Montana Resources

CONTINENTAL MINE RECLAMATION PLAN

Montana Resources, LLC
600 Shields Ave
Butte, Montana
USA 59701

March 2023

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Table of Contents

TABLES

FIGURES

APPENDICES

EXHIBITS

LIST OF ACRONYMS AND ABBREVIATIONS

ABA	Acid Base Account
ACM	Anaconda Copper Mining Company
AGP	Acid Generation Potential
ANP	Acid Neutralization Potential
AR	Atlantic Richfield Company
ARM	Administrative Rules of Montana
BPSOU	Butte Priority Soils Operable Unit
BMFOU	Butte Mine Flooding Operable Unit
BMPs	Best Management Practices
BSB	Butte-Silver Bow
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CZABA	Central Zone Alluvium Borrow Area
DEQ	Montana Department of Environmental Quality
EOM	End of Mine
EOR	Engineer of Record
EPA	U.S. Environmental Protection Agency
GMMIA	Granite Mountain Memorial Interpretive Area
GPS	Global Positioning System
HsB	Horseshoe Bend
HsB RDS	Horseshoe Bend Rock Disposal Site
HsBWTP	Horseshoe Bend Water Treatment Plant
IRP	Independent Review Panel
LCY	Loose Cubic Yards
MCA	Montana Code Annotated
MMRA	Metal Mine Reclamation Act
MPDES	Montana Pollutant Discharge Elimination System
MR	Montana Resources, LLC
NNP	Net Neutralization Potential
NPL	National Priorities List
PLS	Pure Live Seed
RAAR	Remedial Action Adequacy Review
RDS	Rock Disposal Site
ROD	Record of Decision
SD	Settling Defendants
SMP	Shoemaker-Mclean-Pratt buffer
TDS	Total Dissolved Solids
THQ	Target Hazard Quotient
TMI	Total Metal Index
ULR	Uncorrected Lime Rate
USACE	U.S. Army Corps of Engineers
WED	West Embankment Drain
YDTI	Yankee Doodle Tailings Impoundment

1.0 INTRODUCTION

1.1 PURPOSE

The Montana Department of Environmental Quality (DEQ) has determined that Montana Resources (MR) has met reclamation requirements of the Montana Metal Mine Reclamation Act (Title 82, Chapter 4, Part 3, Montana Code Annotated (MCA)) and Rules and Regulations Governing the Montana Hard Rock Mining Reclamation Act (Administrative Rules of Montana (ARM) 17.24.101 *et seq*.) by issuing permits, revisions, and amendments for operation and reclamation of the Continental Mine. This Reclamation Plan or "Plan" combines and updates reclamation procedures contained in four previously existing permits (00030, 00030A, 00041, and 00108), now combined into a single permit (Permit 00030). In lieu of replacement pages, this Reclamation Plan constitutes a revision incorporating changes to reclamation procedures based on permit modifications to date and relevant supplemental information to support previous commitments.

This Reclamation Plan incorporates amendments including raising the West Embankment of the Yankee Doodle Tailings Impoundment (YDTI) to a crest elevation of 6450 feet (Amendment 003 for permit area 00030 and Amendment 10 for permit area 00030A), mining in the Continental Pit through 2040 per the "D" East Extension (Minor Amendment 004 for permit area 00041), and constructing the Horseshoe Bend (HsB) Rock Disposal Site (RDS) (Minor Amendment 011 to permit area 00030).

The Plan also incorporates minor revisions approved in 2020-2022, including:

- Minor Revision 20-001: 17-acre permit boundary adjustment to include the Horseshoe Bend Capture System booster pump station and associated infrastructure (pipeline, access roads, powerline) as part of the as part of the Superfund remedy (approved by DEQ August 26, 2020).
- Minor Revision 20-002: Disturbance boundary adjustment to construct the YDTI return water barge access road at the north end of the YDTI to a higher elevation (approved by DEQ August 26, 2020).
- Minor Revision 21-001: Permit boundary adjustment to withdraw the area associated with the Berkeley Pit Visitor Center and Viewing Stand (approved by DEQ May 26, 2021).
- Minor Revision 21-002: Permit consolidation of Operating Permits 00030, 00030A, 00041, and 00108 into a single permit (00030) to facilitate management of the four formerly contiguous units and retention of the June 13th due date for annual progress report submission and fee payment (approved by DEQ in June 2021).
- Minor Revision 21-003: Allows for the continued delivery and handling of Parrot Tailings mine waste and associated water from dewatering activities (approved by DEQ in June 2021).
- Minor Revision 21-004: Resolution to Stipulation 001 to Minor Revision 07-001 by providing justification for not benching the Hillcrest RDS after the fact, and submitting an Erosion Control Plan for the East RDS Complex (approved by DEQ November 19, 2021).

- Minor Revision 22-001: Allows for the relocation of MR's Precipitation Plant to a site approximately 0.5 miles to the south-southeast of the previous location to facilitate copper recovery from Horseshoe Bend Area seeps and Berkeley Pit water (approved by DEQ October 5, 2022).
- Minor Revision 22-002: "D" East disturbance boundary adjustment to authorize additional disturbance and overburden removal to the east of the current "D" East highwall to mitigate potential highwall instability (approved by DEQ October 26, 2022).

These revisions are reflected on Exhibit RP-1.

Revisions to reclamation procedures or supplemental information to support previous commitments include:

- Post-closure drainage is revised to reflect current proposed post-closure topography (Section 3.2 and Exhibit RP-2) and the Horseshoe Bend drainage system design;
- Central Zone reclamation material has been more intensively sampled and characterized (Section 4.2.1);
- Coversoil (alluvium, leached cap, topsoil) balance mine-wide is revised to reflect the updated Central Zone analysis and clarification of coversoil redistribution depths (Sections 4.3 and 4.4);
- Modifications are proposed to organic matter application rates assumed by DEQ for bond calculation (Section 5.2);
- Results of 2021 and 2022 reclamation monitoring have been taken into consideration for seed mixture formulation (Section 6.1);
- Slope bench spacing would be based on site conditions rather than a set distance (Section 7.0); and
- Following cessation of operations, water collected by the West Embankment Drain (WED) will be managed as part of Butte Mine Flooding Operable Unit (BMFOU) based on resolution of a stipulation to Amendment 10 requiring concurrence amongst parties to the BMFOU Consent Decree.

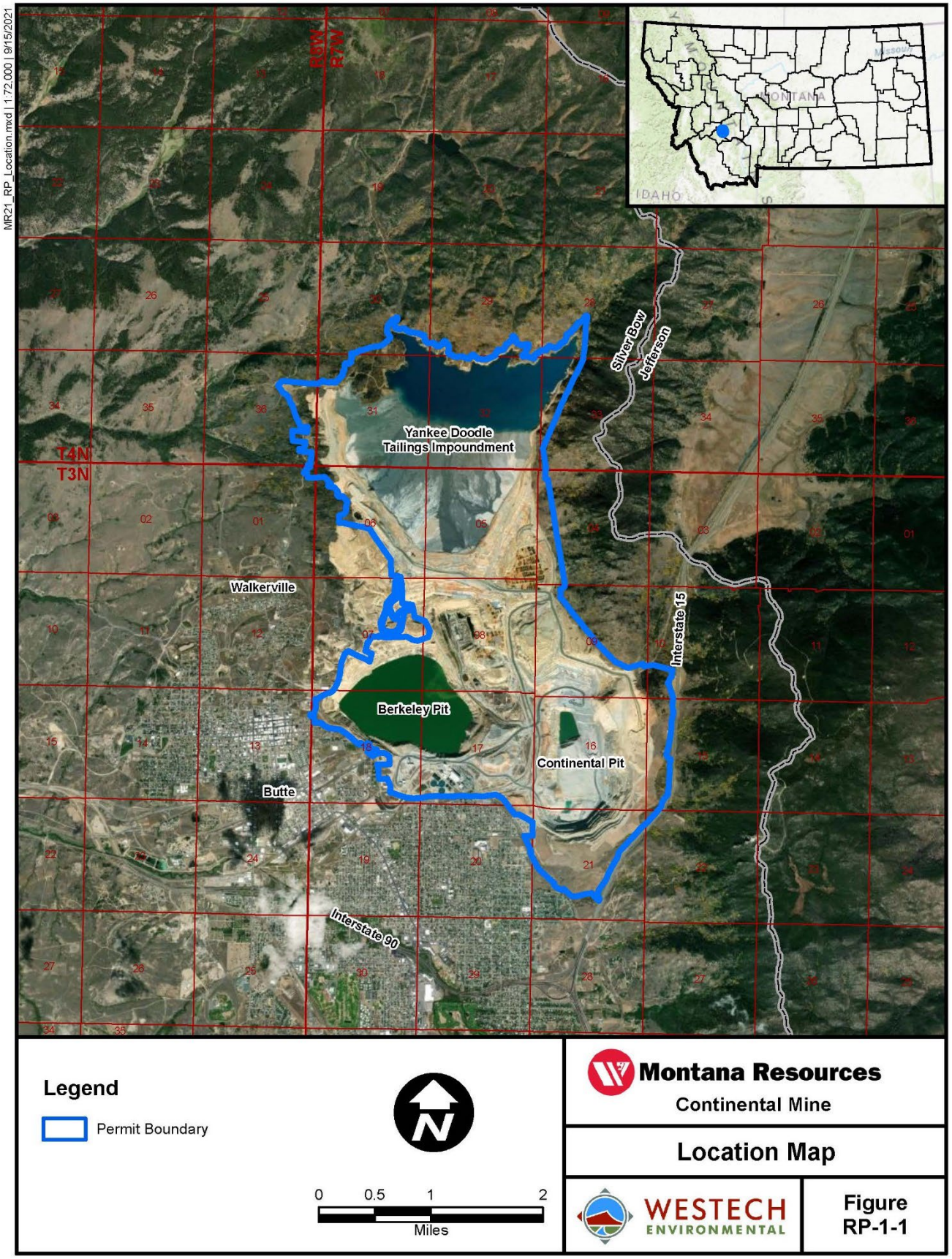
This Reclamation Plan is designed to include procedures to avoid foreseeable situations of public nuisance, endangerment of public safety, damage to human life or property, or unnecessary damage to flora and fauna in or adjacent to the area.

1.2 LOCATION

Figure RP-1-1 shows the location and consolidated permit boundary of the Continental Mine. Facilities are identified on Exhibit RP-1.

1.3 MODIFICATIONS

In the absence of emergency or suddenly threatening or existing catastrophe, MR will not depart from this reclamation plan, as approved, without previously obtaining written approval from DEQ for the proposed change (MCA 82-4-336(4)).


MR21_RP_Location.mxd | 1:72,000 | 9/15/2021
R6W
R7W
T4N
T3N
MONTANA
IDAHO
Silver Bow
Jefferson
Yankee Doodle
Tailings Impoundment
Walkerville
Interstate 15
Berkeley Pit
Continental Pit
Butte
Interstate 90
Legend
Permit Boundary
N
0 0.5 1 2
Miles
Montana Resources
Continental Mine
Location Map
WESTECH
ENVIRONMENTAL
Figure
RP-1-1

1.4 OTHER AGENCIES INVOLVED IN RECLAMATION AT THE CONTINENTAL MINE

The Mining Bureau of the Air, Energy and Mining Division of the DEQ has primacy in regulating reclamation at the Continental Mine pursuant to the Montana Metal Mine Reclamation Act (MMRA) and implementing regulations. Other agencies, discussed below, also have regulatory or advisory roles involving reclamation.

1.4.1 DEQ Water Quality Division, Water Protection Bureau

DEQ's Water Protection Bureau regulates discharge from point and non-point sources pursuant to the Montana Water Quality Act (Title 75, Chapter 5, MCA).

MR anticipates developing, implementing, and maintaining a Stormwater Pollution Prevention Plan (SWPPP) in early 2023 for stormwater coverage under the Multi-Sector General Permit (MSGP) for stormwater discharges associated with industrial activity such as mining.

1.4.2 DEQ Air, Energy and Mining Division, Air Quality Bureau

DEQ's Air Quality Bureau regulates air quality pursuant to Montana's Clean Air Act (75-2-101 *et seq*., MCA) and companion regulations. MR operates pursuant to Air Quality Permit #1749-14, including following procedures set forth in its "Dust Control Plan for Yankee Doodle Tailings Impoundment" (MR 2022). Dust control during operations is addressed in Section 12.0 and Appendix OP-B of MR's Operations Plan. Post-closure dust control on the YDTI is addressed in Section 10.6 of this reclamation plan.

1.4.3 U.S. Army Corps of Engineers (USACE)

The USACE issued a jurisdictional determination on August 27, 2018 (Corps No. NWO-2011-02509-MTM) finding potential waters of the U.S. at the mine to be isolated, non-jurisdictional waters that do not require authorizations from USACE for discharges of dredge or fill material.

1.4.4 U.S. Environmental Protection Agency (EPA)

In 1983, the EPA listed Silver Bow Creek as a Superfund Site on the National Priorities List (NPL) pursuant to the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA). In 1987, historic and active mine areas in the vicinity of Butte were added to the Superfund Site and the name changed to Silver Bow Creek/Butte Area. The Silver Bow Creek/Butte Area Superfund Site is separated into several operable units one of which is the BMFOU that includes MR's overall mine permit area. As a result of the Superfund designation, mine site water is addressed under the jurisdiction of the EPA pursuant to the Consent Decree and related documents.

In 2001, the EPA and DEQ Remediation Division issued a "Decision Document Regarding Deferral by EPA to State Authority for the Butte Active Mining Area Operable Unit, Silver Bow Creek/Butte Area (Butte Portion) NPL Site" (EPA 2001). As a result of the Decision Document, EPA deferred use of CERCLA authority of the Butte Active Mine Area Operable Unit (BAMAOU) conditional upon MR meeting state regulatory requirements and posting of an adequate reclamation bond. Even if these conditions were met, EPA reserved the right to exercise CERCLA authority should the reclamation plan contained in the permits not be implemented by MR and/or enforced by the State, or bonding be inadequate to cover the cost of reclamation required by the permits.

In 2002, the EPA and DEQ Remediation Division issued an "Explanation of Significant Differences" for the BMFOU (EPA 2002) which modified the 1994 Record of Decision (ROD) (EPA 1994). Pertinent elements of the Explanation of Significant Differences affecting reclamation are:

- the upgradient bypass of streams entering the YDTI was modified to accommodate potential wet closure;
- authority for management and reclamation of the sludge repository was transferred from the DEQ mine permit to EPA;
- authority for YDTI dam stability monitoring was transferred to the State Mine Permit process;
- treatment of Continental Pit water would occur in the Horseshoe Bend Water Treatment Plant (HsBWTP);
- allowance for HsBWTP sludges to be placed in the Berkeley Pit without offsetting water withdrawals; and
- modification of the 1994 ROD requirement for reevaluation of treatment technology when the water level in the pit reaches the 5260-foot level.

In November 2019 MR and Atlantic Richfield Company (AR) submitted a report entitled "Draft BMFOU Remedial Action Adequacy Review" (RAAR) to the EPA and DEQ Remediation Division (MR 2019). The RAAR was submitted as a condition of the Consent Decree to assess the adequacy of the HsBWTP and its associated facilities to treat and manage the combined flows of the Berkeley Pit, Horseshoe Bend area, and Continental Pit. The RAAR was completed more than 4 years before the projected date at which water elevations in the Berkeley Pit/East Camp are predicted to reach the 5,410-foot elevation critical water level, also known as the protective water level.

The RAAR addresses conditions during mine operations, the draindown period following mine operations, and the mine closed (steady state) period. Implementation of certain components of the RAAR could affect reclamation of the YDTI, leach pads, and Continental Pit; they are addressed in subsequent sections.

On September 12, 2022, EPA in conjunction with DEQ Remediation Division, agreed that upon closure of the YDTI, the WED water should be managed as part of the BMFOU remedy.

1.5 PREPARERS

- Montana Resources, LLC (MR) – Mark Thompson, Jeremy Fleege, Mike Harvie
- WESTECH Environmental Services, Inc. (WESTECH) – Dean Culwell, Lisa Larsen, Dan Culwell, Corey Baker, John Beaver, Lacey Gunther, Patricia Corry
- Knight Piésold (KP) – Roanna Dalton
- Hydrometrics, Inc. – Bob Anderson
- Applied Geological Services, LLC – Steve Czehura
- Schafer Limited, LLC – Bill Schafer

1.6 REGULATORY COMPLIANCE

This Reclamation Plan has been designed to meet the requirements of the Montana MMRA (MCA 82-4-301 *et seq.*) and the Rules and Regulations governing the Act (ARM 17.24.101 *et seq.*). Compliance with regulatory requirements is cross-referenced with components of this Plan in Table RP-1-1.

Table RP-1-1 MR Continental Mine Reclamation Plan Compliance Cross-Reference

SECTION			RULES (ARM) / ACT (MCA) CITATION
1.0	**INTRODUCTION**		
	1.1	PURPOSE	MCA 82-4-303(28)(d); 82-4-336(1) and (10) ARM 17.24.102(13)(g)
	1.2	LOCATION	
	1.3	MODIFICATIONS	MCA 82-4-336(4)
	1.4	OTHER AGENCIES INVOLVED IN RECLAMATION	MCA 75-2-101 *et seq.* 75-5-101 *et seq.*
	1.4.1	DEQ Water Quality Division, Water Protection Bureau	
	1.4.2	DEQ Air, Energy & Mining Division, Air Quality Bureau	
	1.4.3	U.S. Army Corps of Engineers	N/A
	1.4.4	U.S. Environmental Protection Agency	
	1.5	PREPARERS AND ACKNOWLEDGEMENTS	
	1.6	REGULATORY COMPLIANCE	MCA 82-4-337(1)(a)
2.0	**LAND USE**		MCA 82-4-303(28)(a); 82-4-304; 82-4-336(8), (9)(a), and (10) ARM 17.24.115(1)(a)(i-iii), (c), and (m)
	2.1	PRE-PERMIT LAND USE	
	2.2	ADJACENT LAND USE	
	2.3	PERMITTED LAND USE	
	2.3.1	Watershed Protection	
	2.3.2	Wildlife Habitat	
	2.3.3	Ancillary Land Uses	
	2.4	CONSISTENCY WITH BSB GROWTH POLICY AND ZONING	N/A
3.0	**POST-CLOSURE TOPOGRAPHY and DRAINAGE**		
	3.1	POST-CLOSURE FINAL GRADING AND TOPOGRAPHY	MCA 82-4-303(28)(b); 82-4-336(6) ARM 17.24.102(13)(d); 17.24.115(1)(b)
	3.2	POST-CLOSURE DRAINAGE	MCA 82-4-303(28)(f); 82-4-336(5), (7), and (12) ARM 17.24.115(1)(d), (e), (f), and (k)(iv); 17.24.116(3)(g)
	3.2.1	Drainage Controls	
4.0	**MATERIAL CHARACTERIZATION**		
	4.1	MINE WASTE CHARACTERISTICS	ARM 17.24.115(1)(i)
	4.1.1	Non-Ore Rock	
	4.1.2	Tailings	MCA 82-4-376(2)(o)
	4.2	COVERSOIL CHARACTERISTICS	
	4.2.1	Alluvium	
	4.2.2	Leached Cap	

Table RP-1-1 MR Continental Mine Reclamation Plan Compliance Cross-Reference

SECTION				RULES (ARM) / ACT (MCA) CITATION
		4.2.3	Topsoil	ARM 17.24.115(1)(a)(iii) and (b); 17.24.116(3)(b)
			4.2.3.1 Existing Disturbances	
			4.2.3.2 Proposed Disturbances	
			4.2.3.3 Stockpile Storage and Protection	ARM 17.24.116(3)(b)
		4.2.4	Preliminary Reclamation Coversoil Monitoring Results	N/A
	4.3	COVERSOIL BALANCE		MCA 82-4-336(8) and (9)(a) ARM 17.24.102(13)(d)
	4.4	COVERSOIL DEPTHS		ARM 17.24.102(13(d)
	4.5	DECOMPACTION		ARM 17.24.107(8)
5.0	**AMENDMENTS**			MCA 82-4-303(28)(c); 82-4-336(8)
	5.1	LIME		
	5.2	ORGANIC MATTER		
	5.3	FERTILIZER		
6.0	**REVEGETATION**			MCA 82-4-303(28)(c); 82-4-336(8) and (9)(a) ARM 17.24.102(13)(d); 17.24.115(1)(c),(k)(ii and iii), (l)
	6.1	SPECIES SELECTION AND SEED MIXTURES		
	6.2	SEEDBED PREPARATION		
	6.3	SEEDING SCHEDULE AND METHODS		
	6.4	PLANTING		
	6.5	INTERIM VEGETATION		
7.0	**EROSION AND SEDIMENT CONTROL**			MCA 82-4-336(2) ARM 17.24.115(1)(f)
	7.1	SOIL STABILIZATION		
	7.2	MAINTENANCE AND REPAIRS		
8.0	**RECLAMATION BY MINE COMPONENT**			
	8.1	YANKEE DOODLE TAILINGS IMPOUNDMENT		MCA 82-4-379 ARM 17.24.102(13(b); 17.24.115(1)(e), (h), (i)
		8.1.1	Embankment Slopes and Crest	
		8.1.2	Beach	
		8.1.3	Post-Closure Pond and Transition Zone	
		8.1.4	Closure Spillway	
		8.1.5	West Embankment Drain and Pond	
	8.2	ROCK DISPOSAL SITES		ARM 17.24.102(13)(b)
	8.3	PITS		MCA 82-4-303(28)(d); 82-4-336(7)(a)-(e); 82-4-336(9)(a)(b)(i) and (iv), and (c)
		8.3.1	Berkeley Pit	
		8.3.2	Continental Pit	
		8.3.3	Central Zone Alluvium Borrow Area	
	8.4	LEACH PADS		ARM 17.24.102(13)(b)
	8.5	SUPPORT FACILITIES		ARM 17.24.115(1)(m); 17.50.509
		8.5.1	MMRA Facilities	MCA 82-4-303(28)(e) ARM 17.24.102(13)(e); 17.24.115(1)(i)
		8.5.2	Exempt Facilities	MCA 82-4-304; 82-4-336(9)(a)
	8.6	SOIL STOCKPILE AREA RECLAMATION		ARM 17.24.107(8)
	8.7	ALLUVIUM AND LEACHED CAP STOCKPILE AREA RECLAMATION		MCA 82-4-336(9)(a)
	8.8	MINE AND ACCESS ROADS		
	8.9	LONG-TERM MONITORING SITES		MCA 82-4-332(4); 82-4-336(9)(a) ARM 17.24.104 - 17.24.107
		8.9.1	Monitoring Wells and Drillholes	ARM 17.24.105(11); 17.24.106; 17.24.107(4)

Table RP-1-1 MR Continental Mine Reclamation Plan Compliance Cross-Reference

SECTION			RULES (ARM) / ACT (MCA) CITATION
8.9.2	Trenches and Test Pits		ARM 17.24.107(5)
8.9.3	Monitoring Access Roads		ARM 17.24.104; 17.24.107(3)
8.10	BMFOU INFRASTRUCTURE		MCA 82-4-336(10)
9.0	**RECLAMATION SCHEDULE**		MCA 82-4-303(28)(i); 82-4-336(2) and (3) ARM 17.24.115(1)(l)
10.0	**MANAGEMENT AND MONITORING**		ARM 17.24.115(1)(g) and (n)
10.1	PERMANENT EROSION AND SEDIMENT CONTROL		MCA 82-4-336(12) and (13) ARM 17.24.115(1)(n)
10.2	YDTI FACILITIES		
10.2.1	Quantitative Performance Parameters		MCA 82-4-376
10.2.2	Monitoring Frequency		MCA 82-4-379
10.2.3	Inspections and Reviews		MCA 82-4-336(13); 82-4-378
	10.2.3.1	Engineer of Record	MCA 82-4-375
	10.2.3.2	Independent Review Panel	MCA 82-4-377; 82-4-380; 82-4-336(13)
10.2.4	Post-Closure WED Management		MCA 82-4-381
10.2.5	Post-Closure Beach and Pond Management and Monitoring		MCA 82-4-379
10.3	COVERSOIL TESTING		MCA 82-4-379 ARM 17.24.115(1)(n)
10.4	REVEGETATION MONITORING AND MANAGEMENT		ARM 17.24.115(1)(n); 17.24.116(3)(u)
10.4.1	First Growing Season Monitoring		
10.4.2	Subsequent Growing Season Monitoring		
10.4.3	Revegetation Management		
10.5	WATER RESOURCES MONITORING		ARM 17.24.115(1)(d), (e), (f), and (n)
10.6	DUST CONTROL		MCA 75-2-204; 75-2-211; ARM 17.8.740; 17.24.115(1)(h); 17.24.116(c)
10.7	WEED MANAGEMENT		MCA 7-22-2101 *et seq*; 82-4-336(8) ARM 17.24.116(3)(u)
11.0	**PERFORMANCE BOND**		MCA 82-4-338(3)(a) ARM 17.24.141(2)
12.0	**REFERENCES**		N/A
LIST OF APPENDICES			
Appendix A	Weed Management Plan		MCA 82-4-336(8) ARM 17.24.116(3)(u)
Appendix B	Cross-Sections of Rock Disposal Sites		ARM 17.24.115(1)(b)
Appendix C	Continental Mine Reclamation Specifications by Disturbance Type		MCA 82-4-336 ARM 17.24.115
LIST OF EXHIBITS			MCA 82-4-303(28)(h)
Exhibit RP-1	Continental Mine Facilities		ARM 17.24.116(3)(e) and (h)
Exhibit RP-2	Post-Closure Topography		ARM 17.24.115(1)(b) and (k)

2.0 LAND USE

Historical and current land uses are addressed here per MCA 82-4-336(9)(a) and ARM 17.24.115(1)(a) to establish that reclamation of disturbed land be of comparable utility and stability as that of adjacent areas.

2.1 PRE-PERMIT LAND USE

Approximately 60 percent of the overall permit area was disturbed or mostly disturbed prior to issuance of the original permit (00030) in January 1973. Figure RP-2-1 shows pre-permit disturbance on an aerial photo base as of November 1972. The majority of pre-permit disturbance involved mining activities from both underground and surface operations and included the Berkeley Pit, YDTI, other miscellaneous water/tailings impoundments, rock disposal sites ("dumps"), leach pads, precipitation plant, concentrator, mine yards, related infrastructure, and exploration sites and roads. The residential and commercial areas of the communities of McQueen and Meaderville also became part of the permit area. Other disturbed pre-permit land uses included railroads, other utility corridors, and the Columbia Gardens amusement park.

Pre-permit land use of undisturbed or relatively undisturbed areas within the overall permit area was proposed mining or associated mining activity since almost all of the overall permit area is patented or unpatented mining claims. Ancillary uses included open space, wildlife habitat, geological and hydrological investigations and monitoring, and utility corridors (power and water lines). Areas proximal to the mine were generally closed to public recreational use based on safety considerations.

