BLM MOUNT LEWIS FIELD OFFICE

Final

Deep South Expansion Project Supplemental Information Report

Prepared in Support of:
File Number: NVN-067575 (16-1A)
DOI-BLM-NV-B010-2016-0052 EIS

Bureau of Land Management
Battle Mountain District Office
Mount Lewis Field Office
50 Bastian Road
Battle Mountain, NV 89820

2019

COOPERATING AGENCIES:
U.S. Environmental Protection Agency
U.S. Fish and Wildlife Service
Nevada Department of Wildlife
Lander County and Eureka County

BLM Mission Statement

The Bureau of Land Management's mission is to sustain the health, diversity, and productivity of public lands for the use and enjoyment of present and future generations.

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Acronyms and Abbreviations

amsl	above mean sea level
APLIC	Avian Power Line Interaction Committee
Barrick	Barrick Gold of North America
BCI	Barrick Cortez Inc.
BLM	Bureau of Land Management
BMP	Best Management Practice
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CGM	Cortez Gold Mines
CIC	carbon-in-column
CIL	carbon-in-leach
CR	County Road
EHS	extremely hazardous substances
EIS	environmental impact statement
EPCRA	Emergency Planning and Community Right-to-Know Act
ET	Evapotranspiration
Geomega	Geomega Inc.
gpm	gallons per minute
H	horizontal
HC/CUEP	Horse Canyon/Cortez Unified Exploration Project
HDPE	high density polyethylene
IMP	Integrated Monitoring Plan
Itasca	Itasca Denver, Inc.
kV	kilovolt
LHD	load-haul-dump
MSHA	Mine Safety and Health Administration
NAC	Nevada Administrative Code
NDEP	Nevada Division of Environmental Protection
NDOT	Nevada Department of Transportation
NDOW	Nevada Department of Wildlife
NDWR	Nevada Division of Water Resources
NEPA	National Environmental Policy Act

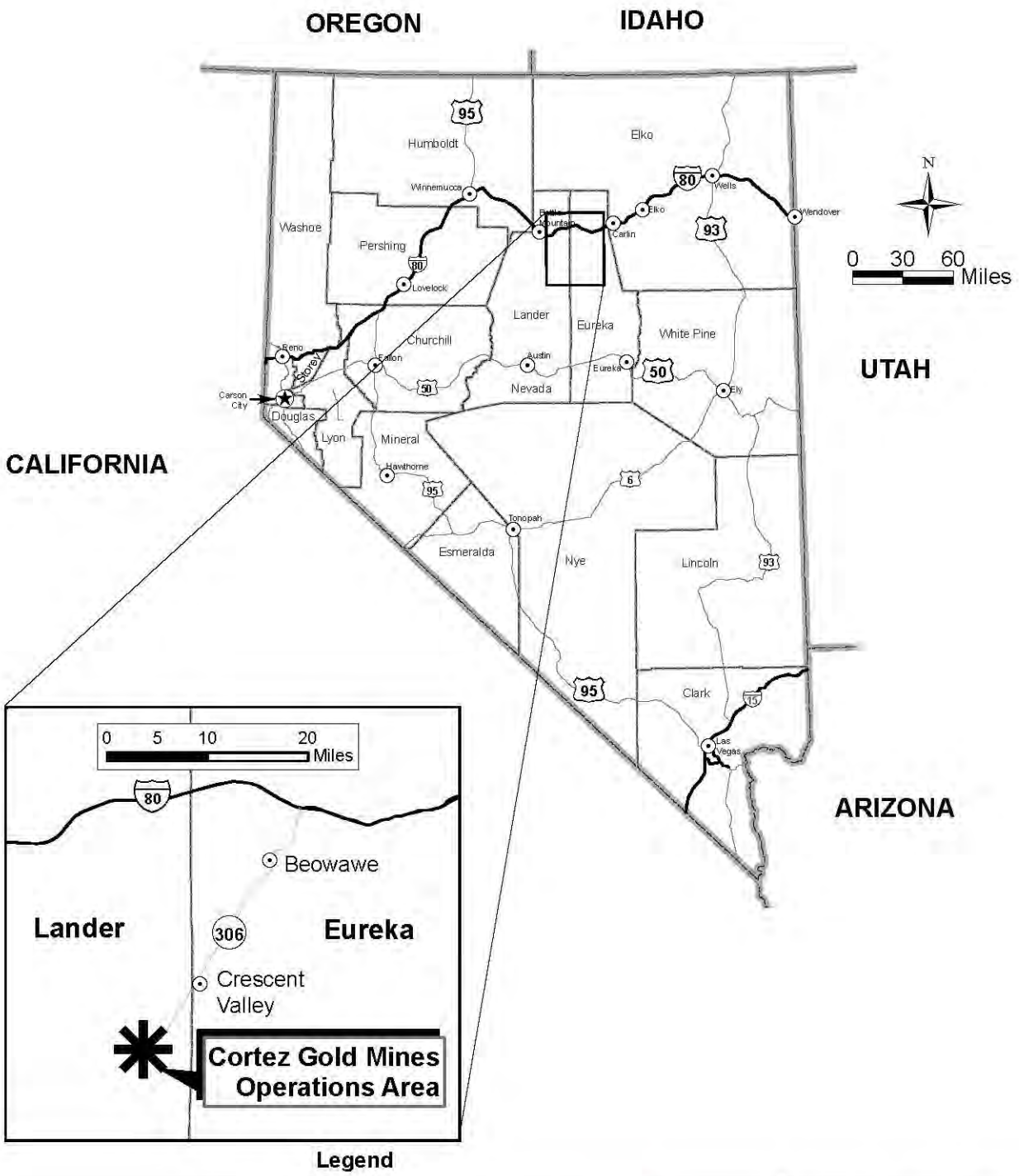
NRCS	Natural Resources Conservation Service
OSHA	Occupational Safety and Health Administration
PAG	potentially acid generating
PLS	pure-live-seed
PoO	Plan of Operations
RIB	rapid infiltration basin
ROD	record of decision
SAG	semi-autogenous grinding
SARA	Superfund Amendments and Reauthorization Act
SDS	safety data sheets
SEIS	supplemental environmental impact statement
SHPO	State Historic Preservation Officer
SRK	SRK Consulting, (U.S.) Inc.
SWPPP	Stormwater Pollution Prevention Plan
tpd	tons per day
TPQ	threshold planning quantity
tpy	tons per year
USDA	U.S. Department of Agriculture
USDOT	U.S. Department of Transportation
USFWS	U.S. Fish and Wildlife Service
V	vertical

1.0 Introduction

Barrick Cortez Inc. (BCI), as manager of the Cortez Joint Venture, proposes modifications to BCI's existing gold mining and processing operations within the Cortez Gold Mines (CGM) Operations Area, which is located approximately 24 miles south of Beowawe in Lander and Eureka counties, Nevada (**Figure 1-1**). On March 30, 2016, BCI submitted the Barrick Cortez Inc. (NVN-067575 (16-1A)) Deep South Expansion Project Amendment to Plan of Operations and Reclamation Permit Application #0093, which describes the proposed modifications, to the Bureau of Land Management (BLM) Battle Mountain District, Mount Lewis Field Office in compliance with 43 Code of Federal Regulations (CFR) Subpart 3809 and 3715. A revised plan amendment was submitted October 6, 2016 (BCI 2016b).

The proposed modifications would result in new surface disturbance on private land owned by BCI and public lands administered by the BLM. The proposed mining activities on public and private lands are subject to review and approval by the BLM pursuant to the Federal Land Policy and Management Act of 1976 as amended, and the BLM's surface management regulations (43 CFR Subpart 3809). The BLM's review and approval of a mine plan of operations under the surface management regulations constitute a federal action that is subject to the National Environmental Policy Act of 1969 (NEPA). The BLM has determined that the project constitutes a major federal action and has determined that an environmental impact statement (EIS) must be prepared to fulfill NEPA requirements. The BLM is serving as the lead agency for preparing the Deep South Expansion Project EIS in compliance with all applicable regulations and guidance. The U.S. Environmental Protection Agency, U.S. Fish and Wildlife Service, Nevada Department of Wildlife, and Lander and Eureka counties are serving as cooperating agencies for preparation and review of the EIS.

The EIS development is supported by supplemental reports. This supplemental report provides a detailed description of the Proposed Action as described by BCI in the Plan of Operations (PoO) Amendment (BCI 2016b), supporting documents, and supplemental information provided by BCI (2017a, 2016b) (Proposed Action). The report is intended to support the summary description provided in the EIS.



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Deep South Expansion Project EIS

Figure 1-1

Project Vicinity

2.0 Proposed Action

2.1 Project Background

Mining in the Cortez Mining District began with the discovery of silver ore in 1862 along the quartzite outcroppings at the western base of Mount Tenabo, also known as the “White Cliffs.” Underground silver mining was conducted in the area until the 1930s. Modern production of gold in the area started in the 1950s at the Gold Acres Mine, in 1968 at the Cortez Mine, and has continued with the development of additional mines and processing facilities as described in the Cortez Hills Expansion Project Final EIS (BLM 2008a).

From 1969 to 1973 and in the mid-1980s, the Cortez Mill processed oxide ore from the Cortez Pit. Between 1973 and 1976, the Cortez Mill processed oxide ore from the Gold Acres open pits, while concurrent heap leaching of lower grade ores was conducted at both the Cortez and Gold Acres facilities. The processing of refractory sulfide/carbon ores was initiated in 1990 at the Cortez Mill, following installation of a circulating fluid bed roaster; the roaster was in operation until 1996. The Cortez Mill facility also was the site of heap leaching for lower grade ore stockpiles from earlier mining and milled material obtained from mining at Horse Canyon. Following cessation of operations at Horse Canyon in 1993, the mill was supplied by renewed mining and processing of low-grade ore stockpiles from both the Cortez and Gold Acres facilities. In October 1999, the Cortez Mill and associated components were placed into temporary closure and maintenance.

The Pipeline deposit was discovered in March 1991 during deep condemnation drilling in an area proposed as a site for a new Gold Acres heap leach pad, resulting in the Pipeline Project (BLM 1996a,b). Ongoing exploration drilling along the same trend resulted in the discovery of additional ore reserves to the south of the Pipeline deposit that led to two subsequent expansions. These projects were known as the South Pipeline Project (BLM 2000a,b) and Pipeline/South Pipeline Expansion Project (BLM 2005, 2004). During this period, two subsequent expansions of the Pipeline dewatering/infiltration facilities also were approved by the BLM (BLM 1999a,b), as well as the development of gravel borrow pits located approximately 4 miles southeast of the Pipeline Complex for use in mining-related construction projects (BLM 2001). Operation of the Pipeline Mill was initiated in March 1997 for the processing of mill-grade oxide ore.

The Pediment deposit was discovered in 1999 during exploration drilling along geologic trends. Further exploration drilling between 1999 and 2004 for delineation of the identified ore body resulted in the discovery of an adjacent ore body, known as the Cortez Hills deposit. The expansion, known as the Cortez Hills Expansion Project, included the expansion of two existing open pits and the development of one new open pit, underground mining, the construction of two new heap leach pads and associated processing facilities, the expansion of two existing and construction of three new waste rock disposal areas, expansion of the Pipeline Mill, expansion of an existing tailings facility, construction of an overland conveyor with associated crusher and stockpile, the relocation of portions of two county roads and a transmission line, and use of some existing primary facilities and ancillary support facilities at Pipeline, Cortez, and Gold Acres.

In addition to incorporation of the new Cortez Hills mine area, the plan amendment for the Cortez Hills Expansion Project (CGM and SRK Consulting [SRK] 2008) also consolidated CGM’s three existing mine plans (Pipeline/South Pipeline Plan of Operations [NVN-067575], Cortez Plan of Operations [NVN-67261] as amended for the Underground Exploration Project, and Gold Acres Plan of Operations [NVN-67174]) into one plan of operations (NVN-067575

Amendment to the Pipeline/South Pipeline Plan of Operations for the Cortez Hills Expansion Project [CGM and SRK 2008]). The new Plan of Operations boundary (known as the CGM Operations Area) encompassed the four mining complexes (Pipeline, Gold Acres, Cortez, and Cortez Hills) and eliminated overlap between the various plan boundaries and approved activities. In addition, the plan boundaries for BCI's two existing exploration plans (Pipeline/South Pipeline/Gold Acres Exploration Project [NVN-067261] and Horse Canyon/Cortez Unified Exploration Project (HC/CUEP) [NVN-66621]) also were modified to eliminate overlap of the exploration plan boundaries with the new mine plan boundary. The Cortez Hills Expansion Project was analyzed in an EIS and Supplemental EIS (SEIS) (BLM 2011a, 2008a) and subsequently approved by BLM (2011b, 2008b).

As part of the Cortez Hills Expansion Project, the crushing, grinding, and carbon-in-leach (CIL) circuits at the Cortez Mill were permitted in 2008 for reactivation for processing of mill-grade (oxide) ore from the Cortez and Cortez Hills pits and underground mine operations. In 2014, demolition of the Cortez Mill and the roaster was completed, and the remaining reclamation and closure activities are expected to be completed prior to site closure. Mill-grade (oxide) ore continues to be processed at the existing Pipeline Mill; the primary method of processing low grade oxide ore is heap leaching. Refractory ore has been, and continues to be, trucked off-site for processing at Barrick's Goldstrike Mill (an ore processing facility at the Goldstrike Mine that includes an autoclave and roaster) under current authorizations (BLM 2015b, 2014b, 2011b, 2008b). The backhaul of Arturo Mine oxide ore to the Pipeline Complex for processing at the Pipeline Mill or heap leach facilities also continues under current authorizations (BLM 2015a,b).

Other facility and operational modifications in recent years have included reconfiguration of a waste rock facility at the Cortez Hills Complex, relocation of a refractory ore stockpile from the Pipeline Complex to the Goldstrike Mill, and construction of ancillary facilities (BLM 2014a,b), as well as modification of an existing mine pit, expansion or modification of four waste rock facilities, construction of new declines and surface support facilities for underground operations, construction of additional ancillary support facilities, modification of off-site refractory ore shipping, and the backhaul of Arturo Mine oxide ore through the Goldstrike Mine to the Pipeline Complex for processing at the Pipeline Mill or heap leach facilities (BLM 2015a,b).

Ongoing exploration drilling in the Cortez Hills underground mine area confirmed the continuation of mineralization below the currently authorized depth of 3,800 feet above mean sea level (amsl), and the additional open pit mineralization in the Pipeline, Gold Acres, Cortez, and Cortez Hills complexes. BCI currently proposes to expand their existing operations to facilitate development of the Deep South Expansion Project. The proposed expansion would use existing and proposed facilities at the Cortez, Cortez Hills, Pipeline, and Gold Acres mine complexes; a new water storage reservoir; and existing and proposed rapid infiltration basins (RIBs). Proposed mining and related surface disturbance would be conducted on mining claims owned, leased, or controlled by BCI on BLM-administered public lands. BCI controls approximately 3,372 lode claims, two placer claims, and 643 mill site claims within the CGM Operations Area.

A summary of the past and existing plans of operations and environmental analyses for the CGM Operations Area is presented in Appendix A.1 of the PoO Amendment (BCI 2016b).

2.2 Existing Facilities

Existing mining and processing facilities in the CGM Operations Area are located in four main areas known as the Cortez, Cortez Hills, Pipeline, and Gold Acres complexes **Figure 2-1**). The

Cortez and Cortez Hills complexes are located on the western flank of Mount Tenabo in the Cortez Mountains on the southeast side of Crescent Valley, approximately 7 miles southeast of the Pipeline Complex. The existing Gold Acres Complex is located directly west of the Pipeline Complex. Facilities at the Gold Acres Complex are in various stages of reclamation. This area includes pre-1981 disturbance that is inactive. As the majority of the existing facilities would be used in support of the Proposed Action, full descriptions of the facilities have been incorporated into Section 2.3, BCI Proposed Action, to aid the reader in understanding the complete proposed project. Existing primary facilities associated with each of these complexes are shown in **Figure 2-2** and briefly summarized below.

The Pipeline Complex includes:

- One open pit complex (Pipeline Pit Complex, inclusive of the Pipeline, Crossroads, and Gap pits);
- Two waste rock facilities (Gap and Pipeline);
- Two pit backfill areas (Pipeline Pit and northern portion of Gap Pit);
- Pipeline Mill for processing mill-grade oxide ore;
- Two heap leach facilities (Pipeline [Area 28] and Pipeline South Area [Area 30]);
- One tailings impoundment (Pipeline [Area 28]);
- Ancillary and support areas including administration, laboratory and other support buildings, truck shop, fuel facilities, storage areas, water treatment plant, growth media stockpiles, refractory and oxide ore stockpiles, blasting materials storage area, and power infrastructure; and
- Dewatering facilities and infiltration basins.

The Gold Acres Complex includes:

- One open pit (Gold Acres);
- Three waste rock facilities (Gold Acres North, Gold Acres South, and Gold Acres East);
- Heap leach facility (closed - material removed and placed on the Pipeline Heap Leach Facility);
- Buildings (authorized for use);
- Class III landfill (authorized for use);
- 90-day temporary hazardous materials storage facility (e.g., oil, etc.);
- Hydrocarbon bio-remediation facilities; and
- Blasting materials storage area.

The Cortez Hills Complex includes:

- One open pit (Cortez Hills);
- Three waste rock facilities (Canyon, North, and South);
- One heap leach facility (Grass Valley);
- Ancillary facilities including truck shop; safety, security, and administration buildings; growth media stockpiles; ore stockpiles; overland conveyor with crusher/ore stockpile area; blasting materials storage area; range front declines and surface support facilities

for underground operations, power infrastructure, and fuel and lubricant storage facilities;

- Dewatering system;
- Fresh water reservoir; and
- Underground mine.

The Cortez Complex includes:

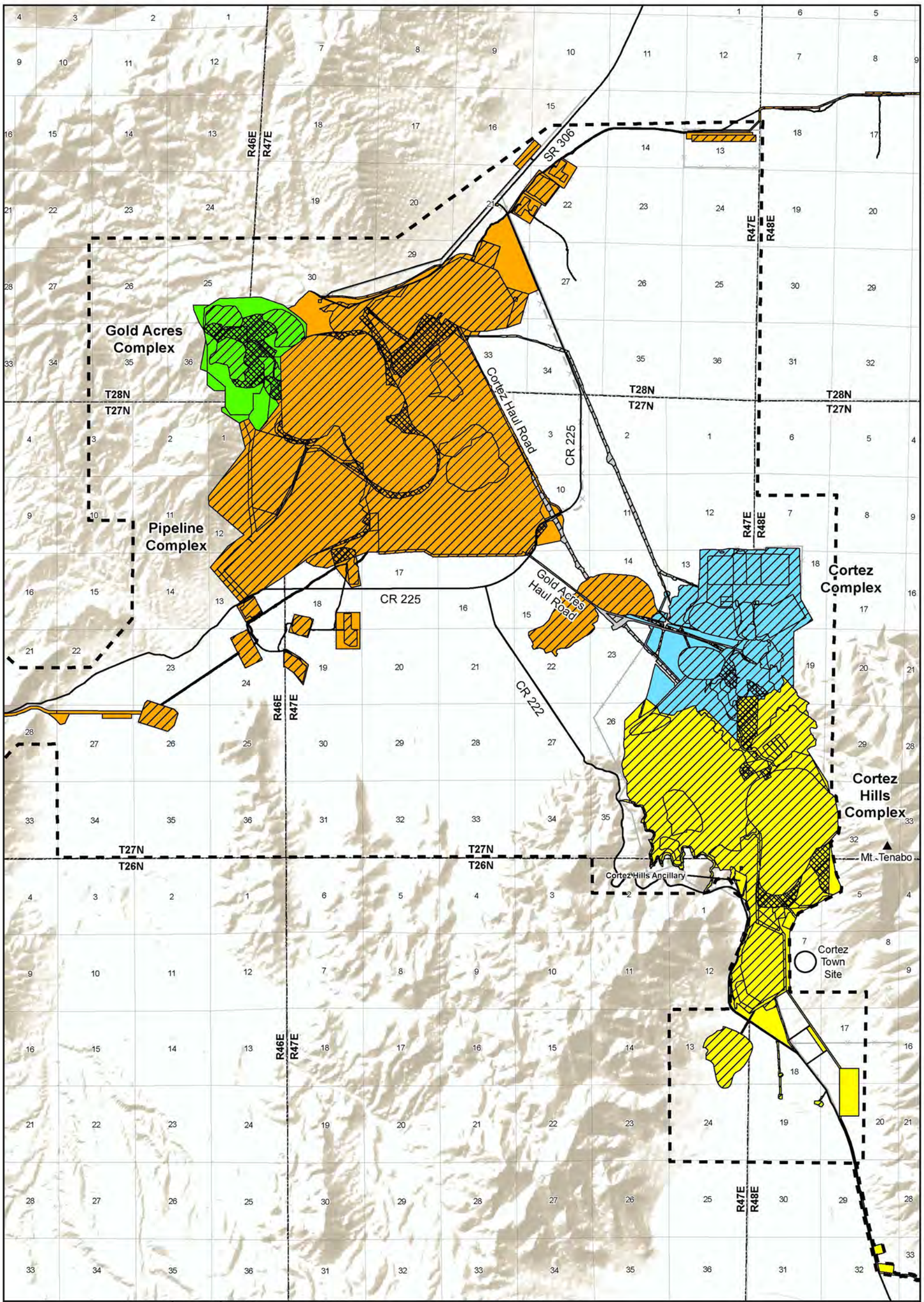
- Three open pits (Cortez and Ada 52 [currently authorized for mining] and F-Canyon);
- Three heap leach facilities (closed);
- One pit backfill area (F-Canyon Pit);
- Four waste rock facilities (Cortez, Cortez East, Ada 52 Top, and F-Canyon);
- One tailings area composed of eight ponds (Ponds 1 through 4 and 6 [closed], Pond 5 [authorized for water management for the Cortez Hills underground operations], Pond 7 [open but not currently in use], and Pond 8 [authorized but not constructed]);
- Ancillary facilities including administration buildings, truck shop, underground portals and surface support facilities in the F-Canyon Pit for underground operations, power infrastructure, blasting materials storage area, and pumpback/remediation systems; and
- Cross-valley water pipelines to the existing Pipeline infiltration basins and process facilities.

2.3 BCI Proposed Action

2.3.1 Overview

Based on the PoO Amendment, the Proposed Action would include modifications to existing facilities in the four existing mine complexes, construction of new facilities, modifications to overall operations, and expansion of the CGM Operations Area boundary as summarized in the Executive Summary and described below.

The modified CGM Operations Area boundary and locations of proposed new disturbance areas are shown in **Figure 2-3**. Additional detail for the proposed new and modified facilities in the four mine complexes (Pipeline, Gold Acres, Cortez Hills, and Cortez) is shown in **Figure 2-4**. Where possible, some of the existing facilities summarized in Section 2.2, Existing Facilities, and shown in **Figure 2-2** for which no modifications are proposed would be used for the Proposed Action to minimize additional surface disturbance. Their use and brief descriptions, as appropriate, are included in the description of the Proposed Action. The currently authorized and proposed new surface disturbance, as well as reallocation of use of currently authorized disturbance, at the site is summarized in **Table 2-1**.



Proposed CGM Operations Area
Existing Facilities
Proposed New Facilities (color coded by complex)
Overlap of Existing and Proposed Facilities
Powerline
Fence
Road

Cortez Complex
Cortez Hills Complex
Gold Acres Complex
Pipeline Complex

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Note: Existing and proposed facilities outside of the mine complexes are shown in Figure 2-3.

0 0.5 1 2 Miles

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Figure 2-1
Mine Complexes in the Proposed CGM Operations Area

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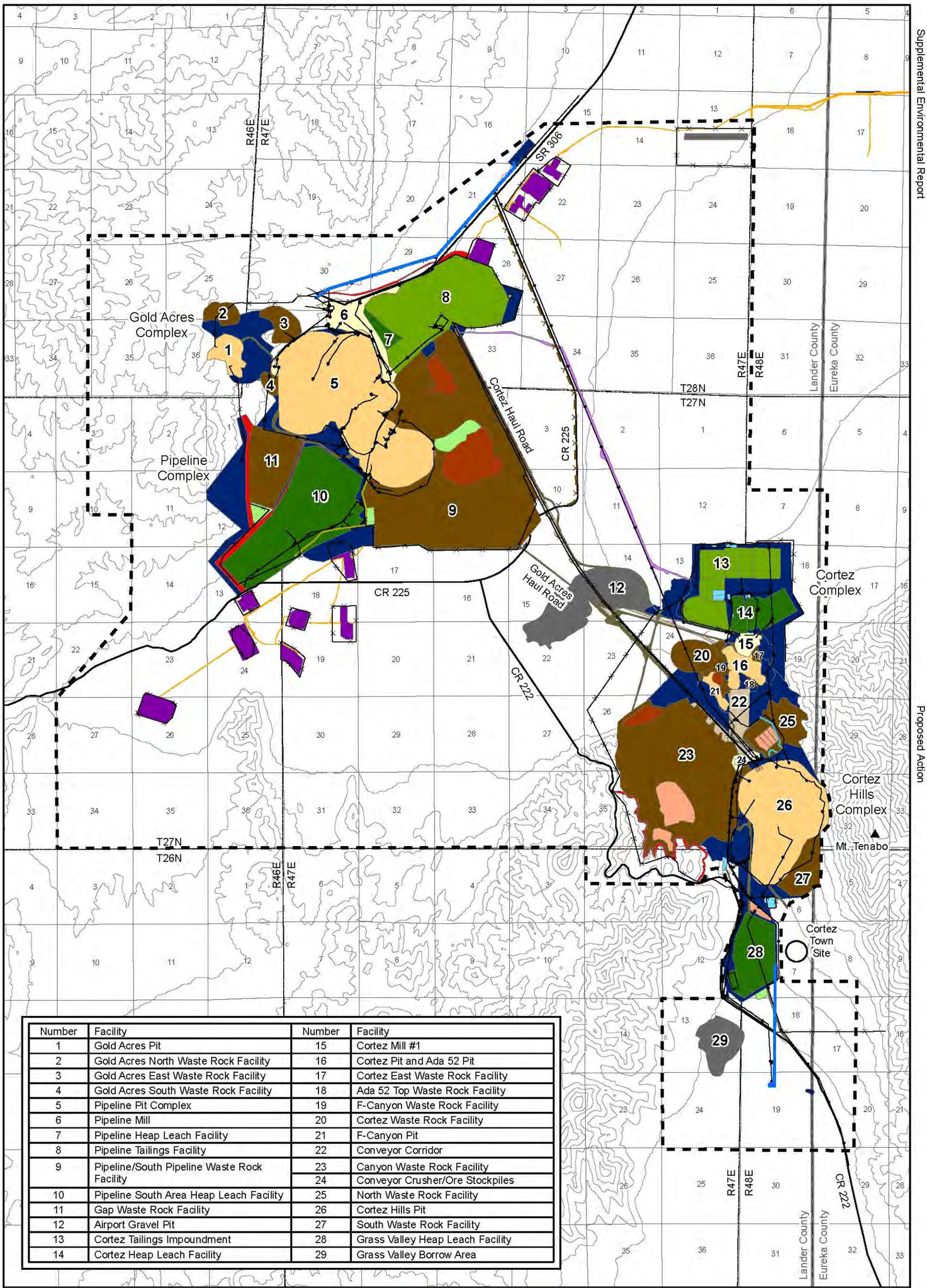

Number	Facility	Number	Facility
1	Gold Acres Pit	15	Cortez Mill #1
2	Gold Acres North Waste Rock Facility	16	Cortez Pit and Ada 52 Pit
3	Gold Acres East Waste Rock Facility	17	Cortez East Waste Rock Facility
4	Gold Acres South Waste Rock Facility	18	Ada 52 Top Waste Rock Facility
5	Pipeline Pit Complex	19	F-Canyon Waste Rock Facility
6	Pipeline Mill	20	Cortez Waste Rock Facility
7	Pipeline Heap Leach Facility	21	F-Canyon Pit
8	Pipeline Tailings Facility	22	Conveyor Corridor
9	Pipeline/South Pipeline Waste Rock Facility	23	Canyon Waste Rock Facility
		24	Conveyor Crusher/Ore Stockpiles
10	Pipeline South Area Heap Leach Facility	25	North Waste Rock Facility
11	Gap Waste Rock Facility	26	Cortez Hills Pit
12	Airport Gravel Pit	27	South Waste Rock Facility
13	Cortez Tailings Impoundment	28	Grass Valley Heap Leach Facility
14	Cortez Heap Leach Facility	29	Grass Valley Borrow Area

CGM Operations Area Boundary
Diversion Channel
Fence
Fissure Ditch
Powerline
Water Pipeline
Rangeland Fence

Ancillary Facility
Borrow Pit/Gravel Pit
Conveyor Corridor
Diversion Channel
Growth Media Stockpile
Haul Road
Heap Leach Facility
Rapid Infiltration Basin

Open Pit
Processing Facility
Pond
Oxide Ore Stockpile
Refactory Ore Stockpile
Tailings Facility
Utilities
Waste Rock Facility

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Note: Existing Crescent Valley RIBs are located northeast of the CGM Operations Area boundary as shown in **Figure 2-3**.

