STATE OF ALASKA DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINING, LAND AND WATER
SOUTHCENTRAL REGIONAL LAND OFFICE

PRELIMINARY DECISION

Fishhook Renewable Energy, LLC
ADL 229824
Application for Long-Term Negotiated Lease
AS 38.05.070(c)

ADL 229806
Application for Access and Utility Easement
AS 38.05.850

This Preliminary Decision (PD) is the initial determination on a proposed disposal of interest in state land and is subject to comments received during this public notice and agency review period. The public and agencies are invited to comment on this PD. The deadline for commenting is **July 29, 2026.** Please see the Comments section of this decision for details on how and where to send comments for consideration. Only the applicant and those who comment on the PD have the right to appeal the Final Finding and Decision (FFD).

Requested Action
The Department of Natural Resources (DNR), Division of Mining, Land and Water (DMLW), Southcentral Regional Land Office (SCRO) has received a request from Fishhook Renewable Energy, LLC (FRE) to lease 3.8 acres of land, more or less, for 50 years (ADL 229824); and 7.1 acres of land, more or less, for a public easement (ADL 229806) to construct, survey, operate, and maintain a run-of-river hydroelectric project (proposed project) and its associated appurtenant facilities on Fishhook Creek in Hatcher Pass, Alaska. The proposed project area is located within the W1/2 and S1/2 of Section 3, NE1/4 of Section 10, W1/2 of Section 11, and the NW1/4 of Section 14, Township 19 North, Range 1 East, Seward Meridian.

Requested Improvements
Below are basic project components proposed by the applicant (also depicted in Figure 1):

- Intake/weir structure: approximately 40’ weir structure. Lease site, approximately 1.6 acres

- Powerhouse: approximately 50’ x 50’ and 20’ tall. Lease site, approximately 2.2 acres
- Penstock: buried 2’ diameter pipe approximately 7,700’ in length. Easement, approximately 5.2 acres
- Buried transmission line approximately 2,740’in length. Easement, approximately 1.9 acres

  The power transmission line is proposed to connect to the Matanuska Electric Association’s (MEA) existing underground transmission line located within Hatcher Pass south of the proposed powerhouse, which would require concurrent authorization from the Matanuska-Susitna Borough (MSB) for use of borough-managed lands.

Proposed Action

SCRO is considering the issuance of a 30-year non-competitive negotiated lease under AS 38.05.070(c); and associated 30-year private non-exclusive easement under AS 38.05.850 for the penstock, access trail and transmission line as the proposed development is not intended to facilitate public access and use of the penstock and transmission line would benefit a private entity without excluding other potential land use. The project is described in the attached Development Plan (Attachment B). If approved, SCRO would first issue an Entry Authorization (EA) to allow for the construction, survey, and appraisal of the proposed leasehold. The EA would also authorize motorized use for the purpose of construction activities, within the Special Use Area per AAC 96.014(b)(3)(A).

Once all requirements of the EA are met and deliverables received, SCRO would then issue a 30-year lease to FRE for the Fishhook Project.

This decision only considers the portions of the proposed infrastructure that are located on state land.

Background

- FRE originally applied for an easement and lease in support of a hydroelectric project on June 6, 2006. An initial agency review was conducted on January 28, 2009, followed by signature of a PD on November 4, 2010, which was distributed to the public. However, a FFD was never issued, and therefore comments received were not addressed. Public comments were provided to FRE for response.
- The 2010 adoption and 2012 amendment of the Hatcher Pass Management Plan (HPMP; the Plan), replaced the 1986 Plan as amended in 1989.
- January 21, 2015: FRE provides written responses to public comments received in 2010.

- April 23, 2015: Lease application suspended awaiting further data, including a finalized hydrology report, Alaska Department of Fish and Game (ADF&G) Fish Habitat Permit, and an updated development plan from FRE.
- March 23, 2017: FRE submits updated development plan, including new hydrologic data and responses to prior public comments collected in 2010. Application is reinstated.
- July 19, 2018: New agency review conducted. No agency comments received.
- October 7, 2020: Joint adjudication between SCRO Leasing & Easement Unit begins. Multiple decision drafts are completed and reviewed by SCRO management.
- July 18, 2023: SCRO requests additional information from FRE regarding Development Plan and project mitigation.
- January 31, 2024: FRE provides a formal response to SCRO questions.
- September 26, 2025: SCRO requests an updated Development Plan from FRE to reflect development pursuant to the 2012 Hatcher Pass Management Plan.
- March 5, 2026: FRE submits updated development plan to SCRO.

As such, this preliminary decision supersedes and replaces all previous decisions, including the PD previously signed on November 4, 2010. This PD is in no way tied to the PD issued in 2010 and represents a new Best Interest Finding process based on the application and development plan submitted in 2026.

Scope of Decision

The scope of this decision is to determine if it is in the State's best interest to issue a 30-year non-competitive negotiated lease and private non-exclusive easement described herein. The administrative review for this authorization is defined by AS 38.05.035(e)(1)–(2) and limited to (1) reasonably foreseeable, significant effects of the uses to be authorized; (2) applicable statutes and regulations; (3) the facts pertaining to the land or resources; and (4) any issues that are material to the determination.

Authority

The lease application is being adjudicated pursuant to Alaska Statutes (AS) 38.05.035(b)(1) and AS 38.05.035(e) Powers and Duties of the Director, AS 38.05.070 Generally, and AS 38.05.945 Notice. The easement application is being adjudicated pursuant to AS 38.05.850 Permits. Applications are being adjudicated pursuant to the Alaska Land Act, as amended, as well as under AS 41.23.110 - .130 (Public Use Areas), and 11 AAC 96.014 (Special Use Land). The authority to execute the PD, FFD, EA, Lease and Easement has been delegated to the Regional Managers of DMLW.

Administrative Record

The administrative records for the proposed actions consist of the Constitution of the State of Alaska, the Alaska Land Act as amended, applicable statutes and regulations referenced herein, the 2010 Hatcher Pass Management Plan as amended in 2012, and other classification references described herein, the casefile for the lease application serialized as ADL 229824, and the casefile for the easement application serialized as ADL 229806.

Legal Description, Location, and Geographical Features

The State land where this proposed project is located is described as follows:

- **Legal description:** W1/2 and S1/2 of Section 3, NE1/4 of Section 10, W1/2 of Section 11, and the NW1/4 of Section 14, Township 19 North, Range 1 East, Seward Meridian
- **Geographical location:** Hatcher Pass
- **Approximate Lat/Long:** 61.7651°N, 149.2686°W (intake); 61.7532°N, 149.2319°W (powerhouse)
- **Area geographical features:** Hilly terrain with some forest, dwarf shrub and alpine vegetation. The Independence Mine State Historical Park is north of the proposed project area.
- **Existing surveys:** None
- **Municipality/Borough:** MSB
- **Native Corporations/Federally Recognized Tribes:** Cook Inlet Region, Incorporated
- **Size:** Total proposed project footprint = 10.9 acres post-construction
  Lease ADL 229824 = approximately 3.8 acres
  Easement ADL 229806 = approximately 7.1 acres post-construction

Title

DNR Title Report #21759 dated May 4, 2021, from DMLW's Realty Services Section attests that the State of Alaska holds title to the subject land under United States Patent #50-87-0076, dated November 19, 1986, with a standard reservation for ditches or canals.

Pursuant to its municipal entitlement, portions of the subject land within Sections 10 and 11 of Township 19 North, Range 1 East, Seward Meridian, have been approved for conveyance to the MSB (ADL 231234).

Third Party Interests

Known third-party interests within the proposed project area include:

- ADL 228199 – Public utility easement issued to the MEA;
- ADL 228852 – Public utility easement issued to Matanuska Telephone Association.
- ADL 233120 – Entry authorization for a public access easement to MSB for a non-motorized, multi-use public recreation trail;

- ADL 233819 – Entry authorization for a public access easement to the Department of Transportation & Public Facilities (DOT&PF) for Palmer-Fishhook Road; and
- ADL 234032 – Entry authorization for a non-competitive lease to Hatcher Alpine Xperience for the Skeetawk Ski Area.

This PD addresses only the land use portions of FRE's proposed hydroelectric project on state lands. However, there are third-party interests in the waters of Fishhook Creek and the Little Susitna River:

- LAS 11561 – Instream flow reservation that includes stream flows of the Little Susitna River held by ADF&G;
- LAS 24953 – Surface water right held by DOT&PF; and
- LAS 25691 – Permit application to appropriate water from Fishhook Creek submitted by FRE; and
- LAS 34604 – Subsurface water right held by Hatcher Alpine Xperience

Public Trust Doctrine

Pursuant to AS 38.05.126, all authorizations for this site will be subject to the principles of the Public Trust Doctrine; specifically, the right of the public to use navigable waterways and the land beneath them for navigation, commerce, fishing, hunting, protection of areas for ecological studies, and other purposes. These rights must be protected.

Previous Agency Review Summary

Given the length of time since the initial adjudication of the proposal, the previous agency and public comments received are not specifically addressed herein. This PD is in no way tied to the PD issued in 2010.

Traditional Use Findings

An additional consideration is required under AS 38.05.830 for the sale, lease or other disposal of land not located within an organized borough. The consideration must include the effect that the disposal may have on the density of the population in the vicinity, and the potential for conflicts with traditional uses that may result from the disposal. If necessary, the commissioner will develop a plan to resolve or mitigate conflicts.

The proposed site is located within MSB and therefore, pursuant to AS 38.05.830 a traditional use finding is not required.

Access

Access to the proposed project would be via Palmer-Fishhook Road, commonly known as Hatcher Pass Road, and the proposed private non-exclusive easement.

The authorization proposed herein will not impair public access to or along any public or navigable waters; therefore, an easement pursuant to AS 38.05.127 is not necessary to ensure free access to and along any public or navigable waters.

Project Overview

FRE has applied to utilize State land for the construction, survey, operation, and maintenance of a hydroelectric facility located on Fishhook Creek in Hatcher Pass. This project aims to use Fishhook Creek for power generation in the Government Peak area. The proposed intake facility would divert water into a buried pipeline (penstock) and transport it approximately 1.5 miles downstream to a powerhouse near Palmer Fishhook Road. Run-of-river facilities generate electricity by diverting water from a higher to a lower elevation, directly onto turbines inside the powerhouse, without storing water on-site. FRE estimates an annual energy production of 7,650 megawatt-hours.

The intake/weir structure, akin to a large beaver dam, would raise the water level to ensure sufficient water flow, and a screening box would prevent debris and small animals from entering. Access to the intake would be from mile 16.5 of Palmer-Fishhook Road, with a new construction trail proposed for tracked vehicles. Concurrence from DOT&PF will be needed for any portions of the trail located within the DOT right-of-way. The powerhouse, located about 650 feet upstream from the historical mouth of Fishhook Creek, would feature screening and landscaping berms to reduce visual impact. It would house turbines, generators, and associated equipment on a gravel pad with a concrete foundation. The tailrace and slough would consist of a rock-lined ditch carrying output water to the old Fishhook Creek channel. The penstock would be a two-foot diameter buried pipe, approximately 7,450 feet in length. The proposed transmission line would run approximately 2,740 feet from the powerhouse to existing MEA infrastructure.

The transmission line is proposed to connect to the MEA's existing underground transmission line located within Hatcher Pass south of the proposed powerhouse, which would require concurrent authorization from the MSB for use of borough-managed lands. Additionally, concurrence from DOT&PF is needed for any portions of the transmission line which are located within the DOT right-of-way. A section of FRE's transmission line would also need to be co-located within a portion of Skeetawk's existing state land lease, ADL 234032.

The entire proposed project falls within the Hatcher Pass Special Use Area as defined under 11 AAC 96.014(b)(3). Portions of the proposed project area, including the powerhouse and transmission line fall within the Mile 16 and Government Peak Units of the Hatcher Pass Public Use Area as defined under AS 41.23.130. Please see Attachment A for maps depicting the parameters of the Hatcher Pass Special Use Area and the Hatcher Pass Public Use Area.

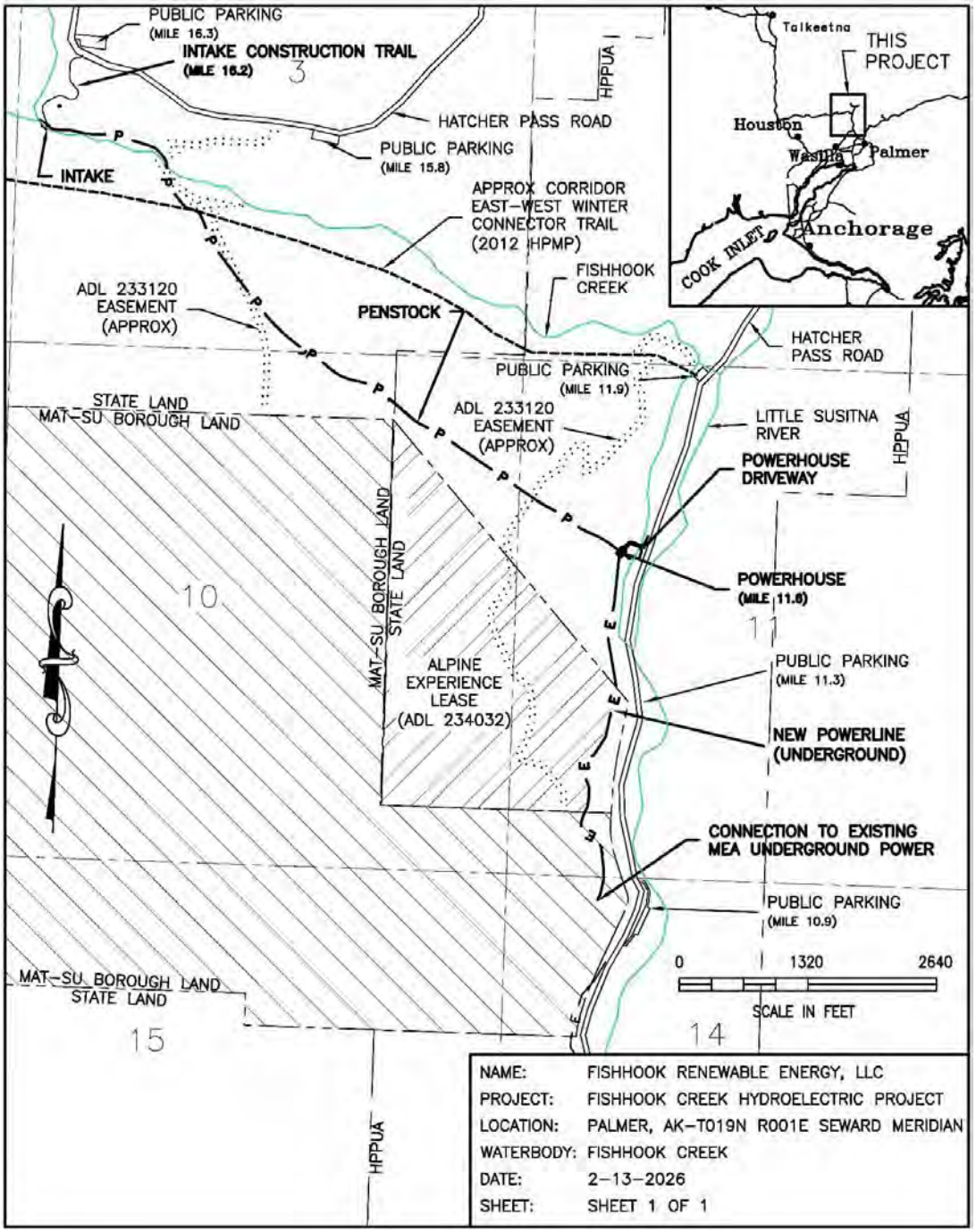


Figure 1: Proposed Project Area

Statutes, Regulations, Classification and Planning

The proposed project area is subject to: (1) AS 41.23.100 - .130; (2) 11 AAC 96.014(b)(3)(A); and (3) the Hatcher Pass Management Plan (HPMP) adopted November 17, 2010, and amended in part March 12, 2012.

AS 41.23.110 states that "The commissioner is responsible for the management of the surface and subsurface estate within the Hatcher Pass Public Use Area." "After adequate public hearings and in consultation with the commissioner of fish and game, the commissioner shall adopt and may revise a management plan for the Hatcher Pass Public Use Area." AS 41.23.110(c). On managing the Hatcher Pass Public Use Area, "the commissioner shall designate routes for motorized and nonmotorized access." AS 41.23.120(d). Lastly, if "the commissioner determines that a use is incompatible with one or more uses in a portion of the Hatcher Pass Public Use Area, the commissioner shall state in the management plan . . . (1) each determination of incompatibility; (2) the specific area where the incompatibility is determined to exist; (3) the time within which the incompatibility is determined to exist; and (4) the reasons for each determination of incompatibility." AS 41.23.120(f).

Consistent with AS 41.23.120(f), the HPMP states that the Hatcher Pass area will be managed for recreation and compatible uses including mining.

Of those compatible uses, hydroelectric facilities authorized through a lease are conditionally allowed if the use is consistent with the management intent of the unit and is otherwise consistent with state and DNR requirements for such uses. It is intended that large portions of the planning area will remain in an undeveloped state and managed as undeveloped open space (HPMP 2-29).

Management Guidelines for Fish and Wildlife Habitat:

- Invasive Non-native Plants and Animals (HPMP 2-19) Facilities must be developed and managed in a manner that avoids the introduction or spread of invasive non-native plants and animals, consistent with 11 AAC 34.
- Acoustic and Visual Disturbance (HPMP 2-19) levels should be low enough to not disturb wildlife, particularly during sensitive periods such as moose and caribou rutting and calving periods.
- Trails and Facilities (HPMP 2-20) should be sited and designed to avoid impacts to fish and wildlife and their habitats and avoid anadromous waterbodies.
- In-stream Flow (HPMP 2-20) Authorizations issued by DNR must ensure that water quality and quantity are maintained sufficiently to protect human, fish, and wildlife resources within the planning area. Proposals that may negatively impact instream flow shall include an evaluation of the need for an in-stream flow reservation or other forms of instream flow protection.

Management Recommendations for Recreation:

- Public Safety (HPMP 2-36) notes that public safety was a major concern, and it is the primary reason additional areas have been closed to winter recreational motorized use in the planning area. The non-motorized areas recommended in this plan are intended to increase public safety, reduce user conflict, and to facilitate enforcement efforts. The non-motorized areas have been modified to include areas that are popularly used by non-motorized users, which are close to the road system and parking facilities. The boundaries have been modified to follow recognizable topographical features where possible.
- Viewshed Management (HPMP 2-37) Maintaining the views of adjacent areas from the Hatcher Pass Road is to be considered. Structures or activities that significantly degrade the viewshed visible from this road are considered generally inappropriate, although they may be made compatible through the use of stipulations that significantly reduce their visual impact. The siting standards for structures and utilities given for subsurface uses should be used as stipulations, although other requirements may also be considered in the authorization.

Management Guidelines for Utilities and Related Facilities:

- Power transmission lines (HPMP 2-41) should be situated to minimize or preclude visual impacts, especially as viewed from Palmer-Fishhook Road. Utilities may only be located within view of this road if a DMLW written determination finds that no feasible alternative exists and that it is in the best interest of the state to locate such lines adjacent to or within the view of this road.
- Hydroelectric facilities (HPMP 2-42) state that hydroelectric generation facilities are conditionally allowed. Such structures shall be sited so that they are not visible from Palmer-Fishhook Road. If the latter is not feasible and some amount of visibility cannot be avoided, they should be sited and designed to blend in with the natural environment and terrain so that they do not stand out as a prominent skyline feature as viewed from this road.

11 AAC 96.014(b)(3)(A) states:

> . . . in the Mile 16 and Government Peak management units and in portions of the Independence, Reed Lakes/Little Susitna, and Archangel management units, as depicted on Hatcher Pass Special Use Area Map 1 as "Non-Motorized (Year)," except for designated roads and parking areas, motorized vehicle use, including landing aircraft, is prohibited all year, except that the department may issue a permit for motorized vehicle use for mineral development, trail construction or maintenance, or a use performed by the department related to the management of the Hatcher Pass Special Use Area or by the Matanuska-Susitna Borough in its development and management of the Southern and Northern Development Areas in the Government Peak management unit, if the department determines that the use would not substantially interfere with recreational use of the area;

Because the regulation generally bars the use of motorized vehicles on these lands, it must be considered in the context of this application. The department may authorize the use of motorized vehicles in the area if the department determines that the use would not substantially interfere with recreational use of the area and the use is: (1) for mineral development; (2) for trail construction or maintenance; and (3) for use by department related to the management of the area.

The proposed project must demonstrate that motorized access will not substantially interfere with recreational use, both during the construction and operation of the facility. The development plan must outline how motorized use is justified and demonstrate how this use will be temporary, limited in scope, and non-disruptive in relation to the primary recreation focused management intent.

Management Units

The proposed project area is primarily located within the Government Peak Unit of the HPMP. Based on the graphics submitted by FRE, it appears a portion of the proposed project area in Section 3 (site of the intake structure) is also located within the Mile 16 Unit.

Government Peak Unit. This unit is designated Public Recreation-Developed and Public Recreation-Dispersed. Both designations convert to the land use classification of Public Recreation Land. The Management Intent for areas designated Public Recreation-Developed is that the land be managed to accommodate ski facilities and continue to allow non-motorized uses (HPMP 3-89). The Management Intent for areas designated Public Recreation-Dispersed note that the land is to be managed to accommodate current non-motorized uses. Generally, development--except related to recreation, recreation related infrastructure, and public safety projects--is not intended in these areas. Some of these uses may be appropriate based on agency and public reviews, and adherence to the siting and design criteria identified under Management Guidelines and Management Recommendations of this section. Utilities including hydroelectric power generation facilities are to be treated as a conditional use (HPMP 3-93).

Reservations: a new winter motorized east-west corridor on state land is recommended that would begin just south of the intersection of Fishhook Creek and the Palmer-Fishhook Road, continue westward following (and within 500') of Fishhook Creek, and then cross that creek to eventually tie into the Fishhook parking lot. To provide for the potential development of this facility, a corridor of 500' (south) from Fishhook Creek is to be retained for this purpose. Other uses may occur within this area on an interim basis, but only to the extent that they do not preclude the potential development of this winter motorized corridor. (HPMP 3-95)

Mile 16 Unit. This unit is designated Public Recreation-Concentrated, which converts to the classification of Public Recreation Land. The Management Intent for this unit is to maintain the area for safe public recreation in such a manner that protects the scenic quality and wildlife (HPMP 3-78).

Congestion related to motorized use is identified as a planning issue for Mile 16 Unit. The Mile 16 Unit is recommended for inclusion into the Hatcher Pass Special Use Area (HPSUA) and the plan notes that this area of concentrated recreational non-motorized use should be closed to year-round motorized use. Additional management recommendations for the Mile 16 Unit include expanding the number of pullouts to accommodate recreational users who travel off-trail often ending their runs in dispersed locations along Palmer-Fishhook Road to alleviate traffic congestion (HPMP 3-80).

Management Plan Discussion

Hatcher Pass is primarily used for public recreation. The area supports both public and commercial recreational activities. Recent trail development in the area (ADL 233120) and the expansion of the Skeetawk Ski Area (ADL 234032) indicate that patterns of recreational use in the area will increase over time. Hydroelectric facilities are allowed within the planning area--as long as certain conditions are met--if they are determined to be in the best overall interest of the state and borough, and if they are consistent with the management intent of the management unit. SCRO has coordinated with MSB on the proposed project. MSB have expressed no objection to the proposed development which would bisect portions of their approved easement, ADL 233120, for the development of mountain bike trails. SCRO acknowledges that, if approved, FRE's proposed hydroelectric project will require ongoing coordination with MSB and Skeetawk Ski Area.

The management intent of the Government Peak and Mile 16 Units is to maintain the area for safe public recreation in such a manner that protects the scenic quality and wildlife, to accommodate current non-motorized uses, and motorized uses that are necessary to the support and operation of the Alpine and Nordic ski facilities.

Maintaining scenic views from Hatcher Pass Road is critical. The facility's siting must not substantially interfere with recreational use, with measures implemented to mitigate development impacts. Structures or activities that degrade the viewshed are generally inappropriate but may be made compatible with specific stipulations. The hydroelectric facilities must aim to minimize visual impacts, particularly from Palmer-Fishhook Road. Temporary construction activities, primarily during summer, will likely affect recreational and tourism activities temporarily.

The area supports diverse wildlife, including a significant moose population and important sport fisheries, necessitating a Fish Habitat Permit from the ADF&G for lease issuance. Design efforts shall be made to minimize impacts on fish species.

In their attached Development Plan, FRE has provided a thorough assessment of the proposed hydroelectric project as it relates to the HPMP. Mitigation measures needed to meet the conditions of a hydroelectric project in the proposed area have been well outlined. Motorized access will not substantially interfere with recreational use and, as proposed, has been shown to be temporary, limited

in scope, and non-disruptive and therefore consistent with the management intent. As outlined by FRE in their development plan, the construction and operation of the proposed run-of-river hydroelectric project should not have a detrimental effect on the recreational use of the area and is therefore consistent with the management intent of the HPMP as a conditional use hydroelectric project.

Construction, involving heavy equipment use, may exceed Generally Allowed Uses (GAU) and therefore require approval from DMLW. If approved, the EA would authorize motorized use, for the purpose of construction activities, within the Special Use Area per AAC 96.014(b)(3)(A).

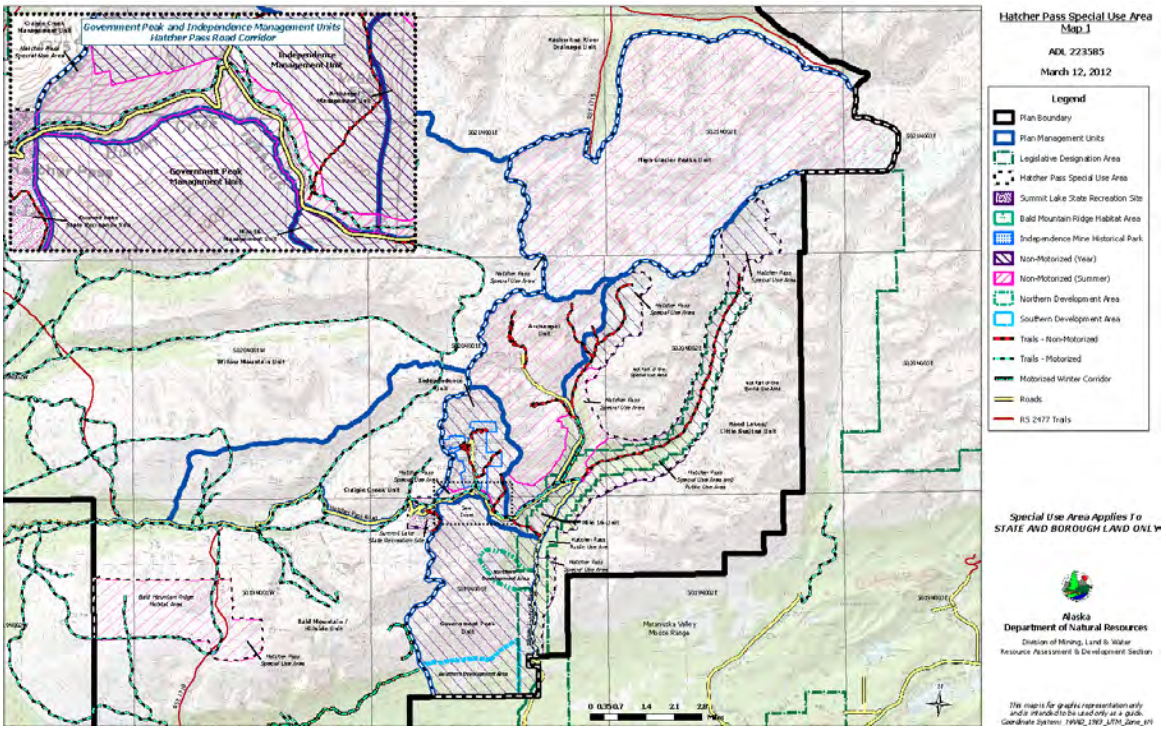


Figure 2: HPSUA Map 1. Non-Motorized (Year) depicted in purple

Economic Benefit and Development of State Resources

When adjudicating applications for use of State land DMLW considers if the requested authorization will provide the greatest economic benefit to the State and development of its natural resources. Specifically, direct and indirect economic benefits and whether the proposed authorization encourages the development of the State's resources are considered. Hydroelectric projects in Alaska provide a renewable, clean energy source that brings economic benefits.

Current management of the Hatcher Pass area promotes both a direct and indirect economic benefit to the State as a recreational destination. According to the applicant and their attached development plan, the proposed project could provide electricity for approximately 900 homes on the Railbelt and has the potential to lower consumer costs. FRE's development plan notes that due to the

seasonal shift in water volume flowing in Fishhook Creek, power generation would be at its lowest point in the winter months when residential demand for power consumption is its highest due to cold winter temperatures, making its success dependent on maintaining an economically feasible wholesale electricity cost.

Hydroelectric projects create jobs in construction, maintenance, and operation, boosting local economies. Hydroelectric power also generates very low greenhouse gas emissions compared to fossil fuels, keeping maintenance costs low. Additionally, run-of-river hydroelectric projects, which do not require large dams, can minimize land use and environmental disruption. Planning for climate change impacts is essential to ensure the long-term viability and sustainability of these projects.

Overall, promoting and maintaining hydroelectric projects aligns with the goal of maximizing the state's economic benefits and natural resource development.

Development Plan

The Development Plan (DP) attached to this decision (Attachment B) and submitted March 5, 2026, is under consideration by SCRO. Should the proposed lease and easement be granted, it is anticipated that the DP will need to be updated throughout the life of the authorization as activities and/or infrastructure are added or subtracted. All updates must be approved, in writing, by SCRO before any construction, deconstruction, replacement of infrastructure, or change in activity. SCRO reserves the right to require additional agency review and/or public notice for changes that are deemed by SCRO to be beyond the scope of this decision.

Mitigation Measures

As the area is to be managed for public recreation, SCRO must consider how siting and construction of a hydroelectric facility will impact recreation in the long term and identify measures to reduce user conflicts. FRE has submitted an updated DP that addresses the following necessary mitigation measures that will ensure that the proposed project meets the conditional requirements of the HPMP. Final approval of the proposed use could include additional stipulations and mitigation measures that address the conditions necessary to make the proposed use consistent with the management intent.

Visibility of the Proposed Infrastructure:

- Planting trees, shrubs, and other vegetation to create natural barriers that can block or soften the view of the infrastructure.
- Using earth mounds, berms, or other landscaping techniques to physically obstruct the view.
- Incorporating architectural elements such as earth-sheltered buildings or using colors and materials that blend with the natural surroundings.

- Utilizing natural topography by positioning infrastructure elements in less visible locations or using natural landforms to shield them from view.

Noise Mitigation for the Hydroelectric Powerhouse:

- Using sound-absorbing materials around the powerhouse to reduce noise transmission.
- Using earth mounds as sound dampening barriers.
- Regular maintenance of machinery to ensure it operates quietly.
- Positioning the powerhouse using natural landforms to shield noise.

Conflicts with Recreational Users:

- Clear indicators to guide users and avoid the construction, maintenance, and safety zones of the infrastructure.
- Timing construction activities during off-peak seasons or hours to minimize disruptions to recreational users.
- Public communication to inform the public about the project, its timeline, and any temporary changes to the area through regular public updates or community meetings.
- Designated parking and enforcing no-parking zones to keep pull-offs clear.
- Working with local recreational organizations to address concerns and develop mutually agreeable solutions.

Wildlife and Safety Measures at the Intake Site:

- Intake grates to prevent humans, wildlife and debris from entering the intake gallery.

Authorizations required by other agencies:

- ADF&G Fish Habitat Permit
- Driveway Permit from DOT&PF
- Section 404 Permit from the U.S. Army Corps of Engineers
- Appropriate land use authorization from the MSB.
- A valid Surface Water Right from the DMLW Water Section.

Hazardous Materials and Potential Contaminants

Hazardous substances, specifically fuel, will be used by heavy equipment during the construction phase. During the operational phase, small amounts of fuel, hydraulic oil, and grease as well as a battery bank will be stored within the proposed leasehold. The powerhouse may also be furnished with a bathroom and associated wastewater management system such as a septic tank. Stipulations will be included in the lease to ensure proper handling of any hazardous material used in conjunction with the lease and easement.

The use and storage of all hazardous substances must be done in accordance with existing federal, state, and local laws. Debris (such as soil) contaminated with used motor oil, solvents, or other

chemicals may be classified as a hazardous substance and must be removed from the leasehold and disposed of in accordance with state and federal law.

Environmental Liability Stipulation

A copy of the environmental liability stipulation has been provided to the applicant. Any environmental liability baseline for the lease site can be established prior to lease issuance. If the lessee conducts an environmental baseline, they will not be presumed to have caused or contributed contamination identified in the environmental liability baseline during a clearance assessment conducted prior to lease termination or expiration.

Performance Guaranty

In accordance with AS 38.05.035 and AS 38.05.860, FRE will be required to submit a performance guaranty for the lease site.

- **$300,000.00 Performance Bond:** This bond will remain in place for the life of the proposed lease. The bond amount is based upon the level of development, amounts of hazardous material and/or substances on site, and the perceived liability to the State. This bond will be used to ensure the applicant's compliance with the terms and conditions of the lease issued for their project. This bond amount will be subject to periodic adjustments and may be adjusted upon approval of any amendments, assignments, reappraisals, changes in the DP, changes in the activities conducted, or changes in the performance of operations conducted on the authorized premises, and as a result of any violations to one or more of the authorizations associated with this project.

- **Reclamation Bond:** SCRO is reserving the right to require a reclamation bond due to noncompliance issues during the term of the lease or near the end of the life of the project.

Insurance

If approved, the applicant will be required to submit proof of insurance at an amount the insurance company determines necessary to protect both the State and the applicant from risks associated with the planned activities under the EA, lease, and easement for ADL 229824 and ADL 229806. The applicant will be responsible for maintaining the necessary insurance during the term of the EA, lease, and easement. The insurance may be adjusted to reflect updates and changes in the associated project, and the applicant may be required to furnish additional insurance if DMLW determines there is additional risk to the State. A certificate of insurance listing the State of Alaska, Department of Natural Resources as an additional insured on the policy, or other insurance

acceptable to the State, must be submitted to DMLW prior to entry on state land and must be maintained throughout the term of the EA, lease, and easement.

Survey
In accordance with AS 38.04.045, the applicant must complete an approved survey according to the requirements and standards of DMLW's Survey Section prior to lease and easement issuance, if approved. The draft survey must be submitted for review to the Survey Section within one year of issuance of the survey instructions. If the submitted survey is accepted by DMLW, the measurements identified will be used to accurately calculate the total acreage and location of the leasehold and easement. A survey instruction fee per 11 AAC 05.240 may be applicable.

Lease Compensation and Appraisal
In accordance with AS 38.05.840, state-owned land may only be leased if it has been appraised within two years before lease issuance. FRE will be required to provide an appraisal of the lease site before the proposed lease will be issued. Once the appraisal has been approved by DMLW, the annual lease fee will be set at the fair market value of the proposed lease site. Furthermore, in accordance with AS 38.05.105, the proposed EA and lease will be subject to reappraisal at five-year intervals after the issuance of the proposed authorization.

Easement Fees
If approved, the following fees would be applicable to this request. These fees may be adjusted if regulation(s) or department fee schedule pertaining to the fee(s) change during the term of the EA, lease, or easement, and will be subject to non-sufficient fund and late payment penalty fees. All fees would accrue from the effective date of the FFD.

- An annual interim land use fee of $120.00 per acre rounded up to the nearest acre, with a $240.00 minimum, totaling $1,080.00, per 11 AAC 05.070(d)(2)(I) and Director's Fee Order No. 3 for the term of this EA.
- An annual fee of $240.00 per acre rounded up to the nearest acre, with a $480.00 minimum, totaling $2,160.00, for a private non-exclusive easement per 11 AAC 05.070(d)(2)(A) and Director's Fee Order No. 3.

Entry Authorization
An EA is an interim authorization issued when a survey and/or appraisal is necessary prior to lease and easement issuance. If approved, an EA would be issued for both the easement and the lease for a term of five years for the purpose of constructing, surveying, operating, and maintaining the infrastructure considered herein prior to DMLW's issuance of a lease and easement. The proposed EA would be issued after the FFD goes into effect. The term of the EAs are included in the term of the lease and easement. The EAs may be revoked if the applicant has not provided DMLW with a draft as-built survey one year prior to the expiration of the EAs. An extension of the EAs may be granted at the written request of the applicant if granting the extension is deemed appropriate by

DMLW and may be subject to applicable fees. If an extension is required, the applicant must contact DMLW at least 30 days prior to the expiration of the EA and certify there have been no changes to the approved development plan.

The estimated annual fee for the proposed lease EA is $1,000.00. Should the required appraisal report indicate that the value of the land is greater than anticipated, the shortfall must be remedied before the lease is issued. The estimated annual fee for the proposed easement EA is $1,080.00.

If approved, no authorization shall be granted until the following deliverables have been provided to DMLW:

- Land use fees.
- Evidence of having made request for survey instructions to the DMLW Survey Section.
- Insurance.
- A performance guaranty.
- A valid Fish Habitat Permit from ADF&G
- A valid Surface Water Right from the DMLW Water Section
- A valid Driveway Permit from DOT&PF
- Evidence of having applied for a Section 404 Permit from the U.S. Army Corps of Engineers
- Evidence of having applied for the appropriate land use authorization from the MSB.

Subleases

Subleasing is permissible through AS 38.05.095, if the proposed lease is approved. A sublease is defined as improvements not owned by the lessee that are located within the leasehold on the land or located on structures owned by the lessee. A sublease pertaining to the proposed lease includes but is not limited to, user agreements, license agreements, communication site agreements, or any contracts between the lessee and other commercial entities. All potential subleases must first be approved in writing by SCRO. Depending on the activity of any potential subleases, SCRO is reserving the right to reevaluate the need for further agency review and/or public notice before making a determination on the appropriateness of the proposed sublease. Sublease compensation to the State will be determined by SCRO according to AS 38.05.073(m), under the authority of AS 38.05.075(a) Leasing Procedures. In any case, the sublease fee for commercial activities will not be less than 25% of the annual fee paid to leaseholder by the sublessee.

Assignment of Lease

The proposed lease, if issued, may be transferred or assigned to another individual or corporation only with written approval from DMLW. A lease will not be assigned to an entity if that entity does not meet the statutory requirements of the lease, or if the lessee is considered not to be in "good standing" with DMLW or any other agency authorization. DMLW reserves the right to amend the terms of any lease prior to assignment.

Reclamation
In accordance with AS 38.05.090(b), all lessees must restore their lease site to a "good and marketable condition" within 120 days after termination of the lease. What level of reclamation constitutes as being "good and marketable" is at the discretion of SCRO.

Agency and Public Notice of the Preliminary Decision
Pursuant to AS 38.05.945, this PD will be noticed for a 30-day public comment and agency period**,** starting on June 29, 2026. The Palmer, Wasilla, and Houston post offices will be requested to post the notice pursuant to AS 38.05.945(b)(3)(C). The notice will also be posted on the State of Alaska Online Public Notice website pursuant to AS 38.05.945(b)(3)(B) located at: https://aws.state.ak.us/OnlinePublicNotices/Default.aspx. Additionally, Public Notice will be sent to third-party interests, neighboring property owners, and other interested parties. In accordance with AS 38.05.946, the Matanuska Susitna Borough is a municipality under AS 38.05.945(c) and may hold a hearing within 30 days after the receipt of the notice.

The public is invited to comment on this PD. Comments received during the public comment period will be considered in the FFD. A copy of the FFD, along with instructions on filing an appeal, will be sent to all persons who comment on the PD. If public comments result in significant changes to the PD, additional public notice may be given.

To be eligible to appeal, a person affected by the FFD must provide written comments during the public comment period.

The agency review will be circulated to the following agencies and interested parties:

- DNR Division of Parks and Outdoor Recreation (DPOR)
- DNR DPOR Office of History and Archaeology
- DNR Division of Agriculture
- DNR Division of Forestry (DOF)
- DNR Division of Geological and Geophysical Surveys
- DNR Division of Oil and Gas and State Pipeline Coordinator's Section
- DNR Office of Project Management and Permitting
- Alaska Department of Environmental Conservation (DEC)
- DEC Drinking Water Program
- Alaska Department of Commerce, Community, and Economic Development
- Alaska Department of Fish & Game (ADF&G) Division of Habitat
- ADF&G Division of Wildlife Conservation
- Alaska Department of Transportation & Public Facilities (DOT&PF)
- Regulatory Commission of Alaska
- U.S. Army Corps of Engineers

- U.S. Fish and Wildlife Service
- U.S. Environmental Protection Agency
- Federal Energy Regulatory Commission
- Palmer Soil and Water Conservation District
- Wasilla Soil and Water Conservation District

This decision is subject to both agency and public comment, and all written comments received by the comment deadline will be considered in the FFD. Only those who provide written comments have the right to appeal the FFD.
Written comments about this project must be received in this office no later than 11:59 p.m. on July 29, 2026 to be considered.

To submit written comments or project proposals, please choose one of the following methods:

Postal: Department of Natural Resources
Division of Mining, Land and Water
Southcentral Regional Land Office
ATTN: ADL 229806 and ADL 229824 Public Notice
550 West 7th Avenue, Suite 900C
Anchorage, AK 99501-3577

Email: comments.scro.leasing@alaska.gov

Fax: (907) 269-8913

Questions about this project can be directed to the DMLW SCRO office at (907) 269-8503. If public comments result in significant changes to the Preliminary Decision, additional public notice will be given. To be eligible to appeal the Final Finding and Decision, a person must provide written comments during the Preliminary Decision comment period per AS 38.05.035(i-m). A copy of the FFD will be sent to any person who comments on this Preliminary Decision, which will include an explanation of the appeal process.

Signature page follows

Recommendation

SCRO has completed a review of the information provided by the applicant, the relevant planning documents, statutes, regulations, and other relevant information related to this application. SCRO considered three criteria to determine if this project provided the best interest to the State and the development and enjoyment of its natural resources. The criteria include direct economic benefit to the State, indirect economic benefit to the State, and encouragement of the development of the State's resources. This authorization would provide a direct economic benefit to the State through the collection of fees for ADLs 229824 and 229806. This authorization would provide an indirect economic benefit through the encouragement and development of the State's resources, and by supplementing the state's energy grid. The authorization of this lease and easement, pending public and agency comments, may be in the State's best interest as it will continue to provide development of the State resources for the benefit of the public. It is recommended that SCRO issue a 30-year non-competitive negotiated land lease and 30-year private non-exclusive easement.

Preliminary Decision

It is the determination of SCRO that it may be in the State's best interest to issue a 30-year non-competitive negotiated land lease and 30-year private non-exclusive easement to Fishhook Renewable Energy, LLC, as described above. Prior to the issuance of an Entry Authorization, FRE will be required to submit the lease EA annual fee of $1,000.00, the Easement EA annual fee of $1,080.00, a performance bond in the amount of $300,000.00, a valid Fish Habitat Permit from ADF&G, a valid Surface Water Right from the DMLW Water Section, a valid Driveway Permit from DOT&PF, evidence of having applied for a Section 404 Permit from the U.S. Army Corps of Engineers, evidence of having applied for the appropriate land use authorization from the MSB, and proof of liability insurance. The final annual lease fee will be set at fair market value as determined by an approved appraisal.

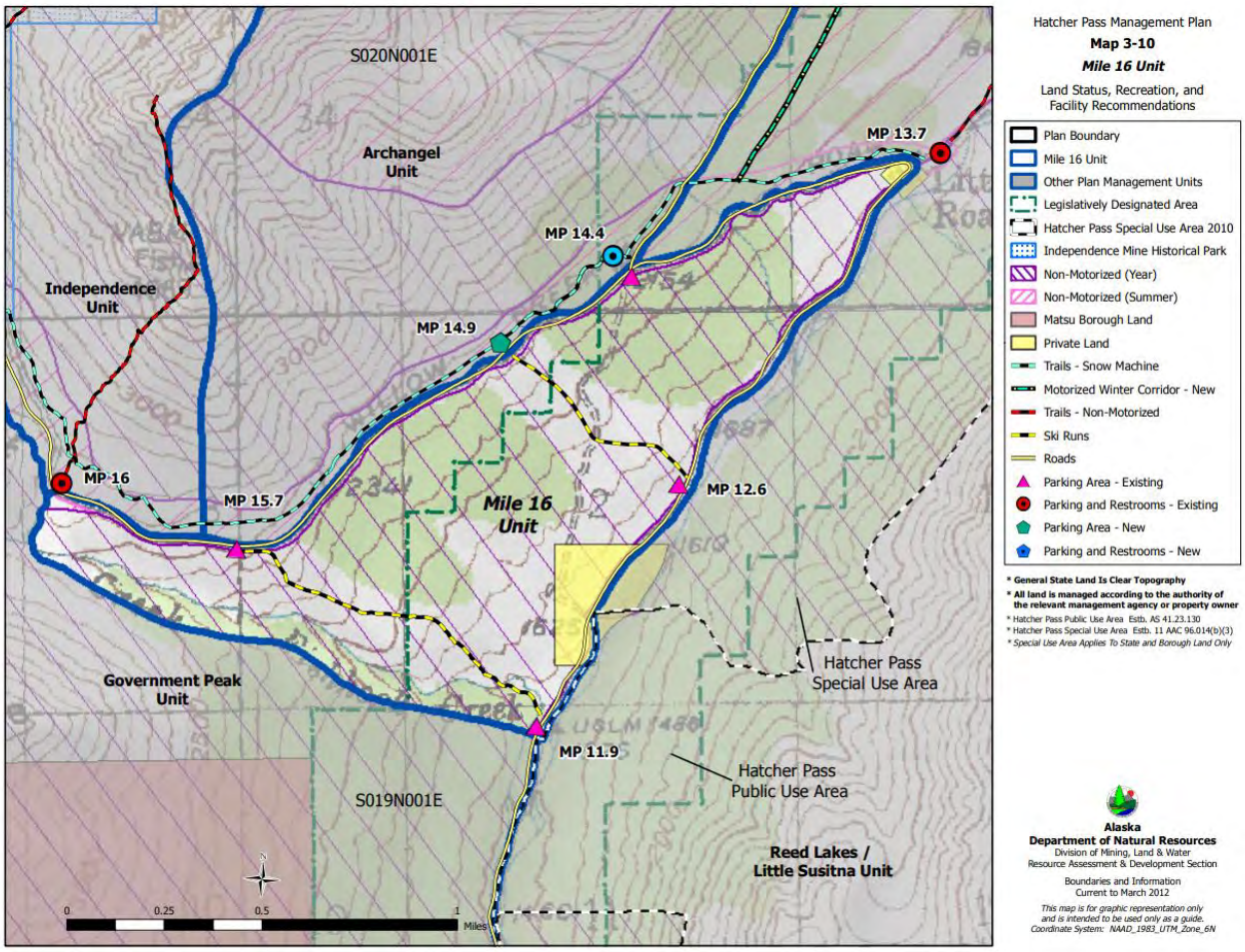
Joni Sweetman 6/29/26

Joni Sweetman, Regional Manager Date
DMLW Southcentral Regional Land Office

Attachments:

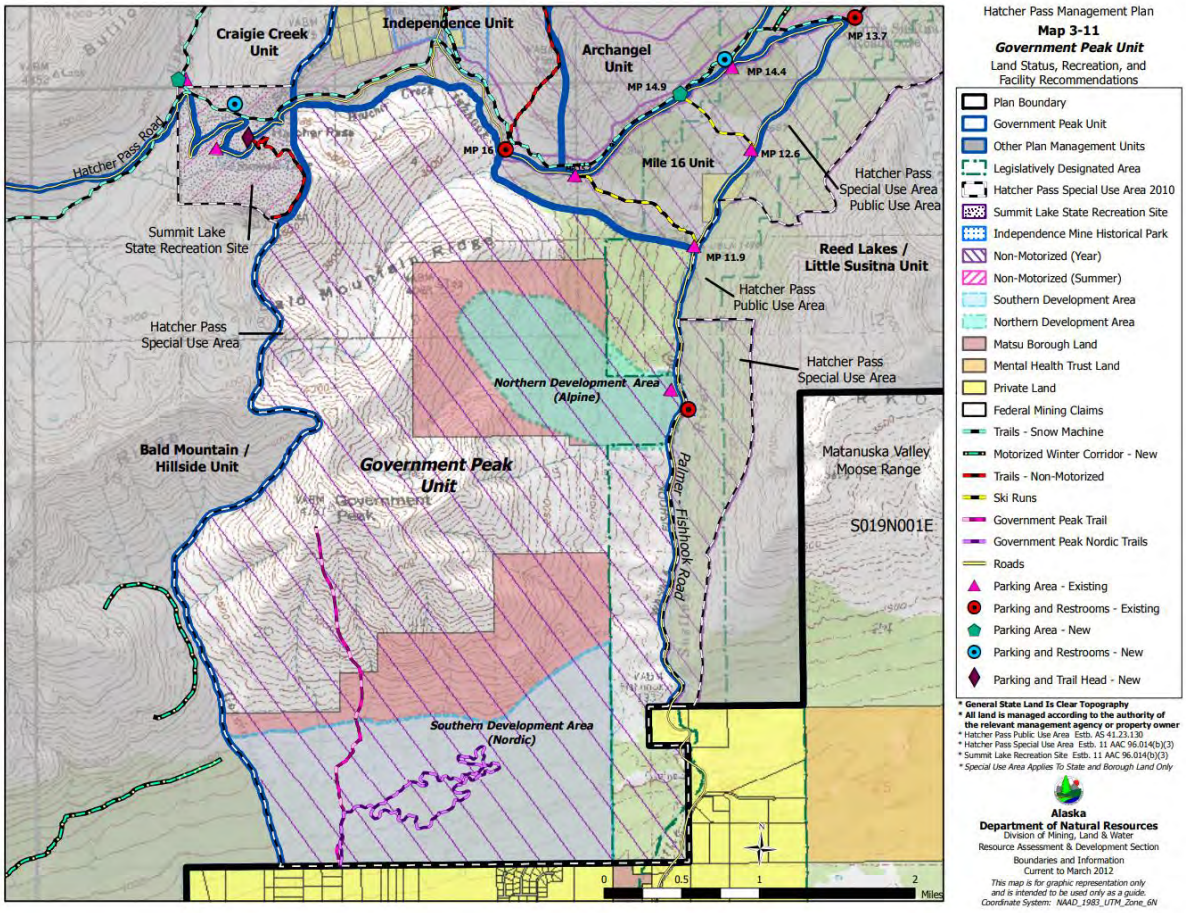
- Attachment A – Hatcher Pass Management Plan Maps
- Attachment B – Development Plan
- Attachment C – Sample Entry Authorization
- Attachment D – Sample Lease
- Attachment E – Sample Additional Stipulations

Attachment A
Hatcher Pass Management Plan Maps



Hatcher Pass Management Plan Map 3-10: Mile 16 Unit

Attachment A
Hatcher Pass Management Plan Maps



Hatcher Pass Management Plan Map 3-11: Government Peak Unit

FISHHOOK CREEK HYDROELECTRIC PROJECT

HATCHER PASS, ALASKA

PROJECT DESCRIPTION, DEVELOPMENT AND OPERATIONS PLAN

REVISION 6

MARCH 27, 2026

prepared by
FISHHOOK RENEWABLE ENERGY, LLC
1503 West 33rd Avenue
Anchorage AK 99503

Attachment B
Development Plan

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Attachment B
Development Plan

EXECUTIVE SUMMARY

This document has been prepared by Fishhook Renewable Energy, LLC (FRE) in support of its application to lease state-owned land to develop the proposed Fishhook Creek run-of-river Hydroelectric Project (Project). FRE filed its lease application with the Alaska Department of Natural Resources (ADNR) on June 6, 2006.

This Document is a Development Plan (Plan). It presents FRE's plan to develop, maintain, operate, and retire the proposed Project improvements on state land. This is the sixth revision of FRE's Plan for the Project. The Project itself is little-changed from what was first proposed in 2006. Most of the revisions to this Plan are necessary to address changes in land use regulations, land ownership, and land authorizations that have occurred over the past two decades and since the last Plan update in 2017.

The Project is fully compatible with current and future recreational uses in Hatcher Pass, and meets all requirements defined in the current Hatcher Pass Management Plan adopted by the ADNR to be authorized as a conditional use of state land.

The Project helps ADNR to fulfill the spirit and intent of Article VIII of Alaska's Constitution by developing public lands and resources for maximum use consistent with the public interest. The Project's intrinsic compatibility with recreational use in Hatcher Pass allows continued sustainable use for both recreation and energy generation, fulfilling:

- Legislative intent of the Hatcher Pass Public Use Area defined in statute at AS 41.23.100,
- Legislative intent of the State Energy Policy defined in statute at AS 44.99.115,
- Regulations defining the Hatcher Pass Special Use Area at 11 AAC 95.014, and
- Requirements of the Hatcher Pass Management Plan.

The Project is a two-megawatt run-of-river hydroelectric project at Fishhook Creek on the east side of Hatcher Pass, Alaska. The Project will provide electricity to the railbelt energy grid, displacing increasingly scarce and costly natural gas currently being burned to produce electricity with stably-priced, affordable, and renewable hydropower. This Project will benefit the railbelt population by annually producing about 7,650 megawatt-hours of electricity, enough to power about 900 average homes and roughly one percent of the total annual electric demand of the local utility, Matanuska Electric Association, Inc. The Project will increase the generation diversity and security of the electric grid.

The Project will divert up to thirty cubic feet per second of water flow from Fishhook Creek using an intake structure at an elevation of 2,540 feet. This water will be conveyed by a roughly two-foot diameter by 7,700-foot-long buried pipe downhill to a powerhouse located at elevation 1,484 feet. The water will pass through turbine-generators to produce electricity, then return to an old channel of Fishhook Creek enhancing existing degraded salmon habitat before flowing into the Little Susitna River.