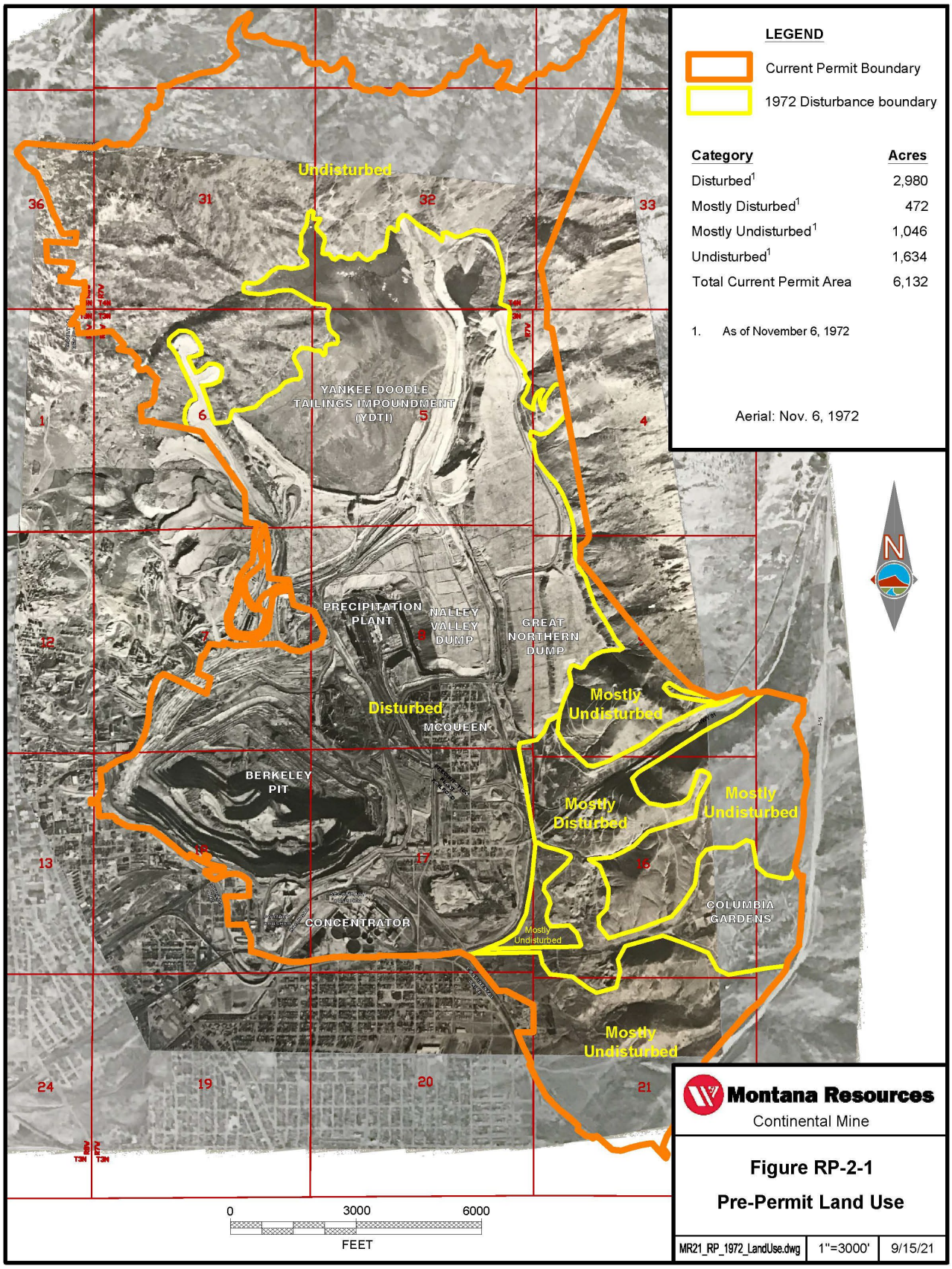
2.2 ADJACENT LAND USE

Adjacent land uses include the commercial and residential areas of Butte, Centerville, and Walkerville, mostly to the south and west of the permit area. Areas peripheral to the east, north, and northwest are mainly open space used primarily by wildlife with some rural residential use.

Other adjacent uses include transportation (Interstate 15, Shields Avenue/Continental Drive, Moulton Reservoir Road, and BNSF railroad), powerline and waterline corridors, superfund site remediation, educational and governmental facilities, and on public land, recreation. Butte-Silver Bow (BSB) land uses are presented in BSB's Comprehensive Plan (BSB 2020), discussed in Section 2.4.

2.3 PERMITTED LAND USE

Permitted land uses were originally mining and industrial, reflecting that the majority of these areas were disturbed prior to permit issuance. Post-closure land uses of less disturbed areas were watershed protection and small mammal and bird habitat. The 1998 Reclamation Plan (MR 1998) proposed watershed protection, wildlife habitat, visual resource mitigation, historic preservation, and industrial land uses. The 6450 Amendment identified watershed protection and wildlife habitat for the YDTI and other areas covered by the Amendment.


LEGEND
Current Permit Boundary
1972 Disturbance boundary
Category | Acres
Disturbed[1] 2,980
Mostly Disturbed[1] 472
Mostly Undisturbed[1] 1,046
Undisturbed[1] 1,634
Total Current Permit Area 6,132
1. As of November 6, 1972
Aerial: Nov. 6, 1972
Undisturbed
YANKEE DOODLE TAILINGS IMPOUNDMENT (YDTI)
PRECIPITATION PLANT
NALLEY VALLEY DUMP
GREAT NORTHERN DUMP
MCQUEEN
Disturbed
Mostly Undisturbed
Mostly Disturbed
Mostly Undisturbed
BERKELEY PIT
CONCENTRATOR
COLUMBIA GARDENS
Mostly Undisturbed
Mostly Undisturbed
N
0 3000 6000
FEET
Montana Resources
Continental Mine
Figure RP-2-1
Pre-Permit Land Use
MR21_RP_1972_LandUse.dwg
1"=3000'
9/15/21

Section 3.2 addresses managing water quality, quantity, and movement; Sections 6.0-10.0 address establishing vegetation; preventing erosion/sedimentation; and conducting monitoring in the post-closure period to demonstrate MR's ability to provide and sustain the stated land uses.

Currently permitted primary post-closure land uses are discussed in more detail below.

2.3.1 Watershed Protection

Watershed protection includes the following objectives:

- through BMFOU remediation activities, protect water quality by preventing contaminated water from leaving the area;
- minimize post-closure erosion;
- create a closed system that intercepts seepage from tailings along the West Embankment, collecting it in an extraction pond and pumping it to the YDTI pond during operations. Post-closure WED water would be managed as part of the BMFOU remedy;
- allow surface flows from upstream drainages in the watershed to enter the pond (subject to BMFOU requirements). EPA retains a requirement for upgradient bypass to the extent that wet closure is not implemented. Any excess water not necessary for the wet closure would be addressed under the BMFOU;
- minimize depressions in the reclaimed surface where stagnant water could accumulate;
- reduce flows over steeper fill slopes by backsloping benches and rock disposal site tops, where necessary;
- construct a closure spillway to provide for post-closure water management; and
- utilize Clearwater Ditch to collect drainage from miscellaneous reclaimed areas for bypass of, and conveyance to, the concentrator area and discharge to Silver Bow Creek or the Dredge Pond, depending on post-closure water quality.

2.3.2 Wildlife Habitat

2.3.2.1 Yankee Doodle Tailings Impoundment

Following closure, open water at the northeast end of the YDTI would be expected to continue to provide habitat for wildlife (e.g. waterfowl, shorebirds, beaver and other species), similar to pre-closure use. Coniferous forest, deciduous forest, sagebrush/grassland, grassland, willow/alder and wet meadow habitats adjacent to the eastern side of the impoundment on Rampart Mountain, and in the Silver Bow Creek, Dixie Creek and Yankee Doodle Creek drainages north of the impoundment, would be expected to continue to support wildlife species that could use reclaimed habitat for cover, foraging, nesting, and other purposes. Grasses would be seeded on the embankment slopes and crest and the impoundment beach following coversoil application (Table RP-6-1). MR intends to evaluate post-closure site conditions (slope, aspect, and configuration) and noxious weed presence and density to determine where, or if forbs, shrubs, or trees (Table RP-6-2 and Table RP-6-3) may be seeded or planted to create diverse wildlife habitat. Undisturbed grassland patches adjacent to the impoundment are comparatively small and intermixed with sagebrush and aspen habitats; consequently, reclaimed areas may provide larger, more

contiguous blocks of grassland than are presently available. In turn, these areas may attract grassland species, particularly birds, which have not been previously observed in adjacent areas.

2.3.2.2 Continental Pit and Central Zone Alluvium Borrow Area

The Continental Pit and Central Zone Alluvium Borrow Area (CZABA) highwalls could create potential nesting sites for birds that typically nest in cliff habitat, including species that could construct stick nests on the rock face or use ledges, fractures/fissures and cavities in the rock. Bats may also roost in fractures/fissures in the highwall face. The Continental Pit highwall may be near the upper elevational nesting/roosting limits of some bird and bat species, and its elevation and proximity to Butte, I-15/I-90 and other comparatively constant, intense human activity may limit its attractiveness to some species or individuals.

The highwall created in the CZABA associated with removal of a small portion of the Pittsmont RDS would be graded during reclamation to 2.7H:1V or less, and wildlife habitat can be expected to be similar to other RDSs.

2.3.2.3 Berkeley Pit

The Berkeley Pit is managed under EPA Superfund, including a Waterfowl Protection Plan to minimize (insofar as is practicable) the contact of waterfowl with waters of the Berkeley Pit.

2.3.2.4 Other Disturbances

Other mine components including rock disposal sites, leach pads, support facilities, stockpile sites, roads, and long-term monitoring sites will be reclaimed as described in Sections 8.2 and 8.4 through 8.9 and seeded with grasses as described in Section 6.0. These sites will provide grass habitat similar to the reclaimed YDTI and are expected to see similar wildlife use. Pending MR analysis, forbs, shrubs and trees may be seeded or planted in suitable locations for habitat diversity.

2.3.3 Ancillary Land Uses

The overall permit area is within the BMFOU boundary and subject to any land management conditions (remedial measures) of the Consent Decree. The primary post-closure permitted land uses are watershed protection and wildlife habitat, essentially open space. Other post-closure land uses include:

- Visual resources: Although a component of open space, visual mitigation is a reclamation goal with concurrent reclamation of the YDTI West Embankment slope along Moulton Road (Section 8.1.1) and reclamation of the east and south slopes of the east rock disposal site (RDS) complex (Section 0), both of which are visible from public vantage points.
- Industrial areas: The concentrator and primary crusher were constructed prior to enactment of the Hard Rock Act and thus are considered Exempt Facilities (MCA 82-4-304). Components of these facilities may be retained for potential future industrial use as described in Section 8.5.2.
- Historical preservation: A portion of the permit area is within the Granite Mountain Memorial Interpretive Area (GMMIA) and will have a post-closure use consistent with GMMIA objectives of preserving the historic mining landscape.
- BMFOU facilities: Facilities associated with remedial actions will remain following mine closure.

2.4 CONSISTENCY WITH BSB COMPREHENSIVE PLAN AND ZONING

2.4.1 Growth Policy

In 2020, Butte-Silver Bow (BSB) adopted a new Comprehensive Plan (BSB 2020), an update to the previous 2008 BSB Growth Policy (BSB 2008). The Comprehensive Plan provides a set of goals, objectives, and action strategies that address land use and growth trends in Silver Bow County. Objectives address land use, cultural resources, housing, economic opportunity, local services and infrastructure, and natural resources. Most of the objectives for natural and cultural resources are regulated by other agencies through their statutes and regulatory programs. MR has addressed noxious weed management by developing a weed management plan that has been approved by BSB (Appendix RP-A). Policies for housing, local services, and infrastructure are not relevant to the mine. The mine is consistent with BSB's goal for economic development to "attract and retain a high quality workforce" (page 191) and "expand opportunities for industry to allow a broad mix of uses and intensities" (page 193).

As part of land use and development potential, BSB prepared a map of existing land uses. Active mine areas are designated as "industrial" and considered an "economic driver" placetype. Areas peripheral to the mine are mapped as:

- mining lands, vacant, open space, and transportation (I-15) east of the mine;
- commercial and residential south of the mine;
- commercial, residential, mining lands, open space, and vacant west of the mine; and
- open space, mining lands, agricultural, vacant, and residential north of the mine.

The Comprehensive Plan "is meant to serve as a guide for future development decisions" and "is not a code, but rather a highly articulated guide to the formulation of appropriate policies, codes and development regulations required to achieve Butte-Silver Bow's planning vision" (page 95).

2.4.2 Zoning

Mining operations permitted by the State are not regulated by BSB's zoning ordinance at Title 17 (Code of Ordinances, BSB 17.36.060).

3.0 POST-CLOSURE TOPOGRAPHY AND DRAINAGE

3.1 POST-CLOSURE FINAL GRADING AND TOPOGRAPHY

Post-closure final grading and topography would be of comparable utility and stability as that of adjacent areas, with the exception of open pits and rock faces (MCA 82-4-336(9)(a)). Exhibit RP-2 presents proposed topography of the reclaimed land and Appendix RP-B presents cross-sections of rock disposal sites (ARM 17.24.115(1)(b)). Contour trenches, benches, and/or grass or rock-lined channelways would be installed as specific situations warrant and are discussed for each disturbance type in Section 0.

All final grading will be made with non-noxious, noncombustible solids unless approval has been granted by DEQ for a supervised sanitary landfill (MCA 82-4-336(6)).

Upon partial or complete saturation with water, graded fill, tailings, or spoil piles will be stable. Stability of the tailings and tailings embankment is addressed in MR's Design Document for the YDTI, reviewed by the Independent Review Panel (IRP 2017) and previously submitted to DEQ. The IRP accepted the adequacy of the proposed design.

3.2 POST-CLOSURE DRAINAGE AND CONTROLS

Post-closure water from all nonexempt disturbed areas shall be diverted or treated in a manner designed to control siltation, erosion or other water pollution damage to streams and natural water courses (ARM 17.24.115(f).

Based on the post-closure reclamation details, including post-closure grading, coversoil placement and revegetation of all nonexempt disturbed areas, post-closure runoff water is expected to be of good quality. Therefore, post-closure runoff water would be handled as stormwater with the post-closure drainage system designed to convey stormwater runoff around any remaining disturbed areas. Stormwater runoff would be segregated from post-closure process waters so that stormwater runoff may be discharged directly off site, thus reducing post-closure water treatment requirements. The post-closure stormwater drainage system outlined below is intended to meet this goal while providing flexibility in runoff water handling and discharge depending on final runoff water quality.

Exhibit RP-2 shows the post-closure topography and drainage system for the mine area. Primary components include:

- Upgradient Drainages: The three primary drainages upgradient of the YDTI, Silver Bow Creek, Yankee Doodle Creek and Dixie Creek (Exhibit RP-2) will continue to flow into the remnant pond as part of the planned wet closure. Discharge from the pond will occur through subsurface seepage to Horseshoe Bend and the WED where the water will be captured and treated under BMFOU.
- Yankee Doodle Tailings Impoundment: Following cover soil placement and seeding, runoff from the YDTI Embankment crests, upstream slopes and beach will drain inward to the remnant pond. Due to the anticipated minimal height of the embankment above the final beach level

(approximately five feet), and the gentle reclaimed beach slope (≈1%), no drainage channels or other engineered controls would be necessary for interior impoundment drainage.

- Downstream Embankment Slopes: The North-South Embankment downstream slope will be covered by the reclaimed North RDS with the RDS crest backsloped towards the embankment (Exhibit RP-2). As a result, runoff from the RDS crest will drain back to the reclaimed embankment crest and tailings beach and ultimately to the remnant pond.

  Runoff from the reclaimed East-West Embankment and the HsB RDS will flow generally southward. Runoff will be directed by drainage swales and benches to stormwater sumps for sediment removal (Exhibit RP-2). From there, runoff water will be directed through one of two stormwater ditches (Ditch A and Ditch B, Exhibit RP-2) through the reclaimed mine site. Ditches A and B will converge at a point south of Horseshoe Bend with the combined runoff directed through main drainage ditch (Ditch C) to the southern mine boundary where it will join with the Clearwater Ditch.

  The West Embankment downstream face will be shorter and lower grade (mostly 3H:1V) and generate less runoff with a lower erosion potential than the East-West Embankment. Due to the lower potential runoff and sediment yield, the West Embankment runoff will report to multiple stormwater basins located along the embankment toe for retention and infiltration (Exhibit RP-2).

- Mine Area: Runoff from the reclaimed mine facilities will drain to one of the proposed drainage ditches for ultimate conveyance to the south mine boundary and Clearwater Ditch. This includes runoff from the reclaimed leach pads, the North RDS, Great Northern RDS, the Horseshoe Bend RDS, the Pittsmont RDS and Parrot Tailings storage, and miscellaneous roads, utility corridors and reclaimed ancillary areas (Exhibit RP-2). Runoff from any remaining disturbed areas such as the HsBWTP facilities would be addressed per the BMFOU remedy.
- East Mine Boundary: Runoff along the east mine boundary will drain to either the YDTI, the central mine drainage system, Clearwater Ditch or the Continental Pit (Exhibit RP-2). To the extreme north, runoff from the East Ridge will flow directly into the remnant pond or transition zone. South of the transition zone, where grades allow, runoff from the East Ridge will be directed southward into Ditch B and ultimately to Ditch C. North and east of the Continental Pit, runoff will be diverted northward towards the Great Northern RDS and Ditch B, or to Clearwater Ditch farther south. In between these two areas, runoff from a small segment of the East Ridge and Woodville Gulch will drain to the Continental Pit. The Woodville Ditch will flow subsurface through the reclaimed Woodville RDS before entering the Continental Pit.
- Central Zone Alluvium Borrow Area: The post-mining drainage system will be designed to exclude stormwater runoff from draining to the CZABA (and Continental Pit) to the extent practicable. The borrow area will be graded so that inflows due to groundwater seepage and incident precipitation gravity drain to the Continental Pit where the pit waters will be pumped and treated under BMFOU.

- Exempt Areas: Exempt areas shown on Exhibit RP-2 will be contained and treated under the BMFOU program.

As part of final reclamation, runoff swales and/or ditches will be constructed along reclaimed slopes as needed for runoff and erosion control (ARM 17.24.115(d)). Initial design concepts include grass-lined swales in the upper reaches of drainages, transitioning to riprap-lined ditches in the lower reaches where flow velocities warrant (Figure RP-7-1). All drainage structures, including drainage ditches A, B and C, and the upgraded Clearwater Ditch would be designed to safely convey runoff generated from the 100 year-24 hour storm event, including riprapping where flow velocities warrant. Stormwater settling basins would be placed along major drainageways to slow flow velocities and allow for settling of entrained sediment. All stormwater drainage structures and provisions would be detailed in a post-closure erosion control plan. As currently planned, all stormwater runoff would report to the south mine boundary and Clearwater Ditch for direct discharge to Silver Bow Creek, if water quality allows. The conceptual drainage system is shown on Exhibit RP-2.

If necessary, a stormwater discharge approval would be obtained for the reclamation phase post-closure, prior to discharging stormwater offsite. As shown on Exhibit RP-2, stormwater runoff would be retained on site (in pits or the YDTI) or collected in a ditch system ending near the dredge pond in the Concentrator area. Potential discharge options at closure would be based on water quality and BMFOU considerations.

4.0 MATERIAL CHARACTERIZATION

The two basic types of materials to be reclaimed are non-ore (waste) rock and tailings. The three types of coversoils to be used in reclamation are alluvium, leached cap, and topsoil. The following sections characterize the two mine non-ore rock and tailings materials and the three types of coversoils.

4.1 MINE WASTE CHARACTERISTICS

4.1.1 Non-Ore Rock

Non-ore rock from the Berkeley Pit was used to construct the YDTI Embankment, leach pads, and RDSs. This material mined from west of the Continental Fault has lower pH, higher sulfur, and higher acid producing potential than rock from the Continental Pit east of the Continental Fault. As a result of MR's continued operations, portions of these Berkeley Pit waste areas, such as part of the YDTI Embankment and leach pads subsumed by the North RDS, will be covered by Continental Pit non-ore rock.

MR uses non-ore rock from the Continental Pit for constructing the YDTI Embankment, with any excess not used for embankment construction deposited in a RDS. Depending on location within the Continental Pit, non-ore rock may include oxide waste, sulfide waste, leached cap, or alluvium. The characteristics of non-ore rock vary within the Pit and are continuously being sampled and analyzed to determine chemical parameters. In general, oxide waste, leached cap and alluvium have higher pH, lower sulfur and lower acid generating potential than non-ore rock from the Berkeley Pit.

Non-ore rock geochemistry is addressed in MR's Operations Plan, Section 3.2.

Alluvium and leached cap non-ore rock is suitable as a plant growth medium. Except with the addition of coversoil and/or amendments, other non-ore rock is unsuitable.

4.1.2 Tailings

Tailings are spigotted at several locations peripheral to the upstream face of the YDTI Embankment. A description of the chemical and physical properties of tailings is addressed below per MCA 82-4-376(2)(o). Coarse-textured material settles nearest the spigots forming the beach. Finer textured material forms a slimes fraction closer to the pond. Table RP-4-1 compares particle size between the beach and slimes.

Table RP-4-1 Tailings Particle Size Analysis

Tailings	Particle Size		
	Sand % (4.75 to 0.075 mm)	Silt % (0.075 to 0.002 mm)	Clay % (<0.002 mm)
Beach[1]	79.3	18.4	2.3
Slimes[2]	28	61.2	10.8

Source: Appendix A – Table 1, Tailings Flowability Assessment to Dam Breach Risk Assessment (KP 2018a)

[1]Average of 8 beach samples.

[2]Composite sample of slimes from 3 Shelby tube samples.

The slimes, comprised of 72 percent silt and clay compared to 20.7 percent silt and clay for the beach, will tend to form a crust as drying occurs. The slimes closest to the receding pond will remain saturated due to greater moisture holding capacity. The beach, comprised of 79 percent sand will have a lower moisture holding capacity.

Static test results for YDTI tailings are averaged in Table RP-4-2 and are shown in Figure RP-4-1. Results are based on 54 samples from quarterly composites from 1998 and 1999 and from 2005 through 2013. Static tests consist of measurements of acid generating potential (AGP), which is based on non-sulfate forms of sulfur and the acid neutralizing potential (ANP) determined by acid-base titration. The net neutralization potential (NNP) is the ANP minus the AGP. Measurements are expressed in kg/t as $CaCO_3$ equivalent. Typically, samples with an NNP of less than -20 kg/t as $CaCO_3$ are considered potentially acid generating while samples with NNP above +20 are considered acid neutralizing. Intermediate samples are considered uncertain without more detailed site-specific tests. Tailings samples had NNP values ranging from -7 to -64 and averaged -28 kg/t as $CaCO_3$. Even though most tailings samples are considered potentially acid generating, the paste pH (Figure RP-4-2) of tailings samples ranged from 8 to 10 because of the alkalinity added in the mill circuit and because continuous deposition of tailings limits the amount of time that fresh tailings are exposed to oxidation. Owing to the carbonates in the tailings (resulting in an average ANP of 20 kg/t as $CaCO_3$), about 0.6 percent sulfur would need to oxidize in order to exhaust the available carbonates.

Table RP-4-2 YDTI Static Test Results (n=54)

	pH[1]	Acid Base Potential	Residual S	Pyritic S	Sulfate S	Total S	Acid Generation Potential	Acid Neutralization Potential
		(kg/t as CaCO3)	(%)	(%)	(%)	(%)	(kg/t as CaCO3)	(kg/t as CaCO3)
Average	8.8	-34.5	0.2	1.2	0.2	1.8	54.6	19.9
Standard Deviation	-	16.3	0.4	0.5	0.1	0.5	17.8	6
25th percentile	9.4	-43.7	0	0.9	0.1	1.4	44.5	14.3
75th percentile	8.8	-20.7	0.1	1.5	0.3	2.2	66.9	24.4

[1]Statistical calculations for pH measurement based on [H+] ion concentrations, which was then converted to pH.

In a MS thesis by Jennings (1993) a sample of tailings from the YDTI (NNP = -31) had the least reactive (most stable) pyrite studied among 13 samples from western US coal and hard-rock mines. The pyrite from the YDTI was almost entirely well crystallized (euhedral) and had few mineral impurities within the pyrite grains. These results suggest that sulfides in the tailings will react slower than in most similar deposits because of the intrinsic stability of the sulfides present.

Pending further analysis prior to reclamation, tailings may need to be amended with lime, organic matter, and fertilizer or coversoil applied to create a suitable plant growth medium.

Figure RP-4-1 MR Static Test Results for YDTI Tailings

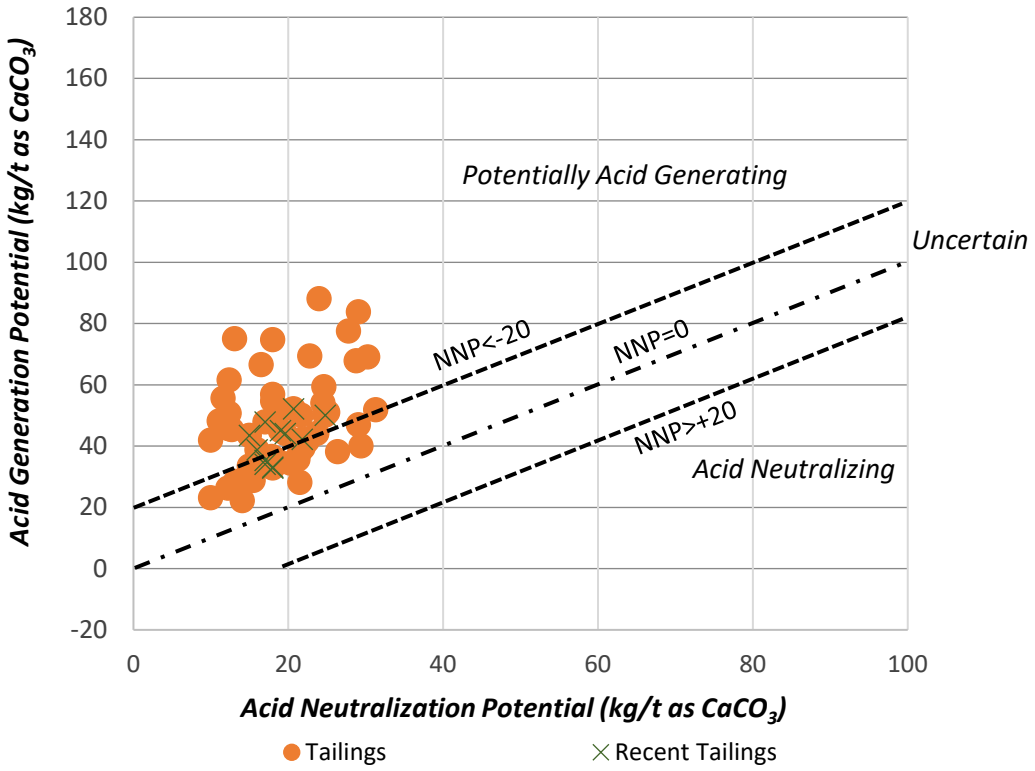
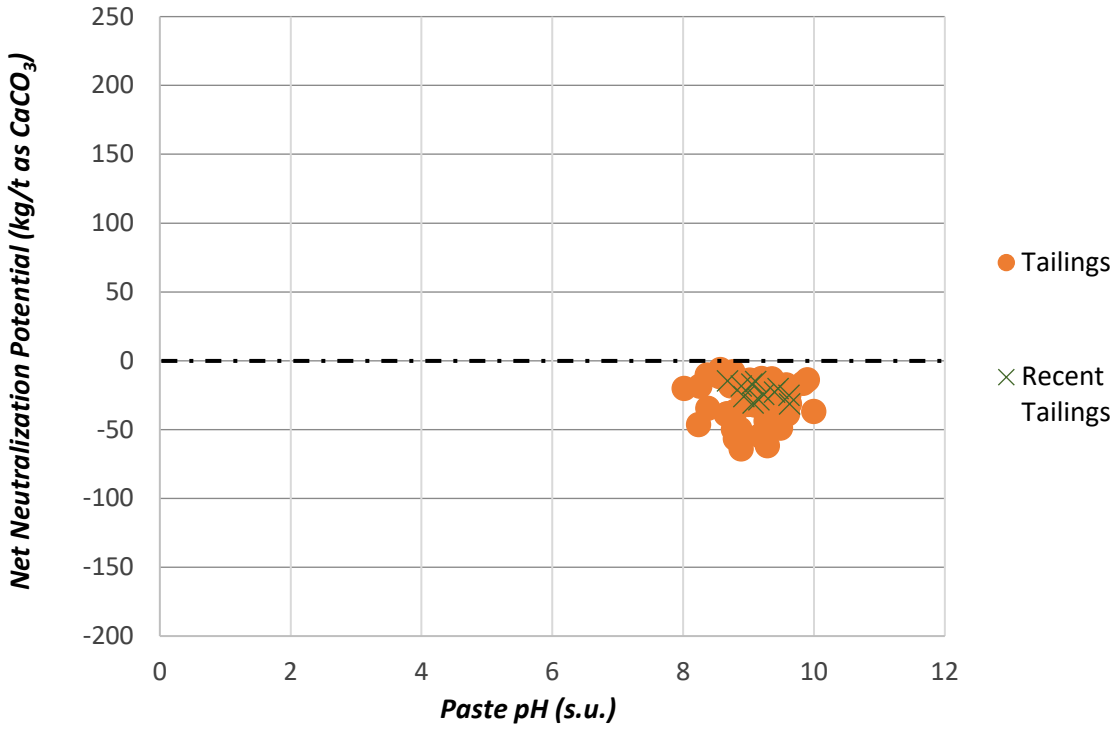


Figure RP-4-2 MR Paste pH and NNP Values for YDTI Tailings



4.2 COVERSOIL CHARACTERISTICS

Coversoils that will be used in reclamation include alluvium, leached cap, and topsoil.