0 0.5 1 2 Miles

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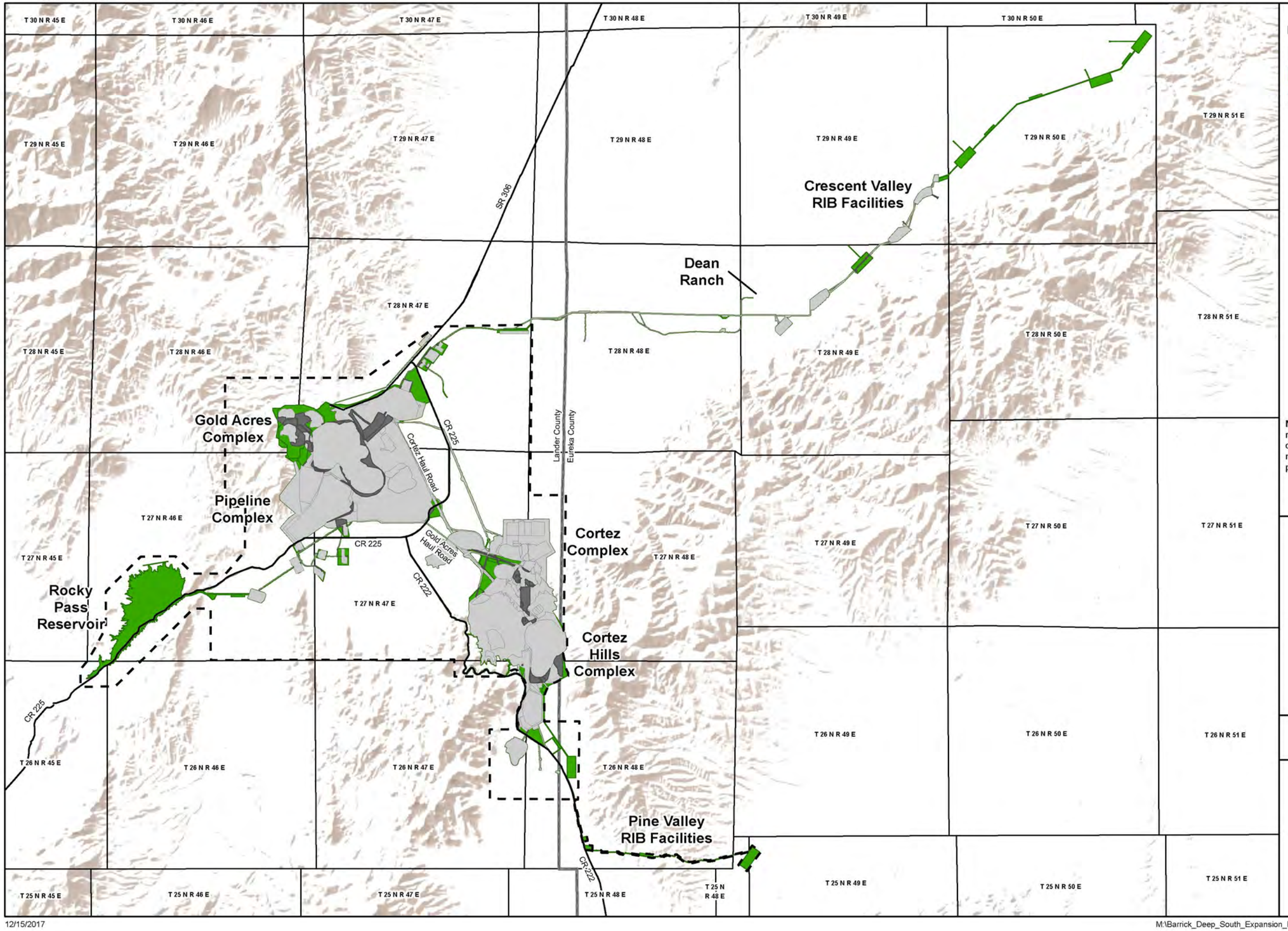
Figure 2-2
Existing Mine Facilities



Proposed CGM Operations Area Boundary
Existing Facilities
Proposed New Facilities
Overlap of Existing and Proposed Facilities

Notes: See **Figure 2-4** for additional detail relative to proposed modifications at the mine complexes. RIBs and associated infrastructure northeast of the CGM Operations Area are on private land.

0 1 2 3 4 Miles

N

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Deep South Expansion Project EIS

Figure 2-3

Proposed Action

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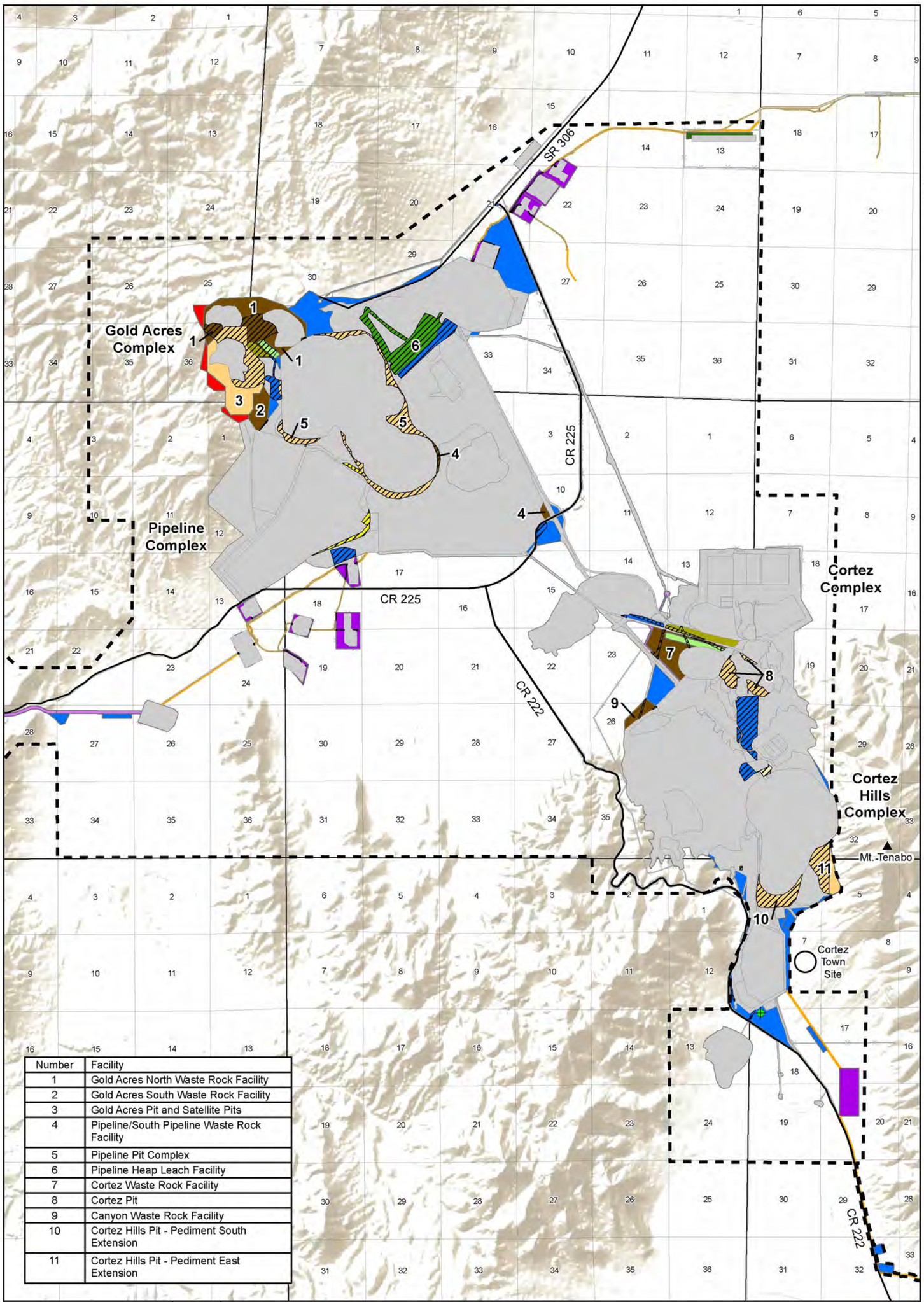

Number	Facility
1	Gold Acres North Waste Rock Facility
2	Gold Acres South Waste Rock Facility
3	Gold Acres Pit and Satellite Pits
4	Pipeline/South Pipeline Waste Rock Facility
5	Pipeline Pit Complex
6	Pipeline Heap Leach Facility
7	Cortez Waste Rock Facility
8	Cortez Pit
9	Canyon Waste Rock Facility
10	Cortez Hills Pit - Pediment South Extension
11	Cortez Hills Pit - Pediment East Extension

Proposed CGM Operations Area Boundary
Existing Facilities
Overlap of Existing and Proposed Facilities
Powerline
Fence
Proposed Infiltration Distribution Pipeline
Proposed Water Treatment Plant
Proposed Post-mining Stormwater Control
Proposed Ancillary Facilities
Proposed Borrow Pit/Gravel Pit
Proposed Growth Media Stockpile
Proposed Haul Road
Proposed Heap Leach Facility Modification
Proposed Infiltration Basin
Proposed Open Pit Modification
Proposed Stormwater Retention Pond
Proposed Conveyor Crusher/Ore Stockpile Modification
Proposed Refactory Ore Stockpile
Proposed RIBs and Modifications
Proposed Waste Rock Facility Modification

Note: Ore stockpiles and growth media stockpiles would be placed in existing or proposed ancillary facilities areas or on top of existing or proposed waste rock facilities per existing operations.

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0 0.5 1 2 Miles

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Figure 2-4
Proposed Action
Mine Complexes

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Table 2-1 Currently Authorized Disturbance and Proposed New Disturbance under the Proposed Action

Mine Complex	Facility	No Action Alternative Total Authorized Disturbance by Facility (acres)	Proposed Action		
			Proposed Total Disturbance by Facility (acres)	Proposed Reallocation of Use of Currently Authorized Disturbance (sum total acres)	Proposed New Surface Disturbance by Facility (acres)
Open Pits[1]					
Pipeline Complex	Pipeline Pit Complex	1,619	1,778[2]	159[2]	0[2]
Gold Acres Complex	Gold Acres Pit and Satellite Pits	111	377	115	151
Cortez Hills Complex	Cortez Hills Pit	868	1,041[3]	139[3]	34[3]
Cortez Complex	Cortez Pit and Ada 52 Pit	110	171	61	0
	F-Canyon Pit	44	44	0	0
Subtotal		**2,752**	**3,411**	**474**	**185**
Underground Operations		**0[4]**	**0[4]**	**0[4]**	**0[4]**
Waste Rock Facilities					
Pipeline Complex	Pipeline/South Pipeline Waste Rock Facility	2,549	2,467	-92	10
	Gap Waste Rock Facility	347	343	-4	0
	Pipeline Pit Complex Backfill	0	0[5]	0[5]	0[5]
Gold Acres Complex	Gold Acres North Waste Rock Facility[6]	184	422	95	144
	Gold Acres South Waste Rock Facility	35	100	0	65
Cortez Hills Complex	Canyon Waste Rock Facility	1,633	1,670	4	33
	North Waste Rock Facility	257	257	0	0
	South Waste Rock Facility	169	84	-85	0
	Cortez Hills Pit Backfill	--	0[7]	0[7]	0[7]
Cortez Complex	Cortez Waste Rock Facility	153	312	14	145
	Cortez East Waste Rock Facility	10	10	0	0
	Ada 52 Top Waste Rock Facility	7	0	-7	0

Table 2-1 Currently Authorized Disturbance and Proposed New Disturbance under the Proposed Action

Mine Complex	Facility	No Action Alternative Total Authorized Disturbance by Facility (acres)	Proposed Action		
			Proposed Total Disturbance by Facility (acres)	Proposed Reallocation of Use of Currently Authorized Disturbance (sum total acres)	Proposed New Surface Disturbance by Facility (acres)
	F-Canyon Waste Rock Facility	50	20	-30	0
	F-Canyon Pit Backfill	0	0[7]	0[7]	0[7]
	Cortez/Ada 52 Pit Backfill	--	0[7]	0[7]	0[7]
Subtotal		**5,393**	**5,685**	**-105**	**397**
Heap Leach Facilities and Process Areas					
Pipeline Complex	Heap Leach portion of the Pipeline Heap Leach/Tailings Facility	54	243	189	0
	Pipeline South Area Heap Leach Facility	1,034	1,034	0	0
	Pipeline Plant Site	227	158	-69	0
Gold Acres Complex	Gold Acres Heap Leach Facility	10	10	0	0
	Gold Acres Plant Site	10	10	0	0
Cortez Hills Complex	Grass Valley Heap Leach Facility	328	328	0	0
Cortez Complex	Cortez Heap Leach Facility	209	209	0	0
	Cortez Mill #1	53	49	-4	0
	Solution Ponds	8	8	0	0
Subtotal		**1,933**	**2,049**	**116**	**0**
Tailings Impoundments					
Pipeline Complex	Tailings portion of the Pipeline Heap Leach/Tailings Impoundment	953	745	-208	0
Cortez Complex	Cortez Tailing Impoundment	463	463	0	0
Subtotal		**1,416**	**1,208**	**-208**	**0**
Ancillary Support Facilities					
Pipeline Complex	Ancillary	825	1,285	-27	487
	Diversion Channels	21	21	0	0
	Frome Gravel Pit	45	46	-20	21
	County Road (CR) 225 Reroute	72	67	-9	4

Table 2-1 Currently Authorized Disturbance and Proposed New Disturbance under the Proposed Action

Mine Complex	Facility	No Action Alternative Total Authorized Disturbance by Facility (acres)	Proposed Action		
			Proposed Total Disturbance by Facility (acres)	Proposed Reallocation of Use of Currently Authorized Disturbance (sum total acres)	Proposed New Surface Disturbance by Facility (acres)
Gold Acres Complex	Ancillary	254	70	-203	19
Cortez Hills Complex	Ancillary[8]	590	905	70	245
	Grass Valley Borrow Area	200	200	0	0
	120-kilovolt (kV) Transmission Line and Substation	4	1	-3	0
	Fresh Water Reservoir	13	13	0	0
	Class III Landfill	5	5	0	0
	Conveyor Crusher/Ore Stockpiles	33	25	-8	0
	Water Wells/Power Line/Access Road	22	23	-3	4
Cortez Complex	Ancillary	822	947	1	124
	Airport Gravel Pit	540	540	0	0
	Remediation Wells	23	23	0	0
	Water Storage Reservoirs	13	13	0	0
	Cross-valley Conveyor Corridor	250	121	-129	0
	120-kV Power Line/Water Pipeline Corridor	107	119	-5	17
Various	Main Haul Roads	215	215	0	0
Various	Growth Media Stockpiles	57	57	0	0[9]
Various	Refractory and Oxide Ore Stockpiles	0[10]	0[9]	0	0[9,10]
Subtotal		**4,111**	**4,696**	**-336**	**921**
Water Management Facilities					
Pipeline Complex	Rocky Pass Reservoir and Facilities[11]	0	1,724	0	1,724
Cortez Hills/Pipeline Complexes	Rapid Infiltration Basins	551	966	21	394

Table 2-1 Currently Authorized Disturbance and Proposed New Disturbance under the Proposed Action

Mine Complex	Facility	No Action Alternative Total Authorized Disturbance by Facility (acres)	Proposed Action		
			Proposed Total Disturbance by Facility (acres)	Proposed Reallocation of Use of Currently Authorized Disturbance (sum total acres)	Proposed New Surface Disturbance by Facility (acres)
	Infiltration Distribution Pipeline Right-of-Way	22	168	-11	157
Gold Acres/Pipeline/ Cortez Hills Complexes	Post-mining Water Management Features[12]	131	199	0	68
Subtotal		**704**	**3,057**	**10**	**2,343**
Exploration					
Pipeline Exploration		241	241	0	0
Cortez Hills Exploration		150	150	0	0
Subtotal		391	391	0	0
Total Acres within CGM Operations Area[13]		**16,700**	**20,498**	**-48[14]**	**3,846**
Proposed New Disturbance Outside CGM Operations Area[15]					**534**
Total Proposed New Disturbance					**4,380**

[1] Inclusive of 200-foot-wide pit adjustment zones.

[2] Reflects proposed modifications to the Pipeline, Crossroads, and Gap pit portions of the Pipeline Pit Complex.

[3] Reflects the proposed Pediment East and Pediment South extensions of the Cortez Hills Pit.

[4] Disturbance associated with surface infrastructure for underground mining is accounted for in other currently authorized or proposed disturbance footprints.

[5] Reflects proposed reconfiguration of currently authorized backfill in the Pipeline and Gap pit portions of the Pipeline Pit Complex. Disturbance is accounted for in other currently authorized or proposed disturbance footprints.

[6] Reflects the proposed combined Gold Acres North and East waste rock facilities.

[7] Disturbance is accounted for in other currently authorized or proposed disturbance footprints.

[8] Proposed Cortez Hills water treatment plant would be place on, and within the footprint of, the proposed new ancillary area at the Cortez Hills Complex.

[9] Proposed ore stockpiles and growth media stockpiles would be placed on existing or proposed expansion areas of waste rock facilities or within the footprint of existing or proposed ancillary areas. Therefore, disturbance is accounted for in other facility footprints.

[10] Disturbance is accounted for in other currently authorized footprints.

[11] Acreage includes the approximately 1,677-acre reservoir.

[12] Includes proposed post-mining stormwater control at the Gold Acres Complex (68 acres) and currently authorized post-mining stormwater diversions for Pipeline heap leach facilities (101 acres) and post-mining stormwater ponds for the Canyon Waste Rock Facility (30 acres).

[13] Differences are due to rounding.

[14] Reflects reallocation of undisturbed land that previously was authorized for disturbance.

[15] Reflects surface disturbance associated with proposed RIBs and associated infrastructure northeast of the CGM Operations Area in Crescent Valley.

2.3.2 Land Ownership and Mining Claims

The modified CGM Operations Area boundary would encompass 62,372 acres. This total acreage would include 58,436 acres of public lands administered by the BLM and 3,936 acres of private land owned by Barrick. Approximately 2,779 acres (72 percent) of the approximately 3,846 acres of proposed new disturbance within the CGM Operations Area would occur on public lands administered by the BLM. The remainder of the proposed new disturbance within the CGM Operations Area (approximately 1,067 acres) and the proposed disturbance outside the CGM Operations Area in Crescent Valley (approximately 534 acres) would occur on private land owned by BCI.

2.3.3 Schedule and Work Force

Pending authorization of required permits and approvals, construction and operation of the Deep South Expansion Project is anticipated to be initiated in 2018. The proposed mining activities would extend the life of the mine by approximately 12 years from the issuance of the Record of Decision (ROD) (through approximately 2030). Concurrent reclamation would be conducted during this period as areas become available. Up to an additional 3 years would be required for ongoing ore processing, site closure, and final reclamation.

BCI currently employs a total of approximately 1,250 workers for existing operations in the CGM Operations Area. No increase in BCI's current work force would be required for the Proposed Action. It is anticipated that a contractor work force of approximately 350 workers also would be on site throughout the life of the project for construction of facilities and for other site preparation activities. The ongoing transport of refractory ore shipments from the CGM Operations Area to the Goldstrike Mill for processing, and ongoing backhaul of Arturo Mine oxide (mill- and heap-leach grade) ore through the Goldstrike Mine to the Pipeline Complex for processing, would continue to be conducted by contract haulers. Approximately 155 workers would be required for the final 3 years of ongoing ore processing, closure, and reclamation. Existing employees currently live in the communities of Crescent Valley, Beowawe, Battle Mountain, Carlin, Elko, Spring Creek, and Eureka. To the extent possible, existing contractors from local communities would be used for the proposed project. The total BCI operations work force payroll/benefits is estimated to be approximately $628.8 million. The average annual contractor costs would be approximately $13.5 million.

2.3.4 Expansion of Open Pit and Underground Mining Operations

Under the Proposed Action, existing open pits in all four mine complexes would be modified or expanded. Existing underground operations at the Cortez Hills Complex also would be expanded. Open pit and underground designs have been developed based on the configurations of the ore bodies as defined during ongoing exploration drilling, BCI's experience in similar rock types, the results of geotechnical testing and hydrological studies, and surface mining industry and Mine Safety and Health Administration (MSHA) standards. Geologic structural mapping and open pit wall and groundwater level monitoring would be conducted during mining to optimize pit designs and ensure pit stability during operations. Geologic structural mapping and monitoring also would be used to ensure stability of underground drifts during operations.

Under the Proposed Action, the surface mining rate for open pit operations in the CGM Operations Area would be modified to a maximum of 600,000 tons per day (tpd). **Table 2-2** presents a summary of the currently authorized and proposed surface mining rates. The mining rate for underground operations would be up to an average of 6,500 tpd. The waste-to-ore ratios (based on current economic factors) and ore and waste rock tonnages are summarized in **Table 2-3**. A total of approximately 2.5 million ounces of gold (depending on

economic conditions) would be produced from the modified and expanded open pits and expanded underground mine area.

Table 2-2 Summary of Authorized and Proposed Surface Mining Rates

Mine Complex	Authorized Mining Rate (tpd)	Proposed Maximum Mining Rate (tpd)
Pipeline	540,000	600,000
Gold Acres		
Cortez Hills		
Cortez	40,000	
Total	580,000	600,000

Table 2-3 Stripping Ratios and Ore and Waste Rock Tonnages

Source of Ore and Waste Rock	Average Stripping Ratio	Heap Leach Oxide Ore	Mill-grade Oxide Ore	Refractory Ore	Total Ore	Waste Rock
		(million tons)				
Pipeline Complex						
Pipeline Pit	6.7:1	10.5	1	0.5	12	80
Crossroads Pit	2.9:1	32	5	1	39	112
Gap Pit	4.3:1	3	1	0.5	4.5	15
Gold Acres Complex						
Gold Acres Pit and Satellite Pits	11.2:1	0	0	8	8	90
Cortez Hills Complex						
Pediment East Extension	6.7:1	3	1	0	4	27
Pediment South Extension	7.0:1	7	1	0	8	56
Underground Operations	0.3:1	0	5	1	6	2
Cortez Complex						
Cortez Pit	8.6:1	4	2	1	7	60
TOTAL	N/A	59.5	16	12	88.5	442

Dewatering operations currently are, and would continue to be, required to facilitate open pit mining at the Pipeline Complex and open pit and underground mining at the Cortez Hills Complex. Under the Proposed Action, dewatering rates would continue to accommodate mining to lower elevations in these two complexes; however, the overall dewatering rate would remain below the currently authorized maximum rate of 36,100 gallons per minute (gpm) (Section 2.3.7.1, Dewatering Operations). No dewatering would be required for the proposed expansion of open pit operations at the Gold Acres and Cortez complexes.

Bench heights in each open pit expansion area typically would be 10 to 50 feet in height, depending on the integrity (strength) of the host rock and other geotechnical considerations.

Overall pit slope angles would range from approximately 1 horizontal (H): 1 vertical (V) to 3H:1V. Slope configurations would be subject to change upon geotechnical review. All pit height and depth elevations may vary up to 100 feet due to varying gold prices and geotechnical monitoring of the upper highwall crests. Consistent with current authorizations, a 200-foot-wide pit adjustment zone would extend around the rim of the pits, within which the pits could be laid back if necessary for safety or engineering considerations.

During operations, mining in the existing and expanded open pits and underground mine area would be scheduled based on market prices for gold, reagents, labor, and other supplies required for mining; equipment scheduling; ore grades; and other factors affecting the mining operations. Operations may occur simultaneous in all areas or only in some of the areas from time to time during the life of the project. Mining equipment used for currently authorized open pit and underground operations also would be used for the proposed expansion of open pit and underground operations. A list of currently used mobile equipment that also would be used for the Proposed Action is presented in **Table 2-4**. A list of the contractor surface mobile equipment that would be used intermittently over the life of the project is presented in **Table 2-5**.

Table 2-4 Mobile Equipment List for the Proposed Action and the No Action Alternative

Type of Equipment	Number of Existing Units to be Shared[1]
Open-pit Mining	
Electric wire rope shovels	5
Hydraulic shovel	1
Haul trucks (85- to 400-ton)	60
Rotary drills	9
Track bulldozers	9
Wheeled bulldozers	7
Graders	6
Water trucks	8
Bobcat loader	3
Light plants	35
Blasting trucks	7
Tractor with two 10,000-gallon tanker-trailers	1
Trackhoe	4
Underground Mining	
Load-haul-dump machines	11
Haul trucks (40- to 60-ton)	26
Development and production drills	9
Jammers	5
Sump muckers	4
Rockbolters	10
Scissor decks	8
Forklifts	11

Table 2-4 Mobile Equipment List for the Proposed Action and the No Action Alternative

Type of Equipment	Number of Existing Units to be Shared[1]
Flatbed carriers	18
Lube truck	4
Underground service trucks	18
Shotcrete trucks	6
Explosives trucks	6
Road grader	5
Roadheader	3
Personnel carriers	8

[1] Existing equipment that would be shared between currently permitted operations and the Proposed Action.

Table 2-5 Contractor Surface Mobile Equipment

Type of Equipment	Number of Units[1]
Dozers	14
Road graders	4
Water trucks	14
Haul trucks (A40)	25
Loaders	7
Excavators	8
Compactors	7
John Deer tractor	5
Forklift	4
Scrapers	30
Backhoes	4
Rig welders	6
Fusion machines	4
Scissor lifts	2
Snorkel lifts	2
Fuel truck	1
Service trucks	2
Flatbed truck	1
Genset	3

[1] Equipment would be used intermittently over the life of the project.

The removal of ore and waste rock from the proposed open pit and underground mine expansion areas would be accomplished using the same conventional open pit and underground mining methods, respectively, that currently are used in existing operations at the site. Conventional open pit methods include drilling, blasting, and loading and hauling ore and waste rock material to process facilities, ore stockpiles, and waste rock facilities, as appropriate. Underground mining methods generally include drilling; blasting; loading and transport of ore to the appropriate processing facility or stockpile; and transport of waste rock to mined-out workings or surface waste rock facilities. Mining in the expanded open pits and underground mine areas would be sequenced with existing operations. Mining would be conducted 24 hours per day, 7 days per week.

2.3.4.1 Pipeline Complex

The currently authorized Pipeline Pit Complex includes three main pits, including the Pipeline Pit (central and northeast portion of the pit complex), Crossroads Pit (southeast portion of the pit complex), and Gap Pit (west portion of the pit complex). Proposed modifications for the Pipeline Pit Complex include minor adjustments to the Pipeline, Crossroads, and Gap pit shells, which would involve the layback of portions of the current pit walls. Also, the depth of the Crossroads Pit would increase by 200 feet, lowering the authorized Crossroads Pit bottom elevation from 3,400 to 3,200 feet amsl and increasing the overall depth from 1,800 to 2,000 feet. The pit modifications would be located entirely within previously authorized disturbance areas for which use would be reallocated (**Table 2-1** and **Figure 2-4**). The associated ore and waste rock tonnages that would be mined are identified in **Table 2-3**.

The Pipeline Complex currently has a permitted dewatering elevation of 3,400 feet amsl. An increase in dewatering would be required to mine to the proposed elevation of 3,200 feet amsl. However, the overall dewatering rate for the CGM Operations Area would remain below the currently authorized maximum (see Section 2.3.7.1, Dewatering Operations).

Hydraulic or electric shovels or hydraulic front-end loaders would continue to be used to load rock into 85- to 400-ton haul trucks. Waste rock would be trucked to and placed in the Pipeline/South Pipeline Waste Rock Facility, Gap Waste Rock Facility, or Pipeline Pit Complex backfill area. Mined ore would be transported to the existing Pipeline Mill, adjacent existing heap leach facilities, or appropriate stockpiles, depending on ore type.

2.3.4.2 Gold Acres Complex

Under the Proposed Action, the existing Gold Acres Pit would be expanded and deepened, and three new satellite pits (Alta, Bellwether, and Pasture) would be developed (**Figure 2-5**). The expanded Gold Acres Pit would have a pit floor elevation of 5,100 feet amsl and a depth of 800 feet. The Alta, Bellwether, and Pasture satellite pits would have pit bottom elevations of 5,200, 5,100, and 5,100 feet amsl, respectively, and pit depths of 700, 600, and 600 feet, respectively. The associated proposed change in disturbance area for these modifications is presented in **Table 2-1** and shown in **Figure 2-4**. The ore and waste rock tonnages that would be mined are identified in **Table 2-3**.

