

CITY OF UNALASKA
UNALASKA, ALASKA

RESOLUTION 2021-19

A RESOLUTION OF THE UNALASKA CITY COUNCIL AUTHORIZING THE CITY MANAGER ENTER IN TO THE MEMORANDUM OF AGREEMENT AMONG THE U.S. ARMY CORP. OF ENGINEERS ALASKA DISTRICT, THE OUNALASHKA /CHENA POWER, LLC AND THE ALASKA STATE HISTORIC PRESERVATION OFFICER REGARDING COMPONENTS OF THE MAKUSHIN GEOTHERMAL PROJECT LOCATED IN THE MAKUSHIN VALLEY, UNALASKA, ALASKA

WHEREAS, Ounalashka/Chena Power, LLC (OCCP) seeks to construct a geothermal plant and sell power to the City of Unalaska; and

WHEREAS, the Unalaska City Council approved the PPA, and authorized the City Manager to enter into the agreement on August 25, 2020 through Resolution 2020-55; and

WHEREAS, the Unalaska City Council approved the Amendment Number 1 to the PPA, and authorizes the City Manager to sign the amendment on March 30, 2021 through Resolution 2021-14; and

WHEREAS, OCCP is working through the permitting process with the Army Corps of Engineers for construction of their access road in Makushin Valley; and

WHEREAS, Army Corps of Engineers, selected as the lead federal agency, and the Alaska State Historic Preservation Office has determined that the project will have an adverse effect on the Makushin Valley WWII Historic District; and

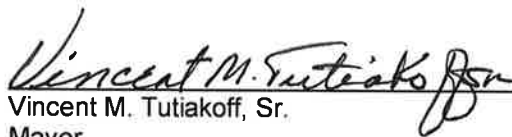
WHEREAS, Army Corps of Engineers has invited the City of Unalaska to be signatory on a Memorandum of Agreement (MOA) for the project, allowing the City the opportunity to provide input on potential mitigation measures; and

WHEREAS, Army Corps of Engineers has developed the MOA in consultation with the signatories including the City of Unalaska and the MOA is currently being finalized; and

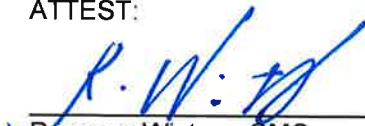
WHEREAS, given the magnitude of the Makushin Geothermal Project, City Council's formal authorization to sign onto the MOA for this component of the project is warranted;

NOW THEREFORE BE IT RESOLVED that the Unalaska City Council authorizes enter into the MOA with the Army Corps of Engineers, and other signatories, regarding components of the Makushin Geothermal Project.

PASSED AND ADOPTED by a duly constituted quorum of the Unalaska City Council on April 13, 2021.


Vincent M. Tutiakoff, Sr.
Mayor

ATTEST:


Roxanna Winters, CMC
Acting City Clerk



MEMORANDUM TO COUNCIL

To: Mayor and City Council Members
From: Erin Reinders, City Manager
Date: April 13, 2021
Re: Resolution 2021-19: Army Corps of Engineers MOA

SUMMARY: Ounalashka/Chena Power, LLC (OCCP) is working through the permitting process with the Army Corps of Engineers for construction of their access road in Makushin Valley. Army Corps of Engineers has invited the City of Unalaska to be signatory on a Memorandum of Agreement (MOA) for the project, allowing the City the opportunity to provide input on potential mitigation measures. Army Corps of Engineers has developed the MOA in consultation with the signatories including the City of Unalaska and is finalizing the MOA now. Given the magnitude of the Makushin Geothermal Project, City Council's formal authorization to sign onto the MOA for this component of the project is warranted. Staff recommends approval.

PREVIOUS COUNCIL ACTION: The City continues to support efforts and programs for reliable and cost effective alternate energy sources, including geothermal. City Council has identified this support as a federal priority.

August 25, 2020

- Regular Meeting, City Council approved Resolution 2020-55, approving the PPA with OCCP and authorizing the City Manager to enter into the agreement.

March 9, 2021

- Work Session, OCCP provided City Council with an update on the project in preparation of considering an amendment to the PPA at the March 23, 2021 meeting. This presentation included information on a request for an amendment to the PPA to extend the deadline outlined in the PPA to obtain financing as well as the roadwork permitting through the Army Corps of Engineers and the associated MOA.

March 30, 2021

- Special Meeting continued from the Regular Meeting on March 23, City Council approves Resolution 2021-14, approving the PPA Amendment and authorizing the City Manager to sign said amendment. The amendment extended the deadline for OCCP to obtain financing and adjust the deadlines related to the Interconnection/Integration Plan.

BACKGROUND: OCCP is working through the permitting process with the Army Corps of Engineers, in hopes to begin access road construction. The Army Corps of Engineers was selected as the lead federal agency, and the Alaska State Historic Preservation Office has determined that the access road project will have an adverse effect on the Makushin Valley WWII Historic District, particularly the runway. The City of Unalaska was invited by the Corps to be a signatory on a Memorandum of Agreement for the project. The Tribe and OC have also been invited and agreed to be signers of the MOA. After consulting with the City Attorney, we communicated our interest in signing onto the MOA, but noted that the City Council would be asked to authorize the City Manager into signing the MOA given the magnitude of the Geothermal

Project as a whole. Being a signatory on the MOA would allow for the City to be engaged in defining how the Makushin Geothermal Project's adverse impacts might be mitigated. The Tribe and OC have also agreed to be signers of the MOA.

DISCUSSION: The Army Corps of Engineers provided the first draft of the MOA on March 1, 2021 (see the attachment). City staff reviewed the document and provided comments by the deadline of March 16, 2021. We had three primary areas of questions/comments, namely Ownership and Consultation Flow, Project Scope and Area Limits, and Right of Way designation. I also shared these comments with OC and the Tribe, who are also signatories of the MOA.

The Army Corps of Engineers provided the second draft and response to questions on March 25, 2021 (see the attachment). Staff reviewed these documents, and provided comments by the deadline of April 5, 2021. The Corps clarified that the MOA was focused on the roadway portion of the project and that the City owned the adjacent tidelands. They also corrected a statement in the MOA that OCCP owned land, when it is OC that owns the land. We also provided additional questions/comments, focused solely on the roadway being identified as Right of Way in the exhibit. This roadway is intended to be an access road on private property (owned by Ounalashka Corporation), and some of the roadway does align with an existing 17b easement. These comments were again shared with both OC and the Tribe.

To clarify this situation, OCCP has proposed the following wording that will be worked into the MOA: "***WHEREAS*** the USACE has consulted with the OC and the City of Unalaska, who own the land within the Makushin Valley WWII Historic District (UNL-00623) ***that includes a 17B easement on which a portion of the pending private access road will be routed, and has invited them to sign this MOA as an invited signatory; and***". This addresses our concern for clarity in the MOA and the City has let OCCP and the Army Corps of Engineers know were agreeable to this revision. The OC owns the land in this area, the City of Unalaska owns the adjacent tidelands.

The Army Corps of Engineers is currently putting together the final versions for signatures. This will include addressing additional feedback from Alaska State Historic Preservation Office. I am prepared to sign this final version as all our concerns for clarification in the MOA have been addressed.

FINANCIAL IMPLICATIONS: There are no direct financial implication with the approval of this resolution, other than staff time.

ALTERNATIVES: Council can choose approve or disapprove this resolution.

LEGAL: City Attorney Brooks Chandler has been engaged in discussions with OCCP from the beginning and remains so.

STAFF RECOMMENDATION: Staff recommends approval.

PROPOSED MOTION: I move to approve Resolution 2021-19.

ATTACHMENTS:

- March 1, 2021 DRAFT MOA (with exhibits)
- March 25, 2021 Revised DRAFT MOA

MARCH 1, 2021 DRAFT

MEMORANDUM OF AGREEMENT

**AMONG THE U.S. ARMY CORP. OF ENGINEERS ALASKA DISTRICT, THE
OUNALASHKA CORPORATATION CHENA POWER, LLC AND THE ALASKA
STATE HISTORIC PRESERVATION OFFICER**

REGARDING

COMPONENTS OF THE MAKUSHIN GEOTHERMAL PROJECT

LOCATED IN THE

MAKUSHIN VALLEY, UNALASKA, ALASKA

WHEREAS the Ounalashka Corporation Chena Power, LLC (OCCP) proposes to carry out components of the Makushin Geothermal Project in the Makushin Valley (Project); and

WHEREAS the Project consists of components located in the Makushin Valley, Unalaska, Alaska, including the construction of a geothermal extraction area in the upper Makushin Valley, an access road and transmission line between the upper Makushin Valley and extraction area, and facilities at the mouth of the Makushin Valley; and

WHEREAS the Project requires a Section 404 permit under the regulations set forth in the Clean Water Act; and

WHEREAS the Project constitutes an Undertaking subject to review under Section 106 of the National Historic Preservation Act (NHPA) (54 USC 306108); and

WHEREAS the USACE is hereby designated as the lead Federal agency for the Undertaking under the provisions of 36 CFR 800.2(a)(2); and

WHEREAS USACE, in consultation with the Alaska State Historic Preservation Officer (AKSHPO), has defined the Undertaking's area of potential effects (APE), as defined in 36 CFR 800.16. The APE description is contained in Appendix A and B of this MOA; and

WHEREAS UNL-00556 (including a WWII-era dock), WWII Road, and WWII Airstrip located within the APE are contributing elements to the Makushin Valley WWII Historic District (UNL-00623), which is eligible for listing in the National Register of Historic Places (NRHP); and

WHEREAS the USACE, in consultation with the AKSHPO pursuant to 36 CFR Part 800, the regulations implementing Section 106 of the National Historic Preservation Act (54 U.S.C. §306108) has determined that construction of access roads will have an adverse effect on the Makushin Valley WWII Historic District (UNL-00623); and

WHEREAS the USACE has consulted with the OCCP and the City of Unalaska, who own the land within the Makushin Valley WWII Historic District (UNL-00623) and has invited them to sign this MOA as an invited signatory; and

WHEREAS the USACE has consulted with the Ounalashka Corporation and the Qawalangin Tribe and has invited them to sign this MOA as invited signatories; and

WHEREAS in accordance with 36 CFR § 800.6(a)(1), the USACE has notified the Advisory Council on Historic Preservation (ACHP) of its adverse effect determination with specified documentation, and the ACHP has chosen not to participate in the consultation pursuant to 36 CFR § 800.6(a)(1)(iii); and

NOW, THEREFORE, the USACE, AKSHPO, OCCP, the City of Unalaska, Ounalashka Corporation, and the Qawalangin Tribe agree that the Undertaking shall be implemented in accordance with the following stipulations to mitigate the adverse effects of the Undertaking on historic properties.

STIPULATIONS

The USACE shall ensure that the following measures are carried out:

I. Applicability

- A. This MOA applies only to the Project activities described in Appendix A, or as amended per Section VIII below.

II. Mitigation

- A. A qualified professional meeting the Secretary of the Interior's Professional Qualifications Standards in archaeology as per 36 CFR Part 61 (Qualified Archaeologist), will:
 1. Complete a Condition Assessment of the portion of the Makushin Valley WWII Historic District (UNL-00623) located within the APE, including: photo documentation and mapping of previously identified contributing elements to the Makushin Valley WWII Historic District (UNL-00623) within the APE.
 2. Complete an Evaluation Phase survey as defined in State of Alaska Historic Preservation Series No. 11, (*Standards and Guidelines for Investigating and Reporting Archaeological and Historic Properties in Alaska*) of identified contributing elements within the APE to collect sufficient information to determine if previously identified contributing elements within the APE are individually eligible for listing on the NRHP.
 3. Complete Historic American Landscape Survey (HAL) level photographic documentation of the WWII Airstrip and WWII Road section that will be adversely affected by Project.
 4. Conduct primary research of publicly-available references (i.e., historic aerial photographs, as-builts, etc.) to define the full extent of the WWII Road, including the portion outside of the APE.

III. Submittals

- A. The following products of mitigation activities will be submitted:
 1. A draft report for the district and contributing element, shall be submitted to AKSHPO within six months after the completion of all fieldwork. The USACE shall ensure that the report meets the guidelines established in the Cultural

Resources Investigations and Report Outline, Alaska Historic Preservation Series No. 11 (*Standards and Guidelines for Investigating and Reporting Archaeological and Historic Properties in Alaska*), and the Secretary of the Interior's Format Standards for Final Reports of Data Recovery Programs (42 FR 5377-79). The report will include new and/or updated Alaska Heritage Resource Survey (AHRS) cards. Upon receipt, AKSHPO shall have 30 calendar days to review the draft and submit comments to the USACE.

2. The USACE shall take into consideration AKSHPO's comments. Submittal of the final mitigation report shall consist of two printed copies and one electronic copy sent to AKSHPO no later than 60 days after receipt of comments.
3. Upon completion of the final mitigation report, USACE will have a public report written that summarizes the information included in the mitigation report. One bound copy and one electronic copy of the public report will be provided to the AKSHPO, the City of Unalaska, the Museum of the Aleutians, the WWII Visitor Center (ran by Ounalashka Corporation), the Unalaska Public Library, the Unalaska City School, and Eagle's View Elementary for use by the public.
4. An electronic version of the public report will also be made available on the Project website.
5. A short format HALS history documentation that will be submitted to HALS office and finally transmitted to the Library of Congress.

IV. Curation

- A. Any artifacts, human remains, and other cultural materials collected pursuant to this agreement will remain the property of the landowner. The landowner may designate a curation facility for the artifacts, human remains, and other cultural materials and the project will pay for any curation costs.

