Unaatuq Energy: Geothermal Technology for Pilgrim Hot Springs – AK

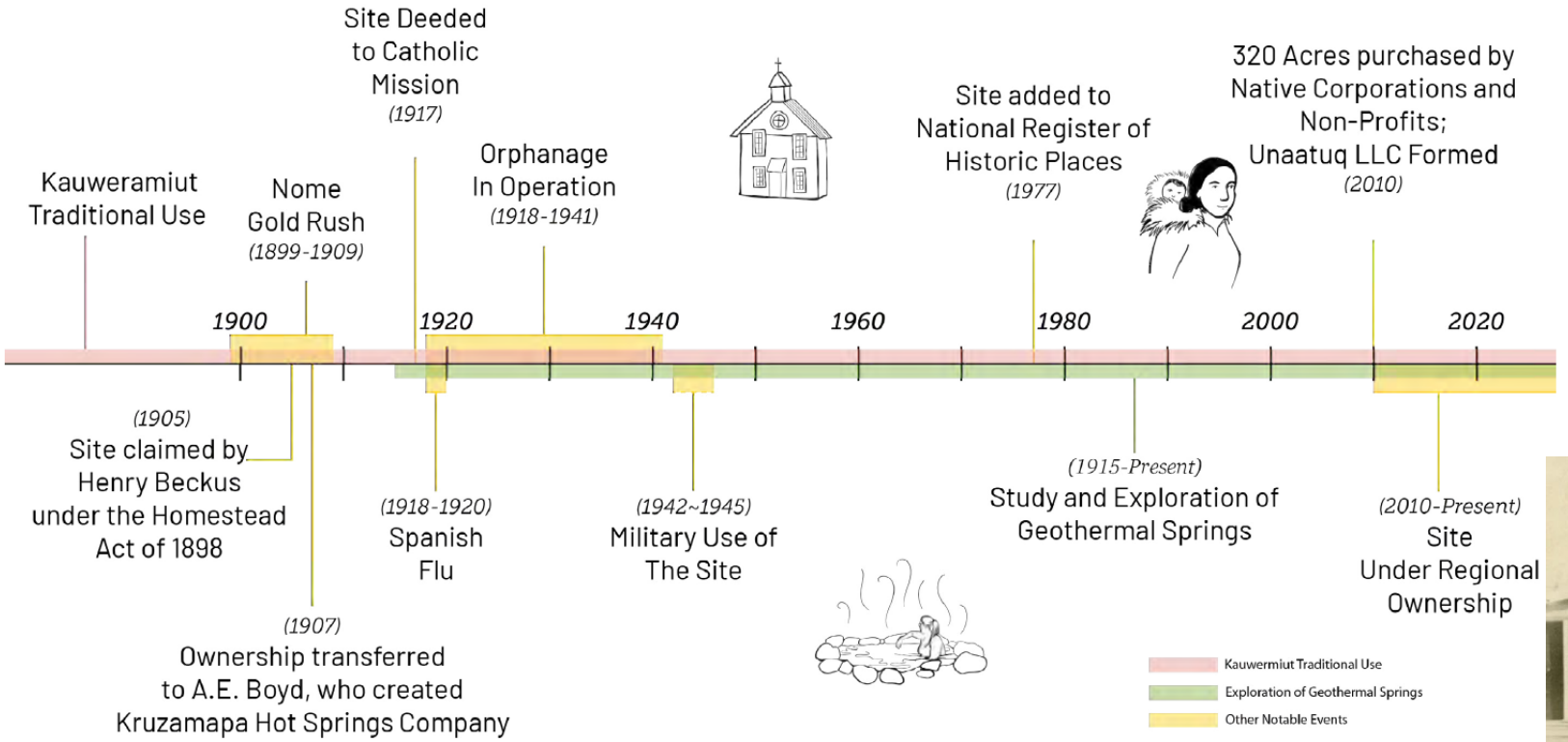
November 2024 DOE-OIE
Program Review
Project Update
Kawerak, Inc.

Paniruaq

Map image courtesy of Bering Straits Native Corporation www.beringstraits.com

Pilgrim Hot Springs History

Figure 1. Unaatuq key historical events.



Timeline Unaatuq Master Plan

Image courtesy of the Jesuit Archives Research Center, Pilgrim Springs Collection.

