# Final Environmental Assessment

## Right of Way Authorization for Projects 2 and 3 of the Sterling Substation to Quartz Creek Substation Transmission Line Rebuild

September 2025

Prepared by Kenai National Wildlife Refuge

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U.S. Department of Interior
Fish and Wildlife Service Region 7 (Alaska Region)
Kenai National Wildlife Refuge
Soldotna, Alaska

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# Acronyms and Abbreviations

| Acronym | Definition |
|---|---|
| ADEC | Alaska Department of Environmental Conservation |
| ADF&G | Alaska Department of Fish and Game |
| ADNR | Alaska Department of Natural Resources |
| AEA | Alaska Energy Authority |
| AHPA | Alaska Historic Preservation Act |
| AHRS | Alaska Heritage Resources Survey |
| ANCSA | Alaska Native Claims Settlement Act |
| ANILCA | Alaska National Interest Lands Conservation Act |
| APE | Area of Potential Effects |
| ARPA | Archaeological Resources Protection Act |
| AWC | Anadromous Waters Catalog |
| BCC | Bird of Conservation Concern |
| CCP | Comprehensive Conservation Plan |
| CFR | Code of Federal Regulations |
| CNF | Chugach National Forest |
| CNF Management Plan | Chugach National Forest Land Management Plan |
| dBA | A-weighted decibels |
| DOT&PF | Department of Transportation and Public Fatalities |
| EA | Environmental Assessment |
| EFH | Essential Fish Habitat |
| FEMA | Federal Emergency Management Agency |
| FMP | Fishery Management Plan |
| FONSI | Finding of No Significant Impact |
| FRP | Fiber reinforced polymer |
| GOA | Gulf of Alaska |
| GMU | Game Management Unit |
| HDR | HDR Engineering, Inc. |
| HEA | Homer Electric Association |
| KPB | Kenai Peninsula Borough |
| kV | Kilovolt |
| MBTA | Migratory Bird Treaty Act |
| MP | Milepost |
| MSA | Magnuson-Stevens Fishery Conservation and Management Act |
| NAGPRA | Native American Graves Protection and Repatriation Act |
| NEPA | National Environmental Policy Act |
| NHPA | National Historic Preservation Act |
| NRHP | National Register of Historic Places |
| OHA | Office of History and Archaeology |
| PCC | Plain cement concrete |
| Proposed Action or project | AEA SQ Transmission Line Rebuild Project |

| Acronym | Definition |
|---|---|
| RCC | reinforced cement concrete |
| Refuge | Kenai National Wildlife Refuge |
| ROW | right-of-way |
| SF | Standard Form |
| SGCN | Species of Greatest Conservation Need |
| SHPO | State Historic Preservation Office |
| Sterling Highway Project | Sterling Highway MP 45- 60 Project |
| SWPPP | Storm Water Pollution Prevention Plan |
| The Service | United States Fish and Wildlife Service |
| USFS | United States Forest Service |

# Chapter 1: Introduction

## 1.1. Introduction

The United States Fish and Wildlife Service (USFWS) at Kenai National Wildlife Refuge (Refuge) and United States Forest Service (USFS) at Chugach National Forest (CNF) received a request to upgrade the infrastructure in an existing right-of-way (ROW) that would upgrade Alaska Energy Authority's (AEA) transmission line infrastructure from 115 kilovolt (kV) to 230 kV and to install a fiber optic cable alongside the new transmission line through the Refuge.

This Environmental Assessment (EA) was prepared to evaluate the effects associated with permitting the requested ROW; it complies with the National Environmental Policy Act of 1969 (NEPA) (42 U.S.C. 4321 et seq.)[1], the Department of the Interior NEPA regulations (43 CFR 46; 516 Department Manual, or DM, 8), and USFWS policy (550 Service manual, or FW, 3). This EA complies with Title XI, of the Alaska National Interest Lands Conservation Act (ANILCA) (94 Stat. 237; 16 U.S.C. 410hh-3233), specifically §1104 (g)(2), §1106, and §810, and is in accordance with implementing transportation and utility system regulations at 43 CFR 36.

The Kenai National Wildlife Refuge Revised Comprehensive Conservation Plan (CCP) published in 2010 is the parent management document for the Refuge. The CCP provides detailed inventory of the affected environment in which this proposed action is located. The CCP is incorporated by reference throughout this document in accordance with 43 CFR 46.135.

## 1.2. Background

Easement number E-47-KE and E-48-KE are 100-foot-wide easements for a 115 kV transmission line and are the subject of the Proposed Action. The easements allow uses necessary for construction, operation, and maintenance of the power line. The 39-mile-long, 115 kV transmission line was built in the 1980s and runs through the following federal, state, borough, and private lands: the Refuge; CNF; Alaska State Kenai River Special Management Area; Kenai Peninsula Borough (KPB); Alaska Native Regional Corporation Cook Inlet Region, Incorporated; and privately owned land.

[1] Executive Order 14154, Unleashing American Energy (Jan. 20, 2025), and a Presidential Memorandum, Ending Illegal Discrimination and Restoring Merit-Based Opportunity (Jan. 21, 2025), require the Department to strictly adhere to the National Environmental Policy Act (NEPA), 42 U.S.C. §§ 4321 et seq. Further, such Order and Memorandum repeal Executive Orders 12898 (Feb. 11, 1994) and 14096 (Apr. 21, 2023). Because Executive Orders 12898 and 14096 have been repealed, complying with such Orders is a legal impossibility. USFWS verifies that it has complied with the requirements of NEPA, including the Department's regulations and procedures implementing NEPA at 43 C.F.R. Part 46 and Part 516 of the Departmental Manual, consistent with the President's January 2025 Order and Memorandum. The USFWS has also voluntarily considered the Council on Environmental Quality's rescinded regulations implementing NEPA, previously found at 40 C.F.R. Parts 1500–1508, as guidance to the extent appropriate and consistent with the requirements of NEPA and Executive Order 14154.

AEA owns the existing approximately 39-mile-long, 115 kV transmission line infrastructure between the Sterling Substation located at 34833 Jacobsen Avenue, Sterling, Alaska, 99672, and the Quartz Creek Substation located at 34179 Snug Harbor Road, Cooper Landing, Alaska, 99572. In 2020, AEA acquired the transmission line infrastructure from Homer Electric Association (HEA), an electric cooperative located on the Kenai Peninsula. HEA will continue planned operational and maintenance activities for the transmission line infrastructure.

In December 2020, the USFWS completed the transfer of existing Refuge ROW authorizations (permits E-47-KE and E-48-KE) from HEA to AEA, and USFS issued ROW Permit SEW764 to AEA for non-exclusive access to the segment of the transmission line that crosses USFS lands. The ROW permits issued by the USFWS and USFS allow for continued operations and maintenance of the transmission line.

In 2020, AEA determined that the existing infrastructure was deteriorating and in need of repair and upgrades. During early coordination efforts with USFWS and USFS regarding the proposed repairs and upgrades, it was determined that adequate NEPA coverage did not exist to analyze effects from the newly proposed action and would require amendments to the existing USFWS ROW permits (E-47-KE and E-48-KE) and USFS ROW permit (SEW764).

AEA contracted with Chugach Electric Association, Inc., an electric cooperative located in southcentral Alaska, to design and procure materials for the infrastructure replacement program. The reconstruction effort for the SQ line infrastructure is divided into three projects, each with independent utility. The Proposed Action focuses on Projects 2 and 3, which cross the Refuge and USFS lands.

Chugach Electric Association, Inc., submitted two Standard Form 299 (SF 299) applications ("Application for Transportation, Utility Systems, Telecommunications and Facilities on Federal Lands and Property") to the USFWS and USFS requesting authorization to construct the new structures and to remove the old structures within portions of the ROW that cross the Refuge and CNF.

The USFWS is the lead federal agency for this NEPA process, in accordance with 43 CFR 46.220 and 46.225; the USFS is a cooperating agency. As a cooperating agency, USFS contributed to this EA by providing information and reviewing components of the document to ensure it meets their agency's permitting requirements. Each agency has different regulatory authorities, regulations, and policies they must follow; each agency will develop the appropriate decision documents with regard to the NEPA process for the lands under their management.

### 1.3. Management Plans

Management of the Refuge and CNF are aided by goals and purposes outlined in management plans. The Refuge is managed in accordance to the CCP (2010), and the CNF is managed by the Chugach National Forest Land Management Plan (CNF Management Plan) (2020).

### 1.4. Comprehensive Conservation Plan Compliance

Management of all National Wildlife Refuges is guided by the mission and goals of the National Wildlife Refuge System as defined by the National Wildlife Refuge System Administration Act of 1966, as amended by the National Wildlife Refuge System Improvement Act of 1997 and the Refuge Recreation Act of 1962 (16 USC 668dd et seq.).

In 1941, Executive Order 8979 established the Kenai National Moose Range with a primary purpose of protecting the natural breeding and feeding range of the giant Kenai moose (*Alces alces*) on the Kenai Peninsula, Alaska. ANILCA established the Refuge, expanding it to 1.97 million acres when established in 1941.

Section 303(2)(B) of ANILCA set forth the following purposes for the Kenai National Wildlife Refuge:

(i) to conserve fish and wildlife populations and habitats in their natural diversity, including but not limited to moose, bears, mountain goats, Dall sheep, wolves and other furbearers, salmonoids and other fish, waterfowl and other migratory and nonmigratory birds;

(ii) to fulfill the international treaty obligations of the United States with respect to fish and wildlife and their habitats;

(iii) to ensure, to the maximum extent practicable and in a manner consistent with the purposes set forth in paragraph (i), water quality and necessary water quantity within the Refuge;

(iv) to provide in a manner consistent with subparagraphs (i) and (ii), opportunities for scientific research, interpretation, environmental education, and land management training; and

(v) to provide, in a manner compatible with these purposes, opportunities for fish and wildlife-oriented recreation.

In Title XI of ANILCA, Congress recognized that Alaska was a comparatively young state, with incomplete transportation and utility systems. As a result, in Title XI Section 1101 (b), Congress stated that "to minimize the adverse impacts of siting transportation and utility systems within units established…by this Act and to ensure effectiveness of the decision-making process, a single statutory authority...for such systems must be provided" within which an analysis of alternatives would be conducted.

Section 1104 (g)(2) requires consideration and findings regarding the following, among others:

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

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

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

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

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

(F) any impacts that would affect the purposes for which the Federal unit or area concerned was established;

(G) measures which should be instituted to avoid or minimize negative impacts; and

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

The proposed action would occur within the existing boundaries of the current ROW. The ROW footprint occurs within the intensive management category as depicted in figure 2-1 of the CCP. Other uses surrounding the proposed action such as access and staging that would occur outside of the ROW boundary would not require a plan amendment as they also occur within intensive management areas. The transportation and utility system process outlined in ANILCA is consistent with and covered in the CCP section 3.4.4.2. The current management category is consistent with the CCP for this project.

### 1.5. Chugach National Forest Land Management Plan

The USFS mission is to sustain the health, diversity, and productivity of the Nation's forests and grasslands to meet the needs of present and future generations. USFS uses the multiple-use management concept to manage the nation's forest resources in a way that best meets the needs of the American people (USFS 2020).

The CNF Management Plan (2020) outlines CNF's goals and strategies consistent with the National Forest Management Act of 1976 (16 U.S.C. 1604). In addition to land management plans, management of the National Forest System lands is guided and constrained by laws, regulations, and executive orders, as well as policies, practices, and procedures in the Forest Service Directive System. The CNF Management Plan incorporates the following characteristics:

- It is strategic in nature. It does not authorize projects or activities and does not commit USFS to take action.
- It is intended to be adaptive in that new knowledge and information can be reviewed and the land management plan changed, if appropriate, at any time. Changes to plan components may require an amendment.
- It honors the continuing validity of private, statutory, or pre-existing rights.

The CNF Management Plan identifies three forest wide goals:

1. Foster Collaborative Relationships: The Forest Service builds strong relationships; improves communication; expands volunteer capacity; increases youth engagement; develops shared land stewardship options and strategies; and collaborates with Alaska Native Tribes and Alaska Native corporations, State of Alaska, and other federal agencies, adjacent landowners, communities, and nongovernmental organizations.
2. Contribute to Social and Economic Sustainability: The CNF contributes to the social and economic sustainability of communities within the plan area by maintaining intact, resilient ecosystems and their associated services, benefits, and multiple uses and sustained yields. These ecosystem services, benefits, and multiple uses and sustained yield contribute to rural Alaska lifestyles; support rural economies both locally and regionally; and enhance the quality of life and sense of place for present and future generations.
3. Provide for Ecological Sustainability: The abiotic and biotic conditions within watersheds of the Chugach National Forest provide for ecological integrity of aquatic, riparian, and terrestrial ecosystems necessary to sustain a diversity of vegetation, fish, and wildlife communities, including the persistence of native species.

### 1.6. Purpose and Need for Action

The purpose of this EA is to consider a ROW authorization for the USFWS and USFS and determine if the proposed use is in the public interest by ensuring compliance with ANILCA §1104, NEPA, and the Refuge Improvement Act. The need for this action is established by the USFWS's responsibility to respond to applications for transportation and utility systems in and across, and access into, conservation system units under Title XI of Alaska National Interest Lands Conservation Act of December 2, 1980 (P.L. 96-487; 16 USC 3161-3172) and the National Wildlife Refuge System Administration Act of 1966, as amended by the National Wildlife Refuge System Improvement Act of 1997 (16 U.S.C., 664, 668d and 668ee and 43 U.S.C. 666).

Section 512 of Federal Land Policy and Management Act of 1976 43 U.S.C. 1772, establishes the USFS authority for authorizing powerline facilities on National Forest System lands. Special Uses Regulations, 36 CFR Part 251, Subpart B regulations govern issuance and administration of special use authorizations for use and occupancy of NFS lands, including review and approval of

proposed special use authorizations for powerline facilities in accordance with section 512 of Federal Land Policy and Management Act of 1976.

### 1.7. Proposed Action

AEA proposes to replace the existing structures and power line within the ROW between Sterling and the Quartz Creek Substations in Cooper Landing. The Proposed Action includes replacing the existing structures, which are insulated to 115 kV, with new structures insulated to 230 kV. The project includes installing a hung fiber optic cable line along the same route; this fiber optic cable would be used internally to monitor the transmission line.

The new structures, transmission line, and fiber optic cable would generally follow the existing alignment within the existing ROW, which passes onto lands owned by USFWS; USFS; KPB; Alaska Native Regional Corporation Cook Inlet Region, Incorporated; the State of Alaska; and private property. The 39-mile-long project would begin at the Sterling Substation and would terminate at the Quartz Creek Substation.

### 1.8. Scoping and Issues

The scoping process is an early, open, and continuous process during the preparation of an EA for the purpose of determining the range of issues that will be addressed in the EA and for identifying significant issues related to the proposed action (43 CFR 46.235). The Refuge and USFS reached out to agencies and tribes (Section 4.3) to identify concerns with the project alternatives. The following resource categories were identified for analysis: habitat and vegetation; floodplains; wetlands; fish and wildlife species; candidate, threatened, and endangered species; geology and soils; air quality; water resources; soundscape; designated wilderness; cultural and historic resources; local and regional economies; public health and safety; Refuge resources; and CNF resources.

# Chapter 2: Alternatives

Following completion of the EA, the USFWS and USFS will individually determine if the selected alternative(s) is a major federal action that would significantly affect the quality of the human environment and would, therefore, require preparation of an environmental impact statement or, alternatively, determine there would be no significant effects to the human environment and complete a joint Finding of No Significant Impact (FONSI). The FONSI would be made in coordination with USFWS (lead agency) and USFS (cooperating agency) to ensure potential impacts were addressed. Coordination includes review of the EA and proposed findings to support informed agency concurrence prior to finalizing the FONSI.

This analysis provides the necessary information to comply with the decision process defined in ANILCA §1104(g)(2) and 43 CFR 36.7 (a). The ROW permit will include applicable national stipulations in accordance with ANILCA §1107(a) and 50 CFR 29.20(c). Stipulations necessary to ensure compatibility as outlined in Appendix A (USFWS) and Appendix B (USFS) will also be applied to the decision and ROW permits.

## 2.1. Alternative A - No Action Alternative

Under the No Action Alternative, USFWS and USFS will evaluate the effects of not issuing a ROW Permit to re-build and upgrade the transmission line on the Refuge and in CNF. Power transmission infrastructure would continue to be maintained, as necessary, to remain capable of transferring power between the Sterling and Quartz Creek Substations. The transmission line is aging, and unplanned maintenance activities necessary to repair the transmission line infrastructure such as pole replacements, vegetation clearing within the ROW and the need for use of equipment including tracked vehicles and helicopters within the ROW may become more frequent.

## 2.2. Alternative B – Applicant's Proposed Action (Proposed Action)

Under the Proposed Action, USFWS would evaluate the effects of the Proposed Action and decide whether to issue a ROW Permit to re-build, upgrade, and maintain the transmission line on the Refuge. USFS would also review the Proposed Action for the same purpose on the CNF. The Proposed Action includes replacing transmission line poles along approximately 31.2 miles of transmission line ROW (22.7 miles on the Refuge and 6.4 miles on CNF), upgrading the powerline from 115 kV to a 230 kV capacity, and adding a fiber optic line to the new poles (Project ROW; Figure 1). The ROW overlaps 227.5 acres of the Refuge. The Project ROW is the existing ROW between Three Johns Road in Sterling and the Quartz Creek Substation in Cooper Landing.

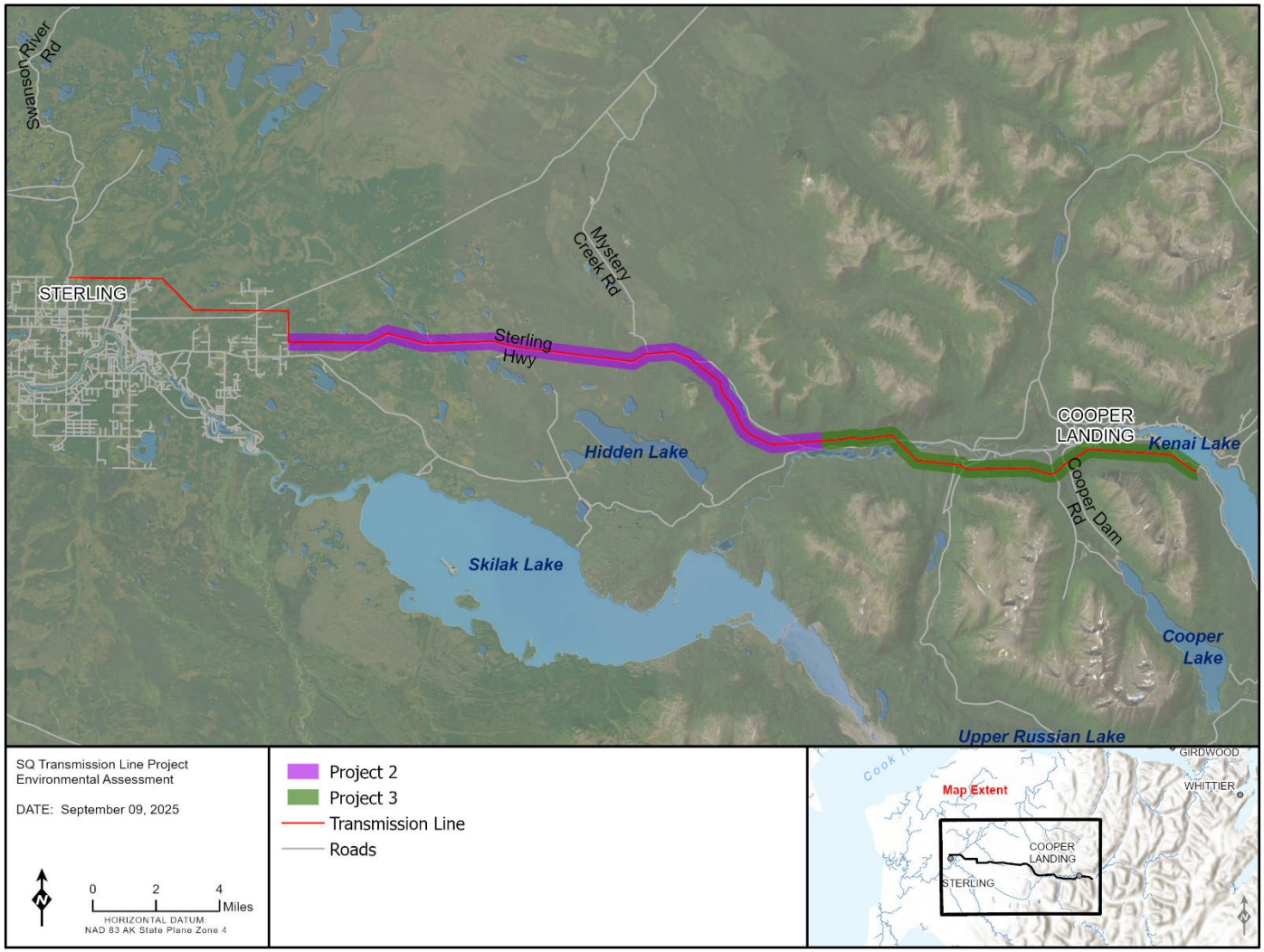


*Figure 1 Project ROW*

The Proposed Action would be carried out by siting the new transmission line poles, securing the poles with anchors, stringing the fiber optic and transmission lines onto the new poles while removing the existing transmission line, and removing the existing transmission line poles. The transmission line would be de-energized between Sterling and Quartz Creek Substations during active construction and pole replacement. Staging areas would be required to support construction of the Proposed Action. Access points and the ROW would be maintained throughout the construction of the Proposed Action and for the lifetime of the Project. Construction requiring tracked vehicle access would primarily occur when the ground is frozen to minimize impacts on wetlands and to minimize general ground disturbance (Table 1). Frozen conditions are defined as snow and/or ice cover of 12 inches or more. If snow and ice conditions cannot be met, consideration shall be given to the use of matting. To the greatest extent possible, access to the Project ROW would be planned to avoid traversing on wetlands when the ground is not frozen. Construction at any pole location is not anticipated to exceed two days.

*Table 1 Construction Timing*

| General Location | New Structure Range [a] | Construction Timing [c] |
|---|---|---|
| Three Johns Road to Mystery Hills Wilderness Unit | 31-3 to 12-7 | September 2026 to April 2027 |
| Mystery Hills [b] | 12-8 to 10-3 | Spring 2028 to Fall 2028 |
| Kenai River to Russian River [b] | 10-2 to 8-3 | September 2027 to April 2028 |
| Russian River to Quartz Creek Substation | 8-2 to 0-6 | March 2027 to June 2027 |

[a] Appendix B

[b] Helicopter Access Only

[c] Construction and ROW maintenance would end in April to minimize potential disruption to nesting birds

The following equipment would be used in the construction of the Proposed Action: medium pickup truck (F-250 or similar), large pickup truck (F-550 or similar), bucket truck, digger derrick, pile driver, truck-mounted crane (39-50 ton), tracked crane, manlifts, drum puller, v-groove puller, tensioner (52-72 inch), Cat D6 dozer (or equal), skid steer loader, forklift, generator (10-50 kW), light plant, CZM 160 drill rig (or equal), wood chipper, helicopter, snow machine, and bombardier snowcat.

### 2.2.1. Staging Areas

The Proposed Action would use staging areas to store construction infrastructure and equipment during Proposed Action construction. Twelve potential staging areas are proposed (Table 2; Figure 6 through Figure 10). Use of staging areas would be subject to the terms and conditions of the entities they are managed by.

*Table 2 Staging Area Use Period*

| Staging Area | Staging Area Use Period [a] |
|---|---|
| MP 71.5 | September 2026 to May 2027 |
| MP 71.3 | September 2026 to May 2027 |
| MP 62.5 | September 2026 to May 2027 |
| MP 62.3 | September 2026 to May 2027 |
| MP 57.8 | Spring 2028 to Fall 2028 |
| Watson Lake Campground | September 2026 to May 2027 |
| Pink Salmon Parking Lot (Russian River Campground) | September 2027 to May 2028 |
| Mystery Creek Road | September 2026 to April 2027 |
| Jim's Landing Overflow Parking | September 2026 to May 2027 |
| Russian River Ferry Parking Lot | September 2027 to April 2028 |
| Schooner Bend | March 2027 to June 2027 |
| Stetson Creek Trailhead Parking Lot | September 2006 to May 2027 |

[a] Staging areas may be accessed September through May, if necessary. Construction and ROW maintenance would end in April to minimize potential disruption to nesting birds.

### 2.2.2. Pole Installation

464 steel poles would be installed under the Proposed Action, and 594 wood poles would be removed. Two to three poles would be installed together with horizontal braces to build a structure. The structure is used to hold up and suspend the transmission line and the monitoring fiber optic cable. There would be 155 structures composed of 335 poles on the Refuge and 26 structures composed of 56 poles on the CNF. There would be 444 wooden poles removed from the Refuge across 222 structures, 64 wooden poles would be removed across 32 structures from the CNF. Pole spacing would vary in response to environmental and site-specific conditions. New poles would be installed prior to removing the existing poles. All new poles located in the Refuge, the CNF, and remaining areas of the Project ROW would be constructed from steel.

The new steel poles would be taller than the wood poles that would be replaced. Steel poles are anticipated to be 75 feet tall on average but may reach heights of 125 feet. Geotechnical surveying would take place to determine if a pole could be sited in a specific location and which methods would be necessary for installation. In general, pole installation would begin with digging the pole's foundation. Equipment would auger (Figure 2) a foundation hole for the new

pole that would be 1.5 times the diameter of the pole and approximately 10 percent of the pole height plus seven or eight feet. Each foundation hole would be sized appropriately for the pole required for the site-specific conditions. Dirt from the hole would be placed adjacent to the hole. After the hole is augered, the pole would be inserted into the ground. The void left in the hole after the pole has been erected would be backfilled with clean, non-frost-susceptible, locally sourced fill material that is weed free. Dirt removed from the hole unsuitable for backfill would be disposed of off-site or neatly distributed in upland areas within the ROW in compliance with all local, state, and federal regulations.


*Figure 2 Pole Augering Example*

In places where conventional ground-based construction vehicles cannot access the ROW, helicopters may be used to install poles (Figure 3). For foundations, a pipe pile may be used that would be held upright by a guide on the ground (Figure 4). A pile driver strung beneath the helicopter would then be used to hammer the pipe pile into the ground (Figure 3 through Figure 5).

*Figure 3 Helicopter positioning pipe pile above ground*

*Figure 4 Generator and pile guide*

*Figure 5 Example of pile driver and pile*

When building in unstable soils, or installing holes with the line energized, a culvert would be used to surround the pole in the ground to provide support. Foundation depth would vary based on geotechnical considerations and with consideration for resiliency against weather conditions including wildland fires.

Transmission line poles may be accompanied by guy anchors and wires to provide structural support. Guy anchors would either be composed of a steel helical anchor, a four-by-four-foot steel plate (plate anchor), or a two-by-seven-foot precast concrete plug anchor (plug anchor). Helical anchors are screwed into the soil by a truck-mounted machine until the desired depth is achieved. The depth is dependent on site-specific conditions. Plate or slug anchors would require the excavation of a hole approximately two feet in diameter at varying depths to support the anchor. Native soil reserved from augering the hole would be used to backfill the plate or slug anchor hole. Guy wires would connect the anchors to the poles. Vegetation would be cleared around the anchor location.

Blasting may be used as a technique to clear hard rock that cannot be excavated by using traditional heavy machinery. It is currently unknown where blasting would be required. A geotechnical investigation, previous engineering designs, and site reconnaissance will identify areas where blasting is required to construct structure foundations. In accordance with federal, state, and local regulations, the construction contractor would develop a blasting plan that details blasting techniques and timing and would secure permits if blasting is required.

### 2.2.3. Wire Stringing and Fiber Optic Installation

New transmission wires and fiber optic cable would be installed after the new poles are installed. The wires would be transferred to the new transmission line poles from storage reels. The new conductor would be attached to the old conductor, and pulling equipment would simultaneously pull the old conductor onto empty reels while pulling the new conductor onto the new poles. The new poles would have insulators that would be accompanied by stringing sheaves. The stringing sheaves act as a roller that allows the conductor to travel freely onto the poles when pulled.

Temporary wood H-frame guard structures, typically used at road crossings, would be installed approximately two to five feet in front of or behind the poles during wire and cable installation. The H-frames would be used to capture a fallen conductor during the stringing process and provide safety for roadway use and operation of other electrical facilities. The guard structures would be held in place with guy wires, anchors, and cross braces.

Tensioning machines would be used to tension the wires and to adjust sag once the wires are strung on the new structures. The construction contractor would ensure all clearances are met when tensioning.

### 2.2.4. Pole Removal

There would be 297 wooden pole structures removed under the Proposed Action. Pole removal would happen after the new steel poles have been installed and are operational. Construction for pole installation, wire stringing, and removal would be completed at one location before moving to a new location. The existing wooden pole would be cut off several feet above the ground. The remainder of the pole would be removed by a skid steer loader with attached hydraulic pole remover. The hole left behind by removing the pole would be backfilled to approximately 1.5 to 2.0 feet with clean backfill. Topsoil would then be used to fill the hole to the surrounding ground surface. A seed mix of native vegetation approved by USFWS or USFS, depending on the location, would be applied to the topsoil fill.

#### *Site Access*

Construction crews and equipment would enter and exit the ROW exclusively at approved and established access locations. Motorized vehicles would not access the Mystery Hills and Andrew Simmons Wilderness Areas from the ROW. Construction would only occur within the transmission line ROW. ROW access locations have been identified to avoid geographic constraints such as large waterbodies and challenging terrain. Helicopters would be used to access areas where terrain prohibits tracked vehicle use. Helicopter pads are located within 0.3 mile of the ROW. Helicopters would be required to access staging areas to sling poles and other equipment from the staging areas to the ROW. Locations where helicopters would be required to access in the ROW are provided in (Table 3). Access points would be gated or bermed to manage access to the ROW. Minor surface vegetation removal would be required at access locations to allow for safe access. Access details are provided in Table 3. Some poles may be accessed from more than one ROW access route for installation or removal.

*Table 3 Project Access Locations*

| ROW Access | Poles Installation Locations that can be accessed | Pole Removal Locations that can be accessed | Figure (Appendix B) |
|---|---|---|---|
| AR31.3-137 and AR-28.6-140 | 106 | 24 | Figure 2 and 3 |
| AR-28.6-140 and AR-27.1-59 | 10 | 15 | Figure 3 |
| AR-27.1-59 and AR26.6-61 | 8 | 12 | Figure 5 |
| AR-26.45-62 | 8 | 10 | Figure 5 |
| AR-26.45-62 and AR-24.55-36 | 9 | 13 | Figure 7 |
| AR-24.55-36 and AR-20.3-37 | 26 | 36 | Figure 10 |

| ROW Access | Poles Installation Locations that can be accessed | Pole Removal Locations that can be accessed | Figure (Appendix B) |
|---|---|---|---|
| AR-20.3-37, AR-19.2-39, and AR-18.3-65 | 9 | 12 | Figure 11 |
| AR-13.5-40 | 8 | 25 | Figure 12 |
| AR-13.5-40 and AR-13.5-25-SE | 7 | 14 | Figure 13 |
| AR-13.5-40-SE | 10 | 12 | Figure 14 |
| AR-12.2-26 and Helicopter east of 13-6(E) | 10 | 12 | Figure 15 |
| Helicopter and foot access at AR-10.51-76, 77, 78, 79, and 80 | 9 | 12 | Figure 17 |
| Helicopter and foot access at AR-10.25-58 | 8 | 12 | Figure 18 |
| Helicopter access only | 8 | 15 | Figure 19 |
| AR-7.2-41 | 9 | 12 | Figure 20 |
| AR-4.6-42, -43, -45, -47, -48, -49, -50, -51, -52, -53, -54, and -55 | 10 | 12 | Figure 20 and 21 |
| AR-4.6-4.6, -5.6, -44, and AR-3.6-93 | 11 | 12 | Figure 22 |
| AR-3.6-93 | 10 | 12 | Figure 23 |
| AR-3.6-93 and Quartz Creek Substation | 16 | 21 | Figure 23, 24, 25, and 26 |
| Quartz Creek Substation | 3 | 5 | Figure 24, 25, and 26 |

