Lebata Big Rock Creek Reclamation Plan
Antelope Valley, Los Angeles County

Volume 1 of 1

Lebata, Inc.

Project Number R2007-00670
State Clearinghouse No. 2007121054

Reclamation Plan
August 2014

Lead Agency

County of Los Angeles
Department of Regional Planning
320 West Temple Street
Los Angeles, CA 90012
(213) 974-6461
Contact Person: Anthony Curzi

Applicant:

Lebata, Inc.
4621 Teller Avenue, Suite 130
Newport Beach, CA 92660
(949) 640-0500
Contact Person: James F. McGee

SESPE
CONSULTING, INC.

468 Poli Street, Suite 2E • Ventura, California 93001

Reclamation Plan

Lebata Big Rock Creek

Aggregate Surface Mine and Processing Facilities

Lebata, Inc.

Antelope Valley, California

August 2014

Prepared for:
Lebata, Inc.
c/o McGee & Associates
23 Corporate Plaza, Suite 230
Newport Beach, CA 92660
(949) 640-0500
Contact Person: Mr. James F. McGee

Prepared by:
Sespe Consulting, Inc.
468 Poli Street, Suite 2E
Ventura, CA 93001
(805) 275-1515

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SESPE
CONSULTING, INC.
468 Poli Street, Suite 2E • Ventura, CA 93001
Office (805) 275-1515 • Fax (805) 667-8104

Lebata Big Rock Creek

Aggregate Surface Mine and Processing Facility
Ready-Mixed Concrete Plant
Vac-Lite Plant
Asphalt Mixing Plant
Cement Transfer and Aggregate Distribution Facility

Reclamation Plan

August 2014

Note: Recent legislation (Senate Bill 668, Chapter 869, Statutes of 2006) amended PRC Section 2774 with respect to lead agency approvals of reclamation plans, plan amendments, and financial assurances. These new requirements are applicable to this Reclamation Plan. Once the Department of Conservation - Office of Mine Reclamation (OMR) has provided comments on the Reclamation Plan, a proposed response to the comments must be submitted to the OMR at least 30 days prior to lead agency approval. The proposed response must describe whether, or not, OMR comments have been adopted. If not, the reason(s) for not doing so must be specified in detail. At least 30 days prior notice must be provided to the OMR of the time, place, and date of the hearing at which the Reclamation Plan is scheduled to be approved. If no hearing is required, then at least 30 days notice must be given to the OMR prior to its approval. Finally, within 30 days following approval of the Reclamation Plan, a final response to these comments must be sent to the OMR. The County needs to ensure there is adequate time in the approval process to meet these new SMARA requirements.

The draft Reclamation Plan appeared as EIR Appendix 2 in the Draft Environmental Impact Report (EIR). The Reclamation Plan has been revised in response to the comments received on the Draft Environmental Impact Report and may be further revised in response to County adopted Condition of Approval and/or Mitigation Measures, during the approval process. Lastly, some aspects of this Reclamation Plan will be further revised in response to new information developed through the implementation of Mitigation Measures and/or as part of the development of the Streambed Alteration Agreement, if required.

1.0 INTRODUCTION

This Reclamation Plan addresses the operation and reclamation of the proposed Lebata Big Rock Creek surface mining project (Project), including aggregate processing facilities, Ready-Mixed concrete plant, Vac-Lite plant, asphalt mixing plant, cement transfer and aggregate distribution facility and reclamation of the site. This Reclamation Plan is designed to ensure compliance with the 14 CCR § 3700-3713 Reclamation Standards of the Surface Mining and Reclamation Act of 1975, as amended (SMARA) and the County of Los Angeles Zoning Code Part 9, Surface Mining Permits, Section 22.56.

Attachments to this Reclamation Plan include the following:

Attachment A – Figures
Attachment B – Policy of Title Insurance
Attachment C – Statement of Responsibility
Attachment D – Draft Financial Assurance Cost Estimate
Attachment E – Supplemental Biological Resource Studies
- Exhibit 1 - *Updated Special-status Plant Survey and General Wildlife Survey Results*, prepared by ECORP Consulting, Inc., July 24, 2014
- Exhibit 2 - *Results of Baseline Vegetation Study and Development of Performance Standards*, prepared by ECORP Consulting, Inc., July 24, 2014
- Exhibit 3 - *Mohave Ground Squirrel Trapping Report*, prepared by ECORP Consulting, Inc., July 24, 2014
- Exhibit 4 - *Jurisdictional Delineation Lebata Big Rock Creek Project*, prepared by ECORP Consulting, Inc., July 23, 2014
- Exhibit 5 - *Short-joint Beavertail Cactus Protection Plan*, prepared by ECORP Consulting, Inc., August 2014

Attachment F – Streambed Alteration Agreement (pending, if required)
Attachment G – Memorandum from Mari Quillman to Lou Merzario, dated August 21, 2014, Re: Comments Regarding the Establishment of Creosote Bush Scrub on Revegetation Sites

1.1 Description of the Project

Lebata, Inc. (Lebata), is proposing to establish and operate a new sand and gravel mining operation (Project) in the Antelope Valley area of unincorporated Los Angeles County, California (refer to Attachment A, Figure 1 – Regional Map). The Project involves mining a total of 42.29 million gross tons of sand and gravel over a period of approximately 43 years. The total Project area is comprised of approximately 310 acres, of which approximately 275.0 acres are proposed for excavation. The Project will extract aggregate from newly-created pits in two distinct phases (Mining Phases). Although production will vary with market economies, the extraction rate of unprocessed material over the life of the Project is expected to range between 500,000 and 2,500,000 tons per year. Sales will not exceed 2,000,000 tons of processed material per year. The Project will include the following major components:

- Aggregate Processing Facilities;
- Ready-Mixed Concrete Plant;
- Vac-Lite Plant (producing lightweight concrete);
- Asphalt Mixing Plant;
- Water Reclamation and Fines Recovery Facilities;
- 24-foot by 60-foot office trailer (handicapped accessible);
- 80-foot by 125-foot two-story building, which will include an equipment maintenance shop area, parts room, office, locker room, and restrooms; and
- Raw Cement and Aggregate Transfer and Distribution Facility.

The Project site is located in the Antelope Valley, off Avenue T, in an unincorporated area of Los Angeles County. The Project area involves two separate undeveloped parcels, referred to herein as the North and South Parcels, which are bisected by the Union Pacific Railroad (refer to Attachment A, Figure 2 – Vicinity Map).

This Reclamation Plan is specific to the Lowered Facilities Alternative described in the EIR, which is recommended by the Regional Planning Department for approval, rather than the originally proposed Project. The Lowered Facilities Alternative differs considerably from the Project in that work would initiate with pre-production mining for a period of up to five (5) years, and would include access road construction, the installation of a portable/temporary aggregate processing plant, excavation of permanent facility areas, and construction of permanent facilities. The portable/temporary plant and supporting utility infrastructure would be installed in the eastern portion of the pre-production mining phase area. Ready-mixed concrete, asphalt, and Vac-Lite concrete would not occur during the pre-production phase of the Project.

At the conclusion of pre-production mining, Project facilities would be placed and operated within an approximately 25- to 35-foot deep depression in the northwestern corner of the North Parcel. Key aspects of this alternative include the following:

- The Lowered Facilities Alternative assumes the 750-Foot Turn Radius for Longview Road Extension, whereas the Project assumes a realignment of the 1500-Foot Turn Radius for Longview Road Extension.
- Pre-production mining would begin with the excavation of an approximately 25- to 35-foot deep depression in the northwestern corner of the North Parcel (northwest of the 750-Foot Turn Radius for Longview Road Extension).
- Various berms would be installed upon the original grade level, including an 8-foot berm on the western boundary, 5-foot berm on the southern boundary, 3-foot to 7-foot berms on the eastern boundary, and a 5-foot berm on the northern boundary.
- Facilities would be installed and operated long-term within the excavated area, as depicted on EIR Figure 69 – Lowered Facilities Site Plan – Facilities Site Plan;
- Mining would occur in two phases, essentially the North Parcel and South Parcel;
- Mining slopes would be excavated to a 1:1 (h:v) slope down to an excavation depth of 65 vertical feet;
- Mining slopes would be excavated to a 2:1 (h:v) slope from an excavation depth of 65 vertical feet to the bottom of the mining pit;
- A 15-foot bench would be left at the transition point between the 1:1 (h:v) and 2:1 (h:v) cut slopes;
- Excavation of the rail transfer facility bench, to a depth of 25 feet, would proceed from west to east and would either occur concurrently or after completion of pre-production mining; and
- Reclamation would include the use of blended unsold sand and processing fines to backfill cut slopes to an overall final slope of 2:1 (h:v), with County required 8-foot terraces, one for every 30 feet of vertical depth.

1.2 Purpose and Intent

In preparing this Reclamation Plan, it is the intent of the operator to ensure that adverse environmental effects are prevented or minimized and that the mined land is reclaimed to a natural condition. This Reclamation Plan was also prepared to provide the County of Los Angeles and reviewing agencies with general information and specific data regarding the proposed mine site. Studies, analyses and reports are included to describe the conditions of the project site prior to the commencement of excavation activities. This Reclamation Plan provides guidelines for the surface mining and concurrent reclamation of the various Mining Phases.

Based upon the information provided by various experts, the proposed mining operation was designed to avoid or minimize potentially significant adverse environmental impacts, and to return the site to a usable condition which is readily adaptable to alternative land uses.

1.3 Review Procedures

Part 9 of the Los Angeles County's Planning and Zoning Ordinance lists surface mining operations among the uses subject to permits within the A-2 zone. Uses authorized by a surface mining permit include the following specific uses:

> *The stockpiling of rock, sand and gravel and other minerals, including the installation, maintenance or operation of rock-crashing plants and batching plants or mixing plants for either Portland cement or asphalt, except where specifically prohibited as a condition of the permit.*

The Project requires County of Los Angeles approval of a Conditional Use Permit (CUP), Surface Mining Permit, Reclamation Plan and Financial Assurance Cost Estimate. Also required by the County are the submittal of a Zoning and Subdivision Application and the completion of the County's Initial Study Questionnaire.

The CUP approval is needed to provide the land use entitlement required by the County of Los Angeles Zoning Code (Section 22.56 Part 1). The Surface Mining Permit, Reclamation Plan and Financial Assurance Cost Estimate approvals are required to ensure compliance with the:

- California Surface Mining and Reclamation Act (SMARA) of 1975, as amended (Public Resources Code Section 2719 et. seq.);
- California Code of Regulations (CCR), Title 14, Division 2, Chapter 8, Subchapter 1, Article 9; and
- County of Los Angeles Zoning Code, Section 22.56 Part 9.

Additionally, the Reclamation Plan and Financial Assurance Cost Estimate must be reviewed and approved by the California Department of Conservation, Office of Mine Reclamation, pursuant to the requirements of SMARA.

2.0 PROJECT DETAILS

2.1 Operator, Owner, Representative and Lead Agency Information

Mine Name	Lebata Big Rock Creek
California Mine ID Number	Not yet assigned
Operator	Lebata, Inc. c/o McGee & Associates 23 Corporate Plaza, Suite 230 Newport Beach, CA 92660 (949) 640-0500 (949) 640-4015 fax Contact Person: Mr. James F. McGee
Property Owner and Owner of Mineral Rights	Lebata, Inc. 4621 Teller Avenue, Suite 130 Newport Beach, CA 92660
Representative	SESPE Consulting, Inc. 468 Poli Street, Suite 2E Ventura, CA 93001 (805) 275-1515 (805) 667-8104 fax Contact Person: Mr. John Hecht
Lead Agency Information	County of Los Angeles Department of Regional Planning 320 West Temple Street Los Angeles, CA 90012 (213) 974-6461 (213) 626-0434 fax

2.2 Project Location

The Project site is located in the Antelope Valley, off Avenue T, in unincorporated Los Angeles County, east of the City of Palmdale, near the community of Pearblossom. The Project site is located immediately south of Avenue T and is bound by 136th Street East to the east, Avenue U to the south, and 126th Street East to the west. The Project is shown on the Littlerock USGS 7.5 Minute Topographic Quadrangle (refer to Attachment A, Figure 3 – Site Plan). Refer to Attachment B – Policy of Title Insurance for a legal description of the Project site.

Section: 11
Township: 5 North
Range: 10 West
Baseline: San Bernardino
Meridian: San Bernardino

Schedule C of the Policy of Title Insurance, issued on January 30, 2006 by First American Title Insurance Company (Order Number: LPA-2137043) provides the following legal description:

The land referred to in this policy is described as follows:

Real property in the unincorporated area of the County of Los Angeles, State of California, described as follows:

THE EAST HALF OF SECTION 11, TOWNSHIP 5 NORTH, RANGE 10 WEST, SAN BERNARDINO BASE AND MERIDIAN, ACCORDING TO THE OFFICIAL PLAT OF SAID LAND APPROVED BY THE SURVEYOR GENERAL MARCH 19, 1856.

EXCEPT A STRIP OF LAND 100.00 FEET WIDE, CONVEYED TO SOUTHERN PACIFIC COMPANY BY GRANT DEED RECORDED MAY 2, 1958 AS INSTRUMENT NO. 1550 IN BOOK D-89 PAGE 249 OF OFFICIAL RECORDS.

ALSO EXCEPT AN UNDIVIDED ONE-HALF INTEREST IN AND TO ALL THE OIL, GAS, AND OTHER HYDROCARBONS AND MINERALS NOW OR AT ANY TIME HEREAFTER SITUATED UPON, WITHIN OR UNDERLYING SAID LAND OR PRODUCIBLE THEREFROM PROVIDED, HOWEVER THAT THIS RESERVATION SHALL NOT BE CONSIDERED AS PERMITTING THE GRANTOR TO LEASE SAID LAND FOR OIL, GAS OR MINERAL EXPLORATION OR DEVELOPMENT WITHOUT SUCH LEASE BEING JOINED IN BY THE GRANTEE, HIS HEIRS OR ASSIGNS, AS RESERVED BY HELEN HOUSTON, A SINGLE WOMAN, IN DEED RECORDED SEPTEMBER 28, 1955 IN BOOK 49074 PAGE 133 OF OFFICIAL RECORDS.