4.2.1 Alluvium

Central Zone alluvium is the primary coversoil resource at the mine. A 2018-2021 evaluation of quantity and quality of alluvium was completed to assess this resource (Czehura 2021).

The evaluation included drilling and sampling 30 holes in the Central Zone and incorporated results from previous investigations. Figure RP-4-3 shows the locations of 2018 drill holes and previous sample sites.

Characteristics of the alluvium deposit were identified using laboratory data from 846 composite samples taken at 10-foot intervals. The average texture ranges from sandy clay loam to loamy sand, with a mean coarse fragment content of 25 percent. The mean paste pH is 6.52 standard units (s.u.). Total sulfur averages 0.29 percent with a median value of 0.23 percent.

Preliminary calculations for Uncorrected Lime Rate (ULR)were modeled using conservative parameters and expressed as tons of $CaCO_3$ per 1000 tons of soil (t/kt). Projected ULR rates use the Acid Base Account (ABA), balancing Acid Neutralization Potential (ANP) with Acid Generation Potential (AGP) in addition to the active acidity defined by the Shoemaker-McLean-Pratt (SMP) buffer. The projected ULR for the entirety of the alluvium resource averages about 7.5 t/kt ranging from 0 (no lime necessary) to 114.5 t/kg. The ULR for 18 inches of alluvium depth ranges from 0 tons/acre (t/ac) to 240 t/ac, averaging about 16 t/ac.

Table RP-4-3 lists concentrations in parts per million (ppm) of elements analyzed in the alluvium. Table RP-4-4 identifies Montana background threshold levels and EPA screening levels. Alluvium mean values exceed Montana background threshold levels for cadmium, copper, iron, lead, and zinc. Alluvium mean levels exceed EPA soil screening for vegetation for copper, lead, and zinc.

Electrical conductivity averages about 1800 umhos/cm. Organic matter and soil moisture are low in the alluvium.

Figure RP-4-3 Location of Drill Holes, Blastholes, Trenches, and Shallow Pit and Channel Samples (from Czehura 2021)

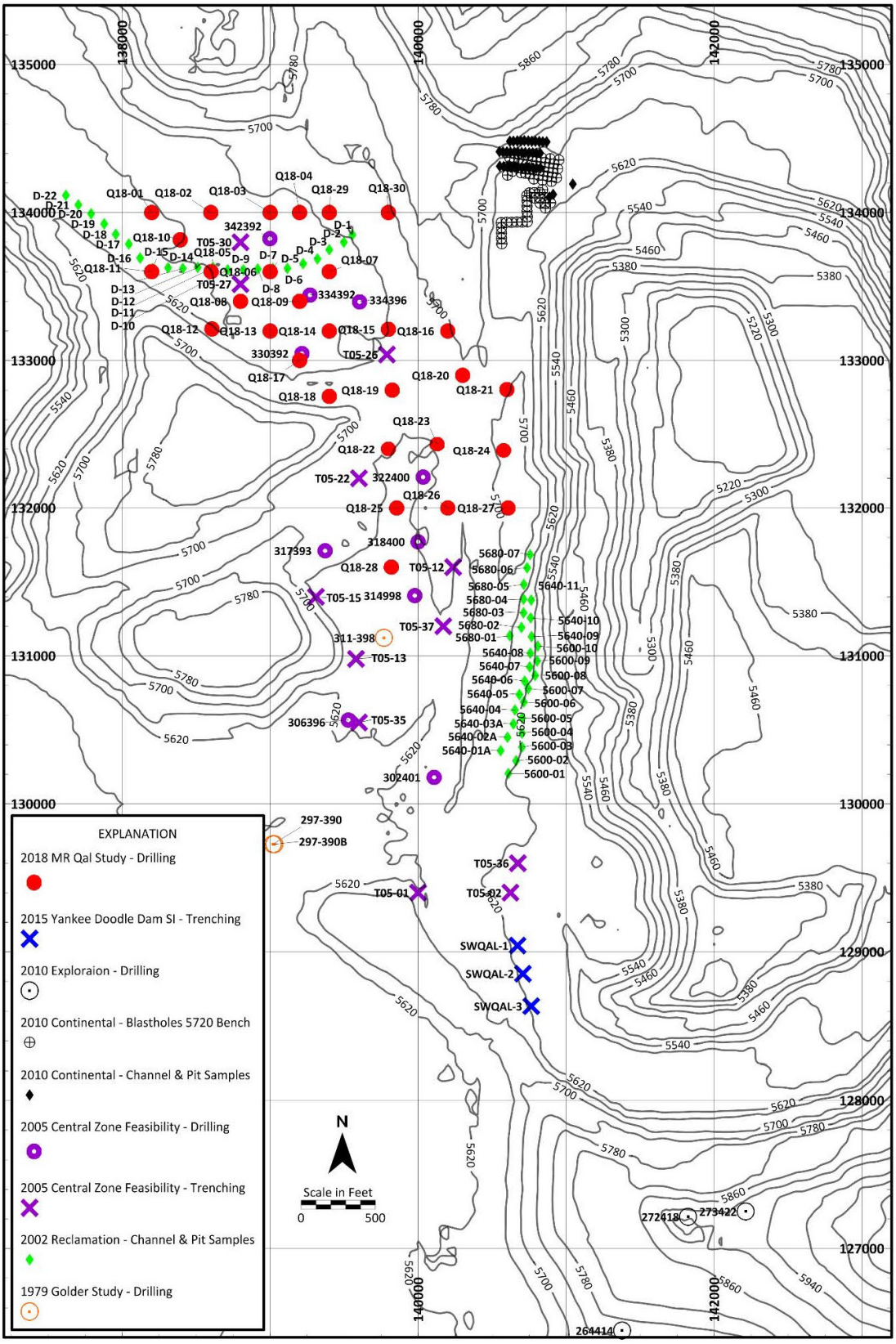


Table RP-4-3 Elemental Analysis of Alluvium, 10-foot Composite Samples

Major Cations								
Element	**Mean**	**Std. Dev.**	**Std. Error**	**Sample Size**	**Minimum**	**Maximum**	**Coef. Var.**	**Median**
Al (ppm)	13996.8	5797.3	227.2	651	927.0	49900.0	0.4	12800.0
Ca (ppm)	2645.6	4130.0	161.9	651	173.0	48350.0	1.6	1660.0
Fe (ppm)	30031.3	16545.1	648.5	651	10500.0	383300.0	0.6	28100.0
Mg (ppm)	5059.9	2083.2	152.3	187	94.6	12100.0	0.4	5205.0
Na (ppm)	239.9	113.1	4.4	651	4.0	916.0	0.5	220.0
Minor Cations and Heavy Metals								
As (ppm)	19.1	22.7	0.9	651	2.4	357.0	1.2	14.5
Cd (ppm)	1.6	2.2	0.1	651	0.4	40.2	1.4	0.9
Cu (ppm)	649.7	467.4	18.3	651	40.1	3110.0	0.7	548.0
Pb (ppm)	137.6	250.9	9.8	651	5.0	5910.0	1.8	111.0
Mo (ppm)	43.9	62.8	2.5	651	1.2	709.0	1.4	22.1
Ni (ppm)	16.8	49.0	1.9	651	1.3	680.0	2.9	7.7
Zn (ppm)	394.6	364.9	14.3	651	41.4	2990.0	0.9	297.0

Table RP-4-4 Comparison of Alluvium Element Concentrations with Montana Background Thresholds, EPA Regional Screening Levels for Resident Soil, EPA Soil Screening Levels for Vegetation, and BPSOU Cover System Suitability Criteria

Element	**EPA Regional Screening Level Resident Soil (mg/kg)[1]**	**Ecological Soil Screening Levels for Vegetation (mg/kg)[2]**	**BPSOU Cover System Suitability Criteria (mg/kg)[3]**	**Montana Soils Background Threshold (mg/kg)[4]**	**MR Alluvium (mg/kg)**	
					Mean	**Min - Max**
Aluminum	77000	[5]	-	25941	13997	927-49900
Arsenic	0.68	18	<97	22.5	19	2-357
Cadmium	71	32	<4	0.7	1.6	0.4-40
Copper	3100	70	<250	165	650	40-3110
Iron	55000	-	-	24400	30031	10500-383300
Lead	400	120	<100	29.8	138	5-5910
Molybdenum	390	-	-	-	44	1-709
Nickel	1500	38	-	31.4	17	1-680
Zinc	23000	160	<250	118	395	41-2990

[1] EPA 2021. Values are based on a target hazard quotient (THQ) of 1.0. A hazard quotient is the ratio of the potential exposure to a substance and the level at which no adverse effects are expected. It is primarily used by EPA to assess health risks of air toxics. A THQ $\leq$ 1.0 indicates that adverse effects are not likely to occur and therefore can be considered to have negligible hazard.

[2] EPA 2003-2007. Ecological Soil Screening Level Reports for individual elements.

[3] EPA 2020. Consent Decree for the Butte Priority Soils Operable Unit (BPSOU), Appendix D. BPSOU Statement of Work, Attachment C. Draft Further Remedial Elements Scope of Work, Table 3. Engineered Caps/Cover Systems Material Suitability Criteria.

[4] Hydrometrics 2013.

[5] Aluminum is an element of concern only for soils with a pH <5.5 (EPA 2003).

Suitability of alluvium for use as a coversoil was evaluated by establishing lower and/or upper limits of certain parameters. Table RP-4-5 identifies parameters for assessing suitability.

Table RP-4-5 Criteria for Determining Alluvium Suitability

Parameter	Criteria
pH	5.5 through 8.5
Coarse Fragments [1]	≤ 40 percent
Copper	≤ 1000 ppm
Total Metal Index [2]	≤ 1700 ppm
Lime Supplement [3]	≤ 15 tons/kiloton

[1] Material > 2mm

[2] Total Metal Index (TMI) is a parameter used by EPA Superfund at the Anaconda Smelter (EPA 2016). It is calculated by summing total concentrations (in ppm) of arsenic, copper, and zinc. In Anaconda, areas with a TMI less than 1700 ppm were considered to have a low risk of revegetation failure with low operational and maintenance activities anticipated.

[3] Lime supplement, as tons of $CaCO_3$ per 1000 tons of soil, balances acid neutralization potential with acid generation potential.

Quantity and quality of alluvium suitable for reclamation is managed through sequencing mine design of the CZABA to selectively salvage suitable reclamation materials. Modeled material characteristics from composite drill samples provided the base data for the preliminary central zone pit designs. Pit design for alluvium removal was modelled on a 50-foot square grid with a 40-foot depth to match MR's bench height. Threshold values for reclamation material suitability provided in Table RP-4-5 were selected based on generally accepted criteria, EPA regional threshold values and experience at the Continental Mine.

Based on alluvium suitability criteria provided above, pit design for the CZABA provides suitable alluvium material for reclamation in adequate volume for mine-wide reclamation. Table RP-4-6 presents volumes of alluvium for the alluvium deposit within MR's Central Zone mine plan area and for the material within the footprint of the proposed borrow area.

Table RP-4-6 Volumes and Average Quality of Suitable Alluvium

Pit Design	Material (bcyds)[1]	Material (lcyds)[1]	pH (su)	Gravel (%)	Cu (mg/kg)	TMI (mg/kg)
CZABA Ultimate Pit[2]	28,626,923	37,215,000	6.7	23	540	868
CZABA Proposed Pit[3]	17,733,000	23,053,000	6.6	21	523	856

[1] A swell factor of 30 percent was used to convert from bank cubic yards (bcyds) to loose cubic yards (lcyds).

[2] Larger pit within footprint of MR's Central Zone mine plan area.

[3] See MR's Operations Plan for the proposed pit design.

During salvage operations, MR systematically samples and analyzes alluvial materials; those materials determined to be suitable for reclamation are stockpiled or used during concurrent reclamation. Alluvium not suitable for reclamation is discarded in the South Continental Pit RDS. If suitable alluvium for

reclamation is in short supply, less favorable alluvium is stockpiled separately and amended with lime during redistribution. When possible, salvaged alluvium is direct-hauled from the CZABA and used as subsoil/soil for reclamation. Quantities of alluvium stored in the Lunch Room and Four Corners alluvium stockpiles are documented in MR's Annual Reports (2014-2021).

4.2.2 Leached Cap

Leached cap is a potential resource for reclamation cover material. However, because of the quantity of better quality alluvium, and since leached cap is a more suitable material for construction, most leached cap will be used for YDTI Embankment construction.

4.2.3 Topsoil

Topsoil and subsoil salvage has been limited within the mine boundary because most of the active mine area was developed prior to soil salvage guidelines and regulations. Therefore, recent and future soil salvage will generally be limited to areas surrounding the YDTI.

4.2.3.1 Existing Disturbances

Topsoil salvaged since 1972 from existing disturbances (pits, leach pads, waste rock dumps, YDTI, and other mine support facilities) has been used for concurrent reclamation or has been stockpiled at locations shown on Figure RP-4-4. A comprehensive history of soil salvage and stockpiling was included in MR's 2014 Annual Report, and has been updated each year in MR's annual reports.

4.2.3.2 Proposed Disturbances

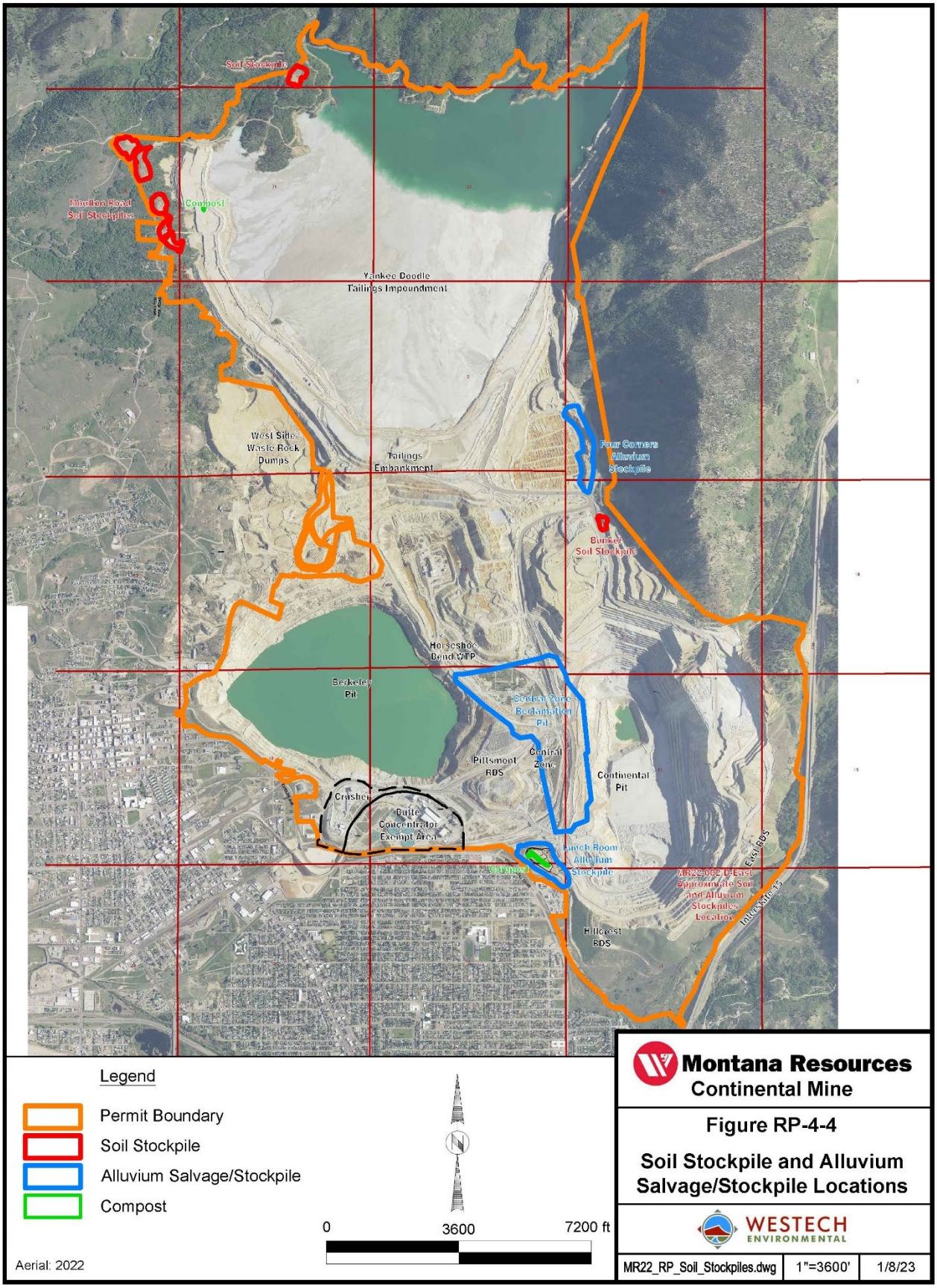
Soil materials will continue to be salvaged from future disturbances located on presently undisturbed areas when material can be safely salvaged. Salvaged soil would be direct-hauled for use in current reclamation projects whenever possible; otherwise, it would be stored in stockpiles. This information is updated in MR's annual reports.

All areas proposed to be disturbed would be cleared prior to soil stripping operations. All soil materials would be salvaged, including organic duff, debris, and remains from burned slash piles. Every effort would be made to minimize compaction during soil handling operations.

4.2.3.3 Stockpile Storage and Protection

Stockpiles of all reclamation materials, including compost, would be located as close as possible to sites of eventual redistribution. Stockpiles would be constructed with slopes of less than 2H:1V to provide slope stability.

Stockpiles that would not be used within one year would be protected from wind and water erosion to minimize sedimentation and maximize the amount of material available for reclamation. The stockpile surface would be loosened, if necessary, to provide the proper seedbed. The interim seed mixture would be drill-seeded or broadcast-seeded on the top and ramps of the stockpile. Side slopes would be broadcast-seeded or hydro- seeded. Interim reclamation would be conducted during the first appropriate season following soil stockpiling.


Soil Stockpile
Moulton Road Soil Stockpiles
Compost
Yankee Doodle Tailings Impoundment
West Side Waste Rock Dumps
Tailings Embankment
Four Corners Alluvium Stockpile
Bunker Soil Stockpile
Horseshoe Bend WTP
Berkeley Pit
Combat Zone Reclamation Pit
Central Zone
Pittsmont RDS
Continental Pit
Crusher
Butte Concentrator Exempt Area
Compost
Lunch Room Alluvium Stockpile
MR22-002 D-East Approximate Soil and Alluvium Stockpiles Location
Interstate 15
East RDS
Hillcrest RDS
Legend
Permit Boundary
Soil Stockpile
Alluvium Salvage/Stockpile
Compost
0
3600
7200 ft
Aerial: 2022
Montana Resources
Continental Mine
Figure RP-4-4
Soil Stockpile and Alluvium Salvage/Stockpile Locations
WESTECH ENVIRONMENTAL
MR22_RP_Soil_Stockpiles.dwg
1"=3600'
1/8/23

4.2.4 Preliminary Reclamation Coversoil Monitoring Results

Previously reclaimed mine disturbances in the East RDS Complex were monitored in 2021 (WESTECH 2022 and 2023 (pending)) to characterize soils and vegetation. These sites were reclaimed between 1982 and 2022 using a variety of coversoil materials and seed mixes. The coversoils at these sites typically consisted of two coversoil laydown horizons. MR conducted reclamation monitoring in 2021 and 2022. Monitoring in 2021 focused on evaluating revegetation establishment and coversoil thickness and chemistry within the East RDS Complex. Monitoring in 2022 focused on evaluating revegetation establishment and coversoil thickness and chemistry within "legacy" reclamation areas along the southwestern edge of the permit area as well as reclaimed areas adjacent to the concentrator, Berkeley Pit, Woodville RDS, as well as the Powerline Road area; monitoring in 2022 also re-evaluated recently seeded areas within the East RDS to measure changes in revegetation establishment (Exhibit RP-2). Coversoil pH within the East RDS Complex averaged 7.0, organic matter averaged 1.4 percent. Coversoil pH within the legacy areas averaged 7.1, organic matter averaged 1.2 percent. Total Metal Index (TMI) consisting of arsenic, copper, and zinc averaged 789.6 in the surface horizon and 775.2 in the sub-surface horizon within the East RDS Complex. TMI averaged 962.3 in the surface horizon and 1254.0 in the sub-surface horizon within the legacy reclamation areas.

4.3 COVERSOIL BALANCE

Table RP-4-7 provides an estimate of coversoil for the mine. The quantities assume an additional 7-12 percent increase on slopes to compensate for the difference between plan area and slope area.

Table RP-4-7 Volumes and Sources of Coversoil for the Continental Mine

Mine Component	Planimetric Acres[1]	Slope Correction	Slope Acres	Coversoil				Material Source(s)
				Alluvium		Topsoil		
				Depth (in)	LCY[2]	Depth (in)	LCY[2]	
YANKEE DOODLE TAILINGS IMPOUNDMENT (YDTI)								
Embankment								
Slopes 2H:1V	65	1.12	73	20	195,751	0	0	Central Zone
Slopes 2.5H:1V	8	1.08	9	20	23,232	0	0	Lunchroom Stockpile or Central Zone
Slopes 2.7H:1V	127	1.07	136	20	365,393	0	0	Central Zone
Slopes 3H:1V	22	1.07	24	14	44,308	6	18,989	Lunchroom Stockpile or Central Zone and Moulton Road soil stockpiles
Crest	263	1.00	263	28	990,049	0	0	Central Zone
Transition Zone	398	1.00	398	20	1,070,178	0	0	Central Zone
Beach[3]	731	1.00	731	22	2,162,136	6	589,673	Central Zone and Moulton Road soil stockpiles
	486	1.00	486	28	1,829,520	0	0	Central Zone
SUB-TOTAL YDTI	**2,100**	**1.07 - 1.12**	**2,119**	**14 - 28**	**6,680,566**	**6**	**608,662**	**-**

Table RP-4-7 Volumes and Sources of Coversoil for the Continental Mine

Mine Component	Planimetric Acres[1]	Slope Correction	Slope Acres	Coversoil				Material Source(s)
				Alluvium		Topsoil		
				Depth (in)	LCY[2]	Depth (in)	LCY[2]	
ROCK DISPOSAL SITES (RDS) / LEACH PADS								
Slopes 2.7H:1V and 3H:1V	549	1.07	587	20	1,579,534	0	0	Central Zone or "D" East Layback Stockpile
Tops / Benches	282	1.00	282	28	1,061,573	0	0	
SUB-TOTAL ROCK DISPOSAL SITES	**831**	**1.00 - 1.07**	**869.43**	**20 - 28**	**2,641,107**	**0**	**0**	**-**
CONTINENTAL PIT								
Benches / Ramps	148	1.00	148	28	557,138	0	0	Central Zone or "D" East Layback Stockpile
SUB-TOTAL PIT	**148**	**1.00**	**148**	**28**	**557,138**	**0**	**0**	
MISCELLANEOUS AREAS								
Slopes >5% to ≤ 3H:1V	356	1.01	360	20	966,817	0	0	Central Zone or "D" East Layback Stockpile
Slopes 2.7H:1V	13	1.07	14	20	37,402	0	0	
SUB-TOTAL MISCELLANEOUS AREAS[4]	**369**	**1.01 - 1.07**	**373.47**	**20**	**1,004,219**	**0**	**0**	**-**
TOTAL FOR MINE RECLAMATION	**3,448**	**1.00 - 1.12**	**3,510**	**Alluvium**	**10,883,030**	**Topsoil**	**608,662**	**Various**

[1] Areas are based on the post-operation topography; totals are +/- 1 acre due to rounding. Acreages represent only those locations where coversoils would be placed. Areas not included are:

- BMFOU Facilities
- Exempt Areas
- Previously reclaimed areas
- GMMIA
- Disturbances placed on other disturbed areas such as the Parrot tailings on the Pittsmont RDS
- YDTI pond at equilibrium
- Continental Pit below 5410' NGVD29 or 5466' ACM elevation
- Coversoil stockpile sites
- Undisturbed areas within the mine permit area
- Pit highwalls
- North perimeter of the north transition zone
- YDTI embankment riprap
- Berkeley Pit and Berkeley Pit highwall slide

[2] LCY = loose cubic yards.

[3] Represents topsoil coverage of 731 acres at a depth of 6 inches over 22 inches of alluvium; the remaining beach (486 acres) would be capped with 28 inches of alluvium and amended as necessary.

[4] Assume average 15% slope for Miscellaneous Areas.

The CZABA pit design would produce about 23 million loose cubic yards of suitable alluvium (Table RP-4-6). This conservative design exceeds the estimated volume of about 11 million loose cubic yards needed for reclamation (Table RP-4-7) by a factor of 2, demonstrating that a more than adequate volume of

suitable alluvium is available to reclaim the mine. Final volumes of alluvium needed for reclamation and a corresponding mine plan for the borrow area would be developed at closure.

4.4 COVERSOIL DEPTHS

Table RP-4-8 lists coversoil depths for slope categories. The previous slope category of > 37 percent with 36 inches of coversoil on slopes has been combined with the ≥ 5 percent category. The installation of benches at intervals along steeper slopes would reduce erosion potential and negate the need for the deeper application of coversoil on slopes steeper than 37 percent.

Table RP-4-8 Coversoil Depths

Slope	Alluvium or Leached Cap, without topsoil (inches)	Alluvium or Leached Cap, with 6" topsoil (inches)
< 5 %	28	22
≥ 5 %	20	14

The depth of alluvium or leached cap would vary based on topsoil redistribution depth to achieve a total of 28" for slopes < 5 percent and 20" for slopes ≥ 5 percent. For example, if 4" of topsoil is placed on a 10 percent slope, 16" of alluvium or leached cap would be placed as subsoil.

4.5 DECOMPACTION

During soil handling operations, efforts would be made to minimize compaction. Following grading and prior to capping material application, ripping would be performed as needed to relieve compaction utilizing ripper shanks behind a dozer or motor grader. On slopes that are steeper than 33 percent, the surface would be left in a roughened condition.

If needed, compacted surfaces including rock disposal sites and, following their removal, soil and alluvium stockpile sites, would be ripped.

5.0 AMENDMENTS

Where indicated by testing (Section 10.3), MR would utilize lime, organic matter, and/or fertilizer to create a suitable plant growth material (MCA 82-4-303(28)(c)).

5.1 LIME

Alluvium to be used for coversoil would be suitable as a plant growth material without the addition of lime. Modeling of the CZABA shows an average pH of 6.6 for material to be used for reclamation (see Section 4.2.1). Material with a pH below 5.5 is considered waste. Alluvium sampling would identify unsuitable material.

Reclaimed areas of the East RDS Complex monitored in 2021 had an average pH of 6.8 in the upper 9 inches of coversoil and an average pH of 7.0 throughout all soil horizons sampled, with perennial grass cover ranging from 30 to 46 percent (WESTECH 2022). A few small "hot spots" on the older reclaimed Hillcrest RDS had lower pH and low vegetation cover.

Monitoring sites where both soils and vegetation were sampled in 2022 included older reclamation (1991-2014) associated with mine facilities, including the Berkeley Pit perimeter, Concentrator, Primary Crusher, Powerline Road, Woodville area, and other miscellaneous sites. Coversoil in the upper 8 inches in these areas had an average pH of 7.2. Throughout all soil horizons sampled (upper 17 inches), coversoil had an average pH of 7.1. Perennial grass cover varied from 40 to 62 percent (WESTECH 2023).

If monitoring identifies any areas where pH is below 5.5 in respread coversoil, lime will be applied at appropriate rates to raise the pH to about 6.0. Lime would be incorporated to a depth of about 18 inches.

5.2 ORGANIC MATTER

Previous reclamation specifications for the mine had assumed that, where topsoil is not spread, organic matter would be applied and incorporated into alluvium or leached cap coversoil. The assumption was based on a Minor Revision (MR 02-001) for 2002 reclamation of the Woodville RDS. MR does not propose to implement the Woodville RDS specification mine wide.