Most of the project footprint disturbed for construction will be fully revegetated to preserve aesthetics, support continued recreation, and sustain healthy wildlife populations. Most access for project operations will be via non-motorized means for maximum compatibility with recreational uses.

Attachment B
Development Plan

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ATTACHMENTS

ATTACHMENT 1 – FINAL HYDROLOGY REPORT - MARCH 21, 2017.
ATTACHMENT 2 – FRE RESPONSES TO PUBLIC COMMENTS ON PROJECT LEASES AND EASEMENTS - JANUARY 21, 2015.
ATTACHMENT 3 – PROJECT DRAWINGS - FEBRUARY 27, 2026.

ACRONYMS AND TERMINOLOGY

AAC	Alaska Administrative Code
ADL	Alaska Division of Lands
ADN	Anchorage Daily News
ADEC	Alaska Department of Environmental Conservation
ADFG	Alaska Department of Fish and Game
ADNR	Alaska Department of Natural Resources
ADOA-PMC	Alaska Division of Agriculture, Plant Materials Center
ADOT	Alaska Department of Transportation and Public Facilities
AEA	Alaska Energy Authority
AESTF	Alaska Energy Security Task Force
AOGCC	Alaska Oil and Gas Conservation Commission
AS	Alaska Statute
BMP	best management practice
CEA	Chugach Electric Association, Inc.
cfs	cubic feet per second
CINGSA	Cook Inlet Natural Gas Storage Facility
dB	decibel
DGGS	ADNR, Division of Geologic and Geophysical Surveys
DOE	U.S. Department of Energy
DPOR	ADNR, Division of Parks and Outdoor Recreation
EEA	Early Entry Authorization
Enstar	Enstar Natural Gas Company, Inc.
FD	Final Decision
FERC	Federal Energy Regulatory Commission
FRE	Fishhook Renewable Energy, LLC
GVEA	Golden Valley Electric Association, Inc.
HDPE	high-density polyethylene
HPMP	Hatcher Pass Management Plan
HPPUA	Hatcher Pass Public Use Area
HPSUA	Hatcher Pass Special Use Area
IPP	independent power producer
LLC	limited liability corporation
LNG	liquified natural gas

MEA	Matanuska Electric Association, Inc.
ML&P	Municipal Light & Power (now part of CEA)
MSB	Matanuska-Susitna Borough
MTA	Matanuska Telephone Association
MW	1,000 kilowatts
MWh	1,000 kilowatt-hours
NAD	North American Datum
PD	Preliminary Decision
Plan	The Development Plan prepared by FRE that describes the proposed development and operation of the Project.
Project	The Fishhook Hydroelectric Project as proposed by Fishhook Renewable Energy, LLC.
hydroelectric	A device or system that converts the potential, kinetic, or pressure energy in a stream of water to mechanical or electrical energy.
kW	kilowatt. The power needed to light ten 100-watt light bulbs.
kWh	kilowatt-hour. Unit of energy equal to one kilowatt for one hour.
penstock	A pipe that conveys water from the intake to the powerhouse.
powerhouse	A building that houses equipment used to produce electricity.
run-of-river	A type of hydroelectric facility with negligible storage capacity that utilizes the instantaneous flow of a creek or river to generate electricity.
SCADA	Supervisory Control And Data Acquisition
Sec.	section
SWPPP	Stormwater Pollution Prevention Plan
tailrace	A structure that conveys water away from the turbine and powerhouse and to a receiving water body.
USEPA	U.S. Environmental Protection Agency
USGS	U.S. Geological Survey

Attachment B
Development Plan

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Attachment B
Development Plan

0.0 DOCUMENT HISTORY AND PURPOSE

0.1 PURPOSE

This document has been prepared by Fishhook Renewable Energy, LLC (FRE) in support of its application to lease state-owned land to develop the proposed Fishhook Creek Hydroelectric Project (Project). FRE filed its lease application with the Alaska Department of Natural Resources (ADNR) on June 6, 2006.[1] FRE also has easement applications on file for this Project with ADNR and the Matanuska-Susitna Borough (MSB).[2]

This Document is a Development Plan (Plan). It presents FRE's plan to develop, maintain, operate, and retire the Project improvements on state land. FRE's actual practices may deviate from this plan for a variety of reasons including but not limited to:

1) Compliance with final terms and conditions of federal, state, and local permits and authorizations.
2) Compliance with final design documents and applicable building codes.
3) Adherence to utility requirements, good utility practice, and reliability standards.
4) Adherence to requirements of commercial contracts and financing covenants.
5) Business decisions of FRE.

In navigating such future considerations, FRE will closely and proactively coordinate with stakeholders to comply with Project permits and authorizations.

0.2 REVISION HISTORY

This is the sixth revision of FRE's Plan for the Project. The Project itself is little-changed from what was proposed in 2006. Most of the revisions to this Plan are necessary to address changes in land use regulations, land ownership, and land authorizations that have occurred over the past two decades. Plan revisions #5 and #6:

1. Update the format, content, and organization of the Plan to conform to current guidance from the ADNR.[3] This version also incorporates FRE's responses to specific questions raised by ADNR during its adjudication efforts over the past 20 years and other updates from FRE's ongoing engagement with agencies and stakeholders.
2. Update existing information about the proposed Project, existing land status within the Project footprint, and related information to reflect changes in the Project vicinity that have occurred since the previous Plan revision.
3. Update to accommodate changes in government management plans, permitting requirements, and general regulatory environment relevant to the Project that have occurred since the previous Plan revision.
4. Clarify sanitary wastewater provisions at the powerhouse site described in Section 5.6.

[1] FRE 2006b.
[2] FRE 2006a, FRE 2007.
[3] ADNR 2026a.

Table 0-1 lists prior Plan versions. This version of the Plan supersedes all prior versions. Questions about this document should be directed to FRE.

Table 0-1: Prior Development Plan Releases

Release	Date Published
Original	June 2006
Revision 1	January 2007
Revision 2	November 2008
Revision 3	June 2010
Revision 4	March 2017
Revision 5	March 5, 2026

0.3 LIMITATIONS

In preparing this Plan, FRE has relied on information provided by others and has assumed this information is complete and correct. Also, FRE has made certain assumptions with regard to future events, conditions, and circumstances. FRE does not guarantee the accuracy of the information, data, or opinions contained herein. The methodologies employed to prepare this Plan follow generally accepted practice for this type of document. FRE believes that the assumptions and methodologies used are reasonable and appropriate. Future events and information may result in outcomes materially different from those projected herein. Such events and information include, but are not limited to, future market conditions, actual site conditions, future trends in local construction, material, and labor costs; and national, state, or local policies that may affect aspects of the Project.

The contents and findings of this Plan are limited to FRE's potential development of the Project and are suitable only for this intended purpose. Any use of this Plan or the information contained therein constitutes agreement that (1) FRE makes no warranty, express or implied, relating to this Plan or its contents, (2) the user accepts sole risk of any such use, and (3) the user waives any claim for damages of any kind against FRE, and (4) this Plan in no way reduces or waives FRE's rights, remedies or recourses relating to damages sustained from the State of Alaska's actions and/or inactions related to FRE's land lease and easement applications. The benefit of such waivers, releases, and limitations of liability extend to FRE, its subcontractors, owners, members, employees, and agents.

0.4 COPYRIGHT AND USE

 The ADNR has the right to reproduce and use this Plan for its adjudication of FRE's land applications under ADL 229824 and ADL 229806 including: (a) the right to share this Plan with other regulatory agencies, in support of, or in response to, their inquiries and proceedings directly relating to FRE's Project; (b) the right to incorporate the content of this Plan, as cited excerpts or condensed synopses, into its own findings and documents relating to FRE's Project; and (c) the right to make this Plan publicly available as consistent with ADNR's regulations and published administrative practices for adjudicating FRE's land applications for the Project. These rights also extend to other government agencies with jurisdiction over the Project.

1.0 INTRODUCTION AND BACKGROUND

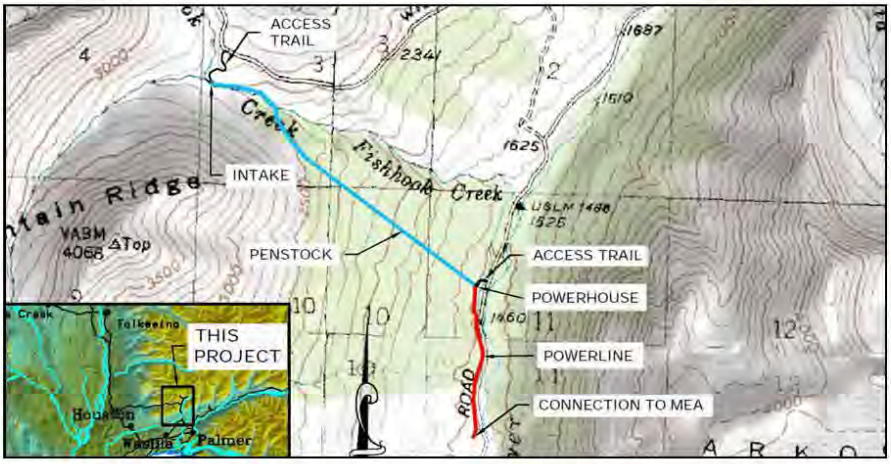
1.1 INTRODUCTION

FRE plans to construct a two-megawatt (MW) run-of-river hydroelectric project on Fishhook Creek in the east side of Hatcher Pass, Alaska (the Project).[4] The Project will provide electricity to the railbelt energy grid, displacing fossil fuels currently being burned to produce electricity. This Project will benefit the railbelt population by providing an additional local source of sustainable electricity, increasing the fuel and generation diversity of the electric grid. This Project will also extend electric service farther into the Hatcher Pass area, facilitating future improvements to public and private land in the area.

The Fishhook Project will produce about 7,650 megawatt-hours (MWh) of electricity annually. This is enough electricity to power about 900 average railbelt homes. The Project will produce roughly one percent of the total annual electric demand of the local utility, Matanuska Electric Association, Inc. (MEA).[5]

The Project will divert up to thirty cubic feet per second (cfs) of water flow from Fishhook Creek using an intake structure at an elevation of 2,540 feet. This water will be conveyed by a roughly two-foot diameter by 7,700-foot-long buried pipe downhill to a powerhouse located at elevation 1,484 feet. The water will pass through a turbine(s) that spins a generator(s) to produce electricity. The water will then return to an old Fishhook Creek channel and flow into the Little Susitna River. The Project will extend existing underground electric service in Hatcher Pass about ½ mile up Hatcher Pass Road from the Skeethawk ski complex at mile 11.1 to the powerhouse site at mile 11.6.[6] Figure 1-1 shows the general location of proposed Project features in Hatcher Pass.

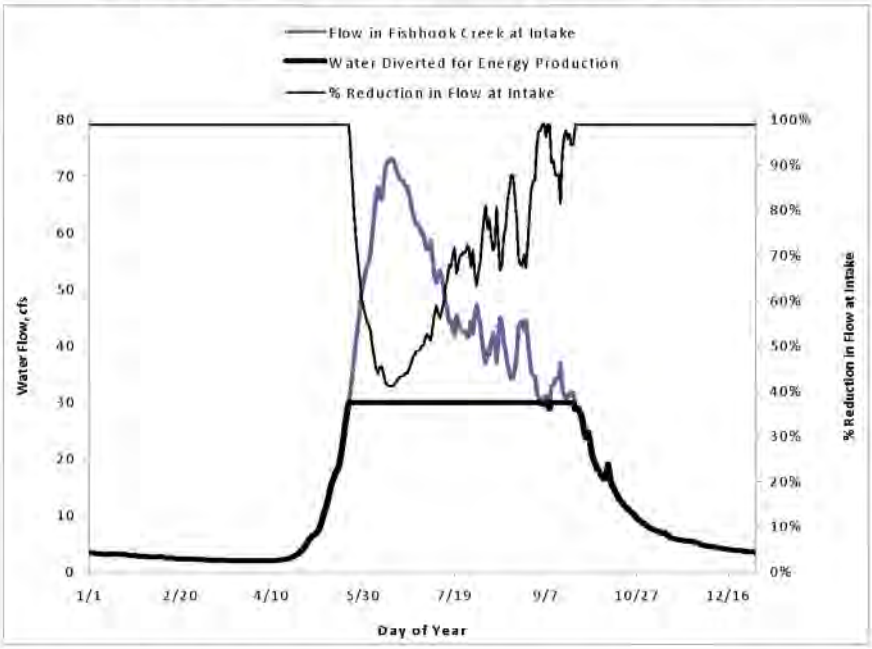
Figure 1-1: Project Location Map



[4] This Plan describes a two-megawatt project. The size of the Project may vary as FRE finalizes its designs. Project feature descriptions represent the full range of development that may occur.
[5] MEA 2025.
[6] FRE has updated road-mile references used in this Plan to comply with ADOT 2026. See Figure 2-2.

The actual amount of water passed through the Project and electrical output will vary seasonally, with full output generally occurring from late May through September and then declining during the fall and winter to a minimum power output occurring in mid-May just before breakup. The total water used and energy generated will also vary slightly from year to year depending on the climate. Figure 1-2 shows the hydrograph for Fishhook Creek and the amount of water diverted at the intake throughout a typical year.

Figure 1-2: Flow Alteration in Fishhook Creek at Project Intake



FRE has worked closely with agencies, stakeholders, and our future Hatcher Pass neighbors over the past 20 years to listen, plan, revise, and listen some more to ensure the Project is developed and operated in a manner that maintains, complements, and where appropriate enhances the resources and uses of Hatcher Pass. This revision of the Plan reflects what we have learned through these on-going engagement efforts.

As FRE approaches its third decade of working through ADNR's adjudication process, by necessity the LLC's surviving members must conserve resources to sustain this protracted pre-development effort. Accordingly, FRE is not currently actively advancing the other permits that will be required to develop the Project. FRE's original members were each professional engineers well-versed in Alaska hydropower development, and FRE conducted a comprehensive regulatory analysis, agency consultation process, and public outreach campaign in the 2005 to 2010 timeframe to fully vet this project's regulatory and permitting requirements. FRE's surviving members have continued necessary due diligence to sustain the relevance of these prior efforts and FRE believes the Project remains fully compliant with all applicable regulations and management practices.

FRE deems ADNR's land authorizations to be the lynch pin to this Project, and FRE will continue to prioritize these approvals until they are secured. As stated in our response to public comments on ADNR's prior Preliminary Decision (PD) issued 16 years ago, FRE believes ADNR can and should reach a decision on FRE's land application with information already in the record. Other required Project approvals will be adjudicated by their respective agencies, and the Project will not proceed until all approvals are in place.

1.2 HISTORICAL BACKGROUND

Hydropower was commonly used in Hatcher Pass during its industrial mining era from the late 19th to mid-20th century. The technology was used to drive stamp mills and provide electricity in the mines and mining camps. About six small hydropower projects were operating in the area by the late 1930s, with at least one of these projects sited on Fishhook Creek upstream of the currently proposed Project.[7]

Hydropower development of Fishhook Creek in the reach of this Project was proposed by private interests in 1921, and later by the federal government in 1950.[8] These projects were never built, and the associated land withdrawals were cancelled in the 1960s to clear title for federal land conveyance to the new State of Alaska. The end of the mining era in Hatcher Pass and the beginning of the natural gas era in Cook Inlet quelled interest in further expanding the area's hydropower development. As the mines closed, their hydropower projects were abandoned and mostly forgotten.

An abandoned hydro turbine near Craigie Creek. *FRE, Nov. 7, 2009.*

1.3 PROJECT BACKGROUND

FRE's original members were each professionally licensed civil engineers with expertise in small hydropower development. Their individual interests in the responsible development of this important energy resource for Alaska[9] reached back as far as the 1950s. Through their professional engineering careers, they had some involvement in most of the hydroelectric projects currently operating on the Railbelt electric system as well as dozens of other hydro projects around the State of Alaska.

[7] DGGS 1985.
[8] FERC 1921, USGS 1950.
[9] In 2019, hydropower generated by 50 projects across the state provided 25% of Alaska's total electric energy (AEA 2019).

In 2004, an impactful report was published by the U.S. Department of Energy (DOE) that signaled the beginning of the end for the Cook Inlet natural gas province.[10] Since it was developed in the 1960s, this gas province had provided southcentral Alaska with many decades of low cost and reliable natural gas that served most of the region's heating and electrical needs. This low-cost natural gas was made possible by industrial-scale exports of liquified natural gas (LNG) and urea that provided most of the revenue that financed the development of the gas resource. In essence, Southcentral Alaska's much smaller domestic gas needs beneficially piggybacked off these industrial-scale projects.

To FRE's members, this report signaled an opportunity to pursue development of the region's untapped hydropower potential. Southcentral Alaska had enjoyed orderly hydropower development from the 1900s through the 1950s, but this progression was interrupted by the superior economics of Cook Inlet natural gas. The beginning of the end of the Cook Inlet natural gas province heralded a new beginning for the region's hydropower development.

The members launched a reconnaissance program in 2004, and in 2006 they organized Fishhook Renewable Energy, LLC and initiated the permitting processes for the Project. The Project was envisioned as the first of a series of small, independent power producer (IPP) hydropower projects that would help the region incrementally transition beyond natural gas in an orderly fashion.[11,12]

Beyond being economically feasible against near-term electric generation alternatives, FRE members targeted small hydro as a desirable energy resource for several reasons:

1) Hydropower has an extremely long asset life. Several Alaska projects are over 100 years old and still operating on original capital infrastructure such as dams, pipelines, turbines, and generators.
2) Hydro's longevity results in unequalled long-term economics. Once the original project cost is paid off, few – if any – other generation resources can match the low cost for continuing operation of 'legacy' hydropower projects. Southcentral Alaska's current least-cost generation resources are all 'legacy' hydropower projects.
3) Hydropower – including run-of-river – is base-load generation that uses high-inertia rotating turbine-generator sets that provide stability to the electric grid.
4) Responsibly developed small hydro is environmentally benign.
5) Small hydro offers opportunities for distributed generation, distributed risk, and parallel development efforts that help decouple resource development from Alaska's chronic mega-project paralysis.

[10] DOE 2004, see also AOGCC 2006. To be clear, the 'end' of a gas province is a very slow and gradual process. Gas production volumes slowly decline over several years until the continued operation becomes uneconomic, the field is decommissioned, and the residual gas is shut-in. This production decline can be temporarily mitigated through on-going and increasing investments in field redevelopment, and it can sometimes be reversed by investment in new exploration to find additional fields. Lacking major new finds, the trend is increasing natural gas cost and decreasing natural gas availability over time.

[11] IPPs remain unusual in Alaska. In the Lower 48, IPPs generate nearly ½ of all electricity.

[12] 'Small hydro' is not well defined by the industry. A reasonable definition for Southcentral Alaska is projects with installed capacity of less than 10 megawatts. Some might say less than five megawatts.

6) Small hydro can enhance recreational opportunities by developing and sustaining new access corridors into backcountry areas adjacent to existing developments.

Southcentral Alaska's cumulative small hydro potential is conservatively estimated at 100 MWs of installed capacity generating about 450,000 MWhs of energy annually. This would be realized through the completion of several dozen individual projects.[13] This collective resource is comparable to the region's largest hydropower project, Bradley Lake. Bradley Lake supplies nearly 15 percent of the Railbelt grid's annual energy needs.
FRE's original members were further encouraged by the fact that their strategic goals broadly aligned with board policies implemented by Chugach Electric Association, Inc. (CEA), MEA, and the region's other electric utilities in this same general time frame.[14]

Since the early 2000s, delays in adjudicating FRE's land applications have thwarted this vision of incremental, beneficial small hydro development and have denied the region access to this proven, reliable, and cost-effective incremental energy solution. Had ADNR efficiently advanced its 2010 Preliminary Decision to a Final Decision and Early Entry Authorization, the Project could have been operational in 2012. Today, FRE would be nearly half-way to retiring its capital debt service, after which the Project would attain 'legacy hydro' status and begin offering more substantial savings to electric consumers. More importantly, FRE's success in partnership with ADNR would have encouraged other IPPs to begin independent parallel development of small hydros, accelerating the resource buildout towards or beyond its 100 MW / 450,000 annual MWh potential.

In part due to ADNR's delays in adjudicating FRE's land use authorizations, the past 20 years has seen only 1.5 MW of new hydro capacity added to the railbelt, far short of the region's potential.[15] During this same twenty-year span, the slow end of the Cook Inlet gas province has continued to progress. A list of significant developments pertaining to the diminishing capabilities of the Cook Inlet gas province follows.

1. In 2009, Anchorage Mayor Dan Sullivan formed the Mayor's Energy Task Force to strategize solutions to critical natural gas supply and deliverability issues that emerged during the winter of 2008-09. Natural gas deliverability that winter was 42 percent lower than the region's capability in 1999.[16] In the following years, the State of Alaska provided $1.6 billion in subsidies to the gas industry that temporarily curtailed the rate of decline of Cook Inlet's gas production.[17]
2. Between 2009 and 2013, southcentral electric utilities developed two new power plants and upgraded several others to boost their natural gas efficiency and reduce overall natural gas demand for electrical generation.[18] Long-term natural gas supply uncertainty led MEA to build a dual-fuel plant capable of running on diesel fuel..

[13] AESTF 2023a.
[14] MEA 2008.
[15] ADN 2021.
[16] ADN 2015.
[17] ADN 2023.
[18] New plants are the joint CEA-ML&P Southcentral Power Project and MEA's Eklutna Generating Station. Upgraded plants are ML&P (now CEA's) Plant 2A, George M. Sullivan Plant, and Bernice Lake on the Kenai Peninsula.

3. In 2012, the Cook Inlet Natural Gas Storage Facility (CINGSA) began operation. CINGSA was built to address the growing inability of instantaneous Cook Inlet gas production capabilities to meet the region's instantaneous gas demand during peak winter demand periods. CINGSA stores summer excess gas production for release during the winter to meet peak demand, a process that consumes additional natural gas to power compressors that inject gas into the storage formation.
4. In 2022, Cook Inlet's sole remaining major gas producer, Hilcorp, informed southcentral Alaska's energy utilities that it could not renew their all-requirements gas contracts on comparable deliverability terms. The first contracts expired in late 2024.
5. In 2023, CINGSA initiated plans to expand its facility to address growing gas storage requirements.
6. Also in 2023, the mayors of 11 southcentral cities formed the Southcentral Mayors' Energy Coalition to strategize ways to mitigate the natural gas shortfalls and price shocks expected in coming years. This coalition is an echo of the task force formed in 2009 to address the same problems.
7. In late 2023, the Regulatory Commission of Alaska (RCA) required Railbelt electric and natural gas utilities to develop plans for load curtailment to ensure that natural gas supply failures would be managed in an orderly fashion. In essence, the RCA required utilities to plan to 'fail well'. Electric utilities now have tariff provisions describing how they will execute rolling blackouts to equitably distribute the disruption of a natural gas supply shortage amongst their customers.[19] As seen in the winters of 2008-09 and 2023-24, future shortages and rolling blackouts are most likely during prolonged winter cold snaps.
8. In early 2024, economy energy sales from southcentral electric utilities to Golden Valley Electric Association, Inc. (GVEA) ended in order to conserve remaining Cook Inlet natural gas supplies for local needs. Economy energy sales had occurred on a near-continuous basis since the Alaska Intertie between Willow and Healy was built in the 1980s. Economy energy sales provided incremental output from southcentral gas-fired power plants to GVEA at a lower cost than GVEA could self-generate. The result was cost savings for both GVEA and southcentral utility customers.
9. In 2024, operational problems at CINGSA compounded by a routine bout of cold weather threatened to overwhelm Cook Inlet's natural gas deliverability. Governor Dunleavy publicly requested that Joint Base Elmendorf-Richardson turn down its thermostats as a stop gap measure to curtail peak gas demand.[20]
10. In 2024, CEA and Enstar Natural Gas Company, Inc. (Enstar) each began construction on separate facilities to receive imports of LNG to supplement local gas production from Cook Inlet. Current expectations are that LNG purchased on the Pacific spot market will begin in 2027. Pricing for imported LNG is expected to be significantly higher and significantly more volatile than historical pricing for locally produced gas.[21]

[19] RCA 2025.
[20] ADN 2024.
[21] ADN 2026a.

11. In March 2026, federal oil and gas lease offerings in Cook Inlet drew nearly zero interest by oil and gas producers. The only bids received were to secure infill tracts within a minor producer's existing leaseholds. This continued a recent trend of anemic industry interest in state and federal lease sales within the Cook Inlet province.[22]

The slow end of the Cook Inlet natural gas province continues. Much public attention continues to fixate upon megaproject solutions that are perpetually stuck just over the horizon, while the practical incremental solution offered by the Fishhook Project has remained stuck in bureaucratic limbo.

Over the past twenty years, two of FRE's original members have died waiting for state land authorizations to be completed. The remaining three members and the widow of a deceased member continue to hope that the Project can be built and that it will help launch a modest but significant increase in renewable small hydro. If successful, this Project and others would collectively improve the region's energy affordability, security, sustainability and reliability.

In 2024, CEA began a comprehensive reconnaissance campaign of southcentral Alaska looking for medium-size hydro resources that it could develop.[23] CEA's strategy is essentially the same as the strategy FRE launched two decades ago but tailored to CEA's distinct business capabilities and objectives. In 2026, CEA announced four projects in the 6 to 18 MW class that it is pursuing.[24] FRE welcomes CEA in joining our efforts to responsibly develop the region's hydropower potential.

1.4 TECHNOLOGY BACKGROUND

Over the twenty years FRE has been awaiting adjudication of its land applications, it has routinely engaged in dialog with interested parties about the Project. Such dialog has often included descriptions of both what the project is, and what it is not, to help people better understand what is proposed. Based on this experience, FRE has included this section in the Plan to provide a high-level introduction to hydropower technology and major types of hydro projects, to describe which aspects of the technology and project types do and do not apply to this Project.

1.4.1 TYPES OF PROJECTS

There are four general types of hydropower projects. This Project is the run-of-river type.

1) Storage Hydro.

   Storage hydro is what comes to mind for many people when they think of hydropower. The project creates a reservoir by building a dam or exploits a natural reservoir such as a lake to store a significant volume of water. Water is drawn from the reservoir on an as-needed basis and routed to a powerhouse where it is passed through turbine / generator equipment to generate electricity. The water is then released back to the environment.

[22] ADN 2026b.
[23] ADN 2026a.
[24] CEA 2026.

Within the limits of their ability to store and release water, storage projects can generate electricity on demand. Local examples of storage hydro projects are Eklutna Lake, Cooper Lake, and Bradley Lake.[25]

Many of the general environmental impacts of hydropower are directly related to the formation and operation of the reservoir. The significance and nature of impacts vary widely between projects, but they generally include:

- Inundation of land area by the reservoir and loss of existing uses.
- Change in downstream flow from natural conditions (more or less water) due to reservoir operations.
- Changes in downstream water quality from natural conditions due to reservoir operations. Typical water quality parameters of concern include dissolved gas content, temperature, suspended solids, and dissolved solids.

2) Pumped Storage Hydro (PSH).

PSH is a variant of storage hydro that expands upon the energy storage aspect of storage hydro with bidirectional water flow so the project can utilize excess or low-cost electricity from the grid to pump water back up into the reservoir to store the electricity for later use when it has greater value.

The two major types of PSH are open-cycle and closed-cycle. Open-cycle PSH is basically a storage hydro with a reservoir built at the tailrace of the hydropower plant to provide it with a low-elevation water supply that can be pumped into the upper reservoir. The upper and lower reservoirs are usually connected to a natural water way, and such facilities often combine both energy generation and energy storage capabilities.

Closed-cycle PSH utilizes dedicated upper and lower reservoirs that are generally not connected to natural water ways. They provide only energy storage capability, and do not have a net energy generation capability. In this regard, they are analogous to battery energy storage systems that have become popular in recent years for short-term energy storage. Due to the energy losses inherent to pumping / turbine operations, closed-cycle PSH consumes more energy than it produces. Where such projects are built, the value of their energy storage alone justifies the project and its operational net energy load. Aside from a water supply to initially fill the system and make up water losses due to evaporation / infiltration / etc., closed cycle PSH does not usually interact with natural waterways.

PSH adapts certain conventional hydropower technologies that are specially designed and configured for dual-functional use as pumps or turbines. Some systems employ separate turbine and pumps. There are no PSH systems currently operational in Alaska.

3) Run-of-River Hydro.

These projects are similar to storage projects; except they have no reservoir. Instead, a run-of-river project diverts the instantaneous flow of a natural waterway into a ditch,

[25] Eklutna Hydro is jointly owned by Chugach Electric Association, Inc. (CEA), Matanuska Electric Association, Inc., and Anchorage Hydropower Utility. Cooper Lake is owned by CEA. Bradley Lake is owned by the State of Alaska.

flume, pipeline, or similar conveyance. The water conveyance directs water down to a powerhouse where it is passed through turbine / generator equipment to generate electricity. The water is then returned via a tailrace back to the waterway downstream of the diversion point.

Unlike storage projects, run-of-river projects do not significantly change the downstream instantaneous flow of water or water quality parameters from natural conditions. Water is briefly 'borrowed' from the natural water way and then returned downstream. Run-of-river projects do reduce the flow in the natural water way between the diversion site and the tailrace discharge site. This portion of the natural water way is called the 'bypass reach'. The amount of flow reduction in the bypass reach will vary for each project and also with time of year.

Run-of-river projects produce a variable amount of electricity based on the amount of water available in the waterway. Their output can be predicted based on known hydrology patterns, but they cannot fully control their electrical output to meet electric demand like storage hydro projects can. Local examples of run-of-river projects are South Fork Hydro and Juniper Creek Hydro on tributaries of Eagle River, and Allison Creek Hydro in Valdez.[26]

Run-of-river projects utilize the same turbine and generator technologies as storage projects. The key difference between them is how their water supply is sourced from and returned to the environment. Both run-of-river and storage hydro developments are considered 'conventional hydro'.

4) Hydrokinetic

Hydrokinetic projects are similar to run-of-river hydro in that they also utilize only instantaneous flowing water to generate electricity. But rather than divert the water away from the water way to an adjacent turbine / generator, hydrokinetic projects deploy turbine / generator equipment directly into the natural waterway. In so doing, they can only harvest the water's velocity (kinetic) energy and cannot harvest potential (elevation) energy as do conventional hydropower projects. As a result, hydrokinetic turbines are limited to much smaller generating capacities than are conventional hydro turbines. Deployments in Alaska have occurred at Ruby and Eagle on the Yukon River and at Igiugig on the Kvichak River.[27]

1.5 PROJECT IMPACTS

This Project **DOES**	This Project **DOES NOT**
Reduce flow in a portion of Fishhook Creek.	Create a reservoir.
Improve flow to a previously dewatered reach of salmon habitat in Fishhook Creek.	Change downstream flow or water quality.
Provide predictable firm capacity in seasonally variable amounts.	Provide year-round full dispatchable capacity.

[26] South Fork Hydro is on the South Fork of Eagle River and owned by South Fork Hydro, LLC. Juniper Creek Hydro is on Juniper Creek and owned by Ram Valley, LLC. Allison Creek is owned by Copper Valley Electric Association, Inc.

[27] These installations all used technology developed by Ocean Renewable Power Company, Inc.

2.0 PROJECT LOCATION

The Project will be located along Fishhook Creek on the east side of Hatcher Pass about 12 miles north-northwest of downtown Palmer, Alaska. The diversion site will be about ¼ mile south of the mile 16.3 public parking lot on Hatcher Pass Road, and the powerhouse will be about 150 feet to the west of Hatcher Pass Road about ½ mile north of the Skeethawk ski complex. Figure 2-1 shows the general location of the Project.

2.1 LEGAL DESCRIPTION OF PROJECT LAND

The project and all appurtenances will be located within Township 19 North, Range 1 East, Seward Meridian, section 3, section 10, section 11, and section 14 (Figure 2-1; Table 2-2). The entire footprint of the project is located upon State or Borough land within the Government Peak and 16 Mile Management Units of the Hatcher Pass Management Area.

Table 2-1 lists geographic coordinates for the intake and powerhouse:

Table 2-1: Location of Project Powerhouse and Intake

Location	Latitude	Longitude	Elevation
Intake	61° 45' 51.6" N	149° 16' 04.0" W	2,538'
Powerhouse	61° 45' 11.0" N	149° 13' 58.9" W	1,490'

Geographic coordinates are in NAD 83.

FRE will not know the exact legal description of the project footprint until after the project is constructed and as-built surveys are used to prepare and record final lease and easement land exhibits. Table 2-2 presents a general description of the Project footprint.

Table 2-2: Description of Project Land

Feature	Location	Description	Size	Landowner
Intake Lease Site	W1/2 Sec. 3	60' x ~1,160'	+/- 1.6 acres	State of Alaska
Powerhouse Lease Site	NW1/4 Sec. 11	~300' x~300'	+/- 2.2 acres	State of Alaska
Total Lease Area			**+/- 3.8 acres**	
Powerline Easement	NW1/4 Sec. 14	30' x ~990'	+/- 0.7 acres	Mat-Su Borough
Powerline Easement	W1/2 Sec.11	(50')* 30' x ~2,740'	+/- 1.9 acres	State of Alaska
Penstock Easement	NW1/4 Sec 11; NE1/4 Sec 10; S1/2 Sec. 3	(100')* 30' x ~7,450'	+/- 5.2 acres	State of Alaska
Total Easement Area			**+/- 7.8 acres**	
Total Project Land Authorization			**+/- 11.1 acres**	

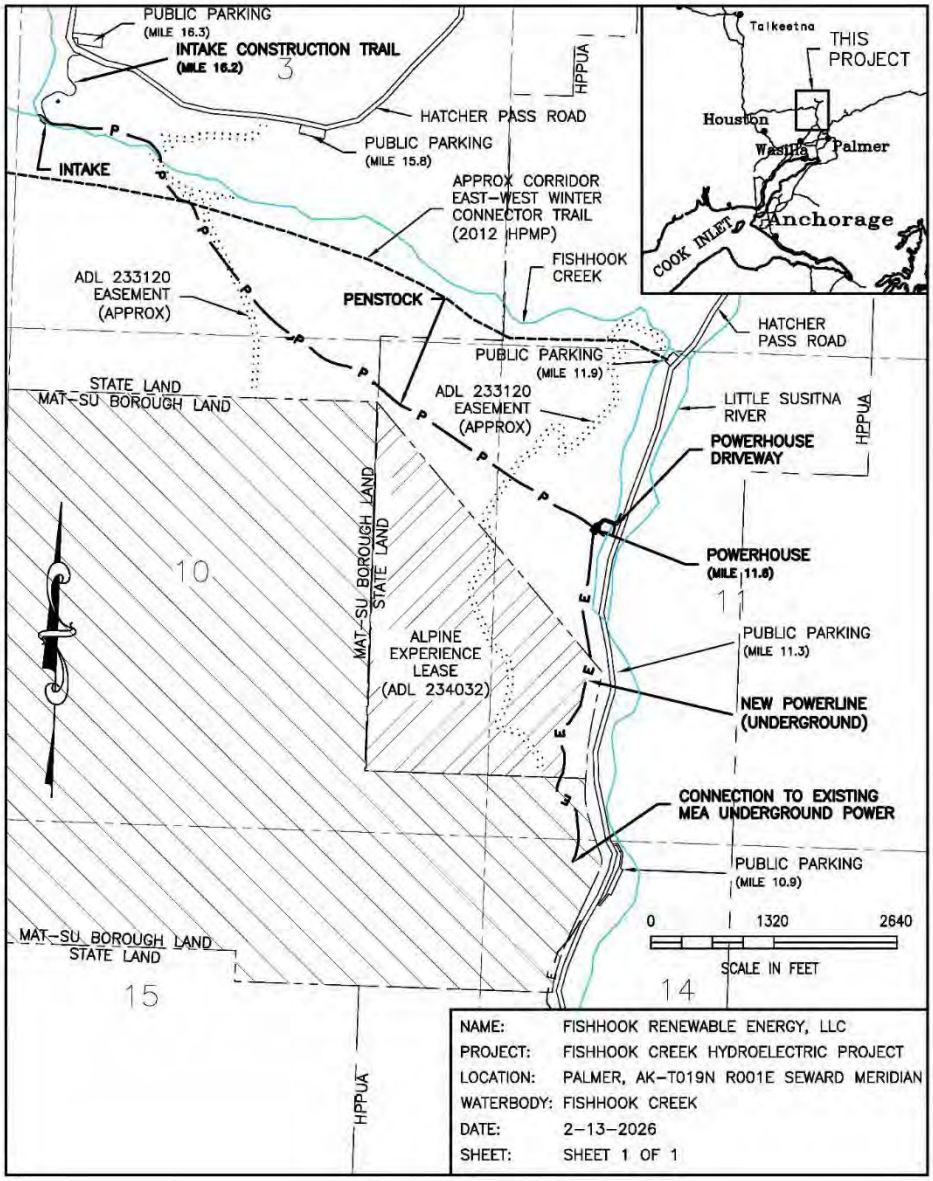
All location aliquot descriptions are within Township 19 North, Range 1 East, Seward Meridian.
* construction width is indicated in parentheses.

Abbreviations

Mat-Su	Matanuska-Susitna	S	south
NE	northeast	Sec.	section
NW	northwest	W	west

Attachment B
Development Plan

Figure 2-1: Project Map



2.2 LOCAL TERRAIN AND GROUND COVER

2.2.1 LOCAL TERRAIN

The Project area is a mountain valley on the east side of Hatcher Pass that is drained by Fishhook Creek. This valley opens towards the east onto a larger mountain valley drained by the Little Susitna River. The Project footprint is located within both of these valleys.

The Project footprint covers approximately 1,250 of elevation change from elevation 1,450 feet near the Skeethawk ski complex to 2,700 feet where the intake access corridor leaves Hatcher Pass Road at mile 16.2.

Terrain in the immediate project vicinity is post-glacial mountain valley terrain. The general landforms are controlled by mountainous bedrock topography but overlain by significant glacial deposits of spatially variable depth and composition. The mantle of glacial till has been locally subjected to extensive modification and erosion by glacial and hydrologic processes. This surficial geology is overlain by organic soils that have accumulated since the end of glaciation. This organic soil layer predominantly forms the existing land surface. No bedrock outcrops are evident in the project footprint.

In the vicinity of the Project's diversion site, Fishhook Creek flows down an incised ravine about 50 to 150 feet deep and 200 to 1,000 feet wide at the rim that has been eroded into the glacial till. In many areas, the bottom of this ravine where Fishhook Creek flows is armored by boulders. These boulders are characteristically 4 to 6-foot in size, with the largest specimens to about 15 feet. The larger Little Susitna valley to the east has a similar ravine feature down its central axis where the Little Susitna River flows. These general landforms are shown on Figure 2-2.

Terrain slopes vary considerably within the Project footprint from relatively level areas to maximum slopes of about 50 percent.[28] The Project drawings include detailed topographic contours that indicate slope throughout the Project footprint.

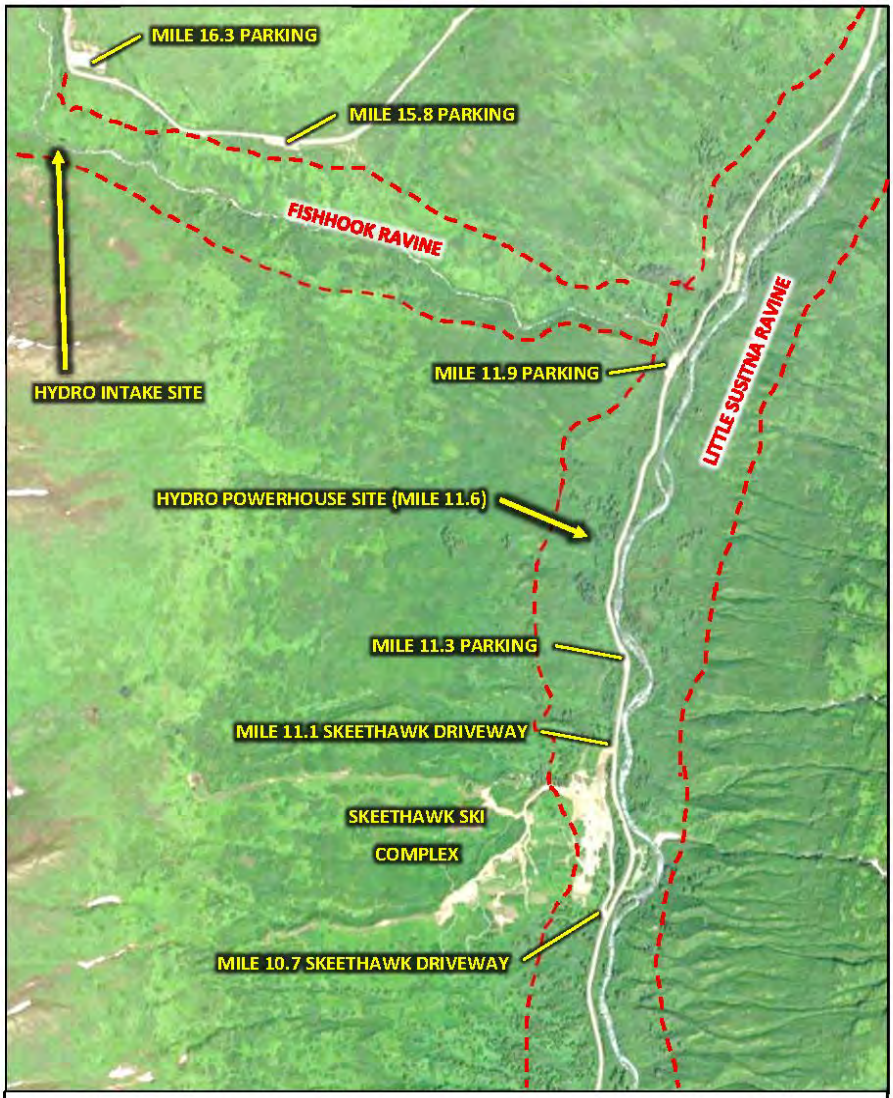
The terrain in many areas of Hatcher Pass was modified by the industrial-scale mining that occurred from the late 19th through the mid-20th century. Placer mining occurred along Fishhook Creek in the Project footprint, and abandoned roads, trails, or other earthworks may exist within the Project footprint that have become obscured by the intervening decades of vegetation regrowth. Such terrain artifacts, if and where present within the Project footprint, are not prominent.

The Project footprint is characterized by three major sub-terrains, (Figure 2-2), which are:

1) Valley / ravine bottoms, generally with terrain slopes below 15 percent. Project features in these areas are the diversion/intake site, powerhouse site, and upper 1,400 feet of the penstock corridor.

[28] Percent slope is determined as feet of vertical change per foot of horizontal distance. One foot vertical in one foot horizontal is 1, or 100%. A half-foot vertical in one foot horizontal is 0.5, or 50%.

Figure 2-2: Aerial Imagery of Project Vicinity



The spatial extent of this image is approximately equal to that of Figure 2-1. The prominent development at lower center is the Skeethawk ski complex.

2) Valley sidewalls, generally with terrain slopes from 20 to 30 percent. Project features in these areas are the upper ½ of the intake access corridor, 4,600 feet of the penstock corridor between stations 20+00 and 66+00, and portions of the powerline extension corridor.
3) Ravine sidewalls, generally with terrain slopes around 30 to 40 percent. Project features in these areas are the lower ½ of the intake access corridor, 1,400 feet of the penstock corridor between stations 14+00 to 20+00 and 66+00 to 74+00, and portions of the powerline extension corridor.

2.2.2 GROUND COVER

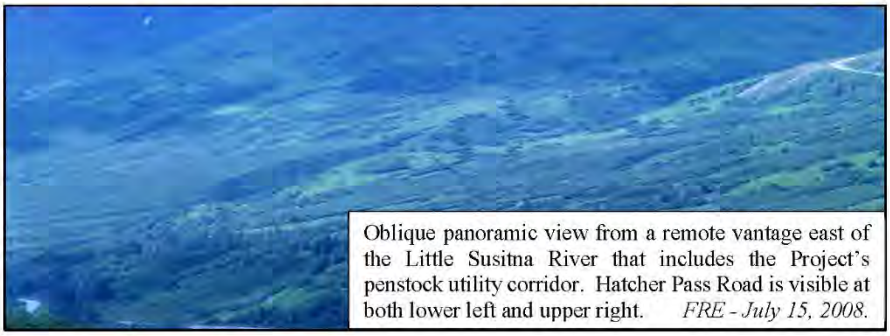
The entire project footprint, outside of active water ways, is vegetated by brush, meadows, or trees typical of southcentral Alaska. Figure 2-2 and Figure 2-3 show representative ground cover in the project area.

Forested areas are of limited extent in the Project footprint and mainly occur along the powerline extension corridor and at the powerhouse site. These are predominantly copses of cottonwood trees, with some birch and white spruce also present. These species also occur at higher elevations in the Project footprint, but typically as individual trees growing in choice areas such as south-facing slopes and along Fishhook Creek.

Brush areas are comprised predominately of willow and alder species. This is a co-dominant vegetation along the powerline extension corridor with trees and is the dominant vegetation on the lower penstock corridor, forming a continuous canopy to about 20 feet tall from near the powerhouse site up to about 2,200-foot elevation. Above 2,200 feet, the brush canopy becomes shorter and transitions to mosaics with open meadow areas. Brush remains common to the highest elevations of the Project footprint, but at higher elevations the harsher climate reduces the canopy height to about five feet and the overall ground coverage of brush is reduced to about 50 percent.

Open meadow areas are common in the upper elevations of the project around the diversion site, where they are about 50 percent of the ground cover. Low brush comprises the other half. Open meadows occupy less of the landscape with decreasing elevation and are largely absent below 2,200-foot elevation.

Figure 2-3: Typical Ground Cover in the Project Area



Oblique panoramic view from a remote vantage east of the Little Susitna River that includes the Project's penstock utility corridor. Hatcher Pass Road is visible at both lower left and upper right. *FRE - July 15, 2008.*

3.0 PROPOSED PROJECT IMPROVEMENTS

There are five major components that make up the Project:

- Intake Access Corridor – Construction access to the intake site and upper penstock corridor is via a trail to be built from near Hatcher Pass Road mile 16.2 down to the intake site.
- Diversion and Intake Structure – This is a weir built across Fishhook Creek that will direct water from the creek into the pipeline. It also includes infrastructure to screen the water to keep harmful debris and sediment from entering the Project.
- Penstock (pipeline) - The penstock is a pipeline that conveys water from the intake down to the powerhouse.
- Powerhouse - The powerhouse is a building that houses and anchors the hydropower turbine(s) and generator(s). The powerhouse will also contain other supporting equipment such as electrical switchgear, lifting equipment, hydraulic and electrical turbine controls, supplies, and project maintenance equipment.
- Tailrace - The tailrace starts at a chamber beneath the turbine(s) that collects water spilling off the turbine(s). A pipeway conveys this water from beneath the building to an open channel, where it returns to the existing environment at the old Fishhook Creek channel.
- Power line – Pad-mount transformer(s) outside the powerhouse will increase the voltage for delivery to the local utility's distribution system. FRE will build about ½-mile of underground distribution extension to reach the end of the existing distribution system at the Skeethawk ski complex.

More detailed descriptions of these project components follow.

3.1 INTAKE ACCESS

Access to the project intake will be via a ¼-mile long construction trail to the intake site from mile 16.2 of Hatcher Pass Road (just below the large parking lot). The trail section will follow dimensional criteria of a double-lane Class 5 pedestrian trail but will have grades steeper than typical of this trail class as necessitated by the terrain.[29] The trail will be used by tracked vehicles for construction of the intake and the upper penstock.

After construction, the trail prism will be left in place but will be revegetated. FRE intends that this trail be fully revegetated leaving no trail but recognizes that public usage may sustain a single lane pedestrian Class 1 or Class 2 trail along this route similar to the existing trails in this area.

Unauthorized vehicular access to the trail will be discouraged by placement of natural features such as boulders or a swale at the start of the trail near Hatcher Pass Road.

Please see section 5 for discussion of operational activities along the intake access corridor.

3.2 INTAKE

The project intake will consist of an about 40-foot-long weir (diversion structure) across Fishhook Creek. The weir and its wingwalls will span the entire creek to above the local flood elevation on both banks. A spillway will be built into the weir so water in excess of

[29] DPOR 2015.

project flow will be directed back into the existing downstream creek bed. The weir will be built to the lowest height needed to allow water to flow slowly and smoothly through intake grates and into the project's intake gallery. The grates will prevent animals and debris from entering the intake gallery. The preliminary design height for the weir is about four feet above the creek bed. Figure 3-1 shows a run-of-river hydro project intake structure in Eagle River, Alaska that is similar to what is proposed at Fishhook Creek.

Beavers in the area of the intake may present some operational problems if they attempt to block the intake grates. Measures to prevent this from occurring may be required and could include adjusting grate spacing, back-flushing with water or compressed air, physically scraping the grates, or other means as feasible to prevent beavers from interfering with intake operations.

Figure 3-1: Hydro Intake Similar to that Proposed for Fishhook

Intake structure for the Juniper Creek Run-of-River Hydro Project in Eagle River, Alaska. This intake admits about ½ the proposed flow of the Fishhook Creek Project. *FRE July 23, 2025.*

The intake gallery will be designed to handle approximately 30 cfs of water flow and will be located mostly below ground. A small utility vault or shed containing the monitoring and controls equipment will be located next to or over the intake gallery. An air vent will protrude above ground just downstream from the intake gallery. The vent will have an inverted U at the top and be screened to prevent debris from entering the penstock.

The intake will not generate noise distinct from the ambient noise of Fishhook Creek.

3.3 PENSTOCK

The project water will be conveyed from the intake gallery down to the powerhouse with the penstock. The penstock will be approximately two-foot diameter pipe. The pipe parallels the north side of the creek downstream from the intake for 1,400 feet where it crosses the creek and then climbs the south side of the ravine for about 600 feet. The penstock then continues for an additional 1,000 feet along the hillside until descending to the powerhouse giving a total penstock length of about 7,700 feet. Pipe sizes and materials will be determined during the final design.

The penstock will be buried for its entire length. An above ground creek crossing at Fishhook Creek approximately 1,400 feet downstream of the intake may be required based on the outcome of geotechnical investigations and final design. Conduits will be located along-side the penstock to provide power and communications to the intake.

The penstock corridor will be accessible during construction via a construction trail built to pedestrian double-lane Class 5 dimensions. This trail will not conform to Class 5 grade parameters due to the local terrain.[30] Access will be by tracked equipment from either the intake or powerhouse depending on location along the corridor. The penstock will be buried adjacent to or beneath this construction trail. FRE expects that access for installing at least the upper 2,000 feet of the penstock will be predominantly via the intake access trail.

After construction, FRE will keep the trail prism in place but will fully revegetate the penstock corridor.

The penstock will not generate perceptible noise.

3.4 POWERHOUSE

3.4.1 POWERHOUSE SITE & ACCESS

The powerhouse will be located on the west side of Hatcher Pass Road about 650 feet upstream from the historical mouth of Fishhook Creek (approximately ½ mile below the current mouth of Fishhook Creek) at approximately mile 11.6 of Hatcher Pass Road (see Figure 2-2). The powerhouse will be set back from the road approximately 180 feet and will be accessed via a gravel driveway off Hatcher Pass Road conforming to ADOT&PF dimensional requirements and continuing onto the lease site maintained by FRE. A landscaping berm will be constructed between the powerhouse and Hatcher Pass Road to help visually screen the powerhouse from the road. The driveway will be longer than would otherwise be required because the powerhouse is set back from the road to mitigate visibility and also to accommodate space for the landscaping berm. A small parking area will be created next to the powerhouse for FRE use.

FRE will not encourage public use of the lease site. The lease site will not be fenced or otherwise secured against foot traffic, so pedestrian trespass on outside areas of the lease site is expected and will be tolerated. FRE will install a vehicle gate across the driveway on the lease site near the boundary with the road right-of-way. This gate and landscaping elsewhere on the site will deter vehicular trespass onto the lease site. All Project improvements will be designed, maintained, and operated both to reasonably withstand

[30] DPOR 2015.

vandalism and to keep the public reasonably safe. The powerhouse building will not be open to the public except at FRE's specific invitation.

Signs will be posted at the vehicle gate advising that public parking is not allowed and violators may be towed. Unauthorized parked vehicles blocking the gate and FRE's access to the powerhouse may be immediately towed to maintain FRE's timely access to the powerhouse for safe operations.

3.4.2 POWERHOUSE BUILDING

The powerhouse contains the turbines, generators, switchgear, controls, and associated equipment. The exact dimensions of the building will be determined by the size of the equipment housed, which will not be known until the equipment is ordered. Experience with similar installations indicates that the building need be no larger than 50 feet by 50 feet and less than 20 feet tall. As allowed by site conditions, the building finish floor may be set approximately three feet below grade reducing the apparent overall height of the structure. The powerhouse will likely be a metal building with concrete or steel panel cladding on the walls and an appropriate architectural finish on the exterior. The exterior colors will be selected to blend with the natural setting. A transformer(s) will sit on a pad just outside the powerhouse.

3.4.3 HYDROMECHANICAL EQUIPMENT

The current equipment selection is two identical one-megawatt turbine-and-generator sets. The turbines utilize nozzles to discharge the high-pressure water from the penstock onto turbine buckets arranged around a shaft. This shaft is then connected to the generator which converts the rotational mechanical energy to electrical energy. The hydromechanical equipment package will be finalized in the future by FRE.

3.4.4 TAILRACE

After exiting the turbine, project water will collect in a chamber beneath the building and then exit the building through a grate structure designed to keep animals and fish from entering the turbine area from downstream. Water will then enter an open tailrace channel for return to the old Fishhook Creek channel which parallels the west side of Hatcher Pass Road. This existing channel flows through the proposed powerhouse lease site. Water from the project will flow down the old Fishhook Creek channel for about 660 feet before crossing under Hatcher Pass Road at mile 11.4 and discharging into the Little Susitna River. With the increased flows from the project and improved fish passage connectivity to the Little Susitna River, this channel will provide better salmon habitat than the current main channel of Fishhook Creek.

