

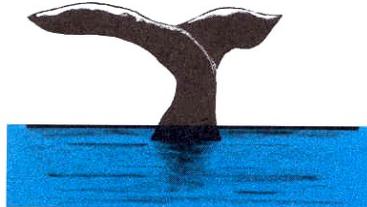
PROPOSED  
**FOSSIL CREEK SWITCHYARD RIGHT-OF-WAY  
PROJECT**

AA-93098

**ENVIRONMENTAL ASSESSMENT  
DOI-BLM-AK-A010-2012-0001-EA**

PREPARED FOR  
United States Bureau of Land Management  
Anchorage Field Office  
4700 BLM Road  
Anchorage, AK 99507-2599

PREPARED BY



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Project Number  
1088-29

## **SUMMARY**

In 2010, Anchorage Municipal Light and Power (ML&P) contracted Electric Power Systems (EPS) to design a backup electrical circuit for the reconstructed Eklutna transmission line. The transmission line runs from Briggs Tap to the Eklutna powerhouse. EPS identified a small site for a switchyard and microwave tower on Joint Base Elmendorf Richardson (JBER) just west of the Anchorage Regional Landfill (ARL). EPS named the site the Fossil Creek Switchyard.

The Regulatory Commission of Alaska (RCA) received testimony from numerous Eagle River, Alaska citizens identifying inadequate service, poor response and reactivation times, and health and safety hazards. They are the primary concerns driving this project. Agency scoping noted potential wetlands impacts as an important issue.

Two alternatives were investigated for the Fossil Creek Switchyard including the No-Action alternative. The Proposed Action Alternative proposes to construct an electrical switchyard and microwave relay tower at the Fossil Creek site, on a Bureau of Land Management (BLM) owned parcel of land managed by the United States Air Force. Construction of this project requires a permanent right-of-way of approximately 7.4 acres and 9 additional acres for temporary construction use. Permanent ground disturbance for the switchyard and relay tower would be 400 feet wide and 600 feet long (5.5 acres). Another 1.9 acres (50 feet wide by 1,630 feet long) is required for a proposed right-of-way for new poles and transmission lines adjacent to the existing right-of-way between Briggs Tap substation and the proposed project site. A microwave communications tower would be located at Site Summit, on federally-owned land managed by the U.S. Air Force. The Site Summit microwave communication/relay tower tandem is essential for correcting faults and power outages. Construction activities would occur along existing access roads and would not require additional ground disturbance for access to the project site.

As compared to the No-Action alternative, the Proposed Action Alternative would improve electrical service reliability, faster diagnosis and repair times, and provide a back-up electrical circuit for the residents of Eagle River.

A final decision on the Proposed Action Alternative will not be made until after comments received from the public and agencies on the environmental assessment are reviewed.

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## **ACRONYMS AND ABBREVIATIONS**

AFO	Anchorage Field Office
AHRS	Alaska Heritage Resources Survey
ANILCA	Alaska National Interest Lands Conservation Act
APLIC	Avian Power Line Interaction Committee
ARL	Anchorage Regional Landfill
BASH	Bird-Aircraft Strike Hazard
BLM	Bureau of Land Management
CFR	Code of Federal Regulations
D&L	Dryden & LaRue, Inc.
EA	Environmental Assessment
EDRR	Early Detection and Rapid Response
EO	Executive Order
EPS	Electric Power Systems
ESA	Endangered Species Act
FAA	Federal Aviation Administration
FLPMA	Federal Land Policy and Management Act
FONSI	Finding of No Significant Impact
JBER	Joint Base Elmendorf-Richardson
kV	Kilovolts
MEA	Matanuska Electric Authority
ML&P	Municipal Light and Power
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NRHP	National Register of Historic Places
PRPA	Paleontological Resources Preservation Act
RCA	Regulatory Commission of Alaska
ROW	Right-of-Way

SCADA	Supervisory Control and Data Acquisition
SHPO	State Historic Preservation Office
TBD	To Be Determined
THRC	Territory Heritage Resource Consulting
TPECI	Travis/Peterson Environmental Consulting, Inc.
USFWS	United States Fish and Wildlife Service

## **1.0 Introduction**

### **1.1. Background**

In 2010, Anchorage Municipal Light and Power (ML&P) contracted Electric Power Systems (EPS) to design a backup electrical circuit for the reconstructed Eklutna transmission line. The transmission line runs from Briggs Tap to the Eklutna powerhouse. EPS identified a small site for a switchyard and microwave tower on Joint Base Elmendorf Richardson (JBER) just west of the Anchorage Regional Landfill (ARL). EPS named the site the Fossil Creek Switchyard (Figure 1). The proposed site is located in the East ½, SE ¼ of Section 21, T14N, R2W, Seward Meridian.

The project's intent is to improve the electrical reliability for residents and businesses between Eklutna and Eagle River and surrounding areas. It would accomplish this by providing ML&P numerous configuration options to ensure efficient and reliable power across a variety of loads and conditions. The options would reduce power outages in the Eklutna and Eagle River areas. The microwave tower is essential for communicating with other switchyards when correcting faults and power outages. This instantaneous communication will minimize costly service disruptions. Finally, the proposed Fossil Creek site would accommodate further expansion and upgrades within the proposed permanent switchyard footprint, pending approval from JBER and the BLM and additional National Environmental Policy Act (NEPA) review, if future increases in service are required.

JBER is a joint U.S. Army and U.S. Air Force military base located northeast of Anchorage, Alaska. JBER is a former parcel of Federal land which was withdrawn from the public domain for military purposes by Executive Order (EO) 8102 on April 29, 1939. As withdrawn lands, the Bureau of Land Management (BLM) manages all surface natural and cultural resources for non-military uses. The BLM and JBER have the responsibility for reviewing and authorizing all activities proposed at JBER for non-military purposes.

Dryden & LaRue (D&L), a subsidiary of EPS, applied to the BLM for a right-of-way to construct the switchyard. This action necessitated BLM and JBER to fulfill the National Environmental Policy Act (NEPA) requirements. BLM and JBER have determined that the project required an Environmental Assessment (EA) to study possible project impacts. D&L contracted Travis/Peterson Environmental Consulting, Inc. (TPECI) to acquire environmental permits and develop the EA for the proposed project.



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**Proposed Fossil Creek Switchyard Right-of-Way Project**  
 DOI-BLM-AK-A010-2012-0001-EA

Figure 1—Project Location Map

Project No: 1088-29

Date: 03/05/2013

Scale: 1:31,800

## **1.2. Project Description**

JBER is comprised of undeveloped, wooded areas as well as developed areas used for residential housing for military personnel, buildings and structures for military activities, and training areas with infrastructure to support military training exercises. Numerous existing communication sites, pipelines, water lines, overhead power lines, power plants and ancillary facilities, and other infrastructure are located throughout the base.

The 2010 Alaska Energy Authority's Railbelt Integrated Resource Plan identified the proposed Fossil Creek Switchyard Project as a critical node in the area's electrical transmission configuration. It would serve as the terminus for two 230 kV lines into the Anchorage area and one 230 kV line termination to the Pt. Mackenzie/Lake Lorraine area. It would also serve as the terminus for a future 230 kV interconnection to the Lake Lorraine/Teeland area and a terminus for the Eklutna Express and Eklutna Local 115kV lines.

As proposed by ML&P, The Fossil Creek Switchyard includes the following major components:

- Construction of a 230/115 kV switchyard at the Fossil Creek site within JBER;
- Construction of a 115 kV transmission line, approximately 1,633 feet in length, running between the proposed Fossil Creek Switchyard and the existing Briggs Tap Substation;
- Construction of a microwave communications tower (height not to exceed 40 feet above finished grade); and
- Co-location of microwave repeater equipment at an existing system located at Site Summit.

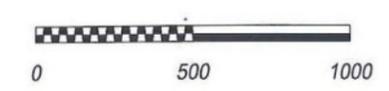
ML&P proposes to construct an electrical switchyard and microwave tower at the Fossil Creek site, on land managed by the BLM. Construction of this project requires a ground disturbance area of approximately 7.4 acres. Permanent ground disturbance for the switchyard and microwave tower would be 400 feet wide and 600 feet long (5.5 acres). In addition, 1.9 acres of right-of-way (50 feet wide by 1,630 feet long) is required for new poles and transmission lines. ML&P has requested a 50-year right-of-way with a right to renew for a switchyard and tower on JBER. The new right-of-way for the poles and lines would lie directly adjacent to the existing right-of-way between Briggs Tap substation and the proposed project site (Figure 2 as a pull-out on the following page).

A microwave lattice tower with line-of-sight to Site Summit, a location managed by the U.S. Air Force, would be constructed at the proposed switchyard location. The lattice tower will not be supported by guywires and it will not be lit. The allowable height of tower would not exceed 40 feet above the finished grade. This project will utilize an existing communications tower at Site Summit, approximately 4 miles southwest of the proposed switchyard (Figure 3). The communication tower location was chosen to avoid violating Bryant Army Airfield airspace surfaces. Bryant Army Airfield is located approximately 1.5 miles southwest of the proposed switchyard location. The microwave communication/relay tower tandem is essential for communicating with other switchyards when correcting faults and power outages.

Temporary equipment storage would be located in an existing unpaved parking lot located ¼

mile south of the proposed switchyard site and would require a Temporary Use Permit from the BLM and concurrence from JBER-R Range Control. Depending on how the site is used, the temporary equipment storage site may also require a Temporary Construction Permit from the BLM with concurrence from JBER-R Range Control.

ML&P plans to begin construction in the summer of 2013, following completion of the EA, after all necessary permits are secured, and receiving installation concurrence. Construction of the project is anticipated to last several months.



**Map Features**

- Switchyard Electrical Components
- Existing Power Lines
- Proposed Power Line

**SURVEY CONTROL**

THIS SURVEY UTILIZED STATIC AND RTK GPS PROCEDURES WITH HIGH ACCURACY LEICA 1200 GPS RECEIVERS.

THE HORIZONTAL DATUM IS: ALASKA STATE PLANE, ZONE 4, NAD83, EXPRESSED IN U.S. SURVEY FEET.

THE ORIGIN OF COORDINATES IS CONTROL POINT #103 AT THE ANCHORAGE LANDFILL. THE COORDINATE IS BASED ON DUAL FREQUENCY GPS DATA PROCESSED BY NGS ONLINE POSITIONING USER SERVICE (OPUS). THE RESULTING COORDINATES ARE:

REF FRAME: NAD\_83(CORS96)(EPOCH:2003.0000)

LAT: 61 17 26.68434  
 LONG: 149 35 47.33665  
 EL HGT: 170.249(m)  
 ORTHO HGT: 162.403(m) [Geoid09 NAVD88]

STATE PLANE COORDINATES  
 SPC (5004 AK 4)

Northing (Y) [Meters] 811961.360  
 Easting (X) [Meters] 521631.217  
 Convergence [Degrees] 0.35391397  
 Point Scale 0.99990573  
 Combined Factor 0.99987909

THE VERTICAL DATUM IS MOA, HOLDING BENCHMARK "GAAB-10", ELEVATION = 252.18'. AS DETERMINED FROM LEVEL LOOPS PERFORMED BY AKDOT. FROM THIS INFORMATION FURNISHED BY AKDOT, ADDITIONAL LEVEL LOOPS WERE PERFORMED TO EXTEND THE VERTICAL CONTROL ON SITE BY SENTEC.

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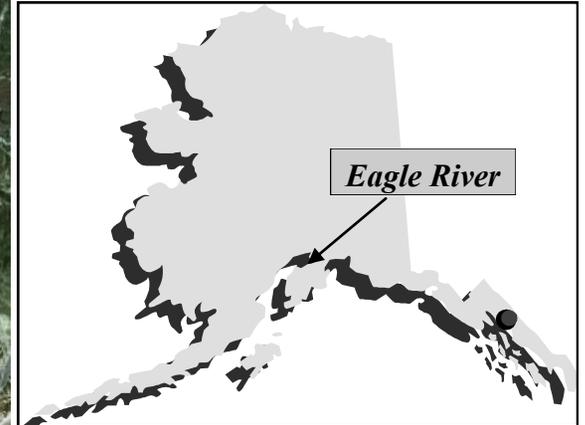
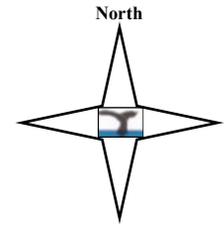
**Proposed Fossil Creek Switchyard Right-of-Way Project**  
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Figure 2—Project Area Overview Map

Project No: 1088-29

Date: 03/05/2013

Scale: 1:12,000



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Eagle River, Alaska

Figure 3 - Site Summit Tower Location Map

Project No: 1088-29

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Date: 3/13/13

Scale: None

### **1.3. Purpose and Need**

The purpose of the BLM's action, granting of a right-of-way, is to provide ML&P with the legal right to construct on public land managed by the BLM. The need for BLM action is established by the BLM's responsibilities under the Federal Land Policy and Management Act and 43 CFR §2800 to grant right-of-way to qualified entities if the requested right-of-way can proceed in a manner that protects natural resources on public lands, prevents unnecessary and undue degradation to public lands, and promotes the use of rights-of-way in common.

The purpose of the U.S. Air Force's action, authorizing sublet authority to the tower owners at Site Summit, is to provide ML&P with legal permission to purchase tower space from its owner. The need for this action is to maintain the airspace surfaces of Bryant Army Airfield, while allowing ML&P to construct the proposed improvements to the electrical system. The USAF controls physical access to both JBER and Site Summit and may deny access to anyone at any time for any reason.

### **1.4. Decision to be Made**

The BLM will decide whether to authorize the requested right-of-way for the Fossil Creek Switchyard Project and will determine what environmental and/or mitigation measures, if any, would be necessary to prevent undue and unnecessary degradation of public lands.

The U.S. Air Force will decide whether to issue sublet authority to the tower owners (State of Alaska and Enstar) at Site Summit and will determine what environmental and/or mitigation measures, if any, would be necessary to prevent unnecessary damage to this historic district.

### **1.5. Land Use Plan Conformance**

The BLM proposed action is in conformance with the Ring of Fire Approved Resource Management Plan and Record of Decision (March 2008). Specifically, the proposed action conforms to Lands and Realty decision I-2n: Rights-of-Way:

*I-2n: Rights-of-Way*

*The BLM may issue rights-of-way for a variety of uses including but not limited to: roads, water pipelines, electric lines and communication sites under the authority of Title V of FLPMA.*

Land use for the substation and pole line restructuring must be coordinated and approved through BLM. BLM will not issue approval without a letter of concurrence from JBER. Site Summit will require approval from JBER through the Real Property Office for occupying space on the installation.

### **1.6. Scoping and Issue Identification**

#### **1.6.1. Internal Scoping**

BLM staff identified the potential for invasive and non-native plant species to be introduced to the project site. BLM staff indicated the project may have an impact on down-gradient wetlands. BLM has identified the potential for disturbance to

cultural, historic, and paleontological resources within the project site boundary.

- **Wetland Impacts**

There are no wetlands within the project site. However, a wetland area exists approximately 300 feet down-gradient from the northwest corner of the proposed 50-foot wide right-of-way. Construction activities may negatively impact the down-gradient wetland. The potential for wetlands impacts would require that all proper permits (Storm Water Pollution Prevention Plan (SWPPP), etc.) be obtained and approved prior to construction.

- **Disturbance to Cultural, Historic, and Paleontological Resources**

Due to BLM involvement, this project is a federal undertaking requiring regulatory compliance with Section 106 of the National Historic Preservation Act of 1966, as amended (NRHP), which “requires Federal agencies to take into account the effects of their undertakings on historic properties...” (36 CFR Section 800.1(a)).

