BIOLOGICAL RESOURCES ASSESSMENT AND FOCUSED SURVEY FOR DESERT TORTOISE SIGMA CLAY MINE

Fairview Valley USGS 7.5 Minute Quadrangle
Township 6 North, Range 2 West, Section 28

Assessor's Parcel Number
0464-022-54

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EXECUTIVE SUMMARY

Sigma Clay proposes to develop and operate a clay mine on a dry lake bed (Reeves Lake) northeast of the town of Apple Valley and is applying to San Bernardino County for applicable grading and mining permits. The project site is northeast of the town of Apple Valley on the Fairview Valley USGS 7.5 minute series quadrangle map in Township 6 North, Range 2 West in Section 28. The mine is located within the plan boundaries of the West Mojave Plan (WMP), but not within a designated conservation area.

Biological surveys were completed on the 40-acre project site to evaluate potential impacts to biological resources. Vegetation on the project site includes a disturbed and sparse saltbush scrub community, and two non-native communities dominated by tamarisk trees and Russian thistle. One special status species (loggerhead shrike) is known to occur on the project site and several other special status species have the potential to occur on the project site, at least occasionally. Adverse impacts to most of these species would not meet CEQA mandatory findings of significance criteria, but impacts to potentially occurring species covered under the WMP could be considered significant without mitigation. Payment of a mitigation fee and compliance with applicable sections of the WMP for projects outside a conservation area are expected to reduce impacts to less than significant levels.

The desert tortoise is not expected to occur on the project site at this time, but may wander onto the site at some time in the future, and may occur along the access road and Johnson Road to the north. Limited take of the desert tortoise is permitted within the WMP coverage area as long as the project is in compliance with relevant sections of the WMP and associated take permits from resource agencies. Potential impacts would be reduced to less than significant levels through compliance with the WMP and associated permit conditions.

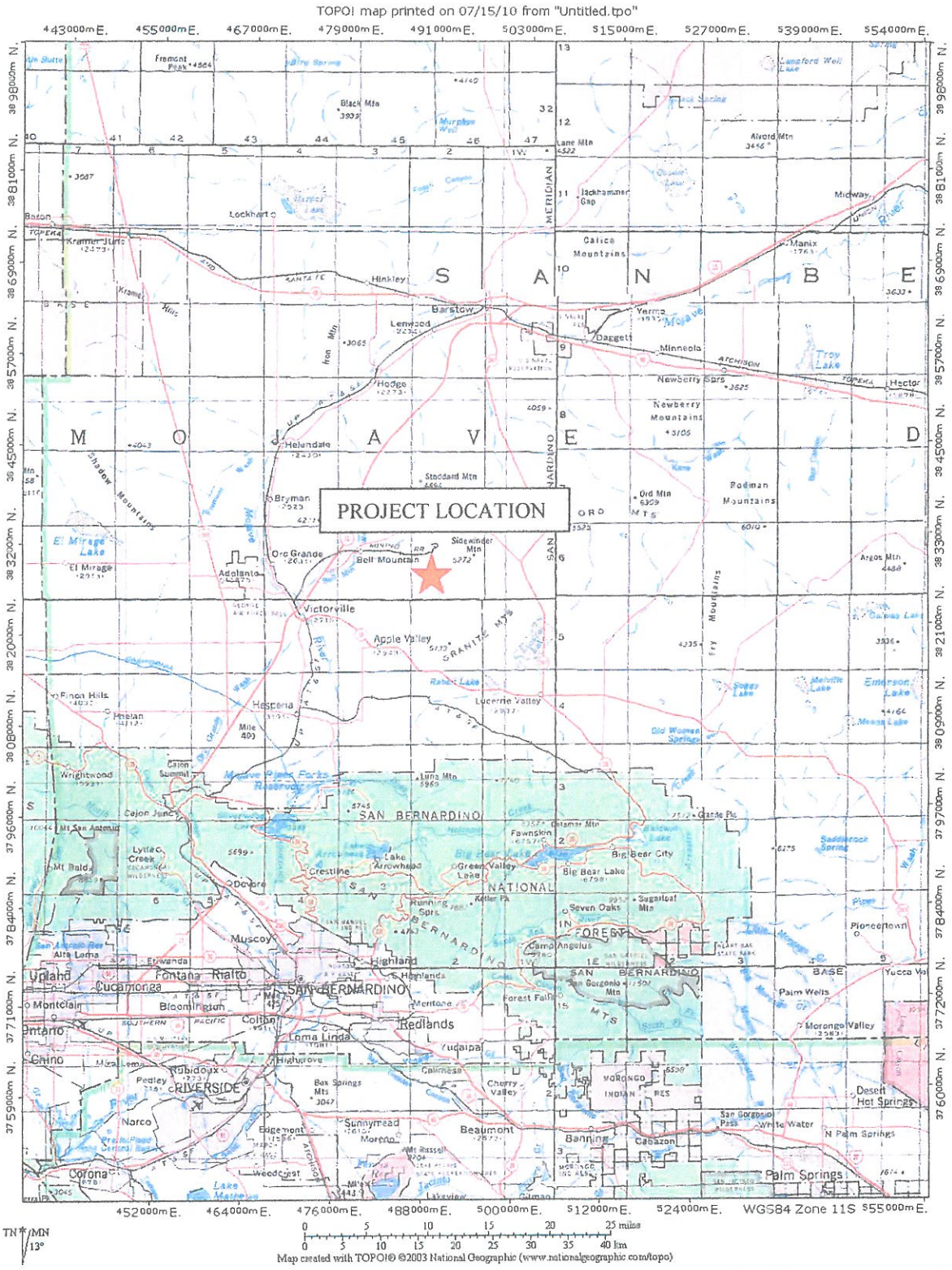
1.0 PROJECT AND PROPERTY DESCRIPTION

Sigma Clay proposes to develop an approximately 40-acre parcel on a dry lake bed into a clay mine. The Sigma Clay Mine site, hereafter referred to as the project site, is located in Fairview Valley, northeast of the town of Apple Valley, San Bernardino County, California (Figure 1). It is in the northwest quarter of the Fairview Valley 7.5 minute series USGS topographic quadrangle map in the south half of Section 28, Township 6 North, Range 2 West. Out of the numerous regional maps reviewed during the preparation of this report, only one map labeled the dry lake bed as Reeves Lake.

The project site is approximately 1,320 feet by 1,320 feet in size. Access to the site is via Johnson Road (a dirt road approximately 2 miles north of the project site) and an unnamed dirt road from Johnson Road to the northwest corner of the site. The project involves mining out the clay and hauling it offsite: no material would be processed at the site. Excavation of the mining area would be to a maximum depth of approximately 40 feet, with the sides excavated to a 3:1 slope. A four-foot tall berm with a 2:1 slope would be constructed around the perimeter of the mining pit to divert water and inhibit its accumulation within the pit. No improvements are planned to the existing dirt roads as part of the project.

The project site is shown within a dry lake bed on the 7.5 minute series Fairview Valley USGS quadrangle map. The surrounding watershed is relatively small with the Fairview Mountains immediately west of the site, Granite Mountains to the south and east, and Sidewinder Mountain and Black Mountain to the north. Several small unnamed intermittent "blue line" streams are depicted on the quadrangle map as tributaries to the dry lake bed, but none are in the vicinity of the project site, and none would be altered as part of the proposed project. As such, there is no surface runoff from the project site, which is an intrastate lake under the U.S. Army Corps of Engineers definitions. The location of the project site on a dry lake bed may be subject to permitting requirements by the California Department of Fish and Game (CDFG) under Section 1601-03 of the California Fish and Game Code or under the Porter-Cologne Act through the Regional Water Quality Control Board. As an intrastate lake, the project may not be subject to permitting by the U.S. Army Corps of Engineers under the Clean Water Act.

The West Mojave Plan (BLM 2005), which was approved in 2006, is a habitat conservation plan that outlines a comprehensive strategy to conserve and protect nearly 100 plants and animals (and their habitats) while providing a streamlined program for complying with state and federal Endangered Species Acts. The biological goals of the West Mojave Plan (WMP) are intended to be broad based guiding principles for the conservation of each of the individual species addressed in the WMP. The project site is within the WMP planning area, but not within a specific conservation area. It appears to be just south of the North Lucerne Valley portion of the Bendire's Thrasher Conservation Area (WMP Map 2-1). As participating agencies, the County of San Bernardino and Bureau of Land Management will review the project for consistency with the requirements of all applicable sections of the WMP during the environmental review process.