A proposed road upgrade project plans to replace the existing road culvert at mile 11.4 with a larger culvert that is expected to both accommodate project flow and improve fish passage.[31] FRE may widen the reach of the old Fishhook Creek channel between the tailrace and road culvert to improve fish habitat with the increased flow from the project. Final design of these improvements will be reviewed and approved by the ADOT&PF and ADFG.

[31] ADOT 2026.

3.4.5 SOUND EMISSIONS

Sound emissions from the powerhouse building as perceived at Hatcher Pass Road are expected to be in the range of 10 to 30 dB, which is equivalent to quite talking or rustling leaves. By comparison, the summer noise of the adjacent Little Susitna River or traffic along the road is in the range of 50 to 80 dB.

Sound levels within the powerhouse are expected to be as high as 90 dB when the turbines are operating. This sound principally originates from the high velocity water and spray within the turbines and piping. Major secondary sources are the moving air of the generator fans, the 60 Hz electric hum from the generators, and occasional noise from auxiliary equipment such as the hydraulic power unit. The overall impression is a broad-spectrum sound (white noise) rather than a whine, whistle, or hum with dominant frequencies.

The building will attenuate most of this sound. Levels immediately outside the building are expected to be 50 to 60 dB, with higher levels to 80 dB at wall penetrations such as air exhaust hoods. FRE will orient such building penetrations away from the road or provide baffles to attenuate their sound emissions. Table 3-1 summarizes expected sound levels during project operations at various publicly accessible points on and off the powerhouse lease site. Table 3-1 also provides typical ambient sound levels as a point of reference.

Table 3-1: Expected Powerhouse and Ambient Environment Sound Emissions

General Location	Anticipated / Typical Decibel Range	Comment
Immediately adjacent to powerhouse exterior	~75 to 80 dB	At air exhaust hood/wall penetrations.
	~50 to 60 dB	At walls free of penetrations.
At nearest lease lot boundary	15 to 25 dB lower	Value reflects expected distance attenuation (85+ feet from powerhouse).
At nearest segment of Hatcher Pass Road	30 to 40 dB lower	Value reflects expected distance attenuation (150+ feet from powerhouse).
Reference Locations / Sound Emissions		
Water sounds adjacent to Little Susitna River (summer season)	*~70 to 80 dB*	*On the riverbank.*
	~50 to 60 dB	*At 65 feet, shielded by building/terrain.*
Traffic on Hatcher Pass Road	*~65 to 80 dB*	*At 50 feet.*

3.5 POWER LINE

The project power line will tie into MEA's existing 7,200-volt three phase distribution line in Hatcher Pass that currently ends at the Skeethawk ski complex. The line extension will generally parallel the Hatcher Pass Road right-of-way from Skeethawk at mile 11.1 about 1/2 mile to the powerhouse site at mile 11.6. As required by the Hatcher Pass Management

Plan (HPMP), utilities in this corridor will be buried.[32] The final power line corridor will include regularly spaced splice vaults and warning markers, similar to those that exist along Hatcher Pass Road south of mile 10.7.

In 2025 Skeethawk built a new driveway north of its existing parking area within the boundary of its state land lease obtained in 2023 under ADL 234032.[33] This new driveway leaves Hatcher Pass Road at mile 11.1.[34] FRE has revised our powerline route and easement to coordinate with Skeethawk's new driveway and other development plans within their ADL 234032 lease site.

[32] ADNR 2012.
[33] ADNR 2023a, 2023b.
[34] Skeethawk 2022.

4.0 CONSTRUCTION PLAN

This section presents FRE's current plan for project construction. The final construction plan will be influenced by several factors, including but not limited to:

4) Final terms and conditions of project permits and regulatory approvals.
5) Construction means and methods used by FRE's selected construction contractor(s).
6) Timing of final construction notice-to-proceed (NTP).

Such factors will influence the timing and sequencing of project construction.

Please see Section 5.0 for similar plan discussion covering the project's operational phase, and Section 6.0 for similar plan discussion covering project closure / reclamation.

4.1 CONSTRUCTION SCHEDULE

FRE cannot prepare a construction schedule for the project at this time because the schedule is subject to too many factors that have not been finalized. Under favorable NTP timing, the project could be built in a single construction season, beginning as early as March and commencing commercial operations by year-end. Under this scenario, some seasonally sensitive close-out tasks such as final landscaping could be completed the next spring. Less favorable NTP timing or other constraints could force construction to be spaced out over two summer construction seasons.

Table 4-1 presents approximate timeframes for major construction activities under a conceptual single-year construction schedule.

Table 4-1: Conceptual Estimated Construction Schedule Fishhook Project

Activity	Approximate Duration	Start Date	End Date
Extend power and communications to Project	4 weeks	Mid-May	Early June
Construct access driveways/trails to powerhouse and intake, powerhouse pad	4 weeks	Early June	Late June
Construct powerhouse foundation, tailrace	4 weeks	Late June	Late July
Construct powerhouse building	6 weeks	Early August	Mid-September
Construct penstock	6 weeks	Mid July	Late August
Construct intake structure	3 weeks	Late August	Early September
Trim out, hardware, controls at intake	2 weeks	Mid-September	Late September
Install Turbine/generator	6 weeks	Late September	Late October
Project startup		Early November	

4.2 CONSTRUCTION METHODS

Anticipated methods to complete each of the major construction tasks listed in Table 4-1 are discussed in this section. Discussion proceeds in the general order that FRE expects major task construction will occur. Because some tasks can occur in parallel but other tasks are dependent on predecessor tasks, FRE retains full flexibility to deviate from the construction sequence described in this narrative. Likewise, FRE retains full flexibility to use different construction methods than described herein, provided they conform to government authorizations and the requirements of the final approved designs.

4.2.1 PRE-CONSTRUCTION AND GENERAL ITEMS

4.2.1.1 Geotechnical Investigations

To date, FRE has conducted no subsurface geotechnical reconnaissance of the Project footprint. Representations of expected subsurface conditions made by FRE are based on visual field observations or extrapolation of geotechnical data from adjacent sites.

To finalize engineering designs for the powerhouse foundation, intake foundation and other project features, geotechnical information on the subsurface materials and conditions will be needed. Required information will be obtained by digging test pits or borings, mainly at the powerhouse site and intake area. Some investigation work may also be conducted along the access trail, penstock alignment, and power line route.

These geotechnical investigations will not occur until ADNR issues Early Entry Authorization (EEA) to FRE.

4.2.1.2 Stormwater Pollution Prevention Plan

Prior to construction, FRE or its contractors will prepare and file a Stormwater Pollution Prevention Plan (SWPPP) with the Alaska Department of Environmental Conservation (ADEC). The SWPPP will:

- Address fuel-handling practices such as where fueling occurs, containment and contingency practices during fueling operations, use of drip pans, sorbent matts, and similar measures to capture and contain nuisance equipment leaks, etc.
- Identify Best Practice Measures (BMPs) that will be utilized on the Project to avoid or minimize pollution to waterways that could be caused by erosion and sediment runoff.
- Identify BMPs such as washdown areas and egress sediment traps to prevent dirty construction traffic from fouling public paved roads.
- Specify protocols for inspection and corrective actions to fulfill SWPPP objectives.

FRE will not store construction fuel on-site. Fueling operations will be conducted using a tender vehicle.

4.2.1.3 Revegetation Plan

FRE will expedite application of revegetation measures throughout the Project as construction progresses to stabilize earthworks, reduce erosion hazards, and minimize the visual impact of project construction. Specific revegetation measures for different areas will be developed based on practices and approved seed mixes identified by the Alaska Division of Agriculture's Plant Materials Center (ADOA-PMC). FRE expects to use a

combination of seed mix/fertilizer broadcast and/or placement of on-site organics stockpiled during grubbing activities.[35]

4.2.2 POWER LINE

The power line is described in Section 3.5. Construction will be staged from access points off Hatcher Pass Road, FRE's powerhouse site, and/or within the Skeethawk complex. The construction sequence will include surveying and delineating the route, brushing the route, mobilizing materials and equipment along the route, and then trenching and installing the power and communication conduits and cables. The trench will then be backfilled, compacted, graded, stabilized and revegetated. Cables may be pre-pulled through the conduit at the factory or pulled through the conduit after it is installed.

4.2.3 POWERHOUSE AREA

The powerhouse site is described in Section 3.4. Once geotechnical data is obtained and designs are finalized, the construction sequence will commence with surveying to delineate tree retention areas, clearing and grubbing limits, and set initial grading. Then the grading footprint will be cleared of vegetation and grubbed to remove organic matter. Grubbed organic soil will be stockpiled on site for reuse in site restoration and landscaping. Site grading will then begin, with an emphasis on establishing the site driveway and staging areas to reduce usage of public parking areas or road shoulders. Grading work may require removal of excess unsuitable materials for on-site reuse or off-site disposal and may also include import of suitable fill if on-site materials are unsuitable.

During or after site grading work, the powerhouse's concrete foundation and associated subsurface features such as the tailrace chamber and underground utilities will be built. The powerhouse building materials will be hauled in after completion of the site work and foundation. The powerhouse building will be built using standard construction methods.

The tailrace will be excavated and shaped to final grade and finished with native materials (sands, gravels, boulders, woody debris) to emulate a natural waterway. If required by ADFG, the downstream reach of the old Fishhook Creek channel between the tailrace and the upgraded road culvert will also be reworked to improve fish habitat conditions with increased flow from the Project.

4.2.4 INTAKE SITE

The intake site is described in Sections 3.1 and 3.2. Once geotechnical data is obtained and designs are finalized, the construction sequence will commence with surveying to delineate clearing and grubbing limits and set initial grading. Then the grading footprint will be cleared of vegetation and grubbed to remove organic matter and expose mineral soil. Grubbed organic soil may be stockpiled on site for reuse in site restoration and landscaping.

Site grading will then begin, with an emphasis on establishing the site driveway and staging areas to reduce usage of public parking areas or road shoulders for the Project. This grubbing / grading sequence may be staged sequentially down the access trail to facilitate access and reduce the total area of active ground disturbance. In some areas, FRE may elect to leave the organic layer intact and place geofabric and clean fill directly on top of

[35] PMC 2008.

existing natural material. Similarly, portions of the intake access corridor may not need earthwork to support construction access. Such areas may be brushed but otherwise left intact to minimize construction disturbances.

Final design of the intake access corridor and intake site work pad may require placement of on-site borrow, imported materials, geotextiles, or similar materials to establish driving and work surfaces. The need for and extent of such methods will depend on the quality of the on-site materials encountered. Where possible, unsuitable excess excavated materials will be placed on the intake lease site, blended into the landscape contours, and revegetated. This will eliminate or reduce the need to haul these materials off-site for disposal, reducing traffic over the intake access trail and associated undesired impacts such as larger trail size or extended construction duration.

In areas where on-site soils and existing landforms are suitable, FRE may locally eliminate all site work and simple transit these areas over the intact native vegetation. Such opportunities would accelerate the construction schedule, reduce impacts, and expedite revegetation of the intake access corridor.

Once site access and the intake work pad are established, the intake structure including the weir, intake gallery, and associated elements, will be installed. This will require work within Fishhook Creek such as excavation, placement of clean fill, pile driving, and similar activities.

The work sequence and design of the intake structure will consider means for routing the flow of Fishhook Creek through the work site during construction. For example, the below ground intake gallery may first be installed adjacent to the creek, the creek then diverted out of its natural channel with coffer dams to flow through the gallery, the diversion weir constructed, and then the creek returned to its natural channel to flow over the newly installed weir. This design approach also serves future maintenance needs by providing a means to dewater all portions of the structure.

After Project construction is complete, the intake access trail and intake work pad will be revegetated.

4.2.5 PENSTOCK

The penstock is described in Section 3.3. Construction of the penstock first requires development of the powerhouse site, intake access trail, and penstock access trail to provide construction access to the penstock corridor.

The first construction activity for the penstock will be surveying to mark the penstock route and clearing limits in the field. The corridor will then be cleared of vegetation. The cleared width will typically be 30 feet but varying per local site conditions and construction requirements. Staging and work areas measuring approximately 60 feet wide by 200 feet long may be cleared in a few locations along the alignment to stockpile pipe and serve as pipe assembly areas. Where possible, these assembly areas will be located in natural clearings, in areas with granular soils, and/or in areas obscured from prominent public vantage points to reduce cleared acreage and the visual impact of construction.

Once the route is brushed, it will be grubbed and graded to form the construction trail. The trail surface will use local on-site materials to the extent possible. Small volumes of on-site borrow or imported fill, placed with geotextiles where appropriate, may be used in

areas of unsuitable material to form a stable and serviceable trail to support penstock construction.

Once this trail is established, pipe will be staged along the route for installation. Pipe will be delivered to the area by truck on flatbed trailers, with between 10 and 25 flatbed trailer deliveries of pipe required for the entire penstock. Pipe will be staged from flatbed trailers to the penstock route by overland haul or by helicopter.[36]

Overland staging may involve the pipe being transferred from the highway flatbed to an off-road trailer and then hauled to location from the powerhouse and intake sites with a dozer, lifted off the trailer with a loader or excavator, and staged along the penstock corridor for installation.

Helicopter staging would involve a truck parking in the mile 11.3, 11.9, 15.8, or 16.3 public parking lots, and the helicopter would pick one or two pipe sections at a time off the flatbed for direct delivery to the penstock corridor. An upper and lower lot would likely be used to minimize total helicopter flight time needed for this operation. Offloading each truck would take about an hour, and truck dispatch would be coordinated so only one or two trucks would be on-site at a time.

A bundle of three 50-foot long 18-inch diameter HDPE pipe sections being staged by helicopter at the Juniper Creek Project in Eagle River, Alaska. *July 29, 2020.*

The process of pipe staging along the penstock route is anticipated to take a few days to weeks depending on the methods used. The use of a helicopter may avoid the need for increased ground disturbance along the penstock route necessary to support pipe hauling, reduce the visual impact of pipe laydown areas to the public, reduce the time that delivery vehicles and equipment need to occupy public parking areas, and reduce the overall penstock construction duration. FRE will make a final decision on the merits of helicopter use as part of its final construction planning efforts.

Once the pipe is staged along the trail, it would be installed. Up to a few hundred feet at a time of six-foot-deep by six- to eight-foot-wide trench would be excavated along the side of the access trail, with surface organics segregated and stockpiled for trench revegetation. Once excavated, bedding material will be placed in the trench bottom, the pipe laid into the trench, bedding and padding material compacted around the pipe, power and communication conduit installed on either side of the pipe, and backfill placed and compacted up to finish grade, with the stockpiled organics used as the final courses of fill.

[36] The 1989 HPMP Amendment at page 31 encouraged low-impact construction methods such as helicopter use to reduce impacts on the terrain (ADNR 1989). The current HPMP does not endorse or prohibit this method (ADNR 2012).

Wherever possible, on-site material will be used for bedding and padding. If imported fill is required, it will need to be delivered using the construction trail.

In areas where the pipe crosses wetlands or encounters shallow groundwater, drainpipe may be installed to facilitate work and/or the penstock pipe may require anchoring to prevent uplift. Anchoring may consist of installation of weighted collars on the pipe, soil anchors and pipe straps, or other suitable methods provided in final designs. Anchoring may result in a wider disturbed area along these portions of the pipeline. If field revisions to the pipe route require sharp bends in the pipe, these may also require thrust anchoring.

Once the penstock is installed in a given area, the trail surface and local drainage patterns may be regraded in problematic areas to provide a long-term stable trail prism. This may include installation of gabion baskets, geotextiles, drainage bars, or similar materials and devices to provide a trail prism that will remain stable with no equipment maintenance.

Once construction is completed in a given area of the corridor, the penstock trail will be revegetated.

4.3 OTHER CONSTRUCTION CONSIDERATIONS

4.3.1 POWER SUPPLY

Power needs during construction will initially be supplied using portable generators. Once utility power is extended to the powerhouse site (and later, electricity to the intake site), temporary utility service will be used at these sites to reduce reliance on portable generators. Use of portable generators will be in accordance with applicable regulations.

4.3.2 MATERIAL SOURCES

To the extent practical, on-site materials will be used for site grading work. Limited volumes of borrow may be sourced from suitable areas within the authorized project footprint. Otherwise, it is expected that aggregate materials needed for project construction that are not available on site will be hauled in from outside Hatcher Pass. Some material may be recovered from the active slide area at mile 8.5 Hatcher Pass Road. Otherwise, no material sites are proposed within Hatcher Pass.

4.3.3 SOLID WASTE MANAGEMENT

During construction, generated wastes will mainly consist of excess and remnant construction, packaging and shipping materials such as plastics, wood, metal, and similar materials. Waste will be collected in containers and hauled to an approved disposal facility.

4.3.4 HAZARDOUS SUBSTANCES

4.3.4.1 Existing Hazardous Substances

No hazardous substances are known to be present in the Project footprint. Because Hatcher Pass experienced many decades of industrial-scale mining activity from the late 19th to mid-20th centuries, there is some potential for hazardous substances to currently exist within the project site.

If FRE encounters preexisting hazardous substances in the course of construction, it will promptly notify the landowner(s) in accordance with its land use agreements, notify other resource management agencies as applicable, and initiate response actions. FRE will

transfer the cleanup response to the respective landowner(s) as soon as safely practical but maintain coordination to avoid impact to FRE infrastructure or operations.

4.3.4.2 Proposed Hazardous Substances

4.3.4.2.1 Fuel

During construction, diesel and gasoline fuel will be consumed by construction equipment. Fuel handling will be in accordance with the SWPPP discussed in Section 4.2.1.2.

4.3.4.2.2 Explosives

Based on available information, FRE does not expect project construction will require blasting operations or the use of explosives. In the event bedrock is encountered that requires blasting for economic removal, FRE will retain a licensed explosives handler to develop an approved plan to safely handle explosives and conduct blasting operations. This plan would be developed in close coordination with stakeholders to ensure the safety of and manage disturbances to landowners and other users of the Hatcher Pass area.

4.3.5 WATER SUPPLY

Limited water will be needed for specific construction activities such as concrete preparation, worksite dust management, and similar needs. Water for these needs may be brought in from off-site or sourced from local waterways such as Fishhook Creek. If on-site water is used, FRE will secure the applicable water use permit from ADNR.

4.3.6 WASTEWATER MANAGEMENT

During construction, portable toilets will be provided at the powerhouse and/or intake sites and maintained for the use of construction personnel.

4.3.7 ACCESS, PARKING, AND STORAGE AREAS

All access to the project for personnel, supplies, equipment and materials will be via Hatcher Pass Road utilizing wheeled vehicles. Tracked construction equipment will be delivered to the site by truck. Staging of pipe and other materials along the penstock route or at the intake site may employ a helicopter.

To the extent practical, construction equipment, materials, and vehicles will be staged / parked at the powerhouse and intake lease sites or along project easements. Public parking areas such as the mile 11.3, 11.9, 15.8, or 16.3 lots will need to be used on a short-term basis for some equipment and material deliveries. Use of public parking areas will be coordinated in advance with the Alaska Department of Transportation and ADNR Division of Parks and Recreation to allow for public notice and minimize public use impacts.

4.3.8 NUMBER OF PEOPLE USING THE SITE

The number of people on-site during construction will vary based on the construction sequencing used and the type of work being performed at any given time. FRE may elect to utilize smaller / fewer crews over a longer total construction window, or larger crews / multiple crews for a shorter construction window based on information available when the construction plan is finalized. FRE does not currently have information necessary to make this determination, as discussed at Section 4.0's introduction.

The number of construction personnel is estimated to vary between five and 25 personnel. The lower end of this range is representative of a single crew working a single trade such as power line construction, heavy civil site grading, concrete work, or pipe laying. The upper end of this range is representative of several such crews working in parallel on different aspects of the project. FRE expects all personnel will commute to the job site daily and will not be provided with on-site housing.

If the work plan requires a crew size at the upper end of this range, FRE may arrange for group parking outside of Hatcher Pass with carpooling or a shuttle to the Project site to avoid congestion of the work site or adjacent public parking areas.

Supervisor-to-staff ratios will vary with the types of work underway and experience of personnel. Ratios may be as high as 1:1 (for survey crews, as example) to as low as 1:10 for activities where staff require less intensive supervision (for final landscape installation, as example).

FRE may establish a mobile field office at the powerhouse and/or intake sites to facilitate construction management, oversight, and support. FRE anticipates periodic visits during construction by interested persons such as regulators, utility personnel, resource agency representatives, media, elected officials, lenders, investors, and similar persons. Such visitors would typically be escorted by a representative of FRE and sometimes a representative of the applicable contractor for work being reviewed. FRE does not expect these would occur more often than once weekly.

5.0 OPERATIONS PLAN

This section presents FRE's current plan for how project operations and maintenance will be conducted. The final operations plan will be influenced by several factors, including but not limited to:

1) Final terms and conditions of project permits and regulatory approvals.
2) Final project designs.
3) Final specifications and performance of installed equipment and materials.
4) Requirements of final operations and maintenance manual.

Such factors will influence project operational and maintenance requirements. The plan presented herein will be refined to reflect these factors once they are known.

Please see Section 4.0 for similar plan discussion covering the project's construction phase, and Section 6.0 for similar plan discussion covering project closure / reclamation.

5.1 GENERAL REQUIREMENTS

Section 5.0 describes FRE's expected operational activities within the Project footprint and means of access proposed to support these activities. It also describes expected motorized access requirements, methods, and frequency that are proposed to responsibly operate the Project while also conforming with management requirements for the Project area.

In addition to the motorized access requirements discussed elsewhere in Section 5.0, FRE will require the ability to promptly access all areas of the Project by motorized means to respond to unpredictable emergent conditions – such as may result from natural disasters – in order to maintain safe operation of the Project, protect area resources, and maintain public safety. Such emergency access would only be necessary in response to extraordinary circumstances such as Project damage sustained from a major earthquake.

In all cases, FRE will notify applicable landowners of the motorized access required and the nature of the emergency. If circumstances allow, FRE will also coordinate scheduling with applicable landowners to minimize recreational use impacts.

5.2 POWER SUPPLY

Power supply to support project operations at the powerhouse and intake facilities will be from permanent utility service via branch circuits off the plant's main electric panel.

Temporary power may be supplied using portable generators for short-term construction, maintenance, or repair activities where utility service is unavailable. Use of portable generators will be in accordance with applicable regulations.

FRE may install on-site battery banks within the powerhouse and intake structures to support project operations. Battery banks may also be installed at remote locations within the project footprint to support project control or communication equipment.

5.3 SOLID WASTE MANAGEMENT

During operations, solid waste generation will be minimal and generally include packaging for personal use items or on-site supplies, surplus or broken supplies, tools, and equipment, and construction waste generated by repair or replacement activities.

Personnel will deposit solid waste in receptacles within the powerhouse building and intake structure. These will be emptied on an as-needed basis and hauled to an approved disposal facility. When specific activities produce a larger volume of solid waste, a suitable dumpster will be rented and used to collect waste for transport and off-site disposal.

5.4 HAZARDOUS SUBSTANCES

5.4.1 EXISTING HAZARDOUS SUBSTANCES

No hazardous substances are known to be present in the project footprint. Because Hatcher Pass experienced many decades of industrial-scale mining activity from the late 19th to mid-20th centuries, there is some potential for hazardous substances to currently exist within the project site.

If FRE encounters preexisting hazardous substances in the course of project operations, it will promptly notify the landowner(s) in accordance with its land use agreements, notify other resource management agencies as applicable, and initiate response actions. FRE will transfer the cleanup response to the respective landowner(s) as soon as safely practical but maintain coordination to avoid impact to FRE infrastructure or operations.

5.4.2 PROPOSED HAZARDOUS SUBSTANCES

During operations, less than five gallons of fuel, hydraulic oil, and lesser volumes of lube grease may be stored in the powerhouse building and the intake structure. Depending on final equipment specifications, hydraulic oil may be a non-hazardous mineral oil formulation to reduce the environmental risk of spills.

The main service transformer(s) at the powerhouse will contain a non-PCB utility-grade oil for cooling and electrical insulation of the transformer windings. This is a standard component of utility transformers.

Battery banks utilized by the project would use chemical batteries that may include hazardous substances such as lead. Battery cells would be housed within approved secure structures and hauled off site at their end-of-life for proper disposal.

No herbicides or other forms of chemical vegetation management will be used on the project.

5.5 WATER SUPPLY

Aside from water supplied via the intake and penstock for power generation, the project does not require a water supply.

Water may be supplied for convenience uses at the powerhouse site via a special tap and pressure reducer off the penstock near the powerhouse or via a small sump pump located in the tailrace. This would be a non-potable water supply suitable for bathroom facility, building or load bank cooling equipment, landscaping irrigation, fire protection, and/or similar incidental uses.

5.6 WASTEWATER MANAGEMENT

The powerhouse may be furnished with a bathroom and therefore require provisions for sanitary wastewater management. A wastewater management system at the powerhouse cannot be designed until subsurface geotechnical conditions are determined, but the system would be constructed and operated in accordance with applicable ADEC and Borough regulations. FRE expects the system would consist of a conventional septic tank and leachfield, tight holding tank, self-contained incinerator-type system, or other approved technology.

5.7 ACCESS, PARKING, AND STORAGE AREAS

5.7.1 PARKING AND STORAGE

During normal operation, FRE personnel will be on site about once per month year-round to conduct inspections and maintenance. During these visits, a Project maintenance vehicle will park at the upper Fishhook public parking lot at mile 16.3 Hatcher Pass Road (for intake access and maintenance) and on the powerhouse lease site (for powerhouse maintenance). No other outdoor storage or offsite parking will be required. These routine visits will generally occur during normal business hours when public lots tend to be less crowded. During these visits, an FRE vehicle would be parked at the mile 16.3 public lot for about ½ day.

The Project will infrequently require major repair or modification that may need more parking and storage area. Such events are estimated to occur less than once every five years. Such events may require more intensive short-term use of public parking areas in the Project vicinity. The timing and details of public parking lot use would be coordinated with applicable agencies to minimize disturbance to the public and maintain public safety. Depending on the nature of the activity, public safety may require that a public lot or portion thereof be briefly closed to the public using barricades or cones. Such closures would be coordinated well in advance to minimize disturbance to the public.

5.7.2 INTAKE ACCESS

Once construction is complete, the intake access trail will be fully revegetated, although FRE anticipates that public foot traffic may sustain a single lane Class 1 or Class 2 trail down this route similar to the trail that already exists in this location.

Normal FRE access to the intake and upper penstock will be entirely on foot.

FRE anticipates vehicular access to the intake will be necessary approximately once every 1 to 5 years. To the extent possible, FRE will schedule work requiring vehicular access to:

1) Access the site during the winter season using snow machines or snow cat. Winter season maintenance offers certain advantages due to lower flows in Fishhook Creek and avoiding potential damage to vegetation along the access route.
2) Access the site during shoulder seasons (spring /fall) to reduce disturbances to recreationists.

When vehicular access is necessary during snow-free months, the revegetated trail prism will still be suitable for this access using tracked equipment or low ground pressure vehicles. Barriers at the start of the trail will be temporarily removed. Vehicles will travel directly over vegetation to the extent possible to expedite its recovery from vehicular trail

use. Select large brush or trees may need to be cleared. If the activity spans multiple days, temporary barriers will be placed at the start of the trail to deter unauthorized motorized use by the public.

Once the activity requiring vehicular access is complete, FRE will restore damage to the vegetative mat along the trail route to promote revegetation and will restore permanent barriers at the start of the trail.

5.7.3 POWERHOUSE ACCESS

The driveway transition on the public right of way at the powerhouse site will allow drivers to safely pull off the road and open the gate. This area will be accessible to the public and may get used as unauthorized public parking. The driveway will be gated at the right-of-way / lease site property line, and the lease site will not be accessible to unauthorized motorized vehicles. FRE expects that approved entities such as ADNR and MEA may have access to the powerhouse lease site gate.

The driveway and site pad within the lease site will be left in place post construction. Unused areas will be allowed to revegetate to reduce their visual appearance, except for a perimeter around the powerhouse building that will be maintained free of tall grass and brush as defensible space for wildfire protection. FRE will infrequently use these revegetated work pad areas for additional parking or staging to support powerhouse maintenance, repair, and replacement activities.

5.7.4 PENSTOCK ACCESS

Post construction, FRE will fully revegetate the penstock corridor. FRE will conduct regular inspections of the penstock corridor on foot until vegetation is established to monitor for and correct erosion problems. Once revegetated, FRE will continue to inspect the corridor on foot twice annually for issues requiring corrective action.

FRE anticipates that public foot traffic may sustain a single lane Class 1 or Class 2 trail along the upper portion of the penstock route from the intake site potentially as far down the route as station 30+00, on the south side of Fishhook Creek beyond the ravine rim. FRE notes that trail easements now exist for some of this area as discussed in Appendix A at section A.2.2. FRE is not aware of public use intensity along the penstock corridor between station 30+00 and the powerhouse sufficient to sustain trails and does not expect informal public use to impede full revegetation. However, FRE notes that if the lower and upper trail easements authorized in ADL 233120 are developed, the penstock corridor may become an attractive connector route. This is also discussed further at Section A.2.2.

The penstock itself is a very long-lived asset normally requiring no maintenance. Comparable water utility mains and hydro penstocks commonly remain in service for 50 to 100+ years. FRE does not expect to need to disturb vegetation along the penstock corridor for several decades for penstock maintenance or repair.

The penstock corridor includes equipment with higher maintenance requirements than the pipeline itself. Discussion of this equipment and its maintenance needs follow.

1) Penstock drain at the Fishhook Creek crossing (approximate station 14+00). This drain valve is normally closed but will be opened if the Project is offline and the penstock needs to be drained. The valve is a standard low-maintenance fixture commonly used in water utility systems with an expected service life of 50+ years. Eventual maintenance, repair, or replacement of this valve will require vehicular access.

2) Penstock vacuum relief / air purge valve beyond the south rim of the Fishhook ravine (approximate station 20+00). There will be an air purge / vacuum relief valve installed in a buried vault at the high point of the penstock between Fishhook Creek and the run down to the powerhouse. This valve automatically removes air that may accumulate in the pipe at this high point and relieves vacuum during shutdown operations. This is a standard low-maintenance fixture commonly used in water utility systems, however the mechanical nature of the device results in more frequent maintenance requirements and a shorter expected service life that the pipe itself or the drain valve. FRE estimates this valve will require annual inspection, maintenance on a five-year interval, and replacement on a 20 or 25-year interval. These activities will be performed without vehicles to the extent possible.

3) Power and communication splice vaults. There will be a series of regularly spaced buried splice vaults along the length of the penstock corridor for power and communication circuits. Both of these circuits have an expected useful life of 40+ years with no maintenance requirements. In the event of problems with either circuit, these splice vaults will be accessed on foot to locate the specific part of the circuit that has a problem. Once the problem is located, repair may require vehicular access. The need for vehicular access and access route used (from the intake or the powerhouse) will depend on the nature and location of the problem.

   If vehicular access is required to repair these circuits, a small, tracked excavator would be sufficient to complete the repair. The access corridor would be minimally brushed to allow access, with the vegetative mat left intact to the extent possible. If repair requires digging up the conduit, this may need to occur in the summer or fall when the ground is thawed.

   When vehicular access is required to the penstock drain valve or air purge valve, access would be via the intake and penstock corridor. As practical, FRE will plan work to:

   a) Access the site during the winter season using snow machines or snow cat. Winter season maintenance offers certain advantages due to lower flows in Fishhook Creek and avoiding potential damage to vegetation along the access route.

   b) Access the site during shoulder seasons (spring /fall) to reduce disturbances to recreationists.

It is possible that trails authorized by ADL 233120 will provide preferrable access to portions of the penstock corridor than access via the penstock corridor. FRE supports coordination with ADNR and MSB to determine if such concurrent use of these trails is warranted.

5.7.5 POWER LINE ACCESS

Post construction, FRE expects that the power line infrastructure between Skeethawk and the Project powerhouse will be transferred to MEA, and the communications infrastructure will be transferred to MTA. If FRE retains ownership of one or both assets, FRE's access needs would be comparable to that of these other two utilities.

5.8 ON-SITE PERSONNEL

Routine maintenance and operations will consist of on-going monitoring of the Project from an off-site location via SCADA systems. FRE personnel will regularly visit the project to inspect equipment and perform routine maintenance and repairs. FRE expects one or two personnel to visit the site approximately once per month for ½ to full day to conduct preventative maintenance and inspections.

Infrequent maintenance or repair activities would require more personnel for a longer duration. A major event might require five people for a week. These personnel would park on the powerhouse lease site, unless the activity was close to the intake, in which case they would park in the public lot at mile 16.3. Such activities are not expected to occur more frequently than once every five years.

6.0 CLOSURE / RECLAMATION PLAN

The proposed hydroelectric project can be operated in perpetuity provided that the demand for electricity in southcentral Alaska persists and the wholesale cost of electricity continues to allow economic operation of the project. Over time, various components of the project will need to be maintained, repaired, or replaced in order to continue operations.

ADNR has indicated that the land leases for the project will be issued for an initial term of 55 years, with provisions for renewal.[37] This is consistent with other ADNR lease terms in the immediate project vicinity, such as the HAX / Skeethawk lease issued just south of the powerhouse site in 2023.[38]

In the event that FRE elects to decommission this project and terminate project easements and lease sites, state and borough lands will be restored. A final restoration plan would be prepared at the time a decommissioning decision is made. Preliminary plans for site restoration follow.

If the Project components include any public use amenities that would have continued value after the Project is decommissioned, FRE will engage with applicable parties to coordinate asset transfer.

6.1 INTAKE SITE

The process of restoring the intake site would require equipment access down the access corridor from Hatcher Pass Road. Once the intake site was decommissioned, this access corridor would again be revegetated and vehicular exclusion measures restored.

Machinery, mechanical equipment, and fixtures at the intake structure would be removed for disposal or salvage. The intake structure would be demolished to at least one foot below surrounding grade and removed from the premises. Foundations and below grade portions of the structure would be abandoned in place. Below grade voids would be filled and compacted to match surrounding grade. The footprint of the intake structure would be stabilized and landscaped. The creek bed and banks would be stabilized with boulders, cobble and gravel comparable to native bed materials. Upland areas would be landscaped and revegetated.

The existing intake site and access corridor earthworks would be abandoned in place and revegetated.

The below grade penstock inlet would be plugged with concrete or other suitable fill to permanently prevent admittance of water from Fishhook Creek or the local water table. The penstock inlet area would be filled to match surrounding grade and revegetated.

The penstock air vent would be unbolted from the penstock tee and removed. A blind flange would be installed on the penstock tee, backfilled, and revegetated.

[37] ADNR 2010 at page 1.
[38] ADNR 2023b.

6.2 PENSTOCK CORRIDOR

Below ground utilities (penstock, power and communication conduits) would be abandoned in place. Above ground features such as power and communication splice cabinets / pedestals, warning markers, and the penstock air purge valve assembly would be removed and disposed of off-site.

If the penstock crossing of Fishhook Creek is above grade, the bridge deck and span would be removed. Exposed ends of the penstock and conduits would be crushed below grade and buried or cut off below grade and permanently plugged with concrete or similar material. Bridge abutments would be cleared of potential public hazards or nuisances (e.g., exposed bolts would be cut off flush with concrete surfaces, etc.) and the abutments would be abandoned in place.

Existing earthworks along the penstock alignment would be abandoned in place and remain revegetated. Areas disturbed by removal of improvements (such as at the bridge crossing, if any) would be landscaped, stabilized, and revegetated.

6.3 POWERHOUSE SITE

Machinery, mechanical equipment and fixtures at the powerhouse site would be removed for disposal or salvage. The powerhouse would be demolished to at least one foot below surrounding grade and removed from the premises. Foundations and below grade portions of the structure would be abandoned in place. Below grade voids would be filled and compacted to match surrounding grade. The footprint of the powerhouse would be landscaped, stabilized, and revegetated.

The existing powerhouse site earthworks would be abandoned in place and allowed to revegetate.

The end of the penstock would be crushed below grade or cut back to below grade and filled with concrete or other suitable material and buried, the area filled to match surrounding grade, and revegetated.

The vehicle gate and vehicle crossing of the old Fishhook Creek channel would be removed. Other existing earthwork for the powerhouse site access driveway would be abandoned in place and revegetated.

6.4 POWER LINE ALIGNMENT

After construction, FRE anticipates MEA will assume ownership of the power line and MTA will assume ownership of the communication line that parallels Hatcher Pass Road up to the powerhouse site. Accordingly, these assets will not belong to FRE at the time of project decommissioning and will not need to be removed.

In the event ownership of these assets is not assumed by MEA and MTA, FRE would explore possible sale of the assets to these utilities as described in 6.0, and if unsuccessful would restore this utility easement as described in 6.2.

6.5 TAILRACE AND FORMER FISHHOOK CREEK CHANNEL

The tailrace exiting the powerhouse to the bank of the former Fishhook Creek channel would be filled and revegetated. The bank of the former Fishhook Creek channel would be armored and revegetated to match the condition of adjacent banks.

Upgrades to the old Fishhook Creek channel between the tailrace and the Little Susitna River completed for this project would be left intact.

7.0 REFERENCES

ADN 2015. Anchorage Daily News (ADN). Sullivan, Dan. Editorial. *Mayor Sullivan: Cook Inlet is proof that oil tax credits are good for Alaska.* June 21, 2015. Anchorage, Alaska.

ADN 2021. ADN. Groves, Joel. Editorial. *New Alaska hydro project highlights the need for more.* September 22, 2021. Anchorage, Alaska.

ADN 2023. ADN. DeMarban, Alex. *Alaska's looming natural gas crisis draws growing attention from mayors, state regulators.* December 12, 2023. Anchorage, Alaska.

ADN 2024. ADN. DeMarban, Alex. *Southcentral Alaska shatters record for natural gas use during subzero cold streak.* February 2, 2024. Anchorage, Alaska.

ADN 2026a. ADN. DeMarban, Alex. *To deal with natural gas shortage, Chugach Electric explores 4 hydropower projects.* February 14, 2026. Anchorage, Alaska.

ADN 2026b. ADN. DeMarban, Alex. *Lease sales in Cook Inlet draw nearly zero interest from oil and gas companies.* March 4, 2026. Anchorage, Alaska.

ADNR 1989. Alaska Department of Natural Resources (ADNR). *Hatcher Pass Management Plan Amendment.* November 1989. Anchorage, Alaska.

ADNR 2010. ADNR. *ADL 229806 Preliminary Decision.* November 4, 2010. Anchorage, Alaska.

ADNR 2012. ADNR. *Hatcher Pass Management Plan, Adopted November 2010, Amended in Part March 2012.* March 2012. Anchorage, Alaska.

ADNR 2023a ADNR. *ADL 234032 Preliminary Decision.* April 3, 2023. Anchorage, Alaska.

ADNR 2023b. ADNR. *ADL 234032 Final Decision.* June 14, 2023. Anchorage, AK.

ADNR 2023c. ADNR, Dodd, Evan. *Letter to FRE requesting additional information on proposed development.* July 18, 2023. Anchorage, AK.

ADNR 2026a. ADNR. *Instructions for Completing a Development Plan, 102-DEVPL (Rev.07/23).* January 2026. Obtained from: https://dnr.alaska.gov/mlw/cdn/pdf/forms/Development-Plan.pdf.

ADNR 2026b. ADNR. Regulations at 11 AAC 96.014(b)(3). Accessed January 2026. https://www.akleg.gov/basis/aac.asp

ADOT 2022. Alaska Department of Transportation and Public Facilities (ADOT). *Palmer-Fishhook Road MP 7-17 Pavement Preservation Plans.*

Project 0580020/CFHWY00405; PS&E Review Plot. March 22, 2022. Anchorage, Alaska.

AESTF 2023a. Alaska Energy Security Task Force (AESTF). *Small Hydropower in Southcentral Alaska. Governor's AESTF Symposium. Presentation by Joel Groves, Polarconsult Alaska, Inc.* August 23, 2023. Anchorage, Alaska. Accessed at: https://www.akenergyauthority.org/What-We-Do/Energy-Planning-Project-Development/Alaska-Energy-Security-Task-Force/Energy-Symposium-Series

AESTF 2023b. AESTF. *Alaska Energy Security Task Force Report, Volume 1.* December 1, 2023. Anchorage, Alaska.

AOGCC 2006. Alaska Oil and Gas Conservation Commission (AOGCC). *Summary of the 2006 Southcentral Energy Forum prepared by the Institute of Social and Economic Research, University of Alaska Anchorage.* September 21, 2006. Anchorage, Alaska.

CEA 2026. Chugach Electric Association, Inc. (CEA). *Press Release. Chugach Electric pursues hydroelectric projects. Goal is to reduce reliance on natural gas, pursue clean energy supply.* February 10, 2026. Anchorage, Alaska.

DGGS 1985. ADNR, Division of Geological and Geophysical Surveys. *MR85-4. Preliminary report of operating mines and prospects, Willow Creek district, Alaska, September 15 to 19, 1937, Miscellaneous Report 85-4.* 1937. Alaska.

DOE 2004. U.S. Department of Energy (DOE), National Energy Technology Laboratory, Arctic Energy Office, Thomas, Charles, et al. *South-Central Alaska Natural Gas Study, Final Report.* June 2004.

DPOR 2015. ADNR, Department of Parks and Outdoor Recreation (DPOR). *Alaska State Parks Trail Management Handbook.* May 2015. Anchorage, AK.

FERC 1921. Federal Energy Regulatory Commission (FERC). *Order reserving federal land within ¼ mile of Fishhook Creek from entry, location, or disposal pursuant to FERC approval of preliminary permit #207 by Kelly Mines Co.* May 7, 1921. Washington, D.C.

FRE 2006a. Fishhook Renewable Energy, LLC (FRE). *Application for Utility Easement on State Land.* Accepted by ADNR under ADL 229806. June 6, 2006. Anchorage, Alaska.

FRE 2006b. FRE. *Application for Lease of State Land.* Accepted by ADNR under ADL 229824. June 6, 2006. Anchorage, Alaska.

FRE 2007 FRE. *Application for Utility Easement on Matanuska-Susitna Borough Land, #4869.* January 2007. Anchorage, Alaska.

FRE 2024. FRE. Groves, Joel. *Letter to ADNR responding to questions and requesting clarifications.* January 31, 2024. Anchorage, AK.

MEA 2008. Matanuska Electric Association, Inc. (MEA). *Board Resolution 1858 Authorizing Power Purchase Agreements with South Fork Hydro, LLC and Fishhook Renewable Energy, LLC.* October 2008. Palmer, Alaska.

MEA 2025. MEA. *2024 Annual Report filed pursuant to 3 AAC 47.060.* March 27, 2025. Palmer, Alaska.

PMC 2008. Alaska Division of Agriculture, Plant Materials Center (PMC). Wright, Stoney J. *A Revegetation Manual for Alaska.* August 2008. Palmer, Alaska.

RCA 2009. Regulatory Commission of Alaska (RCA). *Order #2 in Docket U-08-132: Order Approving Petition for Exemption from Regulation and Closing Docket.* April 20, 2009. Anchorage, Alaska.

RCA 2025. RCA. Docket R25-004, Order 1. *Order Denying Petition for Rulemaking and Closing Docket.* January 27, 2025. Anchorage, Alaska.

Skeethawk 2022. HAX, Inc dba Skeethawk. *Application for Lease of State Land.* Accepted by ADNR under ADL 234032. July 1, 2022. Anchorage, Alaska.

SOAG 2023a. State of Alaska, Office of the Governor (SOAG). Governor Mike Dunleavy. *Administrative Order #344 establishing the Alaska Energy Security Task Force.* February 23, 2023. Juneau, Alaska.

SOAG 2023b. SOAG. Governor Mike Dunleavy. *Administrative Order #345 reinstating the Alaska Energy Security Task Force with a revised membership and reporting structure.* March 22, 2023. Juneau, Alaska.

USFS 1995. U.S. Forest Service (USFS). *Landscape Aesthetics, A Handbook for Scenery Management. Agriculture Handbook Number 701.* December 1995. Mt. Shasta, CA.

USGS 1950. U.S. Geological Survey (USGS). *Power Site Classification #412: Order classifying certain federal lands around the Little Susitna River and Fishhook Creek as a power site under Section 24 of the Federal Power Act of 1920.* November 9, 1950. Washington, D.C.

APPENDIX A: PROJECT CONSISTENCY WITH MANAGEMENT GOALS

A.0 INTRODUCTION

The government lands that the Project will occupy are subject to a variety of planning and use constraints established by the State of Alaska and MSB. This Appendix summarizes how the Project complies with applicable constraints. This Appendix also addresses specific questions that have been raised over time about how the Project's development and operations will be consistent with these constraints.

Under Alaska statutes, FRE is a public utility. This status was affirmed by the Regulatory Commission of Alaska (RCA) in 2009, when it exempted FRE from utility regulation under the public interest criteria of AS 42.05.711. [39]

A.1 APPLICABLE STATE AND BOROUGH CONSTRAINTS

MSB land within the Project footprint is limited to approximately 900 feet of the utility easement to the west of Hatcher Pass Road within Section 11, within and north of the existing Skeethawk ski complex. The MSB is bound to the HPMP through secondary agreements.

1. Hatcher Pass Public Use Area (HPPUA).

The HPPUA was established by the State Legislature in 1986 and codified at AS 41.23.100 to .130. The lower portions of the Project including the powerline extension, powerhouse site, and lower portion of the penstock are located within the HPPUA (Figure 2-1). The HPPUA establishes three purposes for the HPPUA (AS 41.23.100(b)):

(1) provide for public recreation activities;

(2) protect and enhance the fishery, waterfowl, and wildlife resources and habitat and provide for public use of the fishery and wildlife resources, including fishing, grazing, hunting, and trapping;

(3) protect the water quality and scenic resources within the HPPUA.

Statute directs that ADNR develop a management plan to effect these goals. The management plan in effect when FRE submitted its land applications to ADNR in 2006 was the 1986 Management Plan as amended in 1989, and ADNR issued a preliminary decision (PD) based on the 1986 plan (as amended in 1989) in 2010.[40] ADNR subsequently retracted its 2010 PD and retroactively imposed the 2012 amendments to the 2010 Management Plan upon FRE's 2006 land applications.[41]

2. Hatcher Pass Special Use Area (HPSUA).

The HPSUA in effect in 2006 when ADNR accepted FRE's land applications was modified as part of the 2010/2012 HPMP to include the entire Project footprint on state land.[42] Key

[39] RCA 2009.
[40] ADNR 1989, ADNR 2010.
[41] ADNR 2012.
[42] ADNR 2012, ADNR 2026b.

management requirements for the current HPSUA relevant to the Project are non-motorized use, except for mineral development and trail construction / maintenance, if the use would not substantially interfere with recreational use of the area.[43]

3. 2010 Hatcher Pass Management Plan, as amended 2012 (HPMP).

The HPMP is a principal guiding document for state land in the Project area. It incorporates provisions of both the HPPUA established by statute and the HPSUA established by regulation. It also incorporates several other regulatory and programmatic constraints that are not described in detail here.

The Project is located mostly with the Government Peak Unit of the HPMP. The intake access trail is located within the Mile 16 Unit.

The HPMP establishes recreation as the "central management direction" for state land in the Project vicinity. Relevant conditional uses that may be allowed on state land in the Project area include:

1) hydroelectric facilities,
2) material extraction related to trails,
3) trail development, and
4) utilities.[44]

Areawide general guidelines established by the HPMP relevant to the Project include:

1) Avoid significant adverse effects on fish, wildlife, or their habitats.
2) Minimize damage to streambeds, fish and wildlife habitats, vegetation, trails, and other resources of significance.
3) Minimize conflicts between resources and uses and ensure a high level of public safety.
4) Manage the area and its resources for long-term sustainable use.[45]

Areawide management goals regarding recreation and relevant to the Project include:

1) Maintain high scenic values.
2) Reduce use conflicts.
3) Separate but support motorized and non-motorized uses on the East Side.[46]

Areawide management guidelines regarding recreation and relevant to the Project include:

1) Utilities shall be underground where practical, and otherwise screened from view of users of the Hatcher Pass area.[47]

Areawide management recommendations regarding recreation and relevant to the Project include:

1) Maintain views from Hatcher Pass Road.[48]

[43] 11 AAC 96.014(b)(3)(A).
[44] ADNR 2012 at Table 2-1, pages 2-4 to 2-8.
[45] ADNR 2012 at page 2-9.
[46] ADNR 2012 at page 2-29.
[47] ADNR 2012 at pages 2-30 to 2-35.
[48] ADNR 2012 at pages 2-35 to 2-38.

Areawide management guidelines regarding utilities and relevant to the Project include:

1) Utility infrastructure such as power lines and communication repeaters should be located to avoid or minimize visual impacts, especially as viewed from Hatcher Pass Road. Utilities may only be located within view of the road if DMLW determines that no feasible alternative exists and the use is in the best interest of the state. Visual impact mitigation strategies include avoidance of skyline feature prominence, blending with the landscape, screening to reduce the visual disturbance, and material selection to reduce the visual disturbance.

2) Hydroelectric infrastructure shall be consistent with applicable state and federal standards and shall be sited so they are not visible from Hatcher Pass Road. If infeasible, they should be sited and designed to blend in with the natural environment and terrain, so they do not stand out as a prominent skyline feature as viewed from the road.

Government Peak Unit

The project footprint within this unit falls within areas designated "Public Recreation-Dispersed". Utility and Hydroelectric facilities are recognized potential uses within this unit and this area but requiring approval as a conditional use if consistent under planning criteria including general recreation management requirements for 'utility lines' (described above) and unit management intent.[49] Relevant unit management intent includes:

1) Accommodate current non-motorized uses.
2) Minimize non-recreation-related development.
3) plan criteria are compatibility with alpine and Nordic ski facilities, provisions for utility lines, and the management intent for this unit.

Management recommendations for this unit include accommodations for potential future approval of motorized winter access corridors in this unit to establish east-west and north-south motorized winter access through this unit to other areas. These access corridors would require future approval by the MSB and/or ADNR. The east-west corridor is specifically routed through an area within 500 feet to the south of Fishhook Creek.[50]

Mile 16 Unit

Plan criteria for this unit focus on the recreation corridors to the north of Fishhook Creek outside the Project footprint. The unit is designated for non-motorized use, but new motorized corridors are contemplated.

[49] ADNR 2012 at page 3-93.
[50] ADNR 2012 at page 3-95.

A.2 PROJECT COMPATIBILITY WITH MANAGEMENT PLAN

Relevant management priorities that result from the management constraints discussed in Section A.1 are presented in this section by topic. The Project's compatibility with these management constraints is discussed for each topic. Table A2-1 summarizes key management topics and sections within Appendix A that discuss how the project complies with and supports those objectives.

Table A2-1: Summary of Project Compliance with Area Management

Management Document / Provision	Appendix A Sections
HPPUA	
Provide for public recreation	A.2.1; A.2.2; A.2.5; A.2.6; A.2.7; A.2.8; A.2.9.
Protect and enhance fishery, waterfowl, and wildlife resources and habitats and provide for their public use	A.2.3; A.2.8.
Protect water quality and scenic resources	A.2.8; A.2.9.
HPSUA	
Non-motorized use except for mineral development, trail construction/maintenance, or by ADNR or MSB in support of recreation.	A.2.2; A.2.4; A.2.5.
HPMP	
Avoid significant adverse effects to fish, wildlife, or their habitats	A.2.3; A.2.8.
Minimize damage to stream beds, vegetation, trails.	A.2.1; A.2.2; A.2.3; A2.8.
Minimize conflicts between resources and uses and ensure a high level of public safety.	A.2.2; A.2.5.
Manage the area and resources for long-term sustainable use.	A.2.10.
Maintain high scenic values.	A.2.9.
Reduce use conflicts.	A.2.5.
Separate motorized and non-motorized uses.	A.2.4.
Bury, hide, or screen utilities from view.	A.2.9.
Prioritize maintenance of views from Hatcher Pass Road.	A.2.9.
Minimize non-recreational development.	A.2.1; A.2.5.
Consistency with alpine and Nordic ski facilities.	A.2.5; A.2.6; A.2.7.

A.2.1 PROVIDE FOR PUBLIC RECREATION ACTIVITIES (HPPUA, HPSUA, HPMP)

The Project is consistent with this management directive. Run-of-river hydropower is highly compatible with recreational use. The modest footprint of the operational Project will not deter from existing or future recreational use of the Project area.

Development and operation of Project infrastructure will not substantially interfere with recreational use or recreational opportunities within the HPMP, and it will not negatively impact public recreation experiences within the HPMP. The interferences that do occur will be during construction and temporary. These interferences and FRE's proposed measures to avoid, reduce, or mitigate the impacts of these interferences are discussed both in the main narrative in Section 4.0 and are also addressed in Section A.2.5. Post construction, FRE believes that most recreationists using Hatcher Pass will be unaware of the Project's existence.

ADNR prior guidance to FRE is that the Project's utility corridors should not be developed as trails. FRE's development plans conform with this direction. FRE observes that some new trail easements and proposed trails intersect and/or parallel with parts of the Project's utility corridors, and there may be opportunity for coordinated development that will promote public recreation activities. Please see discussion of trails at Section A.2.2. Please also see discussion of scenic resources protection at Section A.2.9.

A.2.2 TRAILS (HPPUA, HPSUA, HPMP)

After collection of site-specific geotechnical data, FRE will design trails to avoid adverse effects to fragile tundra and soils beyond the direct footprint of the trail.

