

CALPORTLAND - ORO GRANDE QUARRIES REVISED RECLAMATION PLAN

CA MINE ID #91-36-0023

ORO GRANDE, SAN BERNARDINO COUNTY, CALIFORNIA

Revegetation Plan

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Section 1 Introduction

CalPortland Company (CalPortland) is submitting to San Bernardino County (County) an Amended Reclamation Plan (Amended Plan) for the planned expansion of the existing Sparkhule, Original Canyon, Shay Klondike, and Mack's Peak Limestone Quarries collectively known as the Oro Grande Quarries (84M-009) and Superior Quarry (91M-01). The development of extensive cement-grade limestone from these quarries will ensure the long-term viability of the adjacent CalPortland Oro Grande Cement Plant. These five quarries are all located on privately held lands owned by CalPortland within its current Reclamation Plan (CA Mine ID #91-36-0023) approved by the County in 1984 for a period of 50 years until 2034.

In addition, CalPortland plans on mining silica from Superior Quarry located on and within contiguous CalPortland owned lands and merging its plan into the overall Oro Grande Amended Reclamation Plan. All of these lands, as discussed herein, are vested for mining operations.

As part of the planning process to expand mining at their Oro Grande quarries, CalPortland will be submitting an application under the Surface Mining and Reclamation Act (SMARA) to San Bernardino County, the local lead agency. The reclamation plan review submittal under SMARA for the proposed expansion requires several documents be prepared, including a revegetation plan. The revegetation plan will be implemented to restore a site when mining is complete but must first be reviewed and approved as part application process prior to commencing the expansion.

Section 2 Project Location and Description

2.1 PROJECT LOCATION

The project site is generally located west of Interstate 15, east of U.S. Highway 395, north of State Route 18, and south of State Route 58 in the community of Oro Grande, San Bernardino County, California (Exhibit 1, *Regional Vicinity*). The project site is depicted on the Victorville and Helendale quadrangles of the United States Geological Survey's (USGS) 7.5-minute topographic map series in portions of Sections 4, 5, 8, 9, 16, 17, and 18 of Township 6 North, Range 4 West (Exhibit 2, *Site Vicinity*). Specifically, the project site is located at CalPortland's Oro Grande Quarries at 19409 National Trails Highway, Oro Grande, California 92368 (Exhibit 3, *Project Site*).

2.2 PROJECT DESCRIPTION

The proposed project is an Amended Reclamation Plan for the Oro Grande Quarries which will allow existing mining to continue and will provide the planned expansion of operations for a period of 100 years from approval of the Amended Plan or 86 years from the 2034 expiration time of the current approval. The planned expansion includes five quarries, six overburden stockpiles, backfilling of two quarries when mining is completed, the potential partial backfilling of a portion of Sparkhule Quarry, as well as the development of a new haul road.

One of the five quarries is the Superior Quarry, which has its own Reclamation Plan and CA Mine ID Number. Superior Quarry is currently undergoing reclamation monitoring. CalPortland plans on re-opening this quarry to provide silica to the Oro Grande Cement Plant and merging its operations into this overall Amended Plan.

The total existing permitted Oro Grande Reclamation Plan area is approximately 971 acres that have been disturbed or to be disturbed. This Amended Plan will add approximately 850 acres of areas to be disturbed including an additional 15.5 acres for Superior Quarry for a total reclamation area of approximately 1,652 acres (See Exhibit 2 *Site Map*). Table 1 below provides a summary of existing and planned mining at the Oro Grande Quarries and Superior Quarry that are the subject of this revegetation plan.

Table 1: Existing Permitted and Planned Operational Areas – Oro Grande Quarries

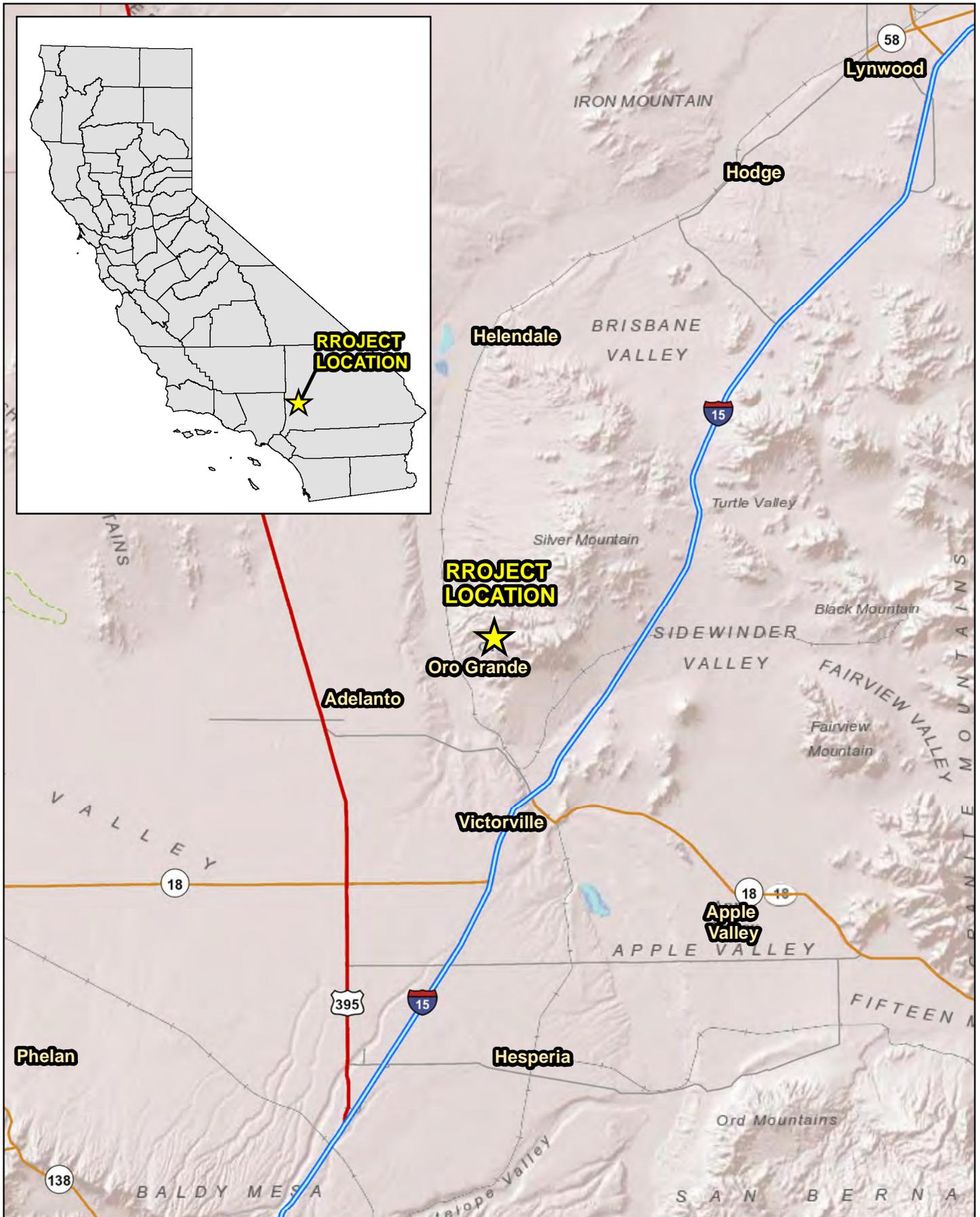
| Quarry, Overburden, & Misc. Areas | Existing Permitted Areas Phase I (acres) | Proposed New Areas Phase II (acres) | Total Amended Project Areas (acres) |
|--|---|--|--|
| <i>QUARRIES</i> | | | |
| Shay Klondike/Q2 | 140.5 | 0 | 140.5 |
| Original Canyon | 120.0 | 15.5 | 135.5 |
| Mack's Peak | 32.5 | 0 | 32.5 |
| Sparkhule | 235.0 | 119.0 | 354.0 |
| Superior ¹ | Not a Part | 14.5 | 14.5 |
| Quarries Subtotal | 528.0 | 149.0 | 677.0 |
| <i>OVERBURDEN STOCKPILES</i> | | | |
| Shay Klondike South | 95.0 | -65.5 (1.5 ac added) | 29.5 |
| Original Cyn Comet OB | 5.0 | 0 | 5.0 |
| Mack's Peak OB | 14.5 | 26.0 | 40.5 |
| Sparkhule OB North | 34.5 | 0 | 34.5 |
| Sparkhule OB South | 28.0 | 8.5 | 36.5 |
| Sparkhule IA OB | 42.25 | 134.0 | 176.25 |
| Stockpiles Subtotal | 219.25 | 103.0 | 322.25 |
| <i>MISCELLANEOUS AREAS</i> | | | |
| Material Storage | 11.5 | 10.5 | 22.0 |
| Haul Roads | 36.0 | 38.0 | 74.0 |
| Revegetation Test Plots | 5.0 | 0 | 5.0 |
| Top Soil Stockpiles (outside other facilities) | 30.5 | 14.25 | 44.75 |
| Portable Crushing Plant Area | 20.0 | 0 | 20.0 |
| Misc. Areas Subtotal | 103.0 | 62.75 | 165.75 |
| Subtotal (mostly disturbed or to be disturbed): | 850.25 | 314.75 (proposed) | 1,165 |
| Buffers/Internal Pockets; Generally Open Space | 121.25 | 365.75 | 487 |
| Total Reclamation Plan Boundary | 971.5 | 680.5 | 1,652 |

Source: CalPortland, Lilburn 2020

Notes: Areas rounded to nearest quarter of an acre.

Totals may be slightly different due to areas being redefined for secondary uses or overlapping uses over time.

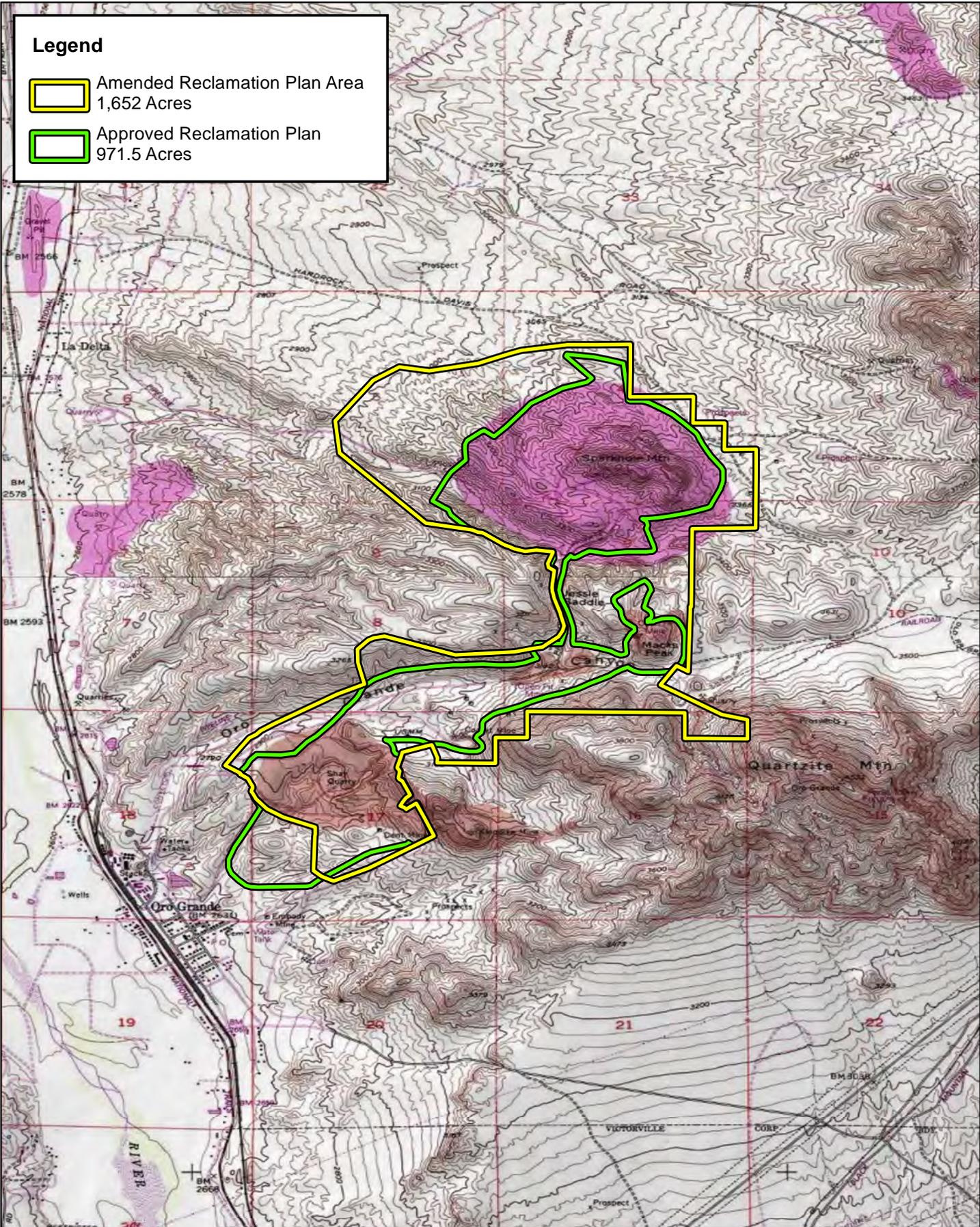
¹ - Superior Quarry previously mined and reclaimed under a separate permit.



