

Appendix A

RECOMMENDED MITIGATION MEASURES

The following measures are recommended to avoid or minimize negative impacts and enhance positive impacts from the authorized right-of-way (ROW) through the Gates of the Arctic National Preserve (Preserve).

1. Timely notification for the following types of incidents occurring within the Preserve: incidents that resulted in exceeding state water quality standards; incidents that altered stream banks, resulting in the stream leaving its normal channel; and fish kills. The purpose of timely notification of impacts to GAAR resources is to allow GAAR staff to participate in developing appropriate remedies.
2. The changes caused by construction and operation of the road and the passage of time (road life expected to be 50 years) likely will have altered original condition such that the restoration objective of returning to “original condition” may not best protect Preserve resources; in such cases, restoration within the Preserve should consider the best measures for the habitat as it exists at that time and include consultation with the NPS.
3. Construction activities (e.g., bridge construction over the Kobuk River) may pose risk to Preserve visitors and require short term closures to protect visitor safety. The applicant will work with NPS staff to manage visitor safety and communicate information about potential closures with as much advanced notice as is feasible.
4. Constructed features within the 0.25-mile boundary of the Kobuk River will be minimized to the extent possible.
5. Activities in and constructed features within the 0.25-mile boundary of the Kobuk River may not interfere or impede stream flow of or transportation on the river. In addition to measures already included as design features or JROD mitigation, the need for riprap should be minimized by locating abutments out of the flood zone, or where possible, riprap should be placed above the ordinary high water mark. Where riprap cannot be eliminated, local material (from sources near GAAR) will be used to blend more closely with local rock substrate.

The remainder of the recommended measures are those adopted through the Bureau of Land Management and Army Corps of Engineers’ Ambler Road Joint Record of Decision (JROD), Appendices C, D1, D2 and G, reprinted here for convenience. These measures would be modified in the ROW grant to facilitate implementation by the NPS. For example, where a BLM mitigation measure requires authorization or some other action by the “Authorizing Officer,” that measure would require authorization by the GAAR Authorized Officer, which in most cases would be the GAAR Superintendent or his/her designee.

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.

2.1. 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.

2.2. 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.

2.3. Operations

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

2.4. 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.

2.5. 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.

2.6. 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.

Attachment D-1:
BLM SELECTED MITIGATION MEASURES FROM
APPENDIX N OF THE FINAL EIS

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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). While some of these mitigating measures provide general guidance for the Ambler Road Project as a whole, they will be further defined and clarified in the ROW Grant offer to AIDEA as they apply specifically to BLM-managed lands. The ROW Grant stipulations are additional terms and conditions that must be complied with for all activities involved with the road construction, operation, maintenance, and termination on BLM-managed lands, within the parameters of the FEIS.

Measures required by other regulations, laws, standard stipulations or which were not practicable are Listed in Appendix D Attachment D-2.

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

| Mitigation Number from Appendix N | 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 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 |
| 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 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 |

| Mitigation Number from Appendix N | Mitigation Measure | FEIS Reference |
|-----------------------------------|---|--|
| 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 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 and 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, 1.1 General Measures |
| 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 | Potential BLM Mitigation Measure: 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. | App N 1.4 General Completion of Use (Restoration/ Reclamation) |
| 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 five year interval for the life of the project, and upon notification of intent to begin closure and reclamation activities. | App 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. | App N 1.4 General Completion of Use (Restoration/ Reclamation) |

| Mitigation Number from Appendix N | Mitigation Measure | FEIS Reference |
|--|---|---|
| 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 right of way, 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 following 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 NOA in road materials, and on the ways to minimize exposure to Naturally Occurring Asbestos (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 |
| 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 |

| Mitigation Number from Appendix N | Mitigation Measure | FEIS Reference |
|-----------------------------------|--|---|
| 59 | For construction and operation phases, when AIDEA is required by 40 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 Right of Way must be transported by a signatory to the International Cyanide Management Code. | Appendix N 3.2.3.1 Spill prevention and response |
| 69 | <p>AIDEA would ensure that all hazardous materials containers, including POL containers, are stored within secondary containment.</p> <ul style="list-style-type: none"> • 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 |

| Mitigation Number from Appendix N | Mitigation Measure | FEIS Reference |
|-----------------------------------|---|--|
| 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, to be submitted for approval. | Appendix N 3.2.4 Paleo 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 Water - General |
| 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 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 Water - General |