The treatment and disposition of the utility corridors necessary for the Project have been a source of on-going discussion over the past 20 years. FRE's position about these corridors has been consistent for many years, and includes the following key elements:

1) FRE is not responsible for determining public trail needs, public trail routes, or developing, maintaining or managing public trails on public lands. Existing direction from ADNR to FRE is that none of the Project corridors should become public trails, and FRE's current development plans conform with that direction.
2) FRE seeks to minimize the project's visual footprint and avoid public attractants. Allowing the project to 'disappear' from public view is an effective mitigation strategy against the hazard of public vandalism of FRE property. It is also consistent with HPMP goals regarding visual resources.
3) FRE is open to public trails being collocated on certain of the Project's corridors, provided: (1) the Project corridor is technically suitable for a public trail, (2) the presence of the public trail does not unduly impede FRE's ability to efficiently manage and operate the Project, and (3) the presence of the public trail does not obligate FRE to significant undue incremental capital or operating costs that may impair the Project's economic viability. FRE recognizes that appropriate colocation of trails with Project utility corridors can be beneficial by reducing costs, visual impacts, and/or environmental impacts.
4) FRE does not support development of a permanent trail down the penstock corridor from the powerhouse site uphill to approximately station 30+00. This corridor is too steep to sustain a trail, and there is no public 'destination' at the powerhouse site so it would be a 'dead end' trail. FRE has no need for regular access to this corridor and will fully revegetate it post-construction.

Several trails considered in the 2012 HPMP and authorized by ADL 233120 in 2023 intersect with the Project footprint. FRE has not been advised by ADNR of a change in the existing 'no public trails on the Project' direction, but observes that these emerging concurrent uses and the terms of the HPMP may warrant review of ADNR's "no trails" guidance to FRE.

FRE believes the HPMP requires that Project corridors and public trails be collocated when possible and practical. This reduces the visual impact, physical footprint, and overall cost of improvements. These outcomes would each be consistent with the HPMP, good governance, and common sense.

FRE has no position on these public trails. It does have technical and practical coordination issues regarding these trails intersecting or being collocated with parts of the Project. A discussion of these issues follows for each trail segment. Figure A-1 shows where each trail segment interfaces with the Project footprint.

Public Trail Segment 1: Lower non-motorized MSB trail authorized in ADL 233120.
This trail intersects the Project's penstock corridor near station 65+00, about ¼-mile above the powerhouse site. FRE will allow this section of the penstock corridor to fully revegetate and does not expect this public trail crossing to be a major concern.

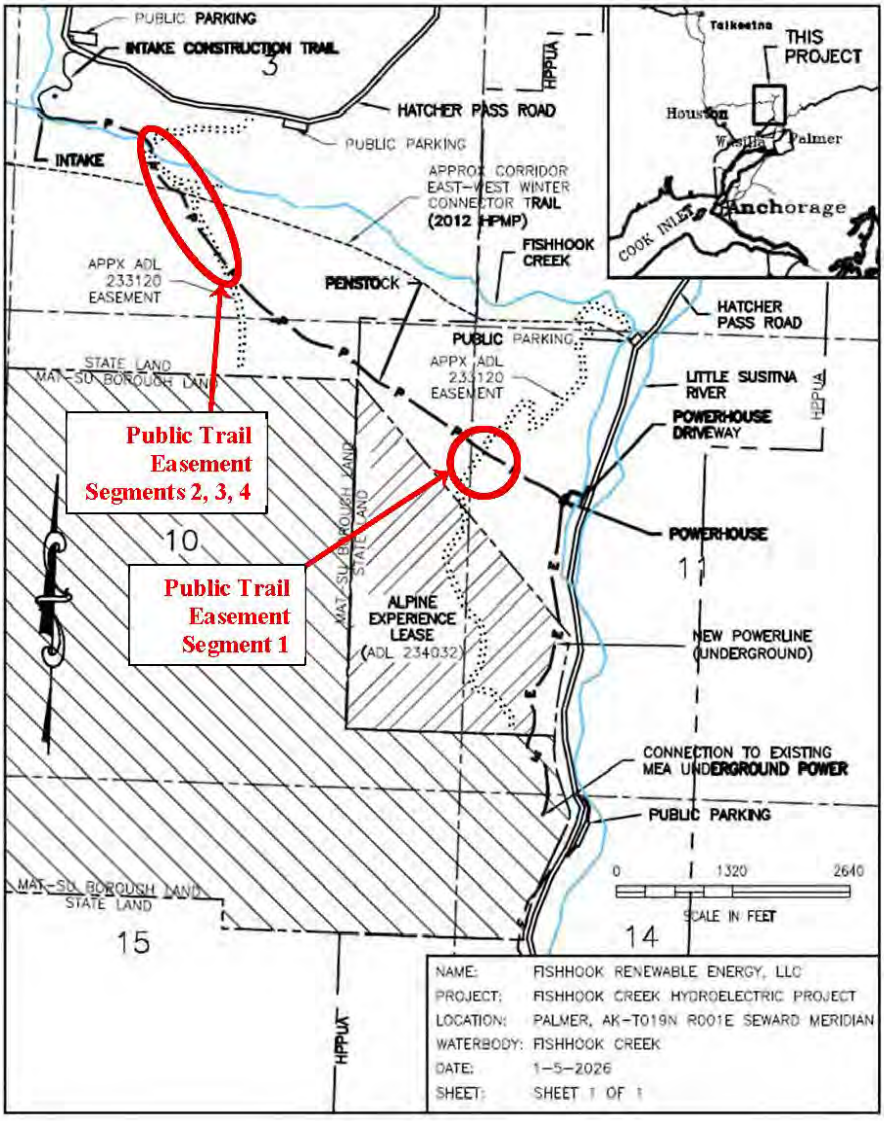
If the public trail is constructed before the penstock is installed and revegetated, temporary closure of the public trail or detour around the worksite is likely necessary while penstock construction occurs near this crossing. Also, temporary measures may be necessary to direct the public away from the penstock corridor at this crossing to prevent damage to revegetation measures. FRE understands the MSB will be responsible for these measures.

If the public trail is built after the penstock has been installed, coordination with FRE is still needed to ensure trail construction does not harm the penstock, power, or communications utilities, or create drainage problems down the penstock corridor.

FRE does not expect to need access to this penstock corridor segment for decades once construction is complete. However, if a natural disaster or other unexpected event damages the underground penstock, power, or communication utilities in this corridor, FRE would need to quickly access the damaged areas for assessment and repair. Depending on the specific circumstances, this could require temporary closure of this trail segment in the interest of public safety. FRE would coordinate with ADNR and MSB in this event.

Public Trail Segment 2: Upper non-motorized MSB trail authorized in ADL 233120.
This trail easement intersects and parallels a portion of the penstock corridor from penstock station 10+00 to 30+00. This corridor runs from just above the penstock crossing of Fishhook Creek through where the penstock climbs the south side of the Fishhook ravine, ending about where the penstock begins its descent down the Little Susitna valley sidewall to the powerhouse.

Figure A-1: Proposed Trail Segments Interfacing with Project Footprint



FRE believes that the penstock and trail corridors in this area should be collocated wherever appropriate to reduce the combined development footprint and resultant visual impact. Portions of this parallel development corridor are prominently visible from Hatcher Pass Road from about mile 15.5 to 16. FRE is concerned about the lack of outreach by

either ADNR or MSB to engage with FRE on this issue in the eight years since the application for ADL 233120 was filed.

FRE's current plans call for the penstock to climb the south side of the Fishhook ravine with a 15 percent sidehill bench. The public trail easement appears to provide for switchbacks in this same area. Coordination might optimize designs in this area in a few ways:

1) The penstock's 15 percent sidehill bench route may be a suitable or preferrable route for the public trail.
2) If a switchback is preferred for the public trail, the penstock cannot be collocated with the switchback because it cannot navigate the sharp turns. However, it may be preferrable for the penstock to ascend directly up the ravine slope instead of with a sidehill bench to better minimize the cumulative visual disturbances. The designs included as Attachment 3 to this Plan show an alternate penstock route to illustrate possible layout of this alternative.

The public trail easement crosses Fishhook Creek in approximately the same location as the penstock. FRE has deferred design of this creek crossing (bridge vs. burial) until geotechnical information is obtained. If there is a concurrent use case or contributing funds for a bridge over Fishhook Creek at this location, that may influence FRE's decision in favor of a bridge.

The public trail easement climbs the north side of the Fishhook ravine to end near an existing small vehicle pull out at about mile 15.8 of Hatcher Pass Road. This, combined with the upper 1,300 feet of the penstock route, could be an alternate access route to the Project intake site, eliminating the need for FRE's proposed route that starts about ½ mile farther up Hatcher Pass Road. Feasibility of this access alternative and compatibility with the public trail merits coordination.

Public Trail Segment 3: Future East-West Motorized Winter Corridor

The HPMP references a future east-west motorized winter connector trail from the lower Fishhook parking lot at mile 11.9 Hatcher Pass Road headed west through a corridor within 500 feet to the south of Fishhook Creek. The HPMP pre-authorizes this motorized trail in the event it is approved by the MSB.[51]

The HPMP offers little information about this possible trail. It is inferred the destination is the west side of Hatcher Pass. Would the trail also include a connector to the mile 16.3 parking lot and motorized use areas on the north side of Hatcher Pass Road? Would that connector cross Fishhook Creek in the Project vicinity or upstream of the Project?

If this trail is ever authorized, it would intersect the Project's penstock corridor in about the same area as the upper public trail easement approved in ADL 233120. If this motorized winter corridor stays out of the Fishhook ravine in the Project vicinity, FRE sees no conflict with the Project or need for coordination. If this trail or a connector does enter

[51] ADNR 2012 at page 3-95.

the Fishhook ravine in the Project vicinity, coordination is necessary to avoid conflicts and identify opportunities for consolidated development.

Public Trail Segment 4: Future North-South Motorized Winter Corridor
The HPMP also mentions a future north-south motorized winter connector trail through the Government Peak Unit but does not specify the route of this trail. Given current use patterns and management, this trail would appear to converge on the same part of the Project as trail segments 2 and 3. As with trail segment 3, FRE does not expect coordination between this trail and the Project is warranted unless this trail enters the Fishhook ravine within the Project vicinity.

Other Impacts of Trail Easements
If the upper and lower trail easements authorized by ADL 233120 are both developed, FRE is concerned that the penstock corridor may become an attractive 'connector trail' between these two routes. As stated earlier, FRE does not support a trail along the penstock corridor due to its steepness and potential to draw the public to the powerhouse site.

If the penstock is built after these trails, sustained foot traffic on the penstock corridor may impair revegetation efforts. If the penstock route is revegetated before these trails are built, it will likely not be an attractant, and this issue is unlikely to occur.

FRE encourages coordination with MSB and ADNR on these matters.

A.2.3 MAINTAIN FISHERIES, WILDLIFE AND HABITATS (HPPUA, HPMP)

The project will not have a significant impact on waterfowl, waterfowl habitat, wildlife, or wildlife habitat due to its small development footprint and significantly smaller operational footprint. Consultations with ADFG to date have not identified any waterfowl or wildlife concerns relating to the project.

FRE is not aware of any wildlife corridors that intersect with the Project, has not observed such corridors during project field reconnaissance, and has not been advised by resource agencies familiar with the area that such corridors exist. If undocumented wildlife corridors do intersect the Project, FRE's view is the Project will not interfere with continued wildlife use of the penstock, intake access, and utility extension corridors since these will be fully revegetated post-construction.

FRE's consultations to date with ADFG indicate that the project can improve fish habitat in Fishhook Creek relative to existing conditions. FRE is excited to implement common-sense fish habitat enhancements as part of developing the Project. FRE will need to secure a Fish Habitat Permit as part of finalizing the Project's design and permitting development phase. FRE believes there is sufficient information on fisheries and wildlife in the record for ADNR to complete land authorizations before the final permit is issued by ADFG.

The Project will reduce flow in the existing Fishhook Creek channel from the diversion structure downstream to the Little Susitna River. However, year-round inflow from minor tributaries downstream of the diversion structure will maintain a base flow in Fishhook

Creek. The first of these minor tributaries enters Fishhook Creek just a few hundred feet downstream of the diversion structure. By the top of existing fish habitat near Hatcher Pass Road, the incremental flow in Fishhook Creek from tributaries within the bypass reach will be approximately eight percent of the total natural flow. This decreased flow will maintain a similar year-round wetted perimeter and wetted creek bed as exists under natural conditions.[52]

During the summer months – roughly June through September – natural flows will routinely exceed the project's design flow and excess flow will spill over the intake and continue down the current creek channel. High flow events – which are responsible for much of the natural sediment and debris transport that helps to maintain the overall health of the creek – will effectively be unchanged by the Project. There is no appreciable difference in the efficacy of a 600 cfs high flow event vs. a 570 cfs high flow event (with 30 cfs removed by the Project) at mobilizing debris and sediment down the creek.

A.2.4 NON-MOTORIZED USE (HPSUA, HPMP)

A.2.4.1 Construction Period

Construction of the Project will require use of motorized vehicles throughout the Project footprint, both for hydroelectric project development activity and supporting utility installation work. This common-sense reality is recognized in the HPMP by allowing these developments as conditional uses. Much of the motorized activity will consist of building the trails needed to access the remote parts of the Project and that will support other aspects of Project construction. The HPMP and HPSUA both explicitly allow trail construction within the Project footprint.

Most of the Project area is remote, and not subject to intensive recreational use. FRE does not expect that area public closures will be necessary during construction due to use of motorized equipment. FRE believes that posting notices describing the work at trailheads and training crews to keep an eye out for recreationists encroaching upon the work site will be sufficient to manage any use conflicts on the Project site during construction.

All of the site work proposed for the Project is consistent with DOPR trail criteria as discussed in Section 3 of this Plan's main narrative. Trail construction and maintenance are allowed uses by permit under current HPSUA regulations, and the HPMP provided for this by designating utilities and hydropower projects as conditional uses.[53] The types of equipment used, duration of the construction, and intensity of use will be comparable to that typically necessary for trail construction in the Project terrain. FRE expects the construction fleet will include excavators and dozers, which were used during construction of the 16-mile bike run just to the north of Fishhook Creek. FRE does not expect to

[52] This result - that just eight percent of the natural water flow can sustain a similar wetted perimeter in the creek as exists with natural conditions - can seem counter-intuitive. This result is due to the creek's cascade-pool morphology, which can be thought of as a series of buckets spilling from one to the next down the course of the creek. Reduced flow changes the water flowing from one bucket to the next and slightly decreases the depth of water in each bucket. But importantly, all the buckets are still full. The creek's wetted perimeter and biological function is tied to the whole bucket, and the fraction of the upper bucket wall that is dewatered by flow reductions has very limited ecological impact.

[53] 11 AAC 95.014(b)(3).

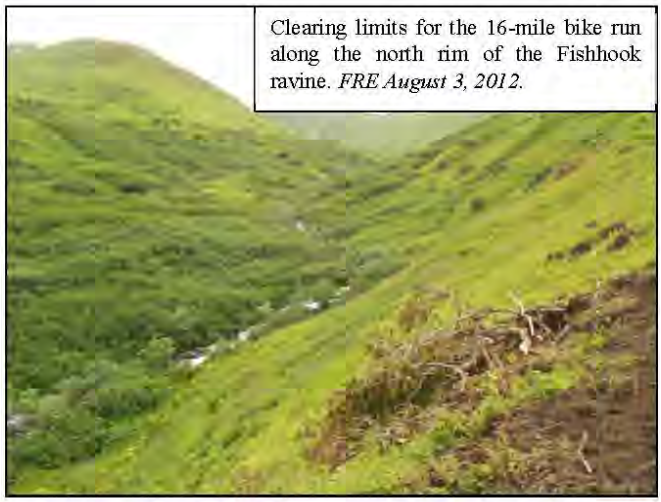
mobilize cranes or similar equipment larger than what is necessary to efficiently, safely, and adequately complete construction.

Construction equipment selection criteria are complex. Brief discussion of several factors that will influence FRE's construction equipment selection decision follows:

1) Larger equipment may be more productive than smaller equipment, allowing for an expedited overall construction schedule. Reducing the overall schedule reduces unavoidable impacts on recreation such as parking lot use (See Section A.2.5), temporary noise, or temporary visual impacts. Requirements to use under-sized equipment could prolong construction schedule or force construction into two seasons, increasing the visual or other recreational impacts associated with construction.
2) Larger equipment can also protect construction personnel, by reducing the likelihood that workers need to 'brute-force' aspects of construction due to the wrong equipment being on-site. 'Brute-force' solutions can lead to worker injuries.
3) Using undersized equipment can similarly lead to sub-standard construction workmanship, increasing the risk that Project infrastructure does not achieve its intended longevity or requires premature remobilization to revegetated areas to repair latent defects.
4) Excessively large equipment can increase the size and cost of access trails to accommodate their increased ground pressures, larger swing radii, wider carriage width and similar specifications.

Equipment fleet selection seeks to achieve a balance between the above and other technical and logistic considerations.

FRE's approach is to consider the above and other criteria to select construction equipment that can expeditiously, efficiently, safely, and adequately complete Project construction. Consistent with this, FRE will minimize the size of access trails to only what is necessary to efficiently build the Project infrastructure.



Clearing limits for the 16-mile bike run along the north rim of the Fishhook ravine. *FRE August 3, 2012.*

A.2.4.1 Operations Period

Post-construction, normal project operations will not require motorized access. Project operations that do require motorized access will be limited in ways that minimize impacts to the recreational uses of the Project area and also provide for the efficient and responsible operational needs of the Project.

Motorized access to the intake is estimated to be necessary once every one to five years. Please see discussion at Plan main narrative Section 5.7.2 for how FRE plans to schedule and conduct this access to minimize impacts on area recreational uses.

Motorized access to the powerhouse site is estimated to be necessary once per month. Please see discussion at Plan main narrative Section 5.7.3 for how FRE plans to schedule and conduct this access to minimize impacts on area recreational uses.

Motorized access to most of the penstock corridor is not expected to be necessary. Access to the drain valve and air purge valve may be necessary on a less frequent interval than to the intake and will be coordinated with intake vehicular access events to the extent possible. Please see discussion at Plan main narrative Section 5.7.4 for how FRE plans to schedule and conduct this access to minimize impacts on area recreational uses.

When motorized access onto the Project footprint is conducted, FRE will at all times maintain driving speeds below five miles per hour to avoid potential vehicle-pedestrian conflicts. As directed by ADNR, FRE is willing to also use utility strobe lights and warning annunciators such as sirens on its vehicles when motorized use is necessary on the Project footprint to help avoid potential use conflicts with recreationists.

A.2.5 MANAGE TO AVOID OR REDUCE USE CONFLICTS (HPMP)

FRE has designed the Project to be as unobtrusive as possible in order to:

- Minimize public awareness of the Project and reduce its potential to become a public attractant for mischief, vandalism, etc.
- Minimize aesthetic impacts on the scenic values of the area.
- Minimize impacts on natural resources of the area such as fisheries, vegetation, and wildlife habitats
- Minimize impacts on recreational uses, opportunities, and experiences in the area.

This entire appendix discusses measures proposed to achieve this goal. This section highlights some of these measures but focuses on potential use conflicts that may nonetheless arise and measures to mitigate or avoid these impacts. It also identifies currently proposed concurrent uses that FRE has identified that are in need of coordination to avoid future unnecessary conflicts.

During construction, public access to active construction areas will need to be managed to maintain public and worker safety. Nearly all of the project's construction footprint is located in undeveloped remote areas, so FRE does not believe formal area closures are warranted. FRE believes that construction notices at trailheads and vigilant construction

crews keeping an eye out for recreationists that encroach on active work sites will be sufficient to manage any use conflicts during construction.

FRE will need to use public parking lots as staging areas or delivery site at a few points during construction. Such use will be coordinated with ADOT, ADNR/DOPR and is expected to occur for up to a day at a time. Some of these episodes may require traffic control within the parking lot using cones or portable barricades to maintain public and worker safety. Complete closure of a parking lot for a day could be necessary depending on the nature of the activity. This would be rare, expected to occur just once or twice in the course of Project construction.

Fish habitat enhancements between the Project tailrace and road culvert at mile 11.4 may be necessary. FRE assumes the road culvert replacement planned by ADOT will provide adequate fish passage with the Project operational. If upgrades to the culvert are still necessary, they may require a pavement break, single-lane traffic through the work site, and possible brief road closures during construction.

The operational Project will be a low-impact passive element of the area, and FRE members' experience with other projects suggests most users of Hatcher Pass will not be aware of its existence. FRE believes the project is entirely compatible with recreational uses of the Project area and does not anticipate use conflicts arising from normal Project operations. FRE welcomes dialog on potential conflicts so it can strategize reasonable accommodations during the design phase to address these conflicts, so they never occur. Prior dialog over the past two decades has raised concern over potential conflicts that FRE does not believe are of concern. Discussion of these follows:

1. Modifications to Fishhook Creek impeding access to Peak 4068 for backcountry skiing. During the ski season, Fishhook Creek is mostly buried under snow. Project operations will not change this, and the Project intake will normally also be buried under snow. Backcountry skiers pioneering their own trails across Fishhook Creek to access Peak 4068 will not be impacted by the Project.

   FRE has observed that snowcats sometimes groom a trail along the general route of the intake access corridor and cross Fishhook Creek at or near the intake location. This can continue once the Project is operational. FRE suggests that installation of plow markers at the preferred creek crossing location and orientation with snowcat operators may be beneficial, so snowcats do not travel over the intake structure itself or the intake impoundment (similar to a beaver pond). FRE also suggests that the equipment shed and penstock air vent be finished in a dark color or fitted with reflectors, so operators or skiers do not run into these above-ground features.

   FRE will typically inspect the intake site monthly, accessing the site on snowshoes or skis. If FRE personnel need to check on equipment, they would manually dig through the snow to gain access to the shed door and interior. The hole would be backfilled with snow once FRE is done at the site to avoid the creation of a nuisance attractant. FRE followed this practice at our stream gauge operated from 2011 to 2017 under LAS 27453 for the same reasons.

2. Usage of parking lots used by backcountry skiers.
   During the winter season, FRE would typically inspect the Project once monthly. Parking at the powerhouse is not open to the public so would not create a use conflict. FRE would also park at the mile 16.3 public lot to inspect the intake. Intake site visits would typically occur on a weekday and last less than half a day. In the 20 years that FRE has been using the 16.3 lot associated with project field activities, FRE has never seen it at capacity on a typical winter weekday. No use conflict is expected.

3. Pedestrian trespass on the powerhouse lease site.
   FRE does not object to casual pedestrian trespass on the powerhouse lease site and does not intend to actively patrol or monitor for trespass or deter it with fencing or other means. Site improvements will be designed to reasonably withstand pedestrian vandalism hazards.

4. Public parking at the powerhouse driveway.
   FRE does not expect that the ungated portion of the powerhouse driveway will see intensive public use because there are no trails emanating from the powerhouse site. Public parking in front of the driveway gate would be discouraged with 'no parking' signage. FRE would have violators towed only on an as-needed basis when vehicular access to the powerhouse site is necessary.[54]

A.2.6 MAINTAIN / ENHANCE PUBLIC SAFETY (HPMP)

All aspects of the project will be designed, maintained, and operated to ensure the Project does not present a public safety concern. Project design and construction will follow applicable design and building codes, industry best practices, and good utility practice. Project construction and operations will be conducted so as to not increase latent public hazards beyond those that already exist in the rugged natural landscape in which the Project is located.

FRE does not propose to erect fencing or other public exclusion devices at the intake or powerhouse sites out of concern these would create a greater public attractant than the unfenced sites. Instead, improvements will be hardened against reasonable vandalism or unauthorized ingress to interior spaces. Secondary supporting considerations are the negative aesthetics of fencing and the exclusion of fenced areas from recreational use, both of which are inconsistent with the HPMP.

A.2.7 MANAGE FOR CONSISTENCY WITH SKI FACILITIES ON MSB LAND (HPSUA, HPMP)

FRE has communicated periodically with Skeethawk management to coordinate on Project status and items of mutual interest. FRE anticipates it can manage the Project and its interests to be fully compatible with Skeethawk's current and future operations in the area.

In 2025, Skeethawk completed a new driveway extending north to Hatcher Pass Road from its main parking area. This driveway required redesign of FRE's utility extension to avoid the new improvements, as reflected on the revised project drawings included with this Plan.

[54] ADNR 2023c and FRE 2024.

FRE has submitted the revised utility corridor to Skeethawk management for review and further revision may be warranted to accommodate Skeethawk's future plans on its leased lands.[55]

A.2.8 PROTECT WATER QUALITY (HPPUA, HPMP)

Construction will occur in accordance with an approved Stormwater Pollution Prevention Plan (SWPPP) that specifies where various stormwater pollution prevention best management practices (BMPs) will be installed to prevent sediment or pollution runoff from construction activities and control runoff, so it does not negatively impact adjacent waterbodies. The SWPPP will also include provisions for appropriate monitoring, reporting, and corrective actions to maintain the effectiveness of deployed BMPs. As construction is completed, most disturbed areas will be promptly revegetated to stabilize soils and prevent erosion. The few areas not to be revegetated (such as the powerhouse driveway) will be armored with stable granular cover not susceptible to erosion.

Project operations will not cause a deterioration of water quality. The Project diverts a portion of the instantaneous flow of the creek through the penstock, across the turbine, and back to the creek. This water is removed from the creek for a brief amount of time, and it does not experience significant changes in temperature, turbidity, pH, or other significant water quality parameters in this short time.

The Project will use impulse turbines. These do not create problematic supersaturation of dissolved oxygen (DO) as can occur with reaction turbines. The intense splashing effect of impulse turbine operation is functionally quite similar to the high-gradient cascade morphology of Fishhook Creek through the bypass reach. Fishhook Creek is expected to have near-saturation DO above and below the Project both under natural conditions and with project operations.

Sediment management operations at the intake will periodically release modest accumulations of the creek's natural bedload and debris downstream of the intake structure. This operation maintains downstream recruitment of finer aggregates, woody debris, and similar material that contribute to and sustain the natural ecosystem processes that maintain both water quality and stream bed integrity.

A.2.9 PROTECT SCENIC RESOURCES (HPPUA, HPMP)

FRE has designed the project and proposes operational practices to protect scenic resources within Hatcher Pass. There will be some temporary visual impacts during construction, but once construction is complete, the operational Project will be revegetated, well-screened, and designed to blend into its natural surroundings. Please see FRE's viewshed analysis included as Appendix B.

[55] ADNR 2023b, FRE 2006a.

A.2.10 MANAGE FOR LONG-TERM SUSTAINABLE USE (HPMP)

The Project is fully consistent with this management objective. Run-of-river hydropower is highly compatible with recreational use. The modest footprint of the operational Project will not deter from existing or future recreational use of the Project area.

The long and established history of hydropower, including the unique longevity of specific hydro projects and even individual hydro power assets, assures that the Project will provide a long-term sustainable electric power supply to southcentral Alaska. Alaska has operational hydro projects that are 120+ years old that still run their original turbines, generators, penstocks, and other components.[56]

A.2.11 PUBLIC SERVICE (HPMP)

The Project's compatibility with recreational use presents ADNR an excellent opportunity to fulfill our State Constitution's mandate for use of the public land:

> ***Alaska Constitution, Article VIII:***
>
> ***It is the policy of the State to encourage the settlement of its land and the development of its resources by making them available for maximum use consistent with the public interest.***

In general terms, by building, owning and operating the Project, FRE will be serving the public interest as a public electric generation utility as authorized by the RCA.[57] More specifically, this Project will be a sustainable local renewable energy resource directly benefiting the electric consumers of Southcentral Alaska in perpetuity.

The Project is also consistent with the management direction established by ADNR in the HPMP. It supports the 'central management direction' of recreation by maintaining the natural resources that attract recreational use (fish, wildlife, vegetation, scenic integrity, etc.) and being compatible with existing and future recreational uses.

A.2.11.1. State Energy Policy

In developing this project, FRE is directly advancing the State Energy Policy established in statute at AS 44.99.115 (excerpted below). Pertinent sections are in **bold** for emphasis.

ADNR adjudication of FRE's land applications is also subject to this statute. In particular AS 44.99.115(2)(A), .(2)(D) and .(4)(A) directly define ADNR's statutory responsibilities to advance the State Energy Policy. The Project Background in Section 1.3 of this Plan's main narrative also provides important context for the current state of energy security in southcentral Alaska and this Project's role in helping to advance the State Energy Policy in a manner that improves local and regional energy security.

[56] The 900-kilowatt Dewey Lakes project in Skagway was commissioned in 1902 and still uses original penstocks and turbine-generator sets. The 1915 Salmon Creek project in Juneau still uses the original dam, intake works, and upper portion if its 1915 riveted 'half-pipe' steel penstock.

[57] RCA 2009.

AS 44.99.115:

"**The State of Alaska recognizes that the state's economic prosperity is dependent on available, reliable, and affordable residential, commercial, and industrial energy to supply the state's electric, heating, and transportation needs. The state also recognizes that worldwide supply and demand for fossil fuels and concerns about global climate change will affect the price of fossil fuels consumed by Alaskans and exported from the state to other markets. In establishing a state energy policy, the state further recognizes the immense diversity of the state's geography, cultures, and resource availability. Therefore, it is the policy of the state to**

(1) institute a comprehensive and coordinated approach to supporting energy efficiency and conservation by
  (A) encouraging statewide energy efficiency codes for new and renovated residential, commercial, and public buildings;
  (B) decreasing public building energy consumption through conservation measures and energy-efficient technologies; and
  (C) initiating and supporting a program to educate state residents on the benefits of energy efficiency and conservation, including dissemination of information on state and federal programs that reward energy efficiency;

(2) encourage economic development by
  (A) promoting the development of renewable and alternative energy resources, including geothermal, wind, solar, hydroelectric, hydrokinetic, tidal, and biomass energy, for use by Alaskans;
  (B) promoting the development, transport, and efficient use of nonrenewable and alternative energy resources, including natural gas, coal, oil, gas hydrates, heavy oil, and nuclear energy, for use by Alaskans and for export;
  (C) working to identify and assist with development of the most cost-effective, long-term sources of energy for each community statewide;
  (D) creating and maintaining a state fiscal regime and permitting and regulatory processes that encourage private sector development of the state's energy resources; and
  (E) promoting the efficiency of energy used for transportation;

(3) support energy research, education, and workforce development by investing in
  (A) training and education programs that will help create jobs for Alaskans and that address energy conservation, efficiency, and availability, including programs that address workforce development and workforce transition; and
  (B) applied energy research and development of alternative and emerging technologies, including university programs, to achieve reductions in state energy costs and stimulate industry investment in the state;

(4) coordinate governmental functions

(A) by reviewing and streamlining regulatory processes and balancing the economic costs of review with the level of regulation necessary to protect the public interest;
(B) by using one office or agency, as may be specified by law, to serve as a clearinghouse in managing the state's energy-related functions to avoid fragmentation and duplication and to increase effectiveness; and
(C) by actively collaborating with federal agencies to achieve the state's energy goals and to meet emissions, renewable and alternative energy, and energy production targets."

A.2.11.2. State Energy Security Task Force

In early 2023, Governor Dunleavy issued Administrative Orders 344 and 345 establishing an Alaska Energy Security Task Force (AESTF).[58] Before year end, the AESTF issued its final report.[59] Paraphrased relevant recommendations from the AESTF final report follow.

1) B-2.3. Strengthen and streamline the State's regulatory and land use administrative processes to accelerate approval to advance energy projects and lower energy costs.
2) B-4.1. Foster, support, and assist hydropower development in Alaska to lower energy costs, provide energy security, and spur economic growth, job creation, and prosperity for Alaska.
3) E-2.1. Establish a strategic approach to policy, tax, and program development that stimulates and incentivizes private sector activity that leads to reduced cost, locally sourced, and reliable energy.
4) F-2.3. Encourage development of cost-effective hydropower projects throughout Alaska.

These findings, endorsed by Governor Dunleavy, help justify FRE's continued pursuit of this Project. FRE hopes they likewise guide ADNR's timely conclusion of adjudicating our land applications.

[58] SOAG 2023a, SOAG 2023b.
[59] AESTF 2023b.

APPENDIX B: VIEWSHED ANALYSIS

VIEWSHED ANALYSIS

B.1 INTRODUCTION AND METHODOLOGY

Management directives for both state and borough land in the Project vicinity emphasize preservation of the area's scenic integrity as supportive of recreational use.

The HPMP establishes recreational use as the "central management direction" for the entire planning area, with viewshed integrity defined as one of many factors supporting recreational uses. Maintenance of the area's scenic integrity is a defined purpose of the HPPUA. The HPMP further defines viewshed integrity from the vantage of the road corridor as an area-wide management recommendation.[60]

Development of hydropower and utility infrastructure is allowable as a conditional use under the HPMP, but it must be compatible with the management intent to maintain scenic integrity.

This appendix provides an overview of the Project's visual impacts by Project component. Analysis is conducted per the following methodology:

1) Determine whether a Project component is visible or not from:
   a. Remote vantages and
   b. Hatcher Pass Road corridor.
2) If a Project component is not visible, explain why.
3) If a Project component is visible, analyze for construction and operational impact.
4) For construction-phase impact of each visible Project component, describe:
   a. Character of visibility from applicable vantage(s).
   b. Mitigation measures proposed to avoid, screen, obscure, or reduce visible impact.
   c. Magnitude of resultant visibility on recreational resource.
5) For operational-phase impacts, repeat the analyses in (4).

Sight-line analysis and photographic review are used to analyze viewshed impacts. This analysis includes representative photographs to illustrate key areas of viewshed impact and also non-impact in instances where that may be non-intuitive.

FRE's photographic archives, curated through over twenty years of Project reconnaissance efforts, are used for this analysis.

[60] ADNR 2012 at pages 2-35 to 2-38.

B.2 SUMMARY OF VISUAL IMPACTS

Table B-1 summarizes visual impacts of the Project. Section B.3 explain the basis for these determinations for each Project component during both construction and operations phases and also as viewed from remote vantages and vantages along the road corridor. A description of the viewshed integrity impact descriptors used in Table B-1 follows. Project components are shown on Figure B-1.

Not Visible. The component is not visible due to sightlines being blocked by intervening terrain, vegetation, or other features. If the sightline is blocked by vegetation, the vegetation is considered an effective year-round visual barrier (with or without deciduous foliage present) unless it is flagged as 'summer-only'.

Visible-Low. The component is visible, but it is only noticeable with some special knowledge, focus, or scrutiny by the observer. Distance, vegetative screening, color palette, or other measures effectively mitigate all negative visual impacts of the component.

Visible-Moderate. The component is visible and noticeable, but it does not dominate the view or significantly impact the existing scenic integrity from the vantage. Disruptive skyline profiles, colors, lines, sheens, or similar visual impacts are avoided or effectively mitigated.

Visible-High. The component is visible from the indicated vantage and it dominates the view from the vantage due to its scale, proximity, color, sheen, skyline profile, movement, or similar visual impact. The component's appearance is disruptive and significantly detracts from the existing scenic integrity of the landscape as perceived from that vantage.

Revegetated. The component is revegetated, with no human artifacts visible. It may still be visible from some vantages due to a perceptible difference in vegetation patterns relative to the natural surroundings, but such differences will attenuate over time. Varies from 'Visible-Low' to 'Not Visible' depending on the vegetation difference prominence.

Table B-1: Summary of Project Impacts on Viewshed Integrity

Project Component	Remote Vantages		Road Corridor Vantages	
	Construction Phase	Operations Phase	Construction Phase	Operations Phase
Intake Access Trail (north half)	Visible - Moderate	Revegetated	Visible - Moderate	Revegetated
Intake Access Trail (south half)	Visible - Moderate	Revegetated	Not Visible	Revegetated
Intake Site	Visible - Moderate	Visible – Low	Not Visible	Not Visible
Penstock Corridor	Visible - Moderate	Revegetated	Partial	Revegetated
Powerhouse & Site	Visible - Moderate	Visible – Low	Visible - Moderate	Visible – Low
Tailrace	Visible – Moderate	Revegetated	Visible - Moderate	Revegetated
Utility Extension	Visible - Moderate	Revegetated	Visible - Moderate	Revegetated

For each component, project phase, and vantage, this table indicates (1) the component's visibility (visible or not visible) and (2) the prominence or magnitude of the component's visual impact on the scenic integrity from the applicable vantage (High, Moderate, or Low). For the operations phase, an additional designation – 'Revegetated' – is used for components that will be fully revegetated. Such components are expected to be either completely indistinguishable from the adjacent unaltered landscape or only subtly distinguishable due to temporary post-construction differences in vegetation patterns.

B.3 PROJECT VISIBILITY, MITIGATION MEASURES, AND RESULTANT IMPACTS

This section discusses visibility of Project components, proposed mitigation measures to be employed, and resultant impact on the area's existing scenic resources. Please refer to this Plan's main narrative at Section 3.0 for a description of the Project components, Section 4.0 for a discussion of the proposed construction approach, and Section 5.0 for a discussion of proposed operations.

Most project construction is expected to occur during the summer months, when foliage is present throughout the Project area. As discussed in this section, foliage is effective at partially or completely screening many components of the Project from public view. Some construction may also occur in the spring or fall when foliage is not present.

During the winter months, the Project will usually be covered by snow. The snowpack will obscure some Project visual impacts that may be present such as temporary construction-phase exposed earthwork. It may also highlight other visual impacts such as lines of cleared vegetation that are obscured during the summer by vegetation patterns but become more prominent under winter conditions as brush vs. snowfields.

The visual impacts of Project components from various vantages are assessed in the context of the viewshed's existing scenic integrity as the applicable baseline condition. FRE recognizes that the HPMP and other documents apply different criteria for acceptable incremental impacts to viewshed integrity (for example, the visual impact of recreational developments is generally more tolerated than the visual impact of a utility or hydropower development), but the relevant impact assessment in all cases is relative to the existing landscape and viewshed condition.

FRE has identified opportunities for coordinated development with trail segments proposed by MSB and/or ADNR (See Appendix A at Section A.2.2). As these opportunities will require consultations that have not yet commenced, this analysis is based on FRE's existing proposed development.

Figure B-1 (general area), Figure B-2 (intake site detail), and Figure B-3 (powerhouse site detail) provide map references for photograph locations and vantages used to illustrate visual impacts discussed in this section. Photographs are included at the end of this Appendix.

Figure B-1: Project Area Photo Index

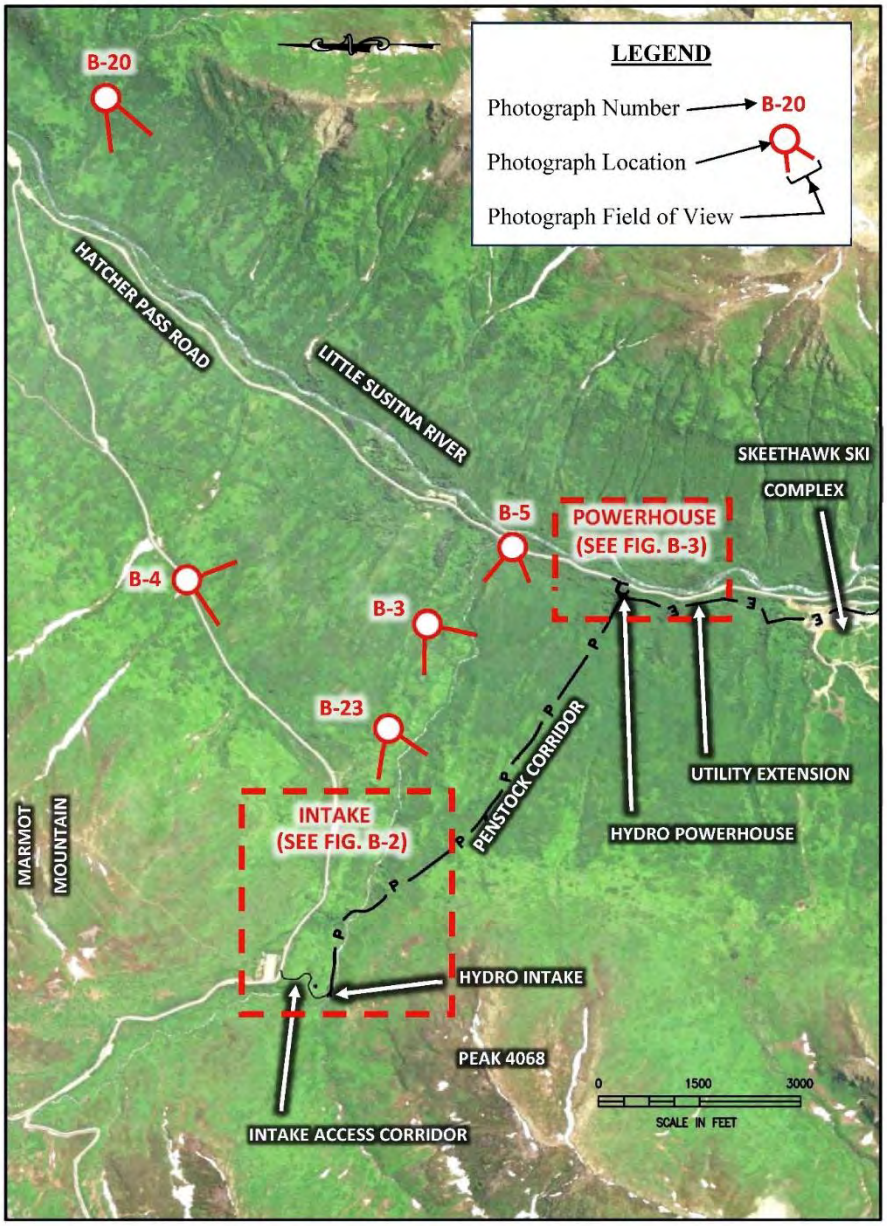


Figure B-2: Project Area Photo Index – Intake Area Detail

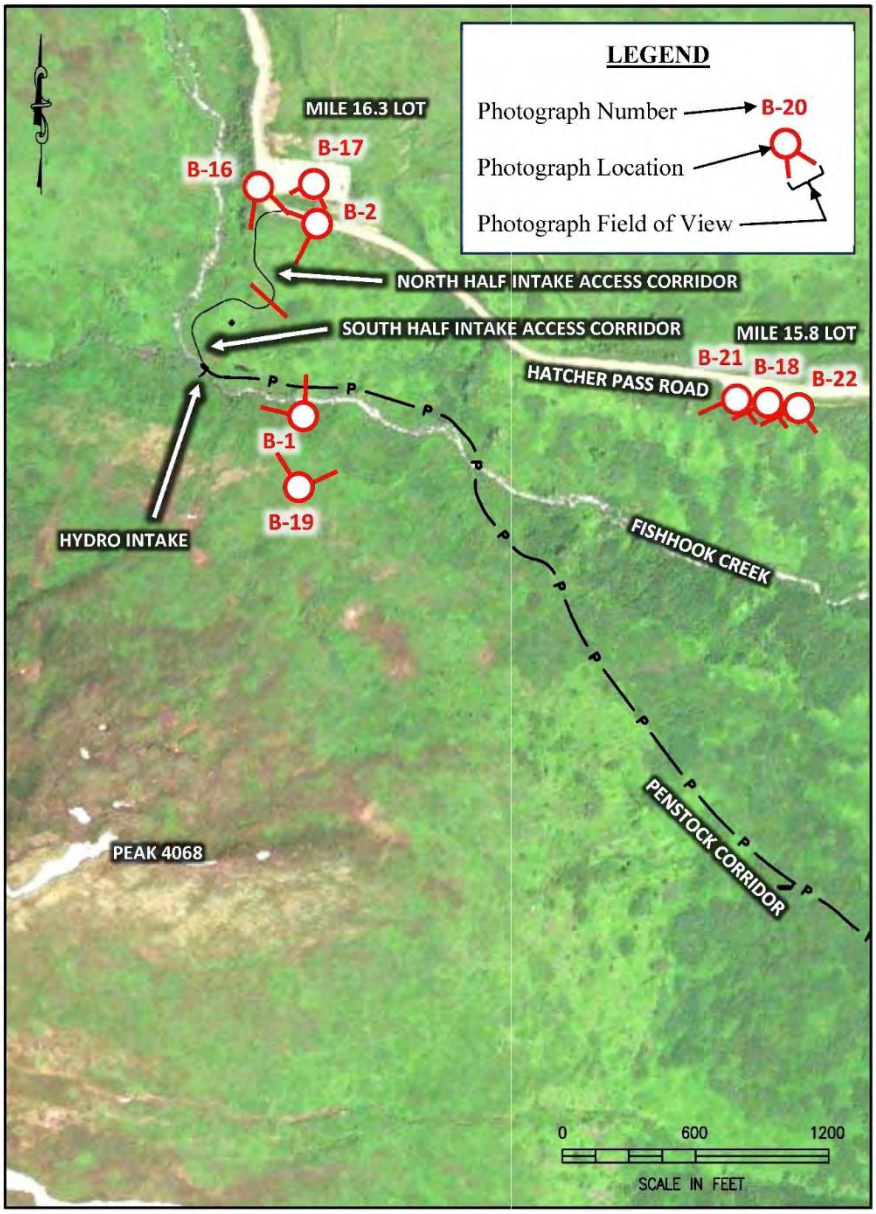
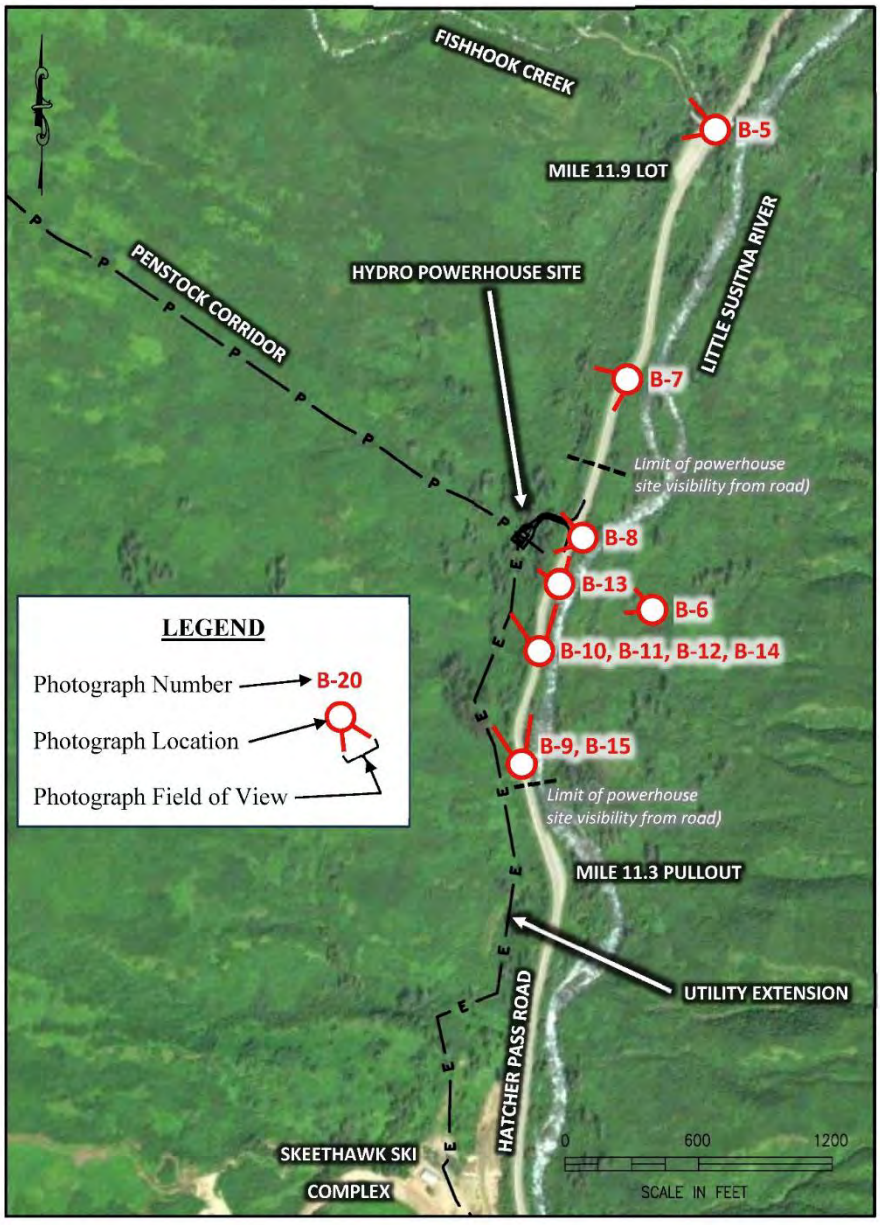


Figure B-3: Project Area Photo Index – Powerhouse Area Detail



B.3.1 Intake and Intake Access Corridor

B.3.1.1 General Visibility and Proposed Mitigation Measures

During construction, the intake access corridor will be subject to vegetation clearing and earthwork to establish an access route from Hatcher Pass Road to the intake site and upper penstock corridor for tracked equipment. These disturbances will be visible as changes in texture and color along the curvilinear access corridor.

Post construction, this corridor will be revegetated. Please see Section 5.7.2 of this Plan's main narrative for discussion of FRE's long-term requirements to access the intake site and upper penstock corridor, measures proposed to mitigate the visual impact of these infrequent access requirements, and expected resultant visual impacts.

FRE will utilize several measures to effectively mitigate visual impacts of construction along the intake access corridor. A summary of proposed measures follows.

1) Minimize the areal extent of vegetation and earthwork to reduce visual impact.
   a) Where existing topography and geotechnical conditions allow, FRE will leave vegetation, or vegetation root mats / organic layer, intact and avoid earthwork to form an access trail. This will not be possible for the entire corridor due to unsuitable topography in some areas, but the topography is appropriate for this approach in some locations. FRE will not know whether geotechnical conditions will support this approach until site-specific data is collected.
   b) FRE has proposed the minimum access trail width necessary to support site access for construction.
2) Expedite construction to reduce the duration of construction impacts. FRE will compress the construction schedule where possible to minimize the time that visual impacts are present. FRE's ability to minimize construction duration will depend on how much logistical flexibility FRE has to optimize construction methods. For example, the use of helicopters to stage materials, the use of suitably-sized construction equipment, and the ability to responsibly and strategically source on-site borrow to minimize the need for imported fill, will each influence the pace of construction and how long the access trail's visual impacts are present.
3) Revegetate the trail immediately after construction. FRE will immediately reseed the trail to expedite visual impact mitigation. On-going construction access by tracked equipment will cause some damage to new vegetation, but the overall effect will be to promptly mitigate the visual impact of the trail.
4) Incorporate gradual curves into the intake access corridor to reduce the visual impact of linear features imposed upon the landscape. This mitigation measure is necessitated by the topography, but it will still be effective at reducing the visual impact of the trail during the construction period. Once revegetated, the trail corridor will blend into the hilly topography through which it passes.
5) Permanent revegetation. Once the project is operational, the status of interim revegetation success on intake access corridor will be assessed. If necessary, FRE will permanently revegetate the corridor to restore scenic integrity to the area. This effort

may include installation of stockpiled topsoil and application of jute, fertilizer, and/or seed mixes to complete revegetation of the corridor.

B.3.1.2 Construction Phase Visibility From All Vantages

The north half of the intake access corridor nearest to Hatcher Pass Road will be visible from the road and some remote vantages. This portion of the intake access corridor will be visible from foreground (road corridor, slopes of Peak 4068, Independence Bowl, Marmot Mountain) to middleground distances. Photographs B-1 and B-19 provide representative foreground views of the intake and access area from remote vantages along the south rim of the Fishhook ravine. Photographs B-2, B-16, and B-17 provide representative foreground vantages from near road corridor. Due to the relative viewing angles, the upper ½ of the access corridor will have very limited visibility for downhill vehicular traffic (headed towards Palmer – see Photograph B-16). It will be more visible to uphill vehicular traffic (headed towards Independence Mine or over the pass to Willow – see Photograph B-2). When snow is on the ground, the upper portion of the access trail will be completed obscured and will have no visual impact.

The south half of the intake access corridor nearest to Fishhook Creek and the intake site will be visible from fewer vantages than the north half of the access corridor because these components are located within the Fishhook ravine. The ravine topography will block visibility of these components from many vantages. These components are not visible from Hatcher Pass Road (see Photographs B-2, B-16, and B-17). They will be visible in the foreground and middleground from some areas on the slopes of Peak 4068 and from some remote alpine vantages within the upper Fishhook basin (Independence bowl).

B.3.1.3 Operational Phase Visual Impact From All Vantages

Once acceptance testing is completed and the project is operational, the intake access corridor and intake work pad will be fully revegetated. While these areas may still be discernable as a curvilinear difference in vegetation types, the prominence of this vegetation difference will be visually mitigated by the curvilinear trail corridor, hilly terrain, and patchwork of different vegetation types that is already present in the area.

The intake itself will remain visible as a weir across the creek, a small equipment enclosure, and other minor features. When sufficient snowpack is present, these features will be buried under the snow and will not be visible. The intake is in the bottom of the ravine and is not visible from the road corridor. It is visible from some remote vantages in the foreground or middleground. (see Photograph B-19).

B.3.2 Penstock Corridor

B.3.2.1 General Visibility and Proposed Mitigation Measures

During construction, the penstock corridor will be subject to vegetation clearing, earthwork for access trail construction, and earthwork for pipeline and conduit installation. This activity will create a generally linear feature partially visible from portions of the road

corridor, select mid-elevation remote vantages such as meadows, and widely visible in the middleground from alpine remote vantages.

Temporary construction-phase visibility impacts will be in the middleground from many remote alpine vantages, partially mitigating the prominence of the visual impact due to the viewing distance (see Photographs B-3, B-6, B-19, B-20, B-23). Key exceptions are some alpine slopes of Peak 4068 from which portions of the penstock corridor will be prominently visible in the foreground.

At lower elevations, the penstock corridor passes through tall brush that will be effective in obscuring the corridor from remote vantages that are not in-line with the corridor. At higher elevations, this tall brush becomes intermittent or absent, and the corridor will be more visible.

The penstock corridor will not generally be visible from the road corridor below mile 11.4, between miles 11.8 and 13.7, or above mile 16.3. Construction visibility from the segments from mile 11.4 to 11.8 and mile 13.7 to 16.3 will be low to moderate, are discussed later in this section. Maximum construction visibility is expected from the vicinity of mile 15.8 and is discussed later in this section.

Post-construction, the penstock corridor will be fully revegetated, mitigating and in time eliminating all visual impacts. Please see Section 5.7.4 of this Plan's main narrative for discussion of FRE's long-term requirements to access the penstock corridor, measures proposed to mitigate the visual impact of these operational access requirements, and expected resultant visual impacts.