BY A QUITCLAIM DEED RECORDED AUGUST 28, 1970 AS INSTRUMENT NO. 894, HELEN HOUSTON RELEASED THE RIGHT OF ENTRY TO A DEPTH OF 200 FEET BENEATH THE SURFACE OF SAID LAND FOR THE PURPOSE OF DEVELOPING AND EXPLORING FOR OIL, GAS AND OTHER HYDROCARBONS AND MINERALS NOW OR AT ANY TIME HEREAFTER SITUATED THEREON.

APN: 3039-021-009 and 3039-036-001 and 3039-021-002

2.3 Assessor Parcel Map Numbers, General Plan and Zoning

Assessor's Parcels are noted in Table 1, which provides the size of the parcels as determined by a survey as well as the size listed in the Assessor's Book, the County of Los Angeles General Plan Designation, Antelope Valley Area Plan Designation, and Zoning. Refer to Attachment A, Figures 4 and 5 – Assessor's Parcel Maps 1 and 2.

Table 1 Assessor's Parcel Numbers, General Plan and Zoning

APN	APN Acres	Surveyed Acres	County of Los Angeles General Plan Designation	Antelope Valley Area Plan Designation	Zoning
3039-021-009	140.17	136.10	Non-Urban and Agricultural Mineral Resource Area	Non-Urban	A-2-5
3039-036-001	10.79	14.27	Non-Urban and Agricultural Mineral Resource Area	Non-Urban	A-2-1
3039-036-002	160.00	159.10	Non-Urban and Agricultural Mineral Resource Area	Non-Urban	A-2-5

As noted above in Table 1, the County of Los Angeles designates the Project area as "Non-Urban and Agricultural Mineral Resource Area" in the Land Use Element of the County General Plan and "Non-Urban" on the Antelope Valley Area Plan. APNs 3039-021-009 and 3039-036-002 are currently zoned "A-2-5" (Heavy Agriculture, 5-acre minimum) and APN 3039-036-001 is zoned "A-2-1" (Heavy Agriculture, 1-acre minimum).

2.4 Size of Project Area

The total Project area is comprised of approximately 310 acres, of which approximately 282 acres are proposed for excavation. Within the Project area, approximately 30 acres will be occupied by the Aggregate Processing Facilities, Ready-Mixed and Asphalt Mixing Plants, and accessory structures. In addition, approximately 9 acres will be used by the Raw Cement and Aggregate Transfer and Distribution Facility. Refer to Attachment A, Figure 6 – Lowered Facilities Alternative – Facilities Site Plan.

2.5 Site Access

The Project is accessible from Avenue T in the Antelope Valley. Approximately 80 percent of the truck traffic will be directed from Avenue T west to 106th Street East south toward State Route 138 (Pearblossom Highway), to State Route 14 and onto Interstate 5 towards the greater Los Angeles area. The remaining 20 percent will travel east on Avenue T to 165th Street East south to State Route 138, and east toward the San Bernardino and Riverside area. Refer to Attachment A, Figure 7 – Aerial Site Plan.

2.6 Maximum Anticipated Depth

SMARA Section 2772(c) requires:

> *The reclamation plan shall include all of the following information and documents:*
>
> *(4) The maximum anticipated depth of the surface mining operation.*

The maximum anticipated depth of surface mining is 80 feet below ground surface with final slopes no steeper than 2:1 horizontal:vertical overall. The final elevations are expressed in terms of elevation above mean sea level (MSL). Given the southeast-to-northwest down gradient of the finished mining pits, final mining elevations will range from approximately 2,900 to 2,830 feet above MSL in the mining pit north of the railroad tracks and from 2,920 to 2,870 feet above MSL in the mining pit south of the railroad tracks.

However, it is likely that wash fines and a portion of the processed sand will not be sold and will be placed back into the excavated area. A portion of this material will be blended with other material needed to reconstruct the road prism underlying the Longview Road Extension, if required, to DPW standards.

2.7 Dates of Initiation and Termination

SMARA Section 2772(c) requires:

> *The reclamation plan shall include all of the following information and documents:*
>
> *(3) The proposed dates for the initiation and termination of surface mining operation.*

The operator has requested a 50-year permit from the County of Los Angeles, a term that will commence upon approval by the final decision-making body. Assuming that approval is made October 8, 2014, mining will commence upon completion of any preliminary permit requirements and mining activities will cease no later than October 7, 2064. Reclamation activities, although concurrent with mining activities, may continue beyond that date as will the necessary monitoring to ensure reclamation performance standards described below in Section 5.2 are achieved.

2.8 End Use

Disturbed areas will be reclaimed reclaim to an end use of open space.

3.0 PROJECT SETTING

The Project site is currently in an undeveloped condition and is located in a relatively remote and undisturbed area of the Antelope Valley. The property is bisected by an existing Union Pacific railroad track and is surrounded by vacant undeveloped properties on the north, west and south sides. Properties along the eastern boundary are mostly undeveloped, although there are a few residences, outbuildings and well houses. The nearest residence is immediately south of the railroad tracks, approximately 200 feet east of the Project's eastern boundary of the South Parcel.

The Antelope Valley is approximately 3,000 square miles in size and is located within a transitional area between the foothills of the San Gabriel and Sierra Pelona Mountains on the south and the Mojave Desert to the north and east. The valley is separated on the northwest from the San Joaquin Valley by the Tehachapi Mountains. On the south and southwest, it is separated from the Los Angeles Basin by the San Gabriel Mountains. The north and east boundaries of the Antelope Valley are distinguished by isolated buttes.

The Project is located on an alluvial fan associated with the Big Rock Creek Wash, within the southwestern portion of the Mojave Desert Geomorphic Province. The Mojave Desert is bounded on the southwest by the San Andreas Fault and the Transverse Ranges and on the northeast by the Garlock fault. The Mojave Desert is an ancient feature formed in response to the inception of movement on the San Andreas and Garlock faults. The region is characterized by broad alluviated basins that are burying the previously mountainous topography.

3.1 Geologic Setting

The *Report of Geotechnical/Geologic Study* was prepared by Hilltop Geotechnical Inc. (EIR Appendix 5). This Report describes how the project site is situated near the southwest margin of the Mojave Desert Geomorphic Province, one of 11 provinces recognized in California. The Mojave Desert Geomorphic Province is a distinctive geological and physiographic region encompassing much of southeastern California, extending from the Tehachapi Mountains on the west to an arbitrary boundary at the Colorado River on the east. The southern edge of the province abuts the east-west trending Transverse Ranges (combined San Gabriel, San Bernardino, Little San Bernardino and Eagle Mountains), while the northern boundary is generally recognized to be the Garlock fault zone. Characteristic landforms of the province include relatively narrow, elongated ranges separated by wider, intervening valleys.

The Province contains a diverse array of rock types. Mesozoic-age igneous intrusive granitic rocks are predominant in the western and southern portions of the province, and are widely observed in the remainder. Quaternary and Holocene extrusive igneous rocks and volcanic formations may be observed throughout this province, though they are most common in the southern and western portions. Parts of the central and northern portions of the province include thick sequences of meta-volcanic rocks as well as a number of Paleozoic-age, sedimentary formations that can be correlated to similar formational units in Arizona and Nevada. Tertiary and Quaternary-age alluvial and lacustrine sediments fill basins and occasionally form low hills. The sediments often host economically significant deposits of gravel, clay, and evaporites including salts and borates. Limited areas of the Mojave Province contain large active aeolian deposits, generally in the form of large, shifting sand dunes.

The area surrounding the subject property is underlain by a thick sequence of Quaternary and older alluvial sediments resulting from weathering, erosion, transport, and subsequent deposition of materials

from the San Gabriel Mountains, located to the south of the Project area. Source rocks within nearby mountains include Mesozoic-age granitic igneous rocks and various metamorphic rock formations.

3.2 Soils

The Project site lies on a broad bajada extending north from the lower slopes of the San Gabriel Mountains. Elevations at the site range from approximately 870 to 896 meters (2,850 to 2,940 feet) above MSL (Mean Sea Level) and topography slopes downward from the southeast toward the northwest. Soils on the site have been mapped by the Natural Resources Conservation Service (NRCS) as Arizo gravelly, loamy sand with 0 to 5 percent slopes, and Arizo loamy, fine sand with 0 to 2 percent slopes. Soil on the Project site was observed to be sand with gravel and scattered rocks and boulders. The Project site includes braided tributaries that are historically associated with Big Rock Wash, which lies approximately 2.5 miles to the east.

3.3 Land Use Setting

Land uses in the Project area consist primarily of undeveloped lands, with widely scattered residential units and intermittent agricultural, mining, and industrial uses. Adjacent land to the north, south, northeast, and west consists of smaller parcels, largely of undeveloped open space vegetated with desert scrub. There are four (4) single-family residences within 1,000 feet of the Project's eastern-most boundary. Land use on the Project site consists of undeveloped native habitat with some disturbance associated with on-site unimproved roads and trash dumping. The nearest residence is immediately south of the railroad tracks, approximately 200 feet east of the Project's eastern boundary. A Union Pacific Railroad line traverses the center of the Project site from east to west. Refer to Attachment A, Figure 7 – Aerial Site Plan for an aerial photograph of the Project site and surrounding area. The Los Angeles County affiliated Jackrabbit Flats Wildlife Sanctuary occurs approximately one mile west of the Project site on Avenue T.

3.4 Biologic Assessment and Special-Status Plant Survey Report

The 2013 review of the CNDDB and CNPS databases (Littlerock USGS 7.5 Minute Topographic Quadrangle), as well as the *Biological Assessment* (EIR Appendix 13) and *Sensitive Plant Survey Report* and *Addendum* (EIR Appendix 14 and Addendum), identified 24 special-status plant species that have been recorded in the vicinity of the Project site. The majority of the species previously documented in the vicinity of the site are presumed absent based on the lack of suitable habitat and/or non-detection during the focused surveys. As such, the *Biological Assessment* concludes there is no potential for these species to occur onsite, with one exception, the short-joint beavertail cactus (*Opuntia basilaris* var. *brachyclada*), a CNPS list 1B.2 plant species. This was the only special-status plant species found onsite. The CNPS is an authority recognized by the California Department of Fish and Wildlife (CDFW) on the status of rare or threatened plant species in California, and the criteria for placement on List 1 or List 2 of the CNPS lists is similar to criteria that CDFW and the U.S. Fish and Wildlife Service (USFWS) use for species considered as candidates for listing as Threatened or Endangered. Short-joint beavertail was observed in two locations on the Project site.

Subsequent to the surveys conducted for the *Biological Assessment,* the Project site experienced an unusually wet winter, which provided an opportunity to conduct a floristic survey of the Project site. ECORP Consulting, Inc. (ECORP) was contracted to conduct a literature review and focused survey on the site for the presence or absence of listed and/or sensitive plant species. This survey was intended to supplement the information contained in the *Biological Assessment* prepared by Pacific Southwest

Biological Services, Inc. Prior to conducting the focused survey, the literature review was conducted in order to identify the potential for occurrence of plant species based on the habitat types present on the Project site, which resulted in an expanded list of 20 potential species. The Project site is dominated by creosote bush scrub that is interspersed with smaller patches of rubber rabbitbrush scrub and some disturbed areas. Based on the results of the literature review, one species considered rare in California and nineteen other special-status plant species were identified during the literature search as potentially occurring in the vicinity of the site. Based on the habitats present on the Project site, it was determined that suitable habitat was present on the site for six of the plant species. In April 2008, ECORP's botanists conducted a sensitive plant survey in the Project area and documented the findings in the *Sensitive Plant Survey Report* (EIR Appendix 14). In July 2010, ECORP's botanists conducted a variety of database searches to determine if any new sensitive plant species occurrences had been reported in the vicinity of the Project site. No new sensitive plant species occurrences were reported in any of the databases. The results of these searches are documented the findings in the *Sensitive Plant Survey Report Addendum* (EIR Appendix 14, Addendum).

In response to CDFW comments on the Draft EIR, additional surveys, studies and reports were completed, including the following, which are included in Attachment E – Supplemental Biological Resource Studies:

Exhibit 1 - *Updated Special-status Plant Survey and General Wildlife Survey Results*, prepared by ECORP Consulting, Inc., July 24, 2014

Exhibit 2 - *Results of Baseline Vegetation Study and Development of Performance Standards*, prepared by ECORP Consulting, Inc., July 24, 2014

Exhibit 3 - *Mohave Ground Squirrel Trapping Report*, prepared by ECORP Consulting, Inc., July 24, 2014

Exhibit 4 - *Jurisdictional Delineation Lebata Big Rock Creek Project*, prepared by ECORP Consulting, Inc., July 23, 2014

Exhibit 5 - *Short-joint Beavertail Cactus Protection Plan*, prepared by ECORP Consulting, Inc., August 2014

The primary findings in these surveys, studies and reports are summarized below.

3.4.1 Sensitive California Desert Native Plants

Joshua trees (*Yucca brevifolia*) are neither listed nor are they candidate species for either state or federal programs. They are, however, considered sensitive California Desert Native Plants and are protected by the California Desert Native Plants Act of 1981. During the April 27, 2007 site visit with CDFW personnel (Scott Harris and Jamie Jackson), it was observed that the population of Joshua trees onsite was sparse and not representative of a Joshua tree community. The *Biological Assessment* prepared by Impact Sciences, Inc. noted that roughly 200 individuals of this species were observed.

The CDFW recognizes habitat with Joshua trees as sensitive, due to the presence of Joshua trees, which are considered a biologically and aesthetically valuable, as well as declining, plant species. The value of Joshua trees as important biological and aesthetic resources is recognized by many desert communities, including the nearby City of Palmdale, which states that protection of desert vegetation, particularly Joshua trees, is important to retain the unique natural desert aesthetics of the area. In addition, Joshua trees are known to provide habitat for a variety of desert wildlife species, including desert woodrat

(*Neotoma lepida*), ladder-backed woodpecker (*Picoides scalaris*), Scott's oriole (*Icterus parisorum*), night snake (*Hypsiglena torquata*), desert night lizard (*Xantusia vigilis*), and yucca moth (*Tegeticula maculata*). Joshua trees, which are endemic to the Mojave Desert, face a population decline, due largely to habitat loss.