Due to U.S. Air Force involvement, the utilization of a communications tower at Site Summit is a federal undertaking that would require Section 106 compliance. The BLM would also need to analyze this aspect of the project because of its status as a connected action. As Site Summit is listed on the National Register of Historic Places (NRHP), it would require additional consultation before achieving regulatory compliance.

Under the Paleontological Resources Preservation Act (PRPA) of 2009, The BLM is required to manage and protect paleontological resources on Federal land.

- **Visual Impacts**

With the pre-existing transmission lines and towers in the vicinity and within the project area, little additional visual impact is expected from the switchyard and proposed microwave tower. Existing transmission line poles in the area have an approximate total height of 80 to 90 feet. The proposed transmission line poles would match these heights. The proposed microwave tower is estimated to match tree height of approximately 40 feet and not to exceed 80 to 90 feet.

- **Non-native and Invasive Species**

Field observations confirmed the presence of non-native invasive plant species within the project area. There is also potential for non-native invasive species to be introduced and spread during the construction process.

- **Penetrating Airspace Surfaces for Bryant Army Airfield**

The proposed project lies within the airspace surfaces for Bryant Army Airfield on JBER. This puts significant restrictions on the height, construction, and visual profile of any project related structure. Any construction must be coordinated through Bryant Army Airfield, 3<sup>rd</sup> Wing Safety, and Bird-Aircraft Strike Hazard

(BASH) for potential impacts on useable airspace and pilot safety.

#### 1.6.2. Issues Identified but Eliminated form Further Analysis

- Threatened and Endangered Species

The Endangered Species Act (ESA) of 1973 was enacted to protect endangered and threatened species and to provide a means to conserve their ecosystems. The ESA defines “endangered” as “...any species which is in danger of extinction throughout all or a significant portion of its range...” §3(6). “Threatened” is defined as “...any species which is likely to become endangered within the foreseeable future throughout all or a significant portion of its range...” §3(19). The ESA is administered by the Interior Department’s U.S. Fish and Wildlife Service (USFWS) and the National Oceanic and Atmospheric Administration (NOAA) Fisheries Service (NOAA Fisheries, formerly the National Marine Fisheries Service [NMFS]). The USFWS has primary responsibility for terrestrial and freshwater species, while the responsibilities of NOAA Fisheries are mainly marine wildlife. Section 7 of the ESA requires federal agencies to use their legal authorities to promote the conservation purposes of the ESA and to consult with the USFWS and NOAA Fisheries, as appropriate, to ensure that effects of actions they authorize, fund, or carry out would not jeopardize the continued existence of listed species.

Wildlife habitat within the project area is located on JBER. No federal threatened or endangered species have been found on JBER (U.S. Army Alaska 2002a, b, c as cited in USAG Alaska 2007). Beluga whales (*Delphinapterus leucas*) are listed as endangered under the ESA and live in waters of the Knik Arm, adjacent to military lands and downstream of the Proposed Action.

- Subsistence

Subsistence, as defined by Alaska National Interest Lands Conservation Act (ANILCA) Section 803, is the customary and traditional uses by rural Alaska residents of wild renewable resources for direct personal or family consumption as food, shelter, fuel, clothing, tools, or transportation; for the making and selling of handicraft articles out of non-edible byproducts of fish and wildlife resources taken for personal or family consumption; for barter or sharing for personal or family consumption; and customary trade.

Section 810 of ANILCA requires an evaluation of federal management actions on federal public lands for their effects on subsistence uses and needs. The Proposed Action occurs on Federal Public Lands as defined in ANILCA Sec. 102(3) and fall under the regulatory authority of the Federal Subsistence Board. The Proposed Action occurs on Federal Public Lands of the Military Reservation which is within the JBER Management Area. This area is closed to the subsistence taking of wildlife as per the current Subsistence Management Regulations for the Harvest of Wildlife on Federal Public Lands in Alaska. On

general domain lands managed by the BLM, federal fisheries regulations apply only on navigable waters. This area is closed to the taking of fish as per the current Subsistence Management Regulations for the Harvest of Fish and Shellfish on Federal Public Lands and Waters in Alaska.

- Air Quality

Construction of new facilities and structures would generate emissions from dust and vehicle operations. These temporary emission impacts would be less than significant and would be below regulatory thresholds.

## **2.0 Alternatives**

### **2.1. Alternative 1 - No Action Alternative**

Under the No Action Alternative, the BLM would deny the requested right-of-way. Thus, no electrical switchyard, microwave tower, or transmission line would be constructed. The U.S. Air Force would also deny sublet authority to the tower owners at Site Summit. The No Action Alternative would leave the proposed project site and Site Summit in their current state.

### **2.2. Alternative 2 - Proposed Action Alternative – Fossil Creek Switchyard**

#### **2.2.1. Project Components**

The BLM would authorize up to a 30-year right-of-way with right to renew for a switchyard, tower, and transmission line system on JBER. Construction of this project would require a permanent ground disturbance area of approximately 7.4 acres.

In addition to the 7.4 acres of permanent ground disturbance, the BLM would also authorize a Temporary Use Permit for approximately 9 additional acres of temporary/construction ground disturbance. This temporary acreage accounts for project staging areas and equipment laydown areas (approximately 5.5 acres) and Site Summit tower modifications (0.5 to 1 acre). Although 9 acres would be requested, ML&P is not obligated to utilize the requested acreage.

The proposed Fossil Creek Switchyard would be a fenced 230/115 kV yard as shown in Figures 4 and 5. The yard would permanently occupy approximately 5.5 acres (approximately 600 feet by 400 feet). The fence line surrounding the switchyard would be measured at 528 feet by 307 feet. This would leave enough space within the requested right-of-way to construct the switchyard without the need for a larger construction footprint. Electrical facilities proposed at the switchyard include 230 and 115 kV air-insulated electrical buses, steel support structures, a transformer, capacitors, reactors, circuit breakers, disconnect switches, communication equipment, control equipment, and protective relays. The arrangement of the switchyard would consist of:

- Nine 230 kV circuit breakers in a breaker-and-a-half bus configuration;
- Four 115 kV circuit breakers in a ring bus configuration;
- One 230/115 kV transformer; and

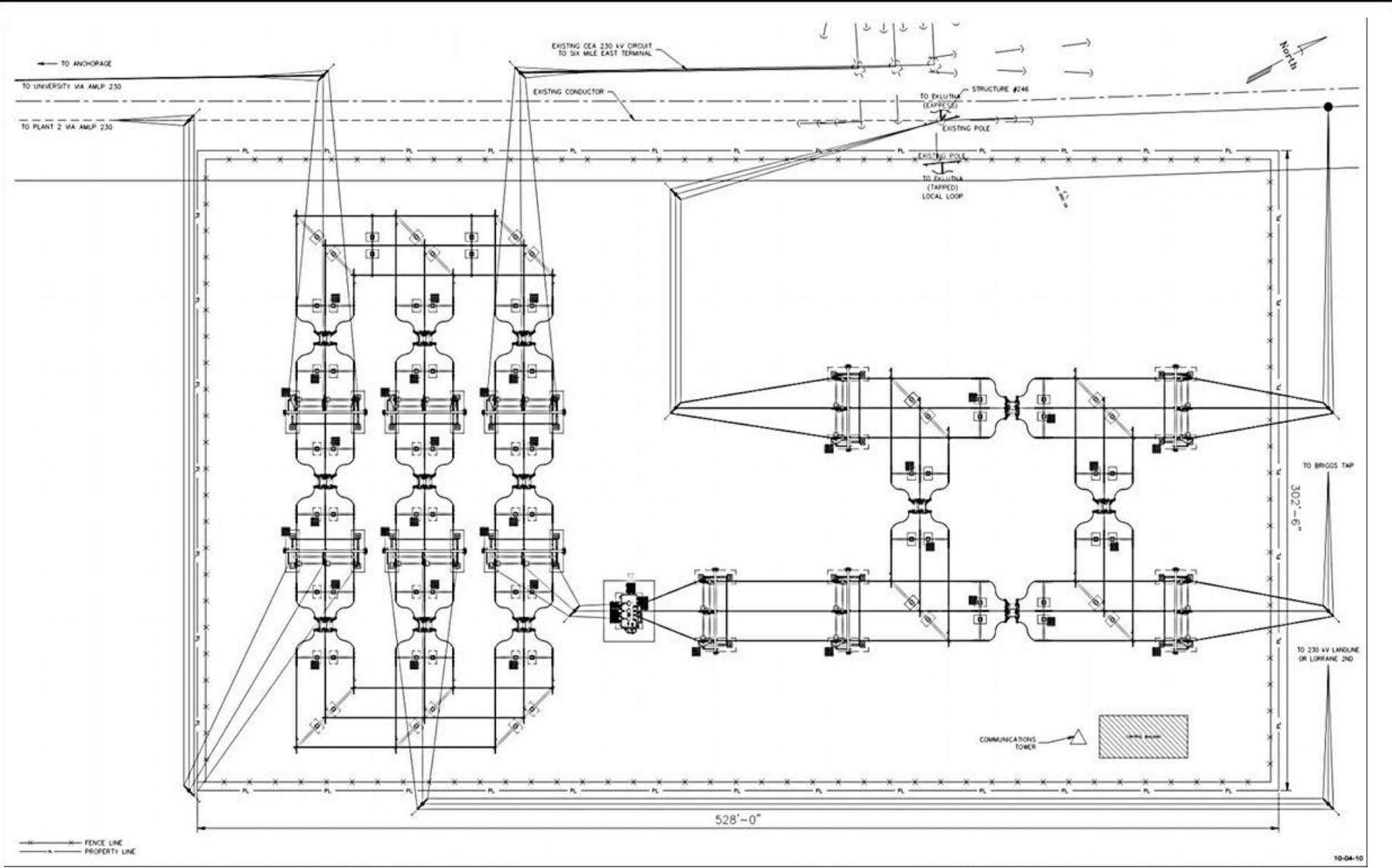
- One microwave tower (height not to exceed 40 feet above finished grade) of a lattice construction supported by a concrete foundation (estimated 40 by 40 feet) without guylines and lit according to JBER Air Operations requirements.

The new 1,630-foot-long, 115 kV overhead transmission line would be constructed from the Fossil Creek Switchyard to the Briggs Tap Substation. The new line would run adjacent to an existing 115 kV line until it reaches Briggs Tap. The 1,630-foot-long line would require a 50-foot-wide (approximately 1.9 acres) BLM authorized right-of-way. The support structures for the new transmission line would be consistent with the design of existing parallel structures. The design of the existing poles consists of two circuits on steel sink poles. New support structure heights would not exceed the elevations of the existing transmission line.

Other facilities associated with the Fossil Creek Switchyard would include metering, supervisory control and data acquisition (SCADA), security, communications equipment, and a single-story relay/control/storage building. Project lighting would comply with JBER Air Operations. Yard lights would normally be turned off and would only be used during nighttime maintenance for safety. All substation lighting would be oriented downward to minimize glare onto surrounding property and habitat.

The U.S. Air Force would authorize sublet authority to the tower owners at Site Summit. Site Summit is located approximately four miles southwest of the proposed switchyard. This authorization would allow ML&P to utilize an existing communications tower at Site Summit. The Site Summit tower will communicate with the microwave tower (as described above) at the Fossil Creek Switchyard to aid in correcting faults and power outages.

This project is scheduled to begin construction in summer of 2013. The project is expected to cover two construction seasons.



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### Fossil Creek Substation Project

Eagle River, Alaska

Figure 4 - Engineering Plan of Proposed Fossil Creek Switchyard

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Date: 3/13/13

Scale: None



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**Fossil Creek Substation Project**  
Eagle River, Alaska

Figure 5 - Existing Facility Similar to Proposed  
Fossil Creek Switchyard

Project No: 1088-29

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Date: 3/13/13

Scale: None

### 2.2.2. Project Development

Appendix A contains a more complete and detailed Plan of Development.

#### *Staging Area*

The project will require one staging area, approximately 600 feet by 400 feet (5.5 acres) and located approximately ¼ mile south of the Fossil Creek Switchyard. This area is an existing unpaved parking area with access to recreational trails. The staging area would require the BLM to authorize a Temporary Use Permit and JBER concurrence is required. Access to the construction site is provided by Pole Line Road. Pole Line Road lies entirely within JBER boundaries. No Temporary Use Permit is required for access roads, although JBER identified the potential need for a minor realignment of Pole Line Road due to the placement of the switchyard. Currently, the project design does not require realignment.

#### *Fossil Creek Switchyard*

Construction of the Fossil Creek Switchyard would require the permanent removal of six acres of coniferous forests. Coordination through the BLM and installation forester is required for tree removal and salvage. Clearing is restricted from April 10th to July 15th. Clearing of the switchyard site would require a crew of men with chainsaws, brush hogs, front-end loaders, skid-steer loaders, and trucks able to transport debris.

Site grading would require the use of bulldozers and scrapers to cut and fill native soil to the proposed pad elevations. Onsite material would be reused to the extent possible. Importing of soils would require the use of dump trucks and front-end loaders.

Construction of the switchyard equipment foundations (consisting of drilled pier, mat, and pad type foundations) and installation of the grounding grid would begin once the site has been cleared and graded. Backhoes and drill rigs would be used to excavate foundations. Forms, reinforcing steel, and concrete would then be installed to build the foundations. Concrete trucks and skid-steer loaders would be utilized to pour foundations and to transport materials on site.

Once the foundations have been constructed, installation of aboveground equipment (including placement of major equipment on their respective foundations or structures, anchoring their final position, and wiring of the equipment controls and protection devices) would begin. The installation of the lattice microwave communication tower and its supports would also begin within the confines of the switchyard. This work would be accomplished by delivering equipment to the site on flatbed trucks and lifting it into place using cranes.

#### *115 kV Transmission Line*

Construction of the overhead line would begin with the clearing and grading within the new ROW to accommodate construction equipment and activities. Coordination with BLM through installation forester is required for tree removal and salvage. Clearing is restricted during the Migratory Bird Nesting period, April 10th to July 15th. Clearing along the proposed transmission line would require a crew of men with chainsaws, brush hogs, front-end loaders, skid-steer loaders, and trucks able to transport debris.

Site grading would require the use of bulldozers and scrapers to cut and fill native soil to the proposed pad elevations. Onsite material would be reused to the extent possible. Importing of soils would require the use of dump trucks and front-end loaders.

Installation of direct-bury steel poles would require the excavation of holes of varying diameters and depths, depending on the type and height of the pole. Holes would be drilled using a truck-mounted auger or similar equipment. New poles would be delivered to each location and would be placed using cranes. The annular space between poles and holes would then be backfilled with concrete and any remaining excavated material would be placed around the holes or spread onto adjacent areas.

Engineered steel poles would be drilled on pier foundations. Installation would require the excavation of holes of varying diameters and depths, depending on the type and height of the pole. Holes would be drilled using a truck-mounted auger or similar equipment. Steel cages and anchor bolt cages would be set in the open hole for reinforcement, and concrete would be poured to a level approximately two feet above grade. Any remaining excavated material would be placed around the holes or spread onto adjacent areas.

Once the foundations have been constructed, installation of aboveground equipment (including placement of major equipment on their respective foundations or structures, anchoring their final position, and wiring of the equipment controls and protection devices) would begin. This work would be accomplished by delivering equipment to the site on flatbed trucks and lifting it into place using cranes.

A single line-pull site would be located near the Fossil Creek Switchyard or the Briggs Tap Substation and would require a Temporary Use Permit. Generally, pull sites would be approximately 100 feet by 150 feet and would be required where 115 kV angle structures are located. Line pulling equipment includes: 3-drum pulling machines, wire reel trailers, line tensioning machines, and tractors.

After the line has been pulled into place, the sag between the structures would be adjusted to a minimum ground clearance of 30 feet. The line would then be attached to insulators, the sheaves would be removed, and the vibration dampers and other accessories would be installed.

