REPORT

Reclamation Cost Estimate & Financial Assurance Model

Basis of Estimate or Cost

Submitted to:

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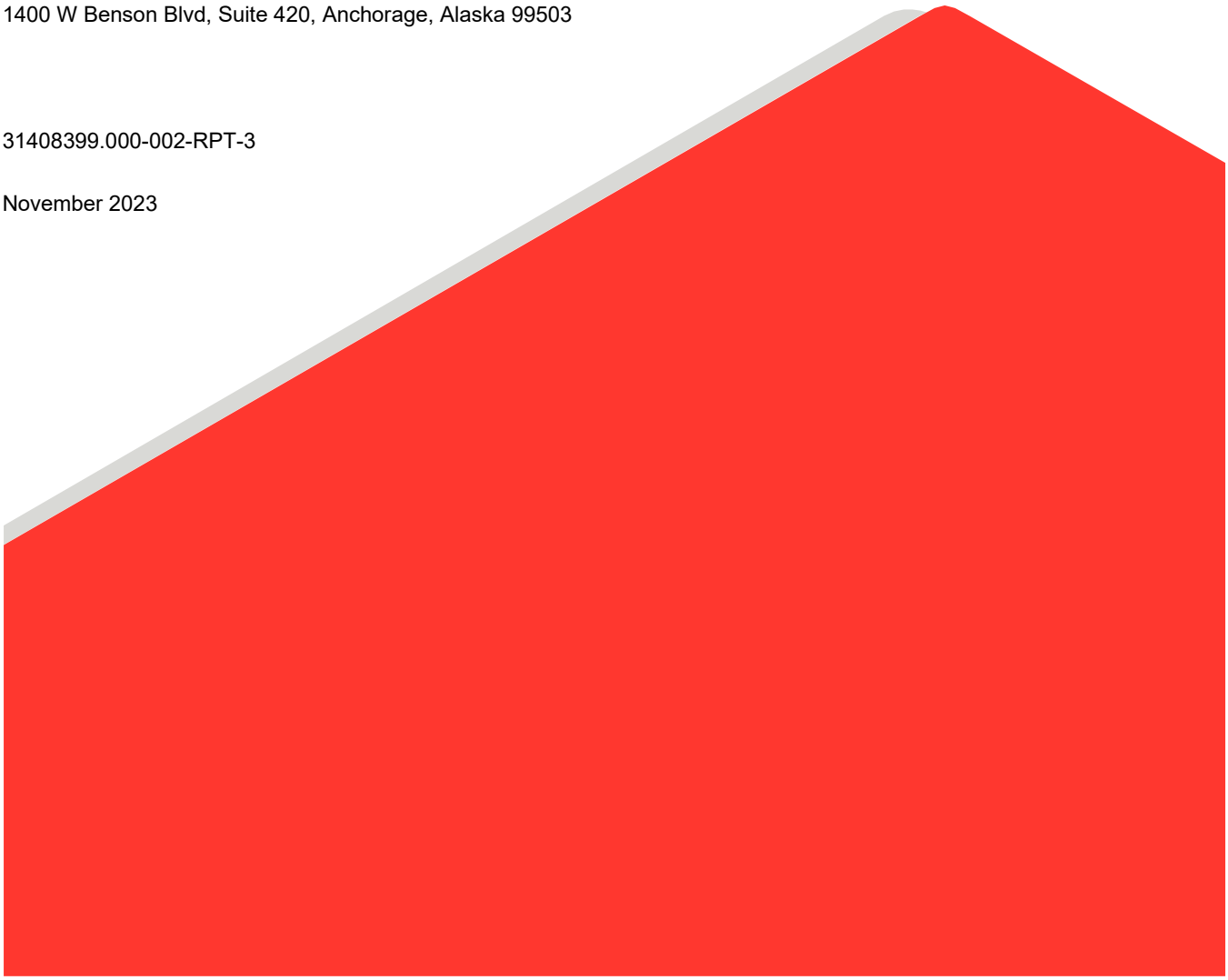

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LIST OF ABBREVIATIONS

ADEC	Alaska Department of Environmental Conservation
ADNR	Alaska Department of Natural Resources
BHR	basic hourly rate
CPI	Consumer Price Index
DSTF	dry stack tailings facility
GET	ground engaging tools
gpm	gallons per minute
GVEA	Golden Valley Electric Association HDPE high density polyethylene
LOM	life-of-mine
ORTW	Off River Treatment Works
Pogo	Northern Star (Pogo) Pogo LLC
POL	petroleum, oil, and lubricant
RCE	reclamation cost estimate
ROW	right-of-way
RTP	recycle tailings pond
SRCE	Standardized Reclamation Cost Estimator

1.0 INTRODUCTION

The 2023 reclamation cost estimate (RCE) for the Pogo Mine facilities was completed to determine the required financial assurance cost. Final reclamation and closure will be initiated for the planned life-of-mine (LOM) operating conditions and disturbance.

Closure and reclamation actions specified in the Reclamation and Closure Plan (RCP) were used to prepare this RCE. The RCE was developed to include all reclamation activities that are accounted for under the existing Pogo Mine (2023) and Pogo Right-of-Way (ROW) (2023) reclamation cost estimates. In this document, the existing Mine and ROW cost models are referred to as the legacy spreadsheets.

The 2023 RCE was prepared using the Standardized Reclamation Cost Estimator (SRCE) spreadsheet, Version 1.4.1, Build 016, developed by the State of Nevada and available at http://www.nvbond.org. The Build 016 SRCE model allows for generic use and site-specific modification and can therefore be utilized in jurisdictions outside the State of Nevada. The model includes built-in worksheets for the calculation of closure and reclamation activities that are specific to a mining project. Where the capabilities of SRCE did not provide adequate estimation tools applicable to the Pogo Mine, the reclamation and closure costs were estimated in "*User Sheets*" provided at the end of the model.

This document summarizes the affected facilities and outlines the methods and assumptions used to prepare the RCE. The cost items addressed in this report include short-term costs associated with closure and reclamation of the facilities and long-term costs associated with water treatment, monitoring, and maintenance activities during and following the completion of the closure activities.

2.0 DATA REQUIREMENTS

2.1 Unit Costs

The SRCE requires the importation of unit costs from a specially formatted *Cost Data File*. The data input for the file includes the following:

- Labor rates
- Equipment rates
- Material costs
- Miscellaneous unit costs
- Indirect costs

The project-specific *Cost Data File* was prepared for the Pogo Mine and imported into the SRCE. The file preparation is discussed in Section 3.

2.2 Project Data

The SRCE calculations require input of the physical dimensions of the mine facilities. The required input parameters, assumptions, and calculations are illustrated on the individual SRCE worksheets together with diagrams and examples of the calculations performed by the model.

Closure activity costs are estimated assuming that SRCE-defined crews and fleets are used to perform the closure activities. Heavy equipment used in the SRCE model is standardized with Caterpillar because the

company manufactures an extensive line of equipment and offers comprehensive technical specifications and productivities. Caterpillar's equipment productivities used in the SRCE are derived from the Caterpillar Performance Handbook (Caterpillar 2004). Productivities were calculated assuming that all equipment pieces will be operated by operators with average skill levels and each equipment piece will work 50 minutes per hour. Productivities for other equipment are derived from technical specifications (where available) or from productivities demonstrated on Nevada mine closure projects. The compositions and productivities of crews included in the SRCE calculations are derived from the R.S. Means Heavy Construction Data (R.S. Means 2023). These are used to calculate task-specific unit rates utilizing labor, equipment, and material rates defined for the project.

2.3 SRCE Model Results

The results of the SRCE cost calculations are summarized in the Cost Summary table provided on the *User 2* SRCE worksheet. The Cost Summary table provides direct costs for labor, equipment, and material for the following categories:

- Earthwork/Recontouring
- Revegetation/stabilization
- Detoxification/water treatment/disposal of wastes
- Structure, equipment and facility removal, and miscellaneous
- Monitoring
- Construction management and support
- Closure planning, G&A, human resources

In addition, cost summary tables providing costs associated with the 2-year holding period, Mine facilities, including long-term water treatment, and ROW facilities are also provided on the *User 2* worksheet.

Indirect costs were calculated consistent with the methodology provided in the *"Mine Reclamation and Closure Cost Estimation Guidelines"* prepared by State of Alaska, Department of Natural Resources & Department of Environmental Conservation in August 2014 and *"Mine Reclamation and Closure Cost Estimation Guidelines: Indirect Cost Categories"* prepared by DOWL in April 2015 and are included in the costs summary tables.

A summary of activity-specific earthworks quantities and costs was generated using SRCE and is provided in the *Reclamation Quantities* worksheet. The data were also used in SRCE to prepare facility-specific unit costs.

All SRCE costs were calculated in current dollars and no cost discounts were included in the calculations.

Figures showing the locations of Pogo Mine facilities included in the RCE are included at the end of this document. Pogo SRCE worksheets are provided as separate Excel files. The Pogo SRCE-related *Cost Data File* is provided in Appendix B, together with vendor quotes and information used to develop SRCE rates, which are provided for reference.

3.0 COST DATA

The *Cost Data File* prepared for the Pogo SRCE contains unit rates for labor, equipment, and materials, and unit costs for miscellaneous closure and reclamation activities. The *Cost Data File* printout is provided in Appendix B. The approaches adopted to develop SRCE rates are discussed below.

3.1 Labor

Issue 46 of *"Pamphlet 600 – Laborers' & Mechanics' Minimum Rates of Pay"* (Pamphlet 600), published by the Alaska Department of Labor & Workforce Development (ADLWD), effective April 1, 2023, was used to estimate hourly labor rates used in the RCE. The laborer rates that apply in areas of Alaska north of 63 degrees North latitude and east of 138 degrees West longitude (i.e., class code N1201-N1206) were used where applicable.

Hourly labor rates incorporate the basic hourly rates, fringe benefits, and overtime costs, as summarized in Table 3-1.

Pogo is located more than 65 road miles from the international airport in Fairbanks and the ADLWD requires that meals and lodging are provided to laborers. Hourly lodging costs were calculated using the camp costs quotes provided by Taiga Ventures (Appendix B). The Pamphlet 600 meals cost of $48.00 per day was used to calculate hourly meals costs. These costs are included in the *Zone and Area Adjustments* fields of the labor rates provided in the *Cost Data File*. The camp and meals costs were converted to an hourly rate by dividing calculated daily costs by the number of hours worked per person per day. Labor rates calculations are provided in the *User 16* SRCE worksheet.

