

**Focused Survey and Resurvey for Agassiz's Desert Tortoise,
Habitat Assessments for Burrowing Owl and Mohave ground squirrel, and
General Biological Resource Assessment for the
Brubaker-Mann, Inc. Gold, Brown, Lilac Quarries Proposed Expansion Areas
Near the Community of Yermo, San Bernardino County, California**

(U.S. Geological Survey 7.5' Nebo quadrangle, Township 9 North, Range 1 West, a
portion of the Southwest ¼ of Section 1, S.B.B.&M.)

Job#: 12-006

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I hereby certify that the statements furnished herein, including 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 nondisclosure or consultant confidentiality agreement with the project applicant or applicant's representative and that I have no financial interest in the project.



Circle Mountain Biological Consultants, Inc.
Author and Field Investigator: Edward L. LaRue, Jr.

May 2012

Figure 1. Brubaker-Mann, Inc. Gold, Brown, Lilac Quarries: Vicinity Map

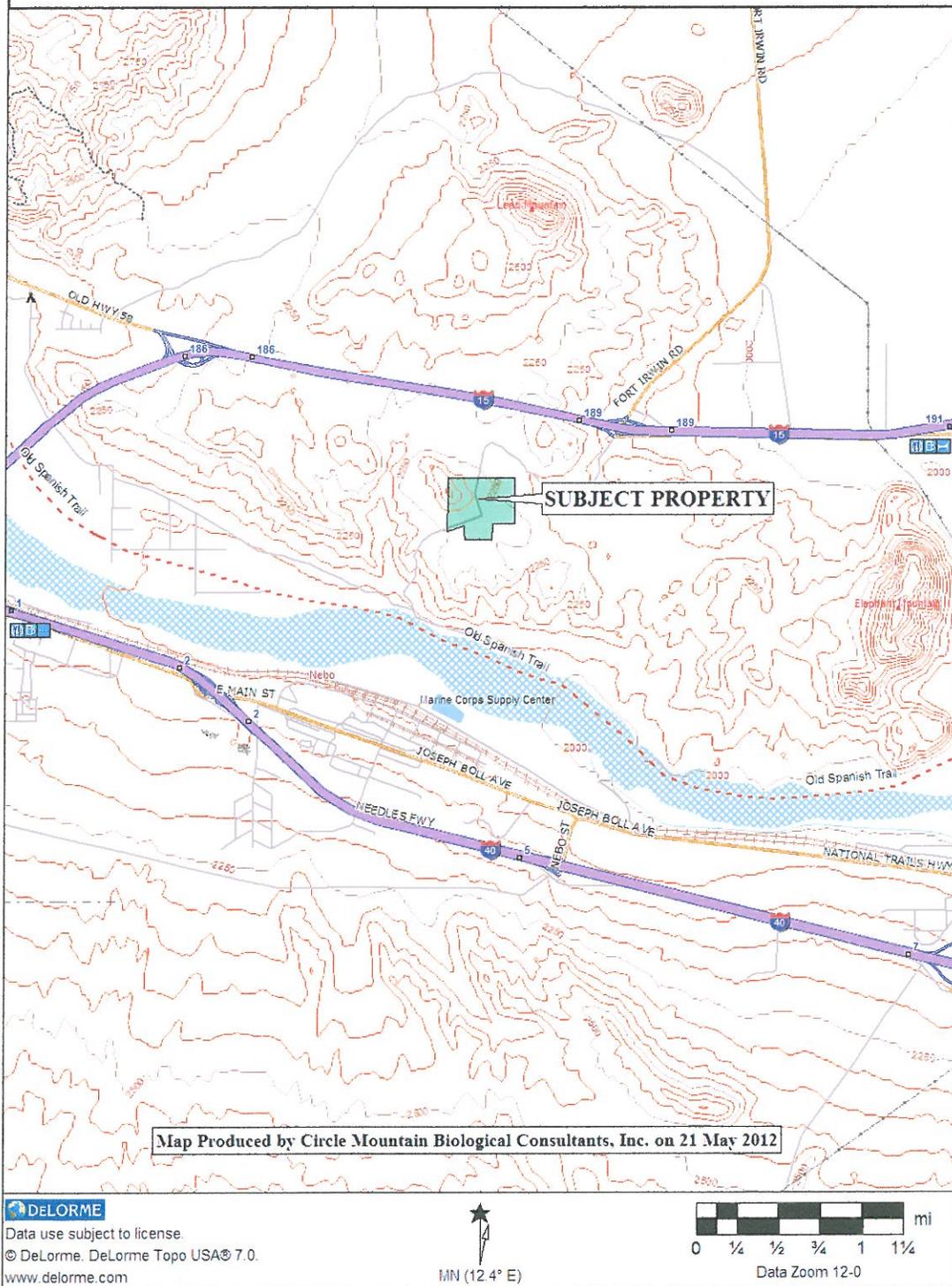


Figure 2. Brubaker-Mann, Inc. Gold, Brown, Lilac Quarries: Site Map

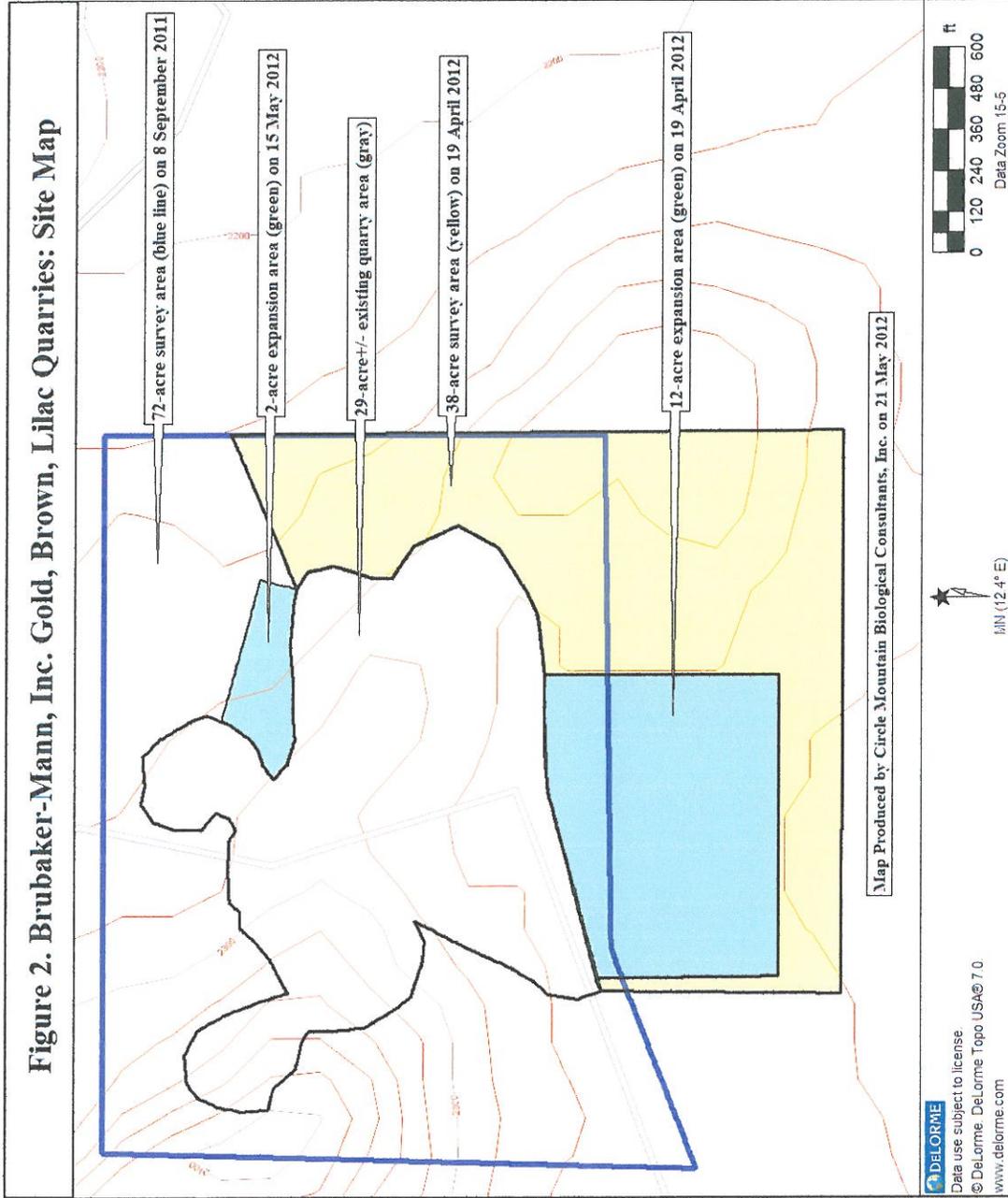


Figure 3a. Tortoise Sign Found in September 2011

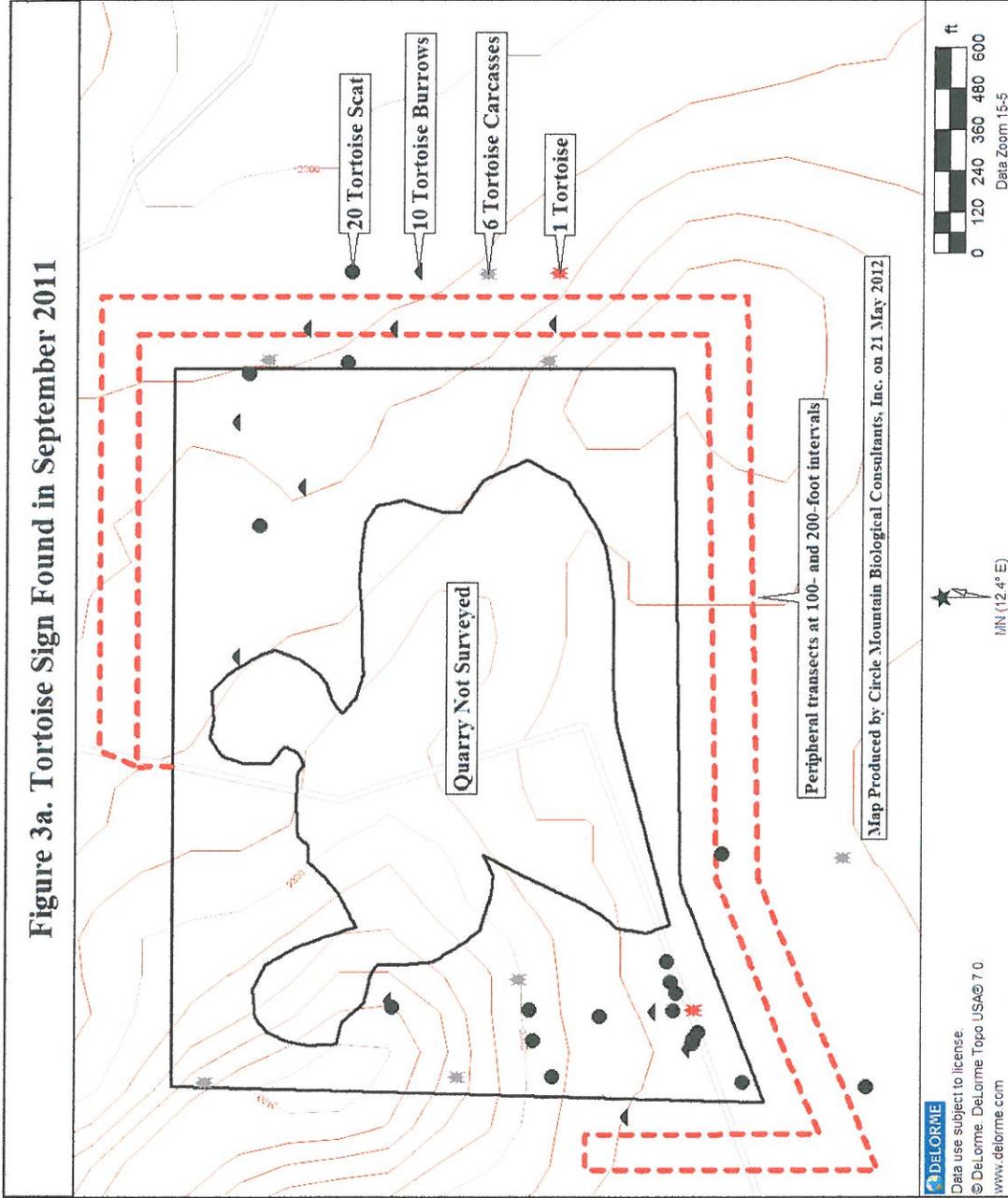
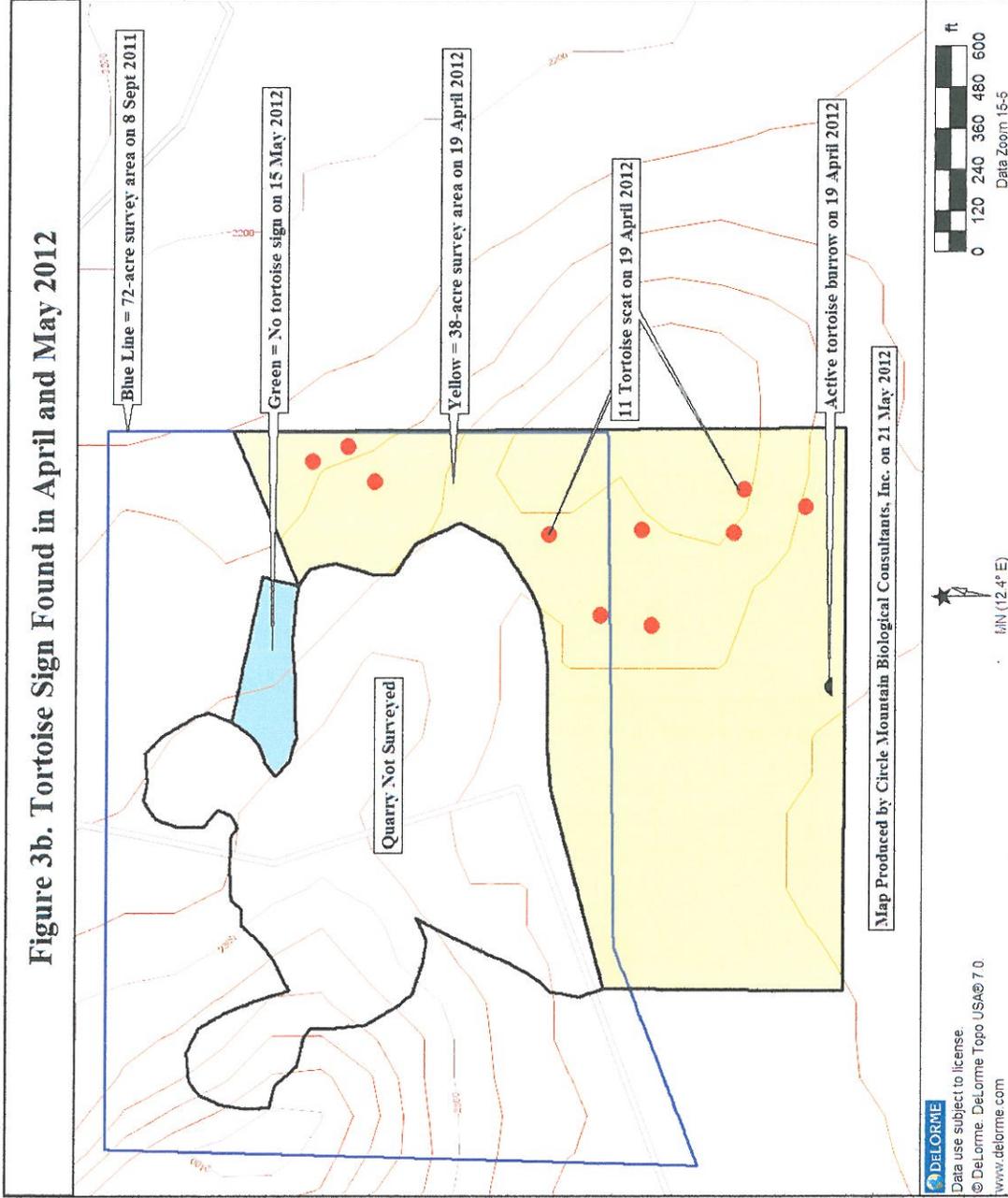


Figure 3b. Tortoise Sign Found in April and May 2012



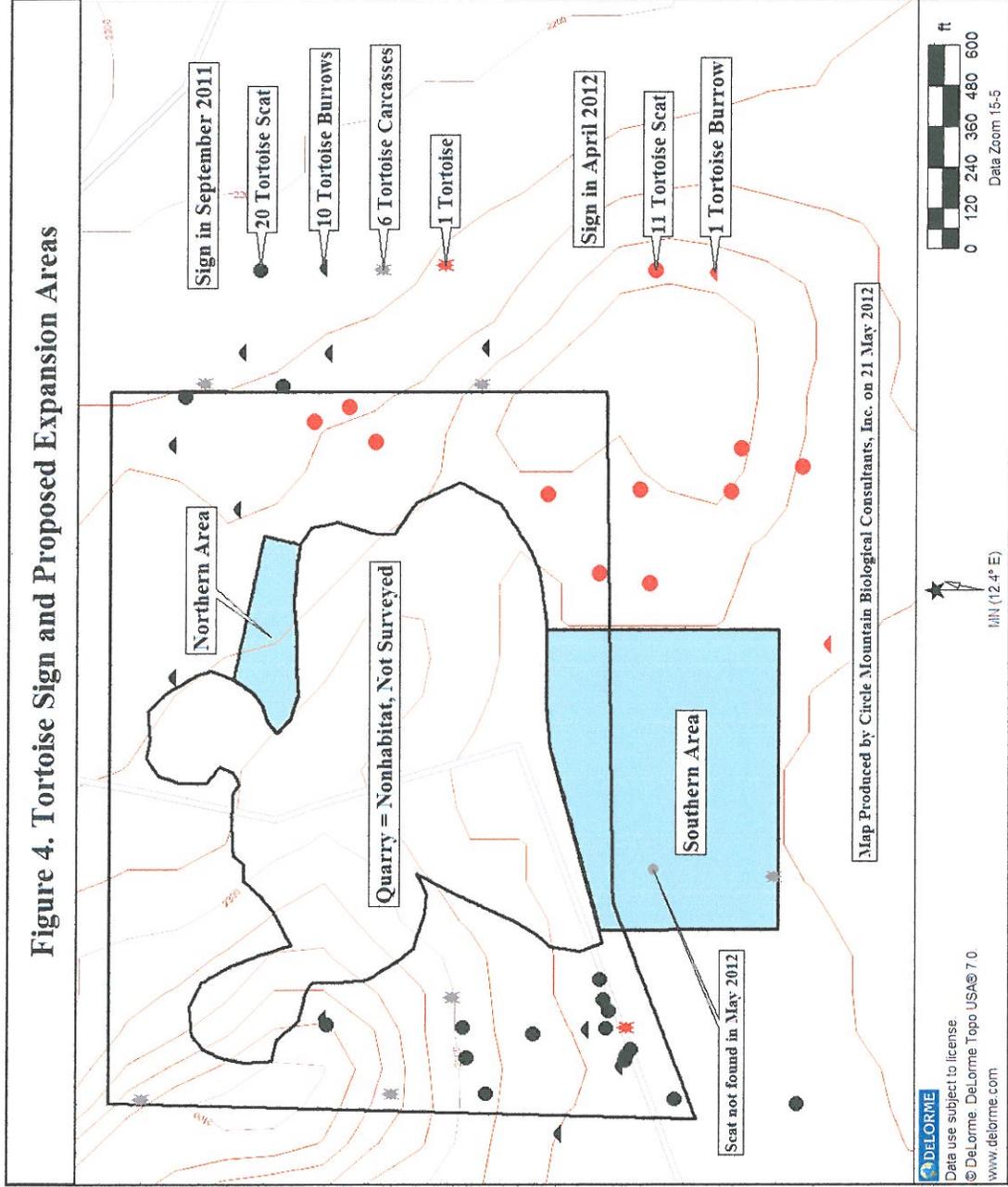
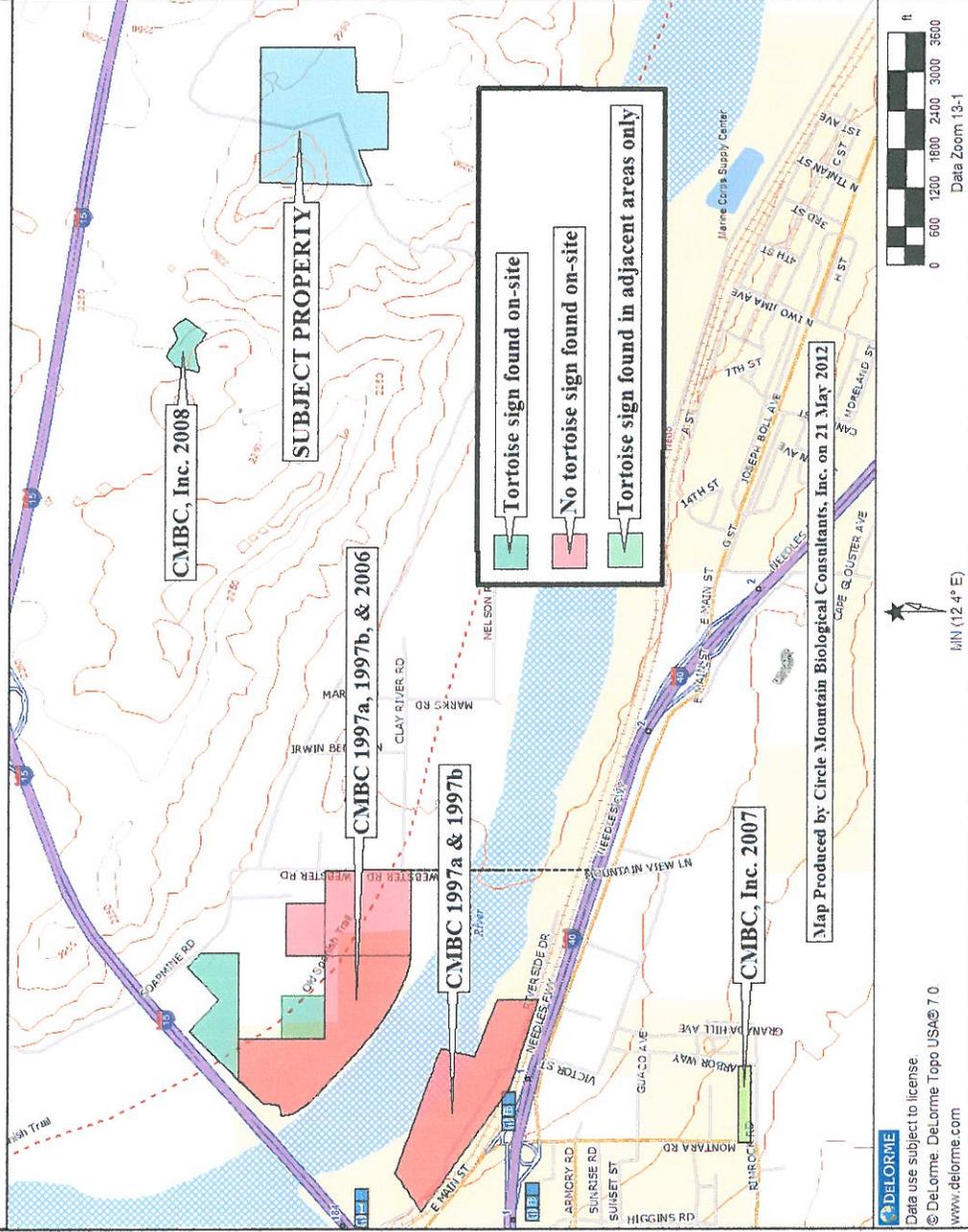


