to identify concerns about historic properties, to advise on the identification and evaluation of historic properties, including those of traditional religious, spiritual, or cultural importance, to articulate views on the Undertaking's effects on such properties, and to participate in the resolution of adverse effects, pursuant to 36 CFR 800.2(c)(2)(ii); and

WHEREAS, the BLM invited 78 Tribes, listed in Attachment D, to participate in the Section 106 process as Consulting Parties, and Alatna Village Council; Allakaket Village Council; Dinyea Corporation; Doyon, Limited; Evansville, Incorporated; Evansville Village; Gana-A'Yoo, Limited; Hughes Village Council; Huslia Village Council; K'oyitl'ots'ina, Limited; NANA Regional Corporation; Native Village of Ambler; Native Village of Kobuk; Native Village of Noatak; Native Village of Selawik; Native Village of Shungnak; Native Village of Stevens; Native Village of Tanana; Noorvik Native Community; and the Village of Anaktuvuk Pass have consulted with the BLM during development of the PA and may sign as Concurring Parties; and

WHEREAS, the BLM consulted with private landowners for lands within the APE for Alternatives A and B, including Doyon, Limited; NANA Regional Corporation; and Evansville, Incorporated; and these entities participated in PA development. In addition, the BLM consulted with the Bureau of Indian Affairs regarding 2 allotments (AKFF 018439D, AKFF 018992C) located within the APE for Alternatives A and B, and another 3 allotments (AKFF 017613A, AKFF 017613B, AKFF 017614A) located within the APE for Alternative B; and

WHEREAS, the BLM has made a good faith effort to consult with local governments and other interested parties pursuant to 36 CFR 800.2(c)(3) and 36 CFR 800.2(c)(5), and the City of Allakaket, the Northwest Arctic Borough and Tanana Chiefs Conference have participated in the development of this PA as Consulting Parties and may sign as Concurring Parties; and

WHEREAS, the BLM has coordinated Section 106 and NEPA, pursuant to 36 CFR 800.8 and consistent with guidance from the Council on Environmental Quality and ACHP *Handbook for Integrating NEPA and Section 106*, and has provided opportunities for the public to comment on, discuss, or share information or concerns about the Undertaking during public scoping and comment periods for the EIS and has considered all comments received; and

WHEREAS, the BLM has consulted with AIDEA (Permittee) on the development of this PA pursuant to 36 CFR 800.2(c)(4), and the Permittee has agreed to carry out Stipulations in this PA and is an Invited Signatory; and

WHEREAS, the Alaska Department of Natural Resources is a landowner and to address its obligations to protect state-owned historic, prehistoric, or archaeological resources as provided under Alaska Statute (AS) 41.35, has participated in the development of this PA and is an Invited Signatory; and

NOW THEREFORE, the BLM, the SHPO, and the ACHP agree that the Project shall be implemented in accordance with the following stipulations in order to take into account the effect of the Undertaking on historic properties.

STIPULATIONS

The BLM shall ensure that the following stipulations are carried out:

[4] Throughout this document, the term "Tribe" or "Tribes" is consistent with the definition found at 36 CFR 800.16(m) and refers to a tribe, band, nation, or other organized group or community, including a native village, regional corporation or village corporation, formed pursuant to Section 3 of the Alaska Native Claims Settlement Act (43 USC 1602).

I. STANDARDS

A. The BLM shall ensure that all work carried out pursuant to this PA meets the Secretary of the Interior (SOI) Standards for Archaeology and Historic Preservation (found at http://www.nps.gov/history/local-law/arch_stnds_9.htm), taking into account the suggested approaches to new construction in the SOI's Standards for Rehabilitation.

B. The BLM shall ensure that all work carried out pursuant to this PA shall be done by or under the direct supervision of historic preservation professionals who meet the SOI's Professional Qualifications Standards. The BLM and the Permittee shall ensure that contractors retained for services pursuant to the PA meet these standards.

C. The BLM recognizes that Tribes or other groups may have special expertise regarding places of traditional religious, spiritual, or cultural significance, or Traditional Cultural Properties (TCPs), but these individuals or groups may not meet the standards in I.A and I.B. However, the BLM will equally consider and incorporate special expertise into decisions regarding the implementation of this PA, consistent with 36 CFR 800.2(c)(2).

II. ADMINISTRATIVE STIPULATIONS

A. This PA shall apply to the Project and all of its Phases, Components, and Stages, including those not known at this time, not defined in the EIS, or not specified in the permits, permit applications, or other Project documents, so long as the activities occur within the jurisdiction of a state or federal agency.

B. The BLM, the NPS, the USACE, and State shall enforce the terms of this PA within each agency's scope and shall incorporate this PA and its terms into any decision document, permit, or authorization they issue. Each shall notify the others within 5 business days if any of them becomes aware of an instance of possible non-compliance with the terms and conditions of this PA or permit conditions as they relate to this PA. If this occurs, the BLM shall ensure that measures are taken to resolve non-compliance issues, consistent with its legal authorities, and will consult with the other PA Signatories, as needed.

C. The PA Signatories recognize that certain information about historic properties or archaeological resources are protected from public disclosure under the NHPA (54 USC 307103), the Archaeological Resources Protection Act (ARPA; 43 CFR 7.18), and Alaska State law, as required by Public Law 96-95, AS 40.25.120(a)(4), and Policy and Procedure No. 50200. Parties to this agreement shall ensure that all actions and documentation prescribed by this PA are consistent with the non-disclosure requirements of these laws.

D. Any of the PA Signatories may seek qualified independent expert consultation through a contractor, in order to fulfill the responsibilities under this PA, provided the contractor meets Stipulation I, Standards.

E. Email will be an acceptable form of communication between the Consulting Parties and is an appropriate method of "notification" or "in writing" where it is called for in this PA, unless otherwise described. If a Consulting Party does not have access to email or consistently available internet service, then the BLM will ensure that other forms of communication are made available. All the Consulting Parties should immediately notify the BLM if a point of contact within their organization changes and provide updated information. The BLM will maintain an updated list of current contact names, organizations, and email addresses as a component of Attachment E, Cultural Resource Management Plan. Updates to the contact list will not require an amendment.

F. In the event that another federal agency, not initially a party to this PA, receives an application for funding/license/permit for the Undertaking, as it is described in this PA, that agency may fulfill its Section 106 responsibilities by stating in writing that it concurs with the terms of this PA and by notifying the Signatories that it intends to do so. Such agreement shall be evidenced by execution of a Signature Page and filing it with the ACHP, and implementation of the terms of this PA.

G. This PA will not supersede or replace any guidelines, stipulations, or requirements in the BLM national PA and associated Alaska Protocol[5]; or the PA on Protection of Historic Properties During Emergency Response and associated Alaska Implementation Guidelines[6].

III. AGENCY ROLES AND RESPONSIBILITIES

A. The BLM, the NPS, the USACE, and State shall attach this PA or its stipulations to any agency-specific permits or authorizations for the Project. Those agencies shall ensure that requirements of this PA have been met for the Undertaking under their respective jurisdictions. Failure by the Permittee to comply with the stipulations could result in suspension, modification, or revocation of permits or authorizations.

B. The BLM, the NPS, the USACE, and State shall ensure that no ground disturbance, including brush clearing, geotechnical surveys, or any other activity associated with the Project that may affect historic properties, takes place within a Project Segment, Stage, or Component until identification, evaluation, and on-site measures for resolution of adverse effects have been completed for that Segment, Stage, or Component. The NPS, the USACE, and State will inform the BLM in writing once the stipulations within each agency's scope, as outlined in this PA, have been satisfied by the Permittee. The BLM will then provide written notice to the Permittee that Section 106 requirements have been satisfied for that Segment, Stage, or Component.

C. The BLM, the NPS, the USACE, and State shall consult, at a minimum, during the Annual Meeting to ensure that each agency independently satisfies its respective regulatory requirements under 36 CFR 800 and AS 41.35.200(a). If any PA Signatory fails to comply with the PA, the BLM shall implement the procedures outlined in Stipulation XVI, Dispute Resolution.

IV. PERMITTEE RESPONSIBILITIES

A. If the Project is permitted, this PA and all its requirements will be binding on AIDEA as the Permittee, and any heirs, successors, assigns, joint ventures, and any contractors acting on behalf of the Permittee. The Permittee will include a provision requiring compliance with the PA in any contract of sale or transfer of ownership or management of the Project.

B. The Permittee shall be responsible for funding and implementing, either directly or through qualified contractors, the work necessary to ensure compliance with the terms of this PA. This work will be completed on behalf and at the direction of the BLM.

[5] BLM PA: https://www.blm.gov/sites/blm.gov/files/National%20Programmatic%20Agreement.pdf
Protocols for Alaska: https://www.blm.gov/sites/blm.gov/files/AK%20Protocol.pdf

[6] Emergency Response PA: https://www.nrt.org/sites/2/files/Programmatic_Agreement_on_Protection_of.pdf
Alaska Guidelines: http://dnr.alaska.gov/parks/oha/oilspill.htm

C. The Permittee shall ensure that any persons conducting or supervising cultural resources work on their behalf hold all appropriate federal or state permits and/or authorizations for that work, and meet Stipulation I, Standards, for the applicable discipline.

D. The Permittee shall ensure all necessary federal, state, and private landowner permits and/or authorizations are obtained for conducting archaeological survey, excavation, and monitoring, consistent with the permitting process for the applicable agency and/or landowner. Applicable permits include Permits for Archaeological Investigations from the BLM and/or the NPS, the Alaska State Cultural Resource Investigation Permit from the State, and authorizations from the Northwest Arctic Borough; NANA; Doyon, Limited; Evansville, Limited; and/or other private landowners.

E. Prior to the initiation of ground disturbing activities for each Project Phase, the Permittee shall provide a technical design plan for that Phase (Phase Plan) to the BLM that contains detailed descriptions of the locations of all Segments and Components, detailed descriptions of the planned work Stages, and anticipated work schedules for all activities that will occur during that Phase. The Plan must contain detailed maps and a GIS deliverable with the spatial locations of the planned work. The BLM will distribute Phase Plans to Consulting Parties for informational purposes and will append them to Attachment G, Project Plans. Each Phase Plan will contain all information known at that time for that Phase; however, changes to the technical designs, methods, or schedules may be incorporated into the Annual Work Plan (VII.B.i), rather than necessitating a revision of the Phase Plan.

F. The Permittee may carry out the stipulations of this PA in a phased approach for identification and evaluation per 36 CFR 800.4(b)(2), based on Project Segments, Stages, and Components, but will not initiate any ground disturbance, or other types of activities that could adversely affect historic properties, before inventory, evaluation, assessment, and on-site measures for resolution of adverse effects has been completed for that Segment, Stage, or Component. Prior to commencement of any activities that could affect historic properties, the Permittee must receive written notice from the BLM that Section 106 requirements have been satisfied for that Segment, Stage, or Component.

G. The Permittee shall develop a tribal liaison/representative program in collaboration with Tribes. The program may be a component of other Project-wide efforts (subsistence advisory committees or similar) but must provide an opportunity for Tribal representatives to participate in and share information for cultural resource management activities. To the extent practicable, the Permittee will make opportunities available for Tribal liaisons/representatives to accompany cultural resource personnel during fieldwork and/or monitoring activities. The Permittee will provide a description of the program and identify Tribal liaisons/representatives and roles for the upcoming year in the Annual Work Plan (VII.B.i); the Permittee will report on all activities under the program as part of the Annual PA Report (XV.B). The BLM will ensure the program is reviewed as part of the Annual Meeting (XV.A) and will require the Permittee to make adjustments to the program as necessary, to ensure adequate opportunities are provided for Tribal participation and input during cultural resource management activities.

H. The Permittee, and any contractors hired on their behalf, will not retain sensitive information[7] that Tribes or Consulting Parties authorize them to collect, except as required for compliance with the terms of the PA and Cultural Resources Management Plan (CRMP), Attachment E. Sensitive information includes information covered under Section 304 of the NHPA (54 USC 307103), ARPA (43 CFR 7.18), or AS 40.25.120(a)(4).

I. The Permittee shall create a password-protected file sharing platform to allow PA Signatories to easily share data associated with implementation of the PA. All reports and deliverables shall be transferred to the BLM, other PA Signatories, and/or Consulting Parties through this platform. Access will be restricted consistent with the terms of the PA. If a Consulting Party does not have access to email or consistently available internet service, then the BLM will ensure that other forms of delivery are made available.

J. The Permittee shall ensure that any Project personnel found vandalizing, moving, or taking cultural materials, or violating any portion of ARPA (16 USC 470aa) or AS 41.35.200, will be subject to appropriate disciplinary action up to and including immediate termination. In each instance, the Permittee shall consult with the BLM, the SHPO, and the landowner/manager to determine whether a report to appropriate law enforcement authority is warranted.

K. The Permittee is responsible for gaining access to private property for the purposes of implementing this PA and will notify the BLM when access has been granted. In cases where the Permittee cannot gain access, identification efforts on that property may be deferred until access is gained. If a private landowner refuses entry, the BLM, the SHPO, and Permittee will consult on a case-by-case basis and consider alternative survey methods. The Permittee will be responsible for ensuring efforts are commensurate with cultural resource management industry standards and meet a good faith intent for carrying out inventory, evaluation, assessment of effects, and resolution of adverse effects on all private property consistent with the terms of this PA; failure to meet the good faith standard for inventory could result in suspension, modification, or revocation of permits or authorizations.

V. CONSULTATION

A. The BLM shall use the Secretary's *Standards and Guidelines for Federal Agency Preservation Programs* as a guide for consultation. Consultation means the process of seeking, discussing, and considering the views of other participants, and, when feasible, seeking agreement with them regarding matters arising in the Section 106 process. Additional details regarding consultation are provided in the CRMP, Attachment E.

B. The BLM shall conduct government-to-government consultation with Tribes located near the permitted route, or with Tribes that have traditionally used that area in the past. The BLM will use Handbook 1780-1, *Improving and Sustaining BLM-Tribal Relations*, as a guideline for Tribal consultation. The BLM will consult with Tribes to identify places that may be of traditional religious, spiritual, or cultural importance to them. The BLM, in consultation with the SHPO and Tribe(s), shall determine whether those places are historic properties, whether there would be an adverse effect from the Undertaking, and, if so, appropriate measures to resolve the adverse effect(s). Information shared by Tribes that is of a culturally sensitive nature will be respected and treated in a confidential manner. The

[7] Sensitive information is defined as including information about the location, character, or ownership of a historic property if disclosure to the public may cause a significant invasion of privacy, risk harm to the historic property, or impede the use of a traditional religious site by practitioners (54 USC 307103).

BLM will consult early in the identification process with Tribes to determine what is considered sensitive information, and the means by which that information will be collected, shared, and returned and/or destroyed, consistent with Stipulation II.C. The BLM will continue to consult on a government-to-government basis with Tribes throughout the duration of this PA. Further details on Tribal consultation are provided in the CRMP, Attachment E.

C. The BLM shall ensure the SHPO receives all technical reports, in keeping with the SHPO's mission to identify and maintain inventories of cultural resources and historic properties per Section 101 of NHPA (54 USC 302301) and AS 41.35.070. The SHPO will retain location information about all cultural resources and historic properties, including properties of religious, spiritual, or cultural significance to Tribes; however, at the request of one or more Tribes, the SHPO will treat information regarding specific historic properties of traditional religious, spiritual, or cultural significance as sensitive information subject to Section 304 of the NHPA, 36 CFR 800.11(c), and/or applicable state laws.

D. The BLM shall consult with the Permittee regularly or at the Annual Meeting (XV.A) to share information, gathered during consultation with Tribes or other entities, that may be relevant to the Permittee's responsibilities under this PA. This includes, but is not limited to, information relevant to training curriculum, information relevant to inventory efforts, requests to participate in monitoring activities, requests to accompany crews in the field, and requests to participate in Tribal liaison activities.

E. The BLM shall ensure that the Consulting Parties are kept informed on the Undertaking and implementation of this PA and shall provide opportunities for review and comment on all pertinent documents. The BLM's consultation will, at a minimum, include distribution of the Annual PA Report (XV.B) to Consulting Parties via email and facilitation of the Annual Meeting (XV.A).

F. The BLM shall consult with and provide information to the public, pursuant to 36 CFR 800.2(d). The BLM and the Permittee will post the Annual PA Report (XV.B), with confidential information redacted as necessary, on their respective websites for the Project. The Permittee will mention the availability of the Annual PA Report in newsletters or similar forms of communication that are sent to the public and other interested parties.

G. The BLM delegates responsibilities to the Permittee for consultation with private landowners, unless the landowner requests to consult with the BLM, at which point the BLM will assume consultation responsibilities to the extent requested by the landowner. The Permittee will notify landowners that consultation with the BLM is an option.

VI. CULTURAL RESOURCES MANAGEMENT PLAN

A. The BLM, in consultation with the PA Signatories, has prepared a Cultural Resources Management Plan to guide compliance with the stipulations in this PA and is included as Attachment E. At the time of PA execution, all sections of the CRMP are considered complete, except for Chapter 6, Historic Property Treatment and Mitigation, and guidance for the Operations and Maintenance Phases and Reclamation Phase of the Project. The BLM shall ensure that content is developed and incorporated into the CRMP in accordance with the following timeline:

i. 12 months following PA execution, the BLM will submit standard mitigation guidance for archaeological sites, historic trails, and other property types that are common in the APE (Chapter 6 of the CRMP).

ii. No later than 1 year prior to the Project transitioning into the Operations and Maintenance Phase, the CRMP will contain finalized guidance for that Phase, which may include a streamlined Section 106 and/or Alaska Historic Preservation Act review process.

iii. No later than 1 year prior to the Project transitioning into Reclamation, on any portion of the Project, the CRMP will contain finalized guidance for reclamation activities, which may include streamlined Section 106 and/or Alaska Historic Preservation Act review processes.

B. The BLM will facilitate monthly consultation meetings with the other PA Signatories, and other Consulting Parties that provide written notification they wish to participate, for drafting the remaining CRMP guidance, either via phone or in person, or as determined necessary by the PA Signatories. The BLM will provide the PA Signatories with revisions to the CRMP at least 15 working days prior to any meetings. The BLM will incorporate comments received and provide updated drafts to the PA Signatories. The first review and last review will be a 30-day[8] period.

C. The BLM will solicit comments from Consulting Parties at the beginning of each new content development process (steps VI.A.i through VI.A.iii) and provide each draft final CRMP to Consulting Parties for a 30-day review and comment period and will consider all timely comments received. The CRMP will be finalized when the SHPO, the BLM Central Yukon Field Office Manager, and the NPS GAAR Superintendent sign Exhibit F of the CRMP. The BLM will distribute the final CRMP to the Consulting Parties and incorporate it as the finalized version of Attachment E.

D. Amendments or addendums to the CRMP will follow Stipulation XVII.B.ii, Amendments and Addendums.

VII. ALTERNATIVE FOUR STEP PROCESS

A. The BLM shall use the following phased process for the Undertaking, to complete inventory, evaluation, assessment of effects, and resolution of adverse effects, consistent with 36 CFR 800.3-800.6, and will direct the Permittee to gather sufficient data to fulfill documentation standards consistent with 36 CFR 800.11, in a manner that will accommodate the Permittee's phased construction and development of the Project.

B. Reporting Process – The Permittee will provide the following plans and reports for compliance with the Alternative Four Step Process, and will ensure they are commensurate with cultural resource management industry standards and meet a good-faith intent for carrying out inventory, evaluation, assessment of effects, and resolution of adverse effects in a phased approach. See also the steps outlined in Stipulation XIV, Document Submission and Review, and Attachment F, Reporting Table:

i. Annual Work Plan – The Permittee will provide the BLM with an Annual Work Plan, no later than March 1 of each year, or at least 60 days prior to fieldwork initiation for the first year. The BLM will submit the Annual Work Plan to Consulting Parties at least 15 days prior to the Annual Meeting (XV.A). The Annual Work Plan will contain detailed information about the anticipated work for the upcoming year, where it will occur, how it will be phased within Project Segments, Stages, and/or Components, and how the Permittee will meet the PA

[8] Unless otherwise noted, days refers to calendar days throughout this document.

requirements. Other submissions with the Annual Work Plan may include updates to the Phase Plan (IV.E), Historic Themes (VII.C.ii.a), Ethnographic Resources (VII.C.iii), the Monitoring Plan (X.D), and Contractor Training curriculum (XI.B). The Plan must contain detailed maps and a GIS deliverable with the spatial locations of the planned work. Consulting Parties will have a 30-day review and comment period for the Annual Work Plan, which will follow the steps described in Stipulation XIV, Document Submission and Review. The BLM and the SHPO must approve of the Annual Work Plan before it can be implemented; any work that will occur under NPS jurisdiction will also require approval by the NPS.

ii. Interim Report for Indirect APE – Within 30 days following completion of fieldwork each year, the Permittee will submit an Interim Report for the Indirect APE to the BLM, providing a brief description of cultural resources identified in the Indirect APE during that reporting period. Within 5 days of receipt, the BLM will submit the Interim Report to the Consulting Parties for a 15-day review period to seek comments on which resources within the Indirect APE should be evaluated for the NRHP. The BLM will consult with the SHPO, and the NPS as appropriate, within 7 business days following the 15-day review to consider all timely comments received, and then will direct the Permittee to make recommendations of eligibility, assessment of effects, and measures for resolution of adverse effects for specific resources in the Indirect APE, which the Permittee will include in the Annual Fieldwork Report (VII.B.iii).

iii. Annual Fieldwork Report – The Permittee will submit a Fieldwork Report to the BLM within 90 days following completion of fieldwork each year that will fulfill documentation standards consistent with 36 CFR 800.11. The Report will contain 1) a description of inventory efforts completed since the last report, including monitoring results; 2) NRHP eligibility recommendations; 3) finding of effect recommendations for resources that may be eligible; and 4) recommended resolution measures for resources that may be adversely affected. The Report must contain detailed maps and a GIS deliverable with the spatial locations of the completed work. The BLM will distribute the Annual Fieldwork Report to Consulting Parties for a 45-day review and comment period, which will follow the steps listed in Stipulation XIV, Document Submission and Review. The BLM and the SHPO must approve of the Annual Fieldwork Report before it will be considered complete; relevant portions of the report for cultural resources under NPS jurisdiction will also require approval by the NPS.

a. Within 15 days following the 45-day Consulting Party review, the BLM will consider any timely comments received and will submit Determinations of Eligibility (DOEs), assessment of effects, and proposed mitigation measures to the SHPO, consistent with 36 CFR 800.4-6. If no response is received from the SHPO within 30 days, the BLM shall move forward with their determinations and findings. The BLM's documentation will cite the Project design date/version used to assess adverse effects.

b. If the BLM, through consultation with other Consulting Parties during the 45-day report review period, determines that adequate information has not been provided for a DOE or finding of effect, the BLM will require the Permittee to provide additional information or conduct additional

fieldwork as necessary. After the Permittee has gathered the additional information, the Permittee will submit it as a report addendum to the BLM, which the BLM will distribute to Consulting Parties for another 30-day review. The BLM will take into consideration any timely comments received and will provide a DOE, assessment of effects, and proposed mitigation measures to the SHPO within 15 days. If no response is received, the BLM shall move forward with their determination.

c. If the BLM and the SHPO do not agree on NRHP eligibility of a resource, the BLM shall forward all documentation to the Keeper of the National Register, pursuant to 36 CFR 63.2(d), for an official determination.

d. If a Consulting Party objects to a finding of effect within the 45-day review period, and provides reasons for the disagreement, the BLM shall either consult with the objecting party or forward the finding and supporting documentation to the ACHP for comment, consistent with 36 CFR 800.5(c)(2).

e. The BLM may determine that evaluation of a historic property(ies) may be necessary outside of the annual report cycle. In these instances, the same review process will be followed but may be reduced to a 15-day review and comment period for Consulting Parties, and a 7-day period for the BLM to incorporate timely comments received and submit to the SHPO. If no response is received from SHPO within 30 days, the BLM shall move forward with their determination(s) and finding(s).

iv. Treatment Plans – Within 120 days following Stipulation VII.B.iii.a, the conclusion of the SHPO's 30-day review of DOEs and assessment of effects, the Permittee will develop proposed property-specific Treatment Plans and submit them to the BLM. The Treatment Plans will contain detailed information on treatment measures, a schedule for when the measures will be implemented, and a schedule for when deliverables will be finalized and distributed. The BLM will distribute the Treatment Plans to the Consulting Parties for a 30-day review and comment period, which will follow the steps outlined in Stipulation XIV, Document Submission and Review. The Permittee, or contractors hired on their behalf, will implement the Treatment Plans, following approval of the Plans by the BLM and the SHPO; Treatment Plans for historic properties under NPS jurisdiction will also require approval by the NPS.

a. The BLM may determine that development of a Treatment Plan will require additional time beyond the timelines described above, due to the need for additional consultation, unique characteristics of the property, or other factors. In these instances, the BLM, in consultation with Consulting Parties, will determine what steps must be taken for the Permittee to develop and implement appropriate mitigation measures. Subsequent Treatment Plan reviews will include a 30-day review and comment period, and will follow the steps outlined in Stipulation XIV, Document Submission and Review.

v. Final Implementation Report – The Permittee will submit a Final Implementation Report for each historic property to the BLM, within 180 days after implementation of the Treatment Plan is complete, or within a timeframe specified

in the Treatment Plan. The Final Implementation Report will be a comprehensive record of all activities that occurred at that historic property, from inventory through implementation of treatment measures, and will describe all completed steps, analyses, methods, and results, including collections and datasets generated. The BLM will provide the Report to the Consulting Parties for a 30-day review and comment period, which will follow the steps outlined in Stipulation XIV, Document Submission and Review. The BLM and the SHPO must approve of all Final Implementation Reports before they will be considered complete; Final Implementation Reports for historic properties under NPS jurisdiction will also require approval by the NPS.

vi. Technical Reports – The BLM, in consultation with the other PA Signatories, may determine that technical reports are necessary to summarize the results of background research, fieldwork activities, and laboratory analyses in order to fully understand Project effects to historic properties, or may be useful as mitigation measures for broad-scale effects. Technical Reports should not require extensive efforts to gather new information, but rather be a compilation of existing information. The BLM will consult with the other PA Signatories at the Annual Meeting to consider whether a technical report(s) may be needed, and if so, what content it should contain and subsequent review process. The Permittee will be responsible for compiling the report(s) and submitting to the BLM. The BLM will provide the report to Consulting Parties for at least a 30-day review period, which will follow the steps outlined in Stipulation XIV, Document Submission and Review. The BLM and the SHPO must approve of Technical Reports before they can be considered finalized.