#### *Post-Construction Restoration*

Following construction, all areas temporarily disturbed by construction of the Fossil Creek Switchyard and new transmission lines would be restored to conditions specified in the right-of-way grant.

#### 2.2.3. Construction Equipment

Project construction would involve the use of a wide variety of heavy construction equipment on site. The majority of equipment and vehicles would be associated with the intensive earthwork and structural phases of construction. Large construction equipment, including earthmovers, cranes, rollers, fuelers, concrete mixers, and delivery trucks, would be used during the

construction phase of the project. Specific equipment heights and weights can be found in the Plan of Development in Appendix A. Access to and from the construction site would primarily occur via Pole Line Road. Access to JBER would primarily occur via the Ft. Richardson Gate off the Glenn Highway.

#### 2.2.4. Operations and Maintenance

##### *Fossil Creek Switchyard*

During operations, the Fossil Creek Switchyard would be unmanned. All monitoring and control functions would be performed remotely from the ML&P Central Operations facility. Unauthorized entry into the switchyard would be prevented by fencing and locked gates. Warning signs would be posted and entry to the switchyard would be restricted to ML&P authorized personnel.

Routine operation would require a single pickup truck visiting the location several times a week for monitoring, as well as several larger construction and maintenance trucks visiting the switchyard several times a year for equipment maintenance. Maintenance activities would include equipment testing, equipment monitoring and repair, and emergency and routine procedures for service continuity and preventive maintenance.

Safety lighting at the switchyard would be provided inside the switchyard fence for repair work. Since nighttime maintenance activities are not expected to occur more than once per year, the safety lighting inside the switchyard fence would normally be turned off. Lighting would have to be approved by JBER Air Operations to comply with base restrictions. The lights would be directed downward to minimize glare on surrounding properties and habitat.

Routine vegetation clearing around the switchyard would occur on an as-needed basis for purposes of safety and access. These activities would typically involve the presence of one or two maintenance vehicles and one or more employees to clear or trim vegetation to achieve the minimum necessary working space around the switchyard and transmission line facilities.

##### *115 kV Transmission Line*

During operations, the 115 kV transmission line would be regularly inspected, maintained, and repaired. Operations and maintenance activities would involve both routine preventive maintenance and emergency procedures to maintain service continuity. Components would be inspected annually, at a minimum, for corrosion, equipment misalignment, loose fittings, and other common mechanical problems.

Poles or structures support a variety of equipment, such as conductors, insulators, switches, transformers, lightning arrest devices, line junctions, and other electrical equipment. To maintain uniform, adequate, safe, and reliable service, electrical equipment may need to be added, repaired, or replaced during operations. An existing transmission structure may be removed, due to damage or changes in conductor size, and replaced with a stronger structure at the same location. Equipment repair or replacement generally requires a crew to gain access to the

location of the equipment to be repaired or replaced. A crew typically consists of four men with two to three trucks, a boom or line truck, an aerial-lift truck, and an assist truck.

Tree limb contact with electrical lines can cause power outages. Regular inspection is necessary to maintain proper line clearances. Tree-trimming activities are typically conducted by a two-man crew, a one-man aerial lift truck, and a chipper trailer. In most cases, the crew has vehicle access; however, if vehicle access is not available, the crew would walk to the specific location to conduct the trimming. Although the time required to complete tree trimming varies by location, most tree-trimming activity can be completed in one day. Trees where electric facilities exist are inspected annually in the ML&P service area. In addition, vegetation that has a mature height of 15 feet or taller would not be allowed to grow within 10 horizontal feet of any conductor within the ROW, for safety and reliability reasons.

### **2.3. Alternatives Considered but Eliminated from Further Analysis**

ML&P had considered siting a microwave communications tower at the Briggs Tap Substation. This tower would have communicated with other switchyards in the electrical system to correct faults and prevent power outages. This alternative was eliminated from further analysis because the height of the tower needed to accomplish these tasks would have violated the airspace surfaces of Bryant Army Airfield.

### **2.4. Best Management Practices Common to All Action Alternatives**

To avoid the potential for significant adverse environmental impacts resulting from implementation of the Proposed Action Alternative, ML&P would agree to the following measures:

- In the event cultural resources are discovered during construction, all work in the surrounding area will stop, and the BLM Authorized Officer or archeologist would have the authority to divert or temporarily halt ground disturbance to allow evaluation of potentially significant cultural resources. Coordination through JBER Cultural Resources manager is necessary.
- ML&P would implement invasive species prevention, mitigation, and monitoring procedures stated in the right-of-way permit. Contractors, and subcontractors, would be made aware of the mitigations and incorporate them into their work plans. Best Management Practices (BLM AK Invasive Species Policy) would be utilized and incorporated into the construction as well as the maintenance and operations phases of the project.
- Equipment and vehicles would be washed at the site of origin before being transported to the project site. Installation policies exist for washing and removing soils, debris, and vegetation from equipment and vehicles prior to coming onto JBER. Pressure washing to remove all debris from the undercarriage and any other surfaces that catch and hold soil and plant material. This practice will help reduce the potential for invasive species

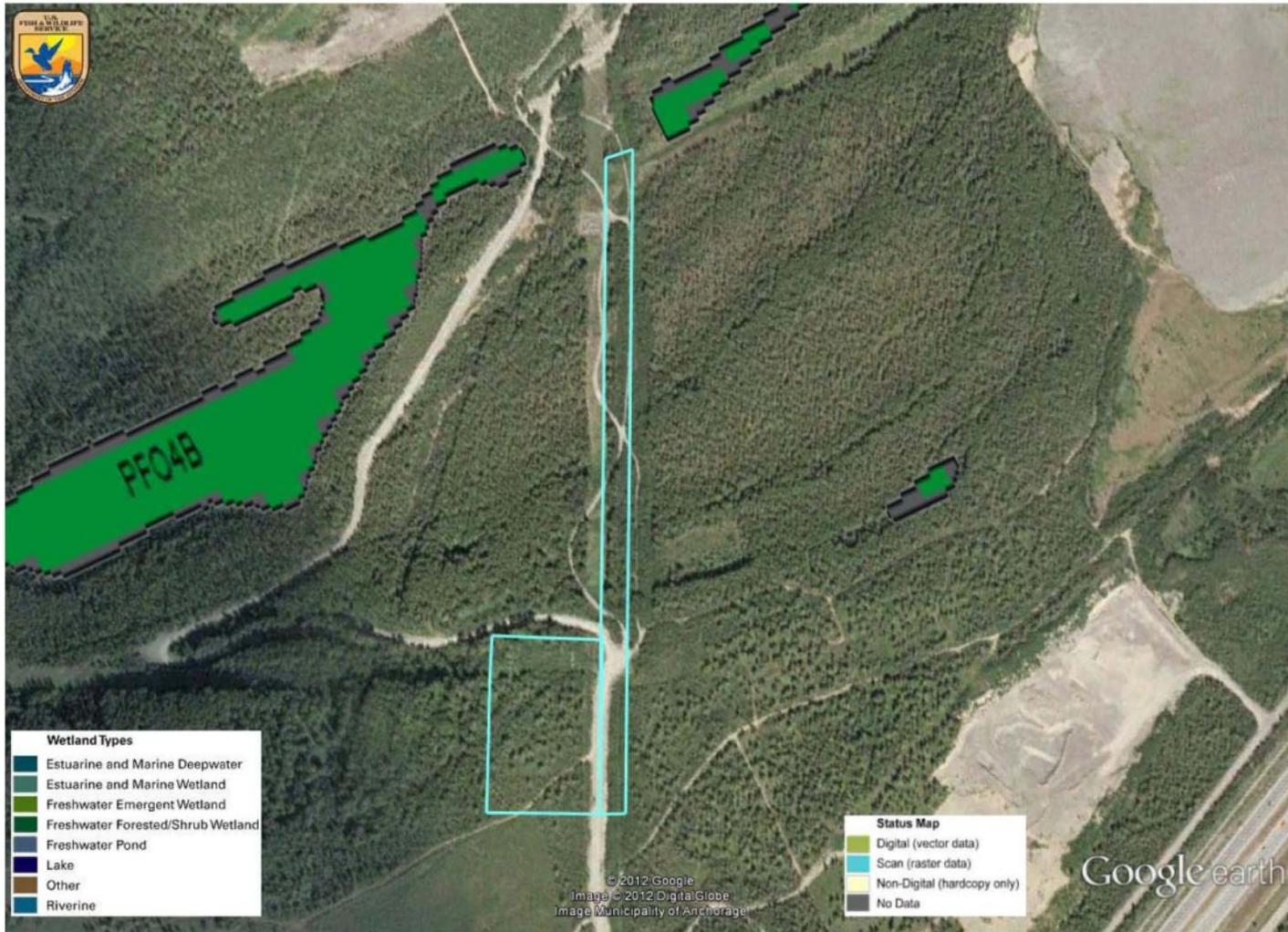
introduction and spread.

- The permittee would implement Early Detection and Rapid Response (EDRR) efforts to prevent invasive plant introduction and spread throughout the life of the permit. Elements of the EDRR include monitoring the site and rapidly controlling any invasive plant species found.
- Gravel, top soil, and other fill materials should be procured from certified weed-free sources. If no certified weed-free sources are feasible, source pits should be inspected prior to acquisition to determine the relative risk of introducing non-native invasive species to the project site. Aggressive invasive species control actions would be needed if introduced fill materials are not certified weed free.
- Notices are to be posted two weeks in advance of construction to notify public to the timeframe of the construction and limited recreational (hunting, fishing, etc.) access. ML&P would post the notification in the Anchorage Daily News and send a duplicate of the notification to JBER Range Control.
- Stabilize all disturbed areas, resulting from project construction, using native vegetation, certified weed free seed mix, and erosion control materials (straw bales or waddles) to minimize erosion and subsequent sedimentation of wetlands and streams.
- Retain as much vegetation and soil mat as possible to re-use and provide cover, concealment, and minimize erosion.
- To the extent practicable, permanent facilities will be designed to be screened behind trees or landforms if feasible so they will blend with the natural surroundings.
- ML&P would commit to contracting an archeologist to investigate the new right-of-way corridor any before ground-disturbing activities begin.

### **3.0 Affected Environment**

#### **3.1. Wetlands**

TPECI personnel visited the proposed project site on July 11, 2012. The soils and vegetation indicated no wetland vegetation or hydric soils were present at the site of the proposed switchyard. Appendix B contains a photolog of the project site conditions. However, a saturated Forested Needleleaf Evergreen Wetland (PFO4B) does exist approximately 300 feet down-gradient from the northwest corner of the proposed 50-foot right-of-way (Figure 6).



Google earth

feet 2000  
meters 800

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Eagle River, Alaska

**Figure 6 - Fossil Creek Vicinity Wetlands**  
Overhead View

Project No: 1088-29

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### **3.2. Cultural Resources**

Background research and literature review identified no known cultural resources within the Fossil Creek Switchyard project area, within the Briggs Tap Substation, along the existing right-of-way, or along the proposed transmission line right-of-way. Seventeen known resources were identified within one mile of the project area. All of the known resources are directly related to military activity: one is the Fort Richardson National Cemetery and the other sixteen resources are buildings dating from 1959-1967, some of which supported the Nike Hercules anti-aircraft mission of the 4th Missile Battalion. Table 1 shows all Alaska Heritage Resources Survey (AHRs) sites within a mile of the project area. The project area would not be readily visible from any of the known cultural resources.

**Table 1 - AHRs Site Within One Mile of Project Area**

<b>AHRs #</b>	<b>DESCRIPTION</b>	<b>WITHIN PROJECT AREA</b>
ANC-0013	Fort Richardson National Cemetery	NO
ANC-1096	Building 59000, Theater Maintenance Shop	NO
ANC-1097	Building 59001, Sentry Station	NO
ANC-1098	Building 59003, Guided Missile Magazine	NO
ANC-1099	Building 59004, Guided Missile Magazine	NO
ANC-1100	Building 59005, Guided Missile Magazine	NO
ANC-1101	Building 59006, Guided Missile Magazine	NO
ANC-1102	Building 59007, Guided Missile Magazine	NO
ANC-1103	Building 59008, Guided Missile Magazine	NO
ANC-2927	Building 59000, CO HQ	NO
ANC-2928	Building 59001, Sentry Station	NO
ANC-2929	Building 59003, Range Storage Building	NO
ANC-2930	Building 59004, Range Control Office	NO
ANC-2931	Building 59005, Range Storage Building	NO

AHRS #	DESCRIPTION	WITHIN PROJECT AREA
ANC-2932	Building 59006, Range Storage Building	NO
ANC-2933	Building 59007, Range Storage Building	NO
ANC-2934	Building 59008, Range Storage Building	NO

According to the Cultural Resource Survey conducted by Territory Heritage Resource Consulting (THRC), subsurface soil coring with a standard geomorphological probe provided information complementing the initial assessment of the subject property as holding low archaeological potential for pre-European resources, and no subsurface shovel testing was conducted. Surface survey identified a total of eight likely Cold War-era entrenchments (foxholes, bunkers, etc.) concentrated primarily on a small glacial moraine remnant in the northwestern portion of the property, although two entrenchments were also encountered in the southern portion. Typical training features such as these would not contribute significantly to the understanding of military training history. Federal agency precedent considers these features to be ineligible for the NRHP. This recommendation will be submitted to the BLM Anchorage Field Office (AFO) Archaeologist and JBER Cultural Resources Office for concurrence. (THRC 2012)

EA-AK-040-96-014 indicated that the route of the existing right-of-way was inspected and on-the-ground surveys were conducted. The right-of-way showed low potential for cultural resources. The Cultural Report discussing these findings is dated Dec. 12, 1992 and can be found in case file AA-70133. In 2006, ML&P requested an amendment to their right-of-way permit to upgrade the existing transmission line and poles. BLM granted the amendment and used the 1992 survey to clear cultural resource concerns. In implementing this same tactic, with concurrence from JBER, ML&P would commit to contracting an archeologist to investigate the new right-of-way corridor any before ground-disturbing activities begin.

Site Summit would be utilized by ML&P for the communication tower aspect of the project. Site Summit is listed on the National Register of Historic Places (NRHP) for its role of supporting the Nike Hercules anti-aircraft mission during the Cold War. Pending U.S. Air Force authorizing sublet authority to the tower owners, ML&P would purchase space on an existing tower at Site Summit to install microwave communication equipment. This equipment would communicate with the proposed Fossil Creek Switchyard and ML&P Central Operations to improve ML&P's electrical service and maintenance operations throughout the area.

### **3.3. Paleontological Resources**

Under the Paleontological Resources Preservation Act (PRPA) of 2009, The BLM is required to manage and protect paleontological resources on Federal land. Owing to the project proximity to Fossil Creek, the potential for finding paleo resources has been identified as a possible issue.

The geology of the project location is dominated by the Elmendorf Moraine. The Elmendorf Moraine is a system of ridges running northeast to southwest across the center of the base and marks the terminus of the last glacial advance in this area. These areas may have glacially deposited Eocene fossils from the Wishbone Formation. Using the BLM Potential Fossil Yield Classification System and the project area’s geologic profile, the project area could be viewed as Class 3a – Moderate potential. A Class 3a unit is defined as a unit “known to contain vertebrate fossils or scientifically significant nonvertebrate fossils, but these occurrences are widely scattered. The potential for a project to be sited on or impact a significant fossil locality is low, but is somewhat higher for common fossils.” (BLM 2008)

### **3.4. Visual Landscape**

Because the project site is located on JBER, access to the site is generally limited to military personnel, their families, and the general public who possess USATRAK Access (<http://www.usatrak.army.mil/conservation/>). The site is not visible from nearby public spaces such as the municipal landfill and the Glenn Highway. The proposed project would add new industrial structures to the visual landscape of the area. The structures include power lines, poles reaching a height not to exceed existing like-kind structures (measuring an approximate total height of 80 to 90 feet), and a tower (height not to exceed 40 feet above finished grade) without guylines. The preservation of Bryant Army Airfield airspace surfaces would limit structure heights, keeping them equal to or shorter than existing structures. Aviation warning lights and line markers may also add to the project’s visual profile. The type and nature of potential aviation lighting would have to be approved by JBER Air Operations.