Research into the need for, and use of, organic amendments for reclamation indicates that specific organic content may not be necessary for successful reclamation. Organic content is one component of growth material suitability but may not be necessary for reclamation success (Prodgers 2013). Other studies have identified the sensitivity of some soils to organic soil amendments by which the addition of certain types of amendments can result in decreased permanent vegetation due to unsustainable nutrient cycles (Larney & Angers 2011).

The potential use of organic amendments is determined by factors such as texture, nutrient content, and desired vegetation. MR has recently conducted on-site reclamation monitoring to evaluate characteristics of coversoil materials and vegetation response at previously reclaimed mine areas. Results indicate that there is no statistically significant difference in the cover of perennial grasses at sites with 1.5% organic

matter compared to sites with 0.5% or less organic matter (WESTECH 2022 and 2023). The comparable vegetation response between various soil organic matter content groupings indicates that thresholds for soil organic content are not reliable predictors of revegetation.

Although certain levels of organic matter content may not be necessary for reclamation success, organic materials can be advantageous for initial establishment of vegetation at certain sites. Sites that may present challenging conditions for vegetation establishment include south-facing and/or steep slopes, or areas where soil crusting is present. Conditions at such sites could be mitigated through the application of organic matter. At sites with lower reclamation potential, organic matter applications at a rate up to 0.5% by volume could be incorporated into the upper 6 inches of coversoil.

Organic matter amendments could include straw or alfalfa mulch, which may also be applied for erosion control or to mitigate soil crusting on some sites (see Section 7.0). If soil crusting adversely affects vegetation establishment, MR could implement mechanical measures including rotary hoeing, harrowing, or discing. When possible, seeding will be conducted promptly after coversoil spreading to reduce the potential for precipitation to cause soil crusting.

Organic compost is currently being stockpiled in the McQueen area and on the West Embankment (Figure RP-4-4) and could be utilized if amendment is necessary during reclamation. Other commercially available sources for compost will be identified for future potential use.

5.3 FERTILIZER

The use of organic or inorganic fertilizer may be indicated based on testing. When it has been used, MR has typically applied a compound inorganic fertilizer (N-P-K (16-16-16)).

6.0 REVEGETATION

Revegetation would be conducted to provide stabilization through erosion and sedimentation control and reestablishment of a maintenance-free vegetative cover that meets post-closure land use objectives (MCA 82-4-336(8) and (9)(a) and ARM 17.24.115(1)(c)). All areas would be revegetated to conform with county standards for noxious weed control. Revegetation methods may be modified per DEQ consultation and approval based on results of ongoing MR and other local evaluations, availability of materials, and changes in reclamation technology. Areas that would be coversoiled and seeded (including areas seeded to date) are shown on Figure RP-6-1.

6.1 SPECIES SELECTION AND SEED MIXTURES

Plant species recommended for revegetation are based on establishment and self-perpetuation potential, rooting and other growth characteristics, soil stabilizing qualities, metal and acid tolerance, commercial availability, wildlife palatability, and aesthetics. Redistributed cover material properties (texture, chemical and physical properties, coarse fragment content, water-holding capacity, permeability, and erosion potential) have also been considered. Species selection is based on documentation of species occurrence and community composition on: 1) adjacent, (relatively) undisturbed plant communities surveyed prior to disturbance; 2) historic disturbances in the Butte-Silver Bow area; and 3) reclaimed sites at the mine.

MR proposes to revegetate disturbances using native (and a few selected naturalized) grasses that: establish readily on a wide variety of substrates; have occurred widely in the Butte reclamation landscape since the 1970's; and are able to compete successfully with noxious weeds. Those species which are drought tolerant and locally adapted to a relatively wide range of cover material conditions (texture, pH, metal tolerance, etc.) have been emphasized. MR's permanent seed mixture is presented in Table RP-6-1.

Seeding rates have been calculated on a Pure Live Seed (PLS) basis. Broadcast seeding rates have been formulated to average approximately 120 PLS per square foot; drill seeding would be at one-half the broadcast rate. Germination success and the effects of competition between species would be evaluated to determine if rate adjustments are indicated for subsequent revegetation efforts. Quickguard sterile triticale will be seeded on steeper slopes and sites requiring rapid, non-persistent initial stabilization.

The permanent seed mixture may be modified based on limited species availability, poor initial performance, new plant material releases, or advances in reclamation technology. The permanent mixture has been adjusted based on results of 2021 and 2022 reclamation monitoring (WESTECH 2022 and 2023). The seed mixture emphasizes quick-establishing species and seeding rates that are expected to provide noxious weed competition. Seed that is genotypically and phenotypically adapted to the project area and from within the Northern Rocky Mountains or Great Plains would be used when commercially available in sufficient quantity and acceptable quality. Documented changes to seed geographic origin as a result of climatic warming would be considered in future seed sourcing. Purity and germination rates would be documented. All seed would be certified, properly labeled, and meet the requirements of the Federal Seed Act and the seed and noxious weed laws of Montana.

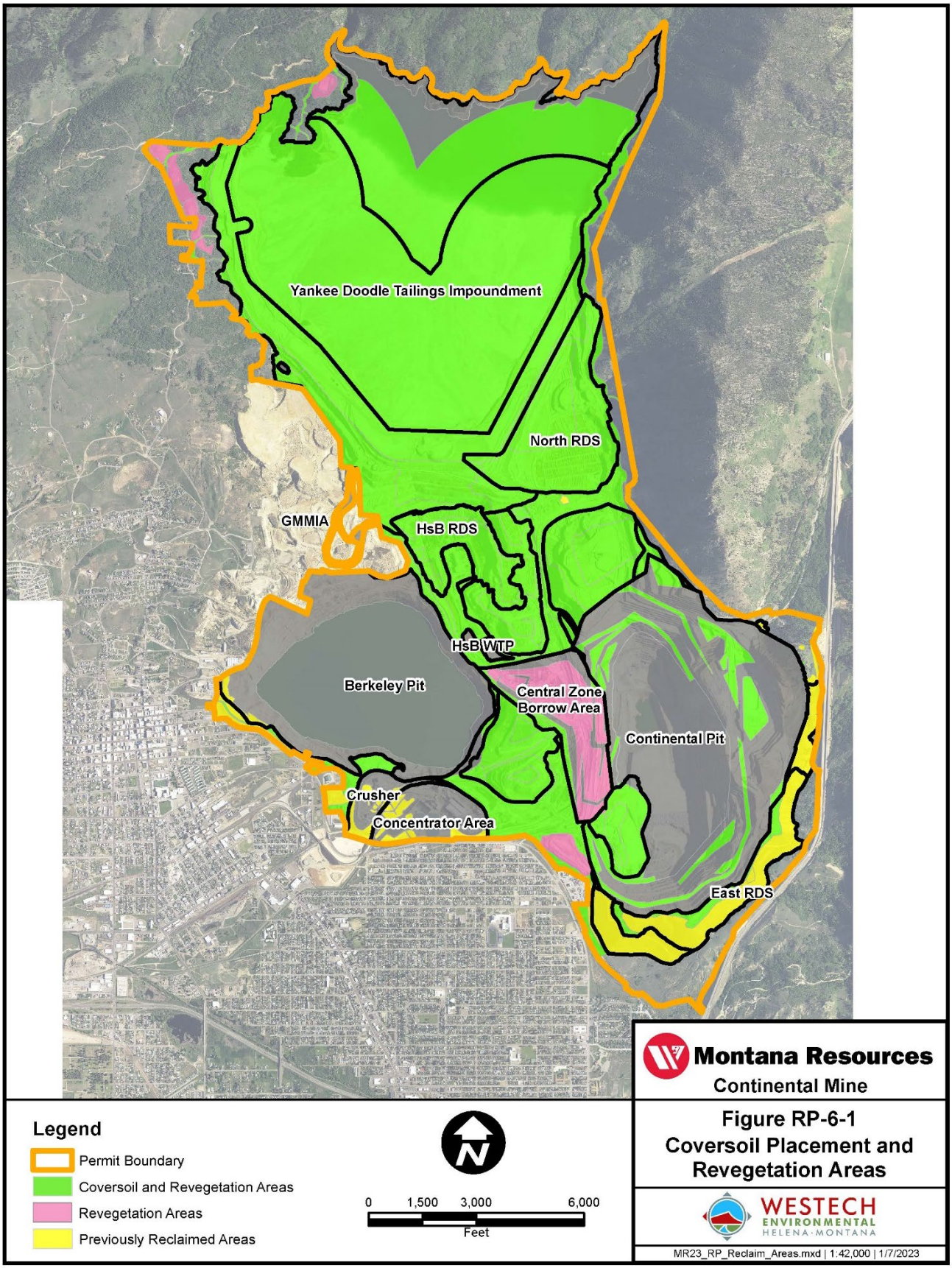

Yankee Doodle Tailings Impoundment
North RDS
GMMIA
HsB RDS
HsB WTP
Berkeley Pit
Central Zone Borrow Area
Continental Pit
Crusher
Concentrator Area
East RDS
Legend
Permit Boundary
Coversoil and Revegetation Areas
Revegetation Areas
Previously Reclaimed Areas
0 1,500 3,000 6,000
Feet
Montana Resources
Continental Mine
Figure RP-6-1
Coversoil Placement and Revegetation Areas
WESTECH ENVIRONMENTAL HELENA·MONTANA
MR23_RP_Reclaim_Areas.mxd | 1:42,000 | 1/7/2023

Table RP-6-1 MR Permanent Seed Mixture

Species		Recommended Variety	Broadcast Seeding Rate[1]
Grasses:			
*Agropyron intermedium**	Intermediate wheatgrass	Manifest, Oahe	2.00 / 4
Agropyron smithii	Western wheatgrass	Rosana	5.00 / 12
Agropyron spicatum	Bluebunch wheatgrass	Goldar	4.00 / 12
Agropyron trachycaulum	Slender wheatgrass	Copperhead, Pryor	3.00 / 10
Bromus marginatus	Mountain brome	Bromar, Garnet	6.00 / 12
Elymus cinereus	Basin wildrye	Washoe, Trailhead	2.00 / 8
Elymus elymoides	Bottlebrush squirreltail	Sand Hollow	2.00 / 8
Festuca idahoensis[2]	Idaho fescue	Joseph, Nezpurs, Winchester	1.50 / 14
*Triticum aestivum x Secale cereale**	Quickguard Sterile triticale	Quickguard	10.00 / 3
Oryzopsis hymenoides	Indian ricegrass	Rimrock	4.00 / 13
*Poa compressa**	Canada bluegrass	Reubens	0.10 / 6
Poa nevadensis	Nevada bluegrass	Opportunity	0.25 / 6
Stipa viridula	Green needlegrass	Fowler, Lodorm	2.00 / 8
		Grand Total	**41.85 / 116**

[1] Pounds Pure Live Seed (PLS) per acre/PLS per sq. ft. Application rates are based on broadcast seeding; rates will be halved for drill seeding.

[2] If Idaho fescue is not available, sheep fescue (*Festuca ovina*, var. Covar) may be substitued at 2.0 PLS pounds.

*Non-native species

NOTE: Scientific nomenclature follows Lesica (2012).

Forbs and shrubs would also be used to selectively revegetate disturbances to provide benefits for wildlife as well as improve visual diversity and interest. Species for consideration are presented in Table RP-6-2. Forbs and shrubs would be added to the permanent seed mixture when it has been determined that noxious weeds are under control. Forbs and shrubs would be seeded at locations and rates to be determined, based on wildlife use considerations, visual significance, slope, aspect, composition, topography, and seed availability.

Table RP-6-2 Forb and Shrub Species for Consideration at Selected Locations

Species		Recommended Variety[1]
Scientific Name	**Common Name**	
Forbs[2]:		
Achillea millefolium	Common yarrow	Great Northern, Columbia
Artemisia frigida	Fringed sagewort	-
Artemisia ludoviciana	Cudweed sagewort	Summit
Chamerion angustifolium	Fireweed	-
Gaillardia aristata	Blanketflower	-
Helianthus maximiliani	Maximilian's sunflower	Aztec
Linum lewisii	Blue flax	Appar

Table RP-6-2 Forb and Shrub Species for Consideration at Selected Locations

Species		Recommended Variety[1]
Scientific Name	**Common Name**	
Penstemon eriantherus	Fuzzytongue penstemon	Old Works
Penstemon strictus	Rocky Mountain penstemon	Bandera
Phacelia hastata	Silverleaf phacelia	Stucky Ridge
Shrubs[2]:		
Artemisia tridentata	Mountain big sagebrush	Vaseyana
Ericameria nauseosa	Rubber rabbitbrush	-
Prunus virginiana	Common chokecherry	-
Purshia tridentata	Antelope bitterbrush	-
Shepherdia argentea	Silver buffaloberry	Mill Creek
Symphoricarpos albus	Common snowberry	Prospectors

[1]VNS = Variety not specified.

[2]The decision to seed forbs and shrubs would be made on a site-by-site basis depending on the presence of noxious weeds (where herbicide management could impact seeded species) and benefits to wildlife.

NOTE: Scientific nomenclature follows Lesica (2012).

Interim vegetation is discussed in Section 6.5.

6.2 SEEDBED PREPARATION

Seedbed preparation would be conducted as needed after coversoil distribution and amendment application. On slopes that are less than 33 percent, the seedbed would be prepared along the contour, utilizing a chisel-plow, disc, harrow, cultipacker, or other appropriate equipment to break up the surface and prepare a firm seedbed. On slopes that are steeper than 33 percent, too narrow to operate equipment, or on sites where, if used, organic debris has been respread, the surface would be left in a roughened condition. If needed, compacted surfaces including the RDSs and, following their removal, soil and alluvium stockpile sites, would be ripped.

6.3 SEEDING SCHEDULE AND METHODS

Seeding would normally be conducted the first season following coversoil application. If site conditions are suitable (good soil moisture, predicted rainfall, north or east-facing slope), seeding would be conducted as soon after seedbed preparation as possible. Seeding would normally be conducted in fall (after September 15), or spring (prior to mid-June) depending on soil moisture, climatic conditions, and access. Spring seedings would be conducted as early in the season as possible to maximize use of early moisture.

Two methods of seeding would be employed; broadcast and drill. Broadcast seeding would be the preferred method on rocky areas and slopes steeper than 3H:1V. Broadcast seeding would be conducted by utilizing broadcast drop seeders or comparable equipment, manually-operated cyclone-type bucket spreaders, or a mechanical seed blower. Seed would be mixed frequently in the seed boxes to discourage

settling. Where possible and practical, broadcast-seeded areas would be chained or harrowed to cover the seed. Where slope conditions allow, broadcast-seeded areas may be dozer-tracked perpendicular to the slope. On small or inaccessible sites, hand raking may be used to cover seed.

When hydroseeding is used, seed, fertilizer, and mulch (about 250 pounds per acre) will be sprayed in one application. A second application will spray the remainder of the cellulose fiber mulch (to achieve a total of about one ton per acre) and a tackifier (at the manufacturer's recommended application rates).

Drill seeding may be utilized on slopes less than 3H:1V. Drill seeding will be done along the contour wherever the surface is not level. Seeding depth will generally be ¼- to ½-inch. Drill row spacing will vary from 7 to 14 inches.

6.4 TREE PLANTING

Trees may be selectively planted to provide visual screening, increase biological diversity, and enhance wildlife habitat. Tree planting would be limited to localized groupings; "plantation-style" row plantings would be avoided. Planting rates would be based on a total of about 400 trees per acre. Tree species are listed in Table RP-6-3. Species, planting ratios, and densities would be based on slope, aspect, and moisture conditions.

MR will determine tree planting areas based on visual design elements (screening, continuity with existing stands, landscape position) and will capitalize on site conditions, such as topography and substrate, to sustain tree growth once established. Planting areas would be delineated and documented in MR's annual reports.

Table RP-6-3 Tree Species for Selected Planting

Tree Species[1,2]	
Scientific Name	**Common Name**
Juniperus scopulorum	Rocky Mountain juniper
Picea engelmannii	Engelmann spruce
Pinus contorta	Lodgepole pine
Populus tremuloides	Quaking aspen
Pseudotsuga menziesii	Douglas-fir

[1]Trees would be planted in groupings at ratios to be determined by site conditions for a total of about 400 stems/acre.

[2]Trees would be planted only on sites capable of supporting them as determined in the field, thus planting rates and species composition would be determined on a site-by-site basis.

NOTE: Seeding rates for grasses in Table RP-6-1 would be halved within tree planting areas.

Nursery stock (tublings) would generally be used in plantings; however, locally adapted seed may be collected from within the Butte vicinity to produce nursery-grown tree seedlings. Seed collection dates would be based on phenological considerations. Seed would be collected by hand or with specially adapted harvesting equipment; it would be cleaned and stored under optimal conditions. Collection activities would be conducted only with landowner permission and seed would be acquired so as not to

impact collection sites. Containerized seedlings would be grown under contract to provide stock for planting.

Planting techniques are summarized below:

- stock will be kept cool and moist prior to planting;
- holes will be excavated using shovels and dibble bars or mechanical augers and / or excavators;
- planting hole will be at least 1.5 times the diameter of the container; hole walls will be roughened;
- loosen and uncoil any circling or twisted roots;
- position the top of the soil / root mass so that it is planted even with, or slightly higher than, the soil surface. Do not bend taproot. Ensure suitable backfill material is firmly compacted around the root mass, leaving no air pockets;
- a trough or low berm may be shaped around the planting hole to retain water; and
- trees will be watered immediately after planting.

Planting would be accomplished using hand tools and power-driven augers or other planting devices, depending on size and condition of the planting area, type of planting stock and equipment availability. Proper planting procedures would be employed to maximize seedling survival. Proper procedures include protecting stock prior to planting to avoid root damage and using appropriate planting techniques.

The development of mycorrhiza on roots of trees is accepted as necessary for good survival and growth, especially in soils low in available nutrients. Stock would be inoculated with mycorrhizae, if available. Partial shade is an important factor in seedling establishment. Woody debris or other sources of "dead shade" would be used, if available, on planted areas. Competition between herbaceous vegetation and trees would be reduced by one or more of the following methods:

- scalping;
- chemicals;
- mulching (including but not limited to straw, wood chips, rock, plastic or paper) and;
- reduced seeding rate.

6.5 INTERIM REVEGETATION

Disturbances such as sediment control structures, soil stockpiles, and road cut and fill slopes will be temporarily stabilized with an interim revegetation mixture (Table RP-6-4), a cover crop, soil binder and/or mulch. Sites to be stabilized prior to final reclamation may also include areas subject to extreme wind or water erosion that cannot be permanently revegetated due to seasonal considerations, delays in reclamation scheduling, or during construction shutdowns.

Areas that are seeded with the interim mixture would be mulched and fertilized as necessary.

If it is necessary to seed a temporary cover crop, Quickguard or an annual ryegrass would each be broadcast-seeded at a rate of 20 pounds PLS per acre (rate would be halved for drill seeding). If immediate stabilization is necessary, a chemical soil binder would be applied alone or in combination with mulches at the manufacturer's recommended rate.

Table RP-6-4 MR Interim Seed Mixture

Species		Recommended Variety	Broadcast Seeding Rate[1]		
Grasses:					
Agropyron dasystachyum var. riparium	Streambank wheatgrass	Sodar	5.00	/	20
*Agropyron intermedium**	Intermediate wheatgrass	Manifest, Oahe	8.00	/	16
Agropyron trachycaulum	Slender wheatgrass	Copperhead, Pryor	5.00	/	16
*Festuca ovina**	Sheep fescue	Covar	1.50	/	24
*Triticum aestivum x Secale cereale**	Quickguard Sterile triticale	Quickguard	10.00	/	3
*Poa compressa**	Canada bluegrass	Reubens	0.50	/	28
		TOTAL	**30**	**/**	**107**

[1] Pounds PLS per acre/PLS per sq. ft. Application rates are based on broadcast seeding; rates would be halved for drill seeding.

*Non-native species

NOTE: Scientific nomenclature follows Lesica (2012).

7.0 EROSION AND SEDIMENT CONTROL

To the extent feasible, erosion control would be initiated promptly after completion or abandonment of the operation on those portions of the complex that would not be subject to further disturbance (MCA 82-4-336(2)).

Final erosion control will be accomplished by establishing perennial, self-perpetuating vegetation, except in open water or on exposed alluvium and bedrock highwalls (MCA 82-4-336(8)). Potential erosion from steeper slopes such as rock disposal sites, leach pad faces, and the YDTI Embankment face would be mitigated by constructing backsloped benches across the slope to reduce slope distance (Figure RP-7-1). The distance between benches would vary based on site conditions.

Offsite sedimentation would be controlled by a combination of on-site reclamation and erosion control, post-closure drainage system (see Section 3.2), and post-closure topography. MR is in the process of providing a Notice of Intent and Stormwater Pollution Prevention Plan for coverage under the Multi-Sector Permit for Stormwater Discharges Associated with Industrial Activities.

The area peripheral to the YDTI (west, north, and east) rises upslope, thus there is a lower potential runoff and sediment yield. As described in Section 3.2, West Embankment runoff will report to multiple stormwater basins located along the embankment toe for retention and infiltration. Runoff from extreme storm events and the Probable Maximum Flood (PMF) during operations and post-closure would be contained in the YDTI. However, a contingency spillway will be constructed during reclamation of the YDTI as an emergency water management system designed to prevent overtopping of the embankment. Water (and sediment) from the YDTI would flow into the Continental Pit. The Continental Pit and CZABA, as well as the Berkeley Pit would be repositories for onsite runoff from the southern portion of the mine area. Stormwater runoff would be handled by ditches within the mine area (see Section 3.2 and Exhibit RP-2). The Clearwater Ditch captures sediment from the East RDS complex and directs flows to the Dredge Pond, where it is managed through operations and/or BMFOU.

7.1 SOIL STABILIZATION

Mulching may be conducted on areas where coversoil has been applied to provide erosion control, promote soil moisture retention, and provide supplemental organic material. Supplemental mulching may be necessary on a site-by-site basis if revegetation is not successful, or erosion is evident. Where used, mulch would be spread over seeded areas at rates dependent on seeding method and slope. Only noxious weed-free straw and cellulose fiber mulches will be used. Straw mulch will be applied at a rate of about one ton per acre on drill seeded surfaces and up to two tons per acre on steeper slopes where conventional broadcast methods are used. Straw mulch will be anchored into the seedbed using a mulch crimper, disc, or by dozer tracking. Cellulose fiber mulch will be applied at a rate of about one ton per acre on hydroseeded areas.

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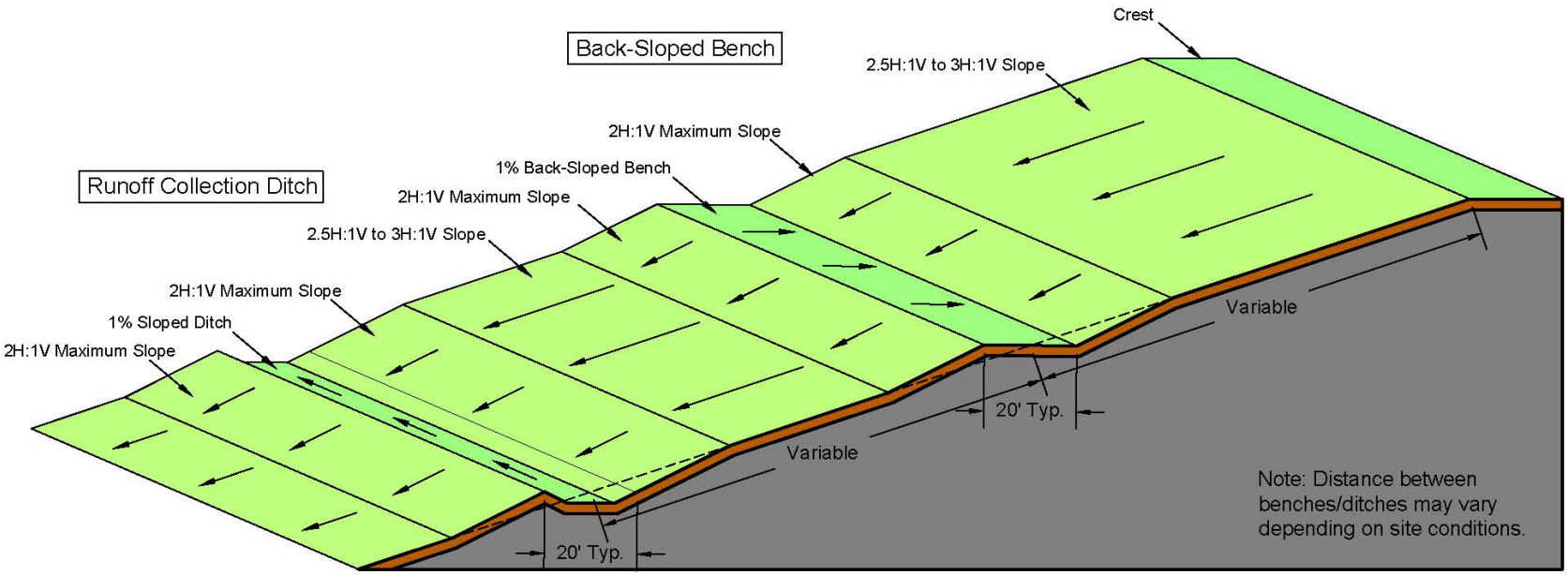
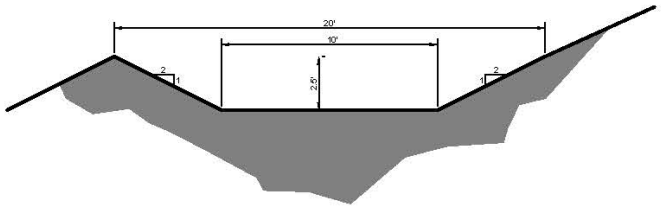
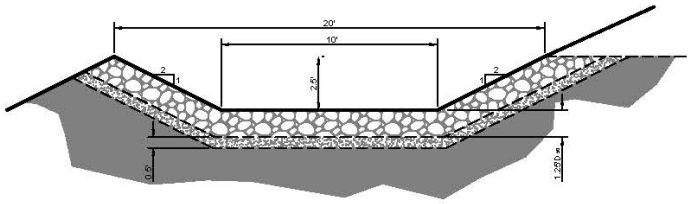


Typical Back-Sloped Bench or Runoff Collection Ditch



Typical Runoff Collection Ditch



Typical Runoff Collection Ditch with Riprap

Montana Resources

Figure RP-7-1

Slope Benching and Runoff Collection Ditch Typicals

Other soil stabilizing products such as tackifiers, erosion control blankets, bonded fiber matrix, turf reinforcement mats, fiber logs, or channel liners may be used on a site-by-site basis; they would be applied and/or installed per manufacturers' recommendations.

7.2 MAINTENANCE AND REPAIRS

Erosion and sedimentation will be monitored during reclamation evaluations (see Section 10.4). Standard maintenance practices for reclaimed sites include promoting desirable perennial species establishment through control of noxious weeds, repair of rills and gullies, and reseeding if necessary. Deposits of sediment that may undesirably impact surface flows are mitigated by removing sediment deposits and/or repairing the area to control future erosion. Where erosion or sedimentation is identified, MR will implement erosion and sediment control Best Management Practices (BMPs) to mitigate the site. Table RP-7-1 lists possible BMPS.

Table RP-7-1 Erosion and Sediment Control BMPs

Erosion Control BMPs	Sediment Control BMPs
Surface Roughening	Silt Fence
Vegetation Establishment	Straw/Coir Wattles
Check Dams	Earthen Berms
Runoff Diversion Ditches	Sediment Traps/Basins
Slope Drains	Sediment Removal
Erosion Control Blankets	
Mulching	

Erosion or sediment control BMPs would be determined on a case-by-case basis and installed per manufacturer's recommendations. MR would consult DEQ's "Field Guide for Best Management Practices" (DEQ 2014) for installation procedures.

Reclaimed areas redisturbed by erosion or sediment control BMPs will be reseeded where established vegetation is removed. Any repair work will be documented in annual reports.

8.0 RECLAMATION BY MINE COMPONENT

Reclamation will include the continued mining, loading, and hauling of alluvium from the Central Zone; grading/sloping; application of coversoils; seeding; installation of erosion control materials; and weed control. A list of potential reclamation equipment is included in Table RP-8-1; type of equipment utilized will vary by site. Continental Mine reclamation specifications are discussed in the following sections and summarized in Appendix RP-C by mine component.