C. Inventory Process – Based on a Data Gap analysis for the Project[9], the cultural resources that are likely to be encountered during inventory, and may meet the definition of historic properties, fit into 3 broad categories: archaeological resources, historic resources, and ethnographic resources. Through consultation, the BLM determined that a reasonable and good faith effort, pursuant to 36 CFR 800.4(b)(1), requires separate inventory[10] methods to account for archaeological, historic, and ethnographic resources, which will include background archival research as well as pedestrian survey, consistent with the SOI's Standards for Identification. The BLM shall ensure that inventory for archaeological, historic, and ethnographic resources occurs as follows:

i. Archaeological Resources – The Permittee shall employ a qualified contractor to create a Geographic Information System (GIS) model of prehistoric and protohistoric archaeological resource potential within the APE for the permitted alternative. The model will categorize areas within the APE for the potential presence of prehistoric and protohistoric archaeological resources. The Permittee will provide the model, summary documentation regarding the variables used to create it, and how the model will be tested during implementation to the BLM within 6 months after the PA is executed. The BLM will distribute the model and documentation to the other PA Signatories for a 30-day review and comment

[9] Ford et al. 2018. Ambler Road Environmental Impact Statement: Cultural Resources Data Gap Analysis Report. Prepared by HDR, for the Bureau of Land Management, Central Yukon Field Office, Fairbanks, Alaska.

[10] The term "inventory" is used throughout this document to refer to all efforts to compile information on historic properties, including consultation, archival research, and fieldwork. The term "survey" refers to inventory efforts that are field based only.

period. The BLM shall require the Permittee to make changes and modifications as necessary, based on comments received. Annually throughout Phase I of the Project, or as determined necessary by the PA Signatories, the model will be refined based on new data obtained through fieldwork and/or updated environmental datasets. Based on model results, pedestrian survey will be required for portions of the APE, per Stipulation VII.D. Additional details are provided in the CRMP, Attachment E.

ii. Historic Resources – The Permittee will employ qualified contractors to develop Historic Theme reports relating to historic period resources, such as (but not limited to) traditional subsistence economy; traditional hunting, trapping, and guiding economies; traditional trade networks; historic exploration and travel corridors; and prospecting and mining. The purpose of the Historic Themes is to gather information on historic-era resources or places associated with historic events that may be present within the APE, and to identify areas that are high potential and require pedestrian survey. The documentation efforts will include a comprehensive summary of available data sources and will include GIS mapping of any relevant spatial information. Additional details are provided in the CRMP, Attachment E, including a list of potential data sources (Chapter 4.1.2).

    a. The Permittee will submit the Historic Theme reports to the BLM 60 days prior to initiation of the first season of fieldwork, and any updates to the Themes with the Annual Work Plan each year thereafter. The BLM will share the reports with Consulting Parties for a 30-day review and comment period, which will follow the steps outlined in Stipulation XIV, Document Submission and Review. The BLM and the SHPO must approve of the Historic Themes.

    b. The Permittee, or contractors hired on their behalf, will conduct pedestrian survey in areas identified in the Historic Themes as high potential for historic resources, per Stipulation VII.D.i.

    c. Historic Themes may be further developed as Historic Contexts for NRHP eligibility considerations, consistent with Stipulation VII.E.

iii. Ethnographic Resources – The BLM shall make a good faith effort to provide Tribes, local governments, and other communities with an opportunity to identify ethnographic resources, including places of traditional religious or cultural importance, within the APE, consistent with Stipulation V, Consultation. Ethnographic resources are likely present but are generally only identifiable by the community sharing the values, traditions, beliefs, or social institutions associated with such places, but could also be identified through archival research or other means. The BLM shall consider the nature and location of ethnographic resources identified, and determine through consultation with the party(ies) that identified the resource and the SHPO if additional work, in the form of oral interviews, research, GIS mapping, site visits, or other culturally-appropriate methods, are necessary to document the ethnographic resource(s). Additional details are provided in the CRMP, Attachment E.

    a. As necessary, the BLM shall gather sufficient information to complete a determination of NRHP eligibility for identified resources if it is identified as a sensitive resource, or shall direct the Permittee to gather information

and make a recommendation of NRHP eligibility for the BLM to consider, if the resource is not considered sensitive. The Permittee shall integrate the results of the ethnographic investigation into the Annual Fieldwork Report, unless the resource needs to be treated confidentially.

b. At the time of PA execution, the following Tribes and local governments have indicated areas of cultural importance and/or ethnographic resources that may be affected by 1 or more alternative, and for which the BLM will consult further:

Alatna Village Council
Allakaket Village Council
City of Allakaket
City of Anaktuvuk Pass
Dinyea Corporation
Evansville Village
Evansville, Incorporated
Hughes Village Council
Huslia Village Council
Native Village of Kobuk
Native Village of Noatak
Native Village of Selawik
Native Village of Stevens
Native Village of Tanana
Northwest Arctic Borough
Noorvik Native Community
Village of Anaktuvuk Pass

D. Survey Process – As a component of the inventory process and consistent with 36 CFR 800.4, the BLM shall ensure the Permittee, or contractors hired on their behalf, complete a reasonable and good faith effort for pedestrian survey and testing within the APE. This will include survey and/or testing in areas that are likely to contain archaeological, historic, and ethnographic resources, but will not require 100 percent survey coverage of the APE. To determine where survey is required, the Permittee will incorporate the archaeological model (VII.C.i), Historic Theme reports (VII.C.ii.a), and ethnographic information (VII.C.iii) to categorize the APE as high, medium, and low potential for the presence of cultural resources (see additional details in Attachment E, CRMP). The level of effort for survey will vary based on the APE categorization but will use standard field methods described in Chapter 4 of the CRMP. This effort, collectively, will be known as the Survey Strategy[11]. The Permittee will provide a detailed description of the Survey Strategy as part of the Annual Work Plan (VII.B.i), and will update and refine it annually to incorporate the results of the previous year's inventory efforts and/or any new or updated datasets. The BLM will provide the Permittee with information that is relevant to the inventory process on a regular basis, or at least by December 30 of each year, so that the Permittee can incorporate it into the Survey Strategy. Based on the Survey Strategy, the Permittee, or

[11] The term "Survey Strategy" is used throughout the document to refer to required field efforts to identify archaeological, historic, and ethnographic resources within the APE. The Survey Strategy will be developed by compiling multiple data sources for those resources, which will then be used to classify the APE into areas of high, medium, or low potential for cultural resources.

contractors hired on their behalf, will complete pedestrian survey and testing in the APE according to the following requirements:

i. High Potential: Defined as landforms adjacent to wetlands, riparian areas, watershed confluences, lakes, streams, Revised Statute 2477 trails, villages, and AHRS sites, or identified as high potential through consultation, research, and or/field evaluation. Pedestrian survey and testing is required for 100 percent of high potential areas within the Direct APE. If the Field Crew Chief determines that subsurface testing within these areas is not necessary, he/she will document how and why that determination was made.

ii. Low Potential: Defined as areas that are wetlands, perennially inundated, areas of tussock tundra, or slopes over 25 degrees, unless identified as a high potential through consultation, research, and/or field evaluation. Pedestrian survey and testing is required for 10 percent of low potential areas within the Direct APE. Otherwise, areas that are identified as low potential will not require pedestrian survey or subsurface testing. If the Field Crew Chief determines that subsurface testing within these areas is not necessary, he/she will document how and why that determination was made.

iii. Medium Potential: Areas not defined as either low potential or high potential. Pedestrian survey and testing is required for 50 percent of medium potential areas within the Direct APE. If the Field Crew Chief determines that subsurface testing within these areas is not necessary, he/she will document how and why that determination was made.

iv. Previously Surveyed Areas: The Permittee will not be required to conduct pedestrian survey and testing in areas of the APE that have been previously inventoried in the past 10 years via methods that are commensurate with, or meet, the PA Stipulations and CRMP Guidelines. However, it may be necessary for the Permittee or their contractors to revisit known resources to collect adequate data for NRHP eligibility recommendations. The Permittee will evaluate previous pedestrian surveys and provide recommendations on whether those areas need to be revisited as part of the Survey Strategy.

v. Indirect APE: Survey for subsurface resources in the Indirect APE is not required, unless there are reasonably foreseeable adverse effects from the Undertaking. Survey for surface resources may be required; however, the BLM cannot make informed decisions on the extent of the effects until Project design plans, footprints, construction methods, and schedule are finalized and submitted as Phase Plans (IV.E) and/or Annual Work Plans (VII.B.i). Potential direct, indirect, or cumulative effects may occur from increased access along or across the proposed road corridor, soil erosion or deposition downstream of water crossings and bridges, or other visual, audible, or atmospheric factors. Additional inventory and/or monitoring may be required, particularly in areas vulnerable to erosion, including water crossings, downstream of water crossings, hillside cuts, and trail or access crossings. The Permittee will provide new or updated Project plans to the BLM as part of the Annual PA Report (XV.B) and the PA Signatories will review and consider whether the Permittee will be required to complete additional inventory and/or monitoring within the Indirect APE during the Annual Meeting (XV.A).

E. Evaluation Process: Per 36 CFR 800.4(c) and 36 CFR 60.4, the BLM shall ensure that the Permittee, or contractors hired on their behalf, evaluate all identified cultural resources within the Direct APE and Indirect APE to determine if they are eligible for the NRHP. Evaluation will follow 36 CFR 63, NPS Bulletin 15, *How to Apply the National Register Criteria for Evaluation*, and/or other appropriate guidelines, and will consider both individual and district-level eligibility. Resources of a similar nature may be evaluated as a multiple property listing or as a district to create more efficiencies in the process. The Permittee will provide all recommendations of eligibility to the BLM as part of the Annual Fieldwork Report (VII.B.iii). The BLM will submit final DOEs to SHPO following Stipulation VII.B.iii.a. Additional details on evaluation are provided in Attachment E (CRMP). Cultural resources that are not eligible for the NRHP will no longer be subject to the terms of this PA.

F. Assessment and Resolution of Adverse Effects: The BLM shall ensure adverse effects to historic properties are assessed per 36 CFR 800.5 and resolved through avoidance, minimization, or mitigation, per 36 CFR 800.6. To the extent practicable, the Permittee will develop or modify Project design and construction methods to avoid historic properties. For historic properties that cannot be reasonably avoided, the Permittee will submit assessments of effects and recommended resolution measures to the BLM as part of the Annual Fieldwork Report (VII.B.iii).

i. The BLM shall ensure the Permittee, or contractors hired on their behalf, resolve all adverse effects that cannot be avoided or minimized through implementation of appropriate mitigation measures that are commensurate with the significance of the historic property and the Project's effect on the historic property. Proposed mitigation measures will be submitted to the BLM as part of the Annual Fieldwork Report (VII.B.iii) and approved mitigation measures will be fully developed as Treatment Plans (VII.B.iv), which the Permittee will be required to implement, following approval of the Plans. In certain cases, the BLM may determine that additional consultation is necessary to develop appropriate mitigation measures for certain historic properties. The Permittee will provide a Final Implementation Report (VII.B.v) to the BLM when mitigation is complete for each historic property.

ii. Approved mitigation measures may include, but are not limited to, the following list (see Attachment E, CRMP for additional details).

1. Oral history interviews, placenames studies, GIS mapping, development of media, archival searches, and report preparation and publication; generally associated with properties eligible under Criterion A or B;

2. HABS/HAER/HALS documentation or rehabilitation and reporting; generally associated with properties eligible under Criterion C;

3. Data recovery and analysis, reporting, and curation of resulting collections and records; generally associated with properties eligible under Criterion D;

4. Assisting in the development of Tribal or community historic preservation plans;

5. Nominating and listing properties for the NRHP;

6. Public interpretation or public reports on regional history or prehistory;

7. Providing improvements to or maintenance for historic trails;

8. Creation of K-12 school curriculum or other projects for local schools related to the history or prehistory of the region; and

9. Cultural resource management internship opportunities.

iii. The BLM will generally consider approval of a Final Implementation Report (VII.B.v) to satisfy the requirements of 36 CFR 800.6 for each historic property. However, to account for potential Project modifications that could change the assessment of effects, the BLM shall ensure the criteria of adverse effect is applied using the most recent Phase Plan (IV.E) prior to providing the Permittee with written notification that the Section 106 requirements have been met.

G. Long-Term Considerations:

i. After the initial inventory is completed, the PA Signatories may determine that mitigation measures are needed to account for broad-scale indirect or cumulative adverse effects to regional or national history and prehistory. Within 3 years following completion of initial inventory, the BLM will consult with the PA Signatories during the Annual Meeting (XV.A) to determine if broad-scale mitigation is appropriate, and if so, to identify measures for the Permittee to implement. The PA Signatories will also consider the Project's indirect and cumulative effects in advance of the Project transitioning from one Phase to another (see Attachment G, Project Plans).

ii. If the Permittee expands, revises, or alters Project Segments, Components or footprints, and the area was inventoried more than 10 years prior, the BLM will consider whether the Permittee will be required to re-survey the area that would be affected by the changes, using methods determined appropriate by the BLM and other PA Signatories. The Permittee will provide any proposed changes in the Annual Work Plan (VII.B.i) and the BLM will consult with the Consulting Parties at the Annual Meeting (XV.A) to determine appropriate levels of effort for re-survey. Considerations should include environmental changes that occurred that could affect the identification of historic properties, resources that could have reached the 50-year threshold, new information that may be available regarding historic or traditional uses of the area, new survey methods or technology, or other factors.

iii. Reevaluation of eligibility for listing in the NRHP may be necessary for certain cultural resources. The BLM will consult every 5 years with the Consulting Parties during the Annual Meeting (XV.A), or following substantive changes to Project Components or Phases, to determine if reevaluation of certain resources is necessary.

iv. The BLM reserves the right to reevaluate the assessment of effects to historic properties if there are changes in design, construction methods, maintenance requirements, reclamation activities, or any other aspect related to the Undertaking that could adversely affect historic properties.

VIII. COLLECTION AND CURATION

A. Any materials[12] collected as a result of implementing this PA, and not subject to the Native American Graves Protection and Repatriation Act of 1990 (NAGPRA), are the property of the applicable state or federal land-managing agency, or landowner if collected from privately owned property. On federal lands, any human remains, funerary objects, sacred objects, or objects of cultural patrimony, as defined in 43 CFR 10.2(d), will follow disposition to lineal descendants or Tribe(s), following the procedures set forth in 43 CFR 10, Subpart B.

B. Pursuant to 36 CFR 79.7(b) and applicable permit(s), the Permittee will assume all costs associated with the curation of any materials that are collected during the implementation of this PA, in perpetuity. Curation costs may include, but are not limited to, curation fees charged by approved institutions, acquisition of archival materials, shipping, cleaning, rehousing, and any other conservation action determined necessary by a qualified conservator or considered common/ethical practice by the industry.

C. The BLM and the NPS shall ensure that curation of materials collected from federal lands, and not subject to the provisions of the NAGPRA, is completed in accordance with 36 CFR 79, *Curation of Federally-Owned and Administered Archaeological Collections*. The Permittee will submit all materials from federal lands for curation at the University of Alaska Museum of the North (UAM) in Fairbanks, Alaska, but the materials will retain federal ownership. During the permitting process, the Permittee will establish a provisional curation agreement with the UAM for collections, which the Permittee will finalize prior to submission of collections to the UAM.

D. Collections made on state land will comply with AS 41.35.020. The Permittee will submit all materials from state lands for curation at the UAM, but the materials will retain state ownership. During the State Archaeological Permitting process, the Permittee will establish a provisional curation agreement with the UAM for collections, which the Permittee will finalize prior to submission of collections to the UAM.

E. The Permittee, and any contractors hired on their behalf, will be responsible for submitting all materials recovered from state and/or federal lands to the UAM within 6 months following approval of the Final Implementation Report (VII.B.v), or within 1 year following completion of the fieldwork that generated the collection if the property will not require mitigation. All collections will be curation-ready, as determined by UAM requirements. Prior to disposition, the Permittee, or any contractors hired on their behalf, will safeguard all materials from theft or damage by providing appropriate interim storage facilities and conservation actions, consistent with the requirements in 36 CFR 79.9. The Permittee shall consult with UAM staff regarding interim storage facilities and necessary conservation actions to be consistent with 36 CFR 79.9 (b)(4). Within 30 days following disposition, the Permittee will provide the BLM with all accession records and documentation associated with the transfer and curation of materials. The BLM will share the documentation with other landowners or managers, as appropriate.

F. For collections recovered from private lands, the Permittee will work with private landowners to arrange for the disposition of materials. The Permittee will provide private landowners with information on the value of curation and will assume all costs of the materials, not to exceed standards set forth in 36 CFR 79. If a landowner chooses to donate

[12] The term "materials" is consistent with the definition found at 36 CFR 79.4(a)(1), and refers to any objects, artifacts, specimens, records, or remains associated with historic properties. This includes all documentation generated during the implementation of this PA, with the exception of information that is subject to confidentiality clauses of NHPA, ARPA, and/or Alaska State law.

or loan the materials to the UAM or another repository, the Permittee will provide the BLM with documentation of the transfer within 30 days following the transfer. In the event that a landowner chooses to retain a collection, the Permittee will provide documentation of this to the BLM.

IX. INITIATION OF CONSTRUCTION ACTIVITIES AND STOP WORK ORDERS

A. The BLM shall ensure the Permittee does not initiate work on any Project Phase, Component, Stage, or Segment, until on-site actions to carry out the Alternative Four Step Process (VII) have been completed, and the BLM provides the Permittee with written notification that the Section 106 requirements have been met.

B. The BLM may provide written notification to the Permittee, indicating that Section 106 requirements for individual Project Segments have been met, under the following conditions:

i. Project activities within that Segment would not restrict subsequent rerouting of other Segments or Components to avoid, minimize, or mitigate adverse effects to historic properties; and

ii. The BLM, in consultation with the PA Signatories, determines that all inventory has been completed and there are no historic properties within the APE for that Segment and that cultural resource monitoring or other methods will account for potential unknowns.

C. The BLM may issue a Stop Work Order if it, or any PA Signatory, determines that Stipulation VII or IX.B has not been fulfilled, or if additional information regarding a historic property(ies) becomes available after the BLM notifies the Permittee that Section 106 requirements have been met. If a PA Signatory determines this, it shall notify the BLM in writing of the issue and the BLM shall subsequently issue a Stop Work Order to the Permittee. The BLM will then consult with the appropriate PA Signatories to determine what steps must be completed to allow for the work to be reinstated.

D. Monitors have the authority to issue a Stop Work Order if there is an inadvertent discovery found during monitoring activities. See also Stipulation X, Monitoring; Stipulation XII, Inadvertent Discovery and Unanticipated Effects; and the CRMP, Attachment E.

X. MONITORING REQUIREMENTS

A. Monitoring shall be required throughout the duration of this PA but may require differing levels of effort depending on the Project Phase, Component, or Stage. The BLM shall consult with Consulting Parties about where and to what extent monitoring will occur. At a minimum, the PA Signatories will consult regarding the need for monitoring during review of the Annual Work Plan (VII.B.i) and consider it during review of the Annual Fieldwork Report (VII.B.iii). The Permittee will ensure that monitoring plans are consistent with the Alaska Office of History and Archaeology Historic Preservation Series 15, *Monitoring Guidelines*. Additional details are provided in the CRMP, Attachment E.

B. The BLM shall ensure the Permittee employs qualified Monitors and Supervisory Monitors, consistent with Stipulation I.B and the professional qualifications outlined in the Alaska Office of History and Archaeology Preservation Series No. 15 *Monitoring Guidelines*, to be present for Project work as determined necessary through consultation with the Consulting Parties. The Permittee must make opportunities available for Tribal liaisons/representatives to participate in monitoring, consistent with Stipulation IV.G.

Typical considerations for monitoring include but are not limited to: all ground-disturbing work within 500 feet of the boundary of a known historic property, within 1,000 feet of anadromous river crossings, and in high potential areas where testing may not have been adequate. Monitors may also be appropriate at historic properties previously subjected to data recovery, since there is a possibility for discovery of significant features or other cultural materials in previously unexcavated areas. Post-construction monitoring may be necessary to evaluate whether effects are occurring to historic properties that were avoided, whether historic properties are being indirectly or cumulatively affected, or to complete a reasonable and good faith effort in areas that were identified as high potential to encounter cultural resources. Monitors will be authorized to issue Stop Work Orders, consistent with Stipulation IX.D.

C. The Permittee shall develop a Monitoring Plan, which will be updated annually. The Monitoring Plan will include, but not be limited to:

i. Areas to be monitored;
ii. Reporting requirements and schedule to track progress and results;
iii. Stop Work protocol for Monitors;
iv. Collection and curation protocols;
v. Hand signals for Monitors and equipment operators;
vi. Procedures and safety around heavy equipment; and
vii. Qualification standards and number of Monitors needed.

D. The Permittee shall provide a Monitoring Plan to the BLM each year as part of the Annual Work Plan (VII.B.i). The Monitoring Plan will describe how Project activities during the upcoming year will be monitored. Consulting Parties will review the Monitoring Plan concurrently with the Annual Work Plan.

E. The Permittee shall provide a Monitoring Report to the BLM each year as part of the Annual Fieldwork Report (VII.B.iii). The Monitoring Report will describe the results of the monitoring activities during the previous year. Consulting Parties will review the Monitoring Report concurrently with the Annual Fieldwork Report.

XI. CONTRACTOR TRAINING REQUIREMENTS

A. The Permittee shall provide cultural resource awareness training to all Project personnel, contractors, and subcontractors on an annual basis. The training will inform Project personnel of their responsibilities under the law, and clearly list procedures to follow in the event that previously undiscovered cultural resources are encountered. Additional details are provided in Attachment E (CRMP).

B. The Permittee is responsible for creating the training curriculum and shall make a good faith effort to seek input and collaborate with Tribes and other stakeholders to develop and teach the curriculum. Creation of the curriculum may be an iterative process. The Permittee will provide a copy of the curriculum to the BLM with the Annual Work Plan (VII.B.i), which will be shared with Consulting Parties for review and comment. The BLM will consider any timely comments received, and as necessary, require the Permittee to make changes and submit a revised version for review. The BLM and the SHPO will review the curriculum for approval, either within 15 days following the 30-day Consulting Party review, or within 15 days following receipt of any revisions. The curriculum must be approved by the BLM and the SHPO before it can be used for training purposes. The BLM will provide a copy of approved curriculum to the Consulting Parties for informational purposes.

C. It may be appropriate for contractors to receive differing levels of training depending on Project Phase or job role. The BLM, along with Consulting Parties, will evaluate the effectiveness of the curriculum at the Annual Meeting and determine if modifications should be made to improve or clarify content. The Permittee may provide training suggestions based on contractor roles and responsibilities at different stages of the Project.

D. At a minimum, the curriculum will provide information on the following topics:

i. Traditional cultural practices and subsistence uses along the Project corridor;

ii. Legal context for cultural resources protection and applicable federal, state, and local laws;

iii. Penalties for disturbing cultural resources and human remains;

iv. Cultural resources likely to be found in the Project area;

v. Monitoring procedures, including safety around heavy equipment, buffer areas, and hand signals between monitors and equipment operators;

vi. The Inadvertent Discovery of Cultural Resources Plan (Exhibit A of the CRMP, Attachment E); and

vii. The Inadvertent Discovery of Human Remains Plan (Exhibit B of the CRMP, Attachment E).

XII. INADVERTENT DISCOVERY AND UNANTICIPATED EFFECTS

A. The Permittee shall ensure that the Inadvertent Discovery of Cultural Resources (IDCR) Plan, found in Exhibit A of the CRMP, is implemented if there is an inadvertent discovery of a cultural resource(s) during any Project-related work.

B. The Permittee shall ensure all project personnel receive training on the IDCR Plan as part of Stipulation XI, Contractor Training Requirements, shall make the Plan available to all Project personnel, and shall ensure that all worksite supervisors have copies of the Plan with them at the worksite. The Permittee or their designee (such as worksite supervisors) is responsible for ensuring the following 2 steps are immediately implemented following an inadvertent discovery (refer to the IDCR Plan for full details):

i. Stop Work – as soon as it is safe to do so, work will cease in the immediate vicinity of the discovery and a 100-foot radius buffer around the discovery will be flagged or fenced off. The discovery must be secured and protected from further disturbance to the extent possible.

ii. Notify Officials – as soon as possible following discovery, and no later than 1 business day, the Permittee or their designee will notify the BLM, the SHPO, and the landowner or manager of the discovery (contacts are listed in the IDCR Plan).

C. Within 5 business days of notification, the BLM, the SHPO, the Permittee, landowner or manager will consult by telephone or other means on the nature of the discovery and potential significance and determine if any additional investigation is warranted or if other parties should be notified. The resource(s) will be treated as eligible until a full assessment of eligibility can be completed.

D. If the BLM determines through consultation with the other parties that the discovery is not significant and the SHPO concurs, the BLM shall provide the Permittee with written authorization to proceed with construction activities within 1 business day of this determination and concurrence.

E. If the BLM determines that additional investigation is warranted, the Permittee shall ensure the discovery is investigated by a professional meeting Stipulation I, Standards, to evaluate for NRHP eligibility. The field investigation and DOE report will be completed within 10 days following the BLM's determination. The BLM will consult with the SHPO, and other Consulting Parties as appropriate, on the eligibility of the discovery, within 3 business days of receipt of the DOE. The SHPO will provide a determination to the BLM within 5 business days from consultation. If no response is received within 5 business days, the BLM will move forward with their determination.

F. If the discovery is determined eligible, and the Project cannot avoid further effects or has already caused an adverse effect, the Permittee will prepare a Treatment Plan based on mitigation measures developed in the CRMP, Attachment E, and modified to fit the affected historic property. The Permittee will submit the Plan to the BLM within 5 business days of the end of the SHPO comment period. The BLM will distribute the Plan to the other Consulting Parties as appropriate, for a 5 business-day review. The BLM will take into consideration any timely comments received, and require any changes to be incorporated, before approving of the Treatment Plan. The Permittee must implement the on-site measures of the Treatment Plan and receive written notification from the BLM that on-site Section 106 requirements have been met for the discovery, prior to Project activities resuming.

G. The Permittee will report on any discoveries, and the actions that were taken to resolve them, as part of the Annual PA Report (XV.B). The Permittee will also provide a Final Implementation Report to the BLM before moving forward.