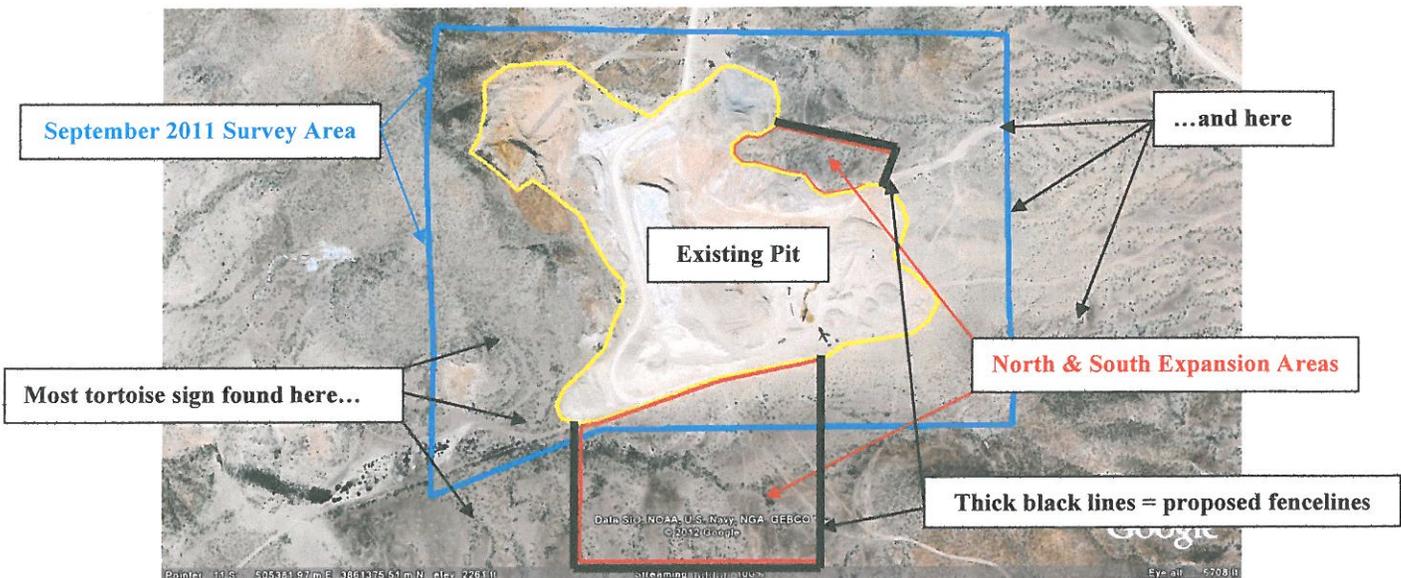
Figure 5. Locations of Six Surveys on Five Sites Between 1997 and 2012



**Figure 6. Brubaker-Mann, Inc. GBL Quarries:
Aerial Photograph, ©2007 Google™ Earth**



Aerial view of region including subject property from approximately 46,000 feet elevation.



View of subject property from approximately 5,700 feet elevation.

Executive Summary

Circle Mountain Biological Consultants, Inc. was contracted by Brubaker-Mann, Inc. to perform three focused surveys for Agassiz's desert tortoise, habitat assessments for burrowing owl and Mohave ground squirrel, and a general biological resource assessment on the Brubaker-Mann, Inc. – Gold, Brown, Lilac Quarries proposed expansion area, consisting of 12-acre and 2-acre parcels located in the vicinity of the community of Yermo, San Bernardino County, California, located south of Interstate 15 and north of Interstate 40 (see Figures 1 and 2). The legal description for the subject property is Township 9 North, Range 1 West, a portion of the West ½ of Section 1, S.B.B.&M. The general proposal is to expand existing mining operations from the 29-acre± existing quarry into two adjacent areas to the north (2 acres) and south (12 acres).

For a total of 20 hours in September 2011, 8 hours in April 2012, and 1 hour in May 2012 Ed LaRue of CMBC and subcontractor, Mike Radakovich, surveyed the site and adjacent areas as described herein. This entailed a survey of 58 transects in September 2011, 54 transects in April 2012, and 12 transects in May 2012 in unmined portions of the Proponent's property. The active quarry site, shown as gray in Figures 2 through 4, was not surveyed, as it was deemed non-habitat. During each of the three surveys, the sites were surveyed according to USFWS (2010) protocol.

Based on DeLorme Topo USA® 7.0 software, elevations on the subject property range from approximately 2,410 feet (735 meters) near the northwest corner down to 2,215 feet (675 meters) at the northeast corner. The 48 plant species identified during the surveys are listed in Appendix A. The 7 reptile, 13 bird, and 10 mammal species identified during the surveys are listed in Appendix B.

Based on the presence of 31 scat, 12 burrows, 6 carcasses, and 1 hatchling tortoise shown in Figures 3a, 3b, and 4, CMBC concludes that Agassiz's desert tortoise occurs in the area, particularly to the southwest, southeast, and east of the existing quarry. Except for one older tortoise scat found on the southern expansion area in September 2011 that was not found in April 2012, no tortoise sign was found in either of the two proposed expansion areas. Given the distribution of tortoise sign found during the three surveys, CMBC judges that the two expansion areas may be developed without adverse impacts to tortoises so long as the mitigation measures identified herein are implemented in a conscientious manner.

Based on the field surveys and habitat assessments, CMBC concludes that none of the following special status species reported from the region will be adversely affected by site development: Cooper's hawk, northern harrier, and loggerhead shrike. As such, no adverse impacts have been identified and no mitigation measures are recommended.

Burrowing owl and American badger are the only other special status species identified during the current survey. It is likely that the two expansion areas could be developed without impacts to either of these two species. Information is provided herein for Mohave ground squirrel so that regulatory agencies may determine presence or absence and advise the Proponent of the best means to avoid violation of the California Endangered Species Act during otherwise authorized expansion activities.

Silver cholla, pencil cholla, beavertail cactus, hedgehog cactus, cottontop cactus, Yaqui mammillaria, desert holly, and Mojave yucca are species found in survey areas that may be subject to pertinent development codes.

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1.0. Introduction

1.1. Background. As reported herein, a \pm 72-acre proposed expansion area was surveyed on 8 September 2011. When the Proponent realized how much tortoise sign was found in adjacent areas in the first proposed expansion area configuration, particularly to the east and southwest, she decided to resurvey areas to the south and north to identify areas where tortoises would not be directly or adversely affected by the expansion. The newly proposed southern and northern expansion areas, including \pm 12-acre and \pm 2-acre areas, respectively, are documented herein for planning purposes.

1.2. Purpose and Need for Study. Circle Mountain Biological Consultants, Inc. (CMBC) was contacted by Thomas Dean on behalf of Webber & Webber Mining Consultants, Inc. and Brubaker-Mann, Inc. (Proponent) to perform a focused survey for Agassiz's desert tortoise (*Gopherus agassizii*), habitat assessments for burrowing owl (*Athene cunicularia*) and Mohave ground squirrel (*Xerospermophilus mohavensis*), and a general biological resource assessment on the Brubaker-Mann, Inc. – Gold, Brown, Lilac Quarries. Pertinent areas included in this study are the original 72-acre \pm survey site, a 12-acre southern expansion area, and a 2-acre northern expansion area located in the vicinity of the community of Yermo, in San Bernardino County, California (see Figures 1 and 2). Given the location of the site in an unincorporated portion of the county, this report has been prepared according to County of San Bernardino's *Report Protocol for Biological Assessment Reports* (County of San Bernardino 2006).

As the California Environmental Quality Act (CEQA) Lead Agency, the County of San Bernardino, Public and Support Services Group, Land Use Services Department, Advance Planning Division (County) is required to complete an initial study to determine if site development will result in any adverse impacts to rare biological resources. The information may also be useful to federal and State regulatory agencies, including U.S. Fish and Wildlife Service (USFWS) and California Department of Fish and Game (CDFG), respectively, if the Lead Agency asks them to assess impacts associated with proposed development.

Results of CMBC's focused tortoise surveys, burrowing owl and Mohave ground squirrel habitat assessments, and general biological resource assessment are intended to provide sufficient baseline information to these agencies to determine if impacts will occur and to identify mitigation measures to avoid those impacts. Since tortoise sign was found on the 72-acre survey site and adjacent to the two expansion areas, typical minimization and mitigation measures previously required for other sites in occupied tortoise habitat are given in Section 4.1. The intent is to avoid impacts so that formal permitting is not required.

1.3. Project Description. APN 0424-041-09 is a 68-acre± parcel located south of Interstate 15, north of Interstate 40, near the unincorporated community of Yermo, in San Bernardino County, California (see Figures 1 and 2). The 1.8-acre northern expansion area is within this parcel and the +/- 12-acre proposed southern expansion area is located to the south, and also owned by the Proponent. Collectively, these three areas are referred to as the “subject property.” The legal description for the subject property is Township 9 North, Range 1 West, a portion of the West ½ of Section 1, S.B.B.&M. As required by the County (2006) a narrative description of proposed mining, including project maps, is included in the attached mining plan provided by Webber & Webber Mining Consultants, Inc. (see Appendix E). In general, the proposal is to expand existing mining operations from the 29-acre± quarry into the northern 2.0-acre and southern 12-acre expansion areas in such a way that tortoises are not adversely affected.

2.0. Methods

2.1. Literature Review. CMBC consulted materials included in our library to determine the nearest tortoise locations and other special status plant and animal species that have been reported from the vicinity of the subject property. Of particular relevance are five focused tortoise surveys completed on four sites within approximately three miles between 1997 and 2008, which, along with the subject property, are mapped in Figure 5. These and other materials used in the completion of this report are listed in Section 5.0, below.

2.2. Field Survey. For **Agassiz’s desert tortoise**, CMBC generally followed the survey protocol first identified by the USFWS (1992) and recently revised (USFWS 2010) for their detection. USFWS (2010) protocol recommends that if neither tortoises nor sign are encountered during *action area* surveys and the project, or any portion of project, is ≤ 0.8 km² (200 acres) or linear, three additional 30-foot (9 meters) belt transects at 655-foot (200 meters), 1,310-foot (400 meters), and 1,970-foot (600 meters) intervals parallel to and/or encircling the project perimeter should be surveyed. For this project, peripheral areas were not surveyed for tortoises, as their sign had already been observed *on* the subject property. Although CMBC received permission from Ray Bransfield of the USFWS and Becky Jones of the CDFG to survey the original 68-acre site in August outside the preferred survey period, 72 acres encompassing the site *were* surveyed in September, within the preferred survey period of September-to-October.