Table 3-1: Labor Rates Calculations

Group	Description	BHR	H&W	PEN	TRN	L&M	LEG	OT	Total	Formula
A0301	Carpenter (journeyman)	42.34	10.08	15.23	1.75	0.2	0.2	10.65	80.45	=42.34+(10.08+15.23+1.75+0.2+0.2)+42.34x0.2516
A0702	Electrical technician	42.44	14.23	14.16	0.95	0.2	0.15	10.68	82.81	=42.44+(14.23+14.16+0.95+0.2+0.15)+42.44x0.2516
A0705	Power journeyman lineman	61.29	14.23	19.03	0.095	0.25	0.15	15.42	110.47	=61.29+(14.23+19.03+0.095+0.25+0.15)+61.29x0.2516
A1601	Power Equipment Operators, Group I	43.53	11.05	13.75	1	0.1	0.05	10.95	80.43	=43.53+(11.05+13.75+1+0.1+0.05)+43.53x0.2516
A1602	Power Equipment Operators, Group IA	45.29	11.05	13.75	1	0.1	0.05	11.39	82.63	=45.29+(11.05+13.75+1+0.1+0.05)+45.29x0.2516
A1604	Power Equipment Operators, Group III	42.04	11.05	13.75	1	0.1	0.05	10.58	78.57	=42.04+(11.05+13.75+1+0.1+0.05)+42.04x0.2516
a11604	Stake hop/grademan	42.04	11.05	13.75	1	0.1	0.05	10.58	78.57	=42.04+(11.05+13.75+1+0.1+0.05)+42.04x0.2516
A2101	Truck Drivers, Group I	42.94	12.23	13.64	1.15	0.1	0	10.8	80.86	=42.94+(12.23+13.64+1.15+0.1+0)+42.94x0.2516
A2102	Truck Drivers, Group IA	44.21	12.23	13.64	1.15	0.1	0	11.12	82.45	=44.21+(12.23+13.64+1.15+0.1+0)+44.21x0.2516
A2105	Truck Drivers, Group IV	40.28	12.23	13.64	1.15	0.1	0	10.13	77.53	=40.28+(12.23+13.64+1.15+0.1+0)+40.28x0.2516
N0401	Cement Mason, Group I	40.13	8.7	11.8	1.43	0.1	0	10.1	72.26	=40.13+(8.7+11.8+1.43+0.1+0)+40.13x0.2516

Note:
BHR basic hourly rate
H&W health and welfare
L&M labor/management fund
LEG legal fund
OT overtime (OT = BHR x 25.16%; the 25.16% used in the calculations was adopted from the legacy spreadsheets)
PEN pension
SAF safety
TRN training

3.2 Equipment

Equipment monthly rental rates that were used in the RCE and were incorporated in the *Cost Data File* were obtained from NC Machinery, Fairbanks, Alaska (Appendix B).

The estimated operating costs per hour are based on the assumption that the equipment is in good condition. No allowances were made for equipment operating in severe conditions or beyond periodic maintenance services. Operator's wages are not included in the operating costs. Costs for the *GET Consumption* and *Tire Cost Table* in the *Cost Data File* were calculated by adjusting 2022 Nevada rates to Fairbanks, Alaska using weighted average city cost indexes provided in the "R.S. Means Heavy Construction Data" (R.S. Means) handbook.

Fuel costs are calculated by multiplying the vendor-obtained fuel costs (dollars per gallon [$/gal]) provided in the *Cost Data File* by fuel consumption rates (gallons per hour [gal/hr]) calculated by SRCE for the respective equipment and operating conditions and are included in the equipment costs calculated in the SRCE model.

3.3 Materials

3.3.1 Revegetation

Native seed rates were obtained from Alaska Garden and Pet Supply, as documented in Appendix B.

3.3.2 Well Abandonment Materials

Rates for cement were developed using Alaska Basic Industries quote documented in Appendix B. The cement grout rates were taken from 2021 Nevada rates and adjusted for Fairbanks using R.S. Means coefficients.

3.3.3 Monitoring Costs

Helicopter rental rates for site-wide sampling and laboratory costs for compliance monitoring activities were obtained from Aurora Aviation Services and are documented in Appendix B.

Laboratory analytical costs associated with meeting current and anticipated post-closure monitoring requirements were obtained from Alaska Water Labs. Analytical costs are included for biological, effluent, groundwater, surface water, potable water, waste water and soils testing, as documented in Appendix B.

3.3.4 Fuel and Electrical Power

Diesel rates for off-road diesel delivered to Pogo were calculated using the Crowley Fuels quote.

Rates for electrical power (dollars per kilowatt hour [$/kWh]) were obtained from Golden Valley Electric Association (GVEA), as documented in Appendix B, and were calculated using GVEA's online calculator for industrial services, with the assumption that Pogo will require 10 percent of its current operational power consumption during closure and post-closure activities, including long-term water treatment.

3.4 Other Miscellaneous Costs

3.4.1 Revegetation Labor and Equipment

The method of revegetation in SRCE is governed by the selections incorporated into the model and access via drop-down boxes in the *Material Costs* SRCE worksheet. Available choices are hand broadcast, mechanical broadcast, drill seeding, and hydroseeding.

The mechanical broadcast rates were developed using Able Hydroseeding quote (Appendix B) and are included under the *Hydroseeding* line item in the *Cost Data File.* These rates were used to calculate hydroseeding costs for the Mine disturbances.

In order to accommodate the anticipated helicopter seeding of the ROW disturbances in the cost calculations, the helicopter seeding rates were included under the *Seeding-Broadcast Mechanical* line item in the *Cost Data File*. The helicopter hydroseeding rate was calculated using Aurora Aviation Services quote also included in Appendix B.

3.4.2 Waste Disposal

Waste disposal rates were obtained from R.S. Means for several dumpster sizes, and an average cost was calculated. This average cost was adjusted for Fairbanks using R.S Means coefficient and incorporated in the *Cost Data File*.

A solid waste disposal fee quoted by Fairbanks North Star Borough was incorporated in the *Cost Data File* (Appendix B).

Costs for transport and remediation of petroleum, oil, and lubricant (POL) contaminated soils were obtained from R.S. Means. This average cost was adjusted for Fairbanks using R.S Means coefficient and incorporated in the *Cost Data File.* The cost per ton was converted to cost per mile per ton to reflect SRCE's distance-based approach.

3.4.3 Underground Opening Closure

The SRCE calculates the cost of installing reinforced concrete bulkheads and shaft covers using R.S. Means. The associated material rates were taken from 2022 Nevada rates and adjusted for Fairbanks using R.S. Means coefficients.

3.4.4 Fencing Installation and Removal

The SRCE calculates the cost of fencing installation and removal using R.S. Means. The associated material rates were taken from 2022 Nevada rates and adjusted for Fairbanks using R.S. Means coefficients.

3.4.5 Culvert and Pipeline Removal

The SRCE calculates the cost of culvert and pipeline removal using R.S. Means crews and productivity rates and adjusted for Fairbanks using R.S. Means coefficients.

3.4.6 Pipe and Drainpipe Installation

The SRCE calculates the cost of installing pipe and drain pipe using R.S. Means. The associated material rates were taken from 2022 Nevada rates and adjusted for Fairbanks using R.S. Means coefficients.

3.4.7 Powerline and Transformer Removal

Development of the power transmission line removal unit costs per mile are documented on the SRCE *User 4* worksheet. Calculated rates for demolition of a single pole and a double pole power transmission lines are included in the *Cost Data File*.

Transformer removal rates were based on the R.S. Means 2022 Nevada rates adjusted for Fairbanks using R.S. Means coefficients and are included in the *Cost Data File*.

3.4.8 Rip-Rap and Rock Lining

The SRCE rates for the installation of rip-rap and rock lining are based on using R.S. Means. The associated material costs were obtained from R.S. Means 2023 Nevada rates adjusted for Fairbanks using R.S. Means coefficients.

3.4.9 HDPE Liner Installation

The SRCE cost for installation of a high-density polyethylene (HDPE) liner is based on R.S. Means 2022 Nevada rates adjusted for Fairbanks using R.S. Means coefficients.

3.4.10 Production or Dewatering Well Pump Removal

The labor and equipment costs for production or dewatering well pump removal were obtained from R.S. Means 2022 Nevada rates and adjusted for Fairbanks using R.S. Means coefficients.

3.5 Indirect Costs

The indirect costs calculations were revised to reflect cost categories, percentages, and calculation methods provided in the Guidelines. The following indirect costs are included in the RCE:

1) **Contractor Profit:** Calculated as 8% of the total Direct Costs
2) **Contractor Overhead:** Calculated as 6% of the total Direct Costs
3) **Performance and Payment Bond:** Calculated as 3% of the total Direct Costs
4) **Liability Insurance:** Calculated as 1.5% of the total Labor Costs
5) **Contract Administration:** Calculated as 7% of the total Direct Costs
6) **Engineering Redesign:** Calculated as 5% of the total Direct Costs
7) **Contingency:** Calculated as 8% of the total Direct Costs

The *Cost Data File* allows user inputs for indirect cost categories as line items with user-specified percentage value for each category. These percentages are applied within the SRCE model to calculate indirect costs as percentages of direct cost components. The *Cost Data File* also allows the user to define four different cost ranges for which different percentage values can be used. However, the user cannot change how the individual indirect costs are calculated. For example, for indirect costs calculated in line item #3 above for performance and payment bond, the SRCE model will apply the percentage defined by the user to the total labor costs. The SRCE calculations cannot be modified to calculate this cost as a percentage of some other costs.

The SRCE calculates indirect costs differently from the method provided in the Guidelines and the SRCE calculations cannot be modified to use the methodology stipulated in the Guidelines. Therefore, no indirect cost line items or percentages are identified in the Cost Data File. Instead, new user-generated Cost Summary tables are included in the User 2 and User 8 SRCE worksheets.

3.6 Inflation

The inflation factor was applied to the sum of the Holding Costs, Total Direct, and Total Indirect reclamation costs. The inflation rate was derived using the average Anchorage Consumer Price Index (CPI) over the past 5 years (2018 – 2022) of 3.22% and compounding it over the next 5 years. The resulting inflation rate of

17% was then added to the sum of holding and reclamation costs. The inflation factor calculations are provided on the *User 1* SRCE worksheet.

