

Ms. Davena Crosley
Permit Lead
Mining Act Reclamation Program ("MARF")
New Mexico Mining and Minerals Division
Wendell Chino Building
1220 South St. Francis Drive
Santa Fe, New Mexico 87505

RE: Permit Modification Request for Socorro Mine and Mill for Dicaperl Minerals Corp; Permit No. S0001RE

Dear Ms Crosley,

Please find with this letter, Dicaperl's Modification Application for Socorro Mine and Mill. We have organized this application to follow the necessary guidelines.

As always, if you have any questions regarding any of the materials contained within or if you have further questions regarding this submittal, please do not hesitate to contact me at (575) 835-2892.

The attached application presents the proposal for modification.

Sincerely,



Allen Norris
Plant Manager

Dicaperl Minerals Corp Socorro Mine and Mill Permit No. SO001RE Permit Modification Application

Prepared for :
Dicaperl Minerals Corp

*P.O. Box 1436
Socorro, NM 87801*

June 10, 2016



**CDM
Smith**

Table of Contents

Section 1 Introduction	1
1.1 Background	1
1.2 Previous Operations	2
1.3 Current Operations.....	3
1.4 Future Operations	3
Section 2 Hydrogeologic Characteristics.....	4
2.1 Geology.....	4
2.2 Hydrology	4
2.3 Climate.....	4
Section 3 Proposed Plan	4
3.1 Mining Plan	4
3.2 Dump Plan	5
Section 4 Environmental Impacts.....	7
4.1 Public Safety	7
4.2 Wildlife and Vegetation.....	7
4.2.1 Wildlife.....	8
4.2.2 Vegetation	9
4.3 Cultural and Historic Resources	17
4.3.1 Prehistoric.....	17
4.3.2 Historic Resources	18
4.5 Stream Diversions.....	18
4.6 Stability	18
4.7 Riparian/Wetland Areas	18
4.8 Roads	18
4.9 Explosives	18
4.10 Erosion Control.....	19
4.11 Revegetation	19
Section 5 Close-Out Plan	21
5.1 Quarry.....	22
5.2 Designated Waste Areas	22
5.3 Roads	23
5.4 Buildings and Facilities	23
Section 6 Close-Out Plan Costs.....	23

6.1 Closure Costs	23
6.2 Financial Assurance	25
7.0 References	26

Embedded Tables:

- Table 3-1 Waste Dump G and Expansion Capacity
- Table 3-2 Topsoil Requirements
- Table 4-1 Federal and State Threatened and Endangered Animal Species
- Table 4-2 Federal and State Plant Species of Concern
- Table 4-3 Socorro Proposed Seed Mixture
- Table 6-1 Socorro Mine Reclamation Closure Costs
- Table 6-2 Socorro Mine Reclamation Haul Distance & Time to Complete

Appendices:

- Appendix A – Socorro Design Figures
- Appendix B – Qualitative Assessment of Vegetation at Reclaimed Areas of the Socorro and EL Grande Mines
- Appendix C - Standard Reclamation Cost Estimator v. 1.4 Socorro Reclamation Estimates

Section 1

Introduction

Dicaperl Minerals Corporation (Dicaperl) is submitting this revision to Permit No. SO001RE for the Socorro Mine and Mill to modify the Closeout Plan. This revision is a supplement to the previous permit-related submittals of 1994 (original submittal, Dicaperl, 1994 plus Site Assessment, Jenkins, 1995) and 1998 (closeout plan revision, Dicaperl, 1998). The current revision is intended to accomplish the following objectives:

- 1) To recognize the reclamation of the Quarry and Waste Dump G,
- 2) To update the reclamation costs for current and anticipated future conditions including buildings, roads and ancillary items, and
- 3) To reflect current and anticipated future conditions for mining and reclamation (i.e. closeout) due to ongoing operations at the Socorro Mine and processing plant.

The following sections provide greater detail regarding these objectives by providing a description of the mine physical setting; previous, current, and future activities anticipated for the operation; a discussion of potential environmental impacts and anticipated reclamation and related closeout costs.

1.1 Background

The site is located approximately 5.6 miles southwest of Socorro, New Mexico. An overall site map is presented in Appendix A. To get to the site from Socorro, one must head south on US Highway 60 for approx. 2 miles; turn right onto Grefco Road for 1.1 miles; arrive at the mine destination on your left. The Rio Grande River is 4.5 miles east of the mine. Socorro lies within sections 21, 22, 27 and 28 of Township 3 South, Range 1 West of New Mexico Principle Meridian. The total area held by Dicaperl for the mine property amounts to approximately 675 acres see Figure No. 1 attached in Appendix A.

-Latitude: 34° 01' 35" N

-Longitude: 106° 56' 03" W

The Socorro Mine is one of two operations owned by Dicaperl in New Mexico that mine the mineral perlite for industrial and commercial uses in New Mexico. The Socorro operation has an active process plant located near the mining site. In the original permit application of 1994, a detailed description of all six waste dumps was provided and at the present time only Dump G

is being used and will be the dump used for the next 5 years. The other dumps referenced prior (Dump B, C, D, E, and F) are in various stages of reclamation and will be discussed further in the this document.

Perlite is believed to be formed by hydration of rhyolitic obsidian, a rock which is the result of rapid chilling of molten lava. The volcanic origin of perlite creates occurrences of perlite rock into a “dome” formation. The perlite ores in the Socorro Mine vicinity were formed during the prevalent volcanic and tectonic activity that characterized the region during the Pliocene epoch approximately 3 to 6 million years ago. Some of the specific uses of perlite are in horticulture, construction, filteraid, and functional fillers. Socorro perlite is shipped all over the United States, Canada, Mexico and overseas.

Dicaperl is the owner of the surface and mineral rights for the Socorro Mine and therefore also has the right of access to the property. The contact for the Dicaperl Socorro Mine is:

Allen Norris
Plant Manager
Dicaperl Minerals Corp.
P.O. Box 1436
Socorro, NM 87801
(575) 835-2892

The designated agent for this submittal on behalf of Dicaperl is:

Jon Nickel, BCES, CHMM
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1.2 Previous Operations

The Socorro Mine has been in operation for approximately 67 years beginning in 1949, throughout those years there have been various phases of mining and production. In 1958 a filteraid expansion furnace was added to the facility. During 1947-1957 the industry experienced very rapid growth as new uses of perlite were developed. The Socorro deposit was the first source of New Mexico perlite. In 1961 operation at Socorro was suspended. The closing of the Socorro plant was due to changing market conditions. Perlite sales shifted to northern New Mexico until 1975 when the Socorro plant went back into production with a new plant. Socorro was originally permitted in 1994 as an existing mine. The permit (Closeout Plan) was amended in 1998 and the permit operations included a quarry, waste dumps, processing plant, and overburden dumps.

1.3 Current Operations

Quarrying, development and reclamation of perlite minerals are the major activities taking place on site. Quarrying involves the actual mining of the ore. Development involves stripping of overburden to expose the ore for mining. Reclamation involves ripping, contouring, and mixing of overburden or soil material and seeding.

Removal of overburden begins the process by uncovering the ore with mobile equipment, the overburden is then hauled away for storage until future reclamation. The perlite is loosened and broken by ripping the rock with a dozer then the minerals are hauled to the feed stockpile area. Processing at the Socorro plant involves the crushing and sizing of ore. The minerals are fed through a grizzly, onto a pan feeder then over a screen with the oversized material being crushed by a jaw crusher. The sized material is stacked by a belt conveyor in preparation for feeding to the plant. The stockpiled mineral feeds onto a belt conveyor which transports it to the plant building where it is screened and sized then fed to the drier. The drier is heated with natural gas or used oil and heats the ore to approximately 250 degrees Fahrenheit to drive off the surface moisture. The hot dry ore is then fed to the screening plant where it is screened again, crushed and classified to the desired sizes then stored in bins. The bins drop ore onto a belt which transports the ore to the load-out building for loading into railcar, trucks or bags. The primary shipping method is via railroad with the remainder being shipped by truck. Processed perlite is a white, frothy, lightweight, relatively inert product used as a filter aid, insulation, textural coatings, and soil amendment.

There are six perlite waste dumps located throughout the site, Dumps B, C, D, E, F and G. Waste dumps B, C, D, E and F are in various stages of reclamation. The waste collected and disposed of on active Dump G comes from mining and the plant. There is no blending of waste and no outside materials are added to the fines. All materials have the same chemical makeup as perlite which is a silica based matrix. All of the rock processed at Socorro is a form of Rhyolitic perlite; rhyolite, or perlite. It is deemed an inert material and would not generate pollutants to groundwater. Sediment basins are utilized to prevent sediment from accessing the nearby ephemeral streams.

Dump A is an overburden dump located in Section 21 along the north property boundary which will be used for quarry and Dump G reclamation. Waste dumps B, C, D, E and F are in various stages of reclamation including graded, covered and seeded. Active dump G is located in the southwest corner of the site and will be the only dump used for the next 5 years.

1.4 Future Operations

With the Socorro mine in operation and production, perlite will be shipped off site from the Socorro site for final processing. Waste from processing of the perlite will continue to be received by the El Grande operation and placed in the locations identified by the previously

submitted closeout plan for the El Grande site. At any time one or both of the operations may be fully operational.

Section 2

Hydrogeologic Characteristics

2.1 Geology

The mined perlite ore body is located within an upper Miocene rhyolite lava dome and associated tufts in the Santa Fe Group (Chamberlin, 1999. P. 20). The unit is described as “mostly light gray, glassy, flow banded, phenocryst-poor high-silica rhyolite lava (76 to 77% SiO₂)” In this area, “the original microvascular obsidian lava has been uniformly altered to commercial quality perlite over the last 7 million years.”

2.2 Hydrology

The mining operation is located on the western edge of the Socorro Basin, which envelopes both the city of Socorro and the Socorro Mine. (Anderholm, 1983, Figure 3, p. 306). Surface water in this area flows to the northeast and intersects the Rio Grande River, where it then flows to the south. Groundwater occurs within 55 to 260 feet in the vicinity of the mine (Roybal, 1991, Table 1, p. 61) and flows to the west and southwest. Groundwater flow in the area that is under irrigation nearer the river is predominantly controlled by the river and associated conveyance channels and drains (Roybal, 1991, p. 309).

2.3 Climate

The climate in the area is semi-arid, with average temperatures around 40° F in the winter and 73° F in the summer for an average temperature of 57° F. Annual rainfall ranges from about 9 to 12 inches per year (Anderholm, 1983, p. 303).

Section 3

Proposed Plan

Dicaperl intends to continue mining in the future as economics dictate. For this reason, this revision application is providing a mining plan for the quarry, Dump G and for future overburden placement that will allow future mining to occur.

3.1 Mining Plan

Dicaperl has outlined a quarry which could reach 100 acres over the life of the mine. Presently 82 acres are already exposed and will continue to expand to the west and northwest direction.

Part of the quarry was mined as early as 1949. This area, referred to as the old quarry is located in the southeastern portion of the quarry area. The two quarry walls that remain are as steep as 2H to 1V. These walls have remained stable for the past 65 years. Mining in the areas of the old quarry started back up in 1999 mining down slope leaving behind a slope of 2.5H to 1V. This is the natural slope of the surrounding hills and provides a stable environment.

Quarry – The quarry is located in the western portion of the Socorro mine site (See Figure 1-1). The footprint for the quarry shall be regraded to a final configuration approximately 100 acres.

Mining development will continue at the quarry. There is a proposed expansion of the quarry that will expand an additional 16 acres to the northwest of the quarry (see Figure 1-1). This will provide access to profitable perlite for processing. The final configuration of the quarry plus the expansion will be approximately 100 acres over the next 20 years.

3.2 Dump Plan

There are six waste dump areas and one overburden dump identified for the Socorro Mine (Figure 1-1). These include waste dumps B, C, D, E, F, and G and overburden dump A. Dumps B, C, D, E and F have all been regraded and are currently only having maintenance work completed while vegetation is established. This work will continue until reclamation is complete. Dump A is an overburden dump that will be used during the reclamation of the quarry and Dump G.

There is one dump area that has been identified as the active waste Dump G. Dump G is described below.

Dump G – Dump G is located directly southwest of the quarry (see Figure 1-1). The footprint for G shall be regraded to a final configuration approximately 26 acres.

Area G currently receives waste from mining development and processing at the Socorro plant. The waste will contain various sizes of perlite, expanded perlite waste and overburden. This dump will be active for a minimum of 20 years. The capacity and area of Dump G is shown in the tables below. There is a proposed expansion of Dump G that will expand 20 acres to the northwest of the existing Dump G (see Figure 1-1). This expansion will provide sufficient capacity for dumping at Socorro over the next 20 years. The final configuration of Dump G plus the expansion will be 46 acres. The dump will be constructed in such a manner to eliminate surface runoff and allow for reclamation as the dump is constructed.

Table 3-1 Waste Dump G and Expansion Capacity

Waste Dump G Capacity		
	Fill (yd ³)	Total Capacity (yd ³)
Dump G	3,948,836	3,947,552

Waste Dump G Plus Expansion		
	Acres	Cubic Yards (yd ³)
Dump G	26	41,947
Dump G Expansion	20	32,267
Total	46	74,214

Dump A – Dump A is located directly north of the quarry (see Figure 1-1). The footprint for A shall be regraded to a final configuration approximately 6 acres.

Dump A contains only overburden for use during reclamation. The dump was formed by bulldozing overburden into a canyon for storage. This dump will only be used for overburden not process waste. The remainder of Dump A drains into the quarry. This dump contains approximately 150,000 cubic yards of overburden for use during reclamation. This will cover approximately 90 acres of disturbance.

See table below for topsoil volumes, allocations and the quantity of topsoil used at each reclamation area and Figure No. 1-1 Socorro Mine Site Plan for Dump A stockpile location. There is an approximate volume of 150,000 cubic yards of overburden topsoil material available for reclamation on the Socorro site. After reclaiming Dump G and Dump G expansion with one foot of cover the remaining topsoil available is 75,786 cubic yards of overburden allowing the Quarry and Quarry expansion will receive approximately 6 inches of cover over the existing sandy loam material. The Quarry is comprised of sandy loam, for reclamation only (overburden) topsoil will be added as cover. The roads and the plant facility area will not have (overburden) topsoil added as cover, as those areas are observed to be constructed in overburden material and no additional material will be added as cover. The Air Permit provided by New Mexico for the Socorro site allows only 2.3 acres of active process fines on the dumps. As the disposal site fills, the active area will migrate to accommodate the filling but stay within the permitted area.

Table 3-2 Topsoil Requirements

Topsoil (Overburden) Requirement					
<i>Area to be Reclaimed</i>	<i>Acres</i>	<i>yd3</i>	<i>Topsoil Depth (in)</i>	<i>Topsoil Stockpile Source Area</i>	<i>yd3</i>
Dump G	26	41,947	12	A	41,947
Dump G Expansion	20	32,267	12	A	32,267
Quarry	82	132,294	6	A	62,000
Quarry Expansion	16	25,813	6	A	13,786
Total Topsoil Placed					150,000

Section 4

Environmental Impacts

This section describes the potential environmental impacts from mining operations. These impacts are discussed in accordance with the requirements of 19.10.5.508 NMAC.

4.1 Public Safety

Access to the Socorro Mine is from the nearby route US 60, which is located to the east of the site. Access by the public is controlled by a locked gate, which is locked any time that the site is unoccupied. Access for the remainder of the site is controlled through a combination of lack of access roads and fencing or is otherwise discouraged by very remote unimproved and unmaintained private jeep roads.

4.2 Wildlife and Vegetation

Potential species of concern at the Socorro Mine Site were identified based on knowledge of the plant associations and wildlife habitats at the site, using on-line environmental resources, and through use of the search function available through the Biota Information System of New Mexico (BISON-M 2015) and the Information, Planning, and Conservation System (IPaC) (USFWS 2015). On March 20, 2014, a site visit was conducted to observe and record the general plant

communities and habitats within and near the Socorro site. On-line database resources for land cover, plant species, and habitat identification included 1) the USGS National Gap Program (USGS GAP 2015), 2) the New Mexico Rare Plants (NMRPTC 2015) website, and 3) the Information, Planning, and Conservation System (IPaC) (USFWS 2015).

A vegetation survey was conducted June 2015 at the Socorro site to assess the current conditions of plant species and vegetation on site. The plant species listed as Imperiled (S2) and Critically Imperiled (S1) were identified on the New Mexico Rare Plants website and after the qualitative assessment was performed it was found none of the listed plant species of concern are present at the Socorro site. See the attached vegetation survey in Appendix B for a full description of all the plant species that were encountered.

4.2.1 Wildlife

The BISON-M and IPaC search engines were specifically used to identify potential species of concern for the Socorro site. The BISON-M was developed by the New Mexico Department of Game & Fish and The Fish & Wildlife Information Exchange (Conservation Management Institute, VA Tech, Blacksburg, VA). Other contributing agencies to the BISON-M system include Natural Heritage New Mexico (a division of UNM's Museum of Southwestern Biology), US Army Corps of Engineers, US Bureau of Land Management, US Bureau of Reclamation, US Fish and Wildlife Service, US Forest Service, and New Mexico State Land Office. The BISON-M database contains all vertebrate and many invertebrate species of wildlife occurring in New Mexico and includes all threatened, endangered and sensitive species.

The identification of potential species of special concern for the Socorro mine site included the following search criteria.

- County: Socorro
- Taxonomy: fish, amphibians, reptiles, birds, mammals, mollusks, crustaceans, invertebrates
- Legal Status: federal threatened, endangered, and proposed, and state threatened and endangered
- Gap Analysis Habitat Associations: Pinyon/Juniper; and Woodland
- Eco Regions Habitat: Great Basin Sagebrush; and Colorado Plateau - Grama-Galleta Steppe/Juniper-Pinyon Woodland Mosaic

Based on these criteria, animal species of special concern were identified and are listed in Table 4-1. Upon closer examination of the habitat requirements of these species, specific knowledge of the site, and through discussion with the New Mexico Fish and Game, none of these species are likely to occur in the project area due to the lack of suitable foraging, nesting, or roosting habitat.

4.2.2 Vegetation

The search function within the New Mexico Rare Plants (NMRPTC 2014) website identifies 18 species for Socorro County where the Socorro mine site is located. These species (Table 4-2) are listed as Species of Concern by both the USFWS and the state of New Mexico. It should be noted that none of these species are listed as threatened or endangered by a federal or state agency. The definitions of Species of Concern are as follows:

- Federal - A taxon for which further biological research and field study are needed to resolve their conservation status or are considered sensitive, rare, or declining on lists maintained by Natural Heritage Programs, State wildlife agencies, other Federal agencies, or professional/academic scientific societies. Source: Charlie McDonald, Regional Botanist, U.S. Forest Service, Southwestern Region
- State of New Mexico - A New Mexico plant species, which should be protected from land use impacts when possible because it is a unique and limited component of the regional flora. Sources: New Mexico Administrative Code, Title 19, Chapter 21 Part 2.8 (Criteria for inclusion of the endangered plant species list), and Robert Sivinski, State Botanist

Some of the 18 identified species have high state ranks, indicating that they may be Imperiled (S2) or even Critically Imperiled (S1). The species of greatest concern because of its high state rank are *Panicum mohavense* (Mohave panicum) which is ranked S1. Based on a review of the habitat requirements of this species, it is unlikely that it would be present within the Socorro project area due to the lack of limestone terraces and cliffs.

Table 4-1 Federal and State Threatened and Endangered Animal Species

Federal and State Threatened and Endangered Animal Species

Dicaperl Socorro Mine Site

Socorro County, New Mexico

Assessment Date: 04-10-15

Species	Status	Habitat Requirements	Likelihood of Occurrence
Birds			
<i>Falco peregrinus</i> (Peregrine Falcon)	ST	Breeding territories of peregrine falcons center on cliffs that are in wooded/forested habitats, with large "gulfs" of air nearby in which these predators can forage.	Unlikely to occur in the project area due to the lack of suitable habitat.
<i>Strix occidentalis lucida</i> (Mexican Spotted Owl)	FT	Primary habitat characteristics include high canopy closure, high stand density, a multi-layered canopy, uneven-aged stands, numerous snags, and downed woody matter. These are best expressed in old-growth mixed-conifer forests (usually more than 200 years old). This owl prefers virgin mixed-conifer forests for roosting and that preference is key to its habitat requirements.	Unlikely to occur in the project area due to the lack of suitable habitat.
<i>Vireo vicinior</i> (Gray Vireo)	ST	Breeding in the summer and rarely transient in areas of desert scrub/rocky slopes and juniper savannahs near Montane regions.	Unlikely to occur in the project area due to the lack of suitable habitat.

Table 4-1 Federal and State Threatened and Endangered Animal Species

Federal and State Threatened and Endangered Animal Species

Dicaperl Socorro Mine Site

Socorro County, New Mexico

Assessment Date: 04-10-15

Species	Status	Habitat Requirements	Likelihood of Occurrence
Mammals			
<i>Euderma maculatum</i> (Spotted Bat)	ST	Uneven rocky cliffs are typical breeding areas within a mile or so of a riparian situation.	Unlikely to occur in the project area due to the lack of suitable habitat.
<i>Tamias quadrivittatus oscuraensis</i> (Oscura Mtns. Colorado Chipmunk)	ST	Common breeding occurs in ponderosa forest but may also be abundant in mixed coniferous forest and woodland. At lower elevations, in scattered pinon- juniper woodland especially if rock outcrops are available	Unlikely to occur in the project area due to the lack of suitable habitat.
<i>Zapus hudsonius luteus</i> (Meadow Jumping mouse)	FE & SE	Breeding in the White Mountains, AZ, the species seems to prefer streamside vegetation of dense grass and willows and montane meadow grassland.	Unlikely to occur in the project area due to the lack of suitable habitat.