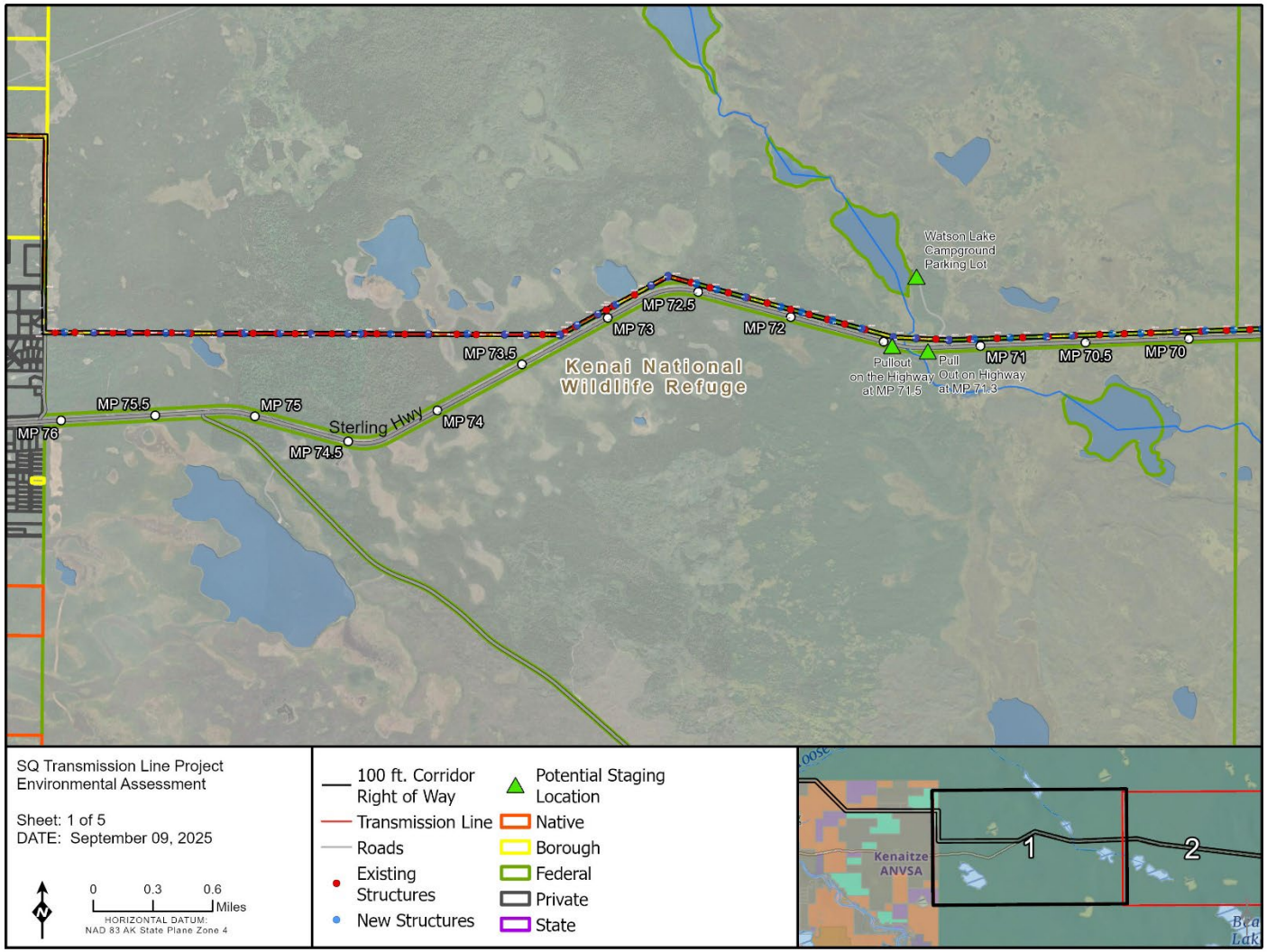


*Figure 6 Proposed Action (Sheet 1 of 5)*

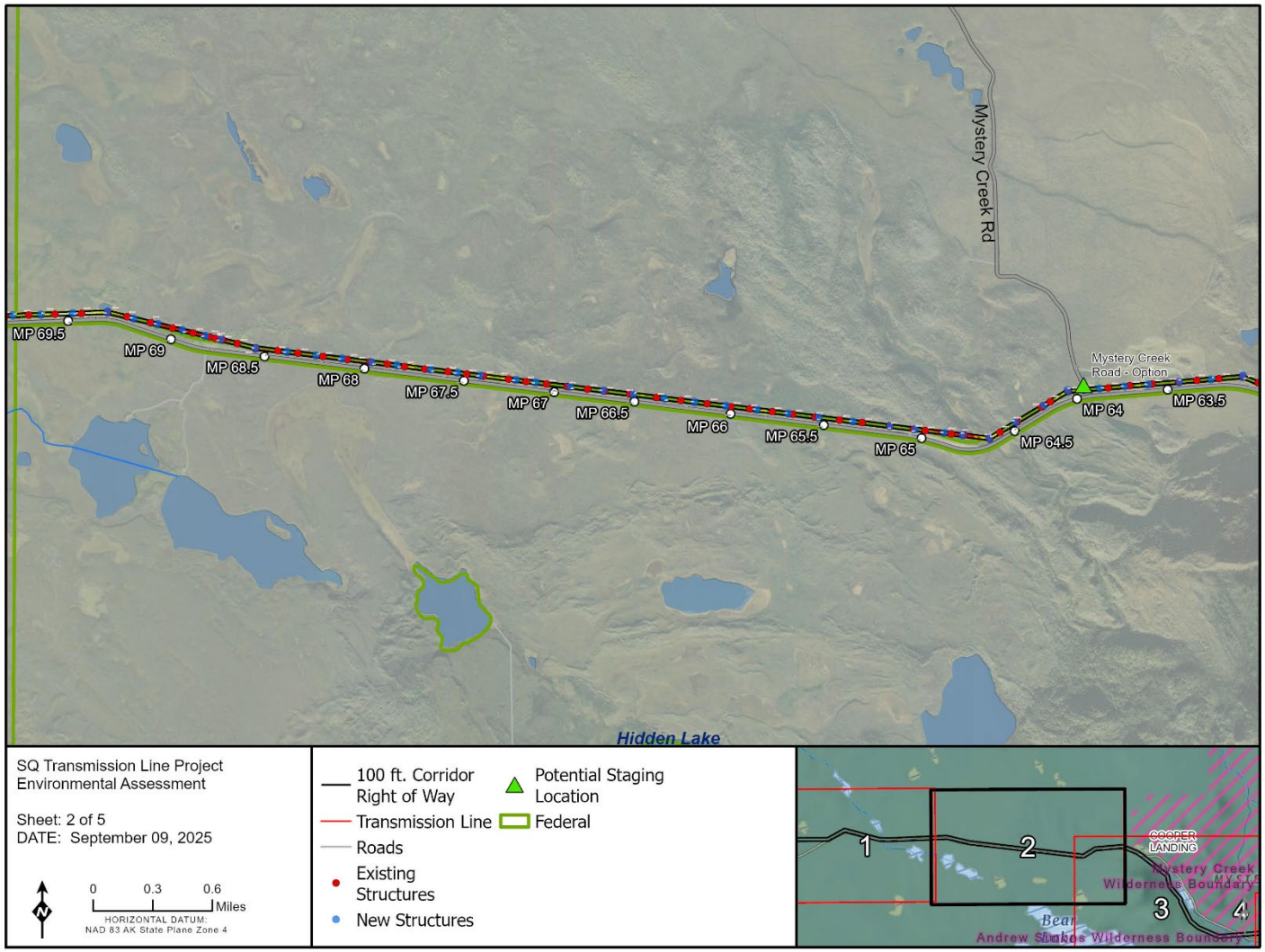


*Figure 7 Proposed Action (Sheet 2 of 5)*

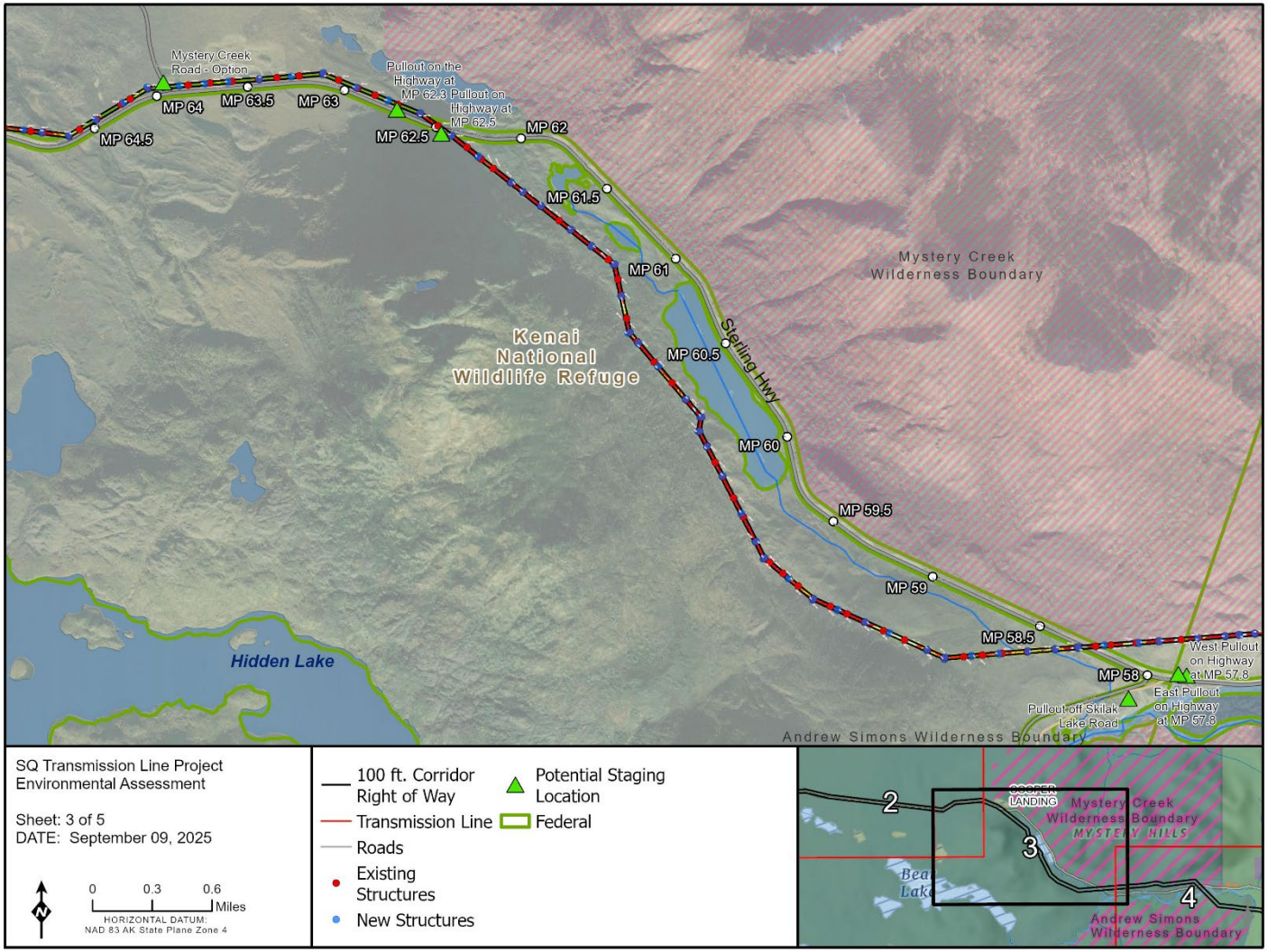


*Figure 8 Proposed Action (Sheet 3 of 5)*

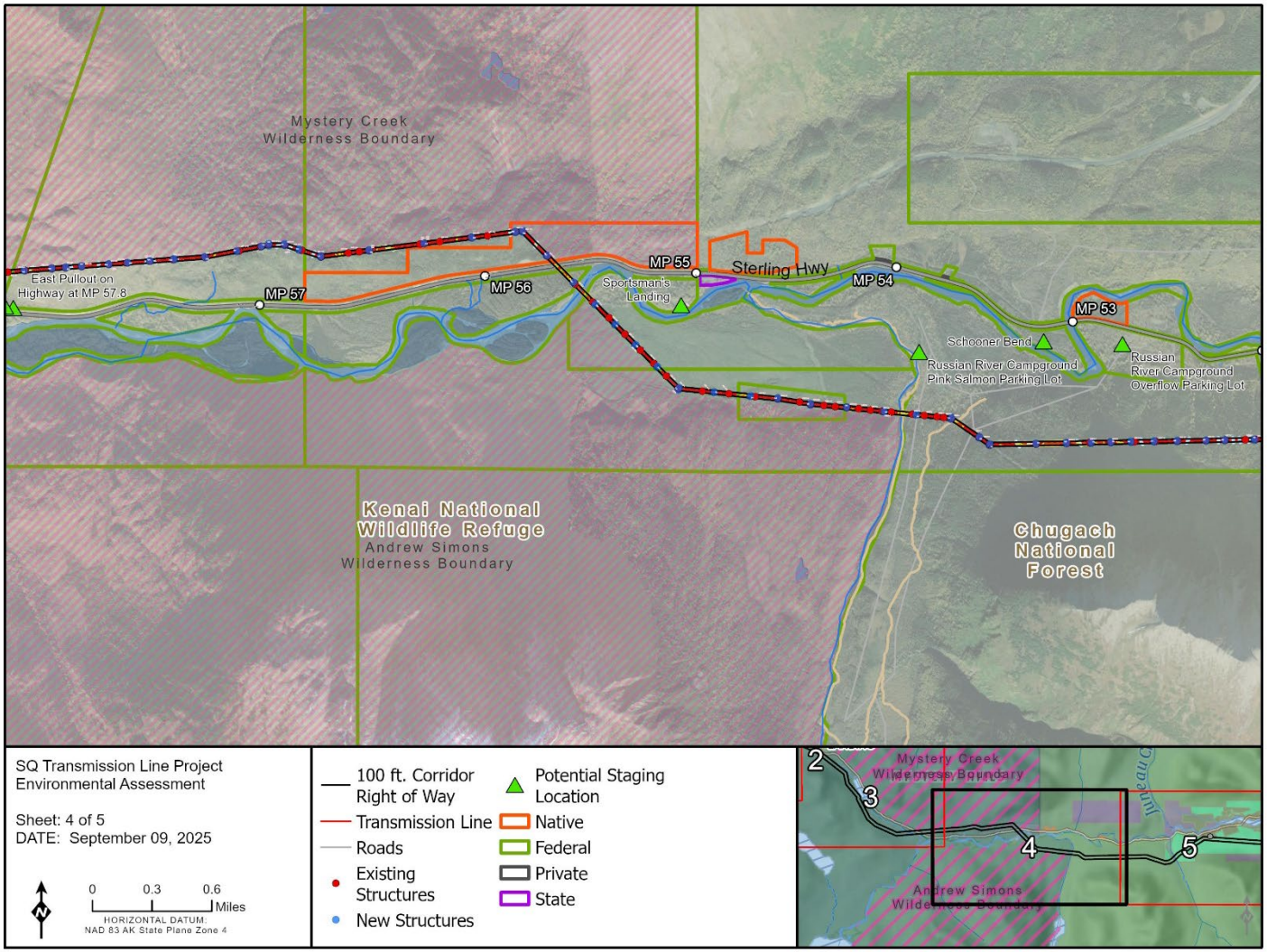


*Figure 9 Proposed Action (Sheet 4 of 5)*

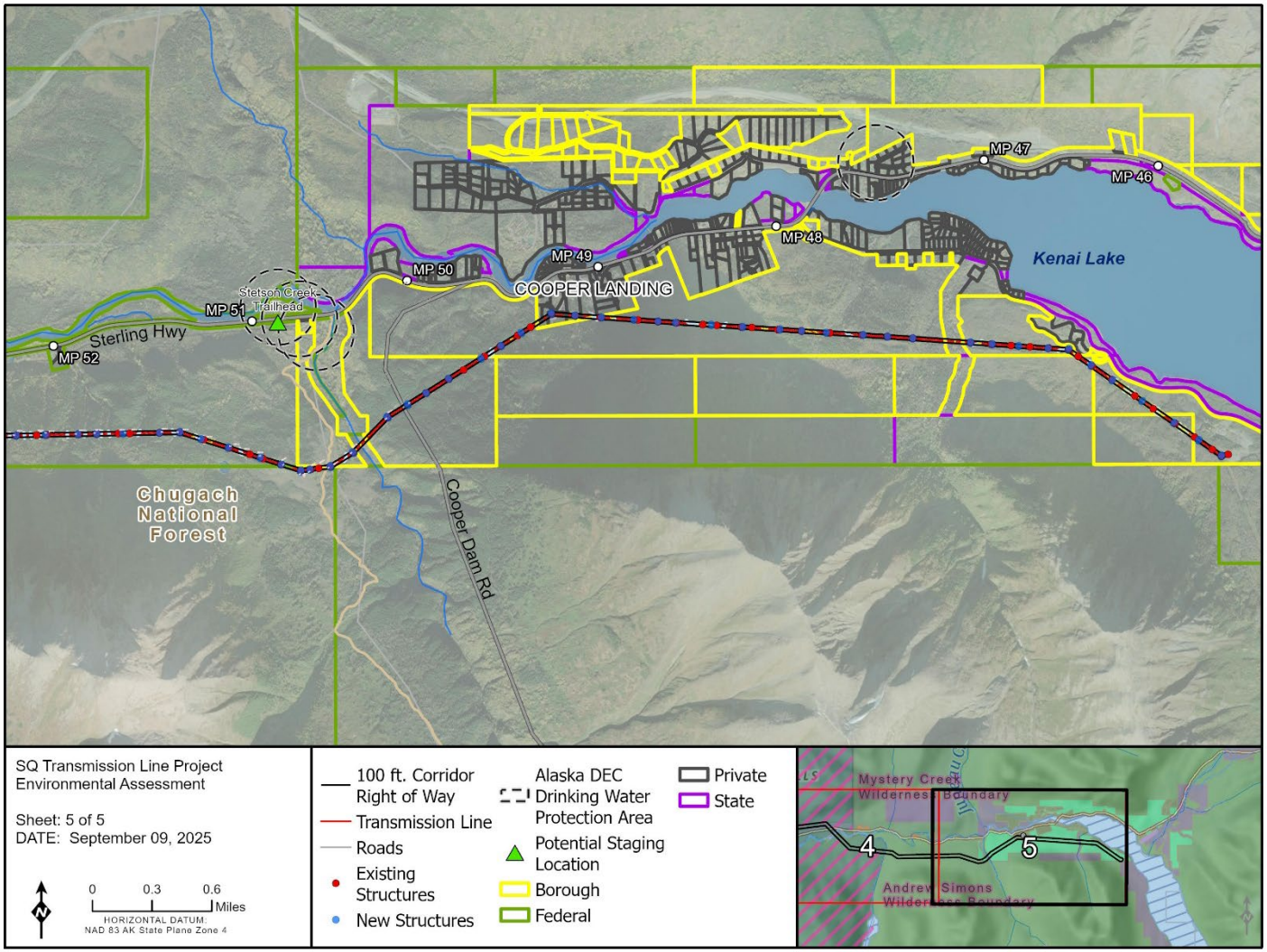


*Figure 10 Proposed Action (Sheet 5 of 5)*

### *Project Schedule*

Construction would take place between 2026 and 2028 (Table 1). Unless authorized by the landowner or manager, material and equipment staging areas would be used only in the winter season when construction activities are occurring. To minimize impacts on wetlands and general ground disturbance, construction would primarily occur when the ground is frozen. Time-sensitive tasks may occur outside of winter conditions. If ideal ice and snow conditions cannot be met, temporary wood (or similar mats) or timber cribbing may be used to cross wetlands and waters.

#### 2.2.5. Operations and Maintenance

Operations and maintenance under the Proposed Action are not anticipated to deviate from that needed under planned operations and maintenance under the No Action Alternative. The following activities may occur during operations and maintenance of the Proposed Action after construction is completed:

- Helicopter fly-overs
- Climbing inspections on a selective basis as necessary
- Transmission structure condition surveys on a selective basis as necessary
- Replacement of broken insulators as required
- Repair or replacement of damaged or broken poles, wire, crossarms, aircraft marker balls, and wildlife deterrents as required
- Repair, replacement, or tensioning of guy wires as required
- Replacement of anchors or anchor rods as required
- Numbering of key structures as required
- Straightening or shoring up structures as required
- Vegetation management
- Access maintenance
- Emergency response and repair

Helicopter fly-overs would follow the transmission line along the Project ROW, including places within the Refuge and near wilderness areas. Repair and replacement activities would be carried out on an as-needed basis. Access to the ROW would be coordinated at least 30 days in advance with applicable land management agencies and property owners, depending on the location of the service needed. Chugach Electric Association, Inc. or HEA may be required to access the transmission line on a shorter timeline during emergency situations.

### *Vegetation Management*

Vegetation management within the ROW is necessary to ensure safe, reliable delivery of electric service throughout the transmission system. Trees and vegetation must be trimmed or removed (ground clearing) to prevent vegetation from falling on the transmission line, electric

conductors, or associated equipment. Vegetation clearing in the ROW would occur on a seven- to ten-year cycle and occur within USFWS's recommended time frame to avoid impacts on the migratory bird nesting window for Alaska (USFWS 2017). Vegetation control would take place beneath, and immediately adjacent to, the transmission line and at access locations. Vegetation management under the Proposed Action would be the same as is currently exercised for the existing transmission line in the Project ROW.

## 2.3. Applicant Proposed Mitigation Measures

- Potential mitigation to direct impacts of archaeological and historic sites may include avoidance or design modifications. Refer to Section 3.11.4 Avoidance, Minimization, and Mitigation Measures for details regarding avoidance of archeological and historic sites.
- Planned construction would occur during winter conditions to minimize ground disturbance and associated impacts on uplands, wetlands, ponds, creeks, and rivers to the extent practicable.
- Wood mats and erosion and sediment control measures would be used in isolated areas where shallow groundwater exists, or in areas where isolated ground disturbance exists.
- Temporary ground stabilization techniques such as matting would be used when the ground is not frozen.
- The construction contractor would clean the work site daily and dispose of personal trash along the ROW.
- In accordance with federal, state, and local requirements, waste would be collected from the project area and temporarily stored at a material storage yard prior to disposal at a permitted solid waste disposal facility.
- Personnel who smoke shall pay special attention to the extinguishment of and disposal of smoking products, taking care to conduct disposal only in fireproof containers.
- Field personnel will have appropriate fire extinguishers and other fire protection materials on hand to respond to small-scale fires.
- No fires shall be lit in or adjacent to access routes or the transmission line ROW for either personal use and comfort or for the disposal of personal waste product or work-related materials.
- Field personnel shall be familiar with fire escape routes or other means of protection in the event of a close-proximity grass, brush, or forest fire.
- No ground surface disturbance for vegetation clearing activities is authorized. All clearing outside of the ROW for safe access at access locations will be surface clearing, limiting the potential for erosion.
- It is not anticipated that anchor points would need to be sited outside of the ROW. However, if anchor points are needed outside of the ROW, AEA would negotiate an easement with the landowner.

- When mechanical equipment is moved through any vegetative buffers, care will be taken to minimize vegetation damage (single-file, blade lifted on equipment, using natural breaks and pushing through alders).
- All mechanized equipment and vehicles accessing federal lands off the paved highway are required to be cleaned of any attached grease and residue on wheel tracks, undercarriage, and engine. In addition, equipment shall be cleaned of all mud, dirt, and plant parts to reduce the potential for introduction of non-native and invasive plants. Cleaning shall occur at a vehicle washing station or steam cleaning facility (power or high-pressure wash) off federal lands.
- All heavy equipment accessing USFS lands must be inspected by a qualified USFS employee for plant materials, soil, slugs, and slug eggs prior to entry onto USFS lands. Holder shall contact the USFS at peter.frank@usda.gov to schedule the equipment inspection. A one-week notice is requested prior to mobilizing of equipment.
- The Department of Interior Technical Memorandum No. 86-68220-07-05: Inspection and Cleaning Manual for Equipment and Vehicles to prevent the Spread of Invasive Species, available at https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5374537.pdf, shall be provided to the Holder prior to implementation to provide clear guidance for equipment clearing.
- An individual experienced in identification of bear dens and related bear behavior shall be engaged to determine the likely presence of bears in or adjacent to the work area.
    - Where work activity is confined to a single site area, the bear identification expert shall visit the site area and make a report with recommendations to AEA prior to work commencing. The results of bear reports would be provided to the respective landowner.
    - Where work is expected to cover a larger area, the bear identification expert shall evaluate the work area by aircraft or on the ground as determined by experience and judgment and then make a report with recommendations to AEA.
    - Where it is determined that bear denning is occurring, work in those areas shall be avoided until such time as it is determined that bear denning has ceased.
- Except for emergency repairs to restore the electrical system, AEA and its contractors shall avoid vegetation clearing, site preparation, and other activities related to vegetation removal, during the breeding season of migratory birds from May 1 through July 15. If an active nest is encountered during this timeframe it shall be left in place, and a 100-yard disturbance-free buffer around the nest will be maintained and protected until the eggs have hatched and the young have departed, unless doing so would pose an imminent safety hazard.

- AEA and AEA contractor fieldwork including transport of vehicles and equipment shall occur no closer than 660 feet from a known active raptor nest between March 1 and August 31. Active trumpeter swan nests shall not be approached closer than ½ mile during this time frame. AEA would contact USFWS, USFS, and ADF&G for previously known locations of active nests.
- AEA will consult the USFWS Migratory Bird Permit Office and the CNF Management Plan on the need for AEA to conduct migratory bird nest surveys during construction of the Proposed Action.
- Fuel would be stored at least 100 feet away from wetlands and surface waters.
- Refueling would occur at least 50 feet from wetlands and surface waters.
- No fueling tankers would use the Project ROW.
- Equipment would be regularly inspected for leaks. Leaks would be cleaned immediately. A duck pond style of containment would be placed under equipment not used for 24 or more hours. A Storm Water Preparedness and Prevention plan would be created for the Project and would include additional mitigation measures.
- Mitigation measures outlined in permits and consultations for the Project would be adhered to.
- Minimal additional clearing is anticipated to construct the Proposed Action. Debris cut down would be logged and scattered in areas of low visual significance within the Project ROW when mechanical chipping is not feasible as determined by maintenance staff and are not to exceed 18 inches in height. Chipping is reserved primarily for trees to facilitate future access to the ROW. Stumps would be cut as low to the ground as possible.
- Aircraft will maintain a minimum landing distance of one-half mile from all observed mountain goats or Dall sheep.
- Aircraft maintain a 1,500-foot minimum vertical distance from all observed mountain goats or Dall sheep. Pilots will use flight paths to avoid goats and sheep and their habitats as much as possible. Such flight paths will generally avoid ridge tops.

## 2.4. Alternatives Considered but Dismissed

The Proposed Action and additional alternatives were considered during the design phase of the Project. The additional alternatives were dismissed because of increased impacts relative to the Proposed Action and feasibility and monetary constraints.

### 2.4.1. Wood Pole Alternative

Every pole used for the Project would be constructed of wood under the Wood Pole Alternative. Wood poles are more cost effective than steel poles, and they are easier to climb and maintain. However, wood poles are not as strong as steel poles, and their strength to

weight ratio is less than steel poles. Wood poles are also limited in size, they degrade quicker than steel poles, they tend to bend and twist with age, and they are not resistant to fire.

Wood poles must be treated with chemicals to prevent rot. The applicant decided to propose steel poles on refuge lands crossed by the Project due to USFWS's concern of potential for chemicals from the poles to leech into the environment. Wood poles will not be used on federal land for the Project. Their use is dependent on-site specific considerations.

#### 2.4.2. Combination of Wood and Steel Pole Alternative

Wood poles are less expensive, more readily available, and easier to store than steel poles. Steel poles have a higher strength to weight ratio than wood and have a longer lifespan. Under the Wood and Steel Pole Structure Alternative, engineers would assess the landscape and determine which type of pole best suits each pole location based on site-specific environmental conditions throughout the Project ROW. This alternative was dismissed because USFWS suggested the use all steel poles on Refuge lands crossed by the ROW.

#### 2.4.3. Concrete Pole Alternative

Concrete poles would be used throughout the ROW under the Concrete Pole Alternative. Poles would either be plain cement concrete (PCC) poles or reinforced cement concrete (RCC) poles. PCC poles are made of cement and concrete. They are not reinforced and, as such, have poor mechanical strength. RCC poles are built with cement concrete reinforced with rods. The rods improve poles' mechanical strength relative to PCC poles.

Concrete poles are heavy. PCC and RCC pole weight makes them expensive and difficult to transport and install. Moving PCC and RCC poles across the ROW terrain would be logistically challenging. PCC and RCC poles would be too heavy to be transported by helicopter. Environmental exposure can also affect performance of concrete poles over the long term. RCC poles corrode from the steel reinforcement, which results in further strength deterioration and expensive maintenance. The concrete pole alternative was dismissed due to longevity considerations, weight challenges, and the logistical challenges associated with concrete poles.

#### 2.4.4. Fiberglass/Composite Pole Alternative

Poles would be constructed from fiber reinforced polymer (FRP) under the Fiberglass/Composite Pole Alternative. FRP poles are lightweight and have good resistance to corrosion or decay. However, FRP poles are susceptible to degradation over time from ultraviolet light. They are not recyclable and typically end up in landfills at the end of their service life. FRP poles are not readily available in the size or strength class required for this Project. This alternative was dismissed due to the longevity, availability, size, and strength constraints associated with FRP poles.

### 2.4.5. Buried Transmission Line Alternative

Under the Buried Transmission Line Alternative, the transmission line would be buried in a trench within the ROW. Trenching would result in extensive soil disturbance and wetlands impacts. Placing a transmission line underground would significantly increase construction and maintenance costs which would increase consumer utility rates. This alternative was dismissed due to increased environmental impacts relative to the Proposed Action and increased costs.

# Chapter 3: Affected Environment and Environmental Consequences

This section is organized by affected resource categories. Each affected resource section discusses the existing environmental baseline in the impact zone (potential area of impact of any of the alternatives) and the effects of the alternatives on each resource. Effects from the proposed action or alternatives are reasonably foreseeable changes to the human environment, as compared to the environmental baseline for the no action alternative. The impact analysis directly follows the description of the affected environment for a resource and is organized by alternative.

This analysis provides the necessary information to comply with the decision process defined in ANILCA §1104(g)(2) and 43 CFR 36.7 (a). Information on each resource category on Refuge lands analyzed within this EA can be found throughout the CCP.

## 3.1. General Description of Affected Environment Applicable to All Affected Resources

The Project ROW bisects federal, state, local government, and privately owned lands. It is bordered to the west by Sterling and to the east by Cooper Landing and crosses through the Refuge and CNF (Figure 6 through Figure 10). Approximately 22.7 miles of the Project ROW pass through the Refuge. The Refuge is bordered on the north by Turnagain Arm and Chickaloon Bay, on the west by Cook Inlet, on the south by Kachemak Bay, and on the east by CNF.

Approximately 6.4 miles of the Project ROW pass through the CNF. The CNF covers approximately 5.4 million acres. Other lands of ownership within the CNF boundary include Alaska Native Corporations, State of Alaska, and private landowners. The CNF is composed of three administrative units; the administrative unit overlapping the Project ROW is the Seward Ranger District.

The Project ROW crosses uplands, wetlands, and freshwater bodies. Air and water quality along the ROW are generally considered to be good. The terrestrial and aquatic environments are populated by diverse species like brown bear (*Ursus arctos*), caribou (*Rangifer tarandus*), and Dall sheep (*Ovis dalli*); birds of conservation concern including rusty blackbird (*Euphagus carolinus*), lesser yellowlegs (*Tringa flavipes)*, and olive-sided flycatcher (*Contopus cooperi*); and anadromous fish including the Gulf of Alaska Chinook Salmon (*Oncorhynchus tshawytscha*), a candidate ESA Species. The Project ROW crosses access points to the Refuge and CNF and is within its viewshed at some locations like the Skyline Ridge trailhead (Figure 11).

*Figure 11 ROW from Skyline Ridge Trailhead*

## 3.2. Habitat and Vegetation

### 3.2.1. Affected Environment

Habitat and vegetation are discussed in Section 3.3 of the CCP. The Refuge is on the northern edge of the Sitka spruce-dominated (*Picea sitchensis*) coastal rainforest biome on the eastern edge of the Kenai Mountains and is on the western-most reach of boreal forest in North America on the western side of the Kenai Mountains. Forests within the Refuge and CNF are dominated by white spruce (*Pinea glauca*), Lutz's spruce (*Picea x lutzii*), and black spruce (*P. mariana*) intermixed with aspen (*Populus tremuloides*) and birch (*Betula neoalaskana; Morton et al 2009; DeVelice et al 1999*). Above the tree line, groundcover is composed primarily of lichen and supplemented with vascular alpine tundra plants (Morton et al. 2009).

A total of 733 vascular plant species and 321 fungi, including lichen species, have been recorded within the Refuge (USFWS 2024). Uncommon plants collected near the Refuge include draba mustard (*Draba stenopetala*), Alaska rock-jasmine (*Douglasia alaskana*), pale poppy (*Papaver alboroseum*), yellow moosedung moss (*Splachnum luteum*), and Menzies' burnet (*Sanguisorba menziesii*). Additionally, around 100 exotic (i.e., non-native) plant species have been documented within the Refuge.

A 2007 survey identified 64 non-native plant species within the Kenai Peninsula portions of the CNF. Non-native diversity was higher in frequently trafficked areas such as recreational pullouts, rest areas, and trailheads (Arhangelsky 2007). A second study in 2003 identified 24 non-native plant species on CNF trails in the Kenai Peninsula. Annual meadowgrass (*Poa annua)* was the most common nonnative plant species identified.

Habitats in the Project ROW include forests, wetlands, lakes, and rivers. Mountainous terrain and rocky slopes surrounding the Project ROW support bird and wildlife species. The Project ROW provides edge habitat preferred by some bird species, and early successional forest in the Project ROW provides favorable habitat for moose. The Project ROW is composed of emergent herbaceous wetlands; mixed, deciduous, and evergreen forests; and mixed shrub/scrub communities (MRLC 2025). The Kenai Peninsula has been heavily affected by spruce bark beetle (*Dendroctom rufipennis*) outbreaks that have resulted in significant destruction of spruce trees throughout the region (Morton et al. 2009).

The Project ROW undergoes routine maintenance that includes vegetation clearing. Vegetation clearing typically occurs on a seven- to ten- year basis and was completed in the Project ROW in 2019 and 2020. Access locations for the Proposed Action are at existing vehicle access points and trailheads that are currently maintained (Figure 6 through Figure 10).

### 3.2.2. Environmental Consequences

#### *Alternative A*

Under the No Action Alternative, the transmission line would be operated, and its ROW would be regularly maintained, as it is under current conditions. Unplanned maintenance activities have the potential to cause disturbances to habitat and vegetation. The No Action Alternative would result in no significant impacts to habitat and vegetation.

#### *Alternative B*

Since vegetation clearing was performed in the Project ROW in 2019 and 2020, minimal additional clearing is anticipated to construct the Proposed Action. Vegetation clearing may include hand and machine practices. Debris cut down would be piled in areas of low visual significance within the Project ROW when mechanical chipping is not feasible, as determined by maintenance staff. Stumps would be cut as low to the ground as possible. Debris stashes would be sited away from residual trees, utility poles, and streams.

Post-construction, vegetation would be cleared periodically over the 31.2-mile Project ROW consistent with AEA's existing maintenance schedule. This would continue to promote early forest succession habitat preferred by some mammal and bird species. If additional vegetation clearing is required in the Project ROW, it would be limited to isolated areas less than 25 square yards and would occur as surface clearing. Access locations (Table 3) may require minimal vegetation removal to maintain safe access to the Project ROW. This would remove minimal

forested habitat. Any trees removed from CNF would remain on USFS property. AEA would coordinate removal of vegetation with the USFS to determine appropriate disposition of any vegetation. Impacts on wildlife habitat are discussed further in Fish and Wildlife Species: Environmental Consequences.

Consistent with AEA's existing ROW permit, all mechanized equipment and vehicles accessing the Refuge from the paved highways are required to be cleaned of any attached grease and residue on wheel tracks, undercarriage, and engine. In addition, equipment shall be cleaned of all mud, dirt, and plant parts to reduce the potential for introduction of non-native and invasive plants. The spread of invasives would also be reduced by conducting construction with tracked vehicles primarily in the winter when plants are covered in snow and are less likely to become attached to equipment and vehicles. The Proposed Action would result in no significant impact to habitat and vegetation.

#### 3.2.3. Cumulative Effects

Habitat and vegetation are currently cleared in the Project ROW and its access points on a seven- to ten-year basis. Habitat and vegetation clearing occurred for the Sterling Highway Project, which was a recent roadway improvement project. Some clearing for the Sterling Highway Project occurred in the Refuge but did not occur within the Project ROW. Additional clearing occurred for Jim's Landing Access Improvements over 1.7 acres.

Habitat and vegetation clearing would also be conducted for the Mystery Creek FirstNet Communications Project located near the transmission line ROW on Mystery Creek Road. Vegetation removal for a fire buffer for the Mystery Creek FirstNet Communications Project would occur within 100 feet of the currently maintained Project ROW.

Vegetation and habitat clearing for the Proposed Action would not occur within the same footprint as the Sterling Highway Project and Jim's Landing Access Improvements. Vegetation and habitat clearing for the Mystery Creek FirstNet Communications Project would be adjacent to the Project ROW. These projects all have, or will, remove vegetation and alter habitat within the Refuge. The Proposed Action would result in no significant impact to habitat and vegetation when combined with other reasonably foreseeable future actions.

### 3.3. Floodplains

#### 3.3.1. Affected Environment

Floodplains are discussed in Section 3.3 of the CCP. Floodplains are areas that become inundated with water during flood events. The regulatory floodplain specifically includes regions impacted by the base flood, which is defined as a flood with a 1% probability of occurring in any given year (KPB 2025a). Floodplains offer significant flood loss-reduction benefits due to their natural functions. The interaction of rivers and streams with floodplain topography shapes riparian habitats and riverine ecosystems. These physical characteristics of

floodplains influence water flow, allowing floodwaters to spread out, temporarily store excess water, reduce flow velocity, limit shoreline erosion, and regulate water flow during non-flood periods. Additionally, floodplains facilitate groundwater recharge when storage capacity is available (FEMA 2024).

The KPB Floodplain Program oversees floodplain management across most of the Kenai Peninsula, excluding Seward, Kenai, Homer, and Soldotna. The program implements Federal Emergency Management Agency (FEMA)-compliant regulations that guide development within floodplain areas to ensure community preparedness for flood events. Property owners must apply for permits through the River Center for any developments within the floodplain, including construction, structural modifications, excavation, fill placement, and placing temporary structures such as travel trailers and mobile homes (KPB 2025a).

Executive Order 11988, "Floodplain Management," issued in May 1977, requires federal agencies to avoid activities that could negatively impact floodplains unless no viable alternatives exist. If development within the floodplain is unavoidable, actions must be designed or adapted to minimize harm to floodplain environments. FEMA regulations outlined in 23 CFR 650 Subpart A and EO 11988 govern all base floodplain encroachments (FEMA 2021). The Proposed Action area aligns with FEMA floodplain maps 0200122080A, 0200122085A, 0200122125A, 0200122150A, 02122C1360E, 02122C1380E, and 02122C1385E (FEMA 2025). Proposed Action poles would not be sited in special flood hazard areas identified in FEMA maps 02122C1360E, 02122C1380E, and 02122C1385E. Digital data is unavailable for other floodplain maps, limiting the ability to assess additional flood risks.

Locally, floodplain management in KPB is governed by a mix of federal, state, and local regulations. The KPB Floodplain Program adheres to the National Flood Insurance Program guidelines and implements ordinances that regulate development within floodplain areas (KPB 2024).

### 3.3.2. Environmental Consequences

#### *Alternative A*

Under the No Action Alternative, no ground disturbance would occur, and the transmission line would be operated, and its ROW maintained, as it is under current conditions. Unplanned maintenance may result in vehicles operating in floodplains. The No Action alternative would result in no significant impact to floodplains.

#### *Alternative B*

During pole installation, augering and backfilling activities could temporarily alter microtopography within the floodplain, potentially affecting natural water flow paths during spring thaw and runoff events. The use of culverts in unstable soils could mitigate these

impacts, but improper installation or maintenance might restrict floodwater movement or create localized ponding.

Blasting, if required for rock removal, could introduce short-term disturbances to floodplain stability. The construction contractor would develop a blasting plan in accordance with federal, state, and local regulations, with specific measures to avoid altering natural floodplain hydrodynamics or contributing to ice movement primarily during winter conditions.

Certain segments of the Proposed Action may be constructed during spring to fall, particularly in areas accessed by helicopter. All access would be limited to existing routes, including those that traverse or are adjacent to floodplains. As a result, no new ground disturbance within floodplains is anticipated. Winter construction, the use of designated access points, existing trails, and helicopter support in challenging terrains could reduce surface disturbance within floodplains. Temporary matting may be implemented to protect the floodplain surface, to maintain natural hydrological connectivity, and to prevent soil compaction beneath snow and ice. Regulatory compliance with KPB, USFWS, and USFS requirements would guide floodplain restoration efforts. Ongoing monitoring would be implemented to assess any hydrological changes within the floodplain and to verify the effectiveness of mitigation measures. The Proposed Action would result in no significant impact to floodplains.

#### 3.3.3. Cumulative Effects

The Proposed Action could contribute to effects on floodplains when considered in conjunction with other foreseeable projects. Construction activities such as augering, backfilling, and pole installation may incrementally alter hydrology, particularly during spring thaw and runoff events.

### 3.4. Wetlands

#### 3.4.1. Affected Environment

Wetlands are discussed in Section 3.3 of the CCP. Wetlands are areas that are covered by water or have waterlogged soils for long periods during the growing season. Plants growing in wetlands are capable of living in saturated soil conditions for at least part of the growing season. Wetlands such as swamps and marshes are often obvious, but some wetlands are not easily recognized, often because they are dry during part of the year. USFWS defines wetlands in the refuge as being either fen or peatlands. Fens and peatlands are defined by periodic saturation or coverage of the soil by water. Approximately three percent of the Refuge is covered in wetlands, and they provide valuable habitat to 96 percent of vertebrate species (USFWS 2010a).

Desktop wetland mapping was completed by professional wetland scientists for the Project ROW based on aerial signatures to identify wetlands and waterbodies. Wetlands and waterbodies were mapped within a 140-foot-wide corridor composed of the existing 100-foot-

wide Project ROW, buffered by 20 feet on each side for a total mapping area of 447 acres. Mapped wetlands were attributed with National Wetlands Inventory mapping codes based on the USFWS Classification of Wetlands and Waterbodies. Approximately 74.6 acres (16.7 percent) of wetlands were identified out of the 447 acres mapped. Wetland types identified include palustrine forested, palustrine scrub-shrub, and palustrine emergent wetlands. An additional 6.2 acres (1.4 percent) of waterbodies were mapped. The remaining 366.2 acres (81.9 percent) were determined to be uplands.

### 3.4.2. Environmental Consequences

#### *Alternative A*

Under the No Action Alternative, there would be no ground disturbance; the transmission line would be operated, and its ROW would be regularly maintained, as it is under current conditions. The No Action Alternative would result in no significant impact to wetlands.

#### *Alternative B*

The Proposed Action would place a total of 42 steel poles and 34 pole anchors in less than 0.1 acre of wetlands (Table 4). Within the Refuge, 38 of these poles and 27 pole anchors are in wetlands. No poles or anchors would be placed in wetlands in the CNF. In total, less than 0.1 acre of wetlands would be converted from wetlands for the placement of poles, pole anchors, and native earth. Less than 0.1 acre of fill from the placement of poles, pole anchors, and fill material would occur in uplands. Surface area impacts on wetlands are provided in Table 4 and are shown in the map book in Appendix B: Project ROW Figures.

*Table 4 Project Impacts on Wetlands*

| Structure | Wetland Type | Structure Count in Wetland Type | Impact Acreage | Percent of Surface Area Impact by Structure Type |
|---|---|---|---|---|
| Pole | Palustrine Scrub/Shrub | 25 | <0.1 | 5.4 |
| Pole | Palustrine Emergent | 8 | <0.1 | 1.7 |
| Pole | Palustrine Scrub/Shrub Emergent | 9 | <0.1 | 1.9 |
| Pole | Uplands | 422 | <0.1 | 90.9 |
| Anchor | Palustrine Forested | 1 | <0.1 | 0.3 |
| Anchor | Palustrine Scrub-Shrub | 20 | <0.1 | 6.0 |
| Anchor | Palustrine Scrub-Shrub and Emergent | 3 | <0.1 | 0.9 |

| Structure | Wetland Type | Structure Count in Wetland Type | Impact Acreage | Percent of Surface Area Impact by Structure Type |
|---|---|---|---|---|
| Anchor | Palustrine Emergent | 10 | <0.1 | 2.3 |
| Anchor | Upland | 301 | <0.1 | 89.9 |

Note: All poles in wetlands are sited on Refuge lands except for four within palustrine scrub/shrub emergent wetlands; Anchor surface area based on most impactful construction type (steel plate, two-feet by two-feet hole dug four feet deep); all anchors in wetlands are on Refuge lands except for three in palustrine scrub-shrub and four in palustrine emergent wetlands.

The placement of poles and pole anchors in wetlands would disturb soils and may alter surface and subsurface flow within the areas of excavation. However, the impacts on wetlands from construction of the Proposed Action would be limited to a minimal area across a relatively long corridor. These wetlands would not become isolated, and their overall hydrologic function would not change.

To minimize impacts on wetlands, construction with tracked vehicles would primarily be conducted in the winter when the ground is frozen. Wetlands would be avoided to the greatest extent possible when the ground is not frozen. The Proposed Action construction would be conducted in accordance with mitigation measures and requirements of other federal, state, and local permits issued for the Project. A Nationwide Permit would be prepared for the Proposed Action to permit activities in wetlands. A Storm Water Pollution Prevention Plan (SWPPP) would be prepared for the Project that outlines mitigation measures to further limit impacts on wetlands. SWPPP Best Management Practices would be required during construction to prevent erosion and runoff from entering aquatic habitats. The Proposed Action would result in no significant impact to wetlands.

#### 3.4.3. Cumulative effects

The Sterling Highway MP 45-60 Project (Sterling Highway Project) and the Jim's Landing Improvements Project resulted in approximately 39 acres of permanent impacts on wetlands and waterbodies. The Proposed Action would result in no significant impact to wetlands when combined with other reasonably foreseeable future actions.

### 3.5. Fish and Wildlife Species

#### 3.5.1. Affected Environment

Fish and Wildlife Species are discussed in Section 3.3 of the CCP. The Refuge and surrounding landscape provide diverse habitats for fish and wildlife species. Large and small mammals populate areas throughout the Project ROW, including in residential places. The Project ROW crosses lakes and anadromous rivers populated by resident and anadromous fish. Songbirds, waterfowl, and raptors are common in the area and nest in upland and wetland habitats between Sterling and Cooper Landing.

USFWS and ADF&G have identified sensitive fish and wildlife species that may occupy habitats in and around the Project ROW (Table 5). These species include USFWS Birds of Conservation Concern (BCC) (USFWS 2021) and ADF&G's species of greatest conservation need (SGCN) (ADF&G 2015). Generally, species called out in these documents are experiencing nationwide population declines, or are at risk of declining, due to habitat loss. They may also be species that are culturally, ecologically, or economically important in southcentral Alaska.

Species known to use habitat near the Project ROW that have a conservation status are provided in Table 5. Additional SGCN species in the Refuge, including songbirds, raptors, waterfowl, and mammals, can be found in the *2015 Wildlife Action Plan* (ADF&G 2015).

*Table 5 Species near the Project ROW*

| Class | Species | Latin Name | Agency Designation |
|---|---|---|---|
| Mammal | Wolverine | *Gulo gulo* | ADF&G [a] |
| Mammal | Red Squirrel | *Tamiasciurus hudsonicus* | ADF&G [a] |
| Bird | Olive-sided Flycatcher | *Contopus cooperi* | USFWS [b] |
| Bird | Chestnut-backed Chickadee | *Poecile rufescens rufescens* | USFWS [b] |
| Bird | Lesser Yellowlegs | *Tringa flavipes* | USFWS [b] |
| Bird | Wandering Tattler | *T. incana* | USFWS [b] |
| Fish | Pink Salmon | *Oncorhynchus gorbuscha* | ADF&G [a] |
| Fish | Chum Salmon | *O. keta* | ADF&G [a] |
| Fish | Coho Salmon | *O. Kisutch* | ADF&G [a] |
| Fish | Steelhead | *O. mykiss* | ADF&G [a] |
| Fish | Sockeye Salmon | *O. nerka* | ADF&G [a] |
| Fish | Chinook Salmon | *O. tshawytscha* | USFWS [c], ADF&G [a] |

Note: Mammal = Mammalia; Bird = Aves; Fish = Osteichthyes; USFWS = U.S. Fish and Wildlife Service; ADF&G = Alaska Department of Fish and Game

[a] Species of Greatest Conservation Need

[b] USFWS Bird of Conservation Concern

[c] USFWS Endangered Species Act Candidate Species

### *Terrestrial Mammals*

Terrestrial mammals are common in the Project ROW. Terrestrial mammals found in the Project ROW are included in Table 5.

*Brown Bear*

The only survey-based population estimate of brown bears on the Kenai Peninsula was conducted during 2010 and produced a population density of 42 brown bears per 386 square miles (Morton et al. 2016). This density translated to a population of approximately 582 individual brown bears on the Kenai Peninsula in 2010. Brown bear diets are primarily composed of salmon, berries, vegetation, and carrion. Brown bear preferred habitat includes mid-altitude herbaceous habitats, anadromous streams, and riparian areas. Brown bears in the refuge tend to den on steep slopes in high elevations.

*Black Bear*

No current population estimates exist for black bears (*Ursus americanus*) on the Kenai Peninsula, and population-level surveys have never been conducted on black bears within the area. The most recent density estimate research was specific to 1947 and 1969 burn habitats in the Refuge and produced black bear density estimates of 205 (1947) and 265 (1969) per 386 square miles (Schwartz and Franzman 1991). Black bear diets are primarily composed of berries and vegetation, and include salmon, insects, and carrion when available. Black bear preferred habitat includes mid-altitude herbaceous habitats, anadromous streams, and riparian areas. Black bears use both natural and excavated dens on steep slopes.

*Caribou*

Large caribou populations thrived on much of the Kenai Peninsula prior to several large wildfires during the late 1880s that destroyed lichen forage. The lack of lichen forage limited the number of caribou the area could support. Caribou reintroduction efforts were implemented in the 1960s and 1980s to increase caribou populations in the Kenai Peninsula. The reintroduction efforts established four herds: the Kenai Mountain, Kenai Lowlands, Killey River, and Fox River herds (Herreman 2020). The Kenai Lowlands herd winters in the vicinity of the western edge of the Project ROW near the headwaters of Moose River and the outlet of Skilak Lake. The herd's population is approximately 100 individuals and is slowly increasing in size (Herreman 2025a).

*Dall Sheep*

Dall sheep habitat is common in mountainous areas surrounding the ROW. The Cooper Landing Closed Area, Round Mountain Area, and Crescent Lake Area are special management areas for Dall Sheep adjacent to the Project ROW. Dall Sheep hunting has been closed in the Cooper Landing Closed Area immediately north of the ROW since 1953. Population numbers in the Round Mountain and Crescent Lake area are below the minimum viable population level (Herreman 2025b).