Sigma Clay Mine

Figure 1
Project Region

Source: TOPO!

2.0 METHODS

Leatherman BioConsulting, Inc. conducted a review of the available literature to identify special status wildlife, plants, and plant communities known from the project site and vicinity. Literature reviewed included compendia provided by resource agencies (CDFG 2010a, 2010b; U.S. Fish and Wildlife Service 2007), the California Native Plant Society's (CNPS) Online Inventory of Rare and Endangered Vascular Plants of California (CNPS 2010), CDFG's California Natural Diversity Data Base (CDFG 2010c), and project files from previous surveys conducted in the region. All special status plants and wildlife reported or known generally from the region are listed in Appendix A, along with brief descriptions of their habitats, geographic ranges, agency status, and probability of occurring on the project site. Several special status species in the region only occur in specialized habitats or at higher elevations and are not expected to occur on the project site. These species are listed in Appendix B but are not addressed further in this report.

Biological surveys of the project site were conducted on June 2 and July 1, 2010 to document vegetation and habitat and evaluate habitat suitability for special status plants and wildlife. Appendix C includes a list of all plants and wildlife observed during the surveys. Weather conditions on June 2 were ideal with air temperatures ranging from 76°F in the morning to a high of 88°F in the afternoon, a light breeze that increased slightly as the day progressed (from approximately 0-2 mph to 8-12 mph), and mostly clear skies with a thin layer of high clouds. Weather conditions on July 1 were similar with air temperatures ranging from 76°F in the morning to a high of 91°F in the afternoon, a light breeze (from 0 to 5 mph), and clear skies.

Brian Leatherman and Sandy Leatherman conducted the botanical survey by walking meandering transects over the entire project site. All plant species recognized were recorded in field notes. Most plants were identified in the field although a few were collected for later identification from keys, descriptions, and illustrations in various botanical references (Jaeger 1941, Baldwin et al. 2002, Hickman 1993, Munz 1974). This methodology provides a general assessment of habitat and vegetation on the site, and is consistent with recommendations by the California Native Plant Society (CNPS 2001) and California Department of Fish and Game (CDFG 2009) for assessment of potential occurrence of rare plants.

Brian Leatherman conducted a general and special status wildlife survey of the entire project site. General surveys for reptiles included searching for surface-active diurnal species, and lifting, overturning, and carefully replacing rocks and debris. Birds were identified visually with the aid of 8 by 42 power binoculars, and aurally by species-specific calls and songs. Techniques used to determine the presence of mammals included searching for active diurnal species, and identifying diagnostic mammal sign (i.e., scat, tracks, prey remains, dust bowls, burrows, and trails).

The surveys were intended primarily to evaluate to the potential occurrence of special status wildlife, and included focused surveys for the desert tortoise and burrowing owl, following the guidelines recommended by the U.S. Fish and Wildlife Service (2009). To complete the survey, parallel belt transects were walked approximately 10 meters (30 ft.) apart over the entire project

site and a 60-foot buffer. Additional transects were also walked at 200, 400 and 600 meters from the boundary of the project site. Transects were aided by the use of a Garmin OregonT handheld GPS unit, which was used to measure and maintain the transects at consistent spacing. The boundary of the project site was easily determined in the field by the presence of a large boulder near each corner of the mine site (which were conspicuous on the flat dry lake bed), and with the use of aerial photographs and observable landmarks (roads, powerlines etc). The survey consisted of a search for all diagnostic sign of desert tortoise (e. g., live tortoises, carcasses, scat, burrows, tracks, eggshell fragments, pallets, drinking depressions, courtship rings) and burrowing owl (diagnostic burrows, whitewash, owl pellets, feathers).

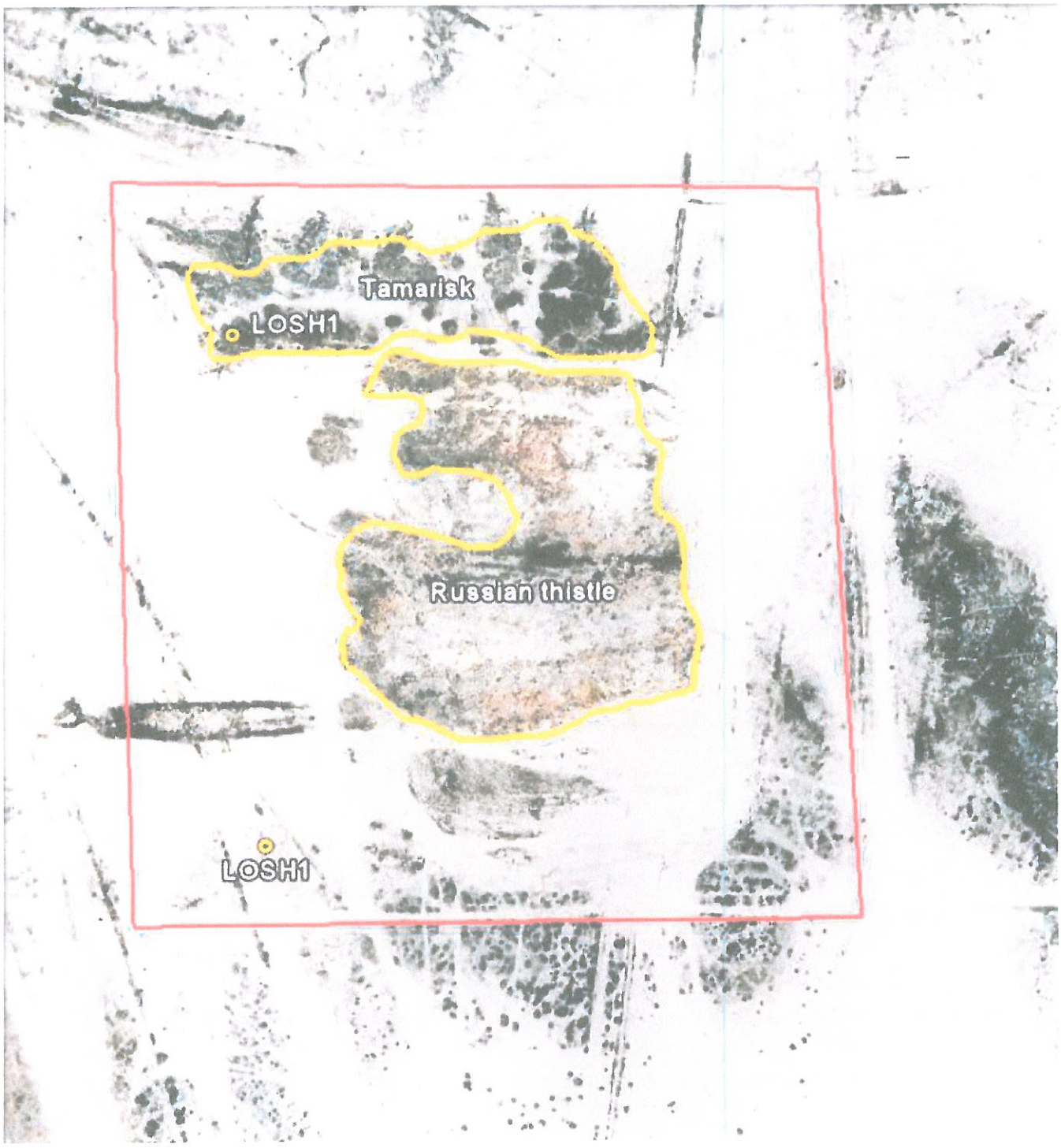
3.0 RESULTS

3.1 Vegetation and Habitat

The project site is on a dry lake bed in Fairview Valley. Most of the project site and surrounding area is devoid of perennial vegetation, due in part to the inhospitable nature of the dry lake bed and in part to habitat disturbance and degradation resulting from sheep grazing and off-highway vehicle use. Existing dirt roads occur along the perimeter and through the mine site, and evidence of past grading and/or earth moving was noted in several areas. A residence occurs several hundred feet east of the site, and several trailers occupied by shepherds were observed in the general area. Substantial habitat degradation from sheep grazing was observed throughout the project site, and hundreds of sheep were present in the northeast corner of the site during the first survey. Some of the more heavily impacted areas have been completely denuded of vegetation from grazing sheep. In addition, surface soils are heavily disturbed, and entrances to most rodent burrows were collapsed or caved in by trampling. Evidence of previous sheep enclosures were observed both on the project site and in the surrounding valley in otherwise intact desert scrub habitat.