Table 4-1 Federal and State Threatened and Endangered Animal Species

Federal and State Threatened and Endangered Animal Species

Dicaperl Socorro Mine Site

Socorro County, New Mexico

Assessment Date: 04-10-15

Species	Status	Habitat Requirements	Likelihood of Occurrence
<p>Source: New Mexico Game and Fish, Biota Information System of New Mexico (BISON-M) and the USFWS Information, Planning, and Conservation System (IPaC) on-line database search engines.</p>			
<p>FT – Federal Threatened</p>			
<p>FE – Federal Endangered</p>			
<p>ST – State Threatened</p>			
<p>SE – State Endangered</p>			
<p>PT – Federal Proposed Threatened</p>			
<p><u>Other Federal Protections Considered</u></p>			
<p>National Migratory Bird Treaty Act (excludes House Sparrows, Rock Pigeons, European Starlings)</p>			
<p>Bald and Golden Eagle Protection Act</p>			

Table 4-2 Federal and State Plant Species of Concern

**Federal and State Plant Species of Concern
Dicaperl Socorro Mine Site
Socorro County, New Mexico
Assessment Date: 04-10-15**

Species	Habitat Requirements	Likelihood of Occurrence	USFWS	State of NM	USFS	BLM	Natural Heritage NM
<i>Amsonia fugatei</i> (Fugate's amsonia)	Limy conglomerate ridges and associated outwash slopes in Chihuahuan desert scrub; 1,500-1,800 m (5,000-5,900 ft).	Given the soil, plant community, and elevation requirements, there is a reasonable potential for species to occur.	SoC	SoC	.	Sen.	S2
<i>Cirsium wrightii</i> (Wright's march thistle)	Wet, alkaline soils in spring seeps and marshy edges of streams and ponds; 1,130-2,600 m (3,450-8,500 ft).	Given the soil and plant community associations are similar to that of the Socorro site. Therefore, there is a reasonable potential for this species to occur on-site.	Can	E	Sen	.	S2
<i>Dalea scariosa</i> (La Jolla prairie clover)	Open sandy clay banks and bluffs, often along roadsides, at about 1,450-1,500 m (4,750-4,900 ft). This plant is often locally abundant within its restricted area of distribution, frequently occurring on sites disturbed just a few years earlier.	Given the soil, plant community, and elevation requirements, there is a reasonable potential for species to occur.	SoC	SoC	.	.	S4

Table 4-2 Federal and State Plant Species of Concern

**Federal and State Plant Species of Concern
Dicaperl Socorro Mine Site
Socorro County, New Mexico
Assessment Date: 04-10-15**

<i>Draba mogollonica</i> (Mogollon whitlowgrass)	Cool, moist northern slopes of mountains, ravines and canyons on volcanic rocks and soil in montane forests; 1,500-2,900 m (5,000-9,000 ft). Distributed in several counties in southwestern New Mexico, sometimes in large populations. The species may be more abundant than is now known because of the relative inaccessibility of its habitat.	This species may be present at the Socorro site based on the elevation range and plants communities that it has been found in. However, its soil requirements may preclude it being found at the site.	SoC	SoC	.	.	S3
<i>Draba standleyi</i> (Standley's whitlowgrass)	Igneous rock faces, bases of overhanging cliffs, clefts of porphyritic and andesitic rocks and soil; 1,675-1,980 m (5,500-6,500 ft). The known populations are widely disjunct. However, its habitat, volcanic cliffs, is not particularly rare in the region and the plant may be more common than presently understood.	Unlikely to occur in the project area due to the high elevations.	SoC	SoC		.	S2
<i>Ephedra coryi</i> (Not NMRPTC Rare) (Cory's joint-fir)	In dry sandy soils, and on dunes; below 1,520 m (5,000 ft). The only <i>E. coryi</i> in New Mexico are reported from the southeastern corner of the state without specimen citation.	Unlikely to occur in the project area due to the specific habitat requirements, although species has been found within the elevation range of the Socorro site.	SoC	SoC		.	S3?
<i>Erigeron scopulinus</i> (Rock fleabane)	Crevice in cliff faces of rhyolitic rock in lower montane coniferous forest; 1,800-2,800 m (6,000-9,000 ft). Populations of this species are sporadic and disjunct, but can be locally very abundant.	Unlikely to occur in the project area due to the high elevations.	SOC	SOC	Sen	.	S3?

Table 4-2 Federal and State Plant Species of Concern

**Federal and State Plant Species of Concern
Dicaperl Socorro Mine Site
Socorro County, New Mexico
Assessment Date: 04-10-15**

<i>Erigeron subglaber</i> (Pecos fleabane)	Rocky, open meadows in subalpine coniferous forest; 3,050-3,500 m (10,000-11,500 ft).	Unlikely to occur in the project area due to the lack of rocky subalpine forest habitats.	SoC	SoC	Sen	.	S3
<i>Helianthus paradoxus</i> (Pecos sunflower)	Saturated saline soils of desert wetlands. Usually associated with desert springs (cienegas) or the wetlands created from modifying desert springs; 1,000-2,000 m (3,300-6,600 ft). <i>Helianthus paradoxus</i> is a true wetland species that requires saturated soils; adult plants still grow well when inundated.	Unlikely to occur in the project area due to the specific habitat requirements.	T	E	.	T	S2
<i>Hymenoxys brachyactis</i> (Tall bitterweed)	Dry sites with coarse soils in piñon-juniper woodland and lower montane coniferous forest; 2,100-2,500 m (6,900-8,200 ft).	Given the soil and elevation requirements, it is unlikely for the species to occur at the Socorro site.	SoC	SoC	Sen	.	S3
<i>Mentzelia todiltoensis</i> (Todilto stickleaf)	Outcrops of gypsum in the Todilto Formation; 1,700-1,910 m (5,600-5,840 ft).	Given the elevation requirements, it is unlikely for the species to occur at the Socorro site.	SoC	SoC	.	.	SNR
<i>Opuntia arenaria</i> (Dune pricklypear, sand prickly pear, sandbur cactus)	Sandy areas, particularly semi-stabilized sand dunes among open Chihuahuan desert scrub, often with honey mesquite and a sparse cover of grasses; 1,160-1,300 m (3,800-4,300 ft).	Unlikely to occur in the project area due to the specific elevation requirements.	SoC	E	.	Sen	S2

Table 4-2 Federal and State Plant Species of Concern

**Federal and State Plant Species of Concern
Dicaperl Socorro Mine Site
Socorro County, New Mexico
Assessment Date: 04-10-15**

<i>Panicum mohavense</i> (Mohave panicum)	Limestone terraces and cliffs in Great Basin desert scrub in Arizona and piñon-juniper woodland in New Mexico; 1,370-2,380 m (1,300-2,400 ft).	Unlikely to occur in the project area due to the specific elevation and soil requirements.	SoC	SoC	.	.	S1
<i>Penstemon pseudoparvus</i> (San Mateo penstemon)	Open ponderosa pine or spruce-fir forests and high montane meadows; 2,700-3,050 m (9,000-10,000 ft).	Unlikely to occur in the project area due to the specific elevation requirements.	SoC	SoC	Sen	.	S3?
<i>Perityle staurophylla</i> var. <i>homoflora</i> (San Andres rock daisy)	Crevice in limestone cliffs, usually on protected north and east exposures at about 1,950-2,150 m (6,400-7,000 ft).	Unlikely to occur in the project area due to the specific elevation requirements.	SoC	SoC	.	.	S2
<i>Phacelia sivinskii</i> (Sivinskis scorpionweed)	Restricted to gypsum from the Upper Jurassic Todilto Formation of northwestern and north-central New Mexico (Cibola and Sandoval counties) and from the Permian Yeso Formation (Socorro and Valencia counties) in sparse juniper/desert scrub communities; 1,800-1,960 m (5,900-6,450 ft).	Unlikely to occur in the project area due to the specific elevation requirements.	SoC	SoC	.	.	SNR
<i>Silene plankii</i> (Plank's campion, Plank's catchfly)	Igneous cliffs and rocky outcrops; 1,500-2,800 m (5,000-9,200 ft).	Unlikely to occur in the project area due to the specific elevation requirements.	SoC	SoC	.	.	S2
<i>Silene wrightii</i> (Wright's campion)	Cliffs and rocky outcrops in Rocky Mountain montane and subalpine conifer forests; about 2,070-2,440 m (6,800-8,000 ft).	Unlikely to occur in the project area due to the specific elevation requirements.	SoC	SoC	.	.	S2
<i>Talinum brachypodum</i> (Laguna fame flower)	Very shallow pockets of calcareous silt to clay soils overlying limestone or travertine, or fine silty sand overlying calcareous sandstones; open piñon-juniper woodland with little understory and scattered cacti and shrubs or Chihuahuan desert scrub.	Unlikely to occur in the project area due to the specific soil requirements.	Soc	SoC	.	.	S2

Also of concern are *Amsonia fugatei* (Fugate's amsonia), *Cirsium wrightii* (Wright's march thistle), *Draba standleyi* (Standley's whitlowgrass), *Helianthus paradoxus* (Pecos sunflower), *Opuntia arenaria* (Dune pricklypear), *Perityle staurophylla* var. *homoflora* (San Andres rock daisy), *Silene plankii* (Plank's campion, Plank's catchfly), *Silene wrightii* (Wright's campion) and *Talinum brachypodumi* (Laguna fame flower) which are all ranked S2. *Dalea scariosa* (La Jolla prairie clover) may be present at the Socorro site based on the elevation range and plant communities where it has historically been found. However, its soil requirements may preclude it being found at the site. For *Draba mogollonica* (Mogollon whitlowgrass), there is a reasonable potential for the species to occur at the Socorro site given its soil and elevation requirements.

The plant species listed as Imperiled (S2) and Critically Imperiled (S1) were identified on the New Mexico Rare Plants website and after the qualitative assessment was performed in June 2015 it was found none of the listed plant species of concern are present at the Socorro site.

4.3 Cultural and Historic Resources

A review of the New Mexico Cultural Resources Information System (NMCRIS) revealed that there are no known archaeological sites or historic resources in the project area. Additionally, no cultural resource surveys have been conducted on the mine property. However, the NMCRIS did show that at least eight cultural resource surveys have been conducted in the outlying vicinity (Doak 2009; Geery 1997; Gilbert 1979; Gossett and Gossett 1986, 1990; McCaffery and Murrell 2015; Michalik 1998; and Wilkinson 1997).

There are also at least five known archaeological sites nearby, but outside the project area (39420, 39421, 39426, 11397, 121799, and 156829). Site 39420 has both a historic and prehistoric context consisting of lithic debitage, prehistoric ceramics, and historic trash. The prehistoric component is associated with the Pueblo IV affiliation and the historic material dates from the mid nineteenth century to the early twentieth century. It has been determined eligible for listing on the National Register of Historic Places (NRHP). Site 39421 is a historic site consisting of the remnants of a railroad track/bed. The site's eligibility for the NRHP has not been determined. Site 39426 a rockshelter and wall with prehistoric a prehistoric lithic assemblage from an unidentified cultural affiliation. The site's eligibility for the NRHP has not been determined. Site 11397 is the abandoned railroad track/bed track for the Magdalena Spur of the Atcheson, Topeka & Santa Fe Railroad. The site has been determined eligible for the NRHP. Site 121799 is a historic site dating from the early to mid-twentieth century. The site has been determined eligible for listing on the NRHP. The last site is 156829. It is a historic with no cultural affiliation. The site's eligibility for the NRHP has not been determined.

4.3.1 Prehistoric

The perlite mineral rock found at the Dicaperl Socorro Mine is a raw material. It may be possible that during extraction archaeological sites may be present in or near the project area.

4.3.2 Historic Resources

The area of the Dicaperl Socorro Mine has been mined for perlite for more than 50 years (Berman 1979). A mill was erected as early as 1949 with other mining related features following shortly afterwards (author unknown n.d.). Historic resources associated with this early mining activity may be present.

4.5 Stream Diversions

The mine occupies an upland area that is characterized by small ephemeral channels and drainage features. There are no stream diversions associated with the mine.

4.6 Stability

As mentioned previously, the mine has been in operation for more than 65 years. There have been some minor issues with stability over the years, primarily erosional, particularly with over-steepened slopes in some areas. Regrading and implementation of controls such as ditches and contour furrows have been implemented to mitigate these issues. Dicaperl has continued to monitor these areas and improve their condition to create more stable configurations. Based on this experience and empirical observation, Dicaperl is able to effectively configure backfilled and reclaimed areas for long term stability.

4.7 Riparian/Wetland Areas

There are no intermittent or perennial waters identified in the area of the mine or within the permit boundary. There are no riparian or wetland areas with the potential for impact from existing or proposed operations at the Socorro Mine.

4.8 Roads

Roads constructed at the site are primarily access roads (i.e. the main access road to the property from US 60 and roads that provide connection to other parts of the mining operations), and operation/haulage roads for the transportation of equipment, overburden, and ore. In general, access roads tend to be “fixed” relative to location and operation/haulage roads may be moved within disturbed areas as operations proceed. There is approximately 8 acres of road to be reclaimed.

All roads are designed, constructed, and operated to be stable and to minimize erosion and/or disruption to existing drainage features. Examples of controls implemented include water bars, run-on diversions, and culverts at drainage crossings. There are no road crossings of intermittent or perennial streams within the permit area.

4.9 Explosives

Not a usual condition of this mine. However, should this event occur, any blasting during operations shall be conducted to prevent injury to persons or damage to property not owned

by the operator. Fly rock shall be confined to the permit area. Any blasting activity will conform with all applicable requirements (e.g. MSHA, ATF, etc.).

4.10 Erosion Control

Several sedimentation ponds have been established (and previously permitted) at down gradient locations of dumps where possible. The sediment basins are utilized to prevent sediment in the nearby ephemeral streams. See attached Figure No. 2 in Appendix A for locations of all existing runoff controls utilized at Socorro during reclamation of the mine site, to prevent and reduce the discharge of pollutants to waters of the United States from the disturbed areas. The quality of stormwater was reviewed by the Fish and Wildlife Service and no issues were found with the runoff contained on the Socorro site (see attached Appendix A). A revised Storm Water Pollution Prevention Plan (SWPPP) was created for the Socorro site on May 11, 2015.

Dicaperl will use check dams, water bars, contour terracing, armored channels, slope reduction and/or use of other erosion control practices where required for successful establishment of vegetation and erosion control. Dicaperl will also use erosion control devices that are designed, constructed, and maintained using professionally recognized standards (e.g., standards of the Natural Resource Conservation Service).

4.11 Revegetation

Dicaperl intends to revegetate reclaimed areas to achieve the post mining land use of rangeland. In doing so Dicaperl has developed, in conjunction with a site visit June 2015, a revegetation plan that includes an appropriate seed mix and a procedure for assessing reclamation success. All areas at the mine site requiring revegetation will have seed applied using a range drill or broadcast with the proposed seed mixture below. Waste dump G, the quarry, haul roads and facility areas will be seeded during reclamation. This mixture is designed to be used both in upland and lowland, run-in areas. The roads will be ripped to loosen the materials prior to applying the seed mix.

The application rate to be applied at the El Grande site is 27.91 pounds of pure live seed per acre (PLS/A) (27.91lbs of PLS/acre). The seed mix proposed below will be applied to both the upland and lowland areas. Over time, the species adapted to a particular microclimate will proliferate and become dominant within that community. Different species of trees and shrubs may be planted on or around dump G and the development area.

The existing seed mix needed to be adjusted due to the following:

1. The mixture has species that have not done well in the environment at Socorro;
2. It introduced species that can become weedy, such as sweetclover and Russian olive.
3. Contains shrubs and trees that are not native and perform poorly from a seed.

The new proposed seed mix has the following:

1. These are custom crafted for the different native vegetation types and the climates at Socorro.
2. They have been designed to provide rapid germination and establishment by some species and then long term community diversity.
3. They are designed to be consistent with the surrounding native vegetation and land use, and to eventually meet the reclamation compliance standards set by state law.
4. The species are ones that are observed at sites and have been recommended by Granite Seed Company. CDM Smith has utilized Granite’s expertise on many projects throughout the western US over the past 15 years and their recommended mixtures have performed well.
5. Each of the new mixtures contain at least 50% grasses, which as a group has performed well in reclamation plantings.
6. Broadcast seeding as well as drill seeding, is recommended so that seeds of all sizes have a good chance to become lodged at the proper depth and become established.

The seed mix that Dicaperl has proposed includes:

Table 4-3 Socorro Proposed Seed Mixture

Socorro Mine Site Reclamation Seed Mixture				
Common Name	Latin Name	Composition (%)	Seeds / ft2*	lbs of PLS/A
Blue grama	<i>Bouteloua gracilis</i>	12	20	1.05
Black grama	<i>Bouteloua eriopoda</i>	6	10	0.32
Sideoats grama	<i>Bouteloua curtipendula</i>	10	17	3.79
Galleta grass	<i>Pleuraphis jamesii</i>	6	10	2.73
Purple three-awn	<i>Aristida purpurea</i>	8	13	2.31
Indian ricegrass	<i>Achnatherum hymenoides</i>	12	20	6.15
Sand dropseed	<i>Sporobolus cryptandrus</i>	8	13	0.11
Alkali sacaton	<i>Sporobolus airoides</i>	6	10	0.25
Palmer penstemon	<i>Penstemon palmeri</i>	6	10	0.71
Desert senna	<i>Senna covesii</i>	2	3	1.31
Desert marigold	<i>Baileya multiradiata</i>	8	13	0.55
Munro globemallow	<i>Sphaeralcea munroana</i>	3	5	0.43
Fourwing saltbush	<i>Atriplex canescens</i>	3	5	4.17
Apache plume	<i>Fallugia paradoxa</i>	6	10	1.03
Winterfat	<i>Krascheninnikovia lanata</i>	2	3	1.18
Creosote bush	<i>Larrea tridentata</i>	2	3	1.81
Totals		100	166	27.91

*The number of seeds/ft2 are derived based on the overall seeding rate (27.91 lbs of PLS/A), seeds/lb, and composition.

The following trees and shrubs may also be used:

Four-wing Saltbush
Apache Plume
Alligator Bark Juniper
One-seed Juniper
New Mexico Forestiera
Mountain Mahogany

The following seeds, trees and shrubs may be used as possible substitutes:

Herbaceous (seeds):

Spectacle pod *Dimorphocarpa wislizeni*
Greenleaf five eyes *Chamaesaracha coronopus*
Indian blanket *Gaillardia pinnatifida*
Desert primrose *Oenothera deltoides*
Trailing windmills *Allionia incarnata*

Trees:

One-seed juniper *Juniperus monosperma*
Cottonwood *Populus deltoides* (near drainages or wet areas)

Shrubs:

Feather dalea *Dalea formosa or pulchra*
Broom snakeweed *Gutierrezia sarothrae*
Honey mesquite *Prosopis glandulosa*
Wax currant *Ribes cereum*
Littleleaf sumac *Rhus microphylla*
Skunkbush sumac *Rhus trilobata*

The qualitative vegetation report and detailed seed mix is attached in Appendix B.

Section 5

Close-Out Plan

In general, all disturbed areas of the Socorro Mine will be reclaimed at the end of their useful lives. The quarry and Dump G will be graded, and cover material will be placed on the graded areas prior to seeding. The roads and facility areas will be graded and seeded, no additional cover material will be added since these areas are comprised of top soil material. Dump A will be graded and seeded with no additional cover material added since this area is comprised of overburden top soil.

The cover material or overburden present is typically 10 feet thick and is made up of soil, contaminated perlite and basalt boulders. Removal is accomplished by uncovering the ore with mobile equipment and the overburden is hauled to Dump A for storage until reclamation. This material supports a wide range of plant species and is known as a sandy loam comprised of sand, silt and clay. This unit is used mainly for grazing, for which it has medium potential. Perlite itself also supports certain plant species and is an additive to commercial potting soils. When a dump area is reclaimed, it is covered with approximately two feet of soil material and experience has shown that this material will support plant species appropriate for the permit area.

5.1 Quarry

There is limited soil material available in the permit area to cover the quarry area. The quarry is comprised of a granular soil that is non-cohesive with an assumed friction angle of 37 degrees and an overall slope angle of 27 degrees (2H:1V). This is stable with a safety factor of 1.5. Depending on bench spacing and bench width, the individual slopes between benches are steeper. At slope angles steeper than 31 degrees the safety factor becomes smaller than 1.25, increasing risk of surface instabilities. With the assumption of a non-cohesive, granular material, the risk of major slides with a deep seated sliding plane is minimal. This area has been stable for approximately 65 years. These slopes will be graded and seeded allowing vegetation to grow. Any surface runoff from the quarry flows to the bottom of the quarry and collects there until it seeps into the ground.

Therefore, Dicaperl is proposing to grade the sections of the quarry walls to 2.5H:1V to maintain the stability of the existing hill sides. Available soil material from stockpiles will be blended into the slopes as a medium for vegetation. The quarry presents no ground water or surface runoff potential. Since there are no leachable minerals in the perlite deposit, any water trapped in the quarry will quickly filter into the rock under the quarry or evaporate. Adequate erosion control will be provided.

It is estimated that the reclamation portion which will include regrading, scarifying and cover will take about 4.5 weeks. Including these reclamation activities, it will take approximately 6 months to 1 year to complete plus seeding and monitoring. Timing will be dependent of the best season for reclamation.

5.2 Designated Waste Areas

Area G currently receives waste from mining development and processing at the Socorro plant. It will contain various sizes of perlite, expanded perlite waste and overburden. This dump will be active for a minimum of 20 years. The dump will be constructed in such a manner to eliminate surface runoff and allow for reclamation as the dump is constructed.

It is estimated that the reclamation portion of Dump G and A, which will include regrading, scarifying and cover will take about 5 weeks. Including these reclamation activities, it will take approximately 6 months to 1 year to complete plus seeding and monitoring

5.3 Roads

The permit area contains 8 acres of roads. They will be reclaimed in a manner to prevent erosion and seeded. The roads will be ripped down 2 feet and regraded prior to seeding to create a suitable seed bed, the proposed seed mix will be applied by broadcast seeding. No additional (overburden) top soil will be added to the roads as the roads are already comprised of the desired overburden material. Some roads may remain to accommodate post-mining land use activities.

