BIOLOGICAL SURVEY REPORT

PARCEL MAP NO. 16301
VICTORVILLE, CALIFORNIA

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I hereby certify that the findings and conclusions presented in this report are accurate to the best of my knowledge.

Randall C. Arnold, Jr.
Principal & Senior Biologist

SUMMARY

Biological surveys were conducted on a site located in Victorville, California to evaluate the site for the presence of desert tortoise (*Gopherus agassizii*), Mohave ground squirrel (*Spermophilus mohavensis*), burrowing owl (*Athene cunicularia*), sharp-shinned hawk (*Accipiter striatus*), and loggerhead shrike (*Lanius ludovicianus*). Surveys for these species were conducted as per guidelines established by U.S. Fish and Wildlife Service (USFWS) and/or California Department of Fish and Game (CDFG). This report provides a summary of the results of the surveys. Results of the surveys for these species are part of the baseline data necessary for consideration of the proposed project by the City of Victorville and other regulatory agencies.

PROJECT LOCATION AND DESCRIPTION

The property site is approximately 86-acres in size and is located at the northeast corner of Amethyst Road and Eucalyptus Street in Victorville, California (Figures 1 and 2, Appendix A). Vacant lands are located in the surrounding area; however, several single-family dwellings also occur in the area. The elevation of the site is about 3320 feet. The site is relatively flat with no prominent ridges on the property; however, a large desert wash is located in the northwest corner of the site. There are numerous OHV tracks throughout the site and some windblown trash was also noted.

METHODOLOGIES

Desert Tortoise: Recent documentation from the U.S. Bureau of Land Management, USFWS, and CFG were consulted to determine to what extent tortoises have been observed in the area. In addition, survey reports prepared by RCA Associates, Inc. for other projects in the area were reviewed prior to commencement of the field surveys. Following the literature review, the site was visited by biologists from RCA Associates, Inc. (Randy Arnold and Patti Moore) on May 26, 27, and 28, 2004. Surveys for desert tortoises require the use of parallel transects separated by 10-meters in order to provide 100 percent coverage of a site. Transects were walked in a north-south direction until the entire site had been thoroughly checked for tortoises and tortoise sign (burrows, tracks, scats, etc.). Surveys were also conducted in the zone of influence (i.e., surrounding area) (ZOI) where possible. Specifically, ZOI surveys were conducted at intervals of 100, 300, 600, and 1200 (Existing houses in the surrounding area prevented ZOI surveys from being extend out to 4800 feet.). Weather conditions consisted of temperatures in the 50's (early AM) to mid 80's and 90's (PM). Wind speeds varied from 5 MPH to 10 MPH, and cloud cover ranged from 0 to 30 percent cloud coverage.

While conducting the tortoise surveys, particular emphasis was given to viewing the bases of bushes and other perennial plants, since tortoises tend to burrow into small hills and banks such as those at the base of woody plants. Any depressions or suspect burrows were closely scrutinized. In addition, field notes were taken regarding native plant assemblages on the site, and the presence or absence of suitable tortoise foraging habitat was identified. The tortoise survey was

conducted during a time when tortoises are active; therefore, a search by a qualified biologist will reveal evidence of the presence or absence of tortoises on the site and in the surrounding area. A survey combined with identification of the habitat on and surrounding a property will further reveal the status of the tortoise on a site and give a good indication of the potential for future use of the site by tortoises. See Appendix B for general information on the desert tortoise.

Mohave Ground Squirrel: The site was surveyed for the presence of winterfat and spiny hop-sage since these plants are frequently utilized by the Mohave ground squirrel. Although, CDFG now typically requires live-trapping surveys to definitively determine presence or absence, the presence or absence of these two plants does provide some indication whether a site is likely to be inhabited by Mohave ground squirrels. See Appendix B for background information on the Mohave ground squirrel.

Burrowing Owl: Survey protocol requires surveys to be performed from two hours before sunset to one hour after, or from one hour before sunrise to two hours after. Surveys on this site were conducted about one hour before sunrise and about two hours after sunrise during which transects were walked throughout the property until the entire site had been surveyed for owls. Survey protocol requires that the centerlines of the transects be no more than 30 meters apart to allow for 100 percent visual coverage. However, widths between the transects were reduced where necessary to account for differences in terrain, vegetation density, and ground surface visibility in order to maintain 100 percent coverage. Surveys were also conducted in areas surrounding the site out to a distance of about 150 meters (~ 500 feet) as per CDFG protocol to identify burrows or owls outside the project area. While conducting the surveys, emphasis was placed on evaluating any burrows (e.g., coyote, fox, ground squirrel, etc.) since burrowing owls typically utilize burrows which have been dug by other animals.