No dewatering would be required for the proposed expansion of open pit operations at the Gold Acres Complex as the proposed pit bottom elevations would be above the groundwater table.

Waste rock and ore loading and hauling would be as described for the Pipeline Complex in Section 2.3.4.1, with the following exceptions. Waste rock would be placed in the expanded Gold Acres North or Gold Acres South waste rock facilities.

2.3.4.3 Cortez Hills Complex

Open Pit Mining

Under the Proposed Action, the currently authorized Cortez Hills Pit would be expanded through development of the proposed Pediment East and Pediment South extensions (**Figure 2-4**). The pit floor elevations in the Pediment East and Pediment South extensions would be approximately 6,200 and 5,250 feet amsl, respectively, with both having an overall pit depth of approximately 700 feet. The associated proposed change in disturbance area is presented in **Table 2-1** and shown in **Figure 2-4**. The ore and waste rock tonnages that would be mined are identified in **Table 2-3**.

No dewatering would be required for the proposed Pediment East or Pediment South extensions as the proposed pit bottom elevations would be above the groundwater table.

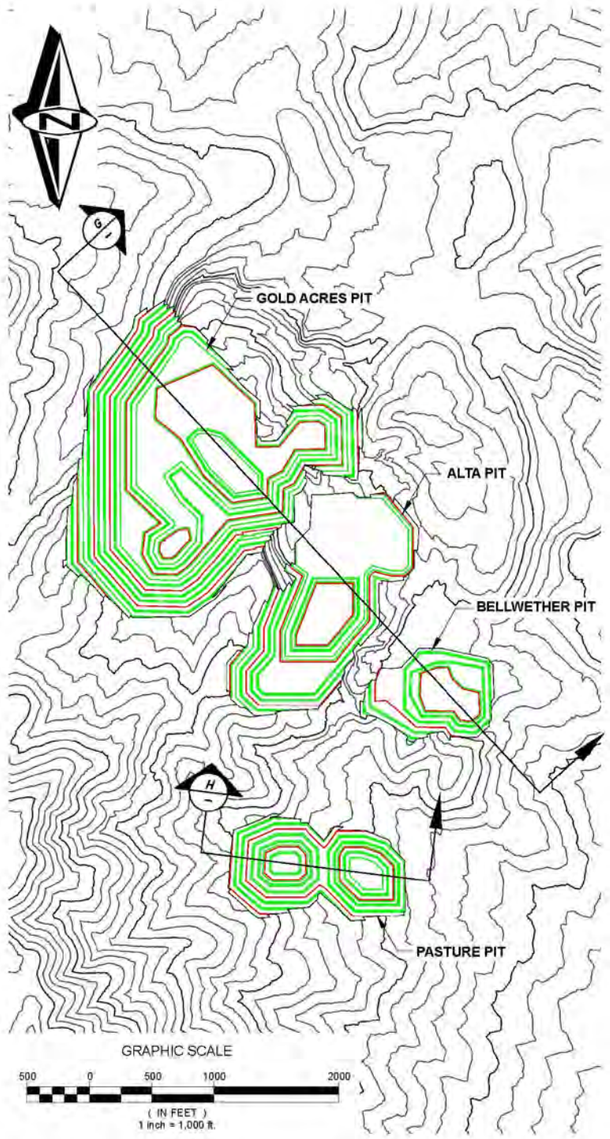
Waste rock would be trucked to and placed in one of the waste rock facilities at the Cortez Hills Complex or in the proposed backfill area in the Cortez Hills Pit. Heap leach-grade ore would be placed on the existing Grass Valley Heap Leach Facility.

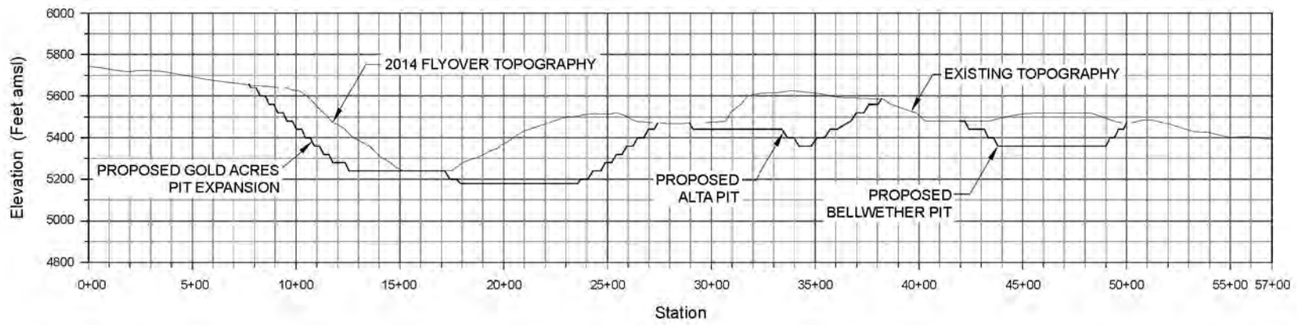
Underground Mining

Underground mining and associated dewatering currently is authorized to an elevation of 3,800 feet amsl. Under the Proposed Action, underground operations would be expanded, with mining conducted to an elevation of 2,500 feet amsl and a lateral extent of approximately 1,000 feet wide by 5,000 feet long. Dewatering would continue to facilitate mining to an elevation of 2,500 feet amsl. However, the overall dewatering rate for the CGM Operations Area would remain below the currently authorized maximum (see Section 2.3.7.1, Dewatering Operations).

Ore from the underground operations would be mined at a rate of up to 6,500 tpd or 2.4 million tons annually. Waste rock would be generated at an approximate rate of 4,800 tpd or 1.7 million tons annually. Total ore and waste rock tonnages that would be mined are identified in **Table 2-3**.

The currently authorized twin declines in the F-Canyon Pit at the Cortez Complex would continue to be used for personnel, supplies, services, and utilities for underground mining operations. The two currently authorized range front declines located in the Cortez Hills Complex ancillary facilities area north of the Canyon Waste Rock Facility would continue to serve as ventilation and a secondary emergency means of egress and provide for conveyance of underground ore and waste.





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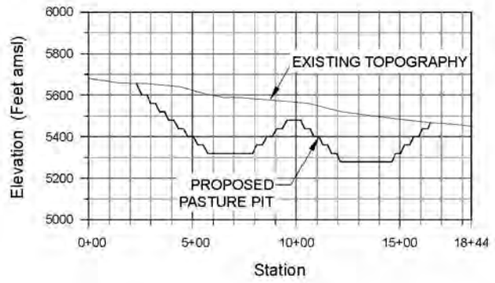

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Figure 2-5

Gold Acres Pit and Satellite Pits

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Currently authorized surface support facilities for underground operations are located in the previous Cortez Mill area, F-Canyon and Cortez Hills pits, and in the ancillary facilities area north-northeast of the Canyon Waste Rock Facility. Facilities include infrastructure for operations, including maintenance facilities, cement silo(s), surface laydown area(s), parking lot(s), air compressors, explosive storage area, staging areas, fuel and lubricant storage and distribution facilities, ventilation raises, power distribution, utility holes, mine water holding tanks, and temporary stockpiles for ore, waste rock, and backfill aggregate. Additional surface support facilities that would be constructed or installed under the Proposed Action include up to two additional ventilation raises, four service boreholes, and a minimum of five new surface dewatering wells.

Miscellaneous excavations would be established underground to support mining and ongoing exploration. These excavations would include underground drill stations, vent raises, access drifts, stopes, load centers, pump stations, sumps, explosive storage areas, fuel storage areas, refuge stations, connector drifts, muck bays, laydown areas, and material storage areas. Excavations also would be developed to house facilities for underground equipment maintenance, fueling, warehousing, and backfill and shotcrete plants.

In general, existing drifts would be deepened using either typical underground drilling and blasting techniques or mechanical excavating equipment (e.g., road header) to fracture the rock, with load-haul-dump (LHD) equipment used to excavate the rock. As currently authorized, waste rock not disposed of underground as well as the mined ore would continue to be hauled directly to the surface by both truck transport and by conveyor. Stockpiled oxide ore subsequently would be transferred by front-end loader to haul trucks for transport to the appropriate processing facility or to the crusher/conveyor stockpiles. Also, the currently authorized Cross-valley Conveyor System may be used for transport of mill-grade ore to the existing Pipeline Mill for processing. Refractory ore would be hauled to and placed in the one of the existing or proposed refractory ore stockpiles at the Pipeline, Cortez, or Cortez Hills complexes. Waste rock not disposed of underground would be hauled to and placed in one of the existing or expanded waste rock facilities at the Cortez/Cortez Hills complexes or the F-Canyon Pit backfill area.

Ground support for underground workings would consist of rock bolts, mesh, shotcrete, cemented rock fill, or other appropriate ground control methods typical of Nevada underground operations. Additional ground support would be installed by mechanical means including, but not limited to, mechanical rock bolters and robotic shotcrete machines. Ground conditions are expected to change as mining progresses; the ground control plan would continue to be revised accordingly.

Underground mining methods currently used for existing underground operations would continue to be used under the Proposed Action. The underground mining method used would be determined by economics and the character (e.g., strength, fracture density, etc.) of the host and waste rock. Previous investigations of mining methods, including stope dimensions, have been initiated under existing authorizations and would be refined as more data are compiled and engineering studies completed. Underground mining methods that may be used include, but would not be limited to, overhand drift and fill, underhand drift and fill, longhole or blasthole stoping, and blind bench stoping as described below. Other methods may be applied as knowledge of rock properties and ore geometries increase.

Overhand Drift and Fill

Overhand drift and fill mining uses parallel drifts driven in ore on a given level. The mined ore is replaced with cemented backfill or waste rock. Subsequent levels are developed above the first level (**Figure 2-6**), with the cemented backfill or waste rock providing a working platform.

Cemented backfill, once sufficiently cured, also serves as support for the walls of adjacent drifts. When a drift is driven between two backfilled drifts, waste rock is placed so worker safety is not compromised. Primary access to drift and fill areas is provided by a centrally located ramp that also serves as an intake airway during operations.

Underhand Drift and Fill

Underhand drift and fill mining is similar to overhand drift and fill, except the mining drifts are developed from the top down instead of bottom up (**Figure 2-6**). The mined ore is replaced with cemented rock backfill of suitable strength to provide for mining in the next level below the fill in accordance with accepted industry safety practices.

Longhole or Blasthole Stoping

For longhole or blasthole stoping, upper and lower stope access drifts (also referred to as top and bottom cuts) are driven simultaneously and are separated by ore (**Figure 2-6**). The upper access drift acts as the drill drift. Drilling begins at the end of the top cut and retreats back to the drift access, blasting the ore between the two drifts. The bottom cut serves as the extraction drift from which a LHD removes the blasted rock and loads haul trucks. A remote controlled LHD is used to ensure worker safety, as the resultant cavity or “stope” is unsupported.

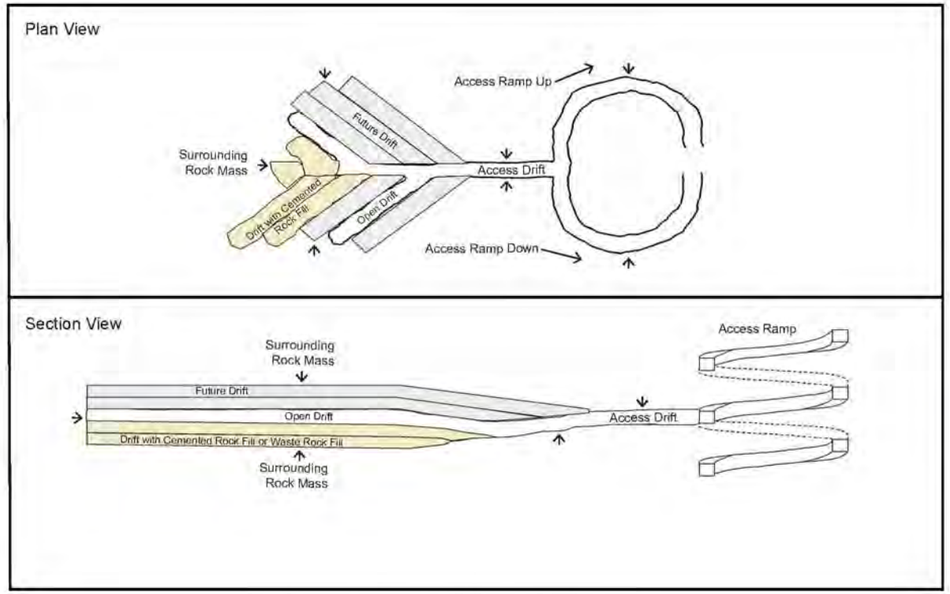
Stopes are designed beginning with a primary stope generally at a central location, with additional primary, secondary, and tertiary stopes on either side. Stopes are excavated in leapfrog fashion, with tertiary stopes being left until the adjacent stopes have been mined and backfilled (**Figure 2-6**). Tertiary stopes (i.e., stopes with cemented backfill on both sides) are filled with waste rock.

Blind Bench Stoping

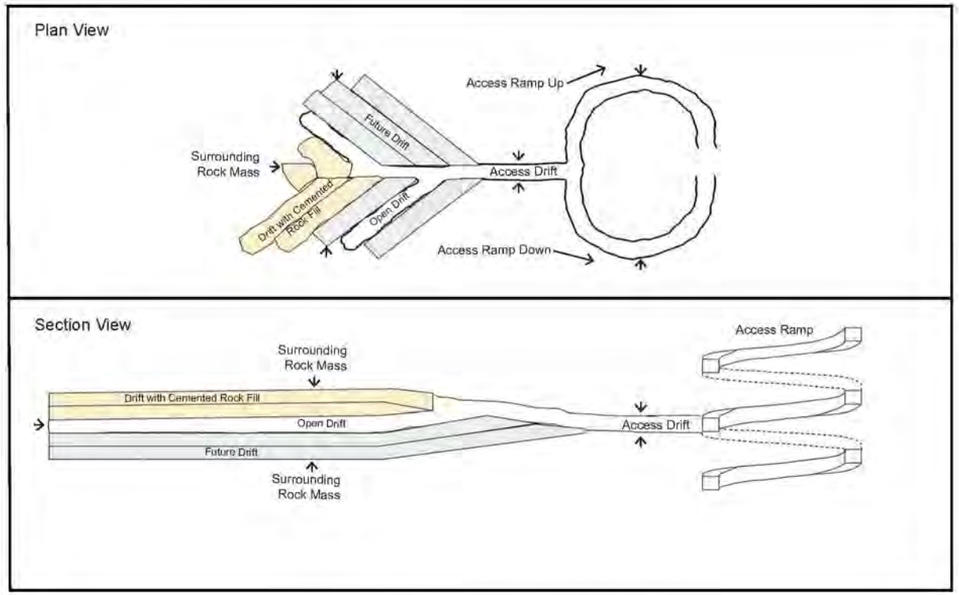
Blind bench stoping is a variation of longhole stoping. It differs in that the top and bottom cuts are driven from opposite directions (**Figure 2-6**). All other aspects of blind bench stoping are the same as for longhole stoping.

2.3.4.4 Cortez Complex

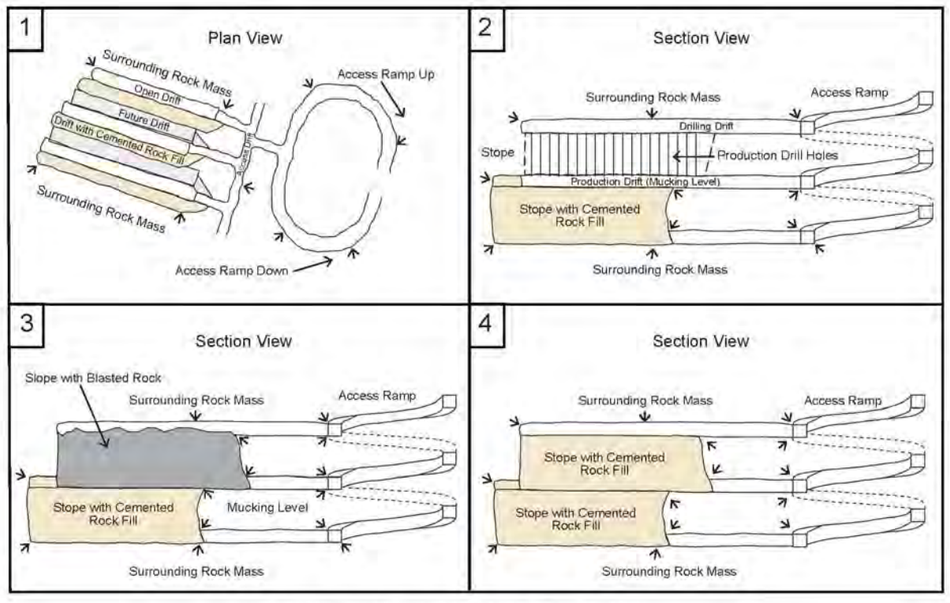
Three open pits (Cortez, Ada 52, and F-Canyon) currently exist at the Cortez Complex. Under the Proposed Action, the currently authorized Cortez Pit footprint would be expanded. Also, the depth of the pit would increase by 200 feet, lowering the authorized pit bottom elevation from 4,600 to 4,400 feet amsl and increasing the overall depth from 860 to 1,060 feet. The associated proposed change in disturbance area is presented in **Table 2-1** and shown in **Figure 2-4**. The ore and waste rock tonnages that would be mined are identified in **Table 2-3**.



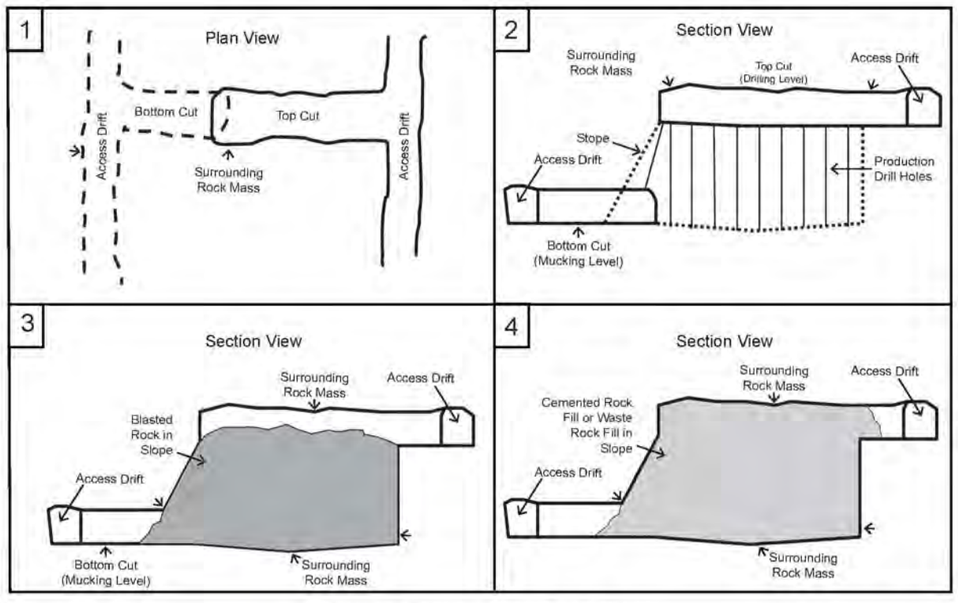
Conceptual Diagram of Overhand Drift and Fill
Underground Mining Method



Conceptual Diagram of Underhand Drift and Fill
Underground Mining Method



Conceptual Diagram of Longhole Open Stoping
Underground Mining Method



Conceptual Diagram of Blind Bench Stoping
Underground MIning Method

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Figure 2-6

Underground Mining Methods

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The proposed Cortez Pit expansion area is currently dewatered to a sufficient depth by the currently authorized Cortez Hills underground mine dewatering program. Therefore, additional dewatering operations would not be required at the Cortez Complex to facilitate expansion of the Cortez Pit.

Waste rock would be trucked to and placed in one of the waste rock facilities at the Cortez Complex or in the proposed backfill area in the Cortez Pit and Ada 52 Pit. Heap leach-grade ore would be placed in the existing Cortez, Grass Valley, or Pipeline heap leach facilities, and mill-grade ore would be processed at the Pipeline Mill.

2.3.4.5 Stormwater Diversions

Stormwater diversion ditches would be constructed, where needed, to divert runoff away from the open pits. They would be designed to accommodate runoff from a 100-year/24-hour storm event. Flow would be routed to existing drainages. Stormwater diversion ditches for the proposed Gold Acres Pit expansion and satellite pits would be retained as post-mining water management facilities.

2.3.4.6 Drilling and Blasting

Drilling and blasting techniques for open-pit mining would continue to be accomplished with the use of diesel-powered and/or electric blast hole drill rigs. Blast holes would be loaded with an ammonium nitrate/fuel oil mixture, or blasting slurry in wet areas, which subsequently would be detonated. Unconsolidated gravels and growth media that do not require the use of drilling and blasting techniques prior to removal would be ripped with a dozer, as needed. Blasting would only be performed on a daily basis as needed and conducted in compliance with the Department of Homeland Security, MSHA, and Bureau of Alcohol, Tobacco, Firearms and Explosives requirements.

Drilling and blasting techniques for underground mining would continue to be accomplished with the use of an underground jumbo or percussion drill. The holes would be filled with a blasting agent including, but not limited to, an ammonium nitrate/fuel oil mixture or an emulsion blend and subsequently detonated. Blasting would be performed under safety procedures required by MSHA.

BCI would continue to use signature hole analyses (a modeling technique) for blasting activities to control and minimize blast-induced ground vibrations. BCI also would continue to perform seismic monitoring for blasting activities.

2.3.4.7 Ore Stockpiling

Under the Proposed Action, existing and proposed new ore stockpiles would be used for temporary storage of oxide ore and refractory ore. Mill-grade oxide ore is processed by direct cyanidation in CIL/carbon-in-column (CIC) circuits such as those at the Pipeline Mill. Refractory ore contains gold that can only be extracted by processing through a roaster or autoclave (such as those at the Goldstrike Mill) due to its organic carbon and/or sulfur (pyrite) content. Depending on economics and changing technology, refractory ore also could be processed via direct cyanidation or conventional heap leach technology.

BCI proposes to expand the existing oxide ore stockpile at the Pipeline Complex, construct a new refractory ore stockpile at the Gold Acres Complex, and construct a new refractory/oxide ore stockpile at the Cortez Complex. Placement of ore in the refractory or oxide ore stockpiles would be determined based on ongoing material characterization. The proposed ore stockpiles generally would range in height from 40 to 300 feet, with ore placed in lifts up to 100 feet. As

per currently authorized ore stockpiles, the proposed new stockpiles would be constructed in areas authorized or proposed for ancillary facilities or on waste rock facilities.

The existing oxide ore stockpile at the Pipeline Complex would be expanded to allow for fluctuations in material processing and variances to modeled ore tons. The expanded oxide ore stockpile would have a total capacity of 24 million tons. The oxide ore expansion area would not be lined, consistent with current authorizations. Oxide ore also may be placed on refractory ore stockpiles.

The proposed Gold Acres ore stockpile would be used to temporarily store up to 44 million tons of refractory ore. The proposed Cortez ore stockpile would be used to store both oxide and refractory ore, with a total capacity of up to 10 million tons. The proposed ore stockpiles are shown in **Figure 2-4**. Both of the proposed ore stockpiles would be lined with a system that satisfies the requirements of Nevada Administrative Code (NAC) 445A.438. Material characterization as outlined in the Nevada Division of Environmental Protection (NDEP) Water Pollution Control Permit would be used to determine the liner requirements. The liner system would include stormwater controls to handle the 100-year/24-hour storm event, and stormwater run-on would be diverted around the stockpiles. In accordance with NDEP requirements, BCI would submit lined ore storage stockpile design drawings to the NDEP for approval.

2.3.5 Waste Rock Facilities

Under the Proposed Action, five of the currently authorized out-of-pit waste rock facilities in the CGM Operations Area would be modified or expanded. Changes to in-pit waste rock facilities (i.e., pit backfill areas) would include modification of the currently authorized backfill in the Pipeline Pit Complex and development of new pit backfill areas in the Cortez Hills Pit and Cortez/Ada 52 pits. Other currently authorized waste rock facilities for which expansion or modification are not proposed also may be used for waste rock disposal under the Proposed Action.

The modified and expanded waste rock facilities would be engineered, constructed, and reclaimed in a manner similar to the currently authorized waste rock facilities to ensure long-term stability, provide for effective reclamation, and reduce the overall visual impact. Mined waste rock would be hauled to the facilities and placed by end dumping from the top of the active dump faces, resulting in working faces at the angle of repose (approximately 1.3H:1V). The waste rock facilities would be constructed in 50- to 200-foot lifts. Greater lift heights may be employed where operationally feasible. Single lifts may be employed in some cases. Slope configurations would be subject to change based on geotechnical review. In addition, margins of the out-of-pit waste rock facilities would be constructed such that variable topography would result during final grading, thereby providing a more natural post-mining landscape.

As required by NDEP, quarterly samples of distinct waste rock units currently are and would continue to be collected from the open pits and subjected to meteoric water mobility and acid base accounting tests. Based on the results, any localized areas of potentially acid generating (PAG) waste rock either would be mixed with non-PAG material or encapsulated with at least 25 feet of non-PAG material in accordance with the proposed Waste Rock Management Plan (Geomega Inc. [Geomega] 2016b).

To control erosion and for long-term stability of the out-of-pit waste rock facilities, appropriate stormwater controls (e.g., stormwater diversion ditches) would be constructed and the waste rock piles appropriately graded to control stormwater runoff and runon. Engineered stormwater diversions constructed upgradient of the facilities, as needed, would be designed to accommodate flow from a 100-year/24-hour storm event and would route the flow to the

drainages downgradient of the facilities. In addition, the waste rock facilities would be visually monitored following spring snowmelt and intense rain events to ensure that drainage and sediment control measures are effective and operating properly.

2.3.5.1 Pipeline Complex

Pipeline/South Pipeline Waste Rock Facility

Under the Proposed Action, the proposed modification to the existing Pipeline/South Pipeline Waste Rock Facility would include a minor increase in proposed new surface disturbance. However, the proposed reallocation of currently authorized disturbance for this facility for other uses would result in a net reduction in the facility footprint. The proposed change in disturbance acreage is identified in **Table 2-1** and shown in **Figure 2-4**. There would be no change in the overall facility design or capacity as a result of the proposed change to the facility disturbance boundary.

Pipeline Pit Complex Backfill

BCI proposes to reconfigure the currently authorized backfill in the Gap Pit and develop a new backfill area in the Pipeline Pit per one of three proposed backfill scenarios. The scenario implemented would depend on economic conditions at the time of mining. The material placed as backfill would consist of a combination of alluvium and waste rock mined from the Wenban limestone and the Roberts Mountain and Horse Canyon formations. Under all three scenarios, the reconfigured backfill would eliminate the currently authorized post-mining pit lake in the southern portion of the Gap Pit.

- Scenario 1: Under this scenario the entire Pipeline Pit and the southern portion of the Gap Pit would be backfilled to an elevation of approximately 4,800 and 4,840 feet amsl, respectively (**Figure 2-7**). The pit backfill areas would have a combined capacity to accommodate approximately 440 million tons material from the Pipeline and Crossroads pits. A pit lake would form in the Crossroads Pit following the completion of mining (**Figure 2-7**). The surface area and volume of the final pit lake would be 367 acres and 229,326 acre-feet, respectively (SRK 2016).
- Scenario 2: This scenario would divert a greater amount of the waste rock to the out-of-pit waste rock facilities, with a reduction in the amount of material placed in the pit backfill areas. The footprint of the Gap Pit backfill would be the same as in Scenario 1; the backfill footprint in the Pipeline Pit would be smaller (**Figure 2-8**). Under this scenario the backfill areas would accommodate a total of approximately 340 million tons of material from the Pipeline and Crossroads pits. Similar to Scenario 1, backfill would be placed to an elevation of approximately 4,800 feet amsl in the Pipeline Pit and 4,840 feet amsl in the Gap Pit. Under this scenario a small pit lake would form on the north end of the Pipeline Pit following the completion of mining, in addition to the pit lake that would form in the Crossroads Pit (**Figure 2-8**). The surface area and volume of the final pit lake in the Crossroads Pit would be 367 acres and 227,295 acre-feet, respectively. The surface area and volume of the final pit lake in the Pipeline Pit would be 129 acres and 30,365 acre-feet, respectively (SRK 2016).
- Scenario 3: Under this scenario, a total of approximately 380 million tons of material would be placed as backfill in the western portion of the Pipeline Pit and southern portion of the Gap Pit (**Figure 2-9**). The backfill in the Pipeline Pit would be placed to an elevation of approximately 5,000 feet amsl. The Gap Pit backfill area would be the same as under Scenarios 1 and 2, with backfill placed to an elevation of approximately 4,840 feet amsl. Following the completion of mining, a pit lake would form in the Crossroads Pit and on the east side of the Pipeline Pit (**Figure 2-9**). The surface area

and volume of the final combined pit lake in the Pipeline and Crossroads pits would be 713 acres and 338,004 acre-feet, respectively (SRK 2016).