XIII. TREATMENT OF HUMAN REMAINS

A. The Permittee shall ensure that the Inadvertent Discovery of Human Remains (IDHR) Plan, found in Exhibit B of the CRMP, Attachment E, is followed if human remains are discovered during Project work, regardless of cultural origin or age, and also including funerary objects, sacred objects, or objects of cultural patrimony, as defined in 43 CFR 10.2(d).

B. The Permittee shall ensure all project personnel receive training on the IDHR Plan as part of Stipulation XI, Contractor Training Requirements, shall make the Plan available to all Project personnel, and shall ensure that all worksite supervisors have copies of the Plan with them at the worksite. The Permittee or their designee (such as worksite supervisors) is responsible for ensuring the following steps are immediately implemented following an inadvertent discovery (refer to the IDHR Plan for full details):

i. Stop Work – As soon as it is safe to do so, work will cease in their immediate vicinity of the discovery and a 100-foot radius buffer will be flagged or fenced off to protect the remains. The remains will be treated with dignity and respect and covered or protected from further disturbance;

ii. Notify Officials – The Permittee will immediately notify, and no later than 1 business day, the Alaska State Troopers, the Alaska State Medical Examiner, local law enforcement, and the Alaska State Troopers/Missing Persons Clearinghouse as stipulated in AS 12.65.005. The Permittee will also notify the BLM, the landowner/manager, the SHPO, and Tribes of discovery per the contact list in the IDHR Plan.

C. The PA Signatories will defer to local law enforcement or the Alaska State Troopers for a determination of whether the remains are of a forensic nature and/or subject to criminal investigation. Remains that are of a forensic or criminal nature will no longer be subject to the terms of this PA.

D. If the discovery is on private or state lands, the Permittee will be responsible for facilitating consultation among the BLM, the SHPO, landowner, and Tribes to determine appropriate treatment, removal, and/or disposition measures for the remains or objects. The Permittee is responsible for covering costs associated with the consultation and treatment, removal, and disposition measures.

E. If the discovery is on federal lands, and includes human remains, funerary objects, sacred objects, or objects of cultural patrimony, the managing agency (the BLM or the NPS) will follow the provisions of the NAGPRA, pursuant to 25 USC 3001 et seq., and the implementing regulations found at 43 CFR 10.4(d). The managing agency will consult with the appropriate Tribe(s) and develop a plan of action within 30 days, as required by 43 CFR 10.5. Consultation for the plan of action will determine appropriate treatment of the remains or objects and a course of action for excavation, custody, and other factors, to complete the disposition process. The Permittee is responsible for covering costs associated with the development of the plan of action and the disposition of the remains or objects.

F. Project construction that would not affect the discovery site may continue, as directed by the BLM through written notification to the Permittee, while documentation and assessment of the human remains at the discovery site proceeds and/or while the NAGPRA plan(s) of action is developed. When the BLM determines that the protocols outlined in the IDHR Plan have been followed, and that compliance with state and federal cultural resources laws has been completed, the BLM will provide the Permittee with written notification that the requirements have been met, and that Project activities may resume at the discovery site.

G. The Permittee will report on any discoveries, and the actions that were taken to resolve them, as part of the as part of the Annual PA Report (XV.B).

XIV. DOCUMENT SUBMISSION AND REVIEW

A. Consistent with the terms and conditions of this PA, the Permittee will prepare numerous document deliverables that will require review by the PA Signatories. These deliverables will include summaries, plans, reports, and curriculum, referred to collectively as "reports"; additional details for reporting are provided in the CRMP, Attachment E. All required reports for PA implementation are displayed in tabular format in Attachment F, Reporting Table.

B. The review, comment, and approval process for all reports will follow the same steps (unless otherwise described) and are cross-referenced with columns in Attachment F, Reporting Table, as follows:

i. The Permittee will submit the report to the BLM within the specified timeframe (Submittal Due).

ii. Within 7 business days of receipt, the BLM will submit the report to the Consulting Parties for a review and comment period, which will occur within the timeframe specified (Review Period).

iii. If no comments are during the Review Period, the BLM will move forward with the report. If timely comments are received, the BLM will consider them and require the Permittee to incorporate changes to the report, and (if necessary) submit a revised version to the BLM within 30 days.

iv. Within 7 business days of receipt of revised reports, the BLM will submit them to agencies for approval within the timeframe specified (Required Report Approvals). If approval of a report is denied for any reason, the party must notify the BLM of this in writing during the review period and provide information regarding the necessary corrections to allow for approval of that report. The BLM will then direct the Permittee to make the necessary changes and then resubmit the revised report to that party for approval.

v. After approval, the BLM will share the final version of reports with Consulting Parties for informational purposes.

vi. The BLM will append finalized Annual Work Plans, Monitoring Plans, and Treatment Plans to Attachment G, Project Plans, consistent with Stipulation XVII.B.iii.

C. Any Consulting Party may submit a request in writing to the BLM for an additional 30-day extension for report review and comment periods. The Permittee may also submit a request

in writing to the BLM for up to a 30-day extension on report submission deadlines. All requests will be considered, and the BLM will notify the other PA Signatories and Consulting Parties as appropriate, if a request is granted. Deadline extensions will not require an amendment.

D. The Permittee may be required by the BLM to redact versions of reports for sensitive information, such as site-specific locations and names, in order for the BLM to distribute the reports to Consulting Parties who do not fall under the applicable professional qualification standards set forth in Stipulation I, Standards, and the public.

XV. AGREEMENT TRACKING AND MONITORING

A. Annual Meeting – The BLM will facilitate an Annual Meeting among the Consulting Parties, no later than March 31 of each year, to consult on the previous year's activities and the activities scheduled for the upcoming year. Items to be discussed at the Annual Meeting may include, but are not limited to:

i. The Permittee will provide detailed descriptions or presentations on work that occurred over the past year, including the following:
   1. Construction, operations, or maintenance activities;
   2. Inventory work within the APE, including consultation, archival research, and field survey;
   3. Cultural resources identified and evaluated;
   4. Historic properties assessed for effects and resolution measures implemented (or proposed); and
   5. Monitoring results;

ii. The Permittee will provide detailed descriptions or presentations on work that will occur over the upcoming year, including the following:
   1. Any changes to Phase Plans and whether that may change inventory, evaluation, assessment, or resolution requirements, per the PA;
   2. Construction, operations, or maintenance activities and schedules;
   3. Planned Inventory work within the Direct APE;
   4. A schedule for activities;
   5. Contractor Training Curriculum, effectiveness and/or modification; and
   6. Other plans or descriptions of how the Permittee will meet PA terms and conditions;

iii. The BLM, together with the other PA Signatories, will consider:
   1. Whether each agency (BLM, NPS, USACE, State) has met its respective responsibilities under the PA and any possible issues of non-compliance;
   2. PA and CRMP effectiveness and amendments, revisions, or addendums, as necessary;
   3. The APE and revisions, as necessary;
   4. Inventory needs within the Indirect APE;
   5. Need for re-inventory, reevaluation of eligibility, or assessment of effects if Projects footprints or plans change;
   6. Monitoring needs, results, and effectiveness;
   7. The need for Project-wide mitigation to account for indirect or cumulative effects;

8. The need for Technical Reports, Construction and Operations Summary Reports, or Reclamation and Project Closure Report;
9. PA requirements that have been completed in full; and
10. Feasibility of timelines;

iv. The BLM will share non-sensitive information gathered during consultation that may be relevant to implementation of the PA and any updates to the Contact List or Maps.

B. Annual PA Report – The Permittee will provide an Annual PA Report to the BLM, no later than March 1 each year. This report will summarize all activities resulting from PA implementation over the previous year. The BLM will submit the Annual PA Report to the Consulting Parties at least 15 days prior to the Annual Meeting. Consulting Parties will have a 30-day review and comment period for the Annual PA Report, which will follow the steps described in Stipulation XIV, Document Submission and Review. After review by the Consulting Parties, the Report will be made available to the public, consistent with Stipulation (V.F). Additional details are discussed in the CRMP, Attachment E.

C. Summary Construction and Operations Reports – The BLM shall ensure the Permittee provides summary Construction and Operation Reports, to assist with tracking the implementation of the PA within 2 years following completion of construction for Phases I, II, and III, and/or every 10 years. At least 1 year before the report is due the BLM will consult with the PA Signatories during the Annual Meeting, to determine additional required report content, due date, and review schedule. The Construction and Operation Reports will, minimally, include a summary of the work that has occurred during that Phase or period, the resources found, measures implemented, changes and updates in project designs/plans, changes in management or roles, and other relevant information. Some or all of the content may be summarized from the Annual Work Plans, Annual Fieldwork Reports, Annual PA reports, or other reports and documents. The Permittee will provide the report to the BLM within the determined timeframes, and the BLM will share the report with Consulting Parties for, minimally, a 30-day review and comment period which will follow the steps described in Stipulation XIV, Document Submission and Review.

D. Summary Reclamation and Closure Report – The BLM shall ensure the Permittee provides a summary report at the conclusion of the reclamation and closure Phase of the Project. The required content and due date will be determined through consultation with the PA Signatories and will be provided to the Permittee at least 2 years before the report is due.

E. If any PA Signatory deems an additional meeting with the other PA Signatories is necessary in addition to the Annual Meeting described above, that party shall inform the BLM in writing. The BLM shall consider all requests and will inform the other PA Parties if the BLM determines that the additional meeting is necessary.

F. Any of the PA Signatories or Concurring Parties may request informal meetings with the BLM, or other parties, regarding the implementation of the PA without requiring notification of the other PA Signatories. However, no changes or decisions regarding the implementation of the PA can be made without following Stipulation XVII, Amendments and Addendums, with the exception of requests to extend report submission or review deadlines (XIV.C).

G. The BLM will ensure that no less than every 5 years, the PA is reviewed with the Consulting Parties to evaluate the efficacy and consider changes, if necessary.

H. If the Project is delayed or put on hold at any stage for more than 12 consecutive months, the Permittee will be responsible for funding all costs associated with re-familiarizing all Consulting Parties with the Project, the Section 106 process, the PA Stipulations, and any work that has already occurred under the terms of the PA. The BLM shall ensure this effort includes, but is not limited to, sending notification letters to the Consulting Parties to notify them that the Project will be moving forward and provide a brief summary of the PA implementation to date; facilitation of 1 or more meetings with Consulting Parties; and facilitation of 1 or more meetings among the PA Signatories to discuss PA implementation work to date and consider any necessary revisions to the PA and CRMP, and to ensure all parties are informed of their responsibilities under the terms of the PA; and any in-person consultation between the BLM and Tribes. The Permittee will provide at least 60 days advance notice to the BLM to ensure these steps can be adequately accomplished.

XVI. DISPUTE RESOLUTION

A. Should any PA Signatory object at any time to any proposed work or the manner in which the terms of this PA are implemented, the BLM shall consult with the party to resolve objection. If the BLM determines that such objection cannot be resolved, the BLM will:

i. Forward all documentation relevant to the dispute, including the BLM's proposed resolution, to the ACHP. The ACHP shall provide the BLM with its advice on the resolution of the objection within 30 days of receiving adequate documentation. Prior to reaching a final decision on the dispute, the BLM shall prepare a written response that takes into account any timely advice or comments regarding the dispute from the ACHP, PA Signatories, and Consulting Parties, and will provide the parties with a copy of the written response. The BLM will then proceed according to its final decision.

ii. If the ACHP does not provide its advice regarding the dispute within the 30-day time period, the BLM may make a final decision on the dispute and proceed accordingly. Prior to reaching such a final decision, the BLM shall prepare a written response that takes into account any timely comments received from the PA Signatories and Consulting Parties regarding the dispute and provide those parties and the ACHP with a copy of such written response.

B. The BLM's responsibility to carry out all other actions subject to the terms of this PA that are not the subject of the dispute remain unchanged.

XVII. AMENDMENTS AND ADDENDUMS

A. Any PA Signatory may request an amendment to the PA by providing the proposed changes in writing to the BLM. The BLM will notify all Consulting Parties of the proposed amendment and consult with them to reach agreement within 30 days. The amendment will be effective on the date the amendment is signed by the Signatories and filed with the ACHP. If the amendment is not signed within 60 days of receipt, the BLM will reinitiate consultation for another 30 days. If the Signatories do not agree to the amendment, the BLM will determine that the PA will stand as is.

B. PA Attachments may be amended with a streamlined process as follows, except for Attachments A, E, and G. Any PA Signatory may propose an amendment to an Attachment by submitting a request in writing to the BLM. If the BLM concurs that the amendment

improves or updates the Attachment(s), the BLM will share the proposed amendment with the Consulting Parties for a 30-day review and comment period. If no comments are received at the end of the review period, the BLM will move forward with the proposed amendment and will provide Consulting Parties with a revised version of the Attachment(s).

i. The BLM may revise Attachment A, Maps, at any time without necessitating an amendment. The BLM will notify the Consulting Parties of any updates and provide the revised version of Attachment A at the Annual Meeting (XV.A).

ii. Attachment E, CRMP, may be updated without necessitating a PA amendment, but requires written approval from the BLM, the SHPO, and the NPS in a revised version of Exhibit F (Signature Page for CRMP Finalization). Any PA Signatory may propose an amendment to the CRMP by submitting a request in writing to the BLM. If the BLM concurs that the amendment improves or updates the CRMP, the BLM will share the proposed amendment with the Consulting Parties for a 30-day review and comment period. The BLM will consider all timely comments received, in consultation with the SHPO and the NPS, and incorporate changes. The BLM will send a revised version of the CRMP to the Consulting Parties following written approval. If a Consulting Party objects to the changes, the BLM will follow the steps in Stipulation XVI, Dispute Resolution.

1. The BLM may update CRMP Exhibit D (Mapbook of AHRS Sites within the APE) and Exhibit E (Contact List) at any time without necessitating written approval from the BLM, the SHPO, and the NPS. The BLM will provide any revisions to the Exhibit(s) at the Annual Meeting (XV.A).

iii. The BLM may append documents to Attachment G, Project Plans, at any time without necessitating an amendment, as long as the documents are required by and/or developed under the terms of the PA, such as Phase Plans, Annual Work Plans, Monitoring Plans, and Treatment Plans, and the addition is documented in Attachment H, Amendment and Addendum Log. Final reports do not need to be appended to the PA.

C. The BLM will document all amendments and addendums to the PA in Attachment H, Amendment and Addendum Log. The BLM will provide revised versions of the PA or PA Attachments to the Consulting Parties within 30 days of finalization, unless otherwise noted.

XVIII. TERMINATION

A. If any of the PA Signatories determine that its terms will not or cannot be carried out, that party shall immediately consult with the other PA Signatories to attempt to develop an amendment per Stipulation XVII, above. If, within 30 days (or another time period agreed to by all PA Signatories), an amendment cannot be reached, any PA Signatory may terminate the PA upon written notification to the other PA Signatories.

B. Once the PA is terminated, and prior to work continuing on the Undertaking, the BLM must either (a) execute a Memorandum of Agreement pursuant to 36 CFR 800.6 or (b) request, take into account, and respond to the comments of the ACHP under 36 CFR 800.7. The BLM shall notify the Consulting Parties as to the course of action it will pursue.

XIX. FINANCIAL SECURITY

A. The Permittee will post a financial instrument approved under the ROW regulations (43 CFR 2800) with the BLM in an amount sufficient to cover all post-fieldwork costs associated with implementing the PA, or other mitigative activities such as data recovery, curation, and report completion, as negotiated by the Permittee where they contract for services in support of this PA.

B. The BLM will determine through consultation with the other PA Signatories the extent and duration of additional data collection activities and analysis, taking into account the need for completing post-fieldwork activities, should the Permittee abandon the Project.

XX. ANTI-DEFICIENCY ACT

The BLM's obligations under this PA are subject to the availability of appropriated funds, and the stipulations of this PA are subject to the provisions of the Anti-Deficiency Act. The BLM shall make reasonable and good faith efforts to secure the necessary funds to implement this PA in its entirety. If compliance with the Anti-Deficiency Act alters or impairs the BLM's ability to implement the stipulations of this agreement, the BLM shall consult in accordance with the amendment and termination procedures found at Stipulations XVII and XVIII of this PA.

XXI. DURATION OF THIS PA

A. Unless otherwise amended or terminated in accordance with Stipulation XVII or XVIII, this PA will expire 25 years from the date of Execution.

B. The Project is proposed to last 50 years, but because Project design plans are not fully developed at this time, this PA cannot account for all anticipated effects. The PA Signatories recognize that an amended extension of this PA or another agreement document will be needed to ensure compliance with the NHPA throughout the Operations and Maintenance and Reclamation Phases of the Project. Therefore, at least 2 years prior to expiration, the PA Signatories will consult to determine whether a new PA will be developed or if this PA will be amended and extended.

C. The BLM and Consulting Parties will review all sections of this PA every 5 years and at shifting of Project Phases to update outdated statutes, best practices, and contact information, and to consider whether organizations who may have originally declined participation may wish to participate as a Consulting Party. If the BLM determines the PA needs to be updated, the BLM will notify the PA Signatories, Consulting Parties, and other interested parties and invite them to consult on the proposed changes. Amendments to the PA would be consistent with Stipulation XVII, Amendments and Addendums.

EXECUTION of this PA by the BLM, the SHPO, and the ACHP, and implementation of its terms, evidences that the BLM has taken into account the effects of this Undertaking on historic properties and afforded the ACHP an opportunity to comment.

This PA may be executed in counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same instrument. The BLM may consolidate the original signature pages to produce the final copies. The BLM will distribute copies of all pages to all Consulting Parties once the PA is signed.

**PROGRAMMATIC AGREEMENT
BY AND AMONG THE
BUREAU OF LAND MANAGEMENT,
ALASKA STATE HISTORIC PRESERVATION OFFICER, AND
ADVISORY COUNCIL ON HISTORIC PRESERVATION
REGARDING THE
AMBLER MINING DISTRICT INDUSTRIAL ACCESS ROAD, ALASKA**

SIGNATORY

U.S. DEPARTMENT OF THE INTERIOR, BUREAU OF LAND MANAGEMENT

By: _____
(Chad Padgett, State Director, BLM Alaska)

DATE: 4/17/2020

**PROGRAMMATIC AGREEMENT
BY AND AMONG THE
BUREAU OF LAND MANAGEMENT,
ALASKA STATE HISTORIC PRESERVATION OFFICER, AND
ADVISORY COUNCIL ON HISTORIC PRESERVATION
REGARDING THE
AMBLER MINING DISTRICT INDUSTRIAL ACCESS ROAD, ALASKA**

SIGNATORY

ALASKA STATE HISTORIC PRESERVATION OFFICER

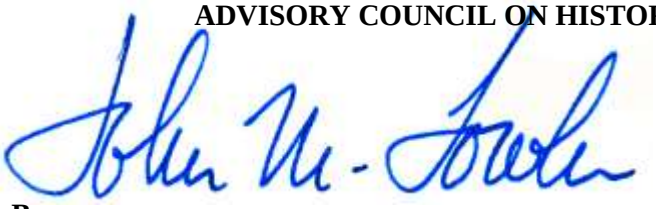
By: Judith Bittner
(Judith Bittner, State Historic Preservation Officer, Alaska State Historic Preservation Office)

DATE: April 23, 2020

PROGRAMMATIC AGREEMENT
BY AND AMONG THE
BUREAU OF LAND MANAGEMENT,
ALASKA STATE HISTORIC PRESERVATION OFFICER, AND
ADVISORY COUNCIL ON HISTORIC PRESERVATION
REGARDING THE
AMBLER MINING DISTRICT INDUSTRIAL ACCESS ROAD, ALASKA

SIGNATORY

ADVISORY COUNCIL ON HISTORIC PRESERVATION



By:_____
(John M. Fowler, Executive Director, Advisory Council on Historic Preservation)

DATE: _____April 27, 2020_____

**PROGRAMMATIC AGREEMENT
BY AND AMONG THE
BUREAU OF LAND MANAGEMENT,
ALASKA STATE HISTORIC PRESERVATION OFFICER, AND
ADVISORY COUNCIL ON HISTORIC PRESERVATION
REGARDING THE
AMBLER MINING DISTRICT INDUSTRIAL ACCESS ROAD, ALASKA**

INVITED SIGNATORY

ALASKA INDUSTRIAL DEVELOPMENT AND EXPORT AUTHORITY

By:_____
(name, title)

DATE:_____

**PROGRAMMATIC AGREEMENT
BY AND AMONG THE
BUREAU OF LAND MANAGEMENT,
ALASKA STATE HISTORIC PRESERVATION OFFICER, AND
ADVISORY COUNCIL ON HISTORIC PRESERVATION
REGARDING THE
AMBLER MINING DISTRICT INDUSTRIAL ACCESS ROAD, ALASKA**

INVITED SIGNATORY

ALASKA DEPARTMENT OF NATURAL RESOURCES

By: 
(Corri A. Feige, Commissioner)

DATE: 4/27/2020

**PROGRAMMATIC AGREEMENT
BY AND AMONG THE
BUREAU OF LAND MANAGEMENT,
ALASKA STATE HISTORIC PRESERVATION OFFICER, AND
ADVISORY COUNCIL ON HISTORIC PRESERVATION
REGARDING THE
AMBLER MINING DISTRICT INDUSTRIAL ACCESS ROAD, ALASKA**

INVITED SIGNATORY

U.S. ARMY CORPS OF ENGINEERS

By:_____
(Shannon Morgan, Chief North Branch)

DATE:_____

**PROGRAMMATIC AGREEMENT
BY AND AMONG THE
BUREAU OF LAND MANAGEMENT,
ALASKA STATE HISTORIC PRESERVATION OFFICER, AND
ADVISORY COUNCIL ON HISTORIC PRESERVATION
REGARDING THE
AMBLER MINING DISTRICT INDUSTRIAL ACCESS ROAD, ALASKA**

INVITED SIGNATORY

U.S. DEPARTMENT OF THE INTERIOR, NATIONAL PARK SERVICE

By: _____
(Greg Dudgeon, Superintendent, Gates of the Arctic National Park and Preserve)

DATE: 04/23/2020

**PROGRAMMATIC AGREEMENT
BY AND AMONG THE
BUREAU OF LAND MANAGEMENT,
ALASKA STATE HISTORIC PRESERVATION OFFICER, AND
ADVISORY COUNCIL ON HISTORIC PRESERVATION
REGARDING THE
AMBLER MINING DISTRICT INDUSTRIAL ACCESS ROAD, ALASKA**

CONCURRING PARTY

ALATNA VILLAGE COUNCIL

By:_____
(Harding Sam, First Chief)

DATE:_____

**PROGRAMMATIC AGREEMENT
BY AND AMONG THE
BUREAU OF LAND MANAGEMENT,
ALASKA STATE HISTORIC PRESERVATION OFFICER, AND
ADVISORY COUNCIL ON HISTORIC PRESERVATION
REGARDING THE
AMBLER MINING DISTRICT INDUSTRIAL ACCESS ROAD, ALASKA**

CONCURRING PARTY

ALLAKAKET VILLAGE COUNCIL

By:_____
(Elsie Bergman, First Chief)

DATE:_____

**PROGRAMMATIC AGREEMENT
BY AND AMONG THE
BUREAU OF LAND MANAGEMENT,
ALASKA STATE HISTORIC PRESERVATION OFFICER, AND
ADVISORY COUNCIL ON HISTORIC PRESERVATION
REGARDING THE
AMBLER MINING DISTRICT INDUSTRIAL ACCESS ROAD, ALASKA**

CONCURRING PARTY

CITY OF ALLAKAKET

By:_____
(Crystal Bergman, Mayor)

DATE:_____

**PROGRAMMATIC AGREEMENT
BY AND AMONG THE
BUREAU OF LAND MANAGEMENT,
ALASKA STATE HISTORIC PRESERVATION OFFICER, AND
ADVISORY COUNCIL ON HISTORIC PRESERVATION
REGARDING THE
AMBLER MINING DISTRICT INDUSTRIAL ACCESS ROAD, ALASKA**

CONCURRING PARTY

EVANSVILLE, INCORPORATED

By:_____
(Frank Thompson, First Chief)

DATE:_____

**PROGRAMMATIC AGREEMENT
BY AND AMONG THE
BUREAU OF LAND MANAGEMENT,
ALASKA STATE HISTORIC PRESERVATION OFFICER, AND
ADVISORY COUNCIL ON HISTORIC PRESERVATION
REGARDING THE
AMBLER MINING DISTRICT INDUSTRIAL ACCESS ROAD, ALASKA**

CONCURRING PARTY

EVANSVILLE VILLAGE

By:_____
(Dave Anderson, President)

DATE:_____

**PROGRAMMATIC AGREEMENT
BY AND AMONG THE
BUREAU OF LAND MANAGEMENT,
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ADVISORY COUNCIL ON HISTORIC PRESERVATION
REGARDING THE
AMBLER MINING DISTRICT INDUSTRIAL ACCESS ROAD, ALASKA**

CONCURRING PARTY

NATIVE VILLAGE OF KOBUK

By:_____
(Henry Horner, President)

DATE:_____

**PROGRAMMATIC AGREEMENT
BY AND AMONG THE
BUREAU OF LAND MANAGEMENT,
ALASKA STATE HISTORIC PRESERVATION OFFICER, AND
ADVISORY COUNCIL ON HISTORIC PRESERVATION
REGARDING THE
AMBLER MINING DISTRICT INDUSTRIAL ACCESS ROAD, ALASKA**

CONCURRING PARTY

NORTHWEST ARCTIC BOROUGH

By: _____
(Lucy Nelson, Mayor)

DATE: April 22, 2020

DEFINITIONS

ACHP (Advisory Council on Historic Preservation) – The ACHP is an independent federal agency that promotes the preservation, enhancement, and productive use of our nation's historic resources, and advises the President and Congress on national historic preservation policy. The National Historic Preservation Act (NHPA) gives the ACHP the legal responsibility to assist federal agencies in their efforts and to ensure they consider preservation during project planning.

Adverse Effect – An adverse effect is found when an Undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the National Register of Historic Places (NRHP) in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. Adverse effects may include reasonably foreseeable effects caused by the Undertaking that may occur later in time, be farther removed in distance, or be cumulative. The term is consistent with the definition found at 36 CFR 800.5(a)(1), and may include, but is not limited to, the effects described at 36 CFR 800.5(a)(2).