V. Unanticipated Discoveries

- A. The USACE, in coordination with the OCCP, shall ensure that the following stipulations are carried out in the case of an unanticipated discovery during construction:
 1. All work that might adversely affect the newly discovered cultural resource shall cease, no less than 50 feet from the find, and the location secured, until a Qualified Archaeologist examines the find and makes a recommendation on its eligibility for listing on the NRHP. Project personnel will photograph, document, and provide a GPS point of the newly discovered cultural resource and send the data to the Qualified Archaeologist for review. USACE will notify Signatories of an unanticipated discovery within one business day. The Qualified Archaeologist may make their initial recommendation by telephone and will follow up with a letter within 5 calendar days of examining the find. If the find appears to be significant or the archaeologist is unable to make a recommendation based on the materials provided by the project personnel, the Qualified Archaeologist will be brought to the site to conduct additional survey and documentation and, if appropriate monitoring of ground disturbing activities.

2. The Qualified Archaeologist, the USACE, and the OCCP will consult with the AKSHPO, the landowner, and any other appropriate consulting parties to reach an official NRHP determination of eligibility. Additional consulting parties will be determined by USACE, in consultation with AKSHPO.
 3. Consultation with AKSHPO and any other parties will be carried out in an expeditious manner so as to avoid unnecessary delays to the Undertaking. AKSHPO may provide the USACE with initial comments by telephone and will follow up with a letter within 5 business days of the request for comments.
 4. If the newly discovered resource is determined to be eligible for listing on the NRHP, the USACE, OCCP, AKSHPO, and the other parties included in the discovery consultation will develop a mitigation plan for the newly discovered historic property.
- B. The USACE will request the ACHP's comments on discoveries if the USACE fails to reach agreement with AKSHPO on appropriate mitigation actions.
- C. The OCCP will not resume work in the vicinity of newly discovered cultural resource until the AKSHPO concurs in writing that the find is not a historic property, or the agreed upon on-site mitigation measures have been completed.

VI. Inadvertent Discovery of Human Remains and/or Grave Goods

- A. Procedures for the Treatment of Alaska Native or Non-Alaska Native remains, recent, or unknown remains inadvertently discovered on State, Private, or Public Lands.
1. The OCCP will follow standard operating procedures for the inadvertent discovery of human remains on non-Federal lands in accordance with Alaska Statutes 12.65.005(a)(1), 18.50.250, and the Memorandum of Understanding between the Alaska Office of History and Archaeology, State medical examiner, and Alaska State Troopers (Appendix C).
 2. Upon discovery all activity in the vicinity of the human remains must cease and the site must be secured against further intrusion.
 3. The person making the discovery shall immediately contact the OCCP by phone and follow up with written notification.
 4. The OCCP will immediately notify a Qualified Archaeologist with forensic expertise, who will examine the remains to determine if they are human.
 5. If the remains are determined to be human, the OCCP will immediately notify a peace officer of the State, the State medical examiner, the Alaska State Troopers, the Alaska Bureau of Investigation, and the AKSHPO, per AS 12.65.005(a)(1). In addition, the USACE will notify Alaska Native organizations including but not limited to The Qawalangin Tribe of Unalaska.
 6. A qualified person with the appropriate level of expertise as decided by the State medical examiner, or the AKSHPO, must examine the remains to determine postmortem interval.

7. Remains determined to be ancient (>100 years) will be reported to the AKSHPO by phone and in writing along with the location coordinates and a basic inventory.
8. If the remains are determined to be non-Native, the USACE will notify the descendants, if known. If no descendants are found, the OCCP shall have the remains re-interred in a designated area, following all applicable state laws.
9. If the racial identity of any human remains is in question, an anthropologist experienced in the analysis of human remains shall examine them. The anthropologist shall be afforded no more than 30 days to conduct his or her analysis.
10. If the human remains are determined to be Native, the USACE will coordinate consultation with Alaska Native organizations (including but not limited to the The Qawalangin Tribe of Unalaska), the AKSHPO, and other entities with affiliations with Native human remains to develop a written, binding treatment plan.
11. Should human remains need to be removed, relocated, transported, or reburied, the OCCP will contact the Alaska Bureau of Vital Statistics, Alaska Department of Health and Social Services to obtain a disinterment-reinternment permit and/or burial-transit permit as per AS 18.50.250.
12. The OCCP and their contractors will follow the direction of the Alaska State Troopers, State Medical Examiner, or local peace officer for treatment and disposition of human remains determined to be recent (<100 years).

VII. Dispute Resolution

Should any signatory or consulting party to this MOA object at any time to any actions proposed or the manner in which terms of this MOA are implemented, the USACE shall consult with such party to resolve the objection. If the USACE determines the objection cannot be resolved, the USACE shall:

- A. Forward all documentation relevant to the dispute including the USACE's proposed resolution to the ACHP. The ACHP shall provide the USACE with its advice on the resolution of the objection within thirty (30) days of receiving adequate documentation. Prior to reaching a final decision on the dispute, the USACE shall prepare a written response that takes into account any timely advice or comments regarding the dispute from the ACHP, signatories and consulting parties, and provide them with a copy of this written response. The USACE will then proceed according to its final decision.
- B. If the ACHP does not provide its advice regarding the dispute within the thirty (30)-day period, the USACE may make a final decision on the dispute and proceed accordingly. Prior to reaching such a final decision, the USACE shall prepare a written response that takes into account any timely comments regarding the dispute from the signatories and consulting parties to the MOA and provide them and the ACHP with a copy of such written response.

- C. The responsibility of USACE, in coordination with OCCP, to carry out all other actions subject to the terms of this MOA that are not the subject of the dispute remain unchanged.

VIII. Amendments

This MOA may be amended when such an amendment is agreed to in writing by all signatories. The amendment will be effective on the date it is signed by all the signatories and a copy will be filed with the ACHP by USACE.

IX. Termination

If any signatory to this MOA determines that its terms will not or cannot be carried out prior to the expiration, that party shall immediately consult with the other signatories to attempt to develop an amendment per *Stipulation VIII: Amendments*. If within thirty (30) days (or another time period agreed to by all signatories) an amendment cannot be reached, any signatory may terminate the MOA upon written notification to the other signatories.

Once the MOA is terminated, and prior to work continuing on the Undertaking, USACE must either (a) execute a MOA pursuant to 36 CFR § 800.6 or (b) request, take into account, and respond to the comments of the ACHP under 36 CFR § 800.7. The USACE shall notify the signatories as to the course of action it will pursue.

X. Failure to Carry Out Agreement

In the event the USACE, in coordination with the OCCP, does not carry out the terms of this MOA or if the ACHP determines under 36 CFR 800.14(b)(2)(v) that the terms of this MOA are not being carried out, the USACE will comply with 36 CFR 800.3 through 800.7 with regard to individual Undertakings covered by this MOA.

XI. Anti-Deficiency Act

All requirements set forth in this MOA requiring the expenditure of funds are expressly subject to the availability of appropriations and the requirements of the Anti-Deficiency Act (31 U.S.C. Section 1341). No obligation undertaken by the USACE, in coordination with OCCP, under the terms of this MOA will require or be interpreted to require a commitment to expend funds not obligated for a particular purpose.

- A. If the USACE, in coordination with the OCCP, cannot perform any obligations set forth in the MOA due to the unavailability of funds, the USACE, OCCP, the AKSHPO, and the ACHP intend the remainder of the agreement to be executed.
- B. In the event that any obligation under the MOA cannot be performed due to the unavailability of funds, the USACE agree to utilize their best efforts to renegotiate the provision and may require that the parties initiate consultation to develop an amendment to this MOA when appropriate.

XII. Execution in Counterparts

This MOA may be executed in counterparts, with a separate page for each Signatory and Invited Signatory.

Execution of this MOA by the USACE, the OCCP, and AKSHPO, and implementation of its terms, serve as evidence that the USACE has taken into account the effects of this Undertaking on historic properties and afforded the ACHP an opportunity to comment.

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AMONG THE U.S. ARMY CORP. OF ENGINEERS ALASKA DISTRICT, THE
OUNALASHKA CORPORATATION CHENA POWER, LLC AND THE ALASKA
STATE HISTORIC PRESERVATION OFFICER
REGARDING
COMPONENTS OF THE MAKUSHIN GEOTHERMAL PROJECT
LOCATED IN THE
MAKUSHIN VALLEY, UNALASKA, ALASKA

U.S. Army Corps. Engineers, Alaska District

Date: _____

Shannon Johnson
South Branch Chief

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REGARDING
COMPONENTS OF THE MAKUSHIN GEOTHERMAL PROJECT
LOCATED IN THE
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The Ounalashka Corporation Chena Power, LLC

Date: _____

Bernie Karl
President

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REGARDING
COMPONENTS OF THE MAKUSHIN GEOTHERMAL PROJECT
LOCATED IN THE
MAKUSHIN VALLEY, UNALASKA, ALASKA

Alaska State Historic Preservation Officer

Date: _____

Judith Bittner
Alaska State Historic Preservation Officer

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REGARDING
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LOCATED IN THE
MAKUSHIN VALLEY, UNALASKA, ALASKA

The City of Unalaska

Date: _____

Erin Reinders
City Manager

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LOCATED IN THE
MAKUSHIN VALLEY, UNALASKA, ALASKA

Ounalashka Corporation

Date: _____

Natalie A. Cole
Chief Operating Officer/General Counsel

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AMONG THE U.S. ARMY CORP. OF ENGINEERS ALASKA DISTRICT, THE
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**REGARDING
COMPONENTS OF THE MAKUSHIN GEOTHERMAL PROJECT
LOCATED IN THE
MAKUSHIN VALLEY, UNALASKA, ALASKA**

Qawalangin Tribe

Date: _____

Christopher Price

CEO

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Appendix A: Makushin Geothermal Project Description: Makushin Valley Components

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The Makushin Geothermal Project is located on Unalaska Island, Alaska with Project components in both the Makushin Valley and Amaknak Island. These components will be connected by an underwater cable across Unalaska Bay. This Memorandum of Agreement (MOA) applies to the Makushin Valley segment of the Project (Figure 1, Figure 2, and Appendix B).

The Makushin Valley segment includes construction of the following components:

- 1) Lower Makushin Valley
 - a) Transmission station measuring 40-feet (ft) by 60-ft in the lower Makushin Valley
 - b) A 20-person camp with a preferred location near Material Site A, and the alternative site located on the WWII airstrip.
 - i) The camp consists of Atco type structures (12 ft by 50 ft) on steel skids with no foundations. Water and sewage are provided by A/G tankage and serviced with pump trucks.
 - c) Docks
 - i) Two nonpermanent floating docks (50 ft by 10 ft) will be constructed with wide flange steel beam stringers connected together with steel piping. Railroad flat cars will comprise the deck of the floating dock. A 175-ton crane will move the floating dock into position, drive the four studs into position, and be used to remove the dock.
 - d) Material site
 - i) Two 400-ft by 400-ft material sites located between the Access Road right-of-way and the Makushin River.
- 2) Upper Makushin Valley
 - a) Production and injection wells
 - i) Three production wells and three injection wells, each 100 ft by 100 ft.
 - ii) Large production drill rigs will be used to installation.
 - b) 50-person camp near power house at the head of Makushin Valley
 - i) Gravel pad footprint is 5,000 square (sq) ft. The pad will be constructed over geotextile fabric with no excavation into undisturbed ground. Thirty units of 12-ft by 50-ft self-supporting modular units comprise the camp. The units sit directly on the gravel pad using timber sleepers for leveling and support.
 - c) Water will be hauled or a well may be developed. Trash will be hauled out by truck.
 - d) A below ground septic system for the camp will be constructed consisting of a septic camp and a 50-ft by 15-ft leach field.
 - e) Pipeline
 - i) Project will have 2.5 miles (mi) of pipeline. Project will use 24-inch (in)-diameter pipe narrowing to 12-in to 16-in-diameter. Pipelines are above ground on steel pilings or are on ground gravel pads supported by wooden sleepers to allow for expansion and contraction.
 - f) Power plant
 - i) Seven modular power units and two lines of heat exchangers around the perimeter of the gravel pad (1,000 ft by 400 ft). Pre-fabricated power units will be on skids capable of self-supporting but will likely be on pile-driven foundations. The gravel pad will be constructed over geotextile fabric with no excavation into ground surface.
 - g) Material site

- i) Material Site St-1 is 400 ft by 400 ft and located near the 50-person camp.
- 3) Access Road
- a) A gravel road 9.629-mi-long between the Upper and Lower Makushin Valley. The road will have a 30-ft crown with ditches on each side. Construction will be balanced-cut and fill in 95% of route, and fill in the other 5%.
 - b) Railroad car bridges at four locations.
 - i) Concrete abutments on each end of span will support the bridge. The abutments will be pre-cast concrete blocks brought to the site and set into prepared ground.
 - ii) Culverts will vary from 12 in to 36 in CMP's. Inverts will be laid just below natural grade and sloped in with cut/fill balance to match natural grade.
- 4) Transmission line
- a) The subsurface transmission line is located under the Access Road.

Known AHRS sites in the Makushin Valley portion of the APE include the Makushin Valley WWII Historic District (UNL-00623) and its contributing elements: UNL-00556 (including a WWII-era dock), a WWII Road system, and a WWII Airstrip. The Makushin Valley WWII Historic District (UNL-00623) is eligible for listing on the NRHP under Criterion A for its association with WWII activity in the Aleutian Islands.

A 3,838.29-ft section of the WWII road in the lower Makushin Valley was surveyed in 2020 (Sweeney 2020). Based on aerial imagery the road ascends the valley, and crossed the Makushin River several times, with some segments washed out by the river. The recorded portion of the WWII road is 23.95-ft wide and consists of a 5.5-ft thick gravel lens on top of the ground surface. The gravel used in the construction of the WWII airstrip and road appears to have come from a gravel source located between two beach ridges, near UNL-00556.

The WWII airstrip runs east-west and is 2,008.57-ft long and 101.38-ft wide. The airstrip was constructed by applying a 5.5-ft thick gravel lens on top of the ground surface. There are ditches around the perimeter of the airstrip. There is no apron or turn-around areas associated with the airstrip. The WWII road enters the runway on the eastern end and exits it at the western end.