Many of the same mitigation measures discussed for the intake access corridor in Section B.3.1.1 will also apply to the penstock corridor. A summary of these follows.

1) Minimize the width of disturbed earthwork and vegetation clearing within the corridor. As practical, FRE will minimize the width of both vegetation clearing and earthwork along the corridor.
   a) Minimizing vegetation clearing, especially in the lower elevations of the corridor with tall brush, will reduce the total areal extent of visibility from all vantages by increasing the effectiveness of corridor screening by adjacent tall brush. Since construction will mostly occur during the summer months, retention of adjacent tall foliage will provide an effective screen of project work from off-angle vantages.
   b) Minimizing the width of earthwork will reduce the visual prominence of a dirt-colored line running across the otherwise-green landscape. The main opportunity to minimize dirtwork width will be to install the penstock within the construction trail rather than along-side it. The extent FRE is able to do this will depend on site-specific geotechnical information that is not yet available. It will also depend on how much logistical flexibility FRE has to optimize construction methods. For example, the use of helicopters to stage materials, the use of suitably-sized construction equipment, and the ability to responsibly and strategically source on-site borrow to minimize the need for imported fill, will each influence the required width of earthwork and the resultant visual impact during construction.

2) Incorporate gradual curves into the penstock corridor rather than following a straight line. Incorporating gradual curves into the corridor will break the appearance of the corridor from many remote vantages into short segments visually separated by intact vegetation, reducing the corridor's visual prominence. The effectiveness of this measure will be further enhanced by minimizing the width of vegetation clearing and earthwork within the corridor.
3) Reduce the duration of the construction schedule and length of time the visual construction impact exists. The factors discussed at 1b above for construction footprint will also influence construction duration. As with the intake access corridor, FRE's ability to do this will be strongly influenced by how much logistical flexibility government authorizations provide FRE.
4) Accelerate revegetation. FRE will mitigate construction phase visual impact by revegetating the penstock corridor sequentially as construction is completed in a given area. FRE may need to remobilize to portions of the penstock corridor until the Project is operational in order to address any punchlist items that arise during acceptance testing activities such as penstock pressure tests or initial commissioning performance of the Project. FRE may need to reenter some areas to correct identified problems. Revegetation would be promptly restored in such areas, and the overall visual impact will be reduced by these interim revegetation techniques.

B.3.2.2 Construction Phase Visibility From Remote Vantages

During construction, the penstock corridor will be visible from various remote vantages in Hatcher Pass. A summary of key remote vantage areas and visibility follows.

1. Remote areas on the east side of the Little Susitna River.

   During the summer months when penstock construction will occur, safe access to the east side of the Little Susitna River is usually constrained by lack of a convenient river crossings. To reach this area, recreationists must either:

   - Hike in about 2.5 miles one way from the road bridge to get within one mile of the penstock corridor. This route also requires navigating around private lands.
   - Hike upstream from the Gold Mint trailhead along the Little Susitna River until a safe fording location is reached and then hike back towards the project. This is estimated at 2+ miles one way to get within one mile of the penstock corridor.
   - Employ kayaks, helicopter, or other means of access.
   - Exploit low water episodes to more directly cross the Little Susitna.

   The result is relatively few recreationists reach this area as compared to other areas of Hatcher Pass, reducing the significance of temporary construction-phase visual impacts on the recreational resource in this area.

   The viewshed from remote areas east of the Little Susitna River has moderate existing scenic integrity due to the presence of the Hatcher Pass and Archangel road corridors, existing bike and ski trails, Skeethawk ski complex, and existing private developments in the area that already cris-cross the landscape and degrade its aesthetic from the natural condition. Visual impacts of the Project are evaluated from this existing baseline condition.

The penstock corridor will have limited visibility for recreationists on the lower elevations of the east side due to the high brush present throughout this area. The penstock corridor will be visible from lower elevation meadows and broadly visible from higher elevations above the brush line. The penstock corridor will have no, low, or moderate visual impact depending on the specific vantage. No or low visual impacts are possible from vantages north and south of the penstock alignment due to the oblique viewing angle (see Photograph B-20). Moderate visual impacts are expected from vantages aligned with the penstock corridor, generally limited to a ¼ mile swath of the east side slopes near road mile 11 (See Photograph B-6). From vantages within this swath, the penstock corridor will be in the foreground and middleground, with the lower penstock corridor at least ½ mile away across the valley. Each of the mitigation measures discussed in Section B.3.2.1 will help to reduce these construction-phase impacts.

2. Remote areas on the lower slopes along the west side of the Little Susitna River. The penstock corridor will generally not be visible from the west lower slopes of the Little Susitna valley due to the extremely oblique viewing angle. Terrain and vegetation will effectively block the penstock corridor from view throughout this area.
3. 16-mile bike run. The upper penstock corridor between station 15+00 and 40+00 will be obliquely visible from some of the higher bike run switchbacks near the north rim of the Fishhook ravine (See Photograph B-23). The visible segment of the penstock corridor will be at a higher elevation than these vantages and therefore generally unseen by moving downhill bikers. Bikers that stop to enjoy the view from the ravine rim overlooks may be able to see portions the penstock corridor at an oblique viewing angle. The visual impact is expected to be low due to the effectiveness of the intermittent low and high brush present along this portion of the penstock corridor at screening the view at these oblique viewing angles. The penstock's climb out of the Fishhook ravine will be visible in the foreground (about 2,000 feet distant) looking up the Fishhook ravine. It is expected to be moderately visible due to the aspect of sidehill earthwork relative to the bike overlooks and viewing proximity (See Figure B-23).
4. Remote areas on the alpine slopes of Peak 4068 or within Fishhook ravine.

   Higher-elevation alpine vantages on the slopes of Peak 4068 will be mostly unobstructed by nearby vegetation and will be able to look down upon much of the penstock corridor. Sections of the penstock corridor from the intake down to penstock station 20+00 and from 40+00 down to the powerhouse will be visible from less of Peak 4068 than the portion between stations 20+00 and 40+00. This middle portion will be more visible due to both proximity, viewing angle, and presence of only patchy brush to screen visibility. The construction-phase visual impact of this middle penstock corridor from alpine vantages on Peak 4068 is expected to be moderate to high. The visual impact of upper and lower penstock corridor segments is expected to be low to not-visible.

   Similarly, vantages from within the Fishhook ravine will be able to see the upper penstock corridor in the foreground with moderate to high construction-phase impact (see Photograph B-1).

B.3.2.3 Construction-Phase Visibility From Road Corridor (mile 11.4 to 11.8)

The penstock corridor is generally not visible from the road corridor before the switchback at mile 13.7 due to intervening terrain. The exception is an approximately 2,000-foot segment of the road in the powerhouse site vicinity from mile 11.4 to 11.8. Within this corridor, the final 800 feet of the penstock corridor is partially visible as it descends the sidewall slope of the Little Susitna ravine. At the posted speed of 35 mph, motorists will take 40 seconds to travel along this portion of the road where the penstock may be partially visible during construction (see Photographs B-5 and B-7 to B-15).

In addition to the general mitigation measures already discussed, the construction-phase visibility of this part of the penstock corridor is further mitigated by:

1) Route selection. The penstock follows a minor draw down the ravine sidewall to the powerhouse site. The higher terrain on either side of the draw helps to block the penstock from oblique views farther up or down the road.

2) Site selection. The copse of cottonwood trees at the powerhouse site effectively blocks the lower penstock corridor from view from all vantages when foliage is present. Construction is not expected to occur during the winter months, but the thick, dark cottonwood branches remain an effective partial visual screen of this corridor as viewed from all vantages in the fall, winter, and early spring as well.
3) Viewing angle. The penstock corridor is oriented perpendicular to the road, which effectively minimizes its prominence as viewed from the road. It would be most prominent in the instant when a motorist passes the powerhouse site, but they would need to look 90 degrees from the direction of travel to be able to see the penstock corridor for up to one second. This viewing angle is also where the existing cottonwood trees are highly effective at screening the penstock corridor from view.

B.3.2.4 Construction Phase Visibility From Road Corridor (mile 13.7 to 15.8)

From this stretch of Hatcher Pass Road, the penstock corridor could be obliquely visible, but it is generally obscured from view by brush growing along the road. At pullouts, the penstock corridor is again sometimes obliquely visible, but most portions of the penstock corridor will be blocked from view by vegetation adjacent to the penstock corridor and the extremely oblique viewing angles. The expected visual impact of construction-phase activity within the penstock corridor from this portion of the road corridor is therefore not visible to low-impact (see Photograph B-4).

B.3.2.5 Construction Phase Visibility From Road Corridor (mile 15.8 to 16.3)

The road pullout at mile 15.8 that also serves as the trailhead for the 16-mile bike run looks out over the Fishhook ravine and penstock corridor beyond. The pullout is at a slightly higher elevation than the penstock corridor and about 1/3rd of a mile distant across the ravine. Brush along the penstock corridor will help screen it from view, but this is expected to be only partially effective due to the brush height and coverage, higher-elevation vantage at the road pullout, and foreground proximity at this vantage. About 1,000 feet of the penstock corridor from station 22+00 to 32+00 is therefore expected to have a moderate visual impact from the mile 15.8 pullout during construction (see Photographs B-16 to B-18, B-21, and B-22).

The smaller road pullout at mile 16.0 also looks out over the Fishhook ravine about 800 feet directly across from where the penstock will climb out of the ravine. Due to the viewing angle and proximity, the construction phase visual impact of this 700-foot segment of the penstock corridor will also be moderate. The most effective mitigation measure here will be to expedite construction to minimize the duration of the visual disturbance.

Another opportunity for this segment of the penstock corridor is to coordinate construction with the overlapping trail easement authorized by ADL 233120 so that a single construction event and disturbance footprint results in both infrastructure improvements being completed. Trails coordination is further discussed at Section A.2.2.

B.3.3 Powerhouse and Site

B.3.3.1 General Visibility and Proposed Mitigation Measures

Construction at the powerhouse site will include clearing and grubbing, grading, utility installation, and building erection activities. Exposed earth, construction equipment, the building, and staged construction materials will each contribute to the site's visual appearance. The overall visual footprint at this site during construction will be about ½ to ¾ acre. Once construction is complete, the total unvegetated area at the powerhouse site, including the building, will be less than ¼ acre.

Most of the construction at this site will occur during the summer months, when foliage is present on the copse of cottonwood trees within which the powerhouse site is nestled. Tall brush present between the site and all vantages will help to completely conceal the site from casual view. This vegetative screening will effectively mitigate construction-phase visual impacts. The driveway near the road will be visible, but other elements of the site will be behind foliage. FRE has designed the driveway so foliage will block direct line-of-sight from the road to the powerhouse building.

Some construction work may occur in the spring or fall when deciduous vegetation is absent. The trunks and branches of brush and trees will still be an effective partial screen from all vantages, but site work and improvements will be visible through the trees from some remote vantages and nearby vantages along the road.

During the Project's operational phase, the visual elements of the powerhouse site will be limited to the building itself. When foliage is present, it will fully screen the powerhouse from all vantages. During the fall, winter, and spring, the powerhouse will be partially screened by brush and tree trunks / branches, but it will remain partially visible from nearby road and remote vantages.

FRE has developed the following mitigation measures to supplement screening of the powerhouse and site from view provided by existing natural vegetation.

1) The powerhouse has been located as far from the road as the local terrain and expected geotechnical conditions allow; approximately 180 feet from the road. The steep sidewall of the Little Susitna ravine precludes siting the powerhouse farther from the road. FRE considered siting alternatives, such as on the east side of the road near the

Little Susitna River, but these were rejected due to higher flood risk, increased visual impact with fewer mitigation options, and less opportunity to provide fisheries enhancements.

2) The terrain setting of the powerhouse site – tucked in near the toe of the ravine sidewall – ensures that the powerhouse building does not create a skyline feature from any vantages off the lease site.[61]

3) The powerhouse is sited within a large stand of mature cottonwood trees to provide natural visual screening. The site will be developed to preserve as many of these trees as practical.

4) Additionally, landscaping berms will be constructed between the powerhouse and the road to further screen the building from public vantages. This is principally intended for screening from the road, but it will also provide some screening from remote vantages as well. FRE will plant native conifers on the berms to enhance all-season vegetative screening.

5) To the extent allowed by geotechnical and site drainage constraints, the powerhouse will be set low on the site to reduce the building's total apparent height. This will incrementally reduce the total areal extent of remote vantages from which the building is visible and also further reduce the building's visual prominence.

6) During final design, FRE will evaluate building interior layouts and equipment configurations that may allow for a further reduction in the required height of the building. These may require an increased building footprint than would otherwise be required. FRE will not be able to commit to a building height less than indicated in this Plan until the functional adequacy of reduced interior working clearances is verified against final equipment requirements.

7) No automatic exterior lighting will be used. The building exterior will include light fixtures using sharp cut-off optics on manual control at doorways to conform with commercial building code requirements. FRE will not install pole-mounted yard lighting at the powerhouse site or elsewhere on the Project.

8) In addition to screening provided by site location, site design, and landscaping improvements, FRE will also design the building exterior with architectural finishes that will help screen and blend the building into the landscape. Key elements of the building finish under consideration include:

   a) Split block concrete exterior walls, metal siding with a factory-applied matte paint finish, or similar exterior wall treatment. Semi-gloss or high gloss finishes will not be used.

   b) Building exterior surfaces will use colors drawn from the area's natural year-round palette to blend into the surrounding landscape.

   c) The roof will have a low pitch to reduce total building height.

[61] This conforms with the areawide management guidelines for utilities at ADNR 2012 page 2-13.

B.3.3.2 Visibility from All Vantages / Project Phases

When foliage is present, it effectively screens the powerhouse site from view from both road and remote vantages (see Photographs B-13 through B-15).

When foliage is absent, the powerhouse site will generally be visible from some remote alpine vantages, and from lower-elevation remote vantages along the east side of the Little Susitna River (see Photograph B-6). The powerhouse site will be most prominently visible in the foreground from mid-elevation meadows on the east side of the Little Susitna River, and less so in the middleground from higher-elevation alpine tundra vantages on the east side. From all of these vantages, the site will be viewed through the trunks and canopy branches of the cottonwood trees that surround the site. Even devoid of vegetation, the thick, dark cottonwood trunks and branches and lighter-colored minor limbs are an effective partial screen of the powerhouse and site (see Photograph B-8).

Visibility from many remote vantages on the west side of the Little Susitna River will be completely blocked by terrain or vegetation due to the intervening 200-foot-tall ravine sidewall slope located to the immediate west of the powerhouse site. Alpine vantages along the west side will be able to peer over this ravine sidewall down upon the powerhouse site, but they will be looking down upon the powerhouse site from a middleground distance, through vegetation, and at an oblique angle that, collectively, will mute the visual prominence of the site and building to either not-visible or low-impact (see Photographs B-4, B-7, B20, and B-22).

When foliage is absent, the powerhouse site will generally be visible from a 2,000-foot stretch of the road between miles 11.4 and 11.8. It will not be visible from other portions of the road due to intervening terrain. At the posted speed of 35 mph, motorists will take 40 seconds to travel down this portion of the road. The site's and building's visibility will be mitigated through this entire 2,000-foot corridor by partial screening from existing vegetation, by the landscape berms to be built and vegetated during construction, and by the architectural exterior building finishes designed to help blend the building into the landscape. The overall effect of these mitigation measures will keep the building's and site's impact to the existing scenic integrity from these vantages low (see Photographs B-8 to B-12).

B.3.4 Tailrace and Creek Channel

During construction, the tailrace and possibly the old Fishhook Creek channel downstream to the Little Susitna River, will be regraded to accommodate the increased flow from the powerhouse discharge and to improve salmon habitat conditions. The tailrace and old Fishhook Creek channel on the lease site are well-screened by vegetation as discussed in B.3.3.1. The lower several-hundred feet of the old Fishhook Creek channel lacks good screening vegetation and is immediately next to the road, so construction in this area, if undertaken, will be prominently visible from both the road and some remote vantages (see Photographs B-9 to B-15).

Post-construction, upland portions of this area will be fully revegetated, and no visual impacts will persist.

The most effective mitigation measure for construction-phase visual impacts along the old creek channel will be to minimize the duration of construction activities and expedite revegetation to disturbed upland areas. The scope of work in this area is limited, so construction is expected to only require a few weeks to complete.

It is assumed that no work will be required on the road culvert at mile 11.3 due to upgrades already planned by ADOT. This is based on FRE's review of ADOT's proposed culvert upgrade design and expected construction schedule.[62] If further culvert upgrades are required by FRE, that activity would have additional visual impacts not addressed by this section. Since the HPMP acknowledges and accepts the existence of the road and its visual impacts as necessary to facilitate area recreational uses, FRE has assumed that temporary visual impacts associated with road improvements are acceptable under the HPMP.

B.3.5 Utility Extension Corridor

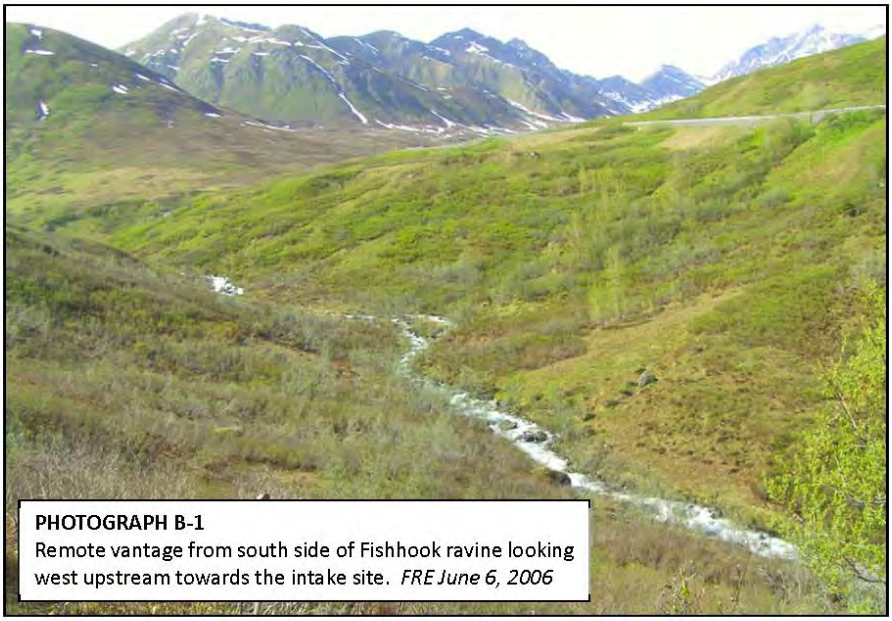
B.3.5.1 General Visibility and Proposed Mitigation Measures

The ½-mile power line extension along the west side of Hatcher Pass Road from the Skeethawk ski complex at mile 11.1 to the powerhouse site at mile 11.6 will be viewable from the road and remote vantages. Visual impacts during construction will include vegetation clearing along the corridor and earthwork to trench in the underground utilities. The entire corridor will be revegetated once construction is complete, so no visual impacts are expected during the Project's operational phase.

Trees and tall brush that generally exist between this utility corridor and the road will be retained and will help to screen the utility corridor from most road and remote vantages. During the foliage season, when utility installation is most likely to occur, foliage will partially completely screen this work from view from all vantages.

Any construction occurring during the non-foliage season (spring or fall) will be more visible, with branches and tree trunks providing partial screening. The principal mitigation measures for these visual impacts are to (1) accelerate the construction schedule for this activity and (2) schedule the construction for the summer months when foliage is present.

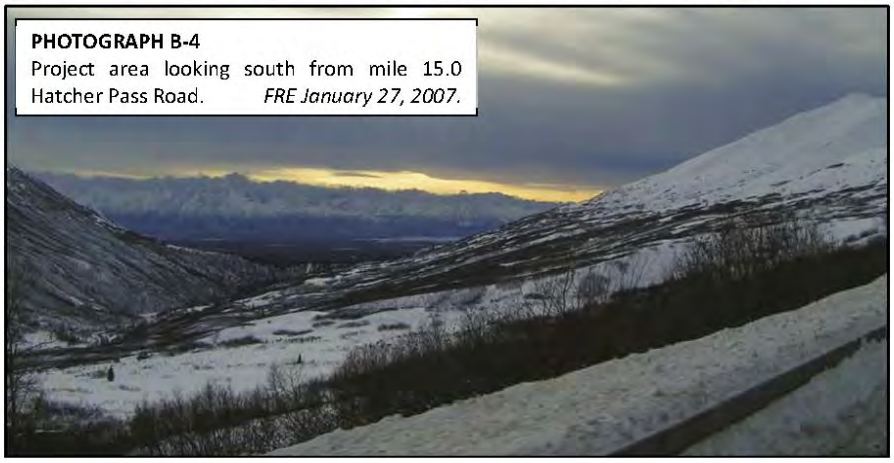
[62] ADOT 2026.



PHOTOGRAPH B-1
Remote vantage from south side of Fishhook ravine looking west upstream towards the intake site. *FRE June 6, 2006*

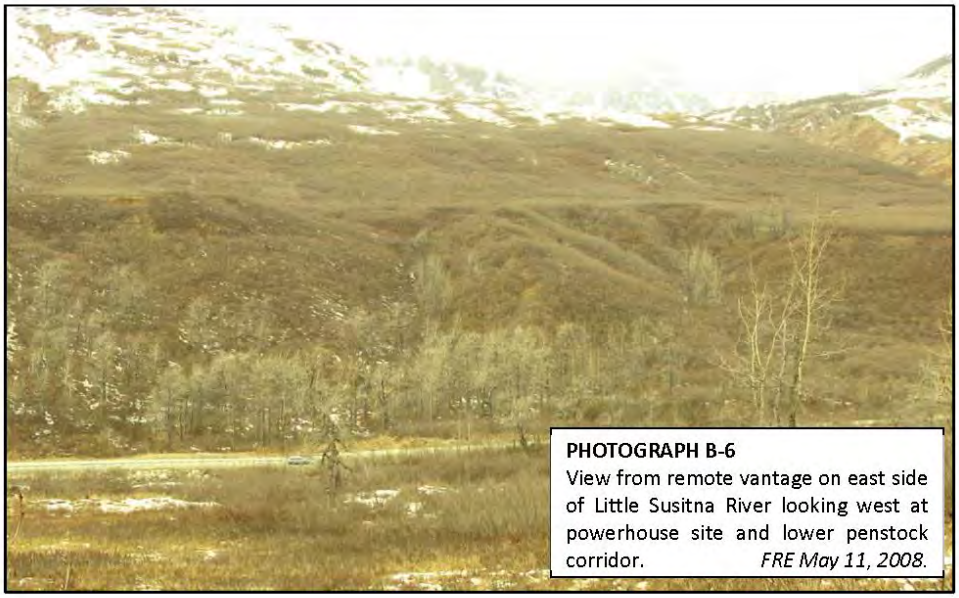
PHOTOGRAPH B-2
Intake access corridor looking west from mile 16.1 of Hatcher Pass Road. *FRE May 11, 2008.*

PHOTOGRAPH B-3
Penstock corridor looking south from lower 16 Mile bike run. *FRE August 3, 2012.*



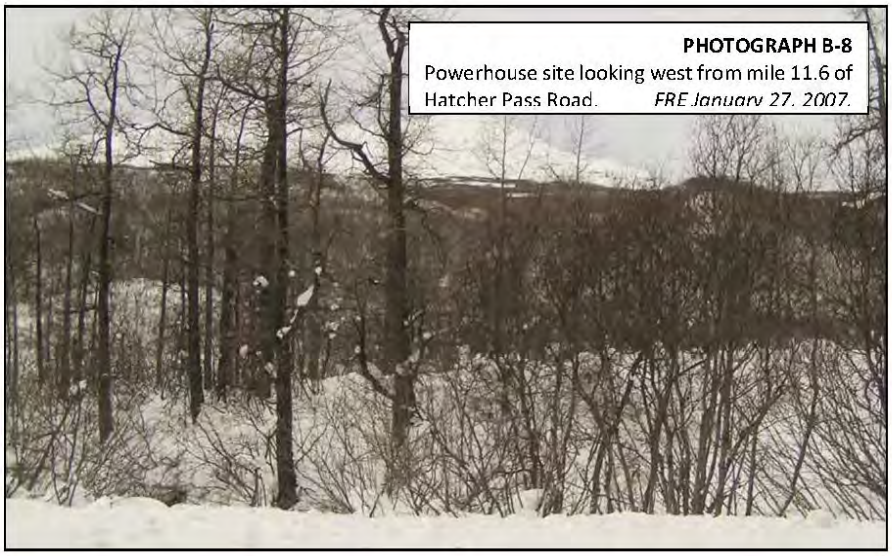
PHOTOGRAPH B-4
Project area looking south from mile 15.0 Hatcher Pass Road. *FRE January 27, 2007.*

PHOTOGRAPH B-5
View looking west up Fishhook Ravine from Mile 11.9 parking lot and trailhead. *FRE May 10, 2006.*



PHOTOGRAPH B-6
View from remote vantage on east side of Little Susitna River looking west at powerhouse site and lower penstock corridor. *FRE May 11, 2008.*

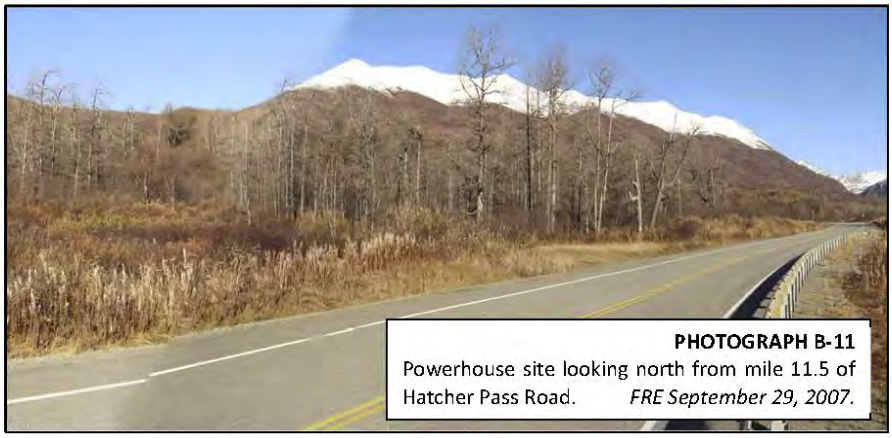
PHOTOGRAPH B-7
Lower penstock corridor and powerhouse site looking south from mile 11.7 of Hatcher Pass Road. *FRE January 27, 2007.*



PHOTOGRAPH B-8
Powerhouse site looking west from mile 11.6 of Hatcher Pass Road. *FRE January 27, 2007.*

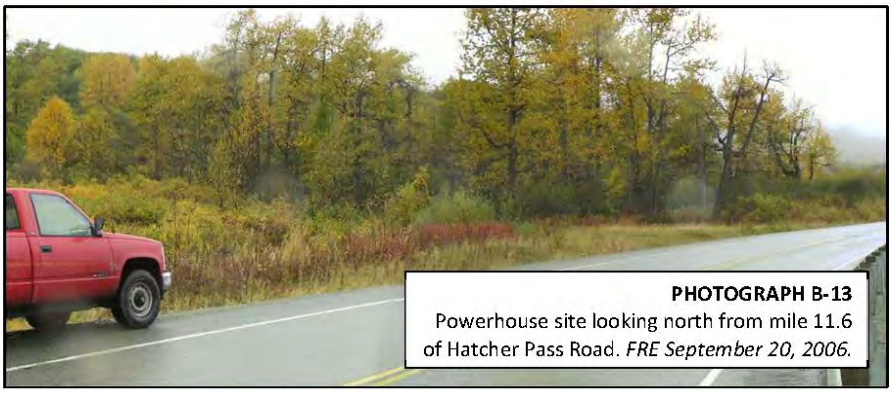
PHOTOGRAPH B-9
Powerhouse site looking north from mile 11.4 of Hatcher Pass Road. *FRE January 27, 2007.*

PHOTOGRAPH B-10
Powerhouse site looking north from mile 11.5 of Hatcher Pass Road. *FRE May 11, 2008.*



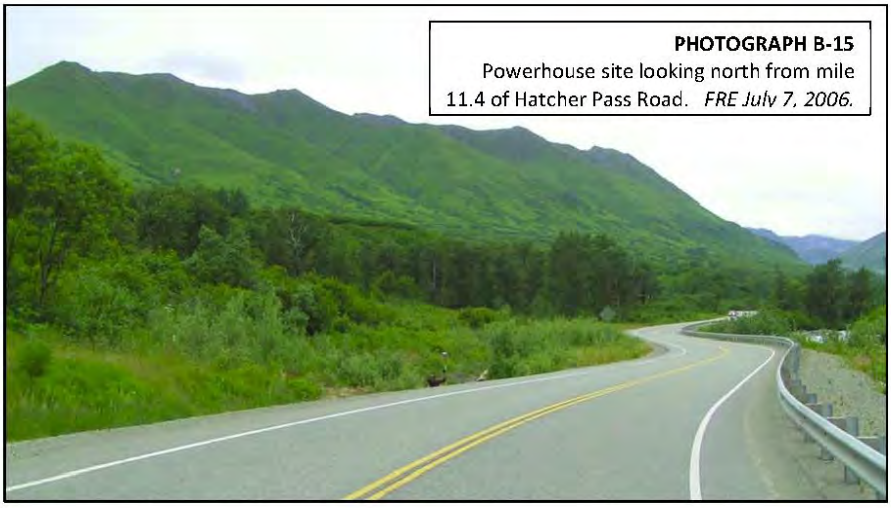
PHOTOGRAPH B-11
Powerhouse site looking north from mile 11.5 of Hatcher Pass Road. *FRE September 29, 2007.*

PHOTOGRAPH B-12
Powerhouse site looking north from mile 11.5 of Hatcher Pass Road. *FRE January 27, 2007.*



PHOTOGRAPH B-13
Powerhouse site looking north from mile 11.6 of Hatcher Pass Road. *FRE September 20, 2006.*

PHOTOGRAPH B-14
Powerhouse site looking north from Hatcher Pass Road at mile 11.5. *FRE July 7, 2006.*



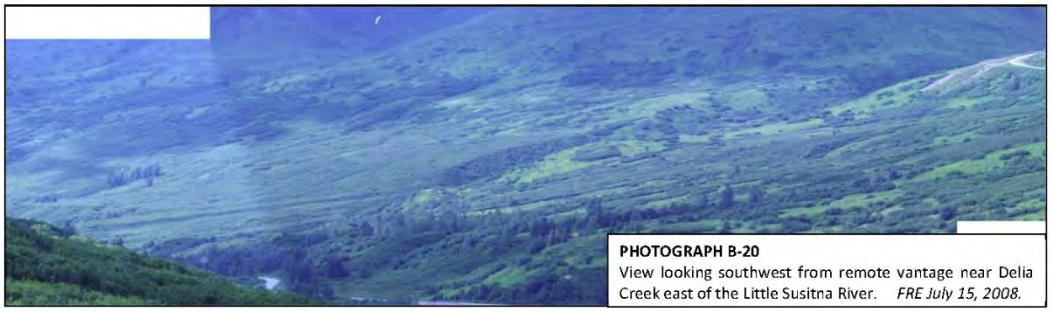
PHOTOGRAPH B-15
Powerhouse site looking north from mile 11.4 of Hatcher Pass Road. *FRE July 7, 2006.*

PHOTOGRAPH B-16
Project site looking southeast from mile 16.3 of Hatcher Pass Road. *FRE July 7, 2006.*

PHOTOGRAPH B-17
Project site looking south from the edge of the Mile 16.3 parking lot. *FRE August 13, 2005.*

PHOTOGRAPH B-18
Project site looking south from mile 15.8 parking lot. *FRE May 28, 2006.*

PHOTOGRAPH B-19
Project site looking north from south rim of Fishhook ravine. *FRE May 25, 2007.*



PHOTOGRAPH B-20
View looking southwest from remote vantage near Delia Creek east of the Little Susitna River. *FRE July 15, 2008.*

PHOTOGRAPH B-21
Project site looking south from upper (west) end of Mile 15.8 parking lot. *FRE August 13, 2005.*

PHOTOGRAPH B-22
Project site looking south from lower (east) end of Mile 15.8 parking lot. *FRE August 13, 2005.*

PHOTOGRAPH B-23
Penstock corridor looking west-southwest from upper 16 Mile bike run. *FRE August 3, 2012.*

Attachment B
Development Plan

ATTACHMENTS

Attachment 1 – Final Hydrology Report, March 21, 2017.
Attachment 2 – FRE Responses to Public Comments on ADNR Lease Preliminary Decision. January 21, 2015.
Attachment 3 – Project Drawings, February 27, 2026.

Attachment B
Development Plan

ATTACHMENT 1 – FINAL HYDROLOGY REPORT, MARCH 21, 2017.

Fishhook Renewable Energy, LLC
Fishhook Creek Hydrology Study
Final Hydrology Report

DATE: **March 21, 2017**
TO: [redacted] **ADNR**
Project File
FROM: **Joel Groves, PE**
SUBJECT: **Final Hydrology Report, Fishhook Creek**

1.0 INTRODUCTION AND BACKGROUND

Fishhook Renewable Energy, LLC (FRE) plans to develop a run-of-river hydroelectric facility in Hatcher Pass, Alaska. The facility will be located on Fishhook Creek, a tributary of the Little Susitna River (Figure 1). Lease and easement on Alaska Department of Natural Resources (ADNR) land for the project are pending (ADL 229824 and ADL 229806, respectively).

To design the project, the seasonal quantity of water flowing in the creek must be defined. FRE has been studying the stream flow and hydrology of Fishhook Creek for several years. This letter report provides ADNR final data and analysis from FRE's hydrology study and current understanding of the water resource at Fishhook Creek as it pertains to the proposed project.

FRE intends to continue stream gauging until project permitting is completed and a final development decision is made. This data will be used to continue refining our understanding of the site hydrology. This report is the final hydrology deliverable to ADNR.

2.0 SUMMARY OF DATA COLLECTION AND CONCLUSIONS

The hydrology study has produced five years of stream flow data at Fishhook Creek near the proposed hydro intake location (Figure 2). Analysis of this data indicates a good correlation ($R^2 = 0.96$) between high-confidence flows at the Fishhook Creek gauging station and concurrent flow at an existing gauging station maintained by the U.S. Geological Survey (USGS) on the Little Susitna River downstream of Fishhook Creek. This study adequately characterizes water resource availability for design and economic evaluation of the proposed hydroelectric project.

Figure 1: Basin Map

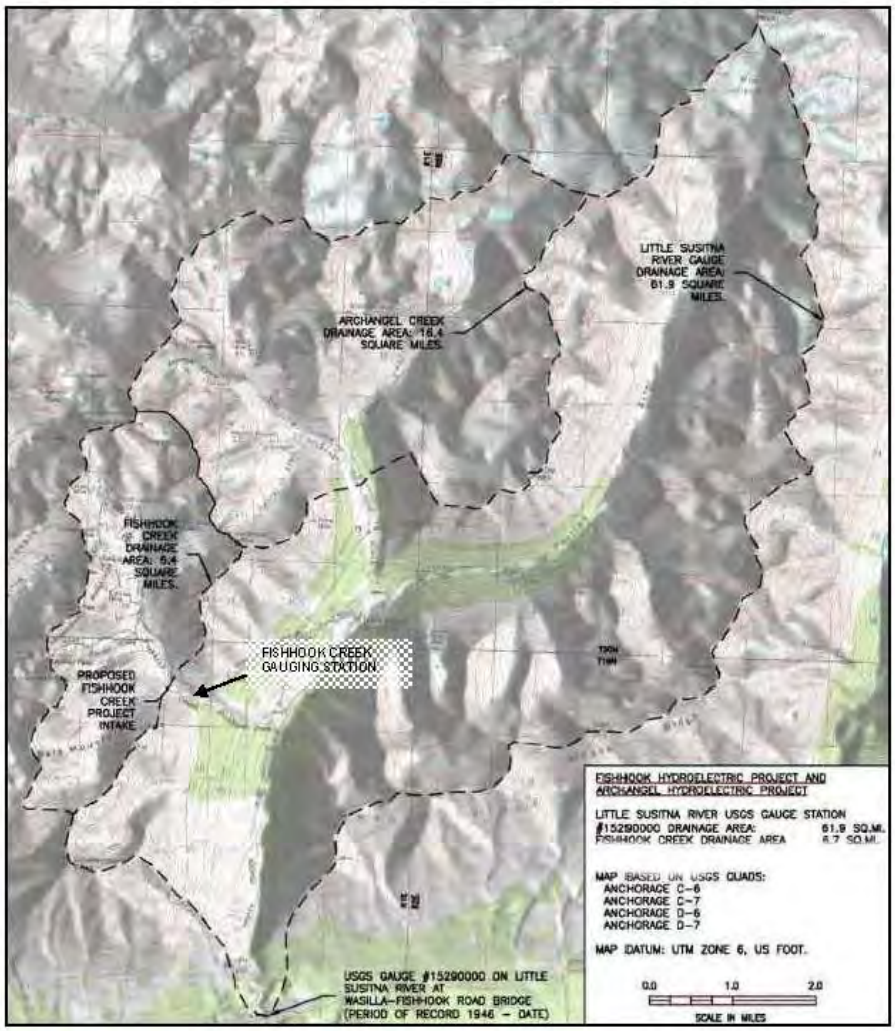
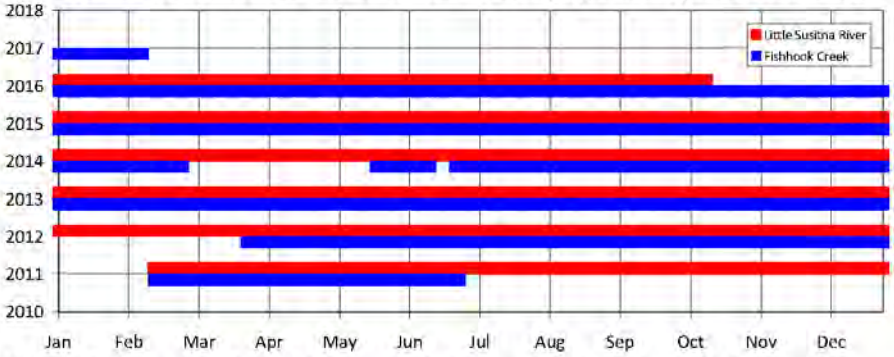


Figure 2: Period of Record at Fishhook Creek Gauging Station and Concurrent Period of Record for Little Susitna River Gauging Station (USGS 15290000)



Note: This figure shows the available record for both stations. See footnotes to Table 1.

3.0 STUDY METHODOLOGY

The objective of the hydrology study is to characterize the long-term seasonal water flow in Fishhook Creek. This information will be used to determine the amount of electricity that can be generated by a hydro project, which is key information for project design.

Water flow in Fishhook Creek is characterized by the following process:

1. Install a stream gauging station in Fishhook Creek. The stream gauge equipment measures and records water depth in the creek at regular intervals. FRE personnel periodically visit the gauging station to directly measure water flow and water depth. These measurements are used to define the relationship between water flow and water depth. This relationship is called the station rating curve. Once the rating curve is defined, the recorded water depth can be converted to water flow.
2. Compare the water flow data for Fishhook Creek with concurrent water flow at an existing nearby stream gauging station in the Little Susitna River operated by the USGS (Figure 1). If there is a predictable relationship between the flow data at these two gauging stations during their common period of record, then the longer record for the USGS gauging station can be used to estimate long-term hydrology of Fishhook Creek, effectively extending the period of record for the Fishhook Creek gauging station.
3. Analyze this extended record for the Fishhook Creek gauging station and use the data to guide hydro project design.

This report summarizes data collected at the Fishhook Creek gauging station (step 1) and provides an analysis of the correlation relationship between the Fishhook and Little Susitna flow data (step 2). This data will be used by FRE to guide final design of the project (step 3) once the permitting process is completed and permit terms are finalized.

4.0 AVAILABLE DATA

Two stream gauges are used in this analysis, summarized in Table 1.

The primary stream gauge is installed in Fishhook Creek approximately ¼ mile downstream of the proposed hydro project diversion site. This gauge was installed by FRE for this study, and is authorized under ADNR Land Use Permit LAS 27453. This station was installed on February 12, 2011, and was still in service as of the most recent download on February 7, 2017.

The station equipment consists of a Telog WLS 2109e data logger fitted with a vented pressure transducer. The pressure transducer is located on the creek bottom at a pool in Fishhook Creek and the data logger is in a steel enclosure tucked beside a boulder above the high water mark. The outlet of the gauge pool is a natural weir formed by boulders measuring 6+ feet in size. To minimize the visual footprint of the station, there is very little other equipment or apparatus installed at the site.

The reference gauging station is an existing gauge in the Little Susitna River downstream of Fishhook Creek maintained by the USGS (USGS Gauge #15290000). This gauging station will be used to extend the primary gauging station record.

As of the most recent data download, the Fishhook gauging station has been in place for 5.99 years, and has successfully logged 5.00 years of stage data. There are a total of 1,707 days (4.67 years) in the record with flow data for both stations.

Table 1: Project Stream Gauging Stations

	Little Susitna River USGS Gauge #15290000	Fishhook Creek Gauging Station	Proposed Fishhook Creek Intake
Location	61° 42.6' N 149° 13.8' W	61° 45.8' N 149° 165.6' W	61° 46.0' N 149° 16.3' W
Drainage Area (sq. mi.)	61.90	6.9	6.7
Percentage of Gauge #15290000 Basin	100%	11.1%	10.8%
Site Elevation (ft.)	916.6	2,430	2,550
Daily Flow Records	24,943 (68.3 years)	1,825 (5.00 years)	NA
Period of Record	7/1/1948 to 10/14/2016 [1] (68.3 years)	2/12/2011 to 2/7/2017 [2] (5.99 years)	NA

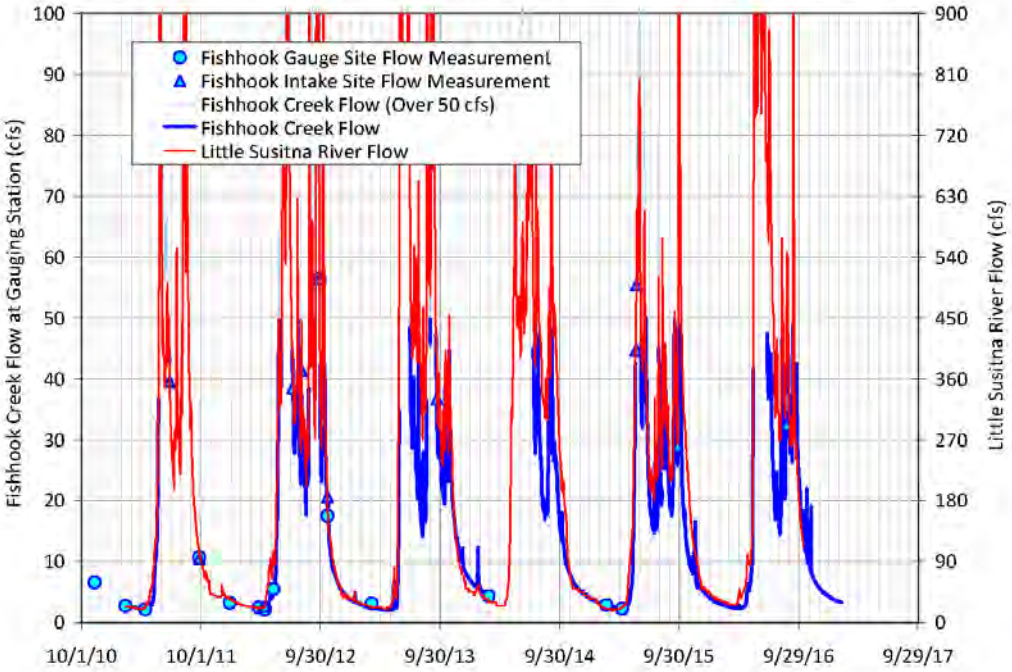
1. Period of currently available flow data. Data after this date is subject to ice effects and has not been published by USGS.
2. Period of record through most recent download of Fishhook Creek gauging station.

NA: not applicable.

Available flow data for the Fishhook and Little Susitna gauging stations are presented in Figure 3. The vertical axes in Figure 3 are scaled by basin area for the two gauge sites, with Fishhook Creek on the left and Little Susitna River on the right.

The rating curve for the Fishhook Creek gauging station has been established for flows up to 50 cubic feet per second (cfs). 50 cfs is the threshold established by FRE for flows of interest for hydro project economic evaluation and intake design.[1] It is also bounded by the available flow measurement data, which range from 2.1 to 56 cfs. Higher flows can be estimated by extrapolating the rating curve, but such estimated flows are subject to greater uncertainty and beyond the scope of this study.

Figure 3: Flow Data at Fishhook Creek and Little Susitna River Gauging Stations



5.0 ANALYSIS

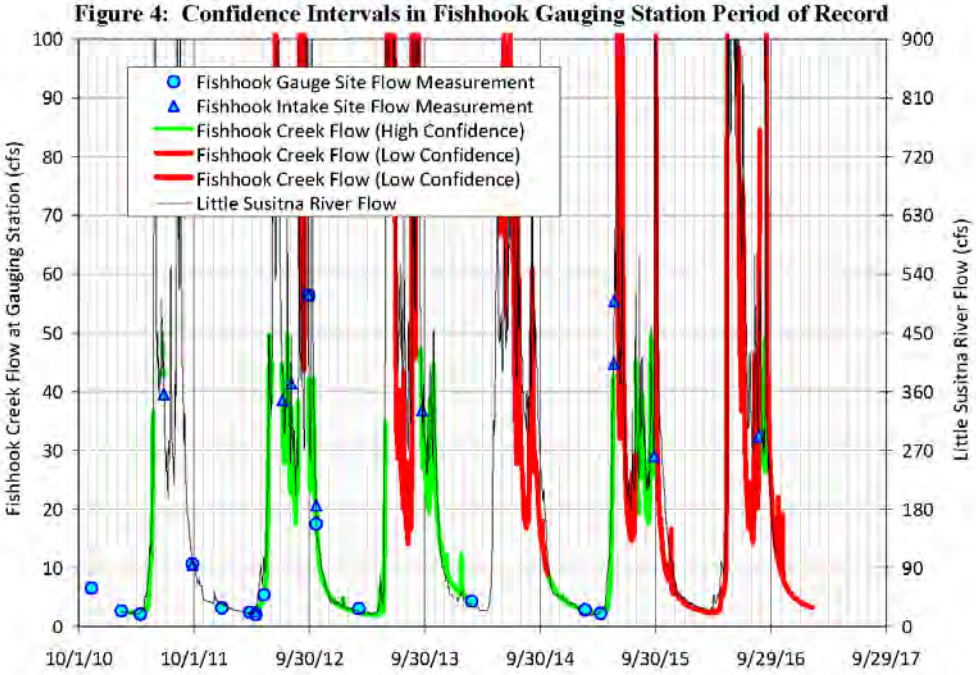
5.1 Data Review and Model Development

Review of the gauging record at Fishhook Creek determined that the stage record and rating curve are both subject to fluctuation over time, so the period of record was segregated into high confidence and low confidence intervals to facilitate analysis. Using the premise that stage and rating curve shifts are most likely to occur during high flow events, the record was divided into a series of time intervals delineated by flow events greater than approximately 100 cfs. Each time interval was then assigned a confidence – high or low – based on whether manual stage and flow measurements were collected

[1] 50 cfs was obtained by multiplying the design flow of 30 cfs by 1.67.

during that interval. Figure 4 shows the confidence intervals and assigned confidence levels for the station period of record.

Figure 4: Confidence Intervals in Fishhook Gauging Station Period of Record



The full data set for the common period of record at Fishhook Creek and the Little Susitna River has a correlation with a coefficient of determination (R^2) of 0.61. The coefficient of determination for the high confidence data under 50 cfs at Fishhook Creek is higher at 0.96.

Fishhook Creek flows under 50 cfs during high confidence intervals of the Fishhook period of record were used to develop a hydrology model for Fishhook flow as a function of Little Susitna flow. This hydrology model will be used for project economic analysis.

5.2 Fishhook Hydrology Model Statistics

Table 2 presents summary hydrology statistics for Fishhook Creek, based on the Fishhook hydrology model. Statistics for four periods are presented: the Fishhook Creek gauge period of record, the full Little Susitna period of record, and modern and historic subsets of the Little Susitna period of record. The two Little Susitna subsets are divided at fall 1977 to review the effect of a significant climate shift that occurred in the region at that time.[2]

Resource capacity factor and average annual flow were both significantly higher during the Fishhook period of record (2011 to 2016) than during the longer periods of record at the Little Susitna (1948 to 2016). This is expected due to the warm winters of 2014-15 and 2015-16, which caused earlier spring breakup and later fall freeze up than normal.

The model statistics indicate that resource capacity factor at Fishhook Creek was higher during the warmer post-1977 period of record than during the colder pre-1977 period of record. Average annual flow was about the same for both time spans. Flow exceedance curves for these four periods are presented in Figure 5.

Table 2: Flow Statistics For Different Periods of Record

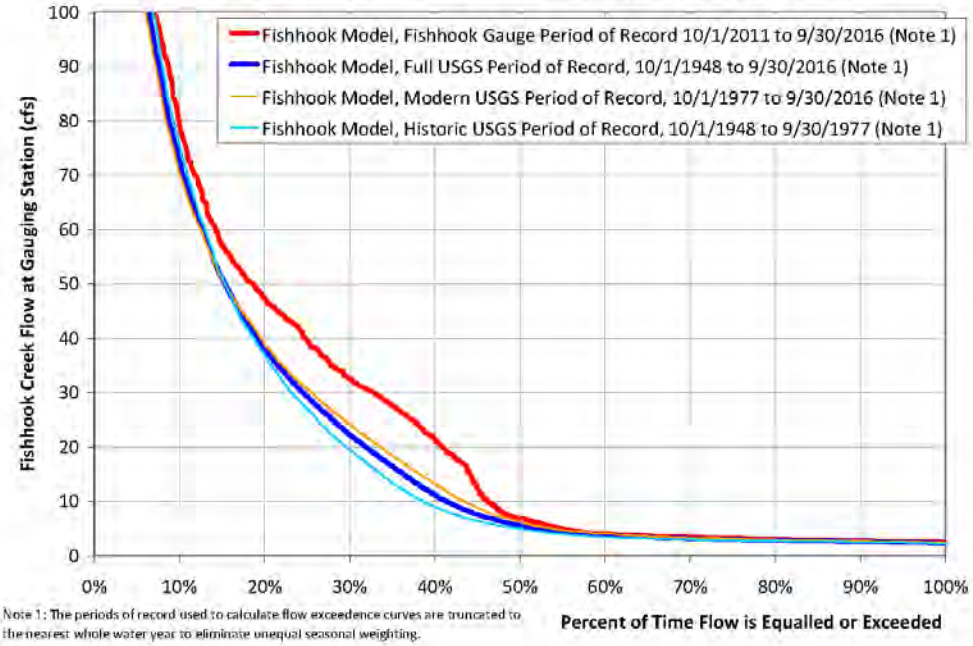
Period of Record [1]	Resource Capacity Factor at 30 cfs [2]	Average Annual Flow (cfs)	Record Duration (years)
Fishhook Period of Record (10/1/2011 to 9/30/2016)	49%	33.2	5
Full Little Susitna Period of Record (10/1/1948 to 9/30/2016)	**43%**	**26.4**	**68**
Modern Little Susitna Period of Record (10/1/1977 to 9/30/2016)	44%	26.3	39
Historic Little Susitna Period of Record (10/1/1948 to 9/30/1977)	40%	26.4	29

1. Periods of record are truncated to whole water years to eliminate unequal seasonal weighting. A water year runs from October 1st of the proceeding year to September 30th of the nominal year, so the 2016 water year runs from October 1, 2015 to September 30, 2016.

2. Capacity factor is the amount of the resource that is available divided by the design capacity. Considering a 30 cfs design flow, if Fishhook Creek flowed at 30 cfs 100% of the time, the resource capacity factor would be 100%. If Fishhook Creek flowed at a uniform 15 cfs year-round, the capacity factor would be 50%. Typical capacity factors for run-of-river hydro projects are 30% to 80+%.

[2] The 1976 – 77 climate shift is widely documented in scientific publications. One example is ***Streamflow changes in Alaska between the cool (1947-1976) and the warm phase (1977-2006) of the Pacific Decadal Oscillation: The influence of glaciers.*** Hodgkins, Glenn A. Water Resources Research. June 20, 2009.

Figure 5: Flow Exceedance Curves at Fishhook Creek Gauging Station



Note 1: The periods of record used to calculate flow exceedence curves are truncated to the nearest whole water year to eliminate unequal seasonal weighting.

6.0 CONCLUSION

The hydrology study has identified a good correlation between flow in Fishhook Creek and concurrent flow at the downstream gauging station on the Little Susitna River. FRE is confident the flow model developed accurately depicts flows below 50 cfs in Fishhook Creek, which is the range of flow of primary interest for the hydro project. Other analytical methods will be used for determining flood flows for design of the project's in-water structures. The flow model developed in this report is adequate for project design and economic resource evaluation.

7.0 REPORT LIMITATIONS AND COPYRIGHT NOTICE

7.1 Limitations

In conducting our analysis and forming the opinions and recommendations summarized in this report, Fishhook Renewable Energy, LLC (FRE) has relied on information provided by others, and has assumed this information is complete and correct. Also, FRE has made certain assumptions with regard to conditions, circumstances, and future events. FRE does not guarantee the accuracy of the information, data, or opinions contained herein. The methodologies employed to perform the analysis and arrive at the conclusions in this report follow generally accepted industry practice for this level of study. We believe that the assumptions and methodologies used are reasonable and appropriate for meeting the objectives of this study. Future events and information may result in conclusions or outcomes materially different from those presented in this report.

The contents and findings of this report are limited to potential development of a hydroelectric project at Fishhook Creek by FRE, and are suitable only for this intended purpose. Any use of this report and the information contained therein constitutes agreement that (1) FRE makes no warranty, express or implied, relating to this report and its contents, (2) the user accepts sole risk of any such use, and (3) the user waives any claim for damages of any kind against FRE. The benefit of such waivers, releases, and limitations of liability extend to FRE, its subcontractors, owners, members, employees, consultants, and agents.