4.0 COST ESTIMATION

The SRCE cost estimate for Pogo facilities (Figure 1) is provided in Appendix A; details of the cost estimate calculations are provided below. The following sections provide the bases for cost estimates applicable to development of the Pogo RCE.

- Dry Stack Tailings Facility
- Recycle Tailings Pond
- Roads
- Quarries & Borrow Pits
- Underground Openings
- Material Haulage
- Foundations and Buildings
- Other Demolition
- Sediment and Drainage Control
- Landfill
- Yards
- Waste Disposal
- Well Abandonment
- Miscellaneous Costs
- Maintenance and Monitoring
- Construction Management and Road Maintenance
- Solution Management
- 2-Year Holding Costs
- Reclamation Quantities Summary
- Cost Schedule
- Other User
- User 1: Inflation
- User 2: Cost Summary Tables
- User 3: Haul Distances - Mine
- User 4: Power Transmission Line
- User 5: Water Treatment

- User 6: Monitoring
- User 7: Portals
- User 9: Sludge Disposal
- User 10: Equipment Mobilization/Demobilization
- User 14: Haul Distances - Mine
- User 16: Labor Rates

SRCE User 8, User 11, User 12, User 13, User 15, User 17, User 18, User 19, and User 20 worksheets are not used in the RCE calculations.

4.1 Dry Stack Tailings Facility

Tailings that are not placed underground are dewatered through pressure filtration and placed in the general placement area of the dry stack tailings facility (DSTF). Costs for reclamation of the planned 24-million-ton DSTF (Figures 1, 2, 3, and 4) are included in the RCE. For the purposes of activity cost estimation, the DSTF was divided into three sections (Dry Stack-1, Dry Stack-2, and Dry Stack-3) and the required SRCE input data were obtained for each section, as shown in Figures 3 and 4.

The DSTF slope is constructed with a benched overall slope of 3H:1V (horizontal:vertical) and is clad with non-mineralized rocks that provide structural stability and erosion control (Figures 3 and 4). No regrading will be required for the DSTF embankment.

The general placement area of the DSTF will be regraded at closure to form a 1% slope to the closure perimeter ditches. An estimated regrade volume equivalent to 1 foot of tailings over the full general placement area is included on the *Waste Rock Dumps* SRCE worksheet.

Costs are included for construction of an engineered cover consisting of 1 foot of non-mineralized development rock applied over the surface of the crowned DSTF general placement area, followed by a 6-inch sand and gravel layer and additional 6 inches of growth media. Costs for the sand and growth media hauling and placement are calculated on the *Waste Rock Dumps* SRCE worksheet. Costs for screening, hauling, and placement of the 1-foot-thick rock cover over the regraded DSTF general placement area surface are calculated on the *Haul Material* SRCE worksheet.

Post-closure DSTF runoff control will include construction of perimeter ditches as shown in Figure 2. These costs are calculated on the *Sediment and Drainage Control* SRCE worksheet, as further described in the *Section 4.9: Sediment and Drainage Control*.

The non-mineralized rock and sand material will be sourced from material located at the 2150 Portal area, and growth media will be obtained from growth media stockpiles located in the DSTF vicinity (Figure 3).

Related SRCE worksheet(s): *Waste Rock Dumps, Haul Material, Sediment and Drainage Control*.

4.2 Recycle Tailings Pond

The recycle tailings pond (RTP) layout is shown in Figure 5. The following costs for RTP closure are included on the SRCE worksheets:

- Removal and disposal of RTP pumping infrastructure – Miscellaneous Costs\Surface Pipe Removal, Foundations & Buildings
- Excavation of the RTP dam breach – Sediment & Drainage Control
- Removal and disposal of exposed HDPE and clay liners – Haul Material
- Capping of RTP sediments with 3 feet of random fill overlain by 2 feet of armoring. The random fill and armoring assumed as sourced from the RTP dam breach excavation – Haul Material.
- Placement of 6 inches of growth material over the RTP impoundment area and revegetation – Sediment & Drainage Control

Related SRCE worksheet(s): *Miscellaneous Costs\Surface Pipe Removal, Foundations & Buildings, Sediment & Drainage Control, Haul Material*.

4.3 Roads

The 2022 aerial photograph was used to identify and measure existing road disturbance areas. The *Roads* SRCE worksheet was used to calculate costs associated with the reclamation of all roads, including regrading, cover placement, and revegetation. The road lengths were calculated by dividing measured road disturbances by average road widths for each road (Figure 6). In order to account for removal of road berms and barriers, it was assumed that 3-foot-high soil berms are constructed on both sides and along the full length of all roads. Road reclamation costs include costs for removal and reclamation of these berms.

Related SRCE worksheet(s): *Roads*.

4.4 Quarries and Borrow Pits

The *Quarries & Borrow Pits* worksheet includes costs for reclamation of borrow areas located at Material Sites A, 1, 2, and 23 and the borrow site located at the airstrip (Figure 7). Costs were included for re-grading these borrow areas.

Related SRCE worksheet(s): *Quarries & Borrow Pits*.

4.5 Underground Openings

The *Underground Openings* SRCE worksheet was used to calculate costs for placement of concrete bulkhead to block 2015 Portal's opening. The SRCE calculations assume that an 18-inch-thick concrete plug is placed over a portal. The SRCE also assumes that this plug will be placed at a user-defined distance from the portal opening and the space in front of the plug is backfilled with loose material. A plug distance of 200 feet was assumed in the calculations.

Pogo underground closure study findings were provided in a report titled "*Pogo Mine Underground Closure Study*" prepared by Tetra Tech and dated March 27, 2014. This study provided procedures and plans for underground mine closure, including construction of portal plugs for the 1525, 1690 and 1875 portals. The

study forms basis for the respective concrete plugs cost estimates that are provided on the SRCE *User 7* worksheet. The cost was adjusted to 2023 using the change in CPI.

Related SRCE worksheet(s): *Underground Openings, User 7*.

4.6 Material Haulage

The *Haul Material* worksheet includes costs for haulage, screening, and compaction items, which include placement of non-mineralized rock over DSTF area; removal of temporary stockpiles; removal of geotextile, liners and fills; removal of RTP geosynthetic and clay liners, hauling and placement of RTP filter base and cover material for capping sediments; hauling of DSTF perimeter channel and stilling basin gravel and rip-rap layers; and similar activities.

Related SRCE worksheet(s): *Haul Material.*

4.7 Foundations and Buildings

The *Foundations and Buildings* worksheet includes costs for the demolition of buildings and structures throughout the Mine site. Individual building locations are shown in Figures 12 through 24. Dimensions for each building were measured from the as-built drawings and 2023 Pogo aerial photo and are included in the SRCE worksheet together with estimated foundation wall and slab thicknesses. Costs are also included for regrading, placement of 3 feet of cover followed by 6 inches of growth material and revegetation of building footprints. Costs for regrading, cover placement, and revegetation of adjacent yards and parking areas are included in the SRCE *Yards* worksheet.

The SRCE costs, consistent with the R.S. Means approach used to estimate building demolition, include costs for dump truck hauling debris up to 20 miles to a landfill. The Reclamation Plan indicates that building demolition debris will be hauled and disposed of in the underground workings; therefore, the SRCE assumption is conservative and rates are sufficient to cover debris disposal by either method.

Related SRCE worksheet(s): *Foundations & Buildings*; *Yards*.

4.8 Other Demolition

Placeholder costs associated with other demolition activities such as removal of equipment, services, rolling stock, etc. are included on the *Other Demolition* SRCE worksheet.

Related SRCE worksheet(s): *Other Demolition*.

4.9 Sediment and Drainage Control

Stormwater diversion ditches, DSTF perimeter channel and stormwater ponds are shown in Figures 2 and 10. Reclamation and closure costs for these facilities are calculated on the SRCE *Sediment & Drainage Control* worksheet. The RCE accounts for closure and reclamation of the diversions and includes backfilling, regrading, scarification, and revegetation of facilities.

Costs for construction of DSTF perimeter channels and the stilling basin are also included on this worksheet. The facility dimensions and armoring shown in Figure 2 were obtained from the 2014 *"Dry Stack Tailings Facility Closure Study"*. Construction costs include channel and stilling basin excavation (including over-excavation for rip-rap), installation of 60-mil HDPE liner, and placement of 1.5 to 2.5 feet of rip-rap for erosion protection. Costs for placement of gravel filter layer are included on the *Haul Material* worksheet.

Costs for backfilling, growth media placement and revegetation of stormwater and sediment control ponds are also included on this worksheet. For irregular-shaped ponds, the dimensions of length and width were estimated for a similarly sized rectangular pond.

Related SRCE worksheet(s): *Sediment and Drainage Control, Haul Material*.

4.10 Landfill

Placeholder costs for excavation of the potential future landfill are included on the SRCE *Ponds* worksheet. Costs for grading and compaction of the landfill base and sideslopes are accounted on the SRCE *Other User* worksheet.

It is anticipated that this landfill will be used for disposal of the RTP liners and sludge generated during long-term water treatment plant operation. The sludge disposal costs are included on the *Waste Disposal* worksheet. The landfill will be closed and reclaimed following completion of water treatment activities and the respective costs are included on the SRCE *Ponds* worksheet.

Related SRCE worksheet(s): *Ponds, Other User, Waste Disposal*.

4.11 Yards

The *Yard Etc.* SRCE worksheet was used to calculate costs associated with the reclamation of yards, parking areas, site clearances, footprints of growth media stockpiles, and similar disturbances (Figure 9). Closure and reclamation activities include regrading, recontouring, placement of growth media material, and revegetation, as applicable. Areas that were identified as disturbances that will revegetate naturally in the Reclamation Plan (i.e., no costs for revegetation) are also included and reflect zero costs.

Related SRCE worksheet(s): *Yards.*

4.12 Waste Disposal

The *Waste Disposal* worksheet was used to calculate costs associated with disposal of solid waste, hazardous materials, and hydrocarbon-contaminated soils. No additional costs were included for hauling and disposal of building demolition debris, as these costs are already included on the *Foundations & Buildings* SRCE worksheet.

Costs are included for disposal of an assumed quantity of solid waste generated during closure activities at the North Star Landfill. Costs for transport and incineration of the assumed quantity of hydrocarbon contaminated soils are also included.

Costs for disposal of water treatment sludge generated during anticipated water treatment plant operation on the on-site landfill are also accounted on this worksheet.

Related SRCE worksheet(s): *Waste Disposal*.