2.3.5.2 Gold Acres Complex

Gold Acres North and South Waste Rock Facilities

Waste rock from the Gold Acres Pit previously was placed on the Gold Acres North, Gold Acres East, and Gold Acres South waste rock facilities. Under the Proposed Action, the Gold Acres South Waste Rock Facility would be expanded, and the Gold Acres North and Gold Acres East waste rock facilities would be combined into a single facility (Gold Acres North Waste Rock Facility) and expanded. The resulting total storage capacity for each facility would be 36 and 54 million tons, respectively. The Gold Acres South and Gold Acres North waste rock facilities would be constructed to a maximum height of 5,440 and 5,690 feet amsl, respectively. The proposed change in disturbance acreage is identified in **Table 2-1** and shown in **Figure 2-4**.

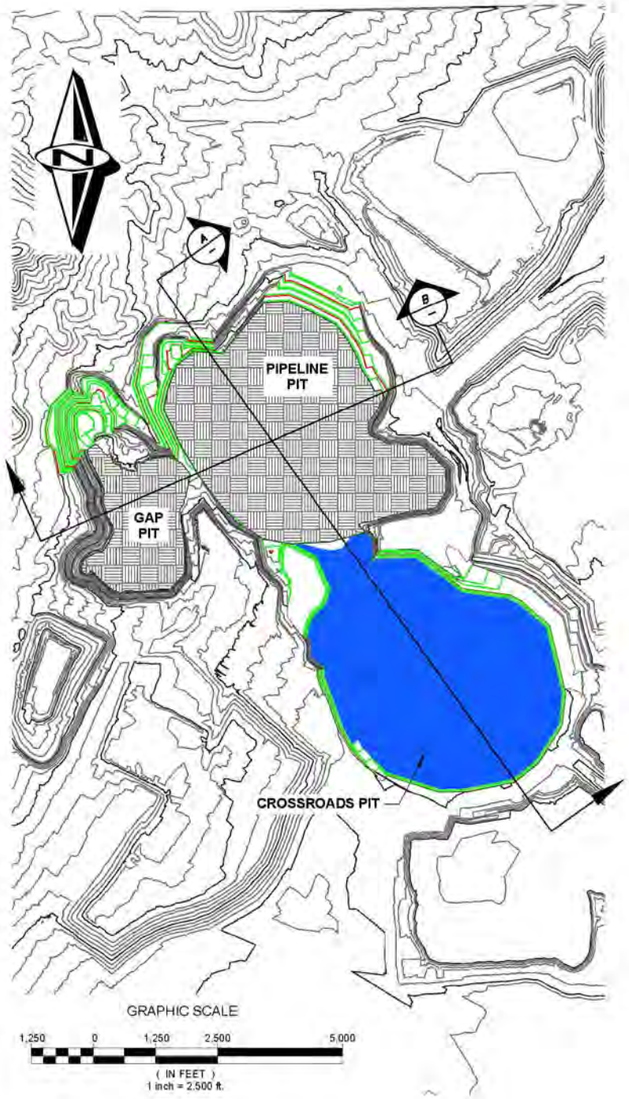
2.3.5.3 Cortez Hills Complex

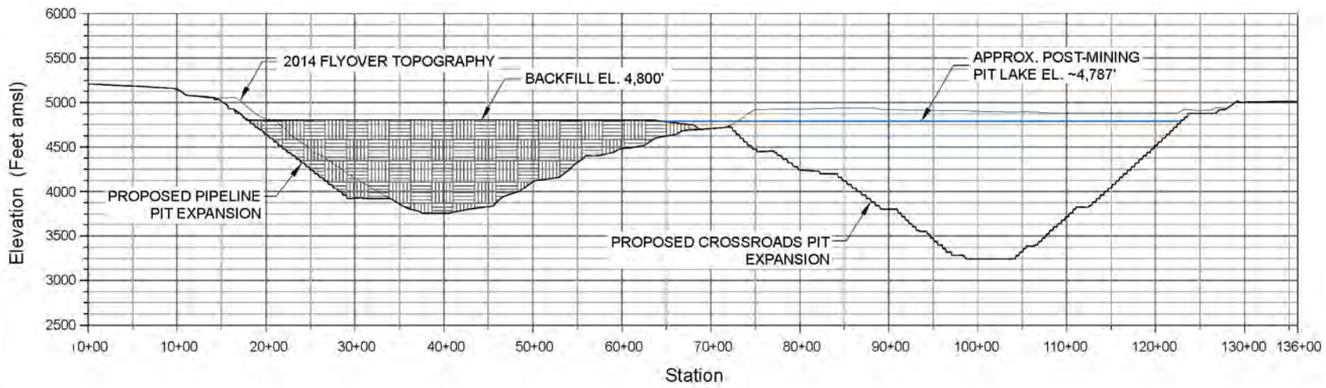
Canyon Waste Rock Facility

The proposed modification of the Canyon Waste Rock Facility would provide for the placement of an additional 2 million tons of waste rock, resulting in a total storage capacity of 1,400 million tons. No increase in the currently authorized height of the facility is proposed. The proposed change in disturbance acreage is identified in **Table 2-1** and shown in **Figure 2-4**.

Cortez Hills Pit Backfill

BCI proposes to partially backfill the central portion of the Cortez Hills Pit with approximately 63 million tons of material. Backfill would be placed to an elevation of approximately 4,865 feet amsl (**Figure 2-10**). The final backfill design and elevations would be based on future hydrologic and geotechnical evaluations incorporating information gained during mining. As such, BCI may elect to backfill above the projected post-mining pit lake elevation to eliminate the pit lake, or a pit lake may be allowed to form as currently authorized. Backfill material would consist of Wenban limestone excavated from the Cortez Hills Pit and/or waste material consisting of alluvium from the proposed Pediment East and Pediment South extensions. The Wenban limestone from the Cortez Hills Pit temporarily would be stored in the Pediment South extension and if not utilized would be reclaimed in place. If BCI elects not to backfill the Cortez Hills Pit as currently authorized, waste rock from the Cortez Hills Pit would continue to be placed in the out-of-pit waste rock facilities as currently permitted. Waste rock from the proposed Pediment South and Pediment East extensions would be placed in the Canyon Waste Rock Facility, South Waste Rock Facility, or placed as backfill in the southern (Pediment) portion of the Cortez Hills Pit. A pit lake would not form in the Pediment portion of the currently authorized Cortez Hills Pit or in either of the proposed Pediment extensions.





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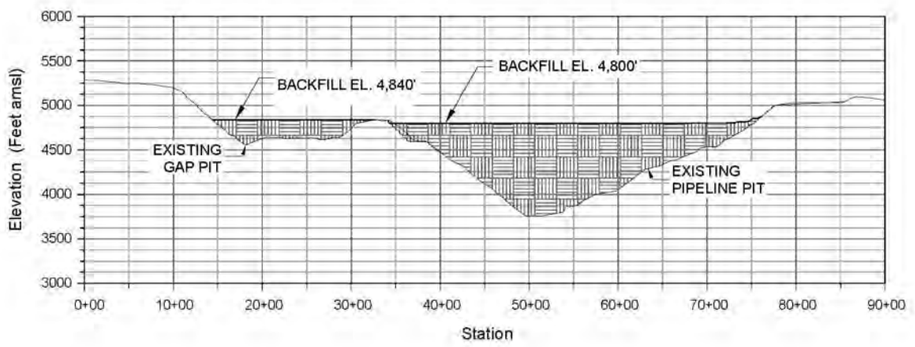

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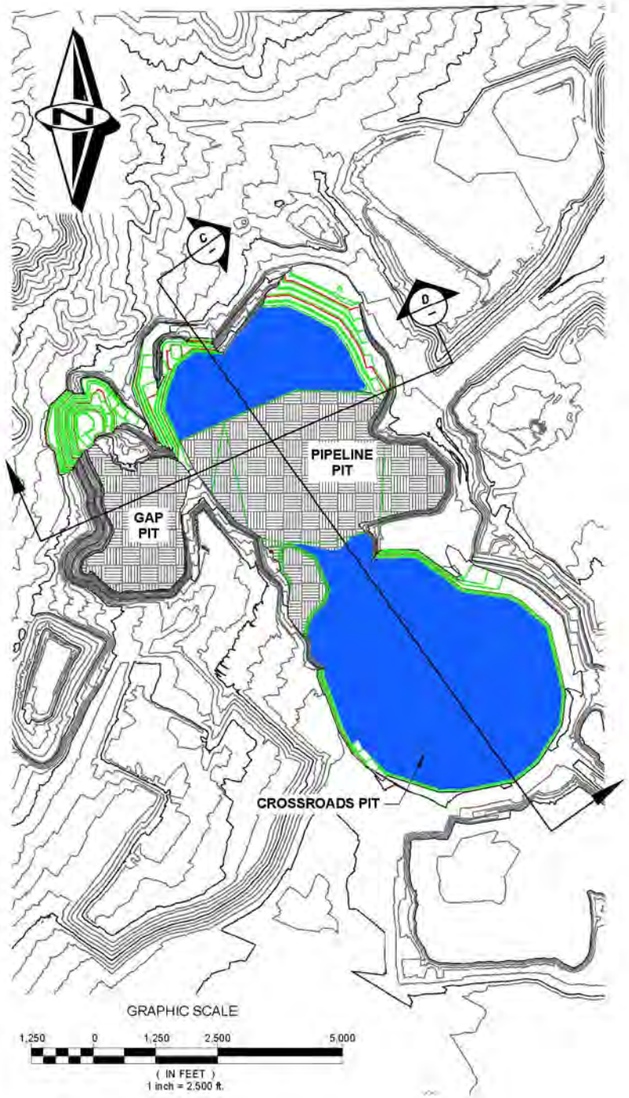
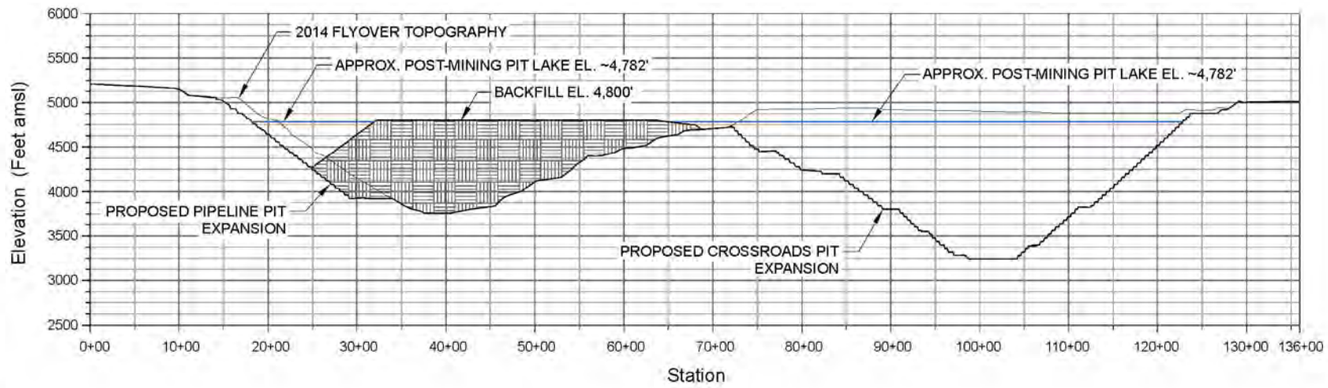
Figure 2-7

Pipeline Pit Complex
Backfill Scenario 1





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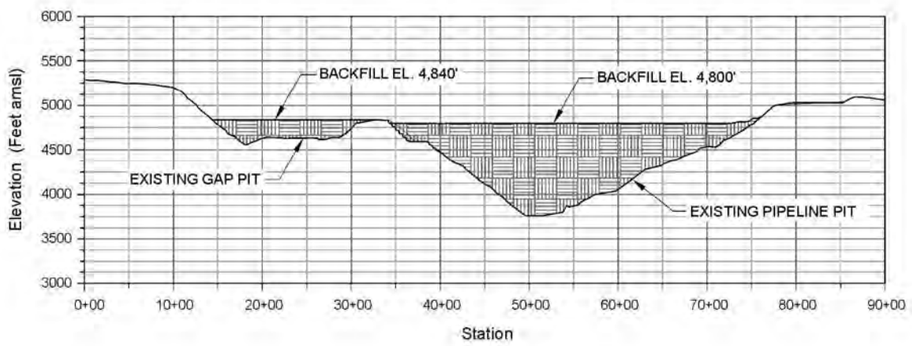

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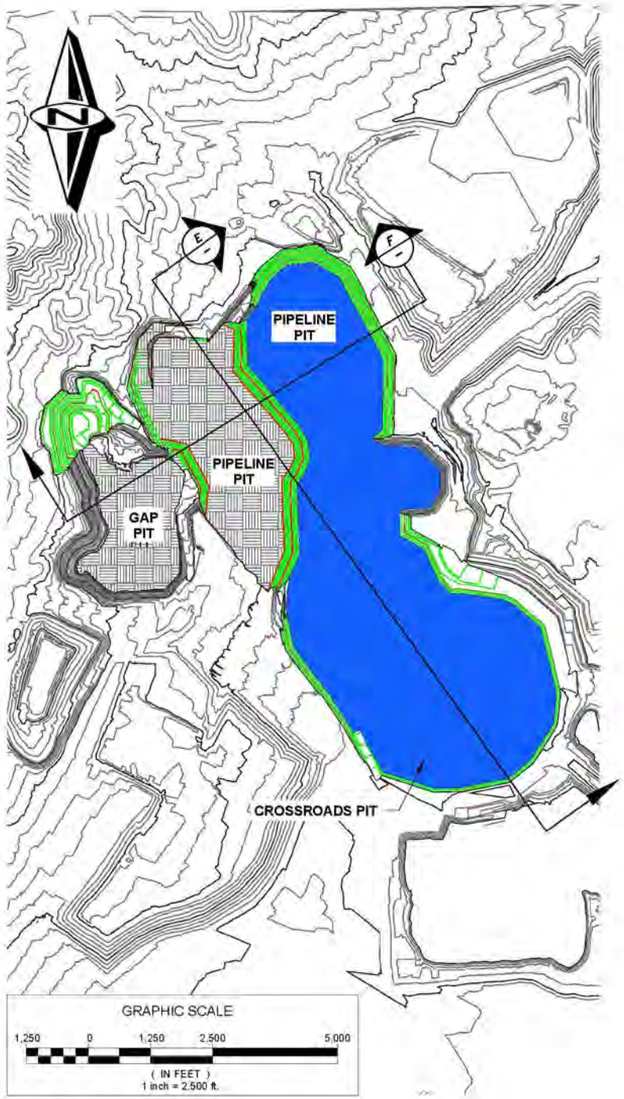
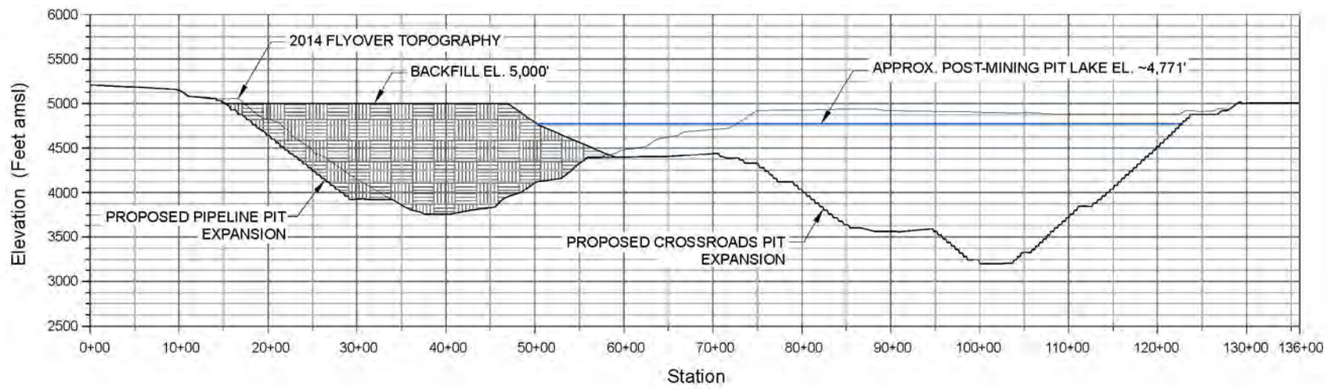
Figure 2-8

Pipeline Pit Complex
Backfill Scenario 2





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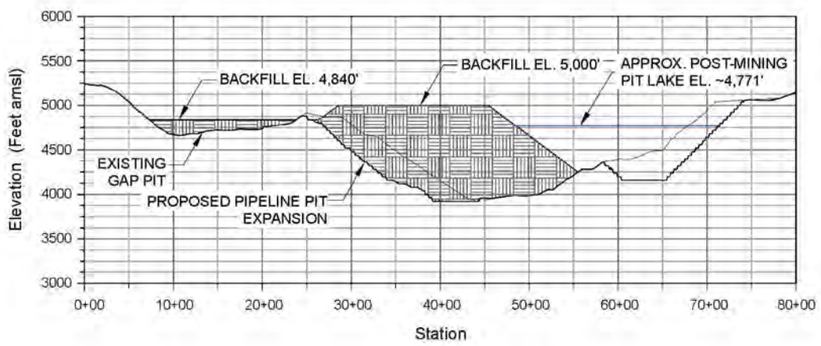

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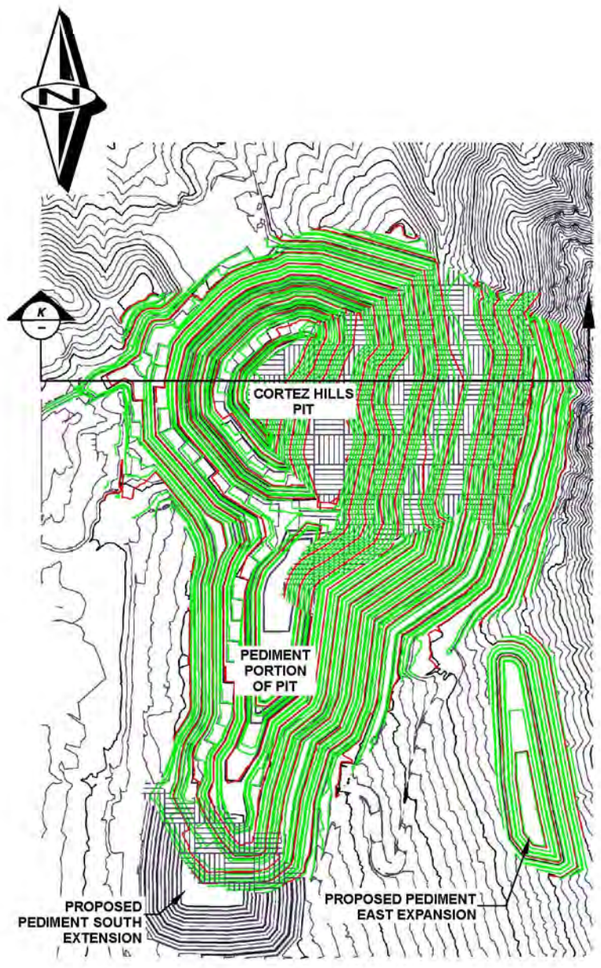
Figure 2-9

Pipeline Pit Complex
Backfill Scenario 3



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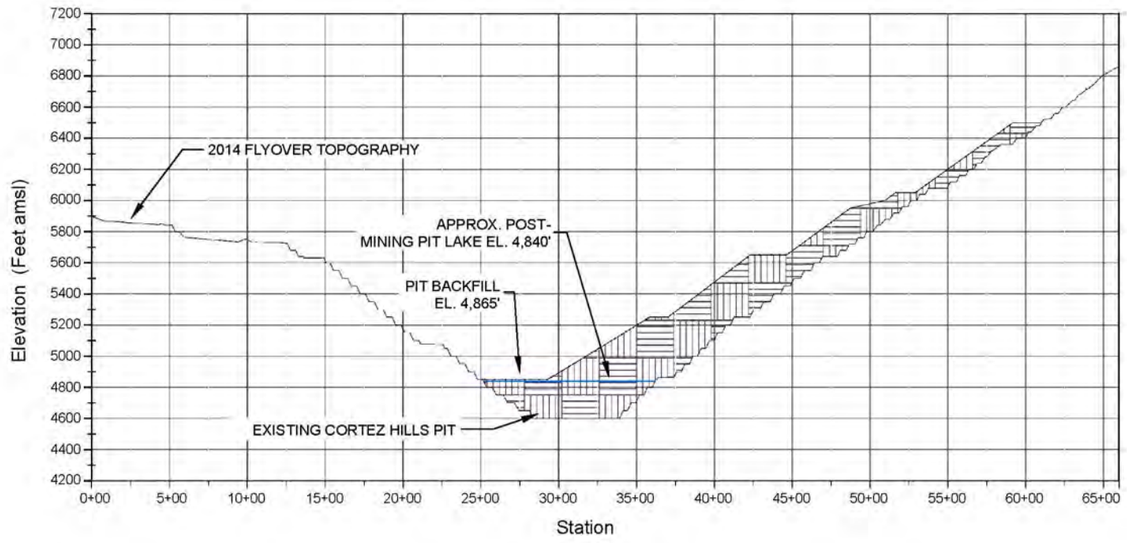
(IN FEET)
1 inch = 1,500 ft.



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Note: Waste rock temporarily may be stored in the Pediment South extension and if not utilized for Cortez Hill Pit backfill would be reclaimed in place.

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Figure 2-10

Cortez Hills Pit Backfill

2.3.5.4 Cortez Complex

Cortez Waste Rock Facility

Under the Proposed Action, the Cortez Waste Rock Facility would be expanded to accommodate waste rock generated from the proposed expansion of the Cortez Pit and expanded underground mine area. The expanded facility would be constructed to a maximum elevation of 6,030 feet amsl and would have an incremental capacity of 163 million tons. The resulting total capacity of the facility would be 213 million tons. The proposed change in disturbance acreage is identified in **Table 2-1** and shown in **Figure 2-4**. Also, the existing 120-kV power line may be re-routed along the perimeter of the expanded waste rock facility.

Cortez Pit and Ada 52 Pit Backfill

BCI proposes to backfill the northern portion of the Cortez Pit and the existing Ada 52 Pit (**Figure 2-11**). Backfill consisting of 75 percent Wenban limestone and 25 percent Roberts Mountain Formation would be placed to an elevation of approximately 4,920 and 5,220 feet amsl, respectively. The backfill areas would have a combined capacity of approximately 3 million tons. A post-mining pit lake would form in the expanded portion of the Cortez Pit (**Figure 2-11**). Both backfill areas would be entirely above the projected post-mining pit lake elevation.

2.3.6 Processing and Tailings Facilities

Ore mined under the Proposed Action would consist of high-grade millable oxide ore, low-grade heap leach oxide ore, and refractory ore. Ore processing would continue to be managed according to grade and metallurgy. The existing Pipeline Mill would continue to be used for processing of mill-grade oxide ore. The currently authorized heap leach facilities at the Pipeline, Cortez, and Cortez Hills complexes would continue to be used for processing of run-of-mine leachable ore. Refractory ore would be placed in existing or proposed refractory ore stockpiles (**Figures 2-2** and **2-4**) and would continue to be transported to the existing Goldstrike Mill for processing as described in Section 2.3.8.1. All heap leach, mill, and tailings facilities would continue to be operated as zero discharge facilities in accordance with BLM and NDEP criteria.

2.3.6.1 Pipeline Complex

Existing Pipeline Mill Facilities

Existing Pipeline Mill facilities currently are and would continue to be used to process mill-grade oxide ore mined in the CGM Operations Area and backhauled from the Arturo Mine. Existing facilities include crushing and grinding facilities, CIL/CIC circuits, and recovery/refining circuits. These facilities are described in the South Pipeline Project Final EIS (BLM 2000a), Pipeline/South Pipeline Pit Expansion Project Final SEIS (BLM 2004), and Cortez Hills Expansion Project Final EIS (BLM 2008a). A summary of the currently authorized facilities is presented below. No increase in the currently authorized mill throughput (5,475,000 tons per year [tpy]) would be required for the Proposed Action.

Existing Crushing and Grinding Facilities

Mill-grade oxide ore is fed to a jaw crusher and subsequently conveyed to a coarse-ore stockpile. Crushed ore is reclaimed from the stockpile and fed, via conveyor, to a semi-autogenous grinding (SAG) mill for primary grinding. Dust collection devices and water sprays would continue to be used to control fugitive dust at transfer points. Ore, water, and steel grinding balls are tumbled in the SAG mill to reduce the ore to sand sized particles. Oversized material from the SAG mill is discharged and reduced in size by a cone crusher, then recycled

back through the SAG mill. The fine fraction from the SAG mill is transferred to a ball mill where the ore is ground to a finer grain. The ground ore, mixed with water and a weak cyanide solution to form a slurry during grinding, is fed to the CIL circuit.

Existing Carbon-in-Leach and Carbon-in-Column Circuits

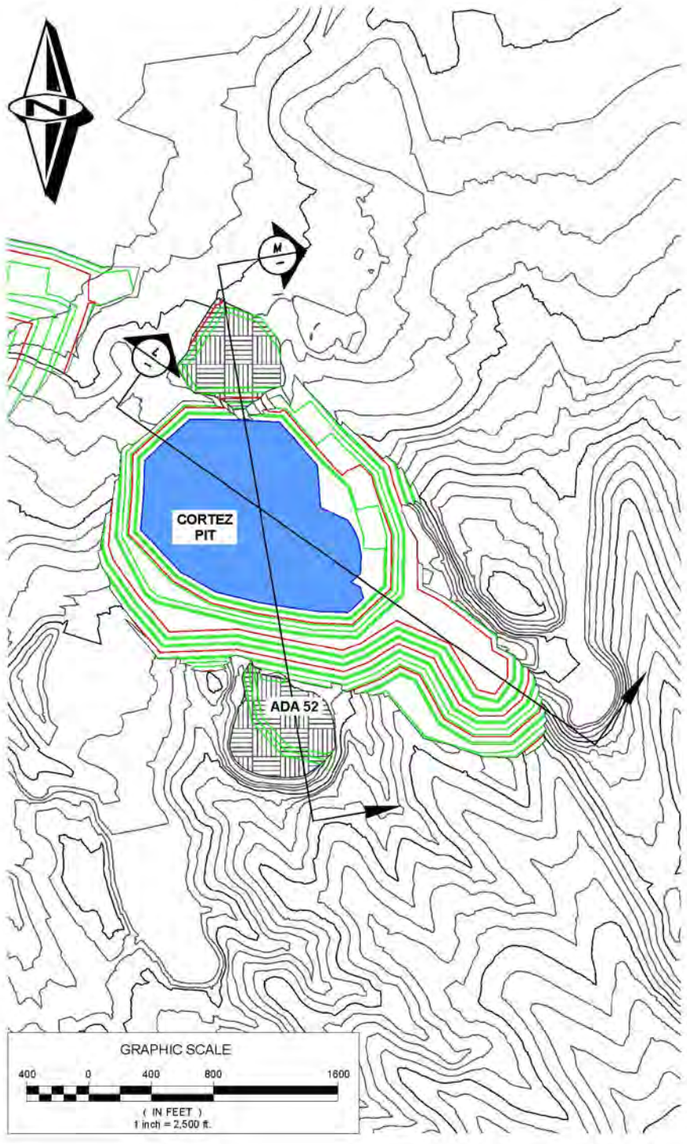
The slurried ore from the grinding circuit is piped to a thickener tank, where the ground ore is allowed to settle and the excess water decanted. The ore subsequently is pumped through a series of eight CIL tanks, where the dissolved gold in the weak cyanide solution is adsorbed onto activated carbon (charcoal) granules. Loaded carbon from the CIL circuit is conveyed to the refining circuit where the gold is recovered and the carbon reactivated for reuse in the CIL circuit. The Pipeline Mill also has a CIC circuit for the recovery of dissolved gold from the process decant water. The decanted water from the mill thickener tank is run through a series of six CIC tanks where the gold in solution is adsorbed onto activated carbon. The barren solution subsequently is recirculated through the grinding circuit. The existing CIC circuit also would continue to be used for processing of pregnant solution from heap leach operations at the Pipeline Heap Leach/Tailings Facility.