UNL-00556 is a WWII installation that had its own power, water, communications and housing. The exact function of the facility is not apparent from the physical remains. The remains of a WWII dock, is a feature associated with UNL-00556. The dock is located in the intertidal zone, extending out from the beach grass area for approximately 30-ft. The dock does not extend into the surf. At one time it probably did extend into the water, but storms may have damaged the dock. The remaining dock measured 29-ft long by 12-ft wide, and consisted of five round wood pilings (13-in diameter) with 13-in by 13-in square cross beams, and was covered by 4-in by 12-in decking. Most of the decking is missing. The timbers and hardware utilized in the construction of the dock were consistent with those used during the WWII-era, though they were not definitively dateable.

Projects activities planned within the boundaries of UNL-00623 include access road construction over a section of the WWII road and WWII airstrip, and the installation of two temporary docks adjacent to the WWII dock associated with UNL-00556.

The Project will install two temporary docks measuring 50-ft by 10-ft. The docks will be installed by a 175-ft crane moving the docks into position and driving four studs to secure the docks. One of the temporary docks is 81-ft away from the WWII dock associated with UNL-00556 and UNL-00623. Although there is no direct impact on the WWII dock, the Project will establish a buffer around the WWII dock with flagging and avoid impacting the WWII dock during construction activities in the Makushin Valley.

The Project is constructing a 9.6287-mi-long access road in the Makushin Valley. The first 0.7269 mi of the access road will overlap the WWII road. Currently, the WWII road extends from UNL-00556 along a beach ridge to the WWII airstrip and west up the Makushin Valley for an approximate length of 7.17 mi. The WWII road in the lower Makushin Valley is 23.95-ft wide and consists of a 5.5-ft-thick gravel lens on top of the ground surface. The access road will be wider than the current WWII road; gravel will be applied so there will be a 30-ft crown with ditches on each side. In addition, a railroad car bridge will be installed within the first 0.7269 mi which consists of installing concrete abutments on each span of the bridge. The abutments will be placed on prepared ground. Culverts will be installed with diameters ranging from 12 to 36 inches.

The access road will also be constructed over the WWII airstrip. The WWII airstrip is located along the WWII road. The WWII airstrip runs east-west and is wider than the WWII road; 101.38-ft-wide by 2,008.57-ft-long. The WWII airstrip was constructed by the application of a 5.5-ft-thick gravel lens on top of the ground surface. There are drainage ditches around the perimeter of the airstrip. The access road construction will have an impact on the original construction elements of the WWII airstrip. The WWII airstrip will be covered with gravel fill to create a 50-ft-wide crown and there will be ditching on either side of the road. The access road will become the predominate feature and the WWII airstrip will be almost completely built over.

Access road construction will have an adverse effect on the integrity of the WWII road as a contributing element to the Makushin Valley WWII Historic District (UNL-00623). The location of the WWII road will remain the same as will the WWII road's association and setting in the surrounding landscape. The design of the WWII Road will be impacted since it will be covered by the new construction and disturbed by the bridge abutments and installation of culverts. The feeling the WWII Road evokes of the WWII defense activities on Unalaska will also be diminished due to the new construction.

Access road construction will have an adverse effect on the integrity of the WWII airstrip as a contributing element to the Makushin Valley WWII Historic District (UNL-00623). The WWII airstrip will be covered with gravel fill to create a 50-ft-wide crown and there will be ditching on either side of the road. The access road will become the predominate feature and the WWII

airstrip will be almost completely built over. Although the location of the WWII airstrip remains the same, there will be little design, setting, feeling or association remaining for the WWII airstrip.

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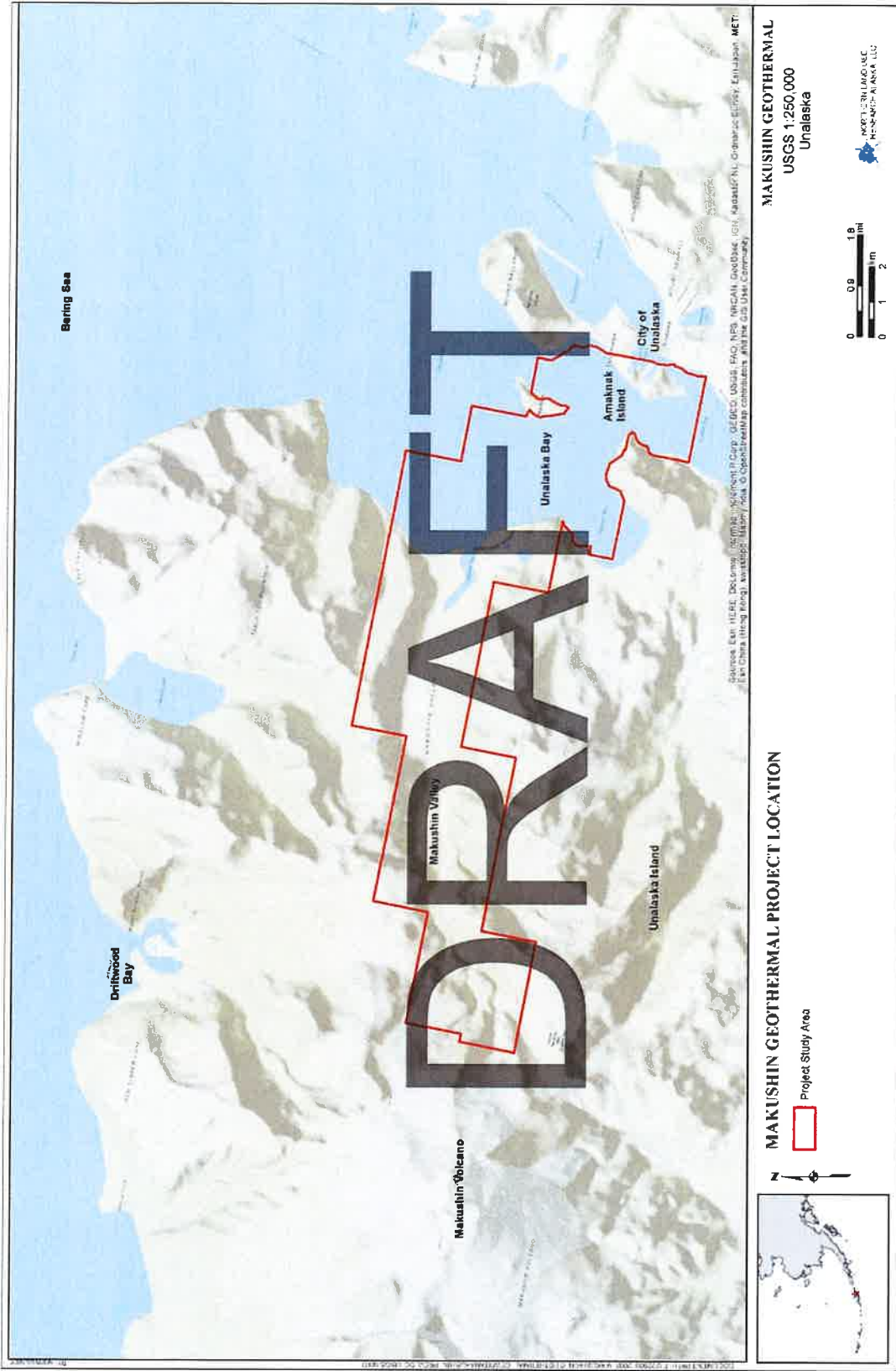


Figure 1. Makushin Geothermal Project Location on Unalaska Island, Alaska.

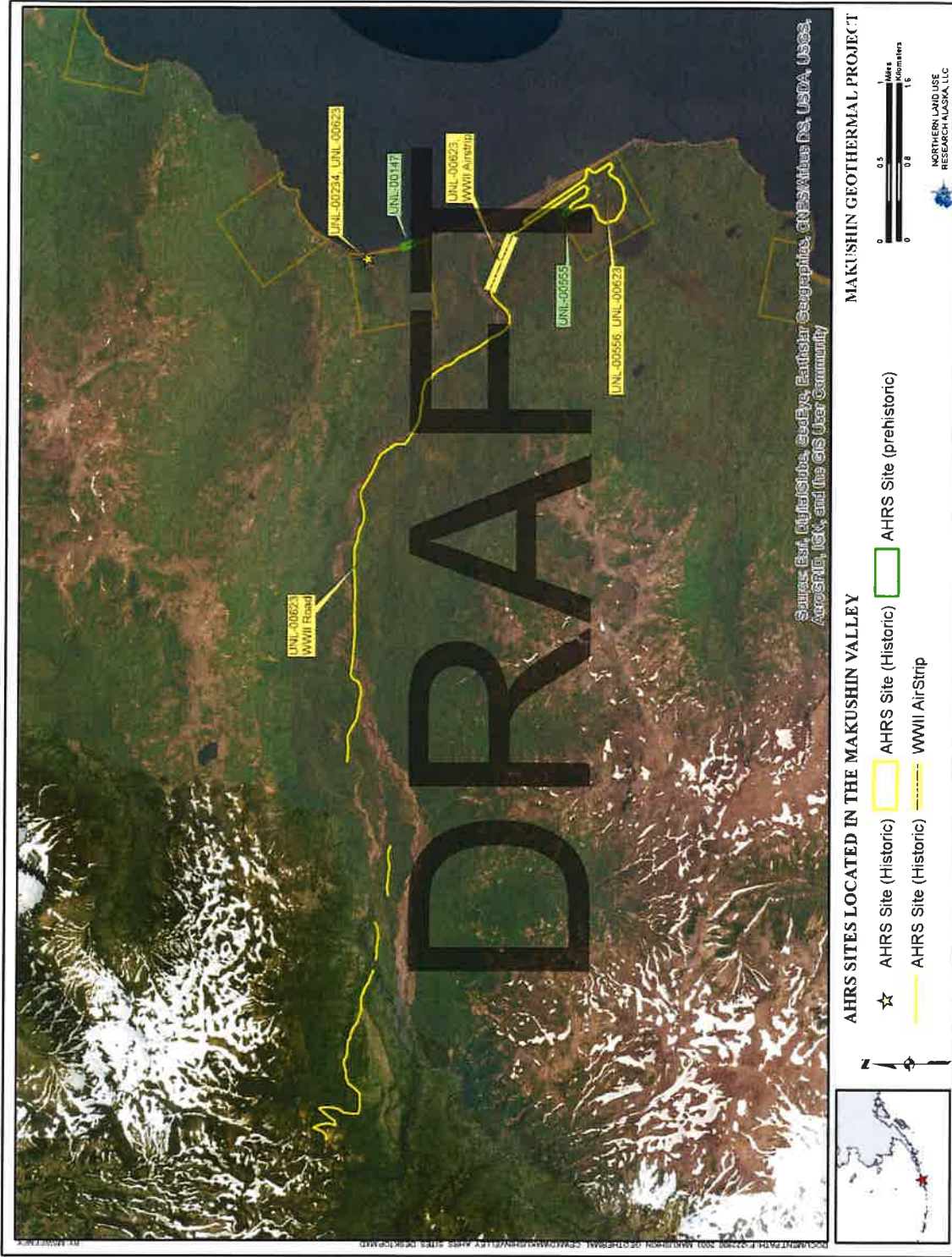


Figure 2. AHRs sites located in the Makushin Valley, Unalaska, Alaska.

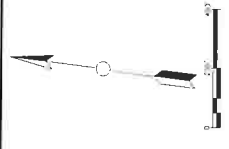
Appendix B: Project APE Maps

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GENERAL NOTES

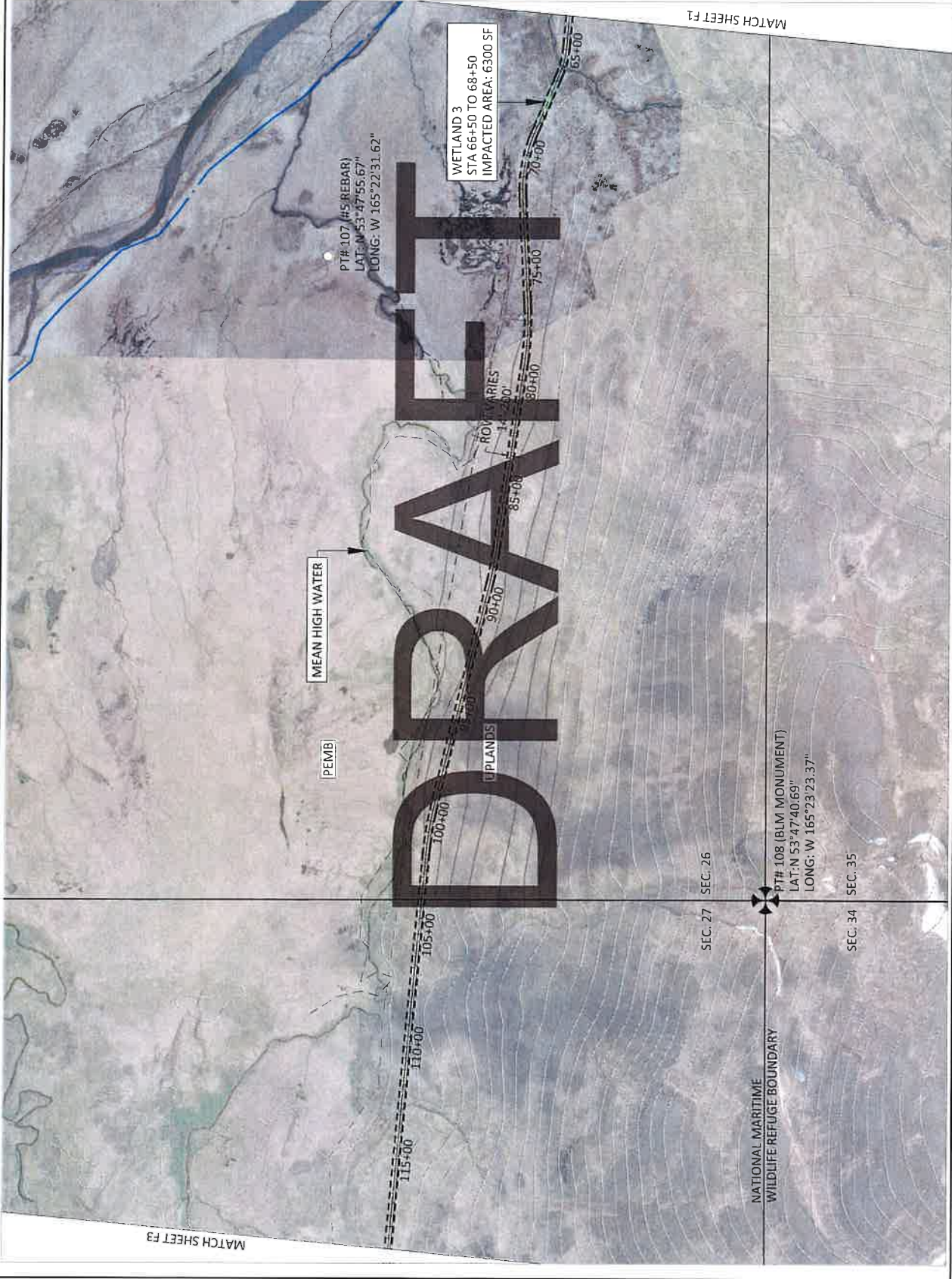


- Wetlands Boundary
- Existing WW2 Road
- Proposed Road ROW
- Cultural Resource
- Wetlands Impact
- Found BLM Monument

