

PEBBLE PROJECT

2020 Reclamation Report

MLUP No. 6118

PREPARED BY:
PEBBLE LIMITED PARTNERSHIP

DECEMBER 2020

CONTENTS

1.0	INTR	ODUCTION	1
	1.1	Location	1
	1.2	Reclamation Objectives and Requirements	1
	1.3	Work Summary	2
	1.4	Other Permits and Regulatory Requirements	3
2.0	PRO.	JECT DESCRIPTION	4
	2.1	Site Access	4
	2.2	Environmental Controls	4
	2.3	Material & Equipment Staging	5
	2.4	Field Staff and Logistics	6
3.0	FIEL	D ACTIVITIES	7
	3.1	Exploration Activity	7
	3.2	Surface Disturbance and Reclamation	7
	3.3	Closure Sites	7
	3.4	2020 Repair Sites	7
	3.5	Consumptive Water Use	7
	3.6	State Inspection.	8
	3.7	Internal Inspections.	8
	3.8	MLUP No. 6118 Special Stipulations	8
4.0	SIGN	IATURE	10
TΑ	BLES	5	
	Table	e 1. 2020 Reclamation Site Locations	3
	Table	2. 2020 Permits and Authorizations	3
	Table	e 3. 2020 Borehole Status Summary	8
	SURE	S Pebble Project Vicinity	
_		Pebble Claim Blocks	

Figure 3. 2020 Reclamation Locations

Figure 4. Pebble Project Field Installations

APPENDICES

Appendix A: Operations and Reclamation Photos Appendix B: Drill Site Inspection Categories

Appendix C: 2020 Borehole Inspection Status (electronic) Appendix D: AHEA Reclamation Spreadsheet (electronic)

1.0 INTRODUCTION

This report summarizes exploration drilling, reclamation and care and maintenance activities conducted during the 2020 field season at the Pebble Project, a mineral exploration and development project operated by the Pebble Limited Partnership (PLP). PLP is a U.S. company wholly owned by Northern Dynasty Minerals Ltd. of Vancouver, Canada, conducting exploration-related activities on state mineral claims leased to the Pebble East Claims Corporation and Pebble West Claims Corporation. These activities are authorized by Miscellaneous Land Use Permit (MLUP) No. 6118 issued by the Alaska Department of Natural Resources, Division of Mining, Land and Water (ADNR-MLW).

During 2020 PLP completed minor reclamation at two repair sites that could not be completed before the end of the 2019 field season. These sites (approximately 140 square feet in total) have been fully reclaimed in accordance with AS 27.19 and 11 AAC 97. In addition, touch-up reclamation was conducted at the 2019 drill site location to better contour excess soil and promote revegetation. No new ground disturbing activities were conducted in 2020.

In addition, PLP conducted minor repair and maintenance activities such as cap replacement and snow pole installations at existing monitoring wells and inspected 51 sites to ensure compliance with MLUP 6118 stipulations. Despite COVID-19 restrictions limiting field operating days to 16 in total (8/24/2020 to 9/9/2020), PLP completed all activities required under MLUP No. 6118.

1.1 LOCATION

The Pebble Project is located in the Lake and Peninsula Borough in southwest Alaska. The main deposit is centered approximately 200 miles SW of Anchorage, 60 miles W of Cook Inlet and 17 miles NW of Iliamna (Figure 1). The Pebble Project comprises 2,403 Alaska state mineral claims and contains one of the world's most significant undeveloped deposits of copper, gold, and molybdenum (Figure 2).

1.2 RECLAMATION OBJECTIVES AND REQUIREMENTS

Alaska statute (AS 27.19) and regulation (11 AAC 97) require mining operators to reclaim any disturbed land to a "stable condition", which means rehabilitation to a state that allows for the reestablishment of a vegetative cover within a reasonable period of time. MLUP No. 6118, Section 1 identifies reclamation requirements, including:

- Surface disturbance shall be held to a minimum, and will be reclaimed by backfilling, contouring, and spreading of organic rich overburden to promote stabilization and natural revegetation.
- The area reclaimed shall be reshaped and recontoured to blend with surrounding physiography using strippings and overburden, and then stabilized to a condition that shall retain sufficient moisture to allow for natural revegetation.
- Upon completion of drilling activities, drill pads shall be reclaimed as necessary, including reseeding, to encourage natural revegetation of the sites and protect them from erosion.