Table RP-8-1 List of Potential Reclamation Equipment at the Continental Mine

Shovels
Bucyrus Erie 495HD 40 cubic yard
Caterpillar 7495HD 40 cubic yard
Caterpillar 6020B Hydraulic Shovel
Caterpillar 330 Hydraulic Excavator
Caterpillar 994F Front End Loader, 25 cubic yard capacity
Caterpillar 994K Front End Loader, 30 cubic yard capacity
Trucks
Caterpillar 793 Haul Trucks 240 ton
Caterpillar 740, 40 Ton Articulating Haul Trucks
Caterpillar 777, 100 Ton Haul Trucks
Support Equipment
834K Caterpillar Wheel Dozer
Caterpillar D8R Crawler Dozers
Caterpillar D8T Crawler Dozers
Komatsu D155 Crawler Dozers
Caterpillar 16M Motor graders
Caterpillar 992G Front-end Loader, 13.5 cubic yard capacity
Caterpillar 793 Road Water Trucks, 52,000 gallon capacity
Komatsu WA 480 Loader
Komatsu PC650 Hydraulic Excavator
Caterpillar D10T Bulldozer
Caterpillar 14H Motor Grader
Caterpillar 980 Wheel Loader
Tractor Truck w/ Equipment Trailers
2,500 Gallon Water Truck
CAT D6R Dozer
Drill Seeder
Broadcast Seeder
Harrow

8.1 YANKEE DOODLE TAILINGS IMPOUNDMENT

The most recent amendment raises the West Embankment crest to an elevation of 6450 feet to match the North-South and East-West Embankments. The tailings facility has two main components: the embankment or dam containing the tailings and the tailings area upstream of the embankment. The tailings area is further subdivided into a beach comprised of coarser tailings and a pond or open water component where finer tailings settle. A spillway would be constructed at closure (ARM 17.24.115(e)). Figure RP-8-1 shows conceptual closure of the YDTI in 2031 (assumed based upon Amendment 10 timeframe) and Figure RP-8-2 shows conceptual closure at equilibrium.

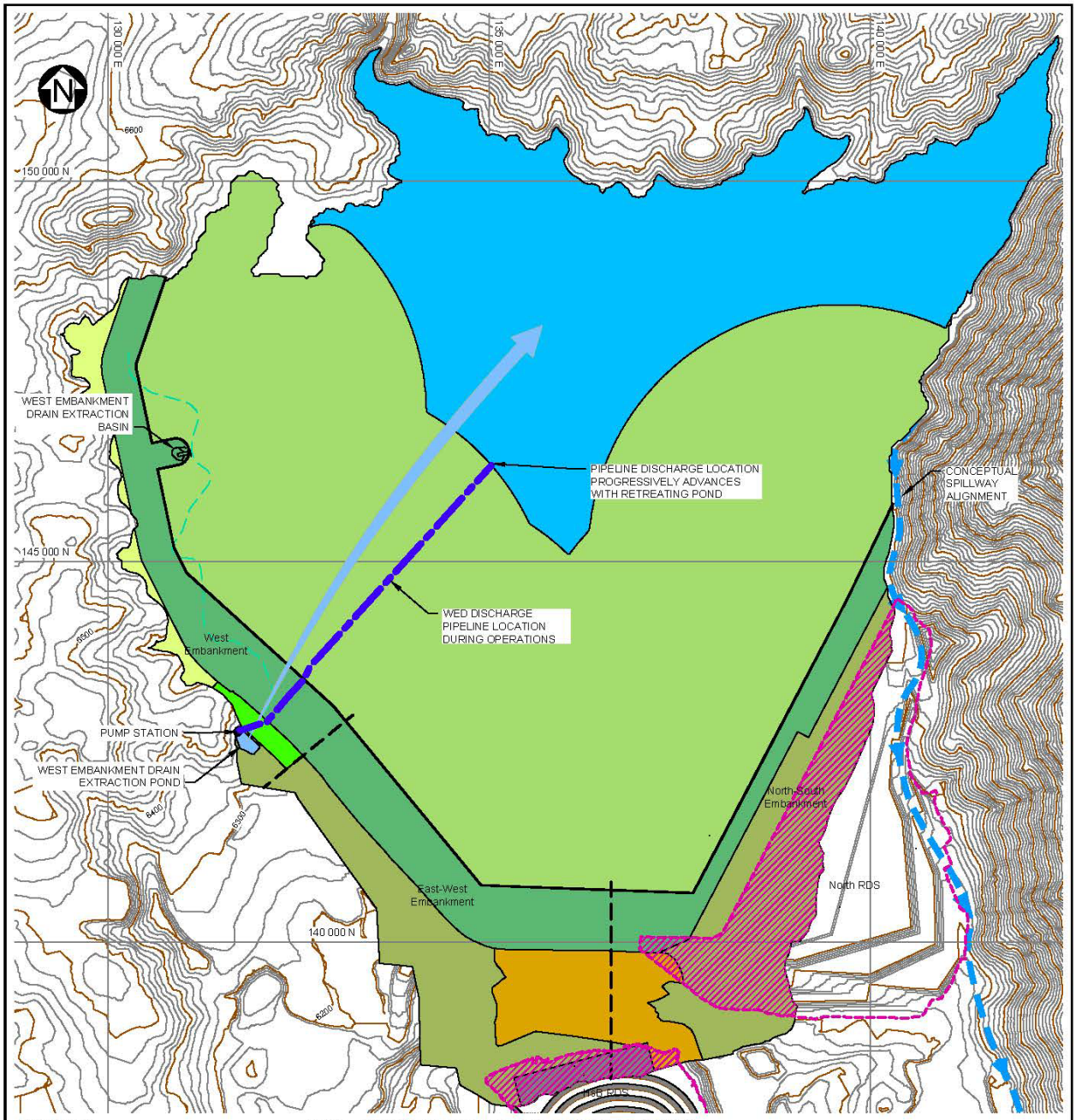
8.1.1 Embankment Slopes and Crest

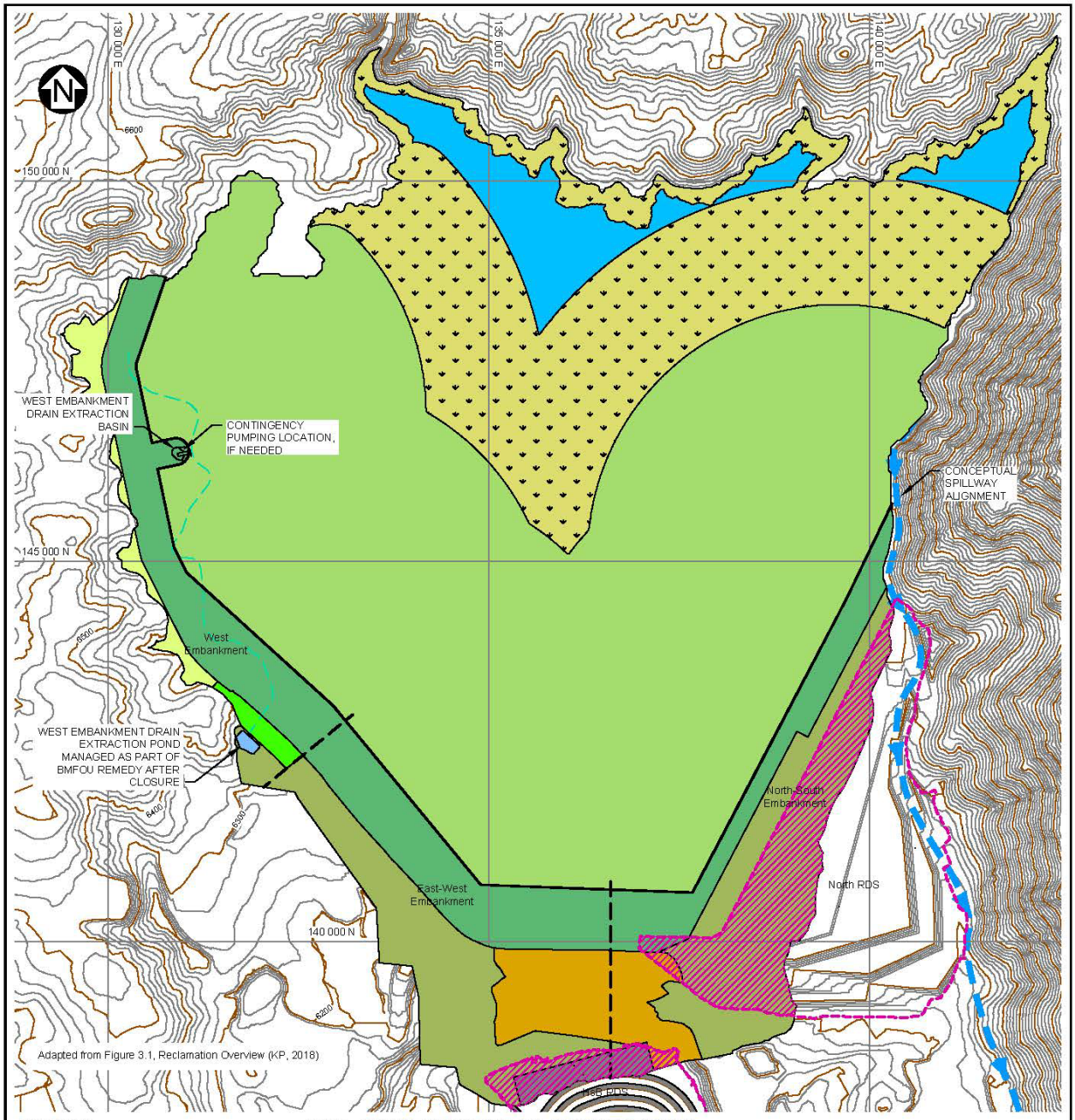
The North-South and East-West Embankments are constructed with an overall downstream embankment slope of 2H:1V or flatter. The face of the North-South Embankment and a portion of the East-West Embankment will be covered by the North RDS. Final grading will result in an overall slope of 2.7H:1V or flatter. A portion of the East-West Embankment is constructed at, and will remain at, 2H:1V. The lower portion of the East-West Embankment will be covered by the HsB RDS and will be graded at an approximate slope of 3H:1V. The West Embankment is constructed at its final slope of 3H:1V, with the exception of a small segment near the West Embankment Drain (WED) extraction pond, where the final slope would be graded to 2.5H:1V. Post-closure reclamation of the WED will be managed through the BMFOU remedy. All grading will be conducted using non-noxious, nonflammable, noncombustible solids (MCA 82-4-336(6)).

Surface water swales and ditches will be constructed as needed at variable distances along the embankment downstream slopes. The concept includes grass-lined swales in the upper reaches, transitioning to riprap-lined ditches in the lower reaches, as shown on Figure RP-7-1.

The minimum embankment crest width will be 200 feet. The short upstream embankment face between the crest and the tailings surface will be graded to a 2.7H:1V or flatter slope. An access road will be retained along the top of the embankment crest for post-closure use.

Coversoil will be distributed at a depth of 20 inches of alluvium (or 14 inches of alluvium with 6 inches of topsoil over it to achieve 20 inches) on the 3H:1V portion of the West Embankment concurrently with lift completion. The topsoil volume needed for resoiling the slope to the 6450-foot elevation is approximately 19,000 cubic yards.


130 000 E
135 000 E
140 000 E
150 000 N
145 000 N
140 000 N
6600
6400
6200
WEST EMBANKMENT DRAIN EXTRACTION BASIN
PIPELINE DISCHARGE LOCATION PROGRESSIVELY ADVANCES WITH RETREATING POND
CONCEPTUAL SPILLWAY ALIGNMENT
WED DISCHARGE PIPELINE LOCATION DURING OPERATIONS
West Embankment
PUMP STATION
WEST EMBANKMENT DRAIN EXTRACTION POND
North-South Embankment
East-West Embankment
North RDS
156 RDS
LEGEND:
SPILLWAY
WEST EMBANKMENT DRAIN (WED)
RECLAIMED SLOPE (2H:1V)
RECLAIMED SLOPE (2.5H:1V)
RECLAIMED SLOPE (2.7H:1V)
RECLAIMED SLOPE (3H:1V)
RECLAIMED SLOPE (RIPRAP)
RECLAIMED CREST
RECLAIMED BEACH
POND
EMBANKMENT AREA COVERED BY RDS
WED PUMPBACK
YDTI: 6450 EMBANKMENT ARRANGEMENT
ELEVATION: EMBANKMENT CREST - 6450
TAILINGS POND - 6428
NOTES:
1. COORDINATE GRID IS ANACONDA MINE GRID.
2. GROUND CONTOUR INTERVAL IS 20 FEET.
3. DIMENSIONS AND ELEVATIONS ARE IN FEET UNLESS NOTED OTHERWISE.
4. SCHEMATIC ASSUMES 15,000 AC-FT POND VOLUME.
5. SUPERNATANT POND AND BEACH ELEVATION AND CONFIGURATION WILL LIKELY DIFFER DUE TO THE BMFOU REMEDY, ON-SITE WATER MANAGEMENT, AND TAILINGS DEPOSITION STRATEGY.
0
1000
2000ft
Montana Resources
YANKEE DOODLE TAILINGS IMPOUNDMENT
Figure RP-8-1
Reclamation Overview
Conceptual Closure Arrangement - 2031
YDTI Proposed Embankment Design
MR22_RP_YDTI_Conceptual_Closure_2031.dwg
1/8/23



LEGEND:

- SPILLWAY
- WEST EMBANKMENT DRAIN (WED)
- RECLAIMED SLOPE (2H:1V)
- RECLAIMED SLOPE (2.5H:1V)
- RECLAIMED SLOPE (2.7H:1V)
- RECLAIMED SLOPE (3H:1V)
- RECLAIMED SLOPE (RIPRAP)
- RECLAIMED CREST
- RECLAIMED BEACH
- TRANSITION ZONE
- POND
- EMBANKMENT AREA COVERED BY RDS

YDTI: 6450 EMBANKMENT ARRANGEMENT

ELEVATION: EMBANKMENT CREST - 6450
TAILINGS POND - 6362-6364

NOTES:

1. COORDINATE GRID IS ANACONDA MINE GRID.
2. GROUND CONTOUR INTERVAL IS 20 FEET.
3. DIMENSIONS AND ELEVATIONS ARE IN FEET UNLESS NOTED OTHERWISE.
4. SCHEMATIC ASSUMES 500 AC-FT POND VOLUME.
5. TRANSITION ZONE SHOWN AS AREA BETWEEN 15,000 AC-FT AND <1,000 AC-FT POND VOLUMES.
6. WATER MANAGEMENT DETAILS PROVIDED IN SECTION 3.4.3 OF RECLAMATION OVERVIEW.
7. REMNANT POND, TRANSITION ZONE, AND BEACH ELEVATION AND CONFIGURATION WILL LIKELY DIFFER DUE TO THE BMFOU REMEDY, ON-SITE WATER MANAGEMENT, AND TAILINGS DEPOSITION STRATEGY.

0 1000 2000ft

Montana Resources

YANKEE DOODLE
TAILINGS IMPOUNDMENT

Figure RP-8-2
Reclamation Overview
Conceptual Closure Arrangement - Equilibriuim
YDTI Proposed Embankment Design

MR22_RP_YDTI_Conceptual_Closure_Equil.dwg | 1/8/23

The East-West Embankment face will be capped with 20 inches of alluvium (or if topsoil is used, a combination of alluvium and topsoil to achieve a total of 20 inches) on the 3H:1V and 2.7H:1V or steeper slopes. Alluvium would be lime amended as necessary based on testing (see Section 5.1).

The North-South Embankment face will be covered by, and reclaimed in conjunction with, the North RDS, discussed in Section 8.2.

The embankment crest will be capped with 28 inches of suitable or amended alluvium unless mine rock scheduling allows the direct-haul of the final 28 inches of the crest to be constructed of suitable leached cap.

8.1.2 Beach

Post-closure beach and pond acreage will change following closure as the pond drains. Table RP-8-2 lists beach and pond acreages annually through 2082 (assuming closure in 2031) based on modeling during the 6450 design phase. Modeling will be updated periodically to reflect changes resulting from the BMFOU remedy, on-site water management, and tailings deposition strategy.

The tailings beach will slope gradually away from the embankment to the north at a typical slope of less than one percent. Some topographic diversity would be created by final placement of the spigots. While no final grading is anticipated in the beach or pond area since water would drain northwards to the post-closure pond, it may be necessary to conduct some surface shaping to compensate for settlement.

The beach would either be capped with 28 inches of alluvium with the top six inches amended where necessary; or, where possible, salvaged topsoil would be used to cover as much of the beach area as possible to a depth of 6 inches over 22 inches of respread alluvium to achieve a total coversoil depth of 28 inches. Where topsoil is available, placing it over alluvium will enhance revegetation and evapotranspiration, thereby reducing percolation through the tailings.

8.1.3 Post-Closure Pond and Transition Zone

The tailings pond will be positioned to the north side of the facility, and away from the YDTI Embankments. The post-closure pond will be passively controlled by the invert position of the closure spillway.

A remnant pond will be present post-closure as was previously permitted in MR's wet closure plan. The surface elevation of the pond at closure will be controlled due to construction of a spillway.

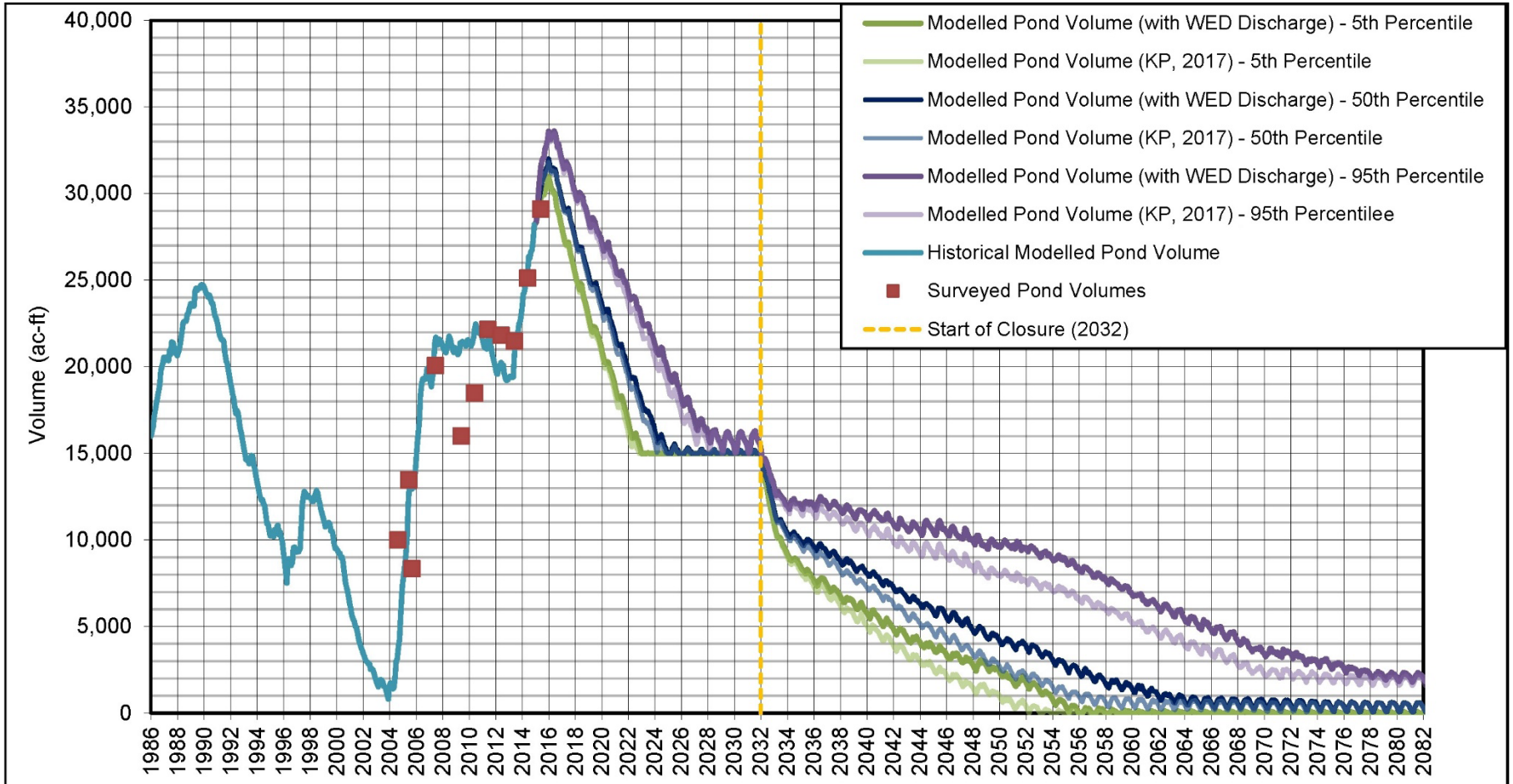
The pond size will decrease over time once tailings and make-up water, WED discharge, and upgradient sources (if diversions are applicable) are no longer added and water drains through the tailings to the south. Figure RP-8-3 shows the volume of the post-closure pond over time, with an ultimate equilibrium volume of about 500 acre-feet, corresponding to an elevation of about 6363 feet. This is a conservative estimate and does not include water reduction through the Pilot Project. Note that post-closure treatment of WED water as part of the BMFOU remedy would slightly affect acreages in Table RP-8-2. MR will periodically update and report current conditions.

Table RP-8-2 Estimated Annual YDTI Tailings Beach, Transition Zone, and Pond Areas

Year	Closure Area[1]		
	Reclaimable Tailings Beach (acres)	Pond (acres)	Transition Zone (acres)
2031	1,122	462	220
2032	1,122	462	220
2033	1,179	411	213
2034	1,206	387	211
2035	1,216	378	209
2036	1,225	371	208
2037	1,233	363	207
2038	1,244	354	206
2039	1,251	347	206
2040	1,262	336	206
2041	1,269	329	206
2042	1,279	319	206
2043	1,296	304	204
2044	1,305	297	202
2045	1,318	286	200
2046	1,325	279	199
2047	1,337	269	197
2048	1,351	258	195
2049	1,363	248	193
2050	1,370	242	192
2051	1,383	231	189
2052	1,385	229	189
2053	1,418	210	176
2054	1,485	173	145
2055	1,560	133	111
2056	1,600	110	93
2057	1,648	85	71
2058	1,672	71	60
2059	1,692	61	51
2060[2]	1,682	66	56
2061	1,701	56	47
2062	1,710	51	43
2063	1,705	53	45
2064	1,710	51	43
2065	1,710	51	42
2066	1,710	51	43
2067	1,711	51	42
2068	1,710	51	43
2069	1,725	43	36
2070	1,729	40	34
2071	1,727	41	35
2072	1,729	41	34
2073	1,740	34	29
2074	1,738	36	30
2075	1,738	36	30
2076	1,737	36	30
2077	1,743	33	27
2078	1,745	32	27
2079	1,743	33	28
2080	1,738	36	30
2081	1,745	32	27
2082	1,743	33	28

[1]Based on a freshwater input of 1 MGPD.

[2]Equlibrium at 2060 is based on a modeled pond volume of 500 acre-feet.



NOTES:

1. INCLUDES MINIMUM SILVER LAKE INFLOWS OF 1.0 MGPD FROM JAN 2016 TO DEC 2031.
2. 15,000 AC-FT MINIMUM POND VOLUME FROM NOV 2015 TO DEC 2031.
3. KNIGHT PIESOLD LTD. (KP, 2017). MONTANA RESOURCES - UPDATED YANKEE DOODLE TAILINGS IMPOUNDMENT WATER BALANCE MODEL (KP REF. NO. VA17-00828), DATED JULY 6, 2017

Adapted from Knight Piésold Ltd. (5/11/18) -
Updated YDTI Water Balance with West Ridge Groundwater Flux to the West Embankment Drain, Figure 2

MONTANA RESOURCES, LLP

YANKEE DOODLE TAILINGS IMPOUNDMENT

COMPARISON OF SIMULATED SUPERNATANT POND VOLUME (1.0 MGPD FRESHWATER)

Knight Piésold CONSULTING

P/A NO.

REF. NO.

FIGURE RP-8-3

REV 0

Water quality in the remnant pond was modelled using a mass load model (Schafer 2018). The model assumes two different potential water quality conditions for water coming into contact with tailings or non-ore rock. The Worst Case simulation assumes all contact water would be similar to Horseshoe Bend water. The Probable Case simulation assumes contact water has a lower adjusted sulfate, acidity, and metal concentration owing to geochemical differences between rock and tailings from the Continental deposit (representing West Embankment construction material and current and future tailings generation) and Berkeley Pit rock contacted by Horseshoe Bend water. The model accounts for contributions of flow and loading from the WED, however, WED water will no longer be pumped to the remnant pond post-closure. This may result in a slight improvement in remnant pond water quality.

For the Probable Case, the pool would remain alkaline throughout operations and closure and metals concentrations would remain low. Sulfate would be around 1100 mg/L (Total Dissolved Solids (TDS) of 1800 mg/L) at closure and would gradually decline to about 250 mg/L (TDS 400 mg/L) about 30 years post-closure.

For the Worst Case, the pool would gradually become slightly acidic after closure (net alkalinity of -200 mg/L and pH of 5.5 to 7.0), with iron of up to 36 mg/L and aluminum up to 16 mg/L. Sulfate would be around 1100 mg/L (TDS of 1800 mg/L) at closure and would gradually decline to less than 500 mg/L (TDS 1000 mg/L) around 30 years post-closure.

If acidic conditions were to develop after closure, lime would be added to maintain alkaline conditions and low metals. 5000 tons of lime would be needed over the 30-year post-closure period, or about 150 tons per year.

The area between the pond level at closure (6428 feet) and the pond level at equilibrium (6362 to 6366 feet) represents a transition zone as the water level drops. The rate of drop would average slightly more than 2 feet per year, but would be variable with changing annual runoff, pond surface area, and other factors influencing the annual water budget. Transition zone acreages listed in Table RP-8-2 are based on an 800-foot wide buffer at the boundary of the beach and pond, reflecting the trafficable area for equipment operation. This buffer is based on conditions encountered during the 2001-2003 care and maintenance period when capping material was spread.

The beach area slope will be flatter than 5 percent. Coversoil will be spread on the beach to a depth of 28 inches of alluvium or a combination of 22 inches of alluvium and 6 inches of topsoil (see Table RP-4-7). The transition zone is projected to be a 5 percent slope (see Exhibit RP-2) and would be covered with 20 inches of coversoil. Should portions of the transition zone be less than 5 percent slope, coversoil depth would be increased to 28 inches. As water level drops and the transition zone dries, coversoil would be placed in 5 year increments. A 6-inch cover of rock, leached cap, or similar material would be placed as necessary for dust control concurrently with beach exposure. Coversoil material may be stockpiled on the beach area in advance to minimize haul distance post-closure. Coversoil would not be applied to the remnant pond.

The rate of water level drop in conjunction with slope in the pond area would likely preclude establishment of a broad wetland zone. Some wetland vegetation may naturally establish temporarily, however, water level drop would result in a fairly rapid conversion of any narrow wetland zone to upland vegetation. MR would revegetate the expanding beach zone to upland species (Section 6.0).

Wetland plants would naturally establish along the equilibrium remnant pond perimeter since wetland species are present in upstream drainages and beaver ponds.

8.1.4 Closure Spillway

A conceptual closure spillway has been designed to prevent water from pooling against the embankment (Figure RP-8-4). A conceptual design for the closure spillway is presented in Appendix B to Knight Piésold's Reclamation Overview report of the Design Document (KP 2018b).

The spillway walls and bottom in the segment would be excavated in bedrock. The spillway segment traversing previously disturbed areas would be regraded, covered with 20 inches of alluvium, and broadcast seeded with the mixture shown in Table RP-6-1.

8.1.5 West Embankment Drain and Pond

Post-closure, water collected by the WED would be managed as part of the BMFOU remedy per resolution of a stipulation to Permit Amendment 10.