Two low-lying areas (likely old borrow pits) occur within the project site that appear to have been excavated many years ago. A gentle slope occurs around the perimeter of these areas separating the higher elevation natural grade of the lake bed and the lower elevation borrow pits. Slopes are in the 3:1 range, depth is only a few feet below natural grade.

The northern borrow pit supports a stand of tamarisk trees (*Tamarix ramossima*) that matches the description of the Tamarisk series of Sawyer and Keeler-Wolf (1995). This non-native tree of arid environments is known to consume and lose (through its leaves) large quantities of water on a daily basis, and its presence in the low-lying area near the north end of the site suggests that the water table is fairly high in that area. The invasion of the site by tamarisk trees is apparently a relatively recent occurrence as this species is not included on plant species lists for previous biological reports (Lilburn 1991, 1993). A second (more extensive) borrow pit near the center of the mine site is dominated by Russian thistle (*Salsola tragus*), an invasive non-native annual plant also known as tumbleweed. There are not vegetation classifications in Holland (1986) or Sawyer and Keeler-Wolf (1986) that accommodate habitats dominated by this species. Piles of Russian thistle plants were observed throughout this low-lying area indicating that they have been accumulating for some time. The location and extent of these areas are depicted in Figure 2.



Sigma Clay Mine

Figure 2
Project Site Biological Resources

Source: Google Earth

The project site supports a very sparse and disturbed saltbush scrub community that most closely matches the description of the Desert Saltbush Scrub community characterized by Holland (1986) and the Fourwing Saltbush Series described by Sawyer and Keeler-Wolf (1995). This vegetation community has no special status with the California Department of Fish and Game (CDFG 2003). It is dominated by fourwing saltbush (*Atriplex canescens*) with scattered wheelscale (*A. elegans*) and box thorn (*Lycium cooperi*). The project site has a low to moderate coverage of annual and perennial herbs dominated by several non-native species including Russian thistle (*Salsola tragus*), red-stemmed filaree (*Erodium cicutarium*), London rocket (*Sisymbrium irio*), Lamb's quarters (*Chenopodium album*), and red brome (*Bromus madritensis* ssp. *rubens*). Native species included rattlesnake weed (*Chamaesyce albomarginata*), little trumpet (*Eriogonum trichopes*), annual burweed (*Ambrosia acanthocarpa*), and desert fiddleneck (*Amsinckia tessellate*). See Appendix C for a complete list of the species observed, and Appendix D for representative photographs of the project site.

Immediately surrounding land is generally undeveloped in all directions. A small residence is located east of the dry lake bed. The dry lake bed extends well beyond the mine site to the north and south. The nearest desert shrublands, dominated by creosote bush, occur several hundred feet to the west and east of the project site. Land uses in the valley include low density residential, mining, grazing, off-highway vehicle use, and open space. Sheep grazing is extensive in the area.

There is no drainage from the project site as it is located on a dry lake bed, which can be defined as an intrastate lake. No observable washes or similar features occur on the mine site, except for small ruts that have formed on the slopes at the margins of the borrow pits. Use of and potential impacts to the dry lake bed may be subject to the permitting requirements under Fish and Game Code, Porter-Cologne Act, or Clean Water Act.

3.2 Wildlife

Wildlife observed or detected (by their sign) during the field surveys included species common in open, xeric, desert environments. Representative species include western whiptail (*Aspedoscelis tigris*), horned larks (*Eremophila alpestris*), house finch (*Carpodacus mexicanus*), and black-tailed jackrabbit (*Lepus californicus*). However, species commonly observed in desert shrublands were noticeably absent including side-blotched lizard (*Uta stansburiana*), desert iguana (*Dipsosaurus dorsalis*), black-throated sparrow (*Amphispiza bilineata*), sage sparrow (*Amphispiza belli*), and desert cottontail (*Sylvilagus audubonii*). Other common wildlife species that occur or forage in open desert habitats throughout the region likely also occur on or pass through the site, but were not observed during field work reported here. These include secretive reptiles (e.g., most snakes), a variety of local birds, and uncommon wide-ranging species such as the coyote (*Canis latrans*), American badger (*Taxidea taxis*), and raptors.

3.3 Wildlife Movement

The effects of habitat fragmentation and importance of corridors were reviewed by Harris and

Gallagher (1989), Soule (1991), and many others. In many regions, land development and linear structures (e.g., roadways) have converted once-contiguous habitat into scattered patches separated by barriers, so that individual animals and entire populations are now isolated in remnant habitat "fragments." Depending on their size and other characteristics, these fragments many not support viable populations of some animals. "Wildlife corridors" are intended to mitigate the effects of fragmentation by providing movement routes across barriers and increasing the acreage of habitat available to them. Larger habitat areas can support larger populations, which are less susceptible to extinction.

For large animals, long-distance travel across poor habitat may be routine. But for small animals, traveling just a few hundred yards through unsuitable habitat can be almost impossible. Small animal dispersal over long distances (i.e., beyond the home range of an individual animal) requires corridors that provide enough suitable habitat to sustain populations (temporary or permanent) within the corridors themselves. Beier and Loe (1992) addressed the distinction between large wide-range animals and small animals terming them corridor "passage" species and "dweller" species, respectively. Assessment of corridor function must consider both types of species.

There are no substantial barriers to wildlife movement on or in the vicinity of the project site, and there is adequate habitat available for movement in all directions throughout the general area. The small residence east of the project site represents a man-made deterrent to wildlife movement, and the proposed mining operations would tend to further dissuade some terrestrial animals from crossing through the active mining areas and their associated facilities, but there are no true barriers. Indirect impacts, including light, noise, and equipment traffic, could also tend to reduce wildlife dispersal across the property, but surrounding undeveloped open space would continue to provide adequate travel routes around the proposed mining operations.

4.0 RARE, ENDANGERED, OR SENSITIVE SPECIES AND HABITATS

Certain plants and animals have been listed as threatened or endangered under state or federal Endangered Species Acts. Other species have not been formally listed, but declining populations or habitat availability indicate reason for concern for their long-term viability. These species are included in lists compiled by resource management agencies or private conservation organizations. In this report, the term "special status species" refers to all species included in one or more of the sources listed in our literature review (above). Appendix A lists special status species reported in the area and briefly describes their habitat, distribution, agency status, and potential for occurring at the project site.

4.1 Special Status Plants

Seventeen special status plant species are known to occur in the project region. No listed threatened or endangered plants are known or reported from the general area and none were observed during surveys. Special status perennial shrubs are not expected on the project site based on the surveys reported here. The field surveys were completed in early June and July, which is beyond the usual flowering season for some of the special status annual plant species

reported from the region and near the end of the flowering season for others. Therefore, we cannot make a conclusion regarding the presence or absence of special status plant species that were likely done flowering by the time the surveys were conducted.

No special status plant species were documented during the field survey. At most, there is a low to moderate probability that any of the following special status plants might occur on the site (see Appendix A): Alkali mariposa lily, pygmy poppy, Mojave sunflower, desert cympoteris, purple-nerve cymopteris, Barstow woolly-sunflower, Mojave monkeyflower, Parish's phacelia, and Parish's popcorn flower. None of these plants is listed threatened or endangered, or is a candidate or proposed for listing. Six of these species, including Alkali mariposa lily, desert cympoteris, Barstow woolly sunflower, Mojave monkeyflower, Parish's phacelia, and Parish's popcorn flower, are included on the CNPS List 1B ("plants rare and endangered in California and throughout their range"). Even if any of these species occurs, the site is unlikely to support significant numbers because none were observed during the surveys, the project site is repeatedly subjected to grazing pressure and disturbance from domestic sheep, and the open dry lake bed habitat is only marginally suitable for most species. Alkali mariposa lily, desert cympoteris, Barstow woolly-sunflower, Mojave monkeyflower, Parish's phacelia, and Parish's popcorn flower are all covered species under the WMP.

4.2 Special Status Wildlife

Twenty-three special status wildlife are known to occur in the region of the project site. Most of these species are not expected to occur or have only a low to moderate probability of occurring on the project site due to lack of suitable habitat, elevational or geographical range restrictions, or negative survey results.