Roads in the permit area will be the last items to be reclaimed. It is estimated that reclamation which will include regrading and scarifying will take about 1 week. This work will be initiated once the other reclamation activities are complete.

5.4 Buildings and Facilities

Current structures at the Socorro operation include a process plant for crushing and sizing and associated buildings. The concrete foundations from the buildings will be buried in place to provide a stable landform. The concrete pads and associated facility sites will be demolished and then the disturbed areas will be ripped and regraded prior to seeding. Dicaperl will do a full inventory of hazardous materials on site at the time prior to demolition and provide this data to New Mexico Mining and Minerals Division (MMD). A detailed demolition plan will be provided to MMD prior to any demolition work being performed. All equipment will be sold or transferred as scrap or used equipment.

Once the decision has been made to close out the mine and facilities, removal of facilities and reclamation will start. The reclamation process will include demolition, regrading and scarifying and will take approximately 8 months.

Section 6

Close-Out Plan Costs

6.1 Closure Costs

The closure costs for the Socorro Mine have been calculated using the location factor based on Albuquerque, New Mexico. The labor rates as well as equipment and material costs reflect the location factor as well as updated 2015 unit costs. The most current cost file available for the Standard Reclamation Cost Estimator reflects 2015 unit costs (“Standardized Reclamation Cost Estimator”, 2004). Reclamation costs originally included in the 1998 Closeout Plan associated

with Dumps B, C, D, E and F are excluded from the current costs since these areas have been reclaimed prior to this amendment. All cost tables and unit costs are attached in Appendix C for more detail. The costs of regrading and reseeding the topsoil stockpile areas are included in the reclamation costs of the Quarry due to the proximity of the stockpiles along the border of the Quarry. Costs associated with mobilization/demobilization, roads and facilities are included in the overall costs shown below. The updated overall closure cost is \$871,875, this value includes all of the following: earthwork/grading, monitoring, topsoil cover, 2015 labor and equipment costs, and revegetation seeding costs. See Appendix C for reclamation cost spreadsheets. The cost estimate escalated for the five-year term at 3.0% inflation is \$1,010,742. See table below for hours needed to complete each reclamation task and approximate haul distances to topsoil materials.

Table 6-1 Socorro Mine Reclamation Closure Costs

Socorro Mine Reclamation Costs	
<i>Dump Sites G, G Expansion Dump A (Overburden)</i>	\$157,935
<i>Quarry, Quarry Expansion</i>	\$135,803
<i>Roads</i>	\$7,390
<i>Facilities (Earthwork and Reveg)</i>	\$5,019
<i>Facilities (Demo and Removal)</i>	\$215,943
<i>Monitoring</i>	\$12,567
<i>Mob/Demob</i>	\$19,265
<i>Construction Management</i>	\$84,317
<i>Indirect Costs</i>	\$233,636
TOTAL	\$871,875
<i>Inflation at 3.0% for 5 years</i>	<i>\$1,010,742</i>

Table 6-2 Socorro Mine Reclamation Haul Distance & Time to Complete

Socorro Reclamation Haul Distance & Time to Complete Regrading, Scarifying and Cover		
	<i>Time to Complete Reclamation</i>	<i>Haul Distance (Varies – Averages Assumed)</i>
^{1,2}Roads	~ 1 weeks (10 hours)	N/A
²Waste Dump G, A	~ 5 weeks (154 hours)	2,609 ft
²Quarry	~4.5 weeks (106 hours)	656 ft
^{1,3}Demolition of Foundation & Buildings	~6 months (960 hours)	N/A

¹Note Roads and Foundation and Buildings will not have Topsoil (overburden) applied.

²Reclamation hours represents time to regrade, scarify and cover only.

³Reclamation hours represent demolition and scarifying.

6.2 Financial Assurance

Dicaperl will provide financial assurance in the form of a surety bond.

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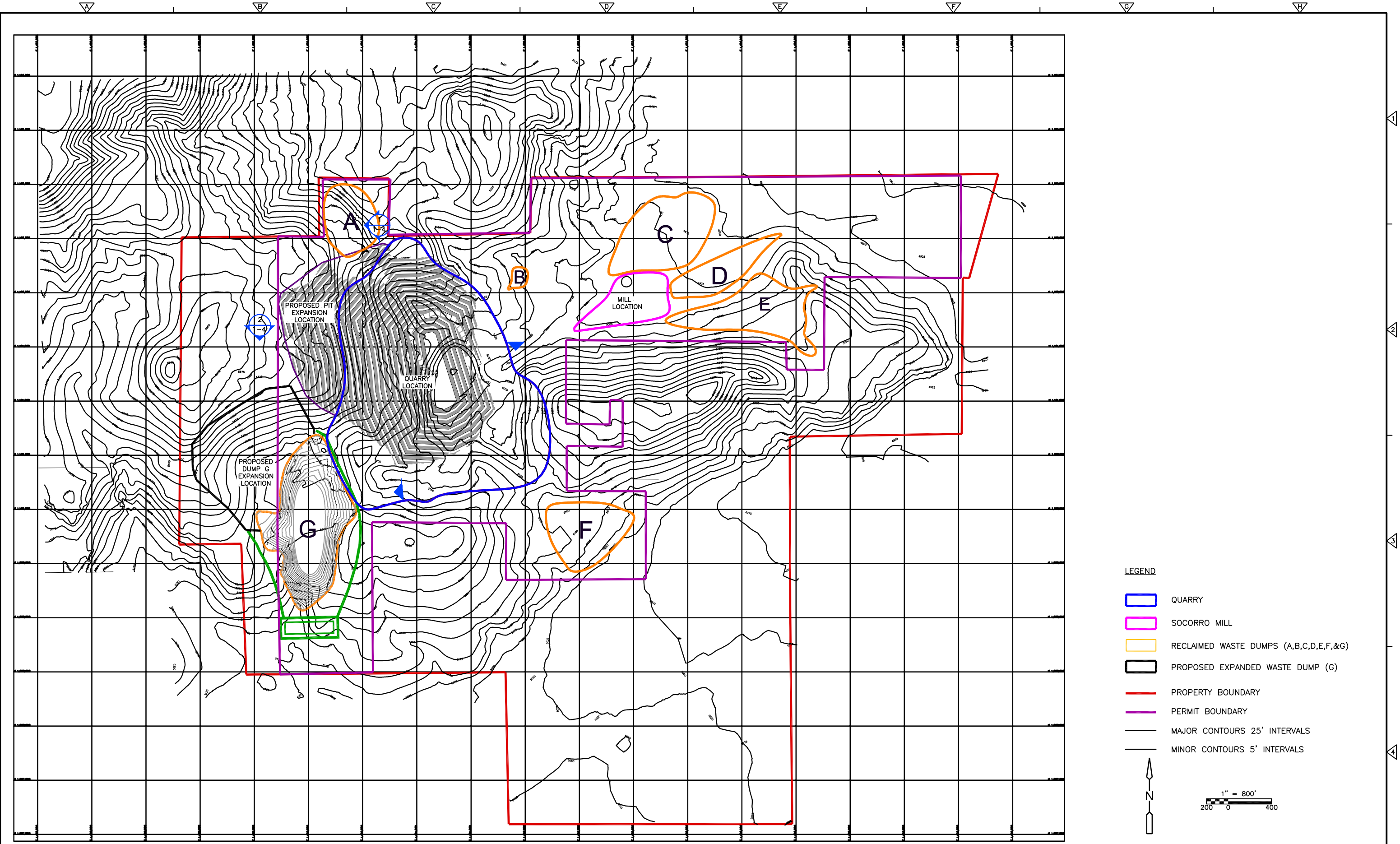
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APPENDIX A

Reclamation Design Figures

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- LEGEND**
- ▭ QUARRY
 - ▭ SOCORRO MILL
 - ▭ RECLAIMED WASTE DUMPS (A,B,C,D,E,F,&G)
 - PROPOSED EXPANDED WASTE DUMP (G)
 - ▭ PROPERTY BOUNDARY
 - ▭ PERMIT BOUNDARY
 - MAJOR CONTOURS 25' INTERVALS
 - MINOR CONTOURS 5' INTERVALS

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: R. HUFFORD
 DRAWN BY: K. HUFFSMITH
 SHEET CHK'D BY: H. FALGIANO
 CROSS CHK'D BY: B. ANTONIOLI
 APPROVED BY: B. MUNSON
 DATE: MAY 2016

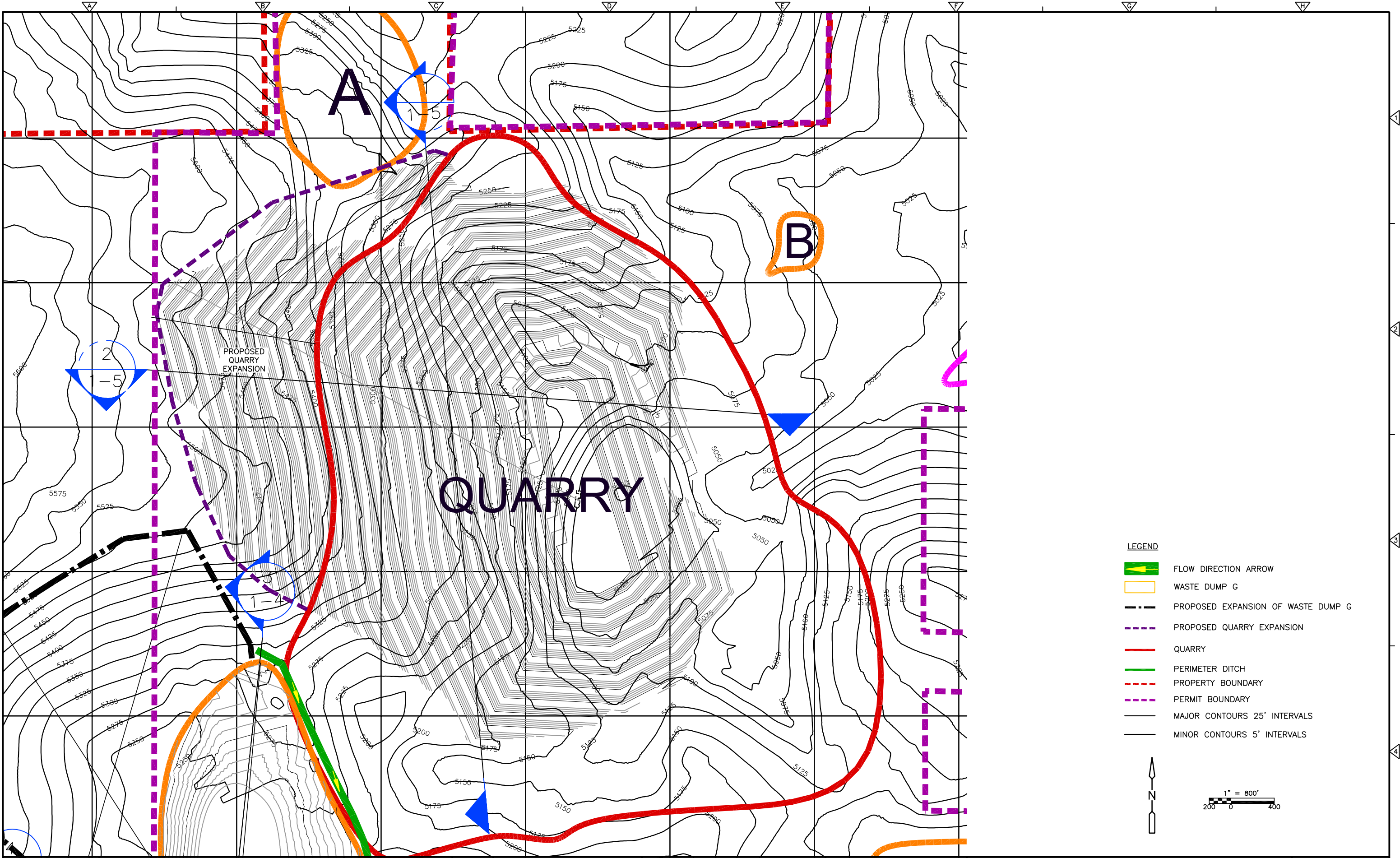












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 SOCORRO MINE

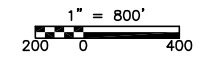
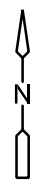
SOCORRO MINE SITE PLAN

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- LEGEND**
-  FLOW DIRECTION ARROW
 -  WASTE DUMP G
 -  PROPOSED EXPANSION OF WASTE DUMP G
 -  PROPOSED QUARRY EXPANSION
 -  QUARRY
 -  PERIMETER DITCH
 -  PROPERTY BOUNDARY
 -  PERMIT BOUNDARY
 -  MAJOR CONTOURS 25' INTERVALS
 -  MINOR CONTOURS 5' INTERVALS



REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: R. HUFFORD
 DRAWN BY: K. HUFFSMITH
 SHEET CHK'D BY: H. FALGIANO
 CROSS CHK'D BY: B. ANTONIOLI
 APPROVED BY: B. MUNSON
 DATE: MAY 2016

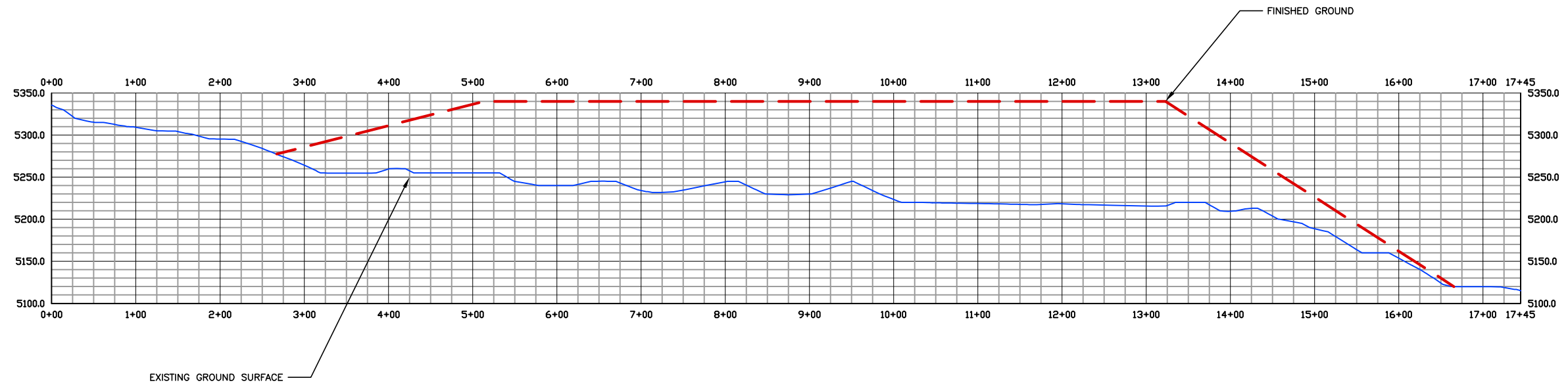


DICAPERL MINERAL CORP.
 SOCORRO MINE

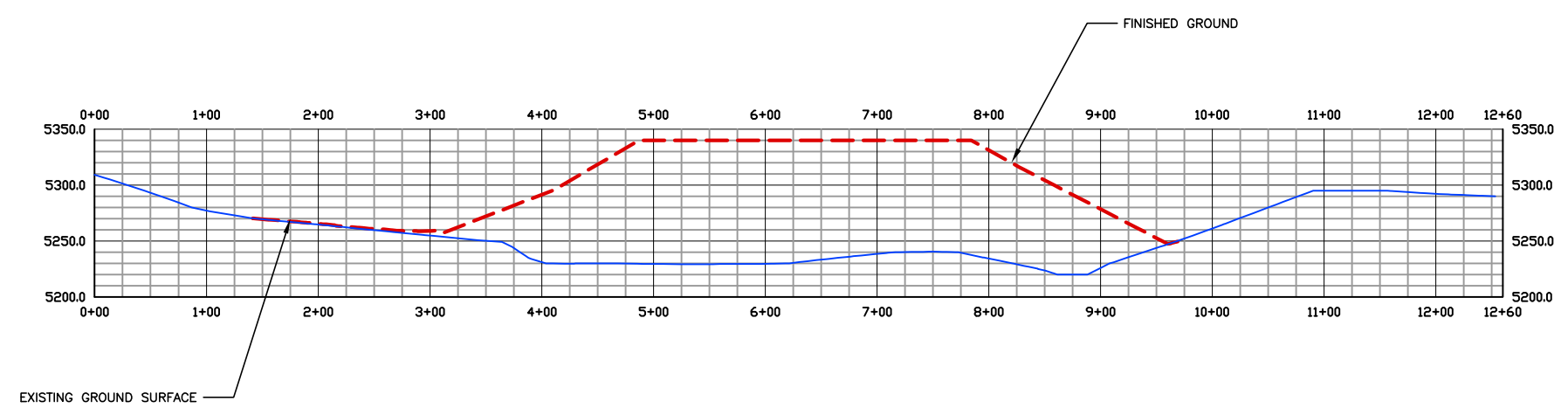
SOCORRO MINE QUARRY PLAN VIEW

PROJECT NO. 106779.TK11
 FILE NAME:
 FIGURE NO. 1-3

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DUMP G
 SECTION 3
 NTS



DUMP G
 SECTION 4
 NTS

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: R. HUFFORD
 DRAWN BY: K. HUFFSMITH
 SHEET CHK'D BY: H. FALGIANO
 CROSS CHK'D BY: B. ANTONIOLI
 APPROVED BY: B. MUNSON
 DATE: MAY 2016