4.13 Well Abandonment

The *Well Abandonment* worksheet was used to calculate well abandonment costs. Well locations are shown in Figure 8, and respective wells construction information was obtained from as-built documentation or provided by Pogo.

Costs are based on the assumption that all holes will be grouted and perforated from the bottom to 50 feet above the top of the screen, first water encountered or original static water level, depending on vertical hydraulic gradient and well construction parameters. Inert fill (alluvium) will be used from the top of grout to within 50 feet of ground surface. A 50-foot-thick cement seal will be constructed at the top of each backfilled hole.

Related SRCE worksheet(s): *Well Abandonment*.

4.14 Miscellaneous Costs

This section discusses costs calculated under the *Misc. Costs* SRCE worksheet.

4.14.1 Fence Removal

Costs for removal of approximately 645 feet of fencing located in the mill area (Figure 9) are calculated on this worksheet.

Related SRCE worksheet(s): *Misc. Costs\Fence Removal*.

4.14.2 Culvert Removal

Culvert removal costs were estimated for the specified length of culverts removed. Additional costs for earthworks/hauling items associated with culvert removal are included on the *Haul Material* worksheet.

Related SRCE worksheet(s): *Misc. Costs\Culvert & Buried Pipe Removal; Haul Material*.

4.14.3 Surface Pipe Removal

Surface pipe removal costs were estimated using the length and diameter of surface pipelines shown in Figure 8. Pipeline diameters were provided by Pogo and pipeline lengths were measured from the Pogo drawings.

Related SRCE worksheet(s): *Misc. Costs\Surface Pipe Removal*.

4.14.4 Power Line and Substation Removal

The unit cost development for removal of single-pole and double-pole power lines is described on SRCE *User 4* worksheet. These unit rates were used to calculate power line demolition costs calculated on this worksheet.

The number of substations/transformers was estimated from the quantities included in the legacy spreadsheets and costs for their removal are also included on this worksheet.

Related SRCE worksheet(s): *Misc. Costs\Power Line and Substation Removal*.

4.15 Maintenance and Monitoring

The SRCE *Monitoring* worksheet was used to calculate monitoring costs for the following items:

- Revegetation maintenance
- Erosion maintenance
- Reclamation monitoring

These items are discussed in the following sections.

4.15.1 Revegetation Maintenance

Revegetation maintenance was calculated as a percentage of the total area of revegetation, assumed to be 5%. The total revegetation surface area was calculated in the SRCE model and accounts for all areas that are included in the model.

Related SRCE worksheet(s): *Monitoring\Revegetation Maintenance*.

4.15.2 Erosion Maintenance

The SRCE was used to calculate erosion maintenance costs as a percentage of growth media volume and the SRCE-calculated average cost of growth media placement. Costs for the assumed 5% of the growth media volume are included in the SRCE.

Related SRCE worksheet(s): *Monitoring\Erosion Maintenance*.

4.15.3 Reclamation Monitoring

Reclamation monitoring costs include fieldwork, reporting, and travel for a team consisting of a field geologist/engineer and a range scientist. These costs are for post-closure site-wide monitoring of the revegetation and geotechnical stability of reclaimed facilities. Estimated costs for seven monitoring events over 30 years of post-closure monitoring and the preparation of monitoring reports are included.

Related SRCE worksheet(s): *Monitoring\Reclamation Monitoring*.

The SRCE *Monitoring* worksheet was not used to calculate costs for water quality monitoring and reporting activities. These costs are provided on the *User 6* worksheet. Related SRCE worksheet(s): *User 6, Other User*.

4.16 Construction Management and Roads Maintenance

The Construction Management worksheet includes costs for full time construction management staff during an estimated 6 months of closure construction and reclamation at the Mine site and an additional 6 months for the ROW facilities.

This worksheet was also used to estimate the cost of road maintenance. The road maintenance assumptions are shown in Table 4-1 and were used to calculate average annual time required to maintain roads. Costs for a total of 12 years (2-year holding period plus 10 years of closure and water treatment) of road maintenance are included.

Table 4-1: Road Maintenance Assumptions

Season	Hours per Round	# Rounds per Year	Notes
Summer	6.0	2	Grading only
Winter	10.0	10	Snow removal
Source: Pogo e-mail June 12, 2013.			

Related SRCE worksheet(s): *Construction Management*

4.17 Solution Management

The RTP receives runoff water volumes ranging between 44 and 173 million gallons of water annually. The water treatment plant process flow rate of 314 gallons per minute (gpm) that was used in the SRCE cost calculations corresponds to the treatment of 110 million gallons of water during an anticipated 8 months of operation. It is assumed that year-around operation of the water treatment plant would not be feasible due to the freezing potential. Costs for 12 years of water treatment plant operation are included in the RCE (i.e., 2-year holding period followed by 10 years of water treatment). Assumptions and detailed water treatment cost calculations are provided on the *User 5* (water treatment) and *User 9* (sludge disposal) SRCE worksheets.

Related SRCE worksheet(s): *Solution Management, User 5, User 9*.

4.18 2-Year Holding Costs

Costs for the 2-Year Holding Period are included on the *General & Administration*, *Human Resources, Other User, Construction Management, User 6* and *User 9,* and SRCE worksheet and include costs for the following items:

- The camp rental and operation costs for the 2-year holding period, including heating fuel and meals
- Water treatment operation and maintenance, including sludge disposal
- Site-wide monitoring and reporting
- Snow removal and road maintenance
- Site-wide security
- Maintenance associated with providing services (e.g., water, power, sewage treatment, fuel supply, etc.)
- Maintaining Pogo gate and access control during caribou and moose hunting seasons

Related SRCE worksheet(s): *General & Administration, Human Resources, Other User, Construction Management, User 6, User 9.*

4.19 Reclamation Quantities Summary

The *Reclamation Quantities Summary* worksheet is generated by the SRCE model and provides a summary table with quantities and costs calculated in SRCE for each built-in worksheet.

Related SRCE worksheet(s): *Reclamation Quantities Summary*.

4.20 Cost Schedule

The *Cost Schedule* worksheet included in the SRCE model provides tools for financial analyses (e.g., inflation adjusted costs, market risk adjusted costs, net present value) of the closure costs. It allows the user to define expenditure schedule, inflation, market risk, and discount rates and include indirect costs that would be required for the LOM and ARO calculations. Although this worksheet is not typically used in the reclamation bond calculations, a tentative schedule providing undiscounted annual direct costs is provided.

Related SRCE worksheet(s): *Cost Schedule*.

4.21 Other User

The *Other User* SRCE worksheet contains costs for closure activities that are not accounted for in other SRCE worksheets or are included on the *User* SRCE worksheets and includes for the following work:

- Installation of new insulated and heat-traced pipeline for conveyance of RTP water to the water treatment facilities for Phase IV water treatment (modifications are required to the existing pipeline route to eliminate pipeline sections currently installed within the underground workings)
- ROW disturbances hydroseeding using helicopter (no hydroseeding costs are accounted for the ROW items included on the *Roads* and *Yards, Etc.* SRCE worksheets)
- Equipment mob/demob
- Camp mob/demob
- Water quality monitoring - Holding period
- Water quality monitoring - Phase 3, Phase 4 and Phase 5
- Portals Closure
- Future landfill grading and compaction

Related SRCE worksheet(s): *Other User, Ponds, User 6, User 7, User 9, User 16*.

4.22 User 1: Inflation

The *User 1* SRCE worksheet documents inflation percentage calculations for reference purposes.

4.23 User 2: Cost Summary Tables

The *User 2* worksheet provides cost summary tables providing the direct costs calculated using the SRCE for the 2-year holding period, Mine cost items, and the ROW cost items. Indirect costs were calculated and included for each summary table. These tables were prepared by linking direct costs from the SRCE *Cost Summary* worksheet to the respective cost items included in the tables.

The SRCE costs were then separated into Mine + ROW Cost Estimate Total, Mine – Holding Costs, Mine Cost Items and ROW cost items.

Indirect costs include contractor profit, contractor overhead, performance bond, liability insurance, contract administration, engineering redesign, and contingency. The costs were calculated consistent with the Guidelines.

The inflation factor calculated on the *User 1* worksheet was applied to the sum of the Total Direct and Total Indirect reclamation costs, consistent with the Guidelines.

4.24 User 3: Haul Distances - Mine

The *User 3* SRCE worksheet provides a summary of data used for preparation of haul distance and slope calculations for the Mine facilities. This input information is used in calculations provided on SRCE worksheets for the Mine items.

4.25 User 4: Power Transmission Line

Development of the power transmission line removal unit costs per mile are documented on the SRCE *User 4* worksheet.

4.26 User 5: Water Treatment

The *User 5* worksheet provides basis for the water treatment cost estimate. The water treatment rate was calculated by dividing Pogo's 2021 water treatment operating and maintenance costs by the volume of water treated in 2020 and 2021. Current water treatment plant treats the following sources:

- Mine water: approximately 90% of the water treatment costs
- RTP water: approximately 2% of the water treatment costs
- Storm Water: approximately 2% of the water treatment costs
- Off River Treatment Works (ORTW): approximately 6% of the water treatment costs

Mine water and ORTW will not be treated following cessation of mining. From July 2020 to June 2021, 110,120,000 gallons of RTP Water and Storm Water treatment were collected (210 gpm). A portion of the RTP water is recycled back into the mill. During closure all collected water will be treated.

Related SRCE worksheet(s): *Solution Management*.

4.27 User 6: Monitoring

Surface water and groundwater post-closure monitoring activities included in the "*Pogo Mine Monitoring Plan"* section of the Plan of Operations were used to prepare the SRCE inputs for the water quality monitoring costs. Calculations of the number of samples and labor hours included in the cost estimate are provided on the *User 6* worksheet together with costs allocations to Pogo-specific phases.

One sampler is assumed per event. The number of samples and costs for courier and helicopter per sampling episode are also included. The cost to purchase a total of nine water sampling pumps was also included to allow for the replacement of sampling pumps as required during the anticipated 30 years of post-closure monitoring activities.

Costs to prepare water quality monitoring reports are also included on the *User 6* worksheet and include the preparation of:

- Two annual monitoring reports during the 2-year holding period
- Ten annual monitoring reports during 10 years of water treatment
- Seven periodic monitoring reports during 30 years of post-closure monitoring

It was assumed that 24 hours of a consultant's time will be adequate for the preparation of each monitoring report.

Related SRCE worksheet(s): *Other User; User 6*.