3.4.2 Special-Status Plant Species

The results of the surveys indicate that no federally or state listed (threatened or endangered) plant species were observed on site. One sensitive plant species, the crowned muilla (*Muilla coronata*), which was observed during the 2008 focused surveys, was also observed during the 2014 focused surveys. The crowned muilla has a limited distribution and is currently on the California Native Plant Society (CNPS) watch list, but it does not have any state or federal protection. Additionally, short-joint beavertail cactus (*Opuntia basilaris* var. *brachyclada*) were observed onsite. The locations of these two species is illustrated in Figure 3 of the *Updated Special-status Plant Survey and General Wildlife Survey Results* (refer to Exhibit 1 of Attachment E).

EIR **Mitigation Measure BIO-4** prescribes the measures to be implemented to avoid the accidental take of sensitive native plants and specifically addresses the transplanting of short-joint beavertail cactus.

No state- or federally-listed plant species were observed during focused surveys of the Project area.

3.4.3 Special-Status Wildlife Species

The following sensitive wildlife species are known to occur in the general vicinity of the Project site, although no evidence of these species has been noted within the Project boundaries.

Desert Tortoise (*Gopherus agassizii*) – The Desert Tortoise a federally Threatened and a California Threatened species. This species likely historically occurred on the Project site, but has not been reported in the Project vicinity for many years. Current isolation of the site (due to railroad tracks, roads and human disturbances) from known populations of the tortoise makes it unlikely that this species will re-colonize the site. A protocol desert tortoise presence/absence survey was conducted in February 2006. The survey resulted in negative findings for the species or any sign of the species. According to the report presenting the findings of the survey (Pacific Southwest Biological Services, Inc.'s March 2006 report, titled *Longview Road, Pearblossom Area, Los Angeles County, California Desert Tortoise Presence/Absence Survey, and Burrowing Owl Survey Phase I (Habitat Assessment) and Phase II (Burrow Survey*) (EIR Appendix 12), "the probability of recolonization of the area by this species is nonexistent." However, during an April 2007 field meeting with CDFW representatives on the Project site, it was indicated that future desert tortoise protocol surveys on the site may be appropriate to ensure that individuals of the species do not move back onto the site prior to Project implementation.

EIR **Mitigation Measure BIO-1** prescribes the measures to be implemented to avoid the accidental take of desert tortoises.

Mohave Ground Squirrel (Xeros*peromophilus mohavensis*) – There is the potential for this species to occur on site. State listed as Threatened, this species has been reported from 21 locations in the Project area. Although not sighted in the vicinity of the Project site in recent years, the Mohave ground squirrel may have historically occurred on the Project site. Because suitable habitat occurs on the project site, this species cannot be ruled out. Protocol Mohave ground squirrel trapping was conducted within the study area according to the CDFW Mohave Ground Squirrel Survey Guidelines (2010). Trapping was

conducted under a Memoranda of Understanding (MOU) with CDFW, issued to ECORP Consulting, Inc. (ECORP; Donald Mitchell as Principal Investigator). The results are documented in the *Mohave Ground Squirrel Trapping Report*, which notes that Mohave ground squirrels were neither captured nor detected on the trapping grid during the focused protocol live-trapping studies conducted in 2014. (Refer to Exhibit 3 of Attachment E.)

EIR **Mitigation Measure BIO-2** prescribes the protocol survey, avoidance and minimization efforts to be implemented to avoid the accidental take of Mohave ground squirrels.

Burrowing Owl (*Athene cunicularia*) – This species is a USFWS Bird of Conservation Concern and a California Species of Special Concern and a Bird of Conservation Concern. Surveys for burrowing owl were conducted on the site in February 2006. The surveys resulted in negative findings for the species or sign of the species on the Project site. However, an individual of this species was observed exiting a burrow on a property adjacent to the site, approximately 400 feet to the west. Small mammal burrows were observed scattered throughout the Project site, and suitable burrows sites were observed on the Project site, both in small mammal burrows and dumped trash/soil piles. Therefore, the potential for this species to utilize the Project site both for burrowing and foraging is high, and individuals of this species could move onto the Project site prior to implementation of future proposed surface mining activities. This species has the potential to burrow/nest on the Project site or within 500 feet of the site.

EIR **Mitigation Measure BIO-3** prescribes the measures to be implemented to avoid the accidental take of native nesting birds.

Desert Kit Fox (*Vulpes macrotis arsipus*) – This is a California protected furbearing mammal that inhabits open desert habitat areas that support creosote bush scrub, Joshua tree woodland, sagebrush scrub, shadscale scrub, alkali sink, and valley grasslands. This species was not observed during surveys conducted on the project site and the burrows that have been documented are not characteristic of occupied kit fox burrows and showed no recent signs of activity.

EIR **Mitigation Measure BIO-9** prescribes avoidance and minimization efforts shall be used to avoid accidental take of desert kit fox as a result of the Project.

3.5 Groundwater Setting

The Antelope Valley Groundwater Basin (the Basin) is currently non-adjudicated, although a legal adjudication process has been underway since the late-1990s. It is anticipated that water rights will be quantified and assigned as part of the Basin adjudication process. Lawsuits were filed against various Antelope Valley water districts and government agencies seeking priority water rights to water beneath their farmland. Several property owners and public water suppliers, including Waterworks District No. 40, also initiated legal proceedings, including a cross complaint, to determine the respective rights of existing and potential users of groundwater in the Basin. The lawsuits were filed separately in Riverside, Kern, and Los Angeles County Superior Courts and were transferred and consolidated into one coordinated proceeding currently before the Honorable Jack Komar who is presiding by special assignment.

The underlying dispute revolves around the priority/superior right to pump groundwater and the protection of the Basin. The parties have asserted multiple claims to be adjudicated, including claims for declaratory relief, prescriptive rights, quiet title to water rights, and claims that portions of the Basin should be treated as a separate area for management purposes if a physical solution for the Basin is established, among other

claims. The resolution of many of these claims is likely to be affected by the nature and extent of the hydrologic connectivity of water within various portions of the aquifer.

Lebata proposes to drill an onsite water well and annually extract approximately 312 acre-feet of water to meet Project needs, if so allocated through the Basin adjudication process. However, in light of the Basin adjudication process described in EIR sub-chapter 4.12.2.4, the need for an alternative source of water became evident. It is likely the Basin adjudication will result in future limitations being placed upon existing groundwater users, and those proposing new or increased levels of groundwater extraction. The details of such an allocation process are as yet unknown and the process may take years to resolve. There and alternative sources have been identified. Refer to 4.3.4 for a discussion of the Proposed and Alternative Water Sources.

3.5.1 Local Water Wells

State and County databases indicate there are active water wells located within approximately two miles of the Project. The location of these water wells is shown in Attachment A, Figure 8 – Local Water Wells and summarized in Table 2.

Table 2 Local Water Wells

Well Name	Lowest Groundwater Depth from Surface (feet)	Highest Groundwater Depth from Surface (feet)	Measurement Period	Last Reported Depth from Surface (feet/year)
05N10W03L001S	107.9	85.6	1961 – 1998	85.6 in 1999
05N10W10E001S	140.0	90.0	1960 – 1964	120.9 in 1964
05N10W10E002S	175.0	100.0	1960 – 1965	138.8 in 1965
05N10W12M002S	77.8	55.4	1982 – 1999	59.4 in 1999

Bulletin 118 notes the following regarding groundwater recharge:

> *Recharge to the basin is primarily accomplished by perennial runoff from the surrounding mountains and hills. Most recharge occurs at the foot of the mountains and hills by percolation through the head of alluvial fan systems. The Big Rock and Little Rock Creeks, in the southern part of the basin, contribute about 80 percent of runoff into the basin (Durbin 1978). Other minor recharge is from return of irrigation water and septic system effluent (Duell 1987).*

The Project has been specifically designed as a dry surface mining operation with a maximum depth of 80 feet BGS. Although Table 2 indicates groundwater levels in a nearby well at 55.4 feet BGS, Fugro West, Inc. (Fugro) prepared a *Pit Slope Stability Evaluation* (EIR Appendix 4) in 2013, which indicated otherwise. During this evaluation, Fugro drilled two sampling holes on August 15, 2006. The first of these wells (DH-1) encountered a static water depth at about 70 feet, while the second well (DH-2) did not encounter static water depth at its termination depth of 80 feet BGS. Therefore, it is believed that groundwater is considerably deeper than the 55.4 feet reported in 1985 for Well 05N10W12M002S.

To ensure groundwater is protected, surface mining operations will be curtailed at a final mining depth of 80 feet bgs, or at a depth that is 5 feet above static groundwater levels, should groundwater be encountered. Within the first few years of Project operations, the static groundwater level will have been determined and the final mining depth defined accordingly at 5 feet above that level.

The *Drawdown Assessment of Proposed Water Supply Well* (EIR Appendix 19) concludes the impact of a potential 312 afy water supply well located at the Project site will be relatively minor. Only a handful of nearby wells would see a measurable impact in water level, and the drawdown is not considered to be sufficient to effect capacity of these wells to supply water. When taking into consideration the background water level fluctuations (several tens of feet), it is unlikely that the impact on nearby wells would be discernible from background variations.

Refer to 4.3.4 for a discussion of the Proposed and Alternative Water Sources.

3.6 Surface Water Setting

Permanent surface water is not present in the Project area. Intermittent surface runoff, however, may occur after major precipitation events. Storms of small magnitude do not result in significant runoff and quickly percolate to groundwater. Larger storms however, can produce surface runoff sufficient to warrant the installation of culvert systems under a variety of transportation facilities and bridges over some of the larger washes.

The Union Pacific Railroad tracks bisecting the Project, include a 10- to 12-foot high railroad embankment that runs nearly perpendicular to the direction of surface runoff. To accommodate surface runoff, several Corrugated Metal Pipe (CMP) culverts pass under the railroad embankment. Three culverts would convey flows from upstream of the railroad (south), which would then continue downstream and into the north parcel of the mine site. Two culverts are located inside the Project boundary. Surface flows conveyed through the culverts would initially concentrate then dissipate by flowing through the area downstream of the railroad as sheetflow. The area does not exhibit well-defined channels.

To address LACDPW comments, the *Drainage Concept* (EIR Appendix 3) was developed to ensure the mine pits would intercept the entire discharge of the Capital Flood via a system of interceptor-drains, which would be located along the top of the pits to collect sheetflow and braid flow and deliver these flows to the down-drains, which convey the flow down the averaged 2h:1v side slope to the bottom of the mine pit. The locations of down drains are generally at the downstream point of the sub-watersheds. Additional down drains are provided along the drainage terrace to capture the runoff generated by the pit slope to prevent soil erosion in accordance with the County's Grading Guidelines (January 2008).

Note: The method and system components for capturing and conveying offsite runoff into the mine pits is similar to that adopted by the adjacent Vulcan Materials Company (VMC) mine, which was previously approved by the Los Angeles County Department of Public Works (LACDPW).

Two down-drains would also be placed to handle the culvert flows from the existing culverts through the rail road embankment, which are within the boundaries of the Project site (CMP 17 and CMP 18). Because the railroad culvert flows would pass through the location of the Raw Cement and Aggregate Transfer and Distribution Facility, it is proposed to convey these flows in below-ground culverts through the facility for discharge into the North Pit. This is considered more practical than diverting flows around the facility. These culverts would convey flows only during Phase 1 mining. During and after Phase 2 mining, the railroad CMPs would become defunct as all flows that previously conveyed by these culverts in Mining Phase 1 would instead be captured by the South Pit. Erosion protection will be provided on the pit floor at the outlet of the down-drains illustrated in Attachment A - Figures 13 and 14.

The mining pits would be aligned slightly obliquely to the general fall of the land. The high point of the site is at the southeastern corner. Hence drainage structures would only be required on the southern and eastern sides of the mining pits to capture the offsite Capital Flood flows. Onsite runoff generated in the Processing Facilities Site in the North Pit during Mining Phase 1 would be collected by a catch basin at the northwest corner on the North Pit and drained into the bottom of the North Pit by an underground 18-inch steel pipe. This is illustrated in EIR Figure 24 (Capital Flood Inundation – Mining Phase 1 North Pit) in EIR sub-chapter 4.4.7.2.1.

In 2009, Caltrans completed improvements to Pearblossom Highway that serve to essentially eliminate the potential for normal surface flows onto the Project site by intercepting stormwater at the Pearblossom Highway, then directing east and west. (*Refer to the 2010 Drainage Concept*, EIR Appendix 3, Addendum.) The *2010 Drainage Concept* further concludes that: *"...direct precipitation is the primary source of water to the plant facility area and the vertical infiltration rate of gravel materials (1,134 feet per day) is much higher than the maximum rainfall intensity (2.8 inches per day) at the mine site.*" This means that local rainfall-runoff will not generate sheetflow within the Project site.

With regard to flooding, the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM), Panel 410 for the Littlerock, CA area, indicates the eastern portion of the Project lies within an area designated as "Zone A." This zone is defined as an "*area(s) of 100-year flood; base flood elevations and flood hazard factors not determined*." The remainder of the Project lies within an area designated as "Zone C," which is defined as an "*area(s) of minimal flooding*." Refer to Attachment A, Figure 9 – FEMA Map.

The U.S. Army Corps of Engineers (CORPS) has determined that the Project site is not subject to the CORPS's jurisdiction under Section 404 of the Clean Water Act and a Section 404 permit is not required. The CORPS letter, dated June 1, 2006, exempts the Project site (EIR Appendix 7).