Kenai Peninsula Dall Sheep have undergone large population swings, reaching as high as 2,190 animals in 1968 to fewer than 500 in 2020. The factors for this decline are unknown, but may include disease, predation, and habitat change, such as changes in spring foraging plant

phenology (Herreman 2025b; Aycrigg et al. 2021), and rain on snow events limiting access to winter forage (Van de Kerk et al. 2020).

#### *Furbearers*

The most common furbearers near the Project ROW are beaver (*Castor canadensis*), coyote (*Canis latrans*), lynx (*Lynx canadensis*), river otter (*Lontra canadensis*), wolf (*Canis lupus*), and red squirrel (*Tamiasciurus hudsonicus*). Other furbearers in the area include ermine (*Mustela erminea*), mink (*Neogale vison*), muskrat (*Ondatra zibethicus*), and wolverine (*Gulo gulo*).

Beavers are common in the Proposed Action vicinity; however, their population trends are generally understudied in the area. River otters are present in many of the Kenai Peninsula's drainages that support anadromous fish. Coyote population status is unknown on the Kenai Peninsula. Lynx population trends are cyclical in nature, fluctuating in response to snowshoe hare populations (*Lepus americanus*).

#### *Wolf*

Wolves (*Canis lupus*) were extirpated from the Kenai Peninsula by 1915 (Peterson and Woolington 1982) and began recolonizing during the 1960s. The wolf population on the Kenai Peninsula has fluctuated since the 1960s, likely in response to prey abundance. The Project ROW is within ADF&G's Game Management Unit (GMU) 15 and 7. GMU 7 and 15 wolf population size was estimated to be 186 animals in the late 1970s and early 1980s (Peterson et al. 1984). Current estimates are 80 to 100 animals (ADF&G unpublished data). Their population decline is likely in response to moose population loss attributed to a lack of browsing habitat.

#### *Mountain Goat*

Mountain goat (*Oreamnos americanus*) in the Kenai Peninsula experienced population decline in the 1990s. Harvest restrictions were put in place in response to the population decline. The Kenai Peninsula mountain goat population has returned to its pre-1990s size in response to harvest management changes. However, it is suspected that increased helicopter traffic and winter recreation activities in mountain goat habitat are limiting population growth in some areas (Herreman 2022a).

#### *Moose*

Moose numbers are relatively low in GMU 7 and 15 compared to historic population sizes (Herreman 2022b; Herreman and Fowler 2022). A moose population survey in the north portion of GMU 15 in 2020 yielded a population estimate of 818 individuals, well below the target population of 3,000 to 3,500 (Herreman 2022b). The small population size is largely attributed to the lack of large and periodic wildfires that create browsing habitat. Moose populations typically increase seven to eight years after a fire and continue an increasing trend in population size for up to 25 years when the vegetation grows too tall for the moose to reach (Loranger et al. 1991). Moose populations are anticipated to increase in the mid-2020s in response to the 2019 Swan Lake fire.

### *Birds*

The Bald and Golden Eagle Protection Act (16 U.S.C. 668-668d) prohibits the take of bald (*Haliaeetus leucocephalus*) and golden eagles (*Aquila chrysaetos*) including their parts, nests, or eggs. Additional protections are provided for migratory birds under the Migratory Bird Treaty Act of 1918 (MBTA; 16 U.S.C. 703-712). The MBTA prohibits the take of protected migratory bird species.

USFWS offers timing recommendations for land disturbance and vegetation clearing to avoid impacts on nesting birds by habitat type. Land disturbance and vegetation clearing avoidance windows are April 15 through July 15 for forest and woodland habitats and May 1 through July 15 for open and shrub habitats. USFWS recommends land disturbance and vegetation clearing avoidance window of March 1 through August 31 for bald eagles (USFWS 2017).

USFS defines measures for the protection of raptors, shorebirds, and waterfowl in the CNF Management Plan. These measures reinforce the MBTA and BGEPA and provide guidelines for vegetation clearing and working around nests. Bald Eagles and BCC species are discussed in further detail in this section.

#### *Chestnut-backed Chickadee*

Chestnut-backed chickadees (*Poecile rufescens rufescens)* are listed as a BCC species in the Northern Pacific Rainforest Bird Conservation Region. The Northern Pacific Rainforest Bird Conservation Region overlaps the Project ROW (USFWS 2021). Chestnut-backed chickadees forage for insects in Douglas fir (*Pseudotsuga menziesii*) and other coniferous trees and nest in tree cavities (Dahlsten et al. 2024). Factors that pose a risk to their population include large scale clear cuttings and wildfires. Chestnut-backed chickadees are not common in the Project ROW (Eskelin 2025).

#### *Lesser Yellowlegs*

Lesser yellowlegs breed in boreal forests from western Alaska to Quebec, Canada. Their preferred nesting habitat is a mix of shallow wetlands, trees or shrubs, and open areas. Lesser yellowlegs' diet is primarily composed of invertebrates. Global population declines for lesser yellowlegs are approximately 95 percent over the last 40 years. Threats to their population include habitat loss, exposure to agrochemicals, unregulated hunting, and climate change (Clay et al 2012).

#### *Olive-sided Flycatcher*

Olive-sided flycatchers breed in open coniferous or mixed forests, often near water or wetlands in mountainous areas. They are highly associated with riparian areas and non-coniferous habitats during their migration. Olive-sided flycatchers prey on flying insects, often near wetlands, and nest in coniferous trees. Population decline is attributed to declines in prey resources, fire suppression, deforestation, land conversion, and resource extraction processes (Environment Canada 2015).

#### *Wandering Tattler*

Wandering tattlers (*Tringa incana)* prefer to nest in mountainous terrain, often at elevations above 984 feet, or in dwarf shrub vegetation near small lakes and running water. Their diet is composed primarily of insects including larvae and nymphs and occasionally small fish (Gill et al. 2015). The primary threats to wandering tattler populations are vegetation change from climate change and loss of habitat from development.

#### *Bald Eagle*

Bald eagles often reuse nests from prior years. Cottonwood trees are common nesting sites for bald eagles in southcentral Alaska. Trees used for nesting are often close to the water and have sparse cover above the nest. Bald eagle diet in inland areas is primarily composed of salmon.

### *Fish and Essential Fish Habitat (EFH)*

The Project ROW crosses five anadromous waterbodies including the Kenai and Russian rivers (Table 6) in addition to the following waterbodies not identified as being anadromous: Lily Lake, Shackleford Creek, Fuller Creek, three unnamed ponds, and twelve unnamed streams identified as waterbody lines in the national hydrography dataset (2025). Of the twelve unnamed national hydrography dataset streamlines, eight are on the Refuge, and one is within the CNF.

The Kenai River and its drainages support anadromous and resident fish. Common resident freshwater species include rainbow trout (*Oncorhynchus mykiss*), Arctic grayling (*Thymallus arcticus*), and lake trout (*Salvelinus namaycush*). Arctic grayling and rainbow trout populations in the Kenai River are considered healthy (Gates et al. 2024).

Anadromous species in the Kenai River and its drainages include Dolly Varden (*S. malma*), Steelhead (*Oncorhynchus mykiss*), eulachon (*Thaleichthys pacificus*), Chinook (*O. tshawytscha*), sockeye (*O. nerka*), coho (*O. kisutch*), pink (*O. gorbuscha*) and chum (*O. Keta*). Anadromous fish gain access to the Kenai River and its freshwater drainages from Cook Inlet. Both resident and anadromous Dolly Varden overwinter in Skilak Lake and Kenai Lake. Dolly Varden leave overwintering areas between April and May and occupy most tributaries of the Kenai River. Steelhead enter the Kenai River and its drainages in the fall and spawn in the spring. The steelhead population in the Kenai River is considered healthy (Gates et al. 2024).

#### *FMP-Managed Fish and Essential Fish Habitat*

The Magnuson-Stevens Fishery Conservation and Management Act (MSA) governs marine fisheries management in U.S. Federal Waters. The MSA's objectives are to prevent overfishing, rebuild overfished stocks, increase long-term economic and social benefits, ensure a safe and sustainable supply of seafood, and protect habitat that fish need to spawn, breed, feed, and grow to maturity. The "waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity" is defined as essential fish habitat (EFH). EFH is defined by textual and

spatial descriptions in the EFH Fishery Management Plans (FMP) developed by Fishery Management Councils.

Alaska Statute 16.05.970 requires that ADF&G identifies streams important for spawning, rearing, or migration of anadromous fish in the State of Alaska's Catalog of Waters Important to Spawning, Rearing, or Migration of Anadromous Fishes (AWC). The MSA considers water bodies in the AWC to be EFH. There is no marine EFH overlapped by the Project ROW. Freshwater EFH in the AWC that overlaps the Project ROW is listed in Table 6.

*Table 6 Essential Fish Habitat Crossed by the Project Right-of-Way*

| Waterbody | FMP-Managed Species Present |
|---|---|
| East Fork Moose River (AWC Number: 244-30-10010-2063-3036): The East Fork Moose River's substrate at the Sterling Highway Crossing is primarily composed of gravel, and its wetted width is 9 to 32 feet. East Fork Moose River is sourced from Kelly, Peterson, and Egumen lakes south of the Sterling Highway and flows into Moose River to the north (ADF&G 2025). | coho (s), sockeye (s) |
| Jean Creek (AWC Number: 244-30-10010-2145): Jean Creek substrate is composed of cobbles and has a wetted width between 12 and 15 feet at its crossing with the Skilak Lake Road (ADF&G 2025). Jean Creek is a tributary of the Kenai River. The Jean Creek and Kenai River confluence is upstream of Skilak Lake. | coho (s), sockeye (p) |
| Kenai River (AWC Number: 244-30-10010): The Kenai River is a glacially-fed system originating at Kenai Lake. Sampling between April and July indicates that the Kenai River's turbidity ranges from 1 to 23 NTU and temperature from 2 to 16 degrees Celsius (Orejuela 2016). The Project ROW crosses the Kenai River at existing structures. | chum (p), coho (p, s), Chinook (s), pink (s, p), sockeye (p) |
| Russian River (AWC Number: 244-30-10010-2158): The Russian River's water quality is described as pristine. The water of the Russian River is very clear. Low sedimentation is attributed to there being few glaciers inputting water into the system (USDA 2004). | coho (p, r), Chinook (p, r, s), sockeye (p) |

| Waterbody | FMP-Managed Species Present |
|---|---|
| Cooper Creek (AWC Number: 244-30-10010-2162): Cooper Creek has a high gradient through most of its length and is composed primarily of riffle habitat. It is subject to avalanches that deposit sediment and woody debris into the system. Habitats and water quality of Cooper Creek have been impacted by mining and dam operations (USDA 2002). | coho (r), Chinook (r), sockeye (s, r) |

Note: FMP = Fishery Management Plan; AWC = Anadromous Waters Catalog; p = presence; r = rearing; s = spawning

#### FMP-Managed Fish

The FMP-managed fish that spawn, rear, or breed in freshwater bodies overlapped by the Project ROW (Table 7) include Chinook, chum, coho, sockeye, and pink salmon. Adult salmon run timing is presented in Table 7. Chinook Salmon are discussed in detail in Candidate, Threatened and Endangered Species and Critical Habitat: Affected Environment.

*Table 7 Kenai River Adult Salmon Presence*

| System | May | June | July | August | September | October | November |
|---|---|---|---|---|---|---|---|
| Kenai River | Chinook | Chinook sockeye | Chinook coho chum pink sockeye | Chinook coho chum pink sockeye | coho chum pink sockeye | coho | coho |

Source: Gates et al. 2024

Adult salmon return to their natal freshwater streams to spawn. Salmon deposit eggs on substrate gravels where they remain until they hatch. In general, eggs take five to eight months to develop and hatch. Pink and chum salmon will make their way to saltwater shortly after emerging from rearing gravels. Chinook, coho, and sockeye salmon may rear between one to two years before out-migrating to the marine environment. Coho tend to rear in freshwater for one or two years while sockeye may stay up to three years (NPFMC 2018).

### 3.5.2. Environmental Consequences

#### *Alternative A*

Under the No Action Alternative, the transmission line would be operated, and its ROW would be regularly maintained, as it is under current conditions. Wildlife may be deterred from the Project ROW during unplanned maintenance activities that occur from failed infrastructure. Wildlife would likely repopulate disturbed areas quickly after unplanned maintenance activities

have been completed. Vegetation clearing from unplanned maintenance activities may remove some habitat from wildlife. The No Action Alternative would result in no significant impact to fish and wildlife species.

### *Alternative B*

The Proposed Action is anticipated to result in effects on fish and wildlife species as discussed below that are not significant.

#### *Terrestrial Mammals*

Vegetation clearing under the Proposed Action within the Project ROW would be consistent with existing conditions. Minor vegetation clearing may occur at access roads to allow for safe passage.

Sound levels anticipated to be produced from construction equipment are provided in the section Soundscape: Affected Environment. Noise has the potential to cause physical hearing impacts on animals or disrupt communication, distribution, and foraging behavior. Noise more than 140-150 dB may cause hearing damage. Noise up to 70 dB may elicit avoidance behavior changes such as avoidance or masking (Knight and Gutzwiller 1995). Noise-producing activities for the Proposed Action are limited to construction duration and maintenance. The pile driver is anticipated to produce sound levels at approximately 101 dB at 50-foot distance and helicopter noise levels are anticipated to be approximately 90 dB at flights at 400-foot altitude (FHWA 2006; Jones 2003). Noise at these levels and below may elicit behavioral responses in mammals. Likely behavioral responses from animals include leaving the Project ROW. Animals would likely return to disturbed areas after construction. Bear den surveys would be conducted prior to Project construction. Construction would not occur near occupied bear dens to lessen the potential for disturbing hibernating bears. The Proposed Action would result in no significant impact to terrestrial mammals.

#### *Birds*

AEA would contact USFWS prior to construction to discuss all aspects of construction to determine nest survey, permit requirements, and Avian Protection Plan development under Bald and Golden Eagle Protection Act, 50 CFR 22.260. The USFWS Migratory Bird Permit Office will provide survey and permit requirements under the MBA. AEA will include land managers in the correspondence to and from USFWS regarding avian mitigation measures. AEA would do this early prior to construction.

Vegetation clearing would be done outside of USFWS avoidance windows for nesting birds (Fish and Wildlife Species: Affected Environment) to minimize impacts on birds. Vegetation clearing for maintenance of the Proposed Action would not cause a noticeable change to current conditions.

Construction noise has the potential to impact resident birds present in the vicinity of the Proposed Action. Most construction would be conducted in the winter when fewer species are present, and nesting is not taking place. Potential impacts from construction noise include permanent threshold shift, temporary threshold shifts, and masking (Dooling and Popper 2016); however, it is unlikely that any individual bird would remain within the vicinity of construction activity long enough to accumulate a physical effect from noise.

Anticipated construction equipment noise levels are presented in Soundscape: Affected Environment. The most impactful noise-producing activities are pole installation with the pile driver, blasting, and helicopter use. Noise from helicopters is anticipated to be below a level that could cause physical effects and would be temporary in duration due to the transient nature of helicopter use. Due to the sound levels produced from construction, the Proposed Action may result in behavioral impacts such as avoidance or masking. Pile driving activities would occur for less than two days at any location. Birds would likely return when construction ceases in an area.

The Proposed Action would result in a net decrease in the number of pole structures in the ROW. Poles are used by birds as artificial nesting and perching habitat. Raptors are known to use utility poles to perch on when hunting. Removal of artificial perching habitat under the Proposed Action may inflict impacts on raptors and positive impacts on prey species with the removal of perching habitat. Birds that perch on transmission line infrastructure can be at risk of electrocution. A common cause of bird electrocutions from transmission line infrastructure is birds touching multiple conductors at a single time. Under the Proposed Action, the distance between insulators would be increased from current conditions to exceed 60 inches; this distance would help to mitigate the potential for large raptor electrocution. The Proposed Action would result in no significant impact to birds.

#### *Fish and EFH*

Construction that requires traversing waterbodies would be conducted in the winter when the ground and waterbodies are frozen. Frozen ground would limit the potential for stream banks and off-channel habitat to be impacted by construction equipment. Ice that is covering waterbodies would act as a barrier between construction activities and fish and EFH. Vegetation clearing in the Project ROW would be the same as what is currently carried out and would not result in changes to shading or other physical waterbody conditions. A SWPPP would be prepared for the project that would include control measures to minimize construction-related runoff and prevent hazardous spills from entering waterbodies.

The Proposed Action would result in no significant impact on fish and EFH due to the use of winter construction and mitigation measures that limit construction activities in fish habitat.

## 3.6. Candidate, Threatened, and Endangered Species and Critical Habitat

### 3.6.1. Affected Environment

Threatened and Endangered Species are discussed in Section 3.3.7 of the CCP. The Endangered Species Act of 1973 (16 U.S.C. 1531-1544) was established to provide protections for species identified as being threatened or endangered and the habitat they rely on. There are no ESA-listed species with ranges or critical habitat that overlap with the Project ROW. The range of the Gulf of Alaska (GOA) Chinook Salmon, a candidate species for ESA listing, may include waters within the Project ROW.

On May 24, 2024, the National Oceanic and Atmospheric Administration published a positive 90-day finding (89 FR 45815) that the listing of Gulf of Alaska Chinook salmon as threatened or endangered species under the ESA may be warranted. If the listing is determined to be warranted, critical habitat would be designated concurrent with the listing. The 90-day finding includes those Chinook salmon populating Cook Inlet and its headwaters. The 12-month status review is in progress and expected to conclude in 2025. Streams that are known to contain Chinook salmon that overlap with the Project ROW are listed in Table 7.

Chinook salmon spawn in a variety of habitats, from mainstems of large rivers to small tributaries. Fertilized eggs go through embryonic development for five to eight months before hatching and rearing as alevin in incubation gravels. Some juveniles migrate to the marine environment in their first summer, while others develop in freshwater for two years. The diet of juvenile Chinook salmon while in freshwater is composed of larval stage and adult insects. Adult Chinook remain at sea for one to six years before returning to their natal streams to spawn. Urbanization, coastal development, and resource extraction activities that change habitat characteristics such as erosion, sedimentation, changes in temperature regimes, and changes in seasonal flow are common threats to Chinook salmon populations (NPFMC 2018).

### 3.6.2. Environmental Consequences

#### *Alternative A*

Under the No Action Alternative, the transmission line would be operated, and its ROW would be regularly maintained, as it is under current conditions. The No Action Alternative would result in no significant impact to candidate, threatened, and endangered species.

#### *Alternative B*

The Proposed Action would have no significant impact on fish, including for GOA Chinook. Construction is anticipated to have no impact on fish habitat due to the use of winter construction and measures that limit interaction of construction activities with their habitat.

## 3.7. Geology and Soils

### 3.7.1. Affected Environment

Geology and soils are discussed in Section 3.2.3 of the CCP. The geology and soils within the ROW are characterized by a diverse geological and soil composition, reflecting the region's complex glacial and sedimentary history. The geological setting includes unconsolidated surficial deposits that are generally poorly to moderately sorted and stratified. These deposits span various sedimentary environments, including alluvial, colluvial, marine, lacustrine, eolian, and swamp contexts. The landscape is shaped by extensive glacial and periglacial formations featuring end, lateral, and ground moraines; outwash plains; rock glacier deposits; and other related sediments. Bedrock surrounding the ROW is typically glacially scoured and may be overlaid by thin, glacially-derived deposits (Wilson et al. 2015).

The geologic history of Cooper Landing and the surrounding area is influenced by both glacial and volcanic processes. The local bedrock primarily consists of tightly folded slate and graywacke, likely dating back to the Mesozoic Era. These formations are extensively over-lain by unconsolidated Quaternary deposits, including both glacial and postglacial sediments. The area features glacial deposits from the Holocene and Pleistocene Epochs, with possible remnants of older Tertiary deposits. These deposits also include reworked volcanic debris, along with block and ash flows (Wilson et al. 2015). Cooper Lake, near Cooper Landing, exemplifies this glacial influence, having formed through a combination of glacial scour and morainal damming (Wilson et al. 2015).

While specific soil survey data for the Proposed Action site and its immediate surroundings are not available from the National Resources Conservation Service (USDA 2024), the broader Kenai Peninsula is known for its varied soil types. These soils, shaped by underlying geology, topographical influences, and climate, play a critical role in regional land use, agriculture, and conservation practices.

### 3.7.2. Environmental Consequences

#### *Alternative A*

The No Action Alternative would not result in changes to geology other than localized soil disturbances from unplanned maintenance events. The No Action Alternative would result in no significant impacts on geology and soils.

#### *Alternative B*

Construction would primarily occur during frozen conditions; however, limited activities may also take place during spring to fall in certain areas, such as near the Quartz Creek Substation or where helicopter access is utilized. All access would occur along existing routes, minimizing new ground disturbance.

Winter construction conditions would help minimize soil disturbance and reduce the risk of soil compaction and erosion. The frozen ground provides a stable surface for heavy machinery, reducing the likelihood of rutting, soil displacement, and sediment transport. Activities such as augering for pole installation, foundation excavation, and equipment staging would be conducted primarily during winter, which typically limits sedimentation and turbidity in nearby water bodies. While the frozen ground reduces immediate impacts, disturbances may occur when the ground begins to thaw. During spring melt, previously compacted snow and ice may increase surface runoff, potentially mobilizing loose soils and contributing to sedimentation in nearby streams. Construction activities, including the use of heavy machinery and access routes, could temporarily disrupt surface soils, and, if not properly managed, this disturbance could lead to soil erosion during the thaw period. Blasting and drilling for hard rock removal would only be conducted when necessary and primarily during winter construction; however, these activities may still result in localized soil disturbance, including fracturing surface and surface soils, potentially affection soil structure and increasing the risk of erosion once thawing begins. Drilling may also generate fluids or cuttings that may contaminate soils if not properly contained or disposed of.

As guided by the CNF Management Plan, soils will continue to support desired vegetation, and practices such as vegetation cover would be put in place to minimize soil erosion and sediment transport (USFS 2020). Mitigation measures would be implemented to address these impacts, including proper fluid handling and the use of temporary ground stabilization techniques such as matting. Construction activities would be scheduled to minimize soil exposure and ensure site stabilization before the bulk of thawing occurs. The Proposed Action would result in no significant impacts on geology and soils.

## 3.8. Air Quality

### 3.8.1. Affected Environment

Air Quality is discussed in Section 3.2.7 of the CCP. The Clean Air Act of 1977 mandates USFWS to preserve, protect, and enhance air quality and air quality-related values on USFWS lands (USFWS 2010b). Under this regulation, the Refuge is classified as a Class II air quality area. This classification permits moderate, controlled industrial growth while ensuring that air quality standards are maintained to protect public health and the environment. Class II areas allow for a moderate increase in air pollution, provided it does not exceed the established maximum allowable increments (ADEC 2024). Meteorological data specific to the Proposed Action site along the Kenai River is limited due to the absence of nearby ADEC monitoring stations.

While air quality in the Kenai Refuge is generally excellent, it can be influenced by a combination of natural and anthropogenic sources. Transportation emissions, particularly from vehicles travelling on the Sterling Highway and surrounding local roads, contribute to ambient concentrations of carbon monoxide, nitrogen oxides, volatile organic matter, and particulate

matter. Vehicles using local gravel roads, for example the Mystery Creek Road, could also stir up fugitive dust from the road surface. During winter months, residential heating (predominantly through wood stoves and oil-fired systems) result in elevated levels of particulate matter and combustion-related emissions. Additionally, industrial activities, especially those associated with oil and gas extraction in the Nikiski area, generate localized emissions that may affect regional air quality (Goodfellow & Birnbaum 2023). Wildfires, such as the 2019 Swan Lake Fire which burned approximately 167,164 acres, are another significant contributor to air quality variability with the potential to produce sustained increases in particulate matter.

#### 3.8.2. Environmental Consequences

##### *Alternative A*

Under the No Action Alternative, the transmission line would be operated, and its ROW would be regularly maintained, as it is under current conditions. There would be no change to Air Quality under the No Action Alternative. The No Action Alternative would result in no significant impacts on air quality.

##### *Alternative B*

The construction of the Proposed Action could introduce temporary air quality impacts. Construction activities and equipment potentially could generate temporarily elevated levels of fugitive dust and localized emissions. Implementation of mitigation measures such as working in winter and using dust suppression measures would mitigate the potential effects. The Proposed Action would result in no significant impacts on air quality.

### 3.9. Water Resources

#### 3.9.1. Affected Environment

Water Resources are discussed in Section 3.2.6 of the CCP. The Proposed Action area crosses Lily Lake, East Fork Moose River, Jean Creek, Kenai River, Cooper Creek, Russian River, and several unnamed ponds and seasonal drainages. The Kenai River flows approximately 82 miles from Kenai Lake to its mouth at Cook Inlet. Its watershed encompasses about 2,200 square miles, traversing diverse landscapes that include state and federal lands, tribal territories, and private properties. Approximately 54 percent of the Kenai River's watershed is within the boundaries of the Refuge. Large river and stream systems within the Refuge that do not flow into the Kenai River instead drain into Cook Inlet.

Water at the Kenai River undergoes various chemical and biological transformations as it moves through the hydrological cycle. Precipitation and snowmelt flow over and infiltrate vegetation, soils, and geological substrates. During the winter low-flow conditions, streamflow is predominantly sustained by groundwater inputs. In contrast, high streamflow associated with rainfall, snowmelt, and ice melt introduces suspended sediments, particularly in glacier-fed

streams during mid to late summer. These streams often exhibit high turbidity downstream due to glacial silt, while streams influenced by runoff outside of heavy precipitation periods tend to maintain water clarity. Similarly, the Kenai River's turbidity increases as it flows downstream from Kenai Lake to Cook Inlet; therefore, turbidity near the Project ROW is generally low. Waters within the Refuge are typically cold with reduced light penetration and low mineral content.

Kenai Watershed Forum conducted water quality assessment of the Kenai River Watershed from July 2000 to July 2014 (Orejuela 2016). Kenai Watershed Forum and agencies collected water samples from 13 locations along the Kenai River mainstem and from eight of the tributaries every spring and summer from 2000 to 2014. Two sampling sites, RM 70 Jim's Landing at Russian River, and RM 82 Kenai Lake Outlet at Juneau Creek, are near the approximate location of the Project Area. Laboratory analyses were conducted on dissolved metals, total metals, nutrients, hydrocarbons, fecal coliform and bacteria, and several other parameters. According to the study, all parameters of the two sites were non-detect or within the Alaska Water Quality Standards (18 AAC 70 2022). Total metals, calcium, iron, and magnesium display a spatial trend, increasing from Kenai Lake outlet to the Kenai River estuary, and highest concentrations occur during the spring. Nutrients such as nitrate and phosphorus displayed very different spatial trends. From Kenai Lake to the estuary, nitrate levels decreased, and phosphorus increased. The Russian River sampling site had a very high concentration of nitrate, and in contrast, a low level of phosphorus. Specific conductance was higher in the spring, especially at the estuary (Orejuela 2016).

Sampling for diesel range organics, gasoline range organics, and residual range organics was useful in narrowing down the main source of hydrocarbons present: benzene, toluene, ethylbenzene, and xylene. Very few detections occurred for any of the range organics and none within the Project ROW (Orejuela 2016). No detection of benzene, toluene, ethylbenzene, and xylene occurrent in the spring, indicating outboard motors as the primary source of contamination during summer.

Total suspended solids, turbidity, and water temperature vary spatially. Suspended solids are highest in the estuary during spring and summer, while the Russian River records the lowest median levels. Sampling near the Project ROW shows low turbidity, remaining below the state threshold of 5 Nephelometric Turbidity units. While 7.5 miles of the lower Kenai River are considered impaired due to high turbidity, this area is outside the proposed Project site.

No impaired waterbodies have been identified in ADEC's 2024 Integrated Quality Monitoring and Assessment Report. Contaminated sites are discussed in the Public Health and Safety section, and Water Protection Areas are shown in Figure 10.

#### 3.9.2. Environmental Consequences

##### *Alternative A*

The No Action Alternative would not result in immediate changes on water quality within the Project ROW area because it would not initiate changes from the current conditions. However, the No Action Alternative could present impacts on water quality over time if maintenance needs increase or if existing structures fail, potentially leading to erosion, sedimentation, or unplanned impacts on adjacent water bodies. Additionally, if the existing infrastructure includes wood poles treated with Penta-Chloro-Phenol (PCP), continued use of these treated poles may impose a risk of localized contamination through leaching or surface runoff. The No Action Alternative would have no significant impact on water resources.

##### *Alternative B*

Implementation of the Proposed Action would involve replacing existing transmission infrastructure along the Project ROW from east of Sterling to Cooper Landing. Construction activities including pole installation, access road use, and equipment staging could introduce temporary impacts on water quality in nearby water bodies, including the Kenai and Russian rivers. However, since construction is scheduled primarily during winter when the ground and water bodies are frozen, the impact to water quality is expected to be minimal. To avoid direct disturbance, waterbody and river crossings would be limited to periods when they are frozen. Potential risks such as increased sedimentation, turbidity from soil disturbance, runoff containing construction-related pollutants, and changes to local hydrology would be avoided due to the frozen conditions limiting soil erosion and runoff. A fuel spill response plan would need to be implemented to mitigate potential releases on snow or ice. If water is discharged during pole installation or drilling activities, a temporary water use authorization may be required, and any discharge would need to be contained to prevent runoff into nearby waterbodies. The Proposed Action would have no significant impact on water resources.

### 3.10. Soundscape

#### 3.10.1. Affected Environment

Soundscape is discussed in Section 3.2.8.2 of the CCP. The soundscape varies throughout the Project ROW in relation to development and land management. Human-generated noise is primarily limited to roadways, trails, waterbodies, and residential areas near the Project ROW, with occasional noise generated throughout the Project ROW due to aircraft flights. Sterling Highway is a primary source of noise to the Project ROW. It runs east-west along the Project ROW, bisects the Refuge, and runs adjacent to CNF. There are 17 small airports servicing commuter, charter, emergency, and personal aircraft operations as well as one commercial airport that supports flights in the airspace over the Project ROW. Noise sources change seasonally near the Project ROW. Between December and April, snowmachining is a popular activity that occurs on more than 1.2 million acres of the Refuge. A 2004 to 2006 study found

that noise throughout the Refuge ranged from 32 to 93 dBA, with 32 to 42 dBA being representative of Congressionally designated wilderness areas measured by the USFWS (Mullet et al. 2017).

An acoustic study found that the most common sounds produced in the Refuge during winter were those originating from geophony (i.e., geophysical sounds such as wind and water; identified in 84 percent of recordings). Technophonic sounds (i.e., sounds generated from machines and technology) comprised 15 percent of recorded sounds and were primarily from road traffic, airplanes, and snowmachines. Corvids (e.g., ravens, crows, jays, magpies) made up most of the animal-related sounds (1 percent of recordings), followed by other passerines, raptors, woodpeckers (*Picoides* sp.), wolves, coyote, ptarmigan (*Lagopus* sp.), and red squirrels (Mullet et al. 2015).

Noise-sensitive receptors near the Project ROW primarily consist of hunting and fishing lodges, residences, trails, and campgrounds.

### 3.10.2. Environmental Consequences

#### *Alternative A*

Under the No Action Alternative, the transmission line would be operated, and its ROW would be regularly maintained, as it is under current conditions. Unplanned maintenance activities occurring from transmission line failure may require noise-emitting construction equipment. The No Action Alternative would result in no significant impact on the soundscape.

#### *Alternative B*

Noise produced from the Proposed Action would be temporary and mostly limited to the winters of 2026 to 2027 and 2027 to 2028 and maintenance periods. Sound-producing equipment that would be used during the construction and maintenance of the Proposed Action and the approximate decibel level they produce is provided in Table 8. A noise level of 55 dBA is typical of an urban daytime setting. Noise producing activities during maintenance of the Proposed Action area anticipated to be similar to current conditions.

*Table 8 Sound Produced from Construction Equipment*

| Equipment | Sound Level Produced ($L_{MAX}$ at 50-feet, dBA) |
|---|---|
| Impact Pile Driver | 101 |
| Blasting | 94 |
| Hydro Axe | 91 |
| Helicopter | 90[a] |
| Dozer | 85 |

| Equipment | Sound Level Produced ($L_{MAX}$ at 50-feet, dBA) |
|---|---|
| Drill Rig | 85 |
| Fork Lift | 85 |
| Chain Saw | 84 |
| Digger/Derrick | 84 |
| Excavator | 81 |
| Crane | 81 |
| Skid Steer | 80 |
| Snowmachine | 78 |
| Puller and Tensioners | 75 |
| Pickup Truck | 75 |
| Light Plant | 58 |

Source: FHWA 2006 and Jones 2003
Note: dBA = A-weighted decibels; $L_{max}$= maximum sound level
[a] Based on a flyover at 400 ft above ground level

Construction and maintenance equipment may result in localized and temporary instances of noise exceeding background levels. Construction would move along the Project ROW over the life of the Project and would not generate noise in a single area for an extended period. Noise associated with removal and installation of new poles would generally be limited to less than two days in a single area, and noise at staging areas may occur periodically throughout the construction window duration. Noise may reach up to 101 dBA when the impact pile driver is being used, 94 dBA for blasting, and around 90 dBA for helicopter operations depending on the elevation of the helicopter (FHWA 2006). Construction noise would generally be at or below 85 dBA. The Proposed Action would have no significant impact on the soundscape.

## 3.11. Cultural and Historic Resources

Cultural resources are broadly defined and can include historic properties, which are defined under the National Historic Preservation Act (NHPA) (36 CFR 800.16(l) (1)) as "any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the National Register of Historic Places." They may also include places such as traditional cultural properties, sacred sites, and cultural or ethnographic landscapes. However, the term most commonly refers to physical material items associated with past human activities. The analysis for this EA focuses on verifiable remains, material evidence, and specific locations that are reported in the National Register of Historic Places (NRHP), the Alaska Heritage Resources

Survey (AHRS), and the Alaska Department of Natural Resources (ADNR) RS 2477 Trails Database.

For the purposes of this EA, the study area for cultural resources includes the 100-foot project ROW as well as a 50-foot buffer to sufficiently account for any potential direct or indirect impacts on cultural resources from construction and maintenance of the Project.

### 3.11.1. Regulatory Considerations

Because the transmission line crosses federal lands managed by USFWS and the USFS, Projects 2 and 3 are subject to review under Section 106 of the NHPA. NEPA requires federal agencies to review potential impacts of major federal actions upon the human environment, including cultural resources (40 CFR 1508.4). Similarly, Section 106 of the NHPA requires federal agencies to consider the effects of undertakings[2] on historic properties included in, or eligible for inclusion in, the NRHP (36 CFR 800.16(l)(1)). Federal regulations encourage agencies to coordinate NEPA and Section 106 review processes when possible (36 CFR 800.8). USFWS and USFS are conducting independent reviews for the purposes of Section 106 (36 CFR 800.2(a)(2)).

The NHPA requires agencies to define an Area of Potential Effects (APE) for their undertakings in consultation with the Alaska State Historic Preservation Officer (SHPO). The Project APE may differ from the Study Area used in this analysis

The Project must adhere to other environmental and cultural resources regulatory requirements, including, but not limited to: the Alaska Historic Preservation Act (Alaska Statute 41.35)(AHPA), the Archeological Resources Protection Act (ARPA), the American Indian Religious Freedom Act (AIRFA), the Native American Graves Protection and Repatriation Act (NAGPRA), the Executive Order 11593 (Protection and Enhancement of the Cultural Environment), the Antiquities Act of 1906, Executive Order 13007 (Indian Sacred Sites), and Executive Order 13175 (Consultation and Coordination with Indian Tribal Governments) as affirmed in the Presidential Memorandum on Tribal Consultation and Strengthening Nation-to-Nation Relationships, dated January 26, 2021.

### 3.11.2. Affected Environment

To identify cultural resources that may be directly or indirectly impacted by the Proposed Action, the study area for cultural resources includes the 100-foot project ROW as well as a 50-

[2] Under Section 106, an undertaking refers to any project, activity, or program funded in whole or in part under the direct or indirect jurisdiction of a Federal agency, including those carried out by or on behalf of a Federal agency; those carried out with Federal financial assistance; and those requiring a Federal permit, license or approval (36 CFR 800.16(y)).

foot buffer. This area sufficiently accounts for any potential direct or indirect impacts on cultural resources from construction and maintenance of the Project. It is not anticipated that any ground disturbance will occur outside the 100-foot project ROW.

### *Previous Survey Coverage*

The first archaeological field surveys in the Project vicinity occurred in the late 1970s. Several of these studies were conducted for 14(h)(1) selections under the Alaska Native Claims Settlement Act (ANCSA) and for various projects led by the Alaska Department of Transportation and Public Facilities (DOT&PF), the USFS, USFWS, and other agencies (e.g., Anders 2008; Farmen 2009; Karuzas 2019; Kent et al. 1996; Potter et al. 2005; Teeter et al. 2021; Villalobos 2006). In particular, the DOT&PF has sponsored numerous studies for construction and maintenance projects along the Sterling Highway, which crosses the Sqilantnu Archaeological District (KEN-00156/SEW-00282) in the vicinity of Cooper Landing. Associated studies have ranged from pedestrian surveys and site delineation to data recovery and construction monitoring (e.g., Anderson 2012; Anderson and Davis 2014; CRC 2007; Davis 2023, 2024; DePew and Pendleton 2003; Holmes 1985, 1986; Hosken et al. 2020; Pendleton and Yarborough 2005; Pendleton et al. 2010; Potter et al. 2005; Reger 2004; Teeter and Ford 2017; Teeter and Koszarek 2023; Teeter et al. 2021, 2022; Teeter, Hosken et al. 2023; Teeter, Hubbard et al. 2023; Yarborough et al. 2014).

HDR Engineering, Inc. (HDR) conducted surveys and testing in 2023 and 2024 of the 100-foot-wide Project ROW. As a result of these surveys, HDR archaeologists located 10 of the 19 AHRS sites previously documented within the Project ROW, as well as one newly identified surface depression site, SEW-01776. HDR crew visited but were unable to locate four previously recorded sites within the ROW. HDR did no further documentation of the entire Sqilantnu Archaeological District (KEN-00156/SEW-00282) which is composed of approximately 60 sites and which has been extensively documented. HDR's survey focused on sites that overlap with the project ROW. HDR did not revisit the locations of KEN-00282 and KEN-00759. No new pole structures or project activities are located near these sites, therefore, they will not be directly or indirectly impacted by the Project.

In addition to AHRS sites, archaeologists observed 11 historic isolates (predominantly metal cans) during the 2024 survey. Although each isolate is likely at least 50 years old, these resources lack the significance and/or associations required of historic properties and do not warrant AHRS site numbers, per guidance from the Alaska Office of History and Archaeology (OHA) (OHA 2016). To search for subsurface artifacts within the ROW, HDR archaeologists excavated 29 shovel test pits (STPs) that measured 50 by 50 centimeters square to a depth of at least one meter below surface; all STPs were backfilled after documentation. The STPs were

dug at areas deemed by HDR in 2023 to have a high probability for the presence of cultural resources based on hillshade analysis and proximity to water or known AHRS sites. All STPs tested negative for cultural resources.

### *Alaska Heritage Resources Survey*

As of 2025, HDR has identified 22 AHRS sites within the 100-foot-wide ROW, with two additional AHRS sites within the 50-foot buffer area, which was not subjected to pedestrian survey and testing in 2024. These site types include historic mining features, one traditional cultural place, sites relating to transportation and power transmission infrastructure, and sites that contribute to the Sqilantnu Archaeological District (KEN-00156/SEW-00282). Seven of these sites have been determined eligible for the NRHP, including four sites that contribute to the Archaeological District. Three additional sites have been determined ineligible for the NRHP, and the remaining sites remain unevaluated. For a more detailed site inventory, see Hosken et al. (2024).

### *Revised Statute 2477 Trails (RST)*

One Revised Statute 2477 Trail (RST), the Stetson Creek Trail (RST 619), intersects the ROW (ADNR 2017). This route is a historical mining trail located on the western side of Cooper Creek, near the eastern end of Project 3. The trail begins on the Sterling Highway at the South Cooper Creek Campground, although the original starting point was probably closer to Cooper Creek (ADNR 2017). Southward from the highway, the trail winds uphill, generally paralleling Cooper Creek to its confluence with Stetson Creek, then following Stetson Creek to its headwaters. Historical records indicate that miners used this route to access Stetson and Cooper creeks as early as 1904 (ADNR 2017). This trail is also listed in the AHRS database as SEW-00868.

### *Traditional Place Names*

Ethnographic and historical literature has documented numerous Dena'ina toponyms throughout south-central Alaska and the Kenai Peninsula, or *Yaghanen* (Smith and Kari 2023). Place names offer important insights into traditional relationships with the landscape and provide a wealth of cultural, historical, and environmental knowledge for the Project vicinity.

HDR consulted the *Web Atlas of Alaska Dene Traditional Place Names* to identify Dena'ina place names documented near or within the Project area (Smith and Kari 2023). This source indicates at least five place names within the Project area (*Yaghanen*, *Yaghanen Dghili*, *Tasdlihtnu*, *Sqilantnu*, *Chunuk'tnu*) with several more place names in the vicinity, particularly along the upper Kenai River. Place names documented within or near the Project area are listed in Table 9, along with English correlates and translations of the Dena'ina name.

*Table 9 Dena'ina Place Names within the Project Vicinity*

| Feature Type | English Name | Dena'ina Name | Translation |
|---|---|---|---|
| **Lake** | Hidden Lake | *T'uch' Bena* | Enclosed lake, shady lake |
| **Lake** | Kenai Lake | *Sqilan Bena* | Ridge place lake |
| **Lake** | Skilak Lake | *Q'es Dudilen Bena* | Flows into outlet lake |
| **Lake** | Upper Skilak Lake | *Bendilent* | Flows into lake place |
| **Region** | Kenai Peninsula | *Yaghanen* | Good land |
| **Region** | Kenai Mountains | *Yaghanen Dghili* | Good land mountains |
| **Site** | Village at confluence of the Russian and Kenai Rivers[a] | *K'beq'* | Tracks |
| **Stream** | Cooper Creek | *Tasdlihtnu* | Swift current river |
| **Stream** | Upper Kenai River | *Sqilantnu* | Ridge place stream |
| **Stream** | Russian River | *Chunuk'tnu* | Beaver(?) river |
| **Summit** | Cecil Rhode Mountain | *Tasdlihtnu Dghil'a* | Swift current river mountain |
| **Summit** | Old Buzzard Ridge | *Chunuk'tnu Dghil'a* | Beaver(?) river mountain |
| **Summit** | Round Mountain | *K'beq' Dghil'a* | Tracks mountain |

Source: Smith and Kari 2023

[a] Locational descriptor provided in lieu of precise English name.