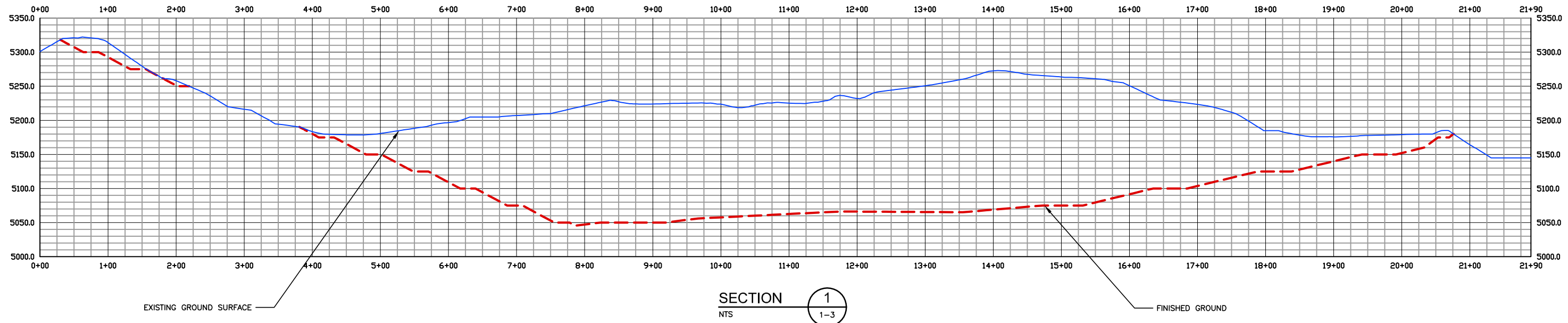


DICAPERL MINERAL CORP.
 SOCORRO MINE

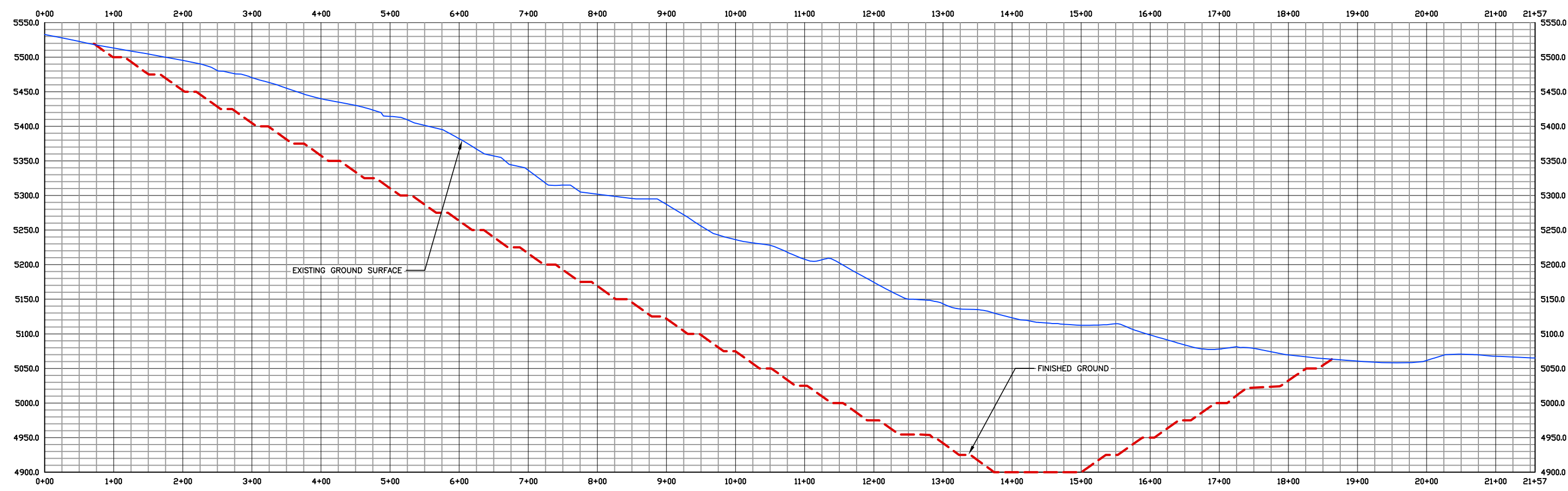
DUMP G
 CROSS SECTIONS

PROJECT NO. 106779.TK11
 FILE NAME:
 FIGURE NO.
 1-4

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SECTION 1
NTS



SECTION 2
NTS

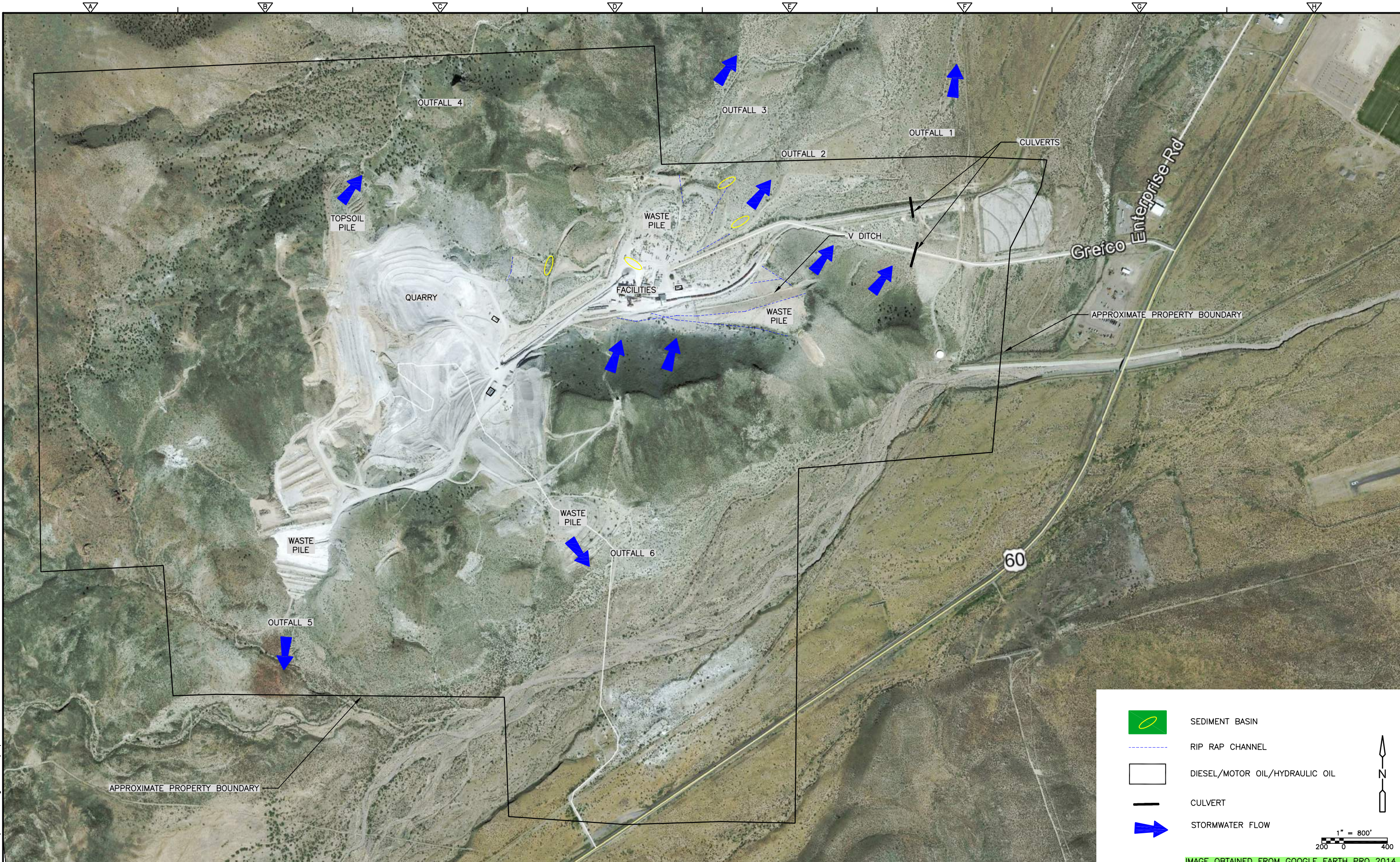
REV. NO.	DATE	DRWN	CHKD	REMARKS






DESIGNED BY: **R. HUFFORD**
 DRAWN BY: **K. HUFFSMITH**
 SHEET CHK'D BY: **H. FALGIANO**
 CROSS CHK'D BY: **B. ANTONIOLI**
 APPROVED BY: **B. MUNSON**
 DATE: **MAY 2016**



DICAPERL MINERAL CORP.
SOCORRO MINE

QUARRY SECTIONS
 PROJECT NO. 106779.TK11
 FILE NAME:
 FIGURE NO.
1-5



	SEDIMENT BASIN
	RIP RAP CHANNEL
	DIESEL/MOTOR OIL/HYDRAULIC OIL
	CULVERT
	STORMWATER FLOW

1" = 800'

200 0 400

IMAGE OBTAINED FROM GOOGLE EARTH PRO 2014

K:\TEMP\HILLARY\DCAPERL\CSTPL001.dwg SAVED: 5/11/15 BY: HUFFSMITHKM

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: H. FALGIANO
 DRAWN BY: K. HUFFSMITH
 SHEET CHK'D BY: B. MUNSON
 CROSS CHK'D BY: _____
 APPROVED BY: _____
 DATE: MAY 2015

CDM Smith
 4835 EAST CACTUS ROAD, SUITE 360
 PHOENIX AZ 85254
 Tel: (412) 201-6500

SOCORRO SITE
 DICAPERL
 NEW MEXICO

SOCORRO SITE MAP

PROJECT NO. 106779
 FILE NAME: CSPO01.DWG

FIGURE 2

APPENDIX B

Qualitative Assessment of Vegetation at Reclaimed Areas of the Socorro and El Grande Mines

Socorro Mine Reclamation

Seed Mixture

All areas at the mine site requiring revegetation will be broadcast seeded with the following seed mixture at a rate of 28 pounds of pure live seed per acre (PLS/A). Application rate and seed mixture composition may change depending on success and availability of the species.

Socorro Mine Site Reclamation Seed Mixture				
Common Name	Latin Name	Composition (%)	Seeds / ft2*	lbs of PLS/A
Blue grama	<i>Bouteloua gracilis</i>	12	20	1.05
Black grama	<i>Bouteloua eriopoda</i>	6	10	0.32
Sideoats grama	<i>Bouteloua curtipendula</i>	10	17	3.79
Galleta grass	<i>Pleuraphis jamesii</i>	6	10	2.73
Purple three-awn	<i>Aristida purpurea</i>	8	13	2.31
Indian ricegrass	<i>Achnatherum hymenoides</i>	12	20	6.15
Sand dropseed	<i>Sporobolus cryptandrus</i>	8	13	0.11
Alkali sacaton	<i>Sporobolus airoides</i>	6	10	0.25
Palmer penstemon	<i>Penstemon palmeri</i>	6	10	0.71
Desert senna	<i>Senna covesii</i>	2	3	1.31
Desert marigold	<i>Baileya multiradiata</i>	8	13	0.55
Munro globemallow	<i>Sphaeralcea munroana</i>	3	5	0.43
Fourwing saltbush	<i>Atriplex canescens</i>	3	5	4.17
Apache plume	<i>Fallugia paradoxa</i>	6	10	1.03
Winterfat	<i>Krascheninnikovia lanata</i>	2	3	1.18
Creosote bush	<i>Larrea tridentata</i>	2	3	1.81
Totals		100	166	27.91
*The number of seeds/ft2 are derived based on the overall seeding rate (27.91 lbs of PLS/A), seeds/lb, and composition.				

This mixture is designed to be used both in upland and lowland, run-in areas. Over time, the species adapted to a particular microclimate will proliferate and become dominant within that community. Different species of trees and shrubs may be planted on or around the dumps and the development area. These may include Four-wing Saltbush, New Mexico Forestiera, and Mountain Mahogany or other native species adapted to the area.

Seedbed Preparation and Seeding

The objective for the seed bed preparation is to create a moderately rough surface so that seed can become lodged in cracks near the soil surface. The seed bed surface, at the time of seed application, shall be reasonably free of large lumps, clods, rocks and impervious crusts of soil. The operator shall use a harrow, or a similar piece of equipment, to loosen the seed bed surface to a depth of approximately 4 inches.

Seeding operations shall not take place when the wind velocity or another environmental condition will prevent uniform seed distribution. To promote germination and establishment, seeding shall take place prior to the normal growing season when soil moisture is expected to be optimal. Seed shall be applied to the soil surface via broadcast or drill seeding. Possible options are a whirly bird type seeder or mechanically using a seeder such as the Brillion broadcast seeder. The seeding procedure shall ensure even coverage by uniformly broadcasting half the total rate of seed in one

direction and the remainder of the seed rate broadcasted at 90 degrees from the first direction. Seed shall be covered a maximum 1.0-inch depth by dragging a steel mat, or another appropriate piece of equipment, over the surface, or by hand-raking.



Memorandum

To: Brian Munson, CDM Smith

From: Jennifer Jones, CDM Smith

Date: June 30, 2015

Subject: Qualitative Assessment of Vegetation at Reclaimed Areas of the Socorro Mine, New Mexico

Introduction

A CDM Smith biologist conducted vegetation surveys at the Socorro Mine on June 2, 2015. The surveys were conducted to assess the current condition of reclamation in support of closeout plans for the two mines.

Vegetation Survey Methods

During the vegetation surveys, the biologist performed an initial qualitative assessment of the vegetation community by walking the extent of each area, estimating overall plant cover (also known as absolute cover). Overall plant cover was recorded as the percentage of ground surface covered by vegetation. Plant composition was recorded as the percent of each vegetation type (grasses and forbs, shrubs, and trees) making up the overall cover. The biologist created a list of the plant species observed, identified to the species level where possible, and noted the presence of noxious weeds and other invasive plants. The biologist also assessed soil stability at each of the survey locations and noted any other factors that may have an effect on vegetation success. While the survey focused on reclaimed areas, previously established reference areas were also assessed.

Findings- Socorro Mine

The Socorro Mine is located near Socorro, New Mexico at an elevation of approximately 5,000 feet. The mine is situated at the northern extent of the Chihuahuan Desert, averaging nine inches of rain per year, most occurring during the summer monsoon season. While New Mexico has been experiencing a drought for the past few years, precipitation during the most recent few months of 2015 has been near to above normal.

Four areas of the Socorro Mine have been reclaimed, shown as Reclaimed Area B, C, D, and E in Figure 1. Two reference areas have been established: a Lowland and Upland Reference Area. The findings of the qualitative assessment at each of these areas is presented below, in the order they were conducted. Photos of each area are provided in Appendix A.

Reclaimed Area E

Reclaimed Area E is located on a slope in the southeast portion of the Socorro Mine site (Figure 1). Due to erosion occurring on the lower slope, the area was terraced in 2006, resulting in some disturbance of the vegetation. During the survey, rills were observed in the middle terrace, indicating that the slope is unstable during rain.

As shown in Table 1, the average overall plant cover in Area E is 25 percent, with grasses and forbs the dominant plant type. Scattered shrubs are also present, as well as a few trees. Plant species diversity is good, with 21 species observed (Table 2). Russian thistle and tamarisk, both of which are invasive, are present in low numbers.

The slope above Reclaimed Area E is undisturbed and dominated by large shrubs, including creosote, mesquite, and skunkbush sumac, and scattered one-seed juniper trees. Plants from this area may colonize Area E below over time.

Reclaimed Area D

Reclaimed Area D is situated in the lowland area adjacent to the developed part of the mine where the office, production buildings, storage, and parking areas are located (Figure 1). It is bound by the railroad to the south and the main road to the north. This area was reclaimed in 2001. Drainage channels have been created throughout Area D using boulders (“riprap”) to guide surface runoff. Soil in Area D is stable.

As shown in Table 1, the average overall plant cover in Area D is 40 percent, dominated by shrubs. There is good cover of grasses and forbs and a few trees. Plant species diversity is fair, with 19 species observed (Table 2). Several tamarisk shrubs were observed, which should be removed to prevent spread.

Reclaimed Area C

Reclaimed Area C is located north of the developed part of the mine site. Area C is mainly located within the lowland area, but at a slightly higher elevation than the surrounding area to the north. There is a berm along the northern end and a drainage along the western perimeter that directs overland flow to sediment basins below. The soil in Area C is stable.

As shown in Table 1, the average overall plant cover in Area C is 50 percent, dominated by shrubs, which form dense thickets in some areas. There is good cover of grasses and forbs and a low number of trees. Plant species diversity is fair, with 17 species observed (Table 2). Several tamarisk shrubs were observed, which should be removed to prevent spread.

Reclaimed Area B

Reclaimed Area B is located directly west of the developed part of the site and east of the main quarry area (Figure 1). It is situated mid-slope: upland of the developed area below, but at a slightly lower elevation than the upland reference area. The soil is mostly stable; however, the slope leading down from the road is highly erosive. Patches of raw perlite are present at the surface.

As shown in Table 1, the average overall plant cover in Area B is 25 percent, dominated by shrubs, followed closely by grasses and forbs. Few trees are present. Plant species diversity is fair, with 16 species observed (Table 2). Tamarisk shrubs were observed in low numbers.

Lowland Reference Area

The Lowland Reference Area is located in the northeastern portion of the site, north of the main road and access road (Figure 1). It is situated at an elevation of around 4,930 feet and consists of Chihuahuan Desert vegetation. The soil is undisturbed and stable.

As shown in Table 1, the Lowland Reference Area has an average overall plant cover of 40 percent, dominated by shrubs. There is good cover of grasses and forbs and a low number of trees. Plant species diversity is good, with 22 species observed (Table 2). Russian thistle and tamarisk are present. The tamarisk shrubs should be removed to prevent spread.

Upland Reference Area

The Upland Reference Area is located in the southwestern portion of the site, south of the main quarry area (Figure 1). It is situated at an elevation of around 5,200 feet. The soil is undisturbed and stable. There was some evidence of cattle grazing.

As shown in Table 1, the Upland Reference Area has an average overall plant cover of 75 percent, with grasses and forbs making up most of the cover. Scattered trees and shrubs are also present. Plant species diversity is fair, with 17 species observed (Table 2). No invasive species were observed.

Conclusions

Based on the vegetation surveys, the following conclusions are made:

Socorro Mine:

- Reclamation at four locations (Area B, C, D, and E) has generally been successful to provide vegetative cover and stabilize the soil. Vegetation is well-established and plant cover values are typical of what would be expected based on the time since reclamation activities were conducted. Uncontrollable factors such as precipitation and record low temperatures have affected plant growth in some areas.
- There is good vegetative cover of most reclaimed areas, with the exception of Area B and Area E, which are both situated on slopes. In addition, recent erosion control activities have disturbed the soil at Area E.
- Area E and Area B have the lowest overall plant cover (25 percent). Steeply sloped portions of Area E are experiencing erosion, evidenced by the presence of rills. Area B is also sloped, and patches of raw perlite were observed, indicating that the soil may not be ideal for plant growth.
- The Lowland Reference Area is suitable for comparison to Area C and D. It also appears suitable for comparison to Area B, which is located upslope but dominated by shrubs like the Lowland Reference Area.

June 30, 2015

Page 4

- The Upland Reference Area appears to be suitable for comparison to Area E, which also has a northerly aspect and is dominated by grasses and forbs.
- The composition of the current seed mix and list of trees and shrubs for use in reclamation should be reviewed to ensure the appropriate species are included for the region.
- Tamarisk was observed in several locations and should be removed where possible to prevent spread.

Figures



Figure 1. Vegetation Survey Locations at the Socorro Mine.

Tables

Table 1. Findings of the Qualitative Vegetation Survey of the Socorro Mine Sites.

Socorro Mine		Overall Plant Cover (%)	Plant Composition (%) by Type					
Area	Location Type		Grasses and Forbs	Shrubs	Trees	Dominant Plant Type	Species Diversity	Soil Stability
E	Upland hillslope	25	75	20	5	Grasses and forbs	Good (21 species observed)	Parts of slope are unstable; rills present
D	Lowland	40	35	50	15	Shrubs	Fair (19 species observed)	Stable, riprap channels
C	Lowland	50	30	65	5	Shrubs	Fair (17 species observed)	Stable, channel to sediment basin
B	Upland hillslope	25	40	55	5	Shrubs	Fair (16 species observed)	Mostly stable, erosion on slope up to road
Lowland Reference	Lowland	40	30	65	5	Shrubs	Good (22 species observed)	Stable
Upland Reference	Upland hillslope	75	75	10	15	Grasses and forbs	Fair (17 species observed)	Stable

Table 2. Plant Species Observed at the Socorro Mine Sites during the Vegetation Survey.

		Location Observed
Common Name	Scientific Name	Socorro
Trees		
Mountain mahogany	<i>Cercocarpus montanus</i>	
Desert willow	<i>Chilopsis linearis</i>	
New Mexico privet	<i>Forestiera neomexicana</i>	D
One-seed juniper	<i>Juniperus monosperma</i>	Slope above E, D, B, UR
Rocky mountain juniper	<i>Juniperus scopulorum</i>	
Pinyon pine	<i>Pinus edulis</i>	
Ponderosa pine	<i>Pinus ponderosa</i>	
Cottonwood	<i>Populus deltoides</i>	D
Gambel oak	<i>Quercus gambelii</i>	
Narrowleaf willow	<i>Salix exigua</i>	
Shrubs		
Biennial wormwood	<i>Artemisia biennis</i>	
Sagebrush	<i>Artemisia tridentata</i>	
Four-wing saltbush	<i>Atriplex canescens</i>	E, Slope above E, D, C, B
Splitleaf brickellbush	<i>Brickellia laciniata</i>	B
Feather dalea	<i>Dalea formosa or pulchra</i>	E, D, C, B, LR, UR
Mormon tea	<i>Ephedra viridis</i>	E, C
Rubber rabbitbrush	<i>Ericameria nauseosa</i>	
Apache plume	<i>Fallugia paradoxa</i>	E, D, C, B, LR, UR
Broom snakeweed	<i>Gutierrezia sarothrae</i>	Slope above E, D, C, B, LR, UR
Creosote	<i>Larrea tridentata</i>	E, Slope above E, C, B, LR
Honey mesquite	<i>Prosopis glandulosa</i>	Slope above E, D, C, B, LR
Wax currant	<i>Ribes cereum</i>	Slope above E, LR
Littleleaf sumac	<i>Rhus microphylla</i>	LR
Skunkbush sumac	<i>Rhus trilobata</i>	Slope above E, LR
Grasses and Forbs		

Trailing windmills	<i>Allionia incarnata</i>	LR
Purple three-awn grass	<i>Aristida purpurea</i>	E, Slope above E, D, C, B, LR, UR
Fringed sagewort	<i>Artemisia frigida</i>	
Yellow milk vetch	<i>Astragalus flavus</i>	
Purple locoweed	<i>Astragalus missouriensis</i>	UR
Desert marigold	<i>Baileya multiradiata</i>	D, LR, UR
Blue grama grass	<i>Bouteloua gracilis</i>	E, Slope above E, D, C, B, LR, UR
Desert paintbrush	<i>Castilleja chromosa</i>	
Greenleaf five eyes	<i>Chamaesaracha coronopus</i>	B
Wavyleaf thistle	<i>Cirsium undulatum</i>	D
Golden Corydalis	<i>Corydalis aurea</i>	
Cryptantha sp.	<i>Cryptantha</i> sp.	
Spring parsley	<i>Cymopterus acaulis</i>	E, D
Spectacle pod	<i>Dimorphocarpa wislizeni</i>	E, D, LR
Bottlebrush squirreltail	<i>Elymus elymoides</i>	
Spreading daisy	<i>Erigeron divergens</i>	
Roundleaf buckwheat	<i>Eriogonum rotundifolium</i>	E,
Fluffgrass	<i>Erioneuron pulchellum</i>	E, D, C, B, LR, UR
Redstem filaree	<i>Erodium cicutarium</i>	
Western wallflower	<i>Erysimum capitatum</i>	
Rattlesnake weed	<i>Euphorbia albomarginata</i>	LR
Indian blanket	<i>Gaillardia pinnatifida</i>	Slope above E, B, LR, UR
Prairie sunflower	<i>Helianthus petiolaris</i>	B
Hairy false goldenaster	<i>Heterotheca villosa</i>	E
Creeping rush-pea	<i>Hoffmanseggia repens</i>	Slope above E
Collegeflower	<i>Hymenopappus flavescens</i>	
Hymenopappus	<i>Hymenopappus</i> sp.	
Flaxflowered Ipomopsis	<i>Ipomopsis longiflora</i>	C
Green sprangletop	<i>Lepochloa dubia</i>	D
Blue flax	<i>Linum perenne</i>	

Tansyaster	<i>Machaeranthera tanacetifolia</i>	E, D, C, LR
Desert dandelion	<i>Malacothrix sonchoides</i>	
Blackfoot daisy	<i>Melampodium leucanthum</i>	Slope above E, D, C, UR
Sweet clover	<i>Melilotus officinalis</i>	
Desert primrose	<i>Oenothera deltoides</i>	C, B
Indian ricegrass	<i>Oryzopsis hymenoides</i>	E
Western wheatgrass	<i>Pascopyrum smithii</i>	LR, UR
Arizona scorpion weed	<i>Phacelia arizonica</i>	
Gypsum phacelia	<i>Phacelia integrifolia</i>	C
Woolly plantain	<i>Plantago patagonica</i>	UR
Mexican hat	<i>Ratibida columnifera</i>	
Plains bristlegrass	<i>Setaria vulpiseta</i>	
Desert globemallow	<i>Sphaeralcea ambigua</i>	C, UR
Juniper globemallow	<i>Sphaeralcea digitata</i> var. <i>tenuipes</i>	UR
Prairie spiderwort	<i>Tradescantia scopulorum</i>	UR
Common mullein	<i>Verbascum thapsus</i>	
Cactus and Succulents		
Hedgehog cactus	<i>Echinocereus</i> sp.	
Prickly pear	<i>Opuntia</i> spp.	LR, UR
Yucca	<i>Yucca</i> spp.	LR
Invasive Plants		
Russian thistle	<i>Salsola tragus</i>	E, LR
Tamarisk	<i>Tamarisk</i> sp.	E, D, C, B, LR

Key-

LR - Lowland Reference Area (Socorro)

sp. – species unidentified

spp. – more than one species observed

UR - Upland Reference Area (Socorro)