7.2 Copyright Notice

 The Alaska Department of Natural Resources, Division of Mining, Land and Water has the right to reproduce and use this report for purposes directly related to adjudication of the following FRE land and water rights applications and land use permits:

ADL 229806 (project land lease)
ADL 229826 (project easements)
LAS 27453 (hydrology study land use permit)
LAS 25691 (project water rights)

ATTACHMENT 2 – FRE RESPONSES TO PUBLIC COMMENTS ON ADNR LEASE PRELIMINARY DECISION. JANUARY 21, 2015.

MARCH 2017: DEVELOPMENT PLAN ATTACHMENT 2

Fishhook Renewable Energy, LLC

1503 West 33rd Ave, #310, Anchorage, Alaska 99503
Phone: (907) 258-2420 Fax: (907) 258-2419

January 21, 2015

[redacted]
Division of Mining, Land and Water, Leasing Unit
Alaska Department of Natural Resources
550 West 7th Avenue, Suite 900C
Anchorage, Alaska 99503

Subject: FRE Responses to Public Comments on Project Leases and Easements

Dear [redacted]:

This letter presents Fishhook Renewable Energy, LLC (FRE)'s responses to the public comments received on the Preliminary Decision (PD) for land lease and easements for the Fishhook Hydroelectric Project. We request that your office continue with processing our applications.

Background

FRE filed applications for land leases (ADL #229824) and easements (ADL #229806) for the Fishhook Hydroelectric Project (project) with the Alaska Department of Natural Resources (ADNR) Division of Mining, Land and Water (DMLW) on June 6, 2006.

DMLW issued public notice of their Preliminary Decision (PD) to award land leases and easements to Fishhook Renewable Energy, LLC (FRE) for the project on November 5, 2010. Public comments were accepted through December 20, 2010, and a public meeting was held at the Palmer Railroad Depot on November 30, 2010.

Current Project Status and Plan

Since 2010, FRE has been focusing on continuing our hydrology studies at Fishhook Creek. FRE installed a stream gauging station on Fishhook Creek in February 2011 (authorized by DMLW under LAS 27453) and has collected approximately 4 years of stream flow data to date. FRE plans to continue work on the permitting phase of this project in order to proceed with the final design, financing arrangements, and operation plans. We expect to complete permitting in 2015 so construction can occur in the summer of 2016.

General Observations on Public Comments

1. Separately from the land lease and easement applications under consideration in DMLW's PD, FRE also needs the following agency authorizations to build and operate this project:
   - Fish Habitat Permit from the Alaska Department of Fish and Game (ADF&G).
   - Utility easements and building permits from the Matanuska-Susitna Borough (MSB).
   - Driveway and Right of Way Permits from the Alaska Department of Transportation and Public Facilities (ADOT&PF).

- Wetlands Permit from the U.S. Army Corps of Engineers (COE).
- Stormwater Discharge Permit from the Alaska Department of Environmental Conservation (ADEC).
- Water Use Permit / Water Rights from the DMLW.
- Authorization to provide wholesale electricity from the Regulatory Commission of Alaska.

Many of the public comments received pertain to matters that will be addressed by the permits / authorizations to be issued by these other entities. In these instances, FRE has stated this fact, and summarized the expected terms in the other permits / authorizations. FRE believes that this project is sufficiently defined that the DMLW land authorizations can proceed independently of other project authorizations.

2. Many commenters urged DMLW to 'hold this project to a higher standard'. FRE believes the effort and quality of development thus far has been to an appropriately high standard. FRE also believes the DMLW should evaluate this project, and every other project, in accordance with the applicable criteria and procedures defined in statute, regulation, management plans, and department policy. FRE members are highly qualified engineers who understand quite well the importance of planning in the development and operation of hydroelectric projects.

3. Many commenters characterized Hatcher Pass as a unique pristine wilderness area, and use this as a justification for 'higher standard' scrutiny. It is important to clarify that Hatcher Pass does not meet the common definition of pristine. The area has experienced a century of extensive human use, including ~50 years of some of the most intensive industrial hard-rock mining in Alaska, significant placer mining, livestock grazing, and increasingly intensive recreational and other human activities. The result is an area that has been extensively crossed by trails and roads, many of which are now abandoned and today invisible to the untrained eye. These abandoned disturbances are a direct example of how areas disturbed by this project will successfully revegetate and also become invisible to the untrained eye.

   The biological value of the bypassed reach of Fishhook Creek is not unique, or in the broader regional context, particularly significant. This does not mean that FRE believes the project's impacts should be ignored, rather it means that FRE believes the mitigation measures that will be set forth in the fish habitat permit from ADF&G are adequate to address the project's impacts and any 'higher standard' scrutiny.

Organization of FRE's Responses

FRE has summarized and responded to all substantive public comments. Each comment is summarized in italics, and is in quotations where taken verbatim from the commenter. Commenters have been numbered, and each individual comment lettered for ease of reference. For brevity and clarity, comments that are substantively similar to previous comments reference FRE's response to the earlier comment.

Specific Changes to PD

Commenters identified some factual errors in the PD that should be corrected by DMLW. These are summarized below.

1. Clarify discussion regarding the power line to Independence Mine. (See response to Alaska Center for the Environment's comments at 9.g).
2. FRE recommends DMLW delete "To achieve this, water will always be passed through the intake..." from the Final Decision. (See response to Mr. Strasenburgh's comments at 12.a.)

FRE will update the Project Description, Development and Operations Plan to reflect revisions made based upon the on comments received, the additional hydrology data, and the findings of the permitting and review process. FRE will provide an updated document with design drawings for review following ADNR's Final Decision for the project lease and easement.

We look forward to working with DMLW to assist with the Final Decision for the project leases and easements for this project. Please contact me with any questions.

Sincerely,

Joel Groves
FRE Project Manager

FRE RESPONSES TO PUBLIC COMMENTS ON PD FOR ADLs 229824 AND 229806

1. [redacted] (11/10/2010)

1.a Expressed the view that he keeps expecting to see more renewable energy projects occur and observes that there are many hurdles to project development.

FRE is appreciative of the comments, but there are a number of individual permits required for the project that require project-specific information from the developer to ensure responsible development of State Lands.

2. [redacted] (11/15/2010)

2.a "It is difficult for me to believe that there will be a sufficient amount of water to supply a 2' pipe. It is likely the creek will be dry most of the winter."

FRE's hydrology studies over the past seven years show that water flow exists in Fishhook Creek year-round. Our studies indicate there is sufficient water to supply the project. In the winter, approximately 200 yards of the creek immediately downstream of the intake will be dewatered, and covered with snowpack. The first significant tributary occurs 200 yards downstream of the intake. This is a small perennial stream with an estimated minimum annual flow of 50 to 100 gallons per minute. Total natural inflow to Fishhook Creek along the bypass reach can also be reliably estimated by evaluating the basin area that drains into this reach.

This first tributary flow, and the additional flow from numerous similar downstream tributaries, is sufficient to maintain a wetted perimeter in the bypass reach of Fishhook Creek through the winter season and the remainder of the year. During the summer months there is normally more water flowing in Fishhook Creek than can be used by the project. This excess water will spill over the intake and continue down Fishhook Creek.

2.b "I am also concerned with maintaining recreational access to the peaks on the west side of the creek. It would also be favorable if the power company were to make some recreational improvements, such as a bridge to cross the creek to allow access to the west."

The intake will include a foot path on top of the intake structure allowing access across Fishhook Creek. This access is required to inspect and maintain the project. Please see also FRE's response at 7.a.i.

2.c "Another good will gesture/mitigation might be to make some improvements to the road run parking area or hydro ax an area for the kids to sled and snowboard."

Improvements such as clearing beyond the project limits are not included in the project. FRE plans to limit the project's impact on vegetation.

2.d "I hope someone has looked at the proposed improvements to see if there might be an opportunity to have multi use/purpose."

FRE has not been approached about the opportunity to co-develop aspects of the project for multi-use, and defers to the land owner and land manager on such issues.

2.e *"Above all, it would be a shame if the public access was restricted in this heavily used area for this improvement.."*

FRE does not propose to restrict public access to the project area, with the exception of the interior of the powerhouse building and intake control house.

3. [redacted] (12/04/2010)

3.a *"Development of the Fishhook Hydro project will definitely affect the scenic resources of Hatcher Pass and I believe that this project should be held to the same standards as mineral developments as described under Scenic Resources of the HPMP."*

Prior to the 2010 public comment period, FRE has conducted numerous meetings with local stakeholders and made several revisions to our development plan for this project in order to address public concerns to the greatest extent practical. Specifically, the penstock alignment has been realigned based on public and agency input to reduce visual impacts. Also, the powerhouse has been relocated upstream to provide further screening and reduced visual impact from the road, and to provide additional fish habitat.

The proposed project is more similar to linear features such as utility lines, trails or roads than to a mineral development such as a gravel pit. FRE does not feel it is reasonable or warranted to mandate project conditions more stringent than normally used.

Please see also FRE responses at 3.e and 7.q.

3.b *" Based on colored pictures provided at the November 20 meeting at the Palmer Depot that were taken from pull outs at Mile 14 & 16, the penstock running along the bench across the creek will be visible from the road." "This scenic view of the mountain side is visible from the road both below and above the Fishhook drainage and it is right at the beginning of the road over Hatcher Pass. .... Why allow a hydro project in a popular scenic recreation area?"*

3.b.i Access road down to the dam.

The intake access trail will be a construction trail that will be revegetated after project construction is complete. The access trail generally follows the foot path to the existing cabin and creek crossing. FRE will explore the possibility of a providing a hardened foot path on the alignment of the temporary access road as requested by others.

3.b.ii Visibility of the penstock from Hatcher Pass Road (MP 11.5).

The penstock route above the powerhouse is briefly visible from Hatcher Pass Road in the immediate vicinity of the powerhouse site (less than ¼ mile of the road). The penstock route is perpendicular to the road in this area, and will be screened from the road by existing vegetation, and revegetation after construction. Once the penstock route is revegetated, it will be difficult to identify it from the surrounding area.

The screening provided by this vegetation is similar to screening provided at the existing road to the alpine ski area (MP 11.0), and existing hiking and mountain bike trails in use in Hatcher Pass (MP 12.0, elsewhere). The screening provided by vegetation is superior to screening provided at existing roads and trails, such as the Motherlode and Hatcher Pass Lodge access and parking (completely unscreened), public latrines at MP 11.0 and MP 16.5 of Hatcher Pass Road (completely unscreened), and the Independence Mine Complex (including several buildings, ruins and debris fields larger than the hydro project and completely unscreened).

The powerhouse will be screened from the road by existing deciduous vegetation between the creek and the road, and a earthen berm constructed with excess excavation from the powerhouse site planted with native trees and vegetation. The screening provided by this vegetation and berm is superior to screening provided for most other buildings, parking lots, and trails on the east side of Hatcher Pass.

3.b.iii Visibility of the penstock route from MP 14 and MP 16 turnout and the associated scenic impact.

The penstock will climb out of the Fishhook Creek ravine approximately across from the MP 15.7 turnout. The alignment of this portion of the penstock is expected to ascend from Fishhook Creek to the ridgeline in the shortest distance possible and constructed with the least amount of disturbance practical. FRE anticipates the penstock design will make a straight run up the fall line of the slope. Following construction, revegetation will significantly obscure the path of the buried penstock with mature vegetation in the disturbed area expected to be lusher and fuller than the surrounding vegetation. Topographical changes are not expected to be apparent following construction.

At this location the penstock will be trenched into place and the surface stabilized with erosion control measures such as geogrid, geofabric or jute matting to stabilize disturbed soils until vegetation takes hold. These are typical methods used in utility trench construction on steep slopes. Reseeding and various indigenous plantings may also be applied to accelerate vegetative growth and reestablish root mat. Final design drawings and the project SWPPP will provide details on the methods to be utilized.

3.b.iv Project Location.

See FRE responses at 3.e and 8.b.

3.c "The promised revegetation will be impossible if the penstock road continues to be used by motorized vehicles after the penstock is laid."

No routine maintenance by motorized vehicle access is proposed along the buried penstock route after construction. If motorized vehicle access is required for repair or reconstruction of the buried penstock, the alignment will be rebrushed for access, and revegetated after work is completed.

3.d "State Fish & Game needs to assess the effectiveness of the existing culvert on salmon compared to the proposed drainage pattern (old Fishhook Creek slough) if the project is

completed as presented at the meeting. Their report should be used to answer all questions regarding salmon."

The adequacy of the existing culvert with respect to the additional flow will be addressed during the final design and permitting by the ADF&G.

Design of the slough and culvert is subject to ADF&G review and approval. Because most of the slough is located within the road right-of-way, these improvements will also be subject to ADOT&PF review and approval.

3.e *"It seems like the new [ADNR Hatcher Pass Management Plan (HPMP)] should be in place before any development in the area is permitted by ADNR."*

Because this project's application pre-dates the update of the HPMP, ADNR DMLW and DOPR have indicated that the project will be subject to the HPMP in place at time of FRE's application in 2006. FRE worked with ADNR during the public process for the 2012 HPMP to incorporate this project in the HPMP, and has revised the project to meet the intent of the current HPMP.

FRE believes that this project is consistent with both the HPMP and existing development and uses in Hatcher Pass.

The HPMP states: "The central management orientation of this plan is to manage the Hatcher Pass area for recreation and for those uses compatible with this activity or otherwise allowed by law, including mining."[1] In the Government Peak subunit (where this project will be located), the HPMP excludes mining but allows hydroelectric facilities as a conditional use.[2]

4. [redacted] (12/06/2010)

4.a *"This is a highly used recreational area, diverse habitat, and narrow canyon that does not need to be environmentally impacted when other options are available for energy production within the Borough."*

FRE understands that the Hatcher Pass area is a highly used recreation area including sight seeing, hiking, skiing, mountain biking and snow machining. FRE feels that the project can be developed responsibly to allow continued use of the area for the existing uses, and provide renewable energy to the region.

4.b *"Our natural resources are a blessing from God, to be protected and used with prudence and thanksgiving, not profit. We have wind, solar, bio-mass, geo-thermal and other water options that have not even been addressed and are actually regulated so much to prevent their use."*

FRE has worked hard and invested significant time and effort to undertake the utilization of the potential resource at Fishhook Creek and notes that not just the FRE members will benefit from hydroelectric generation for Alaskans. FRE is working with agencies to

[1] 2012 HPMP, page 3-2.
[2] 2012 HPMP, page 2-5.

complete the project in accordance with required permits, and working with the public to address concerns. Please see also FRE's response at 4.a.

5. [redacted] ALASKA DEPARTMENT OF FISH & GAME DIVISION OF HABITAT (12/15/2010)

"We have been in discussions with the applicant for several years. We have agreed conceptually to an overall plan that would provide for base flow in Fishhook Creek and would direct the outflow into the channel of Fishhook Creek that parallels the road."

5.a "We have not received a formal Fish Habitat application, which would include final engineering design, for review."

FRE submitted our Fish Habitat Permit application to ADNR on March 6, 2007. It is FRE's expectation that the project design will be subject to review and approval by ADNR and ADF&G before construction is authorized.

FRE has informally provided conceptual project designs to ADF&G and has made several revisions to the project based on ADF&G comments.

5.b "The location of the powerhouse has been moved significantly downstream from the location proposed in our earlier discussion with the applicant."

ADF&G likely intended to state the powerhouse has been moved "upstream". The current powerhouse location provides 200 yards of compensatory habitat in the Fishhook Creek Slough as requested by ADF&G.

5.c "... request [ADNR] delay issuance of your authorization until we have reached final agreement with the applicant on final design criteria and a formal application is submitted to all agencies with regulatory authority over this project."

FRE acknowledges authorization for construction is not given until specifically allowed by ADNR and other permitting agencies. FRE needs certainty on lease and easement conditions to ensure that the project is still feasible prior to expending significant funds on final design. Once a decision is made on the lease application the review of the design and final permitting should occur before approval to construct. It is typical of most projects, including hydropower licenses issued by the Federal Energy Regulatory Commission, that general approval is obtained prior to completion of final design. The final design is still subject to review and approval by agencies with oversight authority.

6. [redacted] (12/16/2010)

6.a "I strongly urge ADNR to consider the important potential negative impacts of this project and not allow it to proceed - or at least not approve it before better and more fully exploring the consequences of implementing hydro power in this location."

Run-of-river hydroelectric projects have been in use for over 100 years and their impacts and operation are well understood. Impacts specific to this project are discussed in this response and FRE's development plan. FRE engineers have worked with ADF&G on the project plan to limit impacts to Fishhook Creek and to reestablish historical anadromous fish

habitat. The project significantly reduces fossil fuel use for electric generation while adding locally constructed infrastructure and economic investment.

6.b *"It is my understanding that the HPMP states that Hatcher Pass area should be managed primarily for use and enjoyment of the area's resources while conserving its scenic and environmental quality. ... It is not at all clear that small hydropower fits within those stated goals."*

FRE understands the need to preserve the area's resources and has provided a development plan that demonstrates how the proposed development fits well with the management goals and conserves the scenic and recreational value while providing the benefits of hydroelectric generation.

6.c *"... Nor that it does not have negative impact on fish."*

This matter will be addressed by the Fish Habitat Permit to be issued by the ADF&G. Please see also FRE responses at 3.d, 5, and 7.n.

7. [redacted], MAT-SU/COPPER BASIN AREA PARK SUPERINTENDENT (12/16/2010)

7.a *"The mile-long downhill trail will undoubtedly attract mountain bikers. The plan must take into account: managed uses, vehicle parking control, soil suitability, ..."*

FRE understands that the penstock is being constructed in an easement on public lands and public access to the easement cannot be restricted. The penstock easement should not be managed differently than other existing easements associated with buried electric and pipeline services (gas, water service, sewer, electric). The project does not preclude future compatible and concurrent uses of the public lands.

7.a.i Penstock Trail

As stated at 3.c, FRE plans to allow the penstock easement to completely revegetate. Once revegetated, major maintenance on the penstock will be very infrequent. When equipment access is needed for penstock maintenance or repair, the easement will be brushed for access and revegetated.

FRE does not support construction of a recreational trail down the penstock easement. The steep gradient and straight alignment of the easement would result in a trail that is unaesthetic, unsafe, and costly to maintain. Also, such a trail would end at the powerhouse site, which will not have public parking. It is FRE's understanding that ADNR shares this position.

FRE expects to maintain the integrity of the pipeline as necessary through appropriate operation and management of the project and cooperate with DOPR if they would like to construct, manage and maintain a trail that follows the general route of the penstock. FRE recommends a lower-gradient and more aesthetic meandering (switch-backed) route that veers off the penstock route so it ends at the existing parking area at MP 11.9 of Hatcher Pass Road instead of at the powerhouse location at MP 11.5.

FRE expects activity not associated with FRE's project to be managed by DPOR in the same manner as other park lands and trails within the Management Area.

7.a.ii Geotechnical Conditions

In development of conceptual designs for the project, FRE has reviewed existing information on geotechnical conditions in the project area. These include observations of subsurface conditions in slope cuts and slope failures, exposed subsurface strata in man-made cuts along Hatcher Pass Road, and information presented in the nearby Government Peak Ski Development Environmental Impact Statement completed in 2010. The conceptual project alignments have been routed to avoid outcropping or other apparent geotechnically challenging areas to the extent practical.

These data indicate the surficial geology of the project area is characterized by poorly drained, poorly sorted soils with a high content of fines. Because of the slopes common in the project footprint, the tight soils, and the significant surficial water, erosion and drainage details are of particular importance for the successful design, construction, and maintenance of earthworks associated with this project.

FRE has not conducted detailed field geotechnical investigations of the project footprint because equipment access to the site has not yet been authorized by ADNR. Prior to final design, FRE will conduct geotechnical investigations of the powerhouse, intake, penstock, and access areas. The results of these investigations will guide final design and development of a SWPPP for construction and subsequent slope stabilization and/or revegetation.

7.b "What parts of the penstock from the mile 16 pullout will be visible (ravine & down mountain 4068)? If visible, what measures will be taken to screen it from view? How visible will the 1 mile+ penstock corridor (clearing) be from any points along the highway, pullouts, or facilities, and what measures will be taken to screen this?"

See FRE response at 3.b.

7.c "Construction plans displayed at the Nov 30, 2010 public meeting in Palmer were said to be preliminary, and not finalized. More certainty is needed to address some key construction concerns."

FRE expects, as the leasee, to provide copies of plans, reports, and other documents to DPOR to fulfill their management needs including providing copies of the final design and construction plans for DPOR review and comment.

7.d "How will penstock cross Fishhook Creek?"

Current conceptual plans call for the penstock crossing of Fishhook Creek to be a buried pipe crossing. Depth of the pipe burial has not been finalized, and will depend on the outcome of geotechnical investigations of this area. Current conceptual plans call for the penstock crossing of Fishhook Creek to be a buried pipe crossing. The final crossing design, which could be an above ground span, will depend on the outcome of geotechnical investigations of this area.

7.e "How will penstock be constructed out of Fishhook Ravine ~100% grade, and erosion stabilization?"

Please see FRE response at 3.b.iii.

7.f "What are the specifications for the maintenance trail along the penstock?"

As noted in 7.a and 7.a.i above, trail maintenance is not proposed as FRE is only constructing a buried pipeline that will require very infrequent maintenance. The alignment is expected to be revegetated after construction is completed.

7.g "Portions of the lower penstock will be at 25% grades, and is considered too steep for trails under typical soil conditions. Exactly how will penstock corridor be rehabilitated to prevent erosion along fall-line?"

Please see FRE responses at 3.b.iii and 7.a.i.

7.h "How will remaining penstock maintenance trail be constructed to prevent erosion along the fall-line? Has the SWPPP been developed?

Please see FRE response at 3.b and 7.a.iii. The final construction plans will include details of construction. The SWPPP will not be prepared until the final construction plans are completed.

7.i "Can the penstock be completely buried, and if not, where will it be exposed?"

Based on the available geotechnical information described in FRE's response at 7.a.ii, FRE is confident the penstock can be buried. Burial depth will depend on the outcome of geotechnical investigations. Short sections of pipe (less than approximately 20 feet) may be exposed leaving the intake structure and entering the powerhouse depending on final design and site grading. FRE prefers a buried pipe for freeze protection, physical protection, and stability. A drain valve vault lid will be visible at Fishhook Creek in the vicinity of the creek crossing, and an air relief valve vault lid will be visible at the top of the ravine.

7.j "What is the plan for invasives and noxious weed control during construction?"

The final drawings and SWPPP will specify only native seed mixes for areas to be revegetated. The SWPPP will address equipment and materials cleaning protocols to discourage introduction of invasive species and noxious weeds to the project site.

7.k "A monitoring program is recommended to assure a wetted streambed is maintained all year."

FRE will operate and maintain the project in accordance with permit requirements. Appropriate monitoring measures will be addressed by the Water Use Permit / Water Rights to be issued by the DMLW. Please see also FRE response at 2.a.

7.l "The terms "visible flow" and "minimum flow" need to be defined."

Visible flow is well-defined as flow that is "visible." This matter will be addressed by the Water Use Permit / Water Rights to be issued by the DMLW.

7.m "Baseline data should be established to monitor for future impacts."

This matter will be addressed by the Water Use Permit / Water Rights to be issued by the DMLW. Water rights are normally based on actual metered water use after the project has been in service for several years.

FRE has been studying the hydrology of Fishhook Creek since 2006, and established a gauging station in the vicinity of the intake to collect continuous flow data for Fishhook Creek in 2011. FRE will continue collecting flow data at the intake once the project is operational to establish water rights for the project.

7.n "ID the upstream limit of resident non-anadromous fish."

ADF&G has performed preliminary investigations of fish presence. Overall agency findings, as stated on page 18 of the preliminary decision document, point toward an improvement in salmon habitat and no impacts to non-anadromous fish. FRE will abide by the requirements of the ADF&G habitat permit for the project including performing additional fish presence and habitat investigations if necessary.

7.o "Street lights in HPMA parking lots suggestion is not endorsed."

The project does not propose providing street lighting at existing HPMA parking lots. FRE will minimize the site, yard, or area lighting associated with the project. Current plans call for lights at the powerhouse that will be switched on only when needed by FRE personnel at the site.

7.p "The DPOR requests additional plan specifications that address design concerns and include them in an amended Operations/Construction Plan for review prior to any authorizations."

FRE expects to provide final project plans to DPOR for their review and comment prior to construction. FRE is opposed to delaying the ADNR lease / easement Final Decision contingent on further DOPR review of final project plans.

7.q "Because [the project] occurs in a high quality/high use public recreation area, extra measures must be taken to assure compatibility with existing and likely future uses. If done right, Fishhook can be a model project for the future."

FRE has made considerable effort to involve the public and DOPR in the design of this project through numerous meetings and discussions with community groups and agencies. Project plans have been revised to meet recommendations and address comments. FRE expects to continue working with DPOR to address the remaining concerns and endeavor to make this project a success. FRE agrees that this project can be a model for the future.

8. [redacted] (12/17/2010)

8.a "Anadromous fish need cold, clear creeks like Fishhook to journey and build their redds."

Please see FRE response at 3.d, 5, and 7.n.

8.b "The hydroelectric project would remove Hatcher Pass as a wild and scenic area that is untrammeled by human contraptions."

While Hatcher Pass does retain a wild character and is very scenic, it is not a pristine environment "untrammeled by human contraptions". The area has experienced a century of extensive human use, including ~50 years of some of the most intensive industrial hard-rock mining in Alaska, significant placer mining, livestock grazing, and increasingly intensive recreational and other human activities. The result is an area that has been extensively crossed by trails and roads, many of which are now abandoned and today barely visible to the untrained eye. These abandoned disturbances are a direct example of how areas disturbed by this project will successfully revegetate and also become part of an integral component of park and surrounding area.

Today, Hatcher Pass is home to a number of existing manmade facilities including the Motherlode Lodge and outbuildings, Hatcher Pass Lodge and outbuildings, Independence Mine Historical Park, several private mining operations, several abandoned mine complexes, several public latrines, roads, trails, pullouts and parking areas, and numerous abandoned cabins and equipment ruins from past human activities.

The 2012 HPMP calls for significant future improvements within the immediate vicinity of this project. These improvements range from a major alpine ski resort to the immediate south of this project to seven new or expanded pullouts and parking lots between the powerhouse site near MP 11.5 and the diversion site near MP 16.[3]

The development plan proposed by FRE provides screening of the new powerhouse building from the road, the intake is not visible from the road, and other features are underground. FRE has relocated the penstock alignment and powerhouse location at the request of user groups and ADF&G to minimize the visible impacts and increase fish habitat.

FRE believes that the visual impact of this project is fully consistent with the cumulative visual impact of past, existing, and proposed future developments in the area. Indeed, this project will be a minor feature compared to the full range of existing and proposed man-made features within Hatcher Pass while also providing a significant benefit in resource development and utilization.

8.c "I enjoy visiting Hatcher Pass ...., and we practice Leave No Trace ethics in wild beautiful places like this one. The DNR has the responsibility to protect Natural Resources, and this is one case where they should remain natural."

The Department of Natural Resources' mission is "to responsibly develop Alaska's resources by making them available for maximum use and benefit consistent with the public interest".[4]

Please see also FRE responses at 3.e and 8.b.

[3] 2012 HPMP, page 4-13.
[4] http://dnr.alaska.gov/commis/pic/about.htm

9. [redacted] ALASKA CENTER FOR THE ENVIRONMENT (ACE) (12/17/2010)

9.a "ACE has concerns with the location of this particular project. Hatcher Pass is a renowned recreation destination and is valued for its spectacular vistas and scenery."

Please see FRE responses at 3.a, 3.b, and 8.b.

9.b "Little Susitna watershed depends upon important tributaries such as Fishhook Creek to maintain its viability as one of Southcentral's premier salmon rivers."

This matter will be addressed by the Fish Habitat Permit to be issued by the ADF&G. Please see also FRE responses at 3.d, 5, and 7.n.

9.c Concern with impacts. "The proponents have claimed .... project will not have any impacts on water quality or temperature, yet have not provided any evidence supporting that claim. "

This matter will be addressed by the Fish Habitat Permit to be issued by the ADF&G. Please see also FRE responses at 3.d, 5, and 7.n.

9.d Concern with streamflow in bypass reach. "..the hydrology analysis provided in the project description suggests that the stream will be dewatered most of the year...".

Please see FRE responses at 2.a and 7.m.

9.e "The Impacts of hydropower projects on river ecosystems is significant and well documented."

This matter will be addressed by the Fish Habitat Permit to be issued by the ADF&G. Please see also FRE responses at 3.d, 5, 6.a, and 7.n.

9.f "Recommend more in-stream flow studies."

Please see FRE response at 2.a, and 7.m.

9.g Typos in Preliminary Decision. Electricity to Independence Mine listed as benefit when speculative.

FRE requests that DMLW fix the typos noted. FRE confirms that the supply of electric power to Independence Mine is contingent on the actions of others, including DOPR, DMLW, DOT&PF, and Matanuska Electric Association, Inc. However, this project will bring utility power significantly closer to Independence Mine, lowering the cost of a future line extension. Accordingly, this possibility should be retained as a benefit in the DMLW decision document.

9.h "Determine the value of the fish habitat that will be lost."

The ADF&G habitat permit will address this comment. Please also see response at 7.n.

9.i "Identify cumulative impacts to the watershed."

The ADF&G habitat permit and ADEC SWPPP required for the project will address this comment. FRE is not aware of any possible impacts to the watershed beyond reduced flow

within the bypass reach of Fishhook Creek and increased quantity of anadromous fish habitat in the lower 200 yards of the Fishhook Slough.

9.j "Climate change-there should be some discussion about how water flows will change as a result of climate change."

Investigation of this subject by the Western River Institute concludes that the amount of precipitation is likely to stay about the same, but it will come more as rain, less as snow. This will increase flow in the bypass reach as more water bypasses the intake, but reduce the spring runoff event size due to reduced snow pack.

FRE has reviewed the long-term hydrology records for the Little Susitna River and other south-central Alaska streams, and there is no discernable trend in stream flow attributable to global warming. There is a significant effect attributable to the Pacific Decadal Oscillation, which FRE has considered in the conceptual design and will consider in final project design.

9.k "If the stream is dewatered as proposed then we can be relatively certain that conditions downstream will be impacted. There needs to be a proper analysis before this project is permitted. "

Please see FRE response at 2.a. The ADF&G fish habitat permit required for the project will also address this comment.

9.l "... ACE does not believe this project meets the goals of the Hatcher Pass Management Plan."

Please see FRE response at 3.e.

10. [redacted] (12/17/2010)

10.a "A hydro project of any scale will disrupt the natural beauty and viewshed of the Government Peak area."

Please see FRE responses at 3.a, 3.b, 3.e, and 8.b.

10.b "disrupting the flow on Fishhook Creek could have implications on the resident and anadromous fish that use the creek as well as the Little Su River."

This matter will be addressed by the Fish Habitat Permit to be issued by the ADF&G. See also FRE responses at 3.d, 5, and 7.n.

10.c "Lets visit an alternative location and leave this area natural."

Please see FRE responses at 3.e and 8.b.

11. DONNA FORD (12/18/2010)

11.a Noise pollution from turbines.

FRE has proposed a earth berm and landscaping between the road and the powerhouse to alleviate noise. During the winter months, the Little Susitna River is covered in snow and ice and generates little sound. During these same months, the project will operate at a fraction

of its full output (10 to 30%, depending on time of year) and will not generate as much noise as during the summer months. Noise from the turbines is not expected to be noticeable in the summer months because of the noise from the Little Susitna River when it is ice free.

11.b Visual impacts.

Please see FRE responses at 3.a, 3.b, 3.e, and 8.b.

11.c "There seemed to be a lot of unknowns about (Fish Habitat) in their presentation. Before issuing a permit, there needs to (be) more data collected."

This matter will be addressed by the Fish Habitat Permit to be issued by the ADF&G. Please see also FRE responses at 3.d, 5, and 7.n.

11.d " In order for the water to flow at the proper speed the grade seemed like there would be potential for erosion along the pipe."

Pipe bedding material is compacted around pipe to provide support. Pending the outcome of geotechnical investigations, bedding material may need to be imported for installation in areas along the pipe to protect erosion of backfill material around pipe. Please see also FRE responses at 7.a.ii.

Erosion will be addressed by the SWPPP to be prepared prior to construction and approved by ADEC.

11.e "It seems that a power plant would be better located elsewhere."

Please see FRE responses at 3.e and 8.b.

12. [redacted] (12/19/2010)

12.a Water flow levels below intake. "SCRO states "..visible flow water in all section of Fishhook Creek at all times. To achieve this, water will always be passed through the intake.." FRE Development plan page 10 graph depicts flow alteration at the intake that shows flow at intake will be reduced by 100% at the intake for approximately 7 months each year.""

This matter will be addressed by the Water Use Permit / Water Rights to be issued by the DMLW. Please see also FRE responses at 2.a and 7.l.

FRE requests DMLW delete "To achieve this, water will always be passed through the intake..." from the Final Decision.

12.b Visible flowing water.

See 2.a and 7.l response to "visible flowing water." This matter will be addressed by the Fish Habitat Permit to be issued by the ADF&G and the Water Use Permit / Water Rights to be issued by the DMLW.

12.c "Dolly Varden live in pools in Fishhook Creek... Neither the Preliminary Decision nor the FRE Development Plan mentions the existence of these fish, and neither document

considers the water level or water quality that would be required to maintain the health of the population."

This matter will be addressed by the Fish Habitat Permit to be issued by the ADF&G. Please see also FRE responses at 5, and 7.n.

12.d "Need for water data for this project and beyond."

Please see FRE response at 7.k and 7.m.

12.e "There is, of course, more to water analysis than flow; there is also temperature, sediments, biology (e.g., invertebrates, aquatic insects), water chemistry, for example. The should be studied and data collected, but this work must necessarily be accomplished before the project is approved."

This matter will be addressed by the Fish Habitat Permit to be issued by the ADF&G.

FRE is not aware of any regulatory requirement or site-specific need to complete such studies. One of the merits of run-of-river hydroelectric projects is that they do not significantly alter sediment transport, water temperature, or related water chemistry characteristics because they do not have a significant impoundment area that stores water.

12.f "The Development Plan at page 2 states that the penstock will be entirely buried. ... These are unambiguous statements that, given the lack of soil studies and the topographic challenges that the route presents, are not necessarily credible."

Please see FRE responses at 7.d, and 7.i on pipe burial and 7.a.ii on geotechnical conditions.

12.g "Neither the Development Plan nor the Preliminary Decision sufficiently addresses erosion control."

This matter will be addressed in Final Design Documents, and by the SWPPP to be prepared prior to construction and approved by ADEC. Please see also FRE response to 3.b.ii, and 7.a.i.

12.h "The Preliminary Decision basically accepts and repeats the assertions of the Development Plan and does not fully address the potential visual impacts of the project."

Please see FRE responses at 3.a, 3.b, and 8.b.

12.i "The Appendix B Viewshed Analysis (Development Plan) doesn't contemplate the viewshed impacts of the powerhouse, penstock, or intake from the perspective of hikers or skiers or anybody else traveling the surrounding hills."

Viewshed impacts from backcountry vantage points are generally addressed in FRE's June 2010 Development Plan at Section 3.5.2 (Visual Impacts from Existing Recreational Trails). FRE is revising the Development Plan and will expand this discussion.

The project will generally be visible from backcountry vantage points that provide clear views of the east side of Hatcher Pass, such as the upper slopes of Peak 4068 and 4069 or the ridge east of the Little Susitna River. Depending on the specific vantage point, the intake access trail, intake structure, penstock route, and/or powerhouse site will at times be

visible. From most vantage points, these features will generally be less prominent than other man-made features in the area, such as Hatcher Pass Road, Archangel Road, parking areas, bulldozer trails used as winter ski or snow machining corridors, the Motherlode Lodge, Hatcher Pass Lodge, and the Independence Mine complex.

As project features revegetate, they will become less visible, eventually blending into the landscape like the other revegetated trails and roads throughout the area.

12.j *"In order to avoid conditioning or habituating bears, SCRO and or Division of Parks and Outdoor Recreation should require the FRE, during all phases of the project (i.e., design and pre-construction, construction, and post-construction operations and maintenance), require the use of bear proof containers for trash and garbage and other waste. All contractors and employees should also be trained in proper bear awareness."*

FRE believes that the use of bear-proof containers for wastes likely to attract bears is good practice. FRE does not propose to have any outdoor trash containers after construction is complete. FRE does not propose to use bear-proof trash containers for construction waste because construction waste is not normally a bear attractant. ADOT&PF does not use bear-proof containers on construction projects in the area.

Bear-awareness is a general public issue, not specific to FRE or this project. FRE believes that all users of Hatcher Pass, and Alaska residents generally, should be familiar with proper bear-awareness.

12.k *"This project should be subject to rigorous scrutiny and held to the highest standard in order to protect these recreational, ecological, and scenic values and uses."*

Please see FRE response at 7.q.

12.l *"I urge SCRO to put this project in the context of where it is located, and act to ensure that this project is done right or not done at all."*

Please see FRE responses at 3.e, 4.a, and 7.q.

13. [redacted]MAT-SU STATE PARKS CITIZENS ADVISORY BOARD (12/19/2010)

13.a *"The CAB recommends that these concerns be fully and satisfactorily addressed, by SCRO and/or FRE, prior to issuing a Final Decision. To clarify, fully addressed means to conduct research or otherwise gather information or data, to evaluate engineering and design options, and/or to develop impact mitigation measures. The would involve a revised Development Plan, and may include the addition of certain operating or management procedures necessary to adequately monitor the operation of the facility. This must necessarily be accomplished prior to allowing the project to move forward in order to ensure that the project impacts are know, evaluated, mitigated, and kept to an acceptable level."*

FRE has completed considerable information gathering including topographic surveys, site investigations, hydrology studies, and close coordination with ADNR, ADF&G, Corps of Engineers and the public in preparation of the Development Plan.

Monitoring requirements will be addressed by the Fish Habitat Permit to be issued by the ADF&G and the Water Use Permit / Water Rights to be issued by the DMLW. FRE does not feel that additional monitoring requirements beyond what is normally required for comparable projects are warranted. FRE believes the project impacts have been sufficiently investigated and are well-understood.

Please see also FRE comments at 3.a regarding our prior outreach efforts and prior revisions and accommodations to the development plan based on public comments, 5.b regarding revisions based on agency comments, and 7.q regarding the improper use of a 'higher standard of review' for select projects.

13.b *"If there is a trail, it would certainly get recreational use of one kind or another, and management responsibility would likely be the DPOR. The CAB recommends, in anticipation of this recreational use, that a Trail Management Plan be developed before any construction occurs."*

FRE is not proposing to create trails for this project. Please see FRE responses at 3.c and 7.a.i.

13.c *"Restoring the old channel of Fishhook Creek (...) would likely enhance salmon habitat. CAB recommends the following: slough be buffered from road, culverts provide for fish passage, change/culvert added by DOT .. be maintained as a control mechanism to manage periods of high water."*

Much of the existing Fishhook Slough downstream of the powerhouse site is located within the road right-of-way. Realigning the slough to increase the buffer to the road is subject to topographic constraints. FRE does not believe adding a buffer beyond what is proposed in the Development Plan is a reasonable requirement.

This matter will be addressed by the Fish Habitat Permit to be issued by the ADF&G. Please see also FRE responses at 3.d, and 5.

13.d *"CAB recommends that the Development Plan and SCRO decision assess the impact on the Dolly Varden that exist in Fishhook Creek and implement mitigating measures."*

This matter will be addressed by the Fish Habitat Permit to be issued by the ADF&G. Please see also FRE responses at 2.a, 5, and 7.n.

13.e *"The CAB recommends FRE and SCRO address this issue, to develop a specific quantified minimum water flow necessary to maintain the biological integrity of Fishhook Creek, and to facilitate periodic monitoring of flow quantity so that remedial action can be taken as needed. FRE in its Development Plan provide written procedures for monitoring water flow according to the established and approved minimum flow standard and incorporate corrective measures necessary to maintain water flow at or above minimum levels."*

This matter will be addressed by the Fish Habitat Permit to be issued by the ADF&G and the Water Use Permit / Water Rights to be issued by the DMLW. Please see also FRE responses at 2.a, 5, and 7.m.

13.f "The CAB recommends that FRE and SCRO take a hard look at the question of creek flow below the intake. This would include data gathering and engineering work necessary to: establish the minimum flow required to maintain the biological integrity of the creek; the volume of water expected to enter the creek at various places between the intake and the powerhouse; where the water enters from the side; how flow will be monitored; what mechanism would be established to ensure the minimum flow is maintained at all times."

This matter will be addressed by the Fish Habitat Permit to be issued by the ADF&G and the Water Use Permit / Water Rights to be issued by the DMLW. Please see also FRE responses at 2.a, 3.d, 5, and 7.m.

13.g "General need for acquisition of hydrological and biological data of Fishhook Creek. The CAB believes that such data is not only relevant to the design of this project, but also would provide baseline data necessary to monitor the impacts of this FRE project over time and to help guide the design of similar projects on other streams in the future, and therefore recommends that information/data be gathered, either from completed studies or via new studies on hydrology, water chemistry, temperature, sediment, and biology of the creek."

This matter will be addressed by the Fish Habitat Permit to be issued by the ADF&G and the Water Use Permit / Water Rights to be issued by the DMLW. Please see also FRE responses at 2.a, 3.d, 5, and 7.m.

13.h "Visual Impacts. The CAB recommends that the SCRO or FRE take a closer look at the visual impacts, particularly from mile 16 and vicinity and in light of the Construction considerations detailed below (for example, cut and fill required). The CAB also recommends a closer look and a description of specific mitigation measures, including screening, be incorporated into the Development Plan and SCRO Decision."

Please see FRE responses at 3.a, 3.b, and 8.b.

13.i "Penstock crossing of Fishhook Creek. The CAB recommends that the SCRO and FRE take a closer look at the Fishhook Creek crossing and, among other things, address the following questions:"

13.i.i "How will the penstock cross Fishhook Creek?"

Please see FRE response at 7.d.

13.i.ii "How will the penstock climb out of Fishhook Creek?"

Please see FRE response at 3.b.iii.

13.i.iii "What are the specifications for the maintenance trail in this area?"

Please see FRE responses at 3.c, 7.a.i, and 7.f.

13.i.iv "What are the visual impacts of the penstock and any maintenance trail as the penstock climbs out of Fishhook Creek, particularly in light of the cut and fill required and in light of any maintenance trail."

Please see FRE response at 3.b.

13.i.v "What will be done with the material that is generated by the cut and fill and other construction in this area?"

One goal of project design is to achieve a balanced cut / fill for the earth work, so the volume of cut material that has to be removed from the area and the volume of fill that has to be imported is minimized or eliminated. FRE expects excess cut can be blended into the construction footprint. Construction debris will be hauled from the project and disposed at an approved facility.

13.i.vi "What will be done to prevent erosion into Fishhook Creek?"

A SWPPP will be prepared prior to construction and approved by ADEC that will address erosion countermeasures.

13.j "Some of the concerns expressed by the CAB in regard to the penstock crossing of Fishhook Creek apply to the entire length of the penstock. These are as follows:"

13.j.i "What are the specifications for the maintenance trail?"

Please see FRE response at 13.i.iii.

13.j.ii "What will be done with the material that is generated by the cut and fill and other construction?"

Please see FRE response at 13.i.v.

13.j.iii "What will be done to prevent erosion (from construction, from the maintenance trail, etc.) into Fishhook Creek and other water bodies?"

Please see FRE response at 13.i.vi.

13.k "The Preliminary Decision and the Development Plan state that the penstock will be buried the entire route. The CAB expressed concern about whether it would be feasible to accomplish this."

Please see FRE responses at 7.d and 7.i.

13.l "The CAB expressed concern about the possible introduction of invasive plant species."

Please see FRE response at 7.j.

14. [redacted] NEARBY PROPERTY OWNERS (12/20/2010)

14.a "Our land straddles the upper Little Susitna River and it has been our experience that the water levels are quite variable".

FRE's hydrology studies of Fishhook Creek agree with the McDonough's observation. Flow can vary by several orders of magnitude throughout the year.

14.b "There are several runs of salmon in this river (Little Su) and the June-July King salmon run is fairly weak already".

This matter will be addressed by the Fish Habitat Permit to be issued by the ADF&G. Please see also FRE responses at 3.d, and 5.

14.c *"While we support hydropower in general, we would be opposed to any project that would significantly reduce the volume of water flowing into the Little Susitna."*

All water for the project is returned to Fishhook Creek before it flows into the Little Susitna River. This project will not change the water volume flowing into the Little Susitna River.

15. [redacted] (12/20/2010)

15.a *"As a person that lives close to that area, draws my water from that watershed and sees all of the tourists that use the area I am opposed to the Hydro project."*

FRE respects your opinion.

15.b *"Given more notice I would have responded more in depth. How was notice of the project provided"?*

Public notice of the PD and public meeting was provided in accordance with DMLW regulations, and included a notice in the Anchorage Daily News on November 5, 2010 and a notice on the ADNR website.

16. [redacted] FRIENDS OF MAT-SU (12/20/2010)

16.a *"The project has been "in the process" for over 2 years and after reviewing the Development Plan we feel it is necessary to revise the plan based on recent public comments at the open house in November and issues raised by other agencies that will issue permits. The plan should then be re-evaluated by DNR with the issuance of a new preliminary decision after issues raised are sufficiently addressed."*

FRE does not agree that the questions raised are substantial and require starting the public process over on the project.

16.b *"The HPMA is a very scenic and accessible recreation area.*

Please see FRE responses at 3.b, 8.b, and 12.i

16.c *The Little Susitna River is an important and vital fishery that is second in Coho production to the Kenai.*

This matter will be addressed by the Fish Habitat Permit to be issued by the ADF&G. Please see also FRE responses at 3.d, and 5.

16.d *"For these reasons alone this project should be held to the highest standard."*

Please see FRE responses at 7.q.

16.e *"There is not enough information to move forward on this project in order to do it in an ecologically responsible manner."*

FRE believes that adequate information has been supplied to move forward with the project. Please see also FRE responses at 2.a, 3, 5, 7, 8.b, 9.i, 9.j, 11.a, and 12.e.

16.f "Fish Habitat - Only the last half mile of Fishhook Creek has been discussed or looked at and that is in context with the road construction that occurred when the road was paved and the old channel was altered. ... We strongly recommend that Fish & Game do more than a cursory review and more than just netting a few fish once or twice a year in one location."

This matter will be addressed by the Fish Habitat Permit to be issued by the ADF&G. Please see also FRE responses at 3.d, 5, and 7.n.

16.g "Hydrology and Water data - It is important to note the term "visible flowing water" in relation to dewatering of the creek for almost 7 months each year. What does this mean? Who measures adequate flow? Who will monitor during the 7 months of low flow or no flow? Who will follow up to make sure the fish population has not been impacted on a yearly basis? ... Water flow, temperature, biology pertaining to macro invertebrates and aquatic insects are additional data that needs to be collected and analyzed to assure that this project is done responsibly."

This matter will be addressed by the Fish Habitat Permit to be issued by the ADF&G and the Water Use Permit / Water Rights to be issued by the DMLW. Please see also FRE responses at 2.a, 3.d, 5, and 12.e.

16.h "Visual Impacts"

16.h.i "The penstock burial, if it can be buried all the way, will be an eyesore for quite some time unless great care is taken. No comprehensive soil or topographic analysis has been done to see if it is truly feasible to bury the entire penstock."

FRE has completed topographic surveys of the project area. Please see also FRE responses at 7.a.ii, 7.c and 7.i.

16.h.ii "You will be able to see this from the lower road, the upper road as you drive through and most noticeably near the 16 mile pullout where most visitors stop to take photos."

Please see FRE responses at 3.a, and 3.b.

16.h.iii "The maintenance trail will be an attraction to add to the erosion by inviting foot traffic unless properly mitigated through design or the use of motor vehicles is prohibited for maintenance."

Please see FRE responses at 3.c and 7.a.

16.h.iv "Visual mitigation of the powerhouse isn't sufficient as it is relying on the growing season vegetation to hide it and in reality 7 months of the year there is no vegetation."

FRE's development plan shows an earthen berm with native trees and vegetation. These features will still provide visual screening even during the winter months. Please see also FRE response at 3.b.

16.i "FRE should revise their plan to reflect the concerns raised and impacts this project could have visually and ecologically."

Ecological matters will be addressed by the Fish Habitat Permit to be issued by the ADF&G. Please see FRE responses at 16.c.

16.j "FRE should conduct a thorough hydrological analysis that includes flow data through the year, water temperatures, sediments and assesses biological impacts of macro invertebrates and aquatic insects."

Please see FRE responses at 2.a and 7.m regarding stream flow and at 12.e regarding other water quality concerns.

16.k "DNR and FRE need to work together to assure that this project is monitored for any impacts and that those impacts are mitigated or avoided throughout the life of the project if it moves forward."

Please see FRE response at 13.a.

16.l "DNR needs to assure there is always adequate water in the streambed and that this is monitored and enforced."

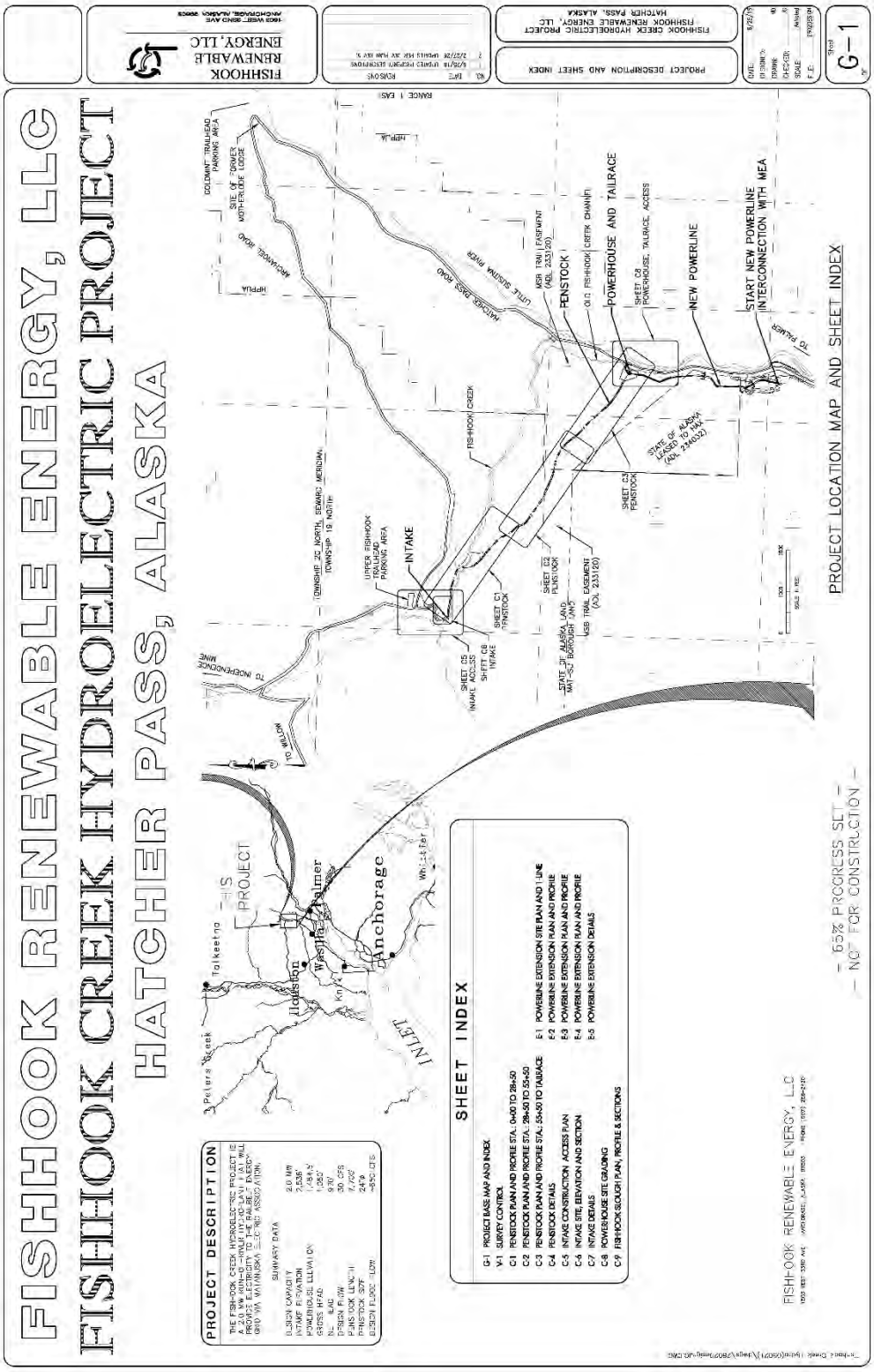
Please see FRE responses at 2.a and 7.m.

