Pogo Mine

POA-1996-00211

Clean Water Act Section 404
Permit Application

Supplemental Information

March 2026, Figures,
Attachment 1
Revised on August 11
2026

Prepared for:

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Acronyms

ADEC	Alaska Department of Environmental Conservation
ADNR	Alaska Department of Natural Resources
BMPs	best management practices
LEDPA	Least Environmentally Damaging Practicable Alternative
EPA	Environmental Protection Agency
MSGP	Multi-Sector General Permit
SWCD	Salcha-Delta Soil and Water Conservation District
SWPPP	Stormwater Pollution Protection Plan
U.S.	United States
USACE	US Army Corps of Engineers
USGS	United States Geological Survey
WOUS	Waters of the U.S.

SUPPLEMENTAL INFORMATION

INTRODUCTION

This document supplements the information in the attached Engineering Form 4345, a permit application by Northern Star (Pogo) LLC to develop rock storage and additional laydown area for underground mining equipment at the existing Pogo Mine. Northern Star is willing to permit the rock storage expansion on the initial preliminary wetland mapping as shown in this application. Northern Star does not request an Approved Jurisdictional Determination.

APPLICATION BLOCK 15: LOCATION OF PROJECT

Pogo Mine is located approximately 38 miles northeast of Delta Junction, Alaska off the Richardson Highway on a mine road near Shaw Creek. The project area is located on State land administered by the Alaska Department of Natural Resources (ADNR), located in United States Geologic Survey (USGS) quad map Delta B-2; Latitude 64.4632º N, Longitude 144.9208º W in the Fairbanks Meridian. Information is shown in Table 15-1.

Table 15-1: Area Location Information

USGS Quadrangles		Public Land Survey System			
Scale – 1:250,000	**Scale – 1:63,360**	**Meridian**	**Township**	**Range**	**Sections**
Big Delta	B-2	Fairbanks	5 S	14 E	22, 23

APPLICATION BLOCK 23: DESCRIPTION OF AVOIDANCE, MINIMIZATION, AND COMPENSATION ACTIVITIES BOTH UNDERTAKEN AND PROPOSED

23.1 Avoidance and Minimization by Planning and Design

During project planning multiple plans were evaluated to identify the Least Environmentally Damaging Practicable Alternative (LEDPA). Northern Star looked at multiple options for rock storage to avoid and minimize impacts to wetlands and waters of the United States (WOUS) at the Pogo Mine. The alternatives for avoidance and minimization measures were incorporated into the preferred alternative (i.e., the design proposed in this application).

23.1.1 Alternatives Considered

In 2024 Stantec conducted field work at Pogo Mine to refine wetland mapping in the Goodpaster River floodplain and along constructed access roads, mine facilities, and pads within the mine site. Wetlands in

the area were remapped to refine wetland boundaries in relation to constructed facilities. The goal was to find uplands for potential use.

Access to the Portal and Portal Location

Surface routes to the 1380 Portals were examined for suitability. Grades to the portal, road widths, and the amount of fill into wetlands were considered. With underground mining projected to last for 10 years the access road had to be wide enough for underground haul trucks and drills to pass. In addition, the project requires surface space for storage, service, and repair of underground equipment. The original surface route selected utilized existing disturbance and used permitted wetland areas for access to the proposed portal. The road was routed on existing roads in uplands and disturbed areas. The 1380 portals were developed in the summer of 2025 and are in uplands.

Existing Surface Area for Non-mineralized Rock Storage

Two areas in uplands were reviewed for the disposal and storage of non-mineralized rock. These areas are the hillside above Lower Camp and the Mill Bench Extension. Both areas are on side slopes and located upslope of 1380 Portals. Both areas would require additional surface vehicles for rock haulage. Surface roads require hauling the waste from the portal uphill. The sites were modeled to hold the prescribed waste storage. The sites were large enough for the waste, but technical challenges were noted. Surface water runoff would be accelerated from unvegetated fresh dumps. The surface slopes preclude a compacted lift deposition. The lifts would be end-dumped from the bottom up to create a stable stair stepped structure, but compaction on each bench would be difficult and not always achieved. The surrounding surface road ditches would fill with water and ice in the fall and spring. The icing would be worse during low snow winters. Additional ice removal and sanding would be required on all affected surface mine roads. The ditches if iced over would threaten road surfaces traveled by trucks. Haulage analysis determined additional surface drivers, and new surface equipment would be required to move the rock from the portal storage to the new dump sites. Additional haulage trucks would add to already busy surface roads and pose higher potential for interactions between heavy and light vehicles which would also include personnel transport buses. Hauling waste up the valley to storage sites would burn additional diesel fuel and generate carbon emissions. The existing underground trucks would not be appropriate for winter surface rock transport. The analysis showed that traveling below active waste dumps and having surface workers below new dumps introduced additional safety risks. It was not practicable to use these two dump locations considering costs, logistics, and safety to haul uphill with the existing fleet (or add), dispose of rock on a surface side slope between surface developments, travel below the new rock dumps, and purchase additional surface equipment. This alternative failed to satisfy the project objectives.