Reptiles: No sign of desert tortoise was observed on the project site or on additional transects at 200, 400, and 600 meters from the project site. In addition, no tortoises (or their sign) were detected during focused surveys conducted on the project site and along the unnamed dirt access road north of the project site by Lilburn (1991, 1993). Extensive focused surveys for desert tortoise conducted two miles south of the project site in Fairview Valley in 2005 and 2007 were also negative (Tom Dodson Associates 2009). However, desert tortoises are known to occur in the region. White & Leatherman BioServices (2001) found old sign attributable to the desert tortoise approximately 7 miles west-northwest of the project site, and White & Leatherman BioServices (2003) observed sign and desert tortoises approximately 2.25 miles north of the project site north of Johnson Road during zone of influence surveys for another project. Additional occurrences are reported in the CNDDB (CDFG 2010c). Dry lake beds generally do not constitute suitable habitat for desert tortoises because of the lack of vegetative cover and friable soils for burrowing. Desert tortoises in the vicinity of dry lake beds may occasionally forage along the margins or rarely venture onto them or cross them, and our negative survey results are not unexpected given the habitat. Although the desert tortoise is known from the region, lack of sign detected during this and previous surveys suggests that it occurs in low densities, at least in the vicinity of the dry lake bed.

The site is not located within critical habitat for the desert tortoise as designated by the USFWS

(1994), but is about 8 miles west of the mapped Ord-Rodman Unit of critical habitat unit, which is located east of State Route 247. Desert tortoises occur in the region in low densities and there is low probability that an individual could wander onto the project at some point in the future. The desert tortoise is listed as a threatened species under the state and federal Endangered Species Acts and is a covered species under the WMP.

None of the other special status reptiles reported or known from the region (coast horned lizard, common chuckwalla, Mojave fringe-toed lizard) were observed during surveys and none are expected to occur on the project site because of the lack of suitable habitat. The coast horned lizard and Mojave fringe-toed lizard are covered under the WMP.

Birds: One special status bird (loggerhead shrike) was observed on the project site during field surveys; once in an isolated shrub near the southwest corner, and once in the tamarisk trees in the northwest corner (see Figure 2). Loggerhead shrikes are widespread in shrublands and open habitats throughout most of the United States. Its numbers have declined throughout California including a significant decline along the southern California coast and the Sonoran Desert (Shuford and Gardali 2008); however, regional breeding bird survey data do not show a similar trend in the Mojave Desert. It is on CDFG's list of Special Animals, but its Natural Diversity Data Base ranking indicates that it is "apparently secure in California." It is not covered under the WMP.

The LeConte's and Bendire's thrashers are known from the region and suitable habitat exists in the creosote bush scrub surrounding the dry lake bed near the project site. One LeConte's thrasher was observed approximately one mile northwest of the project site on June 2, and the Bendire's thrasher conservation area (WMP Map 2-1) appears to be just north of the project site. Although they were not observed during surveys, they have a low probability of occurring on the project site at least occasionally. They are both covered under the WMP.

The burrowing owl (*Athene cunicularia*) occurs throughout the western United States including most of California, and birds that nest in the northern part of the state migrate to our area in the winter. Habitat consists of annual and perennial grasslands, deserts, and scrublands characterized by low-growing vegetation (Zarn 1974). It has declined noticeably since the 1940's due to the destruction of ground squirrel colonies and conversion of grasslands and pasture lands to agricultural and urban developments (Remsen 1978). Within nesting habitat, burrowing owls are considered a species of special concern (CDFG 2010b). They tend to be uncommon in the deserts, but can be more common around managed agricultural areas and associated canals, ditches and access roads (York et al. 2002). Burrowing owls were not observed during the surveys reported here, and based on the negative survey results, the burrowing owl is not expected to nest on the project site at the present time; however, there is a low probability that individuals in the region forage in the area at least occasionally (they were reported approximately two miles south during surveys by Tom Dodson Associates 2009). It is a covered species under the WMP.

None of the other special status birds reported from the area are expected to occur (nest) because the lack of suitable habitat. Several may occur (at varying probabilities) during the winter or migration, or may occasionally forage over or on the project site. None of the birds occurring or

potentially occurring on the project site are listed, proposed for listing, or candidates for listing as threatened or endangered. Golden eagles are protected by the Fish and Game Code and almost all native birds are afforded some level of protection under the Fish and Game Code and federal Migratory Bird Treaty Act, which (among other things) prohibits killing them.

Mammals: Several special status bat species are likely to forage over the site, but none are expected to roost on the site because of the lack of suitable roosting habitat (Appendix A). In general, bat distributions and habits are poorly known. No caves, tunnels, or other significant roosting sites were found anywhere on the project site during field work. The WMP seeks protection of all significant bat roosts and specifically covers the Townsend's big-eared bat and California leaf-nosed bat.

Pallid San Diego pocket mouse is widespread in desert shrublands (Erickson and Patten 1999), and it has been reported from the base of the Granite Mountains at the southern end of Fairview Valley. Although habitat on the dry lake bed is marginal for this species, the proximity of the CNDDB records suggests that it has a moderate probability for occurring on the project site. Though it is a species of special concern, its state rank "S3" does not indicate special threat or rarity. It not covered under the WMP.

Mohave ground squirrel (*Spermophilus mohavensis*) is listed by the State of California as threatened, but has no formal federal status. It occurs in the western Mojave Desert, from Antelope Valley north to southwestern Inyo County, and through much of northwestern San Bernardino County. The project site is not within recent range maps published on the distribution of the Mohave ground squirrel (Leitner 2008, BLM 2005), and is not within Mohave Ground Squirrel Conservation Areas delineated in the WMP (WMP Map 2-1). The nearest known occurrences are near Deadman's Point, about 8 miles south-southwest of project site, and at Rabbit Springs, about 12 miles southeast of the project site. Both of these occurrences are separated from the project site by the intervening Granite Mountains. Focused live-trapping surveys were once conducted routinely, but proved to be labor intensive and often inconclusive. Little is published on the specific habitat requirements for Mohave ground squirrel, but it uses a variety of desert shrublands (Laabs 1999). Based on the lack of suitable shrub cover on the dry lake bed, the degraded nature of the site caused by off-road vehicle use and sheep grazing, and on geographic range, we presume that Mohave ground squirrel is absent from the project site. It is one of the focal species of and is covered under the WMP.

American badger has a low probability to occur on the project site because of the lack of vegetative cover and the degraded nature of the habitat. The badger is a wide-ranging species that is uncommon but widespread in desert shrublands throughout the region: it may occur on the project site at least occasionally, but is not expected to live on the site year around based on negative surveys reported here. It is not covered under the WMP.

5.0 IMPACTS ANALYSIS

5.1 Significance Criteria

5.1.1 CEQA Mandatory Findings of Significance

Under CEQA Guidelines (Section15065) a lead agency must conclude that a project would have a significant effect on the environment if any of the following would occur (italics added):

(a) The project has the potential to substantially degrade the quality of the environment, *substantially reduce the habitat of a fish and wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range or an endangered, rare, or threatened species*, or eliminate important examples of California history or prehistory.

(b) The project has the potential to achieve short-term environmental goals to the disadvantage of long-term environmental goals.

(c) The project has possible environmental effects which are individually limited but cumulatively considerable. "Cumulatively considerable" means that the incremental effects of an individual project are considerable when viewed in connection with the effects of probable future projects as defined in Section 15130 [of CEQA].

5.1.2 CEQA Significance Criteria for Biological Resources

CEQA requires the lead agency to reach findings regarding potentially significant impacts to biological resources. Based on the Environmental Checklist Form in the CEQA guidelines (Appendix G), a project may have a significant impact on biological resources if the project would:

a) have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service.

b) have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service.

c) have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.

d) interfere substantially with the movement of native resident or migratory fish or wildlife

species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.

e) conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.

f) conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

5.2 Direct Impacts

Project approval and implementation would result in the grading and removal of 40 acres of dry lake bed habitat supporting a stand of tamarisk trees, an extensive invasion of Russian thistle, and a disturbed and very sparse saltbush scrub community dominated by fourwing saltbush (*Atriplex canescens*). Loss of this vegetation and conversion of the dry lake bed to a surface clay mine would result in the loss of habitat that provides nesting, foraging, and denning opportunities for a limited number of wildlife. Removing these habitats would result in the loss of wildlife with low mobility within the impact area. More mobile species would be forced to move into remaining areas of open space where they would have to compete with resident individuals for available resources. This would result in the loss of the individuals that don't successfully compete. Loss of wildlife and wildlife habitat is an adverse impact. However, similar habitat occurs throughout the region, and the project site represents only a fraction of the dry lake bed, so similar habitat would remain on a local and regional basis. These impacts are therefore considered less than significant in terms of CEQA.