AIDEA (Alaska Industrial Development and Export Authority) – AIDEA is the Project proponent and Permittee. AIDEA is a public corporation of the State of Alaska, created in 1967 by the Alaska Legislature "in the interests of promoting the health, security, and general welfare of all the people of the state, and a public purpose, to increase job opportunities and otherwise to encourage the economic growth of the state…"

APE (Area of Potential Effects) – The APE geographic area or areas within which an Undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist. The APE is influenced by the scale and nature of an Undertaking and may be different for different kinds of effects caused by the Undertaking.

Archaeological Sensitivity Model – This is a Geographical Information System model capable of identifying resource potential for prehistoric, protohistoric, and early historic archaeological resources left behind by Native Alaskans within the Direct and Indirect APE. The Model will be developed following selection of a preferred alternative. The Model does not predict site location but will identify areas that have high, medium, or low potential for these types of sites. The results of the Model will be integrated into the Survey Strategy.

Component/Project Component – The Project, as proposed, would include construction of bridges, material sites, maintenance stations, airstrips, and related ancillary features, which are referred to as Components.

Concurring Party – In accordance with 36 CFR 800.6(c)(3), a concurring party is a Consulting Party invited to sign the PA but who does not have the authority to amend or terminate the agreement. A concurring party signature is not required to execute the agreement.

Construction Phases – The Permittee has proposed building the Project in 3 Phases:

> Phase I Construction of Seasonal Pioneer Road: This Phase would overlap with the Pre-Construction Phase and will occur during years 2 to 4 of the Project. The Pioneer Road is proposed as a single-lane seasonal road with embankment width up to 28 feet and height 30 to 72 inches, 12-foot road lane, 2-foot shoulders, and 1-way operation for up to 7 months per year. This Phase would include clearing vegetation from the federal and state right of ways while other right-of-way negotiations are underway. Other activities associated with this Phase include construction of material sources, clearing and preparing construction camps, placement of radio towers, staging of equipment and labor in various areas, hauling materials and placing fill, excavating high areas, and

grading. It would also include installation of culverts and bridges (including driving piles for bridge supports) as well as airstrips, maintenance facilities, and access controls.

Phase II Construction of All Season Roadway: This Phase, occurring during years 3 to 4 of the Project (including overlap with Phase I) would involve the construction of a year-round useable road and would include additional material extraction, hauling and placing material to expand the Phase I embankment (width and depth), and grading to final slopes. Fiber optic facilities would be trenched into the road embankment during this Phase.

Phase II Operations and Maintenance of the Constructed Phase II Roadway: This Phase, occurring from years 4 to 50, includes continued development or expansion of material sites, air operations, maintenance station operations, hauling materials and placing fill for repairs/maintenance, grading, and removal and reclamation of temporary construction camps not turned into maintenance stations.

Phase III Construction of 2-Lane Road: Phase III, if needed, would include additional clearing, additional material extraction, additional excavation where widening road in cut sections or side hilling, additional hauling and placing materials to expand the Phase II embankment (width), and additional grading. Culverts would be extended by welding extensions onto existing culverts. The expansion would create a 2-lane all-season roadway. The road widening effort would take 2 to 3 years to complete.

Consultation – The process of seeking, discussing, and considering the views of other participants, and, where feasible, seeking agreement with them regarding matters arising in the Section 106 process.

Consulting Party – Any group, entity, or person that has a demonstrated interest in the Undertaking and has participated in the PA development or has indicated they wish to participate in the Section 106 process. This includes Tribes, agencies, local governments, nonprofit organizations, and the Permittee.

CRM (Cultural Resources Management) – CRM is the practice of cultural heritage management within a framework of federal, state, and local laws, regulations, and guidelines.

CRMP (Cultural Resources Management Plan) – A CRMP is a document drafted to guide compliance and consideration of cultural resources during implementation of a project or to assist a landowner or land manager.

Cultural Resource – Archaeological, historical or architectural resources, structures, or places that may exhibit human activity or occupation and/or may be places of religious, spiritual, or cultural significance to Tribes, or meet the criteria of a Traditional Cultural Property (TCP) (BLM Manual 8100).

Cumulative Effects – Cumulative effects result from incremental actions, that when added to other past, present, and reasonably foreseeable future actions, may adversely affect a historic property.

Curation – Refers to the process of selecting and caring for archaeological or cultural materials to be provided to a museum or landowner for future research, exhibit, or instruction. Curation procedures will follow University of Alaska Museum of the North's *Curation Guidelines* (UAM Curation Guidelines and 36 CFR 79).

Direct Effects – Direct effects include physical destruction or damage, alteration that is not consistent with 36 CFR 68, removal of a property from a historic location, change in the character of use or physical features that contribute to the historic significance, deterioration through neglect, or introduction of visual, atmospheric, or audible elements that diminish the integrity of a property's significant historic features. This includes, but is not limited to, the effects identified in 36 CFR 800.5(a)(2).

DOE (Determination of Eligibility) – A DOE is an evaluation of whether a property is eligible for listing in the NRHP, following guidance provided in the National Park Service Bulletin 15 *How to Apply the National Register Criteria for Evaluation*.

Effect – See Adverse Effect.

Execution – Refers to the date the PA goes into effect and is defined as the date that the last Signatory signs the document and it is filed with the ACHP. At that point, the PA is considered executed.

Field Crew Chief – Archaeologist who oversees and coordinates an archaeological field crew in locating, collecting, recording, and interpreting data during archaeological survey and excavation. The Field Crew Chief must have at least 2 years of supervisory experience conducting archaeological fieldwork in Alaska or have partaken in a cultural resource training/shadowing program prior to taking on the Field Crew Chief role.

GAAR (Gates of the Arctic National Park and Preserve) – The northernmost national park in the U.S., GAAR protects portions of the Brooks Range. It was initially designated a national monument in 1978. After passage of the Alaska National Interest Lands Conservation Act in 1980, it was re-designated as a national park and preserve.

Historic Property – Any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the National Register of Historic Places (NRHP) maintained by the Secretary of the Interior. This term includes artifacts, records, and remains that are related to and located within such properties. The term includes properties of traditional religious, spiritual, or cultural importance to a Tribe and that meet the NRHP criteria.

Indirect Effects – Indirect effects to historic properties are those caused by an Undertaking that are later in time or farther removed in distance but are still reasonably foreseeable.

Inventory – The term "inventory" is used throughout this document to refer to all efforts to compile information on historic properties, including consultation, archival research, and fieldwork. The term is similar to survey, but "survey" is used throughout this document to refer to inventory efforts that are field based only.

Invited Signatory – The State of Alaska, National Park Service, U.S. Army Corp of Engineers, and the Alaska Industrial Development and Export Authority are Invited Signatories to this PA. In accordance with 36 CFR 800.6(c)(2), Invited Signatories have the same rights with regard to seeking amendment or termination of the PA as the Signatories. The refusal of an Invited Signatory to sign the PA does not prevent the agreement from being executed.

Materials – The term "materials" refers to any objects, artifacts, specimens, records, or remains associated with historic properties, consistent with the definition found at 36 CFR 79.4(a)(1). This includes all documentation generated during the implementation of this PA, with the exception of information that is subject to confidentiality clauses of NHPA, Archaeological Resources Protection Act, and/or Alaska State law.

Monitor – Archaeologist who observes ground-disturbing/excavation activities in order to identify, recover, protect, and/or document archaeological information or materials that are unearthed during these activities. The Monitor has stop-work authority and must have a bachelor's degree in Archaeology or closely related field, plus at least 1 year of experience conducting archaeological fieldwork in Alaska.

NHPA (National Historic Preservation Act) – The NHPA, 54 USC 300101 to 307108, is the primary federal law governing the preservation of historic resources in the U.S. The law established a national

preservation program and a system of procedural protections which encourage the identification and protection of historic resources of national, state, tribal and local significance.

NRHP (National Register of Historic Places) – The NRHP is the official list of the Nation's historic places worthy of preservation. Authorized by the National Historic Preservation Act of 1966, the NRHP is part of a national program to coordinate and support public and private efforts to identify, evaluate, and protect America's historic and archeological resources.

PA (Programmatic Agreement) – A document that records the terms and conditions agreed upon to resolve the potential adverse effects of a Federal agency program, complex Undertaking or other situations in accordance with 36 CFR 800.14(b).

PA Signatories – This term is used in the PA to collectively mean the Signatories and Invited Signatories.

Permittee – The Permittee is AIDEA and any heirs, successors, assigns, join ventures, and any contractors acting on behalf of the Permittee; all of whom are bound by the terms of this PA.

Pre-Construction Phase – This Phase includes those activities required to complete permitting and design, such as: geotechnical investigations at bridge locations, along the corridor centerline to refine the embankment design, and at material sites along the east-end alignment; aerial imagery and LiDAR (and/or survey) for areas lacking coverage; wetland delineation on areas not field delineated; hydrology studies; and cultural resources surveys. No Components will be installed as part of this Phase. Years 1 and 2 may overlap with Phase I Construction timing.

Project – All aspects, including those not currently defined but may be defined in the future for the Ambler Mining District Industrial Access Road.

Project Field Plans – A planning tool for deployment of field crews during the entire field season, based on output for site potential value (high, medium, low) and the Survey Strategy.

Reclamation Phase – This Phase of the Project would occur at the end of the Project and would include removal of embankment, culverts, airstrips, and maintenance sites, as well as regrading and revegetation. All Components would be removed at end of reclamation.

ROD (Record of Decision) – The ROD is a statement issued by the Lead Federal Agency that informs the public of the agency's decision, the agency's rationale for it, and any mitigation measures the agency will carry out for significant impacts. The ROD will govern whether permits are issued for a project to move forward.

Section 106 – Section 106 of the NHPA of 1966 requires federal agencies to consider the effects of projects they carry out, assist, fund, permit, license, or approve throughout the country (known as "Undertakings") on historic properties. The Section 106 process requires federal agencies to identify historic properties, assess effects on those properties, and resolve adverse effects through avoidance, minimization, or mitigation. Section 106 gives the ACHP, interested parties, and the public the chance to weigh in on these matters before a final decision is made. The ACHP has issued regulations, 36 CFR 800, which guide how agencies should fulfill this responsibility.

Segments/Project Segments – Geographical sections of the Project (e.g., milepost 32 to 35).

Sensitive information – This is defined in the NHPA as including information about the location, character, or ownership of a historic property if disclosure to the public may cause a significant invasion of privacy, risk harm to the historic property, or impede the use of a traditional religious site by practitioners (54 USC 307103).

SHPO (State Historic Preservation Officer) – Every state and U.S. Territory has a SHPO who, with the support of qualified staff, is charged with: conducting a comprehensive survey of historic properties; maintaining an inventory of historic properties; identifying and nominating eligible properties for the NRHP; advising and assisting Federal, State and local governments in matters of historic preservation; preparing and implementing a statewide historic preservation plan; providing public information, education, training, and technical assistance; and providing consultation for Federal Undertakings under the Section 106 provision of the National Historic Preservation Act.

Signatory – The BLM, SHPO, and ACHP are Signatories to this PA. In accordance with 36 CFR 800.6(c)(1), the Signatories have sole authority to execute the PA. The Signatories, along with the Invited Signatories, can amend or terminate the PA.

Stages/Project Stages - Specific construction steps or activities that would occur within each Project Phase or Component (e.g., survey, geotechnical drilling, etc.).

Supervisory Monitor – Secretary of Interior-qualified archaeologist who is present at the job site for the duration of the monitoring program. Conducts monitoring and/or supervises historic properties monitors on-site. The Supervisory Monitory has stop-work and start-work authorities. Must have a master's degree in Archaeology or closely related field, plus at least 1 year of supervisory experience conducting archaeological fieldwork in Alaska.

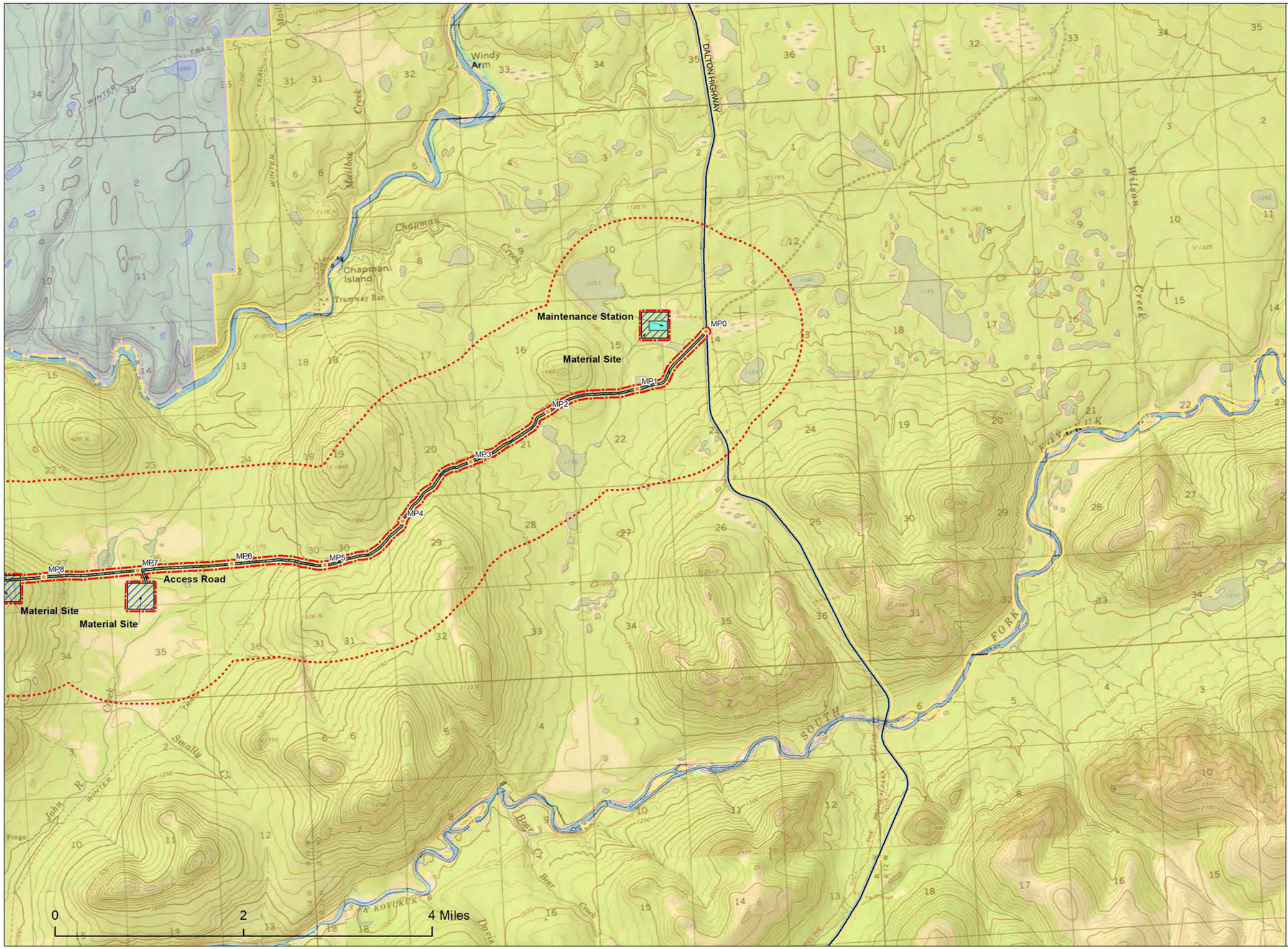
Survey – The term "survey" is used throughout this document to refer to inventory efforts that are field-based only. The term is similar to inventory, but "inventory" is used throughout this document to refer to all efforts to compile information on historic properties, including consultation, archival research, and fieldwork.

Survey Strategy – Required field inventory efforts based on a reasonable and good faith effort and incorporating specific field methods to document and record sites. The Survey Strategy will be developed by integrating multiple data sources for historic, ethnographic, and archaeological resources for the entire APE which will then be used to classify the APE into areas of high, medium, or low potential to contain archaeological and cultural material.

TCP (Traditional Cultural Property) – A place that is eligible for inclusion in the NRHP based on its associations with the cultural practices, traditions, beliefs, lifeways, arts, crafts, or social institutions of a living community. TCPs are rooted in a traditional community's history and are important in maintaining the continuing cultural identity of the community. More information on TCPs is found in the National Park Service Bulletin 38 *Guidelines for Evaluating and Documenting Traditional Cultural Properties*.

Undertaking – A project, activity, or program funded in whole or in part under the direct or indirect jurisdiction of a federal agency, including those carried out by or on behalf of a federal agency, those carried out with federal financial assistance, and those requiring a federal permit, license, or approval as defined at 36 CFR 800.16(y).

Attachment A – Maps



Alternative A Footprints
Direct APE
Indirect APE
Major Roadways

Administered Lands*

Bureau of Land Management
National Park Service
State

***Current as of April 11th, 2018**

NOTES:
Scale 1:63,360
Basemap scale: 1:63,360
Map Date: 3/17/2020
Date of APE: January, 2020
Date of Project Components: April, 2019
Alaska Albers
1983 North America Datum
For more information visit
www.blm.gov/AmblerRoadEIS
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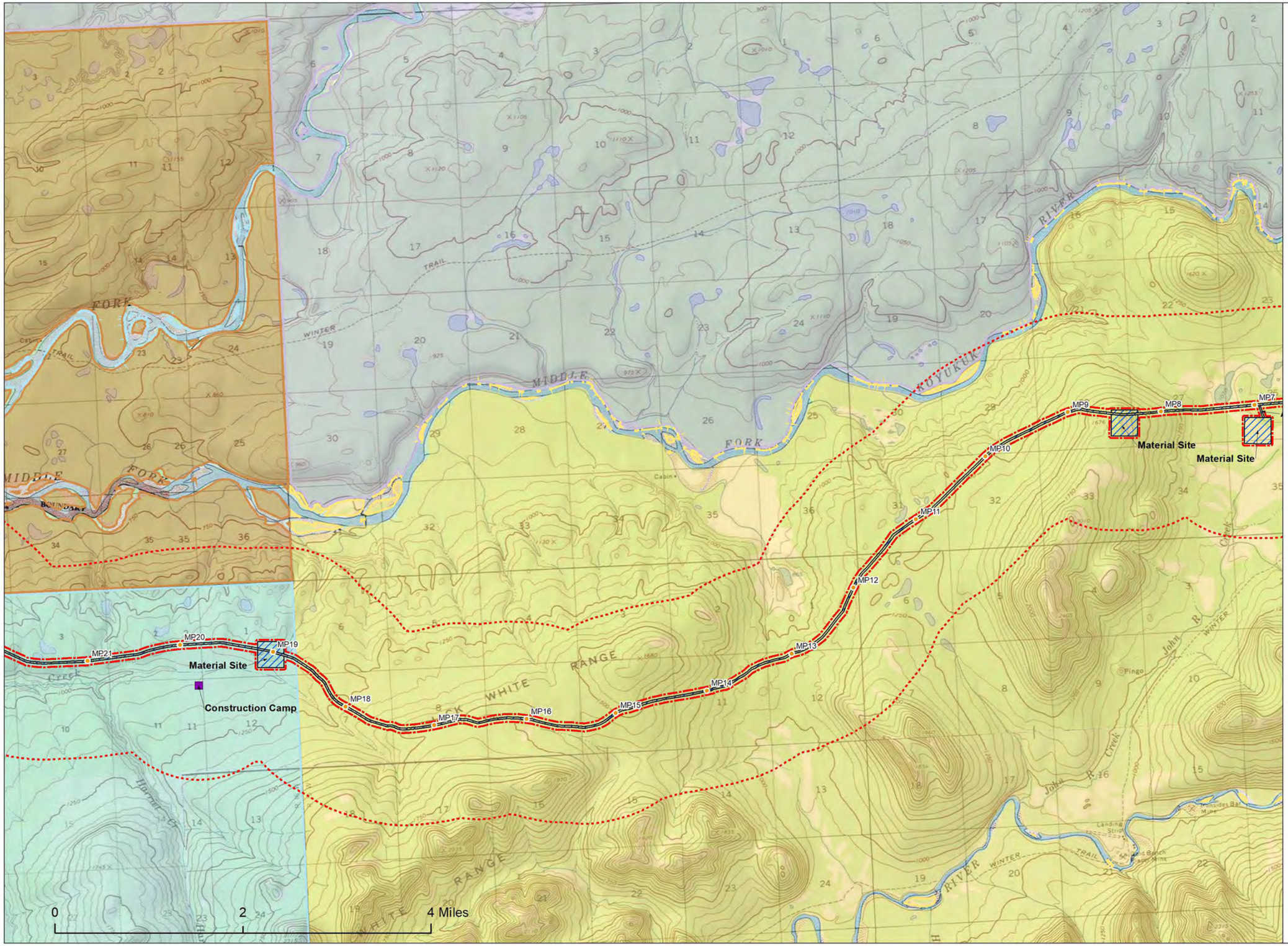

Alternative A Footprints
Direct APE
Indirect APE

Administered Lands*

Alaska Native Lands Patented or Interim Conveyed
Bureau of Land Management
National Park Service
State

*Current as of April 11th, 2018

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NOTES:
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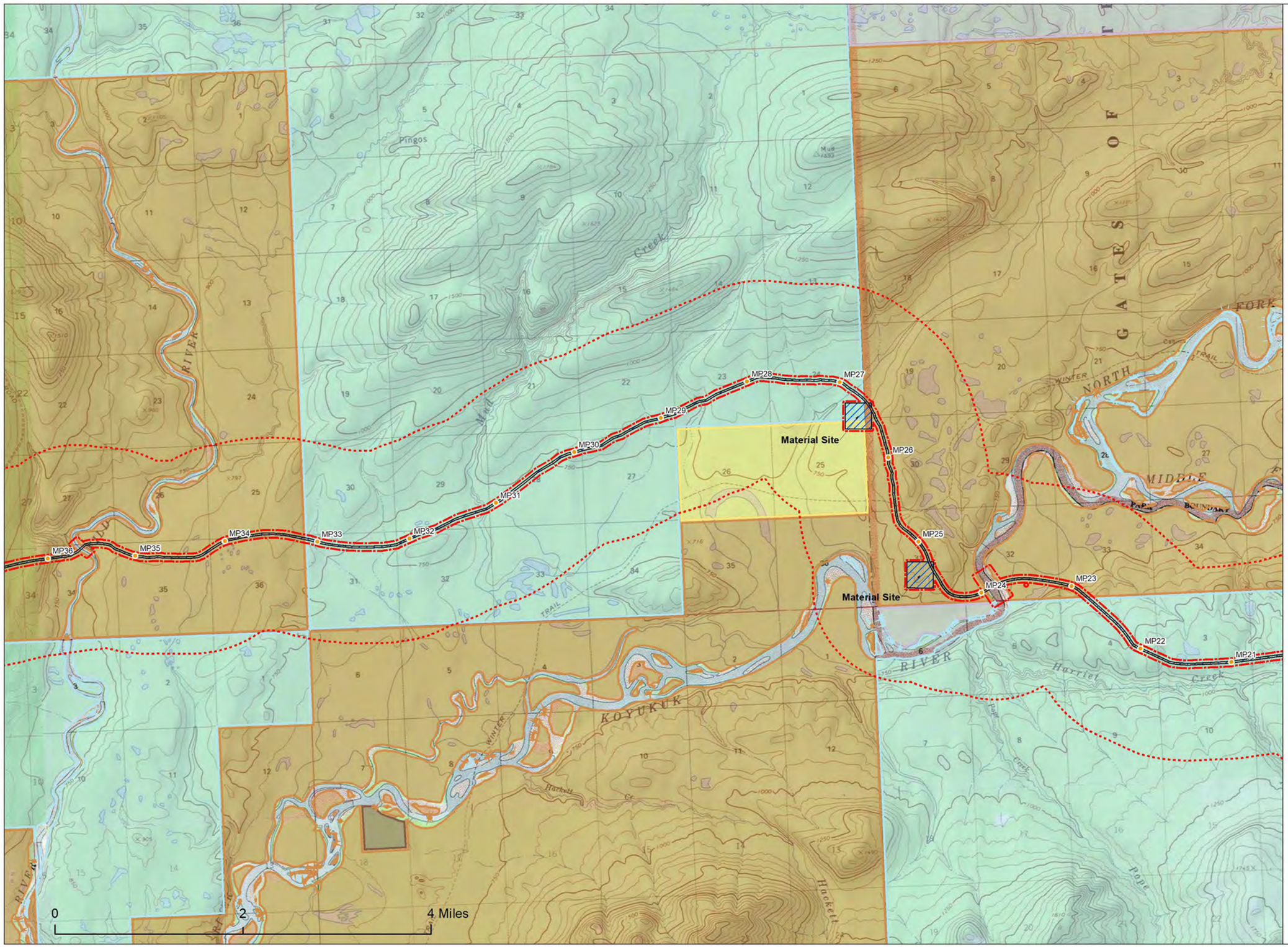

Alternative A Footprints
Direct APE
Indirect APE

Administered Lands*

Alaska Native Allotment
Alaska Native Lands Patented or Interim Conveyed
Bureau of Land Management
National Park Service
State