For a total of 20 hours, between 0700 and 1800 on 8 September 2011, Ed LaRue of CMBC and subcontractor, Mike Radakovich, surveyed the 72-acre area described herein. This entailed a survey of 58 transects, spaced at 30-foot intervals throughout the unmined portions of the 68-acre± parcel. CMBC’s mapping confirmed what Mr. Deane had indicated, that the existing quarry, which was being actively mined during the survey, occupies approximately 29 acres. The active quarry site, shown as gray in Figures 2 through 4, was not surveyed, as it was deemed non-habitat. The 40 acres surrounding the site were surveyed according to USFWS (2010) protocol. The red lines in Figure 3a depict the two zone of influence transects surveyed for detection of burrowing owls, during which four tortoise burrows were found and inspected. Copies of CMBC’s data sheet completed in the field and USFWS’ (2010) pre-project survey data sheet are included in this report (see Appendix C).

When the Proponent saw the results of the September 2011 survey, she asked CMBC to survey areas to the east and south to see if any areas occur that do not have tortoise sign. The 38-acre (yellow) area depicted in Figures 2 and 3b was surveyed by LaRue on 19 April 2012 between 1030 and 1830. For those eight hours, LaRue surveyed 54 transects oriented in an east-west direction. LaRue performed a third survey of the +/- 2-acre northern expansion area on 15 May 2012, for one hour between 1445 and 1545.

The *action area* is defined by regulation as all areas to be affected directly or indirectly and not merely the immediate area involved in the action (50 CFR §402.02). For this site, the action area is considered to be the 72-acre site surveyed in September 2011, the 25-acre site surveyed to the south in April 2012, and the haul road accessing the site from the east, accessed by Fort Irwin Road from Interstate 15. There was no need to survey areas adjacent to these 97 acres, as all direct and indirect impacts are expected to occur within the areas surveyed. There is evidence of accumulating sediment within 200 feet east of the active quarry, including areas where tortoise sign was found. The existing quarry is currently visited by flatbed trucks accessing the site along the existing haul road. Tortoises are known to occur along this access road, so CMBC deemed it unnecessary (and cost prohibitive to the Proponent) to survey areas adjacent to this existing road, which is already being used by Brubaker-Mann, Inc. to access the existing quarry.

For **burrowing owl**, the CDFG (2012) survey protocol recommends transects be surveyed at 100-foot (30-meter) intervals throughout a given site with five transects spaced at 100-foot intervals surveyed in adjacent areas in potential habitat (i.e., excluding areas substantially developed for commercial, residential, industrial, etc. purposes). Importantly, this methodology is considered a formal *habitat assessment* for presence of burrowing owls, which can be conducted any time of the year.

With its narrower transect intervals, the tortoise surveys in September 2011 and April 2012 were sufficient to cover unmined portions of the site for burrowing owl. CMBC spoke with CDFG wildlife biologist, Becky Jones during the survey, when Ms. Jones indicated it would not be necessary to survey all five transects in adjacent areas if burrowing owl sign was found either on-site or on the first few proximate transects. Given that burrowing owl sign was found two places on-site and one place south of the site, peripheral transects at 300-, 400-, and 500-foot intervals were not surveyed; nor were peripheral transects surveyed to the west in rocky, mountainous areas not deemed suitable habitat for the species.

The habitat evaluation for **Mohave ground squirrel** is based on the results of CMBC's field survey, reported occurrences of the species in the region (California Department of Fish and Game 2011; see Figure 7), and CDFG's criteria for assessing potential impacts to the species (Adrienne Disbrow, personal communication to CMBC in 2004): (1) Is the site within the range of the species? (2) Is there native habitat with a relatively diverse shrub component? (3) Is the site surrounded by development and therefore isolated from potentially occupied habitat?

As transects were surveyed in September 2011, LaRue kept tallies of observable human disturbances encountered on 32 of the 58 transects. The results of this method provided *encounter rates* for observable human disturbances. For example, two roads observed on each of 32 transects would yield a tally of 64 roads (i.e., two roads encountered 32 times). Habitat quality, existing land uses, and this disturbance information are discussed below in Section 3.2 relative to the potential occurrence of Agassiz's desert tortoise and other special status species on and adjacent to the subject property.

San Bernardino County (2006) also requires that any survey limitations be identified. The September 2011 survey was sufficiently late in the season that fewer annual plants and reptile species were detected than would have been observed during the same amount of effort in the spring. Although the southern expansion area was surveyed in April 2012 and the northern area in May 2012, winter rains were sufficiently low that few annual plants had germinated in the spring of 2012. These limitations did not significantly affect the results and conclusions given herein.

On 8 September 2011, weather conditions at the beginning of the survey included a temperature [measured approximately 2.5 inches (5 centimeters) above the ground] of 75°F, with 5% cloud cover, and average winds of 1.0 mile per hour and gusts of 3.0 miles per hour from the west, as measured by a hand-held Kestrel[®] weather and wind speed meter. Weather conditions at the end of the September 2011 survey included a temperature of 101°F, with 10% cloud cover, and average winds of 2 miles per hour and gusts of 5 miles per hour from the west.

On 19 April 2012, beginning and ending temperatures were 76°F and 96°F, respectively; winds were 3 up to 11 miles per hour out of the southwest at the beginning and 1 up to 4 miles per hour out of the northeast at the end of the survey; and cloud cover ranged from 10% at the beginning to 80% at the end. On 15 May 2012, temperature was 91°F, winds were 3 up to 9 miles per hour out of the southwest, and cloud cover was 0%.

All plant and animal species identified during the three surveys were recorded in field notes and are listed in Appendices A and B, respectively. A Garmin[®] hand-held, global positioning system (GPS) unit was used to survey straight transects and record Universal Transverse Mercator (UTM) coordinates (North American Datum – NAD 83) for property boundaries, rare species locations, and other pertinent information (Appendix C). A digital camera was used to take representative photographs (Appendix D), with locations and directions of exhibits shown in Figure 8. ©2007 Google[™] Earth was accessed via the internet to provide recent aerial photographs of the subject property and surrounding areas (Figure 6).

3.0. Results

3.1. Common Biological Resources. The common plant and animal species identified during the surveys are influenced by multiple factors such as elevation, topography, soil substrates, and adjacent land uses. Based on DeLorme Topo USA® 7.0 software, elevations on the subject property range from approximately 2,410 feet (735 meters) near the northwest corner down to 2,215 feet (675 meters) at the northeast corner. Low hills running diagonally from northwest to southeast are comprised of rocky substrates interspersed with boulder outcrops (Exhibits 2, 5, and 8). Areas particularly to the south and southwest are relatively flat with less rocky substrates (Exhibits 5 and 9). Areas to the east and northeast have more gentle terrain and are rockier than southern areas (Exhibits 7 and 11). Proposed expansion areas to the south are basically flat (Exhibits 14, 15, and 16). Although there are a few washlets located on-site, particularly to the east, there are no USGS-designated blueline streams.

3.1.1. *Common Flora*. The 48 plant species identified during the survey are listed in Appendix A. Dominant species in terms of abundance and distribution of the creosote bush scrub community include creosote bush (*Larrea tridentata*), burrobush (*Ambrosia dumosa*), spiny saltbush (*Atriplex confertifolia*), and desert holly (*Atriplex hymenelytra*). Less abundant perennial shrubs include desert goldenhead (*Acamptopappus sphaerocephalus*), peach thorn (*Lycium cooperi*), Anderson's boxthorn (*Lycium andersonii*), desert tea (*Ephedra californica*), Nevada joint-fir (*Ephedra nevadensis*), paper-bag bush (*Salazaria mexicana*), interior goldenbush (*Ericameria linearifolia*), turpentine-broom (*Thamnosma montana*), and Mojave yucca (*Yucca schidigera*). Six species of cactus were observed including silver cholla (*Cylindropuntia echinocarpa*), pencil cholla (*Cylindropuntia ramosissima*), beavertail cactus (*Opuntia basilaris*), hedgehog cactus (*Echinocereus engelmannii*), Yaqui mammillaria (*Mammillaria tetrancistra*), and cottontop cactus (*Echinocactus polycephalus*). Catclaw acacia (*Acacia greggii*) was the one plant species found only in adjacent areas.

As described above, northwestern and southeastern portions of the site are rockier than other areas. Plant species relatively common in these rocky areas include interior goldenbush, Yaqui mammillaria, cottontop cactus, turpentine-broom, desert aster (*Xylorhiza tortifolia*), and fagonia (*Fagonia laevis*). Given that the site has been mined since the late 1950's (Webber & Webber Mining Consultants, Inc. 2011), native habitats have been eliminated from the 29-acre± quarry and some adjacent areas have been degraded by ancillary impacts, such as cross-country vehicle travel. These disturbances have provided habitats for both native and non-native weed species, including fiddleneck (*Amsinckia tessellata*), Saharan mustard (*Brassica tournefortii*), flixweed (*Descurainia sophia*), Russian thistle (*Salsola tragus*), desert skeleton weed (*Eriogonum deflexum*), little trumpet (*Eriogonum trichopes*), red brome (*Bromus madritensis* ssp. *rubens*), cheat grass (*Bromus tectorum*), and split grass (*Schismus* sp.).

3.1.2. *Common Fauna.* The 7 reptile, 13 bird, and 10 mammal species identified during the survey are listed in Appendix B. Common reptile species detected included desert iguana (*Dipsosaurus dorsalis*), side-blotched lizard (*Uta stansburiana*), desert horned lizard (*Phrynosoma platyrhinos*), common chuckwalla (*Sauromalus obesus*), zebra-tailed lizard (*Callisaurus draconoides*), and western whiptail (*Cnemidophorus tigris*). The September 2011 survey was sufficiently late in the season and the two spring 2012 surveys sufficiently brief that no snake species were observed. Those that may occur include red racer (*Masticophis flagellum*), glossy snake (*Arizona elegans*), gopher snake (*Pituophis melanoleucus*), long-nosed snake (*Rhinocheilus lecontei*), and various rattlesnake species (*Crotalus* spp.).

With the exceptions of turkey vulture (*Cathartes aura*), Brewer's sparrow (*Spizella breweri*), and Townsend's warbler (*Dendroica townsendi*), which are incidental migrants, all bird species detected or observed are residents typically tolerant of human disturbance. Those that likely have some tenacity to the site include chukar (*Alectoris chukar*), verdin (*Auriparus flavipes*), rock wren (*Salpinctes obsoletus*), and black-throated sparrow (*Amphispiza bilineata*). Others that may have been passing through or have the site as a portion of their larger ranges include rock dove (*Columba livia*), great-horned owl (*Bubo virginianus*), horned lark (*Eremophila alpestris*), house finch (*Carpodacus mexicanus*), and common raven (*Corvus corax*).

Except for American badger (*Taxidea taxus*), which was detected southeast of the quarry, all mammals observed or detected are common to the region and relatively tolerant of human disturbance. Small burrowing mammals include antelope ground squirrel (*Ammospermophilus leucurus*), Botta pocket gopher (*Thomomys bottae*), kangaroo rat (*Dipodomys* sp.), and desert wood rat (*Neotoma lepida*). Surveyors inspected a total of 108 desert wood rat middens looking for evidence of desert tortoise, and in fact found one scat and a carcass fragment in two different middens. Medium-sized mammals included black-tailed hare (*Lepus californicus*) and Audubon cottontail (*Sylvilagus audubonii*). Predators detected on-site included desert kit fox (*Vulpes macrotis*), coyote (*Canis latrans*), and bobcat (*Lynx rufus*).