4.28 User 7: Portals

The Reclamation Plan states that the access portals to the underground mine will be sealed with concrete plugs. Costs for concrete plug construction that were provided in the *"Pogo Mine Underground Closure Study",* dated March 27, 2014, were used to develop the RCE costs and calculations provided on the SRCE *User 7* worksheet. The study states that the costs estimate was prepared in general accordance with the 2013 *"Draft Mine Closure and Reclamation Cost Estimation Guidelines"*. Cost estimates were developed assuming a third-party contractor will perform the work and that no Mine equipment will be available. All labor rates were fully burdened hourly rates from the 2013 *"Laborers' & Mechanics' Minimum Rates of Pay Pamphlet 600"*, published by the ADLWD. Equipment cost estimates were based on anticipated equipment rental rates in Fairbanks, plus hourly operating costs from CostMine 2013. Thus calculated direct costs were escalated from 2013 to 2023 using Consumer Price Index values as shown on the *User 7* worksheet.

Related SRCE worksheet(s): *User 7.*

4.29 User 9: Sludge Disposal

The *User 9* worksheet documents the basis for sludge disposal rates development. These rates are linked to the *Waste Disposal* SRCE worksheet and are used in the SRCE calculations. The future landfill liner construction quantities are also provided on this worksheet.

Related SRCE worksheet(s): *Waste Disposal*.

4.30 User 10: Equipment Mobilization/Demobilization

Mobilization and demobilization costs estimate is provided on the SRCE *User 10* worksheet. The costs were calculated using 2023 labor, equipment, and material rates for the estimated number of equipment units. The following equipment fleet was utilized:

- D7R dozer (9) for backfilling, cover and growth media placement
- D8R dozer (3) for recontouring yards, roads and DSTF
- 14G/H grader (1) for snow removal and roads maintenance
- 345B excavator (1) for small buildings demolition
- 385BL excavator (1) for large buildings and infrastructure demolition and backfilling of stormwater ditches
- 928G loader (1) for fence and culvert removal
- 988G loader (2) for cover and growth media loading
- H-160 hydraulic hammer (1) for breaking down and rubblizing concrete foundations during buildings and infrastructure demolition
- H-180 hydraulic hammer (1) for breaking down and rubblizing concrete slabs during buildings and infrastructure demolition
- 420D 4WD backhoe (1) for buildings and infrastructure demolition
- CS533E vibratory roller (1) for buildings and infrastructure demolition

- 1.5-ton light truck (2) for active reclamation and long-term water management and treatment
- Supervisor's truck (2) for active reclamation and long-term water management and treatment
- Air compressor and tools (1) for active reclamation and long-term water management and treatment
- Welding equipment (1) for active reclamation and long-term water management and treatment
- Pump drill rig (1) for casing removal and grouting during wells abandonment
- Concrete pump (1) for grouting during wells abandonment
- HDPE Welder (1) for active reclamation and long-term water management and treatment
- Generator 5kW (1) for active reclamation and long-term water management and treatment
- 5-ton crane truck (1) for active reclamation and long-term water management and treatment
- 20-ton crane (3) for buildings and infrastructure demolition
- 740 truck (10) for transport of cover and growth material and demolition debris
- 613E water wagon (1) for active reclamation
- Dump truck 10-12 cubic yards (yd^3) (6) for buildings and infrastructure demolition debris removal

Related SRCE worksheet(s): *Other User, User 10.*

4.31 User 14: Haul Distances - ROW

The *User 14* SRCE worksheet was used to provide a summary of data used for preparation of haul distance and slope calculations for the ROW facilities. This input information is used in calculations provided on SRCE worksheets for the ROW items.

SRCE worksheet *User 15* was not used in the calculations.

4.32 User 16: Labor Rates

Development of hourly labor rates is documented on the *User 16* worksheet and includes a list of labor categories, basic hourly rates, fringe benefits and overtime costs. Development of the zone adjustment rates that account for camp and meals are also documented on this worksheet.

SRCE worksheets *User 17* through *User 20* were not used in the calculations.

5.0 REFERENCES

ADNR/ADEC. 2015. *Mine Closure and Reclamation Cost Estimation Guidelines, Draft,* August 2014. State of Alaska, Department of Natural Resources & Department of Environmental Conservation.

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SRCE. 2012. *Standardized Reclamation Cost Estimator (SRCE), Version 1.4.1, Build 016,* Revised August 1, 2014. http://www.nvbond.org. Accessed November 2022.

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Figures

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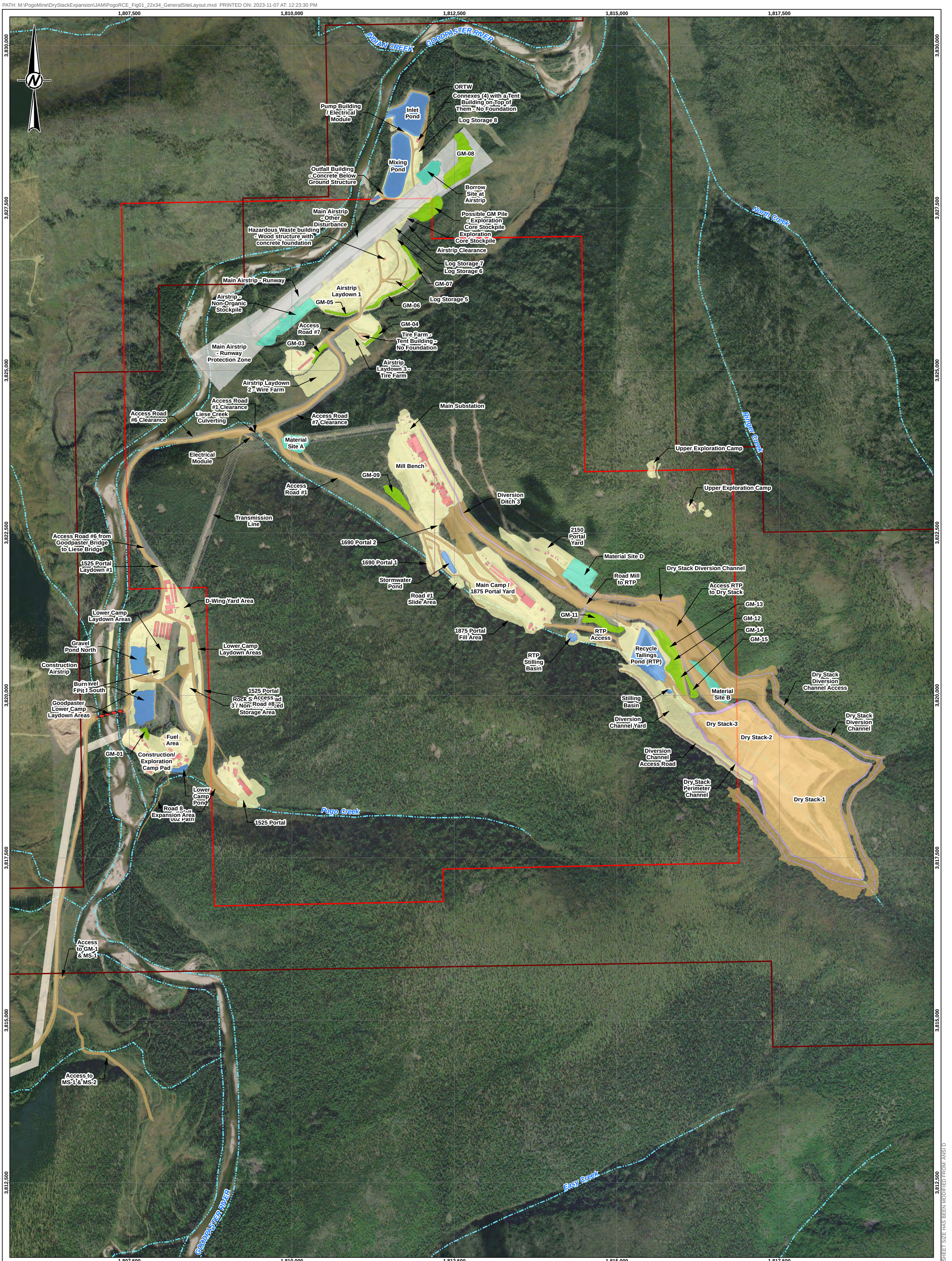

LEGEND

- ROAD CLEARANCE
- BRIDGE
- TRANSMISSION LINE
- AIRSTRIP
- YARD
- BUILDING
- DIVERSION
- GROWTH MEDIA
- MATERIAL SITE
- POND
- ROAD
- TAILINGS
- POGO LEASE BOUNDARY
- POGO MILLSITE LEASE 2023

0 1,300 2,600
Feet

REFERENCES

1. MINE FACILITY DATASETS PROVIDED TO WSP BY NORTHERN STAR (POGO) LLC, JANUARY 27, 2023
2. COORDINATE SYSTEM: NAD83 STATE PLANE ALASKA ZONE 3, US FT.
3. AERIAL IMAGERY: ESRI, MAXAR, VIVID, VARIOUS DATES.