Appendix A- Socorro Mine Photos



Reclaimed Area E- lower and middle terraced areas



Reclaimed Area E- erosion rills in middle terrace



Reclaimed Area E- upper terrace



Undisturbed Slope above Reclaimed Area E



Reclaimed Area D



Reclaimed Area D showing riprap drainage channels



Reclaimed Area C



Reclaimed Area C showing perimeter berm (lower left) and drainage to sediment basin (lower right and center)



Reclaimed Area B



Lowland Reference Area



Upland Reference Area

APPENDIX C

Reclamation Closure Costs for Socorro Mine

**Closure Cost Estimate
Cost Summary**

Project Name: Dicaperl - Socorro Closure Costs

Project Date: June 2016

Model Version: Version 1.4.1

File Name: SRCE_Version_1_4_1_016b_Socorro Closure Costs.xlsm

A. Earthwork/Recontouring	Labor ⁽¹⁾	Equipment ⁽²⁾	Materials	Total
Exploration	\$0	\$0	\$0	\$0
Exploration Roads & Drill Pads	\$0	\$0	\$0	\$0
Roads	\$355	\$1,801	\$0	\$2,156
Well Abandonment	\$0	\$0	\$0	\$0
Pits	\$0	\$0	N/A	\$0
Quarries & Borrow Areas	\$10,326	\$62,179	\$0	\$72,505
Underground Openings	\$0	\$0	\$0	\$0
Process Ponds	\$0	\$0	\$0	\$0
Heaps	\$0	\$0	\$0	\$0
Waste Rock Dumps	\$17,431	\$106,668	\$0	\$124,099
Landfills	\$0	\$0	\$0	\$0
Tailings	\$0	\$0	\$0	\$0
Foundation & Buildings Areas	\$137	\$692	\$0	\$829
Yards, Etc.	\$0	\$0	\$0	\$0
Drainage & Sediment Control	\$0	\$0	\$0	\$0
Generic Material Hauling	\$0	\$0	\$0	\$0
Other User Costs (from Other User sheet)	\$0	\$0	\$0	\$0
Other**				\$0
Subtotal	\$28,249	\$171,340	\$0	\$199,589
Mob/Demob if included in Other User sheet	\$0	\$0	\$0	\$0
Mob/Demob				\$0
Subtotal "A"	\$28,249	\$171,340	\$0	\$199,589
B. Revegetation/Stabilization	Labor ⁽¹⁾	Equipment ⁽²⁾	Materials	Total
Exploration	\$0	\$0	\$0	\$0
Exploration Roads & Drill Pads	\$0	\$0	\$0	\$0
Roads	\$1,179	\$1,829	\$2,226	\$5,234
Well Abandonment	\$0	\$0	N/A	\$0
Pits	\$0	\$0	\$0	\$0
Quarries & Borrow Areas	\$14,261	\$22,114	\$26,923	\$63,298
Underground Openings	\$0	\$0	\$0	N/A
Process Ponds	\$0	\$0	\$0	\$0
Heaps	\$0	\$0	\$0	\$0
Waste Rock Dumps	\$7,624	\$11,821	\$14,391	\$33,836
Landfills	\$0	\$0	\$0	\$0
Tailings	\$0	\$0	\$0	\$0
Foundation & Buildings Areas	\$944	\$1,464	\$1,782	\$4,190
Yards, Etc.	\$0	\$0	\$0	\$0
Drainage & Sediment Control	\$0	\$0	\$0	\$0
Generic Material Hauling	\$0	\$0	\$0	\$0
Other User Costs (from Other User sheet)	\$0	\$0	\$0	\$0
Other**				\$0
Subtotal "B"	\$24,008	\$37,228	\$45,322	\$106,558
C. Detoxification/Water Treatment/Disposal of Wastes**	Labor ⁽¹⁾	Equipment ⁽²⁾	Materials	Total
Process Ponds/Sludge				\$0
Heaps				\$0
Dumps (Waste & Landfill)				\$0
Tailings				\$0
Surplus Water Disposal				\$0
Monitoring				\$0
Miscellaneous				\$0
Solid Waste - On Site	\$0	\$0	N/A	\$0
Solid Waste - Off Site				\$0
Hazardous Materials				\$0
Hydrocarbon Contaminated Soils	\$0	\$0	\$0	\$0
Pumping (from Solution Mgmt sheet)	\$0	\$0	N/A	\$0
Evaporation (from Solution Mgmt sheet)	\$0	\$0	\$0	\$0
Treatment (from Solution Mgmt sheet)	\$0	\$0	\$0	\$0
Decontamination (from Solution Mgmt sheet)	\$0	\$0	\$0	\$0
Other User Costs (from Other User sheet)	\$0	\$0	\$0	\$0
Other**				\$0
Subtotal "C"	\$0	\$0	\$0	\$0
D. Structure, Equipment and Facility Removal, and Misc.	Labor ⁽¹⁾	Equipment ⁽²⁾	Materials	Total
Foundation & Buildings Areas	\$163,585	\$52,358	\$0	\$215,943
Other Demolition	\$0	\$0	\$0	\$0
Equipment Removal	\$0	\$0	\$0	\$0
Fence Removal	\$0	\$0	\$0	\$0
Fence Installation	\$0	\$0	\$0	\$0
Culvert Removal	\$0	\$0	N/A	\$0
Pipe Removal	\$0	\$0	N/A	\$0
Powerline Removal	\$0			\$0
Transformer Removal	\$0			\$0
Rip-rap, rock lining, gabions	\$0	\$0	\$0	\$0
Other Misc. Costs	\$0	\$0	\$0	\$0
Other User Costs (from Other User sheet)	\$0	\$0	\$0	\$0
Other**				\$0
Subtotal "D"	\$163,585	\$52,358	\$0	\$215,943
E. Monitoring	Labor ⁽¹⁾	Equipment ⁽²⁾	Materials	Total
Reclamation Monitoring and Maintenance	\$8,440	\$1,861	\$2,266	\$12,567
Ground and Surface Water Monitoring	\$0	\$0	\$0	\$0
Other User Costs (from Other User sheet)	\$0	\$0	\$0	\$0
Subtotal "E"	\$8,440	\$1,861	\$2,266	\$12,567
F. Construction Management & Support	Labor	Equipment ⁽²⁾	Materials	Total
Construction Management	\$83,549	\$768	N/A	\$84,317
Construction Support	\$0	\$0	\$0	\$0
Road Maintenance	\$0	\$0	\$0	\$0
Other User Costs (from Other User sheet)	\$0	\$0	\$0	\$0
Other**				\$0
Subtotal "F"	\$83,549	\$768	\$0	\$84,317

**Closure Cost Estimate
Cost Summary**

Project Name: Dicaperl - Socorro Closure Costs

Project Date: June 2016

Model Version: Version 1.4.1

File Name: SRCE_Version_1_4_1_016b_Socorro Closure Costs.xlsm

G. Closure Planning, G&A, Human Resources				Include?	Total
Closure Planning					\$0
General & Administration					\$0
Human Resources					\$0
Other User Costs (from Other User sheet)	\$0	\$0	\$0		\$0
Other**					\$0
Subtotal "G"	\$0	\$0	\$0		\$0

Subtotal Operational & Maintenance Costs				Labor ⁽¹⁾	Equipment ⁽²⁾	Materials ⁽³⁾	Total
Subtotal A through G				\$307,831	\$263,555	\$47,588	\$618,974

** Other Operator supplied costs - additional documentation required.

Indirect Costs		Include?	Total
1. Engineering, Design and Construction (ED&C) Plan (7)			\$37,138
2. Contingency (8)			\$49,518
3. Insurance (9)	\$4,617		\$4,617
4. Performance Bond (10)			\$18,569
5. Contractor Profit (11)			\$61,897
6. Contract Administration (12)			\$61,897
7. Government Indirect Cost (13)			N/A
Subtotal Add-On Costs			\$233,636
Total Indirect Costs as % of Direct Cost			38%
GRAND TOTAL			\$852,610

Administrative Cost Rates (%)

	Cost Ranges for Indirect Cost Percentages				
	<=	<=	<=	>	
1. Engineering, Design and Construction (ED&C) Plan (7)	\$500,000	\$2,500,000	\$25,000,000	\$25,000,000	Small Plan
Variable Rate	8%	6%		4%	0%
2. Contingency (8)	\$500,000	\$5,000,000	\$50,000,000	\$50,000,000	Small Plan
Variable Rate	10%	8%	6%	4%	0%
3. Insurance (9)	1.5% of labor costs				
4. Bond (10)	3.0% of the O&M costs if O&M costs are >\$100,000				
5. Contractor Profit (11)	10% of the O&M costs				
6. Contract Administration (12)	\$1,000,000	\$15,000,000	\$25,000,000	\$25,000,000	
Variable Rate	10%	8%		6%	
0	0%	\$0			

RECLAMATION COST ESTIMATION SUMMARY SHEET FOOTNOTES

NOTE :

**Closure Cost Estimate
Reclamation Quantities**

Project Name: Dicapertl - Socorro Closure Costs - Reclamation Plan
 Date of Submittal: June 2016
 File Name: SRCE_Version_1_4_1_016b_Socorro Closure Costs.xlsm
 Model Version: Version 1.4.1
 Data Cost File: SRCE_Cost_data-USR_1_12(2)_Socorro Reclamation Costs.xlsm
 Cost Data: User Data
 Cost Data File: SRCE_Cost_data-USR_1_12(2)_Socorro Reclamation Costs.xlsm
 Cost Estimate Type: Surety Cost Basis: Albuquerque, New Mexico

Reclamation Quantity Summary												Unit Costs				
Description	Total Regrade or Haul Volume cy	Total Regrade or Haul Cost \$	Total Cover Volume cy	Cover Placement Cost \$	Total Growth Media Volume cy	Growth Media Placement Cost \$	Total Surface Area acres	Total Scarify Cost \$	Total Revetation Cost \$	TOTALS \$	Regrade Unit Cost \$/CY	Material Haul or Backfill Unit Cost \$/CY	Cover Unit Cost \$/CY	Growth Media Unit Cost \$/CY	Scarify Unit Cost \$/CY	Area Unit Cost \$/acre
1 Waste Rock Dumps	37,134	\$ 5,968	150,395	\$ 111,169		\$ -	52.49	\$ 6,962	\$ 33,836	\$ 157,935	\$0.16	N/A	\$0.74		\$132.63	\$3,008.86
2 Tailings Impoundments		\$ -		\$ -		\$ -		\$ -	\$ -	\$ -		N/A				
3 Heap Leach Pads		\$ -		\$ -		\$ -		\$ -	\$ -	\$ -		N/A				
5 Open Pits		\$ -		\$ -		\$ -		\$ -	\$ -	\$ -		N/A				
4 Quarries & Borrow Pits	6,334	\$ 662	79,209	\$ 59,079		\$ -	98.19238292	\$ 12,764	\$ 63,298	\$ 135,803	\$0.10	N/A	\$0.75	\$129.99	\$1,383.03	
6 Roads	982	\$ 996		\$ -		\$ -	8.12	\$ 1,160	\$ 5,234	\$ 7,390	\$1.01	N/A		\$142.66	\$910.10	
7 Landfills		\$ -		\$ -		\$ -		\$ -	\$ -	\$ -		N/A				
8 Buildings		\$ -		\$ -		\$ -	6.5	\$ 829	\$ 4,190	\$ 5,019		N/A		\$127.54	\$772.15	
9 Yards		\$ -		\$ -		\$ -		\$ -	\$ -	\$ -		N/A				
10 Ponds		\$ -		\$ -		\$ -		\$ -	\$ -	\$ -		N/A				
11 Exploration Roads		\$ -		\$ -		\$ -		\$ -	\$ -	\$ -		N/A				
12 Exploration Trenches		\$ -		\$ -		\$ -		\$ -	\$ -	\$ -		N/A				
13 Diversion Ditches		\$ -		\$ -		\$ -		\$ -	\$ -	\$ -		N/A				
14 Sediment Ponds		\$ -		\$ -		\$ -		\$ -	\$ -	\$ -		N/A				
15 Generic Haulage/Backfill		\$ -		\$ -		\$ -		\$ -	\$ -	\$ -		N/A				
16 Adit/Decline Backfilling1		\$ -		\$ -		\$ -		\$ -	\$ -	\$ -		N/A				
17 Shaft Backfilling		\$ -		\$ -		\$ -		\$ -	\$ -	\$ -		N/A				
TOTALS	44,450	\$ 7,626	229,604	\$ 170,248		\$ -	165.30	\$ 21,715	\$ 106,558	\$ 306,147						
Average Costs	per CY	\$0.17	per CY	\$0.74	per CY		per acre	\$131.37	\$4.91	\$1,852	per acre					

**Closure Cost Estimate
Waste Rock Dumps**

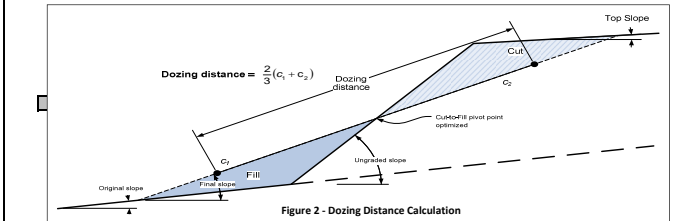
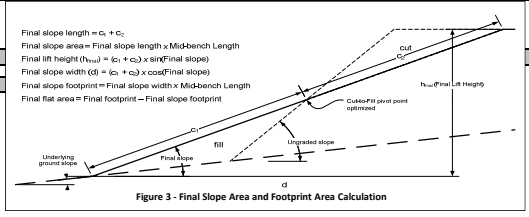
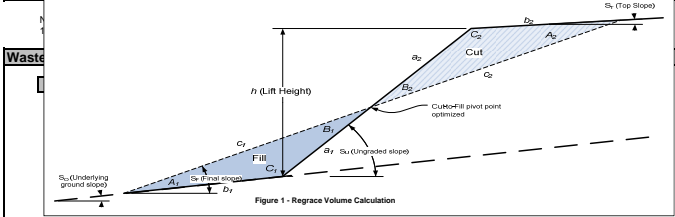
Project Name: Dicapri - Socorro Closure Costs - Reclamation Plan
 Date of Submittal: June 2016
 File Name: SRCE_Version_1_4_1_016b_Socorro Closure Costs.xlsm
 Model Version: Version 1.4.1
 Cost Data: User Data
 Cost Data File: SRCE_Cost_data-USR_1_12(2)_Socorro Reclamation Costs.xlsm
 Cost Estimate Type: Surety Cost Basis: Albuquerque, New Mexico

Waste Rock Dumps - Cost Summary				
	Labor	Equipment	Materials	Totals
Grading Costs	\$984	\$4,384	N/A	\$5,368
Cover Placement Cost	\$15,299	\$95,870	N/A	\$111,169
Topsoil Placement Cost	\$0	\$0	N/A	\$0
Ripping/Scarifying Cost	\$1,148	\$5,814	N/A	\$6,962
Subtotal Earthworks	\$17,431	\$106,668	\$0	\$124,099
Revegetation Cost	\$7,624	\$11,321	\$14,391	\$33,336
TOTALS	\$25,055	\$118,489	\$14,391	\$157,935

Facility Description		Physical - MANDATORY										Cover				Growth Media			
Description (required)	ID Code	Type	Underlying Ground Slope % Grade	Ungraded Slope H:TV	Final Slope H:TV	Final Top Slope % Grade	Lift (dump) Height ft	Mid-Bench Length ft	Average Flat Area Long Dimension (ripping distance) ft	Final (Regraded) Dump Footprint acres	Regrade Volume (V) (if calculated elsewhere) cy	Cover Thickness Slopes ft	Cover Thickness Flat Areas ft	Distance from Dump to Cover Borrow ft	Slope from Dump to Cover Borrow % Grade	Slope Growth Media Thickness ft	Flat Area Growth Media Thickness ft	Distance from Growth Media Stockpile ft	Slope from Dump to Stockpile % grade
1 Dump G		Waste Rock Du	1.1	1.1	3.0	0.0	50	530	1,204	26.00		24.0	24.0	2,632	1.0				
2 Dump G Expansion		Waste Rock Du	1.1	1.1	3.0	0.0	50	997	1,354	20.00		24.0	24.0	2,586	1.0				
3 Dump A		Stockpile	1.1	1.1	3.0	0.0	30	400	655	6.00									

Notes:
 1. All Physical parameters must be input even if manual overrides for volume or area are used.
 2. If Slope from facility to borrow source is >20, downhill travel time may be underestimated due to limitation of uphill travel time curves and downhill speed tables from CAT Handbook (see Productivity Sheet)

Waste Rock Dumps - User Input (cont.)		You must fill in ALL green cells and relevant blue cells in this section for each dump, lift or dump category																			
Description (required)	Dozing Material Condition (select)	Dump Material Type (select)	Grading		Slot/Side-by-Side (select)	Cover Material Type (select)	Cover Placement Equipment Fleet (select)	Growth Media		Revegetation											
			Equipment Fleet (select)	Equipment Type (select)				Seed Mix Slopes (select)	Seed Mix Flat Areas (select)	Mulch Slopes (select)	Mulch Flat Areas (select)	Fertilizer Slopes (select)	Fertilizer Flat Areas (select)	Slope Scarify/Rip? (select)	Flat Area Scarify/Rip? (select)	Scarify/Ripping Fleet (select)					
1 Dump G	1.2	Alluvium	Med	No	Alluvium	Scraper Dozer			User Mix 5 (fr>User Mix 5 (from Seed Mix sheet)										Yes	Yes	Med Dozer
2 Dump G Expansion	1.2	Alluvium	Med	No	Alluvium	Scraper Dozer			User Mix 5 (fr>User Mix 5 (from Seed Mix sheet)										Yes	Yes	Med Dozer
3 Dump A	1.2	Alluvium	Med	No	Alluvium	Scraper Dozer			User Mix 5 (fr>User Mix 5 (from Seed Mix sheet)										Yes	Yes	Med Dozer



Ripping/Scarifying Calculations

Minimum 1 hr ripping/scarifying time per dump

Slopes:
 Number of passes = Final slope length ÷ Grader width
 Travel distance = Number of passes × Mid-bench length
 Total hours = (Travel distance ÷ Grader productivity) + (Number of passes × Grader maneuver time)
 Minimum 1 hr

Flat Areas:
 Flat area width = Final flat area ÷ Average long dimensions
 Number of passes = Flat area width ÷ Grader width
 Travel distance = Number of passes × Average long dimensions
 Total hours = (Travel distance ÷ Grader productivity) + (Number of passes × Grader maneuver time)

Revegetation: Minimum 1 acre revegetation crew time per area

**Closure Cost Estimate
Waste Rock Dumps**

Project Name: Dicapri - Socorro Closure Costs - Reclamation Plan
 Date of Submittal: June 2016
 File Name: SRCE_Version_1_4_1_016b_Socorro Closure Costs.xlsm
 Model Version: Version 1.4.1
 Cost Data: User Data
 Cost Data File: SRCE_Cost_data-USR_1_12(2)_Socorro Reclamation Costs.xlsm
 Cost Estimate Type: Surety Cost Basis: Albuquerque, New Mexico

Waste Rock Dumps - Cost Summary				
	Labor	Equipment	Materials	Totals
Grading Costs	\$984	\$4,384	N/A	\$5,368
Cover Placement Cost	\$15,299	\$95,870	N/A	\$111,169
Topsoil Placement Cost	\$0	\$0	N/A	\$0
Ripping/Scarifying Cost	\$1,148	\$5,814	N/A	\$6,962
Subtotal Earthworks	\$17,431	\$106,668	\$0	\$124,099
Revegetation Cost	\$7,624	\$11,821	\$14,391	\$33,836
TOTALS	\$25,055	\$118,489	\$14,391	\$157,935

Waste Rock Dumps - Regrading Costs														
Productivity = Dozer Productivity x Grade Correction x Density Correction x Operator (0.75) x Material x Visibility x Job Efficiency (0.83) x (Slot/Side-by-Side) x (Altitude Deration)														
	Description (required)	Regrading Volume cy	Dozing Distance (see above) ft	Regrading Fleet	Uncorrected Dozer Productivity cy/hr	Grade Correction	Dozing Material	Density Correction	Side-by-Side or Slot Dozing	Total Hourly Productivity cy/hr	Total Dozer Hours	Total Labor Cost \$	Total Equipment Cost \$	Total Regrading Cost \$
1	Dump G	11,778	77	DBR	1,052	1.6	1.2	0.79	1.0	993	12	\$328	\$1,661	\$1,989
2	Dump G Expansion	22,156	77	DBR	1,052	1.6	1.2	0.79	1.0	993	22	\$601	\$3,046	\$3,647
3	Dump A	3,200	50	DBR	1,677	1.6	1.2	0.79	1.0	1,583	2	\$55	\$277	\$332
		37,134									36	\$984	\$4,984	\$5,968

Waste Rock Dumps - Cover and Growth Media Costs																	
	Description (required)	Cover (lower layer)							Growth Media Placement								
		Cover Volume cy	Cover Replacement Fleet	Fleet Productivity LCY/hr	Number of Trucks/ Scrapers	Total Fleet Hours	Cover Labor Cost \$	Cover Equipment Cost \$	Total Cover Cost \$	Growth Media Volume cy	Growth Media Replacement Fleet	Fleet Productivity BCY/hr	Number of Trucks/ Scrapers	Total Fleet Hours	Total Labor Cost \$	Total Equipment Cost \$	Total Topsoiling Cost \$
1	Dump G	83,732	Scraper Dozer	1,341	3	63	\$8,606	\$33,927	\$62,533						\$0	\$0	\$0
2	Dump G Expansion	66,663	Scraper Dozer	1,358	3	49	\$6,693	\$41,943	\$48,636						\$0	\$0	\$0
3	Dump A						\$0	\$0	\$0						\$0	\$0	\$0
		150,395				112	\$15,299	\$95,870	\$111,169						\$0	\$0	\$0

Waste Rock Dumps - Scarifying/Revegetation Costs																
	Description (required)	Slope Area acres	Flat Area acres	Total Surface Area acres	Final Slope Length ft	Flat Area Long Dimension ft	Ripping/Scarifying Fleet	Slope Scarifying/Ripping Hours hrs	Flat Area Scarifying/Ripping Hours hrs	Scarifying/Ripping Labor Costs \$	Scarifying/Ripping Equipment Cost \$	Total Scarifying/Ripping Costs \$	Revegetation Labor Cost \$	Revegetation Equipment Cost \$	Revegetation Material Cost \$	Total Revegetation Cost \$
1	Dump G	1.95	24.00	25.95	160	1,204	DBR	2	19	\$574	\$2,907	\$3,481	\$3,769	\$5,844	\$7,115	\$16,728
2	Dump G Expansion	3.66	17.00	20.66	160	1,354	DBR	3	13	\$437	\$2,215	\$2,652	\$3,001	\$4,653	\$5,664	\$13,318
3	Dump A	0.38	5.00	5.38	96	655	DBR	1	4	\$137	\$692	\$829	\$854	\$1,224	\$1,613	\$3,790
		6.49	46.00	52.49				6	36	\$1,148	\$5,814	\$6,962	\$7,624	\$11,821	\$14,391	\$33,836

Notes: 1) Minimum total ripping hours = 1 (i.e. if total ripping hrs (slope + flat) < 1, then one hour of fleet time is assumed, regardless of acres shown in in scarifying table.)