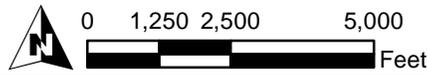
CALPORTLAND'S ORO GRANDE QUARRIES
 REVEGETATION PLAN
Regional Vicinity



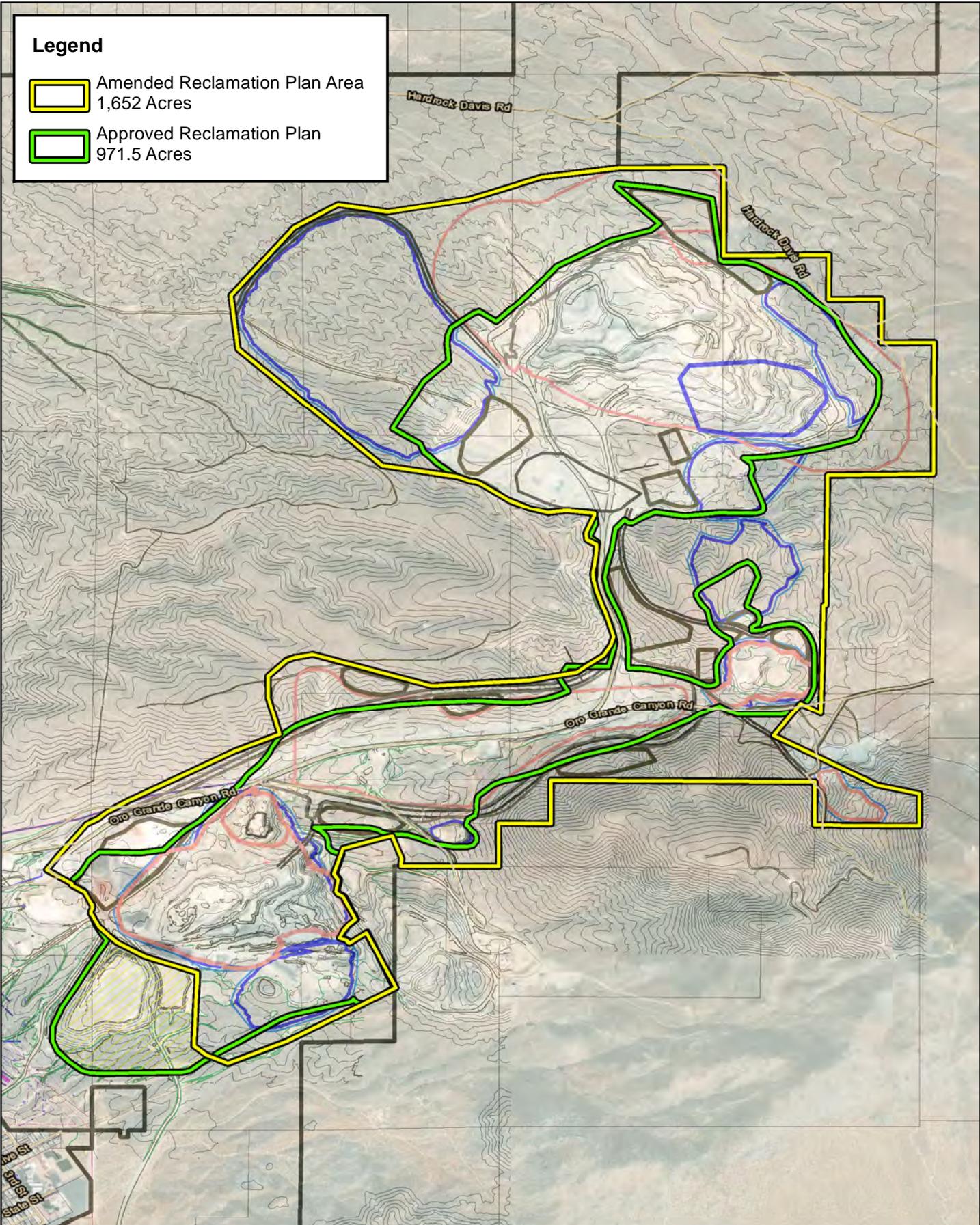
Source: Federal Highway Administration, US Department of Transportation, ESRI World Shaded Relief Map, San Bernardino County



CALPORTLAND'S ORO GRANDE QUARRIES
REVEGETATION PLAN
Site Vicinity



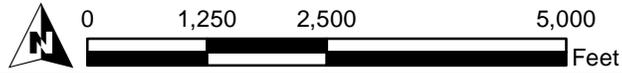
Source: USA Topographic Map, San Bernardino County



Legend

- Amended Reclamation Plan Area
1,652 Acres
- Approved Reclamation Plan
971.5 Acres

CALPORTLAND'S ORO GRANDE QUARRIES
 REVEGETATION PLAN
Project Site



Source: ESRI Aerial Imagery, San Bernardino County

Section 3 Environmental Setting

3.1 LOCAL CLIMATE

The Mojave Desert is found at elevations of 2,000 to 5,000 feet above mean sea level (msl) and is characterized by cool winter temperatures and warm summer temperatures, with its rainfall occurring almost entirely in the winter. Climatological data obtained from nearby weather stations indicated the annual precipitation in Victorville averages 6.18 inches per year. Almost all of the precipitation occurs between October and April, with hardly any occurring between May and September. The wettest month is February, with a monthly average total precipitation of 1.22 inches. The average maximum and minimum temperatures for Victorville are 100 and 31 degrees Fahrenheit (F) respectively with July and August being the hottest months and December and January being the coldest.

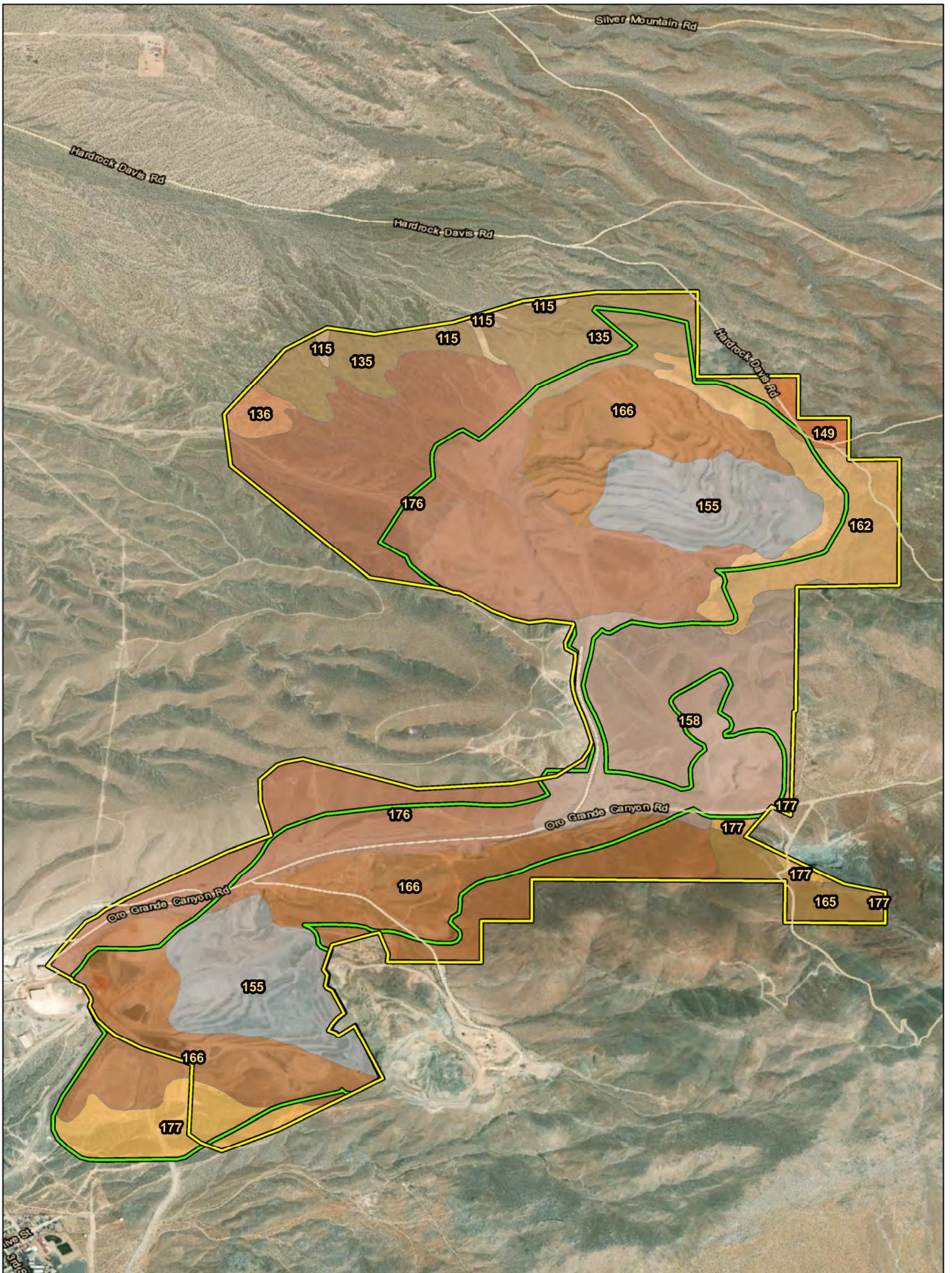
3.2 TOPOGRAPHY AND SOILS

On-site surface elevation ranges from approximately 2,700 to 3,500 feet above mean sea level. Topography on-site generally consists of rolling hills and several steep sided hilltops and ridgelines located across the site, all extending roughly east to west. There are several portions of the project site that are actively being mined or have previously been mined resulting in areas of topographic relief.

According to the NRCS Custom Soil Resource Report, the project site is underlain by the following soil units: Sparkhule-rock outcrop complex (15 to 50 percent slopes), Mirage-Joshua complex (2 to 5 percent slopes), Rock outcrop-lithic torriorthents complex (15 to 50 percent slopes), Joshua loam (2 to 5 percent slopes), Joshua loam (9 to 15 percent slopes), Cajon gravelly sand (2 to 15 percent slopes), Cajon loamy sand (5 to 9 percent slopes), Yermo gravelly sandy loam (30 to 50 percent slopes), Yermo-Kimberlina cool association (sloping), Trigger-Sparkhule-rock outcrop association (steep), Trigger-rock outcrop complex (30 to 50 percent slopes), and Pits (Exhibit 4, *Soils*).

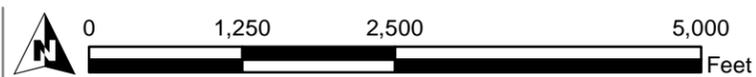
3.3 SURROUNDING LAND USES

The project site is located in an area that is primarily undeveloped, north of the City of Victorville. The project site is bordered by undeveloped, vacant land to the north, east, and south that primarily supports native desert scrub plant communities. The areas to the west of the project site consist of undeveloped land, existing mining facilities, the community of Oro Grande, and National Trails Highway which separates the project site from the Mojave River.



Legend

- | | | |
|--|---|---|
| Amended Reclamation Plan Area 1,652 Acres | Cajon Gravelly Sand, 2 to 15 percent slopes (115) | Sparkhule-Rock Outcrop Complex, 15 to 50 percent slopes (162) |
| Approved Reclamation Plan 971.5 Acres | Joshua Loam, 2 to 5 percent slopes (135) | Trigger-Sparkhule-Rock Outcrop Association, Steep (165) |
| | Joshua Loam, 9 to 15 percent slopes (136) | Trigger-Rock Outcrop Complex, 30 to 50 percent slopes (166) |
| | Mirage-Joshua Complex, 2 to 5 percent slopes (149) | Yermo Gravelly Sandy Loam, 30 to 50 percent slopes (176) |
| | Pits (155) | Yermo-Kimberlina, cool, association, sloping (177) |
| | Rock Outcrop-Lithic Torriothents Complex, 15 to 50 percent slopes (158) | |



Source: ESRI Aerial Imagery, Soil Survey Geographic Database, San Bernardino County

3.4 VEGETATION

The project site is relatively undeveloped except those areas that have been subject to existing mining activities. The areas on the perimeter of the project site are relatively undeveloped/undisturbed, while the middle portion of the project site supports mining pits, and dirt access roads. It should be noted that a desert tortoise exclusionary fence was observed on the northwestern portion of the project site along a portion of the western boundary of the Sparkhule Mine Plan area. This exclusionary fence was installed as a previous mitigation measure.

During the field investigation one (1) plant community was observed within the boundary of the project site: creosote bush scrub (Exhibit 5, *Vegetation*). In addition, one (1) land cover types that would be classified as disturbed was observed on-site. This area is not a vegetation classification, but rather a land cover type. The vegetation community and land cover type are described in further detail below.