3.2. Uncommon Biological Resources.

3.2.1. *Agassiz's desert tortoise.* When tortoise sign is found, the County (2006) requires that the following information be included in technical reports: (a) the number of individuals observed on-site and off-site during the survey; (b) an estimate of the total population present both on and off-site; and (c) exact locations of tortoise sign on a habitat map.

As mapped in Figures 3a and 3b, respectively, in September 2011 the surveyors observed 20 scat (fecal droppings), 10 burrows, 6 carcasses, and 1 tortoise; in April 2012, 11 scat and 1 burrow were found east of the proposed southern expansion area; and no tortoise sign was found in the northern expansion area. The sign are concentrated to the northeast and particularly to the southwest of the quarry, and east of the southern expansion area. Ten of the 20 scat (50%) were freshly deposited during 2011, and 16 of the 20 scat (80%)

were deposited by adult tortoises. Eight of the 10 burrows (80%) were judged to be active and in Good (two burrows) or Excellent (six burrows) conditions. Three of the burrows were measured at between 200 and 220 mm wide, three were 260 mm wide, and the remaining four were 280 to 300 mm wide. No burrows of subadult tortoises (i.e., ≤ 180 mm) were found. Two of the six carcasses (33%) belonged to tortoises estimated to have died since 2010 (see Exhibits 3 and 4), with the other three carcasses belonging to tortoises that died more than four years ago (see Exhibit 13). The only live tortoise observed was a hatchling measured at 47 mm mid-carapace length.

USFWS (2010) provides a detailed formula for estimating the number of tortoises on a given site based on the linear distance surveyed and the number of *adult* tortoises encountered. The protocol identifies adult tortoises as those with a mid-carapace length of at least 160 mm. Since the only tortoise encountered was only 47 mm long, the formula cannot be used to estimate the number of adult tortoises occurring on-site. Given a near 1:1 ratio of tortoise length to burrow width, the burrow measurements given in the preceding paragraph suggest that at least three adult tortoises occupy the September 2011 survey and adjacent areas, including one approximately 200 mm, 260 mm, and 290 mm long. One of the 20 scat found was deposited by a subadult tortoise, which would belong to an animal less than 180 mm long. A typical tortoise clutch in the Mojave Desert may include between 4 and 12 eggs. The new hatchling observed on-site may therefore have between 3 and 11 siblings within the September 2011 survey area and/or in contiguous areas to the southwest.

Given the above information, CMBC judges that as many as five adult tortoises, one subadult tortoise, and seven or eight hatchling tortoises may occur in the September 2011 survey area, and be concentrated particularly to the southwest and less so to the east and northeast. Importantly, no tortoise burrows were found in either the northern or southern proposed expansion areas. A single older scat found in the southern expansion area in September 2011 was *not* found in April 2012. The distribution of tortoise sign suggests that the southern and northern proposed expansion areas are not currently occupied by tortoises, and may be developed without any impacts to tortoises, so long as a few protective measures are implemented.

Encounter rates for observable human disturbances in September 2011 included (in descending order of prevalence) 267 cross-country vehicle tracks, 50 roads (e.g., approximately three roads encountered 50 times), 40 pits and trenches, 26 rifle shells, 12 shooting targets (typically rusty cans), 9 clay pigeon-skeet shooting targets, and 8 shot gun shells. Importantly, these are the observable human disturbances tallied within the 40-acre \pm area surrounding the existing quarry. Many (if not most) of the vehicle tracks resulted from heavy, tracked equipment likely associated with the mine. The several roads encountered 50 times also provide access to the existing quarry. Though not counted, there are even more vehicle tracks in the southern expansion area than elsewhere, and these are associated with recreational vehicles rather than mining equipment.

Shooting, both target practice and probably hunting, are the main impacts observed that are not ostensibly associated with mining. Interestingly, many of the rifle shells appear to be military blanks and several other pieces of military ordnance suggest that some sort of maneuvers have occurred on the site, presumably prior to mining? Given the isolation of the site from nearby residential and commercial development, some disturbances common to such areas, including dumping, domestic dogs, and horseback riding were not encountered on the site. Although tortoises are absent from actively mined quarry areas, the types and levels of disturbances observed have not extirpated tortoises from adjacent areas to the east, southeast, and southwest. Based on distributions of tortoise sign, it does appear that tortoises are absent from proposed expansion areas to the north and south.

From Hinkley to the west, to Lenwood to the south, to Newberry Springs to the east, CMBC personnel have performed 39 focused tortoise surveys in the region between 1990 and 2012. As depicted in Figure 5, five of these sites occur within approximately three miles of the subject property. Although no tortoise sign was found in sandy areas alongside the Mojave River where Barstow proposed a municipal golf course in the late 1990's (CMBC 1997a, 1997b, and 2006), tortoise sign has been found on or adjacent to all other sites surveyed in the region, including a seven-acre mine site located 2,500 feet northwest of the subject property (CMBC 2008). Though not mapped in Figure 5, LaRue also observed an adult tortoise alongside the haul road to the site during filming of "Broken Arrow" in 1995. One can see, then, that tortoises occur throughout the region and are now known to occur adjacent to the proposed expansion areas and along the haul road accessing the site.

The County (2004) requires that habitat categories designated by the U.S. Bureau of Land Management (1989) be identified in all technical tortoise reports. Although habitat categories apply only to public lands administered by the BLM, regulatory agencies typically determine habitat compensation ratios based on the nearest BLM habitat categories (Desert Tortoise Compensation Team 1991). With the adoption of the West Mojave Plan (U.S. Bureau of Land Management 2005), all lands that are outside Desert Wildlife Management Areas, including the subject property, are characterized as Category 3 Habitat, which is the lowest priority management area for viable populations of the Agassiz's desert tortoise.

The site is not found within Agassiz's desert tortoise critical habitat, which was designated in 1994 (U.S. Fish and Wildlife Service 1994a) nor is it within a Desert Wildlife Management Area (DWMA) as recommended in the Desert Tortoise (Mojave Population) Recovery Plan (U.S. Fish and Wildlife Service 1994b) and formally adopted in March 2006 as a result of the West Mojave Plan (U.S. Bureau of Land Management 2005). The nearest such areas are the Superior-Cronese Critical Habitat Unit and DWMA, which are located approximately 3,000 feet north on the north side of Interstate 15 and the Ord-Rodman Critical Habitat Unit and DWMA located approximately two miles south on the south side of Interstate 40.

3.2.2. *Other Special Status Species.* U.S. Fish and Wildlife Service (2008), California Department of Fish and Game (2009a, 2011), and California Native Plant Society (CNPS 2011) maintain lists of animals and/or plants considered rare, threatened, or endangered, which are collectively referred to as “special status species.” Special status species other than tortoise identified during the current survey included burrowing owl and American badger. Each of the bird species discussed below is considered a Bird of Conservation Concern by the USFWS (2002) and a Bird Species of Special Concern by the CDFG (2009a).

Cooper’s hawk (*Accipiter cooperii*) was observed two miles west of the subject property in both 1997 and 2006 during focused tortoise surveys for the then-proposed Barstow municipal golf course (Circle Mountain Biological Consultants 1997a and 2006). This medium-sized raptor was likely in that area as a result of the larger trees planted as windrows when parts of the site were used for agricultural purposes. Cooper’s hawk may occasionally forage at the mine site, but would not nest there, and would not likely be impacted by mining activities.

Northern harrier (*Circus cyaneus*), similarly, was observed two miles west of the subject property in 1997 and 2006 at the proposed golf course site (Circle Mountain Biological Consultants 1997a and 2006). This widespread winter resident and migrant to southern California may be observed throughout the region in the late fall through early spring. There are no habitats such as standing water, mudflats, and marshes on the subject property that would serve as habitats for this species, which would only be incidental to the site, and would not be impacted by mining activities.

Loggerhead shrike (*Lanius ludovicianus*) was also observed at the proposed golf course site in 1997 and 2006 (Circle Mountain Biological Consultants 1997a and 2006). Although considered a special status species by both USFWS and CDFG, this is arguably the most commonly encountered rare species in the Mojave Desert. Although no loggerhead shrikes were observed during the survey, the presence of Mojave yuccas does make the site somewhat more suitable for nesting loggerhead shrikes than creosote bush scrub communities without this plant species. Even so, loggerhead shrikes are not expected to be significantly impacted by the proposed expansion.

American badger (*Taxidea taxus*) is a wide-spread species found throughout undeveloped portions of California except for the extreme northwest corner, and is designated as a California Species of Special Concern by CDFG. Badgers are rarely seen but may be detected by diagnostic digs, five of which were found southeast of the quarry and east of the southern expansion area. Given that no digs were observed within expansion areas, CMBC concludes that they occur in the area likely in low densities and, given their mobility, should not be adversely affected by mine expansion.

Burrowing owl (*Athene cunicularia*) is not designated as Threatened or Endangered by either agency, it is considered a Bird of Conservation Concern by the USFWS and a California Species of Special Concern by the CDFG. Although no burrowing owls were observed, diagnostic signs were observed west, northeast, and southeast of the existing quarry during the September 2011 survey. No burrowing owl sign was found in April or May 2011, which suggests that burrowing owl was absent from these two areas at the time of the surveys.

Mohave ground squirrel is designated as a Threatened species by the California Fish and Game Commission. Several years ago and again in 2011, the USFWS declined to list the species as Endangered stating, in part, that it was already being protected by the CDFG. In recent years, the CDFG has considered three criteria in assessing potential impacts to the Mohave ground squirrel (Adrienne Disbrow, personal communication to CMBC in 2004): (1) Is the site within the range of the species? (2) Is there native habitat with a relatively diverse shrub component? (3) Is the site surrounded by development and therefore isolated from potentially occupied habitat?

First, Figure 7 shows known locations of Mohave ground squirrels relative to the subject property (California Department of Fish and Game 2011) and the suspected range of the species (Gustafson 1993; U.S. Bureau of Land Management 2005). The nearest reported occurrence was approximately 3.3 miles west where a squirrel was found in 1993. Other proximate occurrences have been 3.4 miles west (1993), 4.9 miles west-northwest (1982), 6.6 miles east-southeast (1981), and 6.9 miles north (1977). When a line is drawn to connect these known occurrences to determine the approximate range of the species (the “red line” in Figure 7), the site is approximately one mile inside the extrapolated southern boundary (U.S. Bureau of Land Management 2005), or approximately one mile within the suspected species range.

Second, Mohave ground squirrel has been reported between 1,800 feet (549 meters) and 5,600 feet (1,707 meters) elevation from a wide range of habitats including creosote bush scrub, Joshua tree woodland, juniper woodland, and Mohave mixed woody scrub (U.S. Bureau of Land Management 2005). At 2,300-foot (966-meters) elevation, the site is within the known elevational range of the species. There is a relatively high level of diversity of native perennial plants, with about 15 shrub species identified. The western and northwestern portions of the September 2011 survey area may be too rocky and mountainous to be ideally suitable for this species, although areas to the east and south, including the southern expansion area, are sufficiently flat and less rocky that they may be suitable.

In the northern part of the range, winter fat and spiny hop-sage are ecologically important shrubs for Mohave ground squirrel (U.S. Bureau of Land Management 2005). Neither of these species was observed on-site or in adjacent areas. In any case, the presence of these plants does NOT imply that the Mohave ground squirrel occurs. There are no data to suggest that these plants are important to the species in the east as they appear to be in the Coso Range, near the northern extent of the Mohave ground squirrel known range.

Finally, as depicted in Figure 6, contiguous lands are undeveloped, although the site is south of Interstate 15, which may effectively isolate and separate the subject property from occupied habitats known to occur north of the interstate.

Given the above information, CMBC cannot conclude that the Mohave ground squirrel is absent from the subject property.