### **3.5. Wildlife**

The military has identified approximately 40 species of local passerines and neo-tropical migratory birds and six species of raptors within the JBER Military Reservation property. Table 2 lists sensitive species found within JBER.

**Table 2 - Sensitive Migratory Bird Species in Project Area**

<b>Sensitive Species</b>	<b>Scientific Name</b>	<b>Preferred Habitat</b>	<b>Preferred Habitat Present in Project Area</b>
Olive-sided flycatcher (BLM Sensitive Species)	<i>Contopus cooperi</i>	Conifer Forest, usually associated with openings, including muskegs, meadows, burns, and logged areas; and water, including, streams, beaver ponds, bogs, and lakes	Yes
Gray-cheeked thrush	<i>Catharus minimus</i>	Coniferous Forests (primarily spruce), tall	Yes

Sensitive Species	Scientific Name	Preferred Habitat	Preferred Habitat Present in Project Area
(BLM Sensitive Species)		shrubby areas in taiga, deciduous forests, and open woodlands	
Townsend’s warbler (BLM Sensitive Species)	<i>Dendroica townsendii</i>	Mature conifer forest and mixed conifer forest	Yes
Blackpoll warbler (BLM Sensitive Species)	<i>Dendroica striata</i>	Spruce-alder-willow thickets	Yes
Rusty Blackbird (BLM Sensitive Species)	<i>Euphagus carolinus</i>	Spruce-alder-willow thickets	Yes
Bald eagle (JBER Sensitive Species)	<i>Haliaeetus leucocephalus</i>	Areas near estuaries, large lakes, reservoirs, rivers, and some seacoasts.	No, but have been spotted on JBER lands
Golden eagle (JBER Sensitive Species)	<i>Aquila chrysaetos</i>	Open or semi-open areas, tundra, shrublands, coniferous forests with openings	No, but have been spotted on JBER lands

TPECI personnel observed no eagles or eagle nests during their July 11, 2012 site visit. The Department of Defense (DOD), in cooperation with Partners in Flight, have compiled a bird checklist for JBER. This checklist identifies what species are present on the base and the abundance of each species throughout the year. This checklist identifies Bald and Golden eagles as uncommon species on JBER. (DOD)

The switchyard and transmission lines would be in or near crucial moose winter range, travel corridors for moose and black and brown bears, and yearlong ranges for moose and bears.

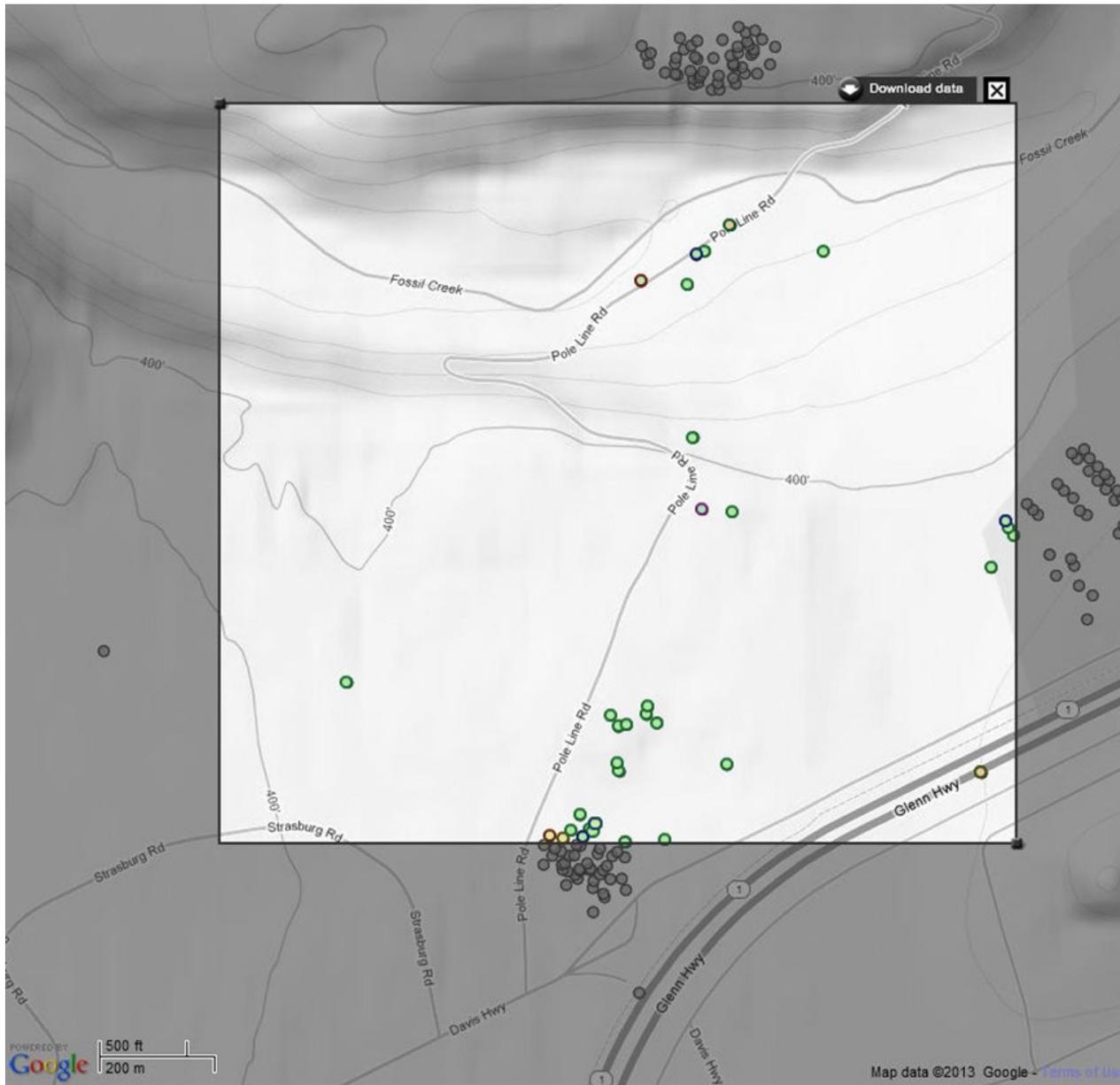
Common small game and furbearers found on Fort Richardson include coyote, wolf, lynx, red squirrel, snowshoe hare, hoary marmot, marten, beaver, river otter, wolverine, red fox, porcupine, and mink. Most are likely found in the region of the proposed project.

### **3.6. Invasive, Non-native Plant Species**

The Alaska Exotic Plant Information Clearinghouse reported non-native species in the immediate project vicinity. A list of the known invasive plant infestations in the project vicinity are listed in Table 3. A Map showing the locations of invasive species infestations in the project area can be seen on the following page.

**Table 3 - Known Invasive Species in Project Vicinity**

<b>Common Name</b>	<b>Scientific Name</b>
Narrowleaf hawksbeard	<i>Crepis tectorum</i> L.
Quackgrass	<i>Elymus repens</i> (L.) Gould
Foxtail barley	<i>Hordeum jubatum</i> L.
White sweetclover	<i>Melilotus alba</i> Medikus
Yellow sweetclover	<i>Melilotus officinalis</i> (L.) Lam
Timothy	<i>Phleum pretense</i> L.
Common groundsel	<i>Senecio vulgaris</i> L.
Common dandelion	<i>Taraxacum officinale</i> F.H. Wigg
Alsike clover	<i>Trifolium hybridum</i> L.



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**Figure 7 - Location of Known Invasive Plant  
 Infestations in Project Vicinity**

Project No: 1088-29

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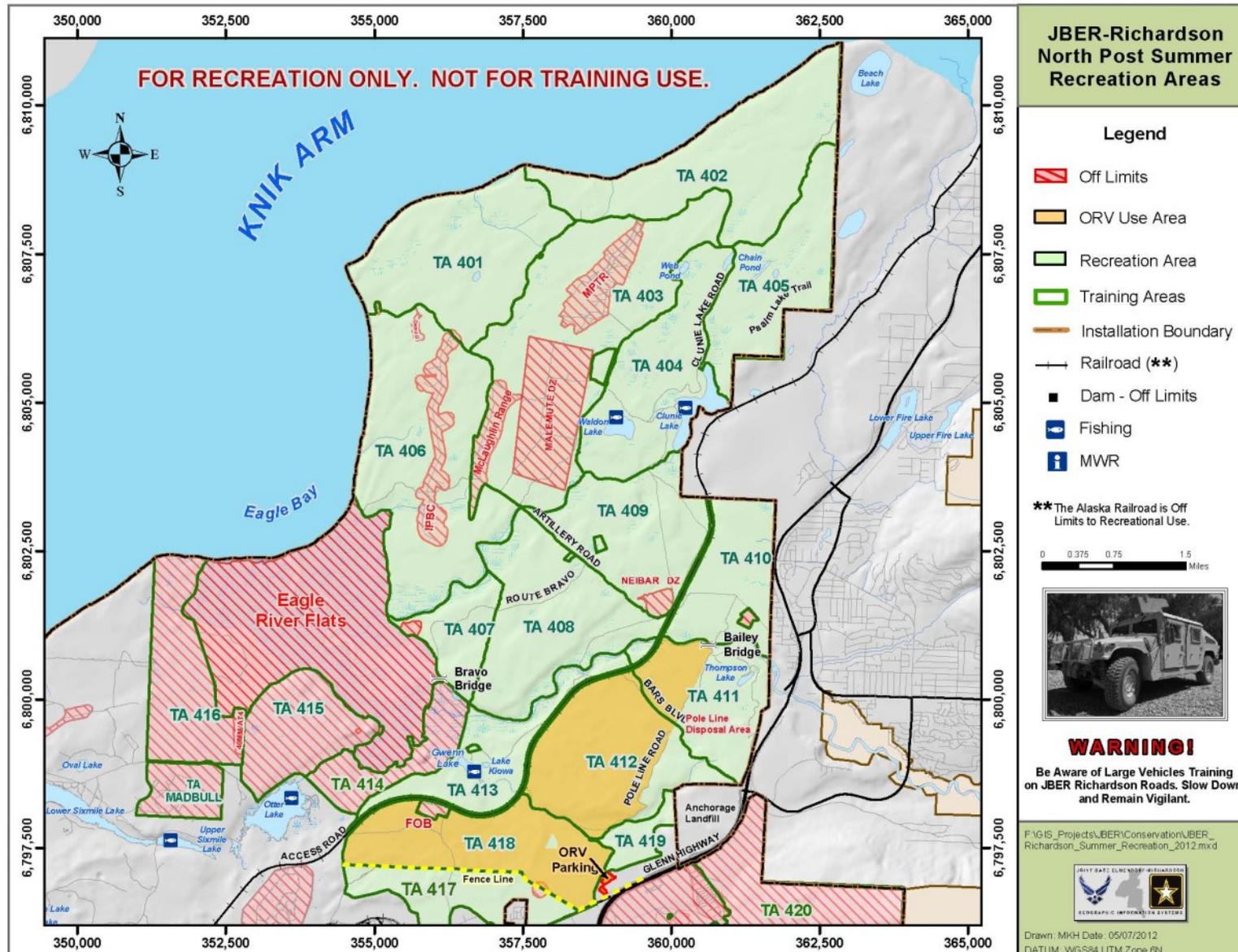
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Field observations conducted on July 11, 2012 by TPECI scientist Wade Collins confirmed the presence of foxtail barley and common dandelion. During site inspections, Narrowleaf hawksbeard was observed along roadways and disturbed areas throughout the proposed project area.

### **3.7. Recreational Resources**

Although the area does not contain residential or commercial properties, there is a recreational presence in the immediate vicinity. To the south of the project area, there is a recreational trailhead and parking area that allows access for hunting, hiking, biking, fishing, and All-Terrain Vehicle (ATV) usage. Summer recreational usage for the area (specifically units TA 412, TA 418, and TA 419) can be seen in Figure 8 on the following page. Maps showing winter recreational usage can be found on the JBER iSportsman website (<http://jber.isportsman.net/access>).



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Figure 8 - JBER Recreational Area Map

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Date: 3/13/13

Scale: 1:30,000

### **3.8. Public Health and Safety**

The Regulatory Commission of Alaska received testimony from numerous Eagle River, Alaska citizens identifying inadequate service, poor response and reactivation times, and health and safety hazards. Prolonged power outages in winter months could lead to increased numbers of hospital visits, cases of frostbite, and possible death. Power outages can prevent traffic lights from operating which may lead to increased traffic accidents.

### **3.9. Socioeconomic**

Communities in the affected region, including Eagle River, Eklutna, and Chugiak, are governed under the Municipality of Anchorage. According to the 2010 census, the affected area has an approximate population of 35,000. The community represents about 12 percent of the population within the Municipality of Anchorage. Twenty-one percent of residents 18 years of age and older identify themselves as having military/veteran status.

The affected communities support what is largely a service/retail oriented business community. The surrounding scenic state park land, offers many opportunities for tourism services to complement the growing visitor industry in the state of Alaska. (CERCC 2013)

In 2007, RCA received testimony from numerous Eagle River, Alaska citizens identifying inadequate electrical service, poor response and reactivation times, and health and safety hazards.

## **4.0 Environmental Effects, Mitigating Measures, and Cumulative Impacts**

### **4.1. No-Action Alternative**

#### **4.1.1. Wetlands**

##### *4.1.1.1. Direct and Indirect Effects*

Under the No-Action Alternative there would be no interference or loss of wetlands.

##### *4.1.1.2. Cumulative Effects*

The No-Action Alternative would have no cumulative effects on wetlands.

##### *4.1.1.3. Mitigation and Residual Effects*

No effects identified; no mitigation necessary.

#### **4.1.2. Cultural Resources**

##### *4.1.2.1. Direct and Indirect Effects*

The No-Action Alternative would not require any ground disturbances; therefore, there are no direct/indirect effects to cultural resources.

4.1.2.2. *Cumulative Effects*

There is no potential for direct/indirect effects, therefore, this alternative cannot, by definition, contribute to cumulative effects.

4.1.2.3. *Mitigation and Residual Effects*

No effects identified; no mitigation necessary.

4.1.3. Paleontological Resources

4.1.3.1. *Direct and Indirect Effects*

The No-Action Alternative would not require any ground disturbances; therefore, there are no direct/indirect effects to cultural resources.

4.1.3.2. *Cumulative Effects*

There is no potential for direct/indirect effects, therefore, this alternative cannot, by definition, contribute to cumulative effects.

4.1.3.3. *Mitigation and Residual Effects*

No effects identified; no mitigation necessary.

4.1.4. Visual Impacts

4.1.4.1. *Direct and Indirect Effects*

The No-Action Alternative would result in no new direct or indirect visual effects. The current transmission lines and poles would remain.

4.1.4.2. *Cumulative Effects*

The No-Action Alternative would have no cumulative visual effects

4.1.4.3. *Mitigation and Residual Effects*

No effects identified; no mitigation necessary.

4.1.5. Wildlife

4.1.5.1. *Direct and Indirect Effects*

The No-Action Alternative would result in no new direct or indirect effects on wildlife. The current transmission lines, poles, and exposed electrical equipment at Briggs Tap would remain. Risk of electrocution and collision of migratory bird species is present. This alternative would not result in a loss of moose or bear habitat.

4.1.5.2. *Cumulative Effects*

The No-Action Alternative would result in no additional structures with the potential to result in electrocution or collision by migratory bird species.