3.4.1 Creosote Bush Scrub (790 acres)

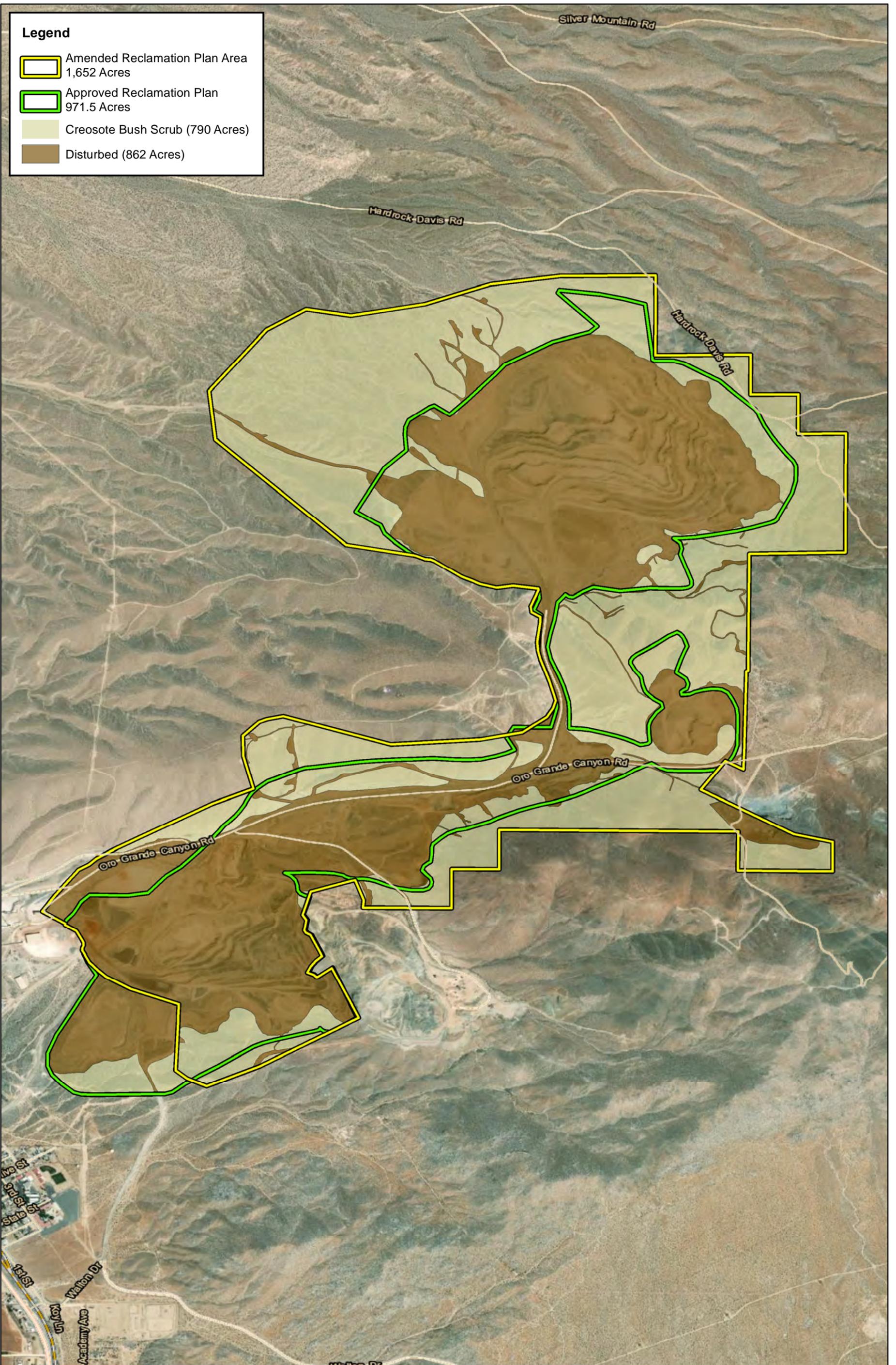
The creosote bush scrub plant community occurs throughout the undeveloped/undisturbed portions of the project site and is the dominant plant community within the surrounding landscape, and overall underlying plant community in the area. This plant community is dominated by creosote (*Larrea tridentata*) and is found on the outer perimeter of the project site outside of the areas that have been subject to existing mining activities. Other common plant species found within this plant community include Mojave yucca (*Yucca schidigera*), desert trumpet (*Eriogonum inflatum*), rabbitbrush (*Ericameria* sp.), Wiggin's cholla (*Cylindropuntia echinocarpa*), pencil cholla (*Cylindropuntia ramosissima*), burrobush (*Ambrosia dumosa*), barrel cactus (*Echinocactus* sp.), allscale (*Atriplex polycarpa*), fourwing saltscare (*Atriplex canescens*), paper bag bush (*Scutellaria mexicana*), desert wishbone (*Mirabilis laevis*), matchweed (*Gutierrezia californica*), sweetbush (*Bebbia juncea*), cheesebush (*Ambrosia salsola*), and brittlebush (*Encelia farinosa*).

3.4.2 Disturbed (862 acres)

Disturbed areas are generally areas that have been subject to a high level of human disturbances from existing mining activities and no longer comprise a native plant community. These areas are unpaved and are primarily or entirely devoid of vegetation, or support ruderal/weedy plant species and are found throughout the project site. Disturbed areas included existing mining pits, dirt access roads, stockpile areas, and mining facilities.

3.5 PLANT COMMUNITY COMPOSITION

The goal of most restoration and revegetation projects is to recreate the plant cover, distribution and species composition of the plant community found on a site prior to disturbance. Accurate data on the plant community composition is desirable in the initial planning and evaluation process for



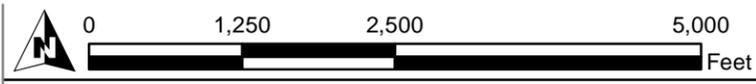
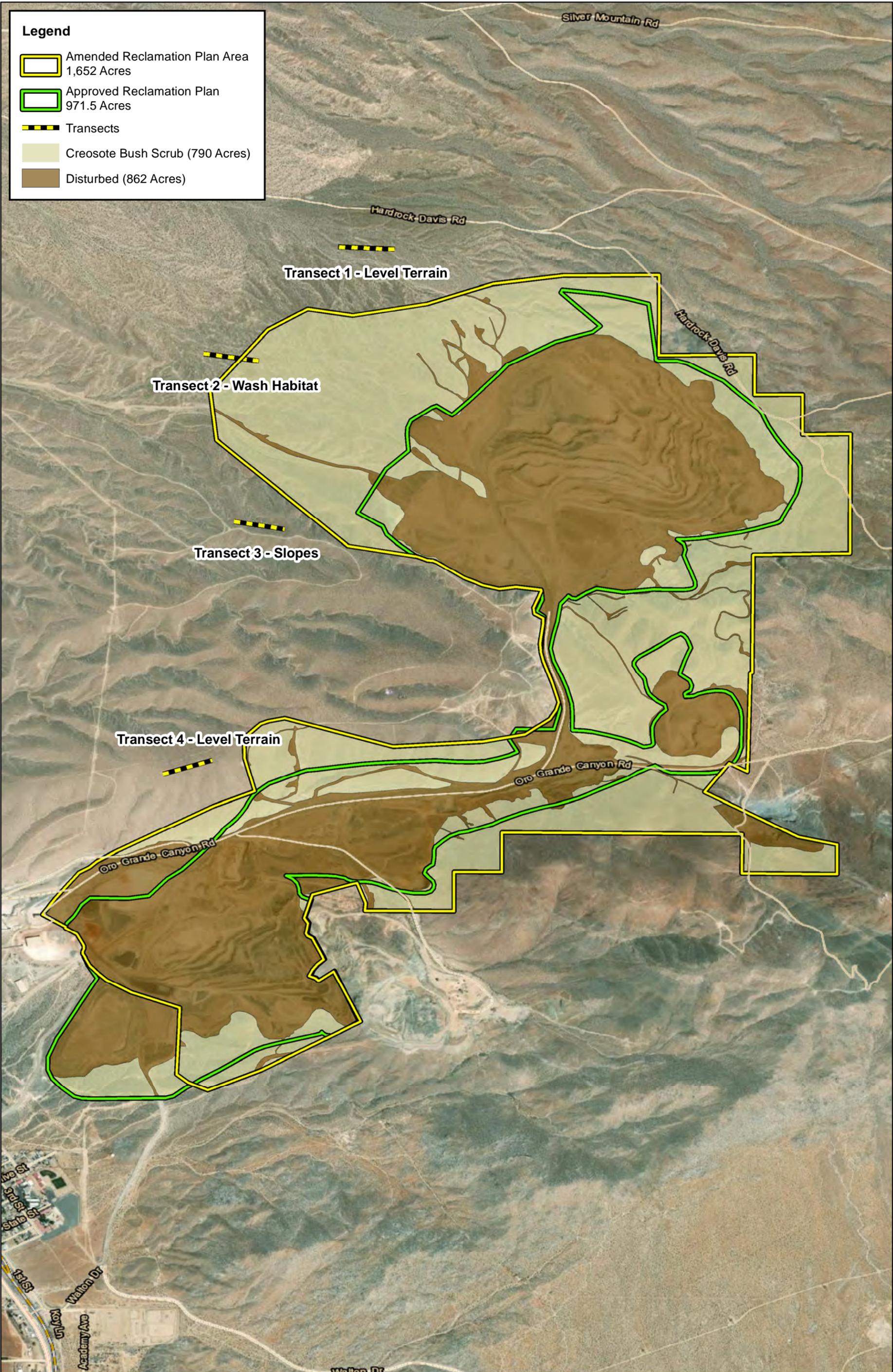
the project. Plant cover, species density and species diversity are important aspects of a plant community which can be measured by conducting sampling of a comparable reference site or, in this case, the largely undisturbed native plant community. As noted, there is only one native plant community found within the proposed mining expansion area, a creosote bush scrub plant community which is homogenous throughout the expansion area with only minor variations in composition associated with changes in landforms: level to gently sloping terrain, steep slopes and desert dry wash systems.

In order to accurately define the existing plant community composition and to be able to adequately measure the success of the revegetation over time, plant transects were conducted using the point intercept methodology to document baseline conditions. ELMT biologists used the Releve methodology to select representative transect locations. The Releve methodology allows a biologist to use their knowledge of an area and the habitat(s) found within that area to subjectively select transect lines or locations as representative of that habitat(s) rather using other methodologies that require a large number of randomly generated transects in order to ensure that sample size is sufficient to adequately represent habitat(s) in the area. For the proposed project, there is a single habitat, a creosote bush scrub plant community. The creosote plant community is homogenous across most of the project site, with some minor vegetative variation associated with areas of different landforms or topographic relief. On the project site, three landforms were identified: level to gently sloping terrain, steep slopes and ephemeral drainages/erosion channels that are commonly defined dry washes. ELMT lead biologist has worked extensively in Mojave Desert and within creosote bush scrub habitat for forty years. Based on his knowledge and years of experience in the creosote bush scrub habitat, he selected four transect locations as representative of the three land forms: one transect as representative of steep slopes, one transect as representative of a dry wash, and two transect transects as representative of level to gently sloping terrain (one transect was at the northern end of the project and one transect is at the southern end of the project site). The location of these transect lines were recorded with a GPS unit for future reference. The locations of the transect lines are shown in Exhibit 6, *Transect Locations*. The information collected was used to document the species present, percent vegetative cover, species density and species diversity as part of documenting baseline conditions within each landform. This characterization of baseline conditions provides a guide for future revegetation efforts.

Vegetation within in each line was sampled using the point-intercept method (California Native Plant Society 2014). Each transect was 50 meters long and 1 meter wide. All native and non-native plant species within a 50-meter square transect were recorded and are presented in Table 2, *Plants Identified Within Each Transect*. Additionally, a transect line was stretched down the center of each transect and plant species, native and non-native, that were intercepted by the line were noted and recorded at half-meter (1.6-foot) intervals. Note, that only those plant species intercepted the central transect line were recorded, not all plant species within a transect necessarily

intercepted the central transect line. Datasheets for the point-intercept process are presented in Appendix A, *Transect Data Sheets* and were used to determine percent plant cover (refer to Table 3, *Percent Plant Cover*) and species density and species diversity (refer to Table 4, *Species Density and Species Diversity*). The total transect sample area was 50 square meters (m²).