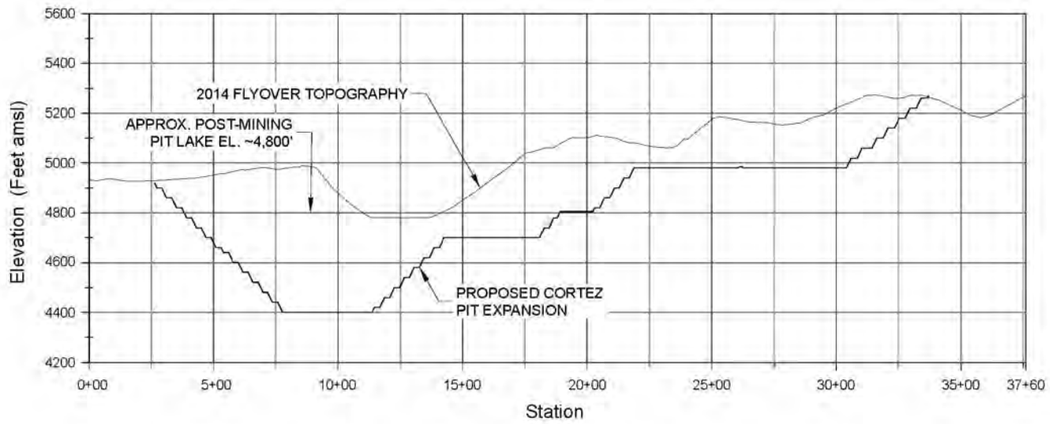
Existing Recovery and Refining Circuit

Loaded carbon from the CIL and CIC circuits is screened from the slurry and solution, respectively, and transferred to the carbon stripping circuit. During stripping, a dilute caustic and cyanide solution is circulated through the carbon at elevated pressure and temperature, resulting in the gold being desorbed from the carbon into solution. The carbon subsequently is dried and reactivated in a kiln, then reused in the CIL and CIC circuits. The pregnant strip solutions are cooled and passed through the electrowinning circuit, causing the gold to precipitate onto steel wool. The barren strip solution subsequently is recycled back to the stripping vessel. The steel wool containing the gold is mixed with fluxes and melted into doré buttons. The buttons are combined in a second melting and poured into bars, which are shipped off-site to a buyer.

Existing Pipeline South Heap Leach Facility

The currently authorized Pipeline South Area Heap Leach Facility leach pad has a composite-lined system with leak detection in compliance with NAC 445A.434 and 445A.438. The liner system includes an 80-mil high density polyethylene (HDPE) geomembrane primary liner placed on a 12-inch-thick soil subliner compacted to provide an in-place permeability of 1×10^{-6} centimeters per second or less. A drainage layer consisting of a network of 4- to 10-inch drainage pipe covered by 18 to 24 inches of crushed rock or screened gravel overlays the primary liner to provide for collection of pregnant (gold-bearing) solution and reduce the hydraulic head on the liner.





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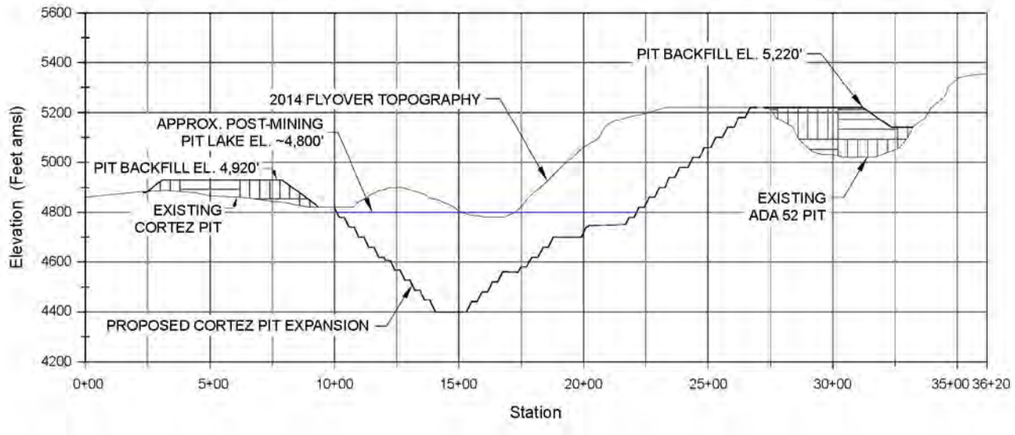

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Figure 2-11

Cortez Pit and
Ada 52 Pit Backfill

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Leach-grade run-of-mine ore is placed in lifts on the pad using mine haulage trucks. The rock is placed in lifts up to 50 feet in height, with each lift setback to yield overall slope angles of 2.5H:1V to facilitate reclamation activities and provide for mass and erosional stability. Once a lift is completed, a network of sprinkler pipes is placed on top of the ore pile, and a dilute solution of sodium cyanide is sprayed on the ore. Areas of the heap are scarified on an as needed basis to prevent ponding or pooling of process solution.

Following percolation of the leach solution through the heap, pregnant (gold-bearing) solution is collected at the base of each cell of the heap leach pad, with solution subsequently routed to the pregnant leach pond or solution tank(s) fitted with pumps. To facilitate the extraction of gold from the pregnant solution, the solution is pumped from the pregnant solution sump to the dedicated CIC circuit at the heap leach facility. As the pregnant solution passes through the CIC tanks, the gold is adsorbed by the activated carbon granules in the tanks. The barren solution at the end of the CIC circuit is pumped back to the heap for reuse in the leaching process. Loaded (gold-bearing) carbon from the CIC facility is transported by a specially designed and dedicated truck in specially designed transport units to the existing recovery/refining circuit at the Pipeline Mill for gold stripping and carbon reactivation. The barren carbon subsequently is transported back to the Pipeline CIC facility and placed back into the CIC circuit.

Existing Pipeline Heap Leach/Tailings Facility

The currently authorized Pipeline Heap Leach/Tailings Facility is a single integrated system that originally was analyzed in the Pipeline Final EIS (BLM 1996a). The three cells (Cells 1, 2, and 3) of the combined facility as originally permitted include an embankment, a composite liner consisting of a 24-inch-thick secondary liner of compacted soil having a permeability specification of 1×10^{-6} and an 80-mil-thick HDPE geomembrane primary liner over a 40-mil-thick geomembrane secondary liner, plus a drain blanket on top of the liners. A geofabric drainage layer between the liners allows for drainage of any solution that may leak through the primary liner. Any drainage collected from the pond liner systems is collected in the double lined barren/reclaim pond from where it is pumped back to the facility. The combined facility was designed and permitted to accommodate future 25-foot lifts to an ultimate maximum height of 350 feet to accommodate additional tailings once the originally permitted facility has reached capacity. The 434-acre tailings expansion area (Cell 4) subsequently was analyzed in the South Pipeline Final EIS (BLM 2000a).

The reallocation of disturbance acreage from the tailings area to the heap leach area in the combined heap leach/tailings facility, as shown in **Figure 2-4** and identified in **Table 2-1**, is consistent with previous authorizations and reflects the area historically leached. Therefore, there would be no change in the currently authorized tailings capacity in Cells 1 through 3 or Cell 4, which would be sufficient to accommodate the additional tailings generated under the Proposed Action. Under the Proposed Action, there would be no change in the ore placed on the heap leach portion of the facility.

Operation and management practices as currently implemented for the tailings facility would continue under the Proposed Action. Tailings resulting from the processing of ore currently are, and would continue to be, deposited within the tailings facility through a series of valved spigots operated to optimize tailings deposition and consolidation. As tailings are discharged, the tailings and solution separate. The water pool subsequently is, and would continue to be, pumped back to the mill for reuse. The deposited tailings are further dewatered and solidified for reclamation as remaining solution passes through the drain blanket installed on top of the primary liner. The solution flows from the drain blanket to the lined perimeter collection ditches which report to the lined solution collection ponds.

Concentrations of weak acid dissociable cyanide in the tailings impoundment currently are, and would continue to be, maintained at non-lethal levels for the protection of wildlife species. The existing cyanide detoxification system at the Pipeline facility would be used, if needed, to lower cyanide levels.

2.3.6.2 Cortez Hills Complex

Existing Grass Valley Heap Leach Facility

The currently authorized Grass Valley Heap Leach Facility is the same as described above for the Pipeline South Area Heap Leach Facility.

2.3.6.3 Cortez Complex

Existing Cortez Heap Leach Facility

The currently authorized Cortez Heap Leach Facility is the same as described above for the Pipeline South Area Heap Leach Facility.

2.3.7 Dewatering and Water Management

Dewatering currently is and would continue to be necessary to facilitate mining at the Pipeline and Cortez Hills complexes. No additional dewatering would be required to facilitate mining of the Cortez Pit as the area is sufficiently dewatered by ongoing dewatering at the Cortez Hills Complex. No dewatering would be required for the proposed expansion of the Gold Acres Pit or development of the Gold Acres satellite pits as the proposed pit bottom elevations would be above the groundwater table. Under the Proposed Action, the dewatering rate for the Deep South Expansion Project would remain below the currently authorized maximum rate of 36,100 gpm. All dewatering wells would be installed, maintained, and decommissioned in accordance with Nevada Division of Water Resources (NDWR) requirements, unless mined through during mine operations.

2.3.7.1 Dewatering Operations

Water produced from the Deep South Expansion Project's dewatering operations is expected to be of similar quality as the water produced by current dewatering operations (Geomega 2016a). Projected dewatering rates for the proposed project, consumption rates for mining and processing, projected water disposal rates, and projected conveyance rates to the proposed Rocky Pass Reservoir over the life of the Proposed Action are presented in **Table 2-6**. Prior to disposal or temporary storage in the reservoir, the dewatering water would be treated in the existing Pipeline water treatment facility or proposed Cortez Hills water treatment facility to reduce naturally occurring arsenic concentrations to meet Nevada Profile I reference values (NAC 445A).

Table 2-6 Dewatering and Disposal Rates for the Proposed Action

Year of Operation	Dewatering Rate[1]	Mine/Milling Consumption Rate	Disposal Rates			Rate to Rocky Pass Reservoir
			Rate to RIBs	Rate to Dean Ranch for Irrigation[2]	Rate to Grass Valley Injection Wells[3]	
	(gpm – annualized)					
1	31,617	1,909	25,645	4,063	1,945	0
2	32,708	1,250	24,769	4,063	1,945	2,627
3	32,266	1,250	24,326	4,063	1,945	2,627
4	29,550	1,250	21,611	4,063	1,945	2,627
5	27,149	1,250	19,209	4,063	1,945	2,627
6	8,093	1,250	2,006	2,210	1,945	2,627
7	9,023	800	4,765	3,459	1,945	0
8	8,850	800	4,736	3,313	1,945	0
9	8,906	800	4,689	3,417	1,945	0
10	8,999	500	4,646	3,852	1,945	0
11	9,075	200	4,813	4,063	1,945	0

[1] Includes dewatering for open pit and underground operations.

[2] Water from the Pipeline and Cortez Hills dewatering systems would continue to be piped to the Dean Ranch as currently authorized (annualized average of up to 4,085 gpm). Under the Proposed Action, a portion of the water conveyed to the Dean Ranch for irrigation use may come from the Rocky Pass Reservoir in years 2 through 6.

[3] Water sent to the Grass Valley injection wells (if used) would offset water sent to the Grass Valley RIBs.

Source: BCI 2017a.

2.3.7.2 Water Management

Dewatering water in excess of the project's consumption rate currently is and would continue to be managed in accordance with NDEP Water Pollution Control Permit criteria. At the time of installation and quarterly thereafter, groundwater produced from dewatering wells, drainholes, and other dewatering water production locations (e.g., contact water in the underground workings) would be sampled, analyzed, and managed based on the analytical results and NDEP permit requirements. Dewatering water that exceeds permit limitations would be consumptively used to the extent possible and would not be infiltrated or used for irrigation without treatment to comply with applicable permit requirements. Excess dewatering water that does not meet applicable standards would be conveyed to the Pipeline Mill for use as process water or discharged to the existing lined water storage reservoir facility prior to use as process water or evaporation. The water also may be used for dust suppression purposes.

Waters that meet the applicable Nevada water quality standards would be infiltrated through alluvial deposits to the groundwater in the Crescent Valley, Grass Valley, and Pine Valley hydrologic basins using currently authorized and proposed RIBs located peripheral to the Pipeline Complex and northeast of the CGM Operations Area in Crescent Valley, the proposed RIBs in Grass Valley and Pine Valley, and the proposed injection wells in Grass Valley. Alternately, waters that meet applicable standards also may be conveyed to the BCI-owned Dean Ranch northeast of the CGM Operations Area for irrigation purposes as per current operations or conveyed to the proposed Rocky Pass Reservoir for temporary storage.

Three existing dedicated water pipelines that segregate excess dewatering water by water quality for cross-valley conveyance previously were authorized. These pipelines would be used for cross-valley conveyance of excess dewatering water produced by ongoing dewatering operations at the Cortez Hills Complex. New pipelines would be installed for conveyance of water to the proposed RIBs in Grass Valley and Pine Valley and to the proposed Rocky Pass Reservoir.

Ongoing Irrigation Use at the Dean Ranch

The Barrick-owned Dean Ranch, located northeast of the CGM Operations Area boundary (**Figure 2-3**), currently conducts sprinkler and flood irrigation. Water (4,085 gpm [annualized]) currently is supplied during the growing season by BCI's dewatering water discharge program through an aboveground pipeline. Dewatering water diverted from the dewatering program to the ranch would continue to be used for sprinkler and flood irrigation.

In addition to the continued use of the existing water delivery system, a new water pipeline would be installed to convey dewatering water stored in the proposed Rocky Pass Reservoir to the Dean Ranch for irrigation use during mine operations (see Rocky Pass Reservoir subsection below). The water would be conveyed at an annualized average rate of up to 4,085 gpm and would offset water conveyed from the Pipeline and Cortez Hills dewatering systems.

Rapid Infiltration Basins

The currently authorized RIBs located peripheral to the Pipeline Complex would continue to be used for disposal of excess dewatering water under the Proposed Action, with minor modifications (**Figure 2-2**). The existing infiltration sites, which have been fenced, each include up to 15 separate infiltration basins. The infiltration basins are described in the South Pipeline Final EIS (BLM 2000a). In summary, the existing infiltration basins range in size up to 1,000 feet in length by 200 feet in width and were excavated to a depth of approximately 15 to 20 feet. A portion of the excavated material was used to construct embankments around the basins, thereby increasing their storage capacity. To increase the infiltration capacity of some of the basins, a series of rock-filled trenches (French drains) were installed. In addition, holes were drilled within some basins to further facilitate vertical infiltration. Existing RIBs located on private land outside of the CGM Operations Area boundary in Crescent Valley also would continue to be used (**Figure 2-3**).

Under the Proposed Action, up to four additional RIBs would be constructed on private land outside of the CGM Operations Area boundary in Crescent Valley (**Figure 2-3**). Associated infrastructure would include pipelines, roads, monitoring wells, growth media stockpiles, construction laydown areas, and fencing. These RIBs would have the capacity to infiltrate up to 4,000 gpm at each of the four sites.

BCI also proposes to construct a RIB site in Grass Valley and another in Pine Valley (**Figures 2-3** and **2-4**) in accordance with Nevada State Engineer Orders #1283 and #1284 (NDWR – Office of the State Engineer 2017), with each comprised of four basins. These RIBs and associated infrastructure would be located within the proposed modified CGM Operations Area boundary. Each of the RIB sites would infiltrate up to 4,000 gpm (1,000 gpm per basin). Infrastructure for the RIBs would include a new pipeline from the proposed Cortez Hills water treatment plant to supply treated dewatering water to the RIBs, roads, monitoring wells, growth media stockpiles, construction laydown areas, and wildlife friendly fencing. Infrastructure for the Pine Valley RIBs also would include a pumping booster station, with the power requirement (60-kV) provided by an approximately 1-mile-long connection to the pump station.

The RIBs at each of the proposed RIB sites would be offset linearly to help minimize groundwater mounding between the basins. Each basin would be approximately 700 feet long, 200 feet wide at the bottom, and 20 feet deep, with side slopes of 3H:1V. To facilitate infiltration, an infiltration trench would be installed along the bottom of each basin, and the bottom surface of each basin would be ripped with a dozer. The excavated soil would be placed upslope of each basin, shaped, and revegetated to form a diversion to divert runoff around the basins. Direct precipitation would be captured within each basin, which would be operated with a minimum of 2 feet of freeboard designed to contain a 100-year/24-hour storm event. Each RIB site would be fenced. All proposed RIBs would be authorized under a Water Pollution Control Permit issued by the NDEP.

The flow rates of discharged dewatering water to the infiltration basins currently is, and would continue to be, controlled through the selective use of pumps and a manifold/valve distribution system. The volume of water delivered to individual infiltration basins within each site also would continue to be regulated through distribution pipes and valves or flumes and headgates.

Infiltration basins currently are, and would continue to be, operated in series such that one basin would receive the dewatering water, fill, and then flow into an adjacent basin. Conversely, individual infiltration basins or groups of basins could be drained by infiltration and dried to provide for maintenance access. Maintenance would consist of ripping or scarifying the bottom of a basin to enhance infiltration and/or removal of finer sediments. Removed sediment currently is, and would continue to be, placed on the soil stockpiles adjacent to the infiltration basins.

Up to six new monitoring wells would be installed in Grass Valley, with up to three wells installed in Pine Valley. These wells would be constructed in accordance with NAC 543.4351-.4365 and NDWR requirements. Monitoring would be conducted in accordance with the site's Integrated Monitoring Plan (IMP) (Itasca Denver, Inc. [Itasca] 2016).

The livestock watering troughs previously installed to deter livestock from attempting to access water in the infiltration basins would continue to be operated on a rotational basis in coordination with the BLM and grazing permittees. Water for the troughs would continue to be provided by taps on the dewatering water pipeline. For the protection of bird species, the troughs were designed with avian exit ramps.

Water Treatment Plant

The existing water treatment plant at the Pipeline Complex currently is authorized for use in reducing naturally occurring arsenic concentrations in the mine dewatering water from the Pipeline and Cortez Hills complexes to meet the state required Profile I reference values (NAC 445A) prior to infiltration in the RIBs or use as irrigation water at the Dean Ranch. This water treatment plant would continue to be used under the Proposed Action. In addition, a new water treatment plant would be constructed at the Cortez Hills Complex to reduce naturally occurring arsenic concentrations in mine dewatering water from the Cortez Hills open pit and underground operations prior to conveyance to the proposed Grass Valley and Pine Valley RIBs for infiltration and the proposed Grass Valley injection wells for injection. The treated water also would be conveyed to the Crescent Valley infiltration sites, if necessary.

The proposed Cortez Hills water treatment plant would be similar to the authorized water treatment plant at the Pipeline Complex. The water treatment plant would be located in the proposed ancillary area south of the existing Grass Valley Heap Leach Facility (**Figure 2-4**). The plant would have a design capacity to accommodate a peak total flow rate of 12,800 gpm.

The treatment process would include iron co-precipitation and the use of a liquid-solids separator. In the initial step, a form of ferric iron would be added to tanks containing non-contact (raw) dewatering water, resulting in the formation of ferric hydroxide particles (floc) that would adsorb the arsenic. The treated water subsequently would be piped to the liquid-solids separator, with the decant water (liquid) separated from the formed floc (solids). The decant water from the solid-liquids separator would be piped to tank(s) or a surge pond that would provide a reservoir for the infiltration basin delivery pumps to operate. The reservoir would be designed for a peak flow rate that would meet or exceed NDEP requirements. The solids would be sent to either the existing Cortez or Pipeline tailings facility. Additional water treatment steps (e.g., microfiltration and reverse osmosis) would be added as necessary to meet discharge standards.

A pre-engineered steel framed building would be constructed to provide housing for reagent storage and water treatment process equipment. The building also would include a control room and laboratory space. The building would have an approved septic system. Potable water would be provided from existing water supply wells. Power requirements for the water treatment facility (13.8-kV) would be provided by connection to the existing Cortez Hills power distribution system. Dedicated diesel generators would provide backup power; an automated transfer switch would provide rapid transfer to backup power, as needed.

Pipelines would be installed to connect the proposed water treatment facility to both the dewatering well system and the Grass Valley and Pine Valley infiltration water distribution systems. The pipelines would be constructed of a combination of HDPE and steel pipe. A booster pump station also would be constructed to pump water to the Pine Valley RIBs.

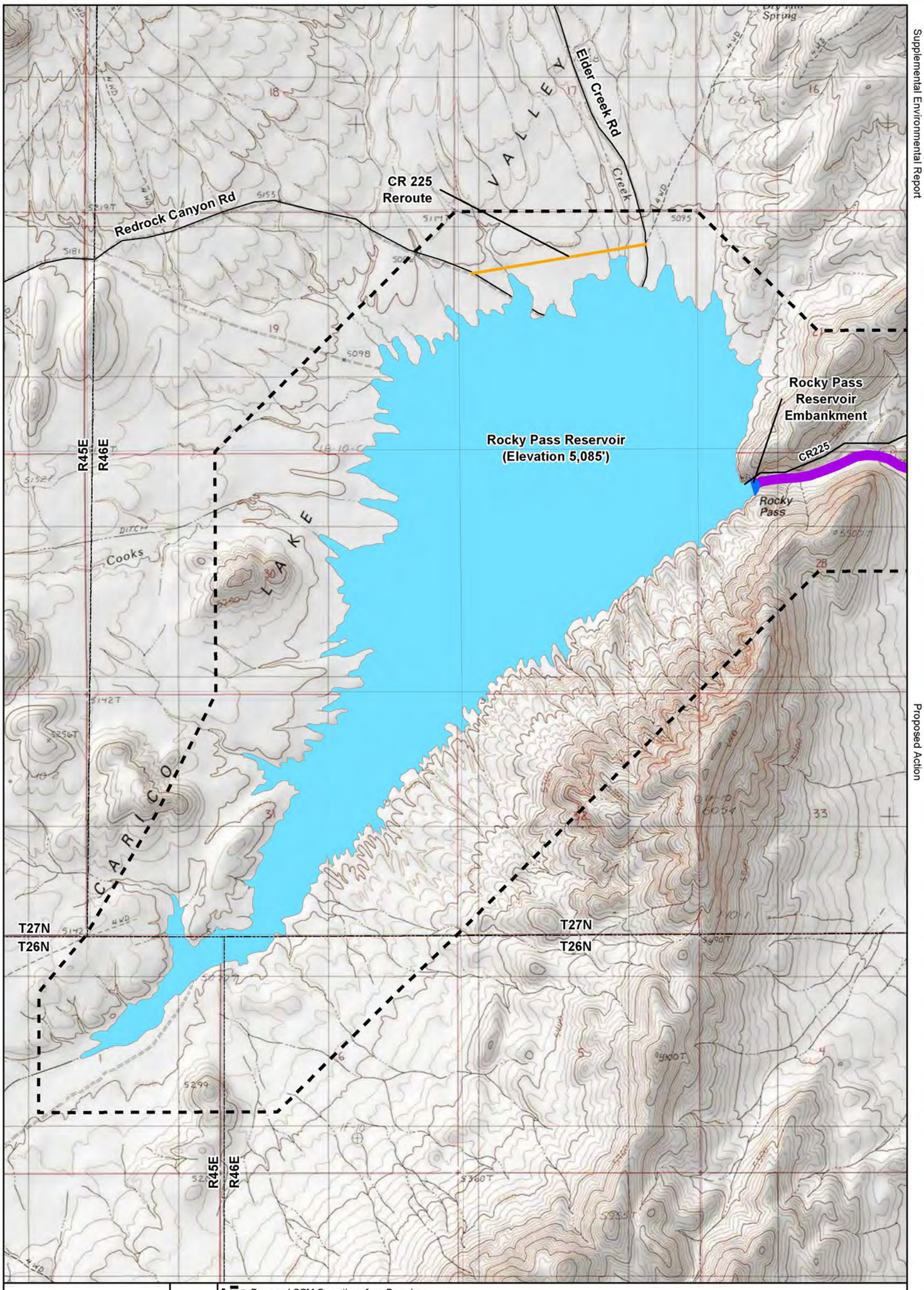
Grass Valley Injection Wells

As an option for water disposal operations, the two existing Grass Valley production wells located at the south end of the Cortez Hills Complex may be converted into injection wells to provide for re-injection of treated dewatering water into the alluvial aquifer. Up to four additional injection wells may be constructed in Grass Valley; these wells would be approximately the same size and depth as the existing production wells. All injection wells would be constructed in accordance with NAC 445A.842 through 445A.925.

Up to four new monitoring wells would be installed in Grass Valley in the vicinity of the injection wells at the south end of the Cortez Hills Complex. These wells would be constructed in accordance with the requirements of the NDEP Bureau of Water Pollution Control. Monitoring would be conducted in accordance with the mine site's IMP (Itasca 2016).

Rocky Pass Reservoir

The proposed Rocky Pass Reservoir (**Figure 2-12**) would be constructed as a temporary structure to contain approximately 21,200 acre-feet of excess dewatering water during operations. The reservoir would have an earth fill embankment that would be designed, constructed, operated, and closed in accordance with NAC 535. The embankment would be approximately 60 feet in height, allowing for a pool depth of 55 feet plus 5 feet of freeboard to accommodate a 100-year/24-hour storm event. The final design plans would be submitted to NDEP and the Division of Water Resources for approval prior to construction.



Proposed CGM Operations Area Boundary
Proposed County Road Reroute
Proposed Ancillary Facility
Proposed Rocky Pass Reservoir
Proposed Utilities
Road

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Figure 2-12
Proposed Rocky Pass Reservoir

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The embankment would be constructed of soil and rock obtained from within the impoundment footprint. The soil characteristics in the proposed reservoir area have been evaluated by Smith Environmental & Engineering (2015). Prior to placement of soils, the foundation would be prepared. The type of foundation preparation required would be determined based on geotechnical studies of the proposed embankment site. During embankment construction, the soil and rock would be placed in 12-inch horizontal lifts and compacted using suitable earthwork equipment. The embankment would be placed and compacted on a 2.5H:1V slope. An internal granular chimney drain and blanket drain exiting at a toe drain would be constructed using material from the currently authorized Airport Gravel Pit (**Figure 2-2**). The material would be transported to the site via CRs 222 and 225 using 90-ton trucks operating 8 hours per day. Approximately eight truckloads per day over a period of approximately 7 months would be required to transport the material to the site.

A conduit and inlet control structure and outlet structure would be able to drain the dam should it become necessary for dam safety purposes. Drainage conduits would be sized so the reservoir could be emptied in approximately 30 days during final reclamation activities. Finish riprap would be placed on the inside of the embankment to protect against wave action. An overflow spillway designed to convey a 100-year/ 24-hour storm event would be constructed on the south side of the embankment. **Figure 2-13** shows the cross-section of the proposed embankment.

During operations, excess treated dewatering water not returned to the aquifer via infiltration or used for irrigation would be pumped from the Pipeline Complex to the existing Rocky Pass RIBs located on the southwest side of the Pipeline Complex (**Figures 2-2** and **2-3**). From the Rocky Pass RIBs, the water would be pumped to the reservoir via a new pipeline with assistance from a new booster pump station at the Rocky Pass II RIBs. Power requirements (60-kV) for the booster pump station would be provided by an approximately 0.5-mile-long distribution line that would connect to existing infrastructure at the Pipeline South Area Heap Leach Facility.

A proposed water pipeline also would be constructed from the Rocky Pass Reservoir to the Dean Ranch to convey water to the ranch for irrigation use during mine operations (**Figure 2-14**). The pipeline would follow the proposed pipeline corridor between the Rocky Pass Reservoir to the Rocky Pass RIBs. It then would follow the existing dewatering pipeline corridor from the Rocky Pass RIBs through the Pipeline/Gold Acres complexes and continue along the existing pipeline corridor to the Dean Ranch. Pump stations associated with this water pipeline would be located on existing disturbance within pipeline corridors or mine areas, with power provided by tie-in to existing power lines.

If emergency drain down should be required, water conveyance to the reservoir would cease and the water in the reservoir would be sent via the water pipeline to the existing Rocky Pass and Windmill RIBs located on the southwest side of the Pipeline Complex. During final reclamation and closure, water from the Rocky Pass Reservoir would be conveyed to the Pipeline Pit Complex pit lake. The embankment and impoundment footprint would be reclaimed and revegetated.

A portion of existing Lander CR 225 would be realigned to allow public access around the reservoir as shown on **Figure 2-12**. The realigned road segment would be constructed in accordance with Lander County road standards and would remain as a post-mining feature.

Dewatering/Discharge Monitoring Program

Hydrologic monitoring and reporting currently is conducted in accordance with existing permit requirements to measure the effects of the dewatering and discharge program on groundwater

quantity and quality both locally in the CGM Operations Area and in southern Crescent Valley. The monitoring requirements are described in the IMP (Itasca 2016). In general, the monitoring program provides: 1) data on dewatering flow rates and transient groundwater levels, which are used to optimize and manage the existing pit dewatering operations; 2) data for tracking potential mine-related groundwater quality changes in the area; and 3) a trigger mechanism for mitigation of any identified mine-related impacts on water supply wells and seeps and springs in the area of potential effect. The IMP also discusses the annual recalibration of the groundwater model to incorporate the latest monitoring data. Under the Proposed Action, the existing monitoring program would be expanded in accordance with applicable federal and state permit requirements to measure the effects of the proposed Deep South Expansion Project pit dewatering and discharge program on groundwater quantity and quality.