16.m "DNR and FRE need to work with Fish & Game to assure anadromous fish are not impacted, just because FRE's proposal touts enhancing fish habitat doesn't mean there will be fish. "

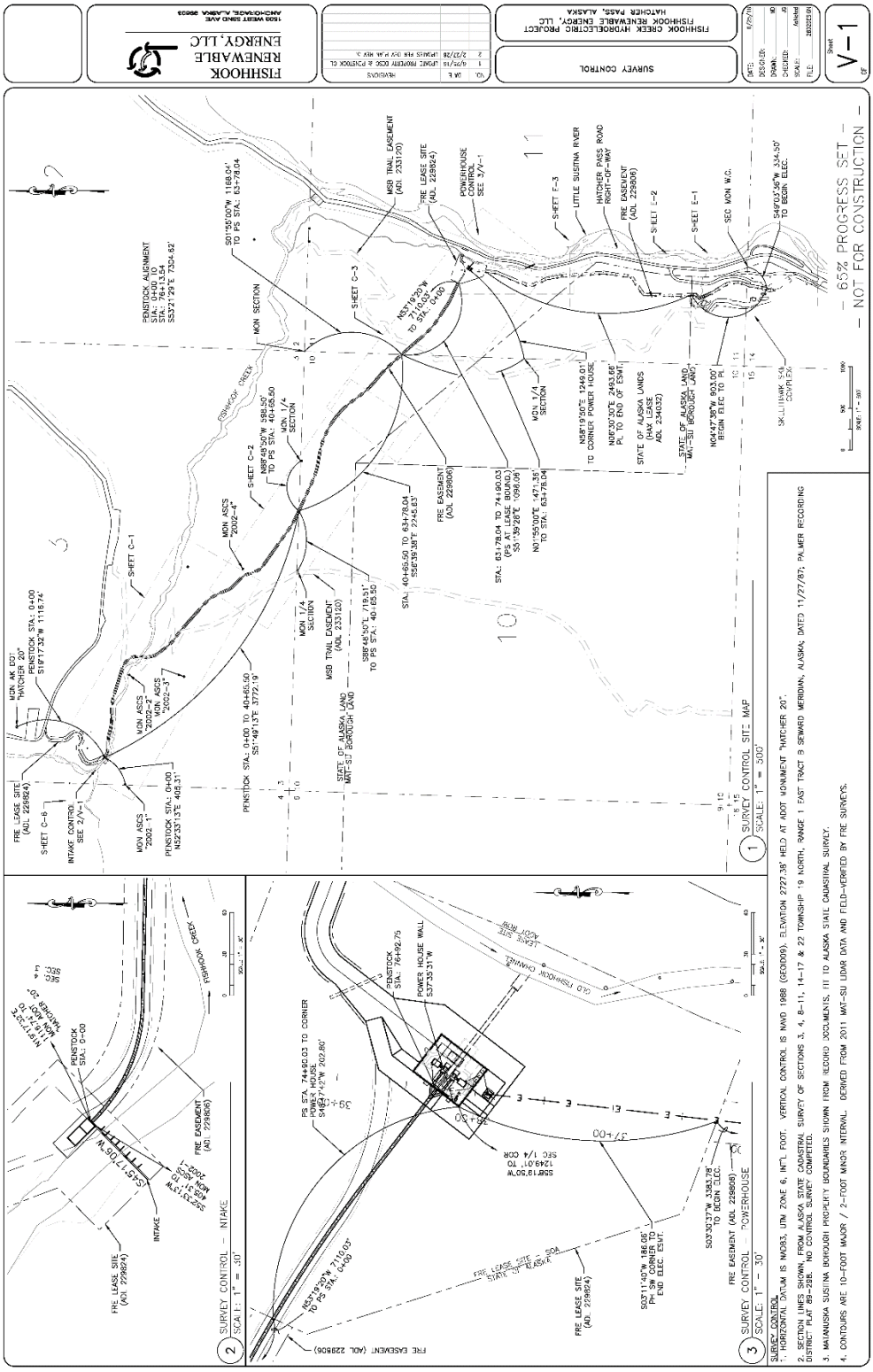
This matter will be addressed by the Fish Habitat Permit to be issued by the ADF&G. Please see also FRE responses at 3.d, 5, and 7.n.

ATTACHMENT 3 – PROJECT DRAWINGS, FEBRUARY 27, 2026.

Attachment B
Development Plan



Attachment B
Development Plan



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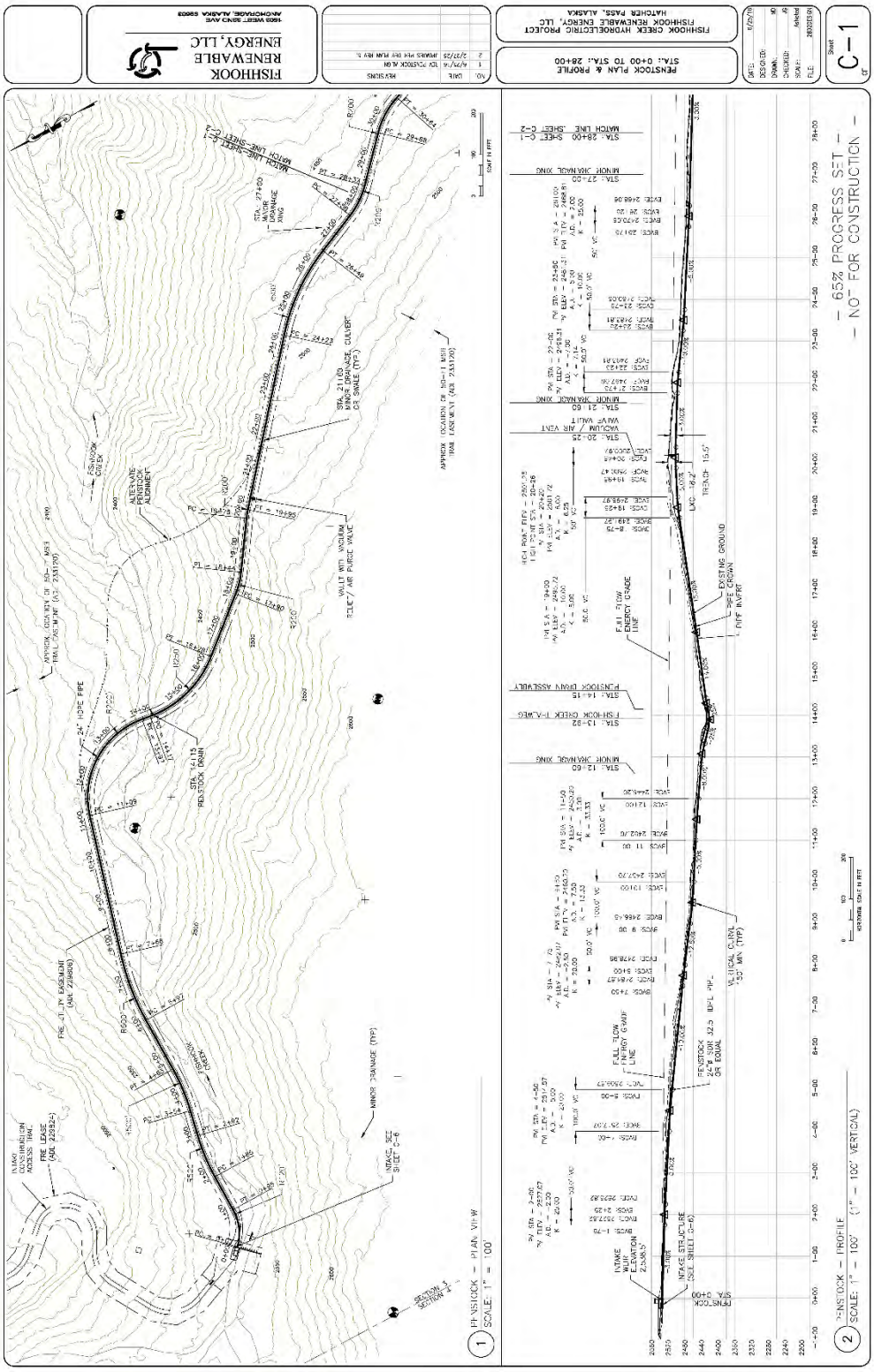

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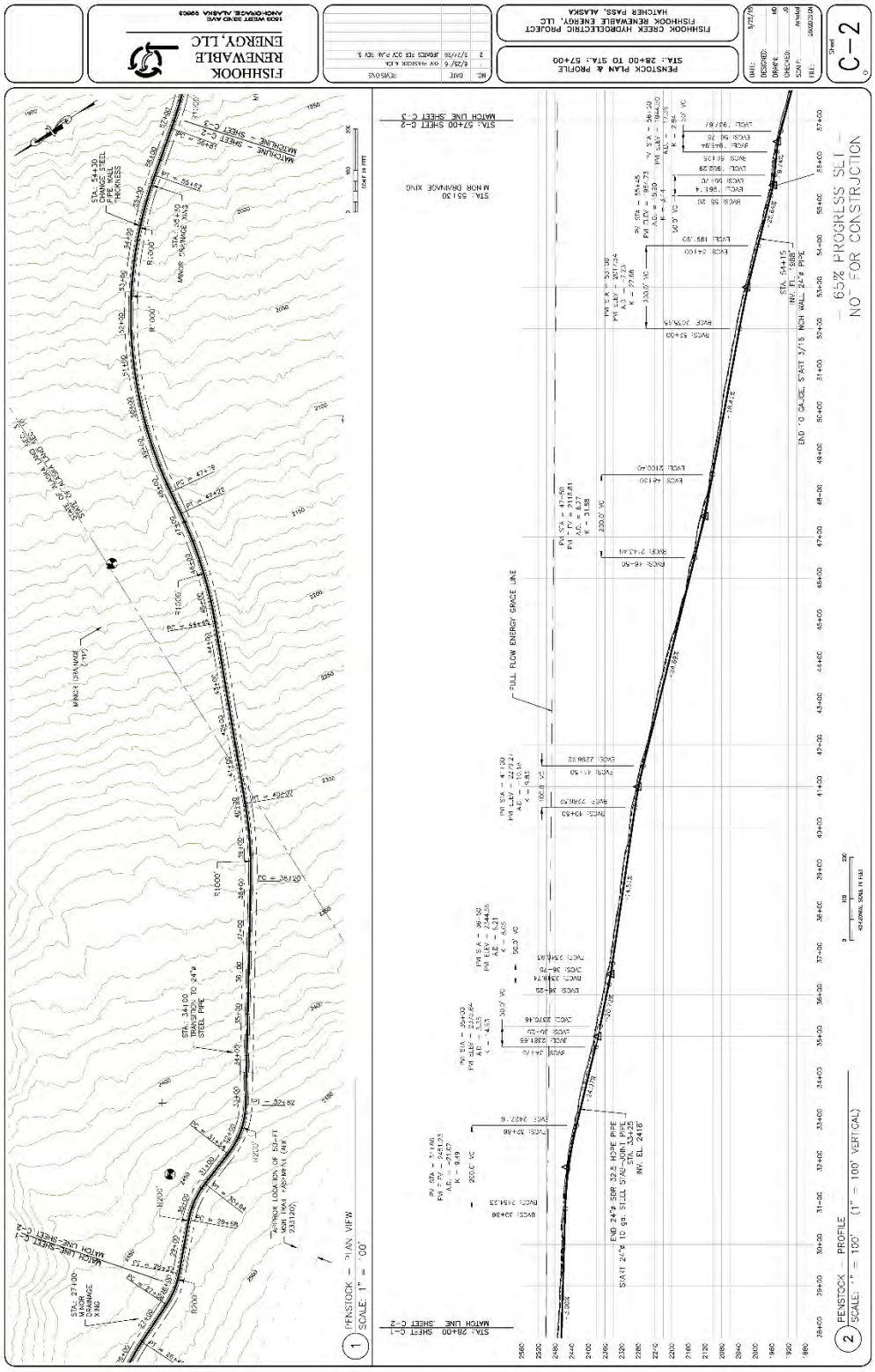

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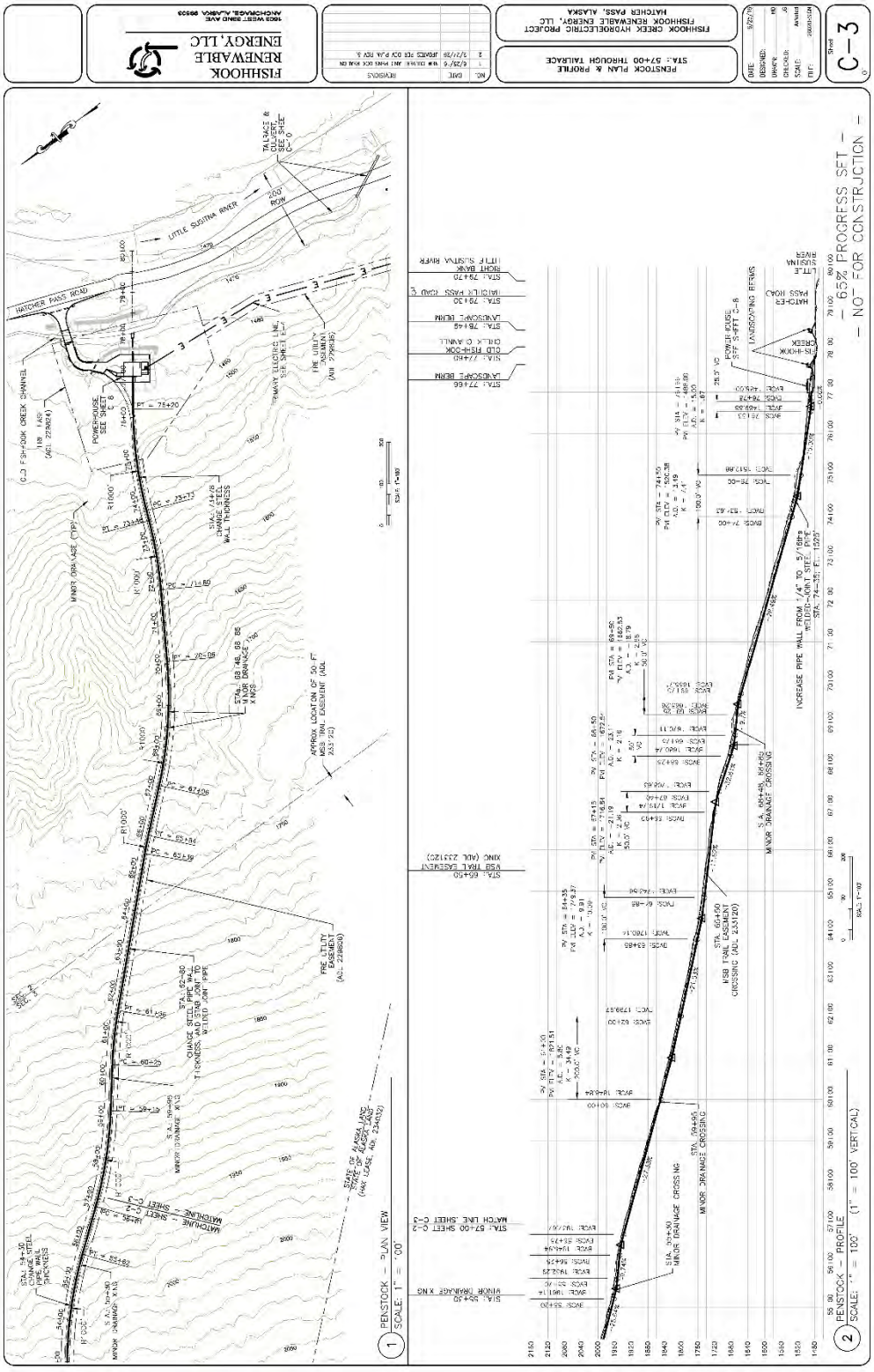

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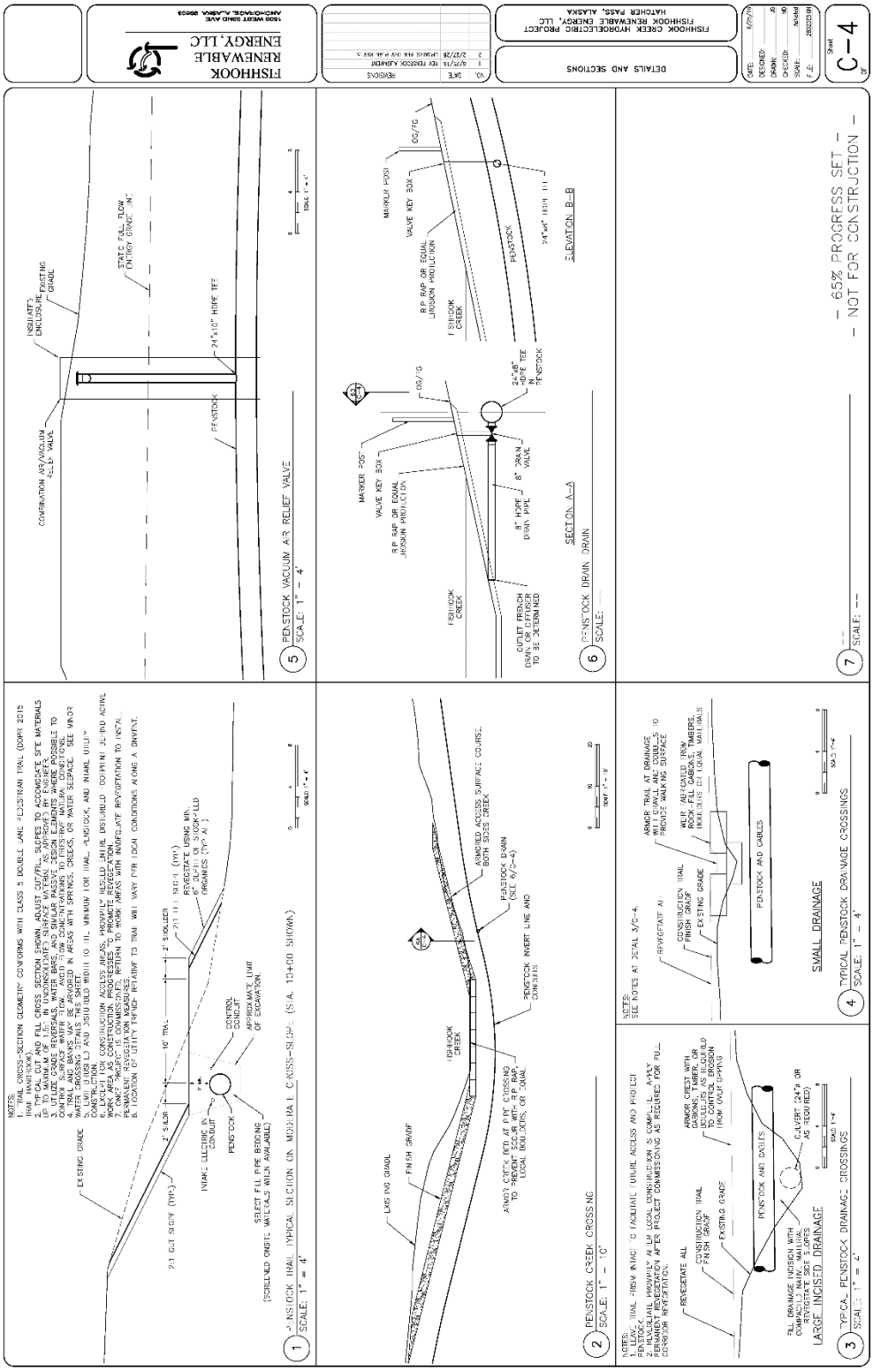

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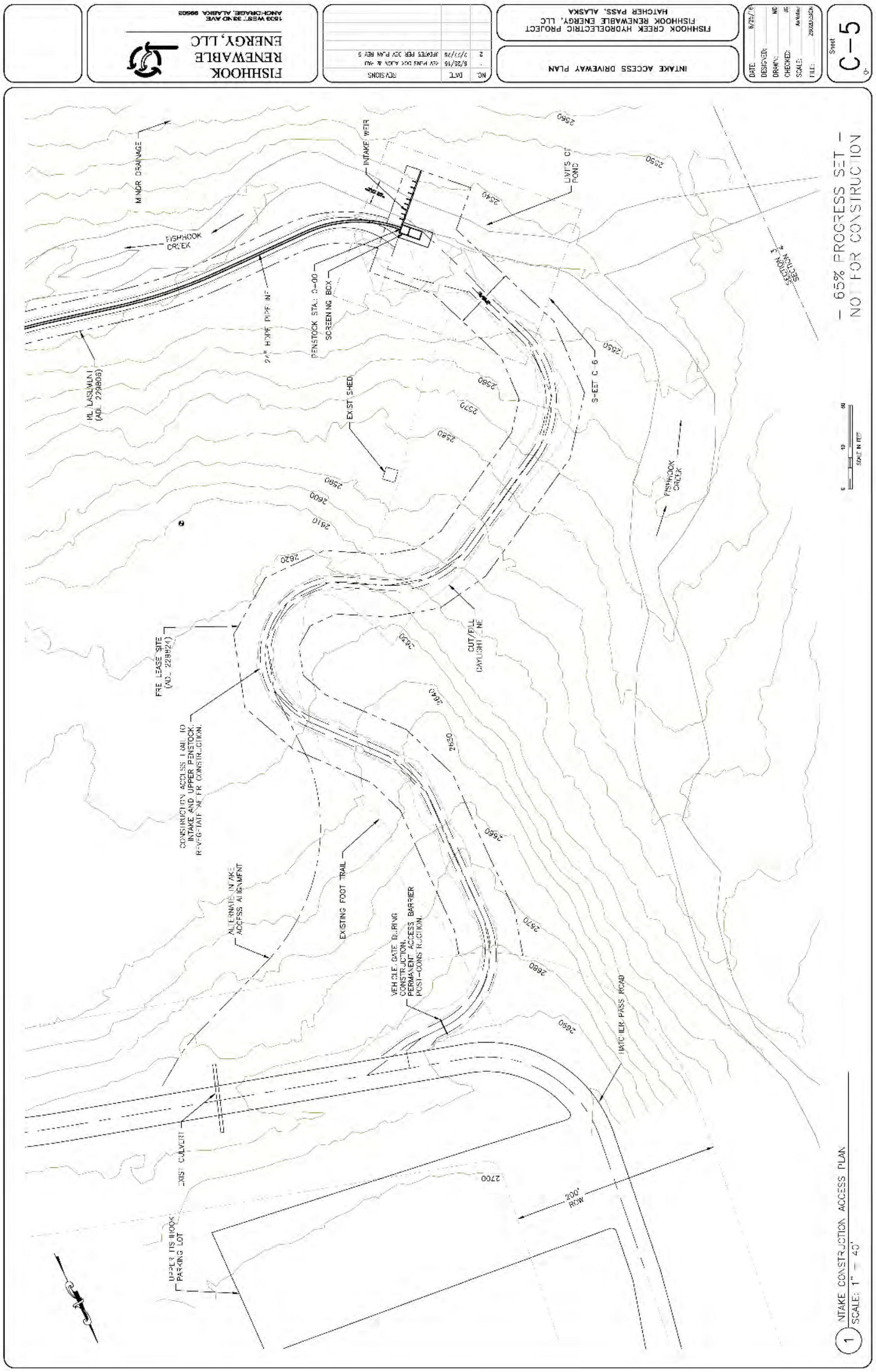

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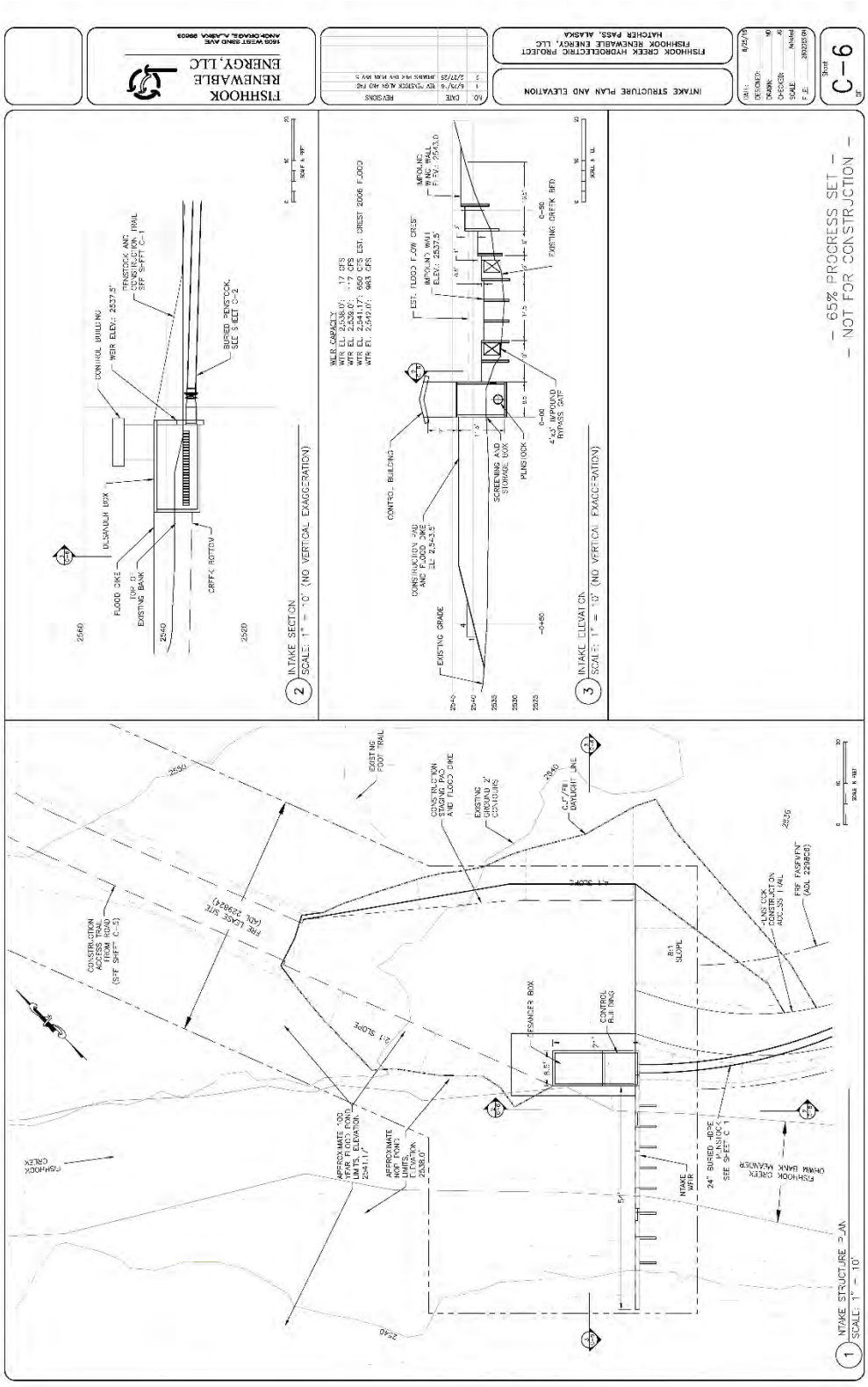

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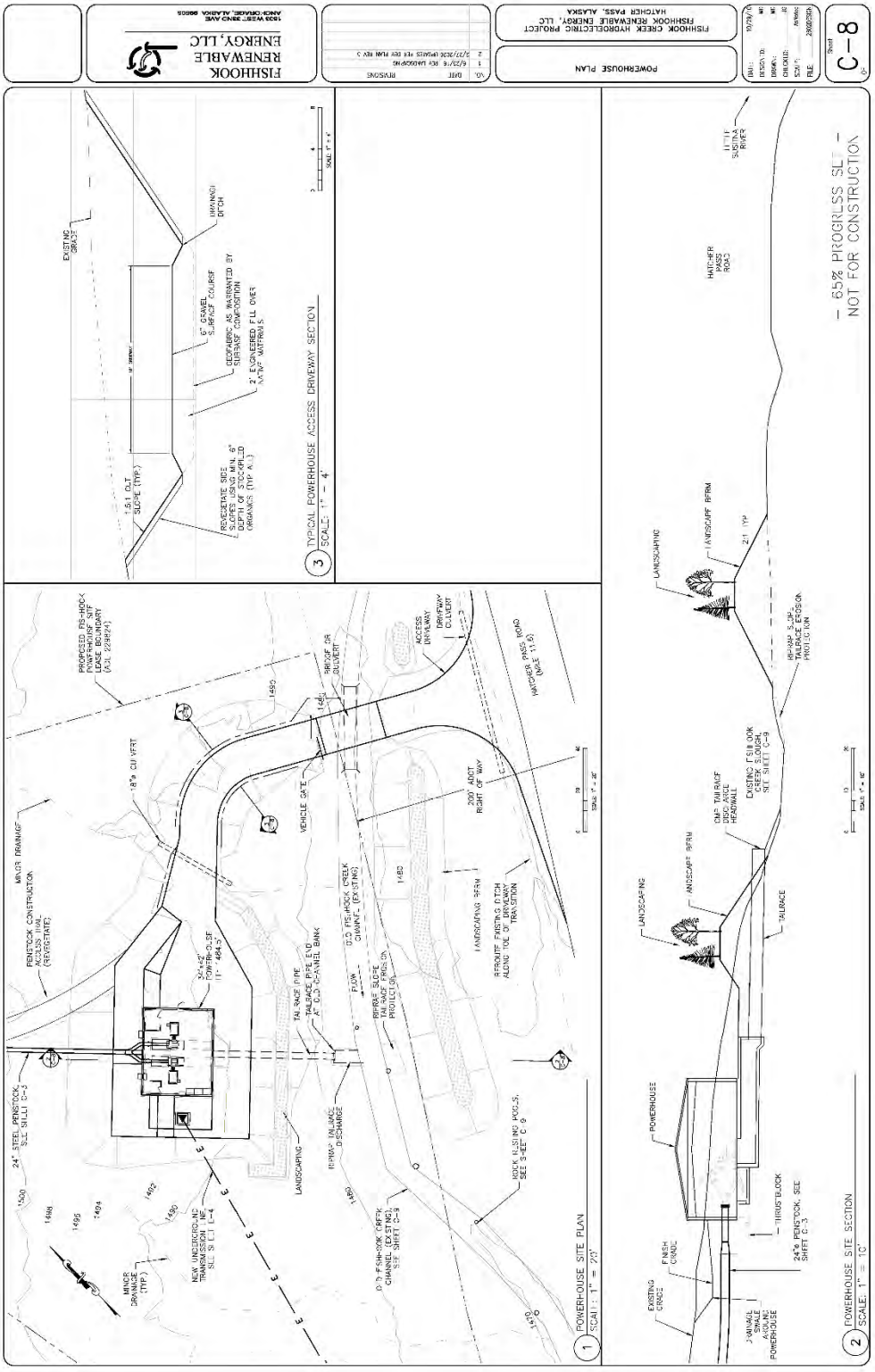

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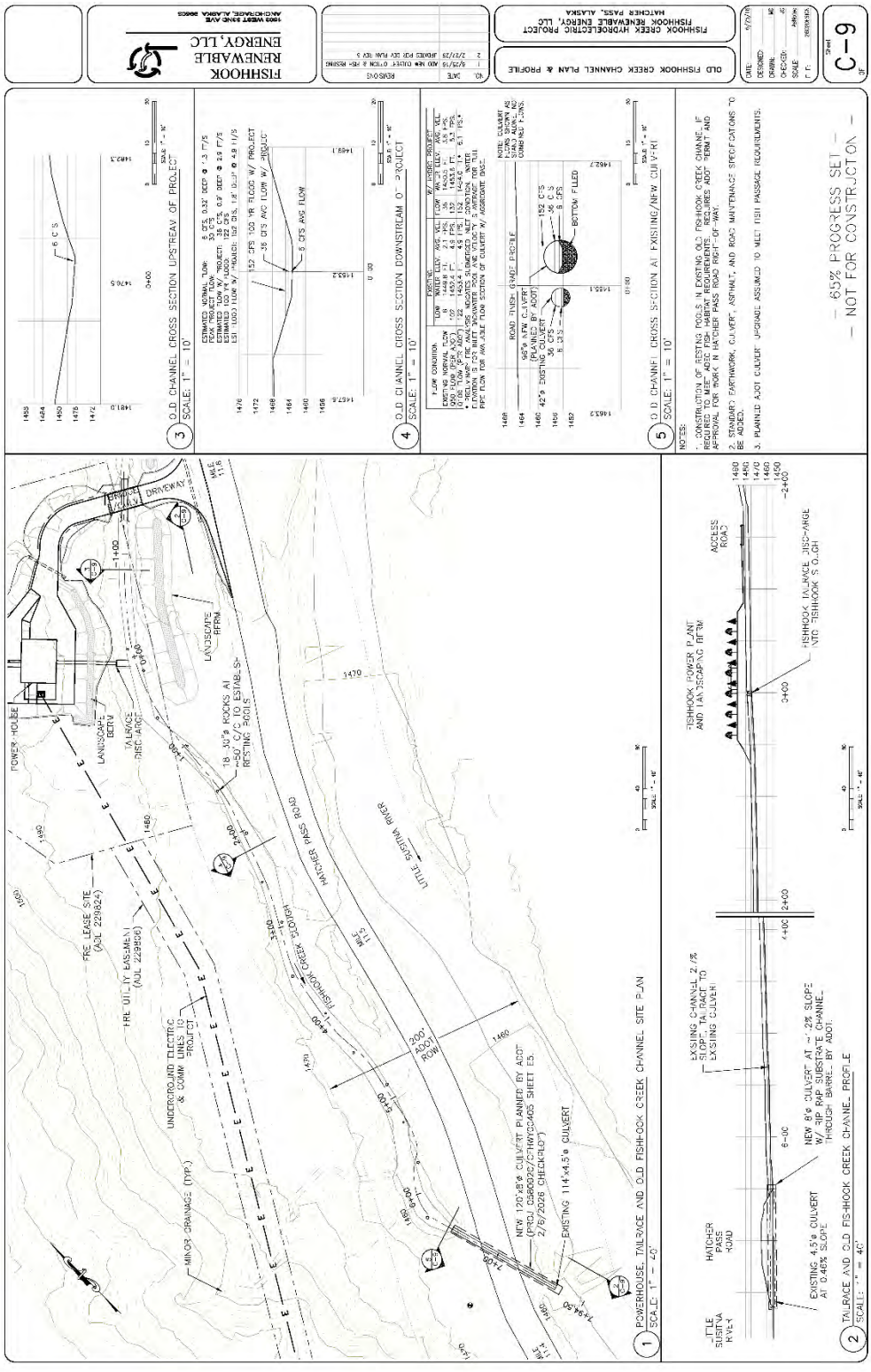

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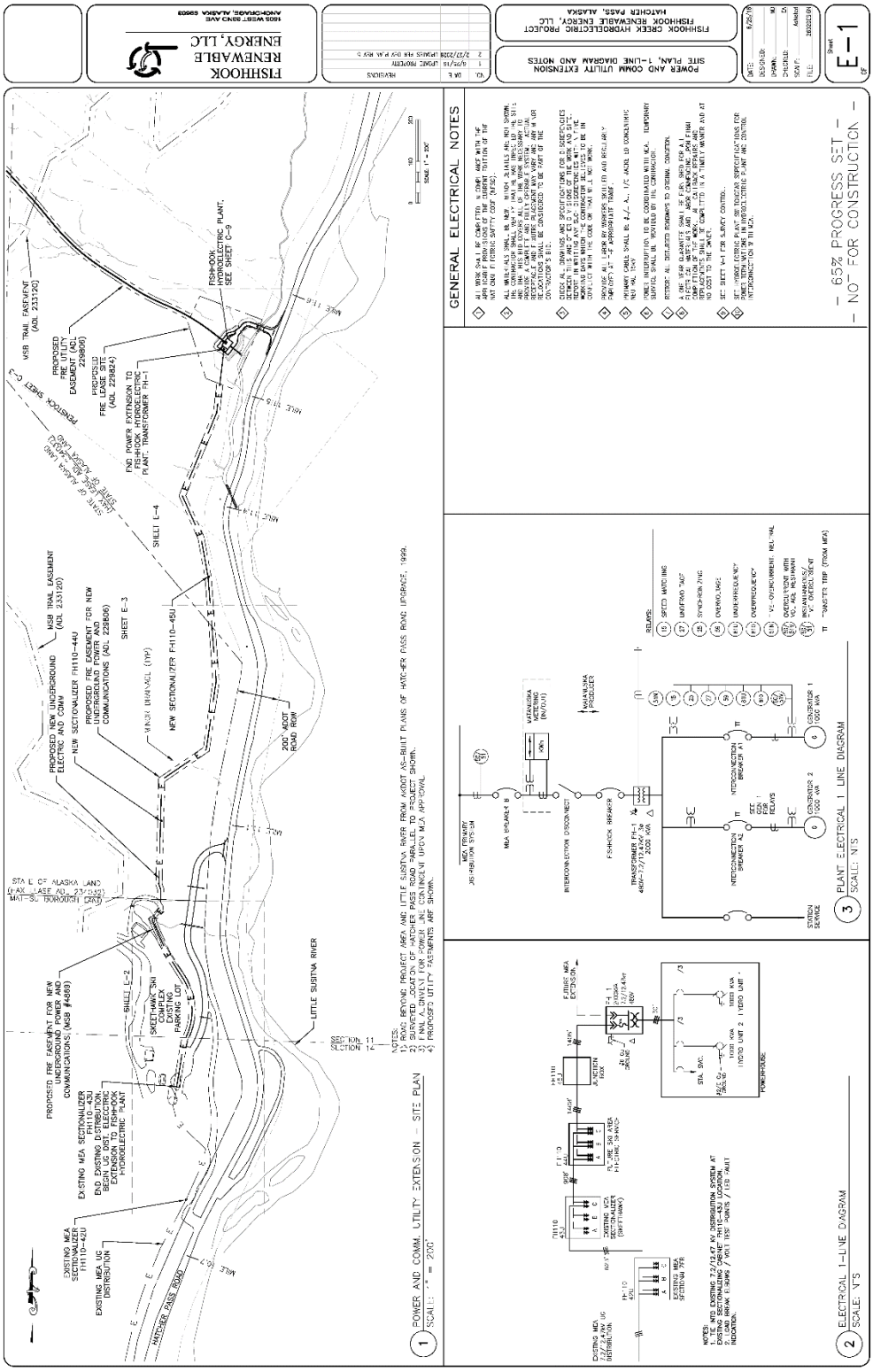

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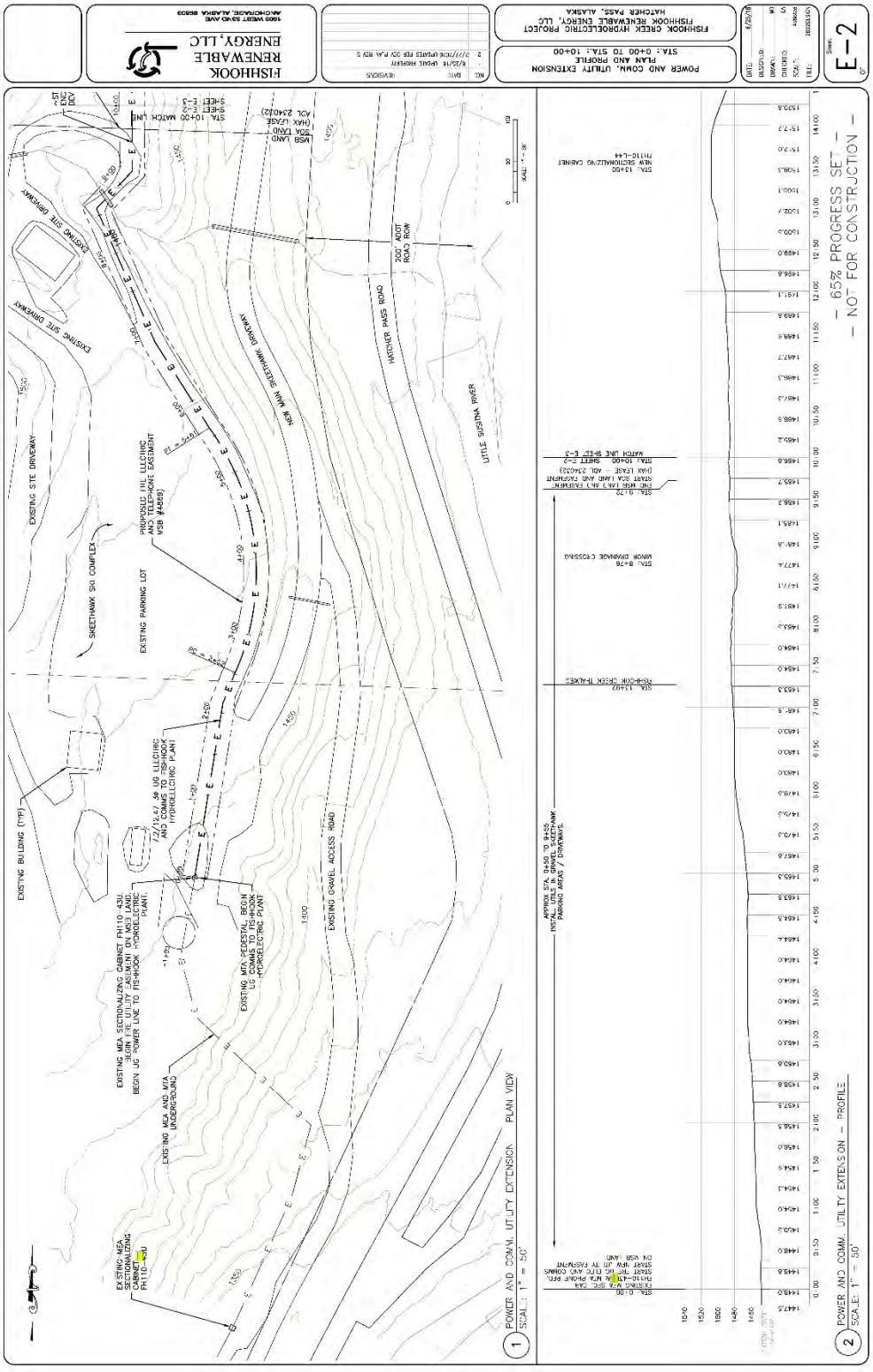

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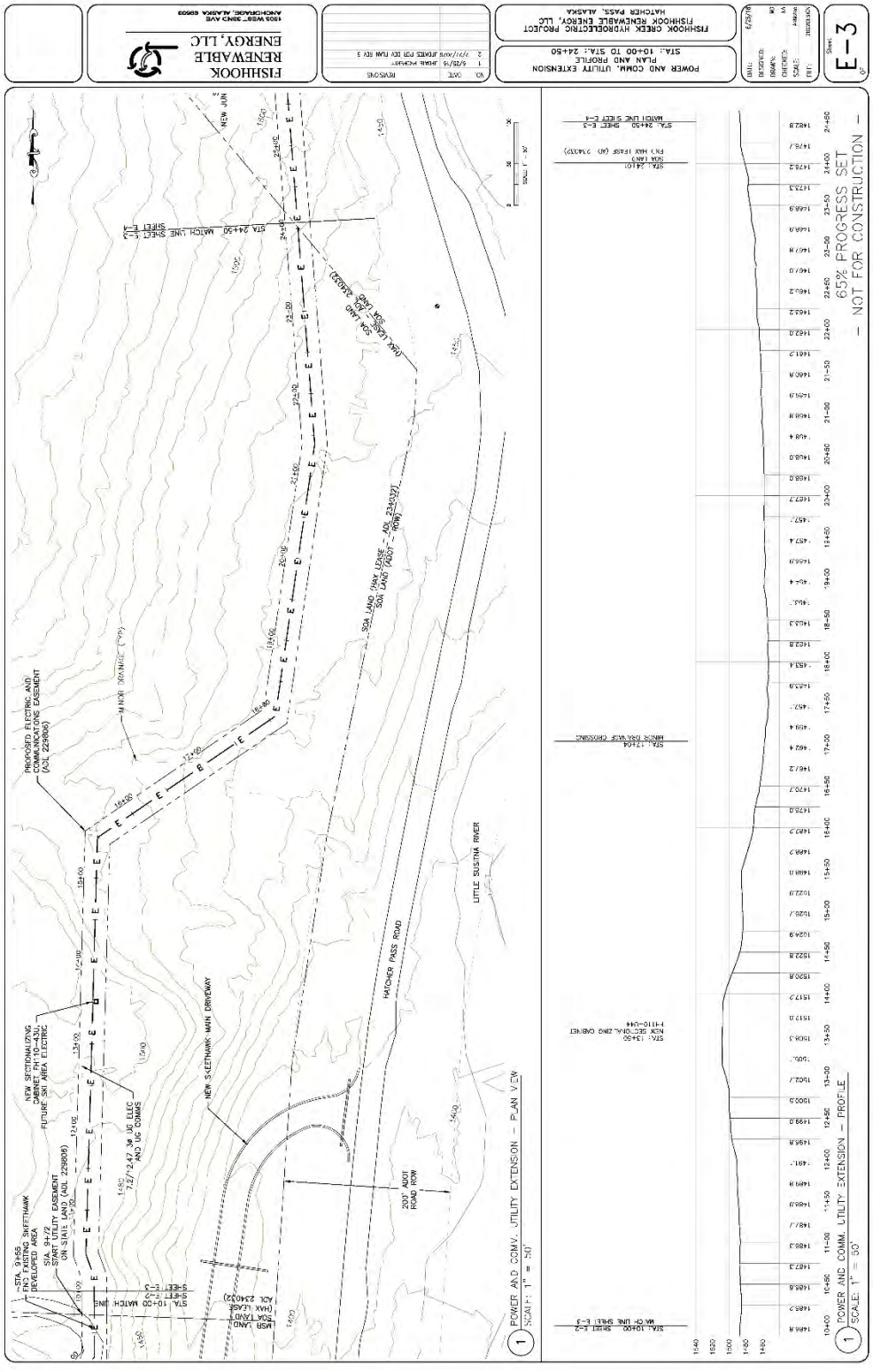

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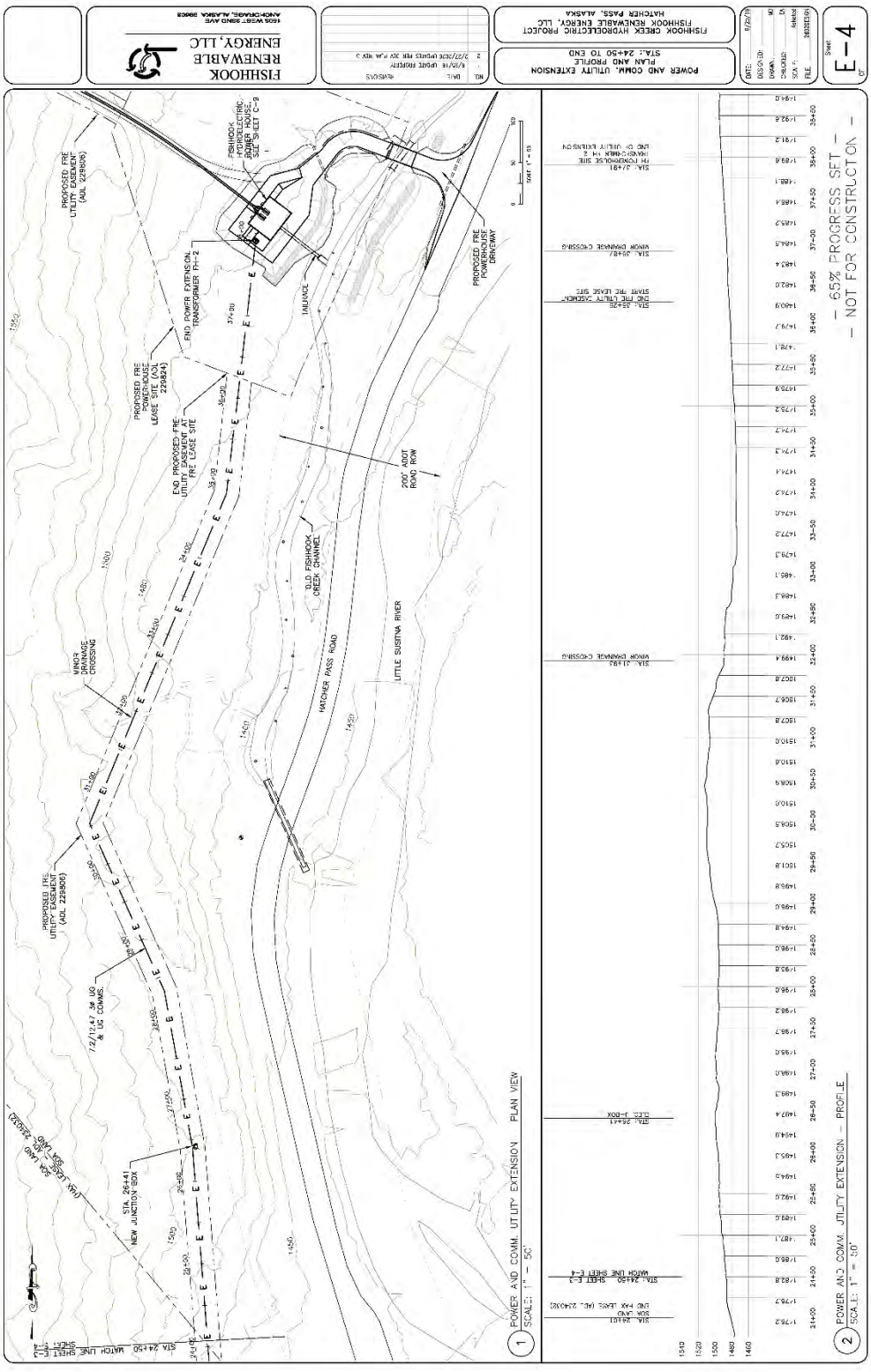

Attachment A
Sample Entry Authorization

STATE OF ALASKA DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINING, LAND AND WATER

[ ] Northern Region
3700 Airport Way
Fairbanks, AK 99709
(907) 451-2705

[X] Southcentral Region
550 W. 7th Avenue, Ste. 900C
Anchorage, AK 99501-3577
(907) 269-8552

[ ] Southeast Region
400 Willoughby, Ste. 400
Juneau, AK 99801
(907) 465-3400

Entry Authorization
AS 38.05.075(f)

Lease No. **ADL XXXXXX**

Name and Address of Lessee, herein known as the "lessee", is issued this Entry Authorization (EA) to use xxx acres, more or less, of state-owned land located within the:

XXX of **Section XX, Township XX North, Range XX East, XX Meridian**

This pre-lease authorization is effective beginning **DATE** and ending **DATE**, unless sooner terminated at the State's discretion. This EA is not valid until it has been executed by the Division of Mining, Land and Water (DMLW), Southcentral Regional Land Office (SCRO).

This EA is issued for the purpose of authorizing:

The lessee's temporary entry onto state land for the construction and use of XXX in accordance with the approved Development Plan (DP) (Attachment A) while the lessee completes the required survey, appraisal, and *other* before lease issuance.

All activities authorized under the EA shall be conducted in accordance with the following stipulations:

1. **Authorized Officer (AO):** The Authorized Officer (AO) for the State of Alaska (State), Department of Natural Resources (DNR), DMLW, is the Regional Manager or designee.

2. **Compliance with Requirements:** The lessee shall, at its expense, comply with all federal, state, and local laws, regulations, and ordinances directly or indirectly related to this authorization. The lessee shall ensure compliance by its employees, agents, contractors, subcontractors, licensees, or invitees. The issuance of this EA does not relieve the lessee from securing any other authorizations required by federal, state, or local law.

3. **Development Plan:** Development shall be limited to the authorized area and improvements specified in the approved development plan or subsequent modifications approved by the AO. The lessee is responsible for accurately siting development and operations within the

authorized area. Any proposed revisions to the development plan must be approved in writing by the AO before the change in use or development occurs.

4. **Annual Fee:** In accordance with 11 AAC 58.410 and for the purpose of this EA, the annual fee will be **$XXXX.00**, which must be paid on or before **DATE** of every year during the term of this authorization. Payment for the first year of the EA, and any other fees owed, shall be required prior to issuance of the authorization. The lessee shall pay a fee for any late payment. The amount is the greater of either $50.00 or interest accrued daily at the rate of 10.5% per annum and will be assessed on each past-due payment until paid in full.

5. **Returned Check Penalty:** A returned check penalty of $50.00 will be charged for any check on which the bank refuses payment. Late payment penalties shall continue to accrue.

6. **Failure to Pay:** Failure to pay annual fees when due is a default of the terms and conditions of this EA. Failure to cure such a default within the 60-day period following the receipt of a "Notice of Default" will, at the AO's discretion, result in termination of this authorization.

7. **Visitor Day Use Fee:** *(if applicable)* All commercial recreation authorizations are subject to a "Visitor Day Use" fee. As defined in 11 AAC 96.250(18), Visitor Day means "all or any part of a calendar day during which a commercial recreation client is present, with each client representing a separate visitor day if multiple clients are present at any time during a calendar day." This fee, as established in 11 AAC 05.180(d)(2)(D) or (G), is collected once a year and due on the same day as the annual fee.

8. **Moving or Damaging Markers:** The lessee shall protect all survey monuments, witness corners, reference monuments, mining claim posts, bearing trees, and unsurveyed corner posts against relocation, damage, destruction, or obliteration. The lessee shall notify the AO of any relocated, damaged, destroyed, or obliterated markers and shall reestablish the markers at the lessee's expense in accordance with accepted survey practices of the DMLW.

9. **Survey:** The lessee is responsible for completing an **Alaska State Land Survey (ASLS)/Alaska Tidelands Survey (ATS)** of the proposed lease site. **The survey must be submitted to DMLW's Survey Section for approval no later than one year after issuance of the survey instructions.** Failure to do so will cause the forfeiture of the performance guaranty as outlined in the Penalties stipulation listed below. The survey must properly locate the lease boundaries, all infrastructure, and easements. If the submitted survey is accepted by DMLW, the measurements identified will be used to accurately calculate the total acreage.

10. **Appraisal:** The lessee is responsible for obtaining and submitting the required Fair Market Value appraisal for this site. Once the survey has been submitted to DMLW for review, please contact DMLW's Appraisal Unit at (907) 269-8512 to begin the appraisal process. The final appraisal report must be submitted to DMLW for approval no later than **DATE**.

Attachment A
Sample Entry Authorization

11. **Performance Guaranty:** As per 11 AAC 96.060 the following bond is required:

    a) **$X,XXX.00 Performance Guaranty** *(Cash, CD, or Surety):* This bond shall remain in place throughout the life of this EA and the subsequent lease (if granted) to assure the lessee's compliance with the terms and conditions of both authorizations. Should the lessee fail to abide by the terms of this EA, this bond may be used by the AO to pay for any corrective actions the AO deems necessary.

    - Failure by the lessee to provide replacement security for a CD or surety upon notice of non-renewal shall be grounds for the AO to make a claim upon the existing security to protect the State's interests.
    - The Performance Guaranty amounts are subject to periodic adjustments (every 5 years) and may be adjusted upon approval of any amendments, assignments, modifications to the DP, and as a result of any violations of this authorization.
    - If a bond is taken as part of a penalty, either whole or in part, that bond must be replenished by the replacement deadline contained within the penalty notification letter. Failure to replace the bond is, at the discretion of the AO, grounds for termination of the EA and possible denial of the subsequent lease.
    - The Performance Guaranty will be released upon expiration or closure of the lease provided that all terms and conditions of the lease have been met, including removal of infrastructure and restoration of the area to the satisfaction of the AO.