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Source: ESRI Aerial Imagery, San Bernardino County

Table 2: Plants Identified Within Each Transect

| Plant Species | Transects | | | |
|------------------------------------|----------------------|-------------|---------------|----------------------|
| | 1 (level terrain) | 2 (wash) | 3 (slopes) | 4 (level terrain) |
| Native Perennials | | | | |
| <i>Ambrosia dumosa</i> | X | X | X | X |
| <i>Ambrosia salsola</i> | X | X | X | X |
| <i>Cylindropuntia echinocarpus</i> | | | | X |
| <i>Echinocereus mojavensis</i> | | | X | |
| <i>Encelia farinosa</i> | | | X | |
| <i>Ephedra californica</i> | | | X | X |
| <i>Ericameria nauseosa</i> | X | | X | |
| <i>Eriogonum fasciculatum</i> | X | | | X |
| <i>Gutierrezia californica</i> | X | X | X | X |
| <i>Larrea tridentata</i> | X | X | X | X |
| <i>Lepidium fremontii</i> | | | X | X |
| <i>Lycium cooperi</i> | | X | | |
| <i>Psoralea fremontii</i> | | X | X | X |
| Native Annuals | | | | |
| <i>Amsinckia tessellata</i> | X | X | X | X |
| <i>Baileya multiradiata</i> | | | | X |
| <i>Camissonia californica</i> | | | | X |
| <i>Chaenactis fremontii</i> | | X | X | |
| <i>Chorizanthe spinosa</i> | | X | X | |
| <i>Chylismia claviformis</i> | | X | | |
| <i>Eriogonum inflatum</i> | X | | X | X |
| <i>Eriogonum fasciculatum</i> | X | | X | X |
| <i>Eschscholzia californica</i> | X | X | X | |
| <i>Malacothrix glabrata</i> | | X | X | |
| <i>Mentzelia desertorum</i> | X | X | X | |
| <i>Mirabilis laevis</i> | | | X | |
| <i>Phacelia distans</i> | X | X | | X |
| <i>Plantago sp.</i> | | X | | |
| <i>Salvia columbariae</i> | X | | X | X |
| <i>Sphaeroclea ambigua</i> | | | X | X |
| <i>Stillingia linearifolia</i> | X | | | |
| <i>Xylorhiza tortifolia</i> | | X | | X |

| Non-Native Species | | | | |
|-------------------------------|---|---|---|---|
| <i>Bromus rubens</i> | X | X | X | |
| <i>Erodium cicutarium</i> | X | X | X | X |
| <i>Hirschfeldia incana</i> | X | | | |
| <i>Sisymbrium irio</i> | | X | | X |
| <i>Thysanocarpus curvipes</i> | | | | X |
| <i>Schismus barbatus</i> | X | X | X | X |

Table 3: Percent Plant Cover (per 50 m²)

| Plant Species | Transects | | | |
|----------------------------------|----------------------|-------------|---------------|----------------------|
| | 1 (level terrain) | 2 (wash) | 3 (slopes) | 4 (level terrain) |
| Native Perennials | | | | |
| <i>Ambrosia dumosa</i> | 1% | 5% | 17% | 23% |
| <i>Ambrosia salsola</i> | 22% | 2% | 12% | |
| <i>Echinocereus mojavensis</i> | | | 1% | 3% |
| <i>Encelia farinosa</i> | | | 1% | |
| <i>Ephedra californica</i> | | | 3% | |
| <i>Eriogonum fasciculatum</i> | 6% | 1% | 1% | |
| <i>Gutierrezia Californica</i> | | | 7% | |
| <i>Larrea tridentata</i> | 4% | 4% | | 4% |
| <i>Lepidium fremontii</i> | 1% | | | |
| <i>Psoralea fremontii</i> | | 2% | | |
| Native Perennial Subtotal | 34% | 14% | 42% | 30% |
| Native Annuals | | | | |
| <i>Amsinckia tallelata</i> | | | 1% | |
| <i>Chaenactis fremontii</i> | | 3% | | 3% |
| <i>Chorizanthe spinosa</i> | | | 2% | 1% |
| <i>Encelia farinosa</i> | | | 1% | |
| <i>Eriogonum inflatum</i> | 1% | | | |
| <i>Eschscholzia californica</i> | | 1% | | |
| <i>Mentzelia desertorum</i> | 15% | | | |
| <i>Plantago sp.</i> | | 3% | | 28% |
| Native Annual Subtotal | 16% | 7% | 4% | 32% |
| TOTAL NATIVE COVER | 50% | 21% | 46% | 62% |
| Non-Native Species | | | | |
| <i>Bromus rubens</i> | 1% | | | |
| <i>Erodium cicutarium</i> | | 20% | 1% | 3% |
| <i>Hirschfeldia incana</i> | | 1% | | |
| <i>Schismus barbatus</i> | 9% | 17% | 3% | |
| TOTAL NON-NATIVE COVER | 10% | 38% | 4% | 3% |

| | | | | |
|-----------------------------|-------------|-------------|-------------|-------------|
| Bare Ground Subtotal | 40% | 41% | 50% | 35% |
| GRAND TOTALS | 100% | 100% | 100% | 100% |

Table 4: Species Density and Diversity (all native plants per 50 m²)

| | Transects | | |
|--|------------------------|------------------------------------|---------------------------------|
| | Slopes (Transect 3) | Level Terrain (Transects 1 & 4) | Desert Dry Wash (Transect 2) |
| Species Density | 46 | 56 | 21 |
| Species Diversity (all natives) | 10 | 11 | 8 |
| Species Diversity (perennials) | 7 | 6 | 5 |

*Average of Transects 1 and 4

As noted, Appendix A provides the raw data for all plant species observed within each transect area. Tables 2 through 4 summarizes these data and provides an analysis of the data by landform. Appendix B, *Site Photographs* provides a series of site photos for each of the landform: steep slopes, level to gently sloping terrain, and desert dry wash areas.

3.6 SPECIAL-STATUS PLANT SPECIES

According to the CNDDDB and CNPS, nine (9) special-status plant species have been recorded in the Victorville and Helendale quadrangles. No special-status plant species were observed on-site during the 2018 field investigation, which was conducted during the blooming period for some of the special-status plant species. Based on habitat requirements for the identified special-status species, and known distributions, it was determined that the undeveloped portions of the project site that support the creosote bush scrub plant community have a moderate potential to support white pygmy-poppy (*Canbya candida*), Mojave monkeyflower (*Diplacus mohavensis*), Booth's evening-primrose (*Eremothera boothii ssp. boothii*), Torrey's box-thorn (*Lycium torreyi*), solitary blazing star (*Mentzelia eremophila*), Beaver Dam breadroot (*Pediomelum castoreum*), and Mojave fish-hook cactus (*Sclerocactus polyancistrus*). None of these special-status plant species are federally or state endangered. They are listed as CNPS Rare plant rank species. All other special-status species documented as occurring within the vicinity of the project site are presumed absent.

3.7.1 San Bernardino County Development Code – Section 88.01.060 Desert Native Plant Protection

San Bernardino County Development Code, Section 88.01.060 Desert Native Plant Protection provides regulations for the removal of specified desert native plant species in order to preserve and protect the plants and to provide conservation and wise use of desert resources. This section applies to both publicly owned lands, as well as privately owned lands. The following desert native plants occur or have the potential to occur within the proposed expansion area:

- Smoke tree (*Dalea spinosa*)

- Mesquites (*Prosopis* sp.)
- Creosote (*Larea tridentata*) rings
- Joshua trees (*Yucca brevifolia*)
- Mojave yucca (*Yucca schidigera*)
- Desert ironwood (*Olneya tesota*)
- Palos verdes (*Cercidium* sp.)
- Cholla (*Cylindropuntia* sp.)
- Beavertail cactus (*Opuntia basilaris*)
- Barrel cactus (*Echinocarpa* sp.)

A Protected Plant Preservation Plan was prepared by RCA Associates, Inc. in August 2020 that evaluated the presence of Joshua trees on the project site. A total of 97 Joshua trees were documented within the boundary of the project site. Of the 97 Joshua trees, 58 were determined to be suitable for transplantation, leaving 39 to be removed. The Protected Plant Preservation Plan was submitted to San Bernardino County, and the County issued a Tree Removal Permit on August 11, 2020 for the transplantation of 58 and removal of 39 Joshua trees. The 58 trees were transplanted under the direction of a biologist to an area south of the cement plant per County permit.

Section 4 Revegetation Methodology

The goal of this revegetation plan, as part of the reclamation plan for the proposed mine expansion, is to restore the native creosote bush scrub plant community and increase its potential to support the above listed special-status species, in particular, the federally and state listed desert tortoise. The achievement of a successful revegetation program involves a number of steps. The steps include controlling access, removing sources of on-site human disturbance, reducing/eliminating non-native plant species, and reseeded as necessary.

The revegetation efforts for CalPortland’s Oro Grande Quarries and the Superior Quarry that are being proposed for expansion are based on the summary analysis found in Table 5 below.

Table 5: Revegetation Goals, Objectives, and Implementation Program

| GOAL | OBJECTIVE | ACTION | ASSUMPTIONS | MONITORING |
|---|---|--|--|---|
| Restore the native creosote bush scrub plant community that provides habitat for desert tortoise and other special-status species | Protect project site from direct and indirect impacts | Limit access by construction of fencing and barriers and placement of signage. | Unlimited access is one of the major issues adversely affecting native habitat values. | Install fencing and signage. Weekly inspections of site after revegetating an area to ensure fencing and gates are secure and signs are posted. Quarterly inspections when problem abated. |
| | | Remove Trash | Trash needs to be removed prior to any revegetation activities and the Site needs to be kept free of trash. | Remove trash prior to revegetation. Monthly inspections of the site for trash piles to ensure their timely removal, then quarterly inspections when problem is abated. |
| | | Feral Animals | It is assumed that feral animals are not a problem due to the presence of coyote and bobcat in mining area. However, this assumption should be validated through monitoring. | As part of monitoring process for each revegetated area habitat, these open areas will be surveyed for dog and cat sign/tracks. If a problem is observed, a program will be developed to abate the problem. |

| | | | | |
|--|--|--|--|--|
| | Protect Desert Native Plant Species as defined by San Bernardino County Development Code | Conduct pre-construction plant surveys to identify the presence of protected desert native plant species. | The presence of a protected desert native plant species will require that these species be salvaged and transplanted, where possible. | Salvaged/transplanted species will be available for use in the revegetation process., along with salvaged soils and the associated seed base in the top soils. |
| | Remove/control non-native plant species | Non-native plant species are to be maintained at less than 10% as part of the restoration effort. | The presence of non-native plants reduces the habitat values of the site. Removal/control can be accomplished through manual removal and/or the use of herbicides. | Document methods used for the removal of non-native species and their effectiveness prior to the implementation of replanting of native species. Monitor regrowth of native species and conduct maintenance activities quarterly to remove non-native plant species during vegetation monitoring (See Section 5.1.2 for more detail). |
| | Revegetate mined areas to support a native creosote bush scrub plant community. | Following implementation of the revegetation plan, monitor the revegetated areas to ensure successful re-establishment of a creosote bush scrub plant community. | Once re-established, the creosote bush scrub plant community will suitable habitat for desert tortoise and the other special status species that use the area. | Establish performance criteria/standards to meet this objective and to support the special status species. (See Section 5.1.2 for performance standards for the Site). |

4.1 REDUCING HUMAN DISTURBANCES

The first step to successfully revegetate a quarry or mined area is to remove human disturbances. Human disturbance can be a significant cause of the loss of natural habitat values on a site. This initial stage of the revegetation will be conducted in two steps: first, securing the site, and second, removing areas of human disturbance (i.e, trash).

4.1.1 Securing the Site

Before revegetation activities proceed within a given quarry, the area(s) proposed for revegetation will be secured from unauthorized human intrusion to reduce the risks of off-road vehicle travel, shooting, trash dumping, and vandalism to the restored site from surrounding areas. Those quarries most vulnerable to trespass are along the northern and western boundaries, where it is generally open to existing rural residences and has few, if any, impediments to prevent access. The eastern boundary of the site is bordered by the existing Oro Grande quarries. Access from the east is, therefore, not at issue.

The northern and western boundaries of the expanded Oro Grande Mine will be secured against unauthorized access by the use of fencing and/or gates. It is anticipated that up to five (5) swing gates will be installed across access roads along the northern and western boundaries. The gates generally would be placed strategically at existing road entrances onto the site.

Appropriate signage will be placed at regular intervals around the perimeter of the Oro Grande Quarries and Superior Quarry areas to inform the public that these areas are part of a mining reclamation area and that trespass is prohibited. Signs will be placed on all gates and on posts strategically located along the boundary line and will be clearly marked and visible to people attempting to enter the site.

4.1.2 Removal of Human Impacts/Disturbance

All trash will be removed from within and immediately adjacent to a quarry or mine site prior to any revegetation efforts. All trash will be removed by hand and/or authorized use of vehicles and will be hauled offsite for proper disposal. Impacts to native plant species should be avoided as much as possible during removal activities. Removal should be done by hand, when feasible. However, some removal will be done by machine since some trash or debris items weigh over 50 pounds and cannot easily be carried off-site by one individual. The use of equipment will be limited, as much as feasible, to the existing dirt road system. A qualified Biologist will remain on-site during all trash removal to ensure that there are no adverse impacts to the native creosote bush scrub habitat that could otherwise affect the revegetation of a site needed to restore its conservation value.