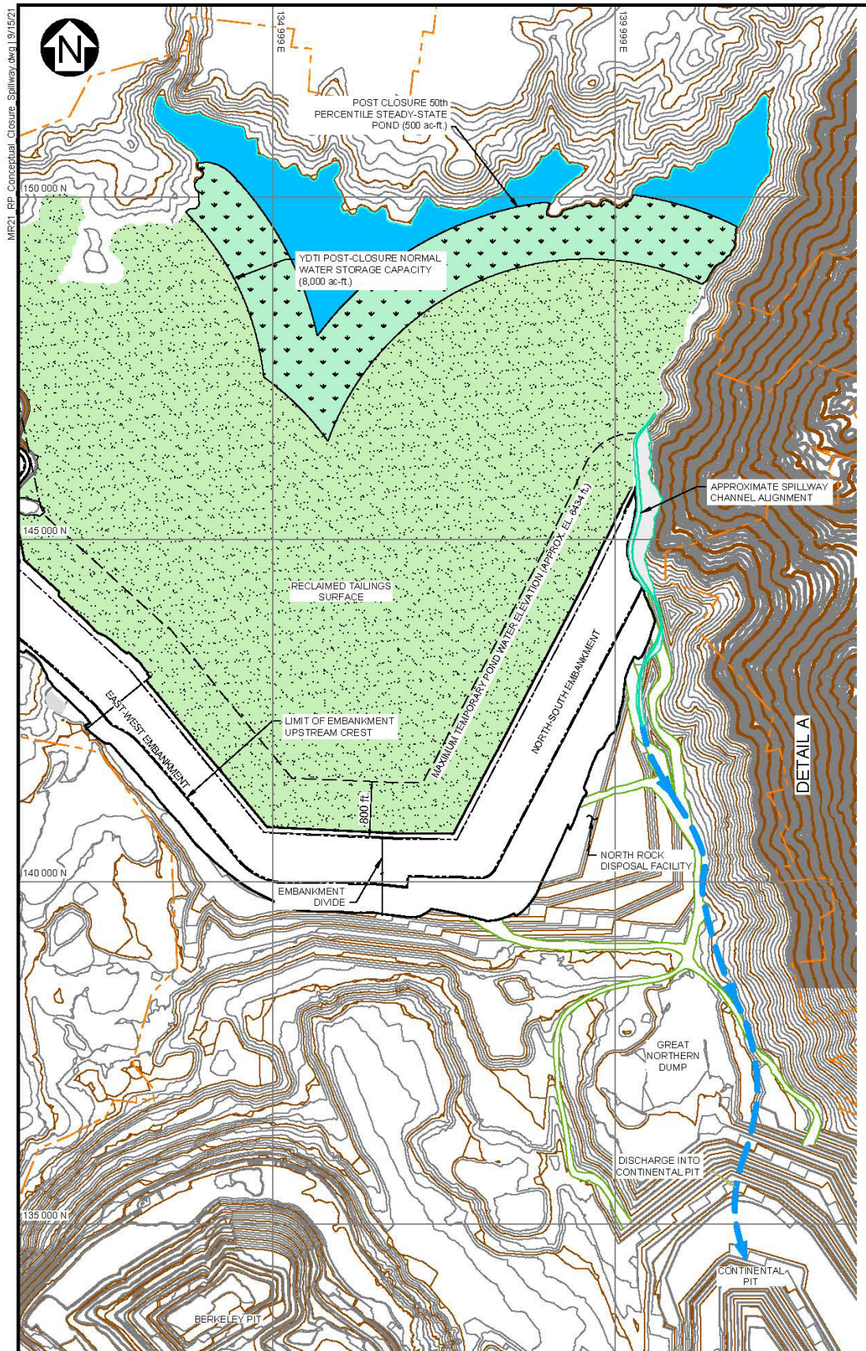
When the Extraction Pond is no longer deemed necessary, its reclamation would also be managed as part of the transition of WED flow to BMFOU remedy.

8.2 ROCK DISPOSAL SITES

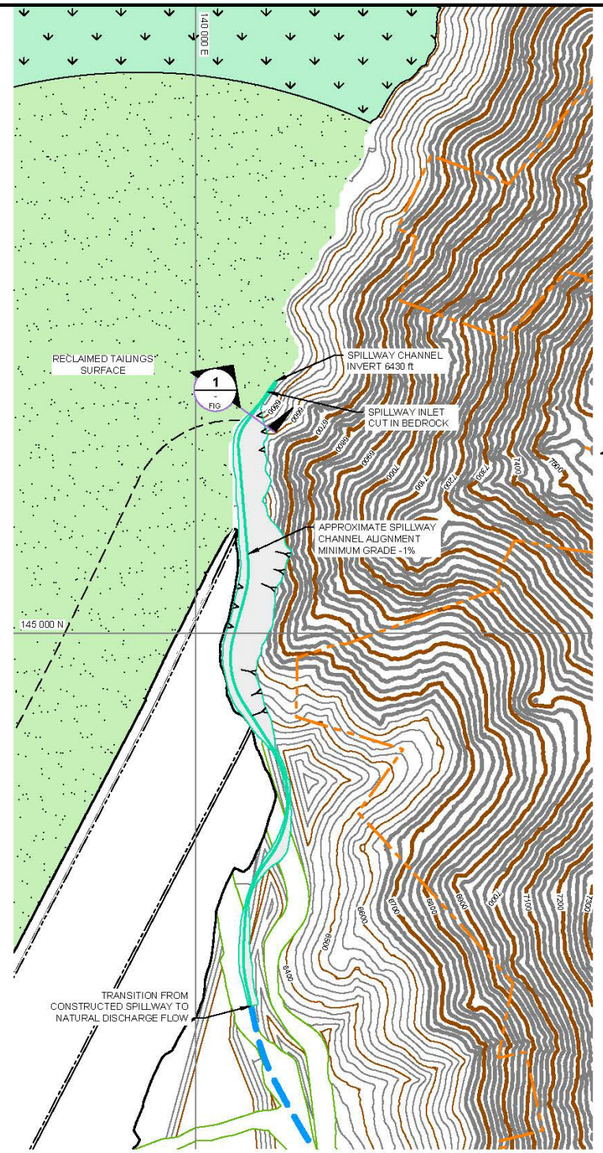
Non-ore rock is used to build the YDTI Embankment, pit ramps, and haul roads. Suitable non-ore rock is also used for reclamation capping and can be used, if necessary, for dust control on the YDTI beach. When not necessary for construction, non-ore rock is placed in RDSs, which are also referred to as "Waste Rock Dumps". RDSs existing (Figure RP-8-5) or proposed within the overall permit area are shown on Exhibit RP-1 and discussed below.

General reclamation methods for RDSs are specified in Appendix RP-C and include:

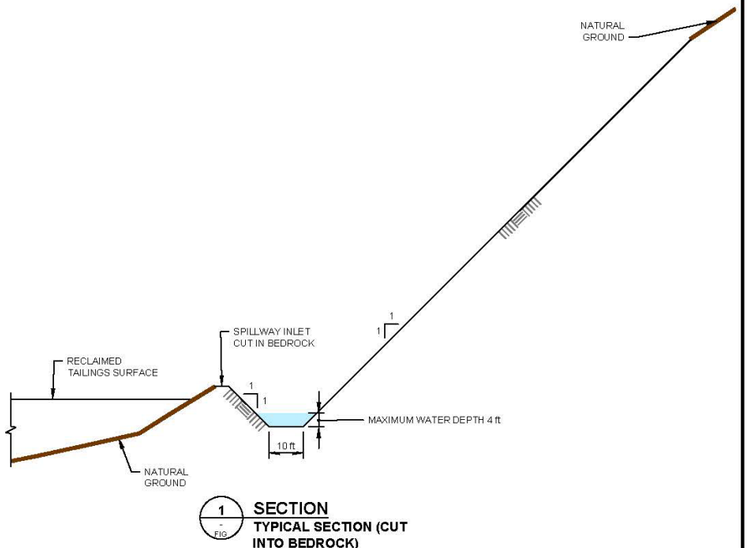
- reducing slopes to not steeper than 2.7H:1V (except for a short section of the East-West Embankment which will be 2H:1V);
- regrading to keep water from ponding;
- constructing benches or runoff collection ditches on regraded slopes;
- redistributing 20 inches of coversoil on slopes and 28 inches of coversoil on tops and benches;
- testing and amending alluvium, if necessary;
- if needed, applying and incorporating organic matter into some areas if topsoil is not spread over alluvium (Section 5.2); and
- establishing vegetation and controlling weeds.



PLAN
SCALE A



A FIG **DETAIL SPILLWAY**
SCALE B



1 FIG **SECTION**
TYPICAL SECTION (CUT INTO BEDROCK)
NTS

LEGEND:

- PROPERTY BOUNDARY
- SPILLWAY CONSTRUCTED IN BEDROCK
- DISCHARGE FLOW TO CONTINENTAL PIT

NOTES:

1. COORDINATE GRID IS ANACONDA MINE GRID.
2. THE NORTH TERRACE LOCATION AND LAYOUT WAS PROVIDED BY MR IN NOVEMBER 2015. THE CONTINENTAL YR 2040 EXTENTS WERE PROVIDED BY MR AUGUST 2016.
3. ALIGNMENT IS CONCEPTUAL AND WILL REQUIRE OPTIMIZATION FOR HYDRAULIC CONSIDERATIONS IN NEXT PHASE OF DESIGN.
4. CONTOUR INTERVAL IS 25 ft.

DRAFT

CONCEPTUAL ARRANGEMENT ONLY

NOT FOR CONSTRUCTION

SCALE B: 500 0 500 1000 1500 2000 2500 ft
SCALE A: 1000 0 1000 2000 3000 4000 5000 ft

Adapted from Knight Piésold Ltd. (10/5/2017) Reclamation Overview, Appendix B, Figure 1.

MONTANA RESOURCES, LLP

YANKEE DOODLE TAILINGS IMPOUNDMENT

CONCEPTUAL CLOSURE SPILLWAY

Knight Piésold CONSULTING

PIAN NO. | REF NO.

FIGURE RP-8-4

REV. 1


Nalley Valley RDS
Great Northern RDS
Access RDS
Woodville RDS
Pittsmont RDS
CONTINENTAL PIT
South Continental Pit RDS
North East RDS
East RDS
Hillcrest RDS
1995, 1998, 2002, 2012
2017, 2018
2019, 2020
2021
2022
2023
2024
I-15
CONTINENTAL DRIVE
LEGEND
Permit Boundary
Rock Diposal Site (RDS)
Hillcrest - 48 Acres
East - 176 Acres
North East - 32 Acres
Great Northern - 130 Acres
Pittsmont - 124 Acres
Woodville - 2 Acres
Access - 35 Acres
Nalley Valley - 151 Acres
South Continental Pit - 25 Acres
Reclamation History
Contour 25-foot
Note: Acreages reflect 2025 Continental Pit design and above the 5410 foot elevation.
Aerial: 2022
0
600
1200 ft
Montana Resources
Continental Mine
Figure RP-8-5
Existing Rock Disposal Sites
WESTECH ENVIRONMENTAL
MR22_RP_RDSs_Existing.dwg
1"=1200'
11/10/22

All final grading will be done with non-noxious, nonflammable, noncombustible solids per MCA 82-4-336(6). Post-closure topography is shown on Exhibit RP-2; cross-sections of RDSs are presented in Appendix RP-B; and reclamation specifications are summarized in Appendix RP-C-2.

8.2.1 East RDS Complex

The East RDS Complex is located south and east of the Continental Pit and is comprised of rock originating in the Continental Pit. The 200-acre complex consists of the Hillcrest RDS (48 acres), East RDS (120 acres) and North East RDS (32 acres). The Hillcrest RDS was graded, soiled, and seeded in the 1970's with repairs and supplemental seeding at selected sites in the 1990's, 2002, and 2012. The East RDS was graded, soiled and seeded between 2017 and 2020. The North East RDS was mostly reclaimed between 2002 and 2014 and includes a small area of older reclamation with established trees. Reclamation work was completed in accordance with standard reclamation practices and DEQ's regulatory program.

RDS reclamation has included regrading slopes to promote surface water drainage and mimic natural topography. Regraded slopes on the East RDS Complex typically range from 2.5H:1V to 3H:1V and drain surface water towards the Clearwater Ditch along the eastern and southern perimeters. The RDS slopes were regraded to provide adequate drainage and a stable substrate for cover materials. These slopes consist of varied topography and aspects that mimic nearby hillslopes as mitigation for post-reclamation visual contrasts. The regraded slopes include establishment of natural drainage patterns as well as dispersed terraces on ridges, midslopes, and toeslopes. The post-mine topography minimizes infiltration of precipitation into waste rock material, promotes effective surface drainage, and reduces undesirable offsite impacts.

Following regrading, the faces of the RDSs were covered with a combination of alluvium and soil as a vegetative growth medium. The slopes of the RDSs were then seeded with perennial grass and forb species. Establishment of these species along with moderate slopes provide permanent soil stabilization.

8.2.1.1 Hillcrest RDS

The south slope of the Hillcrest RDS was originally regraded, covered with alluvium and topsoil, and seeded in 1982; the west slope was reclaimed in 1995-1996. Some additional reclamation occurred in 2002 and 2012.

8.2.1.2 East RDS

Portions of the East RDS were regraded, covered with alluvium and topsoil, and seeded beginning in 2018 and extending into 2020.

8.2.1.3 North East RDS

The North East RDS, located near the Continental Pit D East Pushback, was regraded, covered with alluvium and topsoil, and seeded between 2018 and 2020.

Figure RP-8-5 shows East RDS Complex graded slopes as of 2021, which reflects post-closure topography for the majority of the East RDS. Aspect ranges from west-facing through south-facing with that portion along Interstate 15 facing mostly east. Slopes are variable with steepest slopes at 30-40 percent where

the East RDS abuts Anaconda's northeast dump at the northern edge of the East RDS. Most slopes are between 15 and 30 percent with flatter benches and toeslopes. Cross-sections for the East RDS are presented in Appendix RP-B.

8.2.2 North RDS

The North RDS will serve as a repository for rock generated from the Continental Pit that is not needed for constructing the YDTI Embankment, and as access to the YDTI Embankment crest, with ramp locations changing with lift elevations. The North RDS will develop adjacent to and ultimately cover the North-South Embankment; it will overlay existing Leach Area No. 3 and other disturbances. The ultimate configuration of the North RDS will cover the North-South Embankment downstream face. Based upon current assumptions, it is anticipated that rock will be placed in the North RDS between 2022 and 2031.

Two ramps will be present in 2031: the east ramp along the base of Rampart Mountain, and a ramp through the southern part of the North RDS. Post-closure, the east ramp would serve a dual purpose as the location for a portion of the impoundment spillway and access road to the embankment and post-closure pond. The south ramp would provide access to the embankment crest for monitoring. Those portions of the ramps not necessary for post-closure use will be reclaimed, as discussed above for the remainder of the North RDS. Arrangement of the North RDS and ramps in 2031 is depicted in Figure RP-8-6; cross-sections appear in Appendix RP-B.

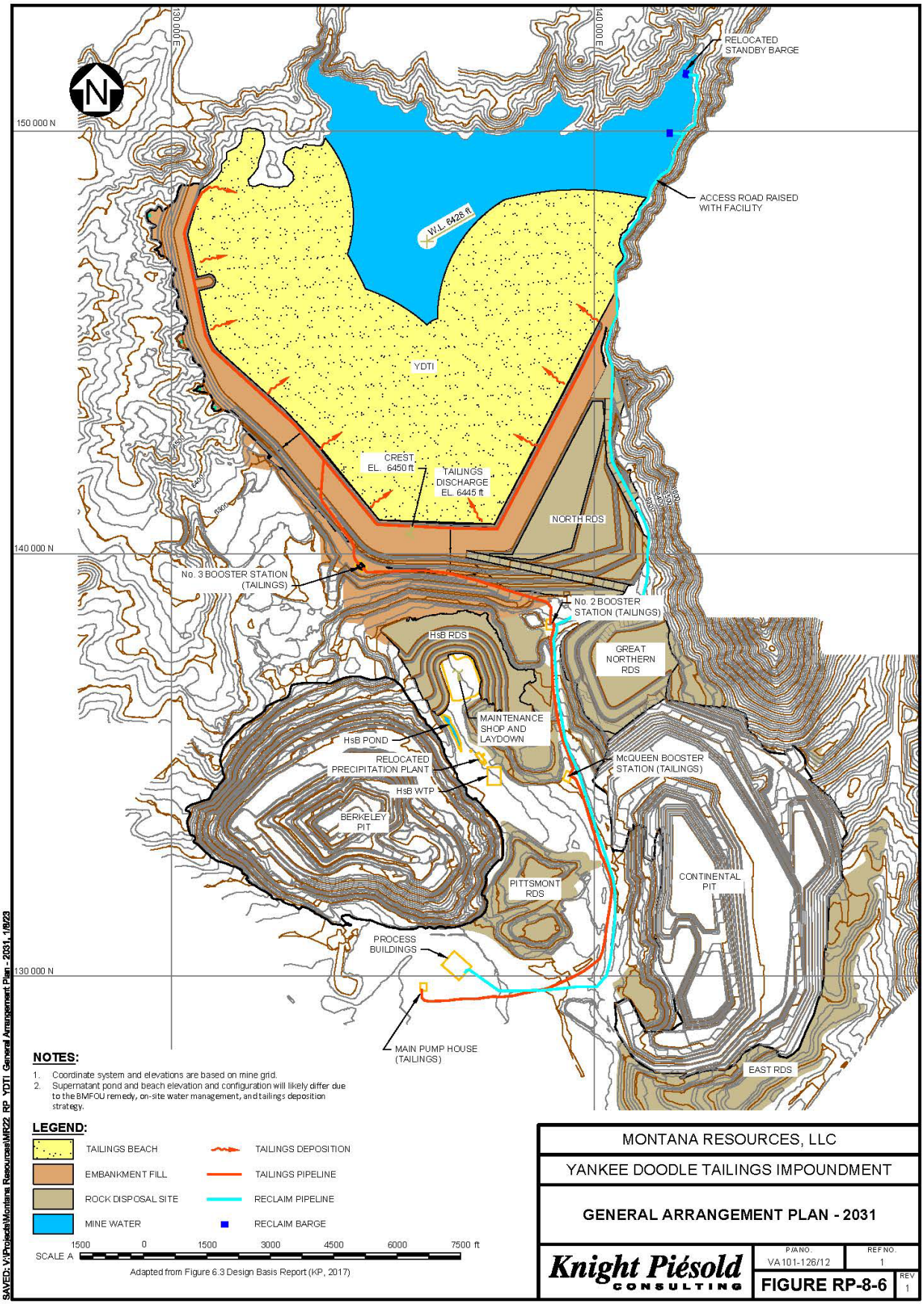
Reclamation methods for the North RDS are similar to methods for other permitted rock disposal sites: reduce slopes to not steeper than 2.7H:1V; regrade to keep water from ponding; construct benches or runoff collection ditches on regraded slopes; redistribute 20 inches of alluvium on slopes ≥ 5 percent and 28 inches of alluvium on tops and benches <5 percent (or cover with topsoil if available, and alluvium to achieve a total depth of 20 and 28 inches, respectively); test and amend alluvium, if necessary; apply and incorporate organic matter at a rate of up to 0.5 percent by volume at sites with lower reclamation potential; and establish vegetation and control weeds as described in Section 6.0. All final grading will be made with non-noxious, nonflammable, noncombustible solids as per MCA 82-4-336(6).

8.2.3 Great Northern RDS

Non-ore rock not placed in the YDTI Embankment or in the North RDS would be added to the existing Great Northern RDS. No new disturbance would be created as the addition is on top of the existing RDS and extends a bit to the east of the existing RDS onto previously disturbed ground. The crest of this RDS is currently overlain by Leach Area No. 1 (Exhibit RP-1). Cross-sections of the RDS are shown in Appendix RP-B.

Figure RP-8-6 depicts the general arrangement of the footprint of the Great Northern RDS addition in 2031; cross-sections are presented in Appendix RP-B. About 15 million tons of rock would be added to the existing Great Northern RDS, mostly in about 2031, although tonnages and schedules may change to meet future mine planning objectives. The anticipated maximum elevation is approximately 6200 feet.

The Great Northern RDS would be reclaimed similarly to the North RDS, as described in Section 8.2.2.


RELOCATED STANDBY BARGE
ACCESS ROAD RAISED WITH FACILITY
W.L. 6428 ft
YDTI
CREST EL. 6450 ft
TAILINGS DISCHARGE EL. 6445 ft
NORTH RDS
No. 3 BOOSTER STATION (TAILINGS)
No. 2 BOOSTER STATION (TAILINGS)
HsB RDS
GREAT NORTHERN RDS
MAINTENANCE SHOP AND LAYDOWN
HsB POND
RELOCATED PRECIPITATION PLANT
HsB WTP
McQUEEN BOOSTER STATION (TAILINGS)
BERKELEY PIT
PITTSMONT RDS
CONTINENTAL PIT
PROCESS BUILDINGS
MAIN PUMP HOUSE (TAILINGS)
EAST RDS
150 000 N
140 000 N
130 000 N
130 000 E
140 000 E
NOTES:
1. Coordinate system and elevations are based on mine grid.
2. Supernatant pond and beach elevation and configuration will likely differ due to the BMFOU remedy, on-site water management, and tailings deposition strategy.
LEGEND:
TAILINGS BEACH
EMBANKMENT FILL
ROCK DISPOSAL SITE
MINE WATER
TAILINGS DEPOSITION
TAILINGS PIPELINE
RECLAIM PIPELINE
RECLAIM BARGE
SCALE A
1500 0 1500 3000 4500 6000 7500 ft
Adapted from Figure 6.3 Design Basis Report (KP, 2017)
SAVED: V:\Projects\Montana Resources\MR22 RP YDTI General Arrangement Plan - 2031, 1/6/23
MONTANA RESOURCES, LLC
YANKEE DOODLE TAILINGS IMPOUNDMENT
GENERAL ARRANGEMENT PLAN - 2031
Knight Piésold CONSULTING
P/A NO. VA101-126/12
REF NO. 1
FIGURE RP-8-6
REV 1

8.2.4 Pittsmont RDS

The Pittsmont RDS is just east of the Berkeley Pit and overlies the western portion of the Central Zone. It consists of a northern disposal area and a southern disposal area bisected by a haul road to the primary crusher.

Since 2018, the Montana Natural Resource Damage Program (NRDP) has delivered Parrot Tailings mine waste and associated water from dewatering activities removed from the historic Parrot Smelter to MR. The tailings have been hauled to a location on the east side of the Pittsmont RDS.

A portion of the east side of the Pittsmont RDS would be removed and regraded in conjunction with development of the CZABA.

The RDS slopes will be graded to 2.7H:1V or flatter and capped with 20 inches of non-acid producing alluvium or lime-amended alluvium (if tests show a pH value less than 5.5), or other material to achieve 20 inches of suitable plant growth material. RDS tops will be capped with 28 inches of suitable plant growth material, and revegetated as described in Section 6.0.

Surface water collection ditches would be constructed following a survey of appropriate locations to break up longer slopes and minimize surface erosion of the regraded slopes (see Figure RP-7-1 for a typical drawing).

8.2.5 Woodville RDS

The Woodville RDS is located in the vicinity of the "D" East Pushback and highwall layback area adjacent to the northeast corner of the Continental Pit. This RDS was constructed in the 1990s primarily with leached cap; it was graded, topsoiled, seeded, and planted with trees in 1994-1995. In 2014, much of the previously reclaimed Woodville "Dump" was covered by a pit haul road and other mining activities associated with development of the "D" East Pushback. The "D" East highwall layback approved in 2022 would further reduce the size of the Woodville RDS. The remaining RDS is shown on Figure RP-8-5.

8.2.6 Access RDS

The Access RDS is located on the north edge of the Continental Pit, east of the Great Northern RDS (Figure RP-8-5). It would be reclaimed in conjunction with the Continental Pit, similarly to other RDSs discussed here.

8.2.7 Nalley Valley RDS

The Nalley Valley RDS is located east of the Great Northern RDS. This RDS is currently overlain by Leach Areas No. 6, No. 7, and St. Helen's, and a portion will be covered by the HsB RDS. It would be reclaimed similarly to the other RDSs and/or as described in Section 8.4.

8.2.8 South Continental Pit RDS

This RDS, previously referred to as the "Continental Pit Backfill", lies within the southwest corner of the Continental Pit (see Figure RP-8-5). It is primarily comprised of sulfide rock, however, portions of the RDS would be covered by waste generated during mining of the CZABA. It would be reclaimed in conjunction

with the Continental Pit and in a manner similar to the North RDS (Section 8.2.2). The RDS would be graded, covered with more suitable alluvium if necessary or limed if pH is <5.5, and revegetated. Cross-sections are presented in Appendix RP-B.

8.2.9 Horseshoe Bend RDS

Stage 1 of the Horseshoe Bend (HsB) RDS is described in KP's report "Horseshoe Bend Rock Disposal Site Stage 1 Drainage System Report" (KP 2021). Stage 1 includes a drainage system to manage surface water runoff in the HsB area and groundwater discharge within the foundation of the RDS during mine operations and long-term post-closure. Stage 1 also includes placement of non-ore rock from the Continental Pit to a design elevation of the RDS to 5900 feet in two height increments: 5700 and 5900 feet.

Interim reclamation of the HsB RDS will be completed unless subsequent stages are proposed by MR and approved by DEQ. In that case, a revised reclamation plan would be prepared to address additional rock placement.

Interim reclamation of the HsB RDS is based on design components of Stage 1. Reclamation would include:

- Conversion of pipelines to open ditches post-closure. Consistent with the operational phase drainage system design, post-closure drainage ditches and structures would be designed to handle the 200 year/24 hour storm event; a design capacity deemed "reasonable" in the IRP's Stage 1 Drainage System Report review memo (IRP memorandum dated December 17, 2021). Although stormwater runoff rates are expected to decrease post-closure due to regrading, capping and revegetation of most mine features and disturbed areas, the 200 year/24 hour design criteria would be maintained to ensure the long-term functionality of the surface water drainage system.
- Angle of repose faces of the RDS would be graded to an approximate angle of 3H:1V. Intervening benches would be obliterated by grading except that portions of one or two benches between the base at 5650 feet and the top at 5900 feet would be retained for erosion control. The slopes immediately above and below the retained benches may be slightly steeper than 3H:1V since the overall slope angle (angle of repose lift plus benches) is 3H:1V.
- The regraded slope and benches of the RDS and sides of ditches (above rock armoring) would be covered by 20 inches of suitable alluvium, amended if necessary based on testing, and seeded.
- Reclamation of the HsB RDS would be completed within 2 years of final rock placement unless subsequent stages are permitted, in which case reclamation would be completed following cessation of rock placement.

Cross-sections of the HsB RDS appear in Appendix RP-B.

8.3 PITS

Three pits have been or will be excavated within the combined permit area. Pits include:

- Berkeley Pit

- Continental Pit
- CZABA

General commitments pertinent to all pits include:

- Any post-closure pit water would be handled according to remedies developed as part of the Superfund process for the BMFOU.
- Entry into open pits by persons or livestock lawfully upon adjacent lands will be controlled by fencing, warning signs, controlled access gates, road closures and reclamation of roads, or other devices as may reasonably be recommended by the department per MCA 82-4-336(7)(e).
- Pit walls are designed with benches and lifts to a condition of stability structurally competent to withstand geologic and climatic conditions without significant failure that would be a threat to public safety and the environment. Stability of Berkeley pit walls is monitored as part of BMFOU remediation. Access to the public is controlled as discussed above per MCA 82-4-336(9)(b)(i). Stability of Continental Pit walls is discussed in Section 8.3.2.
- Potential undesirable offsite environmental impacts would be prevented or mitigated as part of BMFOU remediation per MCA 82-4-336(9)(b)(iv).
- MR has not proposed to backfill pits in any approved permit or amendment (per MCA 82-4-336(9)(c)) except for the placement of the South Continental Pit RDS in the Continental Pit. If, however, the regulatory agencies determine that non-ore rock or tailings deposition in the Berkeley, Continental, or CZABA Pits may be desirable as part of remediation goals, MR would consider operational, reclamation, and liability implications of material disposal in the pits. Alternatively, if MR proposes to backfill the Berkeley, Continental, or CZABA Pits, an amendment or revision application to do so would be submitted.

8.3.1 Berkeley Pit

The Berkeley Pit was initially opened in 1955 by the Anaconda Company and then mined by the Atlantic Richfield Company from 1977 to 1982. MR has not mined material from the Berkeley Pit. The pit was originally permitted in 1973.

The original reclamation plan for the Berkeley Pit dated January 23, 1973 stated:

> "Upon abandonment of the Berkeley Pit, Applicant shall prevent the discharge of polluted waste waters from the Pit."