5.2.1 Special Status Plants

No threatened, endangered, or other special status plants are known from the project site. Of the 17 special status plants addressed in this report, there is a low to moderate probability that nine special status plant species could occur. Mine development and operation could eliminate scattered individual plants of these special status species.

Six of these special status plants are on CNPS's List 1B (plants considered rare, threatened or endangered in California and elsewhere), for which impacts may be considered significant under CEQA. Potential loss of scattered individuals and degraded habitat for these species is an adverse impact; however, because 1) these species have no formal status under state or federal Endangered Species Acts, 2) all are relatively widespread in the western Mojave Desert, 3) losses of scattered individuals are unlikely to substantially affect regional populations, and 4) all of the potentially occurring List 1B plants are covered under the WMP, these adverse impacts would not meet thresholds for mandatory findings of significance, or the significance criteria for biological resources. In addition, habitat for these species is being adequately conserved on a regional basis with the implementation of the WMP. Therefore, this impact is less than significant in terms of CEQA.

5.2.2 Special Status Wildlife

No threatened or endangered wildlife, including the desert tortoise, are expected to occur on the project site. Based on the negative protocol level surveys conducted on the project site and surrounding area in the past (Lilburn 1991, 1993), the negative surveys reported here, and negative surveys conducted south of the project site (Tom Dodson Associates 2009), tortoises appear to be rare in the general area. Desert tortoises do not occur on the project site at this time, and future mine development will not affect desert tortoises unless one wanders onto the mine site. Desert tortoises are known to occur north of the project site, north of Johnson Road, so truck traffic associated with mining operations may affect tortoises there. The project site is within WMP boundaries but not with a specific conservation area. The project must comply with applicable sections of the WMP and comply with conditions identified in the WMP's Biological Opinion issued by the USFWS during Section 7 consultation with the Bureau of Land Management. Compliance with the WMP and associated Biological Opinion would reduce potential impacts, if any, to less than significant in terms of CEQA.

Several species covered under the WMP have a low occurrence probability on the project site, but none are expected to nest on the project site or depend on resources on the project site that are not available in the surrounding area. Most of the species would occur rarely or occasionally as they forage through the area (raptors, bats). Because these species are addressed in the WMP, potential impacts could be considered significant under CEQA without mitigation. However, ample habitat for these species occurs in the open space surrounding the project site, and implementation and compliance with applicable sections of the WMP is expected to adequately conserve these species on a regional basis. Compliance with the WMP would reduce potential impacts to these species to less than significant in terms of CEQA.

One special status animal, the loggerhead shrike, was observed on the project site. Occupied habitat would be lost during mine development and individual shrikes would be forced to move off-site or perish. This species has no formal status under state or federal Endangered Species Acts, and it is not covered by the WMP, although it is anticipated that it would benefit from habitat conservation measures to be implemented through the WMP. Impacts to this species would not be considered significant under CEQA.

Several other special status wildlife that potentially occur on the project site or use it occasionally for foraging are not covered under the WMP. These species have no formal status under state or federal Endangered Species Acts and do not meet the criteria for listing as threatened or endangered. Impacts to these species likely would not be considered significant under CEQA; however, all would likely benefit from the habitat conservation measures to be implemented through the WMP.

5.2.3 Impacts to Wildlife Movement

The project site may be used for local movement by resident species. However, the proposed project site is not a linkage used by wildlife for regional movement, and the project would not

result in an increase in habitat fragmentation. Therefore, impacts to wildlife movement resulting from habitat fragmentation would not occur.

5.3 Indirect Impacts

The proposed project is the excavation and operation of clay mine on a dry lake bed. Indirect impacts associated with the mining operation may include an increase in ambient noise levels, nuisance night lighting, and dust generation. However, the project will be subject requirements for all new projects to avoid or minimize the indirect effects of the projects through implementation of applicable Best Management Practices and other measures outlined in the WMP. Potential indirect impacts of the project would be mitigated to less than significant levels through compliance with the WMP.

5.4 Anticipated Cumulative Impacts

Mine development would contribute to the ongoing cumulative loss of desert habitats in and around the Mojave Desert. Habitat on the project site is considered to have low conservation value based on its location on a dry lake bed and the degraded and disturbed nature of the site. Habitat that would be affected is not locally or regionally unique or sensitive and does not support plants or animals listed or likely to become listed under state or federal Endangered Species Acts in the foreseeable future. Large tracts habitat in the area are managed for multiple public uses by the Bureau of Land Management in line with conservation objectives through the implementation of the WMP. Under CEQA, a project would not result in a cumulatively considerable impact if it is required to implement or fund conservation efforts to alleviate the impact. The project is within the WMP area and therefore would contribute to regional conservation efforts through the payment of mitigation fees and compliance with applicable sections of the WMP. Therefore, the cumulative loss of the habitat that would result from the project would not meet CEQA criteria as significant.

6.0 REGULATORY COMPLIANCE AND RECOMMENDED MITIGATION

6.1 Applicable Regulatory Requirements

West Mojave Plan

The West Mojave Plan (BLM 2005) provides protection for covered species and habitats by identifying species-specific biological goals and objectives and setting aside and managing lands within conservation areas. The WMP identifies specific management prescriptions for covered species and implementation of Best Management Plans for all new construction. The project would be subject to all applicable provisions of the WMP for projects that are not within a specified conservation area.

Migratory Bird Treaty Act and California Fish and Game Code Sections 3503.5 and 3800

The federal Migratory Bird Treaty Act and Sections 3503.5 and 3800 of the California Fish and

Game Code prohibit take of nearly all native birds and their nests. If project construction is during the nesting season and native birds or their nests were destroyed, it would violate the Migratory Bird Treaty Act and California Fish and Game Code. Recommendations to avoid impacts are provided below.

Clean Water Act, California Fish and Game Code, Porter-Cologne Act

The Porter-Cologne Act, Section 404 of the Clean Water Act, Section 1600 of the California Fish and Game Code and regulate actions that may result in discharge or impacts streambeds and other hydrologic features. The project site is located on a dry lake bed that may meet jurisdictional criteria. A jurisdictional delineation is recommended below.

California Surface Mining and Reclamation Act

Under the California Surface Mining and Reclamation Act the operator will be required to reclaim the quarry and other disturbed areas at the end of the mining operation. A revegetation plan in compliance with SMARA is recommended below.

Federal and State Endangered Species Acts

The federal and state Endangered Species Acts prohibit the take of listed threatened and endangered species unless authorized under specific sections of the respective acts. The project site is within the WMP plan area. Limited take for covered species is authorized within the WMP planning area under the terms and conditions of permits issued by the regulating agencies (California Department of Fish and Game and U.S. Fish and Wildlife Service). Although the desert tortoise is not expected to occur on the project site at this time, if the BLM determines that the project may affect the tortoise along the access road, the project would be subject to protection measures in the WMP.

6.2 Recommended Mitigation Measures

The project site is located within the WMP area but not within a conservation area. The payment of a mitigation fee (Section 2.2.2.2 of the WMP) will apply to the project. This single mitigation fee was established for all ground disturbing activities on public and private lands within the WMP area. The mitigation fee is based on a tiered system in which projects within conservation areas have the highest compensation ratio (5:1), intact lands outside the conservation areas have a lower compensation ratio (1:1), and disturbed lands outside the conservation areas have the lowest compensation ratio (0.5:1). The project site is located within the 1:1 compensation area (WMP Map 2-8).

Although no special status species were observed on the project site during surveys reported here or during previous surveys, several special status plants and wildlife have a low to moderate potential to occur, at least occasionally while foraging. Most of these species are covered species under the WMP. Potential impacts to these species (and species not covered in the WMP) would be mitigated through compliance with applicable sections the WMP and/or the payment of the

local development mitigation fee.