### 3.11.3. Environmental Consequences

#### *Alternative A*

Under the No Action Alternative, no new poles would be placed within the ROW. However, the transmission line would remain in operation, and the ROW would be regularly maintained, as it is under current conditions. The No Action Alternative would have no significant impact on cultural and historic resources.

#### *Alternative B*

All known cultural resource sites within the study area will be avoided by Project activities, with one exception: one pole structure will be placed on the exterior boundary of a site within the Sqilantnu Archaeological District. However, the proposed pole structure encroaches only slightly into the edge of the site boundary and avoids any impacts on known features within the site. Additionally, AEA will flag this and all site boundaries within the ROW to ensure that no vehicles traverse the sites, and contractors will be advised to exercise added caution when working at this pole structure location and in the vicinity of any flagged sites within the ROW. Further, AEA is developing an Inadvertent Discovery Plan for cultural resources. Under the above conditions, it is anticipated that no significant impact would occur to the site or the Sqilantnu Archaeological District. No new access routes are planned under Alternative B.

The Transmission Line (KEN-00818/SEW-01770) itself has been determined not eligible for listing on the NRHP (Bittner 2024) and is therefore not a historic property for which effects are considered under Section 106.

### 3.11.4. Avoidance, Minimization, and Mitigation Measures

Thorough efforts to identify cultural resources within the 100-foot ROW have been undertaken. However, the study area, particularly the area that overlaps the Sqilantnu Archaeological District, remains a sensitive area for cultural resources. It is possible that undocumented sites may exist within the transmission line ROW. As a precaution, AEA is developing an Inadvertent Discovery Plan for cultural resources and human remains. An Inadvertent Discovery Plan establishes the procedures to be followed if construction activities unexpectedly encounter cultural resources or human remains. Furthermore, the Inadvertent Discovery Plan lays out the chain of required notifications to verify that inadvertent discoveries are managed as effectively and expediently as possible.

Construction activities for this project are planned to occur primarily during winter when there is snow coverage and the ground is frozen. This will further protect known, and as yet unidentified, cultural resources from impacts related to vehicles transversing the ROW.

- **Avoidance:** The following sites will be flagged for avoidance. No new poles are proposed within the boundaries of the known sites along the Project ROW, with one exception (see Minimization measures below). These sites will be flagged to ensure that no vehicles traverse the sites, and the construction crews will have access to the ROW through previously established access routes:
    - KEN-00282[3]
    - KEN-00294
    - KEN-00301
    - KEN-00759
    - SEW-00748
    - SEW-00750
    - SEW-00755
    - SEW-01776

[3] Adverse effects to properties that contribute to the Sqilantnu Archaeological District (KEN-00156/SEW-00282) could also result in adverse effects to the District as a whole.

- **Minimization measures:** One new pole is proposed within the boundary of site SEW-00753. The pole is anticipated to encroach slightly into the edge of the northwest boundary of SEW-00753. However, any ground disturbance associated with the installation of the pole will be located over 50 meters from any known features within the boundary of the site. To further avoid impacts to this site, the site will be flagged, and contractors will be advised to exercise added caution when working at this pole structure location.

As presently designed, Alternative B would result in no significant impacts upon cultural resources and historic properties.

USFWS and the USFS are consulting with the Alaska SHPO and anticipate a decision regarding concurrence in September 2025.

## 3.12. Socioeconomics

### 3.12.1. Affected Environment

Socioeconomics are discussed in Section 3.4.3 of the CCP. The tourism and seafood/fishing industries of the Refuge are the largest contributors to the Kenai Peninsula Borough economy. The Refuge provides abundant sport fishing and hunting opportunities as well as non-consumptive recreation such as hiking, rafting, and bird watching (Goldsmith and Hill 2000).

It is estimated that several hundred people make some or all their salary directly from Refuge lands, including as permitted guides or outfitters. Thousands of other Alaskans benefit indirectly from the economic inputs of the Refuge's many visitors. Others, such as those in the commercial fishing industry, benefit from the habitat provided by the Refuge (Goldsmith and Hill 2000).

Visitors are often drawn to the CNF for its fishing, hiking, walking, and wildlife viewing. Total spending by visitors to the Chugach National Forest is approximately $34.3 million annually. The CNF is used to harvest timber products, while water resources within CNF lands support municipal, industrial, aquaculture, and thermoelectric needs. CNF provides access for commercial development and hobby use of mineral resources. In 2015, the top three minerals by sales value from CNF were construction sand and gravel, valued at $320,000, and crushed stone, valued at $3,000 (USFS 2025). The value of subsistence harvest throughout the CNF is $812.00 to $1,624.00 per person per year for qualified rural residents (USFS 2020).

In 2022, Cooper Landing had a median household income of $148,021, a 35 percent increase from 2021. The median age of Cooper Landing residents is 29 years, and the population size is 224. The largest ethnic groups in Cooper Landing are white (98.7 percent) and Asian (1.3 percent). The industries that employ the most people in Cooper Landing are accommodation

and food services; arts, entertainment and recreation; real estate, rental, and leasing; and transportation and warehousing (DATAUSA 2025a).

In 2022, Sterling had a median household income of $98,542, a median age of 48, and a population of 6,307 people. The largest ethnic groups in Sterling are white (90 percent), American Indian and Alaska Native (3.3 percent), Hispanic (1.7 percent), and Asian (1 percent). The industries that employ the most people in Sterling are management occupations; office and administrative support; education instruction and library occupations; and health treatment services (DATAUSA 2025b).

In contrast, the total population of the Kenai Peninsula Borough (KPB) is 59,235 individuals. The median annual household income is $76,272 and average age is 41. The largest ethnic groups in the KPB are white (78 percent), American Indian and Alaska Native (7.4 percent), multiracial (6.8 percent), and Asian (1.7 percent). The largest employing industries in the KPB are management occupations; office and administrative support; construction and extraction occupations; and education instruction and library occupations (DATAUSA 2025c).

The median gross rent in the KPB is $1,126 ($1,329 statewide). Housing values for the KPB are primarily $300,000 to $499,999 (30 percent) and $200,000 to $299,999 (28.4 percent).

### 3.12.2. Environmental Consequences

#### *Alternative A*

The transmission line infrastructure in the Project Area is aging and there is a threat of a critical failure to the transmission line between Sterling and Cooper Landing. In the event of transmission line failure, local and regional economies that rely on the transmission line may be affected as businesses become temporarily closed or services are slowed or halted until the power failure is repaired. The No Action Alternative would have no significant impacts on socioeconomics.

#### *Alternative B*

Under the Proposed Action, there may be a temporary increase in money flowing to local businesses in the Cooper Landing and Sterling area to due construction worker needs during the construction window. The Stetson Creek Trail provides access to two mining claims south of the Project ROW (State of Alaska 2025). Pole installation and removal may limit access on Stetson Creek Trail south of the Project ROW for two to four days. AEA would work with USFS to ensure safe use of the Stetson Creek Trail during construction.

The temporary increase in spending would result in positive effects on local and regional economies. Money spent on maintenance of the Proposed Action is not anticipated to be more than current maintenance requirements. AEA would work with USFS to provide Stetson Creek Trail access. The Proposed Action would have no significant impact on socioeconomics.

## 3.13. Public Health and Safety

### 3.13.1. Affected Environment

ADEC oversees the Contaminated Site Program, which aims to protect human health and the environment by managing the cleanup of contaminated soil and groundwater across Alaska. Five contaminated sites have been identified within a five-mile radius of the Proposed Action location, all of which have undergone complete remediation. Two of these sites remain under institutional controls and are within 0.5 mile of the Project ROW (ADEC 2025a).

Emergency services in the Project Area are provided by Cooper Landing Emergency Services (CLES), Central Emergency Services, and the Eastern Peninsula Highway Emergency Service Area. Cooper Landing Emergency Services operates as a non-profit organization, responding to approximately 100 to 150 calls annually across several hundred square miles of mountainous and wilderness terrain, including over 70 miles of Seward and Sterling highways. The agency offers both fire suppression and emergency medical services (CLES 2025). Central Emergency Services serves the central Kenai Peninsula, including Soldotna, Kalifornsky Beach, Sterling, Ridgeway, Kasilof, and Clam Gulch (KPB 2025b). Eastern Peninsula Highway Emergency Service Area covers key highway corridors within the Kenai Peninsula Borough, including Sterling Highway from milepost 43 to 51 near Cooper Landing (KPB 2025b).

The Project ROW traverses four Zone A Drinking Water Protection Areas (Figure 10) (ADEC 2025b). These zones are defined by ADEC to protect groundwater wells and surface water intakes that serve community drinking water systems; zones are categorized depending on the distance from the drinking water source to the community. Zone A represents several months' Time-of-Travel or less to the well for ground water source, or 1,000 feet or less from the edge of the surface water for a surface water source (ADEC 2025b).

### 3.13.2. Environmental Consequences

#### *Alternative A*

Under the No Action Alternative, existing conditions would remain unchanged. The continued use of existing wood utility poles treated with PCP may pose risks to public health and safety. PCP is a chlorinated compound historically used as a wood preservative and is classified by the EPA as a probable human carcinogen. Exposure to PCP can occur through inhalation, ingestion, or dermal contact with contaminated soil, water, or dust. Long-term exposure has been associated with effects on the liver, kidneys, immune system, and central nervous system (USEPA 2021). Residual PCP contamination from deteriorating poles could present localized risks, particularly for maintenance workers or the public if poles are located near homes, schools, or recreation areas. Although these poles are not treated on site, weathering and degradation of aging infrastructure may result in the leaching of residual PCP into surrounding soil or surface runoff. The No Action Alternative would result in no significant impact on public health and safety.

### *Alternative B*

Potential hazards include increased construction traffic along the Seward and Sterling highways, which could increase the risk of vehicular accidents including vehicle-strike wildlife mortalities, particularly in areas with limited visibility or challenging winter conditions.

Contaminated sites do not occur within the Project ROW or staging areas and would result in no effect to the Project.

The use of heavy machinery, potential blasting activities, and helicopter operations could introduce effects on construction crews and the public. Safety standards and mitigation measures would mitigate the risk of construction activity effects.

The Proposed Action's taller steel pole structures may require guy wires for stability, particularly in areas with high winds or heavy snow loads, which could potentially introduce effects on recreators, including snowmachiners, traveling along power line corridors. West of existing Structure 12-5, the ROW can be accessed by snowmachines via existing trails originating at the Sterling Highway, though east–west movement within the ROW is limited by steep terrain. The guy wires could create a potential hazard as snowmachines moving at high speeds risk collisions with guy wires, especially in low-visibility conditions like heavy snow or darkness, potentially leading to serious injury. Mitigation measures, such as attaching high-visibility markers or reflective tape to guy wires, posting warning signs along known snowmachine trails, and consulting with local snowmachine user groups could reduce these impacts. Broader safety protocols, including traffic management plans, construction site safety measures, and emergency response coordination with Cooper Landing Emergency Services, Central Emergency Services, and the Eastern Peninsula Highway Emergency Service Area, would further mitigate effects. More guy wires would be removed from the existing structures than installed on new structures.

The steel poles, reaching greater heights than the existing wood poles, could pose a potential obstacle for low-flying aircraft (e.g., emergency medical or wildfire response helicopters) in the area. However, steel poles suggested in the Proposed Action would reduce the risk of wildland fires. Communicating ROW coordinates and structure heights to aviation authorities for inclusion in navigational databases, along with adding markers or visibility enhancements, could minimize hazards. The Proposed Action would result in no significant impact on public health and safety.

## 3.14. Refuge Resources

### 3.14.1. Visitor Use and Experience

### *Affected Environment*

Refuge resources are discussed in Section 3.4.3 of the CCP. Access to the Refuge near the Project ROW is provided at a variety of locations including several pullouts for trails, water

access, and viewpoints along the Sterling Highway, Jean Lake Campground, Mystery Creek Road, and Kelly Lake Road.

A 2010 and 2011 visitor use survey in the Refuge discovered 60 percent of visitors had been to the Refuge once in the previous 12 months. Repeat visitors (40 percent) went to the Refuge an average of nine times over the previous 12 months. Approximately 76 percent of visitors only visited the Refuge in one season while 17 percent visited during two or three seasons and eight percent visited the Refuge year-round (Sexton et al. 2011).

Visitors spend an average of five hours at the Refuge during a one-day trip, with most respondents reporting a visit of eight hours. The most common activities visitors participated in were hiking (57 percent), wildlife observation (57 percent), photography (57 percent), and freshwater fishing (45 percent). At least 90 percent of visitors were satisfied with recreational activities and opportunities; information and education provided by the Refuge; services provided by employees or volunteers; and the Refuge's job of conserving fish, wildlife, and their habitat (Sexton et al. 2011).

USFWS manages trails in the Refuge consistent with the purposes of the refuge. The only trail crossed by the Project ROW is the Fuller Lakes Trail. Mystery Creek Road is the only USFWS-managed road crossed by the Project ROW. Pullouts along the Sterling Highway provide opportunities for visitor use in the Refuge. Pullouts include locations at MP 57.8, MP 58, MP 62.3, MP 62.4, MP 62.5, MP 71.3, and MP 71.5.

### *Environmental Consequences*

#### *Alternative A*

Under the No Action Alternative, the transmission line would be operated, and its ROW would be regularly maintained, as it is under current conditions. Maintenance needs for the transmission line would be anticipated to increase as infrastructure ages. This would result in increased maintenance visits to the Project ROW. Maintenance equipment in the Project ROW would result in noise and aesthetic impacts (Section 3.10). Maintenance activities in the Project ROW are anticipated to cause noise-producing activities and detract from aesthetics. The No Action Alternative would result in no significant impact on visitor use and experience.

#### *Alternative B*

Noise-producing activities during the construction and maintenance of the Proposed Action may impose impacts on visitors and detract from the visitor use experience. Most noise impacts would be limited to Proposed Action construction (Table 1). Maintenance activities and their associated noises would be similar to existing conditions and include helicopter noise in, and adjacent to, the Refuge and wilderness areas. Noise impacts are more likely to occur along trails, roads, and at staging areas used by Refuge visitors during Proposed Action construction. MP 71.5, MP 71.3, Watson Lake Campground, Mystery Creek Road, MP 62.3, MP 62.5, and Jim's

Landing overflow parking would be in use as staging areas between October 2026 and April 2027. The Watson Lake Campground would be closed during this time. The Russian River Ferry parking lot would be used as a staging area between October 2027 and April 2028. The Russian River ferry does not operate during this time. MP 57.8 would be used as a staging area between Spring and Fall 2028.

The pullouts provide parking access to the Refuge and may remain desirable parking locations during construction. Staging in these areas may limit visitor use by reducing the available parking at trailheads and viewing locations in the Refuge. AEA would be instructed to allow space for parking at each staging area so that Refuge access is not blocked off altogether at any location. However, if parking lots fill up from the combination of visitor vehicles and construction equipment during construction, visitors may not be able to access desired locations in the Refuge. The Proposed Action would result in no significant impact on visitor use and experience.

### 3.14.2. Aesthetics, Viewsheds, and Visual Resources

#### *Affected Environment*

Aesthetics, viewsheds, and visual resources are discussed throughout Section 3 of the CCP. Visual resource management within the Refuge is intended to monitor the quality of the visual environment and to reduce the visual impact of development activities. USFWS management intends to organize all activities and facilities on the Refuge to blend into the landscape to the extent practical to achieve this task. Locations within the Refuge, such as the Upper Kenai River drainage including the Kenai Mountains and lowlands, are valued for their scenic properties. The Project ROW is currently populated with wood poles that support the transmission line between Sterling and Quartz Creek Substation. Photographs of the ROW at Skyline Ridge Trail and a Sterling Highway Pullout in the summer and winter are provided in Figure 12 through Figure 15. Photograph locations are provided in Figure 16.

*Figure 12 Photograph from Skyline Ridge (Winter)*

*Figure 13 Photograph from Skyline Ridge (Summer)*

*Figure 14 Photograph from Sterling Highway Pullout (Winter)*

*Figure 15 Photograph from Sterling Highway Pullout (Summer)*

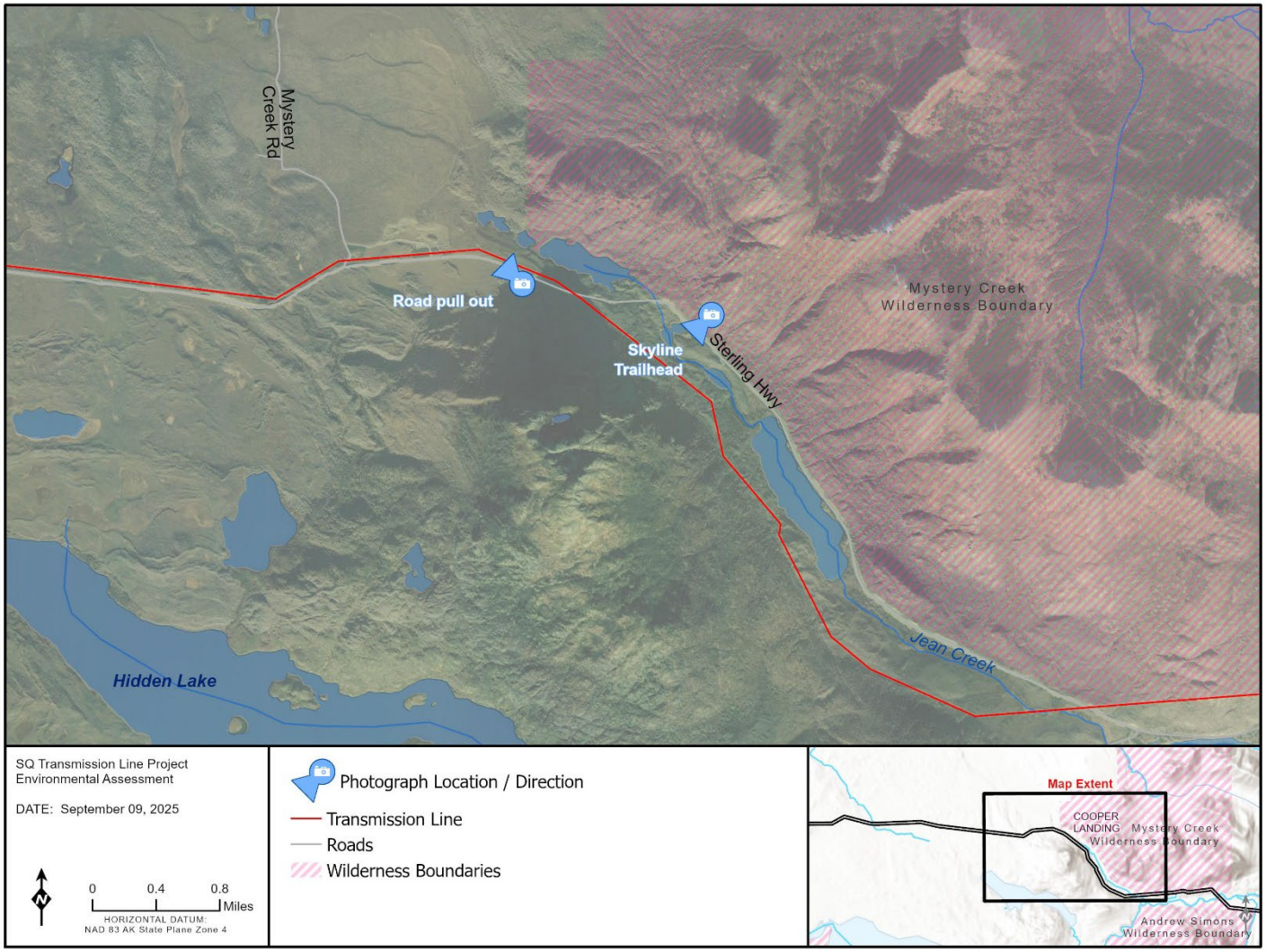


*Figure 16 Photograph Locations*

### *Environmental Consequences*

#### *Alternative A*

Under the No Action Alternative, the transmission line would be operated, and its ROW would be regularly maintained, as it is under current conditions. Maintenance needs for the transmission line would be anticipated to increase as infrastructure ages. This would result in increased maintenance visits to the Project ROW. Maintenance equipment in the Project ROW would detract from the aesthetic value of the viewshed surrounding the Project ROW.

#### *Alternative B*

Visual renderings for the Proposed Action under summer and winter conditions at Skyline Ridge Trail and a highway pullout are provided in Figure 17 through Figure 20. Steel poles erected under the Proposed Action would be taller than the existing wood poles. The height difference between wood and steel poles in the Refuge, and their aesthetic impacts, is visible in Figure 17 and Figure 18. Visual renderings where the steel poles are seen extending above the tree line relative to current conditions are shown in Figure 12 and Figure 13. The locations of new steel poles are provided in Table 3.

*Figure 17 Visual Rendering of Proposed Action from Skyline Ridge (Winter)*

*Figure 18 Visual Rendering of Proposed Action from Skyline Ridge (Summer)*

*Figure 19 Visual Rendering of Proposed Action from Road Pull Out (Winter)*

*Figure 20 Visual Rendering of Proposed Action from Road Pull Out (Summer)*

#### *Cumulative Effects*

The Proposed Action would occupy the same viewshed as the Mystery Creek FirstNet Communications Project tower near Mystery Creek Road and the Sterling Highway MP 45-60 Project in the vicinity of Cooper Landing.

### 3.14.3. Designated Wilderness

#### *Affected Environment*

Wilderness areas are discussed in Section 3.5 of the CCP. The 1.35-million-acre Kenai Wilderness was created by the ANILCA. The Kenai Wilderness is subdivided between three units: Mystery Creek (46,068 acres), Dave Spencer (187,106 acres), and Andrew Simons (1,086,216 acres) (Figure 21; USFWS 2025).

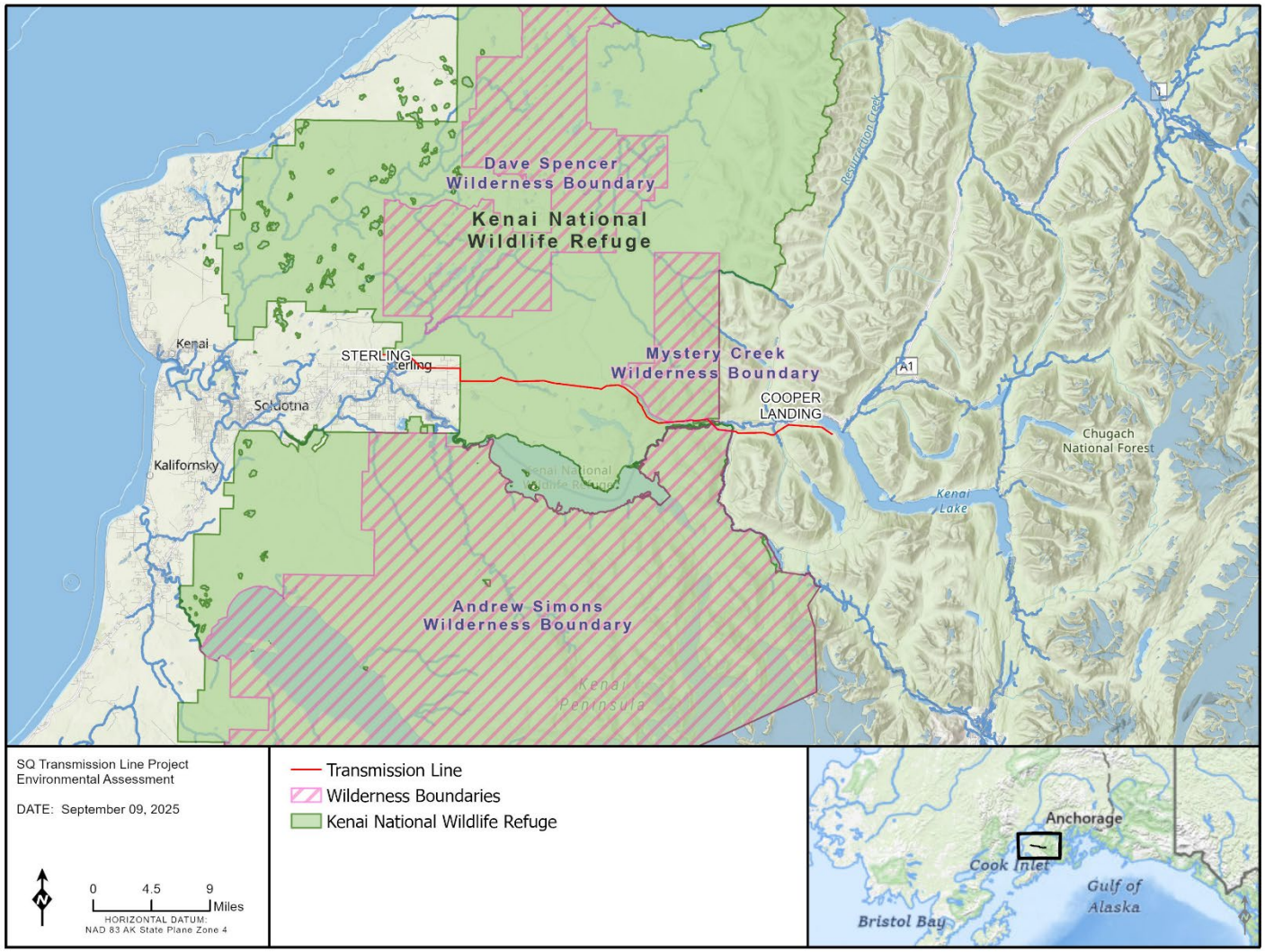


*Figure 21 Kenai National Wildlife Refuge Wilderness Areas*

### *Environmental Consequences*

#### *Alternative A*

Under the No Action Alternative, the transmission line would be operated, and its ROW would be regularly maintained, as it is under current conditions.

#### *Alternative B*

The Proposed Action would be sited adjacent to the Mystery Creek Wilderness Unit and the Andrew Simons Wilderness Unit. The Mystery Creek Wilderness Unit borders the Project ROW for 3.3 miles between proposed structure 13-4 and 10-3. The Project ROW is within 0.5 mile of the Mystery Creek Wilderness Unit over another 5.25 miles between proposed structure 18.5 and 10-3. The Andrew Simons Unit Borders the Project ROW for 1.8 mile between proposed structure 10-1 and 8-2. The Project ROW is within 0.5 mile of the Andrew Simons Unit over another 1.9 mile between 10-5 and 10-1 and between 13-6 and 12-4.

## 3.15. Chugach National Forest (CNF) Resources

### 3.15.1. Visitor Use and Experience

### *Affected Environment*

The Project ROW is within CNF Management Area 8 Front Country (Front Country) and CNF Management Area 2 Wild, Scenic, and Recreation Rivers (Wild, Scenic, and Recreation Rivers). Front Country is defined as having a high density of human activities and associated structures, including roads, utilities, and trails. It hosts a variety of opportunities for visitors including recreation and subsistence, both for motor vehicles and non-motorized uses. The USFS has recommended the lower Russian River as suitable for inclusion in the National Wild and Scenic Rivers System, however, Congress has not acted on this recommendation. The National Wild and Scenic Rivers System is managed to maintain and protect the free-flowing character of certain river corridors that exhibit outstanding natural, cultural, and recreational values for the benefit of present and future generations. The Lower Russian River segment is primarily classified within Wild, Scenic, and Recreation Rivers for recreational reasons as it provides fishing and other recreational opportunities and historic and cultural values (USFS 2020).

The Project ROW lies within CNF Kenai Peninsula Geographic Area. The Kenai Peninsula Geographic Area is managed to accommodate high levels of human use, while maintaining its natural-appearing character. CNF offers opportunities in the winter for snowmachine use and other winter recreational activities. Common summer season activities include hiking, camping, mountain biking, horseback riding, fishing, hunting, and mountaineering with opportunities for canoeing, rafting, and other forms of boating on lakes and rivers (USFS 2020).

### *Environmental Consequences*

#### *Alternative A*

Under the No Action Alternative, the transmission line would be operated, and its ROW would be regularly maintained, as it is under current conditions. Maintenance needs for the transmission line would be anticipated to increase as infrastructure ages. This would result in increased maintenance visits to the Project ROW. Maintenance equipment in the Project ROW would be anticipated to result in noise and aesthetic impacts, with the presence of maintenance vehicles producing noise adjacent to CNF and the presence of maintenance personnel.

#### *Alternative B*

Construction of the Proposed Action would occur in CNF during two construction periods, October 2027 to April 2028 and March 2027 to June 2027. Vegetation clearing in the ROW would occur on a seven- to ten-year cycle with additional maintenance occurring on an as-need basis.

Proposed Action construction would require construction vehicles to be operated in the Project ROW through CNF. Construction equipment would result in noise impacts and has the potential to detract from the aesthetic value of the CNF landscape (Section 3.15.2). Staging areas at the Pink Salmon Parking Lot, Russian River Campground Overflow Parking Lot, and Stetson Creek Trailhead have the potential to interfere with visitor use. Schooner Bend and Stetson Creek Trailhead parking lot would be in use between March 2027 and June 2027. Construction is anticipated to cease prior to sockeye fishing on the Russian River to not interfere with recreational fishing. The Pink Salmon Parking Lot would be used as a staging area between October 2027 and April 2028. The Schooner Bend staging area is not open to the public and would not limit visitor access to CNF. The Stetson Creek parking lot would be used as a staging area during times that would conflict with visitor use and may limit visitor access to CNF. The Pink Salmon Parking Lot would be used when the Russian River Campground is closed to visitors. Visitors use the Russian River Campground Road for cross-country skiing.

Construction may limit access to segments of the Russian Lakes Trail and Stetson Creek Trail. One pole structure would be sited approximately 100 feet away from where Russian Lakes Trail crosses the Project ROW. Construction may limit access to the segment of Russian Lakes Trail south of where it crosses the Project ROW, which includes USFS cabins access, for the one to two days construction would be occurring in this location. One pole structure would be removed 50 feet away from where the Stetson Creek Trail crosses the Project ROW. Another pole structure would be installed 250 feet away from where the Stetson Creek Trail Crosses the Project ROW. Access may be limited to where the Stetson Creek Trail crosses the Project ROW for the two to four days construction is anticipated to occur in this area. AEA would coordinate with USFS on appropriate measures for visitor safety and trail access at these locations. People

recreating on Russian River Campground Road would be approximately 500 feet away from the siting of one pole structure if they are at the southernmost location on Russian River Campground Road.

AEA would be instructed to allow space for parking at each staging area so that CNF access is not blocked off altogether at any location. The presence of equipment and infrastructure would reduce parking potential and may make access to CNF more competitive. If parking lots fill up from the combination of visitor vehicles and construction equipment during construction, visitors may not be able to access desired locations in CNF.

Blasting is anticipated to be used infrequently for the Proposed Action. Blasting would result in noise that may disrupt visitors near the Project ROW. Additionally, construction personnel with USFS may need to limit use to some areas of CNF if blasting were to occur for visitor safety. Construction in CNF would occur primarily in winter and spring when CNF is used less by visitors.

### 3.15.2. Aesthetics, Viewsheds, and Visual Resources

#### *Affected Environment*

Visitors travel to CNF for multiple benefits, including its aesthetics (USFS 2020). The Sterling Highway is not considered a scenic byway west of Skilak Lake Road. The Sterling Highway is a Scenic Highway East of Skilak Lake Road past east of Kenai Lake. The Project ROW is currently populated with wood poles that support the transmission line between Sterling and Quartz Creek Substation. Photographs of wood poles representative of conditions within CNF are provided in Figure 12 through Figure 15.

#### *Environmental Consequences*

##### *Alternative A*

Under the No Action Alternative, the transmission line would be operated, and its ROW would be regularly maintained, as it is under current conditions. Maintenance needs for the transmission line are anticipated to increase as infrastructure ages. This would result in increased maintenance visits to the Project ROW. Maintenance equipment in the Project ROW would detract from the aesthetic value of the viewshed surrounding the Project ROW. Maintenance activities in the Project ROW are anticipated to detract from aesthetics.

##### *Alternative B*

The Project ROW transects areas identified by USFS in the CNF Management Plan as being very high (Wild, Scenic, and Recreation River) and moderate (Front Country) scenic integrity objectives. Places of very high scenic integrity generally provide for only ecological changes in the natural landscape and complete intactness of landscape character in cultural landscapes. Moderate scenic value is designated for landscapes that appear slightly altered. Noticeable human created deviations must remain visually subordinate to the landscape character being

viewed (USFS 2020). Within the very high scenic integrity objectives area, two pole structures would be added and five would be removed. The remaining 54 structures would be placed on land designated as having moderate scenic integrity objectives.

USFS guidelines for the CNF in the CNF Management Plan include "Co-locate new permitted infrastructure with existing infrastructure where practical to reduce environmental and visual impacts of electrics sites, utility corridors, and other permitted infrastructure". New poles would be sited within the same ROW as the existing utility poles.

Steel poles would be used in the CNF which would occupy a larger vertical footprint than the existing wood poles. Steel poles are represented in Figure 17 through Figure 20.

Construction activities, particularly the use of staging areas and helicopter activities, may detract from the physical landscape. Four staging areas are proposed on USFS lands, at the Pink Salmon Parking Lot, Schooner Bend, Russian River Campground Overflow Parking Lot, and Stetson Creek Trailhead.

# Chapter 4: Consultation and Coordination

## 4.1. Public Involvement

This draft environmental assessment was available for public review and comment for 30 days, from June 23, 2025, through July 23, 2025. Members of the public were notified of the availability of the draft documents by publication in the Anchorage Daily News and the Peninsula Clarion, the notification was also posted on the Refuge website, and landowners and community members potentially affected by the Proposed Action were notified of the draft document and public meetings via mailed postcards. The draft document was also made available at the Kenai National Wildlife Refuge headquarters at 33398 Ski Hill Road, Soldotna, AK, via email at Kenai@fws.gov, or available as a downloaded document from the Refuge website at:
https://fws-fileshare.box.com/s/xyc2l47omxg901lva9b2ubwvza3s4oga.

Public open houses for the Sterling to Quartz Creek Transmission Line Project were held on July 15, 2025, at the Sterling Community Center, and on July 16, 2025, at the Cooper Landing Community Club. Four community members attended the open house in Sterling, and no community members attended the Cooper Landing open house. A Question-and-Answer session was held at the Sterling meeting in lieu of a formal presentation.

No written comments were submitted at either meeting; however, two entities, Chugach Electric Association and the State of Alaska Department of Natural Resources, provided written comments to the Refuge Manager at Kenai National Wildlife Refuge. Written comments received were related to construction activity timing, clarification of transmission line structure and guard structure specifications, and clarification of the status of the lower Russian River as suitable for inclusion in the National Wild and Scenic Rivers System. Response to comments are addressed in this Final EA.

## 4.2. State, Federal, and Local Agency Coordination

USFWS and USFS prepared this EA to identify and assess the reasonably foreseeable environmental effects of the Project and alternatives, facilitate public involvement and informed agency decision-making, and recommend appropriate mitigation measures.

The EA provides a basis for coordinated federal input, review, and decision-making in a single document.

## 4.3. Tribal Consultation

In compliance with EO 13175, Consultation and Coordination with Indian Tribal Governments, federal agencies are required to consult with federally recognized tribal governments during the NEPA process. USFWS identified tribal governments potentially affected by the project. Letters were sent to ten identified tribal governments in April 2024 inviting them to consult on

this project. The Kenaitze Indian Tribe responded to the consultation letter on May 7, 2024, expressing appreciation for the opportunity to consult on the project. While noting the lack of documented archaeological resources in the project corridor, Kenaitze Indian Tribe indicated interest in contributing input for the Environmental Assessment and may be able to participate in field efforts, depending on available resources. The following tribes were contacted:

- Ninilchik Native Association
- Ninilchik Village
- Port Graham Corporation
- Port Graham Village
- Salamatof Native Association
- Salamatof Village
- Seldovia Native Association
- Seldovia Village Tribe
- Tyonek Native Corporation
- Village of Nanwalek
- Village of Tyonek
- Cook Inlet Region, Inc.
- Kenaitze Indian Tribe

# Chapter 5: List of Preparers and Sources

## 5.1. List of Preparers

AEA and its contractor, HDR, prepared this EA in cooperation with USFWS. Table 10 lists the individuals responsible for the preparation and management of this EA as well as those who provided technical assistance.

*Table 10 Preparers*

| Name | Organization | Role | Background |
|---|---|---|---|
| Aidan Barlow-Diemer | HDR | Cultural Resources Specialist/Archaeologist | MA History – Underwater Archaeology and Anthropology<br>Years of Experience: 1 |
| Melissa Becker | HDR | Alaska ES&P Business Class Leader/NEPA Lead | MS Environmental Science<br>BS Environmental Science<br>BA Environmental Studies<br>Years of Experience: 25 |
| Josh Buza | HDR | Environmental Scientist | MS Natural Resource Management<br>GCert UAS and GIS<br>BS Ecology<br>Years of Experience: 10 |
| Wendi Deschamps | HDR | Environmental Permitter | BS Natural Science<br>Years of Experience: 22 |
| Nora Hotch | HDR | Environmental Sciences Section Manager/Deputy Project Manager | BA Environmental, Population, and Organismic Biology<br>Years of Experience: 20 |
| Stephanie Larson | HDR | NEPA Specialist, Technical Editor | MA Linguistics<br>BS Biology<br>BA Comparative Literature<br>Years of Experience: 24 |
| Tobin Lilly | HDR | Senior GIS Analyst | BS Computer Science<br>Years of Experience: 20 |
| Amy Ostman | HDR | Alaska Resources Business Group Leader/Project Manager | MS Applied Environmental Science and Technology<br>BS Applied Physics<br>Years of Experience: 26 |
| Margaret Zhu | HDR | Environmental Scientist | BS Marine Biology and Oceanography<br>Years of Experience: 2 |

Note: HDR= HDR Engineering, Inc.; MA = Master of Arts; MS = Master of Science; GCert = Graduate Certificate; UAS = Unmanned Aircraft Systems; GIS = Geographic Information Systems; BS = Bachelor of Science; BA = Bachelor of Arts

## 5.2. List of Sources Consulted

| Name | Organization | Role |
|---|---|---|
| Nic Lucore | USFWS | Conservation Planner |
| Diana Biesanz | USFWS | Realty Officer |
| Jacob Adams | USFWS | Archaeologist |
| Jeremy Karchut | USFWS | Regional Archaeologist/Regional Historic Preservation Officer |
| Todd Eskelin | USFWS | Wildlife Biologist |
| Matt Conner | USFWS | Visitor Services Manager |
| Clifton Peterson | USFWS | Facilities Operations Specialist |
| Sabrena Camp | USFWS | Energy and Transportation Biologist |
| Steve Miller | USFWS | Acting Refuge Manager |
| Becky Jones | USFS | Wildlife |
| Tim Marshall | USFS | Heritage |
| Dave Pearson | USFS | Fisheries |
| Peter Frank | USFS | Ecology |
| Monika Adam | USFS | Recreation |
| Andrew Sanders | USFS | Subsistence |
| Alex Palombo | USFS | Hydrology |
| Jesse Labenski | USFS | Project Manager |
| Amanda Goss | USFS | Geology |
| Griff Berg | USFS | Engineering |
| Ruth D'Amico | USFS | District Ranger |

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# Appendix A: Compatibility Determination

# Compatibility Determination

## Title

Compatibility Determination for Alaska Energy Authority's Projects 2 and 3 of the Sterling Substation to Quartz Creek Substation Transmission Line Rebuild on Kenai National Wildlife Refuge

## Refuge Use Category

Rights-of-way and Rights to Access

## Refuge Use Type(s)

Rights-of-way (utility)

## Refuge

Kenai National Wildlife Refuge

## Refuge Purposes and Establishing and Acquisition Authorities

Franklin D. Roosevelt established the Kenai National Moose Range (Moose Range) on December 16, 1941, for the purpose of ". . . protecting the natural breeding and feeding range of the giant Kenai moose on the Kenai Peninsula, Alaska, which in this area presents a unique wildlife feature and an unusual opportunity for the study, in its natural environment, of the practical management of a big-game species that has considerable local economic value…" (Executive Order 8979).

In 1980, Alaska National Interest Lands Conservation Act (ANILCA) redesignated the Moose Range as the Kenai National Wildlife Refuge (Refuge), broadened its conservations purposes, substantially expanded the boundaries, and established the 1.35 million-acre Kenai Wilderness. Today, the Refuge comprises over 1.9 million acres.

ANILCA sets out purposes for the refuge in Section 303(4)(B) of the Act. ANILCA purposes for the Refuge are as follows:

(i) to conserve fish and wildlife populations and habitats in their natural diversity, including but not limited to moose, bears, mountain goats, Dall sheep, wolves and other furbearers, salmonoids and other fish, waterfowl and other migratory and nonmigratory birds;

(ii) to fulfill the international treaty obligations of the United States with respect to fish and wildlife and their habitats;

(iii) to ensure, to the maximum extent practicable and in a manner consistent with the purposes set forth in paragraph (i), water quality and necessary water quantity within the Refuge;

(iv) to provide, in a manner consistent with subparagraphs (i) and (ii), opportunities for scientific research, interpretation, environmental education, and land management training; and

(v) to provide, in a manner compatible with these purposes, opportunities for fish and wildlife-oriented recreation.

U.S. Fish and Wildlife Service (Service) policy (FWS 603 2.8) directs that pre-ANILCA purposes remain in force and effect, except to the extent that they may be inconsistent with ANILCA or the Alaska Native Claims Settlement Act, and that such purposes only apply to those areas of the Refuge in existence prior to ANILCA. The Executive Order purpose to protect Kenai moose, however, is treated as complementary to the broader ANILCA purpose of conserving fish and wildlife populations; therefore, no special attention is given the Executive Order purpose in this compatibility review process.