Sharp-shinned Hawk and Loggerhead Shrike: Surveys for these bird species were conducted in conjunction with those surveys performed for the desert tortoise, Mohave ground squirrel, and burrowing owl. The sharp-shinned hawk occurs primarily in mixed woodland habitats, which are absent from the site; although, it is occasionally seen in the High Desert area. Loggerhead shrikes typically hunt over open terrain and are occasionally seen in the Victorville area perched on utility lines or other perches.

RESULTS - LITERATURE REVIEW

A review of existing data for the region indicates that the desert tortoise, Mohave ground squirrel, burrowing owl, sharp-shinned hawk and loggerhead shrike are known to occur in the general area. The desert tortoise is listed as a threatened species by CDFG and USFWS; whereas, the Mohave ground squirrel is listed as threatened by California and a special concern species by USFWS. The burrowing owl, sharp-shinned hawk, and loggerhead shrike are listed as a California special concern species. The burrowing owl and loggerhead shrike are also classified as Federal special concern species. All five species have been documented in the High Desert; however, population levels are expected to be very low based on existing data.

RESULTS - FIELD SURVEYS

Descriptions of the vegetation and wildlife which occur on the site are provided below. Field notes are also provided in Appendix B.

Vegetation: A creosote bush community is the dominant plant community on the site. Dominant plants on the site included creosote bush (*Larrea tridentata*), burrobush (*Franseria dumosa*), paperbag plant (*Salazaria mexicana*), and ephedra (*Ephedra nevadensis*). Other perennials observed included Joshua tree (Yucca brevifolia), winterfat (*Kraschenikovia lanata*), and spiny hop-sage (*Grayia spinosa*). Annuals observed during the survey included fiddleneck (*Amsinckia* sp.), bunchgrass (*Phleum* sp.), Indian ricegrass (*Oryzopsis* sp.), and erodium (*Erodium* sp.).

General Wildlife: Mammals observed on the site included coyotes (*Canis latrans*) and antelope ground squirrels (*Ammospermophilus leucurus*). Merriam's kangaroo rat (*Dipodomys merriami*) are also common in the area and may inhabit the site. Some of the birds observed included ravens (*Corvus corax*), horned lark (*Eremophilia alpestris*), American robin (*Turdus migratorius*), and sage sparrow (*Amphispiza belli*). Side-blotched lizards (*Uta stansburiana*) and western whiptail lizards (*Cnemidophorus tigris*) are common in the area and were also observed throughout the property.

Desert Tortoise: No desert tortoises, or tortoise sign (e.g., burrows, tracks, scats) were observed on the property or in the surrounding area (i.e., zone of influence) (Table 1, Appendix A). The site is located in an area where tortoise population levels are expected to be very low with only a few tortoises occurring in the general area, if any at all. The nearest documented habitat is several miles northwest of the site (NDDB 2003).

Mohave Ground Squirrel: Winterfat and spiny hop-sage plants were observed on the site. These plants are important food sources for the species and are associated with preferred habitat for the ground squirrel. Based on the presence of these plants and the existing conditions of the site, the site appears to support good habitat for the species. The entire 86-acres is assumed to provide potential habitat for the Mohave ground squirrel. In addition, the site is within the species known range, and the nearest historic sighting is approximately one miles northwest of the site (T5N, R5W, Section 35) (NDDB 2003). A protocol live-trapping survey is currently being performed on the site for the species, and a report will be prepared for submittal to Fish and Game upon completion. Various mitigations may need to be implemented as per CDFG guidelines and these are provided in the following section.

Burrowing Owl: Surveys for the burrowing owl were conducted on May 26, 27, and 28, 2004 to determine if suitable habitat for the species was present and if occupiable burrows were available for the owl. These initials surveys were conducted about one hour before sunrise and about two hours after sunrise. The survey protocol outlined in the Methodology Section was utilized in order to provide 100 percent visual coverage of the site and the surrounding area. The

distance between the transects was reduced in those areas where dense vegetation was present in order to ensure 100 percent coverage. The distance between the transects varied from about 10 to 30 meters. No burrowing owls were observed during the surveys, nor were any potential owl burrows observed either on the site or in the surrounding area out to a distance of about 500 feet. Based on the absence of any occupiable burrows, no additional surveys were conducted for the owl. The species has been observed within the surrounding area (NDDB 2003) and additional surveys will be required prior to development of the site. Mitigation measures may also be required for the species and outlined in the following section.