The desert tortoise is not expected to occur on the project site at this time and appear to be rare in the area. However, there is potential for a tortoise to wander onto the site before or during implementation of proposed mining operations, or to occur along the access road. Any resulting take to desert tortoise would violate state or federal Endangered Species Acts. The desert tortoise is a covered species under the WMP, and potential impacts to desert tortoise would be mitigated through compliance with applicable sections the WMP and/or the payment of the mitigation fee. The project site is located within the desert tortoise survey zone (WMP Map 2-9) where pre-construction surveys are required prior to ground disturbance.

To avoid impacts migratory and nesting birds, vegetation and habitat grading and removal should not be scheduled during the bird nesting season (generally February 15 through August 1). If clearing of vegetation occurs within the nesting season, a pre-construction survey for nesting birds should be conducted before any vegetation or ground disturbance activities occur. A minimum buffer of 250 feet should be placed around active nests within which construction activities would be restricted. When the nest is no longer active, either because the nest is abandoned or the young fledge (as determined by a qualified biologist), construction activities could resume.

A revegetation plan consistent with the requirements of the California Surface Mining and Reclamation Act should be prepared and implemented per the guidelines issued by the California Division of Mining and Geology. The plan should incorporate baseline vegetation data, success criteria, seeding and planting schemes, and a monitoring plan.

Concurrently or following the County's approval of the project, a formal jurisdictional delineation of the washes on the project is recommended to determine if these features meet the criteria for jurisdictional waters or streambeds by the Regional Water Quality Control Board, California Department of Fish and Game and/or U.S. Army Corps of Engineers. Results of the delineation should be provided in permit applications to see what (if any) regulatory jurisdiction will apply.

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8.0 CERTIFICATION

CERTIFICATION: *"I hereby certify that the statements furnished above and in the attached exhibits present the data and information required for this biological evaluation, and that the facts, statements, and information presented are true and correct to the best of my knowledge and belief. Field work conducted for this assessment was performed by me or under my direct supervision. I certify that I have not signed a non-disclosure or consultant confidentiality agreement with the project applicant or applicant's representative and that I have no financial interest in the project."*

Date: 8/27/2010 Signed: _____

Fieldwork Performed by:

Brian Leatherman
Name

Sandra Leatherman
Name

Special Status Plants	Habitat and Distribution	Flower season	Status Designation	Occurrence Probability
Arabis dispar Pinyon rock-cress	Perennial herb; granitic gravelly soils, Joshua tree woodl., pinyon-juniper woodl., desert shrubland; about 3900-8000 ft. elev.; Mojave Desert & adj Mts.	March - June	Fed: None Calif: S2.3 CNPS: List 2.3 WMP: None	Not expected (field surveys, below elev. range, soils not granitic)
Berberis fremontii Fremont's barberry	Perennial shrub; rocky areas; Joshua tree woodl., pinyon juniper woodl., chaparral; about 3000-6000 ft. elev; Mojave Des and Peninsular Ranges	April - June	Fed: None Calif: S2? CNPS: List 3 WMP: None	Not expected (field survey)
Camissonia boothii ssp. boothii Booth's evening-primrose	Annual herb; sandy washes and bajadas, S Mojave Des, Little Lk and Mono Lk, Grand Cyn area, and much of Nevada; about 2500-8000 ft. elev.	April - Sept.	Fed: None Calif: S2.3 CNPS: List 2.3 WMP: None	Not expected (no suitable habitat)
Calochortus striatus Alkali mariposa lily	Annual herb; alkaline meadows and springs, saltbush scrub; Mojave Desert and springs at northern margins of San Bernardino Mts; 2120-4800 ft. elev.	April - June	Fed: None Calif: S2 CNPS: List 1B.2 WMP: Covered	Low (marginally suitable, disturbed habitat, field surveys)
Canbya candida Pygmy poppy	Sandy soils,; Joshua tree woodl., Mojave Des shrublands, N foothills of San Bernardino Mts. and W Mojave Des; 1900-4000 ft. elev.	March - June	Fed: None Calif: S3.2 CNPS: 4.2 WMP: None	Low (soils unsuitable)
Chorizanthe spinosa Mojave spineflower	Annual herb; dry sandy and gravelly soils; Mojave Des. scrub and Joshua tree woodland, about 2500-3500 ft. elev.; W Mojave Des, east to Rabbit Spring	April - July	Fed: None Calif: S3.2 CNPS: 4 WMP: None	Low (soils unsuitable, field surveys)
Cymopteris deserticola Desert cymopteris	Perennial herb; gen loose sandy or gravelly soils, desert shrubland; western Mojave desert; all known sites on Edwards AFB, gen. 5000 ft. elev.	March - May	Fed: None Calif: S3.2 CNPS: List 1B.2 WMP: Covered	Low (geographic range, unsuitable soils)
Cymopteris multinervatus Purple-nerve cymopteris	Perennial herb; gen sandy or gravelly soils, Mojave desert scrub, pinyon juniper woodland; gen. 2400-5400 ft. elev.	March - April	Fed: None Calif: S2 CNPS: List 2.2 WMP: None	Low (soils gen unsuitable)
Eriophyllum mohavense Barstow woolly sunflower	Annual herb; central Mojave Desert (Barstow area); sandy or rocky open patches, chenopod or Mojave desert scrub; flat, poorly drained alluvium, playas, 1500-2900 ft.	April - May	Fed: None Calif: S2.2 CNPS: List 1B.2 WMP: Covered	Moderate (moderately suitable habitat but may be below elev. range)
Mentzelia tridentata Creamy blazing star	Annual herb; rocky/gravelly soils in Mojave Desert scrub; primarily central Mojave with scattered occur. In Kern and San Diego Cos.; 2100-3500 ft. elev.	March - May	Fed: None Calif: S2.3 CNPS: List 1B.3 WMP: None	Not expected

Special Status Plants	Habitat and Distribution	Flower season	Status Designation	Occurrence Probability
Mimulus mohavensis Mojave monkeyflower	Annual herb; gravelly soils on banks of washes; desert shrubland, Joshua tree wood; 1900-3500 ft. elev.; central Mojave Des	April - June	Fed: None Calif: S2.2 CNPS: List 1B.2 WMP: Covered	Moderate (habitat marginal and disturbed but local occurrences)
Opuntia basilaris var. brachyclada Short-joint beavertail cactus	Desert shrublands on N margins of San Bernardino and San Gabriel Mts. to Providence Mts, about 4000-6000 ft. elev.	May - June	Fed: None Calif: S3 CNPS: List 1B.2 WMP: Covered	Not expected (field survey, below elev. range)
Phacelia parishii Parish's phacelia	Annual herb; Mojave desert scrub and playas with clay or alkaline soils; central Mojave Desert near Barstow area, 1600-3600 ft. elev.	April - May (to June, July)	Fed: None Calif: S1.1 CNPS: List 1B.1 WMP: Covered	Moderate (habitat suitable but disturbed, known from only two occurrences)
Plagiobothrys parishii Parish's popcorn-flower	Annual herb; desert alkaline wetlands; prim. Owens Valley, widely scattered pop's in Mojave Des; 2400-4600 ft. elev.; only known extant location at Rabbit Springs (San Bern. Co)	March - Nov	Fed: None Calif: S2.2 CNPS: List 1B.2 WMP: Covered	Low (field surveys, disturbed marginal habitat)
Saltugilia latimeri Latimer's woodland-gilia	Annual herb; granitic rocky and sandy soils, washes, Mojave desert scrub and pinyon juniper woodland, 1200-5700 ft. elev.	March - June	Fed: None Calif: S1.1 CNPS: List 1B.1 WMP: None	Not expected (no suitable habitat or soils)
Sidalcea meomexicana Salt Spring checkerbloom	Perennial herb; wet alkaline playas; sage scrub, chaparral, creosote bush scrub; SW Calif., Baja Calif., SW US, mainl. Mexico; 50-4600 ft. elev.	March - June	Fed: None Calif: S2S3 CNPS: List 2.2 WMP: Covered	Not expected (field surveys, disturbed marginal habitat)
Sclerocactus polyancistrus Mojave fish-hook cactus	Desert shrubland and Joshua tree woodland, limestone soils, Mojave Desert, Calif. & Nevada	April - June	Fed: None Calif: S3.2 CNPS: List 4.2 WMP: None	Not expected (field survey, habitat)