Closure Cost Estimate
Roads

Project Name: Dicapri - Socorro Closure Costs - Reclamation Plan
 Date of Submittal: June 2016
 File Name: SRCE_Version_1.4.1_016b_Socorro Closure Costs.xlsm
 Model Version: Version 1.4.1
 Cost Data: User Data
 Cost Data File: SRCE_Cost_data-USR_1_12(2)_Socorro Reclamation Costs.xlsm
 Cost Estimate Type: Surety Cost Basis: Albuquerque, New Mexico

Roads - Cost Summary				
	Labor	Equipment	Materials	Totals
Grading Costs	\$164	\$832	N/A	\$996
Cover Placement Cost	\$0	\$0	N/A	\$0
Ripping/Scarifying Cost	\$191	\$969	N/A	\$1,160
Subtotal Earthworks	\$355	\$1,801		\$2,156
Revegetation Cost	\$1,179	\$1,829	\$2,226	\$5,234
TOTALS	\$1,534	\$3,630	\$2,226	\$7,390

Roads - User Input													
You must fill in ALL green cells and relevant blue cells in this section for each road													
Facility Description			Physical (1) - MANDATORY					User Overrides		Growth Media			
Description (required)	ID Code	Type	Underlying Ground Slope % grade	Ungraded Slope % grade	Cut Slope Regress %	Road Width ft	Road Length ft	Slope Replacement Percent %	Regrade Volume (if calculated elsewhere) cy	Disturbed Area (if calculated elsewhere) acres	Growth Media Thickness in	Haul Distance from Growth Media Stockpile ft	Slope from Road to Stockpile % grade
1 Area Roads		Haul Road	1.9	1.9	48.8	20.0	17,560	3%					

- Notes:
 1. All Physical parameters must be input even if manual overrides for volume or area are used.
 2. If Slope from facility to borrow source is >20, downhill travel time may be underestimated due to limitation of uphill travel time curves and downhill speed tables from CAT Handbook (see Productivity Sheet)
 3. Because the work required for building roads with a dozer is similar to that required to regrade a road with a dozer, this sheet could be used to provide a rough estimate of road construction costs if a dozer is selected as the grading fleet.

Roads - User Input (cont.)					
Haul Road Safety Berms					
Description (required)	Berm Length ft	Berm Height ft	Berm Base Width ft	Berm Side Slope Angle %:1V	Number of Berms (2 (1 or 2 sides))
1 Area Roads	17,560.0	0.5	3.0	3.0	2

(2) Enter 1 if berm on only one side of road, 2 if both sides of road are bermed.

Roads - User Input (cont.)												
You must fill in ALL green cells and relevant blue cells in this section for each road												
Description (required)	Dosing Material Condition (select)	Grading			Growth Media			Revegetation				
		Cut Material Type (select)	Recontouring Equipment Fleet (select)	No. of Excavators (if grade >30% (select))	Growth Media Material Type (select)	Cover Placement Equipment Fleet (select)	Maximum Fleet Size (User override)	Seed Mix (select)	Mulch (select)	Fertilizer (select)	Scarifying/Ripping? (select)	Ripping Fleet (select)
1 Area Roads	1-2	Alluvium	Med Excavator	1			User Mts \$ from/None	None		Yes	Med Dozer	

- Notes:
 1. Material Types are used for density correction based on material densities in Caterpillar Performance Handbook material density table
 2. If original slope >30% only excavators are allowed.

Regrading Volume and Footprint Volume

Figure 1 - Regrading Volume Calculation

Will not allow dozer for slopes greater than 30%
 For dozer regrading push distance = road width
 Assumes dozer push is uphill
 Assumes minimum push distance of 100 ft

Safety Berm Volume Calculation

Berm Volume = Berm Length x Cross Sectional Area x No. Sides

Total berm volume doubled if both sides of road are bermed.
 If length of berm on each side of road is different, input total length of both berms and input 1 for number of sides

Ripping/Scarifying Calculations

Minimum 1 hr ripping/scarifying time per area
 Number of passes = Final slope length ÷ Grader width
 Travel distance = Number of passes x Road length
 Total hours = (Travel distance ÷ Grader productivity) x (Number of passes x Grader maneuver time)
 For dozer regrading assumes push distance = 3 x road width

Revegetation Calculations

Minimum of 1 acre crew time per area

Roads - Regrading Costs							
Description (required)	Regrading Volume cu	Recontouring Fleet	Fleet Productivity cu/hr	Total Fleet Hours hr	Total Labor Cost \$	Total Equipment Cost \$	Total Regrading Cost \$
1 Area Roads	982	3.0C	300	3	\$164	\$832	\$996
	982			3	\$164	\$832	\$996

Roads - Growth Media Costs							
Description (required)	Growth Media Volume cu	Growth Media Replacement Fleet	Fleet Productivity cu/hr	Number of Trucks/ Scrapers	Total Fleet Hours hr	Total Labor Cost \$	Total Topping Cost \$
1 Area Roads						\$0	\$0
						\$0	\$0

Roads - Scarifying/Revegetation Costs										
Description (required)	Total Surface Area acres	Final Slope %	Ripping Hours hr	Ripping Labor Costs \$	Ripping Equipment Cost \$	Total Ripping Costs \$	Revegetation Labor Cost \$	Revegetation Equipment Cost \$	Revegetation Material Cost \$	Total Revegetation Cost \$
1 Area Roads	8.12	20.0	7	\$191	\$969	\$1,160	\$1,179	\$1,829	\$2,226	\$5,234
	8.12		7	\$191	\$969	\$1,160	\$1,179	\$1,829	\$2,226	\$5,234

Project Name: Diogeni - Socorro Closure Costs - Reclamation Plan
 Date of Schedule: June 2015
 File Name: SFCE - Version 1 - A - 1 - 016 - Socorro Closure Costs.xlsx
 Model Version: Version 1.4.1
 Cost Estimate Type: Summary Cost Basis: Albuquerque, New Mexico

Quarries and Borrow Areas - Cost Summary			
Category	Unit	Quantity	Price
Land Reclamation Cost	sq ft	1,000,000	1.00
Topsoil Placement Cost	cu yd	100,000	10.00
Regrading/Grading Cost	sq ft	1,000,000	1.00
Salinity/Boron Control/Leak Cost	sq ft	1,000,000	1.00
Vegetation Cost	sq ft	1,000,000	1.00
Salinity/Boron Management Cost	sq ft	1,000,000	1.00
TOTAL		1,000,000	1,000,000

Quarries & Borrow Pits - User Input																				
Description	ID Code	Type	Structure/Feature	Topsoil Depth	Final Slope	Final Top	Final Bottom	Final Area	Final Volume	Final Perimeter	Final Length	Final Width	Final Height	Final Depth	Cover		Growth Media		Revegetation	
															Material	Quantity	Material	Quantity		
1. Borrowing Area				1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
2. Borrowing Area				1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0

Note:
 1. All Physical parameters must be input into 1. All material quantities for volume or area are used.
 2. If Slope for facility to borrow area is 0.0, should be used only for undisturbed area to be located at right angle line curve and downhill speed sides from C-AT Handbook (see Productivity Sheet)

Quarries & Borrow Pits - User Input (cont.)														
Description	Dusting Distance	Highway Barms	Berm Construction	Excavator or Dozer	Hauling (if selected method)	Revegetation	Cover		Growth Media		Revegetation		Final Area	Final Perimeter
							Material	Quantity	Material	Quantity	Material	Quantity		
1. Borrowing Area														
2. Borrowing Area														

Note:
 1. Material Types are used for density correction based on material density in Compendium Performance Handbook material density table.

Quarries & Borrow Pits - User Input (cont.)														
Description	Dusting Distance	Highway Barms	Berm Construction	Excavator or Dozer	Hauling (if selected method)	Revegetation	Cover		Growth Media		Revegetation		Final Area	Final Perimeter
							Material	Quantity	Material	Quantity	Material	Quantity		
1. Borrowing Area														
2. Borrowing Area														

Note:
 1. All Physical parameters must be input into 1. All material quantities for volume or area are used.
 2. If Slope for facility to borrow area is 0.0, should be used only for undisturbed area to be located at right angle line curve and downhill speed sides from C-AT Handbook (see Productivity Sheet)
 3. Material Types are used for density correction based on material density in Compendium Performance Handbook material density table.

Figure 1 - Regrade Volume Calculation
 Shows a cross-section of a slope with original ground (OG) and proposed ground (PG) lines. The volume to be added is the area between these lines multiplied by the length of the slope.

Figure 2 - Final Slope Area and Footprint Area Calculation
 Shows a slope with a top width (T) and a bottom width (B). The final slope area is the area of the trapezoid formed by the top and bottom widths and the slope length.

Figure 3 - Dosing Distance Calculation
 Shows a slope with a top width (T) and a bottom width (B). The dosing distance is the horizontal distance from the top edge to the point where the material is applied.

Cross Sectional Area = $\frac{(B+T) \cdot h}{2}$
 Where B is Bottom Width, T is Top Width, and h is Height.

Berm Volume = Berm Length x Cross Sectional Area

Quarries & Borrow Pits - Regrading Costs														
Description	Regrading Method	Regrading Rate	Regrading Area	Regrading Depth	Regrading Volume	Regrading Cost	Regrading Length	Regrading Width	Regrading Height	Regrading Depth	Regrading Area	Regrading Volume	Regrading Cost	Regrading Length
1. Borrowing Area														
2. Borrowing Area														

Quarries & Borrow Pits - Cover and Growth Media Costs														
Description	Cover Material	Cover Area	Cover Depth	Cover Volume	Cover Cost	Cover Length	Cover Width	Cover Height	Cover Depth	Cover Area	Cover Volume	Cover Cost	Cover Length	Cover Width
1. Borrowing Area														
2. Borrowing Area														

Quarries & Borrow Pits - Scarifying/Revegetation Costs														
Description	Scarifying Method	Scarifying Area	Scarifying Depth	Scarifying Volume	Scarifying Cost	Scarifying Length	Scarifying Width	Scarifying Height	Scarifying Depth	Scarifying Area	Scarifying Volume	Scarifying Cost	Scarifying Length	Scarifying Width
1. Borrowing Area														
2. Borrowing Area														

Note: 1. Minimum take spacing hours = 1.5 x 8 hour spacing (100000 + 100000 + 100000) = 1.5 x 100000 = 150000 hours of work hours is assumed, regardless of area shown in regrading table.
 2. Material density is assumed to be 100 lb/cu ft.

Quarries & Borrow Pits - Safety Berm Construction Costs														
Description	Berm Material	Berm Area	Berm Depth	Berm Volume	Berm Cost	Berm Length	Berm Width	Berm Height	Berm Depth	Berm Area	Berm Volume	Berm Cost	Berm Length	Berm Width
1. Borrowing Area														
2. Borrowing Area														

Quarries & Borrow Pits - Safety Berms - Revegetation Costs														
Description	Revegetation Area	Revegetation Cost	Revegetation Length	Revegetation Width	Revegetation Height	Revegetation Depth	Revegetation Area	Revegetation Volume	Revegetation Cost	Revegetation Length	Revegetation Width	Revegetation Height	Revegetation Depth	Revegetation Area
1. Borrowing Area														
2. Borrowing Area														

**Closure Cost Estimate
Foundations & Buildings**

Project Name: Dicaperl - Socorro Closure Costs - Reclamation Plan
 Date of Submittal: June 2016
 File Name: SRCE_Version_1_4_1_016b_Socorro Closure Costs.xlsm
 Model Version: Version 1.4.1
 Cost Data: User Data
 Cost Data File: SRCE_Cost_data-USR_1_12(2)_Socorro Reclamation Costs.xlsm
 Cost Estimate Type: Surety Cost Basis: Albuquerque, New Mexico

Buildings & Foundation Demolition Cost Summary				
	Labor	Equipment	Materials	Totals
Building Demolition Cost	\$154,980	\$47,723	N/A	\$202,703
Wall Demolition Cost	\$7,894	\$0	N/A	\$7,894
Slab Demolition	\$721	\$4,835	N/A	\$5,556
Subtotal Demolition	\$163,585	\$52,358	\$0	\$215,943
Cover Placement Cost	\$0	\$0	N/A	\$0
Growth Media Placement Cost	\$0	\$0	N/A	\$0
Ripping/Scarifying Cost	\$137	\$692	N/A	\$829
Subtotal Earthworks	\$137	\$692	\$0	\$829
Revegetation Cost	\$944	\$1,464	\$1,782	\$4,190
TOTALS	\$164,666	\$54,514	\$1,782	\$220,962

Buildings & Foundation - User Input		You must fill in ALL green cells and relevant blue cells in this section for each building or facility															
Facility Description			Physical - MANDATORY							Foundation Cover (1)			Growth Media (1) (entire footprint)				
	Description (required)	ID Code	Type	Length ft	Width ft	Eve Height ft	Slab Thickness in	Foundation Wall Thickness in	Foundation Wall Height ft	Average Flat Area Long Dimension (ripping distance) ft	Building Area Footprint (including surrounding facilities) acres	Foundation Cover Thickness in	Distance from Foundation Borrow Area ft	Slope from Facility to Borrow Area % grade	Growth Media Thickness in	Distance from Growth Media Stockpile ft	Slope from Facility to Stockpile % grade
1	Plant Building		Process - Plant & Buildings	182	75	30	8	8	4	170	4.90						
2	Other Plant Ancillary Buildings		Site Facilities - Buildings	225	175	30	8	8	4	200	2.50						

Notes:
 1. Foundation cover only calculated to cover slab. Growth media estimated over entire footprint area
 2. If Slope from facility to borrow source is >20, downhill travel time may be underestimated due to limitation of uphill travel time curves and downhill speed tables from CAT Handbook (see Productivity Sheet)

Buildings & Foundation - User Input (cont.)		You must fill in ALL green cells and relevant blue cells in this section for each building or facility															
Description (required)		Construction Materials			Slab Demolition		Foundation Cover			Growth Media			Revegetation				
		Building Type (select)	Foundation Type (select)	Wall Type (select)	Slab Demo Method (select)	Slab Breaking Equipment Fleet (select)	Cover Material Type (select)	Cover Placement Equipment Fleet (select)	Maximum Fleet Size (user override)	Growth Media Material Type (select)	Growth Media Placement Equipment Fleet (select)	Maximum Fleet Size (user override)	Seed Mix (select)	Mulch (select)	Fertilizer (select)	Scarify/ Rip? (select)	Ripping Fleet (select)
1	Plant Building	Lg. steel	Block 6 in (150 mm) thick		Break & bury	Lg Excavator							User Mix 5 (from Seed Mix sheet)			Yes	Med Dozer
2	Other Plant Ancillary Buildings	Lg. mixed	Block 6 in (150 mm) thick		Break & bury	Lg Excavator							User Mix 5 (from Seed Mix sheet)			Yes	Med Dozer

Notes:
 1. Material Types are used for density correction based on material densities in Caterpillar Performance Handbook material density table

Buildings & Foundation - Calculations	
Building Volume Calculations	
Using Means Heavy Construction Cost Data (2004) calculates cubic feet from building dimensions Estimate slab thickness and wall thickness if not known Assumes that all concrete slabs are reinforced Productivity for crew from Means Heavy Construction Cost Data (2004) adjusted for supervision (addressed in Misc. Costs) and Davis-Bacon Wage Rates Demolition costs do not include hauling or disposing of debris - Use Waste Disposal module	
Slab Demolition Calculations	
Minimum 1 hr excavator time for slab demolition	
Cover Volume Calculation	
Foundation area x cover thickness If "Bury in Place" is selected as slab demolition method, cover thickness is adjusted such that total cover (cover + growth media) equals value entered in "Minimum thickness of cover over unbroken slab" cell above	
Ripping/Scarifying Calculations	
Flat area width = Final flat area ÷ Average long dimensions Number of passes = Flat area width ÷ Grader width Travel distance = Number of passes x Average long dimensions Total hours = (Travel distance ÷ Grader productivity) + (Number of passes x Grader maneuver time)	
Revegetation	
Minimum 1 acre revegetation crew time per area	

**Closure Cost Estimate
Foundations & Buildings**

Project Name: Dicap1 - Socorro Closure Costs - Reclamation Plan
 Date of Submittal: June 2016
 File Name: SRCE_Version_1_4_1_016b_Socorro Closure Costs.xlsx
 Model Version: Version 1.4.1
 Cost Data: User Data
 Cost Data File: SRCE_Cost_data-USR_1_12(2)_Socorro Reclamation Costs.xlsx
 Cost Estimate Type: Surety Cost Basis: Albuquerque, New Mexico

Buildings & Foundation Demolition Cost Summary				
	Labor	Equipment	Materials	Totals
Building Demolition Cost	\$154,980	\$47,723	N/A	\$202,703
Wall Demolition Cost	\$7,894	\$0	N/A	\$7,894
Slab Demolition	\$721	\$4,635	N/A	\$5,356
Subtotal Demolition	\$163,585	\$52,358	\$0	\$215,943
Cover Placement Cost	\$0	\$0	N/A	\$0
Growth Media Placement Cost	\$0	\$0	N/A	\$0
Ripping/Scarifying Cost	\$137	\$692	N/A	\$829
Subtotal Earthworks	\$137	\$692	\$0	\$829
Revegetation Cost	\$944	\$1,464	\$1,782	\$4,190
TOTALS	\$164,666	\$54,514	\$1,782	\$220,962

Building & Foundation Demolition Costs																			
Uses RS Means Heavy Construction Cost Data for building and wall demolition cost calculations. Uses CAT Handbook for slab breaking production.																			
Item	Description (required)	Building Footprint (slab area) sqft	Building Volume cu ft	Wall Length ft	Wall Area sq ft	Slab Demolition Fleet	Slab Volume cu	Building Demolition			Wall Demolition			Slab Demolition			Total Costs		
								Total Labor Cost \$	Total Equipment Cost \$	Total Building Demolition Cost \$	Total Labor Cost \$	Total Equipment Cost \$	Total Wall Demolition Cost \$	Total Labor Cost \$	Total Equipment Cost \$	Total Slab Breaking Cost \$	Total Labor Cost \$	Total Equipment Cost \$	Total Demolition Costs \$
1	Plant Building	13,850	409,500	514	2,056	385BL	337	\$36,855	\$12,285	\$49,140	\$3,084	\$0	\$3,084	\$186	\$1,194	\$1,380	\$40,125	\$13,479	\$53,604
2	Other Plant Ancillary Buildings	39,375	1,181,250	800	3,200	385BL	972	\$118,125	\$35,438	\$153,563	\$4,800	\$0	\$4,800	\$535	\$3,441	\$3,976	\$123,460	\$38,879	\$162,339
			1,590,750				1,309	\$154,980	\$47,723	\$202,703	\$7,884	\$0	\$7,884	\$721	\$4,635	\$5,356	\$163,585	\$52,358	\$215,943

Building & Foundation - Foundation Cover and Growth Media Costs																				
Item	Description (required)	Foundation Cover							Growth Media							Total Cover & Growth Media Costs				
		Cover Volume cy	Cover Replacement Fleet	Fleet Productivity LCY/hr	Number of Trucks/ Scrapers	Total Fleet Hours	Total Labor Cost \$	Total Equipment Cost \$	Total Cover Cost \$	Growth Media Volume cy	Growth Media Replacement Fleet	Fleet Productivity LCY/hr	Number of Trucks/ Scrapers	Total Fleet Hours	Total Labor Cost \$	Total Equipment Cost \$	Total Growth Media Cost \$	Total Labor Cost \$	Total Equipment Cost \$	Total Costs \$
1	Plant Building						\$0	\$0	\$0						\$0	\$0	\$0	\$0	\$0	\$0
2	Other Plant Ancillary Buildings						\$0	\$0	\$0						\$0	\$0	\$0	\$0	\$0	\$0

Building & Foundation - Scarifying/Revegetation Costs															
Item	Description (required)	Flat Area acres	Area Long Dimension ft	Scarifying/Ripping Hours	Scarifying/Ripping			Revegetation			Total Scarify & Revegetation Costs				
					Scarifying/Ripping Labor Costs \$	Scarifying/Ripping Equipment Cost \$	Total Scarifying/Ripping Costs \$	Revegetation Labor Cost \$	Revegetation Equipment Cost \$	Revegetation Material Cost \$	Total Revegetation Cost \$	Total Labor Cost \$	Total Equipment Cost \$	Total Material Cost \$	Total Costs \$
1	Plant Building	4.00	170	3	\$82	\$415	\$497	\$681	\$901	\$1,097	\$2,579	\$663	\$1,316	\$1,097	\$3,076
2	Other Plant Ancillary Buildings	2.50	200	2	\$55	\$277	\$332	\$363	\$563	\$685	\$1,611	\$418	\$840	\$685	\$1,943
		6.50		5	\$137	\$692	\$829	\$944	\$1,464	\$1,782	\$4,190	\$1,081	\$2,156	\$1,782	\$5,019