Sharp-shinned Hawk and Loggerhead Shrike: Neither the sharp-shinned hawk or loggerhead shrike were observed on the site, and there are no documented sightings of either species within the Hesperia quadrangle (NDDB 2003). The sharp-shinned hawk occurs primarily in mixed woodland habitats, usually close to open areas where the species may forage. The site does not support any woodland areas nor are there any dense stands of trees adjacent to the site. Loggerhead shrikes are a relatively common resident and/or winter visitors to the High Desert, and the species has been observed in the general area. The species typically prefers open habitats with scattered shrubs, trees, and other potential perch sites (e.g., posts, utility lines, fences, etc.).

CONCLUSIONS AND MITIGATIONS

Desert Tortoise: Desert tortoises do not occur on the property site or within the immediate area (i.e., zone of influence) as determined by field surveys conducted on May 26, 27, and 28, 2004, and it is unlikely that tortoises will move onto the site in the near future due to the low population levels in the immediate area. No mitigations are recommend for this species at this time; however, if the species is observed during future development activities the following actions should be implemented.

* If a desert tortoise moves on to the site during future construction activities, all activities should cease, and DFG and USFWS contacted to discuss appropriate mitigations.

* If a desert tortoise moves onto the site during future construction activities, the desert tortoises should not be handled by any project personnel.

Sharp-shinned hawk and Loggerhead Shrike: Sharp-shinned hawks and loggerhead shrikes were not observed on the property site or within the immediate area, and no mitigations are recommended for these species at this time. However, the mobility of these species does not preclude them from occurring on the site in the future. If these species are detected on the site during future surveys, California Fish and Game should be contacted to discuss suitable mitigation measures for these two species.

Mohave Ground Squirrel: The site supports native vegetation, including winterfat and spiny hop-sage plants, and as noted above, the site provides relatively good habitat for the species. In

addition, the site is within the species known range and the species may inhabit the site. At the present time, the project proponent has contracted with a biologist to conduct live trapping surveys on the site to determine if the species is present. Once the trapping has been completed, a report will be provided to CDFG for their review. If the species is absent from the site, ground disturbing activities must take place within one year of the completed survey. However, if the species is captured on the site, the following mitigations will be implemented in order to reduce impacts to the Mohave ground squirrel to a level less than significant.

* The applicant shall provide mitigation lands at a ratio of 1:1 for a total of 86-acres. As noted above, the entire project site is assumed to be suitable habitat for the species. These lands will be purchased in an area known to support populations of the species. The mitigation lands will be evaluated to ensure they provide habitat equal to or better than the habitat that will be lost as a result of development of the project site. In addition, DFG approval of the mitigation lands will be obtained before acquisition is completed, and an Incidental Take Permit will be applied for as part of the overall mitigation process.

* Appropriate enhancement, endowment, and research fees will be provided by the project proponent as per CDFG requirements. These fees will be paid on a 1: 1 basis prior to commencement of ground disturbing activities.

* An educational brochure will be provided to all construction personnel regarding the Mohave ground squirrel prior to start of ground disturbing activities.

Burrowing Owl: The surveys conducted on the site did not identify any owls or occupiable burrows within the boundaries of the site or within the immediate surrounding area out to a distance of about 500 feet. The species has been observed in the surrounding region and owls could occupied the site in the future. Therefore, additional surveys should be conducted as outlined below:

* Pre-construction surveys on the site and in the surrounding area out to 500 feet should be conducted no more than 30-days prior to ground disturbing activities. If ground disturbing activities are delayed for more than 30-days, additional surveys will be required.

* Surveys should be conducted during the winter season between December 1 and January 31, if deemed necessary by DFG.

* If owls are observed on the site during future surveys, mitigations which will be required to reduce impacts to less than significant will include the following:

1. Occupied burrows should not be disturbed during the nesting season (February 1 through August 31) unless a qualified biologist approved by the Department verifies through non-invasive methods either: (1) the birds have not begun egg-laying and incubation; or (2) that juveniles from the occupied burrows are foraging independently and are capable of independent survival;

2. To off-set the loss of foraging and burrow habitat on the project site, a minimum of 6.5 acres of burrowing owl habitat per pair or unpaired birds should be acquired and permanently protected;

3. Existing unsuitable burrows should be enhanced or new burrows created at a ratio of 2:1 on the protected lands site; and

4. The project proponent should provide funding for long-term management and monitoring of the protected land. A monitoring plan for the protected land should be required which includes success criteria, remedial measures, and annual reports to the Department.

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APPENDIX A

Figures and Tables
(Note: Zone of influence surveys were conducted out to ~1200 feet.)