- All drill hole casings shall be removed or cut off at, or below, ground level unless otherwise specifically approved by the Division of Mining, Land & Water.
- All drill holes shall be plugged with bentonite hole plug, a benseal mud, or equivalent slurry, for a minimum of 10 feet within the top 20 feet of the drill hole in competent material. The remainder of the hole will be backfilled to the surface with drill cuttings.

MLUP No. 6118 also requires the filing of this reclamation report and Annual Reclamation Statement by December 31 of each year the permit is in effect.

MLUP No. 6118 also includes multiple special stipulations addressing:

- Action Requirements on Inspection Reports (Special Stipulation B)
- Annual Work Plan (D)
- Mineral Closing Order 393 (E)
- Bristol Bay Area Plan requirements (F)
- Wildlife Management (G-J)
- Drilling Waste and Cuttings Management (K)
- Annual Exploration/Reclamation Report (M)
- Water Use (N)

Activities for special stipulations B, D–K, and M–N are described in Section 3.8. Water use (N) is summarized in Section 3.5. The entirety of this report satisfies Special Stipulation M (Annual Report).

1.3 WORK SUMMARY

Work conducted during the 2020 field season included:

- Finalized reclamation of 2019 repair sites (9475 and GH08-156).
- Touch-up reclamation at nested boreholes drilled in 2019 (PW-19 and P-19 series).
- Routine maintenance (e.g., safety marker replacements, plug/cap maintenance, security controls).
- Continued monitoring of select sites to evaluate revegetation success and previous repairs.
- Routine inspection of 51 selected drill sites and field installations.

Finalized reclamation details for sites 9475 and GH08-156 are summarized on the Drill Sites tab in the attached AHEA Reclamation Spreadsheet (Appendix D) and shown on Figure 4. Inspections and site status are presented in Appendix C. Representative photographs are included in Appendix A.

Table 1. 2020 Reclamation Site Locations

Borehole ID	Initial Drill Date	ADL Claim No.	Lat NAD83	Long NAD83	Activity
9475	2009	540442	59.8937	-155.2985	Backfilled sumps, contoured surface and replaced stockpiled vegetation
GH08-156	2008	642443	59.9099	-155.4333	Backfilled sumps, contoured surface and replaced stockpiled vegetation

1.4 OTHER PERMITS AND REGULATORY REQUIREMENTS

In addition to MLUP No. 6118, PLP maintains Temporary Water Use Authorizations (TWUA) and Fish Habitat Permits to support exploration and repair work, as shown in Table 2. PLP did not conduct any activities governed by these permits in 2020.

Table 2. 2020 Permits and Authorizations

Permit/Authorization ID	Issuing Agency	Expiration	Purpose/Use
TWUA F2019-021	ADNR-Water	12/31/2023	Water withdrawal
TWUA F2019-022	ADNR-Water	12/31/2023	Water withdrawal
TWUA F2019-023	ADNR-Water	12/31/2023	Water withdrawal
TWUA F2019-082	ADNR-Water	12/31/2023	Water withdrawal (aquifer)
FH19-II-0056	ADFG	12/31/2023	Fish habitat/water withdrawal
FH19-II-0057	ADFG	12/31/2023	Fish habitat/water withdrawal
FH19-II-0058	ADFG	12/31/2023	Fish habitat/water withdrawal
FH19-II-0060	ADFG	12/31/2023	Fish habitat/water withdrawal
FH19-II-0062	ADFG	12/31/2023	Fish habitat/water withdrawal
FH19-II-0063	ADFG	12/31/2023	Fish habitat/water withdrawal

2.0 PROJECT DESCRIPTION

2.1 SITE ACCESS

Field operations are based out of PLP's office at the Iliamna Airport in Iliamna, AK. Access to all worksites within the Pebble deposit is by helicopter only. PLP does not use ground vehicles to access the deposit area or travel between worksites. As a result, the deposit area remains free of temporary roads and tracks.