4.2 REMOVAL OF NON-NATIVE SPECIES

A review of the data from the baseline vegetation inventory (see Section 3.4.3), non-native vegetation, although present, was found to occur at a low enough level, 10% or less, in three of the four transects. Only the transect within desert dry wash area exceeded 10%. Within this transect non-native species cover were measured at 38% with *Erodium cicutarium* at 20% and *Schismus barbatus* at 17%. The dynamic nature of dry washes due to flash flooding during storm event, creates soil conditions conducive for establishing invasive non- native species. It is important that

such areas be monitored and control to prevent their spread into mined areas. All non-native populations should be controlled or removed, as needed, as well as prior to revegetation. Manual clearing would be the suggested method. A second method would be the use of approved herbicides, depending on the species and the extent of the infestation. One or both of these methods could be used to accomplish this task. The selection of method(s) to be used will be site specific and made by the qualified Biologist in concert with CalPortland and San Bernardino County. All efforts to remove non-native species will be overseen by a qualified Biologist to ensure the level effort addresses the issue.

If manual clearing is used, the Biologist will ensure all non-native, exotic, or invasive plant material is gathered into appropriate storage containers (drawstring plastic trash bags are acceptable), removed from the Site, and deposited at an approved disposal facility (a landfill is acceptable) to prevent the introduction and establishment of those species to new areas. If herbicides are used, the appropriate herbicide will be selected by the Biologist in consultation with CalPortland and San Bernardino County. At this time, it is anticipated the herbicide to be used will be Fusillade and Roundup (glyphosate). The Biologist would also oversee their application.

4.3 PROTECTION OF DESERT NATIVE PLANT SPECIES

San Bernardino County Development Code provides protection measures that require avoidance and/or to minimization measures to native desert plant species. These measures, as discussed below, will be followed by CalPortland as mining moves into the proposed expansion areas as applicable. Avoidance is always the best approach to reduce impacts to desert native vegetation. Pre-construction surveys will be conducted within each proposed quarry expansion area to document the presence or absence of desert native plant species as identified by San Bernardino County Development Code. All identified desert native plant species will be marked in the field and identified on a map using GPS. Where feasible, these protected species will be avoided and preserved in place. If avoidance is not possible, a salvage and onsite transplantation plan will be prepared and reviewed with San Bernardino County as part of their permitting process under San Bernardino County Development Code, Section 88.01.060.

4.3.1 Plant Relocation

Plant relocation is the primary method of preserving the species diversity of the site recommended by the County. This process requires identifying those individual desert native plant species that are capable of tolerating of being relocated, identifying a suitable staging area, a proven method of moving and maintaining the individual plants, and an effective monitoring plan. The following procedures will be implemented to locate, salvage and transplant desert native plants.

Staging Area

A suitable location will be identified at the time the plants are removed. A qualifying location will contain similar soil type, hillside/slope aspect relative to the noon sun, upslope hydrology, and local vegetation community. The temporary staging area must be fenced off to limit exposure to construction influences and animal herbivory.

Jointed (Segmented Cacti)

Cholla will be salvaged by collecting the branches or segments of each plant for transplanting. The salvage and translocation will utilize the following methodology:

- Use a clean, sharp knife, pruners or loppers to make smooth, lean cuts at the joints to obtain whole segments or stems of new growth. (Disinfect tools with a 10-percent bleach solution to inhibit the spread of disease between plants).
- Place the cuttings on a pallet in shade with good air circulation. Let them air-dry for one to several weeks, until cuts callus, which helps prevent rot.
- Plant your new cactus in full sun with well-drained soil. Water two times per week while staging with 1 to 2 gallons of water. Excellent drainage is necessary.
- Make sure that the new planting location either drains well naturally or is made to drain well by amending soil with sand and gravel.

Mojave Yucca

The removal of yucca must be accomplished in a manner which will keep as much of the root system as possible intact while avoiding limb and stem breakage. Additionally, translocation of the yucca must be completed in as timely a manner as possible so as to minimize exposure of the roots to the air and desiccation. The following plant species flagged on-site and determined suitable for survival will be salvaged and located to areas outside the disturbance footprint within a predetermined staging area. The salvage and translocation will utilize the following methodology:

- The plants to be salvaged and translocated must be assessed and flagged by a certified arborist or desert native plant expert.
- To the greatest extent feasible, plants should be extracted between October and March. The north side of each plant must be marked. Protective gear must be worn (gloves, eyewear, etc.) when handling plants or trees.
- The selected plants taller than 2 feet must be removed utilizing equipment such as a backhoe and shovels and will be transported on trucks/trailers. Yucca plants taller than 6 feet should be transplanted by a professional contractor experienced in transplanting large yucca plants.
- To the extent practical, plants/ growing in clusters must be kept together in a single unit to reduce root damage. The integrity of the clusters can be better maintained by bundling the

cluster with rope or straps and moving the cluster with a front-end loader, tree spade, etc. Care must be taken to assure no damage occurs to plants, especially the larger, multi-stemmed individuals.

- All plants must be tagged using a method to assure the north side of the plant stays in this orientation during the entire relocation process until the final planting has taken place.
- The contractor will apply fungicide, horticultural charcoal, or sulfur to roots to decrease the risk of infection.
- Within the fenced staging area, plant yuccas in rows to allow for easier access and maintenance. If multiple parallel trenches are needed, then trenches will be spaced to allow heavy equipment to access each large plant (taller than 2 feet). Trenches must be watered thoroughly prior to transplanting. Organic soil amendment is not necessary. Large rocks should be removed from the whole prior to planting.
- Water two times per week while staging with 1 to 2 gallons of water. Excellent drainage is necessary. Make sure that the new planting location either drains well naturally or is made to drain well by amending soil with sand and gravel. The whole should drain completely within 2 to 3 hours. Place Tree in a hole and back fill with native soil. Use the soil line on the trunk to determine correct planting depth. Do not plant too deep. Soil must be formed into catchment basins or trenches around plants to hold water; generally, a watering basin in a 2 to 3-foot radius from the trunk is sufficient.

Seed Bank Establishment

- The top 6 to 12” of surface material will be salvaged and either transported immediately to areas ready for revegetation or stored temporarily onsite. The soil area will be marked with signs and/or flagging to protect from other uses;
- Roughen or rip compacted surfaces to be revegetated to a minimum of 6” to hold moisture and seeds;
- Add any stockpiled surface material containing banked seeds in an “island pattern” to a depth of up to one foot.
- Seed by hand with commercially available (by S&S Seeds) native desert seeds utilizing species listed in Table 6 or others as recommended by the qualified desert native plant expert/botanist or a certified arborist. Seeding will take place in winter (November – February) to take advantage of normal precipitation. Seeds will be hand raked or mechanically covered by a tractor with a chain attachment. Alternatively seeding may be conducted by an imprinter pulled by a small tractor;
- Stake or flag reclaimed areas to eliminate additional disturbance;

4.4 SPECIAL-STATUS PLANT SURVEY

Prior to initiation of revegetation efforts at one of the expanded mine areas, a focused special-status plant surveys will need to be conducted during the spring blooming season to determine if

special-status plant species are present or absent from the undisturbed portions of the project site. Surveys shall be conducted to coincide with the flowering periods of special-status plants known to occur in the general vicinity of the project site. The surveys shall follow protocols and guidelines that have been approved and recommended by the USFWS 1996 *Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed, Proposed and Candidate Plants*; CDFW 2009 *Guidelines for Assessing the Effects of Proposed Developments on Rare and Endangered Plants and Plant Communities*; and the CNPS 2001 Botanical Survey.

4.5 REVEGETATION

Revegetation of native habitats will follow the removal of any non-native species that may have become established and has the goals of: 1) restoring native habitat through revegetation in order to re-establish high-quality creosote bush scrub suitable for desert tortoise and other special-status species; and 2) to reestablish a structurally diversified native plant community within quarry and associated facilities that will ensure long-term viability of the native creosote bush scrub plant community and the various species it previously supported. By achieving these goals, the site will be capable of supporting healthy desert tortoise populations, as well as having the potential to support other special-status species found within the Oro Grande Oro Grande Quarries and Superior Quarry. The following sections outline the steps necessary to achieve these goals.

4.5.1 Recontouring

Because the soils are already present, re-establishing the creosote bush scrub plant community should be successful with recontouring and/or ripping the site, where needed, for erosion control and to eliminate compaction, followed by revegetation and the requisite five years of monitoring and managing the revegetation effort.

4.5.2 Revegetation

Revegetation will be accomplished at each quarry and associated facility once the quarry has been closed and will be initiated in consultation with San Bernardino County. It is recommended that all native seeds to be used during the revegetation effort be collected onsite or from similar areas of creosote bush scrub habitat located immediately west and/or north of the Oro Grande Mine Site.

Plant Palette

The seeds to be harvested and used for revegetation purposes on the revegetation include species that are either present on the site already or are present in the surrounding area as part of the creosote bush scrub plant community. The proposed plant palette, Table 6, *Proposed Native Plant Species for Seeding*, is based on native species found in this plant community. However, the list may be revised based on the information collected from the reference site at the time of revegetation. While the shrubs will eventually dominate a habitat type, the forbs and annuals

provide early successional species that stabilize the soil and help shelter slower-growing woody shrubs.

Soil Preparation

Prior to any revegetation, the soils within quarry or associated facility scheduled for seeding will be prepared to receive seeds. If needed, soils will be de-compacted, following a pre-revegetation desert tortoise clearance survey that verifies that no desert tortoise are present. However, it is anticipated that most of the areas that will be scheduled for revegetation may be rock in the form of overburden or quarry benches. In this case, these areas will be cover with 0.5 to 1 foot of suitable soils. Removed or salvaged topsoil from new mining site should be able to provide 0.5 feet of the required fill.

Additionally, there will be an abundant of removed overburden from the proposed expansion areas that will be stored and available for providing the necessary fill or topsoil prior to revegetation.

If seeds are to be hand cast onto the soil surface, the soil will first be scarified. In areas where the seeds will be imprinted, the site will first be ripped. The ripper blades will be spaced 12 inches apart and capable of ripping the soil to a depth of six to ten inches. The Biologist will be present during these activities to ensure that no impacts occur to special-status wildlife species or special status plant species occurs.

Table 6: Proposed Native Plant Species for Seeding

| SPECIES | | POUNDS PER ACRE |
|--------------------------------|------------------------|--------------------|
| SCIENTIFIC NAME | COMMON NAME | |
| <i>Ambrosia dumosa</i> | Burrobush | 2.50 |
| <i>Ambrosia salsola</i> | Cheesebush | 2.50 |
| <i>Amsinckia tessellata</i> | Fiddleneck | 0.25 |
| <i>Alyssum desertorum</i> | Desert alyssum | 0.25 |
| <i>Atriplex confertifolium</i> | Shadscale | 2.50 |
| <i>Cammissonia californica</i> | Evening primrose | 0.25 |
| <i>Chorizanthe rigida</i> | Rigid spineflower | 0.25 |
| <i>Chaenaetis fremontii</i> | Desert pincushion | 0.25 |
| <i>Ericameria nauseous</i> | Rabbitbrush | 3.00 |
| <i>Ephedra nevadensis</i> | Mormon tea | 1.50 |
| <i>Ericameria linearifolia</i> | Narrow leaf goldenbush | 0.75 |
| <i>Eriogonum fasciculatum</i> | Flat-topped buckwheat | 2.00 |
| <i>Eriogonum thurberi</i> | Thurber's buckwheat | 0.50 |
| <i>Gilia spp.</i> | Gila | 0.25 |
| <i>Larrea tridentata</i> | Creosote bush | 3.00 |
| <i>Lycium cooperi</i> | Peach thorn | 2.00 |
| <i>Malacothrix glabrata</i> | Desert dandelion | 0.75 |
| <i>Mentzelia affinis</i> | Blazingstar | 0.50 |
| <i>Pectocarya linearis</i> | Slender combseed | 0.25 |
| <i>Phacelia distans</i> | Phacelia | 0.25 |
| <i>Salvia columbariae</i> | Chia | 0.25 |
| <i>Stephanomeria exigua</i> | Small wirelettuce | 0.25 |
| <i>Tetradymia spinosa</i> | Cotton thorn | 2.00 |
| <i>Xylorhiza tortifolia</i> | Mojave aster | 0.50 |
| TOTAL pounds per acre | | 25-30 |

Seeding

Seeds will be distributed throughout an area scheduled for revegetation during the rainy season, generally between October 1 and January 30, or during a suitable period based on weather forecasts and rainfall. The preferred method of seed installation is by imprinting. Imprinting is a method in which heavy steel drum rollers with imprinting teeth on them are dragged (rolled) across a site to leave troughs for seeds to be placed in. Seeds are placed into a hopper in front of the imprinter, and the hopper disperses the seed onto the rollers, which subsequently press the seeds into the ground while creating troughs. When properly implemented, the troughs trap seeds, collect moisture, reduce runoff, and reduce erosion, while also providing shelter from winds and intense sunlight. Imprinting should only occur after the soil has been sufficiently ripped to provide a rough surface for catching the seeds, and only when there is sufficient moisture in the soil for it to be properly imprinted without the troughs losing their shapes.