***Current as of April 11th, 2018**

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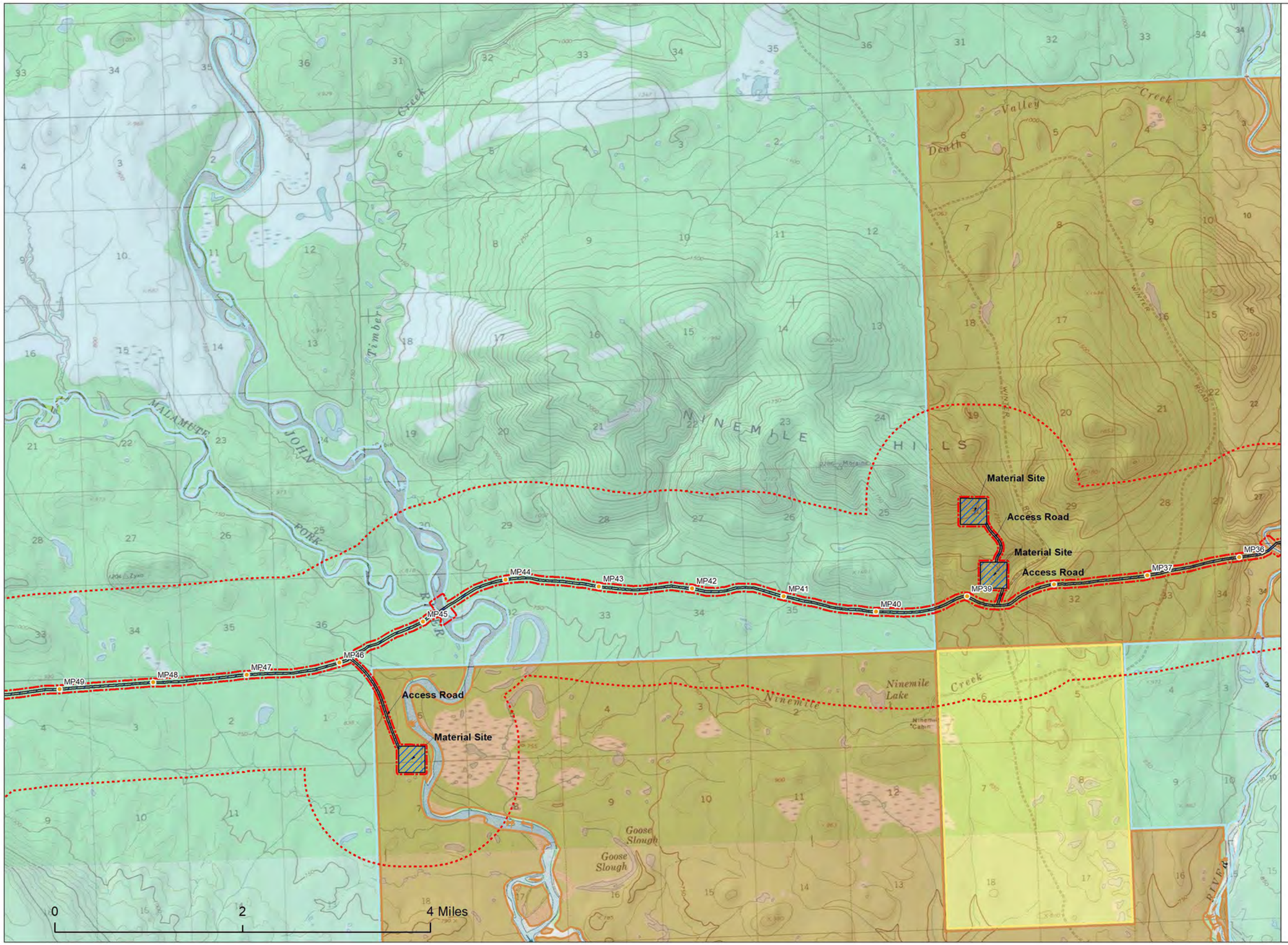

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NOTES:
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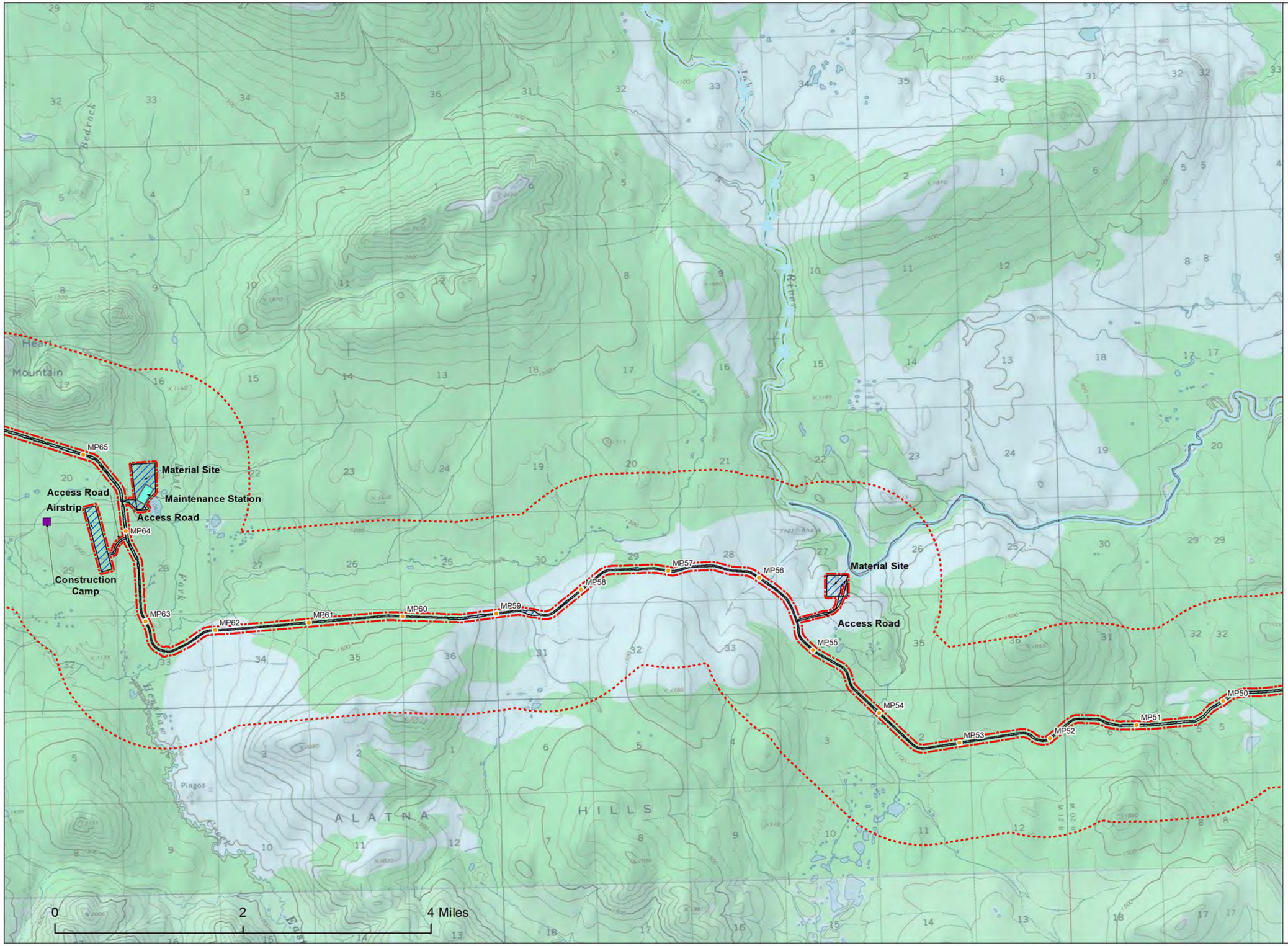

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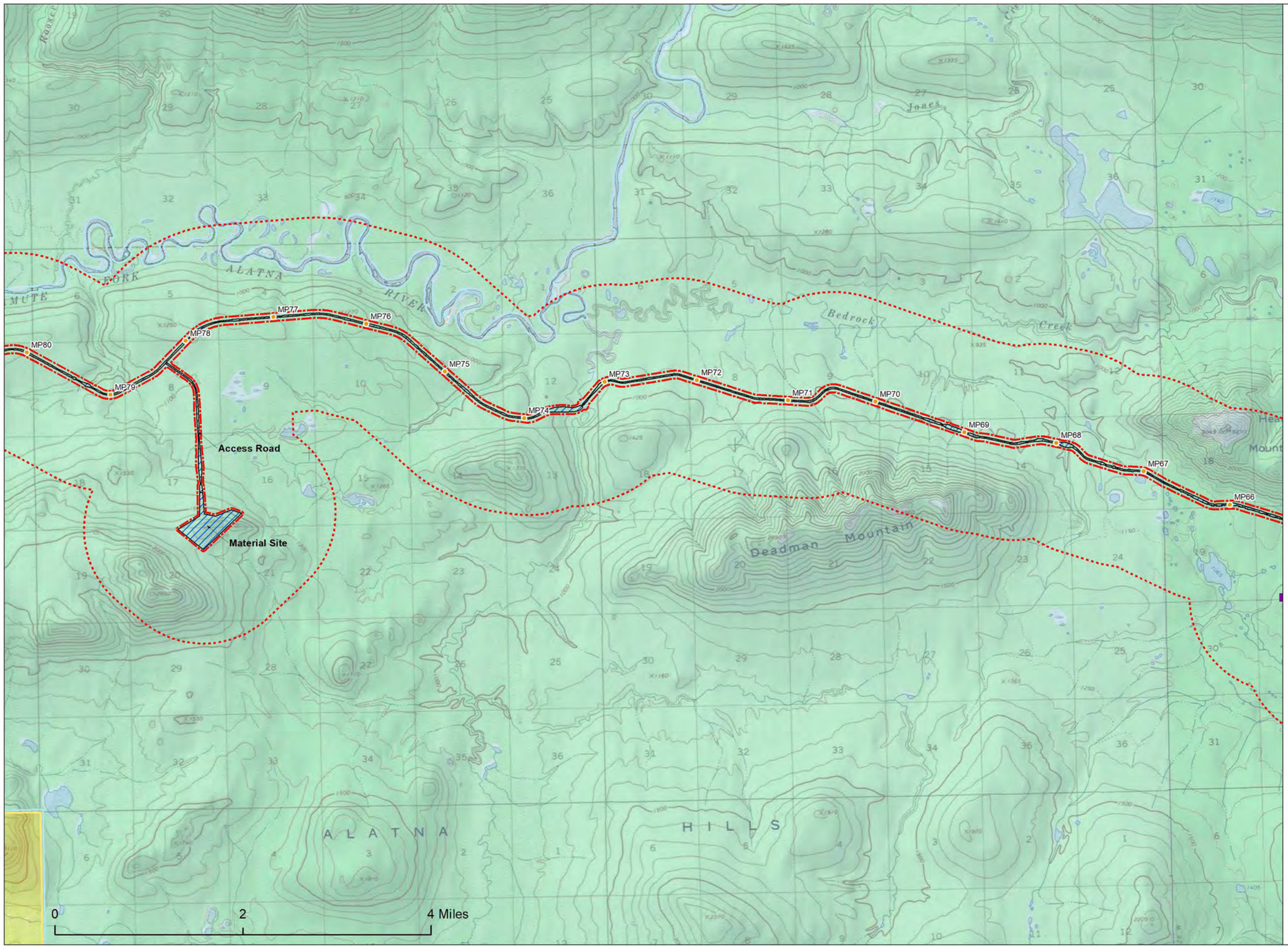

Alternative A Footprints
Direct APE
Indirect APE

Administered Lands*

Bureau of Land Management
State

*Current as of April 11th, 2018

NOTES:
Scale 1:63,360
Basemap scale: 1:63,360
Map Date: 3/17/2020
Date of APE: January, 2020
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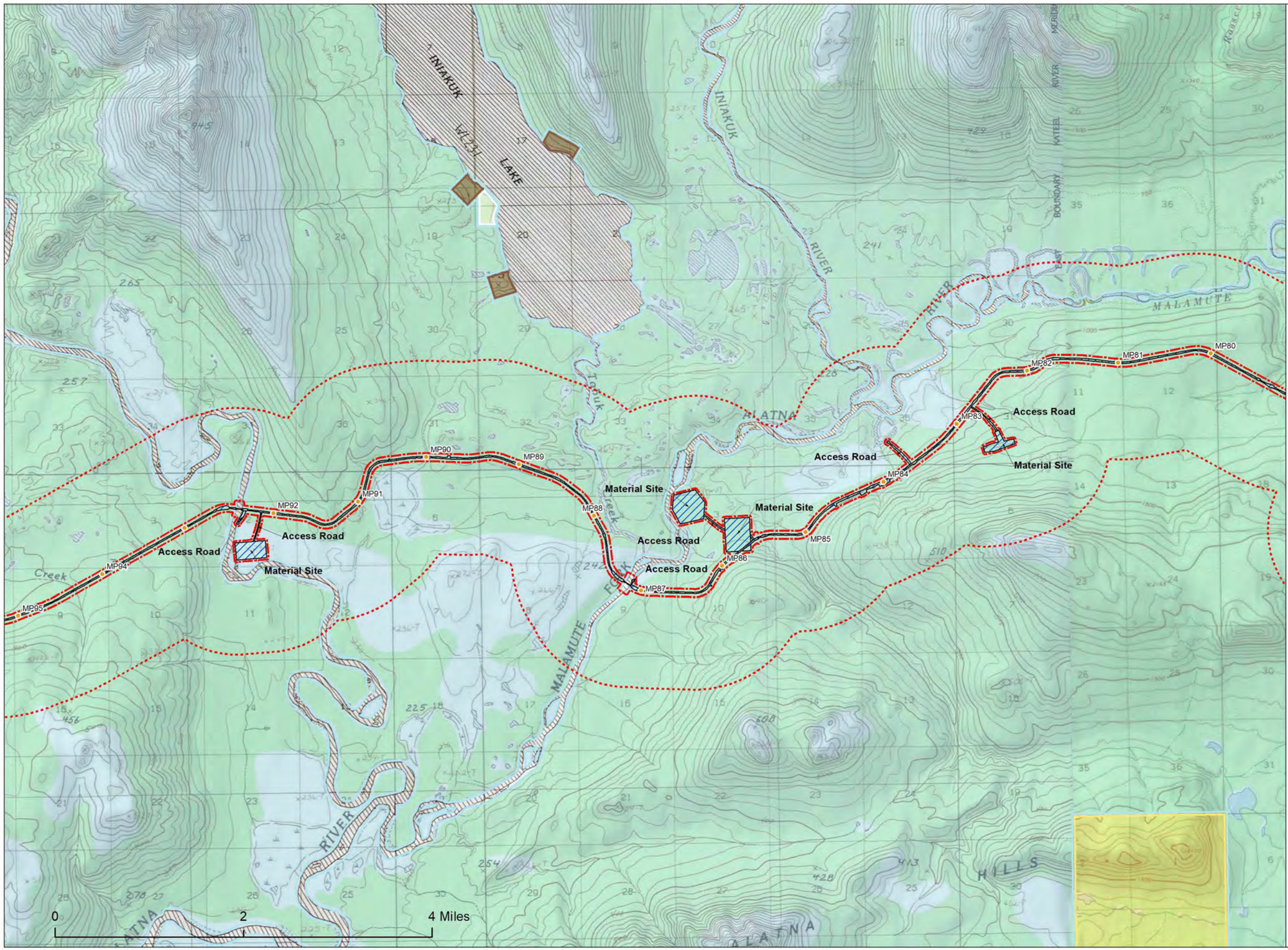

Alternative A Footprints
Direct APE
Indirect APE

Administered Lands*

Alaska Native Allotment
Bureau of Land Management
Private
State

*Current as of April 11th, 2018

NOTES:
Scale 1:63,360
Basemap scale: 1:63,360
Map Date: 3/17/2020
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Alaska Albers
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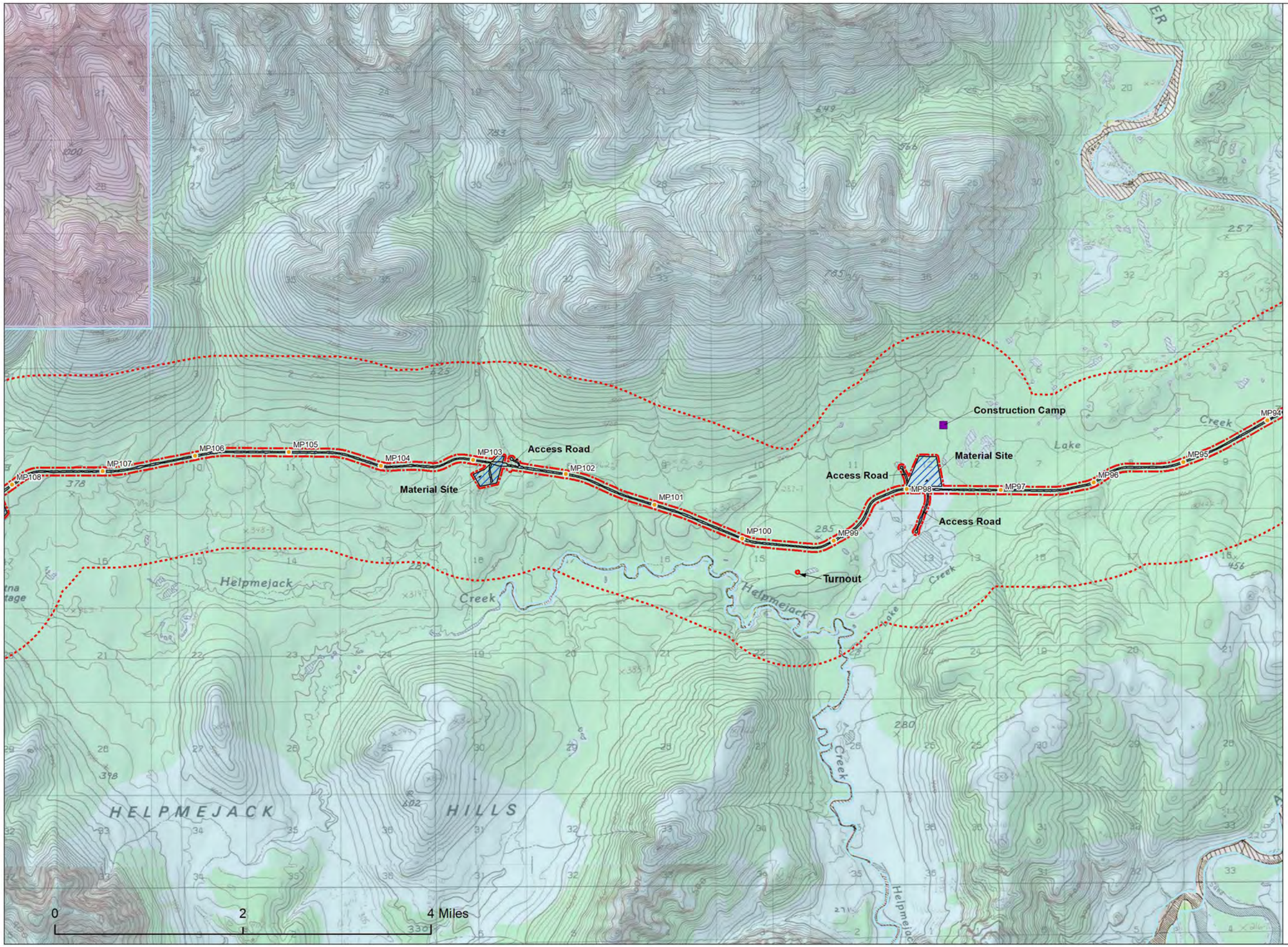

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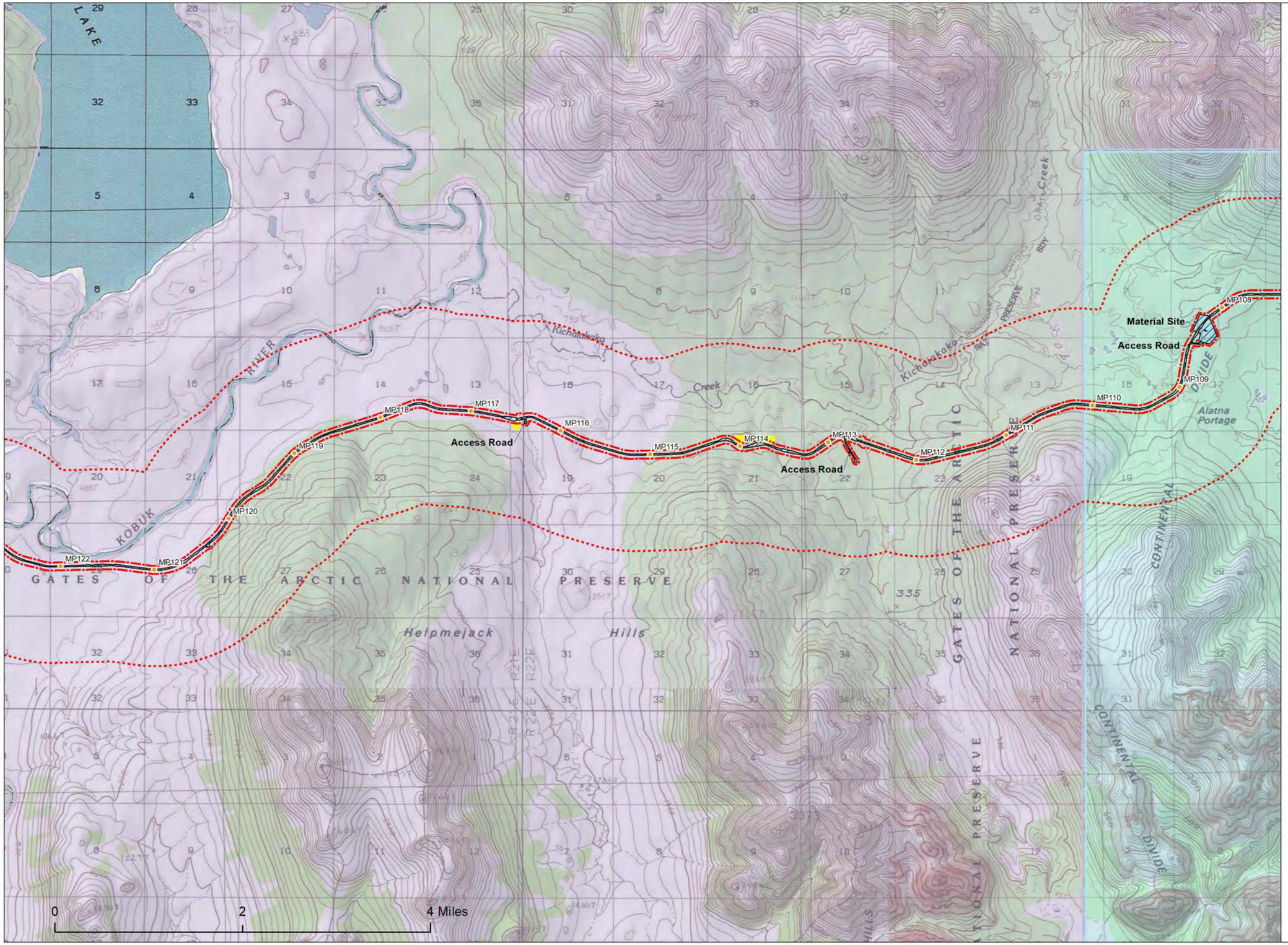

Alternative A Footprints
Direct APE
Indirect APE
2014 Ambler Pedestrian Survey

Administered Lands*

National Park Service
State

***Current as of April 11th, 2018**

NOTES:
Scale 1:63,360
Basemap scale: 1:63,360
Map Date: 3/17/2020
Date of APE: January, 2020
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Alaska Albers
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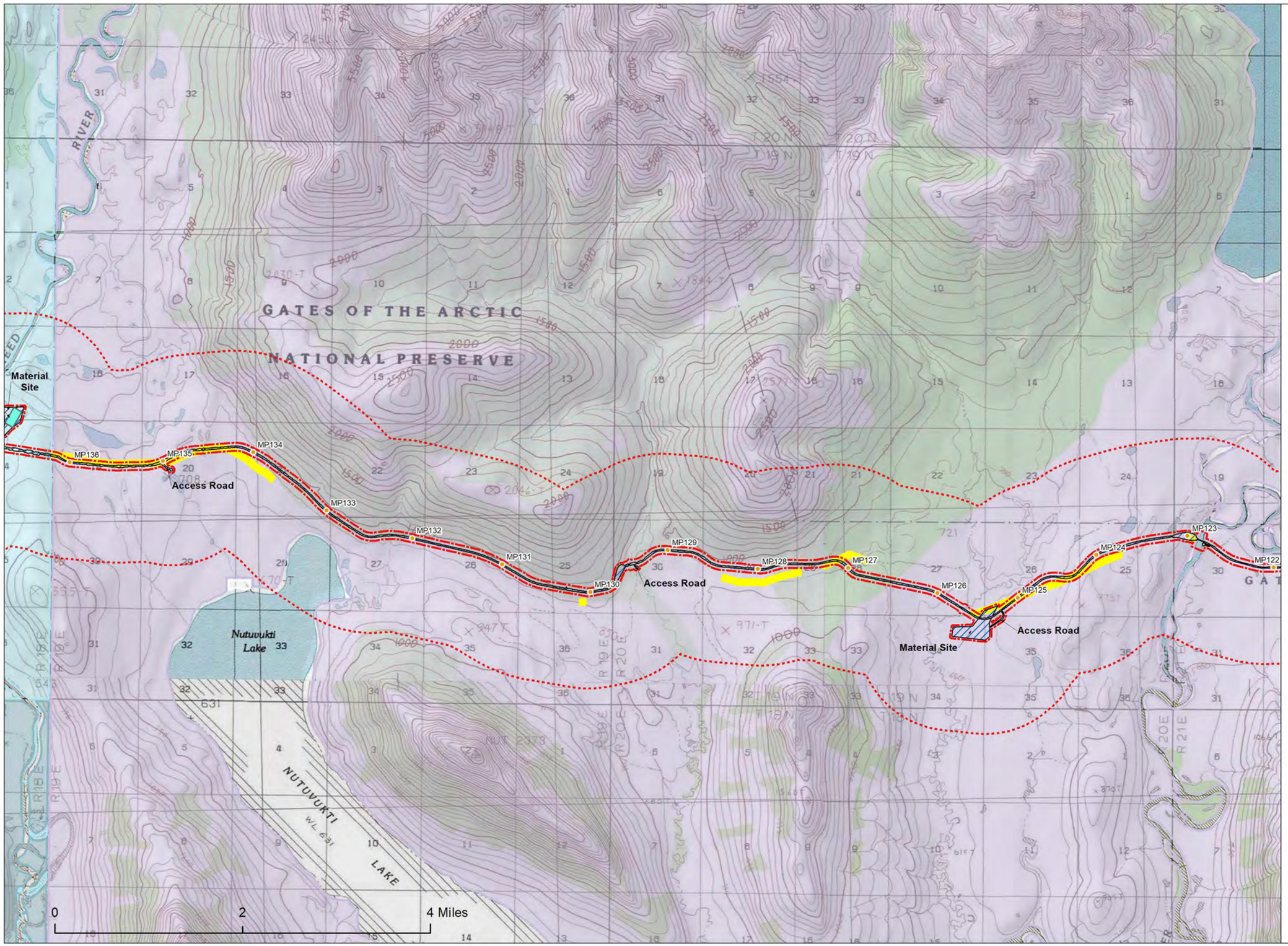