2.2 ENVIRONMENTAL CONTROLS

2.2.1 Vegetation and Tundra Preservation

PLP's standard field work procedures require the use of wooden tundra pads and platforms for all heavy equipment and materials to minimize vegetation impacts. Individual worksites are also organized to have as small a footprint as possible, with mobilization and demobilization occurring within the shortest time frame to limit duration impacts. When a surface disturbance is necessary, groundcover, including vegetation, is removed and stockpiled for later use in reclaiming the site. Once the activity is complete, excavated areas are backfilled and re-covered with reserved tundra. Disturbed areas are also revegetated with native seed or an approved seed mixture as appropriate.

2.2.2 Fuel Management and Spill Prevention

PLP uses double-walled, welded aluminum fly tanks to transport and store all fuel for field operations. Tanks are filled at PLP's Iliamna location to no more than 80 percent of the total capacity. (Most tanks used have a total capacity of 110 gallons, meaning each will contain no more than 88 gallons.) Each tank is visually inspected for leaks or spills prior to transport by helicopter. A separate, double walled 500-gallon storage tank is maintained with fuel at the MSD during the active field season. All residual fuel was drained prior to winterizing field operations.

All active fuel tanks are placed in welded aluminum containments sized to hold 110 percent of the tank's maximum capacity. Containments are placed on level ground at least 100 feet from any surface water.

Each tank location is stocked with a spill containment and cleanup kit. All field staff have been trained in the proper response and reporting protocols as part of PLP's SPCC Plan. PLP also maintains a contract with Alaska Chadux Corporation to provide 24-hour spill response, if necessary. After each worksite is demobilized, the area is inspected to ensure no leaks or spills occurred.

2.2.3 Erosion and Sediment Control

Certified weed-free straw was used in conjunction with re-seeding efforts at multiple locations to minimize wind and water erosion and promote more thorough vegetation growth.

2.3 MATERIAL & EQUIPMENT STAGING

2.3.1 Main Supply Depot

The Main Supply Depot (MSD) was initially constructed in 2004 and serves as the primary storage and staging area for field operations. The site occupies approximately 2.5 acres of a gravel bluff in the West Deposit area (SE1/4 SE1/4 of Sec 21, T3S R35W and the NE1/4 NE1/4 of Sec 28, T3S, R35W) (ADL Nos. 516811 and 516874).

Multiple temporary wood frame buildings (including West Bay 4 building) and platform tents provide sheltered storage for machinery, drilling equipment, environmental supplies, and variety of small parts and tools. Small quantities of drilling fluids, motor oils, and antifreeze are stored in sealed, original packaging inside weather-proof shelters. All temporary structures are constructed on elevated platforms or placed on tundra pads. Other items such as drill rods, lumber, tundra pads, outhouses, fuel containments, rig supports, are stored within the MSD yard on racks or elevated platforms.

The MSD was used as the primary staging area for 2020 field activities. At the end of the season, all fuel was removed from the site.

2.3.2 Fuel Storage

Jet A fuel is used for all large mechanized field equipment (pumps, generators, drill rigs). Multiple aluminum fly tanks were transported to and stored at the MSD by helicopter to support 2020 field operations in accordance with PLP's fuel management policies (Section 2.2.2). The maximum volume of fuel stored at the MSD during 2020 was approximately 500 gallons. Smaller volumes of fuel were transported to individual work sites as necessary and stored appropriately (aluminum containments, spill kits). All aluminum fly tanks were removed to Iliamna at the end of the 2020 field season. No fuel or other petroleum product spills were identified or reported during the 2020 field season.

2.3.3 Watershed

The Watershed site is located approximately 0.75 miles east of the MSD in the SW1/4 SE1/4 of Sec 22, T3S, R35W (ADL No. 524712). The site consists of three temporary buildings constructed on elevated platforms: one Quonset-style building with a corrugated metal roof (14' x 16') that serves as a light machine shop, and two wood frame buildings (9' x 38'; 10' x 16') used to store hoses, miscellaneous hand tools and field supplies. A small generator shed is attached to the Quonset hut. One 110-gallon fuel tank (empty) is kept in an aluminum containment next to the shed.