CLIENT
POGO MINE
NORTHERN STAR (POGO) LLC

CONSULTANT
wsp

YYYY-MM-DD	2023-11-07
DESIGNED	KJC
PREPARED	KJC
REVIEWED	-
APPROVED	-

PROJECT
RECLAMATION COST ESTIMATE

TITLE
GENERAL SITE LAYOUT

PROJECT NO.
31403899.000

FIGURE
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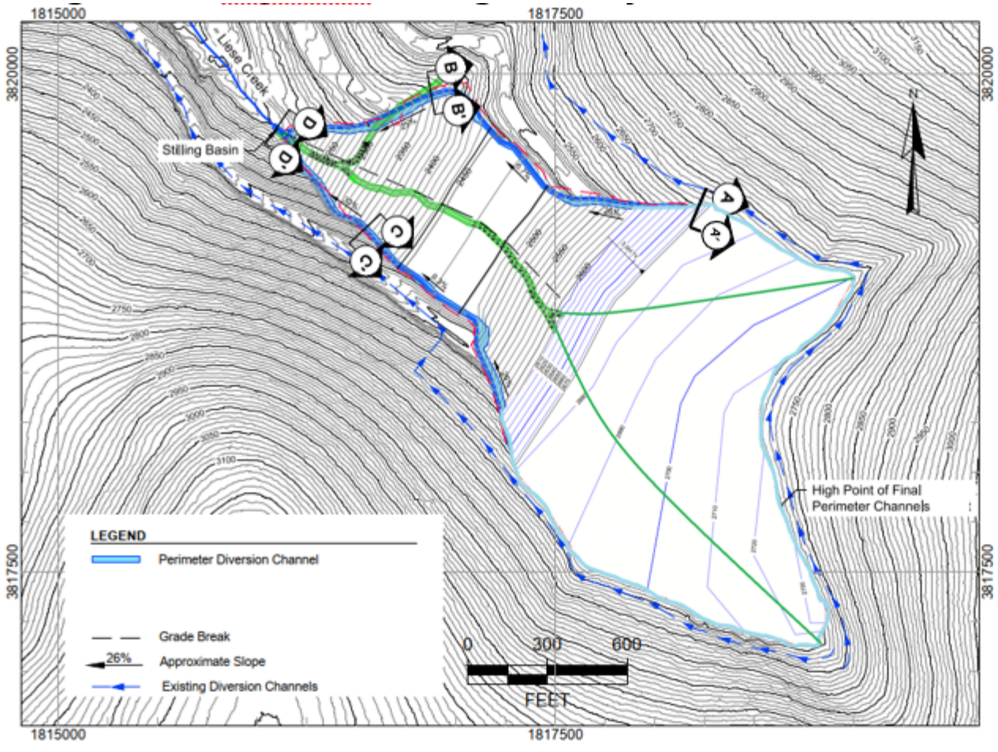

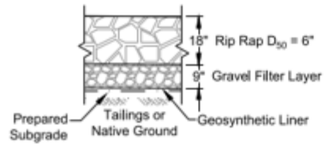

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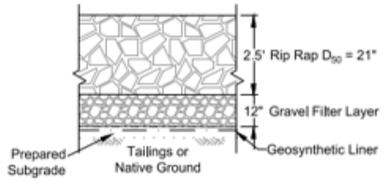

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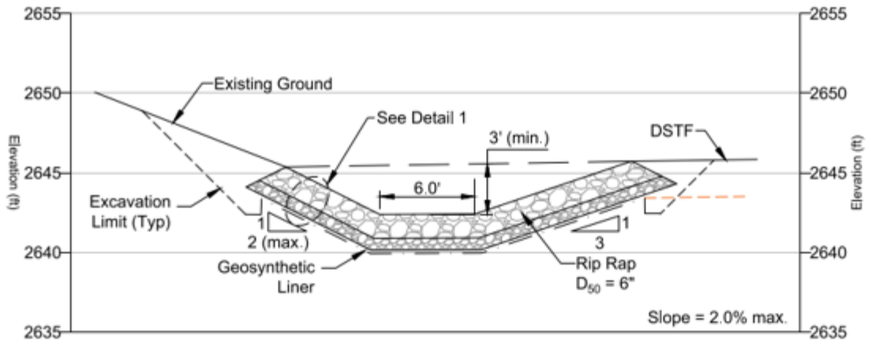

A **SECTION A**
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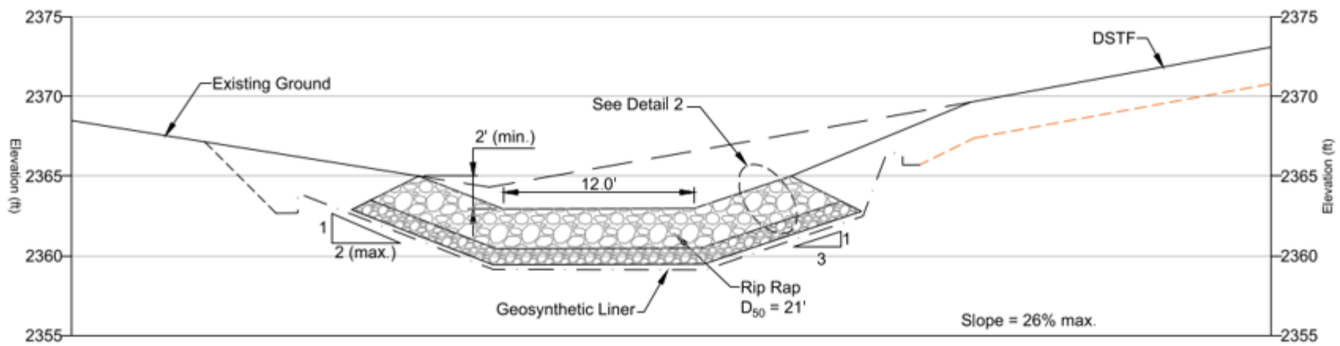

B **SECTION B**
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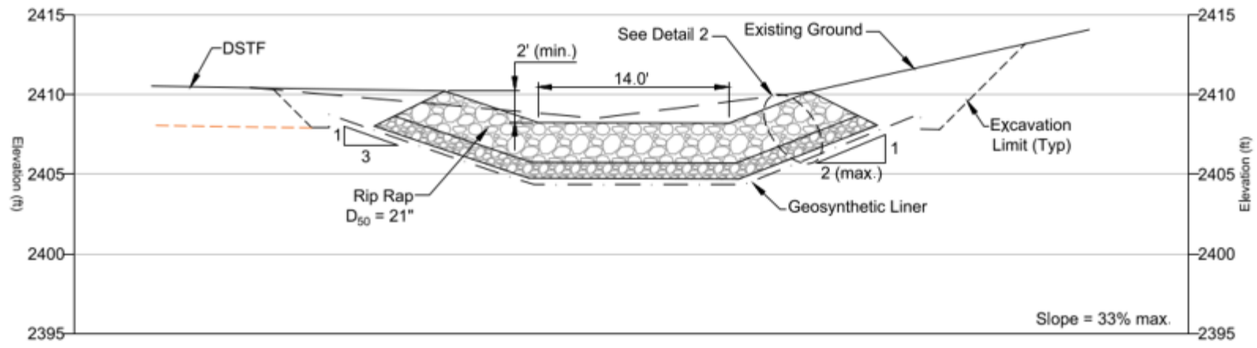

C **SECTION D**
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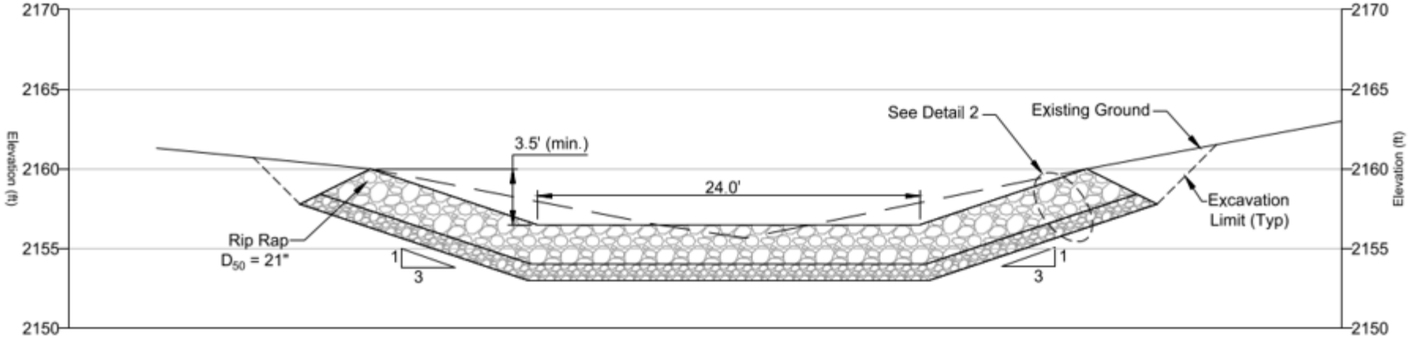