**Closure Cost Estimate
Labor Rates**

Project Name: Dicapertl - Socorro Closure Costs - Reclamation Plan
 Date of Submittal: June 2016
 File Name: SRCE_Version_1_4_1_016b_Socorro Closure Costs.xlsm
 Model Version: Version 1.4.1
 Cost Data: User Data
 Cost Data File: SRCE_Cost_data-USR_1_12(2)_Socorro Reclamation Costs.xlsm
 Cost Estimate Type: Surety Cost Basis: Albuquerque, New Mexico

Color Code Key	
User Input - Direct Input	Direct Input
User Input - Pull Down List	Pull Down Selection
Program Constant (can override)	Alternate Input
Program Calculated Value	Locked Cell - Formula or Reference

ZONE ADJUSTMENTS		
Cost Basis/Project Region	Albuquerque, New Mexico	Southern New Mexico
Power Equipment Operators	<50 miles	\$0.00
Truck Drivers	50-100	\$2.00
Laborers	100-200	\$3.00
INDIRECT COSTS		
Unemployment (%)	1.85%	
Retirement/SS/Medicare (%)	0.01%	
Workman's Compensation (%)	3.50%	
Other Indirects		
State Payroll Tax (13),(15),(17),(19)	5.50%	
Total Other Indirects	5.50%	

HOURLY LABOR RATE TABLE														
EQUIPMENT TYPE (1) OR JOB DESCRIPTION	Labor Group	Base Rate (\$/hr)	Zone Adjustment (\$/hr)	Hourly Wage (\$/hr)	Fringe (\$/hr)	Retirement/ Medicare (\$/hr)	Unemployment Insurance (\$/hr)	Workman's Compensation (\$/hr)	Other Indirect Costs (\$/hr)	Additional User Markups to Base Rate†			Total (\$/hr)	
										(\$/hr)	%	(\$/hr)		
Equipment Operators (\$/hr) (2)														
Bulldozers														
D6R		\$24.64	\$0.00	\$24.64	\$0.00	\$0.46	\$0.00	\$0.86	\$1.36				\$0	\$27.32
D6R w/ Winch		\$24.64	\$0.00	\$24.64	\$0.00	\$0.46	\$0.00	\$0.86	\$1.36				\$0	\$27.32
D7R		\$24.64	\$0.00	\$24.64	\$0.00	\$0.46	\$0.00	\$0.86	\$1.36				\$0	\$27.32
D8R		\$24.64	\$0.00	\$24.64	\$0.00	\$0.46	\$0.00	\$0.86	\$1.36				\$0	\$27.32
D9R		\$24.64	\$0.00	\$24.64	\$0.00	\$0.46	\$0.00	\$0.86	\$1.36				\$0	\$27.32
D10R		\$24.64	\$0.00	\$24.64	\$0.00	\$0.46	\$0.00	\$0.86	\$1.36				\$0	\$27.32
D11R		\$24.64	\$0.00	\$24.64	\$0.00	\$0.46	\$0.00	\$0.86	\$1.36				\$0	\$27.32
Wheeled Dozers														
824G		\$24.64	\$0.00	\$24.64	\$0.00	\$0.46	\$0.00	\$0.86	\$1.36				\$0	\$27.32
834G		\$24.64	\$0.00	\$24.64	\$0.00	\$0.46	\$0.00	\$0.86	\$1.36				\$0	\$27.32
844		\$24.64	\$0.00	\$24.64	\$0.00	\$0.46	\$0.00	\$0.86	\$1.36				\$0	\$27.32
854G		\$24.64	\$0.00	\$24.64	\$0.00	\$0.46	\$0.00	\$0.86	\$1.36				\$0	\$27.32
Motor Graders														
120H		\$24.64	\$0.00	\$24.64	\$0.00	\$0.46	\$0.00	\$0.86	\$1.36				\$0	\$27.32
14G/H		\$24.64	\$0.00	\$24.64	\$0.00	\$0.46	\$0.00	\$0.86	\$1.36				\$0	\$27.32
16G/H		\$24.64	\$0.00	\$24.64	\$0.00	\$0.46	\$0.00	\$0.86	\$1.36				\$0	\$27.32
24M		\$24.64	\$0.00	\$24.64	\$0.00	\$0.46	\$0.00	\$0.86	\$1.36				\$0	\$27.32
Track Excavators														
312C		\$24.64	\$0.00	\$24.64	\$0.00	\$0.46	\$0.00	\$0.86	\$1.36				\$0	\$27.32
320C		\$24.64	\$0.00	\$24.64	\$0.00	\$0.46	\$0.00	\$0.86	\$1.36				\$0	\$27.32
325C		\$24.64	\$0.00	\$24.64	\$0.00	\$0.46	\$0.00	\$0.86	\$1.36				\$0	\$27.32
330C		\$24.64	\$0.00	\$24.64	\$0.00	\$0.46	\$0.00	\$0.86	\$1.36				\$0	\$27.32
345B		\$24.64	\$0.00	\$24.64	\$0.00	\$0.46	\$0.00	\$0.86	\$1.36				\$0	\$27.32
365BL		\$24.64	\$0.00	\$24.64	\$0.00	\$0.46	\$0.00	\$0.86	\$1.36				\$0	\$27.32
385BL		\$24.64	\$0.00	\$24.64	\$0.00	\$0.46	\$0.00	\$0.86	\$1.36				\$0	\$27.32
Scrapers														
631G		\$24.64	\$0.00	\$24.64	\$0.00	\$0.46	\$0.00	\$0.86	\$1.36				\$0	\$27.32
637G		\$24.64	\$0.00	\$24.64	\$0.00	\$0.46	\$0.00	\$0.86	\$1.36				\$0	\$27.32
Wheeled Loaders														
924G		\$24.64	\$0.00	\$24.64	\$0.00	\$0.46	\$0.00	\$0.86	\$1.36				\$0	\$27.32
928G		\$24.64	\$0.00	\$24.64	\$0.00	\$0.46	\$0.00	\$0.86	\$1.36				\$0	\$27.32
950G		\$24.64	\$0.00	\$24.64	\$0.00	\$0.46	\$0.00	\$0.86	\$1.36				\$0	\$27.32
966G		\$24.64	\$0.00	\$24.64	\$0.00	\$0.46	\$0.00	\$0.86	\$1.36				\$0	\$27.32
972G		\$24.64	\$0.00	\$24.64	\$0.00	\$0.46	\$0.00	\$0.86	\$1.36				\$0	\$27.32
980G		\$24.64	\$0.00	\$24.64	\$0.00	\$0.46	\$0.00	\$0.86	\$1.36				\$0	\$27.32
988G		\$24.64	\$0.00	\$24.64	\$0.00	\$0.46	\$0.00	\$0.86	\$1.36				\$0	\$27.32
990		\$24.64	\$0.00	\$24.64	\$0.00	\$0.46	\$0.00	\$0.86	\$1.36				\$0	\$27.32
992G		\$24.64	\$0.00	\$24.64	\$0.00	\$0.46	\$0.00	\$0.86	\$1.36				\$0	\$27.32
994D		\$24.64	\$0.00	\$24.64	\$0.00	\$0.46	\$0.00	\$0.86	\$1.36				\$0	\$27.32
L2350		\$24.64	\$0.00	\$24.64	\$0.00	\$0.46	\$0.00	\$0.86	\$1.36				\$0	\$27.32
Shovels														
PC2000		\$24.64	\$0.00	\$24.64	\$0.00	\$0.46	\$0.00	\$0.86	\$1.36				\$0	\$27.32
PC3000		\$24.64	\$0.00	\$24.64	\$0.00	\$0.46	\$0.00	\$0.86	\$1.36				\$0	\$27.32
PC4000		\$24.64	\$0.00	\$24.64	\$0.00	\$0.46	\$0.00	\$0.86	\$1.36				\$0	\$27.32
PC5500		\$24.64	\$0.00	\$24.64	\$0.00	\$0.46	\$0.00	\$0.86	\$1.36				\$0	\$27.32
PC8000		\$24.64	\$0.00	\$24.64	\$0.00	\$0.46	\$0.00	\$0.86	\$1.36				\$0	\$27.32
Hydraulic Hammers														
H-120 (fits 325)														
H-160 (fits 345)														
H-180 (fits 365/385)														
Demolition Shears														
S340 (fits 322/325/330)														
S365 (fits 330/345)														
S390 (fits 365/385)														
Demolition Grapples														
G315 (fits 322/325)														
G320 (fits 325/330)														
G330 (fits 345/365)														

**Closure Cost Estimate
Labor Rates**

Project Name: Dicaperl - Socorro Closure Costs - Reclamation Plan
 Date of Submittal: June 2016
 File Name: SRCE_Version_1_4_1_016b_Socorro Closure Costs.xlsm
 Model Version: Version 1.4.1
 Cost Data: User Data
 Cost Data File: SRCE_Cost_data-USR_1_12(2)_Socorro Reclamation Costs.xlsm
 Cost Estimate Type: Surety Cost Basis: Albuquerque, New Mexico

Color Code Key	
User Input - Direct Input	Direct Input
User Input - Pull Down List	Pull Down Selection
Program Constant (can override)	Alternate Input
Program Calculated Value	Locked Cell - Formula or Reference

ZONE ADJUSTMENTS		
Cost Basis/Project Region	Albuquerque, New Mexico	Southern New Mexico
Power Equipment Operators	<50 miles	\$0.00
Truck Drivers	50-100	\$2.00
Laborers	100-200	\$3.00
INDIRECT COSTS		
Unemployment (%)	1.85%	
Retirement/SS/Medicare (%)	0.01%	
Workman's Compensation (%)	3.50%	
Other Indirects		
State Payroll Tax (13),(15),(17),(1)	5.50%	
Total Other Indirects	5.50%	

HOURLY LABOR RATE TABLE												
Other Equipment												
420D 4WD Backhoe	\$33.64	\$0.00	\$33.64	\$0.00	\$0.62	\$0.00	\$1.18	\$1.85			\$0	\$37.29
428D 4WD Backhoe	\$33.64	\$0.00	\$33.64	\$0.00	\$0.62	\$0.00	\$1.18	\$1.85			\$0	\$37.29
CS533E Vibratory Roller	\$33.64	\$0.00	\$33.64	\$0.00	\$0.62	\$0.00	\$1.18	\$1.85			\$0	\$37.29
CS633E Vibratory Roller	\$33.64	\$0.00	\$33.64	\$0.00	\$0.62	\$0.00	\$1.18	\$1.85			\$0	\$37.29
CP533E Sheepsfoot Compactor	\$33.64	\$0.00	\$33.64	\$0.00	\$0.62	\$0.00	\$1.18	\$1.85			\$0	\$37.29
CP633E Sheepsfoot Compactor	\$33.64	\$0.00	\$33.64	\$0.00	\$0.62	\$0.00	\$1.18	\$1.85			\$0	\$35.44
Light Truck - 1.5 Ton				\$0.00							\$0	
Supervisor's Truck				\$0.00							\$0	
Flatbed Truck				\$0.00							\$0	
Air Compressor + tools				\$0.00							\$0	
Welding Equipment				\$0.00							\$0	
Heavy Duty Drill Rig				\$0.00							\$0	
Pump (plugging) Drill Rig				\$0.00							\$0	
Concrete Pump				\$0.00							\$0	
Gas Engine Vibrator	\$33.64	\$0.00	\$33.64	\$0.00	\$0.62	\$0.00	\$1.18	\$1.85			\$0	\$37.29
Generator 5KW				\$0.00							\$0	
HDEP Welder (pipe or liner)				\$0.00							\$0	
5 Ton Crane	\$24.64	\$0.00	\$24.64	\$0.00	\$0.46	\$0.00	\$0.86	\$1.36			\$0	\$27.32
20 Ton Crane	\$24.64	\$0.00	\$24.64	\$0.00	\$0.46	\$0.00	\$0.86	\$1.36			\$0	\$27.32
50 Ton Crane	\$24.64	\$0.00	\$24.64	\$0.00	\$0.46	\$0.00	\$0.86	\$1.36			\$0	\$27.32
120 Ton Crane	\$24.64	\$0.00	\$24.64	\$0.00	\$0.46	\$0.00	\$0.86	\$1.36			\$0	\$27.32

NOTES:
 (1) Equipment Type: Caterpillar model or equivalent, LeTourneau
 (2) Equipment Operator Source:
 (3) Zone Basis:

Truck Drivers (\$/hr) (4)												
725	\$31.97	\$2.00	\$33.97	\$0.00	\$0.63	\$0.00	\$1.19	\$1.87			\$0	\$37.66
730	\$31.97	\$2.00	\$33.97	\$0.00	\$0.63	\$0.00	\$1.19	\$1.87			\$0	\$37.66
735	\$31.97	\$2.00	\$33.97	\$0.00	\$0.63	\$0.00	\$1.19	\$1.87			\$0	\$37.66
740	\$31.97	\$2.00	\$33.97	\$0.00	\$0.63	\$0.00	\$1.19	\$1.87			\$0	\$37.66
769D	\$31.97	\$2.00	\$33.97	\$0.00	\$0.63	\$0.00	\$1.19	\$1.87			\$0	\$37.66
773E	\$31.97	\$2.00	\$33.97	\$0.00	\$0.63	\$0.00	\$1.19	\$1.87			\$0	\$37.66
777D	\$31.97	\$2.00	\$33.97	\$0.00	\$0.63	\$0.00	\$1.19	\$1.87			\$0	\$37.66
785C	\$31.97	\$2.00	\$33.97	\$0.00	\$0.63	\$0.00	\$1.19	\$1.87			\$0	\$37.66
793C	\$31.97	\$2.00	\$33.97	\$0.00	\$0.63	\$0.00	\$1.19	\$1.87			\$0	\$37.66
797B	\$31.97	\$2.00	\$33.97	\$0.00	\$0.63	\$0.00	\$1.19	\$1.87			\$0	\$37.66
613E (5,000 gal) Water Wagon	\$31.97	\$2.00	\$33.97	\$0.00	\$0.63	\$0.00	\$1.19	\$1.87			\$0	\$37.66
621E (8,000 gal) Water Wagon	\$31.97	\$2.00	\$33.97	\$0.00	\$0.63	\$0.00	\$1.19	\$1.87			\$0	\$37.66
777D Water Truck	\$31.97	\$2.00	\$33.97	\$0.00	\$0.63	\$0.00	\$1.19	\$1.87			\$0	\$37.66
785C Water Truck	\$31.97	\$2.00	\$33.97	\$0.00	\$0.63	\$0.00	\$1.19	\$1.87			\$0	\$37.66
Dump Truck (10-12 yd3)	\$31.97	\$2.00	\$33.97	\$0.00	\$0.63	\$0.00	\$1.19	\$1.87			\$0	\$37.66

NOTES:
 (4) Truck Driver Source:
 (5) Zone Basis:

**Closure Cost Estimate
Equipment Costs**

Project Name: Dicaperl - Socorro Closure Costs - Reclamation Plan
 Date of Submittal: June 2016
 File Name: SRCE_Version_1_4_1_016b_Socorro Closure Costs.xlsm
 Model Version: Version 1.4.1
 Cost Data: User Data
 Cost Data File: SRCE_Cost_data-USR_1_12(2)_Socorro Reclamation Costs.xlsm
 Monthly Rental Basis: 176 hrs month

EQUIPMENT RENTAL RATE TABLE				
EQUIPMENT TYPE (1)	Monthly Owner/Rental Rate	Equipment Hourly Rate	Fuel/Lube/ Wear	Total Rate
Bulldozers				
D6R	\$8,490.00	\$48.24	\$5.00	\$53.24
D6R w/ Winch	\$14,955.00	\$84.97	\$5.00	\$89.97
D7R	\$19,000.00	\$107.95	\$6.00	\$113.95
D8R	\$22,995.00	\$130.65	\$7.80	\$138.45
D9R	\$29,169.00	\$165.73	\$11.40	\$177.13
D10R	\$37,992.00	\$215.86	\$14.40	\$230.26
D11R	\$47,013.00	\$267.12	\$21.20	\$288.32
Wheeled Dozers				
824G			\$8.60	\$8.60
834G			\$10.08	\$10.08
844			\$12.00	\$12.00
854G			\$15.20	\$15.20
Motor Graders				
120H	\$9,666.00	\$54.92	\$3.20	\$58.12
14G/H	\$15,685.00	\$89.12	\$5.00	\$94.12
16G/H	\$22,992.00	\$130.64	\$6.00	\$136.64
24M			\$12.40	\$12.40
Track Excavators				
312C	\$8,264.00	\$46.95	\$1.50	\$48.46
320C	\$9,800.00	\$55.68	\$3.92	\$59.60
325C	\$13,512.00	\$76.77	\$5.28	\$82.05
330C	\$16,462.00	\$93.53	\$6.56	\$100.09
345B	\$19,837.00	\$112.71	\$8.48	\$121.19
365BL	\$24,278.00	\$137.94	\$10.56	\$148.50
385BL	\$28,158.00	\$159.99	\$14.00	\$173.99
Scrapers				
631G	\$27,911.00	\$158.59	\$12.00	\$170.59
637G	\$32,200.00	\$182.95	\$19.00	\$201.95
Wheeled Loaders				
924G	\$8,111.00	\$46.09	\$2.20	\$48.29
928G	\$9,699.00	\$55.11	\$2.80	\$57.91
950G	\$11,715.00	\$66.56	\$3.20	\$69.76
966G			\$4.60	\$4.60
972G			\$5.00	\$5.00
989G			\$6.00	\$6.00
989G			\$8.68	\$8.68
990			\$13.60	\$13.60
992G			\$18.40	\$18.40
994D			\$28.80	\$28.80
L2350			\$52.80	\$52.80
Shovels				
PC2000			\$29.60	\$29.60
PC3000			\$40.00	\$40.00
PC4000			\$56.00	\$56.00
PC5500			\$95.20	\$95.20
PC8000			\$119.20	\$119.20
Hydraulic Hammers				
H-120 (fits 325)				\$0.00
H-160 (fits 345)				\$0.00
H-180 (fits 365/385)				\$0.00
Demolition Shears				
S340 (fits 322/325/330)				\$0.00
S365 (fits 330/345)				\$0.00
S390 (fits 365/385)				\$0.00
Demolition Grapples				
G315 (fits 322/325)				\$0.00
G320 (fits 325/330)				\$0.00
G330 (fits 345/365)				\$0.00
Other Equipment				
420D 4WD Backhoe			\$2.40	\$2.40
428D 4WD Backhoe			\$2.40	\$2.40
CS533E Vibratory Roller			\$3.00	\$3.00
CS633E Vibratory Roller			\$3.80	\$3.80
CP533E Sheepsfoot Compactor			\$3.00	\$3.00
CP633E Sheepsfoot Compactor			\$3.80	\$3.80
Light Truck - 1.5 Ton			\$1.20	\$1.20
Supervisor's Truck			\$0.80	\$0.80
Flatbed Truck			\$3.76	\$3.76
Air Compressor + tools			\$0.80	\$0.80
Welding Equipment			\$1.60	\$1.60
Heavy Duty Drill Rig			\$9.60	\$9.60
Pump (plugging) Drill Rig			\$8.00	\$8.00
Concrete Pump			\$8.00	\$8.00
Gas Engine Vibrator			\$0.80	\$0.80
Generator 5KW			\$1.20	\$1.20
HDEP Welder (pipe or liner)			\$1.60	\$1.60
5 Ton Crane			\$2.40	\$2.40
20 Ton Crane			\$3.20	\$3.20
50 Ton Crane			\$3.76	\$3.76
120 Ton Crane			\$4.16	\$4.16
Trucks				
725			\$3.76	\$3.76
730			\$4.16	\$4.16
735			\$5.88	\$5.88
740			\$5.88	\$5.88
769D			\$7.40	\$7.40
773E			\$9.40	\$9.40
777D			\$13.40	\$13.40
785C			\$19.40	\$19.40
793C			\$33.40	\$33.40
797B			\$47.00	\$47.00
613E (5,000 gall) Water Wagon			\$4.80	\$4.80
621E (8,000 gall) Water Wagon			\$8.60	\$8.60
777D Water Truck			\$13.40	\$13.40
785C Water Truck			\$19.40	\$19.40
Dump Truck (10-12 yd ³)			\$4.16	\$4.16
NOTES:				
(1) Power Equipment Source:				
(2) Power Equipment Type:	Caterpillar model or equivalent, LeTourneau loader, Komatsu shovels			
(3) Drilling Equipment Source:				
(4) Other Equipment Source:				
(5) Drill rig includes support (pipe) truck				

**Closure Cost Estimate
Equipment Costs**

Project Name: Dicapel - Socorro Closure Costs - Reclamation Plan
 Date of Submittal: June 2016
 File Name: SRCE_Version_1_4_1_016b_Socorro Closure Costs.xlsm
 Model Version: Version 1.4.1
 Cost Data: User Data
 Cost Data File: SRCE_Cost_data-USR_1_12(2)_Socorro Reclamation Costs.xlsm