The *Jurisdictional Delineation Lebata Big Rock Creek Project*, prepared by ECORP Consulting, Inc., July 23, 2014, concluded:

> *"...the drainage features within the Project area do not meet CDFW jurisdictional criteria. Drainage features are unlikely to contain consistent enough, discrete surface or subsurface flows to qualify as perennial, intermittent or ephemeral."*

(Refer to Exhibit 4 of Attachment E.)

3.7 Climate

The Mojave Desert province has a typical continental arid climate where years to decades may pass in which little or no precipitation falls, separated by brief episodes of locally torrential rain.

The Project lies within the High Desert Climate Zone, where the summers are very hot and dry, and winters are cool and windy. Palmdale has over 300 days of sunshine per year. The same weather pattern that brings the marine layer stratus and afternoon sea breeze to the Los Angeles Basin brings gusty winds to the Antelope Valley, especially near the foothills on the south side. Except during Santa Ana (northeast) wind events (which usually occur in the fall and winter), gusty southwest winds blow over the Antelope Valley in the afternoons and evenings throughout the year.

Winter is relatively cold, wet, and windy with temperatures dipping into the single digits at times. Winter is the Antelope Valley's rainy season and, on occasion, snow will occur at higher elevations. Typical daytime high temperatures range from 50°F to 70°F; typical nighttime low temperatures range from 30°F to 40°F.

Spring temperatures are moderate; daytime highs are in the 70°F to 85°F range with overnight lows usually ranging from 40°F to 55°F. The transitional period from winter to summer temperatures is very short.

Summer provides very hot, dry heat with little or no precipitation. Temperatures in the area are frequently above 100°F. However, the high desert location of Antelope Valley allows for the temperatures to cool down somewhat at night. Typical daytime high temperatures are above 90°F and drop to the 70°F range at night. Despite the hot temperature, it is common to experience "summer storms" in which temperatures are consistent but there is heavy rain and thunderstorms.

Fall provides moderate temperatures with little or no precipitation. The transitional period from summer to winter temperatures is very short. Typical daytime highs are in the 70°F to 85°F range, dropping into the 40°F to 55°F range at night.

4.0 SURFACE MINING PLAN

4.1 Proposed Starting Date and Duration

The operator anticipates to start construction of the proposed facility and to mine PCC-grade aggregate in late 2013, which assumes approval of the Surface Mining Permit and Reclamation Plan. The facilities may be in operation as soon as mid-2014. The operator will install and use the following major facilities, which are depicted in Attachment A, Figure 6 – Lowered Facilities Alternative – Facilities Site Plan:

- Aggregate Processing Facilities;
- Ready-Mixed Concrete Plant;
- Vac-Lite Plant;
- Asphalt Mixing Plant;
- 24-foot by 60-foot office trailer;
- 80-foot by 125-foot two-story building, which will include an equipment maintenance shop area, parts room, office, locker room, and restrooms (handicapped accessible); and
- Raw Cement and Aggregate Transfer and Distribution Facility.

4.2 Proposed Surface Mining Operation

4.2.1 Amount and Type of Material to be Mined and Processed

Although production would vary with market conditions, the extraction rate of unprocessed material over the life of the Project is expected to range between 500,000 to 2,500,000 tons per year. Peak daily sales would be limited to the physical capabilities of the processing equipment, stockpiles of processed materials onsite, and product demand. Peak annual sales would be further limited by daily truck trips. If all such trips were allocated to the delivery of aggregate materials processed onsite, annual sales will not exceed 2,000,000 net tons of processed materials. Actual sales levels would vary over time and are a direct function of the rate of development within the Project's market area, the number and type of contracts obtained (e.g., Caltrans), the overall economy, equipment downtime, as well as hours and days of operation. Initial testing indicates that the deposit is comprised of:

- ≈ 26.73 percent Gravel
- ≈ 52.52 percent Sand
- ≈ 20.75 percent Fines

A 50-foot setback from all property lines and rights-of-way was assumed. Additionally, Assessor Parcel Number 3039-021-009 includes setbacks required by the County Department of Public Works, including 54 feet from the centerline of Longview Road, a 50-foot setback on either side of the Union Railroad right-of-way, a 32-foot right-of-way from the centerline along the property frontage on 136th Street East and Avenue U, a right-of-way for a cul-de-sac bulb on Avenue T-4 and Avenue T-10, and rights-of way for corner cutoffs at the intersections of Avenue T and 136th Street East, at Avenue T and Longview Road, and at Longview Road and Avenue U. In addition, a right-of-way for the proposed Avenue P-8 corridor freeway (90 to 150 feet from centerline) has been required. All known rights-of-way have been considered in the calculations of acres and volumes. The volume calculations are based on mining the approximately 275.0 acres to a depth of 80 feet below ground surface (bgs).

Gross volume of the material proposed to be excavated from the mining area is estimated to be approximately 42.29 million gross tons, assuming a density of 1.5 tons per cubic yard. Assuming that approximately 20.75 percent of the material would be unsuitable for sale as PCC-grade aggregate, the net reserves are estimated at 36.84 million tons.

Finished products would be PCC-grade aggregate and aggregate-using products, such as concrete and asphalt. Processing also creates scalped fines as a byproduct, some of which may be used as a soil amendment onsite in association with revegetation activities. The remainder of the fines would be sold as slurry used in nonstructural concrete or as miscellaneous fill material.

The assumed material composition and quantities are based on limited data. As the deposit is mined, Lebata may encounter material that does not match these assumptions. While this may result in a different market, the operating parameters of the Project would not change.

Because this resource could last about 43 years, Lebata is requesting a 50-year permit. Table 3 provides a Mining Phase summary.

Table 3 Mining Phase Summary – Lowered Facilities Alternative

Mining Phase	Mined Material (Total material, in tons)	Finished Aggregate (Net material, in tons)	Fines/Silt (tons)	Area (acres)	Duration [1] (years)
Pre-Production	4,140,900	3,281,700	859,200	55.2	5
Phase 1	11,194,950	8,872,000	2,322,950	69.5	11
Phase 2	26,955,000	21,361,800	5,593,200	150.3	27
TOTAL	**42,290,850**	**33,515,500**	**8,775,350**	**275.0**	**43**

[1] The estimated duration is based on an average production of 1.0 million tons per year.

4.2.2 Mining Method

The Project would extract aggregate from newly created pits in two distinct phases (Mining Phases). Mined materials would be excavated by dozers and shovels, either placed directly into the jaw crusher, or, during the initial part of each mining phase, placed into haul trucks for transport to the jaw crusher. As the mining pit deepens, material would be excavated by shovel and transported by articulating trucks for transport to the jaw crusher. From the jaw crusher, material would be conveyed out of the mining pit to the Processing Facilities Site (Attachment A, Figure 6). At the Processing Facilities Site, materials would be mechanically crushed, sorted by size and type using triple-deck and double-deck dry scalping screens. Sand would be washed to remove fine material. Finished products would be stockpiled, and products would be transported offsite via haul trucks.

To preclude erosion of the slope faces, floodwater interceptors and down drains would be installed as mining progresses. This is described in detail and illustrated in EIR sub-chapter 4.4 and is illustrated in Attachment A, Figures 11 through 14.

Mining slopes would be as follows:

- Excavated to a 1:1 (h:v) slope down to an excavation depth of 65 vertical feet (whereas the original project proposed 1.5:1);
- Excavated to a 2:1 (h:v) slope from an excavation depth of 65 vertical feet to the bottom of the mining pit; and
- Reclamation would include the use of blended unsold sand and processing fines to backfill cut slopes to an overall final slope of 2:1 (h:v), with County required 8-foot terraces, one for every 30 feet of vertical depth.

Slope stability at the site was evaluated by Fugro West, Inc. Refer to Section 5.2.3 below regarding the factor of safety for static and pseudostatic conditions.

4.2.3 Mining Phases

Pre-production mining for the permanent facility and notch area would begin on the western side of the area to be depressed and generally proceed in an easterly and southerly direction utilizing overland conveyors to transport excavated material either to the mobile/temporary processing plant or to stockpiles for future processing. A notch would be excavated across the 750-foot turn radius right-of-way and the overland conveyors installed within this notch.

Once final contours have been reached in the westerly portion of the facility and notch areas, the Project's long-term Aggregate Processing Facilities would be constructed/installed and the temporary plant and facilities removed. Excavation of the eastern portion of the depressed facilities area would conclude the pre-production phase. Once completed, the remainder of the Project's processing/product manufacturing facilities would be constructed/installed.

Except for pre-production mining, the Lowered Facilities Alternative would be conducted in two phases. Phase 1 would occur on the North Parcel and Phase 2 within the South Parcel. Phase 1 would occur on the North Parcel and Phase 2 within the South Parcel. The location and configuration of the Pre-production Phase is depicted on Figure 10. The Mining Phases 1 and 2 are illustrated in Figures 11 and 12, with Final Reclamation illustrated in Figures 13 and 14.

Mining will be phased as described below and illustrated in the following figures in Attachment A:

Figure 10 – Lowered Facilities Alternative – Pre-Production Grading Plan

Figure 11 – Lowered Facilities Alternative – Mining Phase 1 – North Pit

Figure 12 – Lowered Facilities Alternative – Mining Phase 2 – South Pit

Figure 13 – Final Reclamation – North Pit

Figure 14 – Final Reclamation – South Pit

Note about Figures:

The source topographic map underlying the figures was developed prior to Union Pacific Railroad's acquisition of the Southern Pacific Railroad. Therefore, the railroad bisecting the Project is labeled Southern Pacific Railroad, rather than Union Pacific Railroad. In addition, a fiber optic cable lies

within the railroad right-of-way, approximately 30 feet north of and parallel to the northernmost rail. This cable will be unaffected by the Project.

Minimum two-foot-high Mine Safety and Health Administration (MSHA)-required safety berms will be installed along the top of the mine pit slope around the entire northern, eastern, southern, and western rims of the mine pits. Pit entrance/exit ramps will prevent storm water temporarily impounded by the berms from creating a public safety hazard. A grader would be used to maintain the Project's interior roads.

Note: EIR **Mitigation Measure NO-1** requires the installation of a seven (7) foot tall berm with sufficient length to break the line-of-site between the facility processing plants and one of the sensitive noise receptors (R4) along the Project's eastern property line. In addition, EIR sub-chapter 4.8.4.1.2 describes how the Project boundaries will be flanked by earthen berms of varying heights, including an eight (8) foot berm on the western boundary, five (5) foot berm on the southern boundary, three (3) foot berm on the eastern boundary, and a five (5) foot berm on the northern boundary to minimize impacts upon visual resources. The *Drainage Concept* (EIR Appendix 3 and its Addendum) describes how berms along all of the top slopes will be used to direct surface flow toward a permanent system of interceptor drains and terraces.

Mining Phase 2 will involve the South Parcel where excavated materials will be conveyed out of the Mining Pit under the railroad tracks to the Processing Facilities Site via a tunnel. The mined area will involve approximately 150 acres and will include all of the South Parcel, except for that portion comprising the road prism of the Longview Road Extension right-of-way, and the Raw Cement and Aggregate Transfer and Distribution Facility.

Note: The Project has been specifically designed as a dry surface mining operation with a maximum depth of 80 feet BGS. As a result, groundwater interception is not proposed. The operator has developed information from onsite borings indicating groundwater is deeper than the 55.4 feet indicated by data from an adjacent well. To ensure groundwater is protected, surface mining operations will be curtailed at a final mining depth of 80 feet BGS, or at a depth that is 5 feet above static groundwater levels, should groundwater be encountered. If groundwater is encountered and the final excavation depth reduced, the volume of material excavated and processed, and the life of the Project will be reduced accordingly. Within the first few years of Project operations, the static groundwater level will have been determined and the final mining depth defined accordingly at five (5) feet above that level.

4.3 Operational Considerations

4.3.1 Water Use and Wash Water Recycling

Annually water use at the Aggregate Processing Facilities is estimated to be approximately 88.8 million gallons (MG) (approximately 272.4 acre-feet), with the water truck using approximately 7.5 MG (approximately 23 acre-feet) for fugitive dust control along haul roads and around the plant site. Annually, the Ready Mixed Concrete Plant is estimated to use approximately 5.4 MG (approximately 16.6 acre-feet). Total annual water use is estimated to be 101.7 MG (approximately 312 acre-feet). (Note: One acre-foot equals 325,851 gallons.)

Aggregate processing wash water would be returned to the 45-foot diameter Fresh Water Tank and the used water from the Sand Washer and Dewatering Screen is pumped to a fines recovery system then it

is pumped to the 45-foot diameter Thickener Tank. The Thickener tank separates whatever solids that are left and the clean water gravity flows back to the Fresh Water Tank. Fines are recovered and conveyed onto the Fines stockpile for subsequent sale. These recovery processes may also include the use of an open pond system. Fines are recovered and conveyed onto the Fines stockpile for subsequent sale. If this initial process does not recover the intended level of fines, Lebata would also use a traditional open pond system to settle out/recover fines. The use of an open pond system would be subject to approval by the Regional Water Quality Control Board.

This system would be comprised of three to four basins approximately 80 feet x 130 feet and 10 feet deep (depicted as Silt Ponds in Attachment A, Figure 6 – Lowered Facilities Alternative – Facilities Site Plan). Wash water from Aggregate Processing Facility would be collected, and would flow by gravity in a drainage system back to the Silt Ponds. To that water, a flocculant, comprised of organic polymers, would be added to cause the fine material to "settle out" from the water column. Settled fines would be removed and deposited on the Fines stockpile by a front-end loader. These and other fine materials produced during processing would be marketed for use as soil amendments, slurry used in nonstructural concrete, landfill top cover, miscellaneous fill material, among other uses; used as a soil amendment onsite in association with revegetation activities; or placed within the mine pit after being blended with surplus sand to ensure permeability is maintained. Only EPA-approved, non-toxic flocculant would be used to ensure there are no adverse impacts to water quality. To facilitate fines removal, the ends of each basin would be sloped, approximately 3:1 (h:v), to permit the entry and exit of equipment.