D **SECTION E - STILLING BASIN**
Scale 1" = 10ft

FIGURE 2

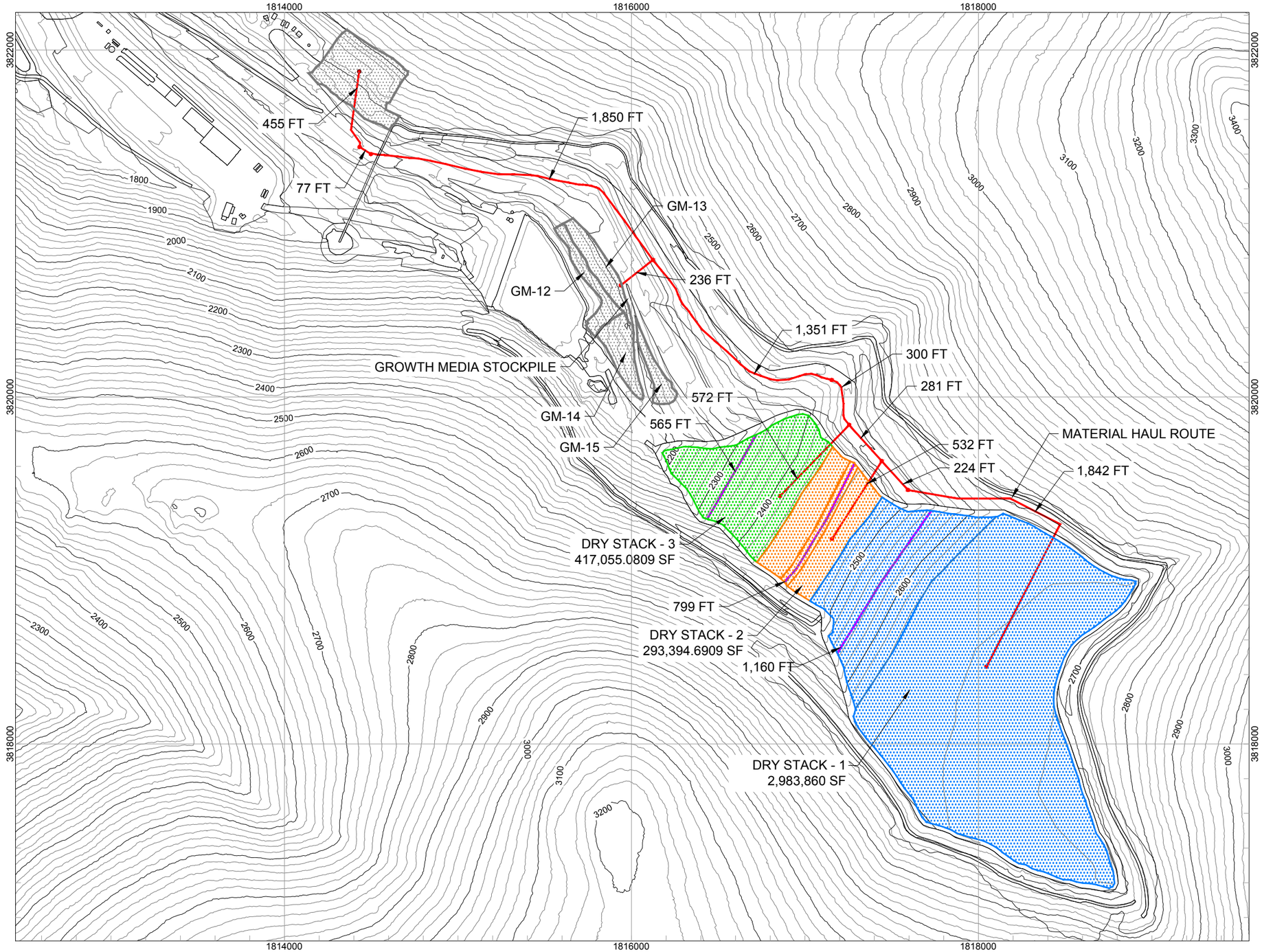
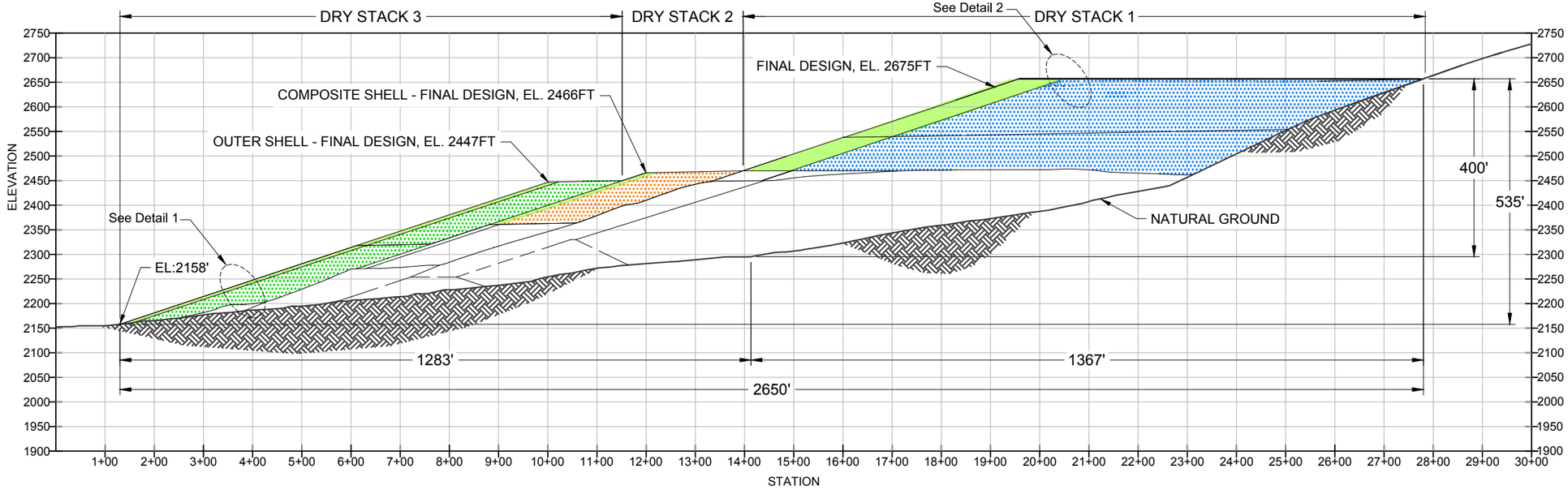
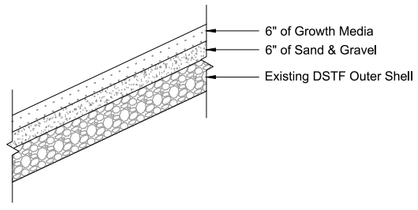

1814000
1816000
1818000
3822000
3820000
3818000
455 FT
77 FT
1,850 FT
GM-13
236 FT
GM-12
GROWTH MEDIA STOCKPILE
GM-14
GM-15
572 FT
565 FT
1,351 FT
300 FT
281 FT
532 FT
224 FT
MATERIAL HAUL ROUTE
1,842 FT
DRY STACK - 3
417,055.0809 SF
799 FT
DRY STACK - 2
293,394.6909 SF
1,160 FT
DRY STACK - 1
2,983,860 SF

FIGURE 3



DRY STACK 20MT PROFILE VIEW



1 COVER DETAIL 1
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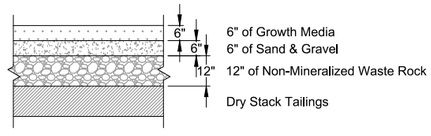

2 COVER DETAIL 2
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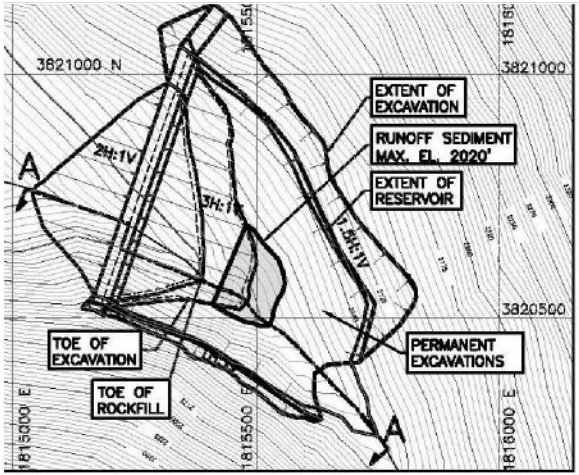
FIGURE 4



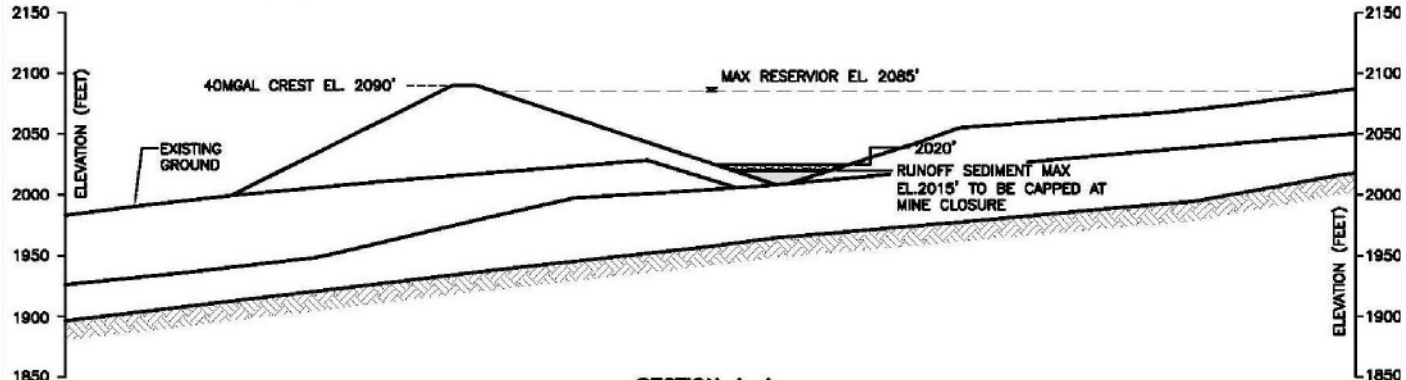
NOTES:

1. SEDIMENT COVER TO BE 3' OF RANDOM ROCKFILL OVERLAIN
2. RANDOM FILL TO BE COVERED WITH 2' OF 18" ROCKFILL.

GENERAL PLAN

0 100 200 300

SCALE (FEET)



SECTION A–A

0 50 100 150

SCALE (FEET)

NORTHERN STAR RESOURCES LIMITED

Figure 5
RTP Dam at Closure

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ID	Description	Length (ft)
1	1525 Portal Access Road #8	9,310
2	Access from Goodpaster Bridge to Construction Camp	322
3	Access Road #7	6,982
4	Access Road #6 from Goodpaster Bridge to Liese Bridge	7,303
5	Access Road #1	7,578
6	Access RTP to Dry Stack	9,332
7	Road Mill to RTP	4,957
8	RTP Access-1	1,434
9	RTP Access-2	384
10	RTP Access-3	175
11	ORTW-1	1,630
12	ORTW-2	1,175
13	ORTW-3	347
14	Access to GM-1 & MS-1	145
15	Access to MS-1 & MS-2	2,565
16	Diversion Channel Access Road	2,674
17	Dry Stack Diversion Channel Access-1	2,845
18	Dry Stack Diversion Channel Access-3	711
19	Dry Stack Diversion Channel Access-2	7,736
20	Dry Stack Diversion Channel Access-4	363
21	Outfall 002 Path	1,207

LEGEND

ROAD CL

ROAD

0 1,300 2,600

Feet

REFERENCES

1. MINE FACILITY DATASETS PROVIDED TO WSP BY NORTHERN STAR (POGO) LLC, JANUARY 27, 2023
2. COORDINATE SYSTEM: NAD83 STATE PLANE ALASKA ZONE 3, US FT.
3. AERIAL IMAGERY: ESRI, MAXAR, VIVID, VARIOUS DATES.

CLIENT
POGO MINE
NORTHERN STAR (POGO) LLC

CONSULTANT
wsp

YYYY-MM-DD	2023-06-30
DESIGNED	KJC
PREPARED	KJC
REVIEWED	-
APPROVED	-

PROJECT
RECLAMATION COST ESTIMATE

TITLE
ROADS LAYOUT

PROJECT NO.
31403899.000

FIGURE
6

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3,830,000 3,827,500 3,825,000 3,822,500 3,820,000 3,817,500 3,815,000 3,812,500

INDIAN CREEK
GOODPASTER RIVER
North Creek
Ringer Creek
Pogo Creek
Easy Creek
COODPASTER RIVER

GM-08
Borrow Site at Airstrip
Possible GM Pile - Exploration Core Stockpile
GM-07
GM-06
GM-05
Airstrip - Non-Organic Stockpile
GM-04
GM-03
Material Site A
GM-09
Material Site D
GM-11
GM-13
GM-12
GM-14
GM-15
Material Site B
GM-01

LEGEND

- GROWTH MEDIA STOCKPILES
- MATERIAL SITES

0 1,300 2,600
Feet

REFERENCES

1. MINE FACILITY DATASETS PROVIDED TO WSP BY NORTHERN STAR (POGO) LLC, JANUARY 27, 2023
2. COORDINATE SYSTEM: NAD83 STATE PLANE ALASKA ZONE 3, US FT.
3. AERIAL IMAGERY: ESRI, MAXAR, VIVID, VARIOUS DATES.