| Mitigation Number from Appendix N | Mitigation Measure | FEIS Reference |
|-----------------------------------|---|--|
| 80 | <p>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.</p> <ul style="list-style-type: none"> 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 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. See also Hazardous Waste (Section 3.2.3). | 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, and 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 plan of development, 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 right of way. | Appendix N 3.2.6 Acoustical Env. (Noise) |

| Mitigation Number from Appendix N | 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 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 (BMPs, palliatives, policies, practices, and methodologies, and 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 during 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 and 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 |
| 90 | 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 Number from Appendix N | 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 through 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 Number from Appendix N | Mitigation Measure | FEIS Reference |
|-----------------------------------|---|--|
| 102/103 | <p>AIDEA would prepare an Invasive Species Prevention and Management Plan (ISPMP) to prevent the introduction and spread of NNIS, including terrestrial and aquatic plant and animals. At a minimum, the ISPMP would address the following items:</p> <ul style="list-style-type: none"> • 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, and 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 |
| 104 | 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 & 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 Grant of Right of Way, and that trees that will not be removed are not damaged. | Appendix N 3.3.1.4 Forestry, Timber & Fire |

| Mitigation Number from Appendix N | Mitigation Measure | FEIS Reference |
|-----------------------------------|---|--|
| 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 & Fire |
| 111 | AIDEA would employ measures from Firewire 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 & 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 & 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 & 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: <ul style="list-style-type: none"> • 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 |

| Mitigation Number from Appendix N | Mitigation Measure | FEIS Reference |
|-----------------------------------|---|--|
| 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 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 |
| 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, Manage & 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, Manage & 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 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 Transport & Access |

| Mitigation Number from Appendix N | Mitigation Measure | FEIS Reference |
|-----------------------------------|---|--|
| 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 Transport & Access |
| 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 Transport & Access |
| 144 | Pursuant to 43 CFR 2805.15(a), BLM retains the right to access the lands covered by the grant at any time and to enter any facility AIDEA constructs on the right of way. Similarly, other agencies or landowners that, in the judgment of the BLM 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 Transport & 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 Transport & 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 Transport & 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 3.4.2 Transport & Access |

| Mitigation Number from Appendix N | Mitigation Measure | FEIS Reference |
|-----------------------------------|---|--------------------------------------|
| 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 the 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 |
| 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: <ul style="list-style-type: none"> • 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, ACECs, 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: <ol style="list-style-type: none"> a. 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). b. 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). c. Identify and promote work opportunities for local residents. | Appendix N 3.4.5 Socio & 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 H 3.4.5.1 Public Health |

| Mitigation Number from Appendix N | Mitigation Measure | FEIS Reference |
|-----------------------------------|--|---|
| 161 | <p>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:</p> <ul style="list-style-type: none"> • 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. | Appendix N 3.4.7 Subsistence Uses and Resources |
| 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 | <p>Subsistence activity impact mitigation would also include:</p> <ul style="list-style-type: none"> • 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 J of the Ambler Road EIS). 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, REQUIRED BY REGULATIONS OR
STIPULATIONS

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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 will be incorporated by stipulations in the Federal ROW Grant or are required by regulations.

Table D-2 – BLM Mitigation Measures Required by Regulations or that will be addressed in standard ROW Grant Stipulations

| Mitigation Number from Appendix N | 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 ROW area. | Appendix N, 1.1 General Measures | Required by CFR | Already implied in the concept of a ROW grant - if this wasn't required, why would they need a ROW at all? Also redundant with 43 CFR 2805.12(a)(8)(vi). |
| 2 | Any activities on the Ambler Road ROW beyond those analyzed in the EIS 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 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. |
| 13 | In accordance with regulation at 43 Code of Federal Regulations (CFR) 2805.11(c), AIDEA may only use the ROW for the specific use the grant authorizes. AIDEA would ensure that the road, camps, and any other authorized facilities are used only in | Appendix N, 1.1 General Measures | ROW Grant Stipulation | This is a standard stipulation. |

| Mitigation Number from Appendix N | Mitigation Measure | FEIS References | Implement Measure Yes or No | Rationale for or against implementing |
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| | 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 Grant of Right of Way. | | | |
| 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 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 grant, including the approved POD. | Appendix N 1.3 General Resp. and POD | ROW Grant Stipulation | This is standard procedure to refine the POD to more closely align with the FEIS. |
| 19 | AIDEA's proposed design features, industry best management practices (BMPs), and the BLM adopted mitigation measures listed in the BLM ROD for the Ambler Road Final EIS would be incorporated by reference into the 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 Resp. and POD | ROW Grant Stipulation | This compliments #18 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 | App N 1.4 General Completion of Use | ROW Grant Stipulation | Mitigations are to support the requirement to restore the ROW. 43 CFR 2805(a)(8)(i). |