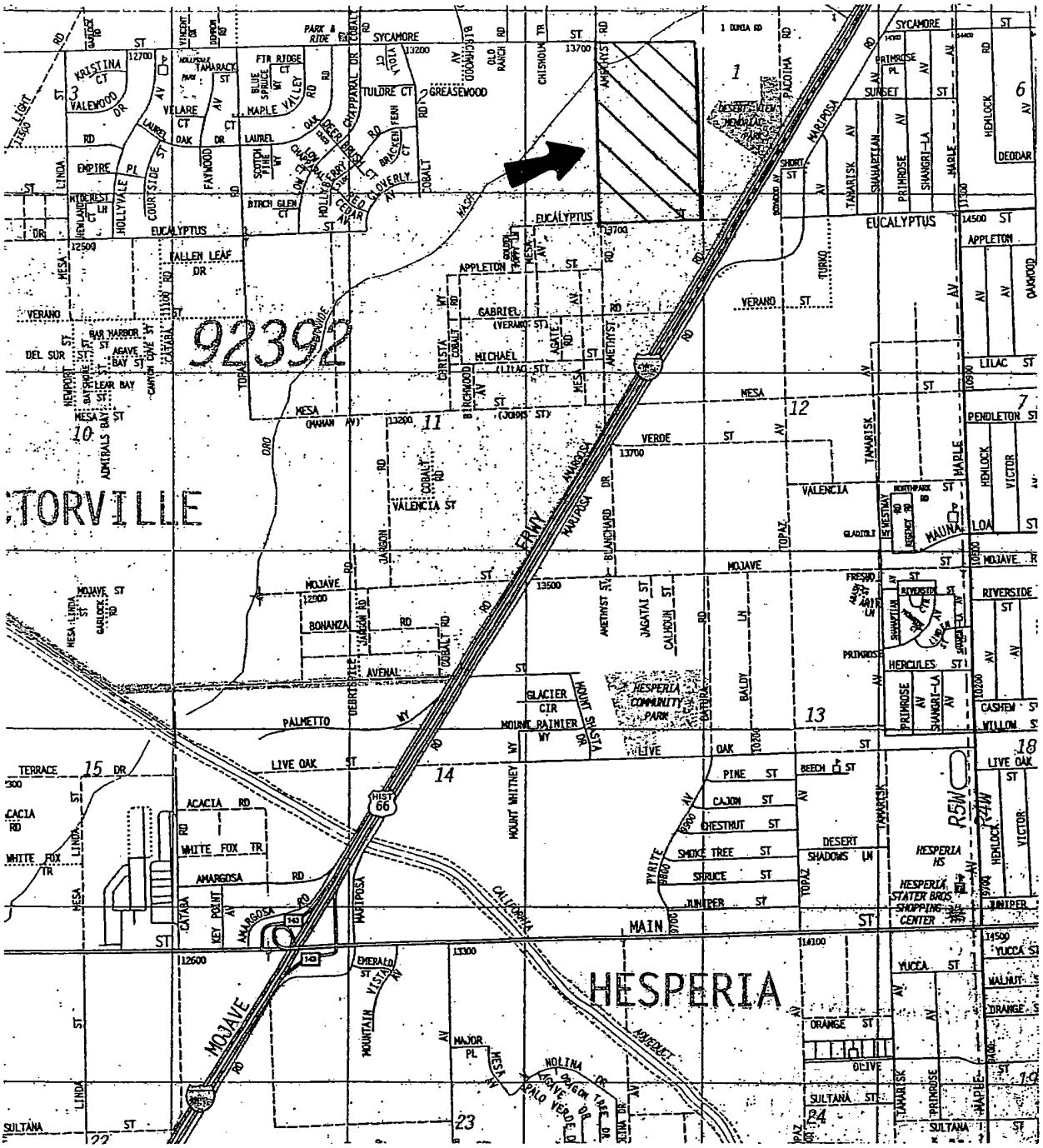

FIGURE 1

VICINITY MAP
N.T.S.
(Source: Thomas Bros. Maps, 2004)