As discussed above, ANILCA designated approximately 1,350,000 acres of the Refuge as wilderness. Except as otherwise expressly provided for in ANILCA, designated wilderness is to be administered in accordance with applicable provisions of the Wilderness Act of 1964 (Public Law 88-577). Section 4(b) of the Wilderness Act provides, "Except as otherwise provided in this chapter, each agency administering any area designated as wilderness shall be responsible for preserving the wilderness character of the area and shall so administer such area for such other purposes for which it may have been established as also to preserve its wilderness character. Except as otherwise noted in this Act, wilderness areas shall be devoted to the public purposes of recreational, scenic, scientific, educational, conservation, and historical use."

## National Wildlife Refuge System Mission

The mission of the National Wildlife Refuge System (NWRS) is to administer a national network of lands and waters for the conservation, management, and,

where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans (Pub. L. 105-57, 111 Stat. 1252).

## Description of Use

### Is this an existing use?

Yes

### What is the use?

On January 8, 2025, the Service accepted an application from Alaska Energy Authority (Applicant) for a right-of-way (ROW) transportation or utility systems (TUS) permit to upgrade their existing ROW for the 115kV transmission line to accommodate 230kV transmission line and a fiber optic cable. The portion of the transmission line on the Refuge generally parallels the Sterling Highway from Three Johns Road to the U.S. Forest Service boundary at the Russian River (Fig. 1). This transmission line crosses the Sterling Highway at three locations within the boundary of the Refuge.

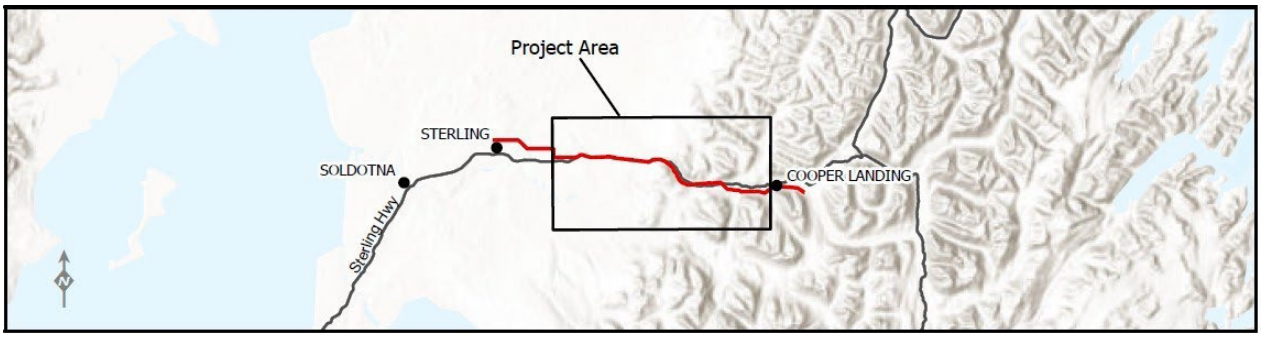



Figure 1. Proposed Project Location

A utility ROW grants the right to use and possibly alter the landscape through construction, maintenance, and operation of water or fuel pipeline, power line, telecommunications line or tower, or other utility. This compatibility determination (CD) specifically evaluated the issuance of a ROW (utility) permit for the upgrade of an existing ROW that will require the placement of poles in new locations, use of metal poles (versus wooden poles currently used), increasing the height of poles and the eventual replacement of the transmission line that will be capable of

carrying the heavier load 230 kV versus current 115 kV.

Also evaluated within this CD is the use of access routes that are outside of the existing ROW permit.

## Is the use a priority public use?

No. This is not a use of a national wildlife refuge involving hunting, fishing, wildlife observation and photography, or environmental education and interpretation. The NWRS Administration Act of 1966 as amended by the National Wildlife Refuge System Improvement Act of 1997 (16 U.S.C. 3101, 664, 668dd and 668ee and 43 U.S.C. 666) specifies that these are the six priority general public uses of the NWRS.

## Where would the use be conducted?

This CD applies only to the proposed ROW permit for the use of approximately 323 acres of land to upgrade the existing transmission line from Three Johns Road to the U.S. Forest Service boundary at the Russian River, paralleling the Sterling Highway (Fig. 2) and associated access areas. This area occurs in the eastern portion of the Refuge, north of the glacial Skilak Lake (25,000 acres).

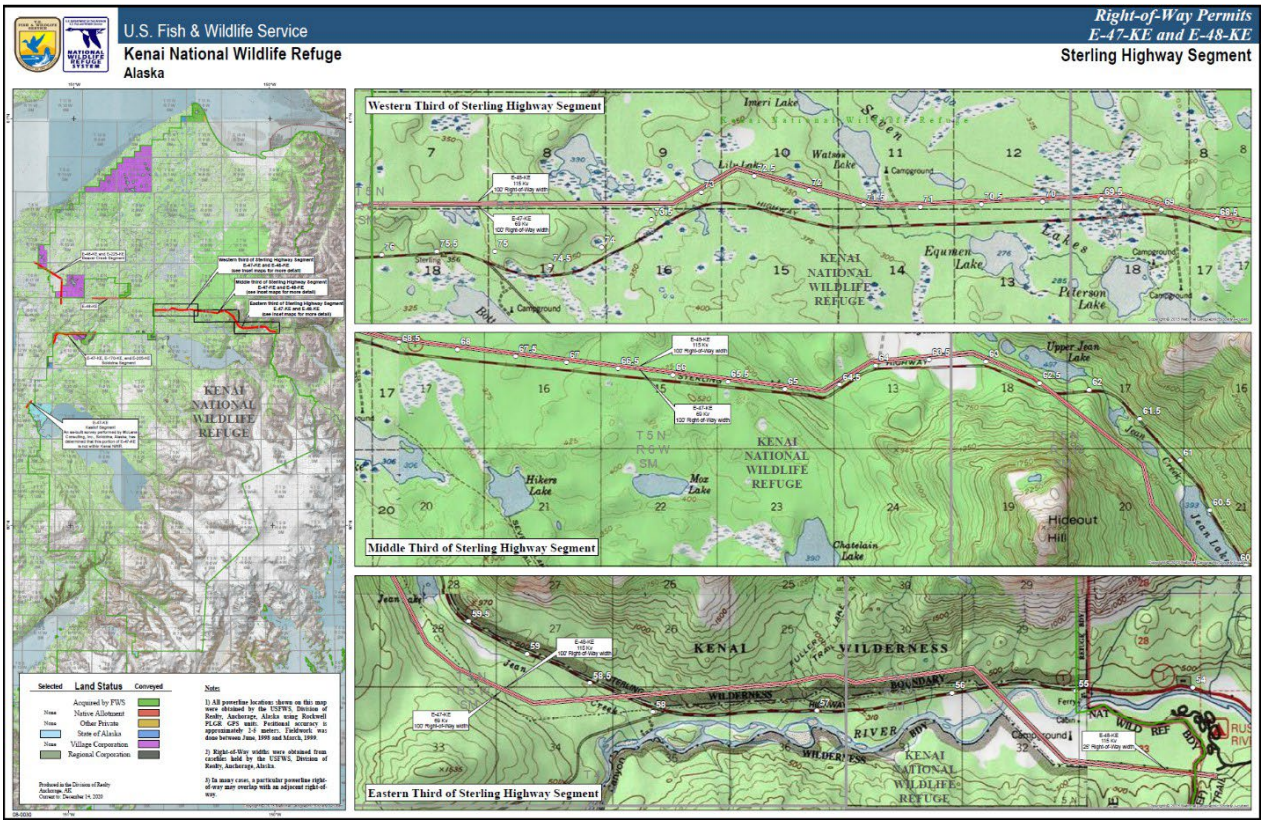



Figure 2. Alaska Energy Authority's Projects 2 and 3 of the Sterling Substation to Quartz Creek Substation Transmission Line Rebuild Right-of-Way Figure, demonstrating the sections occurring on the Refuge from Three Johns Road to the U.S. Forest Service boundary at the Russian River.

The existing transmission line is located within the boreal forest portion of the Refuge, dominated by white and black spruce with a mixture of aspen and birch. Extensive peatlands are interspersed among spruce in the Kenai Lowlands surrounding most of the proposed project site, with the eastern most section located within and adjacent to the Kenai Mountains.

The existing transmission line crosses or is in close proximity to numerous bodies of water including Lily Lake, East Fork Moose River, Jean Creek, Kenai River, and several unnamed wetlands and seasonal drainages. To avoid impacts to watersheds, the project schedule and operations provide for minimal disturbances to these bodies of water.

A more detailed description of the Refuge environment is found in the 2010 Revised Comprehensive Conservation Plan (USFWS 2010).

## When would the use be conducted?

This evaluation covers the issuance of a ROW permit to replace and upgrade an existing power transmission line. The ROW permit will be for continued use and occupancy of the site for 20 years. After 20 years, the compatibility of the power line would be re-evaluated and a new ROW permit issued as appropriate.

Use of the site primarily consists of five phases: construction of new pole settings, removal of old poles, replacement of the transmission lines, continued operation and maintenance, and decommissioning.

Construction would likely take place between the months of October and April (although construction in upland areas could potentially occur during any season) with operation occurring following completion of construction. Construction would commence after approval (weather permitting), and the estimated completion date is within two years after the construction commencement date.

Site visits by the applicant or their contractors would occur as needed during the life of the project. These site visits could occur during any time of the year and depend on operational needs. Visits will be needed for inspection and to maintain vegetation adjacent to and under the lines.

Decommissioning would occur upon the expiration of the ROW permit if no new ROW permit were issued for the facility or earlier if the applicant determines the installation is no longer needed.

## How would the use be conducted?

A new ROW for a TUS on Refuge lands will be granted if the system is found to have no significant impact on the environment under the National Environmental Policy

Act (NEPA) (42 U.S.C. 4321-4347) and is found to be compatible with Refuge purposes and meets the criteria outlined in Section 1104(g)(2) of ANILCA and the regulations at 43 CFR 36.7(a)(2), which includes a determination of whether there is any economically feasible and prudent alternative to siting the system in the Refuge. If approved, permits issued for a TUS will contain terms and conditions as required under regulations at 43 CFR 36.9(b) and 50 CFR 29.21 through 29.24. Typically, we issue ROW permits for a 20-year term with the option for renewal but can authorize a ROW permit from 10 years up to a 50-year term per 50 CFR 29.21-3(a).

*Construction*

335 steel poles would be installed under the proposed action and followed by the removal of 444 existing wood poles. The steel poles will increase structure height averaging 75 feet but may reach heights of 125 feet. Transmission line poles may be accompanied by guy anchors and wires to provide structural support. Pole installation would include the use of heavy equipment to auger a foundation hole for the new pole or, in limited locations within the Kenai Mountains, using blasting techniques to create the needed hole or loosen material. The pole or structural supports would then be inserted into the ground or driven into the ground with a pile driver. Holes left after the pole has been sited would be backfilled with clean, non-frost susceptible, locally-sourced fill material that is weed free. A new transmission wire and fiber optic cable would be installed after the new poles are sited. The wires would be transferred to the new transmission line poles from storage reels.

The wires and poles from the transmission line being replaced would be removed once construction of the new line is complete. The old poles would initially be cut off above the ground and the remaining pole butt would be removed by a skid steer loader with attached hydraulic pole remover. The hole left behind by removing the pole would be backfilled with clean backfill. Topsoil would then be used to fill the hole to the surrounding ground surface. A seed mix of native vegetation approved by the Service would be applied to the topsoil fill. All other remaining transmission line materials from the old transmission line will be decommissioned and removed from the site.

Blasting may be used as a technique to clear hard rock that cannot be excavated by using traditional heavy machinery. The construction contractor would develop a blasting plan that details blasting techniques and timing in accordance with federal, state, and local regulations and would secure permits if blasting is required.

Selected staging areas will be used for temporary storage of materials and equipment including light and heavy-duty trucks, cranes, dozers, pile drivers, drill

rigs, woodchippers, snow machines, snowcats, helicopters and other construction equipment.

*Site Access*

Construction crews and equipment would enter and exit the ROW exclusively at approved and established access locations, and construction would only occur within the transmission line ROW. Motorized vehicles would not access the Mystery Hills and Andrew Simmons Wilderness Areas from the ROW. Helicopters would be used to access areas where terrain prohibits tracked vehicle use. Helicopter pads are located within 0.3 miles of the ROW. Helicopters would be required to access staging areas to sling poles and other equipment from the staging areas to the ROW. Access points would be gated or bermed to manage access to the ROW. Minor vegetation removal would be required at access locations to allow for safe access. Vegetation clearing of existing ROW will continue.

*Maintenance and Operations*

The following activities may occur as needed during operations and maintenance of the proposed action after construction is completed: helicopter fly-overs, climbing inspections, transmission structure condition surveys, repair and replacement of equipment, numbering of key structures, straightening or shoring up structures, vegetation management, access maintenance and emergency response and repair.

Access to the ROW would be coordinated at least 30 days in advance, however the Applicant may be required to access the transmission line on a shorter timeline during emergency situations.

Vegetation clearing in the ROW would continue to occur on a seven- to ten-year cycle and occur within the Service's recommended time frame to avoid impacts to the migratory bird nesting window for Alaska. Vegetation control would take place beneath, and immediately adjacent to, the transmission line and at access locations. Vegetation management under the proposed action would be the same as is currently exercised for the existing transmission line in the Project ROW.

*Decommissioning/Termination*

Upon termination of the Applicant's lease, the Applicant will remove all equipment, structures and any other items within the lease area as required. The Applicant will be responsible for returning the site to its original condition.

## Why is this use being proposed or reevaluated?

The Applicant applied for a ROW permit to upgrade and existing transmission line on the Refuge under Title XI of ANILCA. Pursuant to Title XI and 43 CFR 36 requirements, the proposed use must be compatible with the purposes for which the Refuge was established. This determination was made in accordance with the National Wildlife Refuge System Administration Act of 1966 as amended by the National Wildlife Refuge System Improvement Act of 1997 (16 U.S.C. 3101, 664, 668dd and 668ee and 43 U.S.C. 666) and National Wildlife Refuge System compatibility policy (603 FW 2).

The existing transmission line currently supports 115kV while the upgraded line will support 230kV and a fiber optic cable for internal monitoring. This upgrade will provide continued usage of the transmission line while updating the current equipment that is reaching the end of its expected lifespan.

# Availability of Resources

Oversight of this ROW permit would require significant staff effort before and during construction, a minimal amount of staff time would be required annually during the life of the project, and again, a significant amount of effort during decommissioning at the end of the project life.

Prior to construction, staff time would be focused on site visits, evaluating specific construction plans, review and approval of the necessary NEPA documents, and development and implementation of special use permits. Following all necessary approvals, staff time would include execution of the ROW permit with appropriate bonding and other required documents and field monitoring to assure compliance with provisions of the operations plan and permit. Annual monitoring would focus on compliance with the operations plan and permits and adherence to mitigation measures.

| **Category and Itemization** | **One-time Cost** | **Recurring Annual Expenses** |
|---|---|---|
| Staff time - Planning | $15,000 | |
| Staff time - Construction | $7,500 | |
| Staff time - Operation and Maintenance | -- | $2,500 |

| | | |
|---|---|---|
| Staff time – Decommissioning/Termination | 7,500 | |
| **Total one-time expenses** | **30,000** | |
| **Total recurring annual expenses** | **--** | **$2,500** |
| **Offsetting revenues** | **--** | **--** |
| **Total expenses** | **--** | **$32,500** |

## Anticipated Impacts of the Use

The effects of the proposed use to Refuge purposes and the Refuge System mission are those that are reasonably foreseeable and have a reasonably close causal relationship to the proposed use. This compatibility determination includes discussion of the anticipated short- and long-term impacts of the use on the Refuge when the impacts could be more than negligible.

Additional effects and mitigating measures were included in the Environmental Assessment (USFWS 2025) associated with this project and were made available for public comment during the same time period.

### Potential impacts of a proposed use on the refuge's purposes and the NWRS mission

| Affected Environment | Anticipated Impacts to Resources |
|---|---|
| Wildlife and Habitat | Vegetation management will continue within the 100 foot right-of-way (ROW). Steel poles will be taller than wood poles, which may require an initial increase in vegetation clearing but should somewhat reduce the clearing required over time.<br><br>Construction, maintenance and decommissioning may increase susceptibility to invasive species through bare soil exposure.<br><br>Construction and maintenance activities may |

| Affected Environment | Anticipated Impacts to Resources |
|---|---|
| | result in localized and temporary instances of noise exceeding background levels in the refuge and into the Kenai Wilderness. |
| Visitor Use and Experience | Scenic views will continue to be impacted by the transmission line, including an increased disturbance due to taller steel pole heights.<br><br>Construction and maintenance activities may result in localized and temporary instances of noise exceeding background levels. Staging areas for equipment may temporarily impact visitor use parking availability. |
| Wilderness | The close proximity of the ROW to designated Wilderness may lead to temporary impacts to solitude during construction, maintenance and decommissioning due to noise. The presence of taller visible power poles from Wilderness may impact the undeveloped character of Wilderness. |

## Public Review and Comment

Legal notice of the draft compatibility determination was published in the Anchorage Daily News and the Peninsula Clarion announcing a 30-day public comment period occurring from June 23, 2025 to July 23, 2025. A notice was placed on the Refuge's website <https://www.fws.gov/refuge/kenai> and on the refuge Facebook page. Landowners and community members potentially affected by the proposed action were notified of the draft document and associated public meetings via mailed postcards. The draft document was made available at the Kenai National Wildlife Refuge headquarters and was available as a downloaded document from the Refuge website at:
https://fws-fileshare.box.com/s/xyc2l47omxg901lva9b2ubwvza3s4oga

Public open houses were held on July 15, 2025 at the Sterling Community Center and on July 16, 2025 at the Cooper Landing Community Club.

The State of Alaska and Chugach Electric Association provided comments on this

CD. A summary of those comments and any changes made are included as Attachment 1 – Public Comment Analysis.

## Determination

Use is compatible with the following Stipulations.

## Stipulations Necessary to Ensure Compatibility

Due to the evaluation covering the issuance of a ROW permit to replace and upgrade an existing power transmission line, the stipulations are as follows:

- Construction and associated staging of the upgraded transmission line will occur in the winter conditions, typically October-April, to minimize impacts to wildlife, habitat, and visitor disturbance.
- Maintenance, including vegetation clearing, within the ROW and along approved access routes would be consistent with existing conditions.
- For crossing wetlands, matting will be used if snow and ice cover is not suitable enough to prevent ground disturbance.

## Justification

While this use does result in environmental impacts, under the stipulations outlined above, we do not believe that these impacts rise to a level so as to materially interfere or detract from achieving Refuge purposes of fulfilling the NWRS mission. Therefore, Alaska Energy Authority's upgrade to their existing transmission line outlined in this compatibility determination, with continued management and oversight by the Refuge to reduce and mitigate for potential and realized impacts to resources including wildlife, habitats and water quality, are compatible with meeting the NWRS mission and fulfillment of Refuge purposes to: (i) "conserve fish and wildlife populations and habitats in their natural diversity...," (ii) "fulfill international treaty obligations ... with respect to fish and wildlife and their habitats, " (iii) ensure ...water quality...," and with purposes under the Wilderness Act. These uses, under the stipulations outlined above in place to minimize wildlife, habitat, and visitor disturbance, are also compatible with meeting the NWRS mission and Refuge purposes to provide opportunities for (iv) educational, interpretive and scientific activities and (v) wildlife-dependent recreational uses.

Allowing the upgrade of the existing transmission line, as outlined above, would not conflict with the requirements of ANILCA to conserve fish and wildlife populations

and habitats in their natural diversity or the NWRS Administration Act, as amended, to maintain the biological integrity, biological diversity, and environmental health of the Refuge.

## Signature of Determination

STEPHEN MILLER

Digitally signed by STEPHEN MILLER
Date: 2025.12.18 08:02:26 -09'00'

12/18/25

Refuge Manager Signature and Date

## Signature of Concurrence

KARLIN ITCHOAK

Digitally signed by KARLIN ITCHOAK
Date: 2025.12.18 13:11:59 -09'00'

12/18/25

Assistant Regional Director Signature and Date

## Mandatory Reevaluation Date

This CD will expire at the same time as the ROW permit issued for this use expires.

## Literature Cited/References

USFWS. 2010. Revised Comprehensive Conservation Plan and Environmental Impact Statement (2 volumes): Kenai National Wildlife Refuge. USFWS, Region 7, Division of Conservation Planning & Policy, Anchorage, AK.

USFWS. 2025. Environmental Assessment Right of Way Authorization for Projects 2 and 3 of the Sterling Substation to Quart Creek Substation Transmission Line Rebuild: Kenai National Wildlife Refuge. USFWS, Region 7, Anchorage, AK.

# Appendix B: ANILCA Section 810 Analysis

**ANILCA Section 810 Evaluation**
**of**
**Alaska Energy Authority's Projects 2 and 3 of the Sterling Substation to Quartz Creek Substation Transmission Line Rebuild**
**on**
**Kenai National Wildlife Refuge**

**Finding of No Significant Restriction to Subsistence Uses**

The U.S. Fish and Wildlife Service (Service), acting for the Secretary of Interior, is required by Section 810 of the Alaska National Interest Lands Conservation Act (ANILCA) to evaluate the effects on subsistence uses and needs in determining whether to withdraw, reserve, lease, or otherwise permit the use, occupancy, or disposition of public lands on national wildlife refuges in Alaska. The evaluation of effects of this proposed action/use on subsistence uses and needs is documented below. If this evaluation concludes with a finding that the proposed action would result in significant restriction to subsistence uses and needs, and we wish to proceed, we must initiate further procedural requirements of Section 810.

Proposed Action/Use

The Service is evaluating a proposal to upgrade an existing transmission line from Three Johns Road to the U.S. Forest Service boundary at the Russian River occurring within Kenai National Wildlife Refuge (Refuge). The proposed action includes the following:

*Construction*

Total length of the existing right-of-way (ROW) for the transmission line on Refuge lands is 142.471 feet (27 miles), mainly with a width of 100 feet, encompassing approximately 323 acres.

335 steel poles would be installed under the proposed action to support the transition to a 230 kV transmission line from the current 115 kV. This would be followed by the removal of 444 existing wood poles. The steel poles will increase structure height averaging 75 feet but may reach heights of 125 feet. Transmission line poles may be accompanied by guy anchors and wires to provide structural support. Pole installation would include using heavy equipment to auger a foundation hole for the new pole, then inserting the pole into the ground with a pile driver. Holes left after the pole has been sited would be backfilled with clean, non-frost-susceptible, locally-sourced fill material that is weed free.

A new transmission wire and fiber optic cable for internal monitoring would be installed after the new poles are sited. The wires would be transferred to the new transmission line poles from storage reels. The wires and poles from the transmission line being replaced would be removed once construction of the new line is complete.

Blasting may be used as a technique to clear hard rock that cannot be excavated by using traditional heavy machinery. The construction contractor would develop a blasting plan that details blasting techniques and timing in accordance with federal, state, and local regulations and would secure permits if blasting is required.

Selected staging areas will host staged materials including light and heavy-duty trucks, cranes, dozers, pullers, pile drivers, tensioners, skid steers, forklifts, generators, light plants, drill rigs, woodchippers, snow machines, snowcats, helicopters and other construction equipment.

*Access*

Construction crews and equipment would enter and exit the ROW exclusively at approved and established access locations, and construction would only occur within the transmission line ROW. Motorized vehicles would not access the Mystery Hills and Andrew Simmons Wilderness Areas from the ROW. Helicopters would be used to access areas where terrain prohibits tracked vehicle use. Helicopters would be required to access staging areas to sling poles and other equipment from the staging areas to the ROW. Access points would be gated or bermed to manage access to the ROW. Minor vegetation removal would be required at access locations to allow for safe access. Vegetation clearing of existing ROW will continue.

*Maintenance and Operations*

The following activities may occur as needed during operations and maintenance of the proposed action after construction is completed: helicopter fly-overs, climbing inspections, transmission structure condition surveys, repair and replacement of equipment, numbering of key structures, straightening or shoring up structures, vegetation management, access maintenance and emergency response and repair. Access to the ROW would be coordinated at least 30 days in advance, however the Applicant may be required to access the transmission line on a shorter timeline during emergency situations.

Vegetation clearing in the ROW would continue to occur on a seven- to ten-year cycle and occur within the Service's recommended time frame to avoid impacts to the migratory bird nesting window for Alaska. Vegetation control would take place beneath, and immediately adjacent to, the transmission line and at access locations. Vegetation management under the proposed action would be the same as is currently exercised for the existing transmission line in the Project ROW.

*Decommissioning/Termination*

Upon termination of the Applicant's lease, the Applicant will remove all equipment, structures and any other items within the lease area as required. The Applicant will be responsible for returning the site to its original condition.

<u>Evaluation</u>

1. Subsistence Resources, Uses and Needs in the Affected Area:

   Hunting and trapping opportunities for several species are available for Federally-qualified subsistence users within the Refuge in general proximity along the transmission line. Black bear, brown bear, caribou, coyote, hare, lynx, wolverine, grouse, ptarmigan, Dall sheep, goat, and moose are among species harvested in the area.

Several federal subsistence fishing opportunities are provided within the Refuge. Although the Kenai and Russian Rivers support subsistence fishing, the proposed action construction would occur outside of peak spawning and subsistence use period.

2. Concerns Expressed by Potentially Affected Subsistence Users and/or the State:

None

3. Effects of Proposed Action or Use on Subsistence Uses and Needs:

The proposed action would not impact subsistence uses or detract from subsistence needs being met because direct effects on wildlife or habitat resources would be minor and availability or resources for subsistence uses would not be reduced. The proposed action would not increase competition for resources among users. The proposed action would not change the availability of resources by altering their distribution or location. Finally, the proposed action would not reduce subsistence uses and opportunity for such uses because of limitations on access to harvestable resources.

4. Availability of Other Lands for the Purposes Sought to be Achieved:

No other suitable sites which would meet the project purpose are available or are as compatible as the current site.

5. Other Alternatives Which Would Reduce or Eliminate Use of Public Lands Needed for Subsistence Purposes:

None. No other landowners are near the proposed site.

Finding

Based on review and evaluation of information described above and in the supporting references below, I have determined that the proposed action will not result in a significant restriction of subsistence uses.

Supporting Documentation

*Final Environmental Assessment, Right of Way Authorization for Projects 2 and 3 of the Sterling Substation to Quartz Creek Substation Transmission Line Rebuild, Kenai National Wildlife Refuge. 2025.*

Alaska National Interest Lands Conservation Act (ANILCA), 1980.

*Subsistence Management for Federal Public Lands in Alaska, Final Environmental Impact Statement. 1992.*

Agency Decision

A finding of no significant restriction in subsistence uses completes the Section 810 requirements. The proposed action may be authorized.

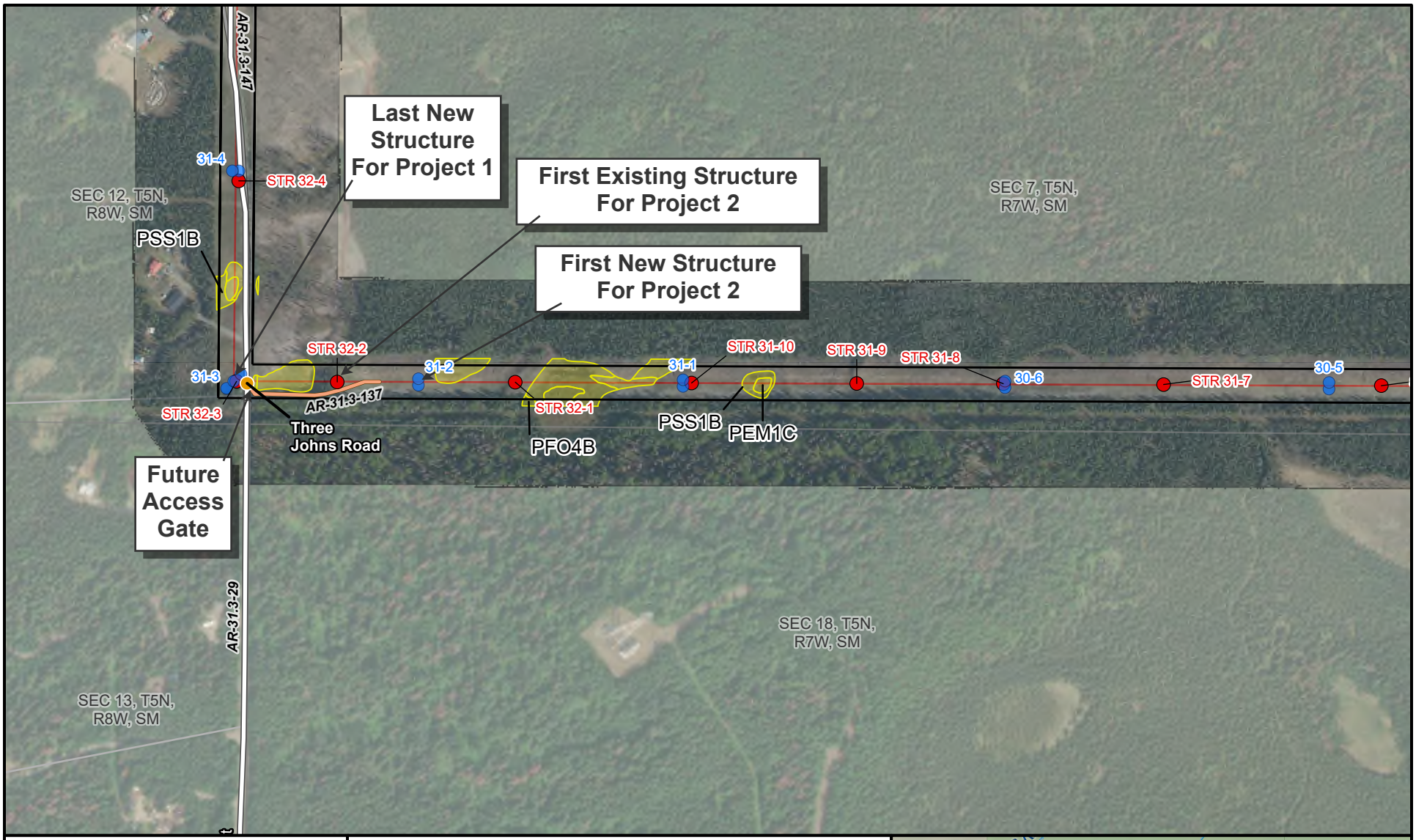
Consultation and Coordination

The Service invited the Alaska Native Claims Settlement Act (ANCSA) Corporation and Tribal Leaders to comment on or participate in the pre-NEPA scoping (letter dated April 22, 2024) and to participate in formal or informal consultation for this project throughout the planning processes.

KARLIN ITCHOAK Digitally signed by KARLIN ITCHOAK Date: 2025.12.18 13:23:54 -09'00'

Karlin Itchoak
Assistant Regional Director
National Wildlife Refuge System – Alaska

# Appendix C: Project ROW Figures




SQ Transmission Line Project
Environmental Assessment

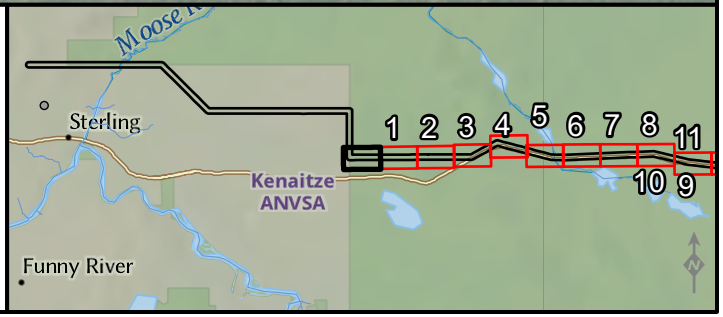
Sheet: 1 of 42
DATE: August 15, 2025

0 0.04 0.08 Miles

HORIZONTAL DATUM:
NAD 83 AK State Plane Zone 4

- Wetland Mapping
- 100 ft. Corridor Right of Way
- Transmission Line
- Roads
- Existing Structures
- New Structures

Access Routes
- Road
- Trail



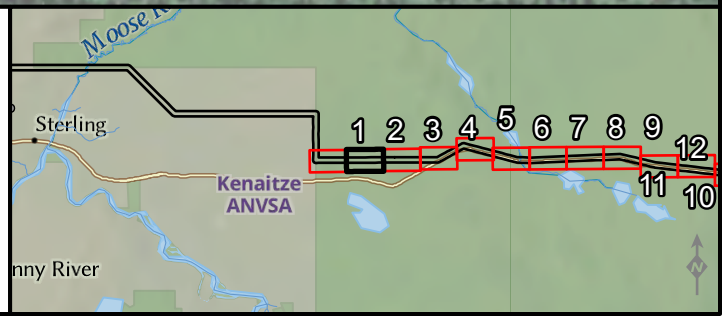

SQ Transmission Line Project
Environmental Assessment

Sheet: 2 of 42
DATE: August 15, 2025

0 0.04 0.08 Miles

HORIZONTAL DATUM:
NAD 83 AK State Plane Zone 4

- Wetland Mapping
- 100 ft. Corridor Right of Way
- Transmission Line
- Existing Structures
- New Structures



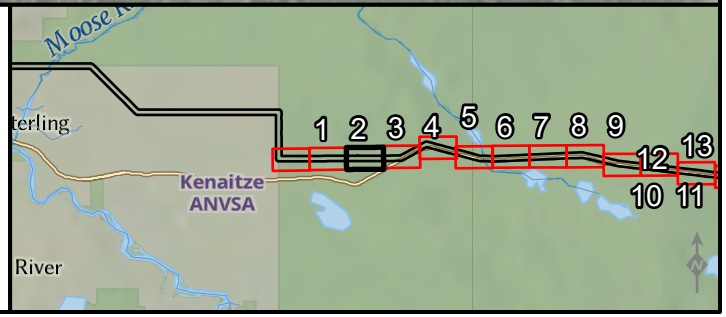

SQ Transmission Line Project
Environmental Assessment

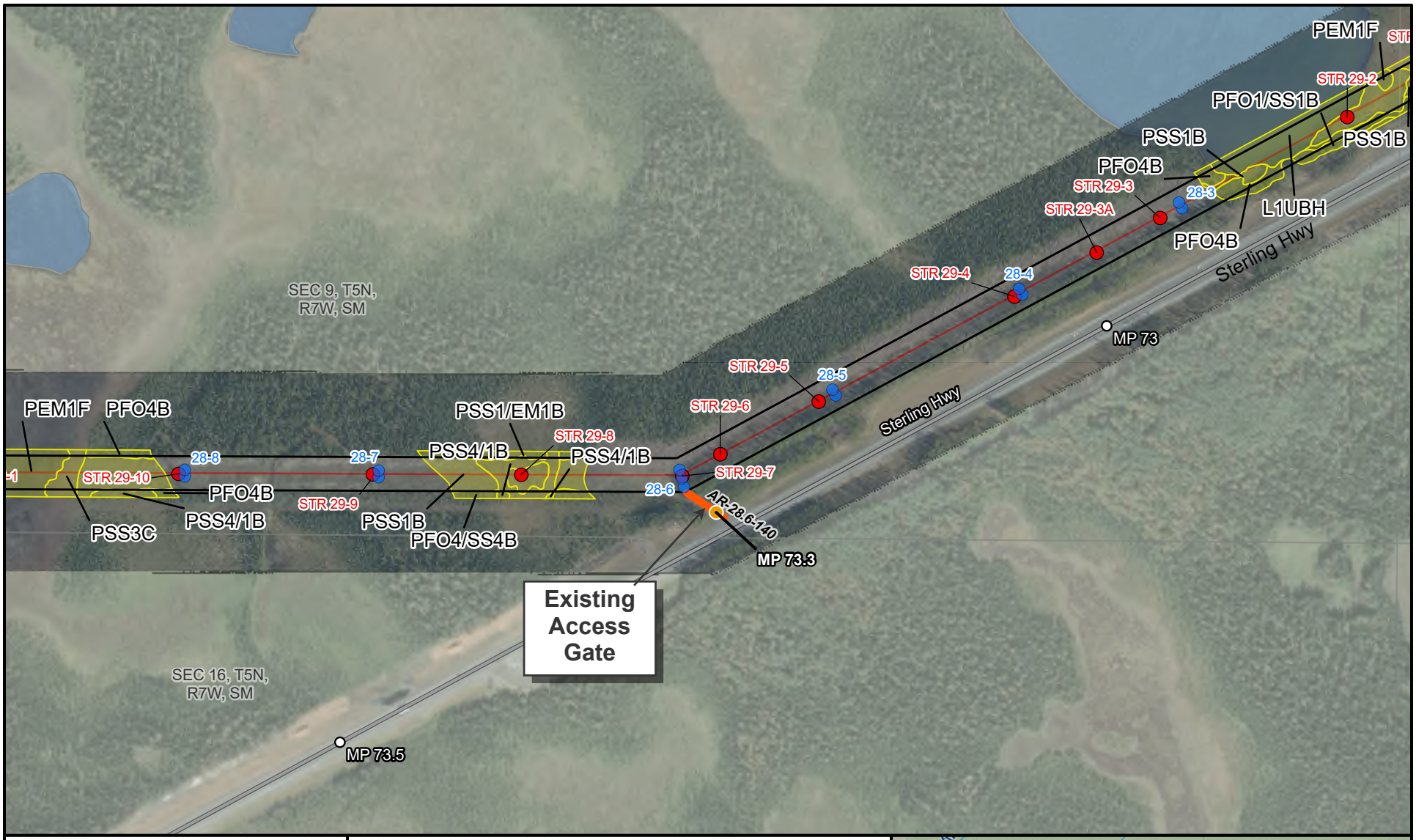
Sheet: 3 of 42
DATE: August 15, 2025

0 0.04 0.08 Miles

HORIZONTAL DATUM:
NAD 83 AK State Plane Zone 4

- Wetland Mapping
- 100 ft. Corridor Right of Way
- Transmission Line
- Existing Structures
- New Structures






SQ Transmission Line Project
Environmental Assessment

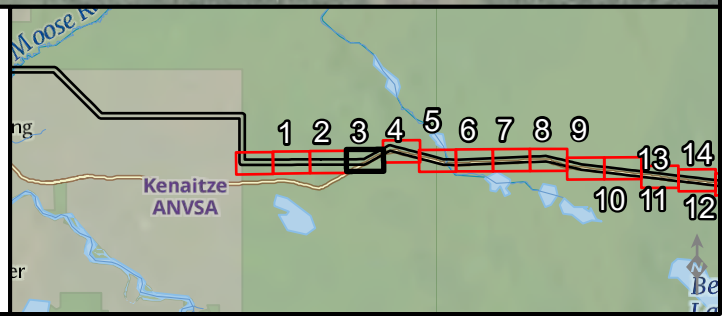
Sheet: 4 of 42
DATE: August 15, 2025

0 0.04 0.08 Miles

HORIZONTAL DATUM:
NAD 83 AK State Plane Zone 4

- Wetland Mapping
- 100 ft. Corridor Right of Way
- Transmission Line
- Roads
- Existing Structures
- New Structures

Access Routes
- Pullout




SQ Transmission Line Project
Environmental Assessment

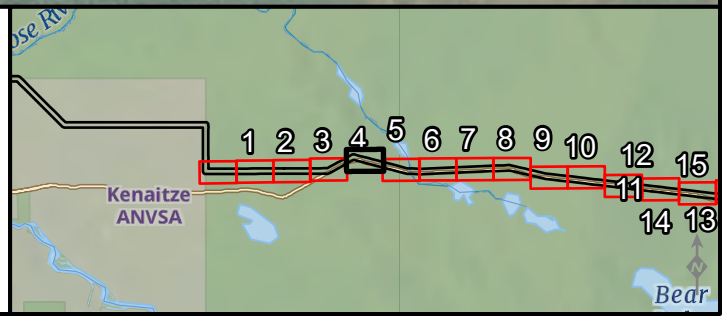
Sheet: 5 of 42
DATE: August 15, 2025

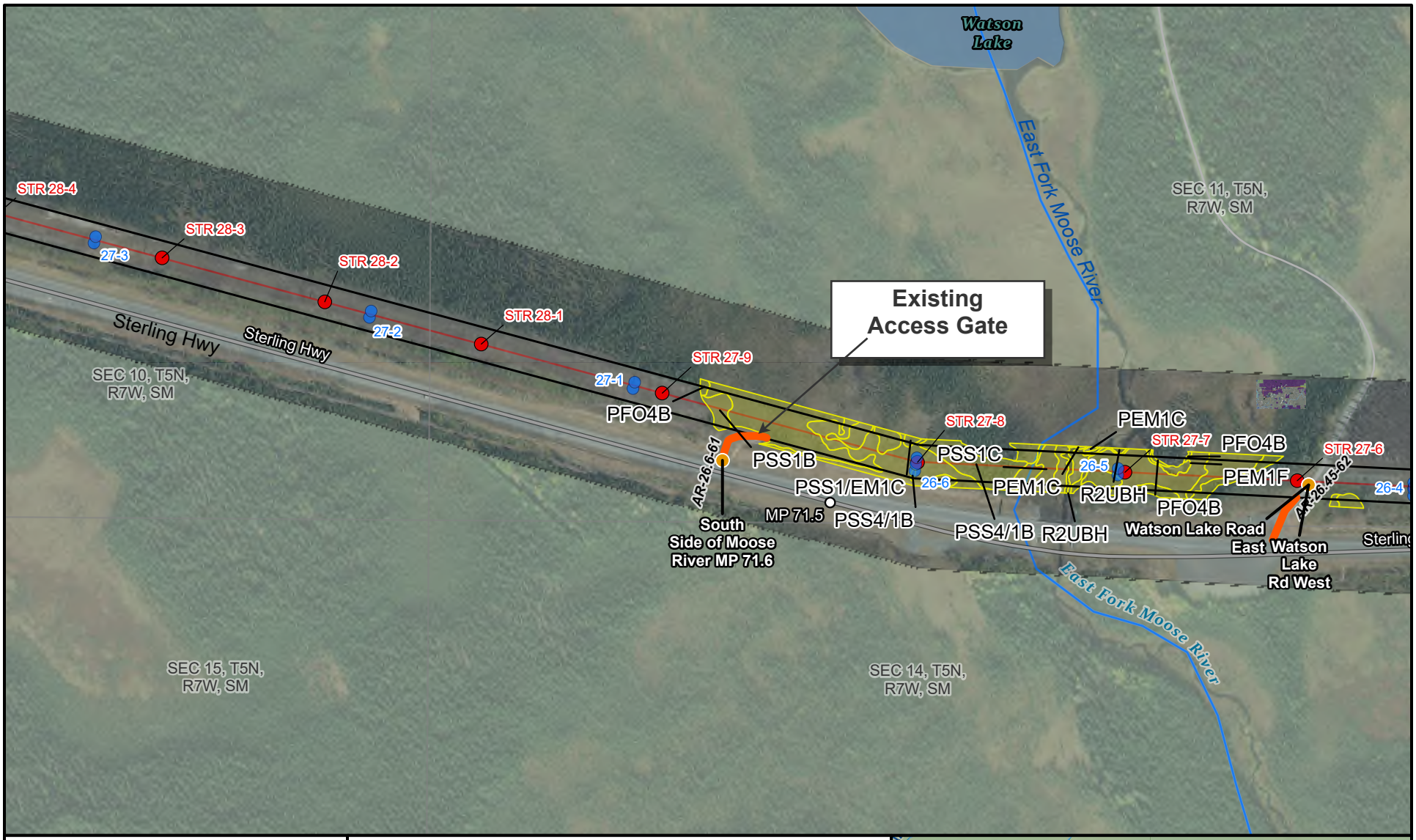
0 0.04 0.08 Miles

HORIZONTAL DATUM:
NAD 83 AK State Plane Zone 4

Wetland Mapping
100 ft. Corridor Right of Way
Transmission Line
Roads
Existing Structures
New Structures