Dump Siting at Portal

The portal entrances are in uplands at an elevation that precludes flooding from high water events from the Goodpaster river. The rock would be placed in engineered lifts to ensure stability and maximize available space. Additional laydown and storage areas for mining support equipment will be available on the final surface of non-mineralized rock approximately 25 feet above the valley floor adjacent and surrounding the portal for flood protection. Prior to rock placement, vegetation will be cleared, grubbed, and stockpiled. Organic soil and vegetation would be stockpiled for final reclamation. Stormwater from the storage and

laydown area will be collected by diversion ditches and/or berms and directed to a stilling basin to remove sediment. The stilling basin outfall would be directed to a natural vegetative filter to naturally polish water prior to discharge. The surface water would discharge to the Goodpaster River. The additional underground mining will generate several million cubic yards of material that has to be disposed of from the underground workings. The waste material would be disposed of with a minimal uphill haul from the portal to areas large enough to support multiple end dumps simultaneously disposing of waste safely, in all weather conditions. This haul distance creates a reasonable cycle time from the mine face to dump and return. Underground haul equipment is sized to work in confined space and is not adequately powered or sized for long distance surface mine road distance and disposal. The further from the portal the longer the cycle times become for each load. Based on logistics, the new waste dump was located adjacent to the proposed portal. The portal begins in uplands and connects to existing surface roads in uplands. Using compacted lifts, the volume of material can be reduced and the acreage of wetlands minimized. To minimize space all fills will be dumped in compacted lifts. Degraded wetlands and those the furthest from the Goodpaster River were selected to help consolidate fill. Wetlands near the Goodpaster River - an anadromous stream - were avoided. The fill has a design elevation for capacity, stacking, and final drainage. All lifts have been designed to drain away from the portal entrance. The outside diversion ditch will contain sediment and storm water leaving the pad and direct surface flow first to the stilling basin and then to the Goodpaster River.

23.2 Minimization During Operation

Construction Methods

Construction activities associated with the waste rock storage and laydown expansion will be sequenced and managed to minimize impacts to wetlands and waters of the United States (WOUS) to the maximum extent practicable. Work will be confined to the approved footprint shown on the permit drawings. Clearly visible construction limits including survey stake outs will be established in the field prior to ground disturbance.

Clearing and grubbing will be limited to areas necessary for construction. Vegetation and organic soils will be segregated and stockpiled in upland areas for later reclamation. Equipment staging, fueling, and maintenance will occur in designated upland areas to prevent inadvertent discharge of fuels or lubricants to wetlands or surface waters.

Waste rock placement will occur in engineered, compacted lifts designed to maximize stability and minimize the overall footprint of fill. Lift placement will proceed from the upland portal outward in a controlled manner to avoid unnecessary disturbance. The fill surface will be graded to promote positive drainage away from the portal and toward designed collection features.

All stormwater management features, including diversion ditches, perimeter berms, and the stilling basin, will be constructed early in the construction sequence so that runoff from active work areas is controlled prior to placement of significant volumes of fill. Temporary erosion and sediment controls will be installed as needed during active construction and maintained until permanent controls are established.

Construction equipment access will utilize existing roads to the extent practicable. No borrow sources will be developed within wetlands for this project.

Project Planning

Preliminary wetland mapping for the project was used to minimize impacts to wetlands along the access corridor and at the rock dump. Uplands and prior disturbance were prioritized for use.

Material Sites

No material sites will be developed in wetlands for this proposed work.

Stilling Basin

A permanent stilling basin will be constructed as part of the surface water management system to minimize sediment discharge from the waste rock storage and associated laydown areas. The basin is designed to receive runoff collected from perimeter diversion ditches and graded surfaces surrounding the portal and rock storage area.

The purpose of the stilling basin is to:

1. Reduce flow velocity from concentrated runoff.
2. Promote sediment settling prior to discharge; and
3. Provide an accessible location for inspection, maintenance, and water quality monitoring.

The basin will be sized based on anticipated drainage area, local precipitation data, and expected sediment loading during active placement. At a minimum, the basin will be designed to detain runoff from a typical design storm event and provide sufficient residence time to allow suspended sediment to settle prior to discharge.

Runoff from the waste rock storage area will first be intercepted by a perimeter diversion ditch or berm system. The ditch will be graded to maintain positive flow and constructed with stable side slopes appropriate for site conditions. Where necessary, ditch segments will be armored with riprap or erosion control matting to prevent scour.

Water entering the stilling basin will dissipate energy through controlled inlet structures such as riprap aprons or level spreaders to prevent short-circuiting and resuspension of settled material. The basin will incorporate adequate freeboard and sediment storage capacity. Accumulated sediment will be removed periodically and placed back onto the waste rock storage area or other approved upland locations.

Discharge from the stilling basin will occur via a stabilized outlet structure designed to prevent erosion. Where practicable, discharge will flow through a vegetated filter area prior to reaching the Goodpaster River to provide additional polishing and promote infiltration. The discharge pathway will be stabilized to prevent channelization.