PLP continues to use the Watershed site as a storage location for field equipment and light machine shop during all months of the year.

2.3.4 West Bay 1 and 3

Each West Bay location consists of two temporary wooden structures (an 8' x 12' emergency shelter and a smaller generator shack). These structures are used to provide shelter for monitoring crews during data collection. West Bay 1 is located in the SW1/4 SW1/4 of Sec 23, T3S, R35W

(ADL No. 524714). West Bay 3 is located in the NE1/4 SW1/4 of Sec 33, T3S, R36W (ADL No. 642412). PLP continues to use both West Bay locations to store field equipment.

Note: The facility previously identified as West Bay 4 remains in place, but due to its location within the footprint of the MSD it is not inventoried as a separate field site.

2.3.5 Meteorological and Communications

The Pebble 1 meteorological station is located in the SW1/4 NE1/4 of Sec 20, T3S, R35W (ADL No. 524829). The small site consists of a temporary fiberglass structure (approximately 8 x 8 ft) and associated equipment.

The Koktuli Mountain radio repeater is located in the NE1/4 SW1/4 of Sec 36, T3S, R35W (ADL No. 646608). The small site consists of a temporary metal structure (approximately 8 x 8 ft) and associated equipment.

PLP continues to use the Pebble 1 met station to collect basic meteorological data, while the Koktuli Mountain repeater remains the primary means of communication with helicopters and field crews.

A small, secondary data repeater was placed on South Koktuli Mountain to provide a more consistent link to the Iliamna base station. This small repeater consists of a transmitter and battery pack and is located in the SW 1/4 NW 1/4 of Section 12, T4S, R35W (ADL No. 567941).

2.3.6 Acid Rock Drainage Test Location

The ARD site is located in the SE 1/4 SE 1/4 of Section 22, T3S, R35W (ADL No. 524713). It was set up to evaluate real time weathering and acid generation potential in area rock. The site consists of 12 large plastic barrels filled half way with rock fragments. Barrels are racked on wood tundra pads.

When testing is not active, each barrel is covered with a 40-mil HDPE tarp to prevent water intrusion. Aluminum plates (3/8-inch or 1/4-inch thick) are also placed on top of each barrel and secured with straps to guard against wind and wildlife damage. Drainage tubes are also sealed to prevent leakage.

During the 2020 field season, the ARD test site was inactive. The site has been secured as described above for the 2020/2021 winter. Testing is scheduled to resume in spring 2021.

2.4 FIELD STAFF AND LOGISTICS

All work crews are based out of Iliamna and ferried to the work site by helicopter each day work is being performed. All waste is removed from the field and properly disposed in Iliamna.

3.0 FIELD ACTIVITIES

3.1 EXPLORATION ACTIVITY

PLP did not conduct any new exploration activity during the 2020 field season.

3.2 SURFACE DISTURBANCE AND RECLAMATION

PLP did not create any new surface disturbances during the 2020 field season. Approximately 0.003 acres, or 140 square feet, was reclaimed at 9475 and GH08-156, completing all remaining reclamation leftover from the 2019 season. Detailed reclamation (grouting, structure removal, etc.) for these sites is described in the 2019 Annual Report.

Final reclamation activity was conducted on the following claims:

ADL 516873: 130 square feetADL 642443: 10 square feet

Stockpiled soil was spread across the area and contoured to approximate the site topography and minimize the potential for erosion. Salvaged vegetation was replaced on top of disturbed areas to further stabilize the ground surface.

Disturbed and reclaimed area totals for 9475 and GH08-156 are summarized on the Sump Pits tab in the attached AHEA Reclamation Spreadsheet (Appendix D).

Similar touch-up reclamation work was performed at nested boreholes drilled in 2019 (PW-19 and P-19 series). These boreholes were fully reclaimed in 2019 but remain active for potential use during future hydrogeological testing. Sumps were recontoured to promote better surface drainage and minimize erosion potential.

These sites will be inspected in the 2021 field season to evaluate reclamation success and the need for any enhancements.