Unaatuq: Since 2010

BERING STRAITS Native Corporation

KAWERAK, INC.

NSEDC

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migloonativecorp@gmail.com

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Phone (907) 638-5000, Email wmnc.mgr@gmail.com

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council@arctic.net

PILGRIM HOT SPRINGS
A PROTECTED ARCTIC OASIS THAT PROVIDES FOR OUR PEOPLE

Vision: A protected arctic oasis that provides for our people.

Mission: To promote the wellbeing of our people through sharing, protecting, and responsibly developing the resources of Pilgrim Hot Springs.

Kawerak, Inc.

Kawerak is a non-profit tribal consortium representing 20 Alaska Native Tribes in the Bering Strait Region.

Our mission is to advance the capacity of our people and tribes for the benefit of the Bering Strait region of Alaska, which is the homeland and waters of the Yup'ik, Inupiaq and St. Lawrence Island Yupik Peoples.

KAWERAK, INC.

Implementing Unaatuq's Goals

- Revive & transform an important historical site
- Develop a sustainable business model
- Incorporate cultural values into planning
- Support regional economic development
- All powered by renewable energy!!

PROJECT PARTICIPANTS

Unaatuq, LLC
TEDO / LANDOWNER

Kawerak, Inc.
GRANTEE

Kawerak Staff
PILGRIM HOT SPRINGS

CRW Engineering

DESIGN AND ENGINEERING FIRM

Alaska Center for Energy & Power

UNIVERSITY PARNTER

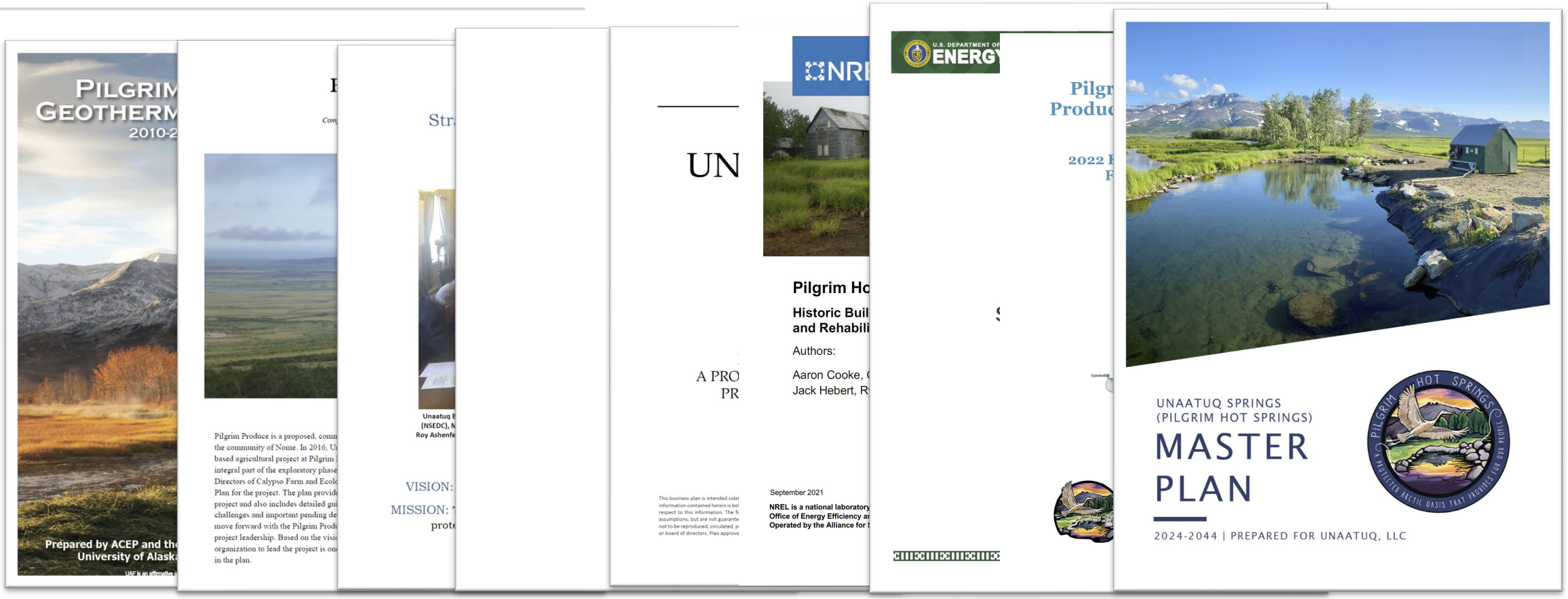
DeerStone Consulting

PROJECT MANAGEMENT

Stampede Ventures, Inc.