4.1.5.3. *Mitigation and Residual Effects*

Implement recommendations in the Avian Power Line Interaction Committee's (APLIC) "Reducing Avian Collisions with Powerlines; The State of the Art in 2012", which outlines protection strategies for raptors and other birds from electrocution. (APLIC 2012)

4.1.6. Invasive and Non-native Plants

4.1.6.1. *Direct and Indirect Effects*

Under the No-Action Alternative, no direct or indirect impacts on the introduction and spread of invasive species are expected.

4.1.6.2. *Cumulative Effects*

The No-Action Alternative would have no cumulative effects on invasive and non-native plants.

4.1.6.3. *Mitigation and Residual Effects*

Under the No-Action Alternative no mitigation is proposed because the alternative will not impact the introduction and spread of invasive species.

4.1.7. Recreational Resources

4.1.7.1. *Direct and Indirect Effects*

The No-Action Alternative would have no direct effects on recreational resources. The alternative would not restrict access or usage of any recreational lands.

4.1.7.2. *Cumulative Effects*

The No-Action alternative would have no cumulative effects on recreational resources.

4.1.7.3. *Mitigation and Residual Effects*

No effects were identified; no mitigation necessary.

4.1.8. Public Health and Safety

4.1.8.1. *Direct and Indirect Effects*

Power outages between Eklutna and Eagle River resulting from the current

inadequate electrical service potentially have a negative impact on the health and safety of residents.

*4.1.8.2. Cumulative Effects*

Under the No-Action Alternative, the potentially negative impact on health and safety would steadily degrade as load demands increase.

*4.1.8.3. Mitigation and Residual Effects*

Under the No-Action Alternative, no mitigation is proposed and power outages are expected to gradually worsen the current negative health and safety impacts.

**4.1.9. Socioeconomic**

*4.1.9.1. Direct and Indirect Effects*

The No-Action Alternative would have no direct effects on socioeconomic factors. However, no action would perpetuate adverse socioeconomic impacts that are currently occurring. These impacts include a less than acceptable level of service experienced by residences and businesses between Eklutna and Eagle River resulting in the loss of revenue and inventory.

*4.1.9.2. Cumulative Effects*

Under the No-Action Alternative, the negative impacts on the socioeconomics would steadily degrade as load demands increase.

*4.1.9.3. Mitigation and Residual Effects*

Under the No-Action Alternative, no mitigation is proposed and power outages are expected to gradually worsen the current negative socioeconomic impacts.

**4.2. Proposed Action Alternative – Fossil Creek Switchyard**

**4.2.1. Wetlands**

*4.2.1.1. Direct and Indirect Effects*

TPECI surveyed the area of the Proposed Action Alternative for the presence of wetland vegetation and soils. None were found within the boundaries of the switchyard location or the new transmission line right-of-way. A wetland does exist adjacent to the project, 300 feet down-gradient from the northwest extent of the proposed 50-foot-wide ROW.

*4.2.1.2. Cumulative Effects*

There would be no loss of wetlands as a result of the Proposed Action Alternative and there are no identified future commercial projects expected to adversely impact local wetlands.

#### 4.2.1.3. *Mitigation and Residual Effects*

Develop and implement a Storm Water Pollution Prevention Plan (SWPPP) for the project area. A SWPPP would include, but is not limited to, the following measures:

- Retain as much vegetation as possible to provide cover, concealment, and minimize erosion;
- Where necessary, natural drainage patterns would be maintained by installing culverts of adequate number and size to prevent flooding or excessive drainage of adjacent wetlands; and
- Stabilize all disturbed areas, resulting from project construction, using native vegetation to minimize erosion and subsequent sedimentation of wetlands and streams.

#### 4.2.2. Cultural Resources

##### 4.2.2.1. *Direct and Indirect Effects*

A cultural resource survey by THRC found potential historic properties (Cold War era training entrenchments) within the proposed switchyard area, and a low potential for intact subsurface cultural resources. THRC is just recommending that these cultural resources are not eligible for historic protection because such structures would not contribute significantly to the understanding of military training history. Therefore, THRC recommends that the Proposed Action Alternative will have no impact on known historic, architectural, archeological, or cultural resources at the switchyard site.

Historic cultural resource surveys of the existing transmission line right-of-way (performed in 1992 and 2006) have shown low potential for cultural resources. The new transmission line right-of-way would parallel this existing right-of-way terminating at Briggs Tap Substation. Due to the proximity of these rights-of-way in relation to each other, it is reasonable to surmise that the new right-of-way would yield the same cultural resource determination. In 2006, ML&P requested an amendment to their right-of-way permit to upgrade the existing transmission line and poles. BLM granted the amendment and used the 1992 survey to clear cultural resource concerns. ML&P would commit to contracting an archeologist to investigate the new right-of-way corridor any before ground-disturbing activities begin. The cultural resource inventory report will be submitted to the SHPO and concurrence must be received in order for the BLM to complete the Section 106 process. This process will be completed before the BLM issues a notice to proceed for the proposed action.

Site Summit is listed on the National Register of Historic Places (NRHP) for its role of supporting the Nike Hercules anti-aircraft mission during the Cold War.

The US Air Force (USAF) manages all activities at Nike Site Summit and has an existing Programmatic Agreement with the Alaska SHPO regarding its management. If an application to the USAF is submitted in the future for co-location of equipment at Site Summit, the USAF will complete the section 106 process for that action.

The right-of-way grant would have a stipulation regarding the inadvertent discovery of cultural resources, including human remains, during construction; if cultural resources are discovered during construction, work will be halted and the BLM archeologist, BLM Authorized Officer, and JBER Cultural Resources Office would be consulted.

#### 4.2.2.2. *Cumulative Effects*

No cumulative impacts can be expected from the Proposed Action Alternative.

#### 4.2.2.3. *Mitigation and Residual Effects*

EA-AK-040-96-014 indicated that the route of the existing right-of-way was inspected and on-the-ground surveys were conducted. The right-of-way showed low potential for cultural resources. The Cultural Report discussing these findings is dated Dec. 12, 1992 and can be found in case file AA-70133. In 2006, ML&P requested an amendment to their right-of-way permit to upgrade the existing transmission line and poles. BLM granted the amendment and used the 1992 survey to clear cultural resource concerns. ML&P would commit to contracting an archeologist to investigate the new right-of-way corridor any before ground-disturbing activities begin.

If cultural resources are discovered during construction, work that may damage those resources will be halted and the BLM archeologist, BLM Authorized Officer, and JBER Cultural Resources Office will be consulted.

### 4.2.3. Paleontological Resources

#### 4.2.3.1. *Direct and Indirect Effects*

Using the BLM Potential Fossil Yield Classification System and the project area's geologic profile, the project area could be viewed as Class 3a – Moderate potential. A Class 3a unit is defined as a unit “known to contain vertebrate fossils or scientifically significant nonvertebrate fossils, but these occurrences are widely scattered. The potential for a project to be sited on or impact a significant fossil locality is low, but is somewhat higher for common fossils.” (BLM 2008)

The right-of-way grant would have a stipulation regarding the inadvertent discovery of paleontological resources during construction; if such resources are discovered during construction, work will be halted and the BLM archeologist,

BLM Authorized Officer, and JBER Cultural Resources Office would be consulted.

4.2.3.2. *Cumulative Effects*

No cumulative impacts can be expected from the Proposed Action Alternative.

4.2.3.3. *Mitigation and Residual Effects*

If paleontological resources are discovered during construction, work that may damage those resources will be halted and the BLM archeologist, BLM Authorized Officer, and JBER Cultural Resources Office will be consulted.

4.2.4. Visual Impacts

4.2.4.1. *Direct and Indirect Effects*

The Proposed Action Alternative would have minimal visual impact, because the microwave relay tower (height not to exceed 40 feet above finished grade) and other structures at the switchyard would not exceed the height of any existing structure in the immediate vicinity due to the project's proximity to Bryant Army Airfield airspace surfaces.

The widening of the right-of-way from 75 feet to 125 feet and erection of new transmission lines and poles would also have minimal visual impact as the existing transmission lines are not visible from public areas such as the Glenn Highway. While new structures and lines would be put in place, the overall visual profile of the area would remain the same.

The construction of the proposed project would result in the permanent loss of approximately 7.4 acres of forest. The loss of these forested lands would have a minimal visual impact as the area would not be visible from the Glenn Highway or other areas open to the public, such as the trailhead mentioned earlier in the document.

The co-location of communications equipment on an existing tower at Site Summit would have no additional effect to visual resources as a result of this action.

4.2.4.2. *Cumulative Effects*

The Proposed Action Alternative would introduce a number of visible industrial elements to the visible landscape. However, it will not represent a dramatic change to the natural landscape due to much of the surrounding vegetation and facilities being at the same height. Additionally, similar cell tower/electrical/construction/facilities are located adjacent to this proposed location.

#### 4.2.4.3. *Mitigation and Residual Effects*

Under the Proposed Action Alternative, no mitigation for visibility is proposed.

#### 4.2.5. Wildlife

##### 4.2.5.1. *Direct and Indirect Effects*

The Proposed Action Alternative would result in new direct or indirect effects on migratory birds. Construction of the proposed switchyard would increase the number of feeder lines, various exposed electrical equipment, and a microwave relay tower (height not to exceed 40 feet above finished grade). The addition of new transmission lines and poles within the new right-of-way would further increase the risk of electrocution and collision of migratory bird species as compared to its present state. The placement of the new equipment parallel to existing equipment and the relatively short heights of the poles and towers would have negligible impacts on avian migratory routes.

The construction of these new elements and loss of approximately 7.4 acres of forest would alter habitat for wildlife for the foreseeable future. There exists an abundance of comparable habitat in area, such as Chugach State Park, that may mitigate these impacts. Displaced wildlife (moose, bears, and other mammals) could venture into nearby populated areas or towards the more developed areas of JBER. Due to the relatively small acreage of wildlife habitat lost (7.4 acres out of the 84,000 acres that comprises JBER); this potential for wildlife displacement represents a minor impact.

Co-locating on the existing tower at Site Summit would cause no additional effect to wildlife resources. The existing tower occurs in a previously disturbed area and would have minimal impacts to wildlife due to the removal of habitat.

##### 4.2.5.2. *Cumulative Effects*

It is estimated that the construction of the Proposed Action Alternative would result in 20 annual avian deaths from collisions with transmission lines, 5 annual avian deaths from collisions with communications towers, and 0.061 annual avian electrocution deaths per 100 power poles. The cumulative impact of this proposal would be minimal and may be virtually eliminated by implementing APLIC, BASH, and USFWS design guidelines and recommendations.

##### 4.2.5.3. *Mitigation and Residual Effects*

- Implement recommendations from APLIC, which outline procedures for the protection of raptors and other migratory birds from electrocution and collision. The project will follow USFWS National Bald Eagle Management Guidelines to protect affected bald and golden eagle populations and to satisfy the Bald and Golden Eagle Act

requirements. Project structures (towers, poles, etc.) would be designed according to BASH recommendations to reduce refugia for birds. Recommendations include:

- Retrofit existing structures to allow a 60-inch minimum horizontal separation between energized conductors and/or grounded hardware;
- If adequate spacing is not possible, insulate hardware or conductors against simultaneous contact;
- Increase the visibility of conductors or shield wires to prevent avian collisions; and
- Limit open beams, rafters, and other structures that might encourage perching, loafing, nesting.

#### 4.2.6. Invasive and Non-native Plants

##### 4.2.6.1. *Direct and Indirect Effects*

Any human activity and ground disturbance creates potential for introduction and spread of non-native invasive plants on BLM administered lands. The Proposed Action Alternative involves the use of heavy equipment for ground clearing and construction activities, a known vector for introducing non-native invasive plants should Best Management Practices be ignored.

Invasive propagules can hitchhike in tire treads, bull dozer tracks, bumpers, and other parts of vehicles and equipment. Propagules can become dislodged from vehicles and equipment during transportation or use at the project site. Invasive plant seeds can also be introduced to the site by contaminated materials, such as gravel or other fill material that is not certified weed free. Invasive plants typically thrive in areas with recent ground disturbance. Invasive plants can replace native vegetation, cause irreversible ecological harm, and lead to costly restoration needs.

If invasive species become established, indirect effects would occur when natural vectors, such as animals, wind or water, transport seed from these infestations to other areas. Other indirect effects would occur when site managers access and egress the site for maintenance and operations activities and fail to implement preventative measures. Invasive plant propagates can be transported to and from the site in vehicle tire treads, shoe treads, and gear leading to an increase in the number of species and frequency of occurrence.

##### 4.2.6.2. *Cumulative Effects*

Maintenance and future construction projects in the project area create vectors for the introduction and spread of invasive plants. The features such as establishing native vegetation at the site and implementing Best Management Practices for

invasive species prevention and clean equipment/vehicles will mitigate the threat of introduction and spread of invasive plants. The Proposed Action Alternative is not expected to add any cumulative impacts.

#### 4.2.6.3. *Mitigation and Residual Effects*

The mitigating measures and Best Management Practices listed in section 2.5 will be utilized to prevent the introduction and spread of non-native invasive species. ML&P would also implement any and all mitigation procedures listed in the right-of-way grant.

#### 4.2.7. Recreational Resources

##### 4.2.7.1. *Direct and Indirect Effects*

Due to the substation location within the JBER restricted access boundaries; there would be no impact on residential or commercial areas.

At least 2 weeks prior to construction, public notices would be placed at the trailhead alerting the public about the construction project and its impact to their parking availability. JBER reserves the right to deny access to the installation at any time.

During construction, access to the immediate area may be restricted due to construction traffic. Construction vehicles may take up to half of the parking volume while staged at the trailhead parking lot. Construction activities may affect recreational use in the area, such as hunting, mountain biking, hiking, and ATV use in the area for the life of the project. There is evidence of ATV traffic near the proposed construction site, as well as a recreational trail to the south of the proposed switchyard location. The trail is accessed by an unpaved parking lot. The parking lot (approximately 5.5 acres) is where construction equipment is proposed to be staged and will utilize approximately half of the available recreation parking, further limiting recreational access.

Hunting/fishing areas affected by construction include;

- Unit 14C for large game (moose), September to January on select draw,
- small game units TA 412, TA 418, and TA 419, available year round unless otherwise restricted by JBER command, and
- fishing opportunities for Rainbow Trout at Gwen Lake and Lake Kiowa are available year round unless otherwise restricted by JBER command.

#### 4.2.7.2. *Cumulative Effects*

Under the Proposed Action Alternative, the addition of the switchyard and new transmission line would result in the loss of 7.4 acres of recreationally usable lands. The loss of these lands may result in lesser hunting opportunities due to cumulative decreases in wildlife near the completed project.

#### 4.2.7.3. *Mitigation and Residual Effects*

The direct effect to the recreational users of the nearby trailhead would be mitigated by posting a public notice, at least 2 weeks prior to construction, alerting the public about the construction project and its impact to their parking availability.

### 4.2.8. Public Health and Safety

#### 4.2.8.1. *Direct and Indirect Effects*

The construction of the Proposed Action Alternative would create a more reliable electrical service to the residents between Eklutna and Eagle River. In addition to improved electrical service, the Proposed Action Alternative would also provide ML&P the ability for quicker diagnosis and repair of interrupted service.

#### 4.2.8.2. *Cumulative Effects*

Under the Proposed Alternative, no cumulative health and safety effects are expected.

#### 4.2.8.3. *Mitigation and Residual Effects*

Under the Proposed Action Alternative, there is no proposed mitigation to health and safety of the customers.

### 4.2.9. Socioeconomic

#### 4.2.9.1. *Direct and Indirect Effects*

The build alternative would not generate adverse impacts to any social group, school, recreation area, or church. The area's population and ethnic structure is fairly cohesive and not segregated into diverse social groups. There are no identified social groups (i.e., elderly, physically impaired, non-drivers, minority, or ethnic groups) that would be adversely affected by the project.