The reclamation plan identified a means to prevent polluted water discharge as:

> "Treat all effluents from the pit so that they meet the water-quality standards adopted by the Montana State Board of Health and Environmental Sciences in effect at the time of abandonment."

The 1994 ROD for the BMFOU of the Silver Bow Creek/Butte Area Superfund Site essentially implemented this measure by requiring construction of a water treatment facility (EPA 1994). The Horseshoe Bend Water Treatment Plant was constructed between 2002 and 2003 and was tested and became operational in 2003. The HsBWTP is a primary remedial action for ensuring that Berkeley Pit water is treated prior to

reaching a designated critical water level (now referred to as protective water level) elevation of 5,410 feet. The 2016 5-year review report prepared by the EPA stated:

> "It is clear that the implementation of the BMFOU remedy will not allow for contaminated groundwater to reach the critical level."

In a January 25, 2018 proposal to EPA and DEQ Remediation Division, MR and AR proposed a Pilot Project to control the rate of rise of water level in the Berkeley Pit by pumping and treating water from the pit and testing water treatment options (MR and AR 2018). The Pilot Project was implemented in 2019 and is continuing. Treated water is discharged to Silver Bow Creek. Components of the Pilot Project are shown on Exhibit RP-1.

Other Superfund remedial actions pertinent to the Berkeley Pit address evaluation and monitoring of pit wall stability and waterfowl mitigation (monitoring, hazing, and reporting).

8.3.2 Continental Pit

The Continental Pit, originally called the Southeast or East Berkeley Pit, was planned as early as 1970; it was operated by AR from 1980 to mid-1983 and was inactive from mid-1983 to 1985. MR resumed mining in the Continental Pit in 1986. A separate pit, the Continental-East Pit was mined by The Anaconda Company from 1973 into 1975. The Continental-East Pit has since been reclaimed or subsumed by the Continental Pit or East RDS.

The most recent expansions of the Continental Pit are the "D" East Extension, approved by DEQ in 2013, and the "D" East highwall layback approved by DEQ in 2022. The general nomenclature for the pit is based on a series of concentric pushbacks designated by a letter and compass direction (e.g., "D" East). MR is currently mining the "D" East Extension and "D" North pushback, which provide a footprint with ore recovery through 2040 (see MR's Operations Plan).

The "D" East Extension addressed slope stability of the pit wall in responses to 2012 DEQ questions on the amendment application.

Minor Revision 22-002 allows for a 25-acre disturbance boundary adjustment to expand the "D" East highwall to mitigate highwall instability on "D" East.

During the course of mining and reclamation, MR continually monitors pit wall stability and modifies operations as necessary to protect employees and provide a condition of stability structurally competent to withstand geologic and climatic conditions without significant failure that would be a threat to public safety and the environment.

Post-closure, slopes within the Continental Pit are to be reclaimed as talus slopes and highwall features. Level areas above the 5,410 elevation (approximately 5468 Anaconda Copper Mining Company (ACM) Datum) will be revegetated (see Exhibit RP-2). These areas will be regraded, ripped, covered with 28 inches of alluvium, and seeded. Areas below the 5,410 elevation would be managed under BMFOU.

The highwall would be earth tones down approximately 280 feet due to the leached cap material that lies above the ore. Contrast to natural surrounding would be reduced by feathering catch benches into the hillsides and by natural raveling, which would mitigate sharp lines. Safety berms around the top of the highwall will be vegetated, as will the pit benches, per MCA 82-4-336(9)(a)(b)(iii).

Public access to the Continental Pit is limited by fencing and signs. The East RDS combined with I-15 fencing limits access from the highway.

8.3.3 Central Zone Alluvium Borrow Area

Although the Central Zone was previously approved as a source of capping materials, MR has conducted additional drilling and prepared a mine plan for the Central Zone (Czehura 2021) which is described in more detail in MR's Operations Plan. Characteristics and quantities of the alluvium are presented in Section 4.2.1 of this Plan.

Reclamation of the CZABA would be similar to that of the Continental Pit described above, with regrading, ripping, and seeding of wider level areas including the pit floor, benches, and haul roads. Coversoils would likely not be necessary in the CZABA. If testing indicates a pH below 5.5, lime would be added and incorporated to raise the pH to about 6.0.

8.4 LEACH PADS

Leach pads were constructed by the ACM starting about 1963. Pads are constructed of low-grade ore and form a series of shallow depressions. Once the pads are decommissioned, they are frequently kept on site for non-ore rock disposal. The North RDS and Great Northern RDS, for example, will be placed on inactive leach pads.

If a leach pad does not become a RDS, it would be graded and/or capped with non-ore rock to eliminate depressions and the tops would be covered with 28 inches of alluvium. The slopes of the leach pads would be graded to a 2.7H:1V or flatter slope and covered with 20 inches of alluvium. Amendments may be applied based on testing results. The sites would be seeded as described in Section 6.0 and summarized in Appendix RP-C.

8.5 SUPPORT FACILITIES

Support facilities fall into several categories:

- DEQ MMRA-regulated facilities
- Facilities exempt from the MMRA
- BMFOU facilities, also used as part of on-site mine water management and not likely to be used as part of the long-term remedy (see Section 8.10)
- BMFOU facilities likely to be used as part of the long-term remedy (see Section 8.10).

8.5.1 MMRA Facilities

Non-exempt facilities not part of the BMFOU remedy would be reclaimed in accordance with the MMRA. These include, but are not limited to:

- Explosive Storage Areas;
- Powder Magazines;
- Fuel Bays;
- Relocated Precipitation Plant
- Pump stations and pipelines;
- Water Management Structures (ditches and ponds);
- Tailings Pump Houses and Booster Stations;
- Tailings Pumpback Barges (2);
- Tailings Lines;
- Return Water Lines;
- Power Lines and Substations; and
- Central Water Tower.

All regulated support facilities that have economic value would be dismantled and sold at the end of operations. Non-economically recoverable facilities would be dismantled and inert components (concrete, steel, wood, etc.) would be buried in an on-site disposal pit. The disposal pit would be covered, capped as necessary and revegetated. Any designated waste management site in the mine permit area would operate in accordance with the substantive elements of relevant sections of ARM 17.50.509 Operation and Maintenance Plan Requirements for a solid waste management system as detailed in Section 11.0 of MR's Operations Plan. Fuel, oils, chemicals and other similar material would be recycled or deposited in an approved disposal facility.

Except for facilities also used for BMFOU, jurisdictional surface facilities and structures would be removed during final reclamation, unless DEQ approves a waiver allowing certain structures to remain if they provide a beneficial post-closure use.

Service corridors (e.g., power, above ground water lines) that are necessary for BMFOU activities will remain in place. Service corridors that provide future benefits may remain in place if approved by DEQ. Otherwise, service corridors would be removed at mine closure, and disturbed areas would be reclaimed.

Wells used in the mining operation, and which are no longer needed, would be capped and sealed in accordance with appropriate procedures and regulations. Other monitoring wells and process and drinking water wells would be closed in accordance with appropriate procedures and regulations. BMFOU monitoring wells would remain post-closure.

Facility sites would be graded to blend with adjacent areas, ripped to relieve compaction, covered with 28 inches of alluvium, amended as necessary based on testing, and seeded as described in Section 6.0.

8.5.2 Exempt Facilities

Exempt facilities include the Concentrator and Primary Crusher (see Exhibit RP-1).

Montana's Attorney General determined in an opinion dated May 24, 1977 that:

> "The concentrator and precipitation plant operated by the Anaconda Company in Butte, Montana, are exempted from regulation under the 'Hard Rock Act' by Section 50-1219, R.C.M. 1947 [now MCA 82-4-304], since these facilities were constructed prior to enactment."

The crusher facilities were determined to be exempt by DEQ as a result of the 2020-2025 bond review evaluation (DEQ 2021).

The old, exempt Precipitation Plant was removed in 2022-2023 and will be covered by the HsB RDS. The exempt area was nullified by Amendment 011 (HsB RDS) approved by DEQ on July 14, 2022.

At the end of operations, MR would determine which, if any, exempt facilities could be retained for potential future use. Facilities not retained could be salvaged or, if not economically recoverable, dismantled and removed. Inert material would typically be buried in MR's on-site disposal area as described in Section 11.0 of MR's Operations Plan. Material not suitable for on-site burial, such as fuels, oils, or chemicals, would be recycled or transported to an approved offsite disposal facility. Compacted areas that are not part of a post-mine industrial use would be ripped, coversoil would be placed and spread, and the site seeded as described in Section 6.0 and summarized in Appendix RP-C.

8.6 SOIL STOCKPILE AREA RECLAMATION

Once all soil has been removed, stockpile storage areas would be ripped to relieve compaction. Revegetation would be conducted as described in Section 6.0 and summarized in Appendix RP-C.

8.7 ALLUVIUM AND LEACHED CAP STOCKPILE AREA RECLAMATION

Alluvium stockpiles have been, and will be sited on previously disturbed ground. One stockpile area will be reclaimed as part of the North RDS; the other will be ripped if needed, capped, and seeded. When decommissioned, the Lunch Room stockpile site will be reclaimed by leaving a 28-inch layer of alluvium, amending if necessary, and seeding.

There are currently no leached cap stockpile areas; however, if any are sited in the future, they would be reclaimed similarly to alluvium stockpile sites.

8.8 MINE AND ACCESS ROADS

Roads not necessary for post-closure management and monitoring will be reclaimed. Reclamation will consist of grading to blend into adjacent areas, ripping compacted surfaces, covering with 28 inches of alluvium, amending and revegetating as described in Section 6.0 and summarized in Appendix RP-C. Stable road cuts in rock will not be graded. Grading will be conducted to minimize surface flow over fill slopes, and with non-noxious, nonflammable, noncombustible solids.

Post-closure road locations are shown on Exhibit RP-2 and include the YDTI Embankment crest, the ramps on the south and east sides of the North RDS, the road along the eastern side of the YDTI, a road that accesses the north portion of the tailings pond, the Bumtown Road, and roads to BMFOU facilities.

8.9 LONG-TERM MONITORING SITES

The West Ridge hydrogeologic/geotechnical evaluations included the completion of monitoring wells, bedrock drillholes, trenches, and test pits. These disturbances are discussed in more detail in the Site Characterization Report (KP 2017) and Hydrologic Evaluation of the YDTI West Ridge Area (Hydrometrics 2017), and are shown on Exhibit 1, Surficial and Structural Geology of the West Ridge Area, in the Hydrometrics report. Exploration disturbances, including roads, will be abandoned and reclaimed per ARM 17.24.104 through 17.24.107 and MCA 82-4-332(4) and 82-4-336(9)(a). Sites will be ripped as necessary, regraded, covered with 28 inches of alluvium, amended as indicated by testing, and revegetated as described in Section 6.0.

8.9.1 Monitoring Wells and Drillholes

Groundwater monitoring wells peripheral to the YDTI are shown on Figure 4-1 in Hydrometrics, Inc., 2017. Bedrock core drillholes in the West Ridge area are shown on Figure 4-2 of that report. Operational and post-closure monitoring would be conducted at some or all of these sites. Monitoring well and drillhole pads have been stabilized per ARM 36.21.810, and would be seeded with the Interim seed mixture (see Table RP-6-4) per ARM 17.24.105(11). When monitoring wells and drillholes are no longer needed, they would be abandoned per ARM 17.24.106; pads would be graded to a stable configuration per ARM 17.24.107(4) and permanently seeded using MR's permanent mix in Table RP-6-1.

8.9.2 Trenches and Test Pits

Unconsolidated material along the east side of the West Ridge was characterized through a series of test pits and trenches shown on Exhibit 1 of Hydrometrics, Inc., 2017. Trenches and test pits have been backfilled and graded per ARM 17.24.107(5) and permanently revegetated.

8.9.3 Monitoring Access Roads

Access roads associated with long term monitoring are used for operational and post-closure monitoring of wells and drillholes. As such, these roads would be long-term temporary features that have been graded and stabilized per ARM 17.24.104 . Once all wells and drillholes have been abandoned, and well pads graded and stabilized, access roads would be reclaimed per ARM 17.24.107(3) by grading to a stable slope approximating original contours, ripping compacted surfaces, installing drainage structures as necessary, and seeding the sites using the permanent seed mix (Table RP-6-1). Reclaimed roads would be closed to access using locked gates, Kelly humps/dips, or other methods.

8.10 BMFOU INFRASTRUCTURE

Implementation of the remedial action pursuant to the 1994 ROD and subsequent modifications have resulted in the construction of new facilities and use of certain existing facilities/infrastructure within the

mine permit area to manage contaminated water, Berkeley Pit wall stability, and waterfowl protection at the Berkeley Pit. This infrastructure includes:

- water treatment facilities;
- ditches, piping, drains and ponds to convey and store water to and from the water treatment facilities;
- facilities for the Pilot Project that become integrated into the BMFOU remedy, including pumps, piping, and powerline. Pilot Project components are available for the BMFOU long-term remedial activities. Future decisions would determine which remedial components would remain post-closure;
- dewatering wells and monitoring devices associated with pit wall stability management and monitoring;
- observation area, noise-producing devices, and related equipment for managing waterfowl on the pit pond;
- access roads to facilities; and
- WED (at closure).

Installation, monitoring, management, and reclamation of facilities associated with remediation is governed by the BMFOU Consent Decree and involves the parties to the Consent Decree. Water management associated with the HsB RDS would not interfere with EPA monitoring.

9.0 RECLAMATION SCHEDULE

Except as allowed by DEQ, reclamation activities will be finalized not more than two years after completion or abandonment of that portion of the complex. Exceptions include the YDTI pond and spillway, which remain after closure; the YDTI transition zone, which would be reclaimed incrementally over an estimated 33-year period following closure (Section 8.1.3); long-term monitoring sites (monitoring wells, drillholes, and associated access roads) which would be permanently reclaimed at such time as the rest of the mine is determined by DEQ to be fully reclaimed; and the WED, which will be managed by BMFOU at closure.

Concurrent reclamation would occur on the downstream face of the West Embankment, which would not prevent future downstream construction given crest width. The East-West Embankment would be reclaimed at the end of operations to allow for possible subsequent embankment lifts using downstream construction.

A conceptual reclamation schedule is presented in Table RP-9-1. Reclamation of most disturbances, including End of Mine (EOM) components shown in Table RP-9-1, would occur in the 2-year period following completion or abandonment per MCA 82-4-336(3), unless a waiver is received from DEQ for a longer timeframe. The sequence of events would vary by type of disturbance, but typically might include 18 months for grading and coversoil application, and 6 months for erosion control installation and revegetation activities.

Table RP-9-1 Conceptual Reclamation Schedule

Component	Reclamation Timeframe
YDTI	
N-S and E-W Embankments	
Slope (2.7H:1V)	EOM
Slope (2H:1V)	EOM
West Embankment	
6400' Lift	2023 - 2024
6450' Lift	2024 - 2025
Crest	EOM
Beach	EOM
Transition Zone	Incrementally between EOM to 33 years (est.)[1]
Pond	Remains after closure
Closure Spillway	Remains after closure
ROCK DISPOSAL SITES	
East RDS Complex	
Hillcrest RDS	Slopes regraded/vegetated; crest EOM
East RDS	Slopes regraded/vegetated; crest EOM
North East RDS	Slopes regraded/vegetated; crest EOM
North RDS	EOM

Component	Reclamation Timeframe
Great Northern RDS	EOM
Pittsmont RDS	EOM
Woodville RDS	Completed
Access RDS	EOM
Nalley Valley RDS	EOM
South Continental Pit RDS	EOM (reclaimed in conjunction with the Continental Pit)
Horseshoe Bend RDS	Within 2 years of completion (unless subsequent stages are proposed and approved)
PITS	
Continental Pit	Incrementally/EOM
Central Zone Alluvium Borrow Area	Incrementally/EOM
COVERSOIL/SOIL STOCKPILE SITES	
Lunch Room Stockpile	As Completed-EOM
Moulton Road Stockpiles	As Completed-EOM
Temporary Material Stockpiles	As Completed-EOM
MMRA-REGULATED FACILITIES[2]	
Facilities	EOM
MISCELLANEOUS AREAS	
Landfill	EOM
Roads	EOM to 40 years
Areas peripheral to pits/RDSs etc	EOM
Long-Term Monitoring Sites	
Monitoring Wells	Interim (2018); Permanent TBD
Drillholes	Interim (2018); Permanent TBD
Access Roads	Interim (2018); Permanent TBD
Leach Pads	
No. 6	EOM
No. 7	EOM
St. Helen's	EOM
Miscellaneous Reclaimed Areas (1991 - 2021)	Partially Reclaimed/Released
Office	EOM

Note: EOM = end of mine; TBD = to be determined in consultation with DEQ

[1] Post-closure treatment of WED water as part of the BMFOU process (instead of pumping WED water to the YDTI) could reduce the reclamation timeframe for the transition zone by approximately 7 years (DEQ 2019).

[2] Non-Exempt MMRA Facilities that are not part of the BMFOU remedy are detailed in Section 8.5.1.

10.0 MANAGEMENT AND MONITORING

All reclamation activities will be conducted so as to avoid range and forest fires and spontaneous combustion (per ARM 17.24.115(1)(g)).

10.1 PERMANENT EROSION AND SEDIMENT CONTROL

Final erosion control will be accomplished by establishing permanent vegetation (MCA 82-4-336(8)) except in open water and on exposed bedrock and alluvium highwalls. Potential erosion from steeper slopes such as rock disposal sites, leach pad faces, and the YDTI Embankment face would be mitigated by constructing backsloped benches across the slope to reduce slope distance.

If rills, gullies, or sedimentation occurs, mitigation practices discussed in Section 7.2 would be implemented.

10.2 YDTI FACILITIES

Post-closure reclamation considerations that are identified for the YDTI include plans that maximize maintenance-free closure to the greatest extent possible and provide for post-closure monitoring, inspection, and reviews.

Following completion of the YDTI reclamation program, the Engineer of Record (EOR) will provide a detailed closure monitoring plan identifying site-specific needs for monitoring, inspection, and review (MCA 82-4-375 and 82-4-379(4). This plan will include monitoring requirements, monitoring frequency, and minimum qualifications of monitoring personnel. The plan will also address monitoring and mitigation measures for response to unusual occurrences or emergency conditions.

Initially, the reclaimed YDTI facilities would be inspected and maintained on a regular basis following closure to verify that potential changes to site conditions and facility performance do not compromise the integrity and safety of the impoundment.

10.2.1 Quantitative Performance Parameters

Parameters that can be easily measured and evaluated on-site will be used to assess the performance of the YDTI. The parameters shown in Table RP-10-1 will remain relevant in the long-term following closure. These preliminary performance parameters will be reviewed and updated as part of the EOR's detailed closure monitoring plan if future conditions warrant changes.

Table RP-10-1 Preliminary Performance Parameters Following Closure of the YDTI

Location	Parameter	Value
YDTI Embankment	Crest Width	≥ 200 feet
	Downstream Overall Slope	No steeper than 2H:1V
	Pond Elevation (below embankment crest)	≥ 20 feet

Table RP-10-1 Preliminary Performance Parameters Following Closure of the YDTI

Location	Parameter	Value
YDTI Beach	Minimum Beach Length[1]	No ponded water within 800 feet of the embankment crest
Spillway	Condition and Integrity	Potential flow to Continental Pit not obstructed

[1]The Minimum Beach Length of 800 feet allows time to respond to, and mitigate, water approaching the embankment. The spillway should be positioned to passively maintain the Minimum Beach Length criteria.

10.2.2 Monitoring Frequency

The frequency of monitoring for the reclaimed YDTI would vary depending on the final reclamation plan that is implemented and the functionality of the facility component. A detailed post-closure monitoring program would be prepared following completion of the YDTI reclamation program (per MCA 82-4-379(3)(e-g) and ARM 17.24.115(1)(n).

The initial monitoring frequency would be higher following reclamation, to allow for regraded slope stabilization, tailings consolidation, and vegetation establishment. Modification of the monitoring schedule may be considered once monitoring baselines have been established and the reclamation system performance is demonstrated. Table RP-10-2 presents inspection requirements and sampling frequencies which may be considered in the post-closure YDTI monitoring program. Routine inspections and monitoring of the reclaimed facility would be conducted by personnel familiar with the reclamation objectives and expectations.

Table RP-10-2 YDTI Post-Closure Monitoring Requirements and Sampling Frequency

YDTI Component	Inspection Requirements	Sampling Frequency[1]
Capped Surfaces (Embankment and Beach)	Inspect for cracking, slumping/deformation, erosion, slope failure, and any other changes in the embankment shape and tailings surface. Inspect the upstream slope, downstream slope and embankment crest.	Quarterly
	Inspect for daylighting seeps on the downstream embankment slope/benches, water pooling/ponding, soft/wet areas	Monthly
	Inspect beach surface for dusting risk/potential[2]	Monthly[2]
	Measure water levels in the monitoring wells and piezometers	Monthly
	Survey reclaimed beach for slope/settlement[2]	Annually[2]
	Survey vegetation for plant establishment, cover, die-off, and noxious weeds[2]	Annually[2]
Pond and Transition Zone	Measure pond water level[2]	Monthly[2]
	Evaluate pond water storage volume[2]	Annually[2]
	Survey vegetation for plant establishment, cover, die-off, and noxious weeds[2]	Annually[2]

Table RP-10-2 YDTI Post-Closure Monitoring Requirements and Sampling Frequency

YDTI Component	Inspection Requirements	Sampling Frequency[1]
Spillway	Inspect spillway intake, channel base and side slopes for erosion, blockage, damage, slope failure, and any other changes in the shape and surface of the spillway.	Quarterly and after large storm events
HsB Seepage Collection System[3]	Record the HsB Weir flowrate.	Monthly
	Record the Seep 10 flowrate.	Monthly
West Embankment Drain[3]	Will be managed as part of the BMFOU remedy.	-
Site-Wide Water Management[2,3]	Inspect surface drainage ditches and culverts for erosion, blockage, damage.[2]	Quarterly and after large storm events[2]

[1]The frequency of monitoring may be reduced once the reclamation system performance has been confirmed and a monitoring baseline has been established.

[2]Inspection requirements and inspection frequency that are under the jurisdiction of the DEQ.

[3]Inspection requirements and inspection frequency are under the jurisdiction of the EPA.

10.2.3 Inspections and Reviews

10.2.3.1 Engineer of Record

The EOR for the YDTI will be retained post-closure. The role and required qualifications for the post-closure EOR are to be consistent with those of the EOR as defined in MCA 82-4-375. The post-closure EOR will be responsible for reviewing new documents and designs pertaining to the YDTI, conducting annual inspections, and notifying when the facility is under-performing or poses a threat to human health or the environment.

The EOR will conduct an Annual Inspection, which considers both the geotechnical and reclamation performance of the closed facility. The EOR will prepare a report describing the scope of the inspection and actions recommended to document that the closed facility is being properly maintained. The EOR will submit the report to MR and the DEQ and immediately notify the DEQ if the facility presents an imminent threat or if there is the potential for an imminent threat to human health or the environment.

The EOR will conduct Annual Inspections of the YDTI until reclamation is complete, at which time the Independent Review Panel (IRP) will be convened for a Periodic Review. The frequency of inspections and future involvement of the EOR and IRP thereafter will be discussed during the first Periodic Review following closure and will be incorporated in the detailed closure monitoring plan.

The EOR may be required to conduct additional inspections or monitoring following any unusual event (e.g., earthquake or extreme rainfall event) or as a result of key observations made during a routine inspection or monitoring.

10.2.3.2 Independent Review Panel

The IRP will be convened within five years of closure to evaluate the performance of the facility relative to dam safety standard of practice. The frequency of inspections and future involvement of the EOR and IRP thereafter will be discussed during the first Periodic Review following closure and will be incorporated in the detailed closure monitoring plan per MCA 82-4-336(13); 82-4-377; 82-4-379 *et seq.*; and 82-4-380.

10.2.4 Post-Closure WED Management

The WED will be managed as part of the BMFOU remedy.

10.2.5 Post-Closure Beach and Pond Management and Monitoring

Post-closure pond management and monitoring will include:

- a closure spillway to be constructed to limit the elevation and volume of the post-closure pond;
- incremental reclamation of the transition zone as pond level recedes (see Section 8.1.3);
- survey of beach for slope and settlement and repair as necessary (see Section 8.1.2, Section 10.2.2, and Section 10.3). Monitoring of reclaimed tailings will be conducted annually to verify elevations and cap thickness using civil survey and/or aerial mapping surveys with ground control (drones, LIDAR). If settling occurs it will be backfilled with coversoil and revegetated.
- monitoring of pond level, pond volume, and pond water quality (see Section 8.1.3, Section 10.2.4, and Section 10.5); and
- for the Probable Case model of post-closure pond water quality, water treatment is not anticipated since the pool would remain alkaline and metals would remain low (see Appendix C "Phase Two Mass Load Model of the Yankee Doodle Tailings Pond" in Amendment 10 (MR 2018)).

10.3 COVERSOIL TESTING

The majority of coversoil to be used for reclamation will be mined in the CZABA. This material has recently been evaluated for suitability (see Section 4.2.1). This information on quality and location within the Central Zone will reduce the need for testing after alluvium is spread. Additionally, field pH testing will be conducted prior to spreading. In-place characterization and field pH analyses will reduce the probability that unsuitable material or material needing lime application will be spread.

Given the variability of alluvium within the Central Zone, however, some testing of respread alluvium may be conducted to determine if amendments might be necessary. Table RP-10-3 presents guidelines for sampling respread alluvium. MR may increase or decrease sampling intensity depending on uniformity or diversity of parameters in respread alluvium.

Respread topsoil sampling (Table RP-10-3) would focus on whether fertilizer may be necessary.

Table RP-10-3 Guidelines for Sampling Respread Coversoil at the Continental Mine (acres/sample)

Parameter	Alluvium				Topsoil	
	Central Zone		Stockpile	Continental Pit	From Stockpile	Direct Haul
	Known Good Quality	Lesser Quality or Unknown				
pH	2	1	1	1	-	-
OM	2	1	1	1	1	2
Cu, Zn (in-house)	6	3	3	3	-	-
Whole Rock Metals (outside lab)	20	10	10	10	-	-
ABA	20	10	10	10	-	-
N, P, K	2	1	1	1	1	2
Coarse Fragment Content	2	1	1	1	1	2
Texture	2	1	1	1	1	2
Total Sulfur	2	1	1	1	-	-

10.4 REVEGETATION MONITORING AND MANAGEMENT

Reclaimed areas are monitored to assess desirable plant establishment, particularly as it relates to the utility and stability of reclamation relative to adjacent areas. Monitoring data also characterize the presence and extent of undesirable species and prescribe management options. MR evaluates the relationship between coversoil and/or topsoil characteristics and revegetation establishment. Site stability measurements include the distribution, dimensions, and photo documentation of erosion features. Monitoring work also includes inspection of catchment areas, including Clearwater Ditch, to identify potential impacts of sediment deposition on surface flow patterns and prescribe remedies.

Sites with poor vegetation establishment, substantial erosion, or undesirable sediment deposition are identified for supplemental seeding and/or repair.

Revegetated areas will be qualitatively and quantitatively evaluated by qualified reclamation specialists. Initially, monitoring would focus on documenting perennial grass seedling density, identifying areas with noxious weeds or other invasive species, and describing areas with accelerated erosion. Subsequent monitoring would focus on documenting revegetation development to a stable, self-sustaining vegetative cover that is capable of supporting post-closure land use objectives.

10.4.1 First Growing Season Monitoring

Typically, monitoring during the first growing season would occur as late as practicable within that season to allow for plant establishment. Monitoring would focus on evaluating perennial grass establishment, erosion, and invasive species establishment.

10.4.1.1 Perennial Grass Seedling Establishment

Perennial grass establishment would be evaluated by counting seedlings or mature grasses within three, representative one-square-foot areas at each sample point. Only healthy plants with three or more green leaves would be counted as these plants are most likely to survive winter conditions.

The USDA Natural Resource Conservation Service (NRCS) has established guidelines for evaluating grass stand establishment in Montana based on seedling density (USDA NRCS 2009). These guidelines are not strict, numerical standards but provide a basis for evaluating revegetation in the first growing season within a general area, as well as establishment over time. Guidelines are based on precipitation and ecological site. The average annual precipitation at the mine site is greater than 16 inches per year. Soils are primarily sandy, shallow and gravelly. Table RP-10-4 presents these NRCS guidelines.