CONSTRUCTION CONTRACTOR

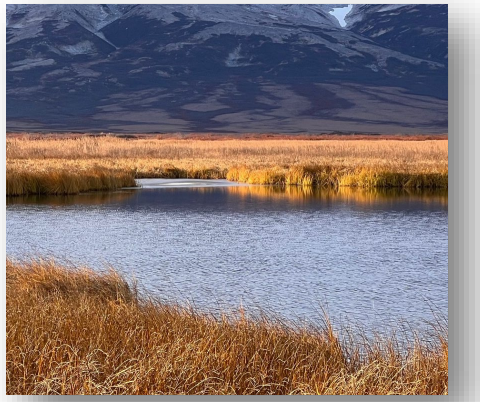
Project Conception

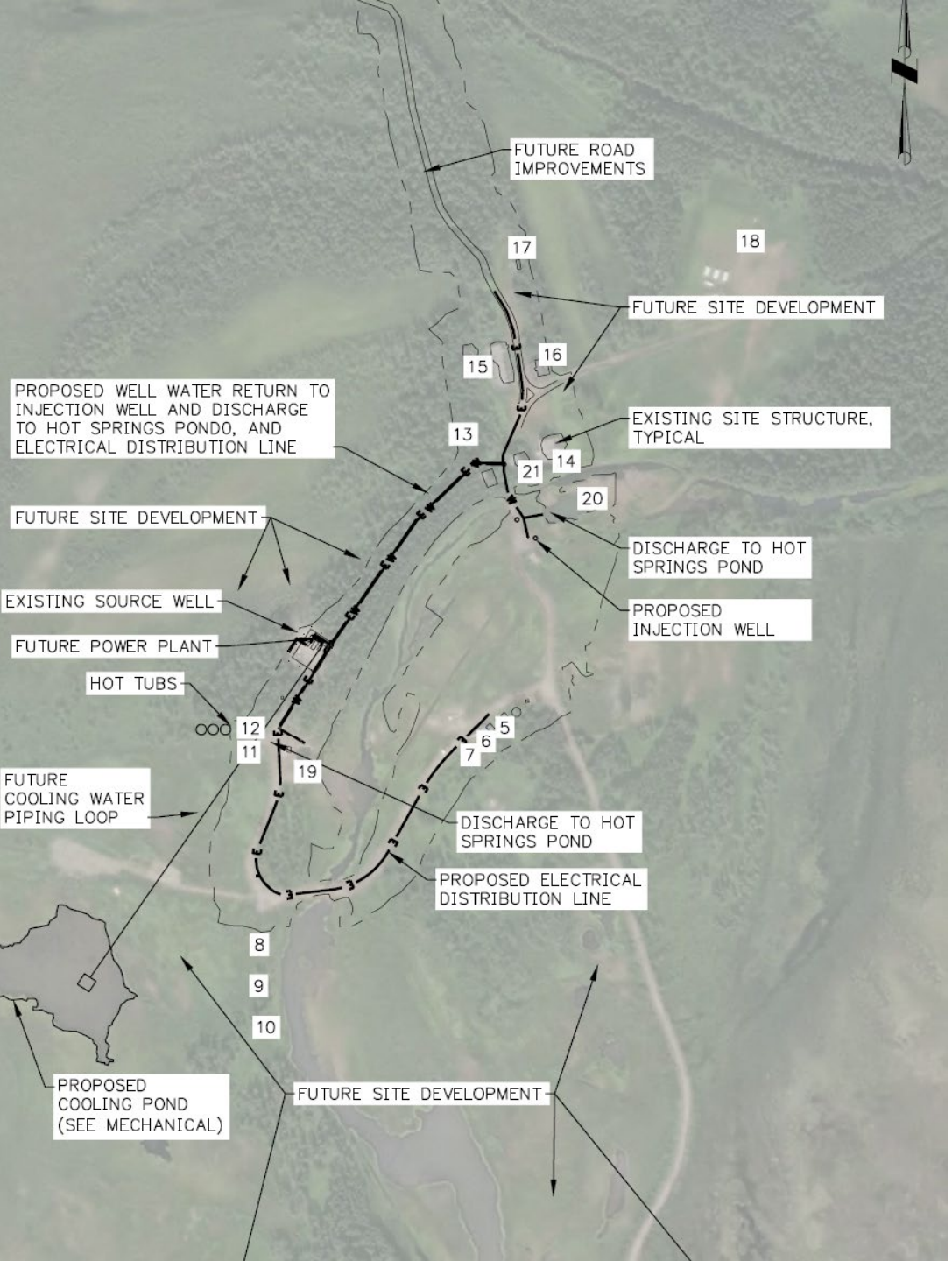


Project Evolution

- Grant Agreement signed November 2022
- February 2023 Kick-Off Meeting
- July 2023 Site Surveys
- August 2023 NEPA Review Meetings
- September 2023 Well Reinjection Testing
- October 2023 Electrical One-Line and Site Load Updates
- October 2023 Pre-NEPA & Section 106
- November 2023 – 65% Design
- October 2024 – 95% Design
- Currently: Final NEPA & Section 106 Review
- Winter – Procurement & Permitting
- Summer 2025 – Delivery & Staging
- Summer 2026 – Construction

How it Works





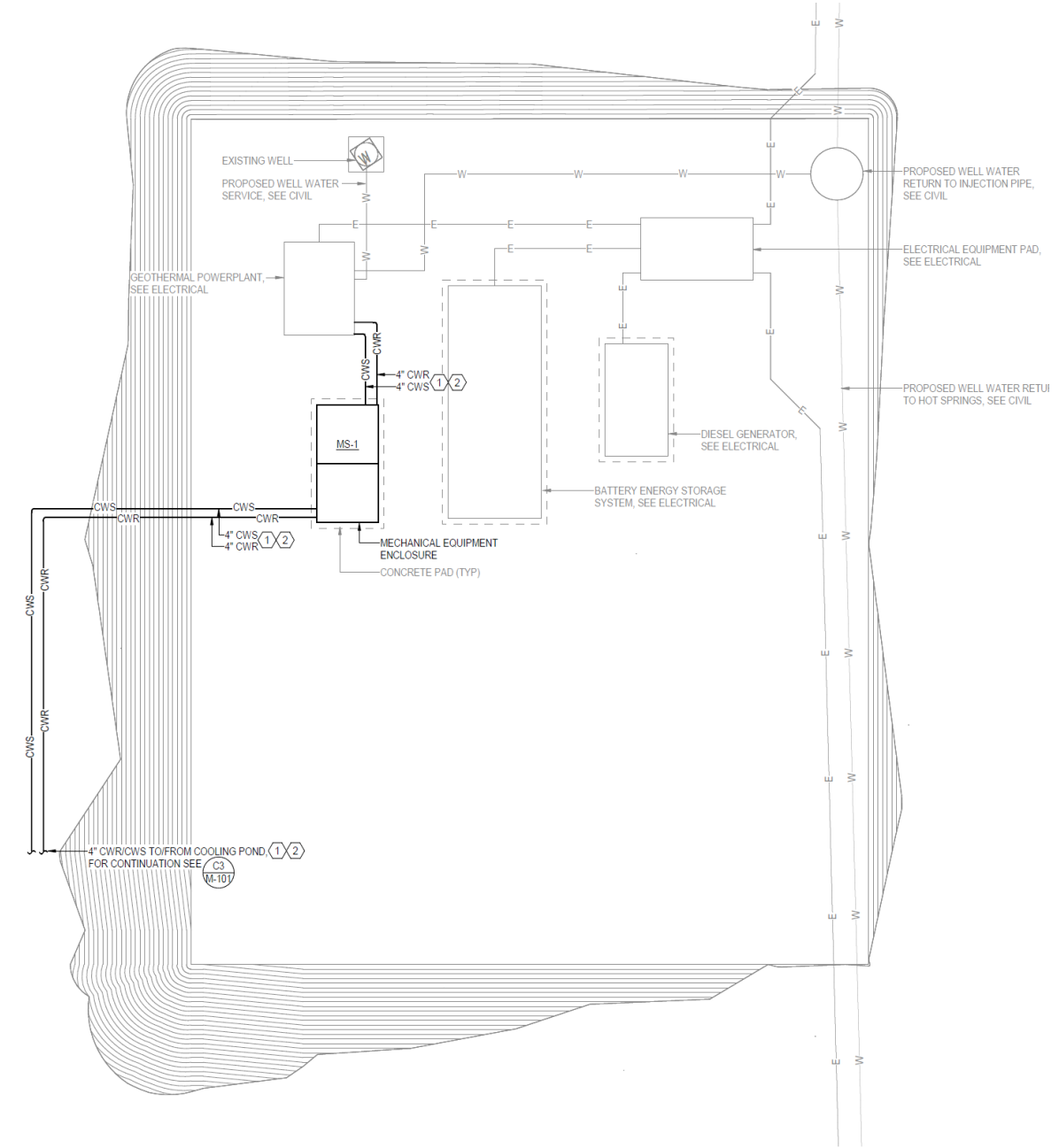
Site Map – Loads

- Power plant & BESS
- Operations & Maintenance
- Staff Lodging, Shower House
- Welcome Center
- Historic Buildings
- Gardens Facilities
- Greenhouses
- Guest Cabins


TELLER NATIVE STORE
907-642-4521

Technical Assistance

- Design Review
- Electrical Engineers
- Microgrid Experts
- Geothermal Technologies



A3 MECHANICAL PLAN
SCALE: 3/16" = 1'-0"

Extension Request

- Original Project Period 10/1/2022-11/30/2024 🤣
- Extension Request DOE-OIE to 12/31/2026
- No-Cost Extension

Section 106 Review National Environmental Policy Act Review

- 320 Acres – National Register of Historic Places
- Historic Cemetery
- 7 Historic Buildings
- Cultural Resources
- Wetlands
- Bird Migration Route
- APE – Area of Potential Effect

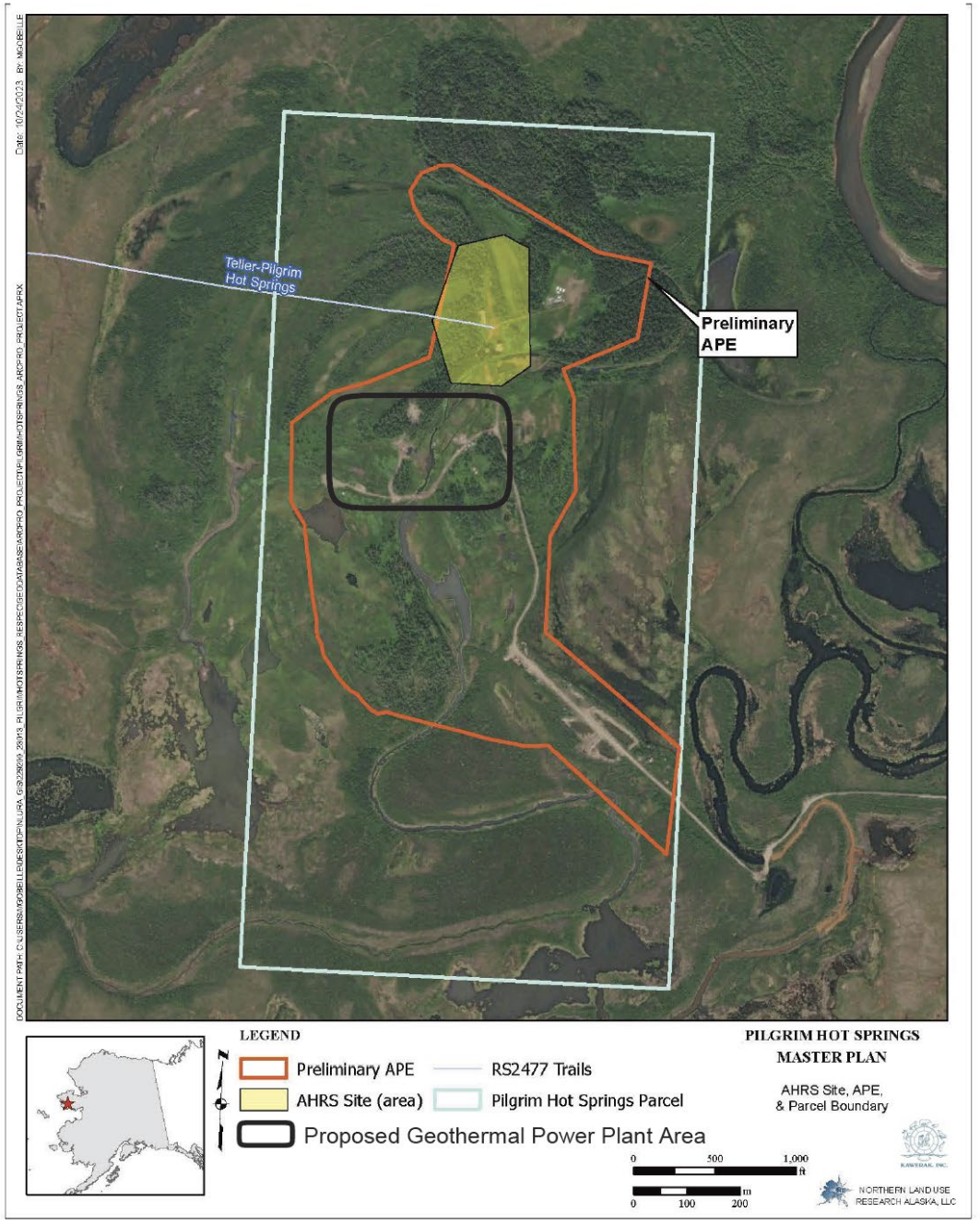


Figure 2. Current AHRS site, Preliminary APE, and parcel boundary.

ElectraTherm BY BITZER GROUP

ABOUT US | PRODUCTS | APPLICATIONS | INSIGHTS | KNOWLEDGE CENTER

1

GENERATE UP TO 75 KW HIGHLIGHTS

MODEL	POWER MODULE75
Max Output	75 kWe
Thermal Input	300 - 1250 kWth
Hot Water Temp	150 - 270°F // 65 - 132°C
Hot Water Flow	47- 365 gpm // 3 - 23 l/s
Cold Water Temp	50 - 150°F // 10 - 65°C
Cold Water Flow	95 - 412 gpm // 6 - 26 l/s
Heat Rejected	300 - 1200 kWth

// Weight: 5700lbs. (2591 kg)
// Dimensions: 72″ (1.8m) x 95″ (2.4m) x 85″ (2.2m) (W*L*H)

ADD TO CART

Our heat recovery solutions are available as either standalone units or fully-packaged systems – depending on the existing infrastructure. Need help determining which ORC system is right for you? Fill out our Project Evaluation Form or Contact Us.

Note: For demonstration purpose only. ElectraTherm does not have a "click to buy" feature.

Project Costs & Funders

Department of Energy
Office of Indian Energy
$1.7M

Unaatuq
Denali Commission
$500K

USDA RUS
High Energy Cost Grant
$600K

TBD
ISO
$600-$1M

Why? Cost Savings

- $6.49 / gallon gasoline
- $7.00+ / gallon diesel
- $240.00 / 100 # propane
- $0.55 cents / kWh
- 60 miles to Nome
- 13,701 heating degree days

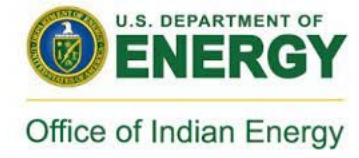
Why? Resource Demonstration

- Powerplant production well at 180°F
- Drilling core samples indicate temps at 302°F
- Resource performance over time
- Power production over time
- Data for future exploration and development
- Scalable for future larger facilities & needs
- Replicable in other communities with geothermal resources

Why? Community Benefits

- 24/7 Clean Power =
- Wellness Retreat
- Recreation Destination
- Cultural Revitalization
- Historic Preservation
- Agriculture Expansion
- Food Security for Region
- Employment Opportunities
- Unlimited Possibilities

Quyanna, supporting organizations!



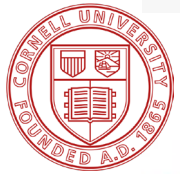


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Photo by Chris Pike, ACEP, 2013

Quyanna / Igamsiqanaghhalek / Quyaana Caknek / Thank you!

Fly Anchorage to Nome then drive 2 hours north to us!

Amanda Toerdal | atoerdal@kawerak.org | pilgrimhotsprings.com