2.3.8 Overall Operations Modifications

2.3.8.1 Refractory Ore Shipment

Refractory ore mined and stockpiled in the CGM Operations Area currently is trucked to the Goldstrike Mill for processing under an existing ore sales agreement and current authorizations at a total rate of up to 1.2 million tpy through 2031. BCI proposes to increase the off-site refractory ore haulage rate from the CGM Operations Area to 2.5 million tpy. No change in the current shipping route (**Figure 2-15**) or duration of shipment (currently authorized through 2031) is proposed. Refractory ore would continue to be transported via over-the-road truck and trailer units consisting of a 28-ton primary trailer and a 10-ton auxiliary (pup) trailer. The current expected maximum trucking rate of 9 round-trips per hour would increase to 18 round-trips per hour under the Proposed Action (Matrix Design Group 2017). Ore transport would continue to be conducted by contract haulers.

The refractory ore sent to Goldstrike for processing would continue to be processed through either the existing roasters or the autoclaves as currently authorized. The additional ore would extend processing at the Goldstrike Mill by approximately 3 years.

2.3.8.2 Backhaul of Arturo Oxide Ore for On Site Processing

Following the delivery of refractory ore from the CGM Operations Area to the Goldstrike Mine as discussed in Section 2.3.8.1, the ore transport trucks currently backhaul oxide (mill- and heap leach-grade) ore from the Arturo Mine (located approximately 7 miles from Goldstrike [see **Figure 2-15**]) through the Goldstrike Mine to the Pipeline Complex for processing. Under current authorizations, up to 600,000 tpy of oxide ore is backhauled to the Pipeline Complex. BCI proposes to increase the backhaul rate of Arturo Mine oxide ore to 2.5 million tpy.

Oxide ore from the Arturo Mine currently is, and would continue to be, delivered to the existing or expanded oxide ore stockpiles at the Pipeline Complex for subsequent crushing and processing at the existing Pipeline Mill or for placement on the Pipeline South Area Heap Leach Facility. The Arturo ore would continue to be sampled to ensure that only ore suitable for mill or heap leach processing would be backhauled to the Pipeline Complex. No associated change in the current mill throughput rate, increase in the existing Pipeline Tailings Impoundment, or expansion of the existing Pipeline South Area Heap Leach Facility would be required to accommodate the processing of Arturo Mine oxide ore. The additional ore would extend processing at the Pipeline Mill by approximately 2 months.

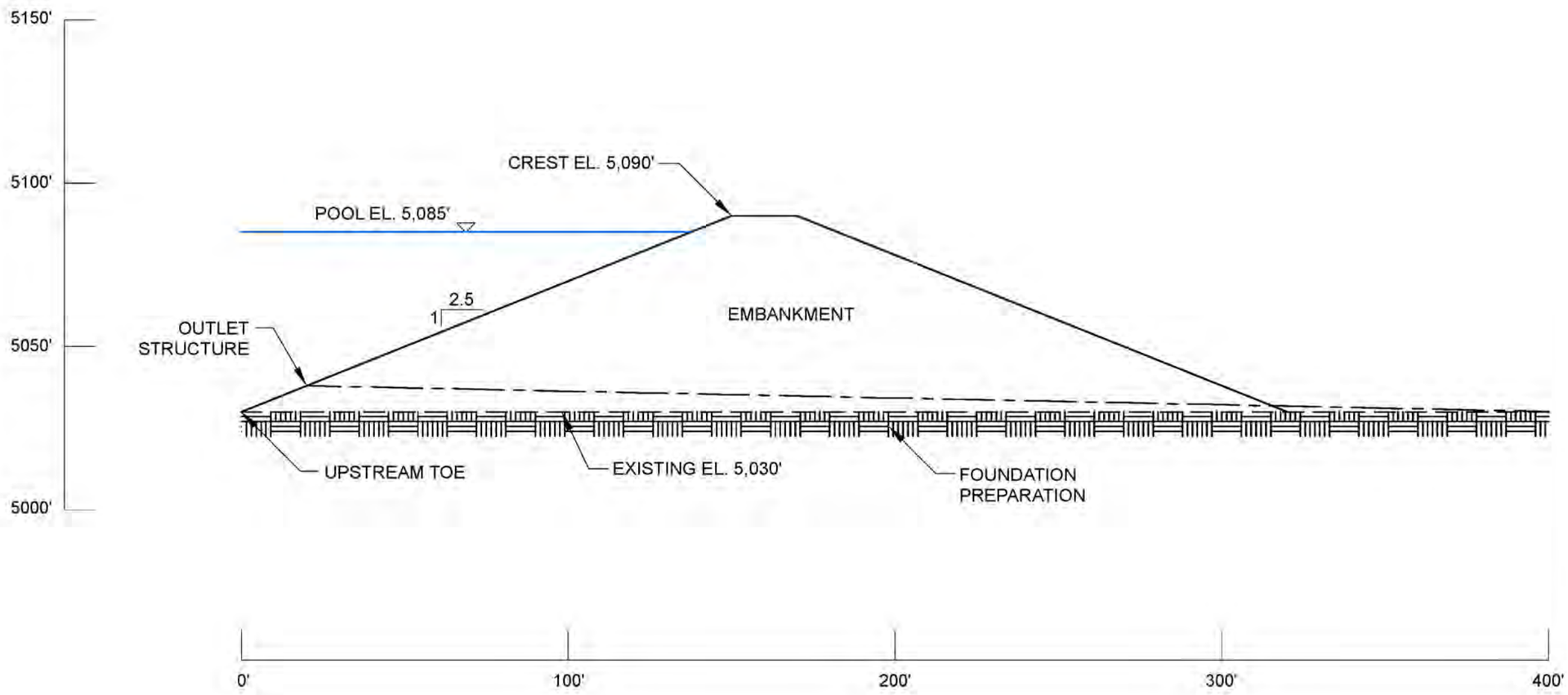

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Figure 2-13

Cross-section of Proposed Rocky Pass Reservoir Embankment

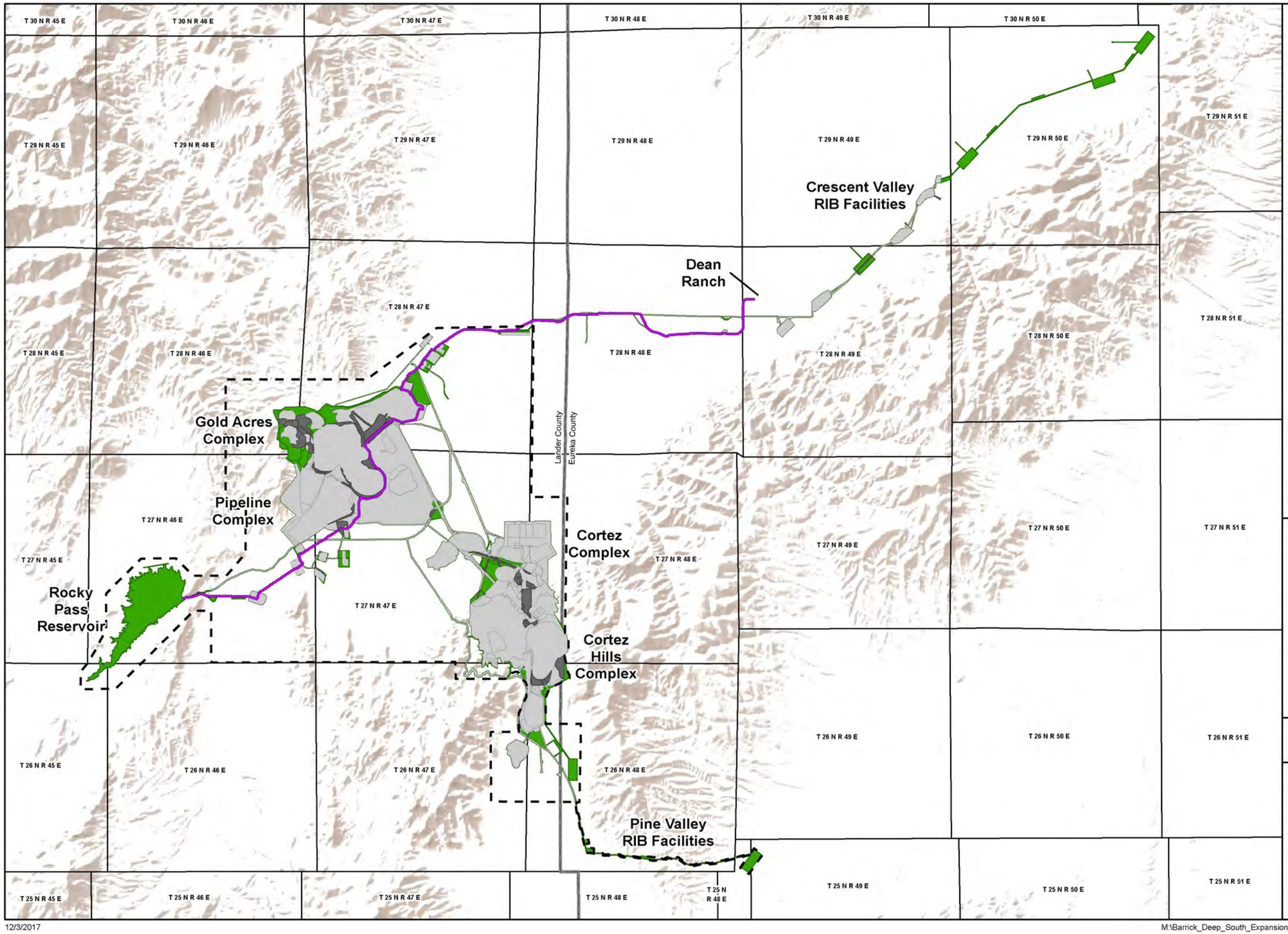

Figure 2-14

Water Pipeline from Proposed Rocky Pass Reservoir to Dean Ranch

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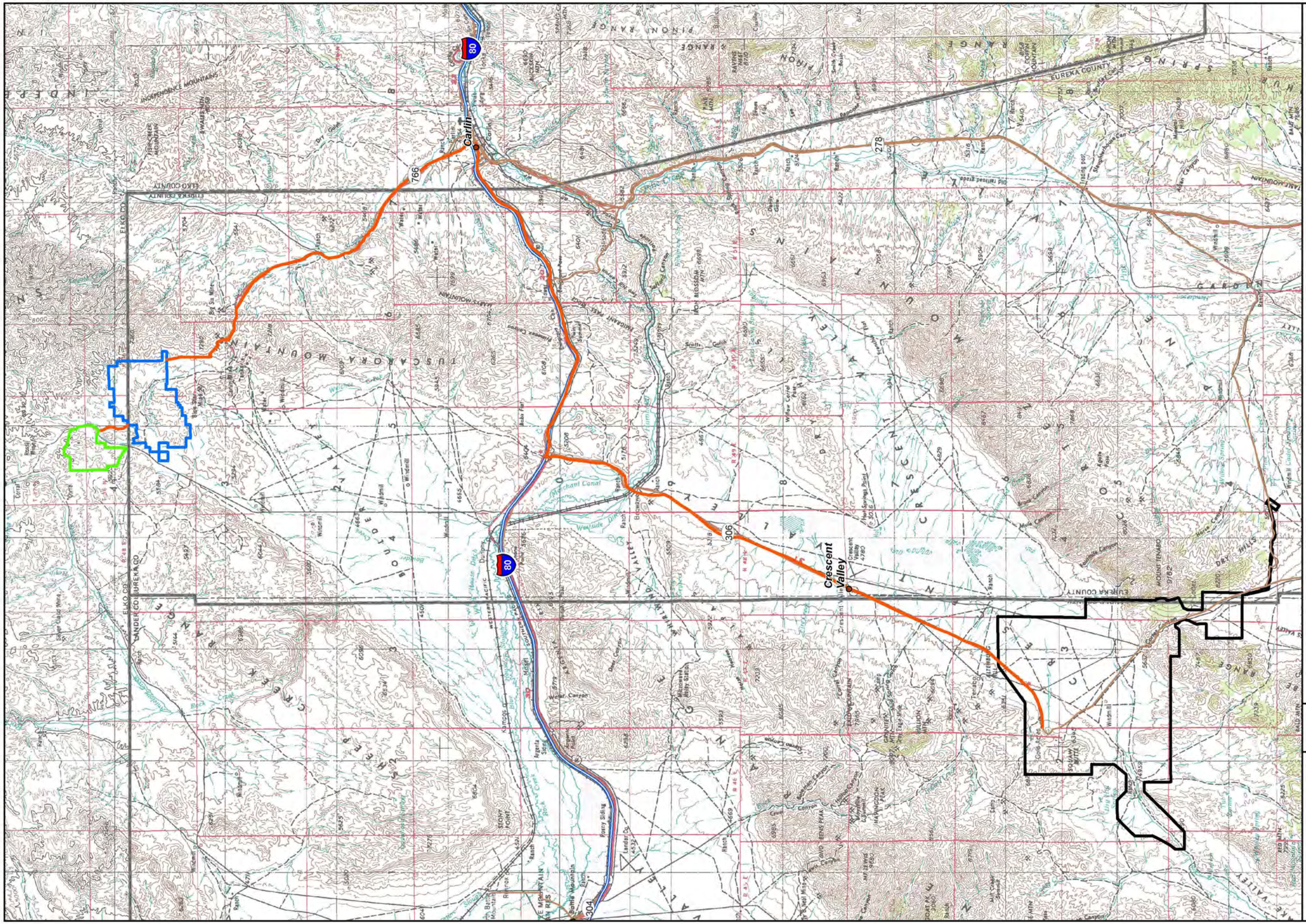

Proposed CGM Operations Area Boundary
Goldstrike Mine Operations Boundary
Arturo Mine Operations Boundary
Ore Transportation Route

Note: No change in the currently authorized ore transportation route is proposed.

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Figure 2-15

Ore Transportation Route

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2.3.9 Infrastructure

2.3.9.1 Electrical Power

Sierra Pacific Power Company currently supplies electrical power to existing operations in the CGM Operations Area via 60-kV and 120-kV transmission lines. The 60-kV line also runs southward from the Cortez Hills Complex through Grass Valley. A portion of the original transmission line was tapped and the line extended to a 120-kV substation in the Cortez Hills Complex to support underground exploration and operations. This life-of-mine power supply system would continue to provide power for the proposed project, with electrical spur lines constructed for the proposed Cortez Hills water treatment plant, proposed pump stations for the dewatering water distribution system, and for proposed ancillary facilities at the Gold Acres Complex.

2.3.9.2 Water Supply

Water used for dust suppression and processing would continue to be obtained from the mine dewatering program, to the extent possible. A water supply system consisting of overland piping adjacent to mine roads is used to convey dewatering water to use areas. At times when the dewatering water volume would be insufficient to provide for operational needs, water would continue to be obtained from existing water supply wells. The annualized average daily water consumption for open pit and underground mining-related activities under the Proposed Action is presented in **Table 2-6**.

Potable water currently is, and would continue to be, provided by bottled water or existing water supply wells in accordance with applicable Nevada Bureau of Safe Drinking Water standards.

2.3.9.3 Ancillary Support Facilities

Existing ancillary support facilities located at the Pipeline, Gold Acres, Cortez, and Cortez Hills complexes would be used, as applicable, to support the proposed project. These facilities include administrative offices, safety/change house with a first aid station, assay lab, bioremediation site (single-lined facility for managed degradation of hydrocarbon-contaminated soils), shop/warehouse, surface support facilities for underground operations (e.g., vent raises, boreholes, shotcrete plant, etc.), water treatment plant, Class III landfills, heavy equipment and light vehicle fuel stations, diesel and gas storage facilities, and explosives storage. Proposed additional support facilities include a Class III-waivered landfill, water pipelines, electrical spur lines, water treatment plant, fuel skids, mine operations offices, septic systems, additional surface support facilities for underground operations, and laydown/parking areas.

2.3.9.4 Stormwater Control

Engineered stormwater diversions were designed and constructed to divert stormwater runoff away from existing open pits, heap leach pads, waste rock facilities, and other facilities, as required. Under the Proposed Action, engineered stormwater diversions would be constructed, as needed, to divert stormwater runoff away from pit expansion areas and waste rock facilities expansion areas as discussed in Section 2.3.4.5, Surface Water Diversions; and Section 2.3.5, Waste Rock Facilities, respectively. Best Management Practices (BMPs) (e.g., riprap and staked certified weed-free straw bales) would continue to be implemented to reduce erosion and sediment transport.

2.3.9.5 Sanitary and Solid Waste Disposal

All sanitary waste generated at the CGM Operations Area would be disposed of in the existing and proposed on site, engineered septic systems. Approval for the proposed septic systems at

the Cortez and Cortez Hills Complexes would be obtained from the State of Nevada prior to installation. The systems would be installed in accordance with all applicable state regulations.

All non-toxic, non-hazardous solid waste materials generated at the facilities in the CGM Operations Area currently are disposed of in one of the three approved Class III-waivered landfills located at the Gold Acres, Cortez, and Cortez Hills complexes. Under the Proposed Action, the landfills at the Cortez and Cortez Hills complexes would continue to be used, and the landfill at the Gold Acres Complex would be replaced with a new Class III-waivered landfill. The new landfill would be constructed in accordance with Nevada Revised Statutes 444.440 through 444.645. The existing Gold Acres landfill would be closed in accordance with state and federal regulations. Alternately, the landfilled solid waste at the existing facility would be removed as part of the Gold Acres Complex development and placed in the proposed landfill or transported to an approved off-site landfill for disposal. Approval for the new landfill would be obtained from the NDEP Bureau of Waste Management prior to construction. Disposal of non-toxic, non-hazardous solid wastes would continue to be conducted in accordance with all applicable federal, state, and county laws and regulations as outlined in the existing Solid and Hazardous Waste Management Plan (BCI 2015).

2.3.9.6 Fencing and Site Security

For security and safety purposes, the existing perimeter fence would be extended to encompass proposed modified and expanded project facilities where safe and practical to do so. A BLM-approved four-strand range fencing (three strands barbed wire and a smooth bottom strand per the BLM Handbook 1741-1) would be used. Heap leach ponds currently are fenced with 8-foot-high chain link fence for terrestrial wildlife exclusion. In addition, mining areas undergoing concurrent reclamation would be fenced, as necessary, to facilitate revegetation. Existing and newly constructed fences would be maintained by BCI throughout the life of the project.

Security within the project boundary would be the responsibility of BCI, which currently provides, and would continue to provide, controlled access during the life of the project. The security system includes direct security measures, supported by employees involved in the day-to-day operation. In addition, monitoring equipment for areas of concern and safety would continue to be used. BCI would continue to restrict access in accordance with MSHA regulations and policies and safety and security objectives.

2.3.10 Hazardous Materials Management

Procedures for reagent transportation, storage, waste management, and spill prevention and emergency response programs (BCI 2015; Barrick 2016) currently are implemented for existing operations in the CGM Operations Area. These procedures and plans would continue to be implemented under the Proposed Action.

No increase in the current annual reagent consumption rate at the existing Pipeline Mill would be required to facilitate the processing of the mill-grade ore mined under the Proposed Action or for the processing of additional mill-grade ore from the Arturo Mine. However, the duration of transport would be extended approximately 12 years.

2.3.10.1 Reagent Transportation and Storage

Transportation and handling of fuel, lubricants, reagents, and explosives currently are, and would continue to be, conducted by licensed carriers and properly trained workers in accordance with applicable federal, state, and local regulations. These materials would continue to be transported to the CGM Operations Area via federal (Interstate 80), state

(State Route 306), and county (CR 225) roads and highways. All shippers would be licensed by the Nevada Department of Transportation (NDOT) and other applicable agencies. The materials that would be transported to, and stored and used at, the CGM Operations Area are identified in **Table 2-7**.

Table 2-7 Hazardous Materials Summary for the Proposed Action

Material	Use Location	Approximate Usage Per Day	Amount Stored (typical)	Storage Method	Anticipated Trucks per Month	Amount Per Load
Sodium Cyanide	Process Facility	12 tons	26,500 gal	Tank	17	15 tons
Lime	Process Facility	100 tons	750 tons	Silo	83	40 tons
Sodium Hydroxide	Process Facility	384 lbs	15,000 gal	Tank	3	15 tons
Flocculants	Process Facility	932 lbs	33 tons	Tank	2	20 tons
Antiscalant	Process Facility	164 lbs	3,000 gal	Tank	1	4,000 gal
Ferrous Sulfate	Process Facility	822 lbs	45 tons	Bin/Tank	1	20 tons
Cherokee Chemical[1]	Process Facility	465 gal	8,000 gal	Tank	2	4,000 gal
Hydrochloric Acid	Laboratory	904 lbs	10,000 gal	Tank	4	15 tons
Fluxes	Laboratory/ Refinery	17 lbs	1.5 tons	Various	1	Various
Ammonium Nitrate	Site Wide	13 tons	150 tons	Bin	9	40 tons
Gasoline	Site Wide	1,600 gal	24,300 gal	Tank	5	10,000 gal
Diesel Fuel	Site Wide	32,400 gal	233,300 gal	Tank	90	10,000 gal
Petroleum Oils	Truck Shop	625 gal	2,500 gal	Tank	10	Various
Antifreeze	Truck Shop	10 gal	2,500 gal	Tank	1	Various
Ferric Chloride	Water Treatment Facility	2,832 gal	40,000 gal	Tank	4	Bulk
Sodium Hypochlorite	Water Treatment Facility	1,260 gal	18,200 gal	Tank	4	Bulk
Polymer	Water Treatment Facility	460 lbs	1,750 lbs.	Sacks/ Totes	4	Bulk
Master Pozzolity 300R	Underground	100 gal	3,000 gal	Tank	4	3,500 gal
Biodiesel Fuel	Underground	1,500 gal	20,000 gal	Tank	30	4,000 gal
Portland Cement/Shotcrete	Underground	426 tons	225 tons	Silo	160	40 tons
Meyco SA 430	Underground	380 gal	6,000 gal	Tank	4	3,500 gal
Master Rheobuild 1000	Underground	165 gal	3,000 gal	Tank	4	3,500 gal

[1] Proprietary Mercury control additive developed by the University of Nevada Reno (Chemical UNR-811).

Liquid reagents would continue to be trucked to the site and stored in storage tanks specifically designed and constructed to hold the specific reagent. The tanks are located within concrete secondary containment structures designed to contain 110 percent of the capacity of the largest tank within the containment area. Solid reagents would be trucked to the site and stored in bins or silos specifically designed and constructed to hold the specific reagent. Fuel (i.e., gasoline and diesel fuel), antifreeze, and petroleum oils would be trucked to the site in tanker trucks and transferred to existing or proposed above ground steel tanks. Fuel tanks, including those on skids, would be constructed such that spills or leaks would be captured within secondary containment (e.g., double-walled tanks or underlying containment structures). Non-double-walled containment tanks would be within secondary containment designed to capture at least 110 percent of the respective tank volume. Under the Proposed Action, the Gold Acres and Cortez complexes each would have a fuel skid up to 40,000 gallons in size.

Explosives materials transported to the site include blasting agents (composed primarily of ammonium nitrate and fuel oil [transported separately]) and initiation devices. Blasting agents currently are, and would continue to be, stored in appropriate storage bins separate from the explosive magazine. Blasting initiation devices currently are, and would continue to be, stored in magazines that conform with federal and state regulations. Explosives materials for the proposed project would be stored in the existing Pipeline or Cortez Hills storage areas (for open pit operations) and at the existing storage area in the F-Canyon Pit (for underground operations) in compliance with applicable Department of Homeland Security; Bureau of Alcohol, Tobacco, Firearms and Explosives; and MSHA regulations.

Chemicals would be stored and handled in accordance with manufacturer's recommendations and applicable regulations. The safety data sheets (SDS) for chemicals used on site would be kept at locations that are accessible to the working personnel in accordance with the Occupational Safety and Health Administration (OSHA) and MSHA Hazard Communication Standard.

2.3.10.2 Spill Prevention and Emergency Response

There are several regulatory frameworks relative to spill prevention and releases of hazardous substances and petroleum. The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) creates a framework for planning and response to hazardous substance releases. The part of CERCLA that governs emergency planning is the Emergency Planning and Community Right-to-Know Act (EPCRA), which was part of the 1986 Superfund Amendments and Reauthorization Act (SARA). The basis of emergency planning begins with requirements set forth in the OSHA Hazard Communication Standard and MSHA hazard communications program.

Under EPCRA, facilities that are required by OSHA or MSHA to have SDS on hand for hazardous chemicals also are subject to certain reporting and planning requirements, dependent on threshold amounts of those chemicals or threshold planning quantities (TPQs). The TPQ for EPCRA hazardous chemicals is 10,000 pounds. The TPQs for materials designated as extremely hazardous substances (EHS) is 500 pounds or less, depending on the hazard posed by the particular EHS. Under the reporting requirements set forth in Sections 311 and 312 of SARA Title III, the Proposed Action would be subject to certain reporting and emergency planning requirements because the amounts of certain hazardous chemicals on site would exceed 10,000 pounds. Some of those materials include lime, diesel fuel, and gasoline. Sodium cyanide, a listed EHS, is present in amounts greater than the TPQ (100 pounds).

Reporting and emergency planning under EPCRA includes the following requirements:

- The facility must notify state and emergency planning committees that the facility is subject to emergency planning requirements;
- The facility must submit to state and local emergency planning committees and local fire departments copies of SDS or a list of those materials defined as hazardous under the OSHA Hazard Communication Standard that are present in excess of 10,000 pounds or in amounts greater than the TPQ for EHS;
- The facility must submit an annual inventory of such materials stating the maximum amounts of those materials at any given time throughout the calendar year, and estimate of average daily amounts of those materials, and the location of those materials at the facility;
- The annual inventories must be submitted by March 1 for materials at the facility; and
- Reporting, notification, and other plans supplied to the local, state, or federal authorities under EPCRA are available to the public.

BCI previously provided information relative to hazardous materials on hand at the existing operations to the State Fire Marshal, state and local planning agencies, and local fire departments as required by EPCRA. The types of hazardous materials required to support the proposed project would be the same as those currently utilized. BCI would continue to provide annual inventories of hazardous materials to the appropriate agencies, including the State Fire Marshal's office.

CERCLA also established reportable quantities for releases of hazardous substances. If a hazardous substance is released in an amount greater than the reportable quantity, then a facility is required to report the release to the National Response Center and to state and local authorities. Examples of reporting quantities for certain chemicals that may be used under the Proposed Action include sodium cyanide (10 pounds) and sodium hydroxide (1,000 pounds).

The U.S. Department of Transportation (USDOT) has developed a list of materials that are classified as hazardous for transportation purposes (49 CFR 172.101) and establishes packaging and labeling requirements for each designated hazardous material. The USDOT hazardous materials list includes the hazardous substances regulated under CERCLA, and other types of chemicals. The hazardous materials to be used in mining activities under the Proposed Action would be transported to the site in accordance with USDOT and applicable NDOT regulations.

The site's Emergency Response Plan (Barrick 2016), would be maintained and implemented, as needed, throughout the life of the project. This plan describes the procedures that would be used for the prevention, response, containment, and safe cleanup of any spills or discharges of substances that potentially may degrade the environment. The procedures outlined in the plan apply to potential leaks and spills that would remain within the mine boundary or flow off-site.

Standards for the storage and spill prevention of petroleum products are established by regulations issued under the Clean Water Act. These regulations are contained in 40 CFR Part 112. In compliance with Part 112, the site's Emergency Response Plan describes the systems and procedures to prevent and contain spills of petroleum fuels, lubrication oil, coolant, and used oil. The plan also identifies the spill discovery, notification, and general cleanup procedures.

2.3.10.3 Waste Management

Under the Proposed Action, the majority of the hazardous materials would be spent or consumed on site. Materials not spent or consumed (e.g., petroleum oils and antifreeze) currently are and would continue to be recycled to the extent possible, or disposed of off-site in an approved depository in accordance with all applicable federal (including the Resource Conservation and Recovery Act and state regulations.

2.3.11 Safety and Fire Protection

Operations in the CGM Operations Area would continue to operate in conformance with all MSHA safety regulations (30 CFR 1-199). The proposed project also would operate in conformance with the regulations. In addition, site access would continue to be restricted to employees and authorized visitors for safety and security reasons.

BCI's existing fire protection plan would continue to be implemented under the Proposed Action. A copy of the plan previously was provided to the State Fire Marshal. The procedures as outlined in the fire protection plan are in accordance with MSHA and applicable state and county fire code regulations. Adequate fire protection equipment would be maintained on site during operations. A fire water reserve would be maintained in the facility water supply tanks.