3.3. Other Protected Biological Resources. Stream courses provide relatively important resources to animals and plants. In dry years, and particularly during prolonged drought, annual plants may only germinate in the vicinity of washes where the water table is relatively near the surface. Perennial shrubs adjacent to washes are often the only plants that produce flowers and fruit, which in turn are important to insects and the avian predators that feed on them. Shrubs also tend to be somewhat taller and denser alongside washes, which provides cover for medium and larger sized animals that may use them as travel corridors. Biodiversity is generally enhanced by washes, and there are often both annual and perennial plants that are either restricted to or mostly associated with wash margins. There are both anecdotal accounts and published literature on washes being important to tortoises, which use them as travel corridors and access to nearby annual forage.

There are a few small washlets and drainages in hilly areas, especially to the east. None of these is designated by the USGS as a blueline stream, nor does CMBC consider any of these to be jurisdictional to either the Army Corps of Engineers or CDFG.

At the County level, the San Bernardino County Development Code was revised and adopted on 12 April 2007. Chapter 88.01 Plant Protection and Management, Section 88.01.020 states, "The provisions of this Chapter apply to the removal and relocation of regulated trees or plants and to any encroachment (for example, grading) within the protected zone of a regulated tree or plant on all private land within the unincorporated areas of the County and on public lands owned by the County, unless otherwise specified..."

Section 88.01.060 Desert Native Plant Protection states, "This Section provides regulations for the removal or harvesting of specified desert native plants in order to preserve and protect the plants and to provide for the conservation and wise use of desert resources..."

Section 88.01.060(c) Regulated Desert Native Plants states, "The following desert native plants or any part of them, except the fruit, shall not be removed except under a Tree or Plant Removal Permit in compliance within Section 88.01.050 (Tree or Plant Removal Permits):

- (1) The following desert native plants with stems two inches or greater in diameter or six feet or greater in height:
 - (A) *Dalea spinosa* (smoke tree).
 - (B) All species of the genus *Prosopis* (mesquites).
- (2) All species of the family *Agavaceae* (century plants, nolinias, yuccas).
- (3) Creosote Rings, 10 feet or greater in diameter.
- (4) All Joshua trees.
- (5) Any part of the following species, whether living or dead:
 - (A) *Olneya tesota* (desert ironwood).
 - (B) All species of the genus *Prosopis* (mesquites).
 - (C) All species of the genus *Cercidium* (palo verdes)."

At the State level, the 1998 Food and Agricultural Code, Division 23: California Desert Native Plants, Chapter 3: Regulated Native Plants, Section 80073 states: The following native plants, or any parts thereof, may not be harvested except under a permit issued by the commissioner or the sheriff of the county in which the native plants are growing:

- (a) All species of the family Agavaceae (century plants, nolin, yuccas).
- (b) All species of the family Cactaceae (cacti), except for the plants listed in subdivisions (b) and (c) of Section 80072 (i.e., saguaro and barrel cacti), which may be harvested under a permit obtained pursuant to that section.
- (c) All species of the family Fouquieriaceae (ocotillo, candlewood).
- (d) All species of the genus *Prosopis* (mesquites).
- (e) All species of the genus *Cercidium* (palo verdes).
- (f) *Acacia greggii* (catclaw acacia).
- (g) *Atriplex hymenelytra* (desert holly).
- (h) *Dalea (Psoralea) spinosa* (smoke tree).
- (i) *Olneya tesota* (desert ironwood), including both dead and live desert ironwood.

Silver cholla, pencil cholla, beavertail cactus, hedgehog cactus, cottontop cactus, Yaqui mammillaria, desert holly, and Mojave yucca are the plant species included in one or both of the above lists that were observed on the subject property although their status within the two expansion areas was not recorded.

4.0. Conclusions and Recommendations

4.1. Impacts to the Agassiz's desert tortoise and Proposed Mitigation. Based on the presence of 31 scat, 12 burrows, 6 carcasses, and 1 hatchling tortoise shown in Figures 3a, 3b, and 4, CMBC concludes that Agassiz's desert tortoise occurs in the area, particularly to the southwest, southeast, and east of the existing quarry. CMBC judges that as many as five adult tortoises, one subadult tortoise, and seven or eight hatchling tortoises may occur in the vicinity of the two proposed expansion areas. Except for one older tortoise scat found on the southern expansion area in September 2011 that was not found in April 2012, no tortoise sign was found in either of the two proposed expansion areas.

According to USFWS (2010) pre-project survey protocol the results of the spring 2012 surveys will remain valid for the period of one year, or until 19 April 2013, after which time, if the expansion areas have not been developed in the interim, another survey may be required to determine the presence or absence of tortoises on-site.

Regardless of survey results and conclusions given herein, tortoises are protected by applicable State and federal laws, including the California Endangered Species Act and Federal Endangered Species Act, respectively. As such, if a tortoise is found within expansion areas at any time, all activities likely to affect that animal(s) should cease and the regulatory agencies contacted to determine appropriate steps.

Importantly, nothing given in this report, including recommended mitigation measures, is intended to authorize the incidental take of tortoises during site expansion. Such authorization must come from the appropriate regulatory agencies, including California Department of Fish and Game (i.e., authorization under section 2081 of the Fish and Game Code) and U.S. Fish and Wildlife Service [i.e., authorization under section 10(a)(1)(B) of the Federal Endangered Species Act].

It has been CMBC's policy since 1994 to NOT submit technical reports to either the USFWS or the CDFG unless asked to do so by the Proponent. However, the Proponent is advised of the following two conditions identified in January 2010 in the USFWS' revised pre-project survey protocol and assumes responsibility for implementing (or not) these recommendations:

- Occurrence of either live tortoises or tortoise sign (burrows, scats, and carcasses) in the action area indicated tortoise presence and therefore requires formal consultation with USFWS.
- If neither tortoises nor tortoise sign are encountered during the action area surveys, as well as project perimeter surveys where appropriate, please contact your local [Ventura] USFWS office. Informal consultation with the USFWS may be required even though no tortoises or sign are found during surveys.

Given the distribution of tortoise sign found during the three surveys, CMBC judges that the two expansion areas may be developed without adverse impacts to tortoises so long as the following mitigation measures are implemented in a conscientious manner.

1. Permanent (i.e., buried) tortoise-proof fences should be placed around the two proposed expansion areas (see thick black lines in Figure 6). The fences would extend around the northern and eastern boundaries of the north expansion area and east, west, and south of the south expansion area. The contiguous portions of the quarry would serve as one side of each of the expansion areas, which would allow heavy equipment to access the two sites while maintaining an impermeable barrier to tortoises occurring in adjacent areas.
2. Within 48 hours of installing the fence, the expansion area(s) would be surveyed for new tortoise sign. If tortoises or burrows are found inside the intended expansion area, the fence should not be installed and the agencies contacted to see if permits are required. It would be acceptable to find new or old tortoise scat, so long as no animals or active burrows are found inside the area(s) to be fenced.
3. An authorized biologist would remain onsite until it is completely fenced. Once fenced, a second survey of the newly fenced area(s) would be performed immediately to ensure no tortoises are entrapped. If a tortoise is found, nearby portions of the fence would be removed to allow the animal to leave on its own. If an animal is found, the agencies should be contacted for instructions.

4. To prevent impacts to tortoises at the quarry and along the haul road, it is recommended that mine personnel receive yearly instruction on what to do in case a tortoise is encountered. The awareness program would not authorize anyone to handle tortoises but would increase the awareness of mine personnel to help avoid all impacts to tortoises and occupied habitats both at the mine site and along the haul road.

4.2. Impacts to Other Biological Resources and Proposed Mitigation.

4.2.1 *Other Special Status Species.* Based on the field surveys and habitat assessments, CMBC concludes that none of the following special status species reported from the region will be adversely affected by site development: Cooper's hawk, northern harrier, and loggerhead shrike. As such, no adverse impacts have been identified and no mitigation measures are recommended.

Burrowing owl and American badger are the only other special status species identified during the current survey. It is likely that the two expansion areas could be developed without impacts to either of these two species. Information is provided herein for Mohave ground squirrel so that regulatory agencies may determine presence or absence and advise the Proponent of the best means to avoid violation of the California Endangered Species Act during otherwise authorized expansion activities.

For **burrowing owl**, CDFG (California Department of Fish and Game 2012) has stipulated that the following should be considered impacts to the species:

- *Disturbance within 50 meters (approximately 160 feet), which may result in harassment of owls at occupied burrows;*
- *Destruction of natural or artificial burrows (i.e., culverts, concrete slabs, and debris piles that provide shelter to burrowing owls); and*
- *Destruction and/or degradation of foraging habitat adjacent [within 100 meters (approximately 320 feet)] of an occupied burrow(s).*

If impacts cannot be avoided, specified mitigation measures include (a) avoiding occupied burrows during the breeding season, between February 1 and August 31; (b) purchasing and permanently protecting 6.5 acres of foraging habitat per pair or unpaired resident bird impacted; (c) creating new burrows or enhancing others when destruction of occupied burrows is unavoidable; (d) implementing passive relocation if owls must be moved; and (e) provide funding for long-term management and monitoring of protected lands.

Given this information, CMBC reiterates that it is highly advisable (and cost effective) to avoid impacts. CDFG (2012) states the following:

If avoidance is the preferred method of dealing with potential project impacts, then no disturbance should occur within 50 meters (approximately 160 feet) of occupied burrows during the nonbreeding season of September 1 through January 31 or within 75 meters (approximately 250 feet) during the breeding season of February 1 through August 31. Avoidance also requires that a minimum of 6.5 acres of foraging habitat be permanently preserved contiguous with occupied burrow sites for each pair of breeding burrowing owls (with or without dependent young) or single unpaired resident bird. The configuration of the protected habitat should be approved by the Department [CDFG].

No occupied burrowing owl burrows were found within either expansion area or in adjacent areas; sign included feathers and two perch sites. When the two sites are surveyed for tortoises in conjunction with installing the fences, the sites should also be surveyed for new evidence of burrowing owl at occupied burrows. If occupied burrows are found during these surveys CDFG biologist, Becky Jones, should be contacted for instructions. She would advise the Proponent of appropriate steps to either avoid impacts or mitigate them according to latest CDFG standards.

When common, **American badger** digs are prevalent. That only five digs were observed, and none of them within expansion areas, indicates they are not abundant in the immediate area. Given their relative mobility, it is likely they would be forced to disperse into adjacent unmined areas rather than be incidentally killed by mining activities. As such, CMBC judges that American badger would not be adversely affected by the proposed expansion.

Although a focused **Mohave ground squirrel** trapping survey was not performed, CMBC assessed habitats and reviewed available information to provide a professional opinion as to the presence or absence of this species on the subject property. Whereas CMBC can conclude with some confidence that they are absent from the existing 29-acre± quarry, we cannot conclude that they are absent from the 14-acre± expansion areas. Had the proposed expansion areas been outside the known range or devoid of native vegetation, CMBC could have concluded that the species is absent. But because the site is within the range and the expansion area has a moderate-to-high level of native desert plant diversity, CMBC cannot conclude that the species is absent. It would be appropriate to have CDFG wildlife biologist Becky Jones review this report and determine if Mohave ground squirrel would or would not be adversely affected, and if so, to describe mitigations that would be appropriate for mine expansion.

4.2.2. *Other Protected Biological Resources.* Impacts to washes, such as spoil deposition or alteration, are regulated by the CDFG. CMBC concludes that no jurisdictional waters occur on-site and that a 1601-03 Streambed Alteration Agreement would NOT be required from CDFG.