| Mitigation Number from Appendix N | Mitigation Measure | FEIS References | Implement Measure Yes or No | Rationale for or against implementing |
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| | 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. | (Restoration/ Reclamation) | | |
| 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: a. Written statement of program completion with completion date. b. Summary compilation of incident and accident reports required under mitigation measure #4 in section 1.2. c. 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. | App N 1.4 General Completion of Use (Restoration/ Reclamation) | ROW Grant Stipulation | This would provide BLM with necessary information to ensure all potential issues are addressed during closure and reclamation. |
| 26 | Before BLM would issue a 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 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 | Appendix N 2.Alternatives | ROW Grant Stipulation | BLM requires bonding on BLM ROWs (IM2019-013, 11/15/2018) |

| Mitigation Number from Appendix N | Mitigation Measure | FEIS References | Implement Measure Yes or No | Rationale for or against implementing |
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| | requirements of BLM regulation and policy. | | | |
| 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 Plan of Development | 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 | BLM Standard Stipulation for Mineral Material Mining: AIDEA would provide a detailed mineral materials (e.g., gravel) mining and reclamation plan to 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 attached Mineral Materials Mining and Reclamation Plan Proposal form (Attachment A). It would also address what would be done with asbestos-containing materials during reclamation. | Appendix N 3.2.2. Sand and Gravel Resources | ROW Grant Stipulation would be in a minerals material permit, since these are just for material sites. | This is a CYFO standard stipulation for mineral material authorizations. |
| 38 | BLM Standard Stipulation for Mineral Material Mining: AIDEA would notify BLM at the beginning and end of active mining operations. | Appendix N 3.2.2. Sand and Gravel Resources | ROW Grant 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 BLM to document when active mining is occurring. |
| 40 | BLM Standard Stipulation for Mineral Material Mining: 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 | ROW Grant 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. |

| Mitigation Number from Appendix N | Mitigation Measure | FEIS References | Implement Measure Yes or No | Rationale for or against implementing |
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| 41 | BLM Standard Stipulation for Mineral Material Mining: 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 | ROW Grant Stipulation would be in a minerals material permit, since these are just for material sites. | DEC 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. |
| 42 | BLM Standard Stipulation for Mineral Material Mining: 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 | ROW Grant Stipulation would be in a minerals material permit, since these are just for material sites. | This would reduce impacts associated with water quality. |
| 43 | BLM Standard Stipulation for Mineral Material Mining: 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 | ROW Grant 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 | BLM Standard Stipulation for Mineral Material Mining: AIDEA would ensure that no minerals originating outside the permit area are imported to the permit | Appendix N 3.2.2. Sand and Gravel Resources | ROW Grant Stipulation would be in a minerals material | This is a standard stipulation for mineral material sites and is Bureau policy in the mineral |

| Mitigation Number from Appendix N | Mitigation Measure | FEIS References | Implement Measure Yes or No | Rationale for or against implementing |
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| | area, except as may be authorized in approved project plans. | | permit, since these are just for material sites. | materials handbook. It facilitates production verification and helps ensure compliance with legal requirements to obtain fair market value for public resources. |
| 45 | BLM Standard Stipulation for Mineral Material Mining: 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 | ROW Grant 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 | BLM Standard Stipulation for Mineral Material Mining: 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 | ROW Grant 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 | BLM Standard Stipulation for Mineral Material Mining: 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 | ROW Grant Stipulation would be in a minerals material permit, since these are just for material sites. | Standard stipulation for mineral material authorizations; addresses a frequent issue with material sites. |
| 48 | BLM Standard Stipulation for Mineral Material Mining: AIDEA would ensure that BMPs for dust abatement (e.g., | Appendix N 3.2.2. Sand | Redundant | See #86. As long as the overall project dust control plan |

| Mitigation Number from Appendix N | Mitigation Measure | FEIS References | Implement Measure Yes or No | Rationale for or against implementing |
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| | graveling, watering) are utilized when deemed necessary by AIDEA, their contractor, or subcontractor, or when directed by a BLM representative. | and Gravel Resources | | addresses dust abatement at material sites, this would be redundant. |
| 49 | BLM Standard Stipulation for Mineral Material Mining: 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 | ROW Grant 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 | BLM Standard Stipulation for Mineral Material Mining: 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 | ROW Grant 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. |
| 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: a. Precautions taken to avoid attracting wildlife to food and garbage, including use | Appendix N 3.2.3 Hazardous Waste | Redundant | Better addressed by #52. Partially addressed by Wildlife Interaction Plan. |