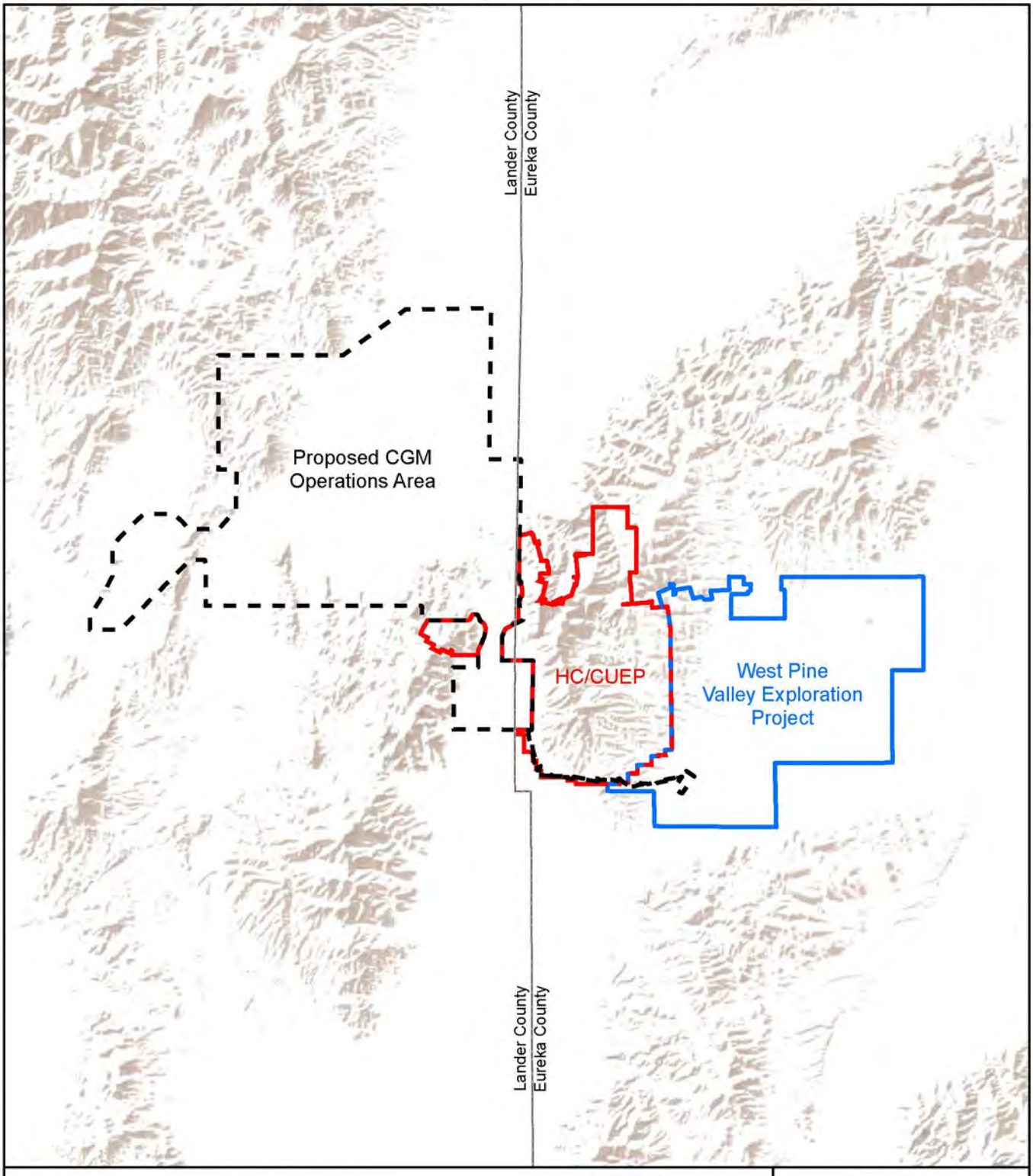
2.3.12 Exploration

Ongoing exploration activities would be conducted within the CGM Operations Area per existing approvals to identify and delineate any additional ore reserves. Drilling also would be conducted to confirm the grade of ore deposits or confirm that an area contains no economically recoverable gold (condemnation drilling). These activities would consist of surface geologic or geophysical surveys, access road grading or construction, and exploration or condemnation drilling programs (surface and underground). Exploration-related disturbance associated within the Deep South Expansion Project is identified in **Table 2-1**.

BCI proposes to modify the boundaries of the currently authorized HC/CUEP (NVN-066621) and West Pine Valley Exploration Project (NVN-077213) to eliminate overlap with the areas of proposed mine activities in the proposed modified CGM Operations Area boundary (**Figure 2-16**). In general, the HC/CUEP and West Pine Valley Exploration Project plan boundaries would be modified to exclude the proposed Pine Valley RIBs and associated infrastructure. The HC/CUEP boundary also would be modified to exclude the portion of the Pediment East Extension that crosses into this plan area. The current authorizations for up to 549 acres of exploration-related disturbance within the HC/CUEP plan area and up to 150 acres within the West Pine Valley Exploration Project plan area would be retained for the modified plan areas, with ongoing exploration conducted in accordance with existing permit requirements. BCI would submit amendments to modify the boundaries for these two exploration plans as directed by the BLM in the ROD for the Deep South Expansion Project.

2.3.13 Applicant-committed Environmental Protection Measures

BCI's committed environmental protection measures for operations in the CGM Operations Area previously were identified in existing approved plans for the CGM Operations Area (BCI 2014b, 2012; CGM and SRK 2008). These measures, as well as additional BLM-stipulated mitigation measures, also were identified in the associated NEPA documents (BLM 2015a, 2014a, 2008a) and decision documents (BLM 2015b, 2014b, 2008b). These measures currently are, and would continue to be, implemented as standard operating procedures to mitigate potential impacts to environmental and human resources. Additional measures identified in the PoO Amendment (BCI 2016b) also are included below.



Proposed CGM Operations Area Boundary
HC/CUEP Boundary
West Pine Valley Exploration Project Boundary

0 1 2 3 4 Miles

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Deep South Expansion Project EIS

Figure 2-16

Proposed CGM Operations Area Boundary and Boundaries for Existing Exploration Areas

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2.3.13.1 Geology

- Geotechnical monitoring, consisting of geologic structure mapping, groundwater monitoring, and slope stability analyses, would be conducted during active mining to assist in optimizing the final pit designs. Slope movement monitoring also would be initiated to evaluate the safety of the open pit high walls. In addition, operational procedures for controlling blasting and bench scaling would facilitate mining with stable pit walls.
- BCI has implemented management, monitoring, and mitigation measures to address possible future fissuring in the Pipeline Complex area. These measures are described in the Pipeline/South Pipeline Pit Expansion Project Final SEIS (BLM 2004). These protective measures, which would continue as part of the Proposed Action, include integration of the following components:
  - Stormwater diversion ditch to intercept and route surface water runoff away from the fissure area;
  - Dewatering pipeline instrumentation and pressure monitoring;
  - Intercept trench east of the existing Pipeline/South Pipeline Heap Leach Facility and west of the main fissure complex;
  - Backfilling of existing open fissure gullies;
  - Protective berms and surface grades to exclude water from the fissure field;
  - Alluvial waste rock dikes to provide containment and channelization in the event of a dewatering line break;
  - Monitoring of subsidence rates and horizontal strain; and
  - The step back area would be fenced with four-strand range fence at mine closure.

2.3.13.2 Water Resources

- All heap leach, mill, and tailings facilities are designed and operated as zero discharge facilities, with a composite liner system in accordance with the BLM and NDEP criteria and the International Cyanide Code to minimize impacts to water resources.
- Groundwater monitoring would be conducted in accordance with the IMP (Itasca 2016) to ensure compliance with Water Pollution Control Permit criteria and provide for early identification of potential impacts. If any monitoring wells go dry due to dewatering activities, the monitoring program would be re-evaluated in coordination with the NDEP. The IMP would be reviewed and updated annually to include additional surface water and groundwater resources monitoring locations in the project vicinity.
- All mineral exploration and development drill holes, monitoring and observation wells, and production dewatering wells would be properly abandoned following completion of their functions to prevent migration of potential contaminants to groundwater.
- To minimize potential mine-related effects to perennial surface waters, the site-specific contingency mitigation measures developed for identified perennial waters within the currently authorized operations' modeled groundwater drawdown area would be implemented if monitoring data indicate that an observed reduction in flow is attributable to mine-induced groundwater drawdown. If needed, one or more of the identified mitigation methods would be implemented per the site-specific mitigation plans presented in Table 3.2-1 of the Cortez Hills Expansion Project Final SEIS (BLM 2011a). Site-specific contingency mitigation measures identified in BCI's proposed Contingency Mitigation Plans for Surface Waters (BCI and Stantec

Consulting Services, Inc. 2018) would be implemented to minimize potential mine-related effects to perennial waters within, and within 1 mile of, the modeled maximum extent of the Proposed Action groundwater drawdown area not covered by the 2011 mitigation plan. ***In addition, BCI would continue to implement the existing and proposed contingency mitigation measures during the post-closure period and would include funding for this effort in the Long-term Contingency Fund for the project. Upon issuance of the ROD for the Deep South Expansion Project by the BLM, BCI will begin installation of mitigation wells in the Horse Creek area within 1 year of receiving all necessary permits and authorizations to maintain baseflows as described in the proposed contingency mitigation plan. Mitigation of surface water resources would be implemented under the requirements of NDWR.***

- Waste rock characterization would continue to be conducted in accordance with the site's BLM waste rock characterization requirements and NDEP-Bureau of Mining Regulation and Reclamation Water Pollution Control Permit requirements.
- Selective placement of waste rock, as needed, and routine monitoring of the waste rock disposal facilities during operations would be implemented during operations as identified in the Waste Rock Management Plan (Geomega 2016b) to reduce the potential for acid rock drainage that does not meet applicable NDEP water quality standards.
- To limit erosion and reduce sediment transport from project disturbance areas, erosion control measures as outlined in the site's Stormwater Pollution Prevention Plan (SWPPP) (BCI 2016a) and Reclamation Plan would be installed, as needed, and maintained. Stormwater diversions would be installed around project facilities, as needed, to divert stormwater runoff around disturbance areas. Facilities would be monitored following spring snowmelt and intense rain events to ensure that drainage and sediment control measures are effective and operating properly. In addition, implementation of concurrent reclamation would further reduce erosion potential. The SWPPP would be amended as necessary to include the proposed project facilities. (The project is covered under the NDEP's general stormwater permit [NVR300000].)

2.3.13.3 Soils, Vegetation, and Invasive Weeds/Non-native Species

- To minimize impacts to soils and to provide for re-establishment of vegetation, suitable growth media would be salvaged and stockpiled during the development of the mine open pits and during construction of the waste rock facilities and heap leach pads for subsequent use in reclamation. Alternately, the growth media may be transported to, and redistributed on, mine-related surface disturbance areas undergoing concurrent reclamation (e.g., waste rock facilities).
- BMPs would be used to limit erosion from project facilities and disturbance areas during and following construction and operations. These practices may include, but would not be limited to, installation of stormwater diversions to route water around disturbance areas and project facilities and the placement of erosion control devices (e.g., silt fences, staked weed-free straw bales, riprap, etc.). To ensure long-term erosion control, all sediment and erosion control measures would be inspected periodically, and repairs would be performed, as needed.
- BCI would avoid the use of the native silty Relley-Broyles soil association in reclaiming the Pipeline Waste Rock Facility expansion area due to its high erodibility.
- Prior to the initiation of ground-disturbing activities in any unsurveyed areas, BCI would obtain information from the Nevada Natural Heritage Program regarding any known occurrences of special status plant species that occur within this area. If known

populations occur within the proposed disturbance area, an additional field survey would be conducted for the appropriate species prior to mine development in order to determine the extent of these populations. A survey report, which would include survey methods, results, summary, a map illustrating the areas surveyed, and any populations observed during the survey, would be submitted to the BLM. After BLM's review of the report, BCI would coordinate with the BLM to develop appropriate mitigation measures.

- Revegetation of disturbance areas would be conducted as soon as practical to reduce the potential for wind and water erosion, minimize impacts to soils and vegetation, help prevent the spread of invasive and nonnative species in disturbance areas, and facilitate post-mining land uses. Following construction activities, areas such as cut and fill embankments and growth media stockpiles would be seeded. Concurrent reclamation would be conducted to the extent practical to accelerate revegetation of disturbance areas. Areas undergoing concurrent reclamation would be fenced as necessary to minimize livestock and wildlife access until vegetation has re-established. Sediment and erosion control measures and revegetated areas would be inspected periodically to ensure long-term erosion control and successful reclamation.
- Certified weed-free seed mixes would be used for reclamation.
- Implementation of the project's fire control plan would minimize potential fire-related impacts to vegetation.
- Pinyon-juniper would be cleared in advance of mine construction/development in a manner that would allow utilization of the resource to the extent possible. Funding for the value of the removed firewood would be provided as a contribution to an off-site BLM or Nevada Department of Wildlife (NDOW) revegetation or habitat improvement project.
- To minimize the introduction and spread of noxious weeds in project-related disturbance areas, BCI's Noxious Weed Control Plan (SRK 2014) would continue to be implemented. The plan outlines procedures for risk assessment, management strategies, provisions for annual monitoring and treatment evaluation, and provisions for treatment. The results from annual monitoring would provide the basis for updating the plan and developing annual treatment programs.

2.3.13.4 Wildlife and Grazing Management

- Implementation of the proposed Reclamation Plan would minimize habitat impacts for wildlife species and would minimize impacts to wildlife and grazing management through the re-establishment of forage.
- To minimize potential impacts to avian and terrestrial wildlife species, 8-foot-high chain link fencing (i.e., NDOW-approved exclusion fencing per the Industrial Artificial Pond Permit) would be installed around the heap leach ponds. Also, netting, pond covers, or floating "bird balls," as appropriate, would be installed over ditches and ponds that would contain leach solutions. In addition, the heaps would be scarified to minimize ponding and pooling of process solutions.
- To minimize potential impacts to wildlife species, the top of leach pads would be monitored daily for any substantial pooling of cyanide solutions, and wildlife mortalities would be reported in accordance with the NDOW Industrial Artificial Pond Permit.
- To minimize potential impacts to wildlife species, weak acid dissociable cyanide concentrations in the tailings impoundments would be maintained at non-lethal levels. As added protection, the existing cyanide detoxification system (which uses in-line addition of ferrous sulfate to the tailings solution) would be used if it should become necessary to lower the cyanide levels in the tailings discharge to the tailings facility.

- BCI would work with the BLM and local permittees to develop livestock fencing that would preserve grazing to the extent possible, while providing protection for both reclaimed mine facilities and livestock. Fencing between the Pipeline and Cortez complexes may be constructed to exclude cattle from the mine area during select times of the year. While the conveyor corridor would be fenced along its route, the wildlife overpasses would remain open.
- Livestock watering troughs previously installed to deter livestock from attempting to access water in the infiltration basins would continue to be operated on a rotational basis in coordination with the BLM and grazing permittees.
- Crossing ramps would be installed in locations recommended by NDOW to facilitate mule deer and antelope crossing of the water pipelines to the Crescent Valley, Grass Valley, and Pine Valley RIBs.
- BCI would conduct a desktop analysis to identify all historic mine workings within 0.25 mile of proposed disturbance areas for submittal to BLM and NDOW for assessment of sites that potentially may provide suitable bat habitat.
- If active pygmy rabbit burrows are observed, BCI would coordinate with NDOW regarding potential mowing in the vicinity of the active burrows in advance of ground disturbance to minimize potential impacts to this species.
- In the event that initiation of the proposed project should occur during the raptor nesting season (April 1 through July 31 for the burrowing owl and March 1 through July 31 for other raptors), a raptor survey would be conducted. Project-related disturbance for a specific location would be conducted within 14 days of the survey, or another survey would be conducted. If active nests are located, or if other evidence of nesting (i.e., mated pairs, territorial defense, carrying nesting material, transporting food) is observed, a protective buffer (the size depending on the habitat requirements of the species and location of the nest) would be established around the nests following consultation with the BLM and NDOW resource specialists. No construction would occur within the avoidance buffer until the birds are no longer actively breeding or rearing young, or until the young have fledged.
- Raptor surveys would be conducted annually during the overall raptor breeding season (March 1 through July 31) utilizing the methods outlined in Pagel et al. (2010). The survey area would include the CGM Operations Area plus a 10-mile buffer. Two rotor wing (helicopter) aerial surveys and subsequent ground surveys of occupied nests would be conducted. The annual survey report would be provided to the BLM.
- To protect nesting birds, removal of migratory bird habitat on currently undisturbed lands in the CGM Operations Area would be avoided to the extent possible between March 1 and July 31. Should removal of habitat be required during this period, BCI would coordinate with the BLM and NDOW to conduct migratory bird nesting surveys and implement appropriate mitigation, such as buffer zones around occupied nests, as needed. Project-related disturbance for a specific location would be conducted within 14 days of the survey, or another survey would be conducted.
- BCI would develop an Eagle Conservation Plan to support future removal of an existing golden eagle nest at the Gold Acres Complex under U.S. Fish and Wildlife Service (USFWS) regulations, prior to disturbance.
- Transmission lines would be designed and constructed in accordance with applicable regulations to minimize raptor electrocution and collision potential. To minimize the collision potential for foraging raptors and other birds, standard safe designs as outlined in Reducing Avian Collisions with Power Lines (Avian Power Line Interaction Committee [APLIC] 2012) would be incorporated, as applicable. To minimize the

potential for electrocution of raptor species attempting to perch on the lines in areas of identified avian concern, standard safe designs as outlined in Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006 (APLIC 2006) and Avian Protection Plan Guidelines (APLIC and USFWS 2005) would be incorporated, as applicable.

- BCI would avoid construction activity with heavy equipment at the Pine Valley RIB site during the greater sage-grouse lekking period (March 1 to May 15) to minimize noise-related impacts to breeding greater sage-grouse at the lek site in the vicinity.
- Impacts to greater sage-grouse habitat would be calculated in accordance with the methodology presented in the BEA (BLM, USFWS, and Barrick 2015). BCI has voluntarily agreed to implement approved habitat restoration, enhancement, and/or preservation actions outlined in the BEA to offset impacts with a net conservation gain.
- Prior to ground disturbing activities, dark kangaroo mouse and pale kangaroo mouse surveys would be conducted in areas of potentially suitable habitat, with survey results submitted to the BLM.

2.3.13.5 Cultural Resources

- Facilities in the Cortez Hills Complex, including the Cortez Hills Pit, have been located and designed to avoid the Mount Tenabo/White Cliffs property of cultural and religious importance. Access to these areas via public roads would be maintained throughout the life of the project.
- Facilities in the Cortez and Cortez Hills complexes have been located and designed to avoid the historic Cortez and Shoshone Wells town sites.
- If previously undocumented cultural resource sites are discovered during construction of the mine facilities, all ground-disturbing activities would be halted in the area of discovery pursuant to the terms of the Programmatic Agreement, and the BLM Authorized Officer would be contacted. If the site is eligible for inclusion in the National Register of Historic Places, impacts would be mitigated through avoidance or an appropriate data recovery program developed pursuant to the Programmatic Agreement (effective ***September 28, 2018) among the BLM, Nevada State Historic Preservation Officer (SHPO), Cortez and the Advisory Council on Historic Preservation***.
- BCI would continue to train employees and contractors to avoid disturbances to cultural resources and enforce BCI's policy against off-road cross-country travel and removal of artifacts.
- Mitigation of eligible archaeological and historic sites would be addressed in the Historic Properties Treatment Plan that has been prepared by a BLM-approved archaeological contractor. The BLM- and SHPO-approved plan would be implemented prior to surface disturbance affecting any property listed in the plan.
- BCI would provide for continued access to the historic Cortez townsite and has erected a marker designed in coordination with the BLM at the town site to provide historical information for visitors.

2.3.13.6 Native American Traditional Values

- Formally trained Western Shoshone observers would be provided the opportunity to be present during project-related construction activities (i.e., new surface disturbance) to provide information and/or recommendations to the BLM, as well as during any data recovery (i.e., archaeological excavation) within the project boundary. BCI would select

a Native American observer from a list of previously used observers. If the selected Native American observer is not available upon 2 days' notice, a different observer may be selected. If none are available within a reasonable period, BCI would document that a reasonable attempt was made to contact the tribes and obtain an observer.

- BCI would hire a contractor to harvest affected wood products in proposed disturbance areas for firewood and posts and distribute the wood products to local Western Shoshone communities. Each Western Shoshone community would coordinate with BCI relative to the number of cords of firewood and posts needed. BCI would haul the wood to tribal distribution locations, and the tribes would be responsible for distributing the wood to their members. These harvested wood products would not be available for resale to the public.

2.3.13.7 Paleontological Resources

- If vertebrate fossils are discovered during construction, operation, or reclamation, activities would be halted in the area of the discovery, BCI would contact the BLM Authorized Officer, and if requested, also may contact a BLM qualified paleontologist. The BLM Authorized Officer and/or the qualified paleontologist would evaluate the discovery within 5 working days of being notified. If the discovered paleontological resource is determined significant, appropriate measures would be developed to mitigate potential adverse effects. Activities would not resume until a notice to proceed is granted by the BLM Authorized Officer.

2.3.13.8 Air Quality

- Fugitive dust controls, including water application on haul roads and other disturbed areas, chemical dust suppressant application (e.g., magnesium chloride), where appropriate, and application of other BMPs as approved by the NDEP-Bureau of Air Pollution Control, currently are, and would continue to be, implemented. Current operating permits include: Class I (Title V) Air Quality Operating Permit (Permit No. AP1041-2141) and Mercury Operating Permit to Construct: Phase 2 (Permit No. AP1041-2220). The permits would be modified for the Proposed Action, as needed.
- BCI would seed temporary disturbance areas (e.g., growth media stockpiles, cut and fill embankments, etc.) with a BLM-approved interim seed mix, and concurrent reclamation would be implemented on completed portions of the waste rock facilities when safe and practical to do so, thereby minimizing fugitive dust emissions.
- To reduce the generation of fugitive dust from the overland conveyor, the conveyor has been partially covered on the south side, which is the predominant wind direction in the CGM Operations Area. If needed, a water line and water sprays would be installed on the conveyor to further reduce fugitive dust generation.
- To control combustion emissions, all manufacturer installed pollution control equipment would be operated and maintained in good working order.

2.3.13.9 Land Use and Access

- Post-mining safety barriers (e.g., berms, fencing, or other appropriate barriers) would be installed peripherally to the ultimate perimeters of the pits after mining has been completed, where safe and practical to do so.
- Public access would be maintained during construction of the reroute segments on CR 225.

2.3.13.10 Recreation

- Cortez would continue to provide access to the historic Cortez town site by maintaining directional signage and a marker at the town site to provide historical information for visitors.

2.3.13.11 Visual Resources and Noise

- During operations, the margins of the waste rock facilities would be constructed to provide for variable topography during final regrading, thereby providing a more natural post-mining landscape.
- BCI previously conducted an inventory of the condition of the headstones in the Cortez cemetery. During the life of the project, the headstones periodically would be monitored to identify any damage so that preventative measures or repairs could be quickly and appropriately accomplished.
- To minimize effects from lighting, hooded stationary lights and light plants would be used. Lighting would be directed onto the work area only and away from adjacent areas not in use, with safety and proper lighting of the active work areas being the primary goal. Lighting fixtures would be hooded and shielded as appropriate. Lighting designed to reduce the impacts to night skies would be used.

2.3.13.12 Hazardous Materials

- The prevention, containment, and cleanup procedures outlined in the Barrick Cortez Mines Emergency Response Plan (Barrick 2016) would be implemented to minimize the potential for hazardous materials-related impacts to soils, vegetation, wildlife, and water resources.
- The existing Solid and Hazardous Waste Management Plan (BCI 2015) outlines the procedures for the handling of solid and hazardous waste generated at the site, as well as reagent storage, transportation, and handling requirements. The plan currently is, and would continue to be, implemented to minimize the potential for related impacts to soils, vegetation, wildlife, and water resources.
- The current training program to inform employees of their responsibilities regarding proper waste disposal procedures would continue to be implemented under the Proposed Action.

2.3.13.13 General Measures

- For security and safety purposes, the existing perimeter fence would be extended to encompass proposed project facilities where safe and practical to do so. BLM-approved four-strand range fencing (three strands barbed wire and a smooth bottom strand per the BLM Handbook 1741-1) would be used. Leach pads, ponds, and process areas would be fenced for wildlife exclusion.
- To the extent practical, BCI would protect all survey monuments, witness corners, reference monuments, bearing trees, and line trees against unnecessary or undue destruction or damage. Public land survey system monuments would be protected and preserved in accordance with Nevada BLM Instruction Memorandum No. NV-2007-003. If destroyed, BCI immediately would report the matter to the BLM Authorized Officer and, with BLM approval, would precisely replace any damaged monuments.

2.3.13.14 Sustainability Activities

BCI currently incorporates, and would continue to incorporate, sustainability activities into day-to-day operations to minimize impacts to the human environment. The sustainability activities are discussed in the Pipeline/South Pipeline Pit Expansion Final SEIS (BLM 2004). In summary, the activities include creating a positive work environment for employees; working proactively with federal, state, and county agencies and stakeholders; incorporating environmentally sound practices into operations; addressing legacy issues associated with older mining operations in the project boundary; working with other mining companies and affected communities on an overall plan to minimize post-closure impacts to communities, including identification of post-mining land uses of the mine site that may provide long-term economic stability to the local area; maintaining an active donations and scholarship program; and encouraging employees to be active in their local communities.

2.3.14 Reclamation

BCI's current Reclamation Plan for the CGM Operations Area is included in the previously authorized Amendment 3 to Plan of Operations and Reclamation Permit Application (BCI 2014b). This plan provided the basis for development of the draft reclamation plan for the proposed Deep South Expansion Project as presented in the proposed PoO Amendment (BCI 2016b). Prior to initiation of the project, the reclamation plan would be revised, if needed, and submitted to the BLM and NDEP for final approval. The intent of the project's reclamation program is to restore the site to a beneficial post-mining land use and reclaim disturbed areas such that they would be visually and functionally compatible with the surrounding topography.

The areas of proposed disturbance include the following components: mine pits, surface support for underground workings, waste rock facilities, stockpiles, water management facilities (e.g., proposed RIBs and reservoir), linear facilities (e.g., water pipelines), and ancillary facilities (see **Table 2-1**). With the exception of pit highwalls, ramps, and floors; post-reclamation stormwater control features; rerouted county roads (e.g., CR 225); and roads selected by BLM for post-mining use, all of the surface disturbance associated with these mine components would be reclaimed.

The final grading plan for the project is designed in part to minimize the visual impacts of unnatural lines and landforms. Slopes would be regraded to blend with surrounding topography, to the extent possible, and facilitate revegetation. Where feasible, large constructed topographic features (e.g., waste rock and heap leach facilities) may have rounded crests and variable slope angles to more closely resemble natural landforms. The pits would remain as large depressions, some of which would partially fill with water. The conceptual post-mining reclamation topography is shown in **Figure 2-17**.

Revegetation of disturbance areas would be conducted as soon as practical to reduce the potential for wind and water erosion. Following construction activities, areas such as cut and fill embankments and growth media stockpiles would be seeded. Concurrent reclamation would be conducted to the extent practical to accelerate revegetation of disturbance areas. All sediment and erosion control measures and revegetated areas would be inspected periodically to ensure long-term erosion control and successful reclamation.

2.3.14.1 Proposed Reclamation Schedule

Concurrent waste rock facility reclamation would occur during the life of the mine when practical and safe. The reclamation would include recontouring and revegetating the completed sections of the waste rock facilities incrementally during operations. Upon completion of

mining, final waste rock facility reclamation would be completed pursuant to the final closure plan and schedule that would be submitted to the BLM and NDEP for approval.

Heap leach facility reclamation activities would commence once draindown has been completed. The time required to drain the heaps is estimated at approximately 2 years under normal precipitation conditions.

A detailed closure plan for each process facility component would be prepared at least 2 years prior to the anticipated closure date (NAC 445A.447). The closure plan would conform with the NDEP Water Pollution Control permit and regulations in effect at the time of closure.

2.3.14.2 Post-mining Land Use and Reclamation Goals

Principal land uses in the project vicinity include mineral exploration and development, livestock grazing, wildlife habitat, and dispersed recreation. Following closure and final reclamation, the CGM Operations Area would support the multiple land uses of livestock grazing, wildlife habitat, and recreation. Other land uses that may be conducted concurrent with operations and following site closure may include irrigated pasture and alfalfa (or other crop) production on private land parcels within the CGM Operations Area.