Alternative A Footprints
Direct APE
Indirect APE
2014 Ambler Pedestrian Survey

Administered Lands*

Local Government
National Park Service
Private
State

***Current as of April 11th, 2018**

NOTES:
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Map Date: 3/17/2020
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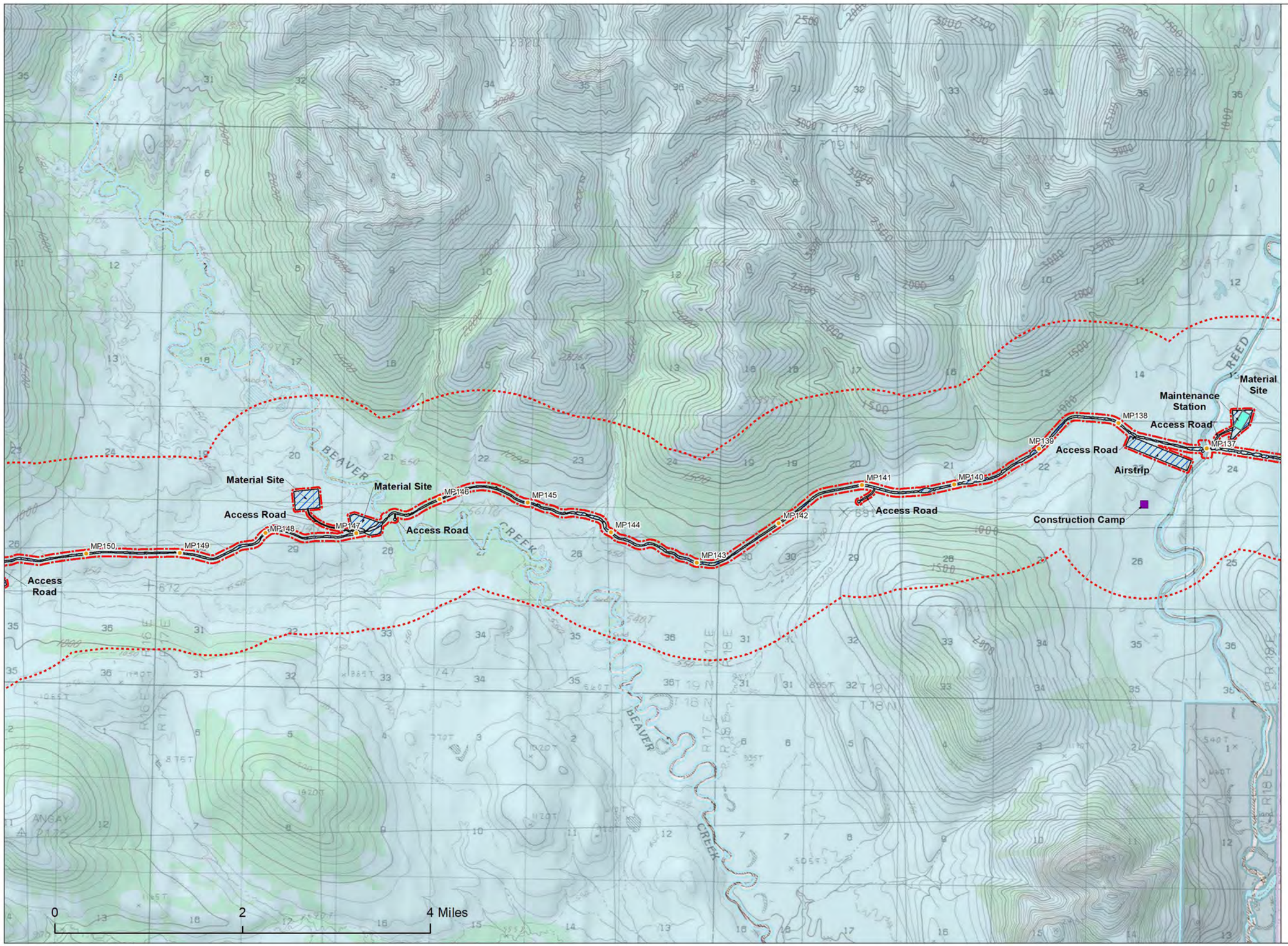

Alternative A Footprints
Direct APE
Indirect APE

Administered Lands*

Local Government
National Park Service
State

***Current as of April 11th, 2018**

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Alternative A Footprints
Direct APE
Indirect APE

Administered Lands*

Alaska Native Allotment
Local Government
National Park Service
Private
State

***Current as of April 11th, 2018**

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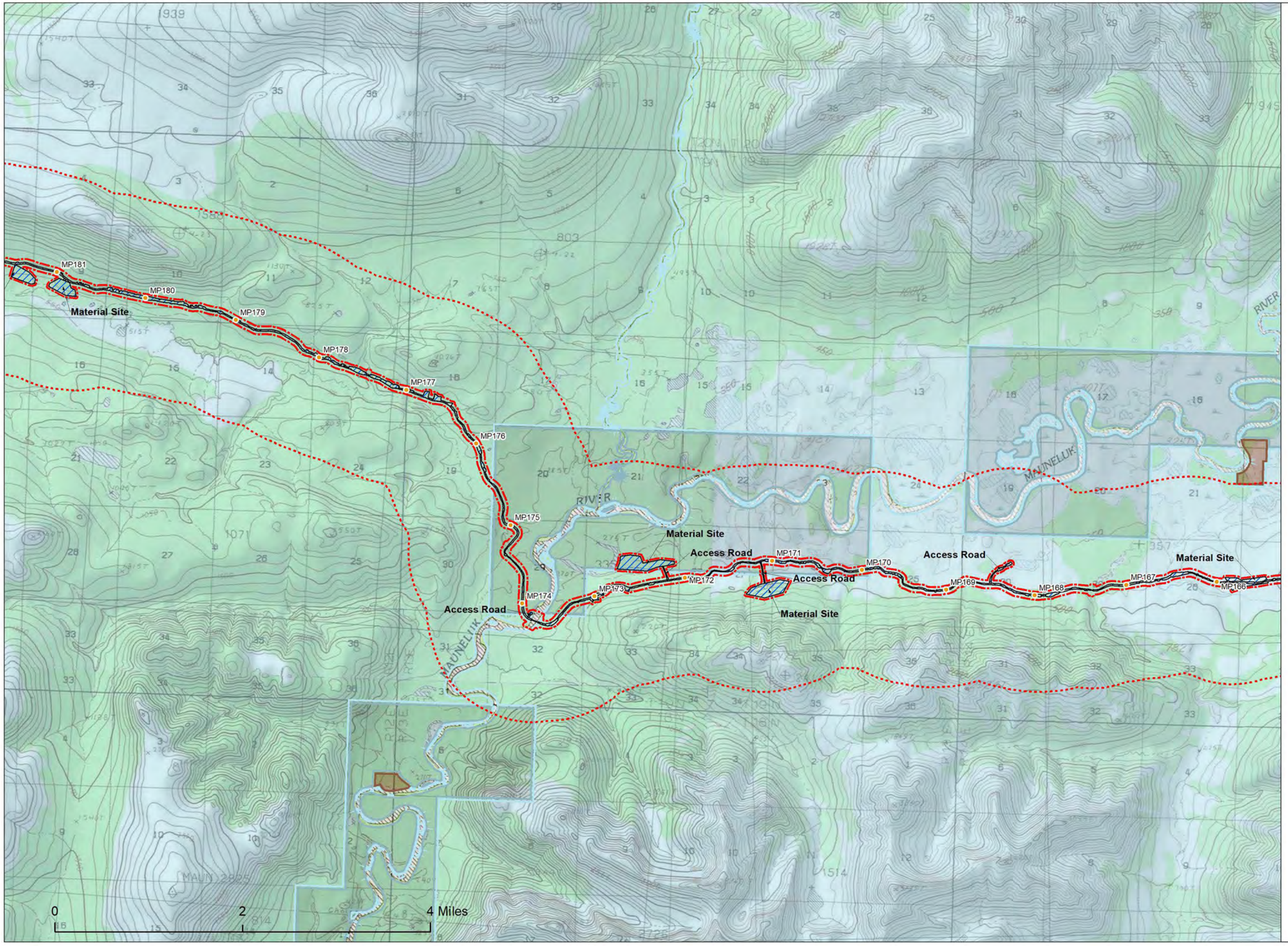

Alternative A Footprints
Direct APE
Indirect APE

Administered Lands*

Alaska Native Allotment
Local Government
State

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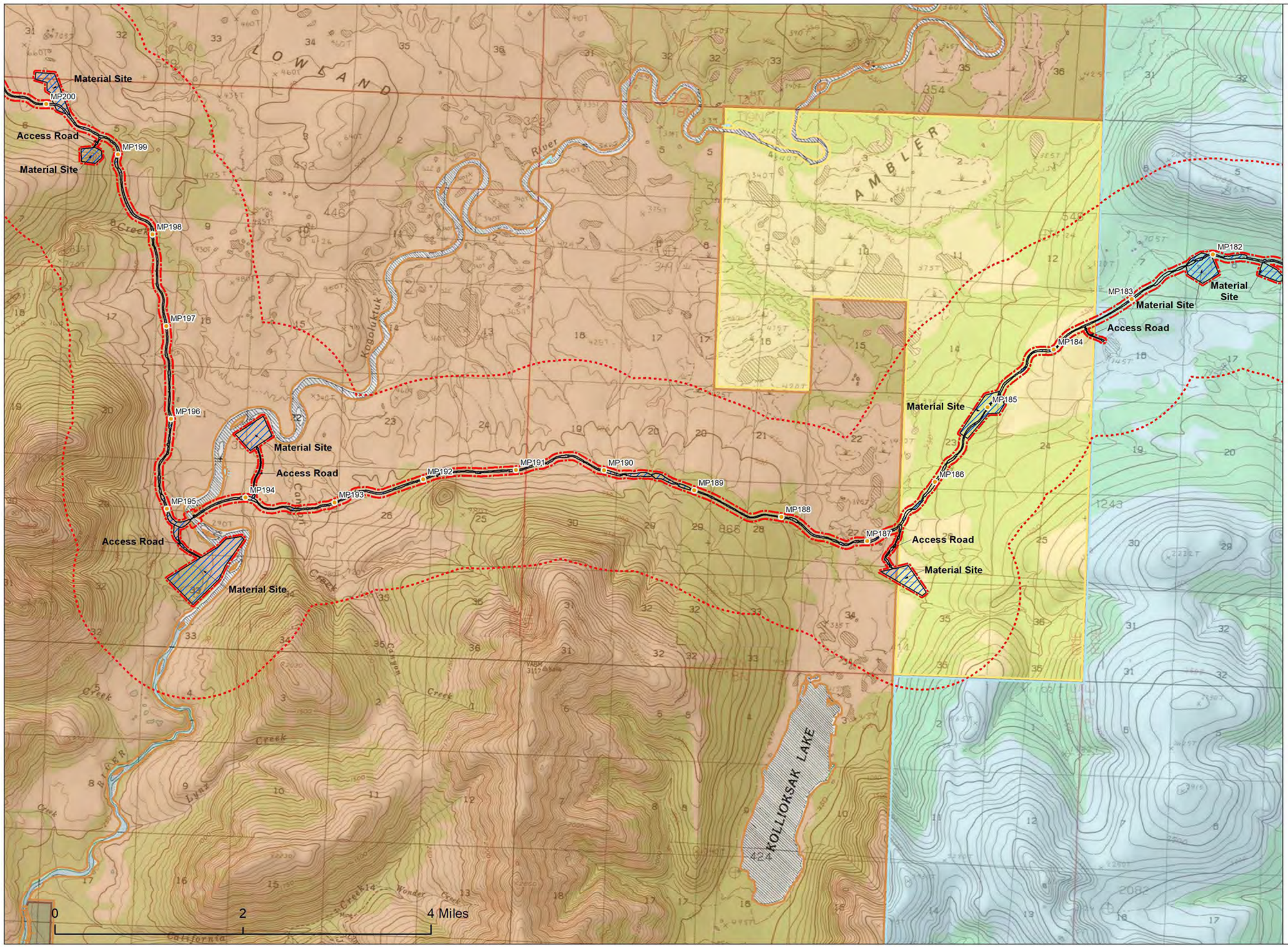

Alternative A Footprints
Direct APE
Indirect APE

Administered Lands*

Alaska Native Allotment
Alaska Native Lands Patented or Interim Conveyed
Bureau of Land Management
State

***Current as of April 11th, 2018**

NOTES:
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Basemap scale: 1:63,360
Map Date: 3/17/2020
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Alaska Albers
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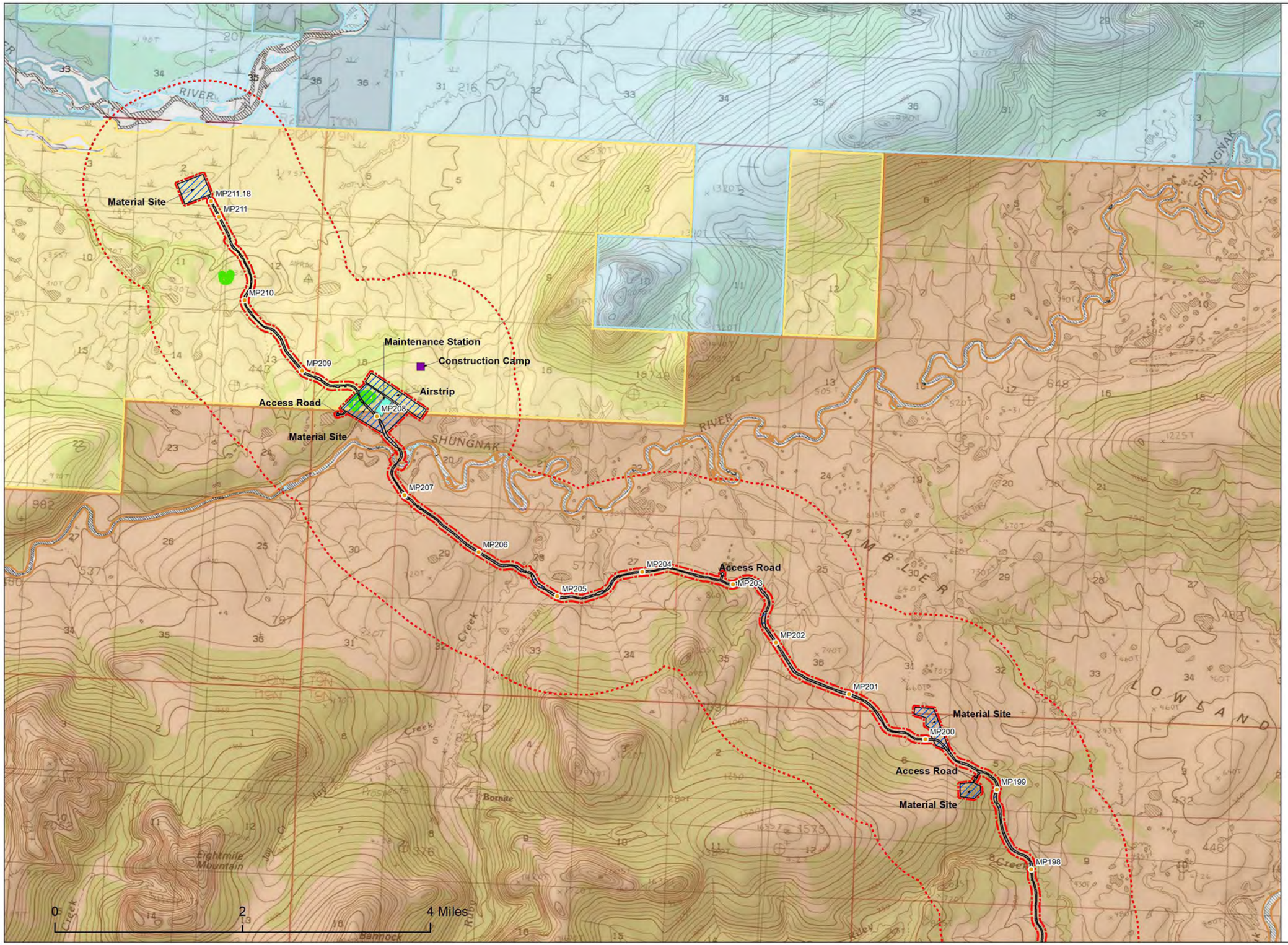

Alternative A Footprints
Direct APE
Indirect APE
2013 Ambler Pedestrian Survey

Administered Lands*

Alaska Native Lands Patented or Interim Conveyed
Bureau of Land Management
Local Government
State

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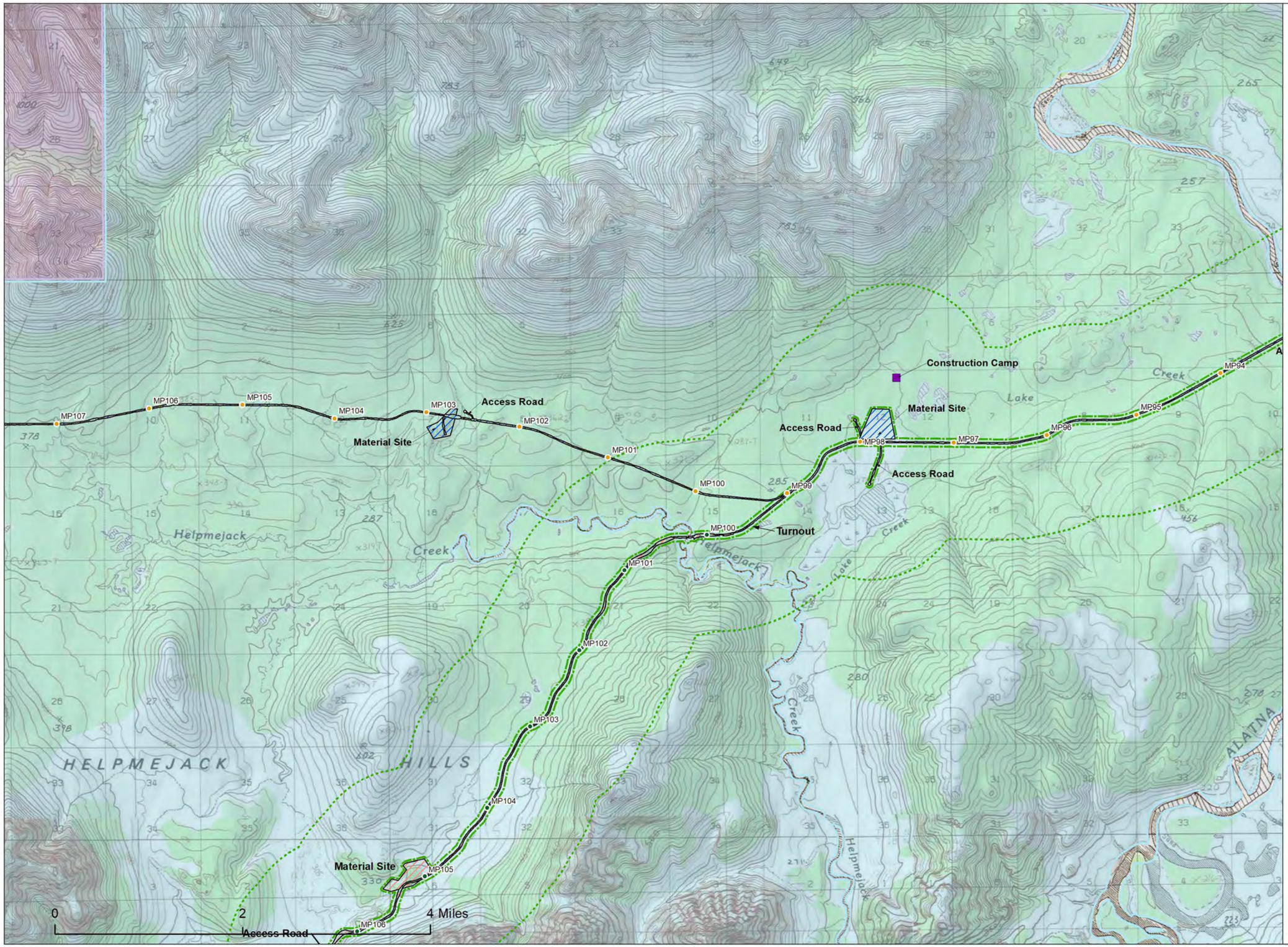

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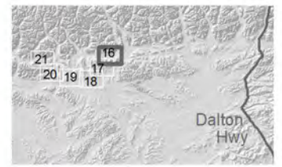

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NOTES:
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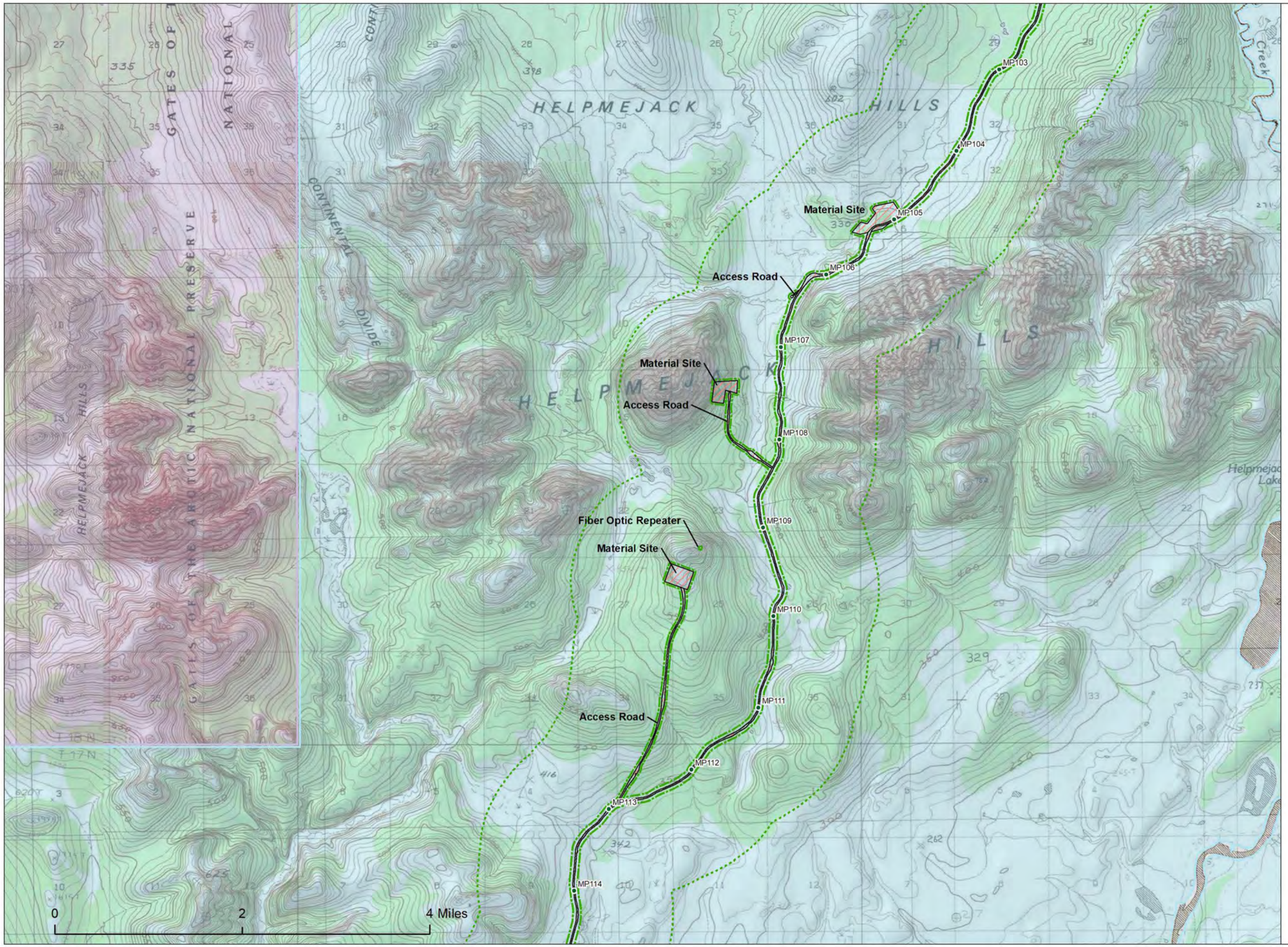
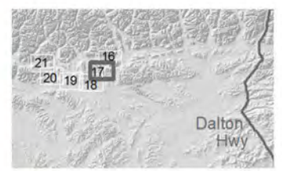


Alternative B Footprints
Direct APE
Indirect APE

Administered Lands*
National Park Service
State

***Current as of April 11th, 2018**



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Basemap scale: 1:63,360
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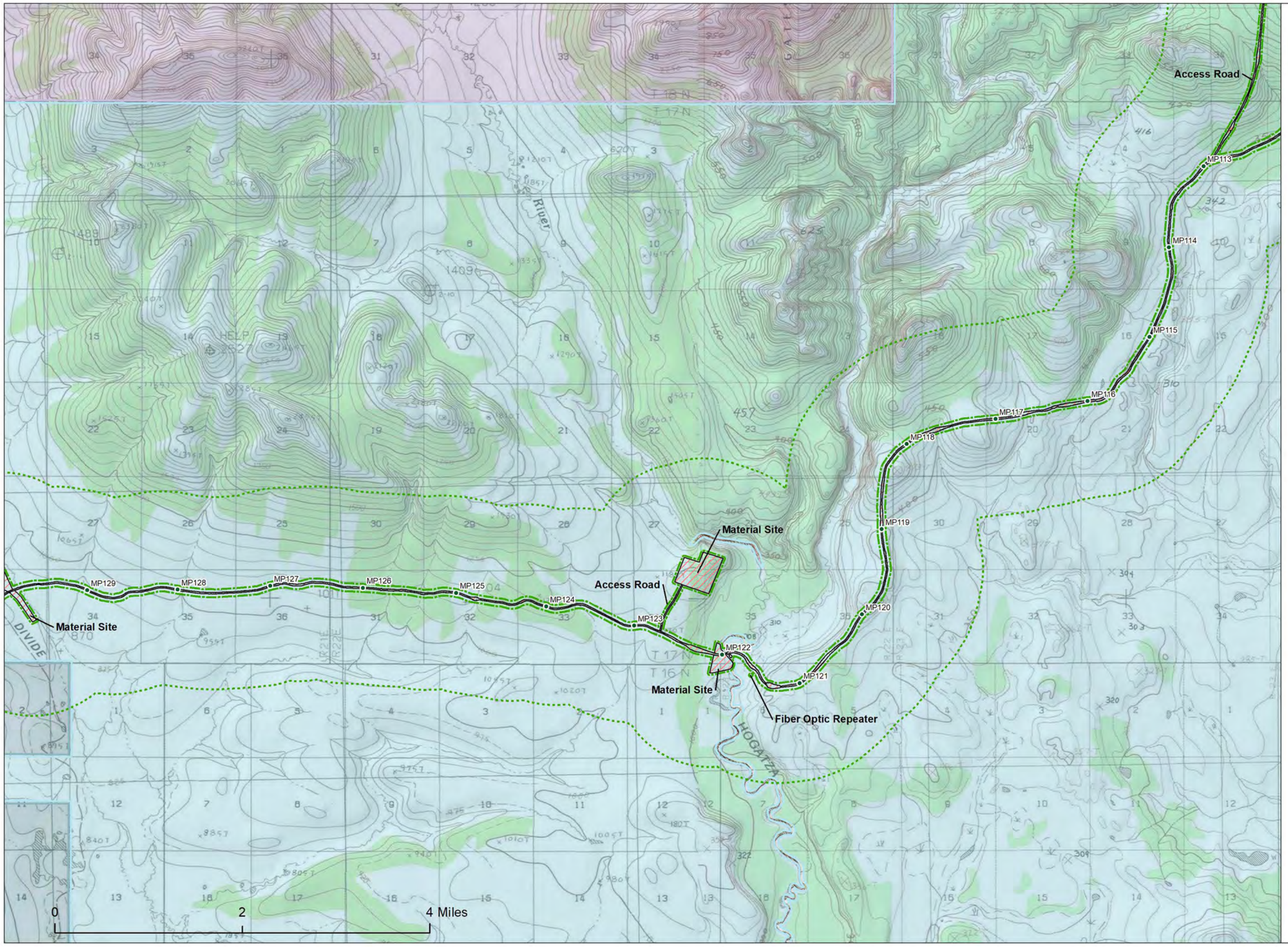