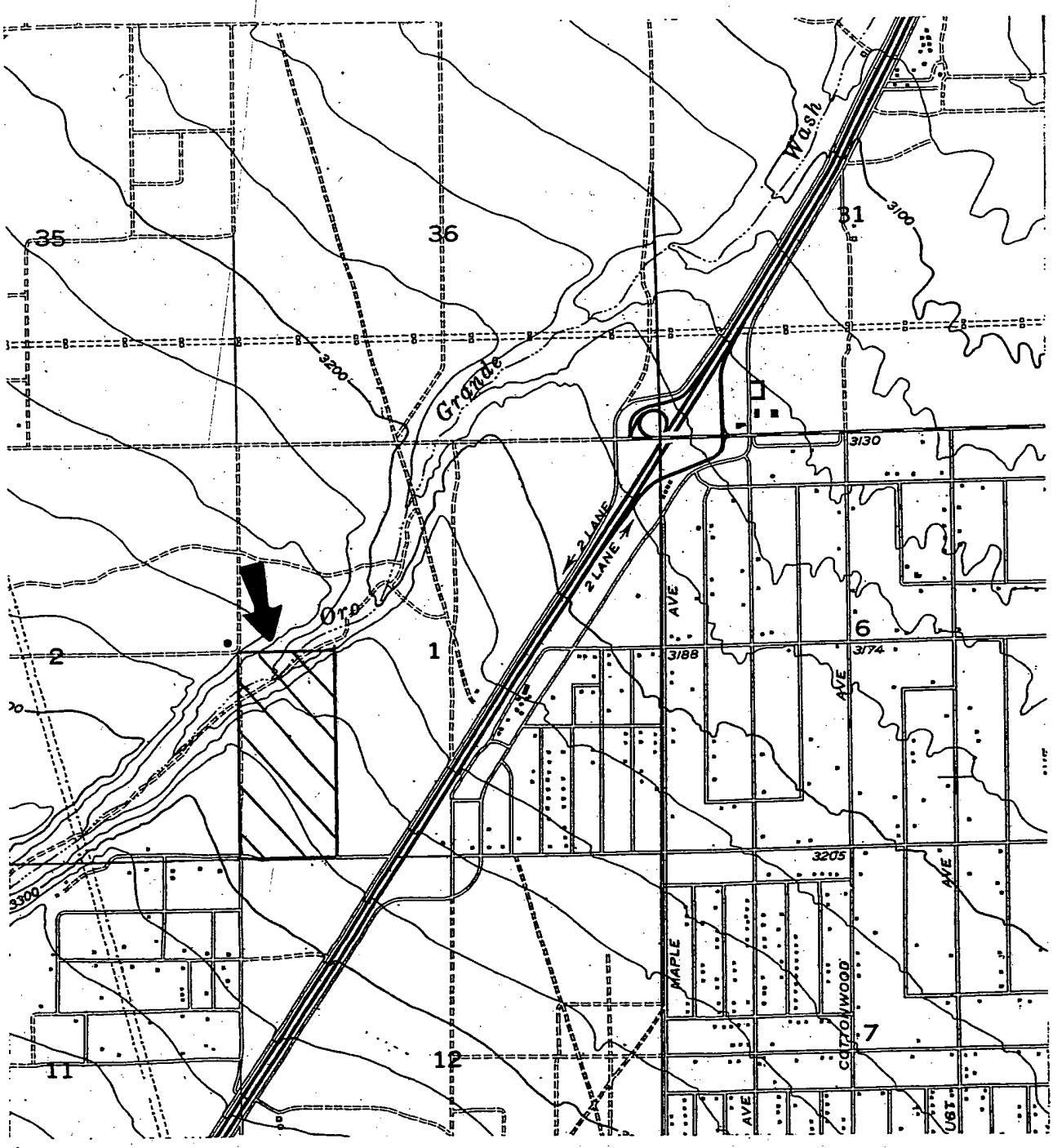

FIGURE 2

LOCATION OF THE SITE

N.T.S.

(Source: USGS Topo Map, Hesperia, CA Quad. 1956)

SOUTHEAST CORNER LOOKING NORTHWEST

SOUTHWEST CORNER LOOKING NORTHEAST

FIGURE 3

PHOTOGRAPHS OF THE SITE

TABLE 1

M/D/Y
Date 5-26,27,28-04
Transect No. 1-44
State California
County SB
City Victorville
Recorder RA/DM
Address —
Project Name —
Type of Project Reconnaissance
Quad Name Hesperia
Scale 7½'
Site Name —
T 4N R 5W Sec 1
¼ Sec — ¼¼ Sec —
UTM Zone —
Northing —
Easting —
Parcel No. 16301