The stilling basin and associated conveyance features will remain accessible year-round for inspection and maintenance. Inspections will be conducted routinely and after major precipitation or snowmelt events. Any identified deficiencies will be corrected promptly.

This design ensures that stormwater contacting disturbed surfaces is controlled, treated for sediment removal, and discharged in a manner protective of downstream waters, consistent with Alaska water quality standards and Section 404 (b)(1) guidelines to avoid and minimize fill in wetlands.

Best Management Practices

Erosion Control Measures

Erosion control and construction methods will be described in the Stormwater Pollution Prevention Plan (SWPPP) required by the Alaska Pollutant Discharge Elimination System Multi-Sector General Permit for Storm Water Discharges Associated with Industrial Activity Permit (MSGP). Best Management Practices (BMPs) will include, but not be limited to:

- Stabilization of completed slopes through contouring.
- Temporary erosion control measures during active construction.
- Routine inspection and maintenance of drainage and sediment control features, and
- Adaptive management to address site-specific conditions.

Surface drainage and discharge will be monitored to verify that discharges meet applicable Alaska Department of Environmental Conservation (ADEC) water quality standards.

Reclamation and Restoration

When all mining ceases, surface facilities will be restored to stable landforms with stored growth media placed on surfaces and recontoured in compliance with the reclamation and closure plan approved by ADNR. All equipment will be removed. Underground openings will be sealed. The waste disposal site will be fully bonded for reclamation and closure with ADNR.

23.4 Compensatory Mitigation

In Lieu Fee

No In Lieu Fee providers exist for the watershed.

Mitigation Banks

The existing wetland mitigation, Salcha-Delta Soil and Water Conservation District (SWCD) Mitigation Bank, has no wetland credits available for sale currently (Telephone conversation, February 2026).

On Site Wetland Restoration

At the end of mining surface disturbance will be reclaimed. The surface hydrology will be restored in the Liese Creek Valley to the greatest extent practicable. Emphasis has been placed in all designs and during reclamation to protect the Goodpaster River. All mine facilities were evaluated for restoration at the mine. All available aquatic sites will be restored in the final restoration plan. There are no known or existing restoration opportunities available at Pogo.

Public Interest

There are no identified alternatives that will impact less wetlands than the proposed action and satisfy the project purpose. The impacted wetlands are not associated with fish habitat. The project will be constructed to meet State of Alaska Water Quality Standards. Northern Star will apply for an ADEC CWA water quality certification. There will be no discharges of toxic materials from the project. No endangered species will be impacted by the project. No community wells will be impacted. Worker and workplace safety have been prioritized in the design.

Alternatives considered include alternate locations that did not meet project objectives. The alternatives have been carefully considered considering safety, environmental impacts, economics, and project purpose. The selection of a no action alternative would prevent the continued development of gold resources that sustain the current mining operation. Substantive investment in local businesses, employment, and state revenue is contingent on the mine continuing operation in a responsible sustainable manner. Northen Star's proposed design represents the LEDPA meeting the overall project purpose.