1.	15% - 100% Wetland Data
2.	25% - 200% Cultural Resources

PROJECT:	DRY CREEK
OWNER:	BLM/ALASKA
DESIGNER:	CH2M HILL
DATE:	10/15/2015
SCALE:	1" = 400'

SHEET	
F2	



MATCH SHEET F3

MATCH SHEET F1

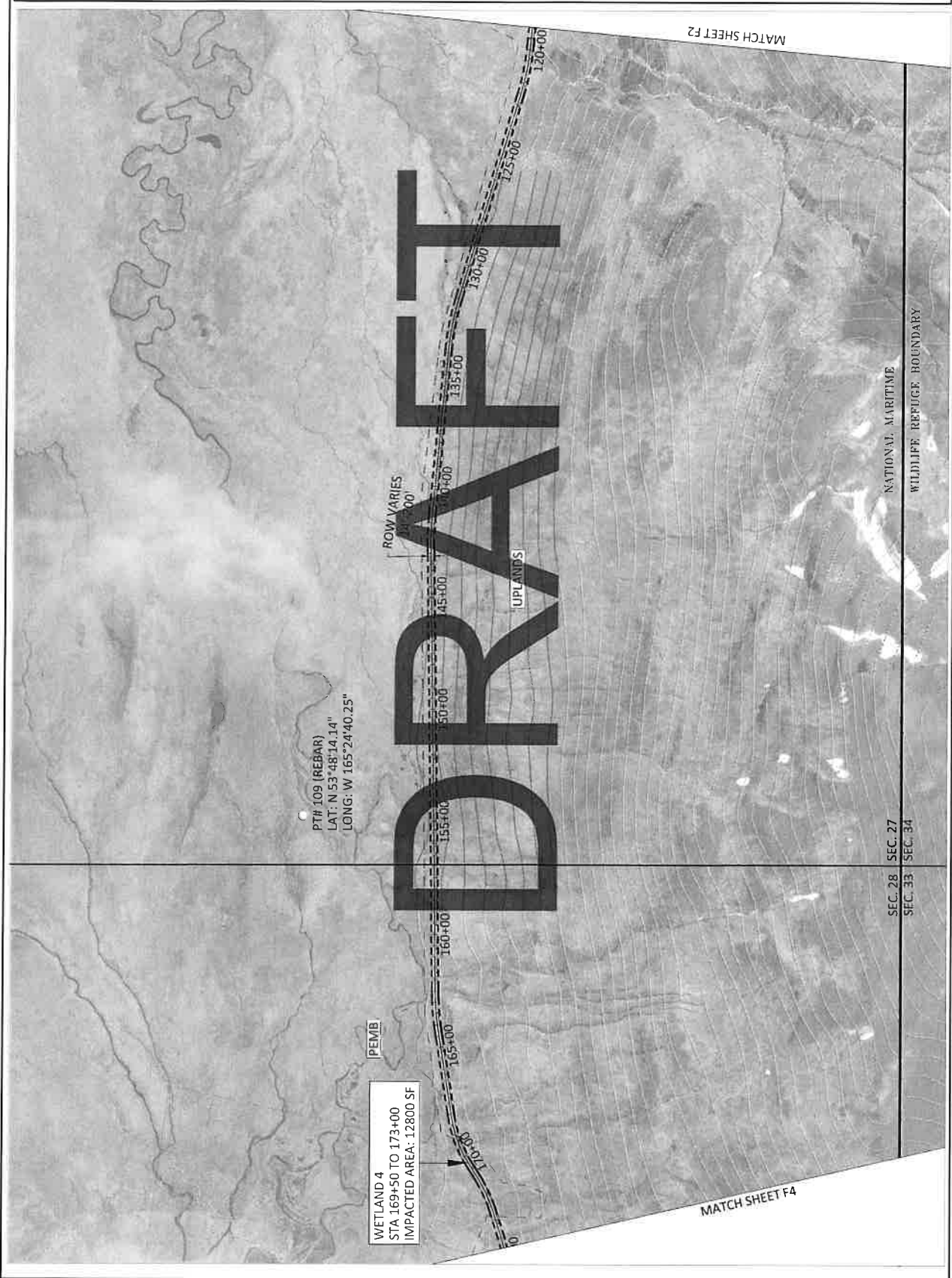
GENERAL NOTES



- Wetlands Boundary
- Existing WW2 Road
- Proposed Road ROW
- Cultural Resource
- Wetlands Impact
- Found BLM Monument

1	2025 FIELD SURVEYS PER CIVIL ENGINEERING PROJECT
2	2025 ASSESSMENT OF CULTURAL RESOURCES SURVEY DATA
3	DATE OF REVISION
4	BY
5	DATE
6	DESCRIPTION
7	PROJECT
8	DATE
9	BY
10	DATE
11	DESCRIPTION
12	PROJECT
13	DATE
14	BY
15	DATE
16	DESCRIPTION
17	PROJECT
18	DATE
19	BY
20	DATE
21	DESCRIPTION
22	PROJECT
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92	PROJECT
93	DATE
94	BY
95	DATE
96	DESCRIPTION
97	PROJECT
98	DATE
99	BY
100	DATE

DATE	11/14/2025
BY	J. J. JONES
SCALE	1" = 400'
F3	



PT# 109 (REBAR)
LAT: N 53°48'14.14"
LONG: W 165°24'40.25"

WETLAND 4
STA 169+50 TO 173+00
IMPACTED AREA: 12800 SF

ROW VARIES AT 200'

UPLANDS

NATIONAL MARITIME
WILDLIFE REFUGE BOUNDARY

SEC. 28 SEC. 27
SEC. 33 SEC. 34

MATCH SHEET F2

MATCH SHEET F4

GENERAL NOTES

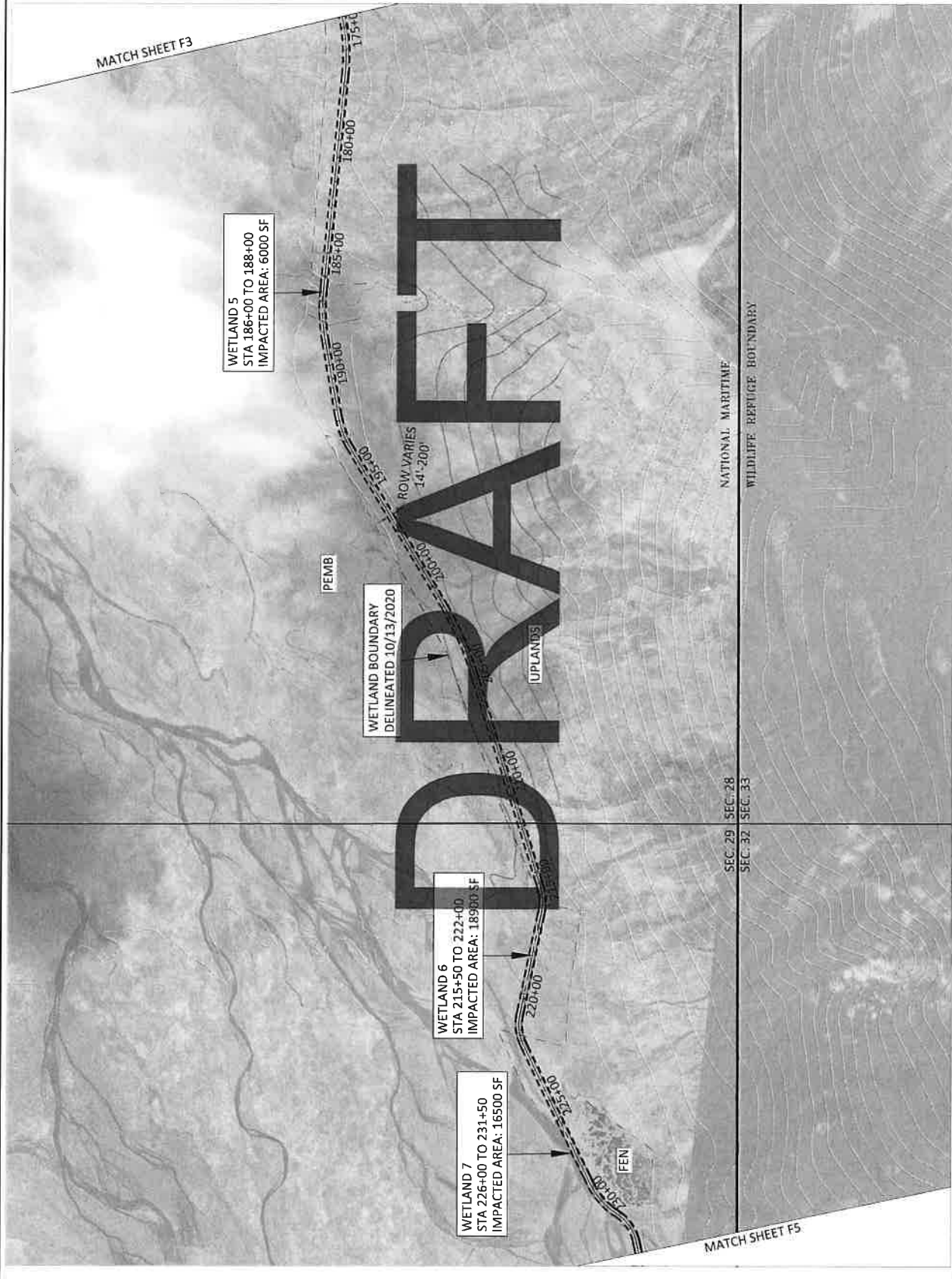


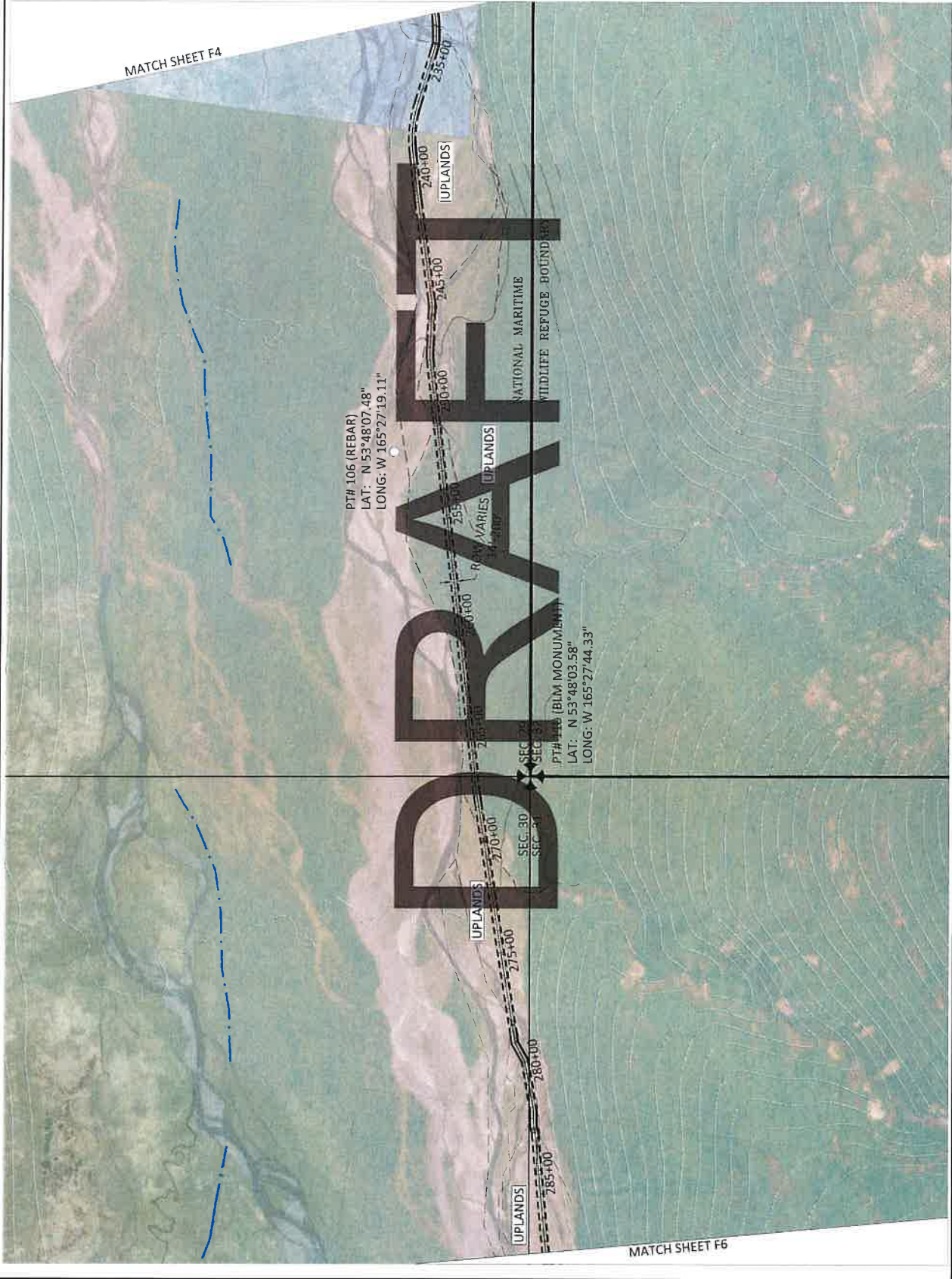
- Wetlands Boundary
- Existing WW2 Road
- Proposed Road
- ROW
- Cultural Resource
- Wetlands Impact
- Found BLM Monument