DESERT TORTOISE HANDBOOK 1992:
FORM FOR PRESENCE-OR-ABSENCE AND CLEARANCE SURVEYS

Project Site |X| Zone of Influence | | — ft from Project Site
Transect Length: ~2400 ft Width (30 ft) Other — ft Time —
Weather: Airtemp at: 5 cm 50 °F 90 °F Surface — °C Cloud cover 0-40 %
Rainfall 0 in Wind speed 5-10 Rainfall in last 30 days 0 in
Land Form (e.g., mesa, bajada, wash) Desert Flats
% Slope: high — low X Aspect N Elevation 3320 ft
Soils Sandy Alluvial
Vegetation: dominant perennials creosote, burrobush, paperbag plant, ephedra
dominant annuals filaree, bursage, erodium
Adjacent Land Use: up to 1 mi Vacant & houses
Soils Sandy Alluvial
Vegetation Creosote bush community

Corrected Sign	Live Tortoises Adult/Juv.	TOTAL NUMBER OF Shelter Sites Pallet/Burrow/Den Active/Inactive [1]	Scats [2]	Shell Remains [3]
0	A= 0 J= 0	0		A= 0 J= 0 Unk= 0 M= 0 F= 0 Unk= 0

Tracks	Eggshell Fragments	Drinking Sites	Courtship Rings	Other	Neotoma Middens w/sign	Neotoma Middens :w/o sign
0	0	0	0	0	0	0

SIGNS OF HUMAN DISTURBANCE - NUMBER AND TYPES SEEN

Tire Tracks	Human Footprints	Dog Sign	Trash	Dump Sites	Shotgun/ Rifle Shells	Blading	Ravens	Other
~245 OHV	0	0	0	0	0	0	IIII	0

Zone of Influence

M/D/Y
Date 5-26,27,28-04
Transect No. 100'
State California
County SB
City Victorville
Recorder RA
Address —
Project Name —
Type of Project —
Quad Name Hesperia
Scale 7 1/2'
Site Name —
T 4N R 5W Sec 1
¼ Sec — ¼¼ Sec —
UTM Zone —
Northing —
Easting —
Parcel No. 46301

DESERT TORTOISE HANDBOOK 1992:
FORM FOR PRESENCE-OR-ABSENCE AND CLEARANCE SURVEYS

Project Site | | Zone of Influence |X| 100 ft from Project Site
Transect Length: ~6000 ft 50 Width: 30 ft Other — ft Time —
Weather: Airtemp at: 5 cm ~90s °F Surface 12 °C Cloud cover 0-40 %
Rainfall 0 in Wind speed 5-10 mph Rainfall in last 30 days 0 in
Land Form (e.g., mesa, bajada, wash) Desert Plain
% Slope: high — low X Aspect N Elevation 3320 ft
Soils Sandy alluvial
Vegetation: dominant perennials creosote bush, burrobush, ephedra
dominant annuals Fiddleneck, burchgrass, erodium
Adjacent Land Use: up to 1 mi VACANT & houses
Soils Sandy alluvial
Vegetation creosote bush

Corrected Sign	Live Tortoises Adult/Juv.	TOTAL NUMBER OF Shelter Sites Pallet/Burrow/Den Active/Inactive [1]	Scats [2]	Shell Remains [3]
0	A= 0 J= 0	0	A= 0 J= 0 Unk= 0 M= 0 F= 0 Unk= 0	

Tracks	Eggshell Fragments	Drinking Sites	Courtship Rings	Other	Neotoma Middens w/sign : w/o sign
0	0	0	0	0	: 0

SIGNS OF HUMAN DISTURBANCE - NUMBER AND TYPES SEEN

Tire Tracks	Human Footprints	Dog Sign	Trash	Dump Sites	Shotgun/ Rifle Shells	Blading	Ravens	Other
~50 OHV	0	0	0	11	0	0	IIII	0

Zone of Influence

M/D/Y
Date 5-26,27,28-04
Transect No. 300'
State California
County SB
City Victorville
Recorder RA
Address —
Project Name —
Type of Project —
Quad Name Hesperia
Scale 7½'
Site Name —
T 4N R 5W Sec 1
¼ Sec — ¼¼ Sec —
UTM Zone —
Northing —
Easting —
Parcel No. 16301

DESERT TORTOISE HANDBOOK 1992:
FORM FOR PRESENCE-OR-ABSENCE AND CLEARANCE SURVEYS

Project Site | | Zone of Influence |X| 300 ft from Project Site
Transect Length: 6700 ft 50 Width: 30 ft Other — ft Time —
Weather: Airtemp at: 5 cm 90.7 °F Surface 12 °C Cloud cover 0-40 %
Rainfall 0 in Wind speed 5-10 mph Rainfall in last 30 days 0 in
Land Form (e.g., mesa, bajada, wash) Desert Plain
% Slope: high — low ½ Aspect N Elevation 3320 ft
Soils Sandy alluvial
Vegetation: dominant perennials creosote bush, burrobush, ephedra
dominant annuals Fiddleneck, burclover, erodium
Adjacent Land Use: up to 1 mi VACANT & houses
Soils Sandy alluvial
Vegetation creosote bush