The operator proposes to drill an onsite water well, the water from which will be used primarily for:

- Dust control using spray bar nozzles on the conveyors to wet aggregate materials being transported to the surge pile;
- Dust control by ground watering the area where loaders operate within the Aggregate Processing Facilities and between the mining pit and the crusher;
- Dust control using sprayers at the three-deck and two-deck dry scalping screens;
- Ready-mixed concrete production; and
- Aggregate Processing Facility.

Note: Refer to 4.3.4 for a discussion of the Proposed and Alternative Water Sources.

In accordance with the requirements of CCR section 3713(a), drill holes and water wells will be abandoned in accordance with all applicable federal, state and local laws.

Trucks exiting the Project will drive over rumble plates to remove debris from fenders, running boards and tires.

4.3.2 Project Traffic

The Project will generate an average of 217 truck roundtrips and a maximum of 301 truck roundtrips per day during operations. This includes outgoing product trips and incoming material delivery trucks. Approximately 80 percent of the haul trucks will deliver materials to third parties or owner-operated plants in the greater Los Angeles area, while 20 percent will travel to the third parties or owner-operated plants in the Riverside/San Bernardino market area. Employee trips are estimated to be 156 roundtrips per day for average and peak operations. A *Traffic Impact Analysis* (EIR Appendix 9) was

prepared by Austin-Foust Associates, Inc. to evaluate the impact of truck traffic on the existing road system. Subsequent analyses were prepared by Stantec Consulting Services Inc., both of which are addenda to EIR Appendix 9.

4.3.3 Hours and Days of Operation and Employment

The Project will operate up to 303 days per year, employing 156 people, including plant operators and truck drivers, working two or three shifts per day, six days per week depending on the type of facility. The maximum number of employees working per shift will be 88. The number of employees, by shift and type of facility operations, are as follows:

- Surface Mining and Aggregate Processing Facilities (19 employees; 2 production shifts, followed by a third maintenance shift)
- Ready-Mixed Concrete Plant (26 employees, 2 shifts)
- Vac-Lite Plant (no additional employees, 2 shifts)
- Asphalt Mixing Plant (5 employees, one shift)
- Raw Cement and Aggregate Transfer and Distribution Facility (90 employees, 3 shifts)
- Shop, Maintenance and Sales (16 employees, 2 shifts)

Proposed operating hours are noted in Table 4 below.

Table 4 Days and Hours of Operation

Activity	Days of the Week [1]	Normal Hours of Operation
Mining Excavation	Mon.-Sat.	6:00 am to 10:00 pm depending on time of year (no nighttime mining)
Aggregate Processing	Mon.-Sat.	24 hours per day
Ready-Mixed Concrete Plant operations	Mon.-Sat.	24 hours per day
Vac-Lite Plant operations	Mon.-Sat.	24 hours per day
Asphalt Mixing Plant operations	Mon.-Sat.	24 hours per day
Cement Transfer Station operations	Mon.-Sat.	24 hours per day
Raw Cement Distribution operations	Mon.-Sat.	24 hours per day
Equipment Fueling and Maintenance	7 Days	24 hours per day
Loading, Trucks Entering or Departing	Mon.-Sat.	24 hours per day

[1] Contracts often require that the suppliers of PCC-grade aggregate provide materials on a 24-hour basis. In addition, these projects may necessitate County approval of Sunday operations on a project-specific basis. These contracts involve large-scale projects, such as highway resurfacing by Caltrans, major public works road projects, and U.S. Army Corps of Engineer projects, among others.

To minimize traffic impacts in the AM and PM peak travel hours (i.e., 7:00 to 9:00 AM and 4:00 to 6:00 PM), work shifts will begin at 5:30 AM and 3:30 PM.

The Project will provide a source for PCC-grade aggregate throughout Southern California and it is important to note that 24-hour/day construction projects will derive material from whatever sources are available, even if long distance hauling is required. Providing a regional source for PCC-grade aggregate serves to reduce haul distances and the associated impacts. It is expected that up to 30 percent of deliveries from the Project will occur at night to provide the PCC-grade aggregate needed for Caltrans and public works projects, night paving, and industrial and commercial building construction.

4.3.4 Proposed and Alternative Water Sources

Lebata proposes to drill an onsite water well and annually extract approximately 312 acre-feet of water to meet Project needs, if so allocated through the Basin adjudication process. However, in light of the Basin adjudication process, the need for an alternative source of water became evident. It is likely the Basin adjudication will result in future limitations being placed upon existing groundwater users, and those proposing new or increased levels of groundwater extraction. The details of such an allocation process are as yet unknown and the process may take years to resolve.

Based on the results of the Basin adjudication, Lebata could pursue groundwater via one or more processes including, but not limited to, the following: direct use of groundwater rights, purchase of available local groundwater, and lease available local groundwater. Once the Project receives approval for construction, Lebata will evaluate the potential to legally pump groundwater via one or more processes noted above. This evaluation will include an analysis of, but not limited to, the following: applicable source of groundwater, potential location(s) of wells, annual volume of groundwater to be pumped, short-term and long-term costs, and an estimate of the sustainability of the groundwater to meet future Project water demands. If groundwater is determined to be a viable water supply for the Project, Lebata will pursue construction of a new well(s) within the Project site and/or purchase/lease groundwater from a local source.

In the likely event the Basin adjudication process does not allocate sufficient groundwater to meet Project needs, Lebata has pursued alternative water sources, the preferred source being the purchase of permanent entitlement of surface water from outside the Antelope Valley basin. In addition, Lebata has obtained an alternative or backup water source via agreement with Antelope Valley-East Kern Water Agency (AVEK) to supply supplemental water for the Project. These potential water sources are summarized below and include:

- Permanent Entitlement - Imported Surface Water via State Water Project
- Supplemental Water - Antelope Valley-East Kern Water Agency
- Banked Water - Antelope Valley-East Kern Water Agency
- Banked Water - Tejon Valley Water Bank
- Banked Water - Central Valley Water Bank
- Banked Water - AquaHelio Resources Water Bank
- Lebata Purchase from another Water Bank
- Recycled Water
- Hauled Water - Railroad or Truck

4.3.5 Administration, Security, and Public Safety

The Project will include an administration office and dispatch/operations building for everyday business. Night time and weekend security will be provided by 6-foot high cyclone perimeter fencing around the Aggregate Processing Facilities and Plant areas, locked gates, lighting, and a security trailer. The active mining area will also be fenced with 6-foot high cyclone material.

4.3.6 Onsite Hazardous Materials

The Project will require the use and onsite storage of the various hazardous materials such as fuel, lubricating oils, and other vehicle and equipment fluids. These materials will be stored on the Fueling and Maintenance Pad, or within secondary containment structures located in the Processing Facilities Site. The Fueling and Maintenance Pad will be constructed of concrete and include a curbed containment berm. The fuel storage tank which also be provided with secondary containment. These precautionary measures are designed to minimize the potential for fueling and maintenance activities to be discharge or adversely affect the environment.

Hazardous and non-hazardous waste will be disposed of according to state and local health and safety ordinances.

4.3.7 Spill Prevention, Control, and Countermeasure Plan

As required by federal (Title 40, Code of Federal Regulations, Part 112) and state (California Health and Safety Code, Chapter 6.67, §25270 – Aboveground Petroleum Storage Act) the facility will prepare and implement a Spill Prevention, Control, and Countermeasure (SPCC) Plan if more than 1,320 gallons of oil is stored at the site.

The purpose of an SPCC Plan is to identify procedures and controls to prevent accidental releases of petroleum products and to minimize the impact if a release occurs.

4.3.8 Storm Water Pollution Prevention Plan

In 1987, Congress enacted the Water Quality Act, amending the Federal Water Pollution Control Act to include regulation of the discharge of storm water from industrial and certain municipal sources. EPA issued final regulations establishing permit application requirements for storm water in the November 16, 1990 Federal Register (55 CFR 47990). The regulations provide for individual and group applications and for the issuance of individual and general permits.

In California, the State Water Resources Control Board (SWRCB) elected to issue a statewide General Permit that applies to all industrial storm water discharges requiring a permit except those from construction activities. The SWRCB adopted the General Permit and Fact Sheet on November 19, 1991, which was reissued on April 17, 1997.

The General Permit requires that the Project:

- Eliminate unauthorized non-storm water discharges.
- Develop and implement a Storm Water Pollution Prevention Plan.
- Monitor storm water discharges.

A site-specific Storm Water Pollution Prevention Plan (SWPPP) will be developed to comply with the requirements set forth in current General Permit for Storm Water Discharges from Industrial Activity. The purpose of the SWPPP is to:

- Identify sources of pollution that may contaminate industrial storm water discharges; and
- Describe and ensure the implementation of practices to reduce pollutants in storm water discharges.

5.0 RECLAMATION PLAN

5.1 Subsequent Use

It is estimated that the mine site will be in operation for approximately 43 years. The Antelope Valley Areawide General Plan designates the Project site as "Open Space" and it is reasonable to predict that the open space nature of the Project area and surrounding land will not have changed significantly during the intervening years. Other potential post-mining uses include groundwater recharge or storm water retention basins.

When completed, mining activities will result in depressions of approximately 80 feet, as illustrated in Attachment A, Figure 13 (Final Reclamation – North Pit) and Figure 14 (Final Reclamation – South Pit).

However, it is likely that wash fines and a good portion of the processed sand will not be sold, resulting in their placement back into the excavated area. A portion of this material will be blended with the other material needed to reconstruct the road prism underlying the Longview Road Extension to DPW standards.

5.2 Reclamation Standards

Reclamation activities must comply with 14 CCR §3700-3713 Reclamation Standards. The following is a discussion of how the Project will comply with each of these standards.

5.2.1 Performance Standards for Financial Assurances (California Resources Code § 3702)

Sections 2770 and 2773.1 of the Surface Mining and Reclamation Act of 1975 (SMARA, Public Resources Code Section 2710 et seq.) require surface mining operators to obtain lead agency approved Financial Assurances for reclamation.

The operator recognizes its responsibility to ensure the successful and timely completion of the reclamation of the Project site. Both, the County of Los Angeles, in Chapter 22.56 of the Los Angeles Zoning Code and SMARA, require the operator establish some type of financial assurance that covers the cost of site reclamation, should the operator be unable to fulfill its obligation. The operator is prepared to enter into a mutually-acceptable agreement to cover the reclamation costs as a condition of the Surface Mining Permit or as a condition to be met prior to the permit becoming effective. Refer to the *Statement of Responsibility* in Attachment C.

Estimated reclamation costs for the site after the first year of site activities are presented in the Draft Financial Assurance Cost Estimate (presented in Attachment D). Subsequent Financial Assurance Cost Estimates will be prepared and submitted to the Lead Agency as required by SMARA.

5.2.2 Performance Standards for Wildlife Habitat (California Resources Code § 3703)

Existing biological conditions are described in Section 3.4 of this Reclamation Plan (Biologic Assessment and Sensitive Plant Survey Report), the *Biological Assessment*, prepared by Pacific Southwest Biological Services, Inc., and the *Sensitive Plant Survey Report*, prepared by ECORP (EIR Appendices 14 and 15). Additional information was developed in response to comments on the DEIR, which are included herein as Attachment E, Exhibits 1 through 3 and 5. No State- or Federally-listed plant species were observed during focused surveys of the Project area.

The special status wildlife species that have the potential of being on the site are the desert tortoise, the Mohave ground squirrel and the burrowing owl. Further investigations are planned via protocol surveys in advance of land disturbing activities via **Mitigation Measures BIO-1, BIO-2, and BIO-3**, which require surveys to determine species presence or absence, and specifies the additional measures needed to avoid the accidental take of these species.

The special status plant species that have the potential of being on the site are the Short-joint beavertail (*Opuntia basilaris var. brachyclada*) and the Crowned muilla (*Muilla coronata*). Further investigations are planned via protocol surveys in advance of land disturbing activities via **Mitigation Measure BIO-4**, which requires sensitive plant surveys be conducted during the appropriate blooming periods in the year prior to clearing of each mining phase. Results of surveys, including negative findings, will be submitted to CDFW within 90 days of their conclusion. If any of these species are present onsite, the Permittee will develop and implement a plan for the protection of these species, to be approved by CDFW. The first of these protocol surveys has been completed and is included as Exhibit 1 of Attachment E.

In addition, the first of the baseline vegetation studies has been completed for the first areas to be disturbed, the results of which are included as Attachment E, Exhibit 2 - *Results of Baseline Vegetation Study and Development of Performance Standards*. The information developed during these studies was used to update the Reclamation Plan with regard to sub-chapter 5.2.4 (Performance Standards for Revegetation), most notably the discussion of Vegetation Density, Cover and Species Richness and the information presented in Table 8 (Preliminary Seed Mix for Test Plot), and Table 9 (Revegetation Performance Criteria).

Upon reclamation of the mine site, the area will again be available for use by these special status wildlife species.

5.2.3 Performance Standards for Backfilling, Regrading, Slope Stability, and Recontouring (California Resources Code § 3704)

Cut and fill slopes for the development of the aggregate production facility area on the site are not anticipated to exceed 80 feet in vertical height and will not be steeper than 2:1 horizontal:vertical overall. .CCR Section 3704(a) requires that backfill used for urban uses be compacted in accordance with the Uniform Building Code, local ordinance, or other methods approved by the lead agency. Fill will be compacted to 90 percent when emplaced on the 1:1 temporary cut slopes. Backfill used for the reconstruction of the Longview Road Extension road prism, will be compacted in accordance with the *Standard Specifications for Public Works Construction 2012* (note: this road has been removed from the draft General Plan Highway Plan). Down-drains and floodwater interceptors will be built as mining progresses to capture and deliver floodwater to the bottom of the mining pit, thereby minimizing erosion and ensuring the maintenance of slope stability (refer to discussion of the *Drainage Concept* in EIR sub-chapter 4.3.4.2).

To ensure that slopes maintain their stability, the *Pit Slope Stability Evaluation* (EIR Appendix 4) was prepared to evaluate static, pseudostatic and surficial conditions at the Project site, and determine the resulting factor of safety, based on the geologic conditions, the proposed slopes during mining excavation, and the proposed final slopes upon reclamation. In evaluating slope stability, the County utilizes the following factor of safety criteria:

- Minimum factor of safety of 1.50 for static conditions.