The seed hopper must be thoroughly cleaned prior to the arrival of the imprinter at the site. Seed can be mixed with wheat bran or another approved substitute to aid in application and the prevention of seed segregation. In addition, mycorrhizal fungi can be applied to the seeds where necessary, particularly in highly disturbed areas where plants may otherwise have difficulty growing. The restoration contractor shall determine the appropriate mixing ratio of the seed to the binder and/or mycorrhizae, if used.

Where imprinting is not possible due to access issues or due to potential damage to surrounding habitat, broadcast seeding will be used. Broadcasting will be conducted by hand and therefore should not occur when there are detectable winds that might carry seed away from its intended location. Seed should be broadcast twice: first, half of the seed should be spread while moving in one direction, and then the other half of the seed should be spread while moving perpendicular to the original direction.

Any harvested seeds not used during initial seeding efforts will be stored in a cool/dry environment until subsequent seeding efforts.

A Biologist will be present during these activities to ensure that there will be no impacts to areas with desert tortoise or other special status plant or wildlife species.

Test Plots

The use of test plots is recommended during the initial revegetation efforts. These test plots will provide valuable data for the ensuring revegetation efforts as all the slated quarries are mined and the revegetation program implement for those areas. Three general topographic aspects were identified within the creosote bush scrub plant community: steep slopes, level to gently sloping area and desert dry washes. Two different seeding processes have been recommended for use in revegetating sites: mechanically imprinting seeds, as described in detail above, and broadcasting of seeds by hand on steep slopes, inaccessible areas or area that would otherwise be damaged by the use of an imprinter. The level to gently sloping areas are generally imprinted, while steep slopes and dry wash areas, due to the fragile nature and sensitivity of the wash habitats, are usually seeded by hand. If possible, the first revegetation site can be used to test the benefits of the two seeding methodologies on the three discussed topographic aspects found within the creosote bush scrub plant community. Further, test plots could also be employed to test for the effective of using mycorrhizal fungi as part of the imprinting process. Table 7, *Test Plots*, is a suggested matrix of test plots that could be used at the initial revegetation site to test the methodologies of seeding on each topographic aspects of the site and the benefits of using mycorrhizal fungi during the seeding process.

Table 7: Potential Test Plots*

| Type of Seeding | Steep Slopes | Level | Dry Wash |
|-------------------------------------|---------------------|--------------|-----------------|
| Seeding by Hand | | | |
| Imprinting with Micorrhizal Fugi | | | |
| Imprinting without Micorrhizal Fugi | | | |

*Suggest 1 acre plots for each test category

Section 5 Performance Standards, Biological Monitoring and Reporting

Following the revegetation effort, the restored areas will be monitored for five years to ensure a successful revegetation process in support of overall reclamation of the area. Performance standards described in this section will be used to determine when a quarry or revegetation area will be considered a success. Biological monitoring will be conducted quarterly to track the success of the revegetation effort, ensuring that any corrective measures needed can be implemented in a timely manner and the established performance standards are met. Reporting will document all activities and their success and includes the following reports: 1) implementation reports, 2) monitoring reports, and 3) annual reports. The implementation report and monitoring reports will be prepared at the conclusion of each activity. The annual report will provide a yearly accounting of reclamation and revegetation activities, results of the biological monitoring, and the status of where the revegetation efforts are in relationship to meeting the performance standards. The annual report will also provide an accounting of all maintenance activities that occurred during the previous year.

5.1 PERFORMANCE STANDARDS

Composition of the native creosote bush scrub plant community was determined using vegetation transects conducted within of the existing, undisturbed native habitat and is summarized in Table 8, *Plant Community Composition* below. From this vegetation composition data, a series of performance standards or success criteria were derived and are presented in Table 9, *Performance Standards*. Native perennial shrub cover was based on 45% of baseline values, while species density and species diversity were based on 40% of baselines values for native perennial shrubs. Performance standards were developed for each landform encountered within the proposed expansion area. Fulfillment of the performance standards is expected to indicate that revegetated areas are progressing toward the long-term goal of becoming a functioning, self-sustaining creosote bush scrub plant community.

Performance standards are provided for controlling site access and illegal dumping of trash, as well as weed control and revegetation activities. These activities will be in place for a period of five (5) years following revegetation, or until performance standards are met. There must be a minimum of two monitoring visits each year over the five-year period, unless performance standards are met earlier. If all annual performance standards are met at the end of the five-year monitoring period or earlier, no additional revegetation activities or monitoring will be required.

Fencing and trash removal will occur in Year 1. The removal of non-native vegetation will also commence in Year 1. These efforts will be followed by the revegetation activities in Year 2. It is

expected that each revegetated area will meet the Performance Standards at a different time, likely in Years 4 or 5. A five-year monitoring period, see Table 10, *Revegetation Schedule*, will be conducted starting at Year 1. If the performance standards are not being met, corrective measures will be implemented after coordination with the San Bernardino County Land Use Services Division of the Land Planning Department. A general revegetation schedule is shown in the table below.

Table 8: Plant Community Composition*

| Landform | Perennial Cover (%) | Species Density | Species Diversity |
|-------------------------------|---------------------|-----------------|-------------------|
| Wash Areas (Transect 2) | 14 | 21 | 8 |
| Steep Slopes (Transect 3) | 42 | 46 | 10 |
| Level Areas (Transects 1 & 4) | 32 | 56 | 11 |

*Native perennial shrubs from the 2019 baseline surveys per 50 m².

Table 9: Performance Standards*

(45% of Baseline Cover, 40% of Baseline Species Density/Diversity)

| Landform | Perennial Cover (%) | Species Density | Species Diversity |
|-------------------------------|---------------------|-----------------|-------------------|
| Wash Areas (Transect 2) | 6 | 8 | 3 |
| Steep Slopes (Transect 3) | 19 | 18 | 4 |
| Level Areas (Transects 1 & 4) | 14 | 22 | 4 |

*Native perennial shrubs from the 2019 baseline surveys per 50 m².

Table 10: Revegetation Schedule

| RESTORATION PHASE | YEAR 1 | YEAR 2 | YEAR 3 | YEAR 4 | YEAR 5 |
|-------------------|--|--|--------|---|--------|
| Phase 1 | Fencing, site cleanup clearance surveys and removal of non-natives | Revegetation and biological monitoring | | Quantitative Monitoring and meeting Performance Standards | |

5.1.1 Site Access/Illegal Dumping

Performance standards are needed to track site access as well as the maintenance activities needed to remove illegal uses of the project site for the dumping of trash and use by off-road vehicle activity that could threaten the success of the revegetation efforts. Controlling site access will be considered successful if the barriers and signs are not damaged beyond functioning and if the loss of habitat from human disturbance associated with site access and illegal uses results is less than 5%.

5.1.2 Revegetation and Weed Control

The success of revegetation efforts and attainment of performance standards will be assessed by Biological Monitoring (Qualitative and Quantitative Monitoring). Each quarry or revegetation area will be evaluated separately to determine if the performance standards have been met for that area.

The species diversity goal and plant cover goal for revegetation are as follows:

- Vegetation composition should be structurally diversified and comparable to that found in the reference site. No single native shrub species will constitute more than 20% of the area or site, including California buckwheat. Species comprising greater than 20% composition of any area, will be selectively thinned by hand. Shrubby vegetation should remain patchy within each quarry or revegetated area such that there are open pathways between shrubs for wildlife to move through an area.
- Coverage of perennial shrub plant species, e.g. creosote bush scrub, should be between 10% and 40% as documented by the qualitative monitoring of the site. This cover should form a patchwork of areas varying from openings to areas with a high density of vegetation. If shrub cover in any area 0.5 acre or greater exceeds 65%, the shrubs should be selectively removed by hand, as determined by the Project Biologist, and/or a native plant botanist. Likewise, if shrub cover is under 10% in any area 0.25 acre or greater, the area will be revegetated via hand-casting of seed or by imprinting (see below) under the direction and supervision of a permitted desert tortoise biologist, the Project Biologist, or a native plant botanist.

The revegetation efforts will be considered successful when the following standards are met:

- Non-native vegetation cover will include areas of human disturbance as part of the loss of native habitat and shall constitute no more than 10% of the Site; with human disturbance constituting less than 5% of this total.
- The following standards will be applied to mature creosote bush scrub habitat:
 - Native perennial shrub cover is between 6% and 19%.
 - No single native perennial species constitutes more than 20% of the measured cover, including California buckwheat,.
 - At least 40% species diversity compared to the reference area (i.e., the frequency of dominant species are at least 50% of the frequency of these species within the reference area).
 - The native shrub cover should remain open in order to provide pathways for wildlife to move freely through the area.
 - Significant maintenance measures (i.e., reseeded, weed control, repairing significant areas of erosion) have not been required for the previous two years.

If the native perennial plant cover is less than 6% in any area 0.25-acre or greater, the biological monitor will evaluate the reasons for the low cover and make recommendations for remedial

measures, if any. Similarly, if species diversity is less than 45% of baseline conditions, the need for other remedial measures will be evaluated.

5.2 MONITORING

Monitoring will include both site monitoring for access control, trash dumping and other forms of human disturbances, as well as biological monitoring of each revegetated quarry or associated facility.

Site monitoring of human use (access, trash dumping and off-road vehicle use) will consist of:

- **Installation monitoring:** to observe and document the construction of fences/barriers, gates (including chains and locks) and signs, and to document the removal of trash and elimination of human disturbance.
- **Security monitoring:** to observe the status of the fences/barriers, gates, chains, locks, and signs.
- **Ongoing monitoring:** to observe and document the effectiveness of the access control measures and the efforts to eliminate dump sites and areas of human disturbance.

Monitoring of revegetation efforts will consist of:

- Baseline Data Gathering and Reference Site Botanical Assessment
- Implementation monitoring to ensure that the initial weed control (removal of non-native species) and subsequent reseeding with native seeds have been properly performed and documented.
- Biological monitoring to qualitatively and quantitatively evaluate overall conditions of a revegetated mine site.

5.2.1 Site Monitoring

Site monitoring will include both Security monitoring by CalPortland security personnel and by the observations by the biological monitor during qualitative monitoring to assess the security of each revegetated area, including breach in gates or fences, the presence of trash, and loss of habitat due to off-road vehicle activity. Security monitoring of the site is required because unimpeded access to the revegetated areas will result in impacts to an area and is a threat to the success of the revegetation efforts. Security monitoring will be on at least a weekly/monthly basis by security personnel and by the Biological Monitor during each quarterly monitoring visit. Any observed breach will be reported immediately to CalPortland and repaired within 5 working days. Readily observable trash sites and impacts from off-road vehicle activities will also be reported immediately to CalPortland and corrective measures taken within 5 working days.

5.2.2 Vegetation Monitoring

Vegetation monitoring will be conducted for three purposes: 1) to ensure that the site preparation, seeding and weed eradication follows the Revegetation Plan (implementation monitoring), 2) to evaluate native plant establishment and vigor, and to identify and make recommendations for correcting problems (qualitative monitoring) and 3) to quantitatively measure development of the creosote scrub habitat (quantitative monitoring). The success of the revegetation effort will be measured primarily by the analysis of the quantitatively collected data.

Implementation monitoring will occur during the initial revegetation activities by the biological monitor. The biological monitor will ensure that the revegetation and weed control plans are followed and assist in making necessary modifications to the plan, if necessary. Monitoring records will be kept for all revegetation activities including weed control, soil preparation, and seeding activities. The monitoring records will include dates for each activity, location of each activity, the type of treatments or actions taken, any problems encountered, and modifications made to the Revegetation Plan. This information will be documented and used to develop an implementation (as-built) report that will be included in the first annual monitoring report.

Qualitative monitoring is necessary to evaluate the general health of reseeded areas and/or areas still being treated for removal of non-native species and to identify and correct any identified problems. This is a subjective process that relies on the expertise of the biological monitor. Under qualitative monitoring, revegetated areas will be visited by the monitor on a defined schedule (i.e., at least quarterly in Years 1 through 5) to evaluate the effectiveness of nonnative species control and to document the growth and vigor of seeded vegetation. The monitor will record and report observations on the qualitative monitoring form. A sample form is provided in Appendix C. If required, the monitor will make specific recommendations for correcting any identified problems, including issues with seed germination and growth, erosion concerns, increased treatment for weed control, and other requirements for site protection. A general 5-year schedule for qualitative monitoring is shown in Table 10. The schedule is meant to be flexible so that qualitative monitoring is performed when needed and results in modifications to the Revegetation as needed.

Quantitative monitoring will be used to periodically quantify specific attributes of the revegetated habitat. Revegetation in the desert can take several years to accomplish depending on climatic conditions, rain vs. drought, and other unpredictable variables. The quantitative monitoring is designed to determine whether or not the revegetated site demonstrates a trend toward development of a self-sustaining creosote bush scrub habitat. It will be conducted to measure the re-establishment of the native creosote bush scrub habitat and to assess when the revegetated areas achieve the prescribed performance standards. Quantitative monitoring will commence after qualitative monitoring indicates that the vegetative cover within each of the revegetated areas is approaching the performance standards. This should occur between years 2 and 4 after the initial

revegetation effort. This monitoring will occur annually during the spring, when the creosote bush scrub habitat is normally the most diverse with the addition of spring annuals.