1	1719 - Malakshah Cultural Resource Inventory
2	1778 - Malakshah Cultural Resource Inventory
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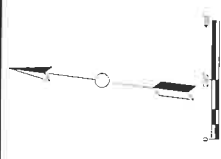
PROJECT	MALAKSHAH CULTURAL RESOURCE INVENTORY
FILE NO.	20-1121
DATE	12/15/2020
SCALE	1" = 400'
SHEET	F4

DATE	12/15/2020
SCALE	1" = 400'
SHEET	F4





GENERAL NOTES



- Wetlands Boundary
- Existing WW2 Road
- Proposed Road
- ROW
- Cultural Resource
- Wetlands Impact
- Found BLM Monument

1	USE GOOGLE EARTH DATA
2	USE 2003 CULTURAL RESOURCES SURVEY DATA

PROJECT	CHESAPEAKE COASTAL PROJECT
CLIENT	CHESAPEAKE COASTAL PROJECT
DATE	08/20/2020
SCALE	1" = 400'

SHEET	
F5	

PTH 106 (REBAR)
 LAT: N 53°48'07.48"
 LONG: W 165°27'19.11"

PTH 106 (BLM MONUMENT)
 LAT: N 53°48'03.58"
 LONG: W 165°27'44.33"

ROW VARIES

NATIONAL MARITIME WILDLIFE REFUGE BOUNDARY

UPLANDS

UPLANDS

UPLANDS

UPLANDS

UPLANDS

MATCH SHEET F4

MATCH SHEET F6

GENERAL NOTES

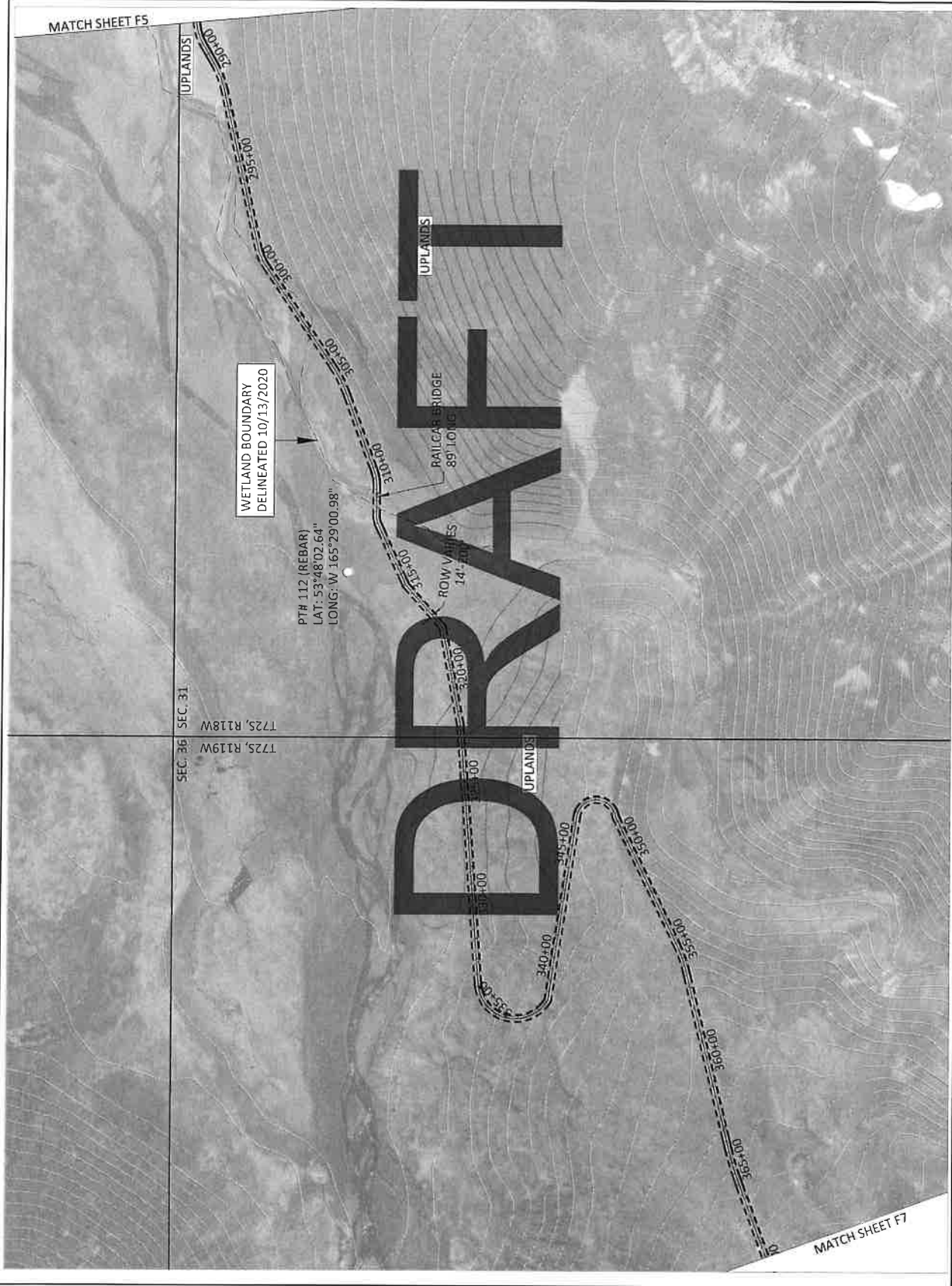


- Wetlands Boundary
- Existing WW2
- Road
- Proposed Road
- ROW
- Cultural Resource
- Wetlands Impact
- Found BLM Monument

1	DATE: 10/13/2020	BY: [Signature]
2	DATE: 10/13/2020	BY: [Signature]
3	DATE: 10/13/2020	BY: [Signature]

PROJECT:	AMALGAMATED FEDERAL ROADWAY & HIGHWAY
DATE:	10/13/2020
SCALE:	1" = 400'
PROJECT NO.:	1001000
PROJECT NAME:	WETLANDS
PROJECT LOCATION:	BLM
PROJECT OWNER:	BLM
PROJECT CONTACT:	BLM

F6	
DATE:	10/13/2020
SCALE:	1" = 400'



WETLAND BOUNDARY
 DELINEATED 10/13/2020

PTH 112 (REBAR)
 LAT: 53°48'02.64"
 LONG: W 165°29'00.98"

DRAFT

RAILCAR BRIDGE
 89' LONG

ROW VERTICES
 141' LONG

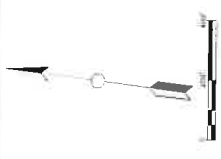
SEC. 36 SEC. 31

T72S, R119W T72S, R118W

MATCH SHEET F5

MATCH SHEET F7

GENERAL NOTES



- Wetlands Boundary
- Existing WW2 Road
- Proposed Road ROW
- Cultural Resource
- Wetlands Impact
- Found BLM Monument

1	1:25000 Scale Topographic Data, 1984
2	2018 Aerial Imagery
3	2018 Field Data
4	2018 Survey Data
5	2018 Wetland Data
6	2018 Cultural Data
7	2018 Wetland Impact Data
8	2018 Found BLM Monument Data

PROJECT	MAKULSON COUNTRYSIDE CORPORAION & CENTER
CLIENT	MAKULSON COUNTRYSIDE CORPORAION & CENTER
DATE	05/11/2023
PROJECT NO.	23-111
WETLANDS	WETLANDS
WETLANDS CODE	W1
WETLANDS TYPE	W1
WETLANDS DATA SOURCE	2018 FIELD DATA
WETLANDS DATA DATE	2018
WETLANDS DATA SCALE	1:25000
WETLANDS DATA SOURCE	2018 FIELD DATA
WETLANDS DATA DATE	2018
WETLANDS DATA SCALE	1:25000

DATE	05/11/2023	SHEET	F7
SCALE	1" = 400'		

MATCH SHEET F6

PT# 114 (REBAR)
LAT: N 53°48'00.11"
LONG: W 165°30'22.39"

370+00
375+00
380+00
385+00
390+00
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995+00
1000+00

DRAFT

UPLANDS

NATIONAL MARITIME WILDLIFE REFUGE BOUNDARY

SEC. 35 SEC. 36

SEC. 1 T735, R119W

SEC. 4 T735, R120W

MATCH SHEET F8

GENERAL NOTES

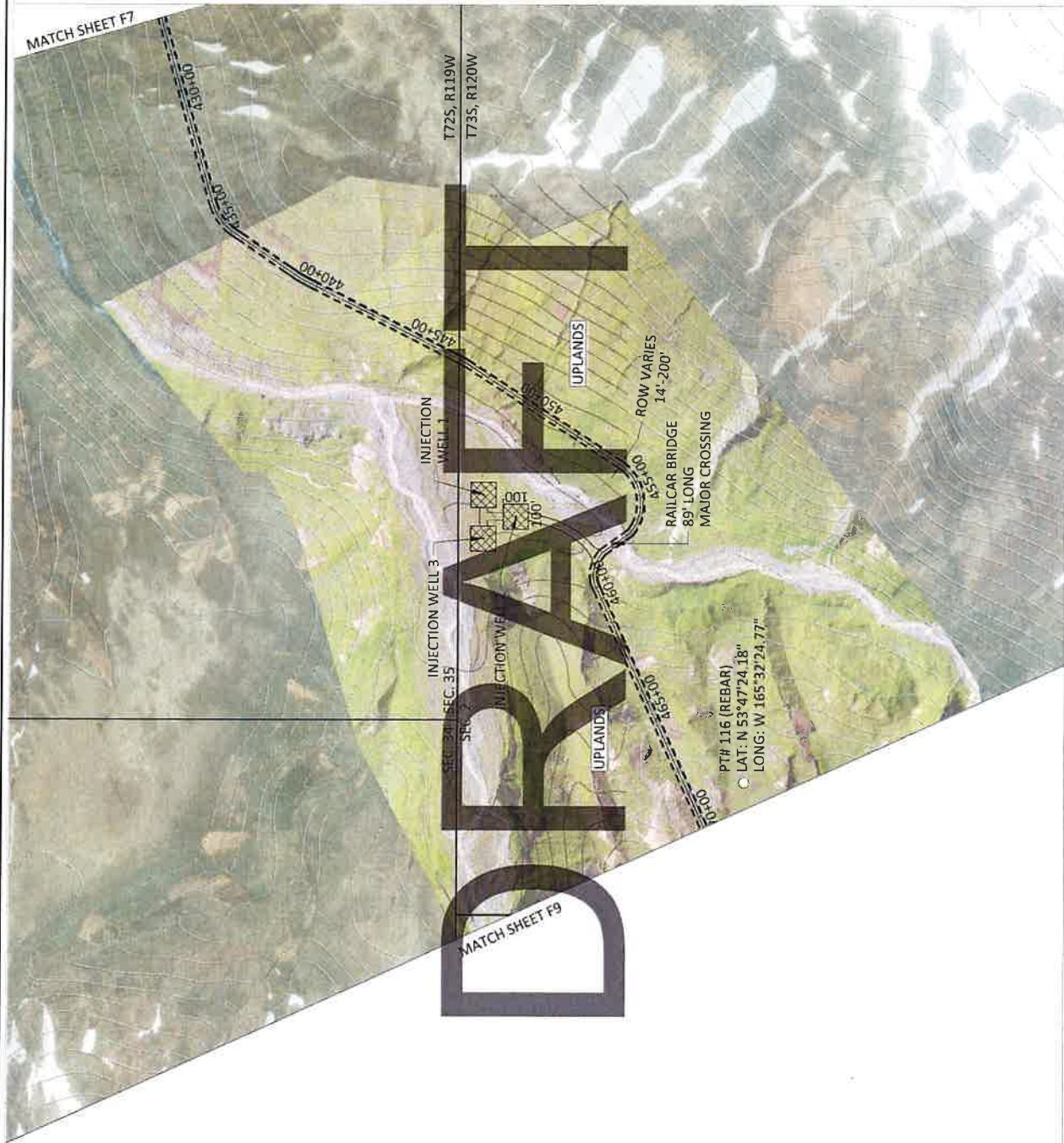


- Wetlands Boundary
- Existing WW2 Road
- Proposed Road
- ROW
- Cultural Resource
- Wetlands Impact
- Found BLM Monument

1	BLM - Cultural Resource Data
2	1:25,000 National Wetlands Inventory
3	BLM - Wetlands Inventory
4	BLM - Wetlands Inventory
5	BLM - Wetlands Inventory
6	BLM - Wetlands Inventory
7	BLM - Wetlands Inventory
8	BLM - Wetlands Inventory
9	BLM - Wetlands Inventory
10	BLM - Wetlands Inventory

PROJECT	DUNBARIAH CONSERVATION PROJECT
DATE	03/11/21
PROJECT	WETLANDS
PROJECT NUMBER	111
PROJECT TITLE	WETLANDS INVENTORY TITLE: R120W, R120W, R120W SECTION: 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50
PROJECT AREA	44° 15' 00" N 102° 00' 00" W

SHEET		F8
DATE	03/11/21	
SCALE	1" = 400'	



MATCH SHEET F9

MATCH SHEET F7

T725, R119W
T735, R120W

INJECTION WELL 1

INJECTION WELL 3

SEC. 35

INJECTION WELL 2

UPLANDS

UPLANDS

ROW VARIES 14'-200'

RAILCAR BRIDGE 89' LONG MAJOR CROSSING

PTH 116 (REBAR)
LAT: N 53°47'24.18"
LONG: W 165°32'24.77"

RAILROAD

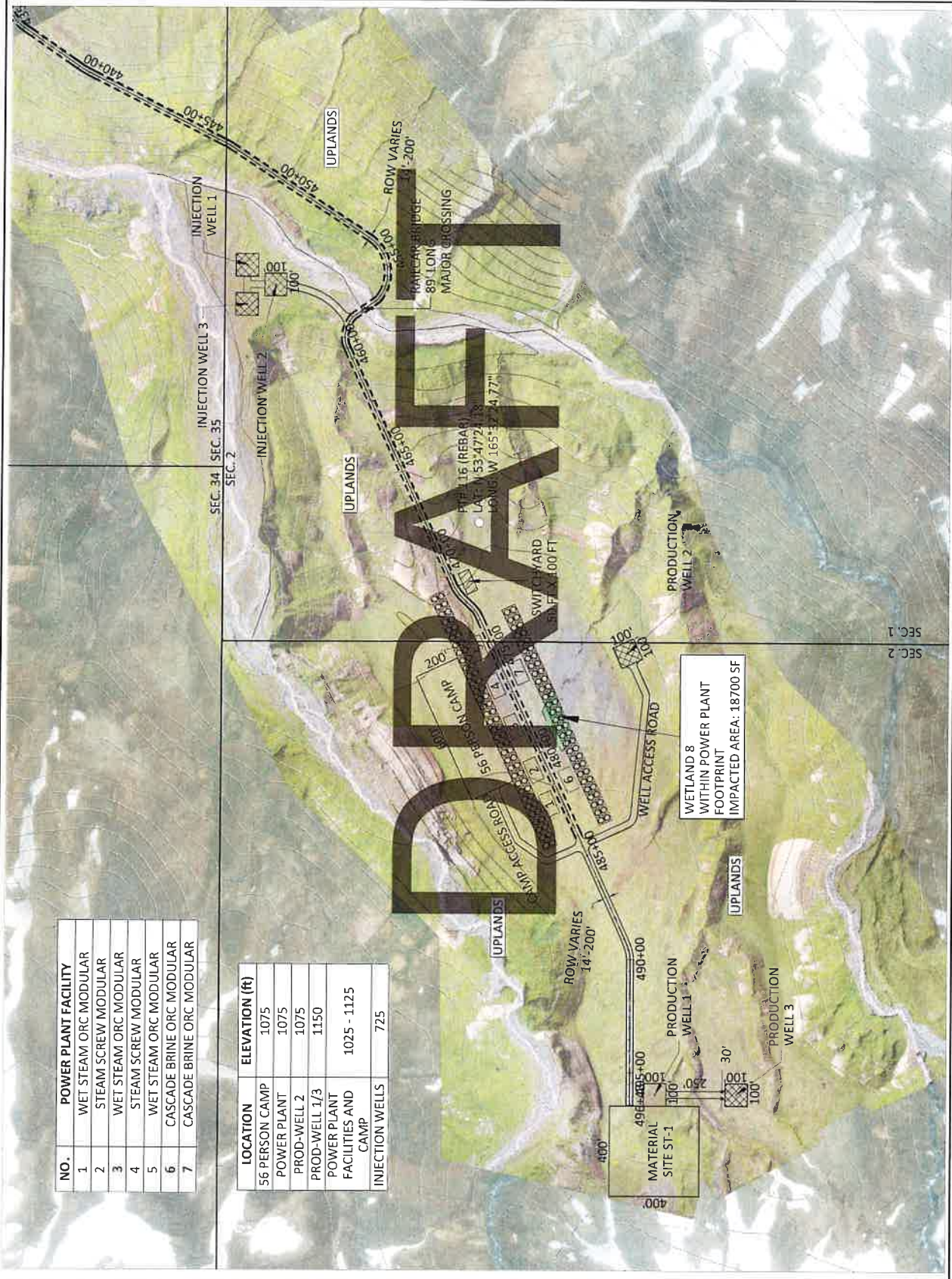
GENERAL NOTES

- Wetlands Boundary
- Existing WWZ
- Road
- Proposed Road
- ROW
- Cultural Resource
- Wetlands Impact
- Found BLM Monument

1	2014 - Initial Wetlands Delineation
2	2015 - Final Cultural Resource Inventory
3	2015 - Final Wetlands Delineation
4	2015 - Final Wetlands Impact Assessment
5	2015 - Final Wetlands Mitigation Plan
6	2015 - Final Wetlands Monitoring Plan
7	2015 - Final Wetlands Management Plan

PROJECT:	MANCHESTER COLUMBIAN COUNTY PROJECT
DATE:	20151111
PROJECT:	WETLANDS
PROJECT NUMBER:	111
PROJECT TITLE:	WETLANDS
PROJECT LOCATION:	WETLANDS
PROJECT OWNER:	BLM
PROJECT CONTACT:	WETLANDS
PROJECT ADDRESS:	111111
PROJECT CITY:	111111
PROJECT STATE:	111111
PROJECT ZIP:	111111
PROJECT PHONE:	111111
PROJECT FAX:	111111
PROJECT EMAIL:	111111

F10



NO.	POWER PLANT FACILITY
1	WET STEAM ORC MODULAR
2	STEAM SCREW MODULAR
3	WET STEAM ORC MODULAR
4	STEAM SCREW MODULAR
5	WET STEAM ORC MODULAR
6	CASCADE BRINE ORC MODULAR
7	CASCADE BRINE ORC MODULAR

LOCATION	ELEVATION (ft)
56 PERSON CAMP	1075
POWER PLANT	1075
PROD-WELL 2	1075
PROD-WELL 1/3	1150
POWER PLANT FACILITIES AND CAMP	1025 - 1125
INJECTION WELLS	725

WETLAND 8 WITHIN POWER PLANT FOOTPRINT IMPACTED AREA: 18700 SF

MATERIAL SITE ST-1

SEC. 1

SEC. 2

**Appendix C: Laws and Protocols Pertaining to the Discovery of Human Remains in
Alaska**

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Inadvertent Discovery Plan for Archaeological Resources

If archaeological features or artifacts (not including human remains) are encountered, Project personnel should follow the steps below to avoid further effects:

1. Stop work in the immediate vicinity of the suspected cultural resources and avoid construction activities that may affect remains and artifacts until required coordination has been completed.
2. Mark the area in which the resources are located as well as a buffer area appropriate to the find and the terrain. The buffer may be larger if there is the possibility of more resources in the area or in case of slopes or trenches where ongoing work may affect the resource. Ensure that all cultural materials will be protected from possible effects during the required coordination.
3. The discovery shall be investigated by a professional meeting the Secretary of Interior Professional Qualification Standards for Archaeology (36 CFR 61). This investigation shall take place no longer than 72 hours after discovery.
4. The Project Manager will initiate coordination with the following to determine if the materials or features warrant a recovery effort or additional consultation:

a. Sarah Meitl

Review and Compliance Coordinator
Alaska Office of History and Archaeology
Alaska Department of Natural Resources
550 W. 7th Avenue, Suite 1310
Anchorage, AK 99501-3565
Phone (907) 269-8720
Fax (907) 269-8908

b. Judith Bittner

Chief, Alaska Office of History and Archaeology
Alaska Department of Natural Resources
550 W. 7th Avenue, Suite 1310
Anchorage, AK 99501-3565
Phone (907) 269-8721
Fax (907) 269-8908

Inadvertent Discovery Plan for Human Remains and Graves

As set forth in the Native American Graves Protection and Repatriation Act regulation (43 CFR 10), a specific plan of action is required in the event that human remains are uncovered on federal lands during construction.

The following steps must be taken if human remains or suspected human remains are discovered:

5. A professional archaeologist meeting the Secretary of Interior Professional Standards for Archaeology (36 CFR 61) will be engaged to assess the extent and age of the discovery and ensure that construction activities have been halted and the remains are protected and treated with respect and dignity.
6. If human remains appear recent in the judgment of the archaeologist, the Project Manager shall defer to the opinion of the Alaska State Troopers (AST) and Alaska State Medical Examiner (ASME) for a determination of whether the remains are of a forensic nature and/or subject to criminal investigation.
7. If the human remains appear archaeological or ancient in the judgment of the archaeologist, the Project Manager will engage a qualified physical anthropologist experienced in the analysis of human remains to evaluate the discovery and document the remains in order to make an independent assessment of cultural affiliation. The physical anthropologist shall be afforded no more than 30 days' time to conduct his or her analysis.
8. If the physical anthropologist believes the remains to be Native American in origin, the Project Manager will consult with the local federally recognized Tribe regarding respectful treatment of the remains.
9. If human remains are not Native American, and a determination has been made by the AST and ASME that a death investigation is not warranted, then the Project Manager, in consultation with the ASME, local government officials and applicable community officials will make a reasonable and good faith effort to identify, locate, and inform descendants of the deceased.
10. The Project Manager will contact the following people and agencies within 24 hours of uncovering the remains:
 - a. Alaska State Troopers
Communications Center Manager
Phone (907) 451-5100
Fax (907) 451-5165
 - b. Alaska State Medical Examiner
Dr. Gary Zientek, Chief Medical Examiner
Phone (907) 344-2200
Fax (907) 451-2216
 - c. Dr. Ken Gallager, Assistant Medical Examiner
Phone (907) 344-2200
Fax (907) 451-2216
 - d. Alaska Office of History and Archaeology
Richard VanderHoek

State Archaeologist, Alaska Department of Natural Resources
550 W. 7th Avenue, Suite 1310
Anchorage, AK 99501-3565
Phone (907) 269-8728
Fax (907) 269-8908

- e. The Qawalangin Tribe of Unalaska
Blaine Shaishnikoff
President
Phone (907)581.2920

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MEMORANDUM OF AGREEMENT
AMONG THE U.S. ARMY CORP. OF ENGINEERS ALASKA DISTRICT, THE
OUNALASHKA /CHENA POWER, LLC AND THE ALASKA STATE HISTORIC
PRESERVATION OFFICER
REGARDING
COMPONENTS OF THE MAKUSHIN GEOTHERMAL PROJECT
LOCATED IN THE
MAKUSHIN VALLEY, UNALASKA, ALASKA

WHEREAS the Ounalashka /Chena Power, LLC (OCCP) proposes to carry out components of the Makushin Geothermal Project in the Makushin Valley (Project); and

WHEREAS the Project consists of components located in the Makushin Valley, Unalaska, Alaska, including the construction of a geothermal extraction area in the upper Makushin Valley, an access road and transmission line between the upper Makushin Valley and extraction area, and facilities at the mouth of the Makushin Valley; and

WHEREAS the Project requires a Section 404 permit under the regulations set forth in the Clean Water Act; and

WHEREAS the Project constitutes an Undertaking subject to review under Section 106 of the National Historic Preservation Act (NHPA) (54 USC 306108); and

WHEREAS the USACE is hereby designated as the lead Federal agency for the Undertaking under the provisions of 36 CFR 800.2(a)(2); and

WHEREAS USACE, in consultation with the Alaska State Historic Preservation Officer (AKSHPO), has defined the Undertaking's area of potential effects (APE), as defined in 36 CFR 800.16. The APE description is contained in Appendix A and B of this MOA; and

WHEREAS UNL-00556 (including a WWII-era dock), WWII Road, and WWII Airstrip located within the APE are contributing elements to the Makushin Valley WWII Historic District (UNL-00623), which is eligible for listing in the National Register of Historic Places (NRHP); and

WHEREAS the USACE, in consultation with the AKSHPO pursuant to 36 CFR Part 800, the regulations implementing Section 106 of the National Historic Preservation Act (54 U.S.C. §306108) has determined that construction of access roads will have an adverse effect on the Makushin Valley WWII Historic District (UNL-00623); and

WHEREAS the USACE has consulted with the Ounalashka Corporation and the City of Unalaska, who own the land within the Makushin Valley WWII Historic District (UNL-00623) and has invited them to sign this MOA as an invited signatory; and

WHEREAS the USACE has consulted with the Ounalashka Corporation and the Qawalangin Tribe and has invited them to sign this MOA as invited signatories; and

WHEREAS in accordance with 36 CFR § 800.6(a)(1), the USACE has notified the Advisory Council on Historic Preservation (ACHP) of its adverse effect determination with specified documentation, and the ACHP has chosen not to participate in the consultation pursuant to 36 CFR § 800.6(a)(1)(iii); and

NOW, THEREFORE, the USACE, AKSHPO, OCCP, the City of Unalaska, Ounalashka Corporation, and the Qawalangin Tribe agree that the Undertaking shall be implemented in accordance with the following stipulations to mitigate the adverse effects of the Undertaking on historic properties.

STIPULATIONS

The USACE shall ensure that the following measures are carried out:

I. Applicability

- A. This MOA applies only to the Project activities described in Appendix A, or as amended per Section VIII below.

II. Mitigation

- A. A qualified professional meeting the Secretary of the Interior's Professional Qualifications Standards in archaeology as per 36 CFR Part 61 (Qualified Archaeologist), will:
 1. Complete a Condition Assessment of the portion of the Makushin Valley WWII Historic District (UNL-00623) located within the APE, including: photo documentation and mapping of previously identified contributing elements to the Makushin Valley WWII Historic District (UNL-00623) within the APE.
 2. Complete an Evaluation Phase survey as defined in State of Alaska Historic Preservation Series No. 11, (*Standards and Guidelines for Investigating and Reporting Archaeological and Historic Properties in Alaska*) of identified contributing elements within the APE to collect sufficient information to determine if previously identified contributing elements within the APE are individually eligible for listing on the NRHP.
 3. Complete Historic American Landscape Survey (HAL) level photographic documentation of the WWII Airstrip and WWII Road section that will be adversely affected by Project.
 4. Conduct primary research of publicly-available references (i.e., historic aerial photographs, as-builts, etc.) to define the full extent of the WWII Road, including the portion outside of the APE.

III. Submittals

- A. The following products of mitigation activities will be submitted:
 1. A draft report for the district and contributing element, shall be submitted to AKSHPO within six months after the completion of all fieldwork. The USACE shall ensure that the report meets the guidelines established in the Cultural

Resources Investigations and Report Outline, Alaska Historic Preservation Series No. 11 (*Standards and Guidelines for Investigating and Reporting Archaeological and Historic Properties in Alaska*), and the Secretary of the Interior's Format Standards for Final Reports of Data Recovery Programs (42 FR 5377-79). The report will include new and/or updated Alaska Heritage Resource Survey (AHRS) cards. Upon receipt, AKSHPO shall have 30 calendar days to review the draft and submit comments to the USACE.

2. The USACE shall take into consideration AKSHPO's comments. Submittal of the final mitigation report shall consist of two printed copies and one electronic copy sent to AKSHPO no later than 60 days after receipt of comments.
3. Upon completion of the final mitigation report, USACE will have a public report written that summarizes the information included in the mitigation report. One bound copy and one electronic copy of the public report will be provided to the AKSHPO, the City of Unalaska, the Museum of the Aleutians, the WWII Visitor Center (ran by Ounalashka Corporation), the Unalaska Public Library, the Unalaska City School, and Eagle's View Elementary for use by the public.
4. An electronic version of the public report will also be made available on the Project website.
5. A short format HALS history documentation that will be submitted to HALS office and finally transmitted to the Library of Congress.

IV. Curation

- A. Any artifacts, human remains, and other cultural materials collected pursuant to this agreement will remain the property of the landowner. The landowner may designate a curation facility for the artifacts, human remains, and other cultural materials and the project will pay for any curation costs.

V. Unanticipated Discoveries

- A. The USACE, in coordination with the OCCP, shall ensure that the following stipulations are carried out in the case of an unanticipated discovery during construction:
 1. All work that might adversely affect the newly discovered cultural resource shall cease, no less than 50 feet from the find, and the location secured, until a Qualified Archaeologist examines the find and makes a recommendation on its eligibility for listing on the NRHP. Project personnel will photograph, document, and provide a GPS point of the newly discovered cultural resource and send the data to the Qualified Archaeologist for review. USACE will notify Signatories of an unanticipated discovery within one business day. The Qualified Archaeologist may make their initial recommendation by telephone and will follow up with a letter within 5 calendar days of examining the find. If the find appears to be significant or the archaeologist is unable to make a recommendation based on the materials provided by the project personnel, the Qualified Archaeologist will be brought to the site to conduct additional survey and documentation and, if appropriate monitoring of ground disturbing activities.

2. The Qualified Archaeologist, the USACE, and the OCCP will consult with the AKSHPO, the landowner, and any other appropriate consulting parties to reach an official NRHP determination of eligibility. Additional consulting parties will be determined by USACE, in consultation with AKSHPO.
 3. Consultation with AKSHPO and any other parties will be carried out in an expeditious manner so as to avoid unnecessary delays to the Undertaking. AKSHPO may provide the USACE with initial comments by telephone and will follow up with a letter within 5 business days of the request for comments.
 4. If the newly discovered resource is determined to be eligible for listing on the NRHP, the USACE, OCCP, AKSHPO, and the other parties included in the discovery consultation will develop a mitigation plan for the newly discovered historic property.
- B. The USACE will request the ACHP's comments on discoveries if the USACE fails to reach agreement with AKSHPO on appropriate mitigation actions.
- C. The OCCP will not resume work in the vicinity of newly discovered cultural resource until the AKSHPO concurs in writing that the find is not a historic property, or the agreed upon on-site mitigation measures have been completed.

VI. Inadvertent Discovery of Human Remains and/or Grave Goods

- A. Procedures for the Treatment of Alaska Native or Non-Alaska Native remains, recent, or unknown remains inadvertently discovered on State, Private, or Public Lands.
1. The OCCP will follow standard operating procedures for the inadvertent discovery of human remains on non-Federal lands in accordance with Alaska Statutes 12.65.005(a)(1), 18.50.250, and the Memorandum of Understanding between the Alaska Office of History and Archaeology, State medical examiner, and Alaska State Troopers (Appendix C).
 2. Upon discovery all activity in the vicinity of the human remains must cease and the site must be secured against further intrusion.
 3. The person making the discovery shall immediately contact the OCCP by phone and follow up with written notification.
 4. The OCCP will immediately notify a Qualified Archaeologist with forensic expertise, who will examine the remains to determine if they are human.
 5. If the remains are determined to be human, the OCCP will immediately notify a peace officer of the State, the State medical examiner, the Alaska State Troopers, the Alaska Bureau of Investigation, and the AKSHPO, per AS 12.65.005(a)(1). In addition, the USACE will notify Alaska Native organizations including but not limited to The Qawalangin Tribe of Unalaska.
 6. A qualified person with the appropriate level of expertise as decided by the State medical examiner, or the AKSHPO, must examine the remains to determine postmortem interval.

7. Remains determined to be ancient (>100 years) will be reported to the AKSHPO by phone and in writing along with the location coordinates and a basic inventory.
8. If the remains are determined to be non-Native, the USACE will notify the descendants, if known. If no descendants are found, the OCCP shall have the remains re-interred in a designated area, following all applicable state laws.
9. If the racial identity of any human remains is in question, an anthropologist experienced in the analysis of human remains shall examine them. The anthropologist shall be afforded no more than 30 days to conduct his or her analysis.
10. If the human remains are determined to be Native, the USACE will coordinate consultation with Alaska Native organizations (including but not limited to the The Qawalangin Tribe of Unalaska), the AKSHPO, and other entities with affiliations with Native human remains to develop a written, binding treatment plan.
11. Should human remains need to be removed, relocated, transported, or reburied, the OCCP will contact the Alaska Bureau of Vital Statistics, Alaska Department of Health and Social Services to obtain a disinterment-reinternment permit and/or burial-transit permit as per AS 18.50.250.
12. The OCCP and their contractors will follow the direction of the Alaska State Troopers, State Medical Examiner, or local peace officer for treatment and disposition of human remains determined to be recent (<100 years).

VII. Dispute Resolution

Should any signatory or consulting party to this MOA object at any time to any actions proposed or the manner in which terms of this MOA are implemented, the USACE shall consult with such party to resolve the objection. If the USACE determines the objection cannot be resolved, the USACE shall:

- A. Forward all documentation relevant to the dispute including the USACE's proposed resolution to the ACHP. The ACHP shall provide the USACE with its advice on the resolution of the objection within thirty (30) days of receiving adequate documentation. Prior to reaching a final decision on the dispute, the USACE shall prepare a written response that takes into account any timely advice or comments regarding the dispute from the ACHP, signatories and consulting parties, and provide them with a copy of this written response. The USACE will then proceed according to its final decision.
- B. If the ACHP does not provide its advice regarding the dispute within the thirty (30)-day period, the USACE may make a final decision on the dispute and proceed accordingly. Prior to reaching such a final decision, the USACE shall prepare a written response that takes into account any timely comments regarding the dispute from the signatories and consulting parties to the MOA and provide them and the ACHP with a copy of such written response.

- C. The responsibility of USACE, in coordination with OCCP, to carry out all other actions subject to the terms of this MOA that are not the subject of the dispute remain unchanged.

VIII. Amendments

This MOA may be amended when such an amendment is agreed to in writing by all signatories. The amendment will be effective on the date it is signed by all the signatories and a copy will be filed with the ACHP by USACE.

IX. Termination

If any signatory to this MOA determines that its terms will not or cannot be carried out prior to the expiration, that party shall immediately consult with the other signatories to attempt to develop an amendment per *Stipulation VIII: Amendments*. If within thirty (30) days (or another time period agreed to by all signatories) an amendment cannot be reached, any signatory may terminate the MOA upon written notification to the other signatories.

Once the MOA is terminated, and prior to work continuing on the Undertaking, USACE must either (a) execute a MOA pursuant to 36 CFR § 800.6 or (b) request, take into account, and respond to the comments of the ACHP under 36 CFR § 800.7. The USACE shall notify the signatories as to the course of action it will pursue.

X. Failure to Carry Out Agreement

In the event the USACE, in coordination with the OCCP, does not carry out the terms of this MOA or if the ACHP determines under 36 CFR 800.14(b)(2)(v) that the terms of this MOA are not being carried out, the USACE will comply with 36 CFR 800.3 through 800.7 with regard to individual Undertakings covered by this MOA.

XI. Anti-Deficiency Act

All requirements set forth in this MOA requiring the expenditure of funds are expressly subject to the availability of appropriations and the requirements of the Anti-Deficiency Act (31 U.S.C. Section 1341). No obligation undertaken by the USACE, in coordination with OCCP, under the terms of this MOA will require or be interpreted to require a commitment to expend funds not obligated for a particular purpose.

- A. If the USACE, in coordination with the OCCP, cannot perform any obligations set forth in the MOA due to the unavailability of funds, the USACE, OCCP, the AKSHPO, and the ACHP intend the remainder of the agreement to be executed.
- B. In the event that any obligation under the MOA cannot be performed due to the unavailability of funds, the USACE agree to utilize their best efforts to renegotiate the provision and may require that the parties initiate consultation to develop an amendment to this MOA when appropriate.

XII. Execution in Counterparts

This MOA may be executed in counterparts, with a separate page for each Signatory and Invited Signatory.

Execution of this MOA by the USACE, the OCCP, and AKSHPO, and implementation of its terms, serve as evidence that the USACE has taken into account the effects of this Undertaking on historic properties and afforded the ACHP an opportunity to comment.

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MEMORANDUM OF AGREEMENT
AMONG THE U.S. ARMY CORP. OF ENGINEERS ALASKA DISTRICT, THE
OUNALASHKA /CHENA POWER, LLC AND THE ALASKA STATE HISTORIC
PRESERVATION OFFICER
REGARDING
COMPONENTS OF THE MAKUSHIN GEOTHERMAL PROJECT
LOCATED IN THE
MAKUSHIN VALLEY, UNALASKA, ALASKA

U.S. Army Corps. Engineers, Alaska District

Date: _____

Shannon Johnson
South Branch Chief

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LOCATED IN THE
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The Ounalashka/Chena Power, LLC

Bernie Karl
President

Date: _____

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LOCATED IN THE
MAKUSHIN VALLEY, UNALASKA, ALASKA

Alaska State Historic Preservation Officer

Judith Bittner

Alaska State Historic Preservation Officer

Date: _____

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MAKUSHIN VALLEY, UNALASKA, ALASKA

The City of Unalaska

Erin Reinders
City Manager

Date: _____

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MAKUSHIN VALLEY, UNALASKA, ALASKA

Ounalashka Corporation

Natalie A. Cale
Chief Operating Officer/General Counsel

Date: _____

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COMPONENTS OF THE MAKUSHIN GEOTHERMAL PROJECT
LOCATED IN THE
MAKUSHIN VALLEY, UNALASKA, ALASKA

Qawalangin Tribe

Date: _____

Christopher Price

CEO

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Appendix A: Makushin Geothermal Project Description: Makushin Valley Components

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The Makushin Geothermal Project is located on Unalaska Island, Alaska with Project components in both the Makushin Valley and Amaknak Island. These components will be connected by an underwater cable across Unalaska Bay. This Memorandum of Agreement (MOA) applies to the Makushin Valley segment of the Project (Figure 1, Figure 2, and Appendix B).

The Makushin Valley segment includes construction of the following components:

- 1) Lower Makushin Valley
 - a) Transmission station measuring 40-feet (ft) by 60-ft in the lower Makushin Valley
 - b) A 20-person camp with a preferred location near Material Site A, and the alternative site located on the WWII airstrip.
 - i) The camp consists of Atco type structures (12 ft by 50 ft) on steel skids with no foundations. Water and sewage are provided by A/G tankage and serviced with pump trucks.
 - c) Docks
 - i) Two nonpermanent floating docks (50 ft by 10 ft) will be constructed with wide flange steel beam stringers connected together with steel piping. Railroad flat cars will comprise the deck of the floating dock. A 175-ton crane will move the floating dock into position, drive the four studs into position, and be used to remove the dock.
 - d) Material site
 - i) Two 400-ft by 400-ft material sites located between the Access Road right-of-way and the Makushin River.
- 2) Upper Makushin Valley
 - a) Production and injection wells
 - i) Three production wells and three injection wells, each 100 ft by 100 ft.
 - ii) Large production drill rigs will be used to installation.
 - b) 50-person camp near power house at the head of Makushin Valley
 - i) Gravel pad footprint is 5,000 square (sq) ft. The pad will be constructed over geotextile fabric with no excavation into undisturbed ground. Thirty units of 12-ft by 50-ft self-supporting modular units comprise the camp. The units sit directly on the gravel pad using timber sleepers for leveling and support.
 - c) Water will be hauled or a well may be developed. Trash will be hauled out by truck.
 - d) A below ground septic system for the camp will be constructed consisting of a septic camp and a 50-ft by 15-ft leach field.
 - e) Pipeline
 - i) Project will have 2.5 miles (mi) of pipeline. Project will use 24-inch (in)-diameter pipe narrowing to 12-in to 16-in-diameter. Pipelines are above ground on steel pilings or are on ground gravel pads supported by wooden sleepers to allow for expansion and contraction.
 - f) Power plant
 - i) Seven modular power units and two lines of heat exchangers around the perimeter of the gravel pad (1,000 ft by 400 ft). Pre-fabricated power units will be on skids capable of self-supporting but will likely be on pile-driven foundations. The gravel pad will be constructed over geotextile fabric with no excavation into ground surface.
 - g) Material site

- i) Material Site St-1 is 400 ft by 400 ft and located near the 50-person camp.
- 3) Access Road
- a) A gravel road 9.629-mi-long between the Upper and Lower Makushin Valley. The road will have a 30-ft crown with ditches on each side. Construction will be balanced-cut and fill in 95% of route, and fill in the other 5%.
 - b) Railroad car bridges at four locations.
 - i) Concrete abutments on each end of span will support the bridge. The abutments will be pre-cast concrete blocks brought to the site and set into prepared ground.
 - ii) Culverts will vary from 12 in to 36 in CMP's. Inverts will be laid just below natural grade and sloped in with cut/fill balance to match natural grade.
- 4) Transmission line
- a) The subsurface transmission line is located under the Access Road.

Known AHRS sites in the Makushin Valley portion of the APE include the Makushin Valley WWII Historic District (UNL-00623) and its contributing elements: UNL-00556 (including a WWII-era dock), a WWII Road system, and a WWII Airstrip. The Makushin Valley WWII Historic District (UNL-00623) is eligible for listing on the NRHP under Criterion A for its association with WWII activity in the Aleutian Islands.

A 3,838.29-ft section of the WWII road in the lower Makushin Valley was surveyed in 2020 (Sweeney 2020). Based on aerial imagery the road ascends the valley, and crossed the Makushin River several times, with some segments washed out by the river. The recorded portion of the WWII road is 23.95-ft wide and consists of a 5.5-ft thick gravel lens on top of the ground surface. The gravel used in the construction of the WWII airstrip and road appears to have come from a gravel source located between two beach ridges, near UNL-00556.

The WWII airstrip runs east-west and is 2,008.57-ft long and 101.38-ft wide. The airstrip was constructed by applying a 5.5-ft thick gravel lens on top of the ground surface. There are ditches around the perimeter of the airstrip. There is no apron or turn-around areas associated with the airstrip. The WWII road enters the runway on the eastern end and exits it at the western end.

UNL-00556 is a WWII installation that had its own power, water, communications and housing. The exact function of the facility is not apparent from the physical remains. The remains of a WWII dock, is a feature associated with UNL-00556. The dock is located in the intertidal zone, extending out from the beach grass area for approximately 30-ft. The dock does not extend into the surf. At one time it probably did extend into the water, but storms may have damaged the dock. The remaining dock measured 29-ft long by 12-ft wide, and consisted of five round wood pilings (13-in diameter) with 13-in by 13-in square cross beams, and was covered by 4-in by 12-in decking. Most of the decking is missing. The timbers and hardware utilized in the construction of the dock were consistent with those used during the WWII-era, though they were not definitively dateable.

Projects activities planned within the boundaries of UNL-00623 include access road construction over a section of the WWII road and WWII airstrip, and the installation of two temporary docks adjacent to the WWII dock associated with UNL-00556.

The Project will install two temporary docks measuring 50-ft by 10-ft. The docks will be installed by a 175-ft crane moving the docks into position and driving four studs to secure the docks. One of the temporary docks is 81-ft away from the WWII dock associated with UNL-00556 and UNL-00623. Although there is no direct impact on the WWII dock, the Project will establish a buffer around the WWII dock with flagging and avoid impacting the WWII dock during construction activities in the Makushin Valley.

The Project is constructing a 9.6287-mi-long access road in the Makushin Valley. The first 0.7269 mi of the access road will overlap the WWII road. Currently, the WWII road extends from UNL-00556 along a beach ridge to the WWII airstrip and west up the Makushin Valley for an approximate length of 7.17 mi. The WWII road in the lower Makushin Valley is 23.95-ft wide and consists of a 5.5-ft-thick gravel lens on top of the ground surface. The access road will be wider than the current WWII road; gravel will be applied so there will be a 30-ft crown with ditches on each side. In addition, a railroad car bridge will be installed within the first 0.7269 mi which consists of installing concrete abutments on each span of the bridge. The abutments will be placed on prepared ground. Culverts will be installed with diameters ranging from 12 to 36 inches.

The access road will also be constructed over the WWII airstrip. The WWII airstrip is located along the WWII road. The WWII airstrip runs east-west and is wider than the WWII road; 101.38-ft-wide by 2,008.57-ft-long. The WWII airstrip was constructed by the application of a 5.5-ft-thick gravel lens on top of the ground surface. There are drainage ditches around the perimeter of the airstrip. The access road construction will have an impact on the original construction elements of the WWII airstrip. The WWII airstrip will be covered with gravel fill to create a 50-ft-wide crown and there will be ditching on either side of the road. The access road will become the predominate feature and the WWII airstrip will be almost completely built over.

Access road construction will have an adverse effect on the integrity of the WWII road as a contributing element to the Makushin Valley WWII Historic District (UNL-00623). The location of the WWII road will remain the same as will the WWII road's association and setting in the surrounding landscape. The design of the WWII Road will be impacted since it will be covered by the new construction and disturbed by the bridge abutments and installation of culverts. The feeling the WWII Road evokes of the WWII defense activities on Unalaska will also be diminished due to the new construction.

Access road construction will have an adverse effect on the integrity of the WWII airstrip as a contributing element to the Makushin Valley WWII Historic District (UNL-00623). The WWII airstrip will be covered with gravel fill to create a 50-ft-wide crown and there will be ditching on either side of the road. The access road will become the predominate feature and the WWII

airstrip will be almost completely built over. Although the location of the WWII airstrip remains the same, there will be little design, setting, feeling or association remaining for the WWII airstrip.

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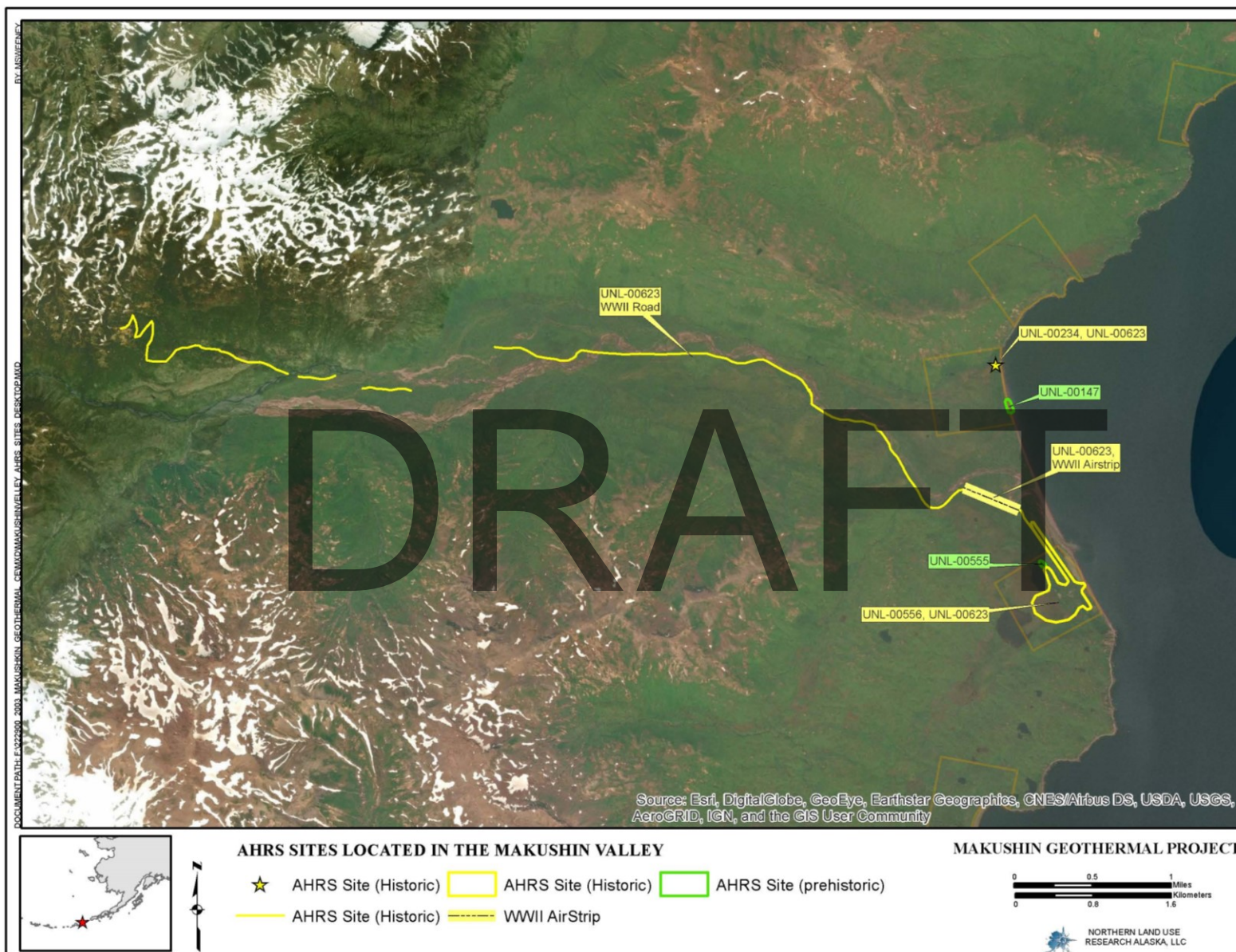


Figure 2. AHRs sites located in the Makushin Valley, Unalaska, Alaska.

Appendix B: Project APE Maps

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**Appendix C: Laws and Protocols Pertaining to the Discovery of Human Remains in
Alaska**

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Inadvertent Discovery Plan for Archaeological Resources

If archaeological features or artifacts (not including human remains) are encountered, Project personnel should follow the steps below to avoid further effects:

1. Stop work in the immediate vicinity of the suspected cultural resources and avoid construction activities that may affect remains and artifacts until required coordination has been completed.
2. Mark the area in which the resources are located as well as a buffer area appropriate to the find and the terrain. The buffer may be larger if there is the possibility of more resources in the area or in case of slopes or trenches where ongoing work may affect the resource. Ensure that all cultural materials will be protected from possible effects during the required coordination.
3. The discovery shall be investigated by a professional meeting the Secretary of Interior Professional Qualification Standards for Archaeology (36 CFR 61). This investigation shall take place no longer than 72 hours after discovery.
4. The Project Manager will initiate coordination with the following to determine if the materials or features warrant a recovery effort or additional consultation:

a. Sarah Meitl

Review and Compliance Coordinator
Alaska Office of History and Archaeology
Alaska Department of Natural Resources
550 W. 7th Avenue, Suite 1310
Anchorage, AK 99501-3565
Phone (907) 269-8720
Fax (907) 269-8908

b. Judith Bittner

Chief, Alaska Office of History and Archaeology
Alaska Department of Natural Resources
550 W. 7th Avenue, Suite 1310
Anchorage, AK 99501-3565
Phone (907) 269-8721
Fax (907) 269-8908

Inadvertent Discovery Plan for Human Remains and Graves

As set forth in the Native American Graves Protection and Repatriation Act regulation (43 CFR 10), a specific plan of action is required in the event that human remains are uncovered on federal lands during construction.

The following steps must be taken if human remains or suspected human remains are discovered:

5. A professional archaeologist meeting the Secretary of Interior Professional Standards for Archaeology (36 CFR 61) will be engaged to assess the extent and age of the discovery and ensure that construction activities have been halted and the remains are protected and treated with respect and dignity.
6. If human remains appear recent in the judgment of the archaeologist, the Project Manager shall defer to the opinion of the Alaska State Troopers (AST) and Alaska State Medical Examiner (ASME) for a determination of whether the remains are of a forensic nature and/or subject to criminal investigation.
7. If the human remains appear archaeological or ancient in the judgment of the archaeologist, the Project Manager will engage a qualified physical anthropologist experienced in the analysis of human remains to evaluate the discovery and document the remains in order to make an independent assessment of cultural affiliation. The physical anthropologist shall be afforded no more than 30 days' time to conduct his or her analysis.
8. If the physical anthropologist believes the remains to be Native American in origin, the Project Manager will consult with the local federally recognized Tribe regarding respectful treatment of the remains.
9. If human remains are not Native American, and a determination has been made by the AST and ASME that a death investigation is not warranted, then the Project Manager, in consultation with the ASME, local government officials and applicable community officials will make a reasonable and good faith effort to identify, locate, and inform descendants of the deceased.
10. The Project Manager will contact the following people and agencies within 24 hours of uncovering the remains:
 - a. Alaska State Troopers
Communications Center Manager
Phone (907) 451-5100
Fax (907) 451-5165
 - b. Alaska State Medical Examiner
Dr. Gary Zientek, Chief Medical Examiner
Phone (907) 344-2200
Fax (907) 451-2216
 - c. Dr. Ken Gallager, Assistant Medical Examiner
Phone (907) 344-2200
Fax (907) 451-2216
 - d. Alaska Office of History and Archaeology
Richard VanderHoek

State Archaeologist, Alaska Department of Natural Resources
550 W. 7th Avenue, Suite 1310
Anchorage, AK 99501-3565
Phone (907) 269-8728
Fax (907) 269-8908

- e. The Qawalangin Tribe of Unalaska
Blaine Shaishnikoff
President
Phone (907)581.2920

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