- Minimum factor of safety of 1.10 for pseudostatic conditions in conjunction with a minimum horizontal acceleration coefficient of 0.15.
- Minimum factor of safety of 1.50 for surficial stability, based on infinite slope type evaluations assuming parallel seepage and minimum vertical depth of 4 feet for the slide mass.
- Minimum factor of safety of 1.50 for temporary cut slopes for static conditions.

The results of this evaluation are summarized in Table 5, which indicate the Lowered Facilities Alternative exceeds County factor of safety threshold criteria under all conditions. As such, it was determined the Project would be stable and safe as designed, during mining operations and post-reclamation. However, the Lowered Facilities Alternative differs from the Project in proposing that the mining slopes be:

- Excavated to a 1:1 (h:v) slope down to an excavation depth of 65 vertical feet (whereas the Project proposes 1.5:1);
- Excavated to a 2:1 (h:v) slope from an excavation depth of 65 vertical feet to the bottom of the mining pit; and
- Reclamation would include the use of blended unsold sand and processing fines to backfill cut slopes to an overall final slope of 2:1 (h:v), with County required 8-foot terraces, one for every 30 feet of vertical depth.
- Fill be compacted to 90 percent, or as specified by a geotechnical report approved by the County and reviews by OMR, when emplaced on the 1: 1 temporary cut slopes.

Table 5 Results of the Slope Stability Evaluation

Condition	Factor of Safety		
	Static [1]	**Pseudostatic [2]**	**Surficial [3]**
Permanent 1.85:1 Fill over 1:1 Cut	1.76	1.28	1.96
Permanent 1.85:1 Fill Slope, Terrace to Terrace	2.09		
Temporary 1:1 Cut Slope, 65 ft high	1.58	1.26	1.97
Temporary 1.5:1 Cut Slope, 65 ft high	1.84	1.33	2.32
Lower 2:1 Bench Slope, 7 ft high	3.06		
Threshold	**1.50**	**1.10**	**1.50**
Significant?	No	No	No

[1] Static Conditions = slope stability at soil mass equilibrium (i.e., self weight)

[2] Pseudostatic Conditions = slope stability under seismic conditions (i.e., including horizontal and vertical seismic acceleration forces)

[3] Surficial Conditions = slope stability of the outer 3 to 4 feet of slope material measured from perpendicular to the slope face.

As noted in Table 5, the Project exceeds County factor of safety threshold criteria under all conditions. As such, it was determined the Project would be stable and safe as designed. In addition, the relatively massive alluvial deposits have a low susceptibility to landsliding or lateral spreading due to the lack of geologic structures such as joints, contacts, and bedding, which may present preferred shear surfaces.

The Lowered Facilities Alternative differs from the original Project in proposing that the mining slopes be:

- Excavated to a 1:1 (h:v) slope down to an excavation depth of 65 vertical feet (whereas the Project proposes 1.5:1);
- Excavated to a 2:1 (h:v) slope from an excavation depth of 65 vertical feet to the bottom of the mining pit; and
- Reclamation would include the use of blended unsold sand and processing fines to backfill cut slopes to an overall final slope of 2:1 (h:v), with County required 8-foot terraces, one for every 30 feet of vertical depth.

The *Pit Slope Stability Evaluation* noted the proposed 1:1 (h:v) slopes are considered "temporary cut slopes" by the County and, as such, are subject to the factor of safety criteria for static conditions (i.e., factor of safety of 1.5). Although the *Pit Slope Stability Evaluation* determined these slope did exceed the minimum factor of safety, it did offer caution since these 1:1 (h:v) slopes will exist much longer than what is normally considered a "temporary cut slope." Therefore, given their prolonged duration before final reclamation, it is concluded the excavation of temporary 1:1 (h:v) slopes could cause slope instability. In response, **Mitigation Measure LFA-1** was developed, which requires the following:

LFA-1 For cut slopes steeper than 1.5(H):1(V) shear strength parameters for the Upper Alluvium shall be verified, using the following verification method:

- Excavation of a vertical trench at least 30 feet deep within representative cut slope materials at the Project site and observation of the stability conditions of the vertical trench sidewalls after a minimum 24-hour period.
- Shear strength parameters can be back-calculated as demonstrated in the *Pit Slope Stability Evaluation* (EIR Appendix 4).
- Once fill spoils are stockpiled, obtain representative samples to perform gradation and shear strength tests (most likely direct shear tests) to verify shear strength parameters.

If the gradation and shear tests serve to verify the stability of temporary 1:1 (h:v) slopes, the Project may proceed as approved. If these tests determine the temporary 1:1 (h:v) slopes are not stable, a determination is to be made, in consultation with DPW staff, of the maximum slope condition that is considered stable under temporary conditions, and the Mining Plan revised accordingly.

5.2.4 Performance Standards for Revegetation (California Resources Code § 3705) (Revegetation Plan)

This section addresses the restoration of indigenous vegetation within the mine pits and otherwise disturbed areas of the Project as required by SMARA (Public Resources Code Section 2719 et. seq.) and per the Performance Standards for Revegetation (California Resources Code § 3705) and for Topsoil Salvage, Maintenance and Redistribution (California Resources Code § 3711).

The objectives of the Revegetation Plan are to salvage a portion of the Joshua trees, provide immediate erosion control following phased mining completion, and increase habitat value by reintroducing native species to the mine site. Plant density varies over the Project site; overall plant cover is approximately

40 to 50 percent. Where Joshua trees are present, there are approximately three to five trees per acre, with an estimated total population of 200, while creosote shrubs are abundant.

Design Overview

Young Joshua trees will be transplanted prior to soil disturbance. Topsoil and sub-soil will be salvaged and stored separately. Upon completion of mining phases, and in compliance with the phased Reclamation Plan prepared for this site, plants will be reintroduced by seeding native species and transplanting Joshua trees. A Test Plot will enable the refinement of the seeding mixtures presented below, if necessary. If used, temporary irrigation will enable species to establish, after which it must be demonstrated that the vegetation has been self-sustaining without irrigation for a minimum of two years. A Monitoring Plan provides performance criteria designed to determine the success or failure of revegetation. Contingency measures are suggested in the event that revegetation goals are not met. Refer to the Monitoring Plan discussion below and Table 9 – Revegetation Performance Criteria.

The estimated mining duration is approximately 43 years. However, through the use of phased mining and reclamation, the amount of time some locations are exposed prior to revegetation will be significantly shorter. Due to the length of time between the preparation and the implementation of revegetation, techniques outlined herein may be altered as knowledge and practice of desert restoration increases. The intent of any such changes will be to ensure the restoration of indigenous vegetation within the mine pits and otherwise disturbed areas of the Project.

Joshua Tree Salvage

Where Joshua trees are present, there are approximately three to five trees per acre, with an estimated total population of 200. Joshua trees have been successfully transplanted for more than 30 years in the area. Small, young trees with a less developed root system respond better to being transplanted. Because of their higher success rate, unbranched specimens greater than three feet and less than ten feet in height would be transplanted. Transplanting of Joshua trees would be timed to coincide with winter or early spring rains.

Joshua trees do not grow well on sloped terrain, Joshua trees would be transplanted to the more level areas within the Project setbacks, where no disturbance, other than the initial perimeter berm construction is planned. In addition, Joshua trees would be planted in reclaimed areas as mining moves forward into future phases and suitable reclaimed areas have been finished. Berm construction would be completed with minimal disturbance to the setback areas to be used for transplantation (e.g., equipment may pass over, but will not use materials within the setback to construct the berms. Transplanting would occur after berm construction, but prior to the larger scale soil salvage and vegetation removal to occur in advance of Mining Phase 1 activities. Joshua trees between three and ten feet in height would be marked and thoroughly watered. The added moisture would cause sandy soil and other soil particles to cling to roots. Trees would then be removed with a “tree spade” capable of removing approximately 40 to 60 inches of soil and root material, or by other suitable equipment, and transplanted within the Project setback areas.

Setback areas around the Project perimeter are evident in Attachment A, Figures 13 and 14. The Joshua trees transplanted from Mining Phase 1 would be monitored to determine transplant success rates and to provide the information needed to revise the transplanting process, if needed.

Short-joint Beavertail Cactus Protection Plan

Prior to clearing of vegetation in each phase, a botanist will determine which of the intermediate specimens are suitable for salvage. Salvage and transplantation of these intermediate specimens shall be in accordance with the requirements described in Attachment E, Exhibit 5 - *Short-joint Beavertail Cactus Protection Plan*, and in EIR **Mitigation Measure BIO-4**, which requires:

> Using the GPS coordinates developed during the survey completed for the Updated Special-status Plant Survey and General Wildlife Survey Results, the specimens of short-joint beavertail cactus (Opuntia basilaris var. brachyclada) noted in the Updated Special-status Plant Survey and General Wildlife Survey Results will be transplanted to the undisturbed areas of the setbacks. (Refer to Attachment E, Exhibit 5 - *Short-joint Beavertail Cactus Protection Plan*.)

Vegetation Removal

Prior to excavation, but no more than one year prior to surface mining activities, existing vegetation will be removed following Joshua tree removal and relocation. Crushed vegetation will be stored, and later placed on top of the salvaged topsoil. The material will act as mulch and protect the stockpiles from wind and water erosion. In time, material will decompose and add to the soil's organic matter.

Topsoil Salvage and Storage

Topsoil salvage, maintenance and redistribution will be accomplished based on required performance standards stated in § 3711 of SMARA.

Topsoil, which varies in thickness and occurrence, and crushed vegetation will be stripped prior to mining and stored in the identified Topsoil Storage Area. Salvaged topsoil contains beneficial microorganisms, soil animals, seeds of native plants and physical components that contribute to soil heterogeneity and successful revegetation. Topsoil and subsoil removal will not precede mining activities by more than one year and, when practical, will be collected during the dry season. Trash and objectionable material will be removed prior to topsoil excavation.

Most of the site is covered with cobbles and large rocks, and approximately 30 percent of the area contains a topsoil layer. To maintain the viability of topsoil removed from the site, it will be used as a top layer atop berms, once they have been constructed. Since the amount of topsoil needed to cover all surfaces that will be revegetated is not present onsite, subsoil will also be salvaged and stored separately within designated Subsoil Storage Areas.

Topsoil and subsoil salvaged during Mining Phase 1 will be stockpiled and used during the reclamation of that Mining Phase. Some of this material will be used in berm construction. Topsoil and subsoil salvaged during subsequent mining phases will be used immediately in the concurrent reclamation of mined areas undergoing reclamation and will not require temporary stockpiling. Stockpile area is illustrated in Attachment A, Figure 11 (Lowered Facilities Alternative – Mining Phase 1 – North Pit).

Topsoil and subsoil will be stockpiled separately no higher than 10 feet and be clearly marked to distinguish it from mine waste. Excessive height of the topsoil stockpile should be avoided since it may cause the internal temperature of the pile to increase, thereby "cooking" native seed and microbial material contained in the stock pile. The stockpile will be maintained free of exotic, invasive weeds. Other native plant material will be encouraged to grow and establish on the stockpiles. Stockpiles will

be seeded or hydro-seeded with the seed mix shown in 0 (below) as needed to minimize the loss of soil from erosion and to preserve soil microbes. The prescribed mix contains seeds of native herbs and small shrubs. Stockpiles will then be mulched with a single layer of crushed vegetation. Crushed vegetation should cover no more than 70 percent of the soil surface to allow for new plant growth.

To prevent compaction, no equipment will be allowed to travel over, or park on, the stockpiles. Stockpiles will be secured to prevent unauthorized access.

Vegetation Density, Cover and Species Richness

Plant density varies over the Project site. Where Joshua trees are present, there are approximately three to five trees per acre, with an estimated total population of 200, while creosote shrubs are abundant. Overall plant cover is approximately 40 to 50 percent. Refer to the photographs in the *Biological Assessment* (EIR Appendix 13) and the *Sensitive Plant Survey Report* (EIR Appendix 14 and its Addendum). Onsite plant diversity is typical for the Mojave Desert environment and is described in Section 3.4 and summarized below.

The dominant vegetation community, which was observed on approximately 270 acres (87 percent) of the Project site, is Creosote Bush Series (Sawyer and Keeler-Wolf 1995). This vegetation community is classified as Mojave Creosote Bush Scrub (CDFW 2003). The dominant plant species observed in the Project site is creosote bush (*Larrea tridentata*), with the co-dominant plant species observed to be white bursage (*Ambrosia dumosa*) and cheesebush (*Hymenoclea salsola*). Many individuals of the species Joshua tree (*Yucca brevifolia*) were observed throughout the site; an estimated 200 Joshua trees grow on the property. Other species observed within the on-site Mojave Creosote Bush Scrub include: big sagebrush (*Artemisia tridentata*), four-wing saltbush (*Atriplex canescens*), spinescale (*Atriplex spinifera*), rubber rabbitbrush (*Chrysothamnus nauseosus*), ephedra (*Ephedra nevadensis*), California buckwheat (*Eriogonum fasciculatum*), matchweed (*Gutierrezia sarothrae*), winterfat (*Krascheninnikovia lanata*), desert alyssum (*Lepidium fremontii*), Anderson boxthorn (*Lycium andersonii*), short-jointed beavertail cactus (*Opuntia basilaris* var. *brachyclada*), golden cholla (*Opuntia echinocarpa*), antelope bush (*Purshia tridentata*), Mexican bladdersage (*Salazaria mexicana*), Russian thistle (*Salsola tragus*), and Mojave horsebrush (*Tetradymia stenolepis*). The scrub understory contains annuals, including soft chess (*Bromus hordeaceus*), red-stemmed filaree (*Erodium cicutarium*), and Mediterranean grass (*Schismus barbatus*).