Access Routes
Trail






SQ Transmission Line Project
Environmental Assessment

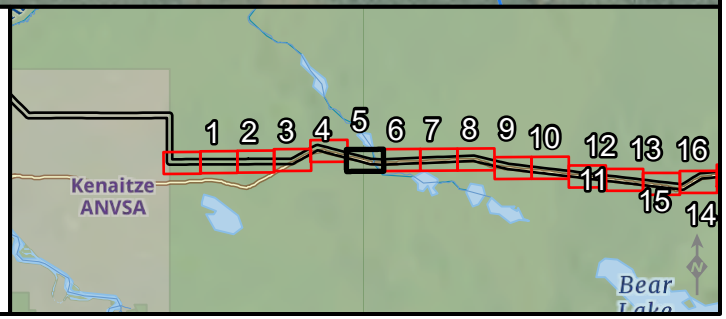
Sheet: 6 of 42
DATE: August 15, 2025

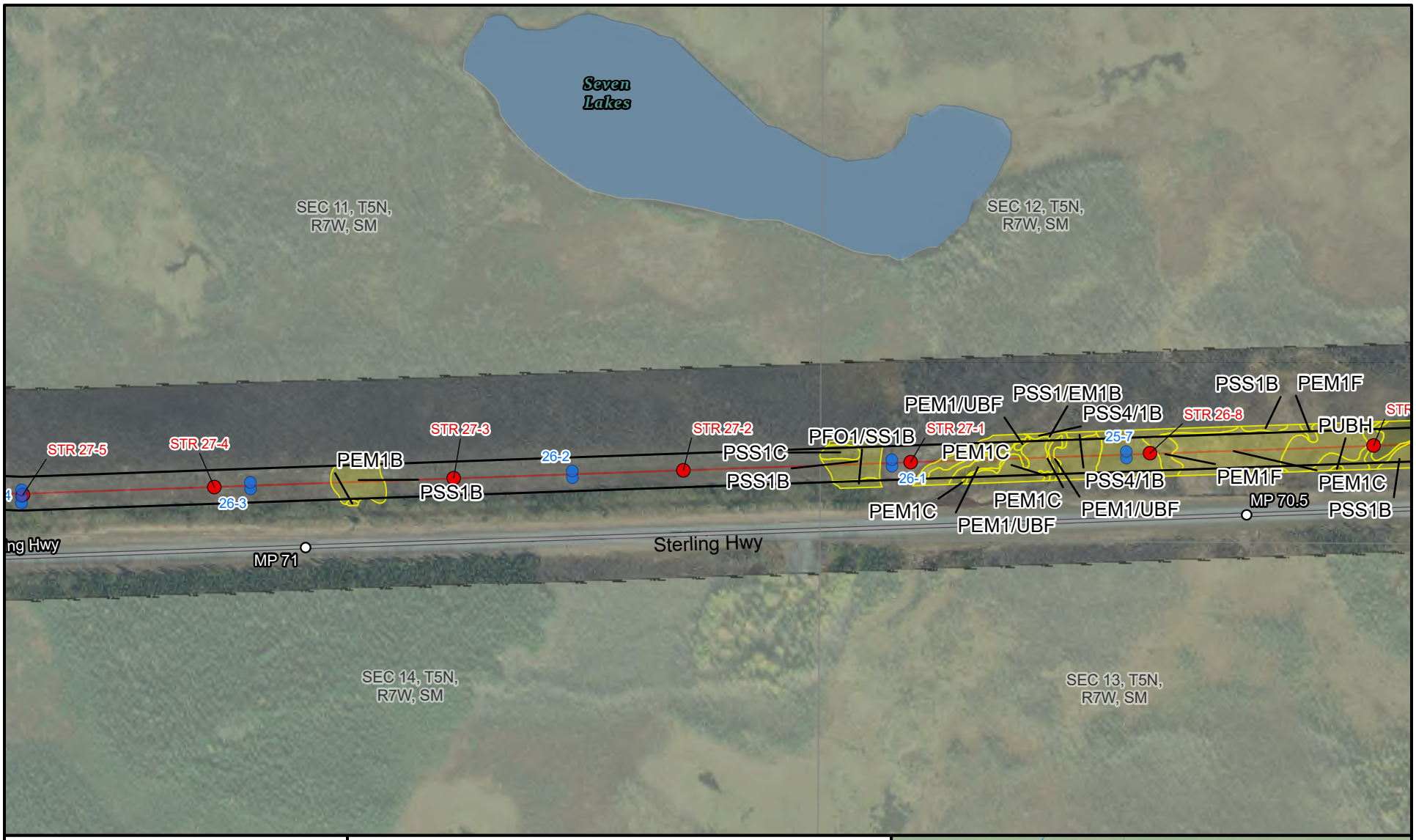
0 0.04 0.08 Miles

HORIZONTAL DATUM:
NAD 83 AK State Plane Zone 4

- Wetland Mapping
- 100 ft. Corridor Right of Way
- Transmission Line
- Roads
- Existing Structures
- New Structures

Access Routes
- Pullout





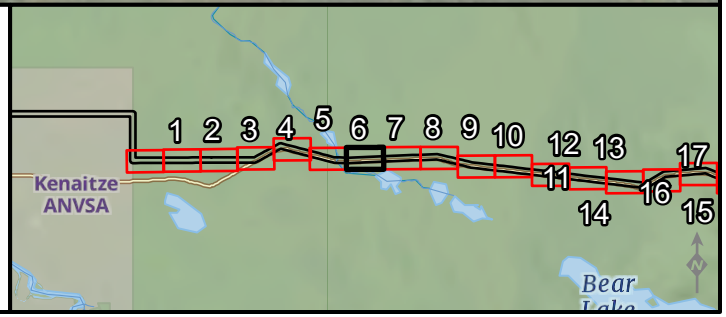

SQ Transmission Line Project
Environmental Assessment

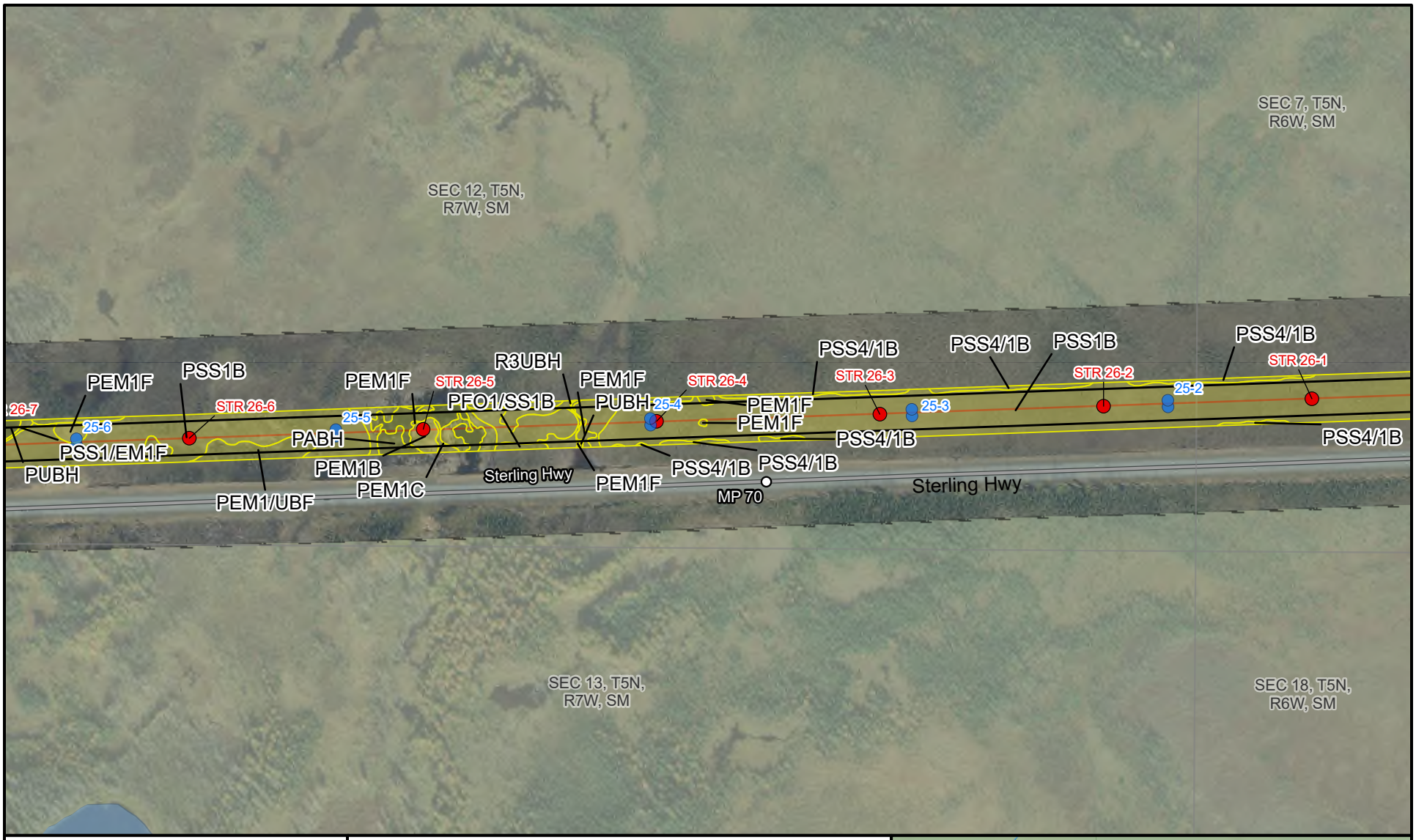
Sheet: 7 of 42
DATE: August 15, 2025

0 0.04 0.08 Miles

HORIZONTAL DATUM:
NAD 83 AK State Plane Zone 4

- Wetland Mapping
- 100 ft. Corridor Right of Way
- Transmission Line
- Roads
- Existing Structures
- New Structures






SQ Transmission Line Project
Environmental Assessment

Sheet: 8 of 42
DATE: August 15, 2025

0 0.04 0.08 Miles

HORIZONTAL DATUM:
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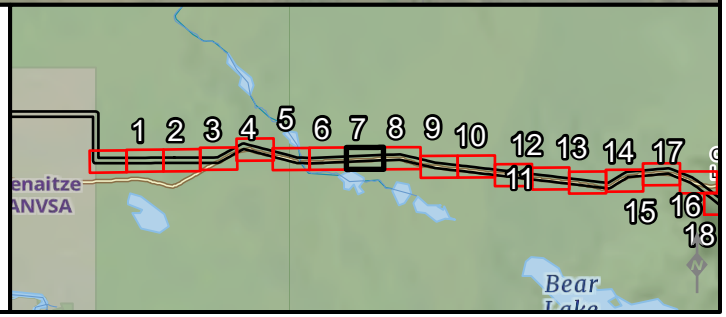
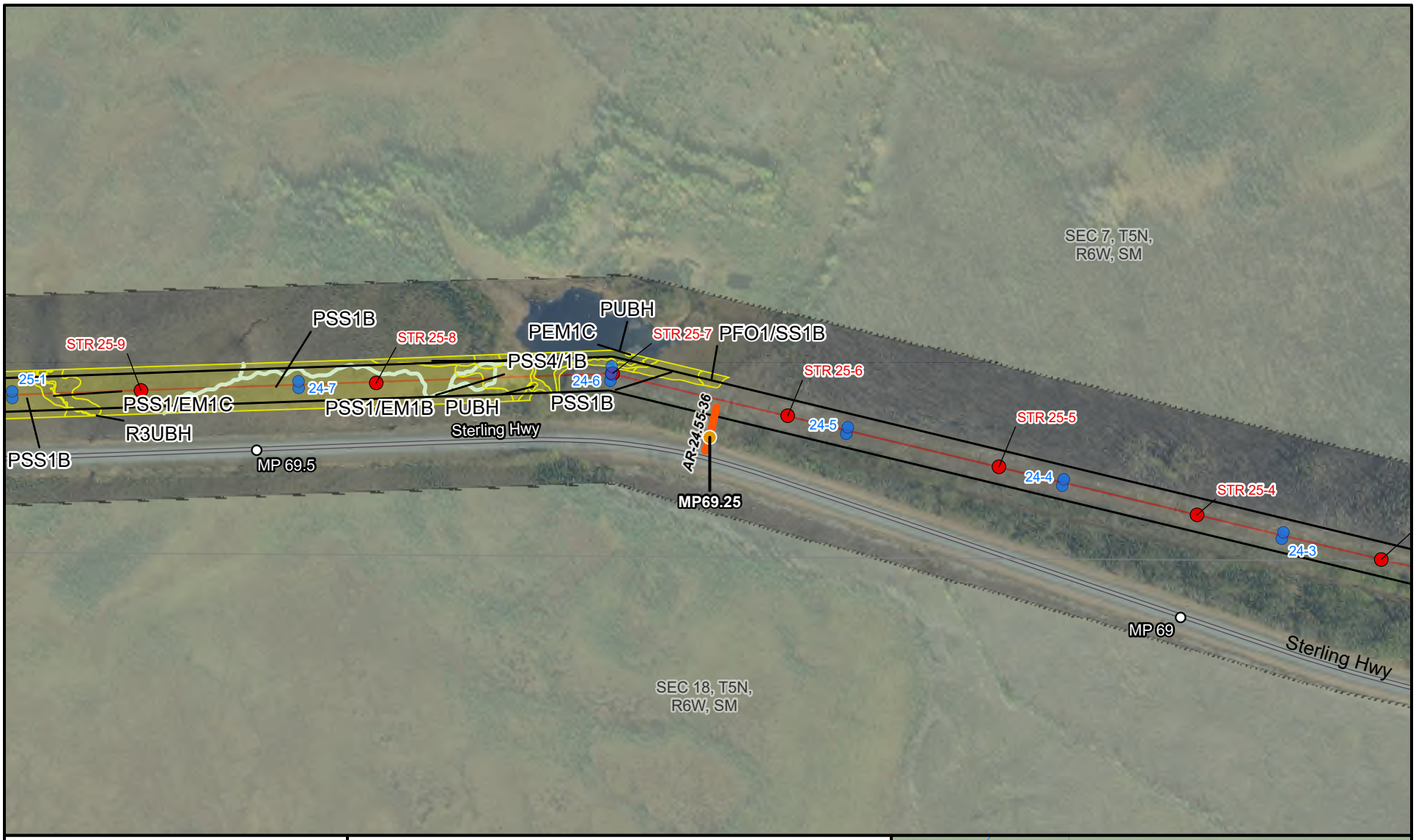
- Wetland Mapping
- 100 ft. Corridor Right of Way
- Transmission Line
- Roads
- Existing Structures
- New Structures






SQ Transmission Line Project
Environmental Assessment

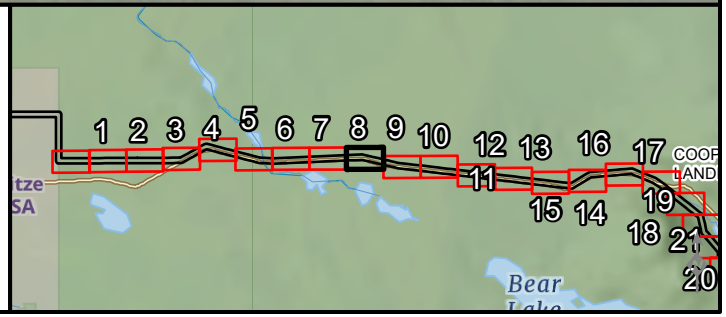
Sheet: 9 of 42
DATE: August 15, 2025

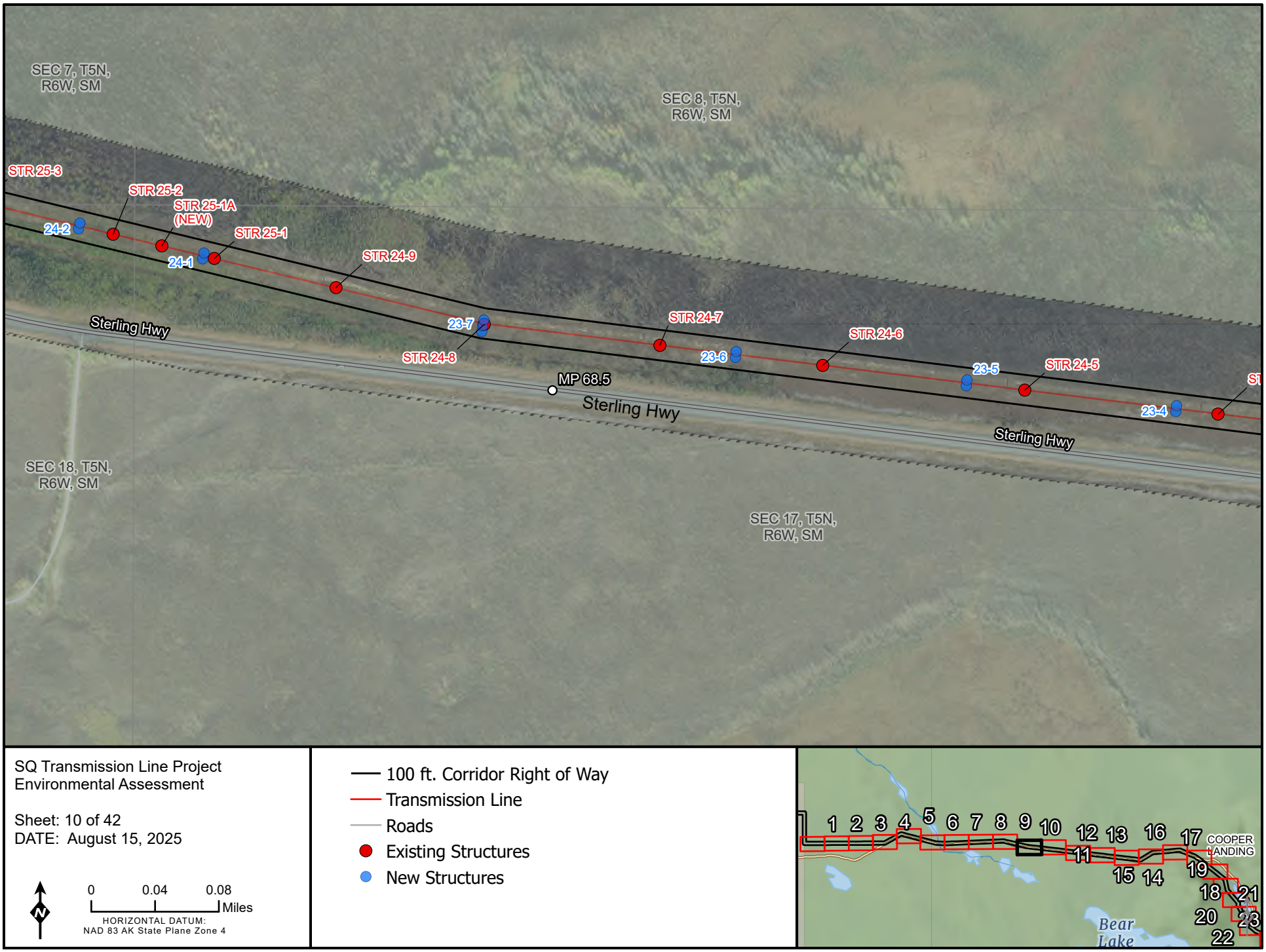
0 0.04 0.08 Miles

HORIZONTAL DATUM:
NAD 83 AK State Plane Zone 4

- Wetland Mapping
- 100 ft. Corridor Right of Way
- Transmission Line
- Roads
- Existing Structures
- New Structures

Access Routes
- Pullout

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SEC 8, T5N, R6W, SM
SEC 18, T5N, R6W, SM
SEC 17, T5N, R6W, SM
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STR 25-2
STR 25-1A (NEW)
STR 25-1
24-2
24-1
STR 24-9
23-7
STR 24-8
STR 24-7
23-6
STR 24-6
23-5
STR 24-5
23-4
Sterling Hwy
MP 68.5
Sterling Hwy
Sterling Hwy
SQ Transmission Line Project
Environmental Assessment
Sheet: 10 of 42
DATE: August 15, 2025
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Miles
HORIZONTAL DATUM:
NAD 83 AK State Plane Zone 4
100 ft. Corridor Right of Way
Transmission Line
Roads
Existing Structures
New Structures
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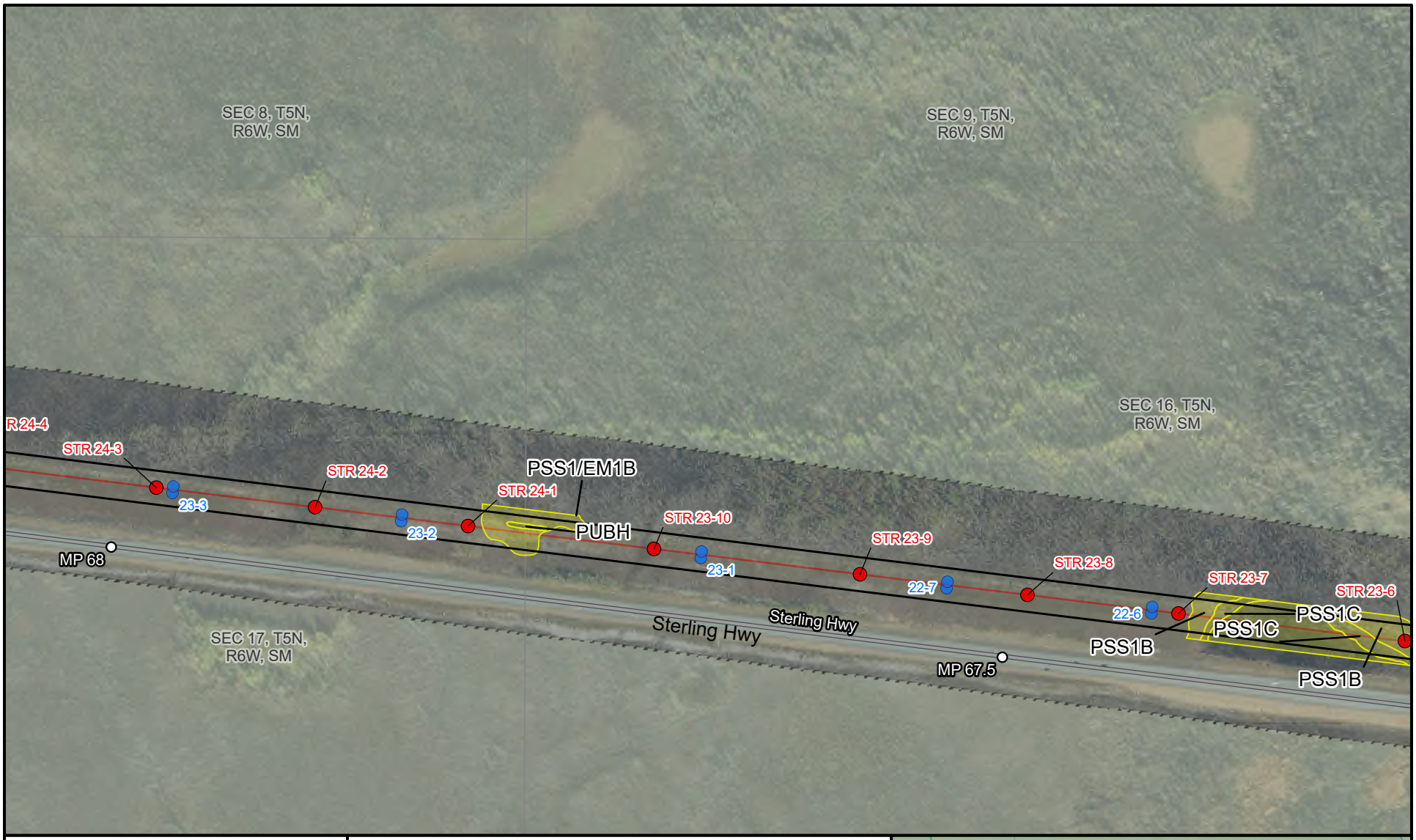
COOPER LANDING
Bear Lake




SQ Transmission Line Project
Environmental Assessment

Sheet: 11 of 42
DATE: August 15, 2025

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HORIZONTAL DATUM:
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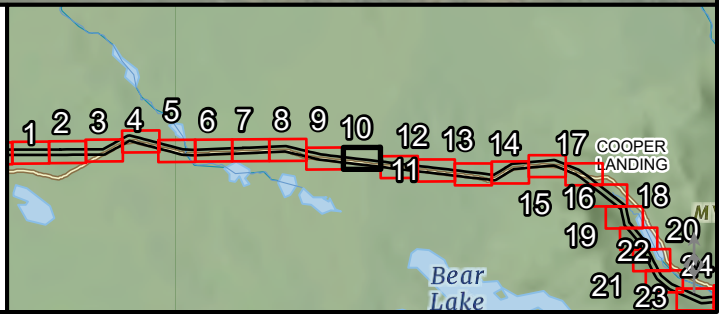
- Wetland Mapping
- 100 ft. Corridor Right of Way
- Transmission Line
- Roads
- Existing Structures
- New Structures




SQ Transmission Line Project
Environmental Assessment

Sheet: 12 of 42
DATE: August 15, 2025

0 0.04 0.08 Miles

HORIZONTAL DATUM:
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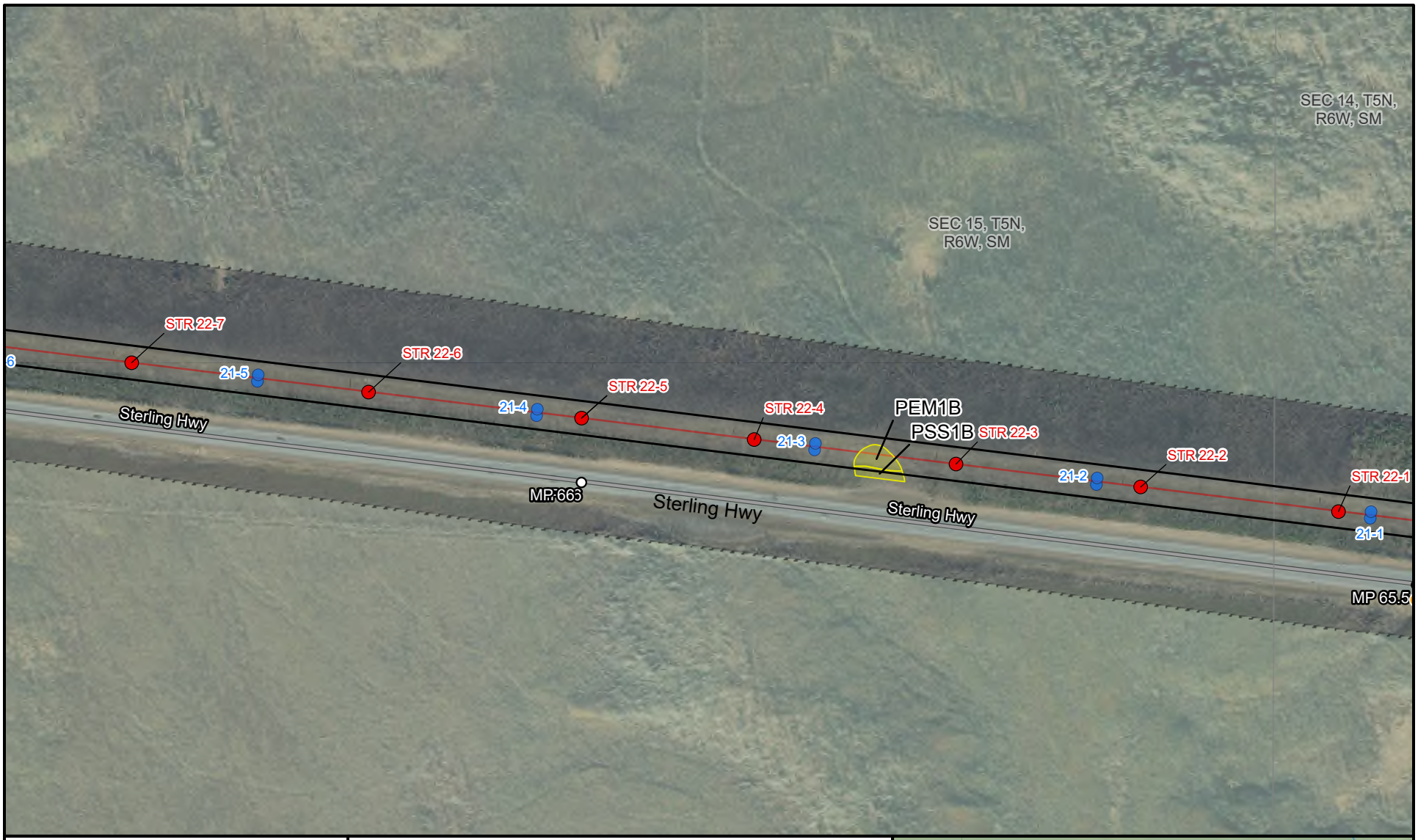
- Wetland Mapping
- 100 ft. Corridor Right of Way
- Transmission Line
- Roads
- Existing Structures
- New Structures



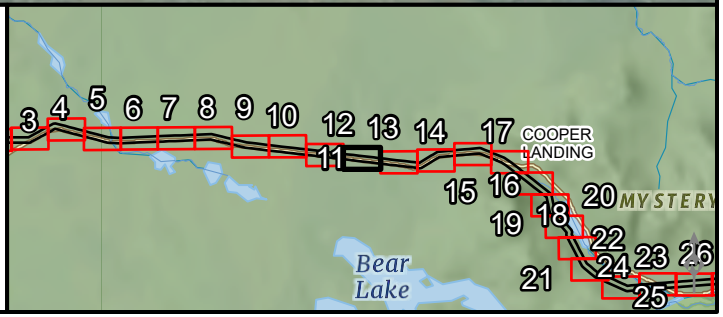

SQ Transmission Line Project
Environmental Assessment

Sheet: 13 of 42
DATE: August 15, 2025

0 0.04 0.08 Miles

HORIZONTAL DATUM:
NAD 83 AK State Plane Zone 4

- Wetland Mapping
- 100 ft. Corridor Right of Way
- Transmission Line
- Roads
- Existing Structures
- New Structures




SQ Transmission Line Project
Environmental Assessment

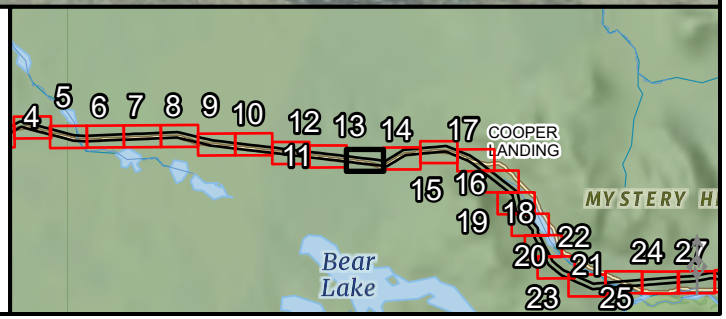
Sheet: 14 of 42
DATE: August 15, 2025

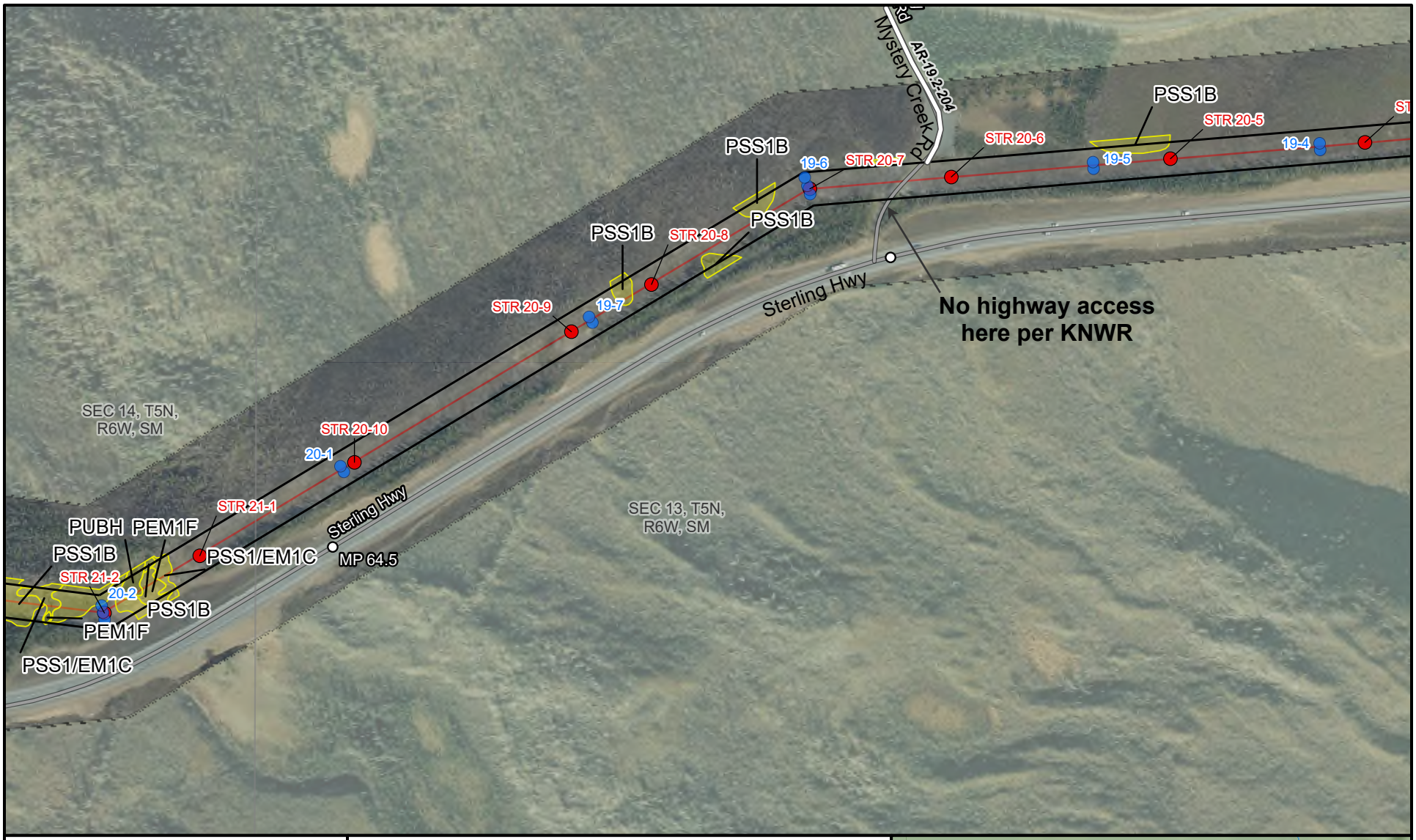
0 0.04 0.08 Miles

HORIZONTAL DATUM:
NAD 83 AK State Plane Zone 4

- Wetland Mapping
- 100 ft. Corridor Right of Way
- Transmission Line
- Roads
- Existing Structures
- New Structures

Access Routes
- Pullout






SQ Transmission Line Project
Environmental Assessment

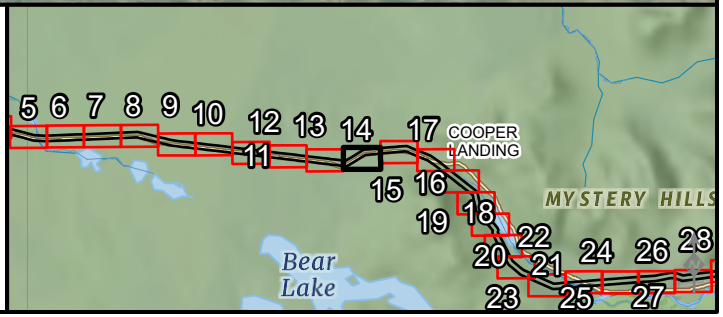
Sheet: 15 of 42
DATE: August 15, 2025

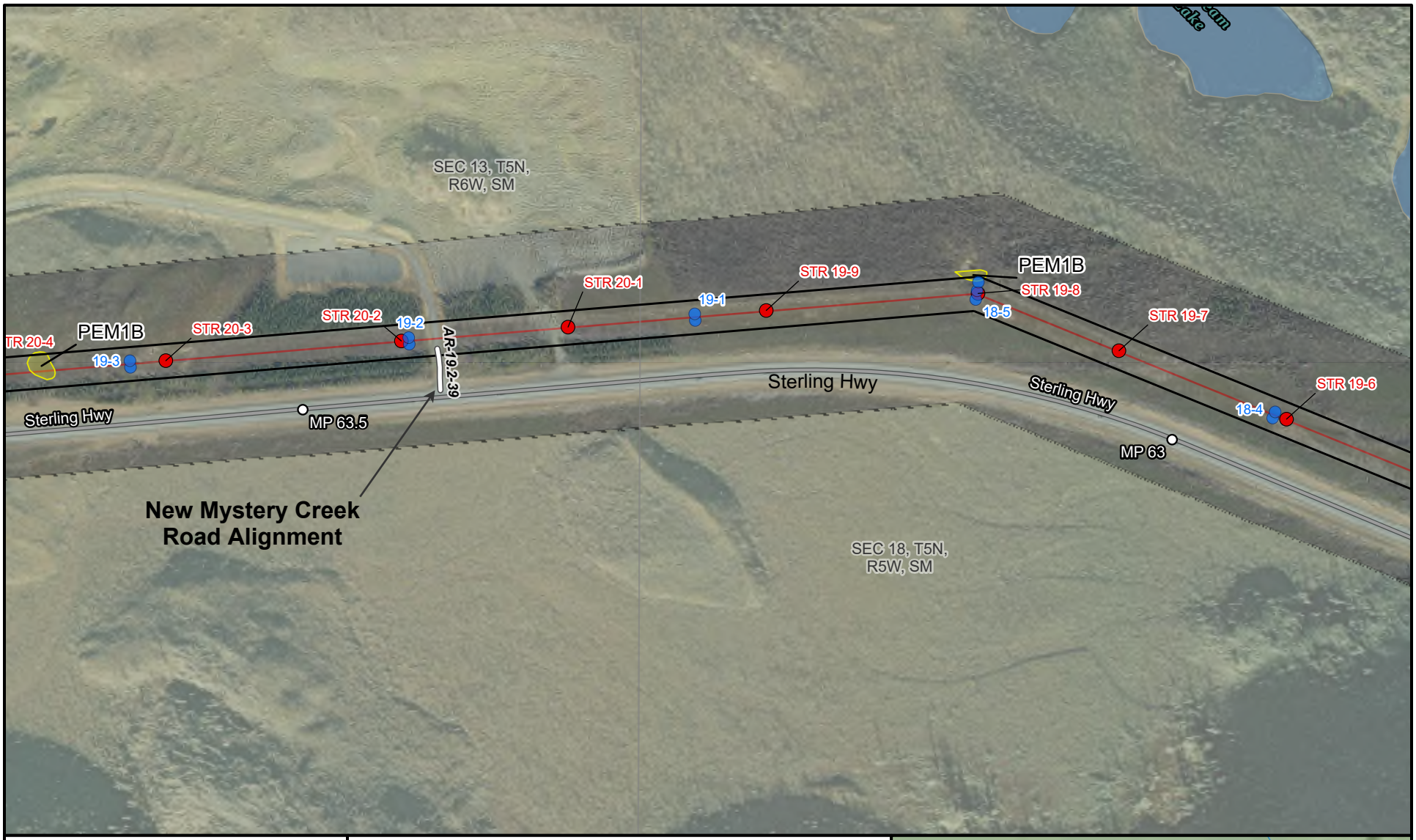
0 0.04 0.08 Miles

HORIZONTAL DATUM:
NAD 83 AK State Plane Zone 4

Wetland Mapping
100 ft. Corridor Right of Way
Transmission Line
Roads
Existing Structures
New Structures