Alternative B Footprints
Direct APE
Indirect APE

Administered Lands*

Local Government
National Park Service
State

***Current as of April 11th, 2018**

NOTES:
Scale 1:63,360
Basemap scale: 1:63,360
Map Date: 3/17/2020
Date of APE: January, 2020
Date of Project Components: April, 2019
Alaska Albers
1983 North America Datum
For more information visit
www.blm.gov/AmblerRoadEIS
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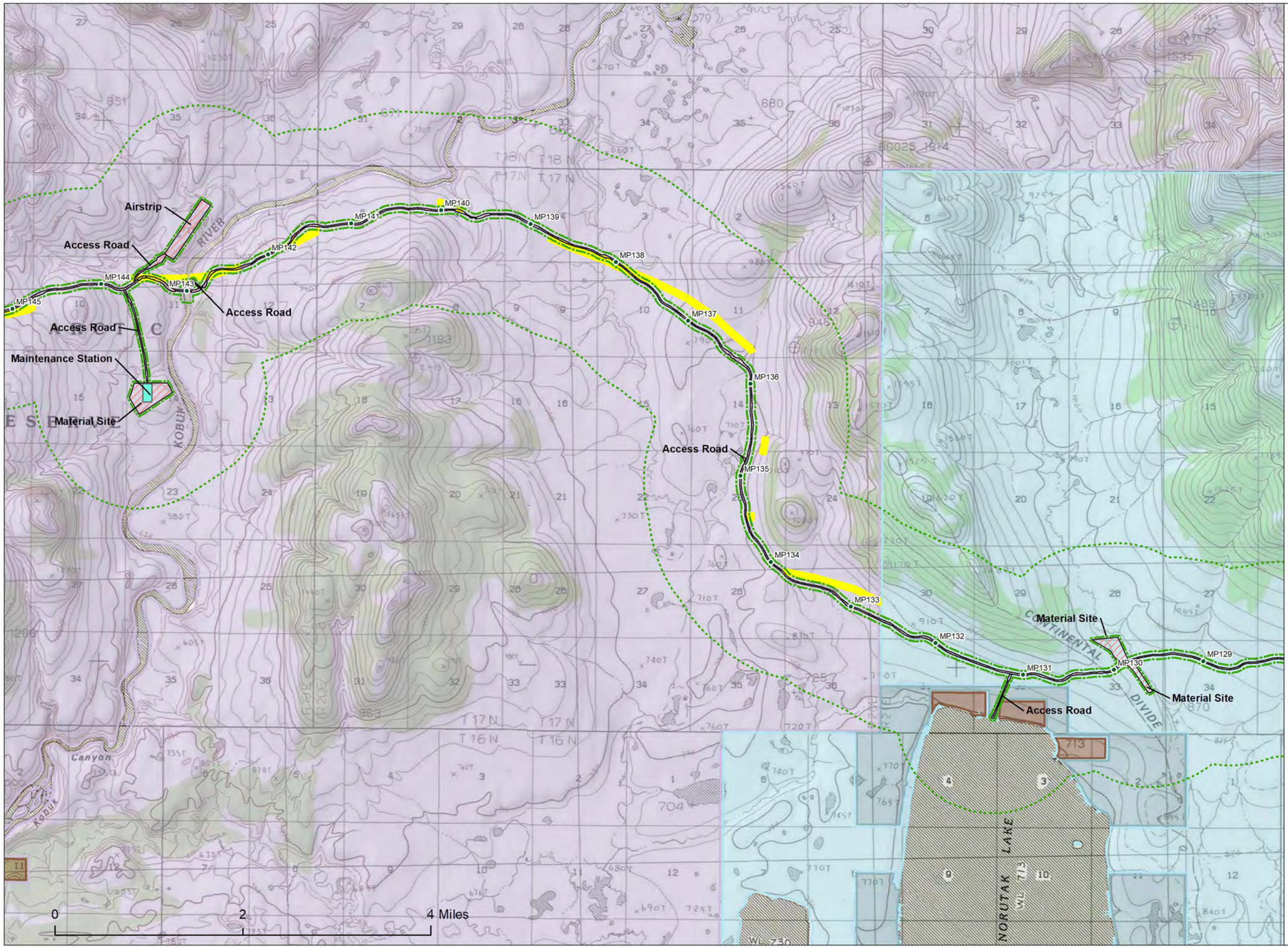
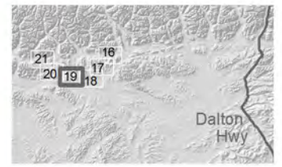


Alternative B Footprints
Direct APE
Indirect APE
2014 Ambler Pedestrian Survey

Administered Lands*

Alaska Native Allotment
Local Government
National Park Service
State

***Current as of April 11th, 2018**



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Basemap scale: 1:63,360
Map Date: 3/17/2020
Date of APE: January, 2020
Date of Project Components: April, 2019
Alaska Albers
1983 North America Datum
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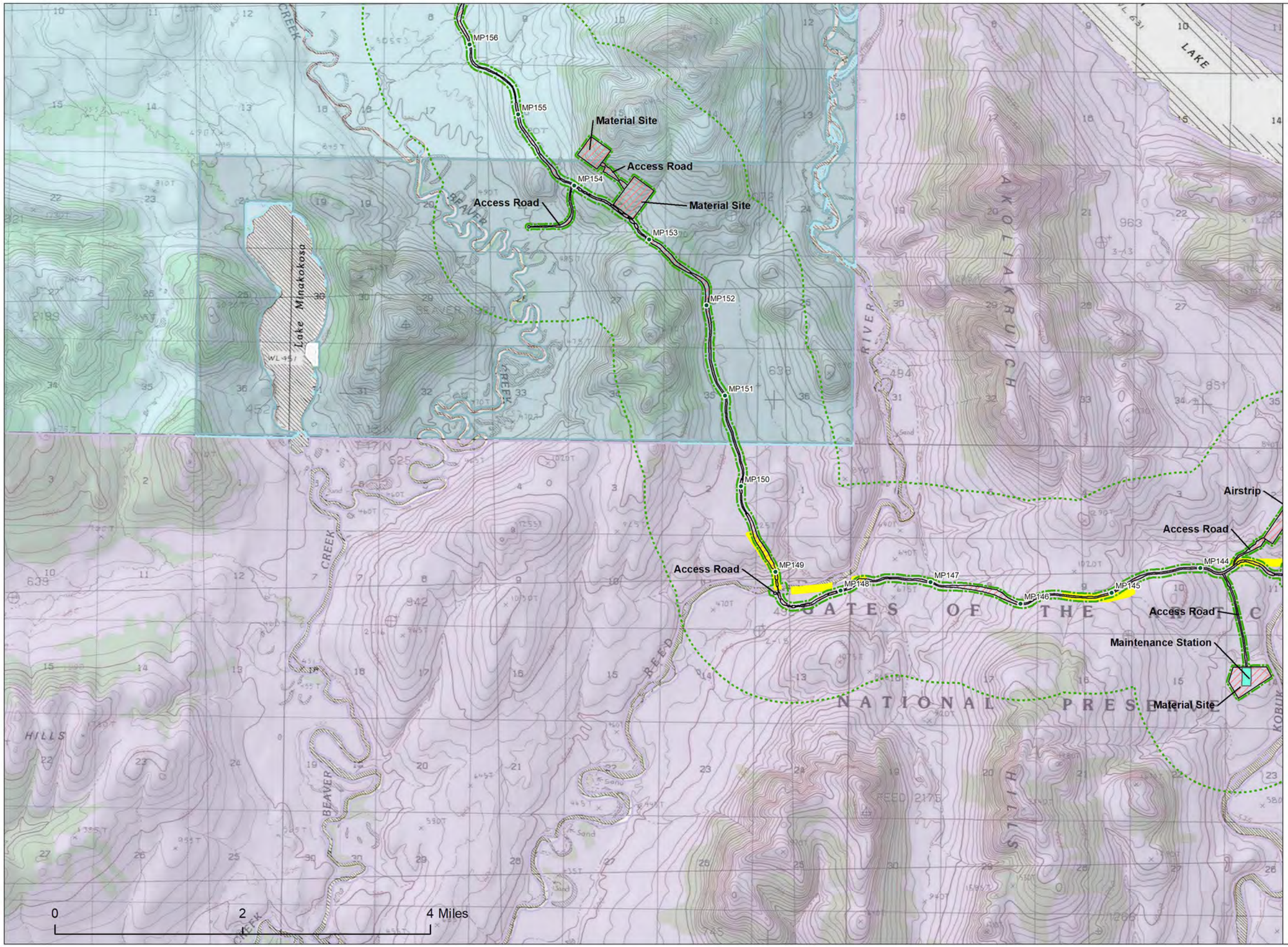
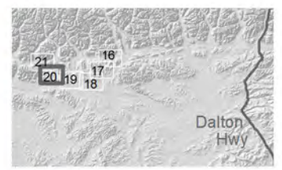


Alternative B Footprints
Direct APE
Indirect APE
2014 Ambler Pedestrian Survey

Administered Lands*

Local Government
National Park Service
Private
State

***Current as of April 11th, 2018**



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NOTES:
Scale 1:63,360
Basemap scale: 1:63,360
Map Date: 3/17/2020
Date of APE: January, 2020
Date of Project Components: April, 2019
Alaska Albers
1983 North America Datum
For more information visit
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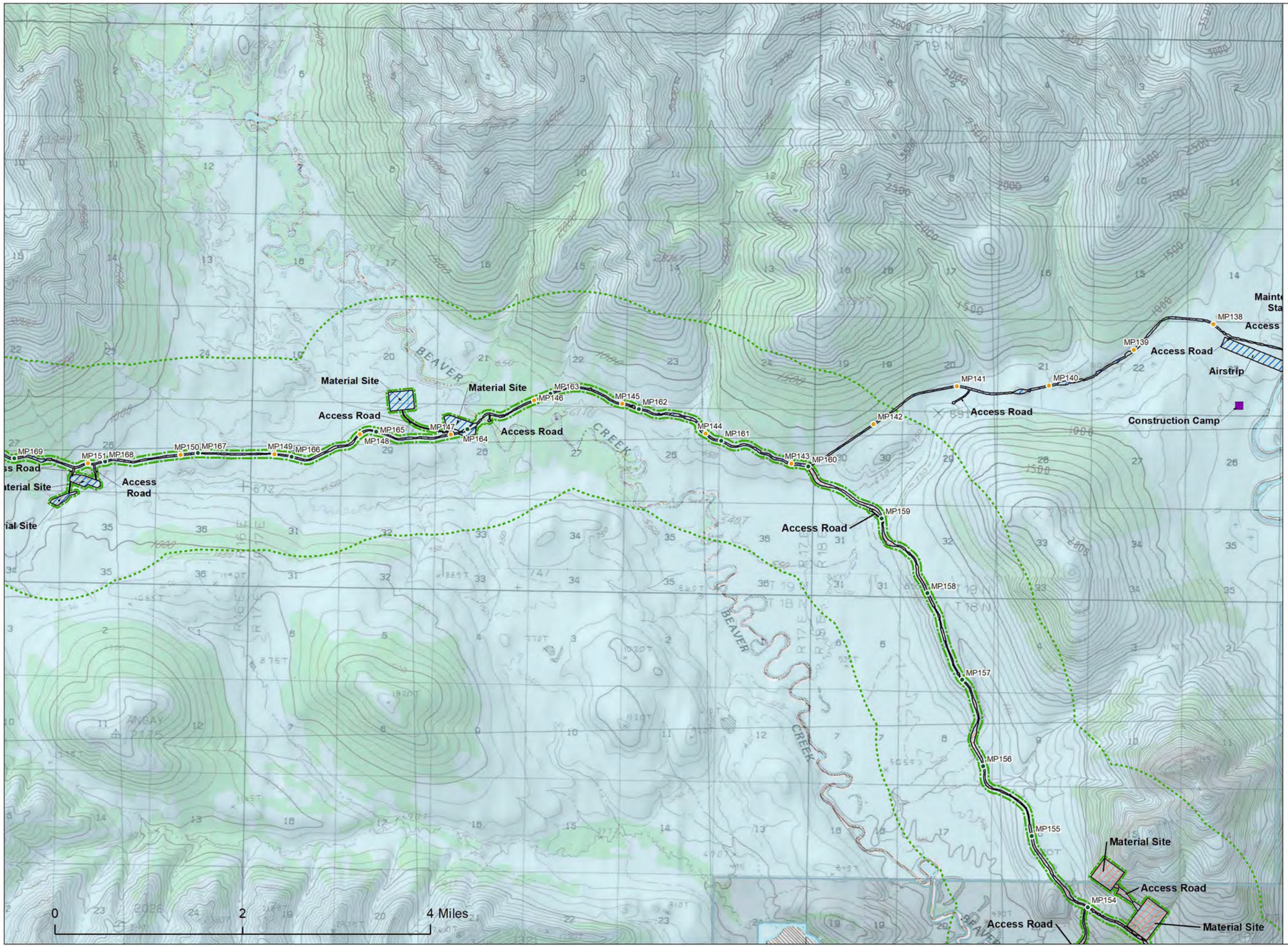
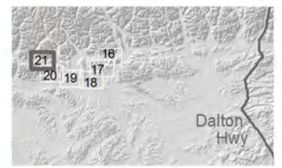


Alternative A Footprints
Alternative B Footprints
Direct APE
Indirect APE

Administered Lands*

Local Government
State

***Current as of April 11th, 2018**



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NOTES:
Scale 1:63,360
Basemap scale: 1:63,360
Map Date: 3/17/2020
Date of APE: January, 2020
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Attachment B – Area of Potential Effects

Project APE (December 2019)

The Area of Potential Effects (APE)[13] consists of a 1-mile buffer on each side of the proposed corridor and around all Project Components; see Attachment A, Maps. The corridor consists of a 250-foot wide, and, in some cases (such as water crossings or steep terrain), 400-foot wide footprint. Components include vehicle turnouts, work camps, storage and staging areas, material sources, airstrips, access roads, maintenance stations, and/or any other Project features. The Bureau of Land Management (BLM), in consultation with the Consulting Parties, determined the 1-mile APE will encompass reasonably foreseeable direct, indirect, or cumulative adverse effects[14] from the Project. While some effects may be present beyond the APE in certain areas (e.g., the road may be visible for more than 1 mile away when viewed from higher ground), it is unlikely that the eligibility or significance of any historic properties would be changed, and therefore the effect would not be considered adverse. Inventory methods within the APE will vary based on the following:

> *Inventory for Direct Effects[15] (Direct APE):*
> Inventory for direct effects will include the 250-foot wide, and, in some cases (such as water crossings or steep terrain), 400-foot wide corridor, plus a 100-foot buffer on each side of the corridor. Inventory for direct effects will also encompass the footprint of all Project Components (e.g., vehicle turnouts, work camps, storage and staging areas, material sources, airstrips, access roads, and maintenance stations or any other features), plus a 100-foot buffer around the footprint.
>
> *Inventory for Indirect and Cumulative Effects[16] (Indirect APE):*
> Inventory for indirect and cumulative effects will be considered for the portion of the APE that falls outside of the Direct APE.

The BLM, in consultation with the Consulting Parties, will consider whether any changes to the APE is needed during the Annual Meeting (XV.A). Revisions to the APE could be necessary based on updated project plans; additional information about construction, maintenance, or reclamation procedures; newly identified resources or new information about historic or traditional uses of an area; new survey methods or technology; environmental factors; information from monitoring; or other factors.

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[13] Per 36 CFR 800.16(d), an APE is "the geographic area or areas within which an undertaking may directly or indirectly cause changes in the character or use of historical properties, if any such properties exist."

[14] Per 36 CFR 800.5(a)(1), an adverse effect is found when an Undertaking may alter, directly or indirectly, the characteristics of a historic property that qualify it for inclusion in the NRHP. Adverse effects may include reasonably foreseeable effects caused by the Undertaking that may occur later in time, be farther removed in distance, or be cumulative.

[15] Per 36 CFR 800.5(a)(2), direct effects include physical destruction/damage, alteration not consisted with 36 CFR 68, removal of a property from a historic location, change in the character of use or physical features, deterioration through neglect, or introduction of visual, atmospheric, or audible elements that diminish the integrity. This includes effects that come from an Undertaking at the same time and place with no intervening cause, regardless of the specific type (i.e., visual, physical, auditory).

[16] Indirect effects are those caused by the Undertaking that are later in time or farther removed in distance but are still reasonably foreseeable. Cumulative effects result from incremental actions that, when added to other past, present, and reasonably foreseeable future actions, may adversely affect a historic property.

Attachment C – Previously Recorded AHRS Resources[17]

AHRS Number	Name	Period	Description	APE	Direct APE	NRHP Status	Landowner(s)
AMR-00227	Ticket Ridge Site	Prehistoric	Lithic and milled wood scatter	A/B	Yes	Unevaluated	BLM
AMR-00228	-	Unknown	Cairn	A/B	No	Unevaluated	NANA
HUG-00005	Norutak 1	Prehistoric	Ceramic and lithic scatter	B	No	Unevaluated	Allotment
HUG-00006	Norutak 7	Prehistoric	Lithic scatter	B	No	Unevaluated	Allotment
HUG-00007	Norutak 4	Prehistoric, Modern	Lithic and modern artifact scatter	B	No	Unevaluated	Allotment
HUG-00016	-	Prehistoric	Isolated lithic	B	No	Unevaluated	NPS
HUG-00024	-	Prehistoric	Lithic scatter	B	Yes	Unevaluated	NPS
HUG-00025	-	Prehistoric	Lithic scatter	B	No	Unevaluated	NPS
HUG-00028[a]	-	Prehistoric	Lithic scatter	B	Yes	Unevaluated	NPS
HUG-00029	-	Prehistoric	Lithic scatter	B	No	Unevaluated	NPS
HUG-00030	-	Prehistoric	Lithic scatter	B	No	Unevaluated	NPS
HUG-00032[b]	-	Prehistoric	Lithic scatter	B	No	Unevaluated	NPS
HUG-00033	-	Prehistoric	Lithic scatter	B	No	Unevaluated	NPS
HUG-00034	-	Prehistoric	Isolated lithic	B	No	Unevaluated	NPS
HUG-00035	-	Prehistoric	Lithic scatter	B	No	Unevaluated	NPS
HUG-00036	-	Prehistoric	Isolated lithic	B	No	Unevaluated	NPS
HUG-00037	-	Prehistoric	Lithic scatter	B	No	Unevaluated	NPS
HUG-00041	-	Prehistoric	Lithic scatter	B	No	Unevaluated	NPS
HUG-00103	-	Prehistoric	Lithic scatter	B	No	Unevaluated	NPS
HUG-00104	-	Prehistoric	Lithic scatter	B	Yes	Unevaluated	NPS
HUG-00132	Norutak 2	Prehistoric	Ceramic and lithic scatter	B	No	Unevaluated	Allotment
HUG-00133	Norutak 3	Prehistoric	Lithic scatter	B	No	Unevaluated	State
HUG-00134	Norutak 5	Prehistoric	Depression features and lithics	B	No	Unevaluated	State
HUG-00136	Norutak 8	Prehistoric	Depressions features and lithics	B	No	Unevaluated	State
HUG-00192[b]	-	Prehistoric	Subsurface lithic scatter	B	No	Unevaluated	NPS
HUG-00193	-	Prehistoric	Isolated lithic, projectile point	B	No	Unevaluated	NPS

[17] Data from the AHRS database as of December 2019; APE based on Project alignments as of April 2019.

AHRS Number	Name	Period	Description	APE	Direct APE	NRHP Status	Landowner(s)
HUG-00195	-	Prehistoric	Isolated lithic	B	No	Unevaluated	NPS
WIS-00001	-	Prehistoric	Hearth and lithic scatter	A/B	No	Unevaluated	BLM
WIS-00002	-	Prehistoric	Lithic scatter	A/B	No	Unevaluated	BLM
WIS-00003	-	Prehistoric	Hearth and lithic scatter	A/B	No	Unevaluated	BLM
WIS-00004	-	Prehistoric	Lithic scatter	A/B	No	Unevaluated	BLM
WIS-00005	-	Prehistoric	Surface and subsurface lithic scatter	A/B	No	Unevaluated	BLM
WIS-00019	-	Prehistoric	Surface and subsurface lithic scatter	A/B	No	Unevaluated	BLM
WIS-00021	-	Prehistoric	Lithic scatter	A/B	Yes	Unevaluated	BLM
WIS-00029	-	Prehistoric	Lithic scatter	A/B	No	Unevaluated	BLM
WIS-00030	-	Prehistoric	Lithic scatter	A/B	No	Unevaluated	BLM
WIS-00043	-	Prehistoric	Isolated lithic	A/B	No	Unevaluated	BLM
WIS-00231	Chapman Lake 1	Prehistoric	Cache Pit	A/B	No	Unevaluated	BLM
WIS-00232	Chapman Lake 2	Prehistoric	Subsurface Lithic Scatter	A/B	No	Unevaluated	BLM
WIS-00345	Chapman Lake Can and Flake Site	Prehistoric and Historic	Historic and Prehistoric Artifact Scatter	A/B	No	Unevaluated	BLM
WIS-00252	Chapman #1	Prehistoric	Activity area, lithic scatter	A/B	No	Unevaluated	BLM
WIS-00408	Dalton Highway	Historic	Highway	A/B	Yes	Eligible	State
WIS-00409	Hickel Highway	Historic	Transportation, winter road	A/B	Yes	Unevaluated	Doyon, Ltd.
WIS-00414[a]	-	Prehistoric	Lithic scatter	A/B	Yes	Unevaluated	BLM
XSP-00056	-	Prehistoric	Lithic scatter	A	No	Unevaluated	NPS
XSP-00057	-	Prehistoric	Lithic scatter	A	No	Unevaluated	NPS
XSP-00058	-	Prehistoric	Lithic scatter	A	No	Unevaluated	NPS
XSP-00059	-	Prehistoric	Lithic scatter	A	No	Unevaluated	NPS
XSP-00060	-	Prehistoric	Isolated lithic	A	No	Unevaluated	NPS
XSP-00061	-	Prehistoric	Surface and subsurface lithic scatter	A	No	Unevaluated	NPS
XSP-00062	-	Prehistoric	Lithic scatter	A	No	Unevaluated	NPS
XSP-00065	-	Prehistoric	Isolated lithic	A	No	Unevaluated	NPS
XSP-00067	-	Prehistoric	Surface and subsurface lithic scatter	A	No	Unevaluated	State
XSP-00068	-	Prehistoric	Lithic scatter	A	No	Unevaluated	NPS

AHRS Number	Name	Period	Description	APE	Direct APE	NRHP Status	Landowner(s)
XSP-00069	-	Prehistoric	Lithic scatter	A	No	Unevaluated	NPS
XSP-00070	-	Prehistoric	Lithic scatter	A	No	Unevaluated	NPS
XSP-00071	-	Prehistoric	Lithic scatter	A	No	Unevaluated	NPS
XSP-00072[a]	-	Prehistoric	Isolated lithic	A	Yes	Unevaluated	NPS
XSP-00073	-	Prehistoric	Isolated lithic	A	No	Unevaluated	State
XSP-00074	-	Prehistoric	Surface and subsurface lithic scatter	A	No	Unevaluated	State
XSP-00075	-	Prehistoric	Isolated lithic	A	No	Unevaluated	State
XSP-00076	-	Prehistoric	Isolated lithic	A	No	Unevaluated	NPS
XSP-00079	-	Prehistoric	Surface and subsurface lithic scatter	A	No	Unevaluated	NPS
XSP-00080	-	Prehistoric	Surface and subsurface lithic scatter	A	No	Unevaluated	NPS
XSP-00096	-	Prehistoric	Isolated lithic	A	No	Unevaluated	NPS
XSP-00097[b]	-	Prehistoric	Isolated lithic	A	No	Unevaluated	NPS
XSP-00099[a]	-	Prehistoric	Lithic scatter	A/B	Yes	Unevaluated	State
XSP-00111	-	Prehistoric	Lithic scatter	B	No	Unevaluated	State
XSP-00112[a]	-	Prehistoric	Lithic scatter	A	Yes	Unevaluated	State
XSP-00113	-	Prehistoric	Surface and subsurface lithic scatter	A	No	Unevaluated	State
XSP-00114	-	Prehistoric	Lithic scatter	A	No	Unevaluated	State
XSP-00115	-	Prehistoric	Lithic scatter	A	No	Unevaluated	State
XSP-00117[b]	-	Prehistoric	Lithic scatter	A	No	Unevaluated	NPS
XSP-00118	-	Prehistoric	Lithic scatter	A	No	Unevaluated	State
XSP-00119	-	Prehistoric	Lithic scatter	A	No	Unevaluated	State
XSP-00126	-	Prehistoric	Surface and subsurface lithic scatter	A	No	Unevaluated	State
XSP-00127	-	Prehistoric	Lithic scatter	A	No	Unevaluated	NPS
XSP-00128	-	Prehistoric	Lithic scatter	A	No	Unevaluated	NPS
XSP-00129	-	Prehistoric	Lithic scatter	A	No	Unevaluated	State
XSP-00131	-	Prehistoric	Surface and subsurface lithic scatter	A	No	Unevaluated	NPS
XSP-00135	-	Prehistoric	Surface and subsurface lithic scatter	A	No	Unevaluated	NPS
XSP-00136	-	Prehistoric	Surface and subsurface lithic scatter	A	No	Unevaluated	State
XSP-00137[a]	-	Prehistoric	Lithic scatter	A	Yes	Unevaluated	State