Table RP-10-4 Grass Densities for Successful Seedings at the East RDS

Precipitation (inches)	Ecological Site/Forage Suitability Group	Plants/Square Foot
16 - 22	Shallow, Gravelly, Eroded, etc.	1 -3

Source: NRCS 2009

Based on these expected densities, MR would utilize the densities presented in Table RP-10-5 as guidelines for defining revegetation establishment at sample sites. Areas that do not support at least one perennial grass per square foot may necessitate remedial seeding or soil amendments.

Table RP-10-5 Mean Perennial Grass Density and Revegetation Establishment Rating

Mean Perennial Grasses/Sq. Ft.	Rating
>3	Excellent
1-3	Good
<1	Poor

10.4.1.2 Erosion

In addition to collecting vegetation and soils data at specific sample points, indicators of accelerated erosion would also be recorded when encountered. The following indicators would be evaluated and mapped where they occur:

- Flow pattern development resulting in larger (greater than 6 inches in depth) rills or gullies;
- Subsidence or slumping;
- Headcutting in drainages;
- Wind-scoured blowouts or depressions;
- Litter movement;
- Pedestals/terraces; and
- Percent bare ground.

An evaluation form would be completed at each site where erosion is observed; conditions would be described and photographed at each site, and the feature located with a resource-grade Global Positioning System (GPS) unit. Potential remedies would be identified.

10.4.1.3 Invasive Species

Invasive species, including state- or county-listed noxious weeds, would be mapped and recorded where they occur per MR's Weed Management Plan (Appendix RP-A). Weed species and density per 0.01-acre would be recorded for each infestation.

10.4.2 Subsequent Growing Season Monitoring

Revegetation monitoring in subsequent growing seasons would focus on documenting the establishment of a stable, self-sustaining vegetative cover that is capable of supporting post-closure land use objectives. In particular, monitoring in subsequent years would document plant canopy cover and species composition as well as continue to record accelerated erosion and invasive species.

10.4.2.1 Canopy Cover and Species Composition

Plant canopy cover and species composition would be recorded within 0.01-acre, circular sample plots that are distributed throughout the reclaimed area. Enough plots would be established within a reclaimed area to provide confidence in the results, although very small areas would only contain as many plots as are practical. In areas with highly varied topography or coversoil depths, the sample area would be stratified to allocate plots among the different topographies or coversoil depths in order to describe revegetation relative to each type of site.

Total non-stratified (i.e., cannot exceed 100 percent) plant canopy cover would be ocularly estimated within each sample plot. Canopy cover would be recorded by species as well as evidence of reproduction. Canopy cover would be summarized by morphological and origin classes according to the following categories:

- Native Perennial Grasses
- Introduced Perennial Grasses
- Native Annual Grasses
- Introduced Annual Grasses
- Native Perennial Forbs
- Introduced Perennial Forbs
- Native Annual/Biennial Forbs
- Introduced Annual/Biennial Forbs
- Subshrubs/Shrubs
- Trees

In addition to canopy cover, ground cover would also be estimated to the nearest percent according to the following categories:

- Bare ground
- Rock
- Litter

- Lichen
- Moss
- Basal vegetation

10.4.3 Revegetation Management

Areas with poor germination and/or growth would be noted and evaluated during revegetation monitoring to determine the probable cause. Remedial seeding or additional erosion control measures may be completed if necessary to address areas of poor germination or growth.

Revegetation techniques and seed mixtures proposed in this Reclamation Plan may be modified, with DEQ concurrence, to improve revegetation success if monitoring indicates failure, or if new techniques or methods are developed that would improve revegetation establishment and stability. Vehicle traffic would be barred from reclaimed areas. Wildlife damage may be controlled as necessary by selective fencing or chemical repellent.

Noxious weeds would be treated as discussed in Section 10.7 and Appendix RP-A.

The goal of reclamation is to establish a stable, self-sustaining vegetative cover capable of supporting post-closure land use objectives. MR prefers to minimize special post-closure treatments that would be necessary to achieve this goal. Irrigation, supplemental fertilization, interseeding or other treatments are not proposed at this time but may be considered on a case-by-case basis as necessary, following consultation with DEQ.

10.5 WATER RESOURCES MONITORING

Following cessation of mining operations, a post-closure water monitoring program would be implemented. During the final phases of mine operations, a post-closure monitoring plan would be developed in consultation with DEQ based on the final mine facilities layout and operational phase monitoring results. The post-closure water monitoring program would be used in conjunction with other reclamation and revegetation monitoring to document post-reclamation conditions at the former mine site and surrounding water resources. Post-closure monitoring would occur until such time as the mine is certified as fully reclaimed and all bonding release milestones are met, or as determined in the post-closure monitoring program to be developed in conjunction with DEQ. After termination of the post-closure water monitoring, any continued water monitoring would occur as part of the BMFOU program, if necessary.

10.6 DUST CONTROL

In the post-closure period, MR will continue to adhere to conditions of its Air Quality Permit #1749-12. Water trucks would continue to regularly wet down roads to minimize dust created by traffic during the active reclamation period. A description of particulate emissions from the YDTI in the post-closure period and monitoring/management techniques are discussed below.

MR's Dust Control Plan for the YDTI is presented in Appendix OP-C of the Operations Plan.

The transition zone between the tailings beach and the closure supernatant pond will be exposed as the pond recedes during the post-closure period. The incremental area exposed during pond draindown is listed in Table RP-8-2.

The transition zone will be comprised of sub-aqueous tailings slimes as opposed to the coarser beach tailings. The slimes are comprised of much finer particles (primarily silt and clay) compared to the predominantly sandy beach. Table RP-4-1 compares particle size between the beach and the slimes.

As described in Section 4.1.2, the slimes will tend to form a crust as drying occurs due to the high percentage of silt and clay. The slimes closest to the receding pond will remain saturated due to greater moisture holding capacity. The combination of crusting and the saturated zone near the pond will reduce the probability of dust originating from the transition zone.

As indicated in Table RP-10-2, the beach, transition zone, and pond would be monitored monthly to assess dusting risk/potential and pond water level. If risk of dust is detected, MR would implement measures to reduce risk similar to those proposed for operational dust control (see Section 12.0 and Appendix OP-C of MR's Operations Plan). Primary techniques, should wind-blown dust become an issue, include:

- placing a 6-inch thick rockfill cap over areas where equipment can operate;
- placing reclamation capping material and revegetating the transition zone as areas become available for reclamation;
- maintaining and utilizing a Terramac(s) to apply dust suppressant;

As indicated in Table RP-10-2, vegetation would be surveyed during the post-closure period in the beach and transition zones to determine plant establishment and cover. Commitments and methods to ensure successful revegetation establishment are discussed in Section 10.4. Once reclamation of the transition zone is complete to the edge of the equilibrium pond and revegetation is established, dust will no longer be an issue.

10.7 WEED MANAGEMENT

Noxious weed management has been, and will continue to be, conducted on MR's property to meet requirements and commitments outlined in Montana's Weed Laws and the Butte-Silver Bow County Weed Plan. A noxious weed management plan is presented in Appendix RP-A. The Plan presents strategies to: 1) prevent the establishment of new noxious weed populations in areas that are currently weed-free; and 2) limit the spread of noxious weeds as feasible. BSB has reviewed the weed management plan and concurred with MR's approach to weed management.

11.0 PERFORMANCE BOND

DEQ conducts a comprehensive bond review for MR's Continental Mine on a five-year basis per MCA 17.24.141(2) and ARM 82-4-338(3)(a). In 2020, DEQ determined bonding amounts at the estimated current cost of completing reclamation, with exceptions.

Naming conventions and bonding levels of certain historic features were discussed and clarified in conference calls conducted in September 2020 between MR and DEQ (MR Letter dated October 2, 2020 to Garrett Smith, DEQ). Based on mutual agreement between the parties, the following was determined:

- "**Pre-1971**" areas (based on the year that the MMRA took effect) include processing facilities that are referred to as "**Exempt**". These facilities are bonded at $0/acre and include the Concentrator and partially reclaimed areas and the Primary Crusher and partially reclaimed areas. The Precipitation Plant, which was Exempt in 2020, lost its Exempt status in 2022 (see below).
- "**Pre-1974**" areas (based on the year that Amendments to the MMRA took effect) include all disturbed lands within original Permit 00030, exclusive of Exempt, BMFOU, and GMMIA facilities; these areas are bonded at $500/acre. It also includes the ground underneath the Railroad to the Precipitation Plant.
- **BMFOU** areas include the Berkeley Pit, Berkeley Pit water, Horseshoe Bend Water Treatment Plant, WED, and the Continental Pit below 5410 feet elevation. These areas are under EPA's authority under Superfund, therefore they are bonded at $0/acre.
- **The Granite Mountain Memorial Interpretive Area (GMMIA)** comprises 17 acres where the Horseshoe Bend Capture System booster pump station and associated infrastructure were incorporated in 2021. DEQ determined that since this area is within the GMMIA, it would be appropriate for reclamation to match the post-mining land use of historic preservation, thus, additional bond would not currently be necessary. Also, decommissioning of the booster pump station and related infrastructure is anticipated to be under EPA's jurisdiction within the BMFOU.

Table RP-11-1 summarizes bonding level acreages by component. Figure RP-11-1 illustrates Consolidated Permit Area bonding levels and acreages. Bonding levels and acreages are also shown in Exhibit RP-3, however, these acreages vary slightly from Table RP-11-1 and Figure RP-11-1 as they are based on regraded slopes.

Changes were made in 2022 to the bonding status of the HsB RDS area per DEQ's July 14, 2022 Decision Notice regarding approval of an application to amend Permit No. 00030 (Minor Amendment 011) to construct the HsB RDS. Previously exempt from bonding requirements, a portion of this area covered by the old Precipitation Plant became subject to bonding at the Pre-1974 level of $500/acre when the old Precipitation Plant was demolished.

Similarly, relocation of the Precipitation Plant (Minor Revision 22-001) resulted in changes in bonding status for that facility at two levels: $500/acre and full bond.

Table RP-11-1 Bond Level Acreage of MR Components at the Continental Mine

Components	Bond Level			Total Acres
	Post-July 1, 1974	Pre-July 1, 1974	Exempt/BMFOU/ GMMIA	
Pits				
Continental Pit - Ultimate	505	55	377	937
Berkeley Pit			684	684
Central Zone Alluvium Borrow Area	103	78		181
Subtotal	**608**	**133**	**1061**	**1802**
Facilities				
Concentrator Area (Partially Reclaimed)			95	95 (19)
Horseshoe Bend Water Treatment Plant			9	9
New Precipitation Plant Area	1	2		3
Garage Area		28		28
Primary Crusher (Partially Reclaimed)			44	44 (14)
Office		2		2
Subtotal	**1**	**32**	**148**	**181 (33)**
Yankee Doodle Tailings Impoundment				
YDTI Beach	720	497		1217
YDTI Embankment	195	284		479
YDTI Pond (at closure in 2031)[1]	543	44		587
YDTI West Embankment Drain (BMFOU at closure)			1	1
Subtotal	**1458**	**825**	**1**	**2284**
Rock Disposal Sites				
Access	7	5		12
East (Partially Reclaimed/Released)	121			121 (92)
Great Northern	1	151		152
Hillcrest (Partially Reclaimed/Released)	48			48 (48)
Horseshoe Bend		121		121
Nalley Valley	34	28		62
North	80	169		249
North East (Partially Reclaimed/Released)	25			25 (25)
Pittsmont	82	24		106
South Continental Pit	47	4	16	67
Woodville (Partially Reclaimed/Released)	1			1 (1)
Subtotal	**442**	**502**	**20**	**964 (166)**
Reclamation Material Sites				
Alluvium Stockpile	19			19
Soil Stockpiles	25			25
Permitted additional topsoil stockpile areas	11			11

Components	Bond Level			Total Acres
	Post-July 1, 1974	Pre-July 1, 1974	Exempt/BMFOU/ GMMIA	
Subtotal	**55**	**0**	**0**	**55**

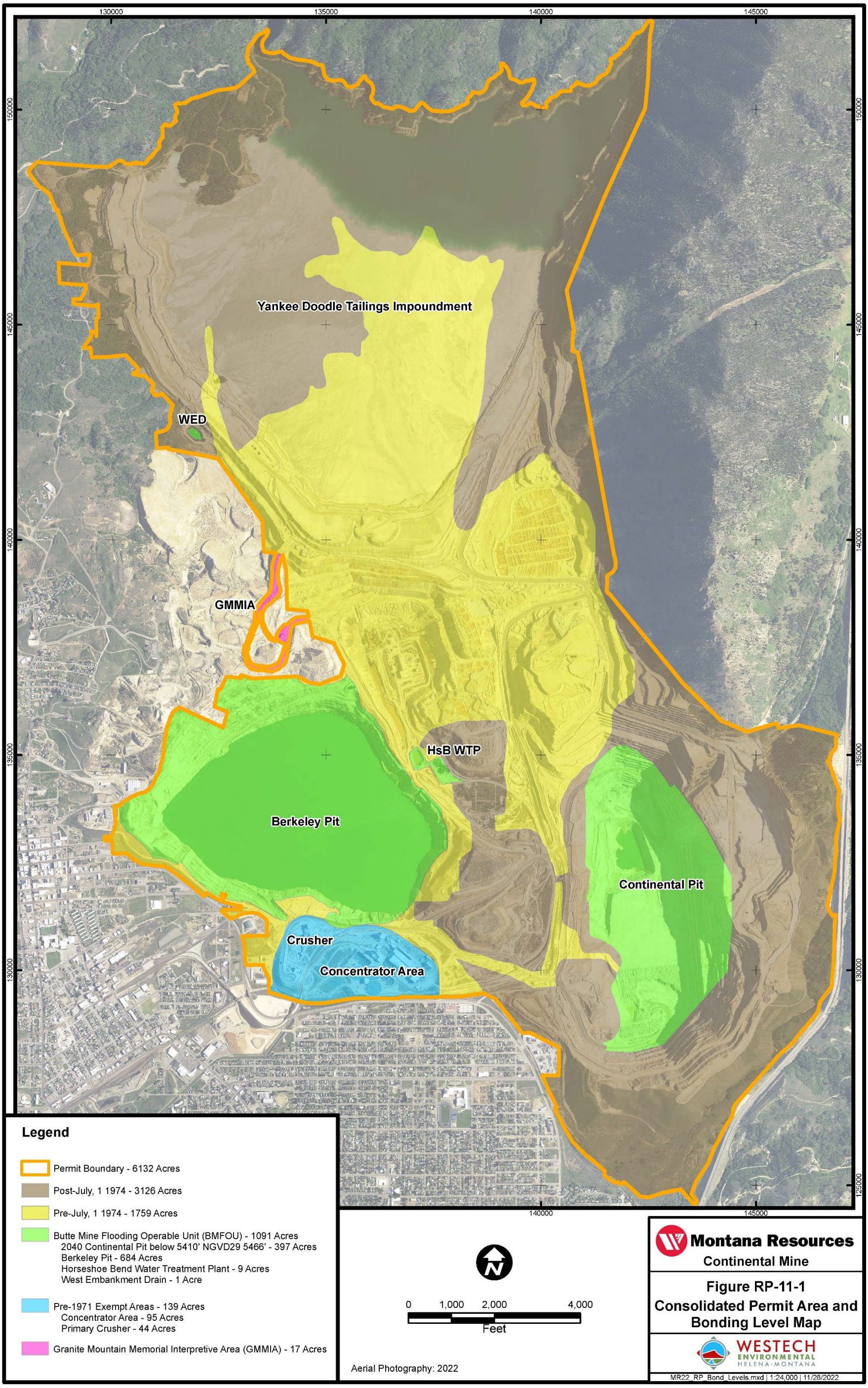
Miscellaneous Areas				
Exploration License 00711 East (Partially Reclaimed/Released)	1			1 (<1)
Historic Preservation			17	17
Leach Pads (inactive)	9	35		44
McQueen Townsite	2	1		3
Miscellaneous Disturbed (Partially Reclaimed/Released)	98	190		288 (30)
Roads	38	43		81
Subtotal	**148**	**269**	**17**	**434 (31)**
Total Disturbance Acreage	**2716**	**1761**	**1243**	**5720 (230)**

Acreage Summary Totals	
Permit 00030	**6132**
BMFOU	**1091**
EXEMPT	**139**
GMMIA	**17**
Disturbed[2]	**5720**
Undisturbed	**415**
Partially Reclaimed/Released[3] (as of 2021)	**(230)**
Exploration License 00711 North Area outside Permit 00030	**7 (5)**

[1] Subsequent to closure, the size of the pond would gradually decrease until it reaches 110 acres in the post-1974 bond area at equilibrium. Acreages at equilibrium for the Transition Zone are: pre-1974 beach 44 acres, post-1974 beach 354, and post-1974 north bank 79.

[2] Acreages shown are based on the following: With the exception of the Continental Pit, the CZABA, the YDTI, the HsB RDS, the North RDS, and the Great Northern RDS, areas are End of Year 2022. The Continental Pit is planned to the 2040 footprint with additional area for the "D" East Layback. The YDTI is planned to End of Year 2031; and the CZABA is planned at closure.

[3] Reclaimed acreage overlaps disturbance acreage within features; therefore, it is not independently added to the total acreages, but is shown parenthetically and totaled here for reference. Reclaimed acreage changes annually and is documented in Montana Resources' Annual Reports.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Yankee Doodle Tailings Impoundment
WED
GMMIA
HsB WTP
Berkeley Pit
Continental Pit
Crusher
Concentrator Area
Legend
Permit Boundary - 6132 Acres
Post-July, 1 1974 - 3126 Acres
Pre-July, 1 1974 - 1759 Acres
Butte Mine Flooding Operable Unit (BMFOU) - 1091 Acres
2040 Continental Pit below 5410' NGVD29 5466' - 397 Acres
Berkeley Pit - 684 Acres
Horseshoe Bend Water Treatment Plant - 9 Acres
West Embankment Drain - 1 Acre
Pre-1971 Exempt Areas - 139 Acres
Concentrator Area - 95 Acres
Primary Crusher - 44 Acres
Granite Mountain Memorial Interpretive Area (GMMIA) - 17 Acres
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Aerial Photography: 2022
Montana Resources
Continental Mine
Figure RP-11-1
Consolidated Permit Area and Bonding Level Map
WESTECH ENVIRONMENTAL HELENA·MONTANA
MR22_RP_Bond_Levels.mxd | 1:24,000 | 11/28/2022

12.0 REFERENCES

Butte-Silver Bow County. 2008.
Butte-Silver Bow County Growth Policy 2008 Update. Community Development Services of Montana. Butte, MT.

Butte-Silver Bow County. 2020.
Butte-Silver Bow Comprehensive Plan, Accepted November 19, 2020. Butte-Silver Bow City-County Planning Department. Butte, MT.

Butte Chamber of Commerce. 2019.
Butte Chamber of Commerce Annual Report to the Community 18-19. The Montana Standard. Butte, MT.

Czehura, S. 2021.
Montana Resources Quaternary Alluvium Study. Technical report prepared for Montana Resources, LLC by Applied Geological Services, LLC. Butte, MT.

Hydrometrics, Inc. 2013.
Background Concentrations of Inorganic Constituents in Montana Surface Soils. Project Report prepared for Montana Department of Environmental Quality by Hydrometrics, Inc. Helena, MT.

Hydrometrics, Inc. 2017.
Hydrologic Evaluation of the Yankee Doodle Tailings Impoundment West Ridge Area, Silver Bow County, Montana, Rev. 3. Technical report prepared for Montana Resources, LLC by Hydrometrics, Inc. Helena, MT.

Independent Review Panel (IRP). 2017.
Report of the Independent Review Panel – Design Document for Expansion of Yankee Doodle Tailings Impoundment. Prepared for Montana Resources, LLC November 20, 2017.

Independent Review Panel (IRP). 2021.
IRP Memorandum for Horseshoe Bend Rock Disposal Site – Stage 1 Drainage System Report (Knight Piesold, December 6, 2021). Dated December 17, 2021. Prepared for Montana Resources, LLC November 20, 2017.

Jennings, S. 1993.
Geochemical Characterization of Sulfide Mineral Weathering for Remediation of Acid Producing Mine Wastes. MS Thesis. Montana State University. Bozeman, MT.

Knight Piésold (KP). 2017.
Yankee Doodle Tailings Impoundment, Site Characterization Report (KP Reference No. VA101-126/14-2 Rev 2). Vancouver, BC.

Knight Piésold (KP). 2018a.
Yankee Doodle Tailings Impoundment, Dam Breach Risk Assessment (KP Reference No. VA101-126/12-3). Vancouver, BC.

Knight Piésold (KP). 2018b.
Yankee Doodle Tailings Impoundment, Reclamation Overview Report (KP Reference No. VA101-126/12-8 Rev 5). Submitted to MR on May 2, 2018. Vancouver, BC.

Knight Piésold (KP). 2021.
Horseshoe Bend Rock Disposal Site – Stage 1 Drainage System Report (KP Reference No. VA101-126/25-3). Submitted to MR on December 6, 2021. Vancouver, BC.

Larney, F. and D. Angers. 2011. The role of organic amendments in soil reclamation: A review. Canadian Journal of Soil Science. Volume 92. Pages 19-38.

Lesica, P. 2012.
Manual of Montana Vascular Plants. Botanical Research Institute of Texas Press. 771 p. Fort Worth, TX.

Montana Department of Environmental Quality (DEQ). 2014.
Stormwater Management during Construction Field Guide for Best Management Practices. Available at: https://www.ci.missoula.mt.us/DocumentCenter/View/46324/Storm-Water-Management-Construction-BMPs-Field-Guide-MDEQ-April14

Montana Department of Environmental Quality (DEQ). 2019.
Final Environmental Impact Statement for the Proposed Amendment to Permits 00030 and 00030A for the Continental Mine: Expansion of the Yankee Doodle Tailings Impoundment and Associated Facilities. Helena, MT.

Montana Department of Environmental Quality (DEQ). 2021.
Montana Resources Operating Permit #00030, 00030A, 00041, 00108 Final 5-Year Bond Determination. January 2021. Helena, MT.

Montana Resources, LLC (MR). 1998.
Montana Resources Reclamation Plan. November 1998. Butte, MT.

Montana Resources, LLC (MR). 2014 – 2020.
Annual Progress Reports for Mine Operating Permits prepared by MR and submitted to Montana DEQ. Butte, MT.

Montana Resources, LLC (MR). 2018.
Amendment to Operating Permits 00030 and 00030A to Continue Operations at the Continental Mine (Amendment 10). Prepared by MR. Revised May 2018.

Montana Resources, LLC (MR). 2019.
Draft Butte Mine Flooding Operable Unit Remedial Action Adequacy Review. Report submitted to Montana DEQ Remediation Division and EPA. November 2019. Butte, MT.

Montana Resources, LLC (MR). 2020.
"Montana Resources, LLC Responses to DEQ Preliminary 5-Year Bond Determination Comments and Requests for Additional Information." Montana Resources letter to Garrett Smith, Montana DEQ. October 2, 2020. Butte, MT.

Montana Resources, LLC (MR). 2021.
Continental Mine Operations Plan. Updated plan submitted to Montana DEQ December 2021. Butte, MT.

Montana Resources, LLC (MR). 2022.
Dust Control Plan for Yankee Doodle Tailings Impoundment. Submitted to Montana DEQ (Rev.) March 18, 2022. Prepared and submitted by Montana Resources, LLC.

Montana Resources, LLC (MR) and Atlantic Richfield Company (AR). 2018.
"Letter regarding Berkeley Pit and Discharge Pilot Project." Montana Resources and Atlantic Richfield Company. January 25, 2018. Butte, MT.

Prodgers, R. 2013.
Effectiveness of commercial compost soil amendment in Montana upland and riparian revegetation. in Reclamation Across Industries, American Society of Mining and Reclamation. Lexington, KY.

Schafer Limited LLC. 2018.
Phase 2 Mass Load Model of Yankee Doodle Tailings Pond. Unpublished memorandum submitted to Mark Thompson, Montana Resources LLC. May 25, 2018.

U.S. Department of Agriculture, Natural Resources Conservation Service (NRCS). 2009.
Evaluating Seeding Success for Pasture and Hay Planting (Code 512) and Range Planting (Code 550). Conservation Planning Technical Note No. MT-5 (Rev. 1).

U.S. Environmental Protection Agency (EPA). 1994.
Record of Decision, Butte Mine Flooding Operable Unit, Silver Bow Creek Butte Area NPL Site. U.S. Environmental Protection Agency, Montana Office. September 29, 1994. Butte, MT.

U.S. Environmental Protection Agency (EPA). 2001.
Decision Document Regarding Deferral by EPA to State Authority for the Butte Active Mining Area Operable Unit, Silver Bow Creek/Butte Area (Butte Portion) NPL Site. Document placed in the administrative record for the Active Mine Area, Mine Flooding, and Butte Priority Soils operable units, signed 3/28/2001 by John F. Wardell, Director, Montana Office, EPA Region 8.

U.S. Environmental Protection Agency (EPA). 2002.
Explanation of Significant Differences for the Butte Mine Flooding Operable Unit, Silver Bow Creek Butte Area NPL Site. U.S. Environmental Protection Agency, Montana Office. March 2002. Butte, MT.

U.S. Environmental Protection Agency (EPA). 2003.
Ecological Soil Screening Level for Aluminum, Interim Final. OSWER Directive 9285.7-60. U.S. Environmental Protection Agency, DC Office. November 2003. Washington, DC.

U.S. Environmental Protection Agency (EPA). 2003.
Ecological Soil Screening Level for Iron, Interim Final. OSWER Directive 9285.7-69. U.S. Environmental Protection Agency, DC Office. November 2003. Washington, DC.

U.S. Environmental Protection Agency (EPA). 2005.
Ecological Soil Screening Level for Arsenic, Interim Final. OSWER Directive 9285.7-62. U.S. Environmental Protection Agency, DC Office. March 2005. Washington, DC.

U.S. Environmental Protection Agency (EPA). 2005.
Ecological Soil Screening Level for Cadmium, Interim Final. OSWER Directive 9285.7-65. U.S. Environmental Protection Agency, DC Office. March 2005. Washington, DC.

U.S. Environmental Protection Agency (EPA). 2005.
Ecological Soil Screening Level for Lead, Interim Final. OSWER Directive 9285.7-70. U.S. Environmental Protection Agency, DC Office. March 2005. Washington, DC.

U.S. Environmental Protection Agency (EPA). 2007.
Ecological Soil Screening Level for Copper, Interim Final. OSWER Directive 9285.7-68. U.S. Environmental Protection Agency, DC Office. Issued July 2006. Revised February 2007. Washington, DC.

U.S. Environmental Protection Agency (EPA). 2007.
Ecological Soil Screening Level for Nickel, Interim Final. OSWER Directive 9285.7-76. U.S. Environmental Protection Agency, DC Office. March 2007. Washington, DC.

U.S. Environmental Protection Agency (EPA). 2007.
Ecological Soil Screening Level for Zinc, Interim Final. OSWER Directive 9285.7-73. U.S. Environmental Protection Agency, DC Office. June 2007. Washington, DC.

U.S. Environmental Protection Agency (EPA). 2016.
Fourth Five-Year Review Report for the Silver Bow Creek/Butte Area Superfund Site. EPA ID MT 980502777. Five-Year Review Report. EPA Region 8. Denver, CO.

U.S. Environmental Protection Agency (EPA). 2016.
Anaconda Smelter, Anaconda, Montana, Superfund Case Study: Revitalization of the Upland Areas. Ecological Revitalization of Contaminated Sites Case Study. EPA 542-F-16-001. EPA Region 8. March 2016. Helena, MT.

U.S. Environmental Protection Agency (EPA). 2020.
Consent Decree for the Butte Priority Soils Operable Unit (BPSOU). Partial Remedial Design/Remedial Action and Operation and Maintenance. Civil Action No. CV 89-039-BU-SHE. United States District Court for the District of Montana, Butte Division. May 2020. Butte, MT.

U.S. Environmental Protection Agency (EPA). 2021.
Regional Screening Levels (RSLs) – Generic Tables (Tables as of: May 2021). Retrieved from: https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables. May 2021.

WESTECH Environmental Services, Inc. (WESTECH). 2022.
2021 Reclamation Monitoring Report. Prepared for MR. May 2022. Helena, MT.

WESTECH Environmental Services, Inc. (WESTECH). 2023.
2022 Reclamation Monitoring Report. Prepared for MR. January 2023. Helena, MT.