CLIENT
POGO MINE
NORTHERN STAR (POGO) LLC

CONSULTANT
wsp

YYYY-MM-DD	2023-09-25
DESIGNED	KJC
PREPARED	KJC
REVIEWED	-
APPROVED	-

PROJECT
RECLAMATION COST ESTIMATE

TITLE
MATERIAL SITES AND GROWTH MEDIA STOCKPILES LAYOUT

PROJECT NO.
31403899.000

FIGURE
7

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI D

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ID	Description	Length (ft)
P-01	Fire Water Pipeline	1,484
P-02	Freshwater Pipeline	11,980
P-03	Fuel Pipeline	167
P-04	GF Pipeline	377
P-05	Mine Water Pipeline	5,369
P-06	Paste Pipeline	2,494
P-07	Potable Water Pipeline	2,376
P-08	RTP Water Pipeline	4,554
P-09	SSWR Pipeline	16,313
P-10	Stormwater Pipeline	11,084
P-11	Treated Pipeline	15,396
P-12	Waste Water Pipeline	2,793
P-13	Water Well	665

LEGEND

- WELLS
- FIRE WATER PIPELINE
- FRESHWATER PIPELINE
- FUEL PIPELINE
- GF PIPELINE
- MINE WATER PIPELINE
- PASTE PIPELINE
- POTABLE WATER PIPELINE
- RTP WATER PIPELINE
- SSWR PIPELINE
- STORMWATER PIPELINE
- TREATED PIPELINE
- WASTE WATER PIPELINE
- WATER WELL

0 1,300 2,600
Feet

REFERENCES

1. MINE FACILITY DATASETS PROVIDED TO WSP BY NORTHERN STAR (POGO) LLC, JANUARY 27, 2023
2. COORDINATE SYSTEM: NAD83 STATE PLANE ALASKA ZONE 3, US FT.
3. AERIAL IMAGERY: ESRI, MAXAR, VIVID, VARIOUS DATES.

CLIENT
POGO MINE
NORTHERN STAR (POGO) LLC

CONSULTANT
wsp

YYYY-MM-DD	2023-06-30
DESIGNED	KJC
PREPARED	KJC
REVIEWED	-
APPROVED	-

PROJECT
RECLAMATION COST ESTIMATE

TITLE
WELLS AND PIPELINES LAYOUT

PROJECT NO.
31403899.000

FIGURE
8

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI D
0 1 in

PATH: M:\PogoMine\DryStackExpansion\PogoRCE_Fig09_22x34_YardsLayout.mxd PRINTED ON: 2023-09-25 AT: 10:40:40 AM

LEGEND

- YARD
- SUBSTATION FENCE
- 2022-23 DISTURBANCE AREAS

0 1,300 2,600

Feet

REFERENCES

1. MINE FACILITY DATASETS PROVIDED TO WSP BY NORTHERN STAR (POGO) LLC, JANUARY 27, 2023
2. COORDINATE SYSTEM: NAD83 STATE PLANE ALASKA ZONE 3, US FT.
3. AERIAL IMAGERY: ESRI, MAXAR, VIVID, VARIOUS DATES.

CLIENT
POGO MINE
NORTHERN STAR (POGO) LLC

CONSULTANT
wsp

YYYY-MM-DD	2023-09-25
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PREPARED	KJC
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APPROVED	-

PROJECT
RECLAMATION COST ESTIMATE

TITLE
YARDS LAYOUT

PROJECT NO.
31403899.000

FIGURE
9

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI D

0 1 in

PATH: M:\PogoMine\DryStackExpansion\PogoRCE_Fig10_22x34_SWDiversions&PondsLayout.mxd PRINTED ON: 2023-06-30 AT: 4:57:49 PM

ID	Description	Length (ft)
1	Old North Diversion Channel - Dry Stack Ditch 3	2,867
2	South Diversion Channel - Dry Stack South Ditch	2,605
3	North Diversion Channel - Dry Stack Ditch 4	5,771
4	Old South Diversion Channel - Dry Stack Ditch 5	2,488
5	Dry Stack Perimeter Channel	9,319
6	Lower Camp Diversion Ditch	485

LEGEND

- DIVERSION DITCH
- POND
- DIVERSION

0 1,300 2,600
Feet

REFERENCES

1. MINE FACILITY DATASETS PROVIDED TO WSP BY NORTHERN STAR (POGO) LLC, JANUARY 27, 2023
2. COORDINATE SYSTEM: NAD83 STATE PLANE ALASKA ZONE 3, US FT.
3. AERIAL IMAGERY: ESRI, MAXAR, VIVID, VARIOUS DATES.

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POGO MINE
NORTHERN STAR (POGO) LLC

CONSULTANT
wsp

YYYY-MM-DD	2023-06-30
DESIGNED	KJC
PREPARED	KJC
REVIEWED	-
APPROVED	-

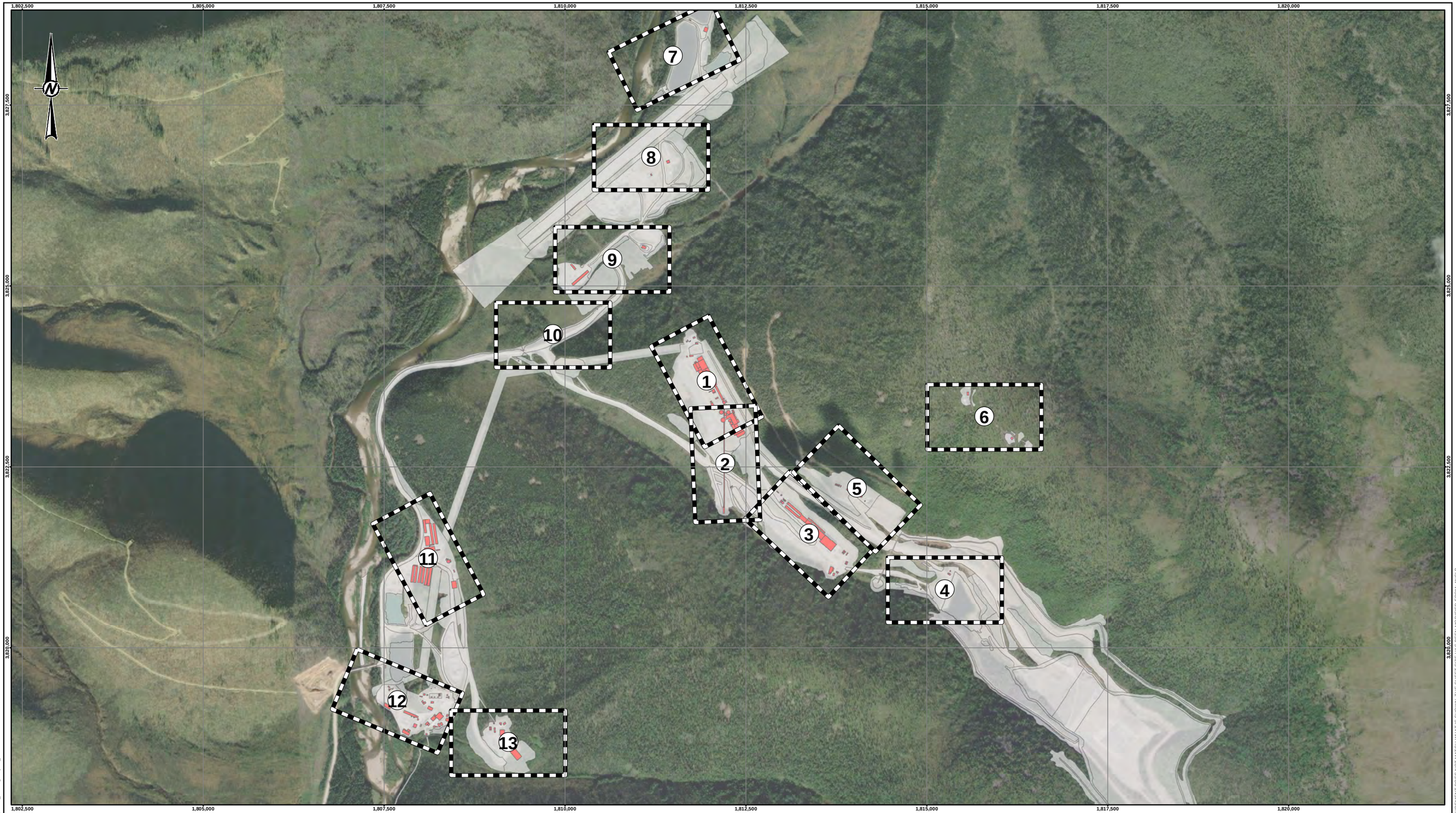
PROJECT
RECLAMATION COST ESTIMATE

TITLE
STORMWATER DIVERSIONS AMD SEDIMENT PONDS LAYOUT

PROJECT NO.
31403899.000

FIGURE
10

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI D
0 1 in



LEGEND

- EXTENTS OF SHEETS 1 THROUGH 13
- BUILDING
- FACILITY DISTURBANCE

0 1,250 2,500
Feet

REFERENCES

1. MINE FACILITY DATASETS PROVIDED TO WSP BY NORTHERN STAR (POGO) LLC, JANUARY 27, 2023
2. COORDINATE SYSTEM: NAD83 STATE PLANE ALASKA ZONE 3, US FT.
3. AERIAL IMAGERY: ESRI, MAXAR, VIVID, VARIOUS DATES.

CLIENT
POGO MINE
NORTHERN STAR (POGO) LLC

CONSULTANT
wsp

YYYY-MM-DD	2023-06-30
DESIGNED	KJC
PREPARED	KJC
REVIEWED	-
APPROVED	-

PROJECT
RECLAMATION COST ESTIMATE

TITLE
BUILDINGS LAYOUT
OVERVIEW MAP

PROJECT NO.
31403899.000

FIGURE
11

PATH: M:\Pogo\Mine\Dry Stack\Expansion\Pogo\RCE_Fig11_11x17_Buildings\Layout_Overview.mxd PRINTED ON: 2023-06-30 AT 5:02:41 PM

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B

25mm
0