Photos of reclaimed sites are included in Appendix A.

3.3 CLOSURE SITES

No sites were closed or abandoned during the 2020 field season.

3.4 2020 REPAIR SITES

No borehole activities were conducted during the 2020 field season, nor were any sites identified as needing repair during inspections.

3.5 Consumptive Water Use

PLP did not conduct any activities requiring consumptive water use during the 2020 field season.

3.6 STATE INSPECTION

Due to COVID19 restrictions in place in Iliamna and Newhalen, state staff were unable to conduct a field inspection during the 2020 field season. An inspection is planned for 2021.

3.7 INTERNAL INSPECTIONS

PLP conducts routine inspections of project drill sites during each field season to ensure compliance with all permit and regulatory requirements. Information is summarized and provided to DNR, including current status, repair or maintenance needs, presence of above ground structures, reclamation status, safety markings, and abandonment method, if applicable.

PLP assigns an alpha-numeric code to each drill site following inspection to more easily characterize each location and plan future maintenance and inspection needs. Numerals (1-3) describe the borehole operating status (e.g., active or potential use for monitoring or future drilling) while letters (A-E) describe the surface condition, including reclamation status and maintenance needs, if any. A detailed explanation of each code is provided in Appendix B.

During the 2020 field season, PLP inspected 51 individual borehole locations, four of which required minor maintenance. The status of all project boreholes is provided in Appendix C.

As shown in Table 3, all sites are in stable condition and require no further action (D and E) beyond follow-up monitoring. None of the project drill sites require major repairs (A) or otherwise pose a notable risk of causing adverse impact.

Surface Condition В C D Ε Α Stable/ Stable/ Major Maintenance Stable/ Total [a] Monitored Repairs Minor Repairs or Follow-up No Action Active 0 0 0 29 633 662 Borehole Status Inactive 0 0 0 0 0 0 3 Closed 0 0 0 9 709 718 Total 0 0 0 38 1342 1380

Table 3. 2020 Borehole Status Summary

3.8 MLUP No. 6118 SPECIAL STIPULATIONS

3.8.1 B—Action Items on Inspection Reports

See Section 3.6.

[[]a] Includes drill sites within the active claim boundary only.

3.8.2 D—Annual Work Plan

PLP requested and received extensions to submit the 2020 work plan to ADNR to accommodate COVID-19 planning. The final 2020 work plan was submitted by email on May 29, 2020.

3.8.3 E—Mineral Closing Order 393

PLP did not conduct any activity in 2020 within the boundaries of MCO 393.

3.8.4 F—Talarik Creek Vegetative Buffer

PLP did not conduct any activity in 2020 within 150 feet of the ordinary high water mark of Upper Talarik Creek.

3.8.5 G—Caribou Calving Areas

PLP routinely avoids wildlife when present near work sites. No caribou were observed near any work site. All 2020 work was conducted after the typical calving period for caribou in the vicinity. PLP coordinated with ADFG staff prior to commencing seasonal work as required.

3.8.6 H—Moose Calving, Rutting, and Overwintering Areas

PLP routinely avoids wildlife when present near work sites. No moose were observed near any 2020 work site. PLP coordinated with ADFG staff prior to commencing seasonal work as required.

3.8.7 I—Bear Denning

PLP does not conduct field activities within one-half mile of any known bear dens. PLP requested known bear den locations from ADFG as required, but none were provided. No bear dens were identified during the 2020 field season.

3.8.8 J—Waterfowl Molting Area

PLP did not conduct any 2020 field activities near waterfowl molting areas. Prior to the start of seasonal work, PLP coordinated with ADFG staff to minimize the potential for any impacts. No activity was conducted in BBAP Subunit 10-03.

3.8.9 K—Drilling Waste and Cuttings Management

PLP did not conduct any activity that generated cuttings or used dripping muds during 2020.

3.8.10 N-Water Use

See Section 3.5.