Special Status Invertebrates	Habitat and Distribution	Status Designation	Occurrence Probability
Helminthoglypta mohaveana Victorville shoulderbanded snail	Riparian habitat(?), abundance and distribution poorly documented	Fed: None Calif: S1 WMP: None	Not expected

Special Status Amphibians and Reptiles	Habitat and Distribution	Activity season	Status Designation	Occurrence Probability
Gopherus agassizii Desert tortoise	Desert shrublands where soil suitable for burrows; Mojave and Sonoran Des. (E Calif., S Nevada, W Ariz., and Sonora, Mexico)	Spring - summer	Fed: **THR** Calif: **THR,** S2 WMP: Covered	Not expected on project site; occurs in area

Special Status Amphibians and Reptiles	Habitat and Distribution	Activity season	Status Designation	Occurrence Probability
Phrynosoma coronatum blainvillei Coast horned lizard	Primarily shrublands and grasslands with friable soils, coastal southern Calif through Baja Calif.	Spring - summer	Fed: None Calif: CSC S2S3 WMP: None	Not expected (no suitable habitat, likely beyond geog. range)
Sauromalus obesus Common chuckwalla	Rock outcrops in desert shrublands; ± throughout deserts of Calif., S Nevada, W Ariz., and Baja Calif.	Spring - summer	Fed: None Calif: S4 (formerly) WMP: None	Not expected
Uma scoparia Mojave fringe-toed lizard	Endemic to sand dunes in the Mojave Desert	Spring - fall	Fed: None Calif: CSC S3S4 WMP: Covered	Not expected

Special Status Birds	Habitat and Distribution	Activity season	Status Designation	Occurrence Probability
Circus cyaneus Northern harrier	Breeds colonially in grasslands and wetlands; forages over open terrain; N America and Eurasia	Winter; rare in summer	Fed: None Calif: CSC S3 (nesting) WMP: None	Nesting: Not expected Foraging: High
Aquila chrysaetos Golden eagle	Nests in remote trees and cliffs; forages over shrublands and grass-lands; breeds throughout W N America, winters to E coast	Year-around	Fed: None Calif: CSC S3 (nesting, wintering) WMP: Covered	Nesting: Not expected Foraging: Expected (occas.)
Falco mexicanus Prairie falcon	Nests on high cliffs, forages primarily over open lands; occurs throughout arid western US and Mexico	Year-around	Fed: None Calif: S3 (nesting) WMP: Covered	Nesting: Not expected Foraging: Expected (occas.)
Athene cunicularia hypugea Burrowing owl	Nests in rodent burrows, usually in grasslands; forages in open habitat; in-creasingly uncommon in S Calif.; occurs through W US and Mexico; sparse in desert scrub but comm. around irrigated lands	Year-around	Fed: None Calif: CSC S2 (burrow sites) WMP: Covered	Breeding: Not expected (field surveys) Foraging: Low
Toxostoma bendirei Bendire's thrasher	Open desert shrublands and woodlands; Mojave Des in Calif., much of Ariz, S Utah, NM, mainland Mexico	Year - around	Fed: None Calif: CSC S3 WMP: Covered	Not expected on project site (field surveys, no suitable habitat), occurs in area

Special Status Birds	Habitat and Distribution	Activity season	Status Designation	Occurrence Probability
Toxostoma lecontei LeConte's thrasher	Mojave and Colorado Deserts, SW Cent. Valley, Owens Valley; to Nevada, Utah, Arizona; open shrub-land, often sandy or alkaline flats	Year - around	Fed: None Calif: CSC S3 WMP: Covered	Not expected on project site (field surveys, no suitable habitat), occurs in area
Polioptila melanura Black-tailed gnatcatcher	Desert shrublands, gen. thickets of mesquite, palo verde, or acacia, occas. in open shrubland (mostly winter); Calif. deserts, thr. S Texas, Baja, and arid mainland Mexico	Year-around	Fed: None Calif: S4 WMP: None	Not expected (field surveys, no suitable habitat)
Lanius ludovicianus Loggerhead shrike	Woodlands, shrublands, open areas with scattered perch sites; widespread in N America (declining significantly in midwest)	Year-around	Fed: None Calif: CSC S4 WMP: None	Occurs

Special Status Mammals	Habitat and Distribution	Active season	Status Designation	Occurrence Probability
Antrozous pallidus Pallid bat	Rock outcrops of shrublands, mostly below about 6000 ft. elev.; Calif (exc high mts), SW N Amer through interior Oregon and Washington; hibernates in winter	Warm season	Fed: None Calif: CSC S3? WMP: None	Roosting: Not expected Foraging: Moderate
Corynorhinus townsendii Townsend's big-eared bat	Many habitats throughout Calif and W N Amer, scattered pop'ns in E; day roosts in caves, tunnels, mines; feed primarily on moths	Year-around	Fed: None Calif: CSC S2S3 WMP: Covered	Roosting: Not expected Foraging: High
Euderma maculatum Spotted bat	Desert (cool seasons) to pine forest (summer), much of SW N. Amer., but very rare; roosts in deep crevices in cliffs, feeds on moths captured over open water	Unkn	Fed: None Calif: CSC S2S WMP: None	Roosting: Not expected Foraging: Not expected
Eumops perotis californicus Western mastiff bat	Lowlands (with rare exceptions); cent. and S Calif., S Ariz., NM, SW Tex., N Mexico; roost in deep rock crevices, forage over wide area	Year-around	Fed: None Calif: CSC S3? WMP: None	Roosting: Not expected Foraging: High
Lasiurus zanthinus Western yellow bat	Mexico and Cent Amer north to S. AZ; Riv, Imperial and San Diego Cos.; riparian and wash habitats; roosts in trees; evidently migrates from CA in winter	Sprin g-Summ er?	Fed: None Calif: CSC S3 WMP: None	Roosting: Not expected Foraging: Low

Special Status Mammals	Habitat and Distribution	Active season	Status Designation	Occurrence Probability
Macrotus californicus California leaf-nosed bat	Desert shrublands and arid low-lands of W San Diego Co., to W Ariz., Baja Calif. and Sonora, Mex; roost in mineshafts, forage over open shrublands	Year-around	Fed: None Calif: CSC S2S3 WMP: Covered	Roosting: Not expected Foraging: High
Nyctinomops femorosaccus Pocketed free-tailed bat	Deserts and arid lowlands; E Riv and San Diego Cos, through SW US, Baja Calif., mainland Mexico; Roost mainly in crevices of high cliffs	Year-around	Fed: None Calif: CSC S2S3 WMP: None	Roosting: Not expected Foraging: High
Chaetodipus fallax pallidus Pallid San Diego pocket mouse	Open shrublands usually in coarse gravels or rocky areas; deserts and desert-facing foothills; Los Angeles Co south to northern Baja Calif.	Year-around (?)	Fed: None Calif: CSC S3 WMP: None	Moderate (soils unsuitable but occurs nearby in Granite Mts.)
Spermophilus mohavensis Mohave ground squirrel	Creosote shrublands, western and central Mojave Desert, 1800-5000 ft. elev.	Spring -early summe r	Fed: None Calif: **THR**, S2S3 WMP: Covered	Not expected (outside geog. range, marginally suitable habitat)
Taxidea taxus American badger	Mountains, deserts, interior valleys where burrowing animals are avail as prey and soil permits digging; throughout cent and W N Amer	Year-around	Fed: None Calif: CSC S4 WMP: None	Low (not expected as resident)

References: Abrams (1923-1960), Barbour & Davis 1969, CDFG 2010,Ehrlich et al. 1988, Garrett & Dunn 1981, Grinnell & Miller 1944, Hall 1981, Hickman (ed.) 1993, Ingles 1965, Jaeger 1941, Jennings and Hayes 1994, Johnsgard 1988, Kearney & Peebles 1951, McDougall 1973, Munz 1974, National Geographic Society 1987, Remsen 1978, Shreve and Wiggins 1964, Skinner and Pavlik 1994, Stebbins 1985, Turner et al. 1995Williams 1986, US Fish and Wildlife Service 1999. Zeiner et al. 1988.

Federal designations: (federal Endangered Species Act, US Fish and Wildlife Service):

END: Federally listed, endangered.
THR: Federally listed, threatened.
Candidate: Sufficient data are available to support federal listing, but not listed or proposed for listing at this time.
Proposed: Formally proposed for the federal status shown.