Approximately 34 acres (11 percent) of the site comprises drainage channels vegetated with Rubber Rabbitbrush Series (Sawyer and Keeler-Wolf 1995) and classified as Rabbitbrush Scrub (CDFW 2003). The on-site drainages also contain four-wing saltbush and antelope bush. The remaining approximately 7 acres (2 percent) of the Project site have been disturbed by dirt access roads and off-road driving disturbances.

Table 6 Topsoil and Subsoil Seeding Mix

Species Name	Common Name	Lbs/Acre	Purity/Germination
Ambrosia dumosa	Burro-weed	1.0	95/25
Chrysothamnus Nauseosus ssp. mohavensius	Rabbitbrush	2.0	10/50
Ephedra nevadensis	Mormon Tea	1.5	95/65
Eriogonum fasciculatum	California buckwheat	3.0	10/65
Hoplapappus cooperii	Cooper's goldenbush	0.5	n/a
Lasthenia chrysostoma	Goldfields	2.0	75/80
Layia glandulosa	White tidy tips	2.0	90/75
Phacelia distans	Phacialia	1.0	n/a
Salvia columbariae	Chia	2.0	85/40
	Total lbs per acre:	**15.0**	
For hydroseeding, the following materials will be added to the hydroseed slurry: 500 lbs per acre of cellulose wood fiber 160 lbs per acre of organic soil stabilizer			

Source: Information obtained from S&S Seeds

The seed mixes, Joshua tree transplanting and performance criteria described in Table 9 are designed to achieve successful revegetation of the Project site, eventually attaining vegetation density, cover and species richness comparable to the existing environment.

Seed Collection

Seeds will be collected by a revegetation specialist at the site at least one year prior to any disturbance and during the mine operation. In desert environments, adequate seed-set may happen only after rainy years, which happens on average once every ten years. Timing of seed collection is critical. Seed will be collected when it is ripe and before it falls from the plant. Once harvested, seed will be dried, cleaned and stored by seed collection specialists. If seed collection fails to collect the necessary seed, supplemental seeds will be purchased from a reputable native plant nursery, if necessary.

Baseline Surveys

Prior to initiating mining activities in any new area, baseline surveys will be carried out in the area to be affected to determine the vegetative density, cover and diversity of the naturally occurring habitat. The baseline surveys will be conducted, using valid sampling techniques to develop the quantitative performance standards required under § 3705(m) of SMARA.

Method - Data collected will generally include at least 12 samples, using Line Intercept (or Point-Line Intercepts), to obtain an 80 percent confidence level. The following data will be collected:

- Relative cover by native species (of total transect length)
- Total vegetative cover (all native species combined, of total transect length)

- Total cover of exotic and/or noxious weed cover
- Plant species density within a 2-meter belt, centered along transect
- Species richness (which for the purposes of SMARA compliance is considered diversity)
- Estimated average height of trees and shrubs
- Evidence of biological activity (for example, ant mounds, rodent disturbance, fecal pellets)
- Evidence of erosion

T he first of the baseline vegetation studies has been completed for the first areas to be disturbed, the results of which are included as Attachment E, Exhibit 2 - *Results of Baseline Vegetation Study and Development of Performance Standards*. The resulting information was used to develop the Performance Standards for Revegetation and related information presented in Table 8 (Preliminary Seed Mix for Test Plot), and Table 9 (Revegetation Performance Criteria).

Photographic Documentation - At each revegetation site, multiple permanent photo locations will be identified and recorded using GPS. Photo locations will be shown on maps of the monitoring sites and permanently marked in the field. Whenever feasible, a meter stick or range pole will be used as a scale to illustrate the relative size of plants in photographs.

Revegetation Test Plot

A Revegetation Test Plot program will be established to determine the effectiveness of the proposed seeding methods and species composition, seeding rates and irrigation application rates, if any. The Test Plots will determine the necessary germination rate of the proposed seed palette, the ultimate vegetative cover of native plants and weeds that emerge. If used, temporary irrigation will enable species to establish, after which it must be demonstrated that the vegetation has been self-sustaining without irrigation for a minimum of two years. Test Plots will also provide insight into the overall performance of the Revegetation Plan.

Joshua trees will also be replanted into the Test Plot Areas. This will establish whether or not Joshua trees can be successfully grown on sloped land.

The proposed Test Plot Areas will be composed of four Test Plots. Refer to Attachment A, Figure 11 for the location of the Test Plots. The Test Plots will be located within the Mining Phase 1 setback area and in the southern-most Phase 1 mining area after completion of mining in that area will be partially on the slope and partially on relatively flat land. Two Test Plots will be hydroseeded the other Test Plot will be hand seeded. Additionally, one Test Plot will be irrigated the other one will test the viability of seeds in a non-irrigated environment. Irrigation of the Test Plots is recommended to determine whether or not irrigation may be more favorable in obtaining quicker establishment and coverage of the native plant material.

The Test Plots will be permanently marked and identified with T-stakes and yellow polypropylene rope. Seventy percent of each Test Plot will be located on a slope, similar to the final grade of the extraction pit.

To simulate restoration conditions, approximately four inches of stored top soil and about six inches of subsoil, mixed with fines, will be spread prior to seeding the Test Plots. If the Test Plot Areas were

compacted as a result of mining activities, the area will be ripped and/or disked to loosen the underlying medium to establish a suitable root zone in preparation of planting.

Table 8 shows the preliminary seed mix that will be used. This mixture will be hydroseeded or broadcast over the Test Plots. If alterations are needed, additional testing will be undertaken. Results of the Test Plots will be matched against baseline information gathered from a representative, undisturbed area prior to the initiation of mining activities. If necessary, monitoring criteria of the seeding prescription will be altered to conform to the naturally-occurring species composition and distribution.

Test Plots for the seed mix will be monitored for at least five years. Results of the Test Plots will be compared to baseline conditions. Density, cover and diversity of the representative site will be measured. If necessary, the seed palette and/or planting procedures will be adjusted to be similar to the adjacent naturally occurring species composition and distribution.

Planting Procedure

Timing and Irrigation – Seeding of plants will coincide with the winter rainy season, although the final decision will be based on the weather conditions at the time of planting. To maximize plant growth, it is usually preferred to plant just after a major storm, and apply seed when the ground is soaked.

Irrigation may be used depending on the results of the Test Plots; supplemental water is expected to be necessary due to the semi-arid climate. Irrigation will be slowly tapered off and will cease by March or April. Additional water may be needed once or twice during the summer or early fall months if plants are experiencing a permanent wilt (i.e., a wilt that does not vanish or lessen with nightfall).

Site Preparation – As sections of the excavation site become available for seeding, debris and invasive weeds that have invaded the site will be removed. This can be accomplished either by hand, or if the problem is severe, by applying a short duration, broad spectrum, contact herbicide. Several methods of application can be employed, depending on the type of vegetation being eliminated. First, large shrubs will be cut down manually, followed by application of herbicide to the remaining stumps. For herbaceous plants, the herbicide solution is applied directly to the foliage. Spraying will be conducted when winds are not stronger than seven miles per hour. A hand-carried tank should be used. These measures will help protect adjacent vegetation from inadvertent destruction. Seeding with the prescribed seed mix will commence about two weeks after herbicide application.

The objectives of site preparation in desert environments include techniques designed to capture precipitation, thereby increasing soil moisture, which can greatly improve the success of revegetation efforts. The Office of Mine Reclamation recommends the following methods:

- *Shaping* the surface to create depressions that concentrate water increases seedling survival. Several techniques are available for desert reclamation; these include ripping, imprinting and pitting.
- *Ripping* is used to break up compacted soil layers. The method helps to reduce impacts of compaction and allows for more efficient infiltration of precipitation and will be used primarily on roads and pit bottoms, where soil may have been compacted as a result of vehicle and equipment use. Recommended depths for deep ripping are between 12 and 36 inches.

Table 7 Preliminary Seed Mix for Test Plot

Species Name	Common Name	Lbs/Acre	Purity / Germination
Shrubs and Sub-Shrubs			
Ambrosia dumosa	Burro-weed	2	80/50
Atriplex canescens	Four-winged saltbush	2	90/40
Atriplex spinifera	Mojave saltbrush	3	95/20
Bebbia juncea	Sweetbrush	1	20/10
Brickellia californica	Brickelbush	1	10/20
Croton californicus var. mohavensis	Mojave Croton	1	90/30
Encelia farinosa	Brittlebush	3	40/60
Ephedra nevadensis	Mormon tea	3	90/50
Ericameria pinifolia	Goldenbush	2	10/30
Eriogonum fasciculatum	California buckwheat	4	50/10
Hymenoclea salsola	Cheesebush	3	95/60
Larrea tridentata	Creosote bush	4	70/40
Yucca brevifolia	Joshua Tree	2	90/70
Grasses and Herbs			
Acnatherum hymenoides	Indian ricegrass	4	95/80
Amsickia menziesii	Rancher's fireweed	1	40/50
Aristida purpurea	Purple three-awn	3	90/50
Festuca octoflora	Six-week fescue	2	90/50
Lotus strigosus	Stiff-haired lotus	2	90/70
Lupinus arizonicus	Arizona lupine	3	95/70
Plantago ovata	Desert plantain	10	95/85
Pleuraphis rigida	Big galleta	2	30/50
Sphaeralcea ambigua	Desert mallow	1	95/75
Sporobolus airoides	Alkali sakaton	2	95/80
	Total lbs per acres	**61**	
For hydroseeding, the following materials will be added to the hydroseed slurry: • 500 lbs per acre of cellulose wood fiber; and • 160 lbs per acre of organic soil stabilizer			

[1] Information obtained from S&S Seeds and Department of Conservation - Office of Mine Reclamation
Subject to revision and update as described in Section 5.2.2.

- *Imprinting* uses heavy rollers to make irregular furrows in the soil surface. This method increases water collection and infiltration, plant material mulching and shielding seedlings from the extremes of the desert environment. Imprinting is quite effective on steep or rough terrain.
- *Pitting* is a surface treatment that creates depressions that serve as rain catchment areas, thereby increasing soil moisture. The capture and retention of precipitation in the pits can range from two to ten times that of open, untreated slopes. Additional benefits of soil pitting are enhanced erosion control and a more natural appearance of treated slopes that blend in with the surrounding topography compacted to that of straight engineered slopes.

Phased / Concurrent Reclamation

Mining will take place in phases described in Section 4.2.3 above. Reclamation of Mining Phase 1 will start with the north and east slopes of Mining Phase 1, as soon as the slopes are finished and the down-drains have been installed. The south and west slopes and pit bottoms will be revegetated within two years after secession of mining, followed by the revegetation of the north slope.

Reclamation of Mining Phase 2 will start in the northern-most area and will entail revegetation of the north, east and west slopes. As mining is completed within other areas of Mining Phase 2, the side slopes will be revegetated. At this time, the south, east and west slopes will be replanted.

Once slopes adjacent to the Pre-Production Area have been completed/stabilized, they will undergo reclamation activities. At the completion of mining activities, all equipment and structures have been removed from the Plant Facilities Area, that area will undergo final reclamation activities. The estimated timing and acres involved in reclamation over time are noted in Table 8.

The proposed planting plan will be followed, unless Test Plots indicate that the original seed mix needs to be altered to achieve the objectives of the Revegetation Plan. It is estimated that it will take approximately two years to reclaim each slope and to complete the full Reclamation Plan after all mining has ceased.

Table 8 Estimated Reclamation Schedule

At the End of Year	Mining Phase	Acres Undisturbed	New Acres mined	New Reclaimed Acres	Total Reclaimed Acres	Acres to be Reclaimed
0		310	0	0	0	0
5	Pre-Production	255	55	0	0	55
12	Phase 1	220	35	0	0	90
17	Phase 1	190	30	~ 35	~ 35	85
23	Phase 1/2	155	35	~ 30	~ 65	90
28	Phase 2	125	30	~ 35	~ 100	85
33	Phase 2	95	30	~ 30	~ 130	85
38	Phase 2	65	30	~ 30	~ 160	85
43	Phase 2	35	30	~ 30	~ 190	80
45	Final Reclamation	35	0	~ 85	~ 275	0

Final Reclamation

Stockpiles, mining equipment and accessory structures will be removed at the conclusion of mining activities. Where the surface mining activities resulted in compaction of soil, ripping, disking or other means will be used in areas that will be revegetated to eliminate compaction and to establish a suitable root zone in preparation of planting and to increase infiltration of precipitation.

Prior to final reclamation, access roads, haul roads and other traffic routes will be stripped of remaining road base, ripped and covered with topsoil and subsoil and revegetated. The stripped material (e.g., road base and asphalt) will be ground up, mixed with excess fines from the mining operation, and placed in the bottom of the mine pits. The access roads shown on Attachment A, Figures 11 and 12 and constructed as part of the mining operation will remain at the site during reclamation and monitoring process.

Soil Testing and Respreading

Respread soil will be tested for nutrient components prior to seeding and planting. Site samples will be compared to soil test results taken from adjacent, undisturbed areas. Respread soils will be augmented if growth inhibiting deficiencies of essential elements are noted

The slopes will be track-walked with a dozer, perpendicular to the slope. This will bind the re-applied topsoil to the subsoil.

Following the completion of each mining phase, salvaged soils will be respread onto mined slopes. Native vegetation established on the soil stockpiles can be spread with the soil. The broken branches of plants growing on the stockpiles will act as mulch after soil respreading, and will provide partial shade to emerging seedlings. In addition, viable seed will be transported in the seed bank and additional ripe seed may be carried along with the vegetation.

The depth of respread top- and sub-soils will be no less than 4 inches. Subsoil, mixed with no more than 5 percent of the fines, if necessary to obtain required depth, will be respread over the slopes and pit bottom. Topsoil will be spread as a final dressing. Site samples will be compared to soil test results from adjacent, undisturbed areas. Respread soils will be augmented if growth-inhibiting deficiencies in essential elements are noted.

Erosion Control

Erosion control is often necessary during the establishment phase, since vegetative cover is usually not adequate to prevent erosion. Angular gravel, ranging in size from 0.2 to 0.6 inches will be spread on the exposed fines at a rate that will provide not less than 50 percent and not more than 80 percent coverage. The gravel mulch will not be spread until all seeding and planting has been completed. Gravel mulch is usually more effective in desert environments than erosion control blankets or other conventional measures.