4.0 SIGNATURE

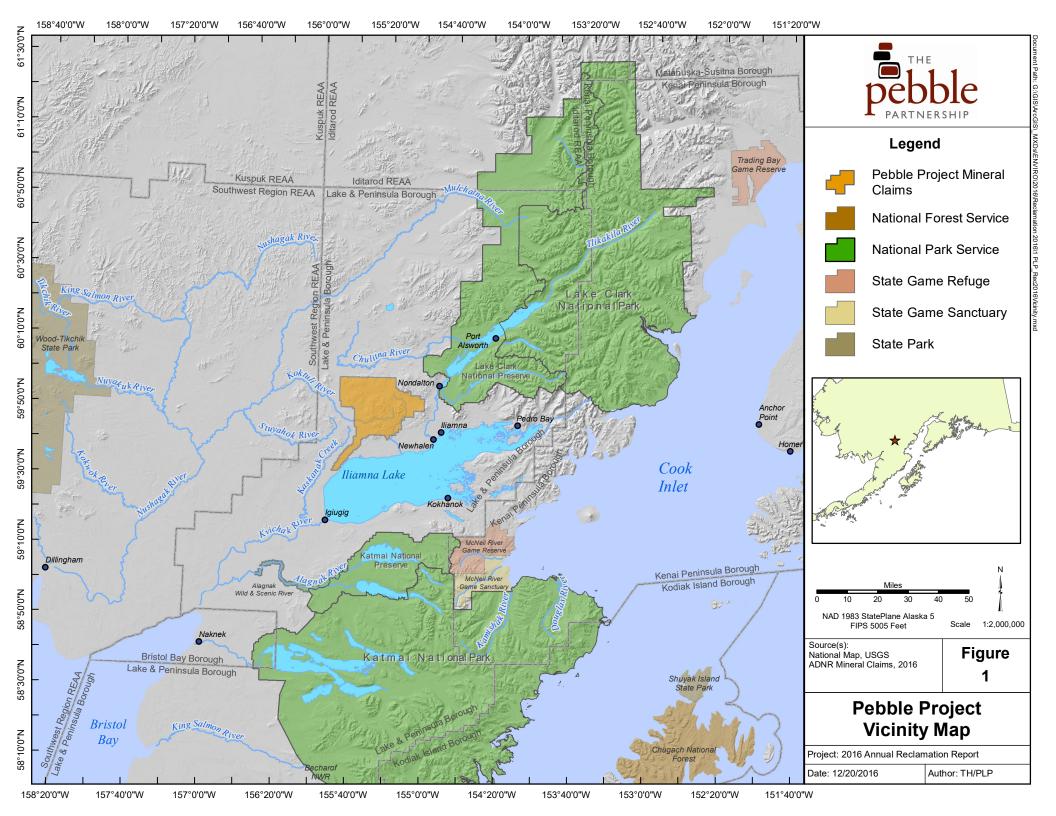
This report, prepared by Tim Havey, PLP Director, Environment and Permitting, is dated December 23, 2020 and satisfies the annual reporting requirements of MLUP No. 6118.