The Proposed Action Alternative would provide ample, reliable electrical service to the residents and businesses between Eklutna and Eagle River. This could be used to make improvements to established communities, proceed with planned community developments, and create an appreciable change in employment opportunities.

During construction, the Proposed Action Alternative would not impact the local

economy. Electrical service would not be interrupted or diminished due to construction. In the long-term, the installation of the proposed electrical equipment would improve reliability and reduce power outages. It would also enhance the capabilities of the current system so that it could better handle future system upgrades.

4.2.9.2. *Cumulative Effects*

Under the Proposed Action Alternative, no cumulative socioeconomic effects are expected.

4.2.9.3. *Mitigation and Residual Effects*

Under the Proposed Action Alternative, there is no proposed mitigation for socioeconomic impacts to residents or businesses.

## 5.0 Consultation and Preparers List

### 5.1. List of Persons, Agencies and Organizations Consulted

**Table 4 - Persons, Agencies, and Organizations Consulted**

<b>Name</b>	<b>Affiliation</b>	<b>Title</b>
Lindsey Flagstad	<i>University of Alaska, Alaska Natural Heritage Program</i>	Staff Botanist
Mark Cassell	<i>Territory Heritage Resource Consulting</i>	Archaeologist
Molly Cobbs	<i>Bureau of Land Management – Anchorage District Office</i>	Planning & Environmental Coordinator
Laurie Thorpe	<i>Bureau of Land Management – Anchorage Field Office</i>	Natural Resource Specialist
Bruce Seppi	<i>Bureau of Land Management – Anchorage Field Office</i>	Wildlife Biologist
Jena Daly	<i>Bureau of Land Management – Anchorage Field Office</i>	Recreation and Visual Resources
Jenny Blanchard	<i>Bureau of Land Management – Anchorage Field Office</i>	Archaeologist
Brian Bourdon	<i>Bureau of Land Management – Anchorage Field Office</i>	Reality Specialist
Mary Dougan	<i>673d Civil Engineer Squadron – JBER</i>	Program Analyst
Linda Serret	<i>Colorado State University – Center for Environmental Management of Military Lands</i>	NEPA Coordinator
Jon Scudder	<i>673d Civil Engineer Squadron – JBER</i>	Archaeologist
Talmadge Robinson	<i>673d Civil Engineer Squadron – JBER</i>	Program Analyst
Jon Gumpert	<i>673d Civil Engineer Squadron – JBER</i>	Program Analyst

**5.2. List of EA Document Preparers**

**Table 5 - EA Document Preparers**

Name/Title	Affiliation/Experience	Professional Discipline
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<b>ORGANIZATION AND TEXT</b>		
Jon Mowery Staff Scientist	<i>Travis/Peterson Environmental Consulting, Inc.</i> Document preparation	Environmental Consulting
Wade Collins Staff Scientist	<i>Travis/Peterson Environmental Consulting, Inc.</i> Document preparation	Environmental Consulting
Michael Carlson Staff Engineer	<i>Travis/Peterson Environmental Consulting, Inc.</i> Document preparation	Environmental Consulting

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## **Appendix A**

### **Project Plan of Development**

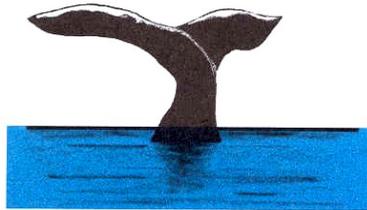
**FOSSIL CREEK SWITCHYARD RIGHT-OF-WAY  
PROJECT**

AA93098

**PLAN OF DEVELOPMENT**

PREPARED FOR  
United States Bureau of Land Management  
Anchorage Field Office  
4700 BLM Road  
Anchorage, AK 99507-2599

PREPARED BY



**Travis/Peterson  
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Project Number  
1088-2

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## **ACRONYMS AND ABBREVIATIONS**

AC	Alternating Current
ANILCA	Alaska National Interest Lands Conservation Act
APLIC	Avian Power Line Interaction Committee
BASH	Bird-Aircraft Strike Hazard
BLM	Bureau of Land Management
CES	Civil Engineer Squadron
CIC	Construction, Inspection, and Compliance Contractor
CFR	Code of Federal Regulations
EDRR	Early Detection and Rapid Response
ESA	Endangered Species Act
FAA	Federal Aviation Administration
FLPMA	Federal Land Policy and Management Act
JBER	Joint Base Elmendorf-Richardson
kV	Kilovolts
ML&P	Municipal Light and Power
NEPA	National Environmental Policy Act
OSHA	Occupational Safety and Health Administration
POD	Plan of Development
ROW	Right-of-Way
SCADA	Supervisory Control and Data Acquisition
SHPO	State Historic Preservation Office
TBD	To Be Determined
USFWS	United States Fish and Wildlife Service

## 1.0 Introduction

Anchorage Municipal Light and Power (ML&P) is submitting this Plan of Development (POD) to the Bureau of Land Management (BLM) for up to a 30-year facility right-of-way for the construction, operation, and maintenance of the proposed Fossil Creek Switchyard, microwave communications tower, and 115 kilovolt (kV) transmission line that would extend between the Fossil Creek Switchyard and the Briggs Tap Substation (Figure 1).

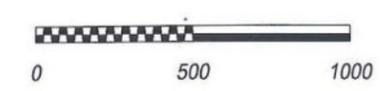
The project area is located on Joint Base Elmendorf-Richardson (JBER). JBER is a joint U.S. Army and U.S. Air Force military base located northeast of Anchorage, Alaska. The BLM manages all surface natural resources for non-military uses. The BLM and JBER have responsibility for reviewing and authorizing all activities proposed at JBER for non-military purposes.

Construction of this project requires a permanent right-of-way of approximately 7.4 acres and an additional 9 acres for temporary construction uses. Ground disturbance for the switchyard and microwave tower would be 400 feet wide and 600 feet long (5.5 acres). In addition, 1.9 acres of right-of-way (50 feet wide by 1,630 feet long) is required for new poles and transmission lines. The new right-of-way for the poles and lines will lie directly adjacent to the existing right-of-way between Briggs Tap substation and the proposed project site. In order to accommodate the new pole line, Pole Line Road may need to be realigned. Currently, the project design does not require realignment.

Once constructed, the system would be operational year-round, 24 hours a day transporting electrical power to residents in Eagle River. Maintenance activities would be scheduled and coordinated with other facilities to avoid service interruptions to customers served by the switchyard and transmission line.

The duration of construction activities is dependent partially on the timing of project authorization, but in general, the entire construction period could last an entire summer construction season. Construction would consist of the following new facilities:

- approximately 1633 feet of 115kV overhead transmission line from the Fossil Creek Switchyard to the Briggs Tap Substation;
- construction of a 230/115 kV switchyard at the Fossil Creek site within JBER;
- construction of a microwave communications tower within the switchyard fence line;
- temporary work areas associated with construction activities; and
- possible realignment of Pole Line Road.



**Map Features**

- Switchyard Electrical Components
- Existing Power Lines
- Proposed Power Line

**SURVEY CONTROL**

THIS SURVEY UTILIZED STATIC AND RTK GPS PROCEDURES WITH HIGH ACCURACY LEICA 1200 GPS RECEIVERS.

THE HORIZONTAL DATUM IS: ALASKA STATE PLANE, ZONE 4, NAD83, EXPRESSED IN U.S. SURVEY FEET.

THE ORIGIN OF COORDINATES IS CONTROL POINT #103 AT THE ANCHORAGE LANDFILL. THE COORDINATE IS BASED ON DUAL FREQUENCY GPS DATA PROCESSED BY NGS ONLINE POSITIONING USER SERVICE (OPUS). THE RESULTING COORDINATES ARE:

REF FRAME: NAD\_83(CORS96)(EPOCH:2003.0000)

LAT: 61 17 26.68434  
 LONG: 149 35 47.33665  
 EL HGT: 170.249(m)  
 ORTHO HGT: 162.403(m) [Geoid09 NAVD88]

STATE PLANE COORDINATES  
 SPC (5004 AK 4)

Northing (Y) [Meters] 811961.360  
 Easting (X) [Meters] 521631.217  
 Convergence [Degrees] 0.35391397  
 Point Scale 0.99990573  
 Combined Factor 0.99987909

THE VERTICAL DATUM IS MOA, HOLDING BENCHMARK "GAAB-10", ELEVATION = 252.18'. AS DETERMINED FROM LEVEL LOOPS PERFORMED BY AKDOT. FROM THIS INFORMATION FURNISHED BY AKDOT, ADDITIONAL LEVEL LOOPS WERE PERFORMED TO EXTEND THE VERTICAL CONTROL ON SITE BY SENTEC.

Travis/Peterson Environmental Consulting, Inc.  
 3305 Arctic Boulevard, Suite 102  
 Anchorage, AK 99503

**Proposed Fossil Creek Switchyard Right-of-Way Project**  
 DOI-BLM-AK-A010-2012-0001-EA

Figure 2—Project Area Overview Map

Project No: 1088-29

Date: 03/05/2013

Scale: 1:12,000

## **2.0 Purpose and Need**

ML&P needs to improve its electrical power configuration to provide efficient and reliable power to its Eagle River consumers. The purpose and need for the project is summarized below.

As a regulated utility, ML&P has a responsibility to provide its customers with safe, reliable, and adequate transmission capacity to meet short-term and long-term load growth via connection to generation resources. The purpose of the proposed project is to develop a transmission facility that enables ML&P to meet the electrical demands of customers.

The project's intent is to improve the electrical reliability for residents and businesses in the Eagle River and surrounding areas. It would accomplish this by providing ML&P numerous configuration options to ensure efficient and reliable power across a variety of loads and conditions, reducing power outages in the Eagle River area. The microwave tower is essential for communicating with other switchyards when correcting faults and power outages. This instantaneous communication will minimize costly service disruptions. Finally, the Fossil Creek Switchyard would provide space for further expansion (i.e., installation of additional circuit breakers and transformers within the switchyard) and upgrades if future increases in service are required.

## **3.0 Project Description**

### **3.1. Right-Of-Way**

The BLM would authorize up to a 30-year right-of-way to ML&P for a switchyard, tower, and transmission line system on JBER. Construction of this project requires a total ground disturbance area of approximately 7.4 acres. In addition to the 7.4 acres of permanent ground disturbance, the BLM would also need to authorize a Temporary Use Permit for approximately 9 additional acres of temporary/construction ground disturbance. This temporary acreage accounts for project staging areas, equipment laydown areas, and Site Summit tower modifications. The location of the temporary storage area will be coordinated with JBER Civil Engineer Squadron (CES) and/or other JBER authorities depending on location.

The U.S. Air Force would issue sublet authority to the tower owners (State of Alaska and Enstar) at Site Summit. ML&P have reached leasing agreements with both the State of Alaska and Enstar to utilize their existing communications tower at Site Summit. At this time it has not been determined which tower would be used. This project is tentatively scheduled to begin construction in the summer of 2013.

### **3.2. Project Components**

The proposed Fossil Creek Switchyard would be a fenced 230/115 kV yard. The yard would occupy approximately 5.5 acres (approximately 600 feet by 400 feet). Electrical facilities proposed at the switchyard include 230 and 115 kV air-insulated electrical buses, steel support structures, a transformer, capacitors, reactors, circuit breakers, disconnect switches, communication equipment, control equipment, and protective relays. The arrangement of the switchyard would consist of:

- Nine 230 kV circuit breakers in a breaker-and-a-half bus configuration;
- Four 115 kV circuit breakers in a ring bus configuration;
- One 230/115 kV transformer; and
- One lattice microwave tower (tower height not to exceed 40 feet above finished grade).

This project would also utilize an existing communications tower at Site Summit, approximately 4 miles southeast of the proposed switchyard. The Site Summit tower would communicate with the microwave tower (height TBD) at the Fossil Creek Switchyard to aid in correcting faults and power outages

Other facilities associated with the Fossil Creek Switchyard would include metering, supervisory control and data acquisition (SCADA), security, communications equipment, and a single-story relay/control/storage building. Lighting at the switchyard would be provided by lamps placed near major electrical equipment. The project lighting would be approved by JBER Air Operations. Yard lights would normally be turned off and would only be used during nighttime maintenance for safety. All substation lighting would be oriented downward to minimize glare onto surrounding property and habitat.

The new 1,630-foot-long, 115 kV overhead transmission line would be constructed from the Fossil Creek Switchyard to the Briggs Tap Substation. The new line would run adjacent to an existing 115 kV line until it reached Briggs Tap. The 1,630-foot-long line would require a 50-foot-wide 50-year right-of-way (approximately 1.9 acres). The support structures for the new transmission line would be consistent with the design of existing parallel structures. The design of the existing poles consists of two circuits on steel sink poles. New support structure heights would not exceed the elevations of the existing transmission line.

### **3.3. Project Construction**

This section describes the construction of the project. Topics include an overview of the construction sequence, the construction workforce, environmental safety training, deviations during construction, and project compliance. Because the project site is located on a military

installation, all construction schedules, temporary storage locations, and construction equipment must be coordinated and approved through the proper installation offices on JBER. JBER reserves the right to deny access to any one, at any time, for any reason.

### 3.3.1. Construction Sequence

Construction of the project would include the following sequence of activities:

- Surveying the transmission centerline, other project features, and work areas
- Clearing and grading for the right-of-way, structure sites, and staging areas
- Excavating and installing foundations
- Assembling and erecting structures with temporary and permanent pad sites
- Stringing conductors and ground wires
- Performing cleanup and reclamation of affected areas

These activities are described in more detail below.

### 3.3.2. Construction Workforce

An estimated number of workers and types of equipment required to construct the proposed switchyard, tower, and transmission line is shown in Table 1 on the following pages. The project would consist of several phases of construction at various locations. Regular field meetings would be held with the construction, inspection, and compliance contractor (CIC) and biological monitors to review the process and its implementation.

**Table 1 - Estimated Personnel and Equipment for Each Construction Section**

Activity	People	Quantity of Equipment	Equipment Type
Survey	4	2	pickup trucks
Support Equipment	4 to 8	2	4 x 4 pickup
		1	1-ton mechanic service truck
		1	equipment fuel truck
		1	5-ton truck tractor
		1	40-ton lowboy rig
		1	45-ton cherry picker
		1	10-ton fork lift
		1	4,000-gallon water truck
Guard Pole Equipment	3 to 6	2	4 x 4 pickup
		1	flatbed boom truck
		1	auger truck
Foundation installation	20 to 30	4	4 x 4 pickup
		2	crewcab pickup
		4	air compressor
		2	25-ton flatbed boom truck
		2	15-ton flatbed boom truck
		2	rock drill
		3	excavators
		2	auger truck
		2	10 cubic yard dump truck
		2	1.5 cubic yard front end loader
		2	backhoe
		4	concrete mixing trucks
		1	18-ton crane (max. height 55 ft.)
		1	30-ton crane (max. height 98 ft.)
Yard and Material Hauling Equipment	10	2	4 x 4 pickup
		2	10-ton fork lift
		1	8-ton fork lift
		1	4-ton fork lift
		1	18-ton crane (max. height 55 ft.)
		1	6 x 4 truck tractor
		2	15-ton flatbed boom truck

<b>TABLE 1 - ESTIMATED PERSONNEL AND EQUIPMENT FOR EACH CONSTRUCTION SECTION (Cont.)</b>			
<b>Activity</b>	<b>People</b>	<b>Quantity of Equipment</b>	<b>Equipment Type</b>
Structure Assembly and Erection	20 to 30	2	4 x 4 pickup
		2	crewcab pickup
		2	100-ton crane (max. height 142 ft.)
		1	70-ton crane (max. height 110 ft.)
		2	D8 crawler tractor
		2	air compressor
		2	4 x 4 flatbed truck
Wire Stringing and Ground Cleanup Equipment	20 to 30	2	120-ton crane (max. height 142 ft.)
		2	18-ton crane (max. height 55 ft.)
		2	30-ton crane (max. height 98 ft.)
		2	6 x 6 truck tractor
		2	trucks (2 ton)
		2	trucks (5 ton)
		1	auger truck
		2	backhoe
		2	high reach boom truck
		1	15-ton flatbed boom truck
		4	pickup trucks
		2	4 x 4 pickup
		2	crewcab pickup
		Wire installation	15
2	diesel tractors		
2	3-drum pulling machines		
1	single drum puller (large)		
2	double bull-wheel tension machine (heavy)		
2	sagging equipment (D-8 Cat, tracked)		
4	carry all		
2	static wire reel trailer		
1	air compressor		
Notes: Maximum total personnel required considering all tasks = 133 (actual personnel at any one time would be less) Depending on schedule requirements, multiple crews may be required.			