It is beyond the scope of this focused survey and general resource assessment to provide necessary baseline data and a proposed program to minimize and mitigate impacts to protected native desert plants. The County may require a Desert Native Plant Assessment to identify the numbers and locations of protected plants to be in compliance with the County Plant Protection Ordinance and California Native Plant Protection Act (County of San Bernardino 2006). Silver cholla, pencil cholla, beavertail cactus, hedgehog cactus, cottontop cactus, Yaqui mammillaria, desert holly, and Mojave yucca are species found in survey areas that may be subject to pertinent development codes.

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Appendix A. Plant Species Detected

The following plant species were identified on-site or in adjacent areas (i.e., signified by “+”) during the three general biological inventories described in this report. Those plant species that are protected by pertinent County and/or State ordinances are signified by “(SC)” following the common name.

GNETAE

Ephedraceae

Ephedra californica
Ephedra nevadensis

GNETAE

Joint-fir family

Desert tea
Nevada joint-fir

ANGIOSPERMAE: DICOTYLEDONES

Asteraceae

Acamptopappus sphaerocephalus
Ambrosia dumosa
Chaenactis fremontii
Ericameria linearifolia
Psathyrotes ramosissima
Stephanomeria pauciflora
Xylorhiza (Machaeranthera) tortifolia

DICOT FLOWERING PLANTS

Sunflower family

Desert goldenhead
Burrobush
Desert pincushion
Interior goldenbush
Velvet rosettes
Desert milk aster
Desert aster

Boraginaceae

Amsinckia tessellata
Cryptantha c.f. *pterocarya*

Borage family

Fiddleneck
Wing-nut forget-me-not

Brassicaceae

**Brassica tournefortii*
**Descurainia sophia*
Lepidium flavum

Mustard family

Saharan mustard
Flixweed
Peppergrass

Cactaceae

Cylindropuntia echinocarpa
Cylindropuntia ramosissima
Echinocactus polycephalus
Echinocereus engelmannii
Mammillaria tetrancistra
Opuntia basilaris

Cactus family

Silver cholla (SC)
Pencil cholla (SC)
Cottontop cactus (SC)
Hedgehog cactus (SC)
Yaqui mammillaria (SC)
Beavertail cactus (SC)

Capparaceae

Isomerus arborea

Caper family

Bladderpod

Chenopodiaceae

Atriplex confertifolia
Atriplex hymenelytra
Atriplex polycarpa
**Salsola tragus*

Goosefoot family

Spiny saltbush
Desert holly (SC)
Allscale
Russian thistle

Fabaceae

+*Acacia greggii*

Pea family

Catclaw acacia (SC)

Hydrophyllaceae
Phacelia c.f. crenulata

Lamiaceae
Salazaria mexicana

Loasaceae
Mentzelia albicaulis

Plantaginaceae
Plantago ovata

Polygonaceae
Chorizanthe brevicornu
Chorizanthe rigida
Eriogonum deflexum
Eriogonum inflatum
Eriogonum trichopes
Eriogonum viridescens

Resedaceae
Oligomeris linifolia

Rubiaceae
Thamnosma montana

Solanaceae
Lycium andersonii
Lycium cooperi

Zygophyllaceae
Fagonia laevis
Larrea tridentata

ANGIOSPERMAE: MONOCOTYLEDONES

Liliaceae
Yucca schidigera

Poaceae
Aristida c.f. purpurea
**Bromus madritensis* ssp. *rubens*
**Bromus tectorum*
Erioneuron pulchellum
**Schismus* sp.

Water-leaf family
Purple phacelia

Mint family
Paper-bag bush

Stick-leaf family
Little blazing star

Plantain family
Plantain

Buckwheat family
Brittle spineflower
Rigid spineflower
Desert skeleton weed
Desert trumpet
Little trumpet
Buckwheat

Mignonette family
Narrowleaf oligomeris

Madder family
Turpentine-broom

Nightshade family
Anderson's box-thorn
Peach thorn

Caltrop family
Fagonia
Creosote bush

MONOCOT FLOWERING PLANTS

Lily family
Mojave yucca (SC)

Grass family
Three-awned grass
Red brome
Cheat grass
Low fluffgrass
Split-grass

* - indicates a non-native (introduced) species.

c.f. - compares favorably to a given species when the actual species is unknown.

Some species may not have been detected because of the seasonal nature of their occurrence. Common names are taken from Beauchamp (1986), Hickman (1993), Jaeger (1969), and Munz (1974).

Appendix B. Animal Species Detected

The following animal species were identified on-site during the three general biological inventories described in this report. Special status animal species are signified by “(SC)” following the common names.

REPTILIA

Testudinidae

Gopherus agassizii

Iguanidae

Dipsosaurus dorsalis

Sauromalus obesus

Callisaurus draconoides

Uta stansburiana

Phrynosoma platyrhinos

Teiidae

Cnemidophorus tigris

AVES

Cathartidae

Cathartes aura

Phasianidae

Alectoris chukar

Columbidae

Columba livia

Strigidae

Bubo virginianus

Athene cunicularia

Alaudidae

Eremophila alpestris

Corvidae

Corvus corax

Remizidae

Auriparus flavipes

REPTILES

Land tortoises

Agassiz's desert tortoise (SC)

Iguanids

Desert iguana

Common chuckwalla

Zebra-tailed lizard

Side-blotched lizard

Desert horned lizard

Whiptails

Western whiptail

BIRDS

Vultures

Turkey vulture

Grouse and quail

Chukar

Pigeons and doves

Rock dove

Typical owls

Great horned owl (feather)

Burrowing owl (SC)

Larks

Horned lark

Crows and jays

Common raven

Verdins

Verdin

Troglodytidae*Salpinctes obsoletus***Emberizidae***Dendroica townsendi**Spizella breweri**Amphispiza bilineata***Fringillidae***Carpodacus mexicanus*

MAMMALIA

Leporidae*Lepus californicus**Sylvilagus audubonii***Sciuridae***Ammospermophilus leucurus***Geomyidae***Thomomys bottae***Heteromyidae***Dipodomys sp.***Cricetidae***Neotoma lepida***Canidae***Canis latrans**Vulpes macrotis***Mustelidae***Taxidea taxus***Felidae***Lynx rufus***Wrens**

Rock wren

Sparrows, warblers, tanagers

Townsend's warbler

Brewer's sparrow

Black-throated sparrow

Finches

House finch

MAMMALS

Hares and rabbits

Black-tailed hare

Audubon cottontail

Squirrels

Antelope ground squirrel

Pocket gophers

Botta pocket gopher

Pocket mice

Kangaroo rat

Rats and mice

Desert wood rat

Foxes, wolves and coyotes

Coyote

Kit fox

Weasels and skunks

American badger

Cats

Bobcat

Nomenclature follows Stebbins, *A Field Guide to Western Reptiles and Amphibians* (2003), third edition; Sibley, National Audubon Society, the Sibley Guide to Birds (2000), first edition; and Ingles, *Mammals of the Pacific States* (1965), second edition.

Appendix C. Field Data Sheets Completed on 8 September 2011

The USFWS and County have recently required consultants to include copies of the data collected in the field from which the results and conclusions given in this report are derived. As such, following this page are copies of the data sheets completed by Ed LaRue on 8 September 2011. Although similar sheets were produced for the April and May 2012 surveys, the data sheets completed in September 2011 are deemed sufficient to provide the data requested by the regulatory agencies.

USFWS 2010 DESERT TORTOISE PRE-PROJECT SURVEY DATA SHEET

Please submit a completed copy to the action agency and local USFWS office within 30-days of survey completion

Date of survey: 8/19/2011 Survey biologist(s): Ed LaRue, Mike Radachewich
(day, month, year) (name, email, and phone number)
 Site description: 63 acre +/- Brubaker-mann Inc. wold, Brown, Lilac Quercus
(project name and size, general location)
 County: San Bernardino Quad: Nebo Location: T9N R1W SW1/4 S1
(UTM coordinates, lat-long, or other TRS, map datum)
 Circle one: 100% coverage of Sampling Area Area size to be surveyed: 4.40 acres Transect #: 5B Transect length: Variable
 GPS Start-point: 505090/3061670 (MNO 03) Start time: 0700 am/pm
(easting, northing, elevation in meters)
 GPS End-point: 505726/3061226 End time: 1800 am/pm
(easting, northing, elevation in meters)
 Start Temp: 75°F End Temp: 101°F

Live Tortoises

Detection number	GPS location		Time	Tortoise location <small>(in burrow, all of tortoise beneath plane of burrow opening, or not in burrow)</small>	Approx MCL >160-mm? <small>(Yes, No or Unknown)</small>	Existing tag # and color, if present
	Easting	Northing				
1	505157	3061211	1015	In open	47mm	Hatchling
2						
3						
4						
5						
6						
7						
8						

Tortoise Sign (burrows, scats, carcasses, etc)

Detection number	GPS location		Type of sign <small>(burrows, scats, carcass, etc)</small>	Description and comments
	Easting	Northing		
1	See Report		17 scats	
2	See Report		10 burrows	
3	See Report		5 carcasses	
4				
5				
6				
7				
8				