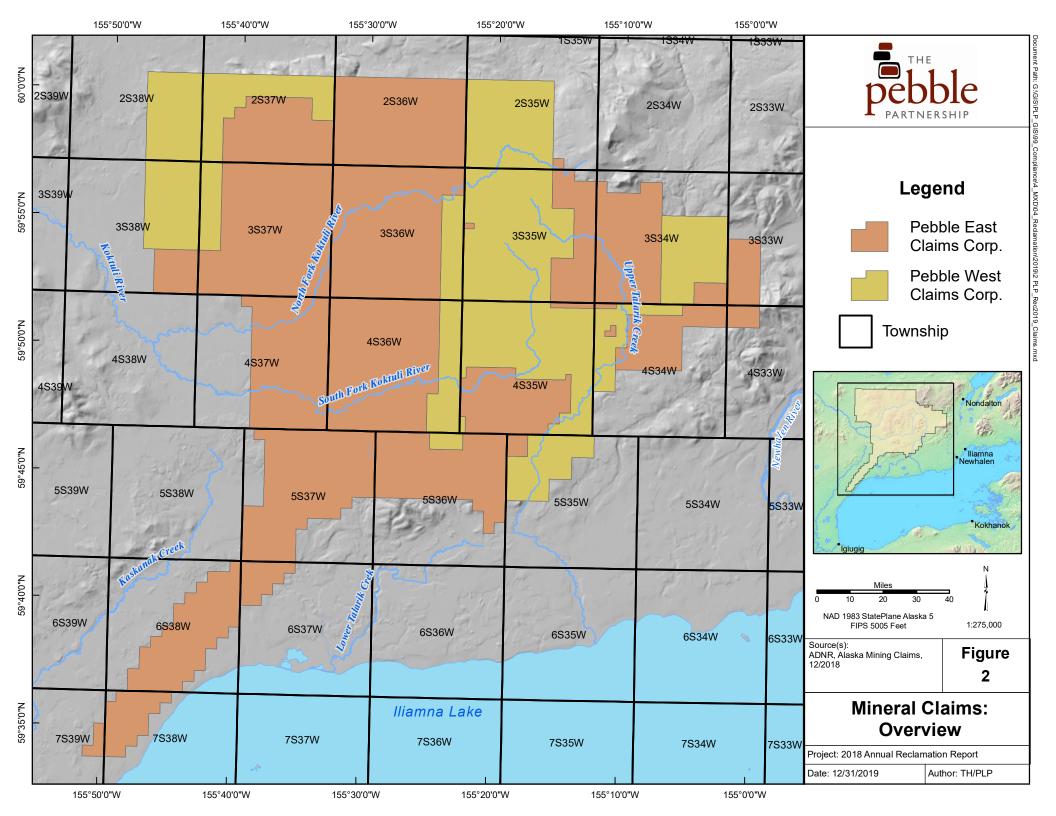
Signed,

PARTNERSHIP

Tim Havey

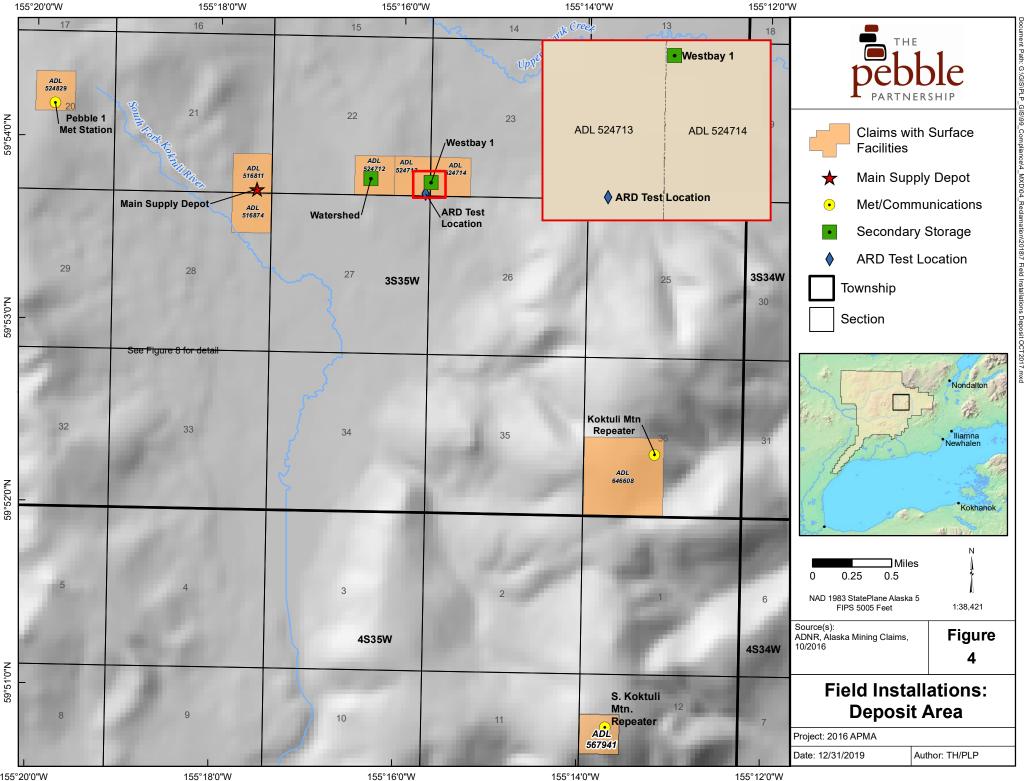
Director, Environment and Permitting, PLP