### 3.3.3. Environmental and Safety Training

Prior to gaining access to the right-of-way, all construction and maintenance workers would be required to participate in an environmental education program. At a minimum, the program will include the following topics: biological, cultural, paleontological, and other environmental requirements and protection measures. After completion of construction, ML&P would provide environmental instruction to all maintenance and operation personnel who will be accessing the right-of-way.

In addition, JBER requires specific safety training prior to work on the military installation. Construction and maintenance workers would need to be briefed on Anti-Terrorism Awareness and Range Safety. The Anti-Terrorism Awareness brief, as a power point presentation, is provided by JBER to ML&P and its contractor(s) so they can assist in reporting suspicious activity in the areas they would be working and are aware of access issues during increased Force Protection Conditions. The range safety briefing will be held prior to the project commencement and would be coordinated through JBER-R Range Control.

Construction contractor(s) would be responsible for providing safety training, as required. All construction, operation, and maintenance activities would be required to comply with Occupational Safety and Health Administration (OSHA) regulations. The CIC would be notified by the construction contractor(s) of any accidents that occur on public land during construction of the Project.

### 3.4. Project Compliance

ML&P would contact the BLM and JBER Authorized Officer(s) or designee(s) prior to commencing construction and/or any ground-disturbing activities. Prior to construction, all plans must be vetted through JBER's project review process. A pre-construction conference would be scheduled with BLM, JBER, other cooperating agencies (as appropriate), and ML&P prior to commencing construction and/or ground-disturbing activities on the right-of-way. ML&P personnel and contractors' representatives involved with construction and/or any ground-disturbing activities associated with this right-of-way would attend this conference to review the stipulations of the grant and other documents, as determined by BLM and/or JBER.

ML&P would not initiate any construction or other ground-disturbing activities on the public land portion of the right-of-way until after issuance of the federal Notice to Proceed (Form 2800-15) issued by the Authorized Officer(s) or designee(s).

All activities associated with the construction, operation, maintenance, and decommissioning of the right-of-way would be conducted within the authorized limits of the right-of-way. ML&P would construct, operate, and maintain the facilities,

improvements, and structures within this right-of-way in strict conformity with the approved POD and made part of the grant. Any relocation, additional construction, or use that is not in accordance with the approved POD would not be initiated without the prior written approval of the Authorized Officer(s) or designee(s). A copy of the complete right-of-way grant, including all stipulations and approved POD would be made available on the right-of-way area during construction. Noncompliance with the above would be grounds for an immediate temporary suspension of activities.

### **3.5. Construction Plan and Program**

The activities associated with the construction of the project are described in the sequence in which they would occur. These activities include the following:

- Surveying the transmission centerline, other project features, and work areas
- Clearing and grading for the right-of-way and structure sites
- Excavating and installing foundations
- Assembling and erecting structures with temporary and permanent pad sites
- Stringing conductors and ground wires
- Performing cleanup and reclamation of affected areas

#### **3.5.1. Surveying the Right-of-Way Centerline and Other Project Features**

Ground survey and staking would be performed to locate structure centers, reference points, right-of-way boundaries (if necessary), and temporary work areas. If deemed necessary, environmental monitoring activities would be in place during this phase. Flagging would be maintained until final cleanup and/or reclamation is completed, after which the flags would be removed.

#### **3.5.2. Clearing and Grading Activities for the Right-of-Way and Structure Sites**

Clearing of natural vegetation would be required for construction purposes, clearances for electrical safety, long-term maintenance, and reliability of the switchyard and transmission line.

The Fossil Creek Switchyard would require the permanent removal of approximately six acres of coniferous forests. Coordination with BLM through the JBER forester is required for tree removal. Any Birch or Spruce tree with a diameter of 4 inches or greater must be salvaged and relocated to a proximate firewood cutting area coordinated through the forestry office. Contractors are responsible for moving trees. Stump height may not exceed 6 inches. Forest clearing operations must comply with the State of Alaska's Best Management Practices and the Alaska Forest Practices Act.

Clearing is restricted during the Migratory Bird Nesting period, April 10th to July 15<sup>th</sup>. Site grading would require the use of bulldozers and scrapers to cut and fill native soil to the proposed pad elevations. Onsite material would be reused to the extent possible. A Storm Water Pollution Prevention Plan (SWPPP) would be developed to prevent erosion and protect nearby wetlands.

Construction of the overhead line would begin with the clearing and grading within the new right-of-way (approximately 2 acres) to accommodate construction equipment and activities. Mature vegetation would be removed under or near the conductors to provide adequate electrical clearance.

At each structure site, work areas are required to facilitate the safe operation of equipment and construction operations. In typical work areas in flat terrain, an area 100 feet by 100 feet of temporary disturbance would be required for equipment and construction tasks. In that work area, the permanent disturbance associated with the structure footings could be up to 40 feet by 40 feet. The work area would be cleared of vegetation only to the extent necessary. After construction, all temporary work areas would be restored.

Construction of the project would begin with the establishment of a staging area, which is required for storing materials, construction equipment, and vehicles. The project would require one staging area, approximately 600 feet by 400 feet (5.5 acres) and located approximately ¼ mile south of the Fossil Creek Switchyard. This area is an existing unpaved parking area with access to recreational trailheads. The staging area would require the BLM to authorize a Temporary Use Permit and receive concurrence from JBER-R Range Control.

The staging area would serve as field offices, reporting location for workers, parking space for vehicles and equipment, and sites for material storage. All vehicle maintenance will be done off site. If fueling is done performed on site, proper the measures (catch basins, fuel spill kits, etc.) would be implemented and the project will comply with all JBER and BLM hazardous material regulations. The staging area would be fully enclosed by temporary fencing for additional safety and security.

Access to the construction site is provided by Pole Line Road. Pole Line Road lies entirely within JBER boundaries. Access roads must remain open 24/7 for traffic, troop training, road marches, military convoys, recreation access, and other uses. JBER officials may require a traffic control plan for the project. No Temporary Use Permit is required for access roads at this time.

### 3.5.3. Excavating and Installing Foundations

Construction of the switchyard equipment foundations (consisting of drilled pier, mat, and pad type foundations) and the grounding grid would begin once the site has been cleared and graded.

Vertical excavations for foundations would be made with power drilling equipment. Where soils permit, a vehicle-mounted power auger or backhoe would be used. In rocky areas, the foundation holes will be excavated by drilling methods or installing special rock anchors.

Direct embedded structures would be predominantly used. Poles would be directly embedded into excavated holes at a depth depending on the type and height of the pole. The annular space between poles and holes would then be backfilled with concrete and any remaining excavated material would be placed around the holes or spread onto adjacent areas. If soils are determined unsuitable for direct embedment, a drilled pier may be required.

In areas where steel-lattice structures would be used, cast-in-place footings would be installed by placing reinforcing steel and a structure stub into the foundation hole, positioning the stub, and encasing it in concrete. Spoil material (excavated subsoil) would be used for fill where suitable and the remainder would be spread at the structure site or along graded access roads or in locations previously agreed upon by ML&P and the Authorized Officer(s). In areas of increased volumes of spoils (based on foundation size and depth) the spreading of spoils may be required beyond the general disturbance area in order to maintain grades and runoff, and to facilitate restoration. In these areas, the topsoil would be salvaged and set aside to be placed over the subsoil material during restoration. These locations would be mitigated on a case-by-case basis and tracked by the CIC. The foundation excavation and installation would require access to the site by power augers or drills, cranes, material trucks, and ready-mix concrete trucks.

### 3.5.4. Assembling and Erecting Transmission Line Structures

Transmission line structure and single-pole material would be hauled to the structure location and assembled onsite. Typically, the entire structure would be framed on the ground and erected as one unit using a crane.

Lattice-frame structure material (i.e. the communications tower) would be preassembled in a convenient size and weight in the staging areas. These subsection assemblies and associated hardware would be shipped to each tower site by truck. The subsections would be assembled at the site and hoisted into place by a large crane

and then fastened together to form a complete tower.

If drilled pier foundations are necessary, structures would be fastened to foundations using the appropriate sized anchor bolts.

Crossarms, insulator assemblies and other associated hardware would be trucked to each structure location. Typically, structures would be fully assembled on site and set as one unit using rubber-tired cranes. Alternately, depending on weight of structures, structures may require setting in sub-assemblies.

Lattice deadends would be pre-assembled into subsections at material storage yards and then trucked to the structure location and assembled using a rubber-tired crane. Alternately, bundles of steel members and associated hardware (and oftentimes insulators, hardware and stringing sheaves) may be transported to each structure site by truck. Wood blocking is hauled to each location and laid out; then steel bundles are opened and laid out for assembly by sections and assembled into subsections of convenient size and weight. The assembled subsections are then hoisted into place by means of a large crane and fastened together to form a complete structure. A follow-up crew then tightens all the bolts in the required joints.

#### 3.5.5. Stringing Conductors, Ground Wires, and Optical Ground Wire

Insulators, hardware, and stringing sheaves would be delivered to each tower site for installation. The towers would then be rigged with insulator strings and stringing sheaves at each ground wire and conductor position.

A pilot line would be pulled (strung) from tower to tower by 4-wheel drive vehicle and threaded through the stringing sheaves at each structure. A larger diameter, stronger line would then be attached to the pilot line and strung. This is called the pulling line and is used in turn to pull in the conductor and ground wire. This process is repeated until the ground wire and conductor are pulled through all sheaves.

Ground wires and conductors would be strung using powered pulling equipment at one end and powered braking or tensioning equipment at the other end of a conductor segment. A single line pull site would be located near the Fossil Creek Switchyard or the Briggs Tap Substation and would require a Temporary Use Permit. Generally, pull sites would be approximately 100 feet by 150 feet and would be required where 115 kV angle structures are located. Tensioners, pullers, line trucks, wire trailers, dozers, pickups, and tractors needed for stringing and anchoring the ground wire or conductor will be located at these sites. The tensioner, in concert with the puller, would maintain tension on the ground wire or conductor while they are fastened to the structures.

Tension would be maintained on all insulator assemblies to assure positive contact between insulators, thereby avoiding sparking. Caution also would be exercised during construction to avoid scratching or nicking the conductor surface, which may provide points for corona to occur.

After the line has been pulled into place, the sag between the structures would be adjusted to a minimum ground clearance of 30 feet. The line would then be attached to insulators, the sheaves would be removed, and the vibration dampers and other accessories would be installed.

### 3.5.6. Switchyard Construction

Once the foundation has been constructed, installation of aboveground equipment (including placement of major equipment on their respective foundations or structures, anchoring their final position, and wiring of the equipment controls and protection devices) would begin. The installation of the lattice microwave communication tower and its supports would also begin. This work would be accomplished by delivering equipment to the site on flatbed trucks and lifting it into place using cranes.

The preparation of these sites would require the following:

- Cut-and-fill grading
- Placement and compaction of structural fill as a foundation for equipment
- Grading to maintain drainage patterns
- Oil spill containment facilities
- Gravel-surfaced yard
- Fencing
- Subsurface grounding grids
- Cable trenches

### 3.5.7. Cleanup and Reclamation of Affected Areas

Construction sites, material storage yards, and access roads would be kept orderly. Refuse and trash would be removed from the sites and disposed of at an approved landfill. In remote areas, trash and refuse would be removed to a construction staging area until proper disposal can be arranged. No open burning of construction trash would occur without appropriate approval.

The right-of-way would be reclaimed, as described in this document. All practical means would be employed to restore the land to its original contour and natural drainage patterns. Re-vegetation activities along the right-of-way would conform to the vegetation management standards outlined in the right-of-way grant. Vegetation

resulting from this project would be managed according to the Bird-Aircraft Strike Hazard (BASH) program guidelines. Reclamation seed mixture would conform to land management agency requirements and require BLM and JBER Environmental Office approval.

## **4.0 Operation and Maintenance**

This section provides information describing ongoing and long-term activities that would occur along the right-of-way. This information includes a discussion on permitted uses, right-of-way safety requirements, inspection and maintenance, long-term access, signage, and contingency planning.

### **4.1. Right-of-Way Safety Requirements**

The design, operation, and maintenance of the project will meet or exceed applicable criteria and requirements outlined by OSHA for the safety and protection of JBER personnel and the general public. The transmission line will be protected with power circuit breakers and line relay protection equipment. If a conductor failure occurs, power will be removed automatically from the line. Lightning protection will be provided by overhead ground wires on the top of the line. Where vegetation presents a potential hazard, trees will be trimmed or cut to prevent accidental grounding contact with conductors.

### **4.2. Building and Fence Grounding**

AC (Alternating Current) transmission lines have the potential to induce currents on adjacent metallic structures, such as transmission lines, fences, or structures that are parallel to, cross, or are adjacent to the transmission line. Induced currents on these facilities occur to some degree during steady-state operating conditions and during a fault condition on the transmission line. For example, during a direct lightning strike to the conductor on the line, the insulators may flash over, causing a fault condition on the line, and current would flow down the structure through the grounding system and into the ground. The magnitude of the effects of the AC-induced currents on adjacent facilities is highly dependent on the magnitude of the current flows in the transmission line, the proximity of the adjacent facility to the line, and the distance (length) for which the two facilities parallel one another in proximity.

The methods and equipment needed to mitigate these conditions would be determined through electrical studies of the specific situation. As standard practice, and as part of the design of the project, electrical equipment and fencing at the substation would be grounded. All fences, metal gates, pipelines, metal buildings, etc., adjacent to the right-of-way that cross or are in the transmission line right-of-way would be grounded. If

applicable, grounding of metallic objects outside of the right-of-way may also occur, depending on the distance from the transmission line, as determined through the electrical studies. These actions take care of the majority of induced current effects on metallic facilities adjacent to the line by shunting the induced currents to ground through ground rods, ground mats, and other grounding systems, thus reducing the step-and-touch electric shock potential that a person or wildlife may experience when touching a metallic object near the line.

Some of the typical mitigation measures that could be considered for implementation, depending on the degree of mitigation needed can include the following (National Association of Corrosion Engineers International, 2003):

- Fault Shields—shallow grounding conductors connected to the affected structure adjacent to overhead electrical transmission towers, poles, substations, etc. They are intended to provide localized protection to the structure and pipeline coating during a fault event from a nearby electric transmission power system.
- Lumped Grounding—localized conductor or conductors connected to the affected structure at strategic locations (e.g., at discontinuities). They are intended to protect the structure from both steady state and fault AC conditions.
- Gradient Control Wires—a continuous and long grounding conductor or conductors installed horizontally and parallel to a structure at strategic lengths and connected at regular intervals. These are intended to provide protection to the structure coating during steady-state and fault AC conditions from nearby electric transmission power systems.
- Gradient Control Mats—typically used for aboveground components of a structure. These are buried ground mats bonded to the structure and are used to reduce electrical step-and-touch voltages in areas where people may come in contact with a structure subject to hazardous potentials.

Permanent mats bonded to the structure may be used at aboveground metallic and non-metallic appurtenances where electrical contact with the affected structure is possible. In these cases, there is no “standard” solution that would solve these issues every time. Instead, each case must be studied to determine a series of parameters, including 1) the magnitude of the induced currents and the most appropriate mitigation given the ground resistivity, distance paralleled, steady-state and fault currents, and fault clearing times expected on the transmission line and 2) distance between the line and the structure.

During final design of the transmission line segments, appropriate electrical studies would be conducted to identify 1) the issues associated with paralleling other facilities and 2) the types of equipment that would need to be installed, if any, to mitigate the effects of the induced currents.

### **4.3. Inspections and Maintenance**

ML&P would conduct annual inspections at the switchyard and along the new transmission lines. The annual maintenance activities are conducted to identify conditions that 1) pose an immediate hazard to the public or employees or that 2) risk immediate loss of supply or damage to the electrical system to get those conditions resolved prior to peak demand in the summer and winter months.

ML&P employees receive training in accordance with Bird Management and Avian Protection Plans and adhere to these plans for all maintenance activities. Avian monitors routinely identify nest locations and check these structures for activity. Maintenance activities are conducted in a manner that does not result in disturbance to avian species or their nests.

The implementation of routine operation and maintenance activities on power lines would minimize the need for most emergency repairs. However, when emergency maintenance activities are necessary to repair natural hazard, fire, or man-caused damages to a line, ML&P would respond as quickly as possible to restore power.

In the event of an emergency, JBER command would be notified and crews will be dispatched quickly to repair or replace any damaged equipment. Repair of the line would have priority under emergency conditions, and reasonable efforts will be made to protect plants, wildlife, and other resources. Restoration and reclamation procedures, following completion of repair work, would be similar to those prescribed during construction.

Damage repair may require the same types of equipment used during construction, including power augers for hole-boring, backhoes for excavation, and/or concrete trucks and cranes for structure erection. Other required equipment may include power tensioners, pullers, wire trailers, crawler tractors, and trucks and pickups for hauling materials, tools, and men. Site and access road disturbances, such as ruts created during operations, would be restored to satisfactory condition using rehabilitation procedures.

Maintenance crews would trim trees and vegetation, where needed, to prevent accidental grounding contact with conductors. In most areas, accepted standard utility practices such as repeated tree and brush removal, would be followed to maintain the right-of-way. Trees will be removed in accordance with JBER Forestry standards. ML&P will comply with agency requirements regarding management of noxious weeds within the right-of-way, along access roads, and at temporary use areas (e.g., cleaning equipment to prevent spread of noxious weeds).

If, during transmission line maintenance and monitoring, it is determined that new or reconstruction activities should be implemented, ML&P would notify the Authorized Officer(s), JBER, and/or other regulatory agencies, and obtain proper approvals, as

necessary.

Dust control, during ground-disturbing maintenance of the transmission line, would be managed the same as during construction.

The switchyard and all equipment will be patrolled and monitored by maintenance personnel on a routine basis. If a large volume of a contaminant were to leak from a piece of electrical equipment, an alarm or a failure would occur. The operations center would be notified of the problem, and a trained maintenance crew would be dispatched to the substation immediately to begin repairs and cleanup.

#### **4.4. Long-Term Access To and Along the Right-of-Way**

Long term site access would be coordinated with JBER Command. JBER reserves the right to deny access to military grounds at the Base Commander's discretion. Authorized access roads will be used only for maintenance purposes after completion of construction. Where long-term access is required for maintenance of the line, ML&P would maintain the approved access roads in a safe, useable condition, as directed by the Authorized Officer(s). A regular maintenance program may include, but is not limited, to blading, ditching, culvert installation, and surfacing.

If snow removal is needed, equipment used would be equipped with shoes to keep the blade 2 inches off the road surface in order to avoid damage. Where the ground is uneven at drainage crossings, special precautions would be taken in order to ensure equipment blades do not destroy vegetation.

#### **4.5. Signage and Markers**

At this time, no specific locations have been identified for aerial line markers; however, bird flight diverters would be placed on the shield wire, where required by BASH guidelines. Warning signs would be placed on structures and at substations to mark high-voltage danger areas, per industry standards.

#### **4.6. Contingency Planning**

A representative would be selected by ML&P to provide routine and emergency planning for situations such as power outages, equipment upgrades, and fire control. The designated representative would have the authority to receive and carry out instructions from the BLM Authorized Officer(s) and JBER Command.

#### **4.7. Emergency Procedures**

Emergency response procedures would be implemented for the following potential or similar events:

- Downed transmission lines, structures, or equipment failure
- Fires
- Sudden loss of power
- Natural disasters
- Serious personal injury.

#### **4.8. Termination and Reclamation**

Should the right-of-way and facilities no longer be needed, a decommissioning and reclamation plan would be developed by the right-of-way grant holder. One year prior to decommissioning of the right-of-way, the holder shall contact the BLM Authorized Officer(s) and JBER Command to arrange a joint inspection of the right-of-way. This inspection will be held in order to agree to an acceptable decommissioning and rehabilitation plan. The Authorized Officer(s) must approve the plan in writing prior to commencement of any decommissioning activities.

Reclamation and decommissioning procedures would attempt to reclaim the landscape as near to original conditions as possible. The decommissioning and reclamation plan will be reviewed and approved by the BLM and JBER Authorized Officer(s) and would include the following information:

- What facilities and access routes are to be removed, reclaimed, and/or rehabilitated
- How facilities and access routes will be removed and the disturbed areas reclaimed
- The time of year the facilities and access routes will be removed
- Stabilization and reclamation techniques to be used during restoration

### **5.0 Mitigation of Environmental Concerns**

This section provides an overview of potential preliminary project mitigation measures associated with the construction, operation, and maintenance of the project.

Two types of mitigation measures will be developed during the NEPA process and will be included as conditions in the decision document approving the project. These include standard mitigation/best management practices and selectively committed mitigation measures, as

described below.

Standard mitigation measures are those that apply to the Project as a whole. These measures typically address specific environmental policies and regulatory requirements. Where warranted, on a case-by-case basis, mitigation beyond these generic measures will be recommended to reduce potential impacts, often in specific impact locations. These are called selective mitigation measures and they will be developed as part of the environmental studies for the Project. Table 2 provides a preliminary list of example standard mitigation measures identified to reduce impacts on environmental resources. These measures generally have been categorized as they apply to three specific phases of the projects, including (1) engineering and design, (2) construction, and (3) operation and maintenance of facilities. These and other measures will be reviewed, revised, and developed further, as appropriate, to reduce impacts associated with specific resource concerns.

The construction contractor(s) will adhere to the measures identified during the engineering/design phase, as well as those measures to address construction and reclamation activities. The CIC will be responsible for the oversight of the implementation of these measures to ensure that ML&P and the construction contractor(s) meet the ‘intent’ of the mitigation measures (identified below).

**Table 2 - Standard Mitigation Measures/Best Management Practices**

Mitigation Measure		Mitigation Application Phase		
		Engineering, Design, and Location	Construction	Operation and Maintenance
1	All construction vehicle movement outside the Right-of-way normally will be restricted to Pre-designated access, contractor-acquired access, or public roads.		X	X
2	The spatial limits of construction activities would be predetermined, with activity restricted to and confined within those limits. No paint or permanent discoloring agents indicating survey or construction limits would be applied to rocks, vegetation, etc.		X	
3	In construction areas where re-contouring is not required, vegetation will be left in place wherever possible, and original contour would be maintained to avoid excessive root damage and allow for re-sprouting. Vegetation that is not consistent with line safety and operation will be removed.	X	X	
4	In construction areas where ground disturbance is significant or where re-contouring is required, surface restoration will occur as required by the land management agency. The method of reclamation will normally consist of, but is not limited to, returning disturbed areas back to their natural contour, reseeding,		X	

Mitigation Measure		Mitigation Application Phase		
		Engineering, Design, and Location	Construction	Operation and Maintenance
	<p>installing cross drains for erosion control, placing water bars in the road, and filling ditches. All areas on BLM lands that are disturbed as a part of the construction and/or maintenance of the proposed power line will be drill seeded where practicable with a seed mixture appropriate for those areas unless an alternative method (e.g., broadcast seeding) is required due to slope or terrain. The BLM, with JBER concurrence, will prescribe a seed mixture that fits each range site.</p> <p>The BLM may recommend broadcast seeding as an alternative method in some cases. In these cases, seed will be applied at 1.5 to 2 times the rate when broadcasted.</p>			
5	Towers and/or conductors would be marked with high-visibility devices where required by governmental agencies pending JBER concurrence.	X	X	X
6	Prior to construction, the Construction Contractor will instruct all personnel on the protection of cultural, ecological, and other natural resources including: (a) federal and state laws regarding antiquities and plants and wildlife, including collection and removal; (b) the importance of these resources; and (c) the purpose and necessity of protecting them. Additionally, a range safety briefing will be coordinated through JBER-R Range Control.		X	
7	In consultation with appropriate land management agencies and state historic preservation officers, specific mitigation measures for cultural resources would be developed and implemented to mitigate any identified adverse impacts. These may include Project modifications to avoid adverse impacts, monitoring of construction activities, and data recovery studies.	X	X	
8	Hazardous material shall not be drained onto the ground or into streams or drainage areas. Totally enclosed containment would be provided for all trash. All construction waste, including trash and litter, garbage, other solid waste, petroleum products, and other potentially hazardous materials would be removed to a disposal facility authorized to accept such materials.		X	X
9	Vehicle refueling and servicing activities would be performed in the right-of-way or in designated construction zones located more than 300 feet from wetlands and streams. Spill preventative and containment measures or practices would be incorporated as needed.		X	X
10	ML&P designs and constructs all new or rebuilt	X		

Mitigation Measure		Mitigation Application Phase		
		Engineering, Design, and Location	Construction	Operation and Maintenance
	transmission facilities to raptor-safe design standards, including Suggested Practices for Avian Protection on Power Lines; The State of the Art in 2012 (APLIC 2012); The Fossil Creek Switchyard must also incorporate animal protections.			
11	Follow USFWS guidelines for raptor protection during the breeding season. Available for downloading at the web address below. <a href="http://www.fs.fed.us/r4/rifc/pahvant/Comment_Letter_US_Fish_&amp;_Wildlife.pdf">http://www.fs.fed.us/r4/rifc/pahvant/Comment_Letter_US_Fish_&amp;_Wildlife.pdf</a> ; (Migratory Bird Executive Order (E.O. 13186), January 10, 2001)	X	X	X
12	An invasive plant monitoring and mitigation plan will developed by the permittee to prevent and mitigate the environmental damage potential from non-native and invasive plants prior to ground breaking. Contracts, and subcontractors, will be made aware of the mitigations and incorporate them into the schema. Best Management Practices (BLM AK Invasive Species Policy) would be utilized and incorporated into the construction as well as the maintenance and operations phases of the project for the life of the project.		X	X
13	Destroying trees should be avoided as much as possible.	X	X	X
14	Overhead static wires will be marked with highly visible devices (i.e., marker balls or other marking devices) where required by governmental agencies with jurisdiction.			X
15	The transmission line will be regularly patrolled and properly maintained in compliance with applicable safety codes.			X
16	The right-of-way grant holder or its contractors would notify the BLM and JBER of any fires and comply with all rules and regulations administered by the BLM and JBER concerning the use, prevention, and suppression of fires on federal lands, including any fire prevention orders that may be in effect at the time of the permitted activity. The holder or its contractors may be held liable for the cost of fire suppression, stabilization, and rehabilitation. The holder or its contractors would: <ul style="list-style-type: none"> <li>• Operate all internal and external combustion engines on federally managed lands per 36 CFR 261.52(j), which requires all such engines to be equipped with a qualified spark arrester that is maintained and not modified.</li> <li>• Carry shovels, water, and fire extinguishers that are rated at a minimum as ABC – 10</li> </ul>		X	X

Mitigation Measure		Mitigation Application Phase		
		Engineering, Design, and Location	Construction	Operation and Maintenance
	<p>pound on all equipment and vehicles. If a fire spreads beyond the suppression capability of workers with these tools, all would cease fire suppression action and leave the area immediately</p> <ul style="list-style-type: none"> <li>• Initiate fire suppression actions in the work area to prevent fire spread to or on federally administered lands. If fire ignitions cannot be prevented or contained immediately, or it may be foreseeable that a fire would exceed the immediate capability of workers, the operation must be modified or discontinued and Range Control/Fire Emergency Services must be contacted immediately.</li> <li>• Prior to any operation involving potential sources of fire ignition from vehicles, equipment, or other means, weather forecasts and potential fire danger would be reviewed. Prevention measures to be taken each workday would be included in the specific job briefing. Consideration would be given to additional mitigation measures or temporary discontinuance of the operation during periods of extreme wind and dryness.</li> <li>• Operate all vehicles on designated roads or park in areas free of vegetation. Vehicles, including the undercarriages, would be thoroughly washed prior to entering the site.</li> <li>• Operate welding, grinding, or cutting activities in areas cleared of vegetation. JBER Hot Work is required for any welding activities.</li> </ul>			
17	Gravel, top soil, and other fill materials should be procured from certified weed-free sources. If no certified weed-free sources are feasible, source pits should be inspected prior to acquisition to determine the relative risk of introducing non-native invasive species to the project site.		X	X
18	Notices are to be posted 2 weeks in advance of construction to notify public to the timeframe of the construction and limited recreational (hunting, fishing, etc.) access.		X	
19	If human remains are inadvertently discovered, all work shall cease and the remains secured from further disturbance or vandalism until a plan for treatment has been developed. If JBER and/or BLM determine that the remains are Native American, any actions necessary under the Native American Graves Protection and		X	

Mitigation Measure		Mitigation Application Phase		
		Engineering, Design, and Location	Construction	Operation and Maintenance
	Repatriation Act would be immediately acted upon. If it is determined that the remains are not Native American, and do not warrant criminal investigation, JBER and/or the BLM shall immediately notify SHPO and consult with the SHPO to identify descendants or other interested parties, if any. JBER and the BLM, in consultation with the SHPO and any interested parties, shall develop a plan for the respectful treatment and disposition of the remains.			
20	Implementation of a storm water pollution and prevention plans and standard construction best management practices established for construction- and soil disturbance-related activities would minimize impacts to soil resources and protect wetland areas. Disturbed soils will be revegetated following construction of facilities		X	

**References**

APLIC 2012. Reducing Avian Collisions with Powerlines- The State of the Art in 2012. Avian Power Line Interaction Committee (APLIC), 2012. Edison Electric Institute.

U.S. Army Garrison, Alaska. 2012. Joint Base Elmendorf-Richardson Integrated Natural Resources Management Plan. Revised by 673d Civil Engineer Group.

U.S. Fish and Wildlife Service (USFWS). 2007. National Bald Eagle Management Guidelines. Effective May, 2007.

U.S. Department of the Interior, Bureau of Land Management (BLM). 2009. IM 2009-011, Assessment and Mitigation of Potential Impacts to Paleontological Resources.

## **Appendix B**

### **Project Site Conditions Photolog**



Example of Vegetation at Proposed Switchyard Site



View Down Pole Line Road with Example of Existing Poles



Access Road Running Along the Existing Transmission Line



Vegetation Along the Transmission Lines Route



Vegetation at the Proposed Switchyard Site



Conducting Invasive Non-native Species Survey



Existing Transmission Lines at Pole Line Road



Existing Transmission Lines at Pole Line Road – Alternate View



View Along Existing Transmission Line Right-of-Way



View of Existing Transmission Lines Near Briggs Tap Substation



Invasive Non-native Species - Narrowleaf Hawksbeard



Briggs Tap Substation



Briggs Tap Substation



Wetlands Area Northwest of Briggs Tap Substation



Wetlands Area and Fossil Creek Northwest of Briggs Tap Substation



View of Briggs Tap Substation and Existing Transmission Lines