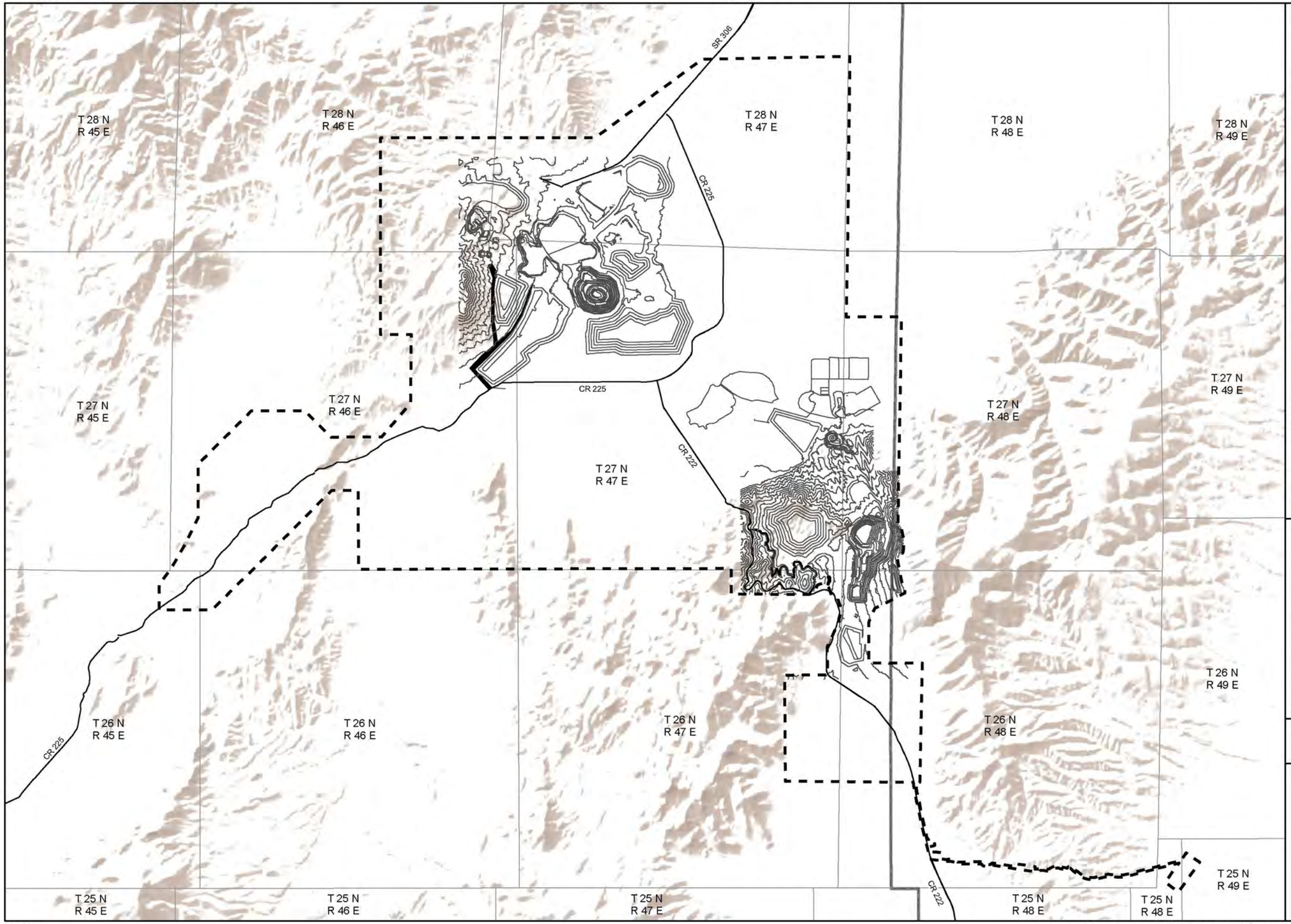
BCI would work with agencies, local governments, and tribes to evaluate alternative land uses that could provide long-term socioeconomic benefits from the mine infrastructure. Post-closure land uses would be in conformance with the BLM Eureka-Shoshone Resource Management Plan and Lander County and Eureka County zoning or other land use ordinances.

The goal of the reclamation program is to provide a safe and stable post-mining landform that supports the defined land uses. The following would be implemented to achieve this goal:

- Minimize erosion and protect water resources through control of water runoff and stabilization of mine facilities;
- Establish post-reclamation surface soil conditions conducive to the regeneration of a stable plant community through stripping, stockpiling, and reapplication of growth media;
- Revegetate disturbed areas with a diversity of plant species in order to establish productive long-term plant communities compatible with post-mining land uses; and
- Maintain public safety by stabilizing or limiting access to landforms that could constitute a public hazard.

2.3.14.3 Growth Media Stockpiling and Use

Suitable growth media would be salvaged during development of facilities as practical. Suitable colluvial/alluvial overburden from the Cortez Hills and Pipeline open pits, as well suitable alluvial material from borrow sources at the Cortez Complex, also would be available for reclamation. Growth media would be placed in stockpiles within the proposed disturbance area (i.e., ancillary disturbance areas or completed portions of the waste rock facilities) and would be located such that mining operations would not disturb them. The stockpiles would be recontoured to slopes of 2.5H:1V and seeded with an interim seed mix (**Table 2-8**) to minimize



Proposed CGM Operations Area Boundary

Post-mining Stormwater Control

Post-mining Reclamaton Contour (100 feet)

Notes: All mine-related disturbance outside of the proposed CGM Operations Area boundary in Crescent Valley, as well as the Rocky Pass Reservoir and the Grass Valley and Pine Velley RIBs, would be returned to approximate original contour and reclaimied.

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Deep South Expansion Project EIS

Figure 2-17

Proposed Action
Conceptual Post-mining Reclamation Topography

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Table 2-8 Interim Reclamation Seed Mix

Common Name[1]	Scientific Name[1]	Application Rate[1,2] (pounds pure-live-seed [PLS] per acre)
Yellow Sweetclover	*Medicago officinalis*	0.25
Crested wheatgrass	*Agropyron cristatum*	1.5

[1] Application mix and rate may be subject to modification.

[2] Application rate is for broadcast seeding.

wind and water erosion. BMPs (e.g., silt fences or staked weed-free straw bales) also would be used, as necessary, to control sediment transport. Alternately, the growth media may be transported to, and redistributed on, mine-related surface disturbance areas undergoing concurrent reclamation (e.g., waste rock disposal facilities). In addition, where waste rock facilities would be developed on slopes and the topographic relief allows salvage operations, available soil would be dozer pushed downhill to form a large berm at the bottom of the ultimate regraded waste rock facility footprint. Following regrading of the waste rock, the salvaged growth media would be hauled up onto the reshaped waste rock facility for placement and spreading. The berm also would reduce the potential of rocks rolling and scattering downhill during waste rock facility construction.

Based on reclamation experience at the existing facilities, the growth media replacement depth for the mine facilities (with the exception of the open pits) would be a minimum of 6 inches. The heap leach pads and tailings impoundments would be covered to a depth of at least 18 inches and 12 inches, respectively. Other facilities to be reclaimed would be covered to a depth of at least 6 inches. Based on these application rates, it is anticipated that approximately 1.2 million cubic yards of growth media would be required to reclaim Proposed Action facilities. It is projected that under the Proposed Action approximately 1.6 million cubic yards of growth media (inclusive of suitable colluvial/alluvial material) would be available for salvage. In addition, up to approximately 190 million tons of alluvium/colluvium is available for use as growth media. The proposed growth media placement depth would be reviewed in coordination with the BLM and the NDEP for specification in the final closure plan for the project.

Following placement of growth media, BMPs for erosion control (e.g., silt fences or staked weed-free straw bales) would be installed and maintained to minimize erosion from the facilities until vegetation has been re-established. To further reduce erosion of growth media from the slopes, terraces would be constructed intermittently on waste rock and heap leach facilities.

2.3.14.4 Revegetation, Seeding, and Planting

Prior to seeding, disturbance areas would be recontoured, surfaces would be ripped or scarified (where conditions warrant), and growth media would be redistributed. Following the placement of growth media, the final surface would be contour scarified (as needed) to promote water retention, reduce erosion, and prepare the final seedbed. Seedbed preparation may be performed immediately prior to seeding to allow seed placement prior to soil compaction. Seed bed preparation and seeding would be conducted in the fall to take advantage of winter and spring moisture.

Seeding would be conducted using a rangeland drill, mechanical broadcast seeder and harrow, or hydroseeding, depending on site accessibility. The seed mixes presented in **Tables 2-9** and **2-10** originally were developed by the BLM (BLM 2008a,b). The seed mixes

were based on species' effectiveness in providing erosion protection, the ability to grow within the constraints of the low annual precipitation experienced in the region, species suitability for site aspect, and the site elevation and soil type (BLM 2008a).

Table 2-9 Seed Mix for Elevations below 5,500 feet amsl

Common Name[1,2]	Scientific Name[1,2]	Application Rate[2,3] (pounds PLS per acre)
Shrub Species (use four of the following shrubs at the rates identified)		
Fourwing saltbrush	*Atriplex canescens*	4.0
Shadscale saltbush	*Atriplex confertifolia*	4.0
Winterfat	*Krascheninnikovia lanata*	4.0
Forage kochia	*Bassia prostrata*	0.5
Nevada Mormon tea	*Ephedra nevadensis*	4.0
Spiny hopsage	*Grayia spinosa*	2.0
Yellow rabbitbrush	*Chrysothamnus viscidiflorus*	0.5
Forb Species (use two of the following forbs at the rates identified)		
Scarlet globemallow	*Sphaeralcea coccinea*	0.50
Palmer's penstemon	*Penstemon palmeri*	0.25
Lewis flax	*Linum lewisii*	0.75
Yellow sweetclover	*Medicago officinalis*	0.50
Grass Species (use four of the following grasses at the rates identified)		
Crested wheatgrass	*Agropyron cristatum*	1.0
Indian ricegrass	*Achnatherum hymenoides*	1.0
Basin wildrye	*Leymus cinereus*	1.0
Bottlebrush squirreltail	*Elymus elymoides*	1.0
Saltgrass	*Distichlis spicata var. stricta*	0.5
Alkali sacaton	*Sporobolus airoides*	0.1
Russian wildrye	*Psathyrostachys juncea*	1.0
Intermediate wheatgrass	*Thinopyrum intermedium*	1.0

[1] Common and scientific names have been updated, as applicable, to follow the U.S. Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS) (2017) PLANTS database.

[2] Application mix and rates may be subject to modification.

[3] Drill seeding rates are provided. Rates would be doubled for broadcast seeding, if used.

Table 2-10 Seed Mix for Elevations between 5,500 and 7,500 feet amsl

Common Name[1,2]	Scientific Name[1,2]	Application Rate[2,3] (pounds PLS per acre)
Shrub Species (use four of the following shrubs at the rates identified)		
Wyoming big sagebrush	*Artemesia tridentate* ssp. *Wyomingensis*	0.1
Fourwing saltbush	*Atriplex canescens*	2.0
Spiny hopsage	*Grayia spinosa*	1.0
Forage kochia	*Brassia prostrate*	0.25
Nevada Mormon tea	*Ephedra nevadensis*	4.0
Yellow rabbitbrush	*Chrysothamnus viscidiflorus*	0.5
Forb Species (use three of the following forbs at the rates identified)		
Scarlet globemallow	*Sphaeralcea coccinea*	0.5
Palmer's penstemon	*Penstemon palmeri*	0.5
Lewis flax	*Linum lewisii*	1.0
Sweetvetch	*Hedysarum boreale*	2.0
Yellow sweetclover	*Medicago officinalis*	0.5
Grass Species (use four of the following grasses at the rates identified)		
Crested wheatgrass	*Agropyron cristatum*	2.0
Indian ricegrass	*Achnatherum hymenoides*	2.0
Basin wildrye	*Leymus cinereus*	2.0
Squirreltail	*Elymus elymoides*	2.0
Intermediate wheatgrass	*Thinopyrum intermedium*	2.0

[1] Common and scientific names have been updated, as applicable, to follow the USDA, NRCS (2017) PLANTS database.

[2] Application mix and rates may be subject to modification.

[3] Drill seed rate are provided. Rates would be doubled for broadcast seeding, if used.

The seed mixes and application rates used for reclamation would be determined prior to reseeding based on the results of reclamation in other areas of the mine, revegetation test plots, or changes recommended by the BLM. In addition, seed mix and application rates may need to be modified as a result of limited species availability or poor seed quality. Modifications would be made in coordination with the BLM.

In addition to seeding the waste rock facilities, BCI would evaluate planting of singleleaf pinyon seedlings in suitable areas as part of the reclamation program. Singleleaf pinyons are the dominant tree species in the Cortez Hills Complex area. Planting of seedlings could help minimize the time required for species re-establishment in mine-related disturbance areas.

2.3.14.5 Noxious Weed Management

BCI's Noxious Weed Control Plan (SRK 2014) would continue to be implemented at the site as a property-wide program. The plan contains a risk assessment, management strategies, provisions for annual monitoring and treatment evaluation, and provisions for treatment. The results from annual monitoring would provide the basis for updating the plan and developing annual treatment programs. Weed control practices would be implemented in coordination with

the BLM, Lander County and Eureka County Conservation Districts, and Diamond Valley Weed Control District to limit the spread of noxious weeds in the project-related disturbance areas and to ensure successful reclamation.

2.3.14.6 Facility Reclamation

Reclamation of the Open Pits

The objective of mine pit reclamation is to create safe and stable topographic features. Following the completion of mining, in-pit benches, highwalls, and haul roads would be left in place. Post-mining safety barriers (e.g., berms, fencing, or other appropriate barriers) would be installed peripherally to the crest of each pit to control access by people, livestock, and most wildlife unless the areas are too steep to provide safe access for workers and equipment. Pit ramps would be barricaded in a similar manner to prevent entrance. Some barriers would be installed earlier in the mining operation when access would be readily available. Stormwater runoff would be diverted around each pit by engineered stormwater diversions, where necessary. The bottom elevations of some pits would be below the groundwater table. As a result, pit lakes would form in the bottom of some pits after dewatering activities cease. Other pits would be completely or partially backfilled with waste rock material (see Section 2.3.5, Waste Rock Facilities).

BCI has fulfilled the statutory requirements of Assembly Bill 346 related to public non-motorized access to pit lakes predicted to have a filled surface area of more than 200 acres (BCI 2014a). As such, the post-mining pit lake in the Pipeline Pit Complex, which would be greater than 200 acres, is exempt from NAC 519A.250 public non-motorized access reclamation requirements.

Pipeline Complex

- Pipeline Pit: Following the completion of mining, the bottom elevation of the pit (approximately 3,200 feet amsl) would be below the groundwater table elevation (approximately 4,770 to 4,790 feet amsl). Following the completion of mining and associated dewatering, groundwater would enter the pit resulting in the formation of a pit lake under backfill scenarios 2 and 3 (**Figures 2-8** and **2-9**, respectively). No pit lake would form under backfill scenario 1 (**Figure 2-7**).
- Gap Pit: The southern portion of the Gap Pit would have a bottom elevation of approximately 4,360 feet amsl, an elevation below the groundwater table elevation (approximately 4,770 to 4,790 feet amsl). Waste rock from the currently authorized Pipeline and Crossroads pits would be placed as backfill in the southern portion of the Gap Pit under all three backfill scenarios, precluding the development of a post-mining pit lake (**Figures 2-7**, **2-8**, and **2-9**).
- Crossroads Pit: Following the completion of mining, the bottom elevation of the pit (approximately 3,200 feet amsl), would be below the groundwater table elevation (approximately 4,770 to 4,790 feet amsl). As a result, a pit lake would form in the Crossroads Pit under all three backfill scenarios (**Figures 2-7**, **2-8**, and **2-9**).

Gold Acres Complex

- Gold Acres Pit and Satellite Pits: Following the completion of mining, the bottom elevations of the Gold Acres Pit and satellite pits (Alta, Bellwether, and Pasture) (approximately 5,180 feet amsl and higher) would be above the groundwater table elevation (approximately 4,770 feet amsl). As a result, no pit lakes would form in these pits (**Figure 2-5**).

Cortez Hills Complex

- Cortez Hills Pit and Pediment Extensions: Following the completion of mining, the bottom elevation of the Cortez Hills Pit (approximately 4,525 feet amsl) would be below the groundwater table elevation (approximately 4,840 feet amsl). The Cortez Hill Pit may be partially backfilled to approximately the 4,865-foot amsl level. The final backfill design and elevations would be based on future hydrologic and geotechnical evaluations incorporating information gained during mining. As such, BCI may elect to backfill above the project post-mining pit level and eliminate the pit lake (**Figure 2-10**), or a pit lake may form as currently authorized. Pit lakes would not form in the Pediment East or Pediment South extensions as the pit bottom elevations would be above the groundwater table elevation.

Cortez Complex

- Cortez Pit: Following the completion of mining, the bottom elevation of the expanded portion of the Cortez Pit (approximately 4,500 feet amsl) would be below the groundwater table elevation (approximately 4,800 feet amsl). As a result, a pit lake would form in the expanded portion of the pit following the completion of dewatering operations (**Figure 2-11)**.
- F-Canyon Pit: Following the completion of mining, the bottom elevation of the pit (approximately 4,900 feet amsl) would be above the groundwater elevation (approximately 4,800 feet amsl). As a result, no pit lake would form in this pit.
- Ada 52 Pit: Following the completion of mining, the bottom elevation of the pit (approximately 5,000 feet amsl) would be above the groundwater elevation (approximately 4,800 feet amsl). As a result, no pit lake would form in this pit.

Closure of Underground Operations

Surface disturbance associated with underground mining activities would be recontoured to approximate original contour and revegetated. Underground facilities would be closed in phases starting at the lowest points of the underground mine working up to the surface. The closure procedures are summarized below.

In general, removal and cleanup of water management equipment would consist of: 1) grouting dewatering drillholes; 2) construction of water-tight dams (i.e., concrete core bulkheads with compacted waste rock backfill and pressure grouting) in select portions of the declines to re-establish pre-mining hydrologic conditions; 3) backfilling or grouting of sumps; 4) removal and salvage or disposal in an approved waste disposal facility of underground and surface piping, pumps, and pumping equipment; and 5) abandonment of surface dewatering wells and boreholes in accordance with applicable rules and regulations. Piping that cannot be salvaged for reuse would be dismantled as required for backfill placement and left underground.

Fans, motors, pumps, compressors, power supply and distribution equipment, ventilation curtains and ducts, and other equipment would be removed and salvaged for use at another Barrick facility, if possible, or disposed in an approved waste disposal facility. Alternately, non-reactive equipment (e.g., HDPE pipe) may be left underground.

Remaining fuels, lubricants, and explosives would be removed from the underground workings and disposed of at a licensed off-site facility. In addition, contaminated areas would be cleaned using approved methods (e.g., detoxification, bioremediation, steam cleaning, etc.).

To prevent access to underground workings, an earthen plug a minimum of 30 feet in length would be placed in each of the declines. Shotcrete, approximately 4 inches thick, subsequently

would be sprayed over the fill and adjacent area to connect the fill to the native rock wall and provide a continuous barrier. Other surface openings would be backfilled and leveled to blend with the surrounding topography, concrete capped, or closed with cemented backfill.

Reclamation of Waste Rock Facilities

The reclamation goals for the waste rock facilities include stabilizing slopes, ensuring mass stability, rounding edges to minimize visual impacts, revegetating surfaces, and erosion control. Reclamation of the waste rock facilities would be conducted concurrently with regular mine operations to the extent possible. As areas of the waste rock facilities reach their ultimate configurations and become inactive, the slopes would be regraded. Each lift would be regraded to an overall average 2.5H:1V slope with allowance for terraces, where necessary, to minimize surface water runoff velocities and associated erosion, as well as to provide variable topography. Growth media subsequently would be spread over the prepared surfaces to a depth of approximately 6 inches, and the areas reseeded. To minimize erosion until vegetation has re-established, silt fences, sediment traps, or other appropriate BMPs would be installed as needed. Also, stormwater runoff would be diverted around the waste rock facilities by engineered stormwater diversions, where necessary.

The reclamation procedures for the proposed pit backfill areas would be the same as for currently authorized backfill areas. Backfilled waste rock that would be above the projected groundwater table would be reclaimed in a manner similar to out-of-pit waste rock facilities as described above.

Reclamation of Existing Heap Leach Facilities

Based on the results of the geochemical evaluation of Gold Acres heap leach material conducted by SRK (2004) to identify closure options for heap leach facilities at the CGM Operations Area, subsequent geochemical modeling and characterization, and the recent reclamation of BCI's Gold Acres Heap Leach Facility, rinsing of the heaps is not proposed. An alternate closure approach is proposed under the water pollution control regulations (NAC 445A.430) and would be consistent with previous closure findings. A Final Plan for Permanent Closure detailing proposed closure technology (e.g., evaporation cells or evapotranspiration [ET] cells), management requirements for long-term effluent discharge and closure would be developed 2 years prior to project closure pursuant to the requirements of the NDEP (NAC 445A.430 through 445.447) at the time of closure. The closure plan also would include an ecological risk assessment evaluating potential sodium (and other constituent) accumulation in the soils of the evaporation and ET cells. A general description of heap closure and reclamation is presented below.

Following the completion of leaching, the heaps would be allowed to drain. Draindown solution would be used at other active process facilities or would be evaporated via evaporation or ET cells. It is anticipated that under normal weather conditions, approximately 2 years would be required for draindown.

Following draindown, the surface solution circulation piping would be removed from the heaps, and the perimeter ditches would be filled with a protective layer and clean growth media and/or barren rock. The heap piles then would be regraded to their final configuration with overall slopes of 2.5H:1V. Growth media subsequently would be spread over the prepared surfaces to a depth of approximately 18 inches, and the areas reseeded. To minimize erosion until vegetation has re-established, silt fences, sediment traps, or other appropriate BMPs would be installed. In addition, any stormwater diversion structures constructed upgradient of the heaps prior to operation would be retained to minimize erosion over the long term.

It is anticipated that long-term solution management would incorporate a vegetated soil cover to limit infiltration into the heaps and the use of one or more evaporation or ET cells to provide for on-site containment and evaporation of solution (zero-discharge facility). Should the zero-discharge design utilizing evaporation or ET cells prove infeasible at the time of closure, other water management options would be developed in coordination with the BLM and NDEP.

Reclamation of Existing Solution Ponds and Carbon-in-Column Circuits

Following heap drain down, the remaining water in each of the solution ponds would be allowed to evaporate. Solids would be present in some quantity in most of the ponds at the time of closure. Representative samples of the solids would be obtained and analyzed to determine the chemical characteristics. Depending on the results of the characterization testing, the solids either would be left in the ponds and buried in place, or removed and placed on the tailings impoundment or heap leach facility. The ponds subsequently would be reclaimed or converted into post-closure evaporation or ET cells.

Where ponds would be reclaimed, the pond liners would be cut, folded, and placed in the pond bottoms. The pond embankments would be dozed in on the solids, and the pond either would be backfilled or regraded to ensure free drainage from the final surface. Growth media subsequently would be redistributed to a depth of 6 inches prior to seeding.

Where the ponds would be converted to post-closure evaporation or ET cells, the liners would be inspected and repaired, as necessary; a 2-foot overliner layer, or other suitable protective layer, would be placed over the liner; the ponds would be partially backfilled; and required fluid distribution piping would be installed. The facility would be graded to blend with surrounding topography. Growth media would be distributed to a depth of 12 inches and the area seeded. A detailed engineering design would be submitted as part of the Final Plan for Permanent Closure for review by BLM and NDEP prior to construction.

The CIC and reagent tanks would be removed from the mine site and either reused at other Barrick sites or appropriately disposed of off-site. The related disturbance subsequently would be ripped to relieve compaction, recontoured, as needed, covered with growth media, and reseeded.

Other Ponds, Rapid Infiltration Basins, and Reservoirs

All equipment and surface piping associated with the stormwater event ponds and the existing Cortez Hills fresh water reservoir would be removed. The pond liners would be folded into the pond bottoms, and the ponds subsequently would be backfilled and regraded to prevent ponding of water. Growth media would be redistributed prior to seeding. Surge ponds at the water treatment facilities would be reclaimed as described above for solution ponds.

The RIBs would be backfilled to grade and revegetated at closure. A detailed closure plan would be prepared at least 2 years prior to the anticipated closure date (NAC 445A.447) for submittal to BLM and NDEP. The closure plan would conform to the water pollution control regulations in effect at the time of closure.

Water remaining in the Rocky Pass Reservoir would be pumped back to the Pipeline Pit. ***Up to 10 temporary wells would be installed within the reservoir footprint area to remove infiltrated water***. The material from the earthen embankment would be removed and placed in the impoundment footprint from where it was borrowed during construction. The pipelines and other equipment would be removed and properly disposed or reused at another Barrick site. The entire reservoir footprint would be scarified and seeded.

Reclamation of Existing Tailings Impoundments

As described above, a Final Plan for Permanent Closure would be developed 2 years prior to project closure for submittal to BLM and NDEP. The plan would include tailings closure specifications, including draindown management, which would be similar to that described above for the heap leach facilities. A general description of tailings reclamation is presented below.

Following regrading to overall slopes of 2.5H:1V or shallower and shaping of the tailings surface to allow drainage of runoff, growth media would be placed on the prepared surfaces to a depth of 12 inches and reseeded. A minimum of 18 inches of growth media would be placed on the runoff conveyance areas and reseeded. Spillways and conveyance structures would be designed and constructed to provide for long-term stability. Also, the diversion ditch north of the combined Pipeline Heap Leach/Tailings Facility would be retained as a post-mining feature.

All associated surface piping, structures, and equipment would be removed and any related surface disturbance recontoured and seeded. All buried piping would be cut, plugged, and buried in place after rinsing to closure specifications.

Reclamation of Road Features

Once haul, access, and exploration roads are no longer necessary, they would be recontoured to approximate original contour. Where a road is located on fill, the side slopes would be rounded and regraded to a 2.5H:1V slope, to the extent possible, with culverts removed or plugged. Road surfaces at grade would be ripped to relieve compaction and covered with soil from the safety berms. The disturbance areas subsequently would be revegetated. Dikes and ditches that no longer would be required also would be regraded and revegetated. Some access roads would be maintained following the completion of mining to provide access to monitoring sites.

As determined by BLM, any roads on public lands determined to be suitable for public access or which continue to provide public access consistent with pre-mining conditions would not be reclaimed. County roads also would be retained. Roads that potentially would support alternate land uses, as would be determined in coordination with agencies, local governments, and tribes, also may be retained.

Disposition of Buildings and Ancillary Facilities

During final mine closure, buildings and structures would be dismantled, and materials would be salvaged or disposed of in one of the on-site Class III waivered landfills or a permitted off-site landfill. Concrete foundations and slabs would be broken up and buried in place under approximately 4 feet of material to prevent ponding and provide for revegetation. The associated disturbance areas would be covered with growth media and revegetated.

Above-surface pipelines would be removed and properly disposed of in one of the on-site Class III waivered landfills or a permitted off-site facility. Underground pipelines and other underground utilities would be capped and left in place. Unneeded utility poles would be cut off at ground level and disposed of at an approved off-site location or in one of the on-site Class III waivered landfills.

As discussed in Section 2.3.14.2, BCI would work with agencies, local governments, and tribes to evaluate alternative land uses that could provide long-term socioeconomic benefits from the mine infrastructure.

Drill Hole and Water Well Abandonment

All mineral exploration, development, and condemnation drill holes and all monitoring, production, and dewatering wells subject to NDWR regulations would be abandoned in accordance with applicable rules and regulations (NAC 534.425 through 534.428). Boreholes would be sealed to prevent cross contamination between aquifers, and the required shallow seal would be placed to prevent contamination by surface access.

Monitoring wells around the heap leach facilities would be maintained until BCI is released from post-mining groundwater monitoring requirements by the NDEP. These wells then would be plugged and abandoned according to the requirements of the Nevada State Engineer.

2.3.14.7 Reclamation of Historic Disturbance

BCI has in place a program to evaluate the management of disturbance associated with historic non-BCI mining adjacent to operating mines. Based on this evaluation, some of the historic disturbances adjacent to operations have been secured for safety reasons, protected for habitat purposes (i.e., constructing bat gates in tunnels), and/or reclaimed. Part of the previously authorized project is in an area of non-impounded historic tailings associated with the historic silver mining in the Cortez Mining District. Therefore, BCI would evaluate the feasibility of reclaiming the historic tailings concurrently with the proposed mining operation. Prior to securing or reclaiming these existing disturbances, BCI would coordinate with, and obtain approval from, the BLM and other jurisdictional agencies, as applicable.

2.3.14.8 Post-reclamation Monitoring and Maintenance

Following mine closure, BCI would conduct maintenance, site inspections, and any other necessary monitoring for the period of reclamation responsibility. Post-mining groundwater quality would be monitored according to the requirements established by NDEP, with the goal of demonstrating non-degradation to waters of the state. Monitoring of revegetation success would be conducted annually for a minimum of 3 years or until the revegetation standards have been met, as determined by the jurisdictional agencies. In addition, noxious weed monitoring and control would be implemented for a period of 5 years. Post-mining monitoring and maintenance is provided for in BCI's long-term contingency fund (BCI 2016b).

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