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S003S036W15	S003S036W14 GH08-156	S003S036W13	S003S035W18	S003S035W17	S003S035W16	\$003\$035W15 9475 \$003\$035W14	
S003S036W22 -	S003S036W23	S003S036W24	S003S035W19	S003S035W20	S003S035W21	S003S035W23 S003S035W22 Main Supply Depot	Fish Village Nondalton Fish Village
S003S036W27	S003S036W26	S003S036W25	S003S035W30	S003S035W29	S003S035W28	S003S035W26	Miles 0 0.3 0.6 0.9 1.2 1.5 Scale 1:35,573 NAD 1983 StatePlane Alaska 5 FIPS 5005
S003S036W34	S003S036W35	S003S036W36	S003S035W31	S003S035W32	S003S035W33	S003S035W35 S003S035W34	Figure: 3 2020 Reclamation Sites
						F F	File: 2020ReclamationSites Date: 12/23/2020



APPENDIX A

Representative Photographs

Appendix A—Operations Photos

1. 2019 Drill Sites & Sump Areas

Date: 9/9/2020

P-19-90/1/2/3, PW-19-11/12 and sump areas following final reclamation.



2. Borehole 9475 & Sump Area

Date: 8/24/2020

Area following final reclamation.



3. Borehole GH08-156

Site not photographed due to staff error.

Photos will be taken at the start of the 2021 field season and submitted to DNR.

APPENDIX B Inspection Categories

Table B-1. Borehole Status Codes

Code	Category	Description
1	Active	Primary designation for active monitoring wells (groundwater quality, geotechnical, etc.). Also used for some former exploration boreholes that are maintained as possible water sources. Active sites do not have material plugs (grout, cement, bentonite) but may be fitted with mechanical plugs or caps.
2	Inactive	Category no longer in use.
3	Closed	Site is fully decommissioned. Borehole has been plugged as appropriate. All surface structures removed, with possible exception of wood post indicating location and borehole ID.

Table B-2. Reclamation/Maintenance Condition Codes

Code	Category	Description
A	Major Repairs	Site condition presents an identified environmental compliance or health & safety concern, or is at risk of progressing if not addressed as soon as possible. Significant repairs necessary, typically requiring advanced planning, technical staff and additional equipment. Coordination and approval from DNR or other agency may be required. Examples: upwelling of discolored or voluminous water; discharge to surface water.
В	Minor repairs	Site condition requires repairs or rehabilitation, but is stable and not at risk of deteriorating further. Work does not require technical staff but generally cannot be completed during routine maintenance trips or by one person. Advance approval from DNR or other agency is usually not required unless circumstances dictate. All repair activities summarized in annual report. Examples: Margo plug replacement/installation; large area rehabilitation or revegetation efforts; grout
С	Routine Maintenance or Additional Investigation	injection. Maintenance requirements are small or insignificant and generally the result of normal operation or exposure to elements. Repairs can be completed by staff during routine inspections and do not require specialized equipment or advance planning. Also used to identify sites where condition cannot be confirmed, thus requiring additional inspection or involvement of higher level staff. Examples: application of sealant around cap; water valve replacement; ponded surface water with unconfirmed source.
D	Stable/ Monitored	Site condition is stable and has been fully reclaimed, but with past maintenance issues or known to have higher maintenance needs. All structural equipment, if any, is in good condition. Routine monitoring is generally more frequent than Category E sites. Examples: artesian sites; sites with recent, major repairs.
E	Stable/ No Action	Site condition is stable and has been fully reclaimed. All structural equipment, if any, is in good condition. No known issues. No history of upwellings, leaks, or staining. Located in an area unlikely to cause concern (e.g., wetlands, artesian zone). Inspection frequency is lower than Category D sites.

APPENDIX C Borehole Status (electronic file)

APPENDIX D AHEA Reclamation Spreadsheet (electronic file)