| Mitigation Number from Appendix N | Mitigation Measure | FEIS References | Implement Measure Yes or No | Rationale for or against implementing |
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| | <p>of bear-resistant containers for all waste materials and classes.</p> <p>b. 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 Alaska Department of Environmental Conservation (ADEC) regulations and procedures.</p> <p>c. 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.</p> | | | |
| 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 BLM is provided enough information in camp/facility plans to ensure that ADEC guidelines for sanitation and hazardous waste would be met. |
| 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. |
| 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 description of Effectiveness. |
| 56 | Hazardous material containment liner material would be compatible with the stored product and capable of remaining impermeable during typical weather | Appendix N 3.2.3 Hazardous Waste | Redundant | Redundant with bullet b. in #69. |

| Mitigation Number from Appendix N | Mitigation Measure | FEIS References | Implement Measure Yes or No | Rationale for or against implementing |
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| | extremes expected throughout the storage period. | | | |
| 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 SPCCP | Most of this would be covered by the SPCCP. Other parts are already required by State law. |
| 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 statement. |

| Mitigation Number from Appendix N | Mitigation Measure | FEIS References | Implement Measure Yes or No | Rationale for or against implementing |
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| 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. |
| 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. |
| 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. |
| 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. |
| 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 SWPPP 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 | We will ensure the Dust control plan covers the contamination monitoring. |
| 98 | The following mitigation measures would be incorporated to reduce impacts to wetlands and wetland functions by helping to maintain hydrologic connectivity | Appendix N 3.3.1.2 Wetlands | AIDEA Design Feature, see | This is a design feature, inadvertently listed in the Appendix N |

| Mitigation Number from Appendix N | Mitigation Measure | FEIS References | Implement Measure Yes or No | Rationale for or against implementing |
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| | <p>between bisected wetlands and waterbodies. Design measures would be based on geologic and hydrologic studies to freely convey surface water across the road surface.</p> <p>a. 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.</p> <p>b. 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.</p> | | Appendix C of this ROD | of the Ambler Road FEIS |
| 106 | <p>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.</p> | Appendix N 3.3.1.4 Forestry, Timber & Fire | ROW Grant Stipulation | Project-specific implementation of regulatory requirements. Grant of ROW 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 | <p>The federal government would not be held responsible for protection of the AIDEA's</p> | Appendix N 3.3.1.4 | ROW Grant Stipulation | Standard practice for managing government liability |

| Mitigation Number from Appendix N | Mitigation Measure | FEIS References | Implement Measure Yes or No | Rationale for or against implementing |
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| | structures or their personal property from wildfire. | Forestry, Timber & Fire | | 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 & Fire | No | This is required by 43 CFR 9212.2 but would provide more specificity. |
| 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 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. 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 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 & Amphibians | Part of AIDEA's Design Features | This would reduce impacts to water quality and fish. Recommend removing culverts from the mitigation |

| Mitigation Number from Appendix N | Mitigation Measure | FEIS References | Implement Measure Yes or No | Rationale for or against implementing |
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| | | | | as a plan for their inspection and maintenance is already provided in AIDEA's design features. |
| 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 & Amphibians | Redundant | This is redundant to #126. |
| 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 & 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 & Amphibians | ROW Grant Plan of Development | This ensures impacts to water quality and fish is reduced. Matches USACE 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 & 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. |
| 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 | Appendix N 3.3.4 Birds | Redundant | This is redundant with #129. |

| Mitigation Number from Appendix N | Mitigation Measure | FEIS References | Implement Measure Yes or No | Rationale for or against implementing |
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| | 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. | | | |
| 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. |
| 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. |
| 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 Recr. & Tourism | ROW Grant Stipulation | This would go 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 | Appendix N 3.4.4 Visual Resources | Duplicative | This is included in #149 |

| Mitigation Number from Appendix N | Mitigation Measure | FEIS References | Implement Measure Yes or No | Rationale for or against implementing |
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| | measures such as diffusers, lenses, and shielding to reduce nighttime glare, light radiation, and backscatter into the sky. | | | |
| 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 |
| 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 Socio & Communities | Duplicative | Duplicative, covered in #154. |
| 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 H 3.4.5.1 Public Health | Duplicative | This is duplicative of #35 |

Appendix G

Corps Permit Special Conditions

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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 stream 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 break-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 be 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 through 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).