Corrected Sign	Live Tortoises Adult/Juv.	TOTAL NUMBER OF Shelter Sites Pallet/Burrow/Den Active/Inactive [1]	Scats [2]	Shell Remains [3]
0	A= 0 J= 0	0	A= 0 J= 0 Unk= 0 M= 0 F= 0 Unk= 0	

Tracks	Eggshell Fragments	Drinking Sites	Courtship Rings	Other	Neotoma Middens w/sign	:w/o sign
0	0	0	0	0	0	: 0

SIGNS OF HUMAN DISTURBANCE - NUMBER AND TYPES SEEN

Tire Tracks	Human Footprints	Dog Sign	Trash	Dump Sites	Shotgun/ Rifle Shells	Blading	Ravens	Other
~60 OHV	0	0	0	IIII	0	0	IIII	0

Zone of Influence

M/D/Y
Date 5-26,27,28-04
Transect No. 600'
State California
County SB
City Victorville
Recorder RA
Address —
Project Name —
Type of Project —
Quad Name Hesperia
Scale 7½'
Site Name —
T 4N R 5W Sec 1
¼ Sec — ¼¼ Sec —
UTM Zone —
Northing —
Easting —
Parcel No. 16301

DESERT TORTOISE HANDBOOK 1992:
FORM FOR PRESENCE-OR-ABSENCE AND CLEARANCE SURVEYS

Project Site | | Zone of Influence |X| 600 ft from Project Site
Transect Length ~8000 ft 50 Width: 30 ft Other — ft Time —
Weather: Airtemp at: 5 cm 90s °F Surface 12 °C Cloud cover 0-40 %
Rainfall 0 in Wind speed 5-10 mph Rainfall in last 30 days 0 in
Land Form (e.g., mesa, bajada, wash) Desert Plain
% Slope: high — low X Aspect N Elevation 3320 ft
Soils Sandy alluvial
Vegetation: dominant perennials Creosote bush, burrobush, ephedra
dominant annuals Fiddleneck, burclover, erodium
Adjacent Land Use: up to 1 mi VACANT & houses
Soils Sandy alluvial
Vegetation Creosote bush

Corrected Sign	Live Tortoises Adult/Juv.	TOTAL NUMBER OF Shelter Sites Pallet/Burrow/Den Active/Inactive [1]	Scats [2]	Shell Remains [3]
0	A= 0 J= 0	0	A= 0 J= 0 Unk= 0 M= 0 F= 0 Unk= 0	

Tracks	Eggshell Fragments	Drinking Sites	Courtship Rings	Other	Neotoma Middens w/sign : w/o sign
0	0	0	0	0	: 0

SIGNS OF HUMAN DISTURBANCE - NUMBER AND TYPES SEEN

Tire Tracks	Human Footprints	Dog Sign	Trash	Dump Sites	Shotgun/ Rifle Shells	Blading	Ravens	Other
~40 OHV	0	0	0	0	0	0	IIII	0

Zone of Influence

M/D/Y
Date 5-26,27,28-04
Transect No. 1200'
State California
County SB
City Victorville
Recorder RA
Address —
Project Name —
Type of Project —
Quad Name Hesperia
Scale 7 1/2'
Site Name —
T 4N R 5W Sec 1
¼ Sec — ¼¼ Sec —
UTM Zone —
Northing —
Easting —
Parcel No. 16301

DESERT TORTOISE HANDBOOK 1992:
FORM FOR PRESENCE-OR-ABSENCE AND CLEARANCE SURVEYS

Project Site | | Zone of Influence |X| 1200 ft from Project Site
Transect Length: ~9000 ft 50 Width: 30 ft Other — ft Time —
Weather: Airtemp at: 5 cm 90°F Surface 12 °C Cloud cover 0-40 %
Rainfall 0 in Wind speed 5-10 mph Rainfall in last 30 days 0 in
Land Form (e.g., mesa, bajada, wash) Desert Plain
% Slope: high — low X Aspect N Elevation 3320 ft
Soils Sandy alluvial
Vegetation: dominant perennials Creosote bush, burrobush, ephedra
dominant annuals Fiddleneck, burclover, erodium
Adjacent Land Use: up to 1 mi VACANT & houses
Soils Sandy alluvial
Vegetation Creosote bush