12. **Indemnification:** The lessee shall indemnify, defend, and hold the State harmless from and against all claims, demands, judgments, damages, liabilities, penalties, and costs, including attorney's fees, for loss or damage, including but not limited to property damage, personal injury, wrongful death, and wage, employment, or worker's compensation claims, arising out of or in connection with the use or occupancy of the authorized site by the lessee or by any other person holding under the lessee, or at the lessee's sufferance or invitation; and from any accident or fire on the site; and from any nuisance made or suffered on the site; and from any failure by the lessee to keep the site in a safe and lawful condition consistent with applicable laws, regulations, ordinances, or orders; and from any assignment, sublease, or conveyance, attempted or successful, by the lessee of all or any portion of the site or interest therein contrary to the covenants and conditions of this EA. The lessee holds all goods, materials, furniture, fixtures, equipment, machinery, and other property whatsoever on the parcel at the sole risk of the lessee, and shall defend, indemnify and hold the State harmless from any claim of loss or damage by any cause whatsoever, including claims by third parties.

13. **Insurance:** The lessee shall secure or purchase at its own expense, and maintain in force at all times during the term of this contract, liability coverages and limits consistent with what is professionally recommended as adequate to protect the buyer (the insured) and seller (the State,

its officers, agents and employees) from the liability exposures of ALL the insured's operations on state land. Certificates of Insurance must be furnished to the AO prior to the issuance of this lease and must provide for a notice of cancellation, non-renewal, or material change of conditions in accordance with policy provisions. The lessee must provide for a 60-day prior notice to the AO before they cancel, not renew or make material changes to conditions to the policy. Failure to furnish satisfactory evidence of insurance, or lapse of the policy, are material breaches of this lease and shall be grounds, at the option of the AO, for termination of the lease. All insurance policies shall comply with, and be issued by, insurers licensed to transact the business of insurance under Alaska Statute, Title 21. The policy shall be written on an "occurrence" form and shall not be written as a "claims-made" form unless specifically reviewed and agreed to by the Division of Risk Management, Department of Administration. The State of Alaska must be named as an additional named insured on the policy. Case number **ADL XXXXXX** is to be referenced on the policy and the certificate of insurance.

14. **Subleasing:** The AO reserves the right to require an additional annual compensation as a condition of a sublease approval. Said increase shall be determined by negotiation between the lessee and AO but shall not be less than 25% of all compensation paid annually to the lessee by the sublessee. Neither the terms of this sublease provision nor any actual compensation derived from a sublease shall have any effect upon a determination of the annual lease fee for the lease parcel pertaining to AS 38.05.075(a) or its appraised market value pertaining to AS 38.05.840. Sublease shall be defined to include any lease, rental, storage, or accommodation agreement between the lessee and another individual, business or corporation utilizing or benefiting from the lease parcel. Sublessee shall be defined to mean any individual or business entity executing an agreement, as above, with the lessee. The amount of sublease compensation shall be subject to change at the same time as the lease compensation adjustment and whenever the terms or conditions of the agreement between the lessee and sublessee change. Approval of a sublease shall also be conditioned upon:

    a) The lessee is in full compliance with lease conditions and is in good standing with all other authorization per 11 AAC 96.145;

    b) Sublessee must meet the statutory requirement of the lease;

    c) Submission by the lessee of a draft copy of the agreement(s) which will govern the relationship and compensation provisions between the lessee and the sublessee;

    d) Submission by the lessee of a proposed plan of operations and development for the subleased area and, if necessary, an amended plan of operations and development for the entire lease area; and

    e) A lessor best interest finding and amendments to the lease contract as necessary, if significant changes to the use and development are proposed.

Attachment A
Sample Entry Authorization

15. **Loss of Improvements:** The lessee assumes all risk of loss of improvements resulting from natural or catastrophic events.

16. **Incurred Expenses:** The lessor shall in no way be held liable for expenses incurred by the lessee connected with the activities directly or indirectly related to this authorization.

17. **Request for Information:** The AO, at any time, may require the lessee to provide any information directly or indirectly related to this authorization, in a manner prescribed by the AO.

18. **Alaska Historic Preservation Act:** Under the Alaska Historic Preservation Act, AS 41.35.200, it is unlawful to appropriate, excavate, remove, injure, or destroy any historic, prehistoric, or archaeological resources of the State without a permit from the DNR Commissioner. Should any such resources or sites be discovered, the lessee shall cease any activities that may cause damage and immediately contact the AO and the Office of History and Archaeology in DNR's Division of Parks and Recreation.

19. **Inspections:** The AO shall have reasonable access to the authorized area for inspection, which may be conducted without prior notice. If the lessee is found to be in noncompliance the authorized area may be subject to reinspection. The lessee may be charged for actual expenses of any inspection or the fee in 11 AAC 05.160.

20. **Public Access:** The construction, operation, use, and maintenance of the authorized area shall not interfere with public use of roads, trails, waters, landing areas, and public access easements. The ability to use or access state land or public waters may not be restricted in any manner. However, if a specific activity poses a safety concern, the AO may allow the restriction of public access for a specific period of time. The lessee is required to contact the AO in advance for approval. No restriction is allowed unless specifically authorized in writing by the AO.

    This EA is subject to the following public access easement reservations: *(if applicable)*

    a) To and Along easements; RS2477 trails, issued easements,

    b) ETC.

21. **Concurrent Usage:** The AO reserves the right to grant additional authorizations to third parties for compatible uses on or adjacent to the land covered under this authorization. Authorized users of state land, their agents, employees, contractors, subcontractors and licensees shall not interfere with the operation or maintenance activities of other authorized concurrent users. Any future concurrent permit, lease or sublease will be subject to the conditions and stipulations contained in the lease, including the additional collection of fees or rents by the AO from any subordinate lessee or sublessee.

Attachment A
Sample Entry Authorization

22. **Site and Improvements Maintenance:** The authorized area shall be maintained in a neat, clean, and safe condition, free of any solid waste, debris, or litter, except as specifically authorized. The lessor is not responsible for maintenance of authorized improvements or liable for injuries or damages related to those improvements. No action or inaction of the lessor is to be construed as assumption of responsibility.

23. **Site Disturbance:**

    a) Site disturbance shall be kept to a minimum to protect local habitats. All activities at the site shall be conducted in a manner that will minimize the disturbance of soil and vegetation and changes in the character of natural drainage systems. Any ground disturbances that may occur shall be contoured to blend with the natural topography to protect human and wildlife health and safety. Particular attention must be paid to preventing pollution and siltation of any waterways and to preventing disturbances to fish and wildlife populations and habitats.

    b) Brush clearing is allowed only to the extent necessary to maintain the present development. The lessee may use dead timber that is down. The lessee shall not cut standing timber within the leased area unless specifically authorized by DNR's Division of Forestry.

    The removal of vegetation shall be kept to a minimum and areas requiring disturbance should be seeded or planted as soon as possible after disturbance. To the extent possible, associated vegetation should be left intact to enhance stability, control erosion, and enhance scenic qualities.

24. **Hazardous Substances, Explosives:**

    a) No storage of hazardous material/substances or explosives is authorized within the leased area.

    b) The use of hazardous substances or explosives must be done in accordance with existing federal, state, and local laws, regulations, and ordinances. Debris (including soil) contaminated with used motor oil, solvents, or other chemicals may be classified as a hazardous substance and must be removed from the sites and managed and disposed of in accordance with state, federal and local laws, statutes, and regulations.

25. **Use and Storage of Fuel:** All fuel storage container(s) with a total combined capacity larger than 55 gallons shall not be placed within 100 feet from the high or ordinary water mark of any waterbody. When fuel storage container(s) exceed a total combined capacity of 110 gallons, the containers must be stored within a double-walled tank, an impermeable diked area, or a portable impermeable containment structure capable of containing 110% of the capacity of the largest independent container. All containers must be approved by the Department of

Attachment A
Sample Entry Authorization

Environmental Conservation (DEC) and clearly marked with the contents and the lessee's name and authorization number. Drip pans and other spill response materials, such as sorbent pads, must be on hand to contain and clean up any spills.

26. **Spill Response:** The lessee is responsible for preventing fuel spills, hydraulic fluid spills, and oil spills that could result in contamination of contiguous land and water. Petroleum product spills shall be cleaned up immediately, and any contaminated earth or vegetative materials shall be disposed of as required by DEC regulations. To facilitate rapid spill response, adequate sorbent materials (i.e., material that collects or absorbs petroleum products while at the same time repels water) will be kept onsite to be used in the event a spill should occur. Should any unlawful discharge, leakage, spillage, emission, or pollution of any type occur due to lessee activities, the lessee shall, at their expense, be obligated to clean the area to the reasonable satisfaction of the State.

27. **Notification of Discharge:** The lessee shall immediately notify DEC and AO of any unauthorized discharge of oil to water, any discharge of hazardous substances (other than oil), and any discharge of oil greater than 55 gallons on land. All fires and explosions must also be reported immediately.

    If a discharge, including a cumulative discharge, of oil is greater than 10 gallons but less than 55 gallons, or a discharge of oil greater than 55 gallons is made to an impermeable secondary containment area, the Grantee shall report the discharge within 48 hours. Any discharge of oil greater than one gallon up to 10 gallons, including a cumulative discharge, solely to land, must be reported in writing on a monthly basis.

    Notification of discharge during normal business hours must be made to the nearest DEC Area Response Team: Anchorage (907) 269-3063, fax (907) 269-7648; Fairbanks (907) 451-2121, fax (907) 451-2362; Juneau (907) 465-5340, fax (907) 465-5245. To report a spill outside of normal business hours, call toll free 1-800-478-9300 or international 1-907-269-0667.

    Notification of discharge must be made to the appropriate DNR Office, preferably by e-mail: Anchorage email dnr.scro.spill@alaska.gov, (907) 269-8528; Fairbanks email dnr.nro.spill@alaska.gov, (907) 451-2739; Juneau email dnr.sero.spill@alaska.gov, (907) 465-3513. The Grantee shall supply the AO with all incident reports submitted to DEC.

28. **Waste and Debris Disposal:** Onsite refuse disposal is prohibited. All waste generated during construction, operation, and termination activities under this EA shall be removed and disposed of at an offsite DEC-approved disposal facility. Until the waste can be removed from the site, it must be stored in a manner to prevent attracting wildlife.

29. **Lease Issuance:** Upon completion and fulfillment of all conditions and stipulations of this EA, a lease will be issued to the lessee containing approximately xx acres, more or less, of state land/tidelands.

Attachment A
Sample Entry Authorization

30. **Termination:** This authorization may be terminated upon violation of any of its terms, conditions, stipulations or upon failure to comply with any applicable laws, statutes, and regulations (state and federal).

31. **Agents:** The lease provisions and stipulations apply with equal force upon an agent, employee, contractor, or subcontractor designated by the lessee to perform any lease or lease-related operations. The lessee is liable for noncompliance caused by any such agent, employee, contractor, or subcontractor.

32. **Additional Authorizations or Permits:** If activities other than those authorized by the lease provisions and stipulations are needed, additional written authorizations or permits and their associated additional fees may be required.

33. **Access and Road Construction:** The lessee is responsible for providing access to the leasehold. Before constructing any road across state land, the lessee shall obtain prior approval and authorization from DMLW for the location and construction standards of the road.

Definitions:

a) "AO" means the Authorized Officer, who is the Regional Manager, Southcentral Region
b) "DEC" means the Alaska Department of Environmental Conservation
c) "DMLW" means the Division of Mining, Land and Water
d) "DNR" means the Alaska Department of Natural Resources
e) "DP" means the approved Development Plan
f) "EA" means this Entry Authorization
g) "Lessee" means **Applicant Name** or their officers, agents, contractors, subcontractors, and their employees.
h) "SCRO" means the Southcentral Region Office

Any correspondence concerning this EA may be directed to the Department of Natural Resources, Division of Mining, Land and Water, Southcentral Regional Land Office, 550 W. 7th Ave., Suite 900C, Anchorage, AK 99501-3577, or by telephone to (907) 269-8503. All correspondence sent by the Division of Mining, Land and Water, Southcentral Regional Land Office in regards to this authorization will be sent to the below listed contact information.

Signature page follows

Attachment A
Sample Entry Authorization

I, the lessee, have read the foregoing EA and I agree to comply with all the conditions included within this authorization.

Signature of Lessee or Authorized Representative Date

Printed Name and Title

Lessee's Address

City State Zip

Phone Numbers: Main: _____

Work: _____

Fax: _____

Email: _____

Samantha Carroll Date
Regional Manager, Southcentral Regional Land Office
Division of Mining, Land and Water

STATE OF ALASKA
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINING, LAND AND WATER
550 W. 7th Avenue, Suite 900c
Anchorage, Alaska 99501-3577

LESSEE
ADL No. XXXXXX
LEASE AGREEMENT
AS 38.05.XXX

Effective this Xst day of MONTH YEAR, this lease agreement is entered into by the State of Alaska, hereafter referred to as "lessor," and LESSEE, hereafter referred to as "lessee," whether one or more, whose sole addresses for purposes of notification under this lease agreement are listed in section 28.

The lessor and the lessee agree that this lease, including all attachments and documents that are incorporated in this lease by reference, contains the entire agreement between the parties, and each of the covenants and conditions in this lease including any attachments will be binding upon the parties and upon their respective successors and assigns. The lessor and the lessee further agree that this lease is conditioned upon satisfactory performance by the lessor and the lessee of all covenants and conditions contained in this lease. The lessee is aware of the provisions of Title 38, Alaska Statutes, Title 11, Alaska Administrative Code, and other applicable laws, regulations, and ordinances, and fully understands the duties and obligations of the lessee under this lease, and the rights and remedies of the lessor.

This lease is subject to all applicable state, federal, and municipal statutes, regulations, and ordinances in effect on the effective date of this lease, and insofar as is constitutionally permissible, to all statutes, regulations, and ordinances placed in effect after the effective date of this lease. A reference to a statute, regulation, or ordinance in this lease includes any change in that statute, regulation, or ordinance, whether by amendment, repeal and replacement, or other means. This lease does not limit the power of the State of Alaska, its political subdivisions, or the United States of America to enact and enforce legislation or to adopt and enforce regulations or ordinances affecting, directly or indirectly, the activities of the lessee or its agents in connection with this lease or the value of the interest held under this lease. In case of conflicting provisions, statutes, regulations, and ordinances take precedence over this lease. This lease shall not be construed as a grant or recognition of authority for promulgation or adoption of municipal ordinances that are not otherwise authorized.

1. Grant. This lease is issued under the authority of AS 38.05.XXX for a term of X years beginning on the Xst day of MONTH YEAR, and ending at 12 o'clock midnight on the Xth day of MONTH YEAR, unless sooner terminated, subject to: compensation as specified in section 2; the attached Additional Stipulations (Attachment A); and the attached development plan approved by the State on MONTH DAY, YEAR (Attachment B); and if any, that are incorporated in and made a part of this lease, for the following, hereafter referred to as the "leasehold":

LEGAL DESCRIPTION

Excepting and reserving any general reservations to the lessor that are required by law and that may be stated elsewhere in this lease, and the following, which the state reserves for itself and others:

Subject to:

Platted easements and restrictions.

The conditions and stipulations in Attachment A, Additional Stipulations.

Attachment B, Approved Development Plan, attached and made part of this lease agreement.

2. Compensation. (a) The lessee shall pay to the lessor compensation as follows, without the necessity of any billing by the lessor: **SX,XXX.00** due on or before **MONTH DAY** every year. The lessor may, upon 10 days' notice, review and copy any records of the lessee that are necessary to verify the lessee's compliance with this paragraph.

(b) In accordance with AS 38.05.105, the lease compensation is subject to adjustment by the lessor at the commencement of the sixth year of the term and every fifth year thereafter (the "adjustment date"). The compensation adjustment takes effect on the applicable adjustment date, regardless of whether the adjustment determination occurs before or after that date. All reasonable costs of the adjustment, including reappraisal if required by the lessor, will be borne by the lessee.

3. Denial of Warranty. The lessor makes no warranty, express or implied, nor assumes any liability whatsoever, regarding the social, economic, or environmental aspects of the leasehold, including, without limitation, the soil conditions, water drainage, access, natural or artificial hazards that may exist, or the profitability or fitness of the leasehold for any use. The lessee represents that the lessee has inspected the leasehold and determined that the leasehold is suitable for the use intended, or has voluntarily declined to do so, and accepts the leasehold "as is" and "where is."

4. Use of Leasehold. Prior to execution of this lease and to commencing use or development of the leasehold, the lessee shall submit a development plan for the leasehold to the lessor and obtain the lessor's approval of the plan. Any use or development of the leasehold must be consistent with the development plan approved by the lessor. Any proposed revisions to the development plan must be submitted to the lessor for approval before any change in use or development occurs. The lessee shall use and occupy the leasehold in compliance with the approved development plan and all applicable laws, regulations, ordinances, and orders that a public authority has put into effect or may put into effect, including those of a building or zoning authority and those relating to pollution and sanitation control. The lessee may not permit any unlawful occupation, business, or trade to be conducted on the leasehold. The lessee shall properly locate all activities and improvements on the leasehold, and may not commit waste of the parcel. The lessee shall maintain and repair the leasehold including improvements in a reasonably neat and clean condition, and shall take all necessary precautions to prevent or suppress grass, brush, or forest fires, and to prevent erosion, unreasonable deterioration, or destruction of the land or improvements. The lessee agrees not to place any aboveground or underground fuel or chemical tanks on the leasehold without the prior written approval of the lessor.

5. Encumbrance of Leasehold. The lessee may not encumber or cloud the lessor's title to the leasehold, or any portion of the leasehold, nor enter into any lease, easement, or other obligation of the lessor's title without the prior written approval of the lessor.

6. Assignment of Interest. The lessee may not assign or sublet any interest held under this lease, including a security interest, without the prior written approval of the lessor. The lessor may approve such assignment or subletting if the lessor finds it to be in the best interest of the state. No such assignment or subletting will be effective until approved by the lessor in writing, and the assignee agrees to be subject to and governed by the provisions of this lease, any subsequent amendments to this lease, any additional stipulations, or reappraisal as deemed appropriate by the lessor, and all applicable laws, regulations, and ordinances in the same manner as the original lessee. No assignment or subletting of the leasehold, or any portion thereof, by the lessee will annul the lessee's obligation to pay the compensation required for the full term of this lease. Except as provided in this lease, no subdivision of the leasehold interest may occur without the prior written approval of the lessor.

7. Conditional Lease. If all or part of the leasehold has been tentatively approved, or approved, but not yet patented, by the United States to the lessor, then this lease will be conditioned upon receipt by the lessor of such patent. If for any reason the lessor does not receive patent, any compensation paid to the lessor under this lease will not be refunded. Any prepaid compensation for land to which patent is denied the lessor will be refunded to the lessee of record in the amount of the pro-rata portion of the unexpired term. The lessor will have no further liability to the lessee for the termination of the lease.

8. Payment of Taxes and Assessments. The lessee shall pay prior to delinquency all taxes and assessments accruing against the leasehold.

9. Section Line Rights-of-Way. If the leasehold borders on or includes one or more section lines, the lessor hereby expressly reserves unto itself and its successors and assigns a right-of-way or rights-of-way pursuant to AS 19.10.010.

10. Navigable and Public Waters. (a) Pursuant to AS 38.05.127 and 11 AAC 53.330, the lessor reserves a public access easement to and along all public or navigable water bodies that border on or are included in this leasehold. No public access easement may be obstructed or otherwise rendered incapable of reasonable use for the purposes for which it was reserved. No public access easement may be vacated, abandoned, or extinguished without the prior written approval of the lessor.

(b) The Public Trust Doctrine guarantees public access to, and the public right to use, navigable and public waters and the land beneath them for navigation, commerce, fishing, and other purposes. This lease is issued subject to the principles of the Public Trust Doctrine regarding navigable or public waters. The lessor reserves the right to grant other interests to the leasehold consistent with the Public Trust Doctrine.

11. Condemnation of Leasehold or Improvements. If the whole or any part of the leasehold is taken by any authorized body or person vested with the power of eminent domain, by negotiation, court action, or otherwise, the following provisions control:

(1) Taking of the entire leasehold. If all of the leasehold is taken by condemnation, this lease and all rights of the lessee will immediately terminate, and the compensation will be adjusted so that it is due only until the date the lessee is required to surrender possession of the leasehold. The lessor is entitled to all the condemnation proceeds, except that the lessee will be paid the portion of the proceeds attributable to the fair market value, as determined in the condemnation proceedings, of any buildings or improvements taken that were placed on the condemned leasehold by the lessee in accordance with the approved development plan.

(2) Taking of substantial part of the leasehold. If the taking is of a substantial part of the leasehold, the following rules apply:

(A) If the taking by condemnation reduces the ground area of the leasehold by at least 30 percent or materially affects the use being made by the lessee of the leasehold, the lessee has the right to elect to terminate the lease by written notice to the lessor not later than 180 days after the date of taking.

(B) If the lessee elects to terminate, the provisions in subsection (1) of this section govern the condemned portion of the leasehold and the covenants and conditions of the lease govern disposal of the remainder of any buildings or improvements made by the lessee in accordance with the approved development plan.

(C) If the lessee does not elect to terminate, the lease continues and the lessor is entitled to the full condemnation proceeds except the portion attributable to the fair market value, as determined in the condemnation proceedings, of any buildings or improvements taken that were placed on the condemned portion of the leasehold by the lessee in accordance with the approved development plan. Compensation at the existing rate will terminate on the date the lessee is required to surrender possession of the condemned portion of the leasehold. Except as it may be adjusted from time to time under the covenants and conditions of the lease and applicable statutes, compensation for the balance of the term will be adjusted by the lessor to reflect the taking.

(3) Taking of insubstantial part of the leasehold. If the taking by condemnation reduces the ground area of the leasehold by less than 30 percent and the lessor determines that the taking is of such an insubstantial portion that the lessee's use of the leasehold is not materially affected, the lessee may not elect to terminate the lease and the compensation provisions of subsection 2(C) of this section will govern.

12. Valid Existing Rights. This lease is subject to all valid existing rights, including easements, rights-of-way, reservations, or other interests in land in existence on the date of execution of this lease.

13. Inspection. The lessor will have reasonable access to the leasehold for purposes of inspection.

14. Mineral Reservations. This lease is subject to the reservations required by AS 38.05.125 and the rights and obligations imposed by AS 38.05.130.

15. Concurrent Use. This lease is subject to reasonable concurrent uses as provided under Article VIII, Section 8 of the Constitution of the State of Alaska. The concurrent user who is found to be at fault for damage or injury arising from noncompliance with the terms governing the user's concurrent use is liable for damages and the user's interest is subject to forfeiture or termination by the lessor. In this context, the term "concurrent user" includes the lessee and any other person or entity who lawfully uses the land subject to this lease, but does not include the State of Alaska.

16. Surface Resources. Unless otherwise provided by this lease or other written authorization, the lessee may not sell or remove from the leasehold any timber, stone, gravel, peatmoss, topsoil, or any other material valuable for building or commercial purposes. Material required for the development of the leasehold may be used only in compliance with the approved development plan.

17. Appropriation or Disturbance of Waters. During the term of this lease, the lessee will have the right to apply for an appropriation of ground or surface water on the leasehold in accordance with AS 46.15 and 11 AAC 93.060.

18. Acquisition of Rights or Interests. Any right or interest acquired during the term of this lease and accruing to the benefit of the leasehold will remain appurtenant to the leasehold, and may not be severed or transferred from the leasehold without the prior written approval of the lessor. In the event of termination or forfeiture of this lease, any such right or interest will vest in the lessor.

19. Land Alterations Due to Natural or Artificial Causes. The interest described in this lease constitutes the entire leasehold. If, through natural or artificial causes, accretion or reliction of land occurs contiguous to the leasehold, the Lessee has no right to occupy or use the accreted land unless a separate lease is entered with the Lessor with respect to such lands. The rules of law usually applicable to accretion or reliction of land do not apply to this lease, nor to the interest described in this lease.

20. Waiver or Forbearance. The receipt of compensation by the lessor, with or without knowledge of any default on the part of the lessee, is not a waiver of any provision of this lease. No failure on the part of the lessor to enforce a covenant or condition of this lease, nor the waiver of any right under this lease by the lessor, unless in writing, will discharge or invalidate the application of such covenant or condition. No forbearance or written waiver affects the right of the lessor to enforce any covenant or condition in the event of any subsequent default. The receipt of compensation by the lessor after termination or any notice of termination will not reinstate, continue, or extend this lease, or destroy, or in any manner impair the validity of any notice of termination that may have been given prior to receipt of the compensation, unless specifically stated by the lessor in writing.

21. Default and Remedies. (a) Time is of the essence in this lease. If the lessee defaults on the performance of any of the covenants or conditions of this lease, and the default is not remedied within 60 days after the lessor issues written notice of such default to the lessee and to the holder of a security interest in the leasehold approved by the lessor, or within any additional period the lessor allows for good cause, the lessee will be subject to legal or any other administrative action deemed appropriate by the lessor, including termination of this lease. The lessor may, in the notice of the default or in a separate written notice, state that if the default is not remedied, this lease shall terminate on a date certain, which shall be at least 60 days after issuance of the notice of default. Upon the date specified in such notice, unless the default has been remedied, the lease shall expire automatically without further notice or action by the lessor and this lease and all rights of the lessee under the lease shall terminate. Upon termination of the lease the lessor shall have an immediate right to possession of the leasehold and any possession by the lessee shall be unlawful. It is specifically agreed that no judicial action shall be necessary to terminate this lease or to allow the lessor to retake possession in the event of default by the lessee.

No improvements may be removed from the leasehold while the lease is in default except with the lessor's prior written approval. If this lease is terminated for default, all compensation paid by the lessee is forfeited to the lessor. The lessor is not liable for any expenditures made or undertaken by the lessee under this lease. Any costs or fees, including attorney's fees, reasonably incurred by the lessor for the enforcement of this lease, shall be added to the obligations due and payable by the lessee.

(b) The rights, if any, of third-party security interest holders or lienholders are controlled solely by AS 38.05.103 and 11 AAC 58.590. If the lessee fails to remedy the default within the time allowed in subsection (a) of this section, the holder of an approved security interest who has received notice under subsection (a) of this section may remedy the default. The holder shall act within 60 days from the date of receipt of notice under subsection (a) of this section, or within any additional period the lessor allows for good cause.

(c) The lessor may, at the lessor's option, following the lessee's default and failure to remedy, or after termination of this lease due to such default and failure to remedy, accelerate the unpaid compensation for the remainder of the term of this lease. The lessee's obligation to pay such accelerated rent to the lessor survives termination of this lease.

(d) If this lease is terminated, or all or any portion of the leasehold is abandoned by the lessee, the lessor may immediately enter, or re-enter and take possession of the leasehold, and without liability for any damage, remove all persons and property from the leasehold and may, if necessary, use summary proceedings or an action at law. The words "enter" and "re-enter" as used are not restricted to their technical legal meaning. Any entry, re-entry, possession, repossession, or dispossession by the lessor, whether taken with or without judicial action, does not absolve, relieve, release, or discharge the lessee, either in whole or part, of any liability under the lease.

(e) The lessor, upon or at any time after giving written notice of any default, may enter or re-enter the leasehold to remedy any default by the lessee or exercise any right given under this lease, all without the intervention of any court being required. The curing of such default shall not be deemed for any purpose to be for the benefit of the lessee.

(f) At any time after termination of this lease, the lessor may re-let the leasehold, or any part thereof, in the name of the lessor for such term and on such conditions as the lessor may determine, and may collect and receive the compensation therefor. The lessor shall not be responsible or liable for failure to re-let the leasehold or for any failure to collect any compensation due upon such re-letting, nor shall the lessor be required to account for or pay to the lessee any excess compensation received as a result of such re-letting. The lessee shall be liable for any deficiency, and for all costs, expenses, and fees incurred by the lessor arising out of the default, including the lessor's efforts to re-let the leasehold.

(g) No right or remedy conferred upon or reserved to the lessor in this lease or by statute, or existing in law or equity, is intended to be exclusive of any other right or remedy, and each and every right shall be cumulative.

22. Disposition of Improvements and Chattels After Termination. AS 38.05.090 will govern disposition of any lessor-approved chattels or improvements left on the leasehold after termination. At the lessor's sole option, improvements not approved by the lessor shall be removed from the leasehold and the site restored to its original condition at the lessee's sole expense, or be forfeited to the lessor. The lessee shall be liable to the lessor for any costs, expenses, or damages arising out of the disposition of improvements not approved by the lessor, and may be required to pay rent on any improvements or chattels left on the parcel in accordance with 11 AAC 58.680.

23. Indemnity to Lessor. The lessee shall indemnify, defend, and hold the lessor harmless from and against all claims, demands, judgments, damages, liabilities, penalties, and costs, including attorney's fees, for loss or damage, including but not limited to property damage, personal injury, wrongful death, and wage, employment, or worker's compensation claims, arising out of or in connection with the use or occupancy of the leasehold by the lessee or by any other person holding under the lessee, or at the lessee's sufferance or invitation; and from any accident or fire on the leasehold; and from any nuisance made or suffered on the leasehold; and from any failure by the lessee to keep the leasehold in a safe and lawful condition consistent with applicable laws, regulations, ordinances, or orders; and from any assignment, sublease, or conveyance, attempted or successful, by the lessee of all or any portion of the leasehold or interest therein contrary to the covenants and conditions

of this lease. The lessee holds all goods, materials, furniture, fixtures, equipment, machinery, and other property whatsoever on the parcel at the sole risk of the lessee, and shall defend, indemnify and hold the lessor harmless from any claim of loss or damage by any cause whatsoever, including claims by third parties.

24. Insurance. If required by the lessor, the lessee shall obtain insurance in an amount determined by the lessor to be sufficient. The lessor shall be named as an additional insured party of any such insurance. The types and amount of insurance shall be specified in the attached stipulations made a part of this lease agreement and may be adjusted periodically. The lessee shall maintain that insurance as long as required by the lessor. Any insurance acquired by the lessee for the purpose of providing insurance coverage under this lease must be issued by an insurer authorized to do business in the State of Alaska under the provisions of AS 21.09.010 and AS 21.27.010 for the type of policy being written.

25. Bonding. If required by the lessor, the lessee shall furnish a bond, cash deposit, certificate of deposit, or other form of security acceptable to the lessor in an amount determined by the lessor to be sufficient to ensure faithful performance of the covenants and conditions of this lease, and to cover the cost of site cleanup and restoration and any associated costs after termination of the lease. The amount and conditions of the bond shall be specified in the attached stipulations made a part of this lease agreement. The lessee shall maintain the bond as long as the lessor deems necessary, and in the amount required by the lessor, which amount may be adjusted periodically.

26. Environmental Compliance. (a) The lessee shall, at the lessee's own expense, comply with all existing and hereafter enacted environmental responsibility laws ("Environmental Laws"). The lessee shall, at the lessee's own expense, make all submissions to, provide all information to, and comply with all requirements of the appropriate governmental authority (the "Authority") under the Environmental Laws.

(b) Should the Authority require that a remedial action plan be prepared and that a remedial action be undertaken because of the presence of, or any disposal, release, spill, or discharge, or threatened disposal, release, spill, or discharge of or contamination by hazardous materials at the leasehold that occurs during the term of this lease or arises out of or in connection with the lessee's use or occupancy of the land described in section 1 of this lease, then the lessee shall, at the lessee's own expense, prepare and submit the required plans and financial assurances and carry out the approved plans. The lessee's obligations under this section shall arise if there is any event or occurrence at the leasehold during the term of this lease, or arising out of or in connection with the lessee's use or occupancy of the land described in section 1 of this lease, that requires compliance with the Environmental Laws.

(c) At no expense to the lessor, the lessee shall promptly provide all information requested by the lessor for preparation of affidavits or other documents required by the lessor to determine the applicability of the Environmental Laws to the leasehold, and shall sign the affidavits promptly when requested to do so by the lessor.

(d) The lessee shall indemnify, defend, and hold harmless the lessor from all fines, penalties, suits, judgements, procedures, claims, demands, liabilities, settlements, and actions of any kind arising out of or in any way connected with the presence of or any disposal, release, spill, or discharge or any threatened disposal, release, spill, or discharge of or contamination by hazardous materials at the leasehold that occurs during the term of the lease or arises out of or in connection with the lessee's use or occupancy of the land described in section 1 of this lease; and from all fines, penalties, suits, judgements, procedures, claims, demands, liabilities, settlements, and actions of any kind arising out of the lessee's failure to provide all information, make all submissions, and take all steps required by the Authority under the Environmental Laws or any other law concerning any spill, discharge, or contamination that occurs during the term of this lease or arises out of or in connection with the lessee's use or occupancy of the land described in section 1 of this lease.

(e) The lessee agrees that it will not discharge or dispose of or suffer the discharge or disposal of any petroleum products, gasoline, hazardous chemicals, or hazardous materials into the atmosphere, ground, wastewater disposal system, sewer system, or any body of water.

(f) In any court action or administrative proceeding, in addition to all other applicable presumptions, it shall be

rebuttably presumed that any environmental contamination of the leasehold (i) has been released on the leasehold, (ii) has resulted from acts or omissions of the lessee or its agents, and (iii) has occurred during the term of this lease. The lessee has the burden of rebutting the presumptions by clear and convincing evidence.

(g) This section of this lease does not in any way alter the State of Alaska's powers and rights or the lessee's duties and liabilities under Title 46 (or its successor) of the Alaska Statutes or other state, federal, or municipal statutes, regulations, or ordinances. For example, notwithstanding the provisions of this lease, the State of Alaska shall not be precluded from claiming under AS 46.03.822 that the lessee is strictly liable, jointly and severally, for damages and costs incurred by the state for clean up of contamination on the leasehold. The obligations and provisions of this section 26 shall survive the termination of this lease.

(h) As used in this lease, the term "hazardous materials" means any hazardous or toxic substance, material, or waste that is or becomes regulated by any municipal governmental authority, the State of Alaska, or the United States government.

27. Surrender of Leasehold. Upon the expiration, termination, or cancellation of this lease, the lessee shall peacefully leave and deliver up all of the leasehold in good, sanitary, and marketable condition, order, and repair.

28. Notices. (a) Any notice or demand by the lessee will be made by hand delivery to the Director, Division of Mining, Land and Water, or by certified mail, postage prepaid, addressed as follows (or to a new address that the lessor designates in writing), with delivery occurring upon receipt by the lessor:

To the Lessor:

Division of Mining, Land and Water
550 W. 7th Avenue, Suite 900C
Anchorage, Alaska 99501-3577

(b) Any notice or demand by the lessor will be issued as provided in 11 AAC 02.040(c). If issuance is by mail, the notice or demand will be addressed as follows (or to a new address that the lessee or its successor in interest designates in writing):

To the Lessee:

LESSEE
ADDRESS
CITY, STATE ZIP

The lessor will issue a copy of any such notice or demand to each holder of a security interest in the leasehold whose assignment has been approved by the lessor under section 6 of this lease. Any security interest not approved as provided in section 6 is insufficient to require notice by the lessor under AS 38.05.103.

(c) Any notice or demand regarding the lease must be in writing and will be complete if given as set out above.

29. Penalty Charges. The lessee shall pay a fee for any late payment or returned check issued by the lessee as follows:

(1) Late Payment Penalty: The greater of either the fee specified in 11 AAC 05.010 or interest at the rate set by AS 45.45.010(a) will be assessed on a past-due account until payment is received by the lessor. Acceptance of a late payment or of a service charge for a late payment is subject to the lessor's rights under sections 20 and 21 of this lease.

(2) Returned Check Penalty: A returned check fee as provided in 11 AAC 05.010 will be assessed for any check on which the bank refuses payment. If the bank refuses payment, the default termination date remains the same. Late penalties under subsection (1) of this section shall continue to accumulate.

30. Modification. This lease may be modified or amended only by a document signed by both parties. Any purported amendment or modification has no legal effect until placed in writing and signed by both parties.

31. Choice of Law. This lease shall be construed under the laws of the State of Alaska. The lessee confers personal jurisdiction on the courts of the State of Alaska for any litigation under this lease.

32. Severability of Clauses of Lease Agreement. If any clause or provision of this lease is, in a final judicial proceeding, determined illegal, invalid, or unenforceable under present or future laws, then the lessor and the lessee agree that the remainder of this lease will not be affected, and in lieu of each clause or provision of this lease that is illegal, invalid, or unenforceable, there will be added as a part of this lease a clause or provision as similar in terms to the illegal, invalid, or unenforceable clause or provision as may be possible, legal, valid, and enforceable.

By signing this lease, the lessor and the lessee agree to be bound by its provisions.

LESSEE:

_____

LESSEE

LESSOR:

_____

FIRST LAST, Regional Manager
Southcentral Regional Land Office

STATE OF ALASKA)
) **ss.**
_____Judicial District)

THIS IS TO CERTIFY THAT ON THIS _____ day of _____, _____, before me personally appeared _____, known to me to be the person named and who signed the foregoing lease and acknowledged voluntarily signing the same.

_____
Notary Public in and for the State of Alaska
My commission expires:_____

STATE OF ALASKA)
) **ss.**
Third Judicial District)

THIS IS TO CERTIFY THAT ON THIS _____ day of _____, _____, before me personally appeared _____, of the Division of Mining, Land and Water of the Department of Natural Resources of the State of Alaska, who executed the foregoing lease on behalf of the State of Alaska, and who is fully authorized by the State to do so.

_____
Notary Public in and for the State of Alaska
My commission expires: _____

Approved as to form February 9, 1994, and September 25, 2001.

/s/ Elizabeth J. Barry, Assistant Attorney General

Recorder's Office: Return the recorded document to:
DNR DMLW, SCRO
ATTN: ADJUDICATOR
550 W 7th Ave., Suite 900C
Anchorage AK, 99501

Sample Additional Stipulations

1. **Authorized Officer:** The Authorized Officer (AO) for the State of Alaska (State), Department of Natural Resources (DNR), Division of Mining, Land and Water (DMLW), is the Regional Manager or designee.

2. **Preference Right:** No preference right to a sale of this leasehold is granted or implied by the issuance of this Lease. Any renewal of this Lease will be subject to current statutes and regulations at the time of Lease expiration.

3. **Valid Existing Rights:** This authorization is subject to all valid existing rights and reservations in and to the authorized area. The State makes no representations or warranties, whatsoever, either expressed or implied, as to the existence, number, or nature of such valid existing rights.

4. **Change of Contact Information**: The Lessee shall maintain current contact information with the AO. Any change of contact information must be submitted in writing to the AO.

5. **Request for Information:** The AO, at any time, may require the Lessee to provide any information directly or indirectly related to this authorization, in a manner prescribed by the AO.

6. **Compliance with Government Requirements:** The Lessee shall, at its expense, comply with all federal, state, and local laws, regulations, and ordinances directly or indirectly related to this authorization. The Lessee shall ensure compliance by its employees, agents, contractors, subcontractors, licensees, or invitees.

7. **Development Plan:** Development shall be limited to the authorized area and improvements specified in the approved development plan or subsequent modifications approved by the AO. The Lessee is responsible for accurately siting development and operations within the authorized area. Any proposed revisions to the development plan must be approved in writing by the AO before the change in use or development occurs.

8. **Penalty Charges: Late Payment Penalty Charges**: The Lessee shall pay a fee for any late payment. The amount is the greater of either $50.00 or interest accrued daily at the rate of 10.5% per annum and will be assessed on each past-due payment until paid in full.

   Returned Check Penalty: A returned check penalty of $50.00 will be charged for any check on which the bank refuses payment. Late payment penalties shall continue to accrue.

9. **Visitor Day Use Fee:** All commercial recreation authorizations are subject to a "Visitor Day" fee. As defined in 11 AAC 96.250(18), Visitor Day means "all or any part of a calendar day during which a commercial recreation client is present, with each client representing a separate visitor day if multiple clients are present at any time during a calendar day." This fee, as established in 11 AAC 05.180(d)(2)(D) or (G), is collected once a year and due on the same day as the annual fee.

10. **Assignment:** Stipulation 6 of the Lease Agreement is hereby amended to include the following: In the event the Lessee desires to transfer their interest in the lease to another party the Lessee shall submit to the AO a request for assignment and a copy of a draft agreement

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which identifies the provisions of the assignment between the parties. The AO reserves the right to require/renegotiate new terms or conditions for the lease prior to approving any assignment. The AO reserves the right to require an assignment between the Lessee and another party in the event of a change in corporate ownership, LLC/LLP membership or name change involving the leased site.

11. **Performance Guaranty:** Per section 25 of the Lease agreement: The Lessee previously posted a performance guaranty in the amount of **$X,XXX.00** to secure faithful performance with all terms and conditions of the Lease and to insure site restoration of the leasehold. This performance guaranty must remain in effect for the duration of the Lease term or until released in writing by the AO. Failure by the Lessee to provide replacement security shall be grounds for the AO to make a claim upon the existing security to protect the Lessor's interests.

12. **Insurance:** The Lessee shall secure or purchase at its own expense, and maintain in force at all times during the term of this contract, liability coverages and limits consistent with what is professionally recommended as adequate to protect the buyer (the insured) and seller (the State, its officers, agents and employees) from the liability exposures of ALL the insured's operations on state land. Certificates of Insurance must be furnished to the AO prior to the issuance of this lease and must provide for a notice of cancellation, non-renewal, or material change of conditions in accordance with policy provisions. The Lessee must provide for a 60-day prior notice to the AO before they cancel, not renew or make material changes to conditions to the policy. Failure to furnish satisfactory evidence of insurance, or lapse of the policy, are material breaches of this lease and shall be grounds, at the option of the AO, for termination of the lease. All insurance policies shall comply with, and be issued by, insurers licensed to transact the business of insurance under Alaska Statute, Title 21. The policy shall be written on an "occurrence" form and shall not be written as a "claims-made" form unless specifically reviewed and agreed to by the Division of Risk Management, Department of Administration. The State of Alaska must be named as an additional named insured on the policy.

13. **Specific Land Use:** Stipulation 4 of the Lease Agreement is hereby amended to include the following: This lease is issued for a specific use and land classification, use of the area for purposes other than those specified constitutes a breach of the lease agreement and may result in revocation. The lease may be terminated upon a finding by the AO that the land or a part of it has not been used by the Lessee for the purpose specified in the lease for a period of two years. The lease cannot be assigned or subleased except with the consent of the AO. A Lessee may not change the use specified in the lease to another or additional use except with the consent of the AO. Any attempts to depart from these conditions without the consent of the AO will cause the lease to be automatically terminated.

14. **Concurrent Usage:** The AO reserves the right to grant additional authorizations to third parties for compatible uses on or adjacent to the land covered under this authorization. Authorized users of state land, their agents, employees, contractors, subcontractors and licensees shall not interfere with the operation or maintenance activities of other authorized concurrent users. Any future concurrent permit, lease or sub-lease will be subject to the conditions and stipulations contained in the lease, including the additional collection of fees or rents by the AO from any subordinate Lessee or Sublessee.

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15. **Subleasing**: The AO reserves the right to require an additional annual compensation as a condition of a sublease approval. Said increase shall be determined by negotiation between the Lessee and AO but shall not be less than 25% of all compensation paid annually to the Lessee by the Sublessee. Neither the terms of this sublease provision nor any actual compensation derived from a sublease shall have any effect upon a determination of the annual lease fee for the lease parcel pertaining to AS 38.05.075(a) or its appraised market value pertaining to AS 38.05.840. Sublease shall be defined to include any lease, rental, storage, or accommodation agreement between the Lessee and another individual, business or corporation utilizing or benefiting from the lease parcel. Sublessee shall be defined to mean any individual or business entity executing an agreement, as above, with the Lessee. The amount of sublease compensation shall be subject to change at the same time as the lease compensation adjustment and whenever the terms or conditions of the agreement between the Lessee and Sublessee change. Approval of a sublease shall also be conditioned upon:

    a) The Lessee is in full compliance with lease conditions and is in good standing with all other authorization per 11 AAC 96.145;

    b) Sublessee must meet the statutory requirement of the Lease;

    c) Submission by the Lessee of a draft copy of the agreement(s) which will govern the relationship and compensation provisions between the Lessee and the Sub-Lessee;

    d) Submission by the Lessee of a proposed plan of operations and development for the subleased area and, if necessary, an amended plan of operations and development for the entire lease area; and

    e) A Lessor best interest finding and amendments to the lease contract as necessary, if significant changes to the use and development are proposed.

16. **Alaska Historic Preservation Act:** Under the Alaska Historic Preservation Act, AS 41.35.200, it is unlawful to appropriate, excavate, remove, injure, or destroy any historic, prehistoric, or archaeological resources of the State without a permit from the DNR Commissioner. Should any such resources or sites be discovered, the lessee shall cease any activities that may cause damage and immediately contact the AO and the Office of History and Archaeology in DNR's Division of Parks and Recreation.

17. **Inspections:** Stipulation 13 of the Lease Agreement is hereby amended to include the following: The AO shall have reasonable access to the authorized area for inspection, which may be conducted without prior notice. If the lessee is found to be in noncompliance the authorized area may be subject to reinspection. The lessee may be charged for actual expenses of any inspection or the fee in 11 AAC 05.160.

18. **Incurred Expenses:** The Lessor shall in no way be held liable for expenses incurred by the Lessee connected with the activities directly or indirectly related to this authorization.

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19. **Public Access:** The construction, operation, use, and maintenance of the authorized area shall not interfere with public use of roads, trails, waters, landing areas, and public access easements. The ability to use or access state land or public waters may not be restricted in any manner. However, if a specific activity poses a safety concern, the AO may allow the restriction of public access for a specific period of time. The Lessee is required to contact the AO in advance for approval. No restriction is allowed unless specifically authorized in writing by the AO.

20. **Site and Improvements Maintenance:** The authorized area shall be maintained in a neat, clean, and safe condition, free of any solid waste, debris, or litter, except as specifically authorized. The Lessor is not responsible for maintenance of authorized improvements or liable for injuries or damages related to those improvements. No action or inaction of the Lessor is to be construed as assumption of responsibility.

21. **Site Disturbance:** Stipulation 4 of the Lease Agreement is hereby amended to include the following:

    a) Site disturbance shall be kept to a minimum to protect local habitats. All activities at the site shall be conducted in a manner that will minimize the disturbance of soil and vegetation and changes in the character of natural drainage systems. Any ground disturbances that may occur shall be contoured to blend with the natural topography to protect human and wildlife health and safety. Particular attention must be paid to preventing pollution and siltation of any waterways and to preventing disturbances to fish and wildlife populations and habitats.

    b) Brush clearing is allowed only to the extent necessary to maintain the present development. The Lessee may use dead timber that is down. The Lessee shall not cut standing timber within the leased area unless specifically authorized by DNR's Division of Forestry.

    The removal of vegetation shall be kept to a minimum and areas requiring disturbance should be seeded or planted as soon as possible after disturbance. To the extent possible, associated vegetation should be left intact to enhance stability, control erosion and enhance scenic qualities.

22. **Hazardous Substances, Explosives:**

    a) No storage of hazardous material/substances or explosives is authorized within the leased area.

    b) The use of hazardous substances or explosives must be done in accordance with existing federal, state and local laws, regulations and ordinances. Debris (including soil) contaminated with used motor oil, solvents, or other chemicals may be classified as a hazardous substance and must be removed from the sites and managed and disposed of in accordance with state, federal and local laws, statutes and regulations.

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23. **Proper Location:** This authorization is for activities on state lands or interests managed by DMLW. It does not authorize any activities on private, federal, native, or municipal lands, or lands which are owned or solely managed by other offices and agencies of the State of Alaska. The Lessee is responsible for proper location within the authorized area.

24. **Moving or Damaging Markers:** The Lessee shall protect all survey monuments, witness corners, reference monuments, mining claim posts, bearing trees, and unsurveyed corner posts against relocation, damage, destruction, or obliteration. The Lessee shall notify the AO of any relocated, damaged, destroyed, or obliterated markers and shall reestablish the markers at the lessee's expense in accordance with accepted survey practices of the DMLW.

25. **Use and Storage of Fuel:** Section 26 of the Lease document is hereby amended to include the following: All fuel storage container(s) with a total combined capacity larger than **55 gallons** shall not be placed within 100 feet from the ordinary high water mark of any water body. When fuel storage container(s) exceed a total combined capacity of **110 gallons**, the containers must be stored within an Alaska Department of Environmental Conservation (ADEC)-approved double-walled tank, or an impermeable diked area, or a portable impermeable containment structure capable of containing 110% of the capacity of the largest independent container. All containers must be clearly marked with the contents and the Lessee's name and ADL number. Drip pans and materials, such as sorbent pads, must be on hand to contain and clean up all spills.

26. **Notification of Discharge:** The Grantee shall immediately notify the Department of Environmental Conservation (DEC) and AO of any unauthorized discharge of any amount of oil to water, a discharge of any amount of a hazardous substances (other than oil), and any discharge of oil greater than 55 gallons on land. All fires and explosions must also be reported immediately.

    If a discharge, including a cumulative discharge, of oil is greater than 10 gallons but less than 55 gallons, or a discharge of oil greater than 55 gallons is made to an impermeable secondary containment area, the Grantee shall report the discharge within 48 hours. Any discharge of oil greater than one gallon up to 10 gallons, including a cumulative discharge, solely to land, must be reported in writing on a monthly basis.

    Notification of discharge must be made to DEC online at ReportSpills.alaska.gov or by phone at 1-800-478-9300.

    Notification of discharge must be made to the appropriate DNR Office, preferably by e-mail: Anchorage email dnr.scro.spill@alaska.gov, (907) 269-8528; Fairbanks email dnr.nro.spill@alaska.gov, (907) 451-2739; Juneau email dnr.sero.spill@alaska.gov, (907) 465-3513. The Grantee shall supply the AO with all incident reports submitted to DEC.

    Should any unlawful discharge, leakage, spillage, emission or pollution of any type occur due to the Lessee's actions or failure to act, the Lessee, at its expense, shall be obligated to clean the area to the reasonable satisfaction of the State of Alaska.

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27. **Waste disposal:** On-site refuse disposal is prohibited, unless specifically authorized. All waste generated during operation, maintenance, and termination activities under this authorization shall be removed and disposed of at an off-site ADEC approved disposal facility. Waste, in this paragraph, means all discarded matter, including but not limited to human waste, trash, garbage, refuse, oil drums, petroleum products, ashes and discarded equipment.

28. **Fire Prevention, Protection and Liability:** The lessee shall take all reasonable precautions to prevent and suppress forest, structure, brush and grass fires, and shall assume full liability for any damage to state land and structures resulting from the negligent use of fire. The State is not liable for damage to the Lessee's personal property. To report a wildfire, call 911 or 800-237-3633.

29. **Waiver of Forbearance:** Any failure on the part of the AO to enforce the terms of this authorization, or the waiver of any right under this authorization by the Lessee unless in writing, shall not discharge or invalidate the authorization of such terms. No forbearance or written waiver affects the right of the AO to enforce any terms in the event of any subsequent violations of terms of this authorization.

    The receipt of compensation by the AO, with or without knowledge of any default on the part of the Lessee, is not a waiver of any provision of this authorization. The receipt of compensation by the AO after termination or any notice of termination will not reinstate, continue, or extend this authorization, or destroy or in any manner impair the validity of any notice of termination, unless specifically stated by the AO in writing.

30. **Severability Clause:** If any clause or provision of this authorization is, in a final judicial proceeding, determined illegal, invalid, or unenforceable under present or future laws, then the grantor and the Lessee agree that the remainder of this authorization will not be affected, and in lieu of each clause or provision of this authorization that is illegal, invalid, or unenforceable, there will be added as a part of this authorization a clause or provision as similar in terms to the illegal, invalid, or unenforceable clause or provision as may be possible, to be legal, valid, and enforceable.

31. **Lease Expiration and Site Reclamation:** No later than one (1) year prior to the lease expiration, the Lessee shall file with the Lessor:

    a) A request for a new lease, and/or

    b) A reclamation plan for the leasehold lands, which must be approved in writing by the AO. The Lessee is responsible for site reclamation within the leasehold.

    The reclamation plan must include a description of the methods and techniques that the Lessee will use to rehabilitate all sites affected by construction and intensive use activities. Under the lease, the Lessee retains all ownership rights to site improvements. In the plan, the Lessee shall describe its intention to remove improvements. The plan must also include a schedule that sets forth the steps required

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for surface rehabilitation, and a specific time line showing when the Lessee will accomplish each step.

32. **Violations:** Pursuant to 11 AAC 96.145, the Lessee must be in compliance with provisions of this and other authorizations granted under AS 38.05 or 11 AAC 96 before a new authorization may be granted by DMLW.

33. **Lease Termination**: This lease authorization may be terminated upon violation of any of its terms, conditions, stipulations or upon failure to comply with any applicable laws, statutes and regulations (state and federal).

34. **Lease Utilization**: Per 11 AAC 58.510, leases must be utilized for purposes within the scope of the lease and the land classification. Utilization or development for other than the allowed uses or failure to substantially utilize or develop the lease is a violation of the lease. A development plan may be required on all leases. Failure to make substantial use of the land, consistent with the development plan, within five years, will, in the director's discretion, constitute grounds for cancellation.

35. **Agents:** The lease provisions and stipulations apply with equal force upon an agent, employee, contractor or subcontractor designated by the Lessee to perform any lease or lease-related operations. The Lessee is liable for noncompliance caused by any such agent, employee, contractor, or subcontractor.

36. **Additional Authorizations or Permits:** If activities other than those authorized by the lease provisions and stipulations are needed, additional written authorizations or permits and their associated additional fees may be required.

37. **Access and Road Construction:** The Lessee is responsible for providing access to the leasehold. Before constructing any road across state land, the Lessee shall obtain prior approval and authorization from DMLW for the location and construction standards of the road.