Compensatory Mitigation

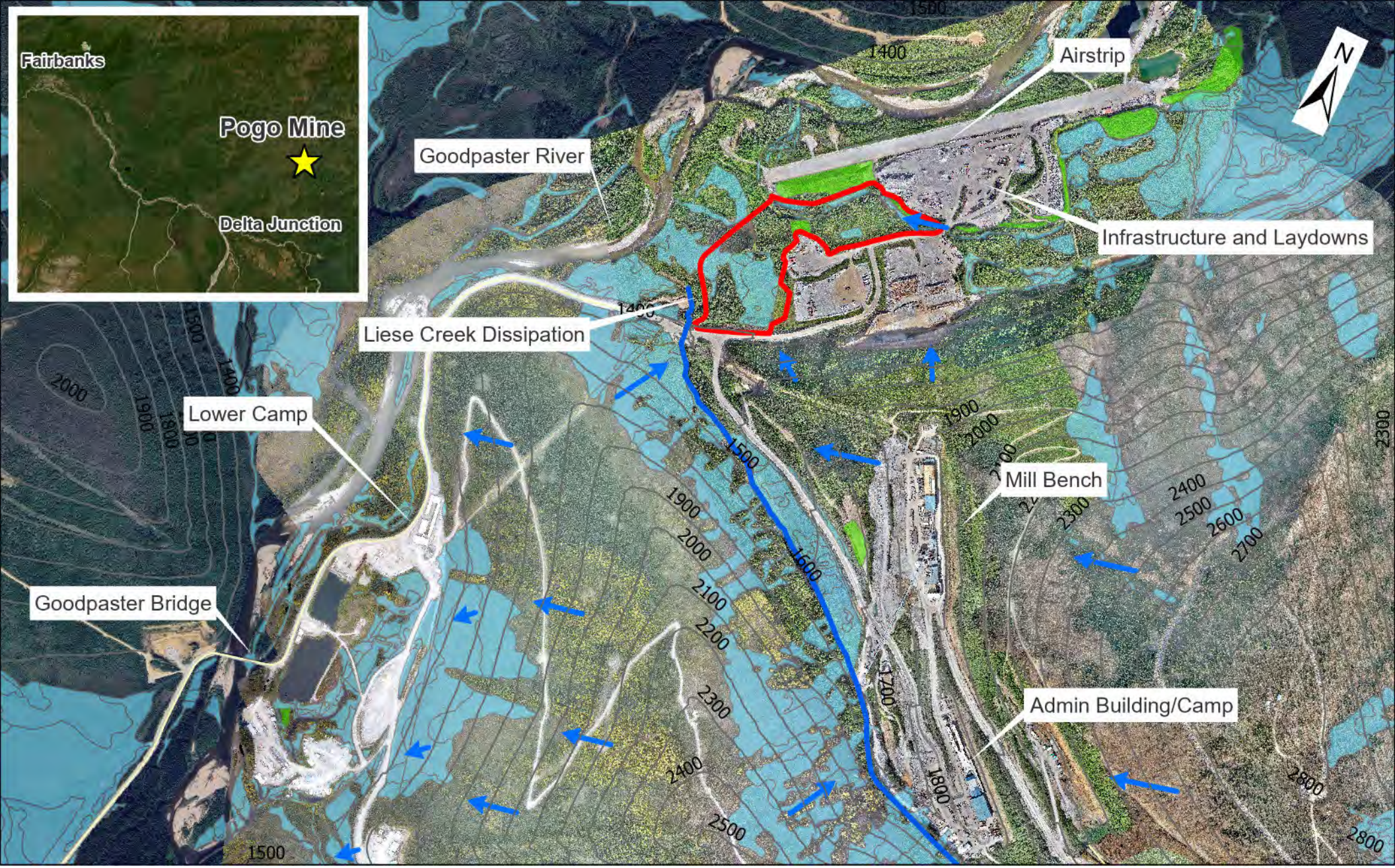
No In Lieu Fee providers for wetland credits exist for the watershed. The SWCD Mitigation Bank has no wetland credits available for sale. All available on-site restoration opportunities within the mine site have been committed and will be implemented. EPA and United States Army Corps of Engineers (USACE) in their 2018 MOA for mitigation in Alaska recognized how flexibilities need to be applied in the state of Alaska given the abundance of wetlands and unique circumstances involved with Section 404 permitting in Alaska (EPA and USACE 2018). Northern Star has minimized and avoided wetland impacts to the greatest extent practicable for this modification. ADNR will bond the surface disturbance to guarantee compliance with State of Alaska reclamation and restoration standards. Considering the immediate need for permits for summer construction, and considering the lack of on-site restoration opportunities, Northern Star offers no further CWA 404 compensatory mitigation. Northern Star commits to look for and develop opportunities as the mine develops for onsite wetland restoration and enhancement.

REFERENCES

EPA and USACE, 2018. Memorandum of Agreement, Concerning Mitigation Sequence for Wetlands in Alaska under Section 404 of the CWA

Personal communication with SWCD Mitigation Bank, February 2026

ATTACHMENT 1:
REVISED FIVE NEW SHEETS, SHEET 5A SHOWS STILLING BASIN LOCATION. TOTAL OF SIX SHEETS



Legend

Surface Water Flow Direction

Proposed Disturbance

Wetlands

Liese Creek

Growth Media Stockpiles

0 1,000 2,000 4,000 Feet

Revised Figure 1 of 5
Project Location and Vicinity Map
1380 Portal Expansion
POA-1996-00211
Datum: NAD 1983 StatePlane Alaska 3 (FIPS 5003)
Imagery collected July 2025



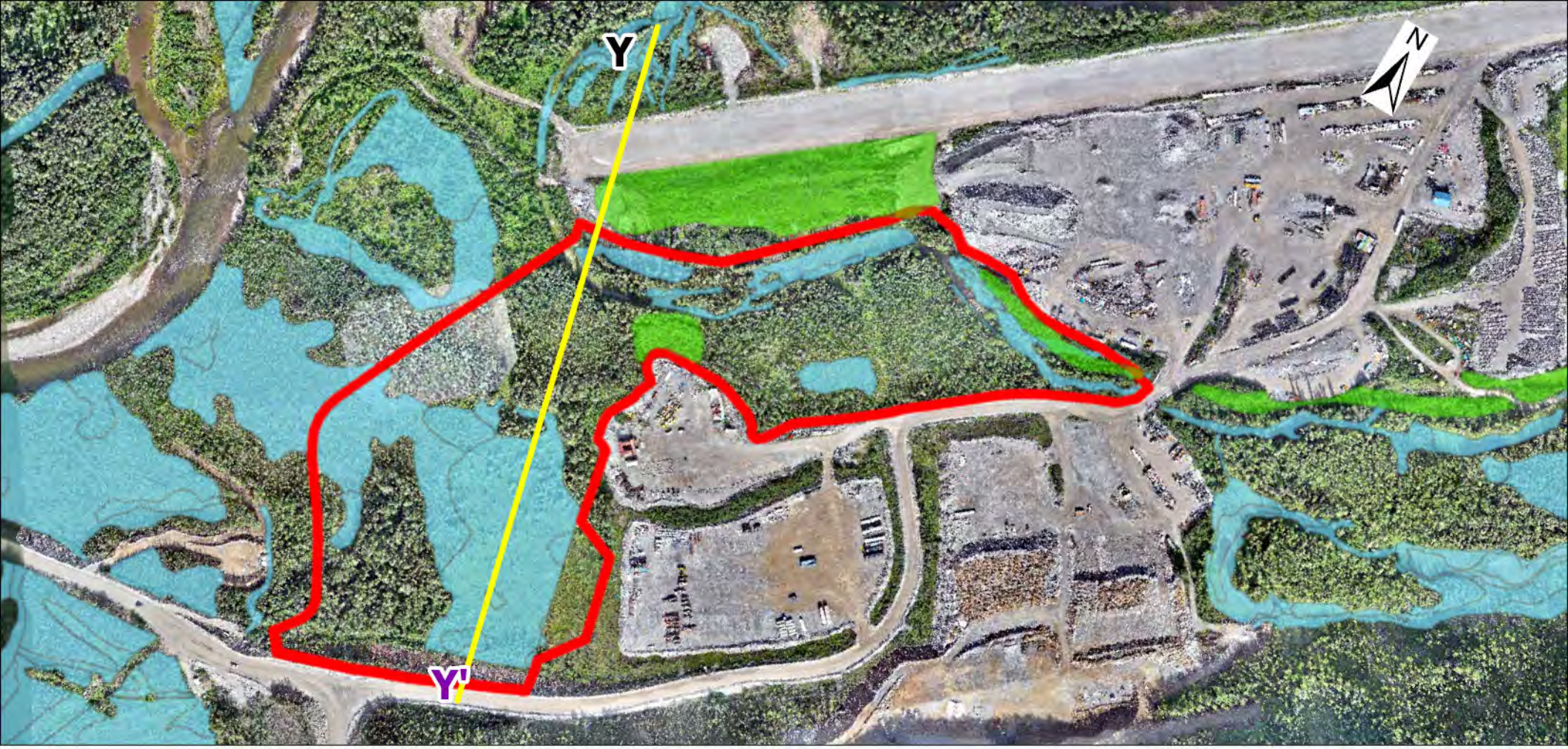


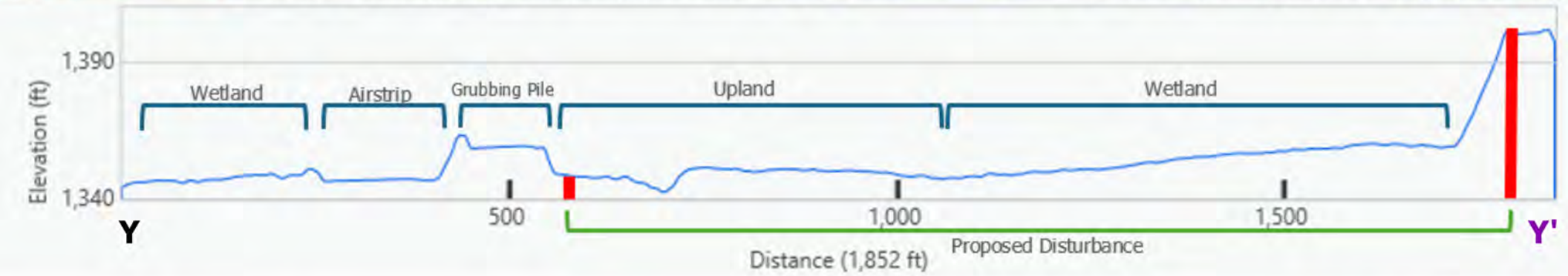
Revised Figure 2 of 5
E-W Project Cross Section
1380 Portal Expansion
POA-1996-00211
Datum: NAD 1983 StatePlane Alaska 3 (FIPS 5003)
Imagery collected July 2025

0 500 1,000 2,000 Feet

Legend

- Growth Media Stockpiles
- Proposed Disturbance
- Wetlands



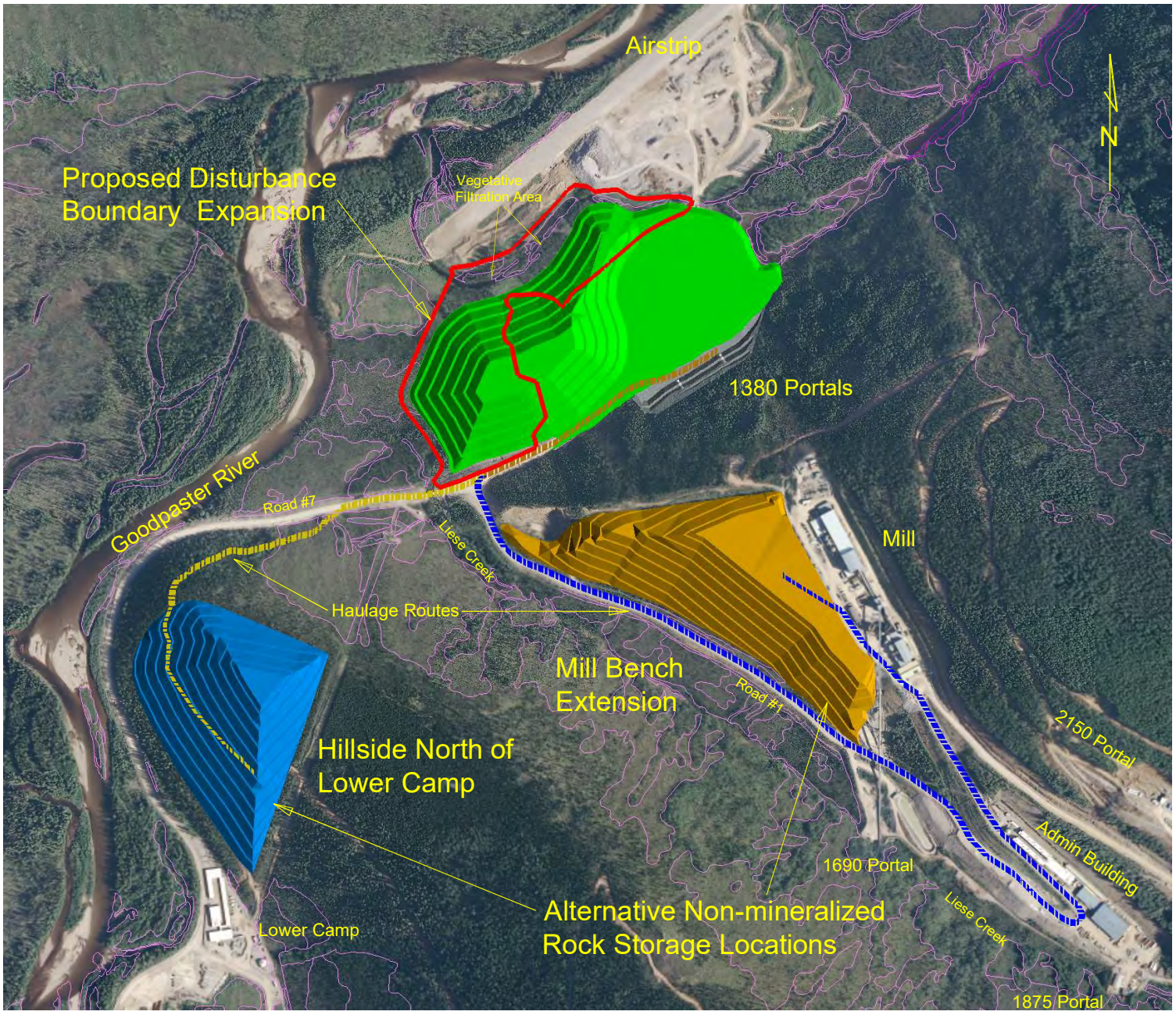


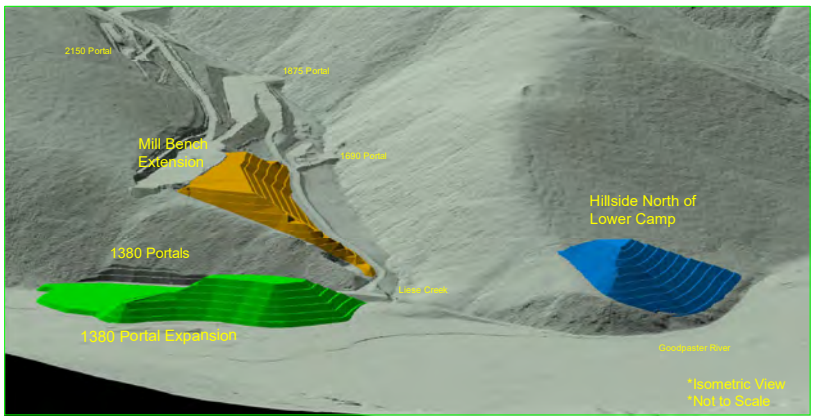
Revised Figure 3 of 5
N-S Project Cross Section
1380 Portal Expansion
POA-1996-00211
Datum: NAD 1983 StatePlane Alaska 3 (FIPS 5003)
Imagery collected July 2025

0 500 1,000 2,000 Feet

Legend

- Growth Media Stockpiles
- Proposed Disturbance
- Wetlands



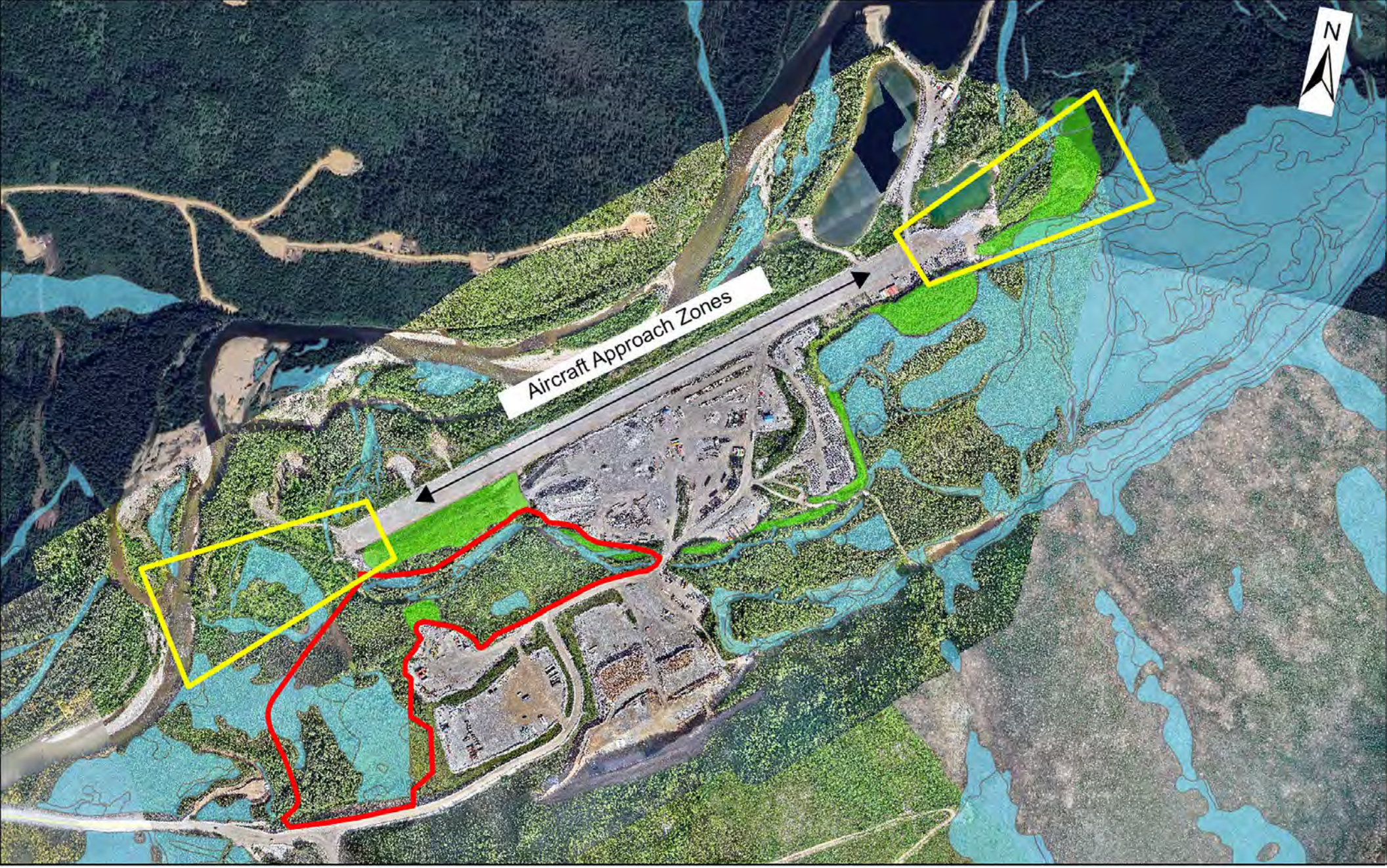


0 200 1000
SCALE (ft)

Revised Figure 4 of 5
Project Alternatives Considered
1380 Portal Expansion
POA-1996-00211
Datum: NAD 1983 State Plane Alaska 3 (FIPS 5003)
Imagery Collected 2015

LEGEND

- Wetlands
- Proposed Disturbance Boundary Expansion



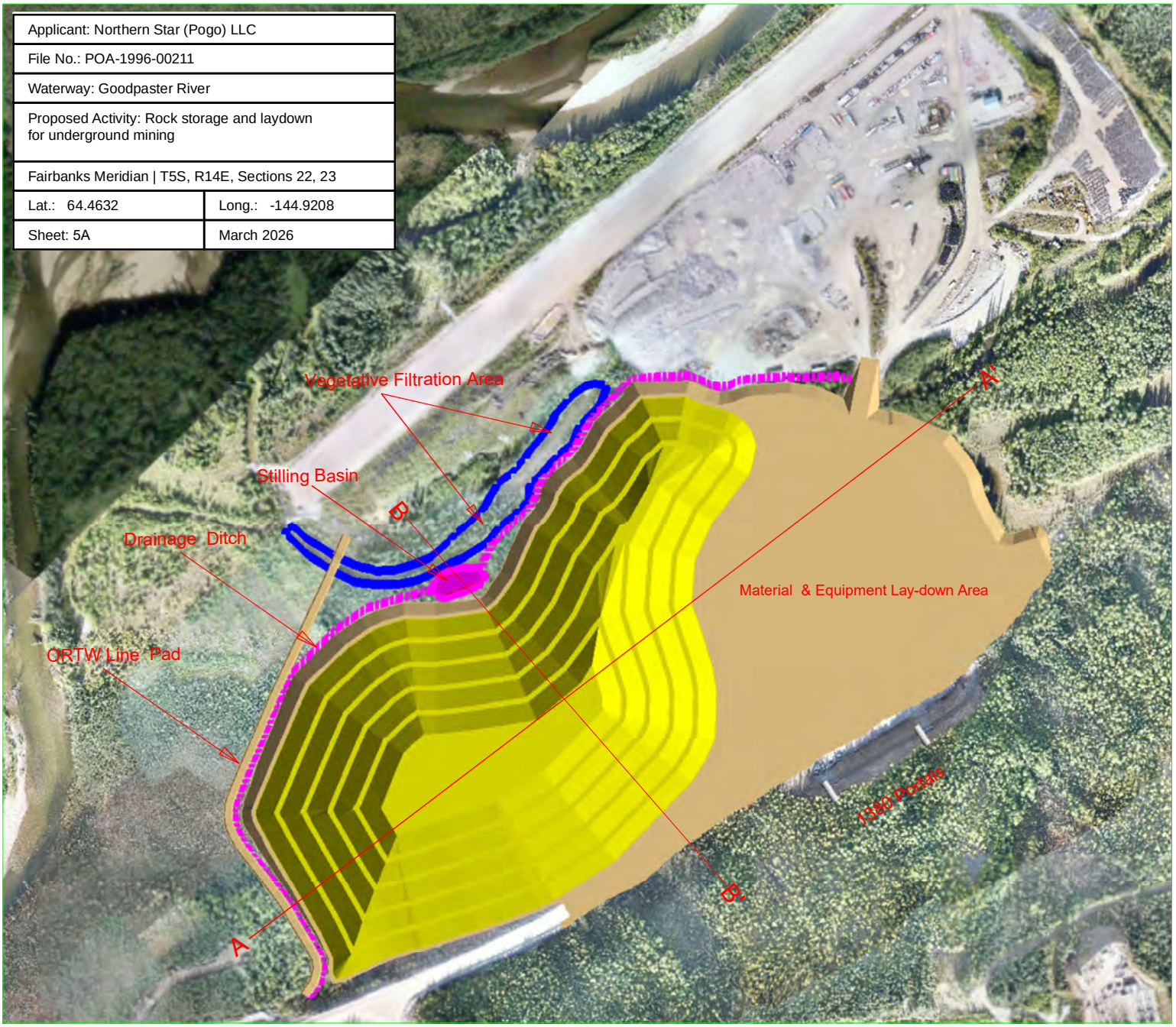
Revised Figure 5 of 5
Aircraft Approach Zones
1380 Portal Expansion
POA-1996-00211
Datum: NAD 1983 StatePlane Alaska 3 (FIPS 5003)
Imagery collected July 2025

0 500 1,000 2,000 US Feet

Legend

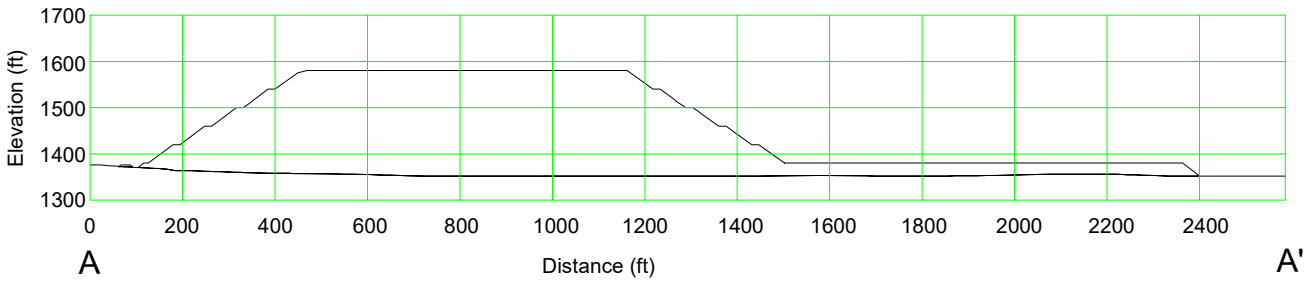
- Proposed Disturbance
- Wetlands
- Growth Media Stockpiles

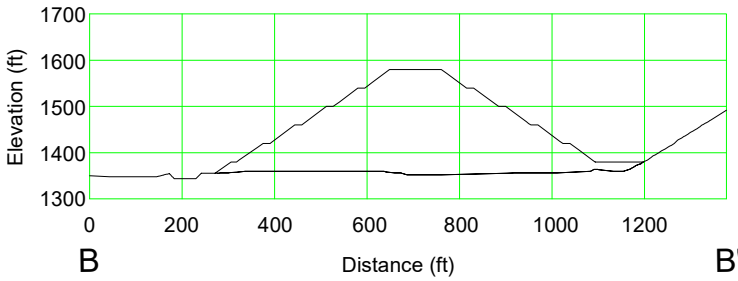
Applicant: Northern Star (Pogo) LLC	
File No.: POA-1996-00211	
Waterway: Goodpaster River	
Proposed Activity: Rock storage and laydown for underground mining	
Fairbanks Meridian | T5S, R14E, Sections 22, 23	
Lat.: 64.4632	Long.: -144.9208
Sheet: 5A	March 2026



0 100 500
Feet

N





Northern Star Resources
Pogo Mine, Alaska

Arrangement
Non-Mineralized Rock Storage
& Stilling Basin

March 2026