State designations: (California Endangered Species Act, California Dept. of Fish and Game)

END: State listed, endangered.
THR: State listed, threatened.
RARE: State listed as rare (applies only to certain listed plants)
CSC: Species of Special Concern

CDF&G Natural Diversity Data Base Designations: Applied to special status plants and sensitive plant communities; where correct category is uncertain, CDF&G uses two categories or question marks.

S1: Fewer than 6 occurrences or fewer than 1000 individuals or less than 2000 acres.
S1.1: Very threatened
S1.2: Threatened
S1.3: No current threats known

S2: 6-20 occurrences or 1000-3000 individuals or 2000-10,000 acres (decimel suffixes same as above).
S3: 21-100 occurrences or 3000-10,000 individuals or 10,000-50,000 acres (decimel suffixes same as above).
S4: Apparently secure in California; this rank is clearly lower than S3 but factors exist to cause some concern, i.e., there is some threat or somewhat narrow habitat. No threat rank.
S5: Demonstrably secure or ineradicable in California. No threat rank.

California Native Plant Society (CNPS) designations: (Note: According to CNPS (Tibor 2001), plants on Lists 1B and 2 meet definitions for listing as threatened or endangered)

List 1A: Plants presumed extinct in California.
List lB: Plants rare and endangered in California and throughout their range.
List 2: Plants rare, threatened or endangered in California but more common elsewhere in their range.
List 3: Plants about which we need more information; a review list.
List 4: Plants of limited distribution; a watch list.

CNPS Threat Rank:

. 1 Seriously endangered in California (over 80%) of occurrences threatened/high degree and immediacy of threat.
.2 Fairly endangered in California (20-80% of occurrences threatened).
.3 Not very endangered in California (<20% of occurrences threatened with no current threats).

Definitions of occurrence probability:

Occurs: Observed on the site by qualified biologists.
Expected: Not observed or detected on the site, but very likely present during at least a portion of the year, or observed on or adjacent to the site during previous surveys.
High: Habitat on the site is a type often utilized by the species and the site is within the known range of the species.
Moderate: Site is within the known range of the species and habitat on the site is a type occasionally used by the species.
Low: Site is within the known range of the species but habitat on the site is rarely used by the species.
Not expected: A focused survey in 100% of suitable habitat failed to detect the species, no suitable habitat occurs on the site, or the site is outside the known geographic or elevational range of species.
Unknown: No focused surveys have been performed in the region, and the species' distribution and habitat are poorly known.

APPENDIX B: Special Status Species reported in the CNDDB (CDFG 2010c) or CNPS Electronic Inventory (CNPS 2010) but not addressed in detail in this report because of geographic or elevational range or lack of suitable habitat on project site.

Scientific Name	Common Name	Reason for Exclusion
Acanthoscyphus parishii var. goodmaniana	Cushenbury oxytheca	No suitable habitat (talus slopes, carbonate soils)
Arabis parishii	Parish's rock cress	No suitable habitat (pebble plains, pinyon juniper woodland)
Arabis shockleyi	Shockley's rock cress	No suitable habitat (pinyon juniper woodland, carbonate soils)
Astragalus albens	Cushenbury milk-vetch	No suitable habitat (usually carbonate soils, pinyon juniper woodland, Joshua tree woodland, and Mojavean desert scrub))
Calochortus plummerae	Plummer's mariposa lily	Geographic range (primarily cismontane)
Puccinellia parishii	Parish's alkali grass	Geographic range (known only from Edwards Air Force Base)
Sidalcea pedata	Bird-foot checkerbloom	No suitable habitat (pebble plains)

Appendix C. Sigma Clay Mine Plant and Wildlife Species Lists

Alien species indicated by asterisk; special status species indicated by two asterisks. This list includes only species observed on the site. Other species may have been overlooked or unidentifiable due to season. Plants were identified using keys, descriptions, and illustrations in Abrams (1923-1951), Hickman (1993), Munz (1974), and Baldwin et.al 2002. Taxonomy and nomenclature generally follow Hickman.

Latin Name	**Common Name**
VASCULAR PLANTS	
AMARANTHACEAE	AMARANTH FAMILY
* *Amaranthus albus*	tumbleweed
ASTERACEAE	ASTER FAMILY
Ambrosia acanthocarpa	Annual bursage
Atrichoseris platyphylla	Parachute Plant
* *Chamomilla suaveolens*	Common pineapple weed
Conyza canadensis	Common horseweed
Gerea canescens	Desert sunflower
Hymenochlea salsola	Cheesebush
* *Lactuca serriola*	Prickly lettuce
* *Sonchus oleraceus*	Common sow-thistle
Stephanomeria pauciflora	Desert straw
BORAGINACEAE	BORAGE FAMILY
Amsinckia tessellata	Desert fiddlehead
Tiquilia plicata	Plicate tequilia
BRASSICACEAE	MUSTARD FAMILY
* *Descuriana pinnata*	Tansy mustard
Lepidium lasiocarpum	Sand peppergrass
* *Sisymbrium irio*	London rocket
CHENOPODIACEAE	GOOSEFOOT FAMILY
Atriplex canescens	Four-wing saltbush
Atriplex elegans	Wheelscale
* *Chenopodium album*	Lamb's quarters
* *Salsola tragus*	Russian thistle
EUPHORBIACEAE	SPURGE FAMILY
Chamaesyce albomarginata	Rattlesnake weed
Eremocarpus setigerus	Doveweed
FABACEAE	PEA FAMILY
Trifolium spp.	Clover
GERANIACEAE	GERANIUM FAMILY
Eriodium cicutarium	Red-stemmed filaree
HYDROPHYLLACEAE	WATERLEAF FAMILY
Phacelia spp.	Phacelia
LAMIACEAE	MINT FAMILY
Marrubium vulgare	Horehound
Salazaria mexicana	Bladder-sage
MALVACEAE	MALLOW FAMILY
Sphaeralcea ambigua	Desert mallow
NYCTAGINACEAE	FOUR O'CLOCK FAMILY
Mirabilis begilovii	Desert wishbone bush

POLYGONACEAE	BUCKWHEAT FAMILY
Eriogonum inflatum	Desert trumpet
Eriogonum trichops	Little buckwheat
Polygonum sp.	Unid.
SOLANACEAE	NIGHTSHADE FAMILY
Lycium cooperi	Cooper's box thorn
TAMARICACEAE	TAMARISK FAMILY
Tamarix ramosissima	Tamarisk
POACEAE	GRASS FAMILY
Bromus madritensis ssp. rubens	Red brome
Bromus tectorum	Cheatgrass
Hordeum murinum var. lepinorum	Foxtail barley
Polypogon monspeliensis	Annual beard grass
Schismus barbatus	Mediterranean schismus

VERTEBRATE WILDLIFE

REPTILIA	REPTILES
Teiidae	Whiptails
Aspedoscelis tigris	Western Whiptail
Colubridae	Colubrids
Masticophus flagellum	Coachwhip
AVES	BIRDS
Corvidae	Jays and crows
Corvus corax	Common raven
Alaudidae	Larks
Eremophila alpestris	** Horned lark
Columbidae	Pidgeons and doves
Zenaidura macroura	Mourning dove
Tytonidae	Barn Owls
Tyto alba	Barn owl
Tyrannidae	Tyrant flycatchers
Myiarchus cinerascens	Ash-throated flycatcher
Laniidae	Shrikes
** *Lanius ludovicianus*	Loggerhead shrike
Mimidae	Mockingbirds
Mimus polyglottis	Northern mockingbird
Fringillidae	Finches
Carpodacus mexicanus	House Finch
MAMMALIA	MAMMALS
Leporidae	Hares and rabbits
Lepus californicus	Black-tailed hare
Heteromyidae	Pocket mice, kangaroo rats
Dipodomys sp.	Kangaroo rat (burrows, tracks)
Bovidae	Goats and Sheep
Ovis aries	Domestic sheep

Appendix D: Representative Photographs of Project Site

Photo 1: Looking toward center of the site from near the SW corner.

Photo 2: Sheep grazing on NE corner of project site (looking NNE from on site).

Appendix D: Representative Photographs of Project Site

Photo 3: Tamarisk trees in low-lying area in northern portion of project site (from NW corner).

Photo 4: Looking W at Russian thistle in low-lying area in center of project site.