Maintenance

Maintenance includes activities required to meet the established performance criteria. Maintenance of revegetation areas includes the following:

Maintenance staff training – Prior to the commencement of maintenance activities, the Maintenance Contractor will attend a training session conducted at the site by the Revegetation Specialist to familiarize maintenance staff with the Project (i.e., the boundaries of the site, general requirements of

the different habitats, and identification of native and non-native species). This training will include an overview of a Maintenance Manual prepared by the Revegetation Specialist, which will be distributed to the Maintenance Contractor during the training.

Weed control – During the maintenance period, weeds present in the revegetation areas will be removed if more than 25 percent of any 20 square foot of the area is occupied by weeds. Weeds will be removed before they produce seed or reach a height of six inches, whichever comes first.

Methods of weed removal – Weeds present in the revegetation areas will be removed manually or mechanically. No herbicide treatment will be permitted without specific, written authorization from the Revegetation Specialist.

Herbicide treatment guidelines – Spraying will be conducted only when weather conditions are conducive to effective uptake of the herbicide by the targeted species (e.g., sunny, dry, and when plants are actively growing), and during wind conditions that minimize herbicide drift (wind speeds of seven miles per hour less).

Replacement of dead or diseased plant materials – The Maintenance Contractor will be responsible for meeting the performance criteria outlined below. Seeded areas will be assessed annually until performance criteria have been met. If it is determined by the Revegetation Specialist at the time of assessment that supplemental seeding is needed to meet the performance criteria, this additional seeding will be undertaken by the Maintenance Contractor. If the Revegetation Specialist determines that reseeding is required, timing of the seeding is subject to the discretion of the Revegetation Specialist. Plantings that die will be replaced at the first suitable growing season in accordance with the performance criteria.

Monitoring Plan and Performance Criteria

Monitoring is designed to evaluate the success of the seeding and planting procedures and subsequent native plant growth over time and to implement contingency measures in the event the specified performance criteria are not achieved. Pursuant to § 2773(a) of SMARA, the success of reclamation will be monitored annually until performance criteria have been met, provided that, during the last two years, there has been no human intervention, including, for example, irrigation, fertilization, or weeding. Remedial measures will be implemented as necessary to achieve the performance criteria presented in Table 9.

The performance criteria set forth in Table 9 and the above specifications will be met by the Maintenance Contractor throughout the contracted maintenance period. The performance of the revegetation areas will be assessed just prior to the end of each year to determine whether the performance specifications are met.

To evaluate the success of the planting, and to weigh the need for weeding and replanting, performance criteria are presented in Table 9. Monitoring will be conducted annually by a third-party maintenance contractor until performance criteria are achieved. Test Plots will be subject to the performance standards and monitoring criteria described in Table 9.

Monitoring will consist of the Line-Intercept Method where a 100 meter measuring tape is stretched between two points. The intercept distance is recorded for each plant/species that intercepts the line. The accumulated length for any species, divided by the length of the transect, multiplied by 100, is expressed as percent cover for that species. The Revegetation Specialist will monitor and evaluate the need for weeding and erosion control as well as plant establishment. Annual reports and

recommendations will be submitted to the County of Los Angeles. Follow up monitoring will not cease until performance criteria have been met for two consecutive years without irrigation, weeding or other special maintenance.

The shrub density, cover and diversity goals were set by examining the existing conditions surrounding the site. Establishment of vegetation will be considered successful if the goals set in Table 9 are met.

Success rates falling under the performance criteria may indicate the need for a second or third revegetation effort. These performance values may be modified if restoration experience and knowledge gained during the project life span present more realistic goals. The standards take into account that younger shrubs will show lower cover values and higher density values than those seen in a more established habitat.

Traditional success criteria include survival rate of final vegetative cover. However, success can also be measured by assessing the fundamental characteristic of a functional ecosystem: sustainability, resistance to invasive species, nutrient retention and biotic interactions. Reliable signs of functional ecosystems are the presence of certain target "indicator" species: animals, insects and/or plants typically found in that ecosystem.

On August 21, 2014, two site visits were conducted with the County Biologist to demonstrate on-the-ground reclamation results on project that utilized the same reclamation methods described herein. Of particular interest were the relative success rates for Joshua tree transplantation and creosote germination from seed applied to the sites. These site visits were undertaken after CDFW staff called into question the reclamation methods described herein, and recommended consideration be given to an article entitled: *"Effects of Pipeline Construction on Creosote Bush Scrub Vegetation of the Mojave Desert."*

Regarding the transplanting of Joshua trees and the germination of creosote from an applied seed mix, the memo concludes the following, 5.5 years after reclamation was completed:

> "*The Joshua trees continue to survive and many have flowered and produced seed during the 2014 season. In addition, recruitment of Joshua Tree "pups" was also noted. The creosote bush seed that was included in the seed mix germinated very well and new plants continue to germinate. The plants ranged from a few inches to approximately three feet tall. Creosote bush was a common species throughout much of the revegetation site. Photograph 1 shows a broad view of a portion of the revegetation site and the dark green plants in the photograph are the creosote bushes.*"
>
> Regarding the applicability of the referenced article, the memo concludes:
>
> "*In conclusion, the referenced article, 'Effects of Pipeline Construction on Creosote Bush Scrub Vegetation of the Mojave Desert,' is not applicable to the revegetation project for the Lebata Big Rock Creek Mine because revegetation techniques have greatly improved since 1960 when the pipeline was revegetated. Current revegetation projects show that creosote bush can be successfully grown when seeds are included in topsoil and are included in the seed mix.*"

Source: Refer to Attachment G – Memorandum from Mari Quillman to Lou Merzario, dated August 21, 2014, Re: Comments Regarding the Establishment of Creosote Bush Scrub on Revegetation Sites.

Table 9 Revegetation Performance Criteria

Shrub and Forbs	
Goal	Reestablish native vegetation exhibiting cover, density and species richness comparable to that of the undisturbed condition.
Baseline	Average of 26% native cover (including perennials and annuals).
Performance Criteria	Overall cover: 60 percent of baseline; 15.6% cover by native plant species, overall (includes perennial and annual species). Density: 80 percent of baseline; 752 perennial plants per acre. Species Richness: 80 percent of baseline; Minimum of 5.6 native perennial species in revegetation areas. (Refer to Attachment E, Exhibit 2 - *Results of Baseline Vegetation Study and Development of Performance Standards*, prepared by ECORP Consulting, Inc., July 24, 2014.)
Contingency Action	Hand weed if weeds interfere with native plant establishment and reseed if density and/or diversity of native plants are low.
Joshua Trees	
Goal	Reestablish over the entire Project site at a density 50 percent of the undisturbed condition.
Baseline	Where Joshua trees are present, there are 3 to 5 trees per acre, with an estimated total population of 200.
Performance Criteria	Density of two (2) trees per acre overall, where soil conditions are appropriate (e.g., undisturbed or similar to native soil), or, total of 50% of baseline data (i.e., 50% of 200). Minimum of 100 Joshua trees must become established and self-sufficient.
Contingency Action	Alter transplanting technique increase number of relocated trees, or collect seed and grow it out for planting.
Erosion	
Goal	Erosion does not interfere with native plant establishment. Loss of topsoil from wind erosion is minimal.
Performance Criteria	Erosion control measures employed onsite are designed to capture and accommodate the Capital Flood flows described in the *Drainage Concept* (EIR Appendix 3 and its Addendum), which are considerably greater than the those of a 20-year, 1-hour intensity storm event. Evaluation of the effectiveness of erosion control measures and a check on slope stability will be conducted and recorded yearly as part of the SMARA annual inspection.
Contingency Action	Backfilling activities, if needed, will be conducted in accordance with the *Drainage Concept*.
Resistance to Invasion by Non-Natives	
Goal	Less than 10 percent of any 20 square foot area.
Baseline	Average of 24% non-native cover.
Performance Criteria	Cover of annual nonnative plant species shall not exceed 10 percent, as verified through ocular estimates and annual performance monitoring. If it is determined that annual nonnative cover is hindering the growth or establishment of planted species then cover of annual nonnative species shall not exceed 5 percent. All perennial nonnative plant species shall be eradicated.
Contingency Action	Remove manually or mechanically. No herbicide treatment will be permitted without specific, written authorization from the Project Biologist/Revegetation Specialist.

Table 9 Revegetation Performance Criteria (continued)

Short-joint Beavertail Cactus	
Goal	50 percent survival rate of transplanted specimens at Year 5.
Baseline	During focused surveys conducted for the presence or absence of listed and/or sensitive plant species, 37 intermediate beavertail cactus individuals, hybrids between short joint beavertail (Opuntia basilaris var. brachyclada) and the common variety (O. basilaris var. basilaris), were identified on the Project site.
Performance Criteria	All intermediate beavertail cactus deemed suitable for salvage will be transplanted and be monitored for a period of five years to determine the successfulness of the revegetation effort. Transplants are expected to have a 75 percent survival rate in Year 1 and a 50 percent survival rate in Years 2 through 5. Native volunteers may be used to meet these goals and replace dead transplants. The annual survival rate of each transplant and cutting species will be calculated according to the following formula: $$\text{Annual Survival Rate } (\%) = \frac{\text{Total \# plants alive during survey}}{\text{Total \# plants alive in previous season}} * 100$$
Contingency Action	As mining is scheduled to be completed in phases over a long period of time, it is presumed that the first transplant effort (for Phase 1) will be monitored for long enough to evaluate the successfulness of the transplant effort and to identify performance trends. If it is determined that the transplanted individuals are faring poorly or not surviving, the salvage and transplant methodology will be modified for subsequent phases. Alternate techniques, such as transplanting segment pads from the target intermediates, may be considered. If implemented, the alternate techniques will also be evaluated during monitoring. It is also possible that new, highly successful techniques will be developed in the future; these would be incorporated to potentially improve survival and ensure protection of the intermediate beavertail cactus. Currently, no maintenance of the transplanted individuals is scheduled beyond the first week of watering. However, if it is determined from the monitoring visits that the transplanted individuals are showing signs of water stress, a supplemental watering regime will be considered, after which it must be demonstrated that the vegetation has been self-sustaining without irrigation for a minimum of two years.

5.2.5 Performance Standards for Drainage, Diversion Structures, Waterways, and Erosion Control (California Resources Code § 3706)

Refer to the discussion below regarding Performance Standards for Stream Protection, Including Surface and Groundwater.

5.2.6 Performance Standards for Prime Agricultural Land Reclamation (California Resources Code § 3707)

This performance standard does not apply to the Project because it is not located on Prime Agricultural Land.

5.2.7 Performance Standards for Other Agricultural Land (California Resources Code § 3708)

This performance standard does not apply to the Project because it is not located on Agricultural Land.

5.2.8 Performance Standards for Building, Structure and Equipment Removal (California Resources Code § 3709)

In accordance with the requirements of CCR Section 3709(a), all equipment, supplies, and other materials will be stored at the maintenance shop, illustrated in Attachment A, Figure 6, and waste will be disposed of according to state and local health and safety ordinances.

Upon completion of the mining operation, stockpiled material, equipment, structures, and facilities will be dismantled and removed from the site. The ground surface under and around these structures and facilities will be uniformly graded and seeded in accordance with the approved Revegetation Plan, which is described in Section 5.2.4 above.

5.2.9 Performance Standards for Stream Protection, Including Surface and Groundwater (California Resources Code § 3710)

The Project will be operated in accordance with the following:

- General Permit for Storm Water Discharges Associated with Industrial Activities, NPDES No. CAS000001, Order No. 97-03-DWQ (General Permit) including the site-specific Storm Water Pollution Prevention Plan.
- Streambed Alteration Agreement (California Department of Fish and Wildlife), if required.
- Storm Water Pollution Prevention Plan.
- Spill Prevention, Control, and Countermeasure Plan.
- Implementation of the *Drainage Concept* (EIR Appendix 3 and its Addendum) approved for the Project, which describes the use of berms along the all of the top slopes to direct surface flow toward the permanent system of interceptor drains and terraces.

5.2.10 Performance Standards for Topsoil Salvage, Maintenance, and Redistribution (California Resources Code § 3711)

Salvageable topsoil, an average of approximately four inches in depth, will be removed as a separate layer and stored in designated topsoil storage areas onsite. Most of the site is covered with cobbles and large rocks, and approximately 30 percent of the area contains a topsoil layer. To maintain the viability of topsoil removed from the site, it will be used as a top layer atop berms, once they have been constructed. Since the amount of topsoil needed to cover surfaces that will be revegetated is not present onsite, subsoil will also be salvaged and stored within the designated topsoil storage areas, separately from the topsoil layer. The process is described in detail in Section 5.2 above.

5.2.11 Performance Standards for Tailing and Mine Waste Management (California Resources Code § 3712)

The majority of the fines and unsalable material will be placed to develop a contoured bottom within the mining pits. The remainder of the fines and unsalable material will be used in the revegetation effort or sold as slurry or other non-structural concrete.

5.2.12 Performance Standards for Closure of Surface Openings (California Resources Code § 3713)

The Project will not create, drill holes, portals, shaft or tunnels that would require abandonment. The water well used as the water source for aggregate processing and fugitive dust control will be

maintained to support revegetation efforts, and abandoned at the end of final reclamation in accordance with all applicable federal, state and local laws.

5.3 Security and Public Safety

The reclamation slopes will be seeded to stabilize the soil, minimize erosion and slope failure and to alleviate any potentially dangerous conditions. Access to the slopes will not be permitted except to enter the reclamation area. Six-foot high cyclone fencing around the reclamation area will remain for the duration of the monitoring period, until the reclamation is deemed complete.

5.4 Future Mining

The excavation of sand and gravel at the Project site to the proposed mining depth will preclude the availability of additional materials at that location. It does not affect the availability of aggregate in the surrounding areas, which were also designated as having significant mineral resources.

6.0 REFERENCES

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