AHRS Number	Name	Period	Description	APE	Direct APE	NRHP Status	Landowner(s)
XSP-00138	-	Prehistoric	Lithic scatter	A	No	Unevaluated	State
XSP-00139[a]	-	Prehistoric	Isolated lithic	A	Yes	Unevaluated	NPS
XSP-00140	-	Prehistoric	Lithic scatter	A	Yes	Unevaluated	NPS
XSP-00141[a]	-	Prehistoric	Lithic scatter	A	Yes	Unevaluated	State
XSP-00142[a]	-	Prehistoric	Lithic scatter	A	Yes	Unevaluated	NPS
XSP-00143	-	Prehistoric	Lithic scatter	A	No	Unevaluated	NPS
XSP-00144	-	Prehistoric	Lithic scatter	A	No	Unevaluated	NPS
XSP-00145	-	Prehistoric	Isolated lithic	A/B	Yes	Unevaluated	State
XSP-00147	-	Prehistoric	Lithic scatter	A/B	No	Unevaluated	State
XSP-00148	-	Prehistoric	Lithic Scatter	A/B	No	Unevaluated	State
XSP-00149	-	Prehistoric	Lithic Scatter	A/B	No	Unevaluated	State
XSP-00150	-	Prehistoric	Lithic scatter	A/B	No	Unevaluated	State
XSP-00151	-	Prehistoric	Lithic scatter	A/B	No	Unevaluated	State
XSP-00152	-	Prehistoric	Lithic scatter	A/B	No	Unevaluated	State
XSP-00153	-	Prehistoric	Isolated lithic	A/B	No	Unevaluated	State
XSP-00154	-	Prehistoric	Isolated lithic	A	No	Unevaluated	State
XSP-00407	-	Prehistoric	Lithic scatter	A	No	Unevaluated	NPS
XSP-00436	-	Prehistoric	Lithic scatter	A	No	Unevaluated	NPS
XSP-00449[b]	-	Historic	Trap	A	No	Unevaluated	NPS
XSP-00450	-	Historic	Can, cut wood	A	No	Unevaluated	NPS
XSP-00495	-	Prehistoric	Subsurface lithic scatter	A	No	Unevaluated	NPS
XSP-00496[a]	-	Prehistoric	Isolated lithic	A	Yes	Unevaluated	NPS

[a] Site geometry falls outside of the Direct APE but was buffered 500 feet to account for unknown data accuracy and lack of defined site boundaries. Buffered site geometry falls within the **Direct APE.**

[b] Site geometry falls outside of the APE but was buffered 500 feet to account for unknown data accuracy and lack of defined site boundaries. Buffered site geometry falls within the **Indirect APE.**

Attachment D – List of Parties Invited to Consult on the Section 106 Process

Federally Recognized Tribes (52)

Alatna Village Council [a]
Allakaket Village Council [a]
Arctic Village Traditional Council
Beaver Traditional Council
Birch Creek Tribal Council
Brevig Mission Traditional Council
Buckland IRA Council
Chalkyitsik Traditional Council
Circle Traditional Council
Deering IRA Council
Denduu Gwich'in Tribal Council
Elim IRA Council
Evansville Village [a]
Fort Yukon IRA Council
Golovin-Chinik Eskimo Community
Hughes Village Council [a]
Huslia Village Council [a]
Inupiat Community of the Arctic Slope
Kaltag Traditional Council
Kiana Traditional Council
Kivalina Traditional Council
Koyukuk Traditional Council
Louden Tribal Council
Manley Traditional Council
Minto Traditional Council
Native Village of Ambler [a]
Native Village of Atqasuk
Native Village of Barrow
Native Village of Kotzebue
Native Village of Kobuk [a]
Native Village of Koyuk
Native Village of Mary's Igloo
Native Village of Noatak [a]
Native Village of Nuiqsut
Native Village of Point Hope
Native Village of Point Lay
Native Village of Selawik [a]
Native Village of Shaktoolik
Native Village of Shishmaref
Native Village of Shungnak [a]
Native Village of Stevens [a]
Native Village of Tanana [a]
Native Village of Venetie
Native Village of Wales
Native Village of White Mountain
Nenana Traditional Council
Nome Eskimo Community

Noorvik Native Community[a]
Nulato Tribal Council
Rampart Tribal Council
Ruby Traditional Council
Village of Anaktuvuk Pass[a]

ANSCA Corporations and Non-Profits (26)

Arctic Slope Regional Corporation
Baan O Yeel Kon Corporation
Bean Ridge Corporation
Beaver Kwit'Chin Corporation
Bering Straits Native Corporation
Chalkyitsik Native Corporation
Danzhit Hanlaii Corporation
Dineega Corporation
Dinyea Corporation[a]
Doyon, Limited[a]
Evansville, Incorporated[a]
Gana-A'Yoo, Limited[a]
Gwitchyaa Zhee Corporation
Kawerak, Incorporated
Kikiktagruk Inupiat Corp
K'oyitl'ots'ina Limited[a]
Koyuk Native Corp
Maniilaq Association
NANA Regional Corporation[a]
Nunamiut Corporation
Seth-De-Ya-Ah Corporation
Tanana Chiefs Conference[a]
T'ee teraan'in - Council of Athabascan Tribal Governments
Tihteet'aii, Incorporated
Toghotthele Corporation
Tozitna, Limited

State and Federal Agencies (9)

Advisory Council on Historic Preservation (ACHP)[a]
Alaska Department of Natural Resources (DNR)[a]
Alaska Department of Transportation & Public Facilities (DOT&PF)[a]
Alaska State Historic Preservation Officer (SHPO)[a]
Bureau of Indian Affairs (BIA)[a]
Environmental Protection Agency (EPA)
Federal Highway Administration (FHWA)
National Park Service (NPS)[a]
U.S. Army Corps of Engineers (USACE)[a]
U.S. Coast Guard (USCG)

City & Borough Governments (15)

City of Allakaket[a]
City of Ambler[a]
City of Anaktuvuk Pass[a]
City of Bettles

City of Buckland
City of Deering
City of Kiana
City of Kobuk
City of Kotzebue[a]
City of Noorvik
City of Selawik
City of Shungnak[a]
Northwest Arctic Borough[a]
North Slope Borough
Wiseman Community Association

Other Entities (6)

Alaska Federation of Natives
Alaska Historical Society
Alaska Industrial Development and Export Authority (AIDEA)[a]
Brooks Range Council
First Alaskans Institute
Northern Alaska Environmental Center
Simon Paneak Museum

Note: [a] = Entities that have participated in or consulted with the BLM during the Section 106 Process.

Attachment E – Cultural Resource Management Plan

Abbreviated Table of Contents – see CRMP for full Table of Contents and text:

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Attachment F – Reporting Table

The Reporting Table represents the standard due dates and content for all required report, plan, and deliverables associated with implementation of the Programmatic Agreement (PA). In certain cases, the Submittal Due Date may vary for the first year of the Pre-Construction Phase.

Report Title	Submittal Due (XIV.B.i)	Content	Review Period (XIV.B.ii)	Review Focus	Required Report Approvals (XIV.B.iv)
Phase Plan (IV.E)	Prior to initiation of each Project Phase	Detailed descriptions of the locations of all Segments and Components, descriptions of the planned work Stages, and anticipated work schedules for all activities that will occur during that Phase.	N/A	Informational Only	None
Historic Themes(s) (VII.C.ii.a)	60 days prior to fieldwork initiation	Comprehensive summary of available data sources relating to traditional fishing economy; traditional hunting, trapping, and guiding economies; traditional trade networks; historic exploration and travel corridors; and prospecting and mining.	30 days	Review of themes to ensure they are adequate to reasonably identify high potential areas for survey within the APE.	BLM SHPO (15-day approval review period)
Annual Work Plan (VII.B.i)	No later than March 1 (annually)	Detailed information about the anticipated work for the upcoming year; where it will occur; how it will be phased within Project Segments, Stages, and/or Components; and how the Permittee will meet the PA requirements. Other submissions may include updates to the Phase Plan (IV.E), Historic Themes (VII.C.ii.a), Survey Strategy (VII.D), Monitoring Plan (X.D), and Contractor Training curriculum (XI.B).	30 days	Review of all content to ensure the work will meet the PA stipulations and reasonable and good faith intent for Section 106 compliance.	BLM SHPO NPS[a] (15-day approval review period)
Contractor Training Curriculum (XI)	With the Annual Work Plan (no later than March 1 annually)	Curriculum for training Project personnel on cultural resource information and procedures.	30 days	Review of curriculum – does it adequately capture necessary information.	BLM SHPO (15-day approval review period)
Annual PA Report (XV.B)	No later than March 1 (annually)	Summary of all activities resulting from PA implementation over the past year; content should be generalized to share with the public, with confidential information redacted as necessary.	30 days	Ensure all activities are documented and adequately described to share with the public.	BLM SHPO (15-day approval review period)

Report Title	Submittal Due (XIV.B.i)	Content	Review Period (XIV.B.ii)	Review Focus	Required Report Approvals (XIV.B.iv)
Interim Report for Indirect APE (VII.B.ii)	30 days following completion of fieldwork (annually)	Summary of inventory efforts and resources within the Indirect APE.	15 days	Identify resources within the Indirect APE that require NRHP evaluation.	No approval required, but BLM, SHPO, and NPS[a] will consult during a 7-day period.
Annual Fieldwork Report (VII.B.iii)	90 days following completion of fieldwork (annually)	1) Comprehensive summary of inventory efforts completed since the last report, including Monitoring results; 2) recommendations of NRHP eligibility for all cultural resources located within the Direct APE and those identified during review of the Interim Report for Indirect APE; 3) finding of effect recommendations for resources that may be eligible; and 4) recommended resolution measures for resources that may be adversely affected.	45 days	Review of all content to ensure the work will meet the PA stipulations and reasonable and good faith intent for Section 106 compliance.	BLM SHPO NPS[a] (15-day approval review period)
Treatment Plans (VII.B.iv)	120 days following approval of mitigation measures	Detailed property-specific description of the treatment measures to be implemented and schedule for the activities and deliverables.	30 days	Review to ensure treatment will be commensurate with the eligibility and significance of the historic property.	BLM SHPO NPS[a] (15-day approval review period)
Final Implementation Reports (VII.B.v)	180 days following implementation of Treatment Plan (or as determined necessary)	Summary of all activities that occurred at each historic property, from inventory through implementation of mitigation treatment measures, and description of all completed steps, analyses, methods, and results, including collections and datasets generated.	30 days	Review to ensure treatment is completed for the historic property.	BLM SHPO NPS[a] (15-day approval review period)
Technical Reports (VII.B.vi)	Variable	Results of background research, fieldwork activities, lab analyses, or other information as determined by the PA Signatories.	30 days	Review of methods, results, and/or other technical aspects or consider if mitigation for broad-scale effects may be necessary.	BLM SHPO (15-day approval review period)
Construction and Operations	Within 2 years following completion	Summary of PA implementation, including all work that occurred during that Phase or period,	30 days	Review to ensure compliance with the PA	BLM SHPO

Report Title	Submittal Due (XIV.B.i)	Content	Review Period (XIV.B.ii)	Review Focus	Required Report Approvals (XIV.B.iv)
Summary Report(s) (XV.C)	of Construction for Phase I, II, and III and/or every 10 years	resources found, measures implemented, changes and updates in project designs/plans, changes in management or roles, and/or other information as determined by the PA Signatories.		and that indirect and cumulative effects are accounted for.	(15-day approval review period)
Reclamation and Closure Report (XV.D)	TBD	TBD	TBD	TBD	TBD

[a] Requires approval by the NPS for lands and/or historic properties under NPS jurisdiction.

Attachment G – Project Plans

DESCRIPTION OF PROPOSED PROJECT PHASES (December 2019)

Pre-Construction Phase

The first step is to complete design and permitting and acquire right of way (ROW) from non-federal sources. Activities required to complete permitting and design include geotechnical investigations at bridge locations, along the corridor centerline to refine the embankment design, and at material sites along the east-end realignment; aerial imagery and Light Detection and Ranging (LiDAR) (and/or survey) for areas lacking coverage; wetland delineation on areas not field delineated; hydrology studies; and cultural resource surveys.

At this stage, permits to be acquired would include final U.S. Army Corps of Engineers wetland permit and mitigation, U.S. Coast Guard bridge permits, Alaska Department of Natural Resources material site permits, Alaska Department of Fish and Game fish stream crossing permits, state and federal ROWs, etc. The timeframe for this Phase depends on project delivery method used, whether Design-Bid-Build[18], Design-Build[19], Construction Manager at Risk[20], Construction Manager/General Contractor[21] and phasing.

If the project is broken up into "segments" (within each Phase), there could be design and permitting done on 1 segment and construction could start on that segment while design and permitting is done on other segments. Contractor input would be needed to identify appropriate segments and the sequencing of segments for permitting and construction.

Summary:

- Years: 1 to 2 – May overlap with Phase I Construction timing.
- Components: No installed Components associated with this Phase.
- Activities: May include aerial mapping/photography/LiDAR; survey (including some brush clearing); water monitoring; wetland delineation; cultural resource modeling and surveys; drilling in material sites, along alignment, and bridge locations.

Phase I Construction (Seasonal Pioneer Road)

[18] **Design-Bid-Build** – This is the traditional delivery method for construction projects where the Owner contracts with a designer to design the project. Once design is complete, the project is put out to bid to Contractors to build as designed. Owner then enters into a construction contract with Contractor.

[19] **Design-Build** – This is an alternative delivery method for construction projects where the Owner hires a designer-contractor team to design and build the project. The Owner enters into one contract with the team to do both design and construction.

[20] **Construction Manager at Risk** – This is an alternative delivery method for construction projects where the Owner contracts separately with the designer and construction manager (CM). The CM acts as a consultant during design and as a general contractor during construction. The CM's responsibilities include procuring equipment and subcontracts and delivering the project within a fixed, negotiated price. In most states, the CM must be a licensed general contractor.

[21] **Construction Manager/General Contractor -** This is an alternative delivery method for construction projects and is very similar to the Construction Manager at Risk method. During the design phase, the construction manager provides input to the Owner and Designer regarding scheduling, pricing, phasing and other input to design a more constructible project. At approximately an average of 60% to 90% design completion, the owner and the construction manager negotiate a 'guaranteed maximum price' for the construction of the project based on the defined scope and schedule. If this price is acceptable to both parties, they execute a contract for construction services, and the construction manager becomes the general contractor.

This Phase will overlap with the Pre-Construction Phase. This Phase would include clearing vegetation from the federal and state ROWs while other ROW negotiations are underway. Activities would also include construction of material sources, clearing and preparing construction camps, placement of radio towers, staging of equipment and labor in various areas, hauling materials and placing fill, excavating high areas, and grading. It would also include installation of culverts and bridges (including driving piles for bridge supports) as well as airstrips, maintenance facilities, and access controls.

Since Phase I construction will most likely start in some portions of the Project area while pre-construction activities are still on-going in other areas, there could be some pre-construction activities (e.g., geotechnical borings, hydrology studies, cultural resource surveys) underway during this Phase.

Summary:

- Years: 2 to 4 – overlaps with Pre-Construction Phase and beginning of Phase II Construction.
- Operations: 1-lane seasonal road, embankment width up to 28 feet and height 30 to 72 inches, 12-foot road lane, 2-foot shoulders, 1-way operation for up to 7 months per year.
- Components: Construction camps, material sites, airstrips, radio towers, maintenance sites and communications equipment, access control (gates), construction equipment, and bridges, culverts, and road embankment.
- Activities: Clearing vegetation from the ROWs, construction of material sources, clearing and preparing construction camps, placement of radio towers, staging of equipment and labor in various areas, hauling materials and placing fill, excavating high areas, and grading. It would also include installation of culverts and bridges (including driving piles for bridge supports) as well as airstrips, maintenance facilities, and access controls. (Potential concurrent Pre-Construction Phase activities may include aerial mapping/photography/LiDAR, survey, water monitoring, wetland delineation, cultural resource modeling and surveys, and drilling in material sites, along alignment, and bridge locations).

Phase II Construction (All-season Roadway)

This Phase would involve the construction of a year-round useable road. This effort would entail additional material extraction, hauling and placing material to expand the Phase I embankment (width and depth), and grading to final slopes. Fiber optic facilities would be trenched into the road embankment during this Phase of construction.

Summary:

- Years: 3 to 4 – including overlap with Phase I.
- Operations: 1-lane year-round road, embankment width up to 44 feet and height 36 to 96 inches, 12-foot road lane, 4-foot shoulders, 1-way road operation.
- Components: Most already put in place during Phase I construction activities, with the addition of fiber optic line in roadway embankment and additional communication equipment at some Maintenance Stations.
- Activities: Continued development or expansion of material sources, construction camp operations, maintenance station operations, some aircraft operations, hauling materials and placing fill, excavating high areas, and grading.

Phase II Operations and Maintenance

Summary:

- Years: 4 to 50

- Operations: 1-lane year-round road, embankment width up to 44 feet and height 36 to 96 inches, 2 12-foot road lanes, 4-foot shoulders, 2-way road operations.
- Components: Use of previously constructed Components.
- Activities: Continued development or expansion of Material Sites, air operations, Maintenance Station operations, hauling materials and placing fill for repairs/maintenance, grading, and removal and reclamation of temporary construction camps not turned into Maintenance Stations.

Phase III Construction (2-Lane Road)

This Phase, if needed, would include additional clearing, additional material extraction, additional excavation where widening road in cut sections or side hilling, additional hauling and placing material to expand the Phase II embankment (width), and additional grading. Culverts would be extended by welding extensions onto the existing culverts. This expansion would create a 2-lane all-season roadway.

Summary:

- Years: 2 to 3 years for the road widening effort – could overlap with the Phase II Operations and Maintenance.
- Operations: 2-lane year-round road, embankment width up to 56 feet and height 36 to 96 inches, 2-way road operations.
- Components: Use of previously constructed Components; expansion of Material Sites; extension of fish passage culverts.
- Activities would include continued development or expansion of material sources, maintenance station operations, air operations, hauling materials and placing fill for expanded roadway, and grading.

Reclamation Phase

Reclamation at the end of the Project would include removal of embankment, culverts, Airstrips, and Maintenance Sites, as well as regrading and revegetation.

Summary:

- Years: 50 to 55
- Operations: Removal of road, no road operations.
- Components: Use of maintenance sites as construction camps, use of communications equipment during reclamation activities, restoration, regrading, and revegetation. Removal of all Components at end of reclamation.
- Activities: Equipment operations to remove fill, regrade, revegetate, restore areas affected by road embankments and associated facilities (airstrips, maintenance stations, material sites).

Attachment H – Amendment and Addendum Log

Change #	Date Revised	Stipulation or Attachment	Line or Paragraph	Revision
Example	*Dec 21, 2019*	*Attachment H*	*1*	*Original language which stated "Amendment Log" was changed to "Amendment and Addendum Log".*
1				
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Appendix I

National Marine Fisheries Service Letter of Concurrence

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United States Department of the Interior

BUREAU OF LAND MANAGEMENT
Central Yukon Field Office
222 University Avenue
Fairbanks, Alaska 99709-3816
www.blm.gov/alaska

In Reply Refer To:
1793/1794 (LLAKF03000)

MAR 19 2020

National Oceanic Atmospheric Administration
NMFS, Alaska Regional Office
ATTN: James Balsiger
P.O. Box 21668
Juneau, Alaska 99802-1668

Dear Mr. Balsiger,

On February 21, 2020, the U.S. Bureau of Land Management (BLM) received Essential Fish Habitat Conservation Recommendations (EFH-CR's) from the National Marine Fisheries Service (NMFS) on the Ambler Road Environmental Impact Statement. Alaska Industrial Development and Export Authority (AIDEA) proposes to construct a road extending from the Dalton Highway to the Ambler mining district (Ambler Road). The purpose of the EFH-CR's are to reduce and mitigate impacts to habitat attributes that support anadromous salmon populations in the watersheds transected by the road corridor.

The BLM is preparing an EIS as required under the National Environmental Policy Act (NEPA) to analyze the AIDEA application to construct a road on Federally-administered public land. The document will also serve to inform additional Federal decisions such as: the issuance of Clean Water Act Section 404 permits by the USACE for discharge of fill in wetlands and waters, and for permits authorizing the construction of bridges over navigable waterways authorized by the U.S. Coast Guard.

In accordance with Section 305(b) of the Magnuson-Stevens Fishery Conservation and Management Act, the BLM is required to consult with NMFS on activities that may adversely affect EFH. If an action is determined "not" to adversely affect EFH, no EFH consultation with NMFS is required.

For actions determined to adversely affect EFH, an EFH Assessment must be prepared. Under the EFH implementing regulations at 50 CFR 600.920(e), an EFH Assessment must include four mandatory contents: (i) a description of the action, (ii) an analysis of the potential adverse effects of the action on EFH and the managed species, (iii) the Federal agency's conclusions regarding the effects of the action on EFH, and (iv) proposed mitigation, if applicable. If an EFH

Assessment is contained in another document, it must include all of the required information and be clearly identified as an EFH Assessment.

Though the BLM has not provided a formal EFH Assessment, NMFS Alaska Region of the Habitat Conservation Division (AK-HCD) appears to recognize that several necessary elements needed to complete the EFH consultation process are present in BLM's Environmental Impact Statement. In recent discussions between BLM and NMFS-HCD staff on March 11, 2020, it was concluded that BLM needed to identify where the appropriate elements appeared in the EIS as well as provide an effects determination statement. This would satisfy the requirements of an EFH Assessment and associated consultation. BLM is submitting this letter and outline as the EFH Assessment. Each of the listed elements below can be found in each of the following sections of the EIS.

(i) A description of the action, (Chapter 2.4 Alternatives Retained for Detailed Analysis: 2.4.3 to 2.4.8; Appendix C, Table 1).

(ii) An analysis of the potential adverse effects of the action on EFH and the managed species, (Chapter 3.3.2 Fish and Amphibians - *Environmental Consequences*; Appendix E, Table 17).

(iii) The Federal agency's conclusions regarding the effects of the action on EFH, (Chapter 3.3.2 Fish and Amphibians - *Environmental Consequences – Essential Fish Habitat*)

a. Determination Statement:

i. Construction and operation of the Ambler Road has the potential to adversely affect EFH if adequate fish passage facilities are not constructed to provide and support anadromous salmon in their fresh water phases.

ii. However, given the proper implementation of both short and long term mitigation measures, it is BLM's determination that the project will not adversely affect EFH for anadromous salmon populations.

(iv) Proposed mitigation, if applicable.

a. Potential impacts essentially fall into two categories; short term impacts from the construction of the road corridor and long term operational impacts caused by poorly constructed fish passage facilities that prevent anadromous fish passage. Long term impacts such as these have the potential to impact anadromous salmon populations (Chapter 3.3.2 Fish and Amphibians - *Environmental Consequences*).

i. Short term impacts to EFH would be localized near road crossings and mitigated by using Best Management Practices (Chapter 2.4.4 Design Features Proposed by AIDEA - *Physical Environment* and *Biological Resources*; Appendix N: Potential Mitigation – 3.2.5 Water Resources and 3.3.3 Fish and Amphibians).

ii. Long term impacts to EFH would be the result of poorly designed and failed fish passage facilities, though these impacts would be mitigated by installing adequate fish passage facilities (Chapter 2.4.4 Design Features Proposed by AIDEA - *Physical Environment* and *Biological Resources*; Appendix N: Potential Mitigation – 3.3.3 Fish and Amphibians).

I appreciate the recent helpful coordination from Doug Limpinsel of your staff to assist the BLM in addressing EFH for this project. Please contact David Esse of my staff at (907) 474-2365, or me at (907) 474-2356, if you have any questions on this matter.

Sincerely,

Timothy J. La Marr
Central Yukon Field Office Manager

cc:
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UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
P.O. Box 21668
Juneau, Alaska 99802-1668

March 30, 2020

Timothy La Marr
Bureau of Land Management
Fairbanks District Office
222 University Avenue
Fairbanks, Alaska 99709-3844

Re: Ambler Road Essential Fish Habitat Consultation

Dear Mr. La Marr:

The National Marine Fisheries Service (NMFS) Habitat Conservation Division (HCD) has received the Bureau of Land Management's response to our Essential Fish Habitat (EFH) Conservation Recommendations (CR's). The letter identifies appropriate sections in the Environmental Impact Statement that represent the four required components of an EFH Assessment. The Alaska Industrial Development and Export Authority (AIDEA) proposes to construct and operate a new road extending from the Dalton Highway to the Ambler Mining District in north-central Alaska. The Ambler Road will cross several major rivers and countless smaller streams and tributaries known to support anadromous Pacific salmon.

NMFS appreciates that the BLM and AIDEA recognize the potential impacts to EFH and anadromous Pacific salmon should the road be constructed not accommodating adequate fish passage. NMFS agrees with BLM's rationale and subsequent determination statement that construction and operation of the Ambler Road has the potential to adversely affect EFH if adequate fish passage facilities are not constructed to provide and support anadromous salmon in their fresh water phases. NMFS agrees that proper implementation of the short and long term mitigation measures identified in the Final Environmental Impact Statement will minimize adverse impacts to EFH for anadromous Pacific salmon. Thus, we offer no additional EFH CR's at this time.

Should the project remain unchanged, NMFS acknowledges EFH consultation is complete and satisfied. Should the final project design undergo significant change, changes that may adversely affect Pacific salmon EFH, NMFS wishes to be informed and may offer additional EFH CR's. If you have any questions regarding this consultation or additional future actions, please contact Doug Limpinsel, of my staff, at Doug.Limpinsel@noaa.gov or (907) 271-6379.

Sincerely,

for Robert D Mecum

James W. Balsiger, Ph.D.
Administrator, Alaska Region

cc:

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