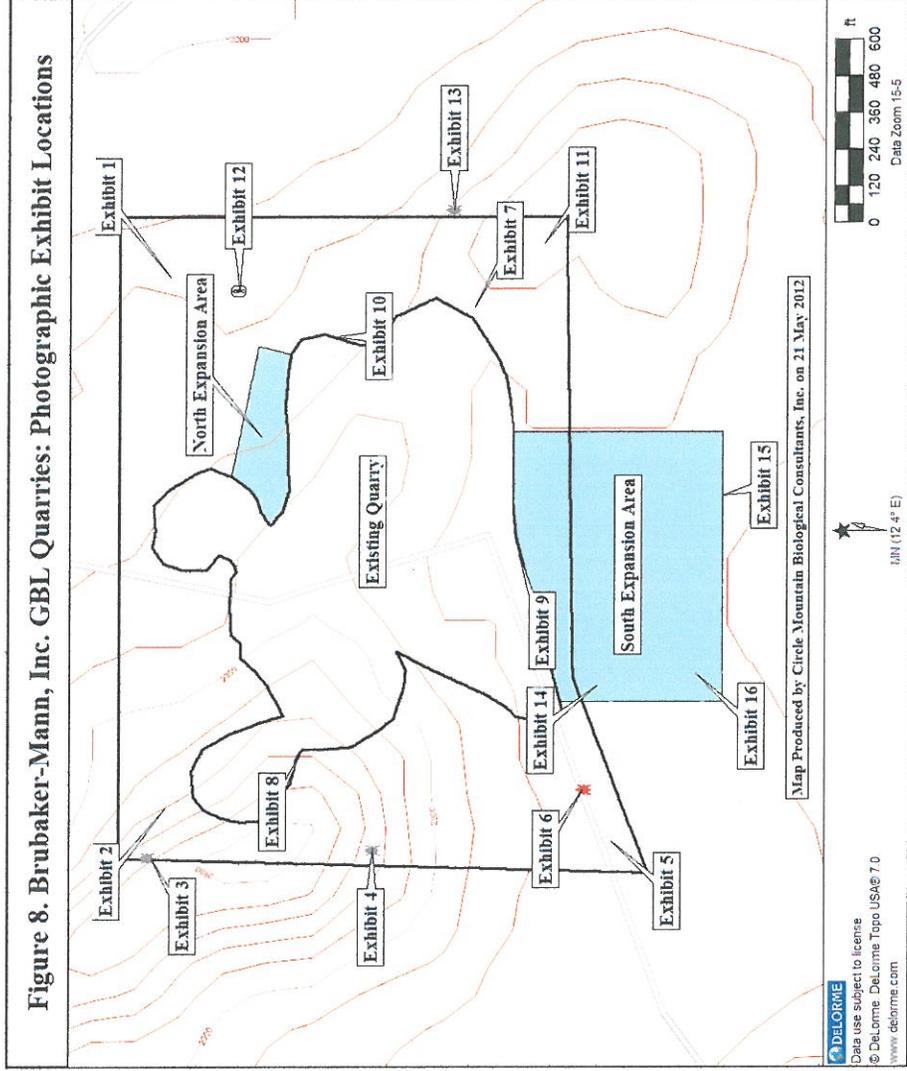
Page: ____ of ____

Transect number: ____

JOB #/NAME	DATE	DRIVE TIME		MILES	FIELD TIME		SURVEYORS				
Brubaker-Mann G.B.L. Quarries	8 Sept 2011	TO	FROM	150	BEGIN	END	Ed Lahr Mike Radomich				
WEATHER CONDITIONS (Start/End)				UTM (NAD 83) (circle starting corner)							
TEMP: 75°F WIND X: 1 ↑ 3 NSE Ⓞ CLOUD: 5%				NE→ NW→ SE→ SW→							
TEMP: 101°F WIND X: 2 ↑ 5 NSE Ⓞ CLOUD: 10%				505726 505088 505726 505075							
				3861671 3861671 3861230 3861148							
PERENNIAL PLANTS			ANNUAL PLANTS			BIRDS	HERP	MAM			
Lar Tr:	Jso Arb		Er: Pet	Fora (ca)		BTSP	DETD	AUGO			
Att Can	Salmon		Shrad	Pha (ca)		HOPI	DETD	KRAT			
Ann Can	Er: Lun		Amg Tes	Cam Bss		RAWR	WEWT	COFT			
Att Hym	Stefan		Pla Ols	Cep Fla		WERD	COCH	ROTA			
Edo Fin	Thaman		Schaf	Brotec		GHOW	ETLIT	BTWA			
Mam Jet	Yucshi		Er: Vir	Ol: Lun		HOLA	SBLI	DETD			
Er: Arf	Ephalew		Cho Fre			COZA	Photographs				
Op: Bas	Att Pol		Cho Fre			TWU					
Ech Pol	Op: Lun		man (Ab)			CHUC					
Eph Cal	Faglare		Cho Pig			ROSS					
Kyl Per			Er: Tr?			(BUCA)					
Acc Spc	Acc Cure		Ca Trq								
Lyc Ard			Des Sop								
Lyc Cos			Cr: (Plu)								
OBSERVABLE HUMAN DISTURBANCES											
#	East	North	OHV	Road	Dog	Dump	S Gun	Rifle	Shot/Target	Trenches/Pits	DWZA
1	5290	1670	9	4			2	1	3/0	7	10
3	5730	1650	14	3				1	1/1		13
5	5090	1630	32	3				1	2/0	11	11
7	5730	1610	28	3				5	0/1	6	13
9	5090	1600	12	1			1	2			10
11	5110	1165	8	1				1		1	11
13	5130	1600	11	1						6	5
15	5150	1175	10	1			1		0/1	2	6
17	5170	1520		1							
18	5180	1185		1							
19	5190	1495		2							
20	5200	1205		2							
21	5210	1500		2							
23	5230	1200		3			1		0/2		19
25	5250	1500	3	2				2	1/0	4	
E/W 27	5270	1413	43	2			3	1	1/2	2	
29	5730	1250	5	1				4			2
31	5710	1600	4	2				1			1
N/S 33	5690	1240	8	2				1			
35	5670	1600	8	2					0/2		
37	5670	1250	6	1					1/0		
E/W 39	5350	1263	12	3				1	0/1		

OTHER SPECIES				UTM COORDINATES	
BuOW	10-12 Secondary + primary owl feathers - Procelot?	5157	1370		
BuOW	Moderate whitewash w/ 2 pellets @ Yucca Shi	5652	1553		
2 of 1 - BuOW	Whitewash w/ 7 pellets @ base of Yucca Sinalyria	5732	1159		
DESERT TORTOISE SCAT					
SCAT	EAST	NORTH	SCAT	EAST	NORTH
TYA	5098	1356			
TYA	5089	1180			
TYA	5093	1168			
NTYA	5130	1253			
TYA	5128	1212			
NTYA	5136	1207			
TYA	5132	1211			
NTYA	5157	1229			
TYA	5152	1294			
NTYA(n)	5157	1356			
NTYA	5160	1478			
TYA	5172	1227			
TYA	5732	1519			
TYA	5182	1232			
NTYA	5722	1606			
TYSA	5200	1235			
TORTOISES			UTM COORDINATES		
AGE CLASS/GENDER	MCL	COMMENTS	EAST	NORTH	
Hatchling (MA)	47mm	Out walking in open	5157	1211	
CARCASSES					
AGE CLASS/GENDER	TIME OF DEATH	DESCRIPTION	EAST	NORTH	
205mm ♂	< 1 year	Intact	5092	1642	
220mm ♂	< 1 year	Intact	5097	1420	
Adult ?	> 4 years	Fragments	5184	1366	
240mm ?	> 4 years	Intact buried	5733	1342	
Adult ?	> 4 yrs	Fragment in midden	5733	1589	
BURROWS			UTM COORDINATES		
WIDTH	DEPTH	CONDITION	COMMENTS	EAST	NORTH
200mm +/-	0.25 end	Poor/Fair	Inactive	5678	1617
300mm	0.5 end	Excellent	Active	5470	1614
260mm	1.5 end	Excellent	w/ Tracks	5122	1218
250mm	1.5m round	Excellent	Active	5155	1248
260mm	1.0 round	Excellent	w/ Scat	5165	1482
260mm	0.5 to end	Poor	Definite track	5621	1559
250mm	Pallet	Good	Active	5761	1555
220mm	0.5 to end	Good	Active	5761	1479
280mm	1.0 round	Excellent	Kid fox/dany	5766	1339
280mm	2.0 round	Excellent	Active	5062	1272

Appendix D. Photographic Exhibits



Locations of the 16 photographic exhibits on the next eight pages are depicted in Figure 8.



Exhibit 1. Brubaker-Mann GBL Quarries: View from the northeast corner of the September 2011 survey parcel, facing southwest (see Figure 8 for locations of photographs).



Exhibit 2. View from the northwest corner of the September 2011 parcel, facing southeast.



Exhibit 3. Brubaker-Mann GBL Quarries:
View of adult tortoise carcass, dead less than one year.



Exhibit 4. View of adult male tortoise carcass, dead less than one year.



Exhibit 5. Brubaker-Mann GBL Quarries:
View from the southwest corner of the September 2011 survey parcel, facing northeast.



Exhibit 6. View of newly-hatched tortoise within southwest corner of site.



Exhibit 7. Brubaker-Mann GBL Quarries:
Overview of existing pit, taken from southeast of the quarry, facing northwest.

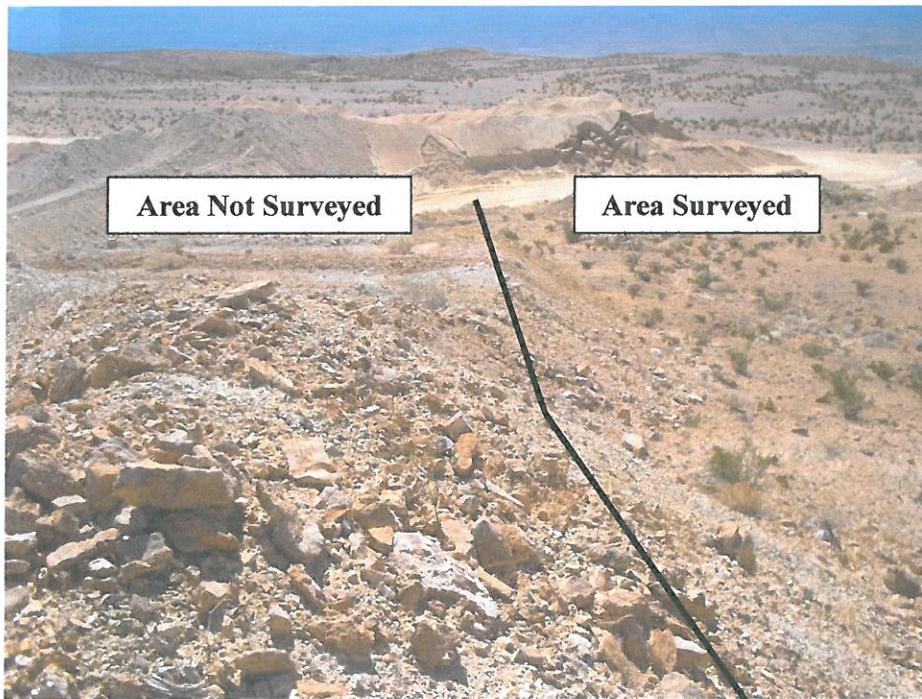


Exhibit 8. View from northwest of existing pit,
showing September 2011 survey areas to right and non-survey areas to the left.



Exhibit 11. Brubaker-Mann GBL Quarries:
View from the southeast corner of the September 2011 parcel, facing northwest.

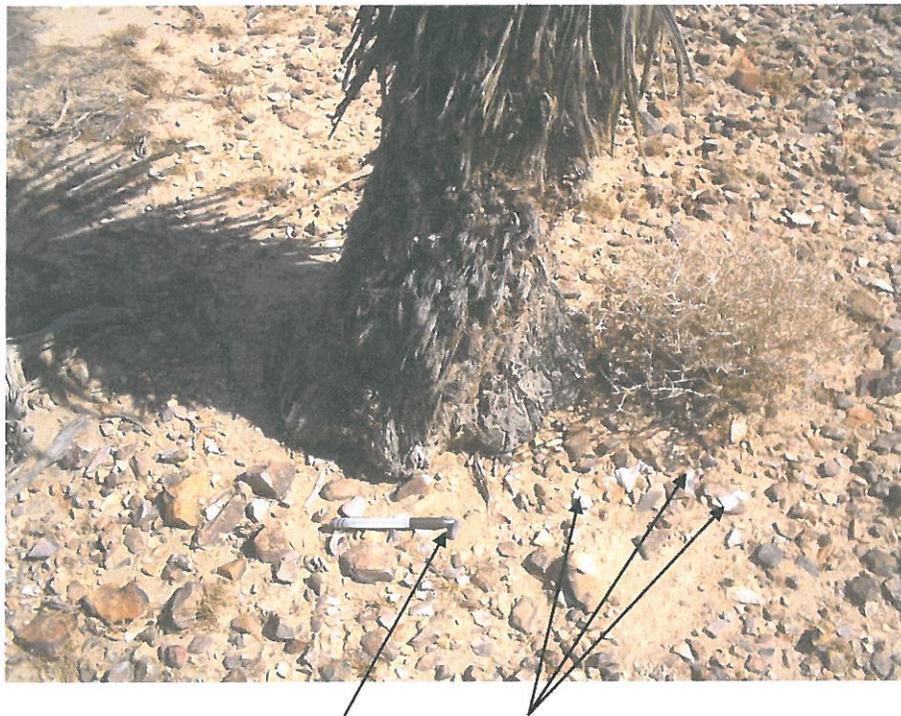


Exhibit 12. Burrowing owl pellet and whitewash at the base of Mohave yucca.



Exhibit 13. Brubaker-Mann GBL Quarries: Adult tortoise, dead more than four years, partially buried in a natural drainage located east of the existing pit.



Exhibit 14. View from northwest corner of southern expansion area, facing southeast.