FUEL, LUBE AND WEAR CALCULATIONS						
EQUIPMENT TYPE	PM Cost Per Hour ⁽¹⁾	Under carriage or Tires ⁽²⁾	G.E.T Consumption ⁽³⁾	Fuel Use Rate gal/hr (4)	Cost@ 0.80/gal	Total Hourly Equipment Cost
Bulldozers						
D6R				6.25	\$5.00	\$5.00
D6R w/ Winch				6.25	\$5.00	\$5.00
D7R				7.50	\$6.00	\$6.00
D8R				9.75	\$7.80	\$7.80
D9R				14.25	\$11.40	\$11.40
D10R				18.00	\$14.40	\$14.40
D11R				26.50	\$21.20	\$21.20
Wheeled Dozers						
824G		\$0.00		10.75	\$8.60	\$8.60
834G		\$0.00		12.60	\$10.08	\$10.08
844		\$0.00		15.00	\$12.00	\$12.00
854G		\$0.00		19.00	\$15.20	\$15.20
Motor Graders						
120H				4.00	\$3.20	\$3.20
14G/H				6.25	\$5.00	\$5.00
16G/H				7.50	\$6.00	\$6.00
24M				15.50	\$12.40	\$12.40
Track Excavators						
312C				1.88	\$1.50	\$1.50
320C				4.90	\$3.92	\$3.92
325C				6.60	\$5.28	\$5.28
330C				8.20	\$6.56	\$6.56
345B				10.60	\$8.48	\$8.48
365BL				13.20	\$10.56	\$10.56
385BL				17.50	\$14.00	\$14.00
Scrapers						
631G				15.00	\$12.00	\$12.00
637G				23.75	\$19.00	\$19.00
Wheeled Loaders						
924G				2.75	\$2.20	\$2.20
928G				3.50	\$2.80	\$2.80
950G				4.00	\$3.20	\$3.20
966G				5.75	\$4.60	\$4.60
972G				6.25	\$5.00	\$5.00
980G				7.50	\$6.00	\$6.00
988G				12.10	\$9.68	\$9.68
990				17.00	\$13.60	\$13.60
992G				23.00	\$18.40	\$18.40
994D				36.00	\$28.80	\$28.80
L2350				66.00	\$52.80	\$52.80
Shovels						
PC2000				37.00	\$29.60	\$29.60
PC3000				50.00	\$40.00	\$40.00
PC4000				70.00	\$56.00	\$56.00
PC5500				119.00	\$95.20	\$95.20
PC8000				149.00	\$119.20	\$119.20
Hydraulic Hammers						
H-120 (fits 325)		N/A				\$0.00
H-160 (fits 345)		N/A				\$0.00
H-180 (fits 365/385)		N/A				\$0.00
Demolition Shears						
S340 (fits 322/325/330)		N/A				\$0.00
S365 (fits 330/345)		N/A				\$0.00
S390 (fits 365/385)		N/A				\$0.00
Demolition Grapples						
G315 (fits 322/325)		N/A				\$0.00
G320 (fits 325/330)		N/A				\$0.00
G330 (fits 345/365)		N/A				\$0.00
Other Equipment						
420D 4WD Backhoe				3.00	\$2.40	\$2.40
428D 4WD Backhoe				3.00	\$2.40	\$2.40
CS533E Vibratory Roller				3.75	\$3.00	\$3.00
CS633E Vibratory Roller				4.75	\$3.80	\$3.80
CP533E Sheepsfoot Compactor				3.75	\$3.00	\$3.00
CP633E Sheepsfoot Compactor				4.75	\$3.80	\$3.80
Light Truck - 1.5 Ton				1.50	\$1.20	\$1.20
Supervisor's Truck				1.00	\$0.80	\$0.80
Flatbed Truck				4.70	\$3.76	\$3.76
Air Compressor + tools				N/A	1.00	\$0.80
Welding Equipment				N/A	2.00	\$1.60
Heavy Duty Drill Rig				12.00	\$9.60	\$9.60
Pump (plugging) Drill Rig				10.00	\$8.00	\$8.00
Concrete Pump			N/A	10.00	\$8.00	\$8.00
Gas Engine Vibrator			N/A	1.00	\$0.80	\$0.80
Generator 5KW			N/A	1.50	\$1.20	\$1.20
HDEP Welder (pipe or liner)			N/A	2.00	\$1.60	\$1.60
5 Ton Crane				3.00	\$2.40	\$2.40
20 Ton Crane				4.00	\$3.20	\$3.20
50 Ton Crane				4.70	\$3.76	\$3.76
120 Ton Crane				5.20	\$4.16	\$4.16
Trucks						
725				4.70	\$3.76	\$3.76
730				5.20	\$4.16	\$4.16
735				7.35	\$5.88	\$5.88
740				7.35	\$5.88	\$5.88
769D				9.25	\$7.40	\$7.40
773E				11.75	\$9.40	\$9.40
777D				16.75	\$13.40	\$13.40
785C				24.25	\$19.40	\$19.40
793C				41.75	\$33.40	\$33.40
797B				58.75	\$47.00	\$47.00
613E (5,000 gal) Water Wagon				6.00	\$4.80	\$4.80
621E (8,000 gal) Water Wagon				10.75	\$8.60	\$8.60
777D Water Truck				16.75	\$13.40	\$13.40
785C Water Truck				24.25	\$19.40	\$19.40
Dump Truck (10-12 yd3) (5)		N/A	N/A	5.20	\$4.16	\$4.16
Notes:						
(1) PM Source:						
(2) Undercarriage Source:						
(3) G.E.T. Source: CAT Historical Data						
(4) Fuel Use Source: Caterpillar Handbook, Edition 35, Ch. 20; or estimated average for smaller vehicles						
(5) Dump Truck Oper. Cost Source: Means Heavy Construction (2008)						

**Closure Cost Estimate
Equipment Costs**

Project Name: Dicapri - Socorro Closure Costs - Reclamation Plan
 Date of Submittal: June 2016
 File Name: SRCE_Version_1_4_1_016b_Socorro Closure Costs.xlsm
 Model Version: Version 1.4.1
 Cost Data: User Data
 Cost Data File: SRCE_Cost_data-USR_1_12(2)_Socorro Reclamation Costs.xlsm

TIRE COST TABLES						
Equipment	Tire Size	# of Tires Per Piece of Equipment	Cost Per Tire	Tire Cost ⁽¹⁾⁽²⁾	Life Expectancy Hours (Low/Zone A) ⁽³⁾	Tire Cost per Hour
Bulldozers						
D6R			N/A			
D6R w/ Winch			N/A			
D7R			N/A			
D8R			N/A			
D9R			N/A			
D10R			N/A			
D11R			N/A			
Wheeled Dozers						
824G	29.5R25	4		\$0.00	3,500	\$0.00
834G	35/65-R33	4		\$0.00	3,500	\$0.00
844	45/65-R39	4		\$0.00	3,500	\$0.00
854G	45/65-R45	4		\$0.00	3,500	\$0.00
Motor Graders						
120H	13PR24	6		\$0.00	3,500	
14G/H	20.5R25	6		\$0.00	3,500	
16G/H	23.5R25	6		\$0.00	3,500	
24M	23.5R25	6		\$0.00	3,500	
Track Excavators						
312C			N/A			
320C			N/A			
325C			N/A			
330C			N/A			
345B			N/A			
365BL			N/A			
385BL			N/A			
Scrapers						
631G	37.25R35	4		\$0.00	4,000	
637G	37.25R35	4		\$0.00	4,000	
Wheeled Loaders						
924G	17.5R25	4		\$0.00	4,500	
928G	17.5R25	4		\$0.00	4,500	
950G	26.5R25	4		\$0.00	4,500	
966G	26.5R25	4		\$0.00	4,500	
972G	26.5R25	4		\$0.00	4,500	
980G	29.5R25	4		\$0.00	4,500	
988G	35/65-33	4		\$0.00	4,500	
990	41.25/70-39	4		\$0.00	4,500	
992G	45/65R45	4		\$0.00	4,500	
994D	55/85R57	4		\$0.00	4,500	
L2350	55/85R57	4		\$0.00	4,500	
Shovels						
PC2000			N/A			
PC3000			N/A			
PC4000			N/A			
PC5500			N/A			
PC8000			N/A			
Hydraulic Hammers						
H-120 (fits 325)			N/A			
H-160 (fits 345)			N/A			
H-180 (fits 365/385)			N/A			
Demolition Shears						
S340 (fits 322/325/330)			N/A			
S365 (fits 330/345)			N/A			
S390 (fits 365/385)			N/A			
Demolition Grapples						
G315 (fits 322/325)			N/A			
G320 (fits 325/330)			N/A			
G330 (fits 345/365)			N/A			
Other Equipment						
420D 4WD Backhoe	340/80R18-19.5LR24	2		\$0.00	3,000	
428D 4WD Backhoe	340/80R18-16.9R28	2		\$0.00	3,000	
CS533E Vibratory Roller			N/A			
CS633E Vibratory Roller			N/A			
CP533E Sheepsfoot Compactor			N/A			
CP633E Sheepsfoot Compactor			N/A			
Light Truck - 1.5 Ton		4		\$0.00	3,000	
Supervisor's Truck		4		\$0.00	3,000	
Flatbed Truck		22		\$0.00	3,000	
Air Compressor + tools			N/A			
Welding Equipment			N/A			
Heavy Duty Drill Rig		4		\$0.00	3,000	
Pump (plugging) Drill Rig		4		\$0.00	3,000	
Concrete Pump			N/A			
Gas Engine Vibrator			N/A			
Generator 5KW			N/A			
HDEP Welder (pipe or liner)			N/A			
5 Ton Crane		4		\$0.00	3,000	
20 Ton Crane		4		\$0.00	3,000	
50 Ton Crane		6		\$0.00	3,000	
120 Ton Crane		6		\$0.00	3,000	
Trucks						
725	23.5R25	6		\$0.00	2,000	
730	23.5R25	6		\$0.00	2,000	
735	26.5R25	6		\$0.00	2,000	
740	29.5R25	6		\$0.00	2,000	
769D	18.00R33	6		\$0.00	6,000	
773E	24.00R35	6		\$0.00	5,000	
777D	27.00R49	6		\$0.00	5,000	
785C	33.00R51	6		\$0.00	4,000	
793C	40.00R57	6		\$0.00	4,000	
797B	40.00R57	6		\$0.00	4,000	
613E (5,000 gal) Water Wagon	23.5R25	6		\$0.00	6,000	
621E (8,000 gal) Water Wagon	33.25R29	6		\$0.00	8,000	
777D Water Truck	27.00R49	6		\$0.00	5,000	
785C Water Truck	33.00R51	6		\$0.00	4,000	
Dump Truck (10-12 yd3)		10		\$0.00	6,000	
Notes:						
(1) Unit Cost Basis:			Cost per tyre each			
(2) Cost Basis:						
(3) Tire Cost Source:						
(4) Tire Wear Source:			Caterpillar Handbook, Edition 37			

Closure Cost Estimate Material Costs

Project Name: Dicaperl - Socorro Closure Costs - Reclamation Plan
 Date of Submittal: June 2016
 File Name: SRCE_Version_1_4_1_016b_Socorro Closure Costs.xlsm
 Model Version: Version 1.4.1
 Cost Data: User Data
 Cost Data File: SRCE_Cost_data-USR_1_12(2)_Socorro Reclamation Costs.xlsm
 Cost Estimate Type: Surety Cost Basis: Albuquerque, New Mexico

Revegetation Materials			
Seed Mixes			
Seed Mix	Description	Cost/Acre	
None			
Mix 1	Basins		\$590.86
Mix 2	Low Hills		\$649.21
Mix 3	Uplands		\$678.45
Mix 4	Riparian or Custom		\$712.02
User Mix 1			
User Mix 2			
User Mix 3			
User Mix 4			
		Cost/lb	lbs/Acre
User Mix 5 (from Seed Mix sheet)	\$8.32	\$32.96	\$274.18
Notes:			
Mulch			
Item	Cost/lb	lbs/Acre	Cost/Acre
None			
Straw Mulch	\$30.12	10	\$301.20
Hydro Mulch	\$9.84	10	\$98.40
Timber Mulch		10	
		10	
Notes:			

Closure Cost Estimate Material Costs

Project Name: Dicaperl - Socorro Closure Costs - Reclamation Plan
Date of Submittal: June 2016
File Name: SRCE_Version_1_4_1_016b_Socorro Closure Costs.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: SRCE_Cost_data-USR_1_12(2)_Socorro Reclamation Costs.xlsm
Cost Estimate Type: Surety **Cost Basis:** Albuquerque, New Mexico

Amendments			
Item	Cost/lb	lbs/Acre	Cost/Acre
None			
Organic Matter	\$0.27	10	\$2.70
Treated Sludge		10	
Chemical	\$1.12	10	\$11.20
		10	
Notes:			

Closure Cost Estimate Material Costs

Revegetation Method				
Slopes				
Disturbance Type	Seed Application Method	Labor Cost/Acre	Equipment Cost/Acre	Total Cost/Acre
Waste Rock Dumps	Mechanical Broadcast	\$145.23	\$225.21	\$370.44
Heap Leach	Mechanical Broadcast	\$145.23	\$225.21	\$370.44
Tailings	Mechanical Broadcast	\$145.23	\$225.21	\$370.44
Quarries & Borrow Pits	Mechanical Broadcast	\$145.23	\$225.21	\$370.44
Flat Areas and Undifferentiated				
Disturbance Type	Seed Application Method	Labor Cost/Acre	Equipment Cost/Acre	Total Cost/Acre
Exploration Trenches	Mechanical Broadcast	\$145.23	\$225.21	\$370.44
Exploration Roads	Mechanical Broadcast	\$145.23	\$225.21	\$370.44
Waste Rock Dumps	Mechanical Broadcast	\$145.23	\$225.21	\$370.44
Heap Leach	Mechanical Broadcast	\$145.23	\$225.21	\$370.44
Tailings	Mechanical Broadcast	\$145.23	\$225.21	\$370.44
Quarries & Borrow Pits	Mechanical Broadcast	\$145.23	\$225.21	\$370.44
Roads	Mechanical Broadcast	\$145.23	\$225.21	\$370.44
Pits	Mechanical Broadcast	\$145.23	\$225.21	\$370.44
Haul Material	Mechanical Broadcast	\$145.23	\$225.21	\$370.44
Foundations & Buildings	Mechanical Broadcast	\$145.23	\$225.21	\$370.44
Sediment & Drainage Control	Mechanical Broadcast	\$145.23	\$225.21	\$370.44
Process Ponds	Mechanical Broadcast	\$145.23	\$225.21	\$370.44
Landfills	Mechanical Broadcast	\$145.23	\$225.21	\$370.44
Yards, Etc.	Mechanical Broadcast	\$145.23	\$225.21	\$370.44
Revegetation Maintenance	Mechanical Broadcast	\$145.23	\$225.21	\$370.44

2015 MOB/DEMOB using R.S. MEANS and SRCE equipment and DAVIS-BACON wages											
blue font is for project specific user input										Miles to project, one way	72
Socorro Mine										Hours travel time @ 55 MPH	1.31
Equipment	Mobilization \$/hour (1)	\$ Flat Rate load & unload (2)	\$/hour Deadhead (empty return cost) (3)	Disassembly and assembly (4)	Permit cost \$ (5)	Pilot car costs	# of units	One Way Mob Cost	Total Mob and Demob Cost		
Bulldozers											
D6R	\$ 84	\$ 84	\$ 84	\$ -	\$ -	\$ -		\$ -	\$ -	-	
D7R	\$ 145	\$ 145	\$ 145	\$ -	\$ 25	\$ 122	1	\$ 670	\$ 1,341		
D8R	\$ 169	\$ 169	\$ 169	\$ -	\$ 25	\$ 172	1	\$ 809	\$ 1,617		
D9R	\$ 169	\$ 169	\$ 169	\$ -	\$ 25	\$ 172	1	\$ 809	\$ 1,617		
D10R	\$ 169	\$ 169	\$ 169	\$ 14,500	\$ 25	\$ 258		\$ -	\$ -		
D11R (two transports) (7)	\$ 169	\$ 169	\$ 169	\$ 14,500	\$ 25	\$ 172		\$ -	\$ -		
Motor Graders											
14G/H	\$ 84	\$ 84	\$ 84	\$ -	\$ -	\$ -	1	\$ 304	\$ 609		
16G/H	\$ 145	\$ 145	\$ 145	\$ -	\$ 25	\$ 86		\$ -	\$ -		
Track Excavators											
320C	\$ 145	\$ 145	\$ 145	\$ -	\$ -	\$ -		\$ -	\$ -		
325C	\$ 145	\$ 145	\$ 145	\$ -	\$ -	\$ -		\$ -	\$ -		
345B	\$ 169	\$ 169	\$ 169	\$ -	\$ 25	\$ 172	1	\$ 809	\$ 1,617		
385BL	\$ 169	\$ 169	\$ 169	\$ 26,800	\$ 25	\$ 172		\$ -	\$ -		
Scrapers											
631G	\$ 169	\$ 169	\$ 169	\$ -	\$ 25	\$ 172	3	\$ 2,426	\$ 4,852		
637G PP	\$ 169	\$ 169	\$ 169	\$ -	\$ 25	\$ 172		\$ -	\$ -		
Wheeled Loaders											
928G	\$ 84	\$ 84	\$ 84	\$ -	\$ -	\$ -		\$ -	\$ -		
966G	\$ 84	\$ 84	\$ 84	\$ -	\$ -	\$ -		\$ -	\$ -		
972G	\$ 145	\$ 145	\$ 145	\$ -	\$ -	\$ -		\$ -	\$ -		
988G	\$ 145	\$ 145	\$ 145	\$ -	\$ 25	\$ 86	2	\$ 1,269	\$ 2,537		
992G (two transports) (7)	\$ 169	\$ 169	\$ 169	\$ 46,700	\$ 25	\$ 172		\$ -	\$ -		
Hydraulic Hammers											
H-120 (fits 325) no charge, mobilize with mad	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -		\$ -	\$ -		
H-160 (fits 345) no charge, mobilize with mad	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -		\$ -	\$ -		
H-180 (fits 365/385) no charge, mobilize with	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -		\$ -	\$ -		
Other Equipment											
420D 4WD Backhoe	\$ 84	\$ 84	\$ 84	\$ -	\$ -	\$ -		\$ -	\$ -		
CS563E Vibratory Roller	\$ 84	\$ 84	\$ 84	\$ -	\$ -	\$ -		\$ -	\$ -		
Light Truck - 1.5 Ton	\$ 66	\$ 66	\$ 66	\$ -	\$ -	\$ -		\$ -	\$ -		
Supervisor's Truck	\$ 55	\$ 55	\$ 55	\$ -	\$ -	\$ -		\$ -	\$ -		
Air Compressor + tools	\$ 84	\$ 84	\$ 84	\$ -	\$ -	\$ -		\$ -	\$ -		
Welding Equipment	\$ 84	\$ 84	\$ 84	\$ -	\$ -	\$ -		\$ -	\$ -		
Heavy Duty Drill Rig	\$ 395	\$ 395	\$ 395	\$ -	\$ -	\$ -		\$ -	\$ -		
Pump (plugging) Drill Rig	\$ 395	\$ 395	\$ 395	\$ -	\$ -	\$ -		\$ -	\$ -		
Concrete Pump	\$ 84	\$ 84	\$ 84	\$ -	\$ -	\$ -		\$ -	\$ -		
Gas Engine Vibrator	\$ 84	\$ 84	\$ 84	\$ -	\$ -	\$ -		\$ -	\$ -		
Generator 5KW	\$ 84	\$ 84	\$ 84	\$ -	\$ -	\$ -		\$ -	\$ -		
HDEP Welder (pipe or liner)	\$ 84	\$ 84	\$ 84	\$ -	\$ -	\$ -		\$ -	\$ -		
5 Ton Crane Truck	\$ 92	\$ 92	\$ 92	\$ -	\$ -	\$ -		\$ -	\$ -		
25 Ton Crane	\$ 146	\$ 146	\$ 146	\$ -	\$ -	\$ -		\$ -	\$ -		
Trucks											
725	\$ 84	\$ 84	\$ 84	\$ -	\$ -	\$ -		\$ -	\$ -		
740	\$ 145	\$ 145	\$ 145	\$ -	\$ 25	\$ 86	4	\$ 2,537	\$ 5,075		
769D	\$ 145	\$ 145	\$ 145	\$ -	\$ 25	\$ 172		\$ -	\$ -		
777D (two transports) (8)	\$ 169	\$ 169	\$ 169	\$ 48,300	\$ 25	\$ 258		\$ -	\$ -		
613E (5,000 gal) Water Wagon	\$ 169	\$ 169	\$ 169	\$ -	\$ -	\$ -		\$ -	\$ -		
621E (8,000 gal) Water Wagon	\$ 169	\$ 169	\$ 169	\$ -	\$ 25	\$ 172		\$ -	\$ -		
Dump Truck (10-12 yd ³)	\$ 132	\$ 132	\$ 132	\$ -	\$ -	\$ -		\$ -	\$ -		
Miscellaneous											
Equipment for dry hole abandonment (420D 4)	\$ 84	\$ 84	\$ 84	\$ -	\$ -	\$ -		\$ -	\$ -		
Pilot car (Light Truck)	\$ 56	\$ 56	\$ 56	\$ -	\$ -	\$ -		\$ -	\$ -		
Truck Tractor + Lowbed Trailer 75 ton	\$ 169	\$ 169	\$ 169	\$ -	\$ -	\$ -		\$ -	\$ -		
Truck Tractor + Flatbed Trailer 40 ton	\$ 145	\$ 145	\$ 145	\$ -	\$ -	\$ -		\$ -	\$ -		
Light Truck + Flatbed Trailer 25 ton	\$ 84	\$ 84	\$ 84	\$ -	\$ -	\$ -		\$ -	\$ -		
							14	\$	\$ 19,265		
Footnotes and explanations of assumptions											
(1) The sum of the cost of equipment from either the SRCE or RSM equipment tab plus Davis-Bacon labor tab											
(2) Assumes minimum of 30 minutes load and secure and 30 minutes unsecure and unload machine.											
(3) No "Deadhead" (empty) charge for Mob up to 50 miles. More than 50 miles the cost of deadhead same rate as loaded miles.											
(4) Only large equipment requires disassembly for transport. Includes cost of mechanic + mechanic's truck + crane operator + crane.											
(5) Nevada Dept. of Transportation overdimensional permits are \$25 per trip or \$60 per year.											
(6) Sum of mobilization plus all ancillary costs for one way loaded and return empty.											
(7) Two transports are required but the second transport does not need pilot cars or permits or a heavy duty trailer.											
(8) Two transports required with both requiring full complement of pilot cars and permits.											
(9) Pilot Car costs based on SRCE light truck costs and Davis-Bacon wages											
(10) SRCE costs based on July 2015 vendor quotes.											
(11) RS Means costs based on R.S. Means Heavy Construction Cost Data, 2015, Q2											
(12) Davis Bacon wages based on June 11, 2015 determination.											