Each revegetation site will be sampled by selecting transect locations using the RELEVE methodology and intercept methodology to measure vegetation along the transect method line. The methodology shall be the same methodology used during the initial evaluation prior to revegetation and used to document conditions at the reference site. Data will be collected on each area at the same time each year, in the spring, to ensure consistency between years. The monitoring data from each revegetation area will be analyzed for changes or trends in densities/cover of the most common perennial and annual species. Year-to-year changes in cover characteristics will be compared to determine if the characteristics are approaching the characteristics found in the reference site. The monitor will record and report observations on the quantitative monitoring form found in Appendix C.

Each revegetated area will be monitored for a maximum of 5 years or until performance standards are met. If restoration performance standards have been met prior to 5 years, then the project will be considered successful and no further quarterly monitoring will be conducted and closure procedures can be initiated with San Bernardino County. If performance standards have not been met, CalPortland will meet with the San Bernardino County to develop alternative corrective actions based on the revegetation efforts and results of the monitoring efforts. Monitoring will continue until standards are met.

5.2.3 Special-Status Species Monitoring

A qualified biologist was onsite during all reclamation and revegetation activities in the event desert tortoises or other special status species were found in the revegetation area(s). No desert tortoises were found in or adjacent to the work areas. The biologist will conduct a pre-construction survey, according to accepted protocols, for burrowing owls 14-30 days and 24 hours prior to the initiation of site reclamation and revegetation activities as well as perform a pre-construction sweep for desert tortoise and areas with evidence of desert tortoise activity prior to the revegetation efforts.

5.3 REPORTING

The revegetation efforts will be documented in an initial implementation report, monitoring reports, and annual reports. The activities undertaken during the initial revegetation effort will be documented in an implementation report. The annual reports will be based on the monitoring reports and will document the monitoring efforts and continued revegetation activities undertaken each year until an area or site meets performance standards or for five years, whichever is longer. Appendix C provides a series of sample monitoring forms that are proposed for use to aid in the

preparation of the implementation and annual reports. Information in these reports will be used to develop the work plan for the subsequent year.

5.3.1 Implementation Report

The results of the initial revegetation effort will be documented in an implementation report. This report will document the access control, trash removal, and habitat revegetation measures undertaken. The implementation report will also include the results of the qualitative and quantitative monitoring conducted at each revegetation site and the results of the reference site study. The report will be submitted to CalPortland for review within 30 days of completion of trash removal, installation of a fence/barrier and initial revegetation activities (i.e., removal of non-native vegetation and seeding). The implementation report will include the following information:

- Preliminary study results
- Locations and methods of trash removal
- Locations and types of fences/barriers installed
- Locations and methods of weed removal, including Biological monitoring effort
- Locations and methods of restoration, including Biological monitoring effort
 - Soil preparation
 - Seed mixes
 - Planting methods
- Erosion control measures
- Photo-documentation of the above implementation activities
- Issues/problems encountered

The implementation report will be submitted to San Bernardino County following CalPortland's review. It will also be included in the Year 1 annual report.

5.3.2 Monitoring Forms

Following the installation of the site security (fences, barriers, gates, chains, and locks) and implementation of the revegetation program, site and biological monitoring activities will be conducted in accordance with the general schedule for ongoing monitoring shown on Table 10. Appendix C provides a sample of the standard monitoring forms that will be completed for each monitoring occurrence: Site Maintenance, Vegetation Monitoring, and Annual Inspection.

5.3.3 Annual Report

An annual report will be prepared and submitted to CalPortland for forwarding to San Bernardino County the beginning of each year, documenting the previous year's efforts. These reports will include a general discussion of revegetation efforts to date, development of the creosote bush scrub plant communities, plus specific observations on the effectiveness of access control, trash removal, weed eradication and revegetation efforts. Aerial and ground photo-documentation of conditions and activities will be included. The annual reports will include copies of the monitoring forms prepared for each site visit during the previous year of monitoring. Annual reports will include the following information:

- Updated vegetation maps for each area of the reclamation and revegetation process.
- Discussion of qualitative monitoring data.
- Analysis of quantitative monitoring data.
- Photo-documentation of monitoring results.
- Analysis of effectiveness of access control and trash removal.
- Documentation of any significant storm events, fires, or anthropomorphic actions affecting the revegetated areas.
- Summary of any other maintenance activities conducted within revegetated areas.
- Recommendations for management actions or maintenance activities for the forthcoming year.

The various implementation and monitoring reports will be submitted to San Bernardino County following CalPortland's review.

Section 6 References

- Baldwin, B.G., et.al., editors. 2012. *The Jepson Manual: Vascular Plants of California*. University of California Press, Berkeley.
- Bonham, C.D. 1988 *Measurements for Terrestrial Vegetation*. John Wiley and Sons, Inc.
- Bossard, C.C., J.M. Randall, and M.C. Hoshovsky. 2000. *Invasive Plansts of California Wildlands*, University of California Press. Berkeley and Los Angeles.
- California Department of Fish and Wildlife (CDFW). 2019. RareFind 5, California Natural Diversity Data Base, California. Data Base report on threatened, endangered, rare or otherwise sensitive species and communities for the Helendale and Oro Grande USGS 7.5-minute quadrangles.
- California Native Plant Society (CNPS). 2019. Inventory of Rare and Endangered Plants of California. Rare Plant Scientific Advisory Committee, David P. Tibor, Convening Editor. California Native Plant Society. Sacramento, California. Available at: <http://www.cnps.org/inventory>.
- Hanes, T. L., R. D. Friesen, and K. Keane. 1989. Alluvial scrub vegetation in coastal southern California. 187–193. in Abell (technical coordinator), D. L., editor. *Proceedings of the California riparian systems conference: Protection, management, and restoration for the 1990's*, September 22–24, 1988, Davis, CA. Gen. Tech. Rep. PSW-110 Berkeley, CA Pacific Southwest Forest and Range Experiment Station, Forest Service, U.S. Department of Agriculture.
- Holland, R. F. 1986. Preliminary descriptions of the Terrestrial Natural Communities of California. California Department of Fish and Game, Sacramento, CA.
- Mueller-Dombois, D. and H. Ellenberg. 1974. *Aims and Methods of Vegetation Ecology*. John Wiley and Sons, Inc.
- Sawyer, J. O. and Keeler-Wolf, T. 2012. *A Manual of California Vegetation*. California Native Plant Society.
- U.S. Climate Data. 2019. *Climate Averages for the City of Victorville*. Available online at <http://www.usclimatedata.com/climate/friant/california/united-states/usca0407>.
- U.S. Department of Agriculture, Natural Resources Conservation Service. 2018. *Web Soil Survey*. Available online at <http://websoilsurvey.nrcs.usda.gov/app/>.

Appendix A Transect Data Sheets

Expansion Program for Cal Portland's Oro Grande Mining Site

| Expansion Program for Cal Portland's Oro Grande Mining Site | | | | | | | | | | | | | | | |
|---|-------------------------|--|--|------------|------------------------|--|--|------------|--------------------|--|--|------------|------------------------|--|--|
| Transect 1 | | | | Transect 2 | | | | Transect 3 | | | | Transect 4 | | | |
| 0 | Schismus barbatus | | | 0 | Hymenoclea salsola | | | 0 | Alyssum desertorum | | | 0 | Psorothamnus fremontii | | |
| 0.5 | Echinocereus mojavensis | | | 0.5 | Hymenoclea salsola | | | 0.5 | Chorizantha sp. | | | 0.5 | Psorothamnus fremontii | | |
| 1 | Erodium cicutarium | | | 1 | Hymenoclea salsola | | | 1 | Alyssum desertorum | | | 1 | Erodium cicutarium | | |
| 1.5 | Bare Ground | | | 1.5 | Hymenoclea salsola | | | 1.5 | Bare Ground | | | 1.5 | Bare Ground | | |
| 2 | Hymenoclea salsola | | | 2 | Mentzelia | | | 2 | Bare Ground | | | 2 | Bare Ground | | |
| 2.5 | Eriogonum inflatum | | | 2.5 | Mentzelia | | | 2.5 | Ambrosia dumosa | | | 2.5 | Erodium cicutarium | | |
| 3 | Ambrosia dumosa | | | 3 | Mentzelia | | | 3 | Ambrosia dumosa | | | 3 | Schismus barbatus | | |
| 3.5 | Ambrosia dumosa | | | 3.5 | Bare Ground | | | 3.5 | Plantago | | | 3.5 | Erodium cicutarium | | |
| 4 | Bare Ground | | | 4 | Hymenoclea salsola | | | 4 | Bare Ground | | | 4 | Erodium cicutarium | | |
| 4.5 | Ephedra californica | | | 4.5 | Bare Ground | | | 4.5 | Plantago | | | 4.5 | Erodium cicutarium | | |
| 5 | Ephedra californica | | | 5 | Hymenoclea salsola | | | 5 | Plantago | | | 5 | Schismus barbatus | | |
| 5.5 | Ephedra californica | | | 5.5 | Bare Ground | | | 5.5 | Plantago | | | 5.5 | Schismus barbatus | | |
| 6 | Hymenoclea salsola | | | 6 | Bare Ground | | | 6 | Ambrosia dumosa | | | 6 | Larrea tridentata | | |
| 6.5 | Hymenoclea salsola | | | 6.5 | Bare Ground | | | 6.5 | Hymenoclea salsola | | | 6.5 | Larrea tridentata | | |
| 7 | Bare Ground | | | 7 | Hymenoclea salsola | | | 7 | Plantago | | | 7 | Schismus barbatus | | |
| 7.5 | Bare Ground | | | 7.5 | Hymenoclea salsola | | | 7.5 | Plantago | | | 7.5 | Erodium cicutarium | | |
| 8 | Bare Ground | | | 8 | Hymenoclea salsola | | | 8 | Plantago | | | 8 | Erodium cicutarium | | |
| 8.5 | Hymenoclea salsola | | | 8.5 | Eriogonum inflatum | | | 8.5 | Plantago | | | 8.5 | Bare Ground | | |
| 9 | Bare Ground | | | 9 | Hymenoclea salsola | | | 9 | Mustard | | | 9 | Erodium cicutarium | | |
| 9.5 | Ambrosia dumosa | | | 9.5 | Hymenoclea salsola | | | 9.5 | Bare Ground | | | 9.5 | Erodium cicutarium | | |
| 10 | Ambrosia dumosa | | | 10 | Eriogonum fasciculatum | | | 10 | Bare Ground | | | 10 | Bare Ground | | |
| 10.5 | Hymenoclea salsola | | | 10.5 | Bare Ground | | | 10.5 | Bare Ground | | | 10.5 | Erodium cicutarium | | |
| 11 | Bare Ground | | | 11 | Bare Ground | | | 11 | Plantago | | | 11 | Chaenactis fremontii | | |
| 11.5 | Bare Ground | | | 11.5 | Bare Ground | | | 11.5 | Ambrosia dumosa | | | 11.5 | Erodium cicutarium | | |
| 12 | Bare Ground | | | 12 | Bare Ground | | | 12 | Bare Ground | | | 12 | Bare Ground | | |
| 12.5 | Bare Ground | | | 12.5 | Bare Ground | | | 12.5 | Bare Ground | | | 12.5 | Bare Ground | | |
| 13 | Bare Ground | | | 13 | Mentzelia | | | 13 | Bare Ground | | | 13 | Bare Ground | | |
| 13.5 | Bare Ground | | | 13.5 | Hymenoclea salsola | | | 13.5 | Plantago | | | 13.5 | Bare Ground | | |
| 14 | Bare Ground | | | 14 | Bare Ground | | | 14 | Plantago | | | 14 | Hymenoclea salsola | | |
| 14.5 | Bare Ground | | | 14.5 | Hymenoclea salsola | | | 14.5 | Bare Ground | | | 14.5 | Hymenoclea salsola | | |
| 15 | Bare Ground | | | 15 | Bare Ground | | | 15 | Bare Ground | | | 15 | Bare Ground | | |
| 15.5 | Bare Ground | | | 15.5 | Bare Ground | | | 15.5 | Ambrosia dumosa | | | 15.5 | Erodium cicutarium | | |
| 16 | Bare Ground | | | 16 | Bare Ground | | | 16 | Bare Ground | | | 16 | Chaenactis fremontii | | |
| 16.5 | Bare Ground | | | 16.5 | Bare Ground | | | 16.5 | Ambrosia dumosa | | | 16.5 | Bare Ground | | |
| 17 | Amsinkia | | | 17 | Hymenoclea salsola | | | 17 | Bare Ground | | | 17 | Erodium cicutarium | | |
| 17.5 | Hymenoclea salsola | | | 17.5 | Hymenoclea salsola | | | 17.5 | Bare Ground | | | 17.5 | Schismus barbatus | | |
| 18 | Hymenoclea salsola | | | 18 | Bare Ground | | | 18 | Ambrosia dumosa | | | 18 | Schismus barbatus | | |