Corrected Sign	Live Tortoises Adult/Juv.	TOTAL NUMBER OF Shelter Sites Pallet/Burrow/Den Active/Inactive [1]	Scats [2]	Shell Remains [3]
0	A= 0 J= 0	0	A= 0 J= 0 Unk= 0 M= 0 F= 0 Unk= 0	

Tracks	Eggshell Fragments	Drinking Sites	Courtship Rings	Other	Neotoma Middens w/sign	Neotoma Middens :w/o sign
0	0	0	0	0	0	0

SIGNS OF HUMAN DISTURBANCE - NUMBER AND TYPES SEEN

Tire Tracks	Human Footprints	Dog Sign	Trash	Dump Sites	Shotgun/ Rifle Shells	Blading	Ravens	Other
~60	0	III	0	II	0	0	IIII IIII II	0

APPENDIX B

Background Data

BACKGROUND INFORMATION

Desert Tortoise

The desert tortoise is the largest reptile in the arid southwest United States. It historically occupied a range that included a variety of desert communities in southeastern California, southern Nevada, western and southern Arizona, southwestern Utah, and through Sonora and northern Sinoloa, Mexico. Today populations are largely fragmented and studies indicate a steady and dramatic decline over most of its former range. Additionally, because tortoises have long been prized as pets, collecting of wild tortoises has further reduced the population. Wildlife biologists estimate that between 1880 and 1970, five to eight million tortoises were taken from the desert by collectors.

Recently, a highly contagious respiratory disease has infected tortoise populations, primarily in the western Mojave Desert region. While the disease seems to be mostly widespread in the western Mojave, cases have been documented in numerous widely scattered areas throughout the wider Mojave range of the tortoise. In one area of the western Mojave, the infection rate among individual tortoises increased from 9 to 52 percent based on surveys conducted between 1988 and 1989. Isolated cases are believed to have the potential to cause widespread infection over a short time period.

Given the continued habitat loss and the rapid decline in numbers of tortoises brought about by the disease, the U.S. Fish and Wildlife Service exercised its emergency authority and determined tortoise populations north and west of the Colorado River to be an endangered species under the Endangered Species Act of 1973, as amended. The emergency rule was published in the Federal Register on August 4, 1989, and remained in effect until April 1, 1990. On April 2, 1990, the U.S. Fish and Wildlife Service officially listed the desert tortoise as a threatened species under the Endangered Species Act of 1973, as amended.

Mohave Ground Squirrel

The Mohave ground squirrel has been listed by the California Department of Fish & Game as a threatened species, thereby giving the animal protection under the California Endangered Species Act. The species is known to occur in the western Mohave Desert in portions of four counties including Inyo, Kern, San Bernardino, and Los Angeles (Clark, D 1991).

The distribution of the Mohave ground squirrel is quite limited as compared to the distribution of other ground squirrel species (Hall, R. 1981 in Clark, D. 1991). The Mohave ground squirrel is found in several habitat types throughout the Mojave Desert including creosote bush scrub, saltbush scrub, and Joshua tree woodland communities. Degradation and destruction of the species' habitat and isolation of individual populations appear to be the primary factors in the species' decline (Clark, D. 1991).

Burrowing Owl

The burrowing owl is a yearlong resident of open, dry grassland and desert habitats. The species was formerly common throughout central and southern California; however, the species has seen a significantly reduction over the last few decades due to development activities, farming activities, predation by dogs and cats, and habitat destruction (Zeiner 1990). Conversion of grassland and desert habitats to agricultural fields and residential developments have apparently contributed to the greatest amount of habitat destruction in recent decades. The reduction in population levels was noted as early as the 1940s. Burrowing owls primarily prey upon insects; although, small mammals, lizards, birds, and carrion makeup a portion of the owls diet (Zeiner 1990). Burrowing owls typically utilize abandoned rodent burrows for roosting and nesting.

Sharp-shinned Hawk

The sharp-shinned hawk is a somewhat common migrant and winter resident throughout California and is found in some areas of the Mohave Desert where suitable habitat is present CFG 1990). The species typically occurs in dense stands of trees relatively close to open areas. It breeds in ponderosa pine forest and in riparian woodlands, and often forages at the edges of woodlands, hedgerows, brushy pastures and shorelines where migrating birds are found. Typically uses all types of habitats during the winter except for alpine, open prairies, and bare desert areas (CFG 1990).

Loggerhead Shrike

The loggerhead shrike is a relatively common and winter resident throughout California where it occurs in open habitats with scattered shrubs and trees (CFG 1990). Does not occur in heavily urbanized areas, but does occasionally in croplands (CFG 1990). In California, breeds from March to May and nests in densely foliage shrubs or trees.