Access Routes
Road






SQ Transmission Line Project
Environmental Assessment

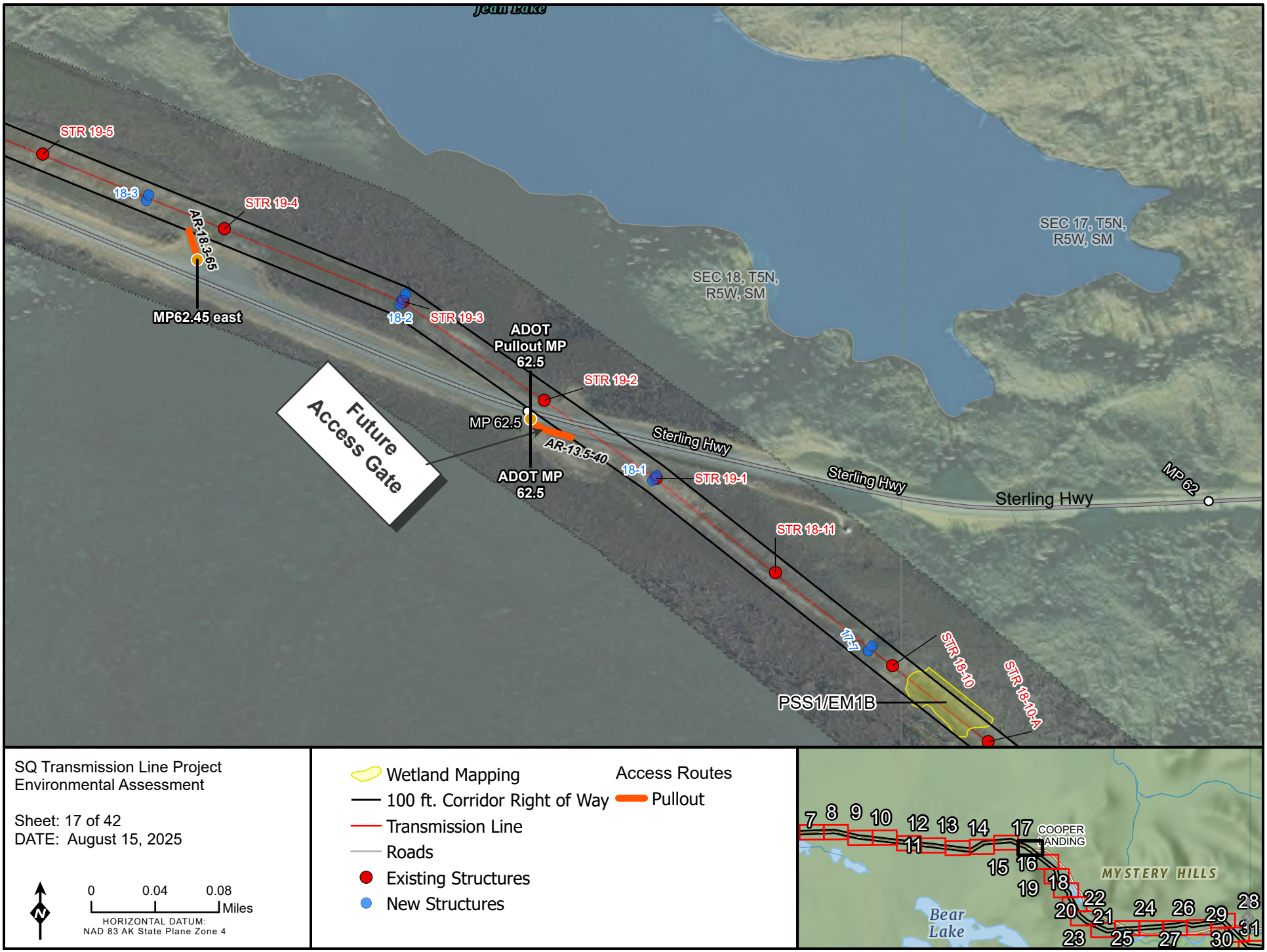
Sheet: 16 of 42
DATE: August 15, 2025

0 0.04 0.08 Miles

HORIZONTAL DATUM:
NAD 83 AK State Plane Zone 4

Wetland Mapping
100 ft. Corridor Right of Way
Transmission Line
Roads
Existing Structures
New Structures

Access Routes
Road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18-3
STR 19-4
AR-18.3-65
MP62.45 east
18-2
STR 19-3
ADOT
Pullout MP
62.5
STR 19-2
MP 62.5
AR-13.5-40
ADOT MP
62.5
Future
Access Gate
Sterling Hwy
18-1
STR 19-1
SEC 18, T5N,
R5W, SM
SEC 17, T5N,
R5W, SM
Sterling Hwy
MP 62
STR 18-11
17-1
STR 18-10
STR 18-10-A
PSS1/EM1B
SQ Transmission Line Project
Environmental Assessment
Sheet: 17 of 42
DATE: August 15, 2025
0
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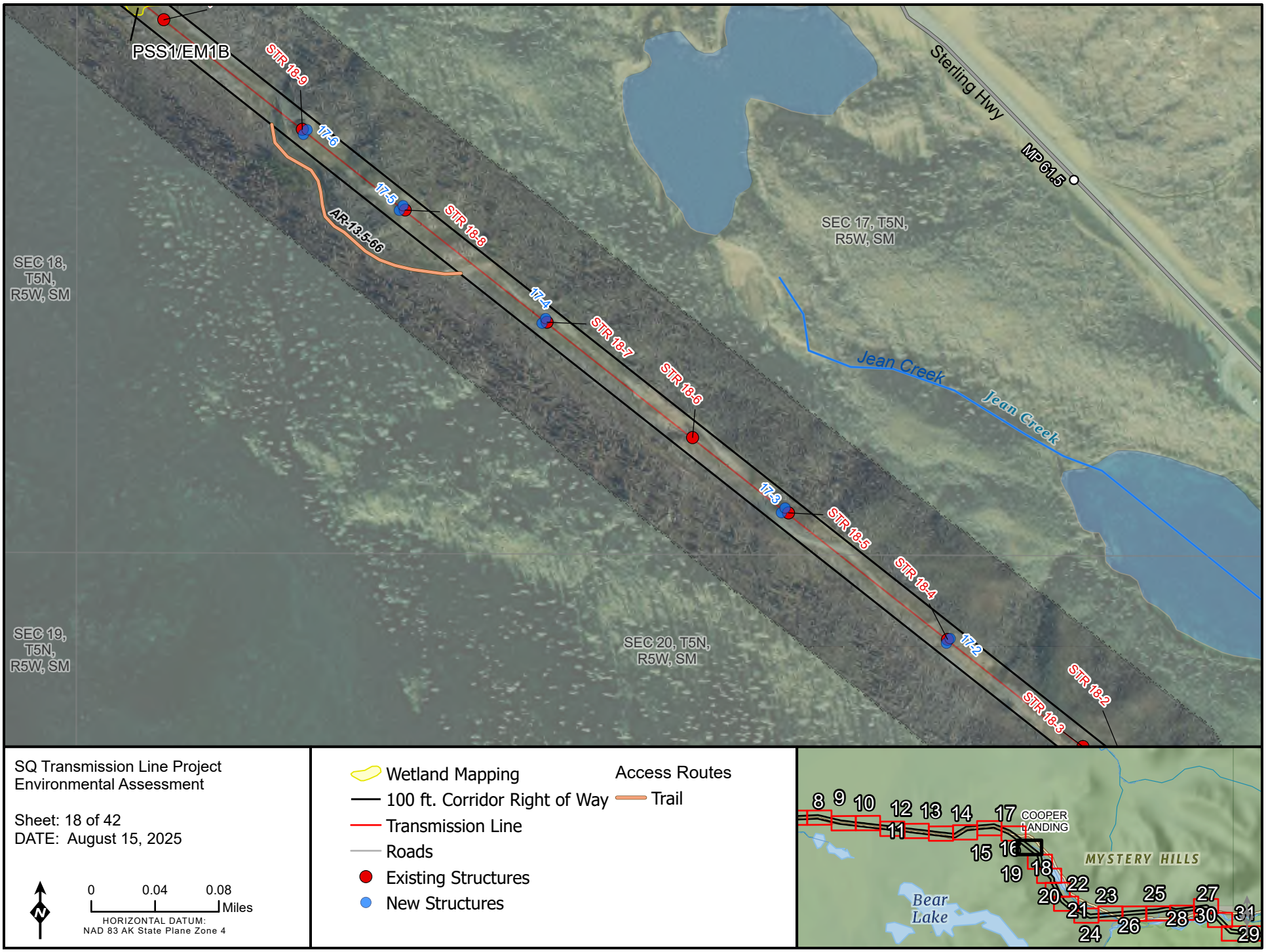
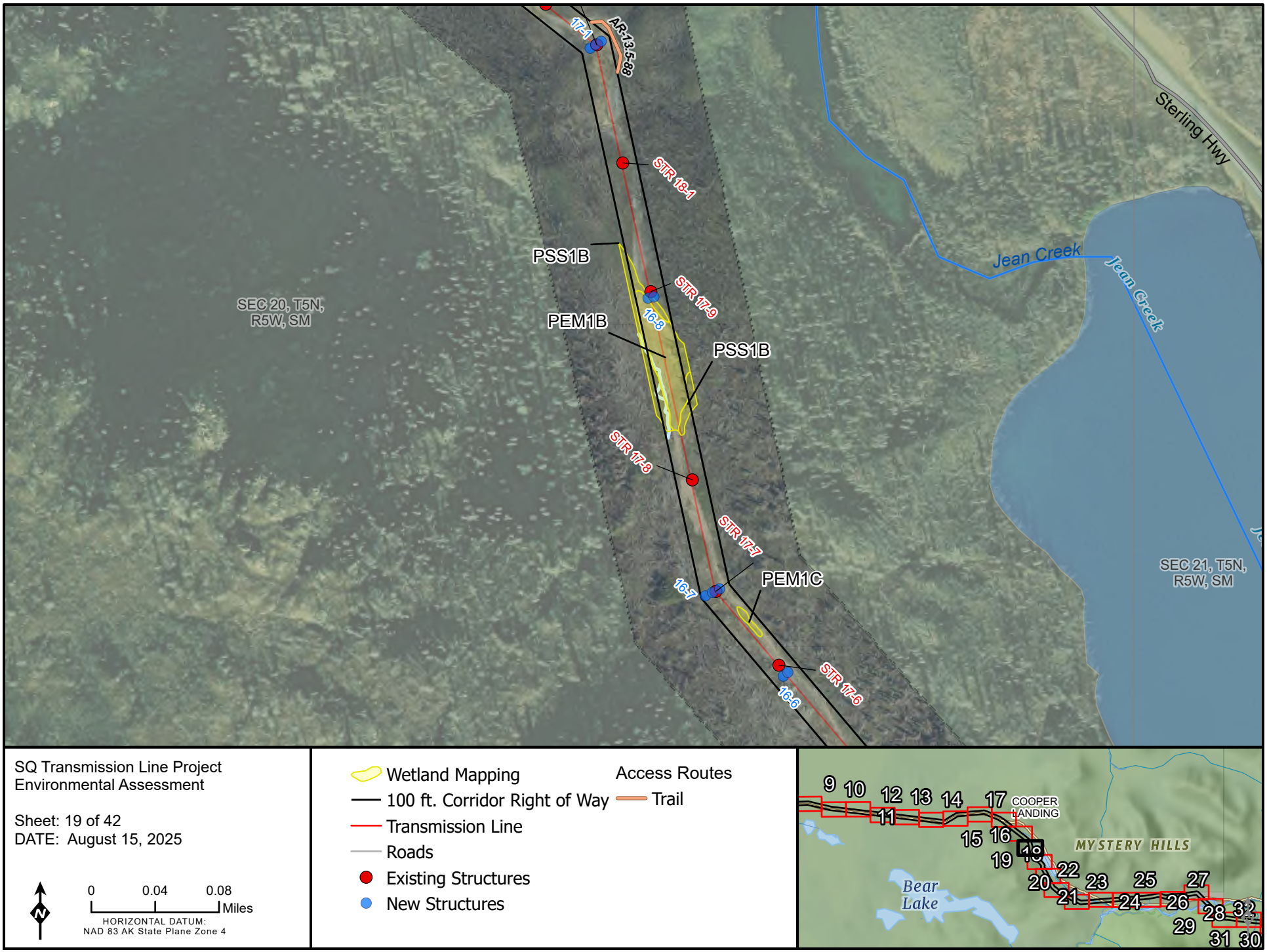
Miles
HORIZONTAL DATUM:
NAD 83 AK State Plane Zone 4
Wetland Mapping
100 ft. Corridor Right of Way
Transmission Line
Roads
Existing Structures
New Structures
Access Routes
Pullout
7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 29 30 31
COOPER LANDING
MYSTERY HILLS
Bear Lake


PSS1/EM1B
STR 18-9
17-6
17-5
STR 18-8
AR-13-5-66
17-4
STR 18-7
STR 18-6
17-3
STR 18-5
STR 18-4
17-2
STR 18-2
STR 18-3
Sterling Hwy
MP 61.5
SEC 17, T5N, R5W, SM
SEC 18, T5N, R5W, SM
SEC 19, T5N, R5W, SM
SEC 20, T5N, R5W, SM
Jean Creek
Jean Creek
SQ Transmission Line Project
Environmental Assessment
Sheet: 18 of 42
DATE: August 15, 2025
0
0.04
0.08
Miles
HORIZONTAL DATUM:
NAD 83 AK State Plane Zone 4
Wetland Mapping
100 ft. Corridor Right of Way
Transmission Line
Roads
Existing Structures
New Structures
Access Routes
Trail
COOPER LANDING
MYSTERY HILLS
Bear Lake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AR-13-5-88
STR 18-1
PSS1B
STR 17-9
16-8
PEM1B
PSS1B
SEC 20, T5N,
R5W, SM
Sterling Hwy
Jean Creek
Jean Creek
STR 17-8
STR 17-7
16-7
PEM1C
SEC 21, T5N,
R5W, SM
STR 17-6
16-6
SQ Transmission Line Project
Environmental Assessment
Sheet: 19 of 42
DATE: August 15, 2025
0
0.04
0.08
Miles
HORIZONTAL DATUM:
NAD 83 AK State Plane Zone 4
Wetland Mapping
100 ft. Corridor Right of Way
Transmission Line
Roads
Existing Structures
New Structures
Access Routes
Trail
9
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13
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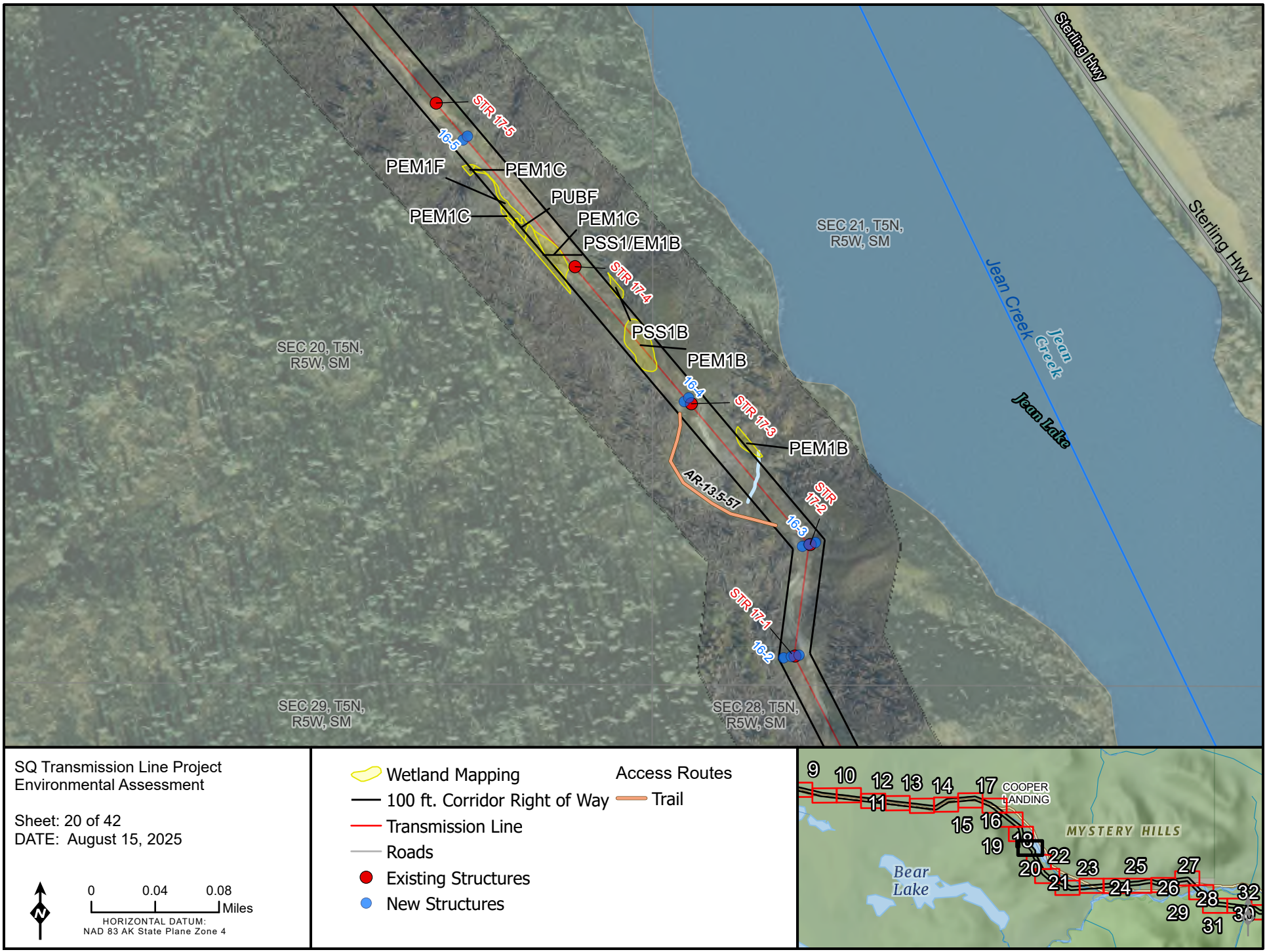
COOPER
LANDING
MYSTERY HILLS
Bear
Lake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16-5
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PEM1C
PUBF
PEM1C
PEM1C
PSS1/EM1B
STR 17-4
PSS1B
PEM1B
16-4
STR 17-3
PEM1B
AR-13.5-57
STR 17-2
16-3
STR 17-1
16-2
SEC 20, T5N, R5W, SM
SEC 21, T5N, R5W, SM
SEC 29, T5N, R5W, SM
SEC 28, T5N, R5W, SM
Sterling Hwy
Sterling Hwy
Jean Creek
Jean Creek
Jean Lake
SQ Transmission Line Project
Environmental Assessment
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0
0.04
0.08
Miles
HORIZONTAL DATUM:
NAD 83 AK State Plane Zone 4
Wetland Mapping
100 ft. Corridor Right of Way
Transmission Line
Roads
Existing Structures
New Structures
Access Routes
Trail
9
10
11
12
13
14
15
16
17
COOPER LANDING
MYSTERY HILLS
Bear Lake
18
19
20
21
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23
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25
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27
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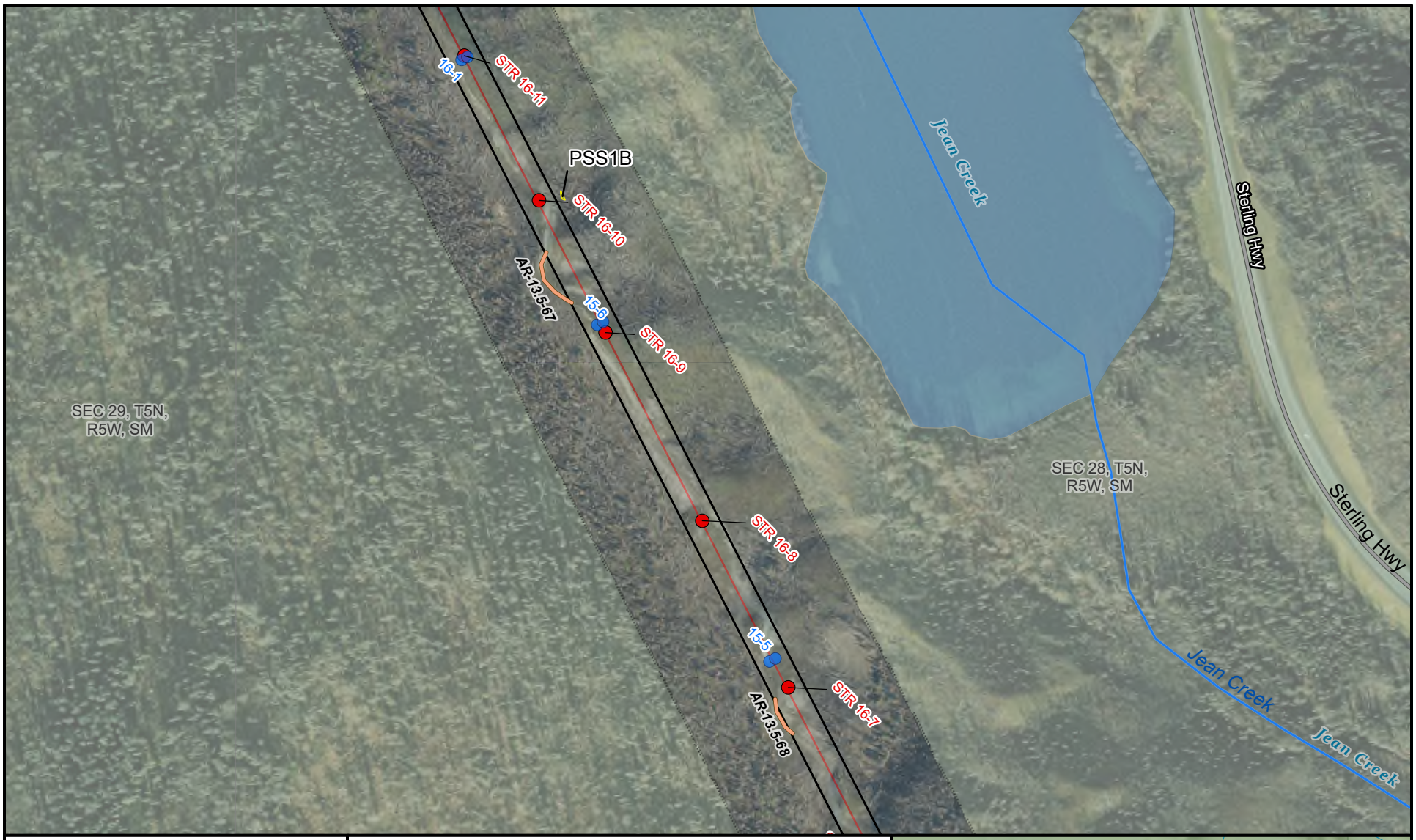
29
30
31
32




SQ Transmission Line Project
Environmental Assessment

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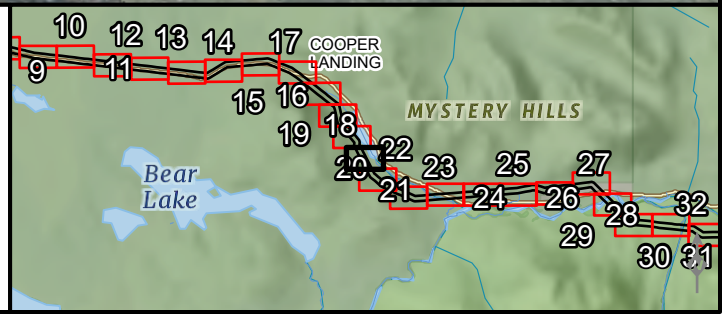
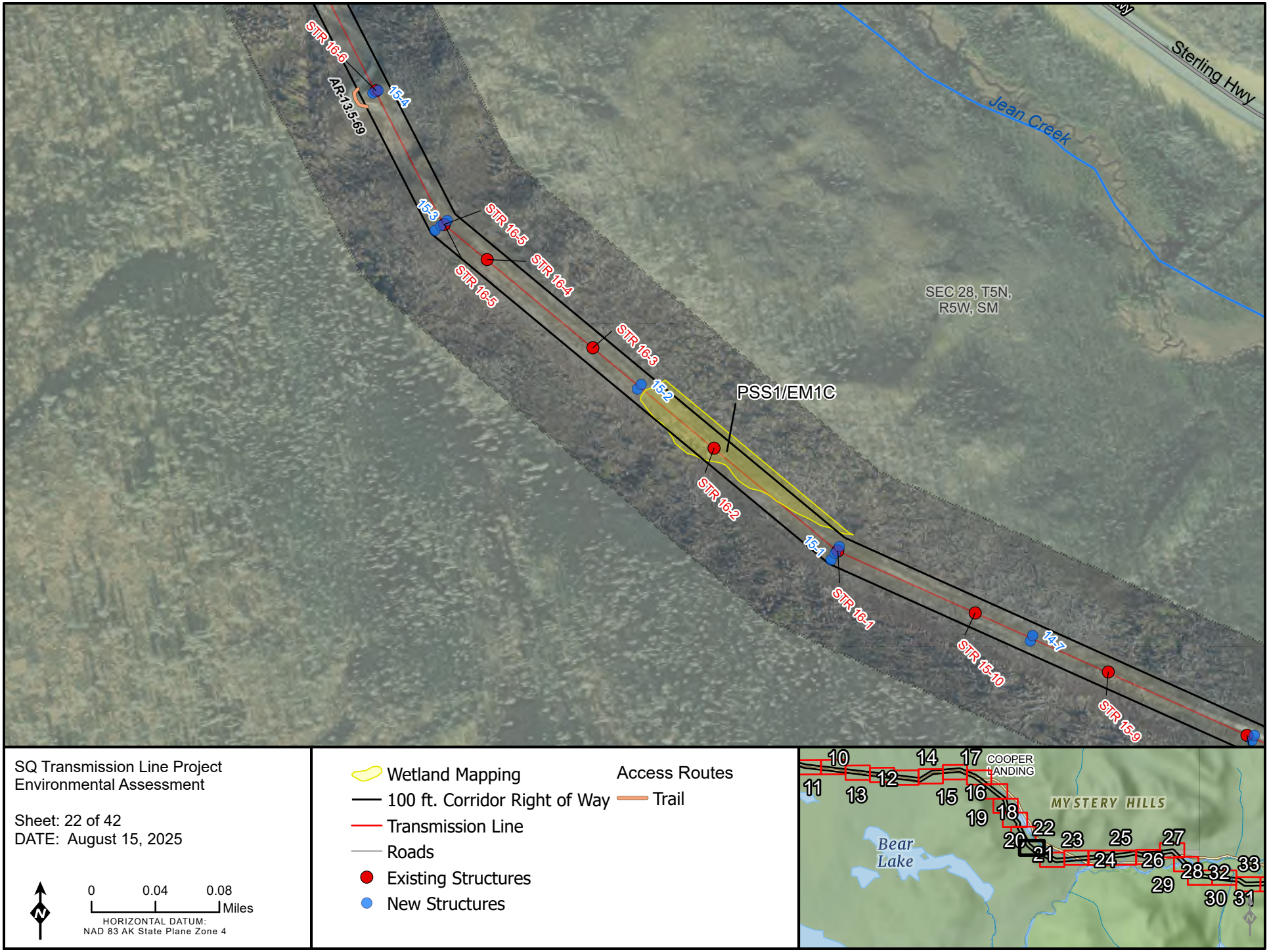
0 0.04 0.08 Miles

HORIZONTAL DATUM:
NAD 83 AK State Plane Zone 4

- Wetland Mapping
- 100 ft. Corridor Right of Way
- Transmission Line
- Roads
- Existing Structures
- New Structures

Access Routes
- Trail




STR 16-6
AR-13-5-89
15-4
15-3
STR 16-5
STR 16-4
STR 16-5
STR 16-3
15-2
PSS1/EM1C
STR 16-2
15-1
STR 16-1
STR 15-10
14-7
STR 15-9
Jean Creek
Sterling Hwy
SEC 28, T5N,
R5W, SM
SQ Transmission Line Project
Environmental Assessment
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0
0.04
0.08
Miles
HORIZONTAL DATUM:
NAD 83 AK State Plane Zone 4
Wetland Mapping
100 ft. Corridor Right of Way
Transmission Line
Roads
Existing Structures
New Structures
Access Routes
Trail
COOPER LANDING
MYSTERY HILLS
Bear Lake
10
11
12
13
14
15
16
17
18
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20
21
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23
24
25
26
27
28
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30
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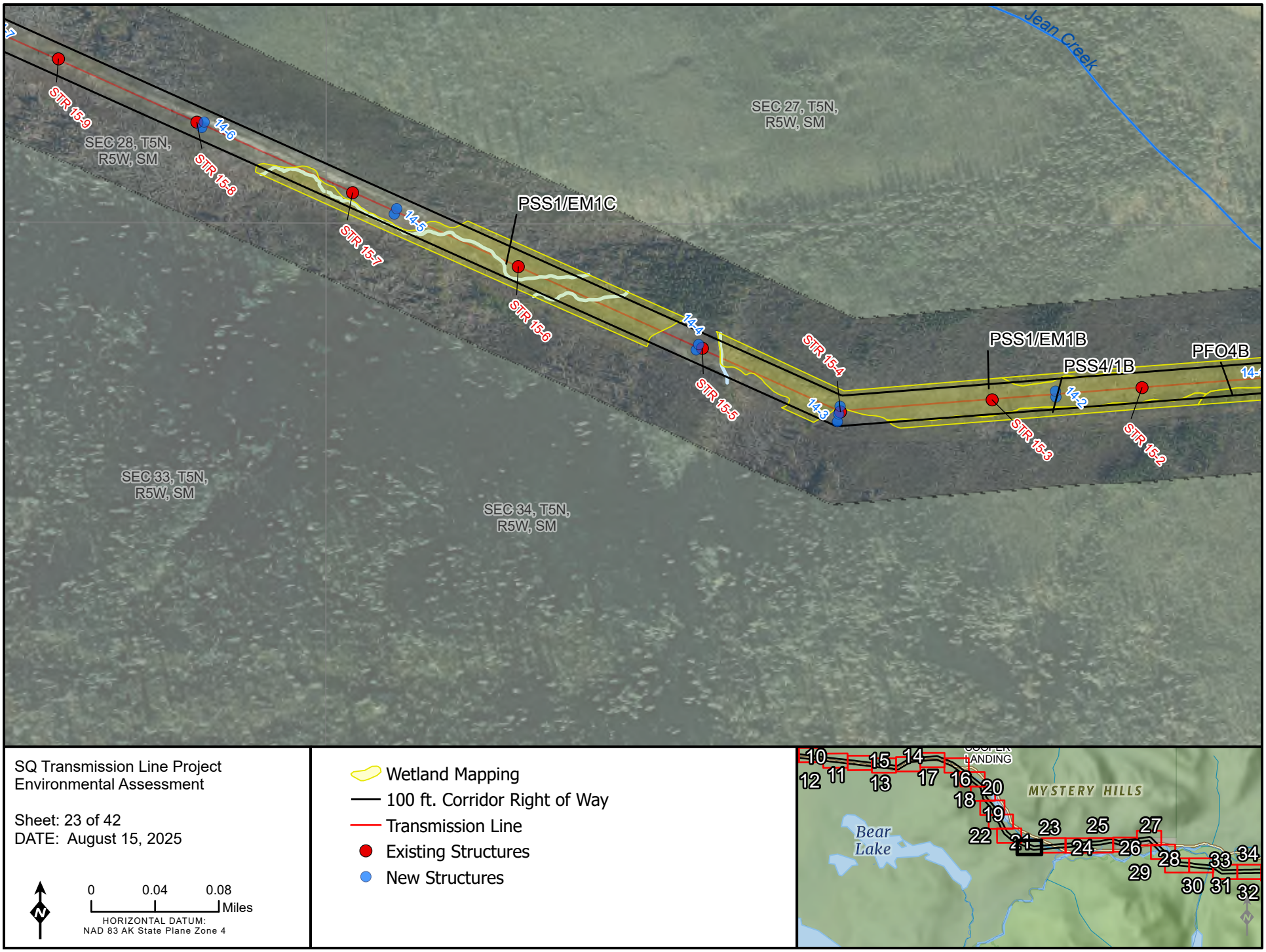
32
33


Jean Creek
SEC 27, T5N, R5W, SM
SEC 28, T5N, R5W, SM
SEC 33, T5N, R5W, SM
SEC 34, T5N, R5W, SM
STR 15-9
STR 15-8
STR 15-7
STR 15-6
STR 15-5
STR 15-4
STR 15-3
STR 15-2
14-6
14-5
14-4
14-3
14-2
PSS1/EM1C
PSS1/EM1B
PSS4/1B
PFO4B
SQ Transmission Line Project
Environmental Assessment
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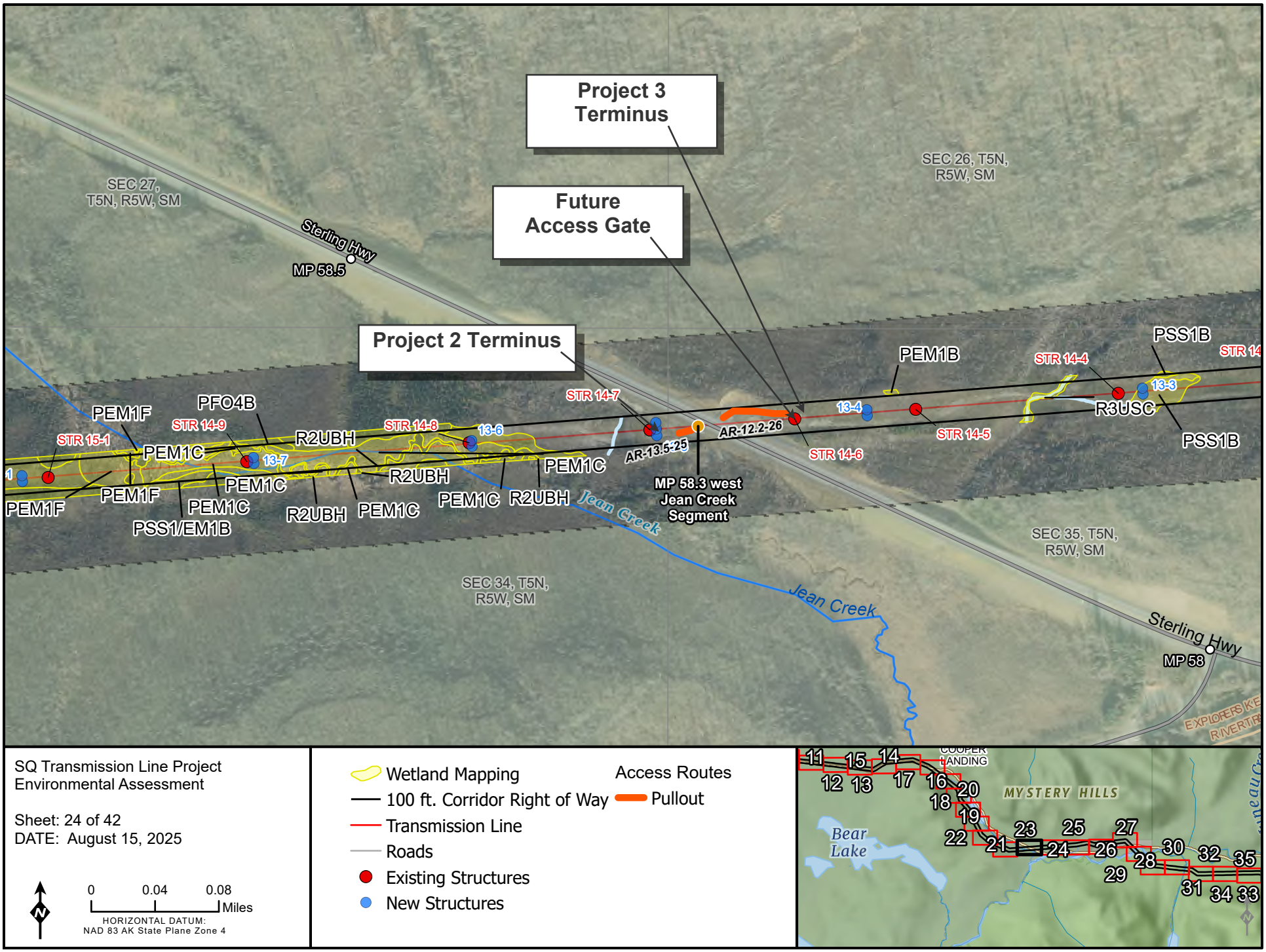
0
0.04
0.08
Miles
HORIZONTAL DATUM:
NAD 83 AK State Plane Zone 4
Wetland Mapping
100 ft. Corridor Right of Way
Transmission Line
Existing Structures
New Structures
MYSTERY HILLS
Bear Lake




SQ Transmission Line Project
Environmental Assessment

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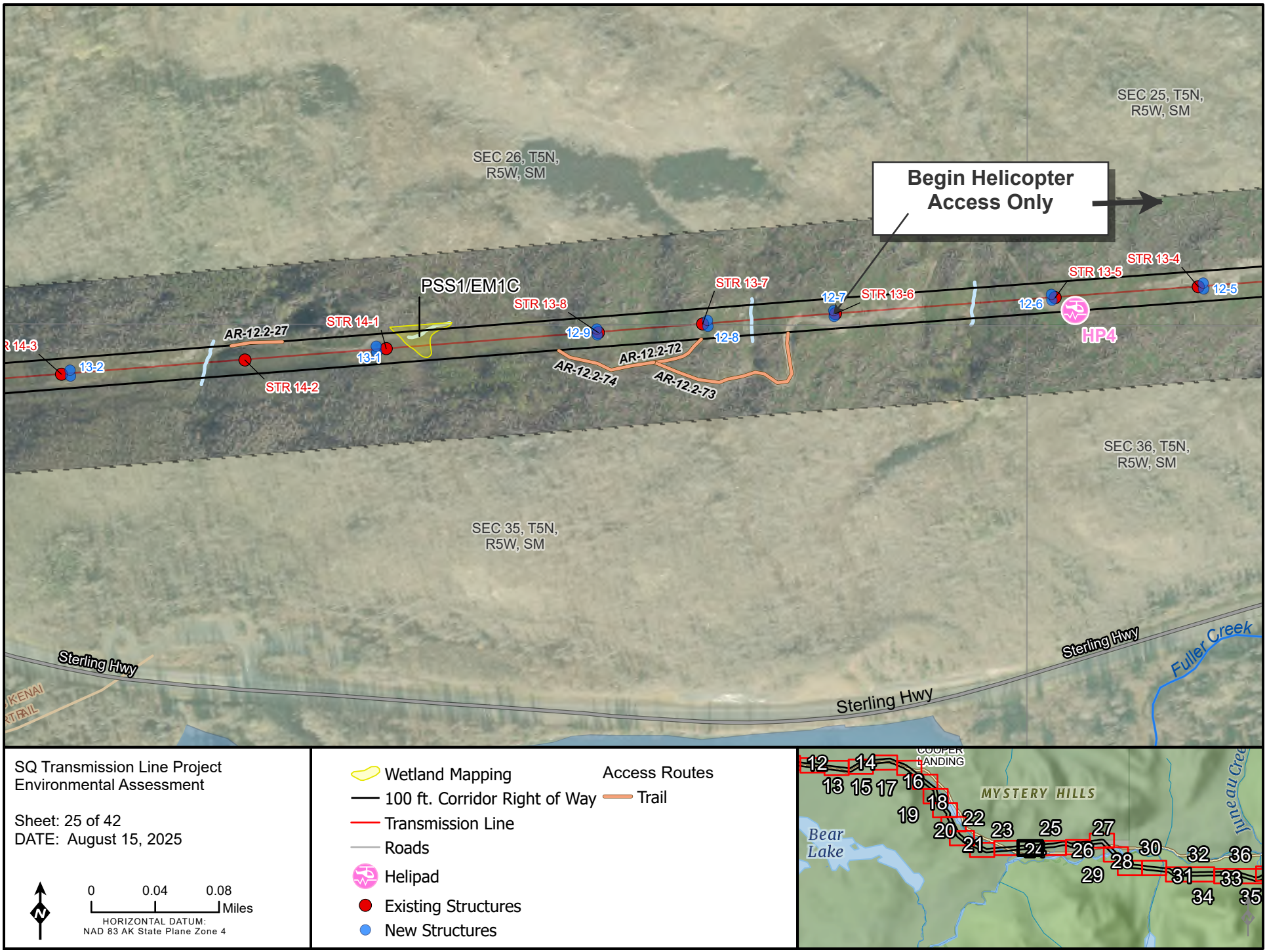
0 0.04 0.08 Miles

HORIZONTAL DATUM:
NAD 83 AK State Plane Zone 4

- Wetland Mapping
- 100 ft. Corridor Right of Way
- Transmission Line
- Roads
- Existing Structures
- New Structures

Access Routes
- Pullout


SEC 25, T5N, R5W, SM
SEC 26, T5N, R5W, SM
SEC 36, T5N, R5W, SM
SEC 35, T5N, R5W, SM
Begin Helicopter Access Only
PSS1/EM1C
STR 13-4
STR 13-5
STR 13-6
STR 13-7
STR 13-8
STR 14-1
STR 14-2
STR 14-3
12-5
12-6
12-7
12-8
12-9
13-1
13-2
HP4
AR-12.2-27
AR-12.2-72
AR-12.2-73
AR-12.2-74
Sterling Hwy
Sterling Hwy
Sterling Hwy
Fuller Creek
SQ Transmission Line Project
Environmental Assessment
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0
0.04
0.08
Miles
HORIZONTAL DATUM:
NAD 83 AK State Plane Zone 4
Wetland Mapping
100 ft. Corridor Right of Way
Transmission Line
Roads
Helipad
Existing Structures
New Structures
Access Routes
Trail
COOPER LANDING
MYSTERY HILLS
Bear Lake
Juneau Creek
12
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36


SQ Transmission Line Project
Environmental Assessment

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0 0.04 0.08 Miles

HORIZONTAL DATUM:
NAD 83 AK State Plane Zone 4

- Wetland Mapping
- 100 ft. Corridor Right of Way
- Transmission Line
- Roads
- Existing Structures
- New Structures