| | | | | | | | | | | | |
|------|-------------------------|--|------|------------------------|--|------|---------------------|--|------|--------------------|--|
| 18.5 | Bare Ground | | 18.5 | Bare Ground | | 18.5 | Plantago | | 18.5 | Schismus barbatus | |
| 19 | Bare Ground | | 19 | Bare Ground | | 19 | Ambrosia dumosa | | 19 | Schismus barbatus | |
| 19.5 | Schismus barbatus | | 19.5 | Bare Ground | | 19.5 | Plantago | | 19.5 | Schismus barbatus | |
| 20 | Bare Ground | | 20 | Bare Ground | | 20 | Plantago | | 20 | Schismus barbatus | |
| 20.5 | Bare Ground | | 20.5 | Mentzelia | | 20.5 | Plantago | | 20.5 | Schismus barbatus | |
| 21 | Hymenoclea salsola | | 21 | Bare Ground | | 21 | Plantago | | 21 | Erodium cicutarium | |
| 21.5 | Hymenoclea salsola | | 21.5 | Bare Ground | | 21.5 | Plantago | | 21.5 | Erodium cicutarium | |
| 22 | Bare Ground | | 22 | Bare Ground | | 22 | Bare Ground | | 22 | Schismus barbatus | |
| | Bare Ground | | | Bare Ground | | | Bare Ground | | 22.5 | Bare Ground | |
| 23 | Bare Ground | | 23 | Eriogonum fasciculatum | | 23 | Hymenoclea salsola | | 23 | Bare Ground | |
| | Hymenoclea salsola | | | Eriogonum fasciculatum | | | Hymenoclea salsola | | | Bare Ground | |
| 24 | Hymenoclea salsola | | 24 | Bromus rubens | | 24 | Ambrosia dumosa | | 24 | Bare Ground | |
| | Hymenoclea salsola | | | Bromus rubens | | | Plantago | | | Bare Ground | |
| 25 | Gutierrezia californica | | 25 | Bare Ground | | 25 | Bare Ground | | 25 | Bare Ground | |
| | Ambrosia dumosa | | | Bare Ground | | | Bare Ground | | | Bare Ground | |
| 26 | Ambrosia dumosa | | 26 | Hymenoclea salsola | | 26 | Ambrosia dumosa | | 26 | Bare Ground | |
| | Ambrosia dumosa | | | Hymenoclea salsola | | | Ambrosia dumosa | | | Bare Ground | |
| 27 | Gutierrezia californica | | 27 | Hymenoclea salsola | | 27 | Bare Ground | | 27 | Bare Ground | |
| | Ambrosia dumosa | | | Bare Ground | | | Plantago | | | Bare Ground | |
| 28 | Bare Ground | | 28 | Bare Ground | | 28 | Plantago | | 28 | Bare Ground | |
| | Bare Ground | | | Bare Ground | | | Plantago | | | Erodium cicutarium | |
| 29 | Gutierrezia californica | | 29 | Eriogonum fasciculatum | | 29 | Plantago | | 29 | Bare Ground | |
| | Ambrosia dumosa | | | Schismus barbatus | | | Bare Ground | | | Bare Ground | |
| 30 | Gutierrezia californica | | 30 | Schismus barbatus | | 30 | Camissonia sp | | 30 | Schismus barbatus | |
| | Ambrosia dumosa | | | Schismus barbatus | | | Ambrosia dumosa | | | Schismus barbatus | |
| 31 | Encelia farinosa | | 31 | Bare Ground | | 31 | Ambrosia dumosa | | 31 | Erodium cicutarium | |
| | Bare Ground | | | Schismus barbatus | | | Plantago | | | Schismus barbatus | |
| 32 | Bare Ground | | 32 | Schismus barbatus | | 32 | Bare Ground | | 32 | Ambrosia dumosa | |
| | Bare Ground | | | Schismus barbatus | | | Plantago | | | Ambrosia dumosa | |
| 33 | Bare Ground | | 33 | Bare Ground | | 33 | Plantago | | 33 | Erodium cicutarium | |
| | Bare Ground | | | Bare Ground | | | Plantago | | | Erodium cicutarium | |
| 34 | Chorizantha sp. | | 34 | Bare Ground | | 34 | Bare Ground | | 34 | Schismus barbatus | |
| | Bare Ground | | | Mentzelia | | | Plantago | | | Bare Ground | |
| 35 | Bare Ground | | 35 | Mentzelia | | 35 | Erodium cicutarium | | 35 | Bare Ground | |
| | Bare Ground | | | Bare Ground | | | Ambrosia dumosa | | | Bare Ground | |
| 36 | Bare Ground | | 36 | Bare Ground | | 36 | Erodium cicutarium | | 36 | Bare Ground | |
| | Bare Ground | | | Ambrosia dumosa | | | Bare Ground | | | Bare Ground | |
| 37 | Bare Ground | | 37 | Bare Ground | | 37 | Camissoniam sp | | 37 | Bare Ground | |
| | Gutierrezia californica | | | Bare Ground | | | Bare Ground | | | Bare Ground | |
| 38 | Chorizantha | | 38 | Bare Ground | | 38 | Hirschfeldia incana | | 38 | Bare Ground | |
| | Ambrosia dumosa | | | Bare Ground | | | Bare Ground | | | Bare Ground | |

| | | | | | | | | | | | |
|----|-------------------------|--|----|------------------------|--|----|---------------------|--|----|---------------------------|--|
| 39 | Bare Ground | | 39 | Bare Ground | | 39 | Bare Ground | | 39 | Bare Ground | |
| | Schismus barbatus | | | Bare Ground | | | Hirschfeldia incana | | | Bare Ground | |
| 40 | Bare Ground | | 40 | Bare Ground | | 40 | Bare Ground | | 40 | Chaenactis fremontii | |
| | Ambrosia dumosa | | | Hymenoclea salsola | | | Bare Ground | | | Larrea tridentata | |
| 41 | Bare Ground | | 41 | Hymenoclea salsola | | 41 | Bare Ground | | 41 | Larrea tridentata | |
| | Ambrosia dumosa | | | Hymenoclea salsola | | | Bare Ground | | | Schismus barbatus | |
| 42 | Bare Ground | | 42 | Hymenoclea salsola | | 42 | Bare Ground | | 42 | Bare Ground | |
| | Ambrosia dumosa | | | Schismus barbatus | | | Bare Ground | | | Bare Ground | |
| 43 | Bare Ground | | 43 | Schismus barbatus | | 43 | Ephedra | | 43 | Bare Ground | |
| | Bare Ground | | | Schismus barbatus | | | Ephedra | | | Bare Ground | |
| 44 | Bare Ground | | 44 | Bare Ground | | 44 | Ephedra | | 44 | Bare Ground | |
| | Bare Ground | | | Bare Ground | | | Hirschfeldia incana | | | Bare Ground | |
| 45 | Ambrosia dumosa | | 45 | Eriogonum fasciculatum | | 45 | Erodium cicutarium | | 45 | Bare Ground | |
| | Bare Ground | | | Mentzelia | | | Bare Ground | | | Bare Ground | |
| 46 | Gutierrezia californica | | 46 | Bare Ground | | 46 | Bare Ground | | 46 | Bare Ground | |
| | Bare Ground | | | Mentzelia | | | Alyssum desertorum | | | Bare Ground | |
| 47 | Bare Ground | | 47 | Mentzelia | | 47 | Camissonia sp | | 47 | Schismus barbatus | |
| | Ambrosia dumosa | | | Mentzelia | | | Ambrosia dumosa | | | Erodium cicutarium | |
| 48 | Gutierrezia californica | | 48 | Mentzelia | | 48 | Bare Ground | | 48 | Eschscholzia glyptosperma | |
| | Ambrosia dumosa | | | Mentzelia | | | Ambrosia dumosa | | | Sisymbrium irio | |
| 49 | Bare Ground | | 49 | Mentzelia | | 49 | Bare Ground | | 49 | Ambrosia dumosa | |
| | Bare Ground | | | Mentzelia | | | Plantago | | | Ambrosia dumosa | |
| 50 | Hymenoclea salsola | | 50 | Eriogonum fasciculatum | | 50 | Bare Ground | | 50 | Ambrosia dumosa | |

Appendix B Site Photographs



Photograph 1: View of the creosote bush scrub plant community on the hillsides of the northwestern portion of the project site.



Photograph 2: Creosote bush scrub plant community on the northwest portion of the project site sloping to the west.



Photograph 3: View of the rolling hills on the northwestern portion of the project site.



Photograph 4: Undeveloped creosote bush scrub on the eastern portion of the project site.



Photograph 5: Undeveloped area on the southern portion of the project site.



Photograph 5: Looking at the creosote bush scrub in the middle of the western boundary of the project site.



Photograph 7: Looking east towards the existing mining areas and buildings.



Photograph 8: View of the steep hill slopes near the middle of the project site.



Photograph 9: Dry wash at the bottom of the rolling hills on the northwestern portion of the site.



Photograph 10: Dry wash on the northwestern portion of the project site.



Photograph 11: Dry wash observed onsite.



Photograph 12: Larger dry wash on the northern boundary of the site.



Photograph 13: Dry wash on the northwest portion of the site.



Photograph 14: Looking at Mack's Peak.



Photograph 15: Dirt access road surrounded by undisturbed areas.



Photograph 16: Looking southwest at the areas that have been mined.



Photograph 17: Looking north at the Sparkhule Mine.



Photograph 18: From the northwestern boundary of the Sparkhule Mine looking southeast at the mine.



Photograph 19: Desert tortoise exclusionary fence found on the western portion of the site.



Photograph 20: Suitable desert tortoise burrow with sign on the northwestern portion of the project site.



Photograph 21: Old desert tortoise scoots found on the northwestern portion of the project site.



Photograph 22: Desert tortoise carapace found on the northwestern portion of the project site.

Appendix C Monitoring Forms

Site Maintenance Form

Site Maintenance Form

Name of Monitor(s): _____

Today's Date: _____ **Date of Last Visit:** _____

Is this visit a follow-up to a previous visit (i.e. to complete maintenance)? Yes No

Points of Access

Is there any damage to the fence, barriers, signs, or berm? Yes No

If yes, describe the location(s) and extent:

| Item | Location | No Action Needed | Repair Needed | Replacement Needed |
|-------------|-----------------|-------------------------|----------------------|---------------------------|
| | | | | |
| | | | | |
| | | | | |
| | | | | |

Trash

Are there any new trash dumps present? Yes No

If yes, describe the number of new dumps and general location(s): _____

Additional comments: _____

Will a follow-up visit be necessary? If so, when is this expected to occur and what additional work is necessary? _____

Vegetation Monitoring Form

Vegetation Monitoring Form

Name of Monitor(s): _____

Today's Date: _____ **Date of Last Visit:** _____

Photograph Numbers: _____

Non-Native Vegetation

Is the estimated total non-native coverage less than 20%? Yes No

Are there any new, established populations of weeds? If yes, which species and where is it/they generally located? _____

Can this population(s) be easily controlled or will a more intensive treatment regime be necessary?

Can all weeds be removed/killed during this visit? Yes No

If no, explain why not: _____

Native Vegetation

Is the estimated total native coverage between 20% and 50%? Yes No

Is any vegetation removal necessary to stay within desired absolute and/or relative cover goals? If yes, explain: _____

Are there any species or specific areas that show unusual rates of die-off? If yes, which species or which areas? _____

If yes, is there an obvious source of the mortality that can be remedied? Explain: _____

Was any watering conducted during this visit? Yes No

Was any replanting/reseeding required during this visit? If yes, which species and where? _____

Additional comments or recommendations: _____

Will a follow-up visit be necessary? If so, when is this expected to occur and what additional work is necessary? _____

Annual Monitoring Form (Page 1)

Name of Monitor(s): _____

Today's Date: _____

Date of Last Site Maintenance Visit: _____

Vegetation Monitoring Visit: _____

Conservation/Restoration Area: _____

Photograph Numbers: _____

Non-Native Vegetation

Are there any notable populations of weeds that will require follow-up treatment? If yes, which species and where is it/they generally located? _____

Provide any details on eradication suggestions: _____

Riparian Vegetation

Is any vegetation removal necessary to stay within desired absolute and/or relative cover goals? If yes, explain: _____

Is any additional replanting/reseeding recommended? If yes, which species and where? _____

Is there sufficient space between plants for Special-status Species movement or is vegetation thinning required? Explain. _____

Incidental Observations of Sensitive Plant Species: _____

Site Maintenance

Is any maintenance needed on the gates, chains, locks, signs, or berm? If yes, where? _____

Are there any trash piles or new homeless encampments? If yes, where? _____

Additional comments or recommendations: _____

Annual Monitoring Form (Page 2)

Name of Monitor(s): _____

Today's Date: _____

Transect: _____

Non-Native Vegetation

| Weed Species | Percent Cover | Plant Height Range | Comments |
|--------------|---------------|--------------------|----------|
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| TOTAL | | N/A | |

Riparian Vegetation

| Trees/Shrub Species | Percent Cover | Plant Height Range | Recommend for Thinning? | Comments |
|---------------------|---------------|--------------------|-------------------------|----------|
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| TOTAL | | N/A | | |

% bare ground _____ % leaf litter _____ % rock _____

Additional comments: _____