Access Routes
- Trail


SQ Transmission Line Project
Environmental Assessment

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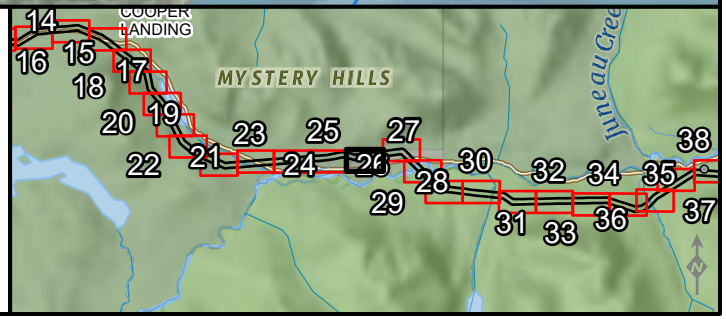
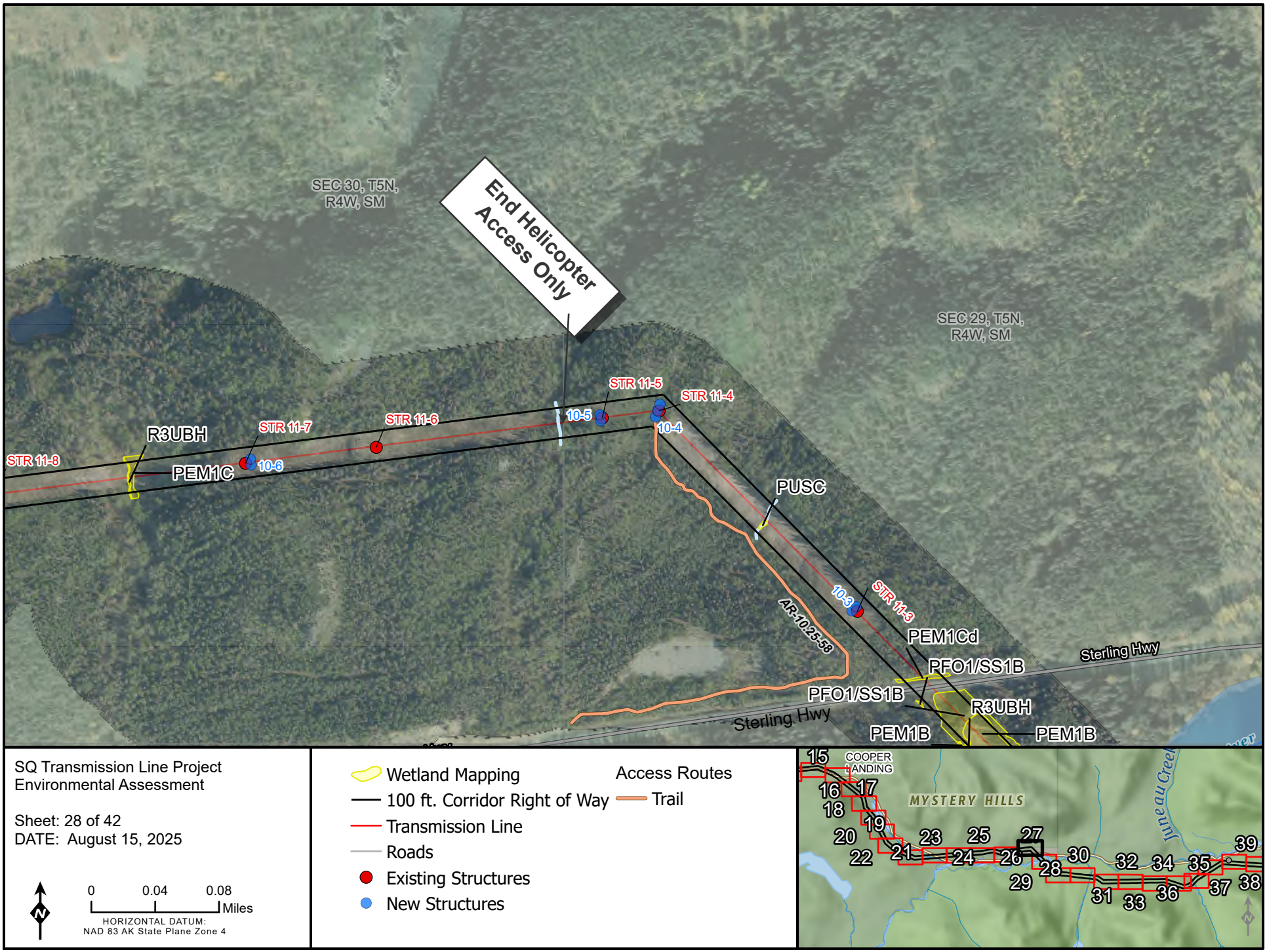
0 0.04 0.08 Miles

HORIZONTAL DATUM:
NAD 83 AK State Plane Zone 4

- Wetland Mapping
- 100 ft. Corridor Right of Way
- Transmission Line
- Roads
- Helipad
- Existing Structures
- New Structures

Access Routes
- Trail




SEC 30, T5N, R4W, SM
End Helicopter Access Only
SEC 29, T5N, R4W, SM
STR 11-8
R3UBH
PEM1C
STR 11-7
10-6
STR 11-6
10-5
STR 11-5
STR 11-4
10-4
PUSC
10-3
STR 11-3
AR-10-25-58
PEM1Cd
PFO1/SS1B
PFO1/SS1B
R3UBH
PEM1B
PEM1B
Sterling Hwy
Sterling Hwy
SQ Transmission Line Project
Environmental Assessment
Sheet: 28 of 42
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0
0.04
0.08
Miles
HORIZONTAL DATUM:
NAD 83 AK State Plane Zone 4
Wetland Mapping
100 ft. Corridor Right of Way
Transmission Line
Roads
Existing Structures
New Structures
Access Routes
Trail
COOPER LANDING
MYSTERY HILLS
Juneau Creek
15
16
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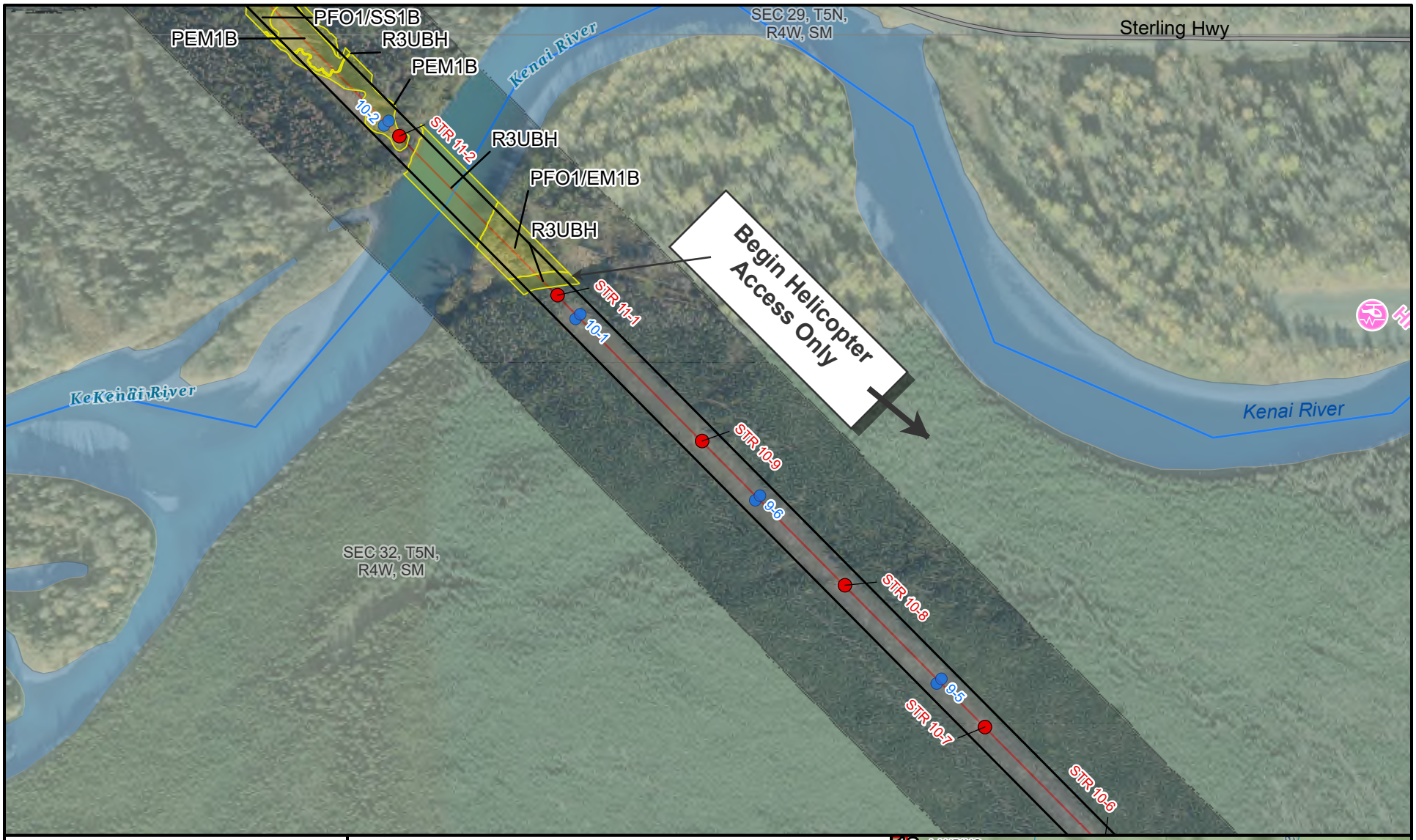


SQ Transmission Line Project
Environmental Assessment

Sheet: 29 of 42
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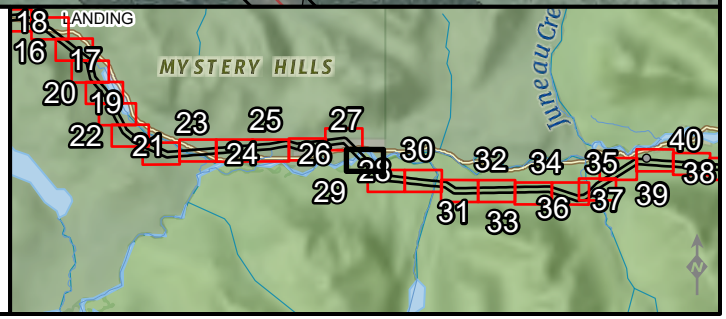
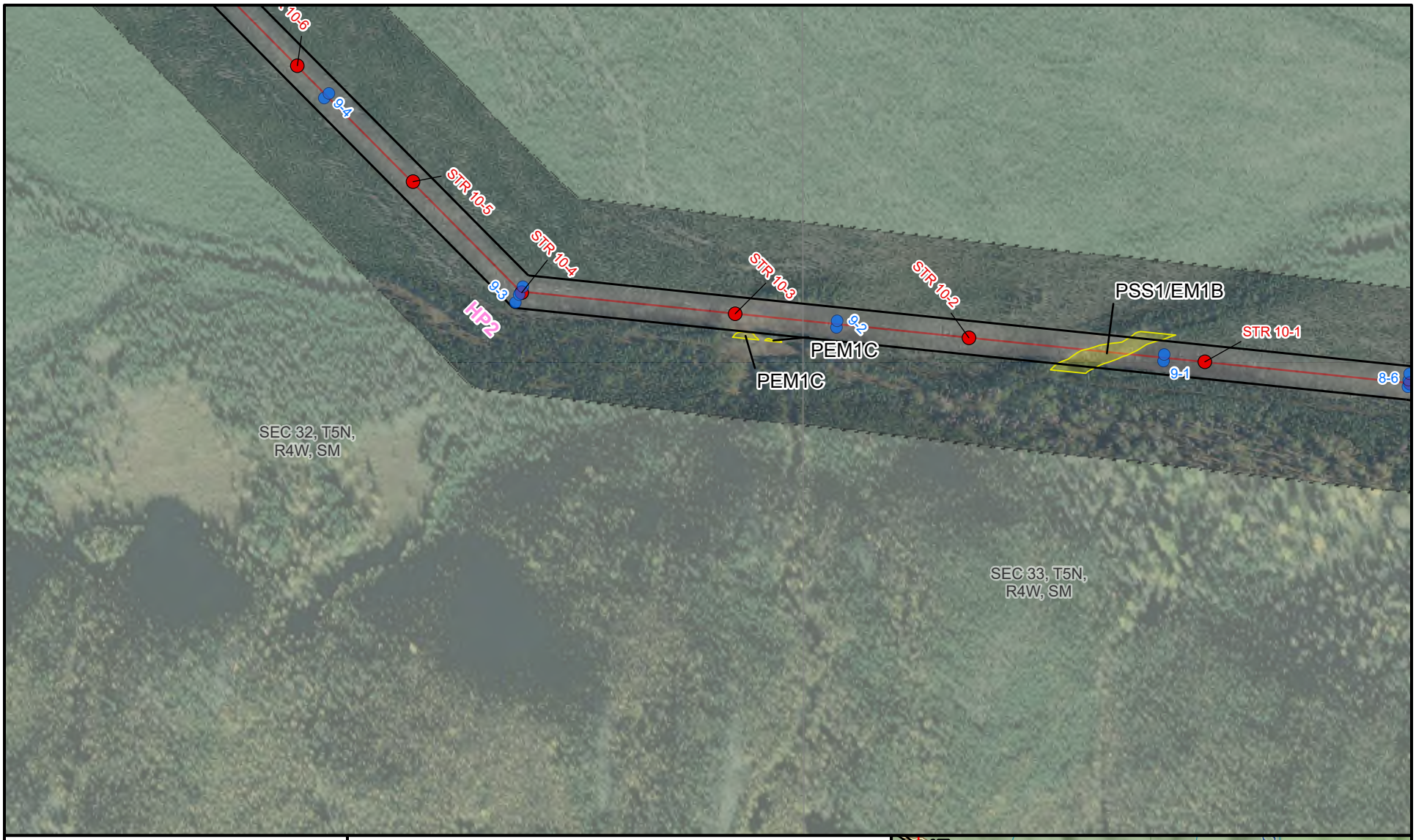
0 0.04 0.08 Miles
HORIZONTAL DATUM:
NAD 83 AK State Plane Zone 4

- Wetland Mapping
- 100 ft. Corridor Right of Way
- Transmission Line
- Roads
- Helipad
- Existing Structures
- New Structures






SQ Transmission Line Project
Environmental Assessment

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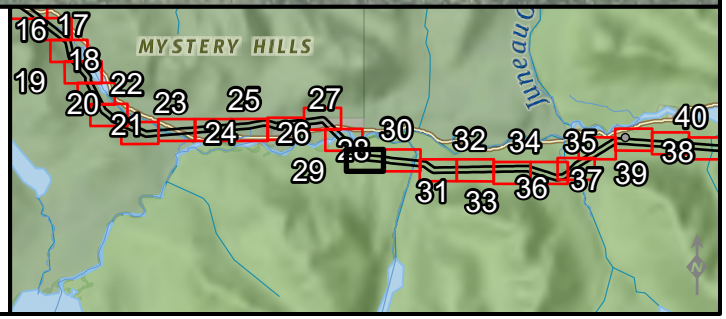
0 0.04 0.08 Miles

HORIZONTAL DATUM:
NAD 83 AK State Plane Zone 4

- Wetland Mapping
- 100 ft. Corridor Right of Way
- Transmission Line
- Existing Structures
- New Structures




SQ Transmission Line Project
Environmental Assessment

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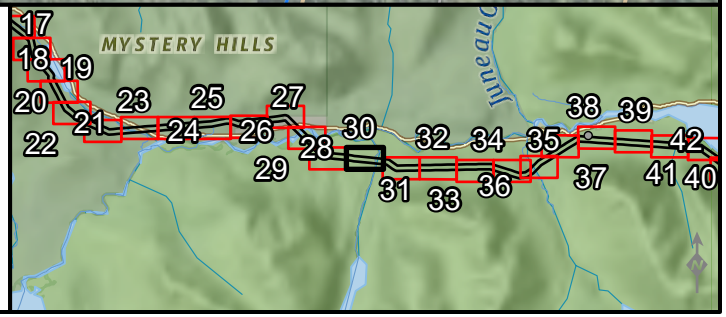
0 0.04 0.08 Miles

HORIZONTAL DATUM:
NAD 83 AK State Plane Zone 4

- Wetland Mapping
- 100 ft. Corridor Right of Way
- Transmission Line
- Roads
- Existing Structures
- New Structures




SQ Transmission Line Project
Environmental Assessment

Sheet: 32 of 42
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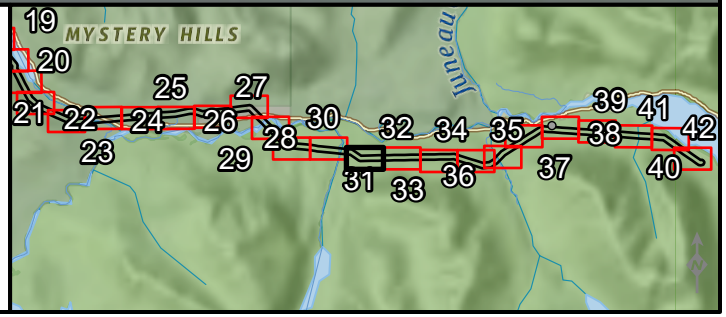
0 0.04 0.08 Miles

HORIZONTAL DATUM:
NAD 83 AK State Plane Zone 4

- Wetland Mapping
- 100 ft. Corridor Right of Way
- Transmission Line
- Roads
- Existing Structures
- New Structures

Access Routes
- Trail




SQ Transmission Line Project
Environmental Assessment

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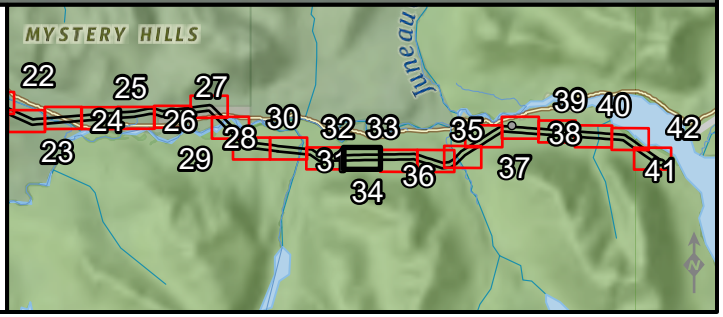
0 0.04 0.08 Miles

HORIZONTAL DATUM:
NAD 83 AK State Plane Zone 4

Wetland Mapping
100 ft. Corridor Right of Way
Transmission Line
Existing Structures
New Structures

Access Routes
Trail




SQ Transmission Line Project
Environmental Assessment

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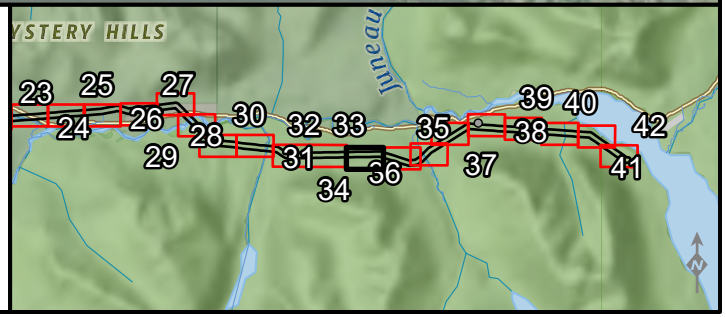
0 0.04 0.08 Miles

HORIZONTAL DATUM:
NAD 83 AK State Plane Zone 4

Wetland Mapping
100 ft. Corridor Right of Way
Transmission Line
Existing Structures
New Structures

Access Routes
Trail




SQ Transmission Line Project
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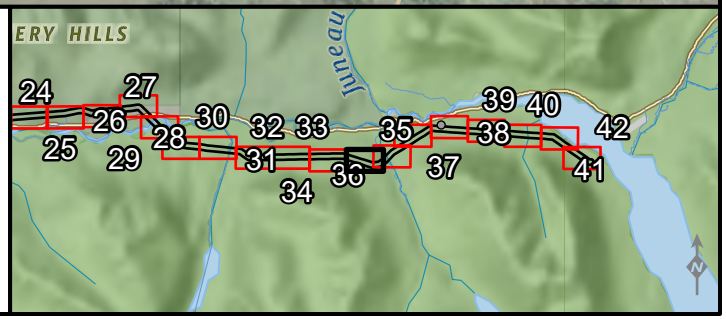
0 0.04 0.08 Miles

HORIZONTAL DATUM:
NAD 83 AK State Plane Zone 4

- Wetland Mapping
- 100 ft. Corridor Right of Way
- Transmission Line
- Roads
- Existing Structures
- New Structures

Access Routes
- Trail




SQ Transmission Line Project
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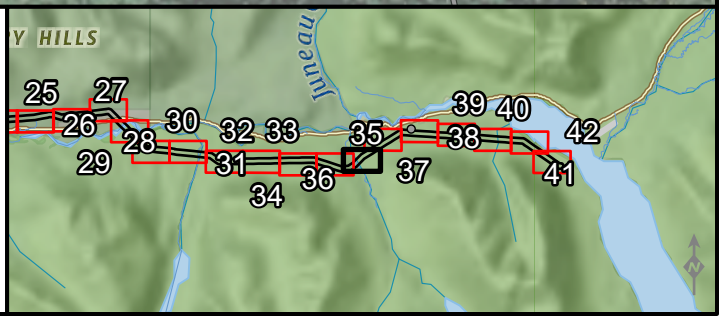
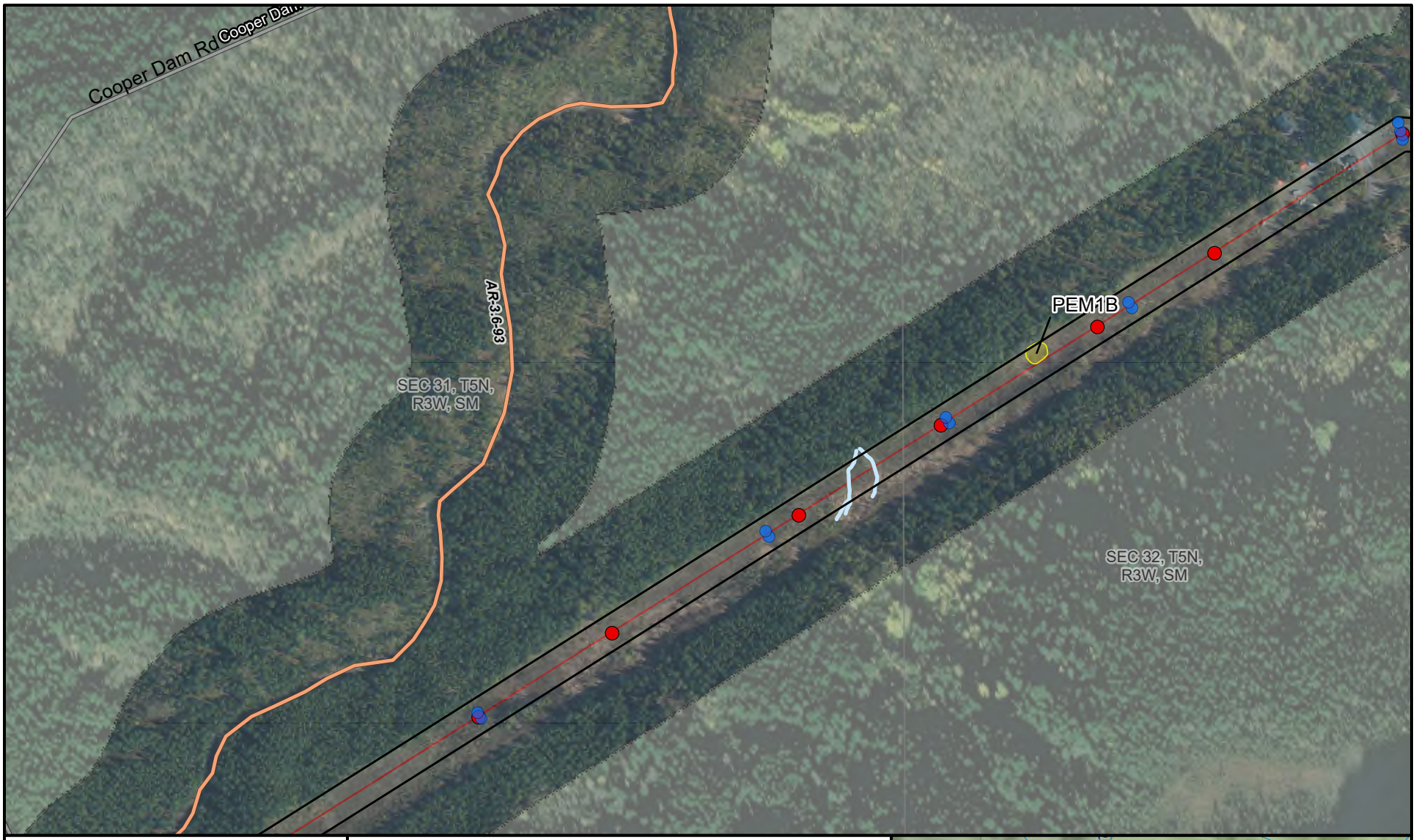
0 0.04 0.08 Miles

HORIZONTAL DATUM:
NAD 83 AK State Plane Zone 4

- Wetland Mapping
- 100 ft. Corridor Right of Way
- Transmission Line
- Roads
- Existing Structures
- New Structures

Access Routes
- Trail






SQ Transmission Line Project
Environmental Assessment

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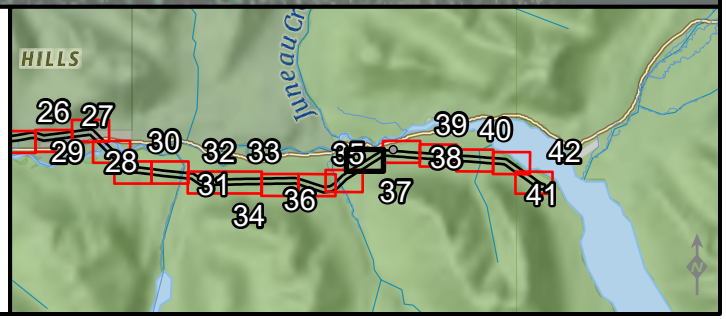
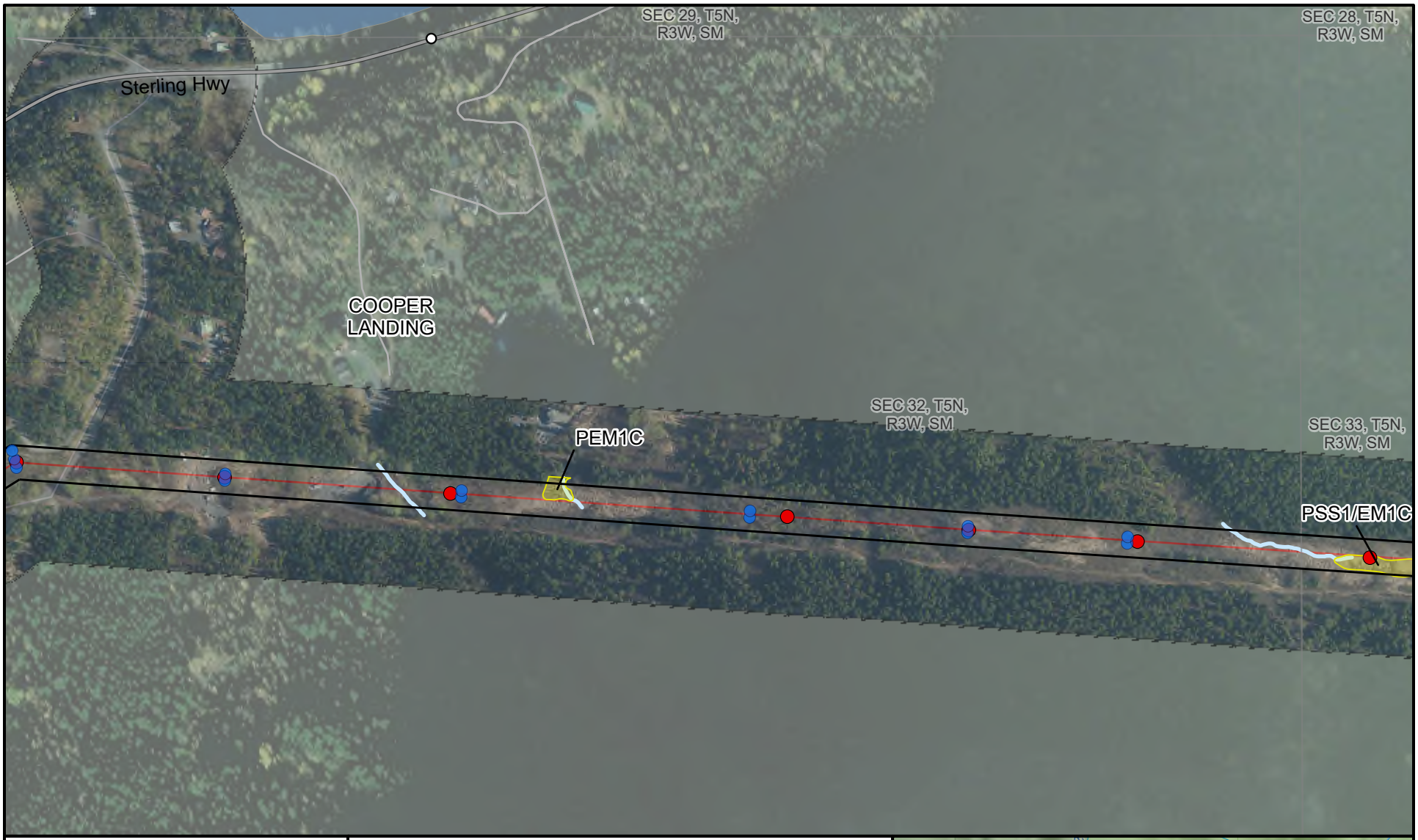
0 0.04 0.08 Miles

HORIZONTAL DATUM:
NAD 83 AK State Plane Zone 4

- Wetland Mapping
- 100 ft. Corridor Right of Way
- Transmission Line
- Roads
- Existing Structures
- New Structures

Access Routes
- Trail






SQ Transmission Line Project
Environmental Assessment

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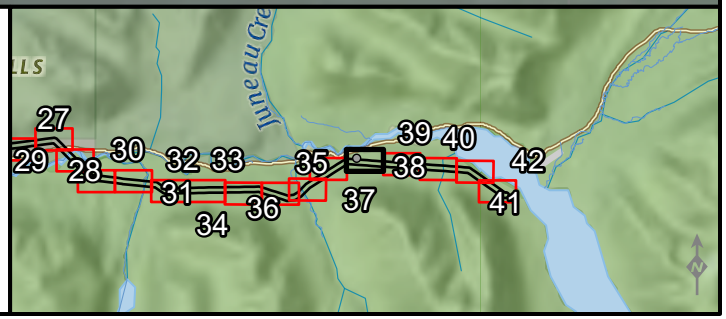
0 0.04 0.08 Miles

HORIZONTAL DATUM:
NAD 83 AK State Plane Zone 4

- Wetland Mapping
- 100 ft. Corridor Right of Way
- Transmission Line
- Roads
- Existing Structures
- New Structures




SQ Transmission Line Project
Environmental Assessment

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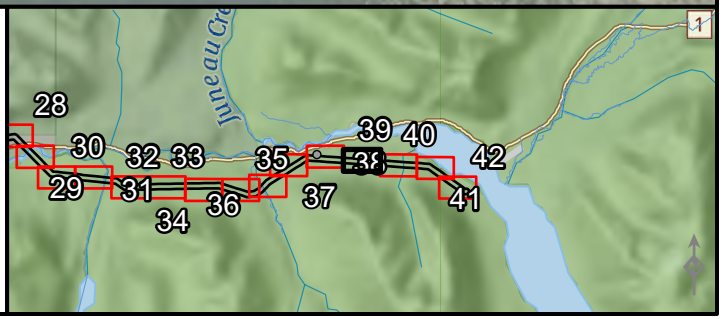
0 0.04 0.08 Miles

HORIZONTAL DATUM:
NAD 83 AK State Plane Zone 4

- Wetland Mapping
- 100 ft. Corridor Right of Way
- Transmission Line
- Existing Structures
- New Structures




SQ Transmission Line Project
Environmental Assessment

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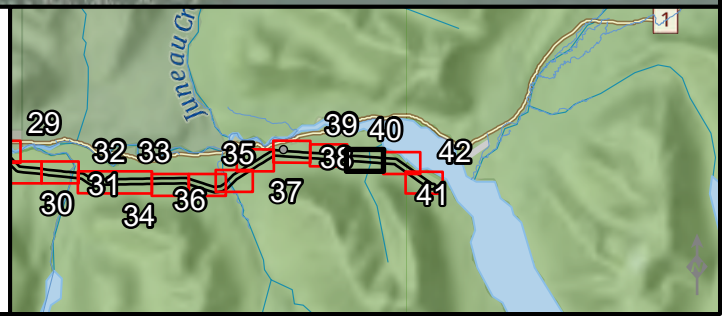
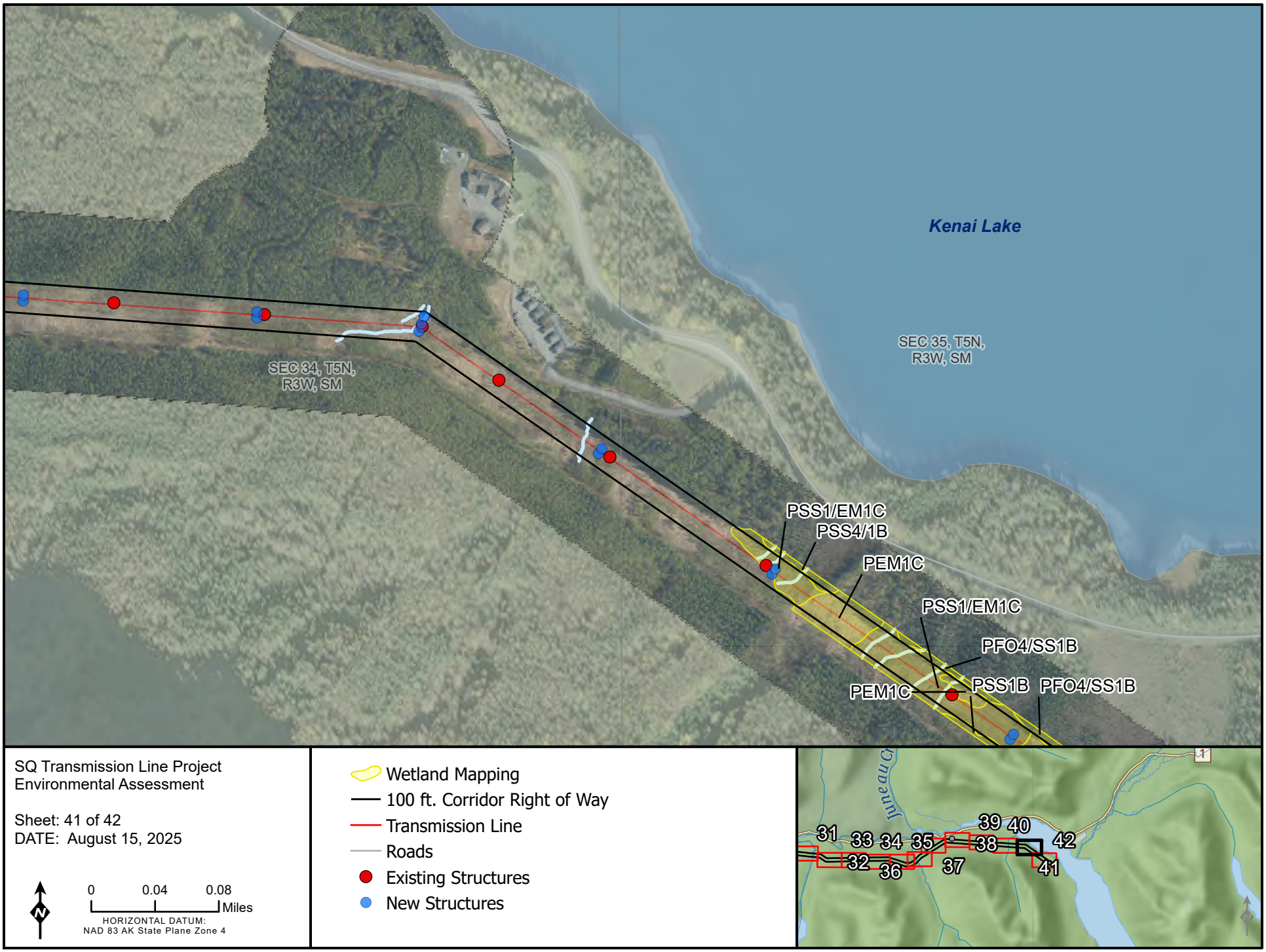
0 0.04 0.08 Miles

HORIZONTAL DATUM:
NAD 83 AK State Plane Zone 4

- Wetland Mapping
- 100 ft. Corridor Right of Way
- Transmission Line
- Existing Structures
- New Structures




Kenai Lake
SEC 34, T5N, R3W, SM
SEC 35, T5N, R3W, SM
PSS1/EM1C
PSS4/1B
PEM1C
PSS1/EM1C
PFO4/SS1B
PEM1C
PSS1B
PFO4/SS1B
SQ Transmission Line Project
Environmental Assessment
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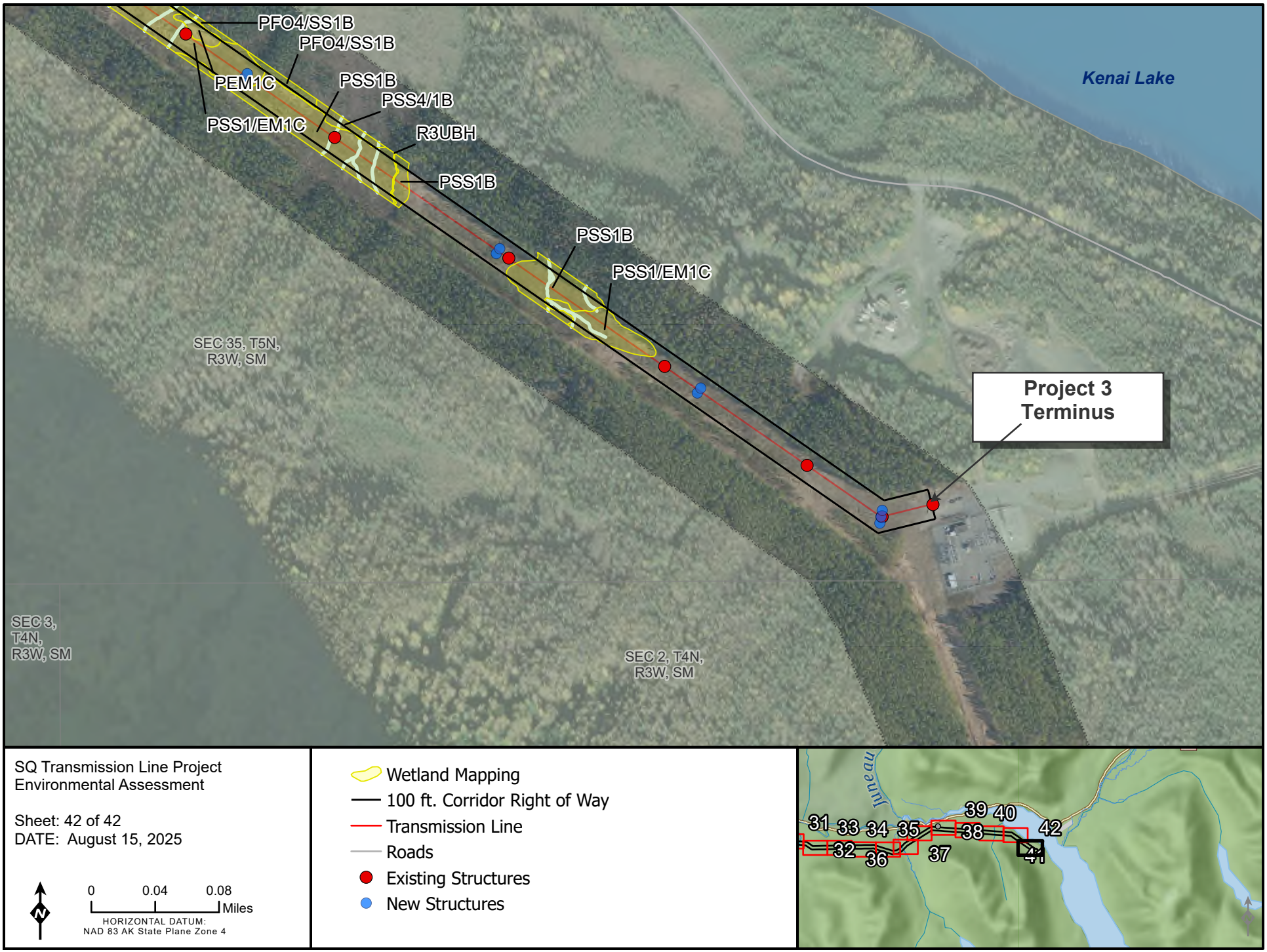
0
0.04
0.08
Miles
HORIZONTAL DATUM:
NAD 83 AK State Plane Zone 4
Wetland Mapping
100 ft. Corridor Right of Way
Transmission Line
Roads
Existing Structures
New Structures
Juneau Cr
31
33
34
35
39
40
38
42
32
36
37
41


PFO4/SS1B
PFO4/SS1B
PEM1C
PSS1B
PSS4/1B
PSS1/EM1C
R3UBH
PSS1B
PSS1B
PSS1/EM1C
Kenai Lake
SEC 35, T5N, R3W, SM
Project 3 Terminus
SEC 3, T4N, R3W, SM
SEC 2, T4N, R3W, SM
SQ Transmission Line Project
Environmental Assessment
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0
0.04
0.08
Miles
HORIZONTAL DATUM:
NAD 83 AK State Plane Zone 4
Wetland Mapping
100 ft. Corridor Right of Way
Transmission Line
Roads
Existing Structures
New Structures
Juneau
31
33
34
35